TOSHIBA

AIR CONDITIONER (MULTI TYPE)

Installation Manual

R32 or R410A

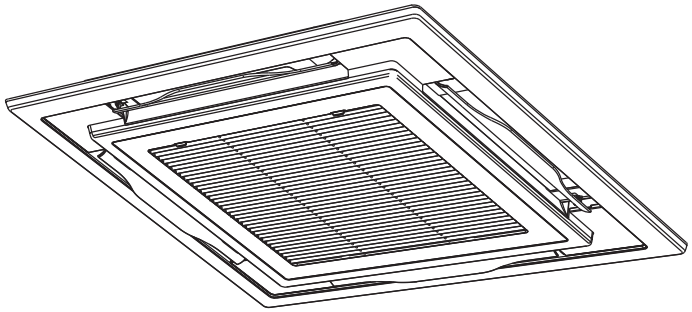
Indoor Unit

For commercial use

Model name :

4-way Cassette type

MMU-UP0091HP-E
MMU-UP0121HP-E
MMU-UP0151HP-E
MMU-UP0181HP-E
MMU-UP0241HP-E
MMU-UP0271HP-E
MMU-UP0301HP-E
MMU-UP0361HP-E
MMU-UP0481HP-E
MMU-UP0561HP-E



Scan QR CODE to access installation and owner's manual on website.
https://www.toshiba-carrier.co.th/manuals/default.aspx
Manual are available in BG/CS/DA/DE/EL/EN/ES/ET/FI/FR/
HR/HU/IT/LV/NL/NO/PL/PT/RO/RU/SK/SL/SV/TR.

English

Original instruction

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1 Accessory parts

■ Accessory parts

Part name	Q'ty	Shape	Usage
Installation Manual	1	This manual	For hand over to customers
Heat insulating pipe	2		For heat insulation of pipe connecting section
Installation pattern	1	–	For confirmation of ceiling opening and indoor unit position
Installation gauge	– –		For positioning of ceiling position
Washer	4		For hanging-down unit
Eccentric washer	4		For hanging-down unit
Hose band	1		For connecting drain pipe
Flexible hose	1		For adjusting center of drain pipe
Heat insulator	1		For heat insulation of drain connecting section
Heat insulator	1		For sealing of wire connecting port
Safety Manual	1		For hand over directly to the customer

■ Separate sold parts

- The Ceiling panel and remote controller are sold separately. For the installation of these products, follow the Installation Manuals supplied with them.
- The wireless type remote controller is designed to be installed by attaching a wireless remote controller kit (sold separately) to the standard panel. (The wireless remote controller kit consists of a wireless remote controller and adjust corner caps with a receiver section.)

2 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.
- **Install the air conditioner at a height 2.5 m or more from the floor.**
  If you insert your hands or others directly into the unit while the air conditioner operates, it is dangerous because you may contact with revolving fan or active electricity.

⚠ CAUTION

- **Do not install in a location where flammable gas may leaks are possible.**
  If the gas leak and accumulate around the unit, it may ignite and cause a fire.
- **When an outdoor unit using R32 refrigerant is combined with indoor unit, be attention to the floor area in the room to be installed.**
  Indoor units cannot be installed in rooms with a floor area less than the minimum floor area. For details, follow the Installation Manual to the outdoor unit.

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.

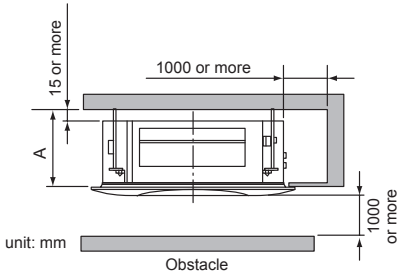
Avoid installing in the following places

- 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 (turbo fan) in the indoor unit may reduce the performance, generate mist or dew drop, or deform or damage resin parts.)
- Places where iron or other metal dust is present. If iron or other metal dust adheres to or collects on the interior of the air conditioner, it may spontaneously combust and start a fire.
- 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. (Before air ducting work, check whether value of air volume, static pressure and duct resistance are correct.)
- 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 space

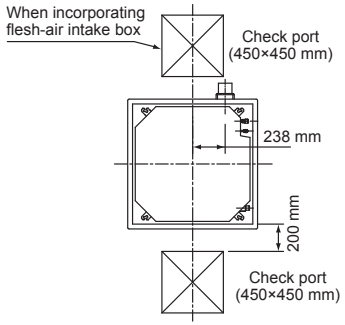
Secure the specified space in the figure for installation and servicing.

Model MMU-	A mm
UP009 Type to UP030 Type	271 or more
UP036 Type to UP056 Type	334 or more



▼When incorporating fresh-air intake box (sold separately)

Provide an inspection opening at the outside-air intake box side.



■ Selection of installation place

In case of continued operation of the indoor unit under high-humidity conditions as described below, dew may condense and water may drop.
Especially, high-humidity atmosphere (dew point temperature: 23°C or more) may generate dew inside the ceiling.

1. Unit is installed inside the ceiling with slated roof.
2. Unit is installed at a location using inside of the ceiling as fresh air take-in path.
3. Kitchen

◆ Advice

- Set a service check opening panel at right side of the unit (size: 450 × 450 mm or more) for piping, maintenance, and servicing.
- If installing a unit at such place, put insulating material (glass wool, etc.) additionally on all the positions of the indoor unit which come to contact with high-humidity atmosphere.

REQUIREMENT

When the humidity inside the ceiling seems to be higher than 80%, attach a heat insulator to the side (top) surface of the indoor unit. (Use a heat insulator that is 10 mm or more thick.)

■ Ceiling height

When the height of the ceiling exceeds the distance of the item Standard / 4-way in Table on the next page, the hot air is difficult to reach the floor.
Therefore, it is necessary to change the setup value of the high ceiling switch or discharge direction.
The high-ceiling setting is also necessary when installing separately sold filters.

REQUIREMENT

- When using the air conditioner with 2-way / 3-way discharge system, a strong wind blows directly if the ceiling height is lower than the standard.
  Therefore, change the setting switch according to height of the ceiling.
- When using the high ceiling (1) or (3) with 4-way discharge system, the draft is apt to be felt due to drop of the discharge temperature.
- UP009 Type and UP012 Type air conditioners cannot be installed on a high ceiling.

▼Height list of ceiling possible to be installed

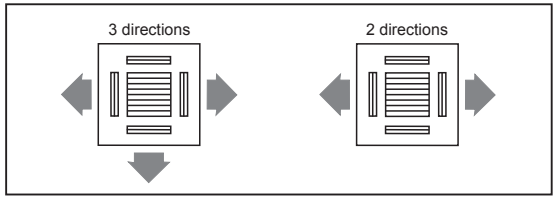
(Unit: m)

Model MMU-	UP009 to UP012			UP015 to UP018			UP024 to UP030			UP036 to UP056			Setup of high ceiling
Discharge direction	4-way	3-way	2-way	4-way	3-way	2-way	4-way	3-way	2-way	4-way	3-way	2-way	SET DATA
Standard (Factory default)	2.7	2.8	3.0	2.8	3.2	3.5	3.0	3.3	3.6	3.9	4.2	4.5	0000
High ceiling (1)	—	—	—	3.2	3.5	3.8	3.3	3.5	3.8	4.2	4.4	4.6	0001
High ceiling (3)	—	—	—	3.5	3.8	—	3.6	3.8	—	4.5	4.6	—	0003

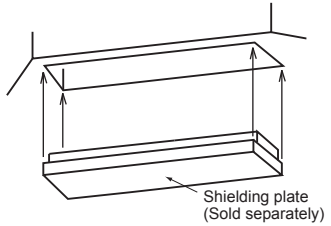
The lighting time of the filter sign (notification of filter cleaning) on the remote controller can be changed according to installation conditions.
When it is difficult to obtain satisfactory heating due to location place of the indoor unit or the structure of the room, the detection temperature of heating can be raised.

■ Discharge direction

As shown in the figure below, air discharge directions can be selected according to the shape of the room and the location of the indoor unit installation.



Use a shielding plate kit (sold separately) to change discharge directions.
Discharge directions are limited. Follow the Installation Manual supplied with the shielding plate kit.



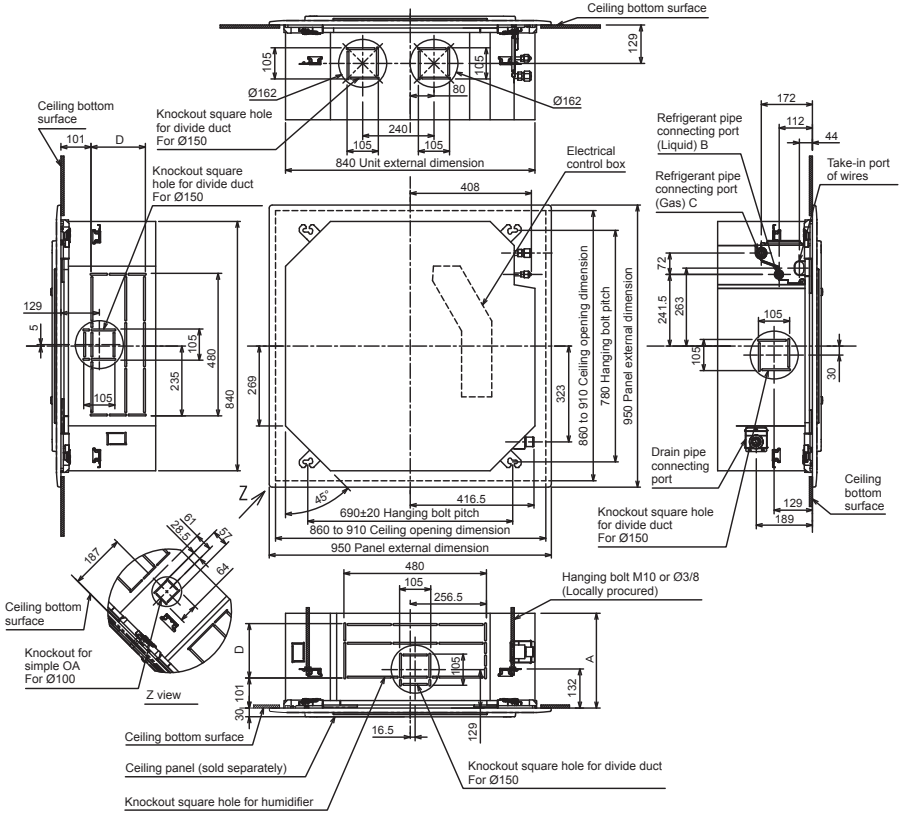
3 Installation

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, be sure to use buffering cloth, etc. to not damage the unit.
- To move the indoor unit, hold the hooking metals (4 positions) only. Do not apply force to the other parts (refrigerant pipe, drain pan, foamed parts, or resin parts, etc.).
- Carry the package by two or more persons, and do not bundle it with plastic band at positions other than specified.

■ External view

(Unit: mm)



(mm)

Model MMU-	A	B	C	D
UP009 to UP012	256	Ø6.4	Ø9.5	120
UP015 to UP018	256	Ø6.4	Ø12.7	120

Model MMU-	A	B	C	D
UP024 to UP030	256	Ø9.5	Ø15.9	120
UP036 to UP056	319	Ø9.5	Ø15.9	183

■ Opening a ceiling and installation of hanging bolts

- Consider the piping / wiring after the unit is hung when determining the location of the indoor unit installation and orientation.
- After the location of the indoor unit installation has been determined, open the ceiling and install hanging bolts.
- The dimensions of the ceiling opening and hanging bolt pitches are given in the outline drawing and the attached installation pattern.
- When a ceiling already exists, lay the drain pipe, refrigerant pipe, indoor unit / outdoor unit connection wires, and remote controller wires to their connection locations before hanging the indoor unit.

Procure hanging bolts and nuts for installing the indoor unit (these are not supplied).

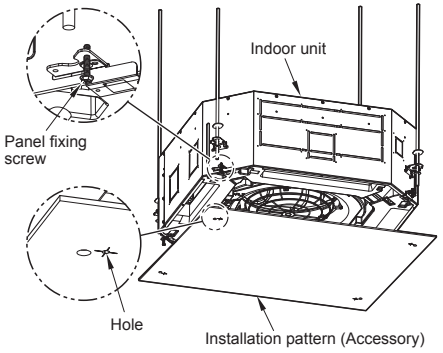
Hanging bolt	M10 or W3/8	4 pieces
Nut	M10 or W3/8	12 pieces

◆ Using the installation pattern (accessory)

The installation pattern is provided inside the packaging cap.

<For existing ceiling>
Use the installation pattern positioning a ceiling opening and hanging bolts.

<For new ceiling>
Use the installation pattern to position the ceiling opening when hanging a ceiling.
- After the hanging bolts have been installed, install the indoor unit.
- Hook the four holes in the installation pattern to the panel fixing screws of the indoor unit.
- When hanging a ceiling, open the ceiling along the outside dimensions of the installation pattern.



◆ Treatment of ceiling

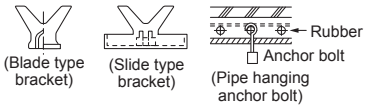
The ceiling differs according to structure of building. For details, consult your constructor or interior finish contractor.
In the process after the ceiling board has been removed, it is important to reinforce ceiling foundation (frame) and to keep horizontal level of installed ceiling correctly in order to prevent vibration of ceiling board.
1. Cut and remove the ceiling foundation.
2. Reinforce the cut surface of ceiling foundation, and add ceiling foundation for fixing the end of ceiling board.

◆ Installation of hanging bolt

Use M10 hanging bolts (4 pcs, locally procured). Matching to the existing structure, set pitch according to size in the unit external view as shown below.

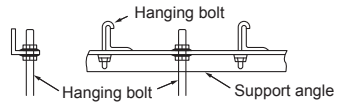
New concrete slab

Install the bolts with insert brackets or anchor bolts.



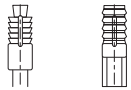
Steel frame structure

Use existing angles or install new support angles.

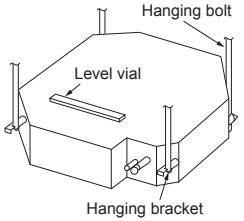


Existing concrete slab

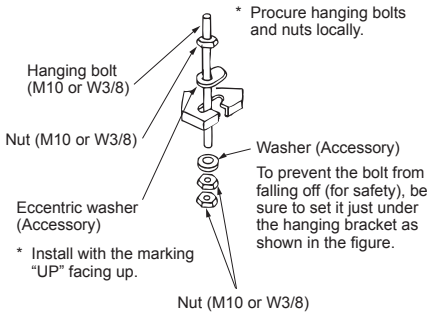
Use a hole-in anchors, hole-in plugs, or a hole-in bolts.

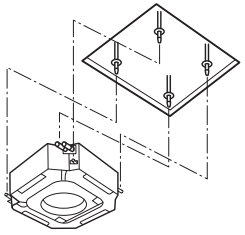


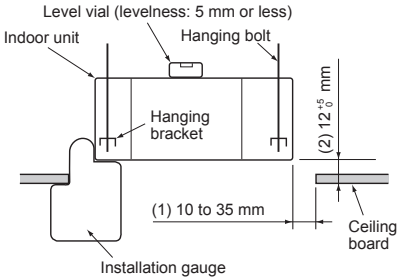
◆ Installation of ceiling opening and hanging bolt

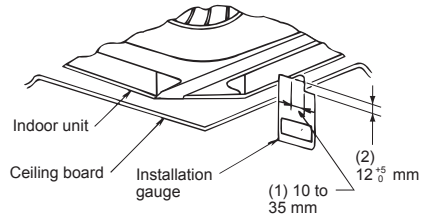


- Attach a nut (M10 or W3/8: not supplied) and the Ø34 washer (supplied) to each hanging bolt.
- Insert a washer on both sides of the T groove of the hanging bracket of the indoor unit, and hang the indoor unit.
- Check that the four sides of the indoor unit are level using a level vial (levelness: 5 mm or less).
- Detach the installation gauge (accessory) from the installation pattern.
- Using the installation gauge, check and adjust the positional relation between the indoor unit and the ceiling opening (1) (10 to 35 mm: 4 sides) and the hanging-up height (2) (12^{+5}_{0} mm: 4 corners). (How to use the installation gauge is printed on the gauge.)



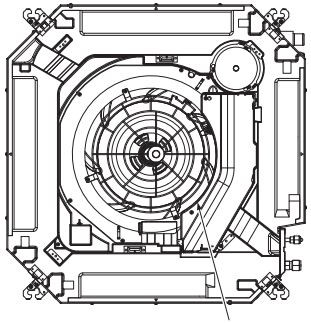






REQUIREMENT

Before installation of the indoor unit, be sure to remove the tape for transportation between the fan and the bell mouth. Running the unit without removing the tape may damage the fan motor.



Be sure to remove the tape for transportation between the fan and the bell mouth.

■ Installation of ceiling panel (Sold separately)

Install the ceiling panel according to Installation Manual attached with it after piping / wiring work has completed.
Check that installation of indoor unit and ceiling opening part is correct, and then install it.

REQUIREMENT

- Joint the connecting sections of ceiling panel, ceiling surface, ceiling panel and indoor unit closely.
  Any gap between them will cause air leakage and the generate condensation or water leakage.
- Remove the adjust corner caps at the four corners of the ceiling panel, and then install the ceiling panel onto the indoor unit.
- Make sure that the claws of the four adjust corner caps are securely fit.
  * Improper fitting of the claws may cause water leakage.

■ Installation of remote controller (Sold separately)

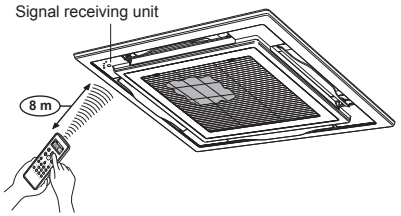
For installation of the wired remote controller, follow the Installation Manual attached with the remote controller.

- Pull out the remote controller cord together with the refrigerant pipe or drain pipe.
  Be sure to pass the remote controller cord through upper side of the refrigerant pipe and drain pipe.
- Do not leave the remote controller at a place exposed to the direct sunlight and near a stove.

■ Wireless type

The sensor of indoor unit with wireless remote controller can receive a signal by distance within approx. 8 m. Based upon it, determine a place where the remote controller is operated and the installation place.

- Operate the remote controller, confirm that the indoor unit receives a signal surely, and then install it.
- Keep 1 m or more from the devices such as television, stereo, etc.
  (Disturbance of image or noise may generate.)
- To prevent a malfunction, select a place where is not influenced by a fluorescent light or direct sunlight.
- Two or more (Up to 6 units) indoor units with wireless type remote controller can be installed in the same room.



4 Drain piping

⚠ CAUTION

Following the Installation Manual, perform the drain piping work so that water is properly drained, and apply a heat insulation so as not to cause a dew dropping.
Inappropriate piping work may result in water leakage in the room and wet of furniture.

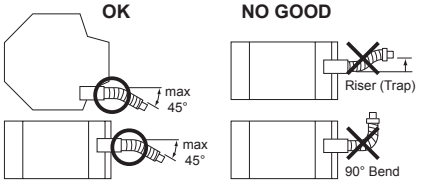
■ Piping / Heat insulating material

Require the following materials for piping and heat insulating at site.

Piping	Hard vinyl chloride pipe VP25 (Outer dia. : 32 mm)
Heat insulator	Foam polyethylene: Thickness 10 mm or more

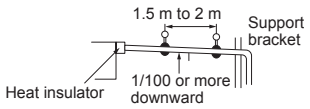
■ Flexible hose

Use the attached flexible hose to adjust center discrepancy of the hard vinyl chloride pipe or to adjust the angle.
- Do not use the flexible hose as stretched, or do not deform it more extent than that in the following figure.
- Be sure to fix the soft end of the flexible hose with the attached hose band.
- Use the flexible hose on a horizontal level.

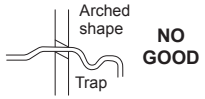


REQUIREMENT

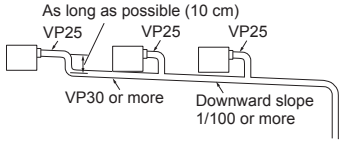
- Be sure to perform heat insulation of the drain pipes of the indoor unit.
- Never forget to perform heat insulation of the connecting part with the indoor unit.
  An incomplete heat insulation causes dew dropping.
- Set the drain pipe with downward slope (1/100 or more), and do not make swelling or trap on the piping.
  It may cause an abnormal sound.



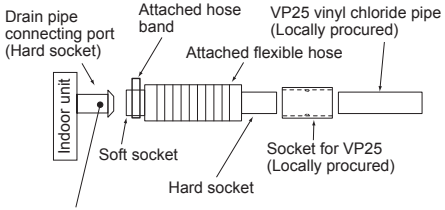
- For length of the traversing drain pipe, restrict to 20 m or less.
  In case of a long pipe, provide support brackets with interval of 1.5 to 2 m in order to prevent waving.



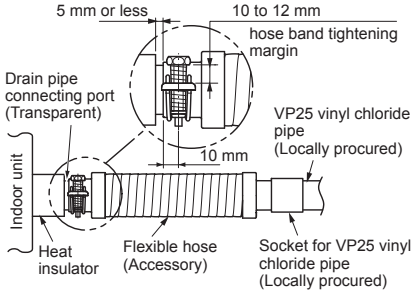
- Set the collective piping as shown in the below figure.



- Be sure not to apply force to the connecting part of the drain pipe.
- The hard vinyl-chloride pipe cannot be directly connected to the drain pipe connecting port of the indoor unit.
  For connection with the drain pipe connecting port, be sure to use / fix the attached flexible hose with the hose band, otherwise a damage or water leak is caused on the drain pipe connecting port.



Adhesive inhibited:
Use the attached flexible hose and hose band for connecting the drain hose to the clear drain socket.
If applying the adhesive, socket will be damaged and cause water leakage.



■ Connecting drain pipe

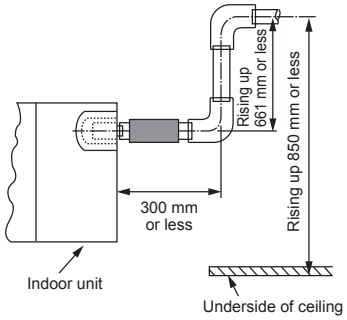
- Connect a hard socket (locally procured) to the hard socket of the attached supplied flexible hose.
- Connect a drain pipe (locally procured) to the connected hard socket.

REQUIREMENT

- Connect hard vinyl chloride pipes securely using an adhesive for vinyl chloride to avoid water leakage.
- It takes some time until the adhesive is dried and hardened (refer to the manual of the adhesive). Do not apply stress to the joint with the drain pipe during this time period.

■ Drain up

When a down-gradient cannot be secured for the drain pipe, drain-up piping is possible.
- The height of the drain pipe must be 850 mm or less from the bottom of the ceiling.
- Take the drain pipe out of the drain pipe joint with the indoor unit in 300 mm or less, and bend up the pipe vertically.
- Immediately after the pipe is bent up vertically, lay the pipe making a down-gradient.
- Set downward grading immediately after raising up vertically.

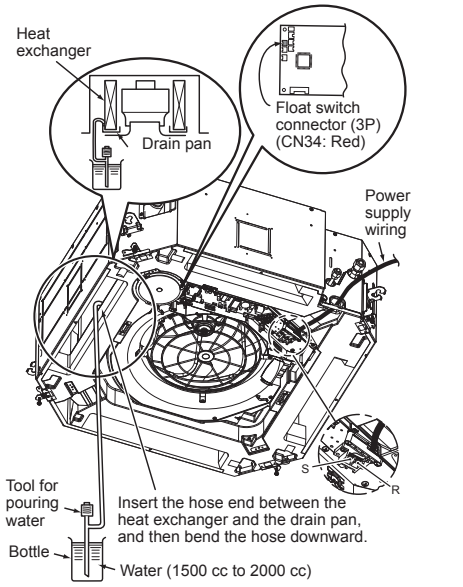


■ Check the draining

In the test run, check that water drain is properly performed and water does not leak from the connecting part of the pipes.
Be sure to check draining also when installed in heating period.
Using a pitcher or hose, pour water (1500 to 2000 cc) into the discharge port before installation of the ceiling panel.
Pour water gradually so that water does not spread on the motor of the drain pump.

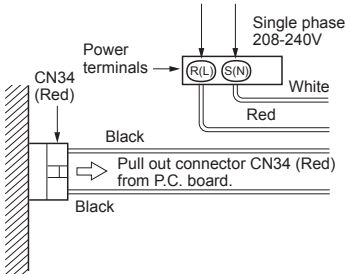
⚠ CAUTION

Pour water gently so that it does not spread around inside the indoor unit, which may cause a malfunction.



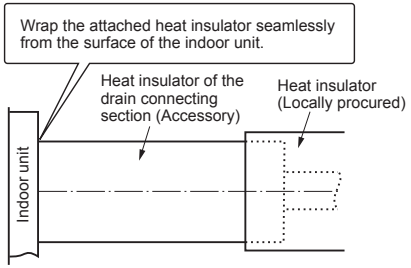
- After the electric work has finished, pour water during Cool mode operation.
- If the electric work has not yet finished, pull out the float switch connector (CN34: Red) from the electrical control box, and check draining by plugging the single phase 208-240V power to the terminal blocks R(L) and S(N).
  If doing so, the drain pump motor operates.
  (Never apply 208-240V to Uv (U1), Uv (U2), A, B otherwise a trouble of P.C. board occurs.)

- Test water drain while checking the operation sound of the drain pump motor.
  (If the operation sound changes from continuous sound to intermittent sound, water is normally drained.)
  After the check, the drain pump motor runs, connecting the float switch connector.
  (In case of check by pulling out the float switch connector, be sure to return the connector to the original position.)



■ Heat insulating

- As shown in the figure, cover the flexible hose and hose band with the attached heat insulator up to the bottom of the indoor unit without gap.
- Cover the drain pipe seamlessly with a heat insulator locally procured so that it overlaps with the attached heat insulator of the drain connecting section.



* Direct the slits and seams of the heat insulator upward to avoid water leakage.

5 Refrigerant piping

⚠ CAUTION

Use flare nuts that are included with the unit. Using different flare nuts may cause refrigerant gas leakage.

■ Refrigerant piping

Use the following item for the refrigerant piping.
Material: Seamless phosphorous de-oxidized copper pipe.
6.35, 9.52 and 12.7 wall thickness 0.8 mm or more.
15.88 wall thickness 1.0 mm or more.

REQUIREMENT

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

⚠ CAUTION

IMPORTANT 4 POINTS FOR PIPING WORK

1. Reusable mechanical connectors and flared joints are not allowed indoors. When mechanical connectors are reused indoors, sealing parts shall be renewed.
   When flared joints are reused indoors, the flare part shall be re-fabricated.
2. Tight connection (between pipes and unit)
3. Evacuate the air in the connecting pipes by using VACUUM PUMP.
4. Check the gas leakage. (Connected points)

■ Permissible piping length and height difference

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

■ Pipe size

Model MMU-		UP009 to UP012	UP015 to UP018	UP024 to UP056
Pipe size (Dia. : mm)	Gas side	9.5	12.7	15.9
	Liquid side	6.4	6.4	9.5

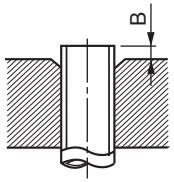
■ Connecting refrigerant piping

Flaring

1. Cut the pipe with a pipe cutter.
   Remove burrs completely. (Remaining burrs may cause gas leakage.
2. Insert a flare nut into the pipe, and flare the pipe.
   Use the flare nut provided with the unit or the one used for the R32 or R410A refrigerant. The flaring dimensions for R32 or R410A are different from the ones used for the conventional R22 refrigerant.
   A new flare tool manufactured for use with the R32 or R410A refrigerant is recommended, but the conventional tool can still be used if the projection margin of the copper pipe is adjusted to be as shown in the following table.

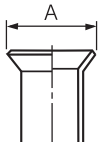
Projection margin in flaring: B (Unit: mm)

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



Flaring diameter size: A (Unit: mm)

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

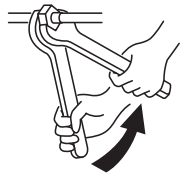


⚠ CAUTION

- Do not scratch the inner surface of the flared part when removing burrs.
- Flare processing under the condition of scratches on the inner surface of flare processing part will cause refrigerant gas leak.
- Check that the flared part is not scratched, deformed, stepped, or flattened, and that there are no chips adhered or other problems, after flare processing.
- Do not apply refrigerating machine oil to the flare surface.

* In case of flaring for R32 or 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.

- The sealed gas was sealed at the atmospheric pressure so when the flare nut is removed, there will no “whooshing” sound: This is normal and is not indicative of trouble.
- Use two wrenches to connect the indoor unit pipe.



Work using double spanner

- Use the tightening torque levels as listed in the following table.

Outer dia. of connecting pipe (mm)	Tightening torque (N•m)
6.4	14 to 18 (1.4 to 1.8 kgf•m)
9.5	34 to 42 (3.4 to 4.2 kgf•m)
12.7	49 to 61 (4.9 to 6.1 kgf•m)
15.9	63 to 77 (6.3 to 7.7 kgf•m)

- Tightening torque of flare pipe connections.
  Pressure of R32 or 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.

⚠ CAUTION

Tightening with an excessive torque may crack the nut depending on installation conditions.

◆ Piping with outdoor unit

Shape of valve differs according to the outdoor unit.
For details of installation, refer to the Installation Manual of the outdoor unit.

■ Evacuation

Perform vacuuming from the charge port of valve of the outdoor unit by using a vacuum pump.
For details, follow to the Installation Manual attached to the outdoor unit.

- Do not use the refrigerant sealed in the outdoor unit for evacuation.

REQUIREMENT

For the tools such as charge hose, use those manufactured exclusively for R32 or R410A.

Refrigerant amount to be added

For addition of the refrigerant, add refrigerant "R32 or R410A" referring to the attached Installation Manual of outdoor unit.
Use a scale to charge the refrigerant of specified amount.

REQUIREMENT

- Charging an excessive or too little amount of refrigerant causes a trouble of the compressor. Charge the refrigerant of specified amount.
- A personnel who charged the refrigerant should write down the pipe length and the added refrigerant amount in the F-GAS label of the outdoor unit. It is necessary to fix the compressor and refrigeration cycle malfunction.

■ Airtight test / Air purge, etc.

For air tightness test, vacuum drying and 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.
For details, refer to the Installation Manual attached to the outdoor unit.

Gas leak check

Check with a leak detector or soap water whether gas leaks or not, from the pipe connecting section or cap of the valve.

REQUIREMENT

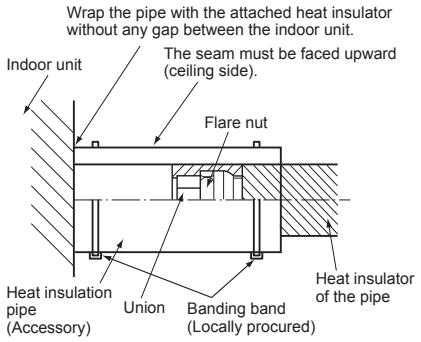
Use a leak detector manufactured exclusively for HFC refrigerant (R32, R134a, R410A, etc.).

◆ Heat insulation process

Apply heat insulation for the pipes separately at liquid side and gas side.
For the heat insulation to the pipes at gas side, be sure to use the material with heat-resisting temperature 120°C or higher.
Using the attached heat insulation material, apply the heat insulation to the pipe connecting section of the indoor unit securely without gap.

REQUIREMENT

- Apply the heat insulation to the pipe connecting section of the indoor unit securely up to the root without exposure of the pipe. (The pipe exposed to the outside causes water leak.)
- Wrap heat insulator with its slits facing up (ceiling side).



6 Electrical connection

⚠ 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

- **For communication line, use wires with the same type and size. If each wire has a different type and size from another one, it will cause a communication trouble.**
- 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 system interconnection wires when peeling them.
- Use the power supply wire and control wires of specified thickness, type, and protective devices required.
- Do not connect 208-240V power to the terminal blocks (Uv (U1)), (Uv (U2)), (A), (B) 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.
- 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 locally procured.
For the power supply specifications, follow to the table below.
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	220-240V ~, 50 Hz 208-230V ~, 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 mm²

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

TU2C-Link models (U series) can be combined with TCC-Link models (other than U series).
For details of communication type, refer to the following table.

Communication type and model names

Communication type	TU2C-Link (U series and future models)	TCC-Link (Other than U series)
Outdoor unit	MMY-MUP∗∗∗ ↑ This letter indicates U series model.	Other than U series MMY-MHP∗∗∗ MCY-MHP∗∗∗ MMY-MAP∗∗∗
Indoor unit	MM∗-UP∗∗∗ ↑ This letter indicates U series model.	Other than U series MM∗-AP∗∗∗
Wired remote controller	RBC-ASCU∗∗∗ ↑ This letter indicates U series model.	Other than U series
Wireless remote controller kit & receiver unit	RBC-AXU∗∗∗ ↑ This letter indicates U series model.	Other than U series

U series outdoor unit : SMMS-u (MMY-MUP∗∗∗)
Other than U series outdoor unit : SMMS-i, SMMS-e etc. (MMY-MHP∗∗∗)

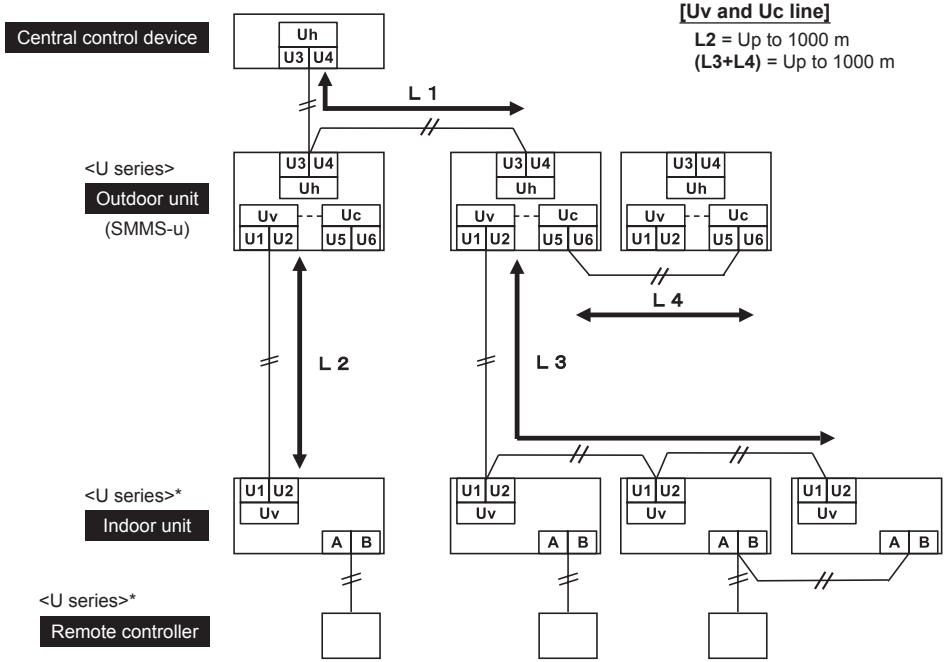
<In the case of combining with outdoor units of Super Modular Multi System u series (SMMS-u)>

Uv line and **Uc** line (**L2, L3, L4**) (2-core shield wire, non-polarity)	Wire size :	0.5 mm² 0.75 to 1.25 mm²	(Up to 500 m) (Up to 1000 m)
Uh line (**L1**) (2-core shield wire, non-polarity)	Wire size :	0.75 to 1.25 mm² 2.0 mm²	(Up to 1000 m) (Up to 2000 m)

- **U (v, h, c)** line means of control wiring.
  Uv line : Between indoor and outdoor units.
  Uh line : Central control line.
  Uc line : Between outdoor and outdoor units.
- **Uv** line and **Uc** line are independent from another refrigerant line. Total length of **Uv** and **Uc** lines **(L3+L4)** in each refrigerant line is up to 1000 m.

[Uh line]
L1 = Up to 2000 m

[Uv and Uc line]
L2 = Up to 1000 m
(L3+L4) = Up to 1000 m



* Even if the indoor unit and the remote controller are "other than U series", the wiring specification are the same.

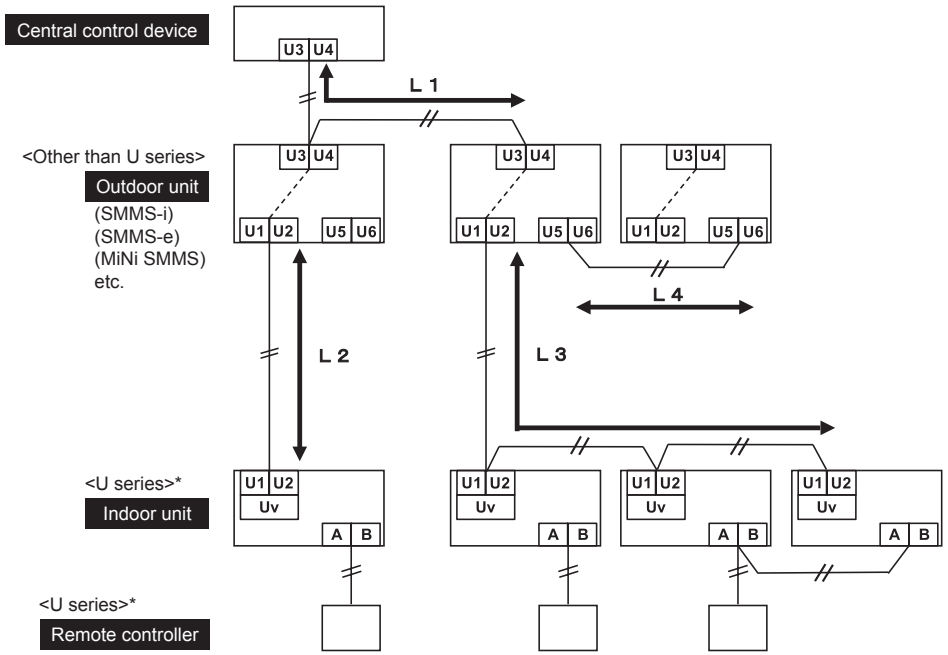
<In the case of combining with outdoor units other than Super Modular Multi System u series (SMMS-u)>

Control wiring between indoor units, and outdoor unit **(L2, L3)** (2-core shield wire, non-polarity)	Wire size :	1.25 mm²	(Up to 1000 m)
Central control line wiring **(L1)** (2-core shield wire, non-polarity)		2.0 mm²	(Up to 2000 m)
Control wiring between outdoor units **(L4)** (2-core shield wire, non-polarity)	Wire size :	1.25 to 2.0 mm²	(Up to 100 m)

- The length of the communication line **(L1+L2+L3)** 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]

(L1+L2+L3) = Up to 2000 m



* Even if the indoor unit and the remote controller are "other than U series", the wiring specification are the same.

Remote controller wiring

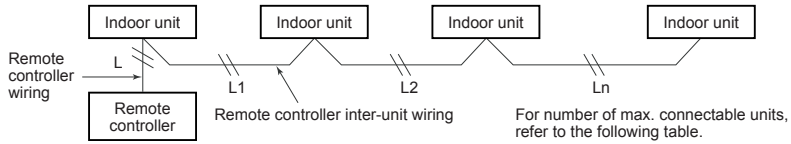
- 2-core with non-polarity wire is used for wiring of the remote controller wiring and group remote controllers wiring.

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

⚠ CAUTION

- **The remote controller wire (Communication line) and AC 208-240V 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.**
- If U series models (TU2C-Link) are combined with models other than U series (TCC-Link), the wiring specifications and maximum number of connectable indoor units will be changed. Pay attentions to their communication specifications when carrying out the installation, maintenance, or repair. For its details, refer to the “Communication line” in **6 Electrical connection**.



Max. number of connectable indoor units, and communication type

	Unit type							
Outdoor unit	U series	U series	U series	U series	∗	∗	∗	∗
Indoor unit	U series	U series	∗	∗	U series	U series	∗	∗
Remote controller	U series	∗	U series	∗	U series	∗	U series	∗
Communication type	TU2C-Link	TCC-Link						
Max. number of connectable units	16	8						

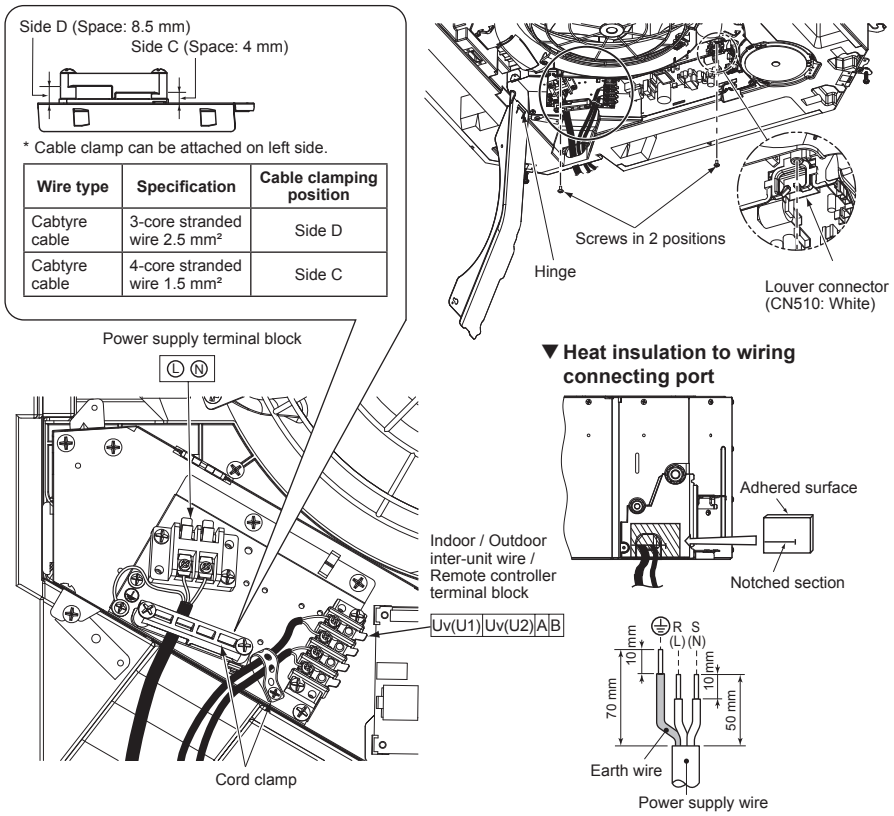
∗ : Other than U series

■ Wire connection

REQUIREMENT

- Be sure to connect the wires matching the terminal numbers. Incorrect connection causes a trouble.
- Be sure to pass the wires through the bushing of wiring connection port of the indoor unit.
- Keep a margin (Approx. 100 mm) on a wire to hang down the electrical control box at servicing, etc.
- The low-voltage circuit is provided for the remote controller. (Do not connect the high-voltage circuit)
- Make a loop on the wire for margin of the length so that the electrical control box can be taken out during servicing.

1. Remove the cover of the electrical control box by taking off the mounting screws (2 positions) and pushing the hooking section. (The cover of the electrical control box remains hanged to the hinge.)
2. Connect the power supply wire and remote controller wire to the terminal block of the electrical control box.
3. Tighten the screws of the terminal block, and fix the wires with cord clamp attached to the electrical control box. (Do not apply tension to the connecting section of the terminal block.)
4. Using the attached heat insulation material, seal the pipe connecting port. Otherwise, dewing may be caused.
5. Mount the cover of the electrical control box without pinching wires. (Mount the cover after wiring on the ceiling panel.)

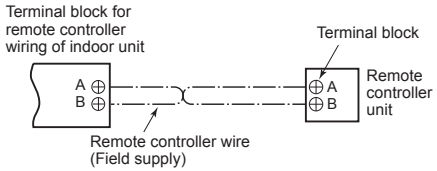


Wire type	Specification	Cable clamping position
Cabtyre cable	3-core stranded wire 2.5 mm²	Side D
Cabtyre cable	4-core stranded wire 1.5 mm²	Side C

■ Remote controller wiring

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

▼Wiring diagram

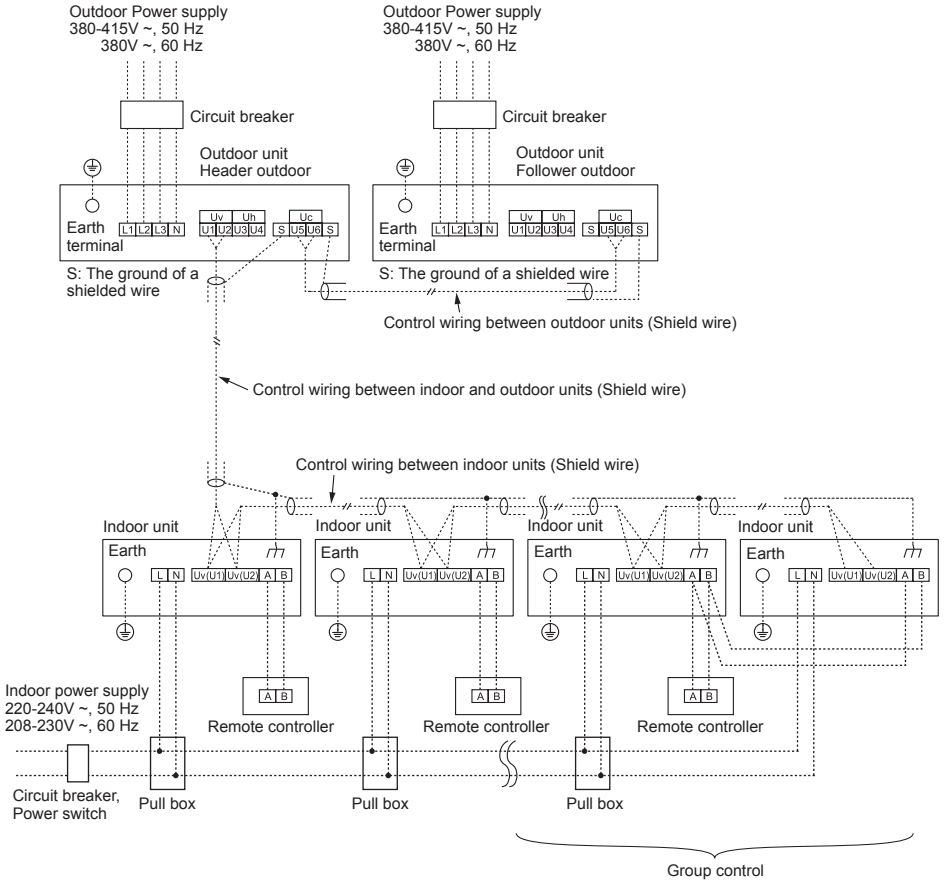


■ Wiring between indoor and outdoor units

NOTE

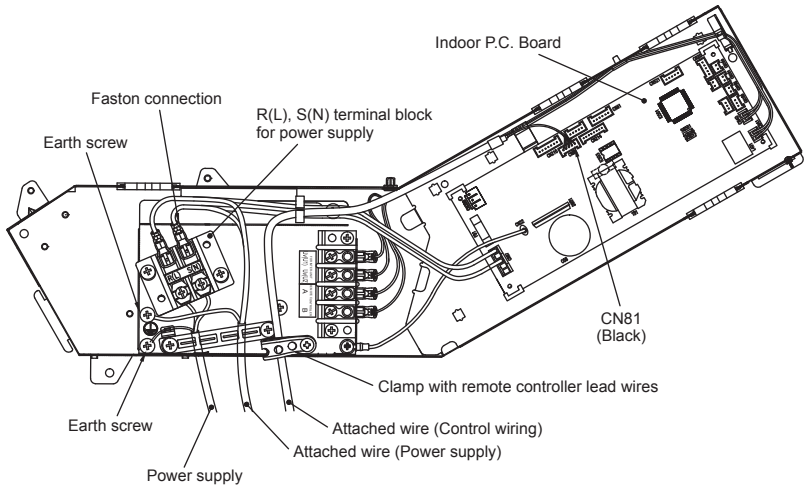
- A wiring diagram below is an example for connection to SMMS-u series. For connecting to other outdoor unit series, refer to the Installation Manual attached to the outdoor unit to be connected.

▼Wiring example



■ Wiring for flow selector unit (sold separately)

Connect control wiring and power supply following figure when installing a separately sold Super Heat Recovery Multi System.



■ Wiring on the ceiling panel

According to the Installation Manual of the ceiling panel, connect the connector (20P: White) of the ceiling panel to the connector (CN510: White) on P.C. Board of the electrical control box.

7 Applicable controls

REQUIREMENT

When the air conditioner is used for the first time, it will take some moments after the power has been turned on before the remote controller becomes available for operations: This is normal and is not indicative of trouble.

- Concerning the automatic addresses
  (The automatic addresses are set up by performing operations on the outdoor interface circuit board.)
  While the automatic addresses are being set up, no remote controller operations can be performed.
  Setup takes up to 10 minutes (usually about 5 minutes).
- When the power is turned on after automatic address setup
  It takes up to 10 minutes (usually about 3 minute) for the outdoor unit to start operating after the power has been turned on.

Before the air conditioner was shipped from the factory, all units are set to [STANDARD] (factory default).
If necessary, change the indoor unit settings.
The settings are changed by operating the wired remote controller.

* The settings cannot be changed using only a wireless remote controller, simple remote controller or group control remote controller by itself so install a wired remote controller separately as well.

■ Applicable controls setup (settings at the site)

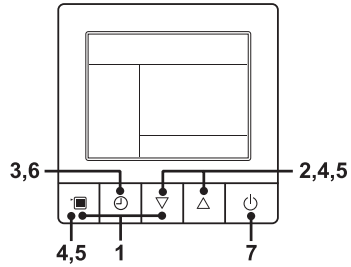
Remote controller model name: RBC-ASCU11-E

Basic procedure

Be sure to stop the air conditioner before making settings.
(Change the setup while the air conditioner is not working.)

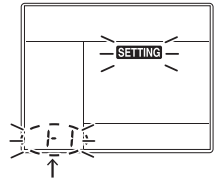
⚠ CAUTION

Set only the Code No. shown in the following table: DO NOT set any other Code No.
If a Code No. not listed is set, it may not be possible to operate the air conditioner or other trouble with the product may result.



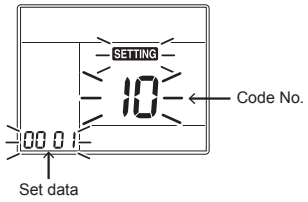
1 **Push and hold menu button and [▽] setting button simultaneously for 10 seconds or more.**

- After a while, the display flashes as shown in the figure. “ALL” is displayed as indoor unit numbers during initial communication immediately after the power has been turned on.



2 **Each time [▽] [△] setting button is pushed, indoor unit numbers in the group control change cyclically. Select the indoor unit to change settings for.**
- The fan of the selected indoor unit runs. The indoor unit can be confirmed for which to change settings.

3 **Push OFF timer button to confirm the selected indoor unit.**



4 **Push the menu button to make Code No. [✱✱] flash. Change Code No. [✱✱] with [▽] [△] setting button.**

5 **Push the menu button to make Set data [✱✱✱✱] flash. Change Set data [✱✱✱✱] with [▽] [△] setting button.**

6 **Push OFF timer button.**
By doing so, the setup is completed.
- To change other settings of the selected indoor unit, repeat from Procedure ***4***.

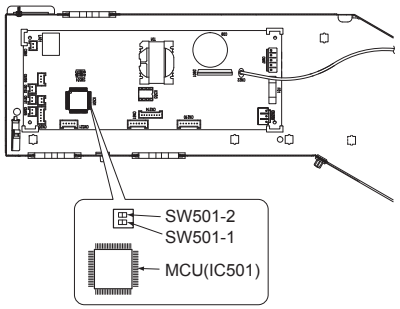
7 **When all the settings have been completed, push ON/OFF button to determine the settings.**
" SETTING " flashes and then the display content disappears and the air conditioner enters the normal stop mode. (The remote controller is unavailable while " SETTING " is flashing.)
- To change settings of another indoor unit, repeat from Procedure ***1***.

■ Installing indoor unit on high ceiling

When an indoor unit is installed on a ceiling higher than the standard height, make the high-ceiling setting for fan speed adjustment.
Follow to the basic operation procedure
(***1*** → ***2*** → ***3*** → ***4*** → ***5*** → ***6***).
- For the CODE No. in Procedure ***4***, specify [5d].
- Select the SET DATA for Procedure ***5*** from the "Height list of ceiling possible to be installed" table in this manual.

◆ Remote controller-less setting

Change the high-ceiling setting with the DIP switch on the receiver section P.C. Board.
For details, refer to the manual of the wireless remote controller kit. The settings can also be changed with the switch on the indoor microcomputer P.C. Board.
* Once the setting is changed, setting to 0001 or 0003 is possible, however setting to 0000 requires a setting data change to 0000 using the wired remote controller (separately sold) with the normal switch setting (factory default).



SET DATA	SW501-1	SW501-2
0000 (Factory default)	OFF	OFF
0001	ON	OFF
0003	OFF	ON

To restore the factory defaults
To return the DIP switch settings to the factory defaults, set SW501-1 and SW501-2 to OFF, connect a separately sold wired remote controller, and then set the data of CODE No. [5d] to "**0000**".

■ Change of lighting time of filter sign

According to the installation condition, the lighting time of the filter sign (Notification of filter cleaning) can be changed.
Follow the basic operation procedure
(***1*** → ***2*** → ***3*** → ***4*** → ***5*** → ***6***).
- For the CODE No. in Procedure ***4***, specify [01].
- For the SET DATA in Procedure ***5***, select the SET DATA of filter sign lighting time from the following table.

SET DATA	Filter sign lighting time
0000	None
0001	150 H
0002	2500 H (Factory default)
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 the basic operation procedure
(***1*** → ***2*** → ***3*** → ***4*** → ***5*** → ***6***).
- For the CODE No. in Procedure ***4***, specify [06].
- For the SET DATA in Procedure ***5***, 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

■ How to set up swing type

The swing type of the louver can be selected.

Follow to the basic operation procedure
(***1*** → ***2*** → ***3*** → ***4*** → ***5*** → ***6*** → ***7***).
- Specify **[F0]** for the CODE No. in Procedure ***4***.
- Select the following data for the SET DATA in Procedure ***5***.

Swing SET DATA	Swing of louvers
0001	Standard swing (Factory default)
0002	Dual swing
0003	Cycle swing

- **About "Dual swing"**
  "Dual" means that louvers **01** and **03** are directed and swing in one direction and louvers **02** and **04** are directed and swing in the opposite direction.
  (When louvers **01** and **03** are directed downward, louvers **02** and **04** are directed horizontally.)
- **About "Cycle swing"**
  The four louvers swing independently at respective timings.

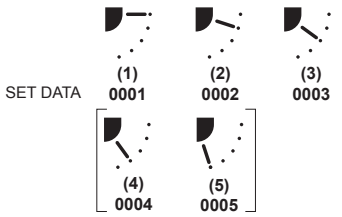
⚠ CAUTION

Do not set the swing SET DATA to **"0000"**.
(This setting may cause a failure of the louvers.)

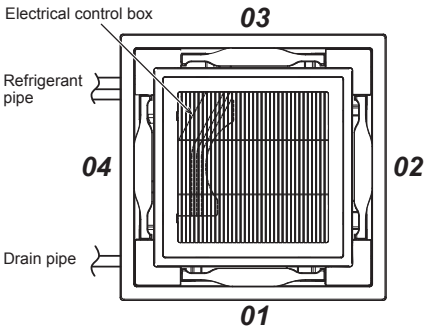
■ How to set up louver lock (No swing)

A position of the individual louvers (four directions) can be locked.

Follow to the basic operation procedure
(***1*** → ***2*** → ***3*** → ***4*** → ***5*** → ***6*** → ***7***).
- Specify **[F1]**, **[F2]**, **[F3]**, or **[F4]** for the CODE No. in Procedure ***4***.
- Select the following data for the set data in Procedure ***5***.



* When (4) or (5) is selected, dew drop may occur during cooling mode.
• When the setting has been determined, ✣ lights up.



■ How to cancel louver lock

Set the wind direction to "**0000**" of the louver lock setup procedure above.

• When the setting is canceled, ✣ goes out.
Other operations are the same as those in "How to set up louver lock (No swing)".

■ To select horizontal wind direction

The louver positions at cooling can be changed from the smudge reducing position to the cold draftless position.

Follow to the basic operation procedure (***1*** → ***2*** → ***3*** → ***4*** → ***5*** → ***6*** → ***7***).
• Specify **[45]** for the CODE No. in Procedure ***4***.
• Select the following data for the set data in Procedure ***5***.

Wind direction SET DATA	Wind direction setting
0000	Smudge reducing position (Air direction to reduce ceiling contamination) [Factory default]
0002	Cold draft position (Air direction to control cold air fall)

■ Group control

In a group control, a remote controller can control up to maximum 8 or 16 units. (Depending on the outdoor unit.)
• The wired remote controller only can control a group control. The wireless remote controller is unavailable for this control.
• For wiring procedure and wiring method of the individual line (Identical refrigerant line) system, refer to "Electrical connection" in this Manual.
• Wiring between indoor units in a group is performed in the following procedure.
Connect the indoor units by connecting the remote controller inter-unit wires 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.

■ 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*** → ***7***).
• Specify **[32]** for the CODE No. in Procedure ***4***.
• Select the following data for the SET DATA in Procedure ***5***.

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.

8 Test run

■ Before test run

• Before turning on the circuit breaker, carry out the following procedure.
1) By using insulation tester (500VMΩ) check that resistance of 1MΩ or more exists between the terminal block L to N and the earth (grounding). If resistance of less than 1MΩ 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.
• Before starting a test run, be sure to set addresses following the Installation Manual supplied with the outdoor unit.

◆ Requirements for turning thermostat OFF

Cooling operation

• When the outdoor/suction air temperature is lower than or equal to 19°C.
• When the outdoor/suction air temperature is lower than or equal to 3°C above the set temperature.

Heating operation

• When the outdoor/suction air temperature is lower than or equal to -10°C
• When the outdoor/suction air temperature is higher than or equal to 15°C.
• When the outdoor/suction air temperature is higher than or equal to 3°C above the set temperature.

■ Executing a test run

• When a fan operation is to be performed for an individual indoor unit, turn off the power, short circuit CN72 on the circuit board, and then turn the power back on. (Set the operation mode to "fan" to operate the unit.) When the test run has been performed using this method, be sure to release the short circuit of CN72 after the test run is completed.

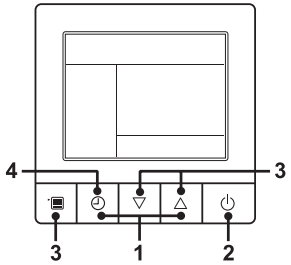
Operate the unit with the remote controller as usual.
For the procedure of the operation, refer to the Owner's Manual attached to the outdoor unit.
A forced test run can be executed in the following procedure even if the operation stops by thermostat-OFF.
In order to prevent a serial operation, the forced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

⚠ CAUTION

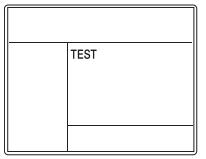
Do not use the forced test run for cases other than the test run because it applies an excessive load to the devices.

Wired remote controller

Be sure to stop the air conditioner before making settings.
(Change the setup while the air conditioner is not working.)



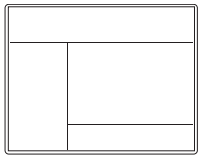
1 **Push and hold OFF timer button and [△] setting button simultaneously for 10 seconds or more. [TEST] is displayed on the display part and the test run is permitted.**



2 **Push ON/OFF button.**

3 **Push menu button to select the operation mode. Select [☼ Cool] or [☀ Heat] with [▽] [△] setting button, and then push menu button (three times) again to determine the operation mode.**
• Do not run the air conditioner in a mode other than [Cool] or [Heat].
• The temperature setting function does notwork during test run.
• The check code is displayed as usual.

4 **After the test run, push OFF timer button to stop a test run.**
([TEST] disappears on the display and the air conditioner enters the normal stop mode.)



Wireless remote controller

1 **Turn on the power of the air conditioner. When power is turned on for the first time after installation, it takes approx. 5 minutes until the remote controller becomes available. In the case of subsequent power-on, it takes approx. 1 minute until the remote controller becomes available. Execute a test run after the predetermined time has passed.**

2 **Push "ON/OFF" button on the remote controller, select [☼ Cool] or [☀ Heat] with "MODE" button, and then select [▬▬▬▬ HIGH] with "FAN" button.**

3

Cooling test run	Heating test run
Set the temperature to 17°C with the temp. setup buttons.	Set the temperature to 30°C with the temp. setup buttons.

4

Cooling test run	Heating test run
After confirming a signal receiving sound "beep" immediately set the temperature to 18°C with the temp. setup buttons.	After confirming a signal receiving sound "beep" immediately set the temperature to 29°C with the temp. setup buttons.

5

Cooling test run	Heating test run
After confirming a signal receiving sound "beep" immediately set the temperature to 17°C with the temp. setup buttons.	After confirming a signal receiving sound "beep" immediately set the temperature to 30°C with the temp. setup buttons.

6 **Repeat procedures *4* → *5* → *4* → *5*. Indicators "Operation" (green), "Timer" (green), and "Ready" (orange) in the wireless receiver section flash in approx. 10 seconds, and the air conditioner starts operation. If any of these indicators does not flash, repeat procedures 2 to 5.**

7 **Upon completion of the test run, push "ON/OFF" button to stop operation.**

<Overview of test run operations using the wireless remote controller>

▼ Cooling test run:
ON/OFF → 17°C → 18°C → 17°C → 18°C → 17°C → 18°C → 17°C → (test run) → ON/OFF

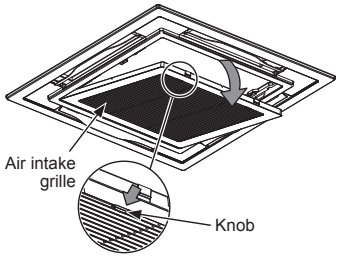
▼ Heating test run:
ON/OFF → 30°C → 29°C → 30°C → 29°C → 30°C → 29°C → 30°C → (test run) → ON/OFF

9 Maintenance

▼ Cleaning of air filter
- Be sure to stop the air conditioner before cleaning of air filter, then turn off the circuit breaker.

Cleaning of panel and air filter

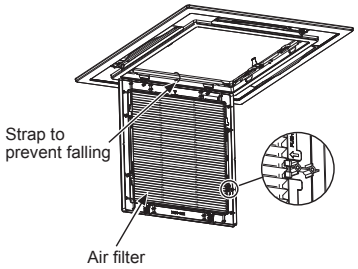
Preparation :
1. Turn off the air conditioner by the remote controller.
2. Open the air intake grille.
   - Slide the button of the air intake grille inward, and open the air intake grille slowly while holding it.



Cleaning of air filters

If the air filters are not cleaned, it not only reduce the cooling a performance of air conditioner but causes a failure in the air conditioner such as water falling in drops.

Preparation :
1. Stop the operation by remote controller.
2. Dismount the air filter.



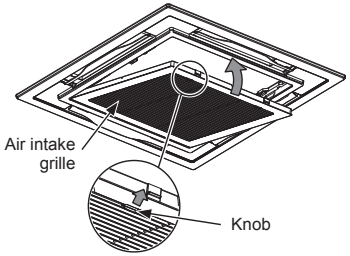
Use a vacuum cleaner to remove dust from the filters or wash them with water.

- After rinsing the air filters with water, dry them in the shade.
- Set the air filter into the air conditioner.

Clean the panel and air filter with water:

- Wipe down the panel and air filter with a sponge or towel moistened with a kitchen detergent. (Do not use any metallic brush for cleaning.)
- **Carefully rinse the panel and air filter to wash out the detergent.**
- **After rinsing the panel and air filter with water, dry it in the shade.**

1. Close the air intake grille.
   - Close the air intake grille, slide the knob outward, and fix the air intake grille securely.



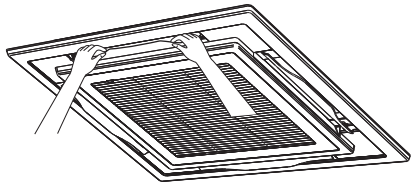
2. Push FILTER RESET button.
   - "FILTER ▦ " disappears.

⚠ CAUTION
- Do not start the air conditioner while leaving the panel and air filter removed.

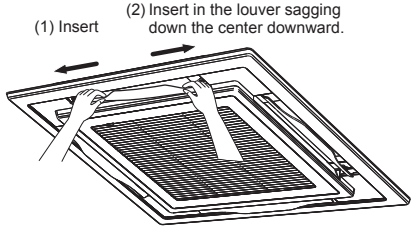
Cleaning of discharge louver

The discharge louver can be removed to clean.

1. Remove the discharge louver.
   - Holding the both ends of the discharge louver, remove the louver sagging the center downward.



2. Cleaning with water
   - If the dirt is terrible, clean the louver by tepid water with neutral detergent or water.
3. Mount the discharge louver.
   - First push in one side of the louver, and then insert the other side sagging the center downward.



Be careful to the direction of the louver when mounting.
Mount the louver so that the side with the mark faces upward and the arrow direction of the mark directs.

REQUIREMENT

Be sure to clean the heat exchanger with pressurized water.
If a commercially available detergent (strong alkaline or acid) cleaning agent is used, the surface treatment of the heat exchanger will be marred, which may degrade the self cleaning performance.
For details, contact the dealer.

▼ Periodic Maintenance

For environmental conservation, it is strongly recommended that the indoor and outdoor units of the air conditioner in use be cleaned and maintained regularly to ensure efficient operation of the air conditioner.
When the air conditioner is operated for a long time, periodic maintenance (once a year) is recommended.
Furthermore, regularly check the outdoor unit for rust and scratches, and remove them or apply rustproof treatment, if necessary.
As a general rule, when an indoor unit is operated for 8 hours or more daily, clean the indoor unit and outdoor unit at least once every 3 months. Ask a professional for this cleaning / maintenance work.
Such maintenance can extend the life of the product though it involves the owner's expense.
Failure to clean the indoor and outdoor units regularly will result in poor performance, freezing, water leakage, and even compressor failure.

Inspection before maintenance
Following inspection must be carried out by a qualified installer or qualified service person.

Parts	Inspection method
Heat exchanger	Access from inspection opening and remove the access panel. Examine the heat exchanger if there is any clogging or damages.
Fan motor	Access from inspection opening and check if any abnormal noise can be heard.
Fan	Access from inspection opening and remove the access panel. Examine the fan if there are any waggles, damages or adhesive dust.
Filter	Go to installed location and check if there are any stains or breaks on the filter.
Drain pan	Access from inspection opening and remove the access panel. Check if there is any clogging or drain water is polluted.

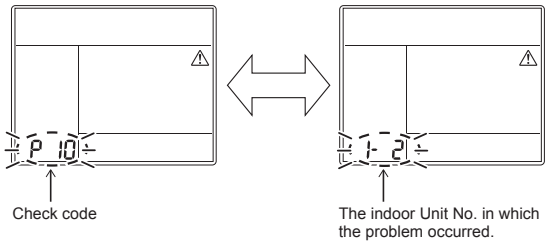
▼ Maintenance List

Part	Unit	Check (visual / auditory)	Maintenance
Heat exchanger	Indoor / outdoor	Dust / dirt clogging, scratches	Wash the heat exchanger when it is clogged.
Fan motor	Indoor / outdoor	Sound	Take appropriate measures when abnormal sound is generated.
Filter	Indoor	Dust / dirt, breakage	• Wash the filter with water when it is contaminated. • Replace it when it is damaged.
Fan	Indoor	• Vibration, balance • Dust / dirt, appearance	• Replace the fan when vibration or balance is terrible. • Brush or wash the fan when it is contaminated.
Air intake / discharge grilles	Indoor / outdoor	Dust / dirt, scratches	Fix or replace them when they are deformed or damaged.
Drain pan	Indoor	Dust / dirt clogging, drain contamination	Clean the drain pan and check the downward slope for smooth drainage.
Ceiling panel, louvers	Indoor	Dust / dirt, scratches	Wash them when they are contaminated or apply repair coating.
Exterior	Outdoor	• Rust, peeling of insulator • Peeling / lift of coat	Apply repair coating.

10 Troubleshooting

■ Confirmation and check

If a problem occurs with the air conditioner, the OFF timer indicator alternately shows the check code and the indoor Unit No. in which the problem occurred.

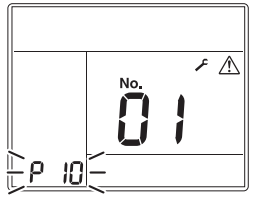
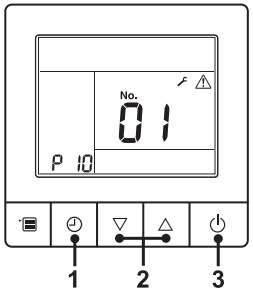


■ Troubleshooting history and confirmation

You can check the troubleshooting history with the following procedure if a problem occurs with the air conditioner. (The troubleshooting history records up to 4 incidents.)

You can check it during operation or when operation is stopped.

• If you check the troubleshooting history during OFF timer operation, the OFF timer will be canceled.

Procedure	Description of operation
1	Push the OFF timer button for over 10 seconds and the indicators appear as an image indicating the troubleshooting history mode has been entered. If [Service check] is displayed, the mode enters in the troubleshooting history mode. • [01: Order of troubleshooting history] appears in the temperature indicator. • The OFF timer indicator alternately shows the [check code] and the [indoor Unit No.] in which the problem occurred. 
2	Each time the setting button is pushed, the recorded troubleshooting history is displayed in sequence. The troubleshooting history appears in order from [01] (newest) to [04] (oldest). **⚠ CAUTION** In the troubleshooting history mode, DO NOT push the Menu button for over 10 seconds, doing so deletes the entire troubleshooting history of the indoor unit. 
3	After you have finished checking, push the ON/OFF button to return to the regular mode. • If the air conditioner is operating, it remains operated even after the ON/OFF button has been pushed. To stop its operation, push the ON/OFF button again.

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 indoor unit with a wireless remote controller: See “Sensor block display of receiving unit” in the list.

○ : Lighting, ☼ : Flashing, ● : Goes off
ALT: Flashing is alternately when there are two flashing LED.
SIM: Simultaneous flashing when there are two flashing LED.
Inverter: Compressor / Fan Inverter P.C. Board
I/F: Interface P.C. Board

Check code			Wireless remote controller				Check code name	Judging device
Wired remote controller display	Outdoor unit 7-segment display		Sensor block display of receiving unit					
		Auxiliary code	Operation	Timer	Ready	Flash		
E01	–	–	☼	●	●		Communication trouble between indoor unit and remote controller (Detected at remote controller side)	Remote controller
E02	–	–	☼	●	●		Remote controller transmission trouble	Remote controller
E03	–	–	☼	●	●		Communication trouble between indoor unit and remote controller (Detected at indoor unit side)	Indoor unit
E04	–	–	●	●	☼		Communication circuit trouble between indoor / outdoor unit (Detected at indoor unit side)	Indoor unit
E06	E06	No. of indoor units in which sensor has been normally received	●	●	☼		Decrease of No. of indoor units	I/F
–	E07	–	●	●	☼		Communication circuit trouble between indoor / outdoor unit (Detected at outdoor unit side)	I/F
E08	E08	Duplicated indoor unit addresses	☼	●	●		Duplicated indoor unit addresses	Indoor unit • I/F
E09	–	–	☼	●	●		Duplicated master remote controllers	Remote controller
E10	–	–	☼	●	●		Communication trouble between indoor unit MCU	Indoor unit
E11	–	–	☼	●	●		Communication trouble between Application control kit and indoor unit	Indoor unit Application control kit
E12	E12	01: Indoor/Outdoor units communication 02: Outdoor/Outdoor units communication	☼	●	●		Automatic address start trouble	I/F
E15	E15	–	●	●	☼		No indoor unit during automatic addressing	I/F
E16	E16	00: Capacity over 01: No. of connected units	●	●	☼		Capacity over / No. of connected indoor units	I/F
E17	–	–	☼	●	●		Communication trouble between indoor unit and Flow Selector unit	Indoor unit
E18	–	–	☼	●	●		Communication trouble between header and follower units Indoor unit	Indoor unit
E19	E19	00: Header is not detected 02: Two or more header units	●	●	☼		Outdoor header units quantity trouble	I/F
E20	E20	01: Outdoor unit of other line connected 02: Indoor unit of other line connected	●	●	☼		Other line connected during automatic address	I/F
E23	E23	–	●	●	☼		Sending trouble in communication between outdoor units Trouble in number of heat storage units (trouble with reception)	I/F
E25	E25	–	●	●	☼		Duplicated follower outdoor addresses	I/F
E26	E26	No. of outdoor units which received signal normally	●	●	☼		Decrease of No. of connected outdoor units	I/F
E28	E28	Detected outdoor unit number	●	●	☼		Follower outdoor unit trouble	I/F
E31	E31	*1 Inverter quantity information	●	●	☼		Inverter communication trouble	I/F
F01	–	–	☼	☼	●	ALT	Indoor unit TCJ sensor trouble	Indoor unit
F02	–	–	☼	☼	●	ALT	Indoor unit TC2 sensor trouble	Indoor unit
F03	–	–	☼	☼	●	ALT	Indoor unit TC1 sensor trouble	Indoor unit
F04	F04	–	☼	☼	○	ALT	TD1 sensor trouble	I/F
F05	F05	–	☼	☼	○	ALT	TD2 sensor trouble	I/F

Check code			Wireless remote controller				Check code name	Judging device
Wired remote controller display	Outdoor unit 7-segment display		Sensor block display of receiving unit					
		Auxiliary code	Operation	Timer	Ready	Flash		
F06	F06	01: TE1 sensor 02: TE2 sensor 03: TE3 sensor	☼	☼	○	ALT	TE1,TE2 or TE3 sensor trouble	I/F
F07	F07	01: TL1 sensor 02: TL2 sensor 03: TL3 sensor	☼	☼	○	ALT	TL1,TL2 or TL3 sensor trouble	I/F
F08	F08	–	☼	☼	○	ALT	TO sensor trouble	I/F
F09	F09	01: TG1 sensor 02: TG2 sensor 03: TG3 sensor	☼	☼	○	ALT	TG1,TG2 or TG3 sensor trouble	I/F
F10	–	–	☼	☼	●	ALT	Indoor unit TA sensor trouble	Indoor unit
F11	–	–	☼	☼	●	ALT	TF sensor trouble	Indoor unit
F12	F12	01: TS1 sensor 03: TS3 sensor 04: TS3 sensor disconnect	☼	☼	○	ALT	TS1 or TS3 sensor trouble	I/F
F13	F13	1∗: Comp. 1 side 2∗: Comp. 2 side	☼	☼	○	ALT	TH sensor trouble	Inverter
F15	F15	–	☼	☼	○	ALT	Outdoor unit temp. sensor miswiring (TE, TL)	I/F
F16	F16	–	☼	☼	○	ALT	Outdoor unit pressure sensor miswiring (Pd, Ps)	I/F
F22	F22	–	☼	☼	○	ALT	TD3 sensor trouble	I/F
F23	F23	–	☼	☼	○	ALT	Ps sensor trouble	I/F
F24	F24	–	☼	☼	○	ALT	Pd sensor trouble	I/F
F29	–	–	☼	☼	●	SIM	Indoor unit other trouble	Indoor unit
F30	F30	–	☼	☼	○	SIM	Occupancy sensor trouble	Indoor unit
F31	F31	–	☼	☼	○	SIM	Indoor unit EEPROM trouble	I/F
H01	H01	1∗: Comp. 1 side 2∗: Comp. 2 side	●	☼	●		Compressor break down	Inverter
H02	H02	1∗: Comp. 1 side 2∗: Comp. 2 side	●	☼	●		Compressor trouble (lock)	Inverter
H03	H03	1∗: Comp. 1 side 2∗: Comp. 2 side	●	☼	●		Current detect circuit system trouble	Inverter
H04	H04	–	●	☼	●		Comp. 1 case thermostat operation	I/F
H05	H05	–	●	☼	●		TD1 sensor miswiring	I/F
H06	H06	–	●	☼	●		Low pressure protective operation	I/F
H07	H07	–	●	☼	●		Oil level down detective protection	I/F
H08	H08	01: TK1 sensor trouble 02: TK2 sensor trouble 03: TK3 sensor trouble 04: TK4 sensor trouble 05: TK5 sensor trouble	●	☼	●		Oil level detective temp. sensor trouble	I/F
H14	H14	–	●	☼	●		Comp. 2 case thermostat operation	I/F
H15	H15	–	●	☼	●		TD2 sensor miswiring	I/F
H16	H16	01: TK1 oil circuit system trouble 02: TK2 oil circuit system trouble 03: TK3 oil circuit system trouble 04: TK4 oil circuit system trouble 05: TK5 oil circuit system trouble	●	☼	●		Oil level detective circuit trouble	I/F
H17	H17	1∗ : Compressor 1 side 2∗ : Compressor 2 side	●	☼	●		Compressor trouble (Step out)	I/F
H25	H25	–	●	☼	●		TD3 sensor miswiring	I/F
J02	–	–	●	☼	☼	SIM	Communication trouble between control boards in Flow Selector unit	Indoor unit
J03	–	–	●	☼	☼	SIM	Duplicated Flow Selector unit addresses	Indoor unit

Check code			Wireless remote controller				Check code name	Judging device
Wired remote controller display	Outdoor unit 7-segment display		Sensor block display of receiving unit					
		Auxiliary code	Operation	Timer	Ready	Flash		
J10	J10	Detected indoor unit address	●	☼	☼	SIM	Flow Selector unit overflow trouble	Indoor unit
J11	–	–	●	☼	☼	SIM	Flow Selector unit temperature sensor (TCS) trouble	
J29	–	–	●	☼	☼	SIM	Refrigerant leak detection sensor trouble	Indoor unit
J30	J30	Detected indoor unit address *Not displayed depending on the DN code (I.DN) setting	●	☼	☼	SIM	Refrigerant leak detection	Indoor unit
J31	–	–	●	☼	☼	SIM	Refrigerant leak detection sensor exceeding its life of the product	Indoor unit
L02	L02	Detected indoor unit address	☼	●	☼	SIM	Model mismatch of indoor and outdoor unit Indoor unit incompatible with A2L (R32) refrigerant	I/F
L03	–	–	☼	●	☼	SIM	Indoor unit centre unit duplicated	Indoor unit
L04	L04	–	☼	○	☼	SIM	Outdoor unit line address duplicated	I/F
L05	–	–	☼	●	☼	SIM	Duplicated indoor units with priority (Displayed in indoor unit with priority)	I/F
L06	L06	No. of indoor units with priority	☼	●	☼	SIM	Duplicated indoor units with priority (Displayed in unit other than indoor unit with priority)	I/F
L07	–	–	☼	●	☼	SIM	Group line in individual indoor unit	Indoor unit
L08	L08	–	☼	●	☼	SIM	Indoor unit group/Address unset	Indoor unit, I/F
L09	–	–	☼	●	☼	SIM	Indoor unit capacity unset	Indoor unit
L10	L10	–	☼	○	☼	SIM	Outdoor unit capacity unset	I/F
L11	L11	Detected indoor unit address	☼	○	☼	SIM	Flow Selector unit not connected	I/F
L12	L12	01: Flow Selector unit installation trouble	☼	○	☼	SIM	Flow Selector unit system trouble	I/F
L13	L13	Detected indoor unit address	☼	○	☼	SIM	Safety device setting unmatch	I/F
L14	L14	Detected indoor unit address	☼	○	☼	SIM	Safety device nonconformity	I/F
L17	L17	–	☼	○	☼	SIM	Outdoor unit type mismatch trouble	I/F
L18	L18	Detected indoor unit address	☼	○	☼	SIM	Flow Selector unit trouble	I/F
L20	–	–	☼	○	☼	SIM	Duplicated central control addresses	Indoor unit
L22	–	–	☼	○	☼	SIM	There is a DX-kit (heat source capacity command) non-compliant machine in the group (DDC control, TA control and TF control are mixed)	Indoor unit
L24	L24	01: Duplication of Flow Selector unit address 02: Indoor unit operation mode priority setting	☼	○	☼	SIM	Flow Selector unit setting trouble	I/F
L28	L28	–	☼	○	☼	SIM	Too many outdoor units connected	I/F
L29	L29	*1 Inverter quantity information	☼	○	☼	SIM	No. of inverter trouble	I/F
L30	L30	Detected indoor unit address	☼	○	☼	SIM	Indoor unit outside interlock	Indoor unit
–	L31	–	–				Extended I/C trouble	I/F
P01	–	–	●	☼	☼	ALT	Indoor fan motor trouble	Indoor unit
P03	P03	–	☼	●	☼	ALT	Discharge temp. TD1 trouble	I/F
P04	P04	1∗: Comp. 1 side 2∗: Comp. 2 side	☼	●	☼	ALT	High-pressure SW system operation	Inverter
P05	P05	1∗: Comp. 1 side 2∗: Comp. 2 side	☼	●	☼	ALT	Phase missing detection/Power failure detection Inverter DC voltage trouble (comp.)	I/F
P07	P07	1∗: Comp. 1 side 2∗: Comp. 2 side	☼	●	☼	ALT	Heat sink overheat trouble	Inverter, I/F
		04: Heat sink					Heat sink dew condensation trouble	
P10	P10	Detected indoor unit address	●	☼	☼	ALT	Indoor unit overflow trouble	Indoor unit
P11	P11	–	●	☼	☼	ALT	Outdoor heat exchanger freezing trouble	I/F
P12	–	–	●	☼	☼	ALT	Indoor unit fan motor trouble	Indoor unit
P13	P13	–	●	☼	☼	ALT	Outdoor liquid back detection trouble	I/F
P15	P15	01: TS condition 02: TD condition	☼	●	☼	ALT	Gas leak detection	I/F
P16	P16	01: PMV5 02: PMV6 03: SV7	☼	●	☼	ALT	Injection circuit trouble	I/F

Check code			Wireless remote controller				Check code name	Judging device
Wired remote controller display	Outdoor unit 7-segment display		Sensor block display of receiving unit					
		Auxiliary code	Operation	Timer	Ready	Flash		
P17	P17	–	☼	●	☼	ALT	Discharge temp. TD2 trouble	I/F
P18	P18	–	☼	●	☼	ALT	Discharge temp. TD3 trouble	I/F
P19	P19	0#: 4-way valves 1#: 4-way valve1 2#: 4-way valve2 *Put in outdoor unit No. in [#] mark.	☼	●	☼	ALT	4-way valve inverse trouble	I/F
P20	P20	–	☼	●	☼	ALT	High-pressure protective operation	I/F
P22	P22	1∗ : Compressor 1 side 2∗ : Compressor 2 side	☼	●	☼	ALT	Outdoor unit fan inverter trouble	Inverter
P26	P26	1∗: Comp. 1 side 2∗: Comp. 2 side	☼	●	☼	ALT	IPM short protection trouble	Inverter
P29	P29	1∗: Comp. 1 side 2∗: Comp. 2 side	☼	●	☼	ALT	Comp. position detective circuit system trouble	Inverter
P31	–	–	☼	●	☼	ALT	Other indoor unit trouble (Group follower indoor unit trouble)	Indoor unit

• For details about check codes determined with an Interface P.C. Board or an Inverter P.C. Board, refer to the Installation Manual of the outdoor unit.

***1 Inverter quantity information**
(Super Modular Multi System e and u series (SMMS-e, SMMS-u, SHRM-A))

No.	Comp. Inverter		Fan Inverter		Trouble
	1	2	1	2	
01	◯				Comp. 1
02		◯			Comp. 2
03	◯	◯			Comp. 1 + Comp. 2
08			◯		Fan1
09	◯		◯		Comp. 1 + Fan1
0A		◯	◯		Comp. 2 + Fan1
0B	◯	◯	◯		Comp. 1 + Comp. 2 + Fan1
10				◯	Fan2
11	◯			◯	Comp. 1 + Fan2
12		◯		◯	Comp. 2 + Fan2
13	◯	◯		◯	Comp. 1 + Comp. 2 + Fan2
18			◯	◯	Fan1 + Fan2
19	◯		◯	◯	Comp. 1 + Fan1 + Fan2
1A		◯	◯	◯	Comp. 2 + Fan1 + Fan2
1B	◯	◯	◯	◯	All
◯ : Inverter trouble					

Trouble detected by central control device

Check code			Wireless remote controller				Check code name	Judging device
Central control device indication	Outdoor unit 7-segment display		Sensor block display of receiving unit					
		Auxiliary code	Operation	Timer	Ready	Flash		
C05	–	–	–				Sending trouble in central control device	Central control device
C06	–	–	–				Receiving trouble in central control device	Central control device
C12	–	–	–				Batch alarm of general-purpose equipment control interface	General-purpose equipment I/F
P30 (L20)	Differs according to trouble contents of unit with occurrence of alarm						Group control follower unit trouble	Central control device
	–	–	(L20 is displayed.)				• Duplication addresses of indoor units in central control device • With the combination of air conditioning system, the indoor unit may detect the check code of L20	
S01	–	–	–				Receiving trouble in central control device	Central control device

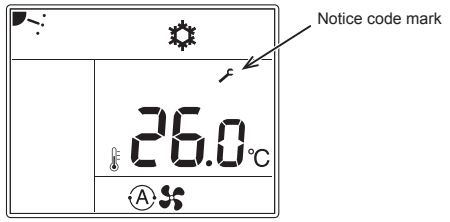
11 Specifications

Model	Sound power level (dBA)		Weight (kg) Main unit (Ceiling panel)
	Cooling	Heating	
MMU-UP0091HP-E	*	*	18 (4)
MMU-UP0121HP-E	*	*	18 (4)
MMU-UP0151HP-E	*	*	20 (4)
MMU-UP0181HP-E	*	*	20 (4)
MMU-UP0241HP-E	*	*	20 (4)
MMU-UP0271HP-E	*	*	20 (4)
MMU-UP0301HP-E	*	*	20 (4)
MMU-UP0361HP-E	*	*	25 (4)
MMU-UP0481HP-E	*	*	25 (4)
MMU-UP0561HP-E	*	*	25 (4)

* Under 70 dBA

12 Notice code

- Notice code is a function only in TC2U-Link communication.
- When the outdoor or indoor unit detects its conditions requiring caution or maintenance, this function notices you to check your units with the spanner mark (Notice code mark) on the wired remote controller or central controller display.
- Even while the notice code mark is displayed, the air conditioner can operate normally.
- A maximum of 5 notice codes can be issued simultaneously in one system (line).



■ How to check Notice code No.

1 **Stop the operation of the air conditioner and push the Menu button and OFF timer button at the same time for 10 seconds or more.**

2 **The unit number of the indoor unit is displayed at the bottom left of the screen.**
Change it with the [▽] [△] setting button and push the OFF timer button to confirm.

3 **The history number is displayed in the center of the screen, and the Notice code No. is displayed in the lower left.**
[▽] [△] You can switch the history with the setting button (a maximum of 5 notice codes).

4 **Push the ON / OFF button to return to the operation stop screen.**

■ Notice code list

Notice code No.	Item	Content
203	Flow Selector unit battery dead	The battery kit connected to the Flow Selector unit has reached the end of its life.
204	Leak detector life advance display	The leak detector will soon reach the end of its life.

Declaration of Conformity

Manufacturer: CARRIER AIR CONDITIONING (THAILAND) CO., LTD.
144/9 MOO 5, BANGKADI INDUSTRIAL PARK, TIVANON ROAD, TAMBOL BANGKADI,
AMPHUR MUANGPATHUMTHANI, PATHUMTHANI 12000, THAILAND

TCF holder: Carrier RLC Europe S.A.S
Immeuble Le Cristalia 3 rue Joseph Monier
92500 Rueil-Malmaison FRANCE

Hereby declares that the machinery described below:

Generic Denomination: Air Conditioner

Model / type: MMU-UP0091HP-E, MMU-UP0271HP-E
MMU-UP0121HP-E, MMU-UP0301HP-E
MMU-UP0151HP-E, MMU-UP0361HP-E
MMU-UP0181HP-E, MMU-UP0481HP-E
MMU-UP0241HP-E, MMU-UP0561HP-E

Commercial name: Super Modular Multi System Air Conditioner
Super Heat Recovery Multi System Air Conditioner
Mini-Super Modular Multi System Air Conditioner (MiNi-SMMS series)

Complies with the provisions of the Machinery Directive (Directive 2006/42/EC) and the regulations transposing into national law

Name: Kazunari Watanabe
Position: GM, Quality Assurance Dept.
Date: 2 May, 2024
Place Issued: Thailand

NOTE

This declaration becomes invalid if technical or operational modifications are introduced without the manufacturer’s consent.

Declaration of Conformity

Manufacturer: CARRIER AIR CONDITIONING (THAILAND) CO., LTD.
144/9 MOO 5, BANGKADI INDUSTRIAL PARK, TIVANON ROAD, TAMBOL BANGKADI,
AMPHUR MUANGPATHUMTHANI, PATHUMTHANI 12000, THAILAND

TCF holder: Carrier Solutions UK Ltd.
Porsham Close, Belliver Industrial Estate,
PLYMOUTH, Devon,
PL6 7DB, United Kingdom

Hereby declares that the machinery described below:

Generic Denomination: Air Conditioner

Model / type: MMU-UP0091HP-E, MMU-UP0271HP-E
MMU-UP0121HP-E, MMU-UP0301HP-E
MMU-UP0151HP-E, MMU-UP0361HP-E
MMU-UP0181HP-E, MMU-UP0481HP-E
MMU-UP0241HP-E, MMU-UP0561HP-E

Commercial name: Super Modular Multi System Air Conditioner
Super Heat Recovery Multi System Air Conditioner
Mini-Super Modular Multi System Air Conditioner (MiNi-SMMS series)

Complies with the provisions of the Supply of Machinery (Safety) Regulations 2008

Name: Kazunari Watanabe
Position: GM, Quality Assurance Dept.
Date: 2 May, 2024
Place Issued: Thailand

NOTE

This declaration becomes invalid if technical or operational modifications are introduced without the manufacturer’s consent.

13 Appendix

Work instructions

The existing R22 and R410A piping can be reused for inverter R32 product installations.

⚠ WARNING

Confirming the existence of scratches or dents on the existing pipes and confirming the reliability of the pipe strength are conventionally referred to the local site.
If the specified conditions can be cleared, it is possible to update existing R22 and R410A pipes to those for R32 models.

Basic conditions needed to reuse existing pipes

Check and observe the presence of three conditions in the refrigerant piping works.

1. **Dry** (There is no moisture inside of the pipes.)
2. **Clean** (There is no dust inside of the pipes.)
3. **Tight** (There are no refrigerant leaks.)

Restrictions for use of existing pipes

In the following cases, the existing pipes should not be reused as they are. Clean the existing pipes or exchange them with new pipes.

1. When a scratch or dent is heavy, be sure to use new pipes for the refrigerant piping works.
2. When the existing pipe thickness is thinner than the specified “Pipe diameter and thickness,” be sure to use new pipes for the refrigerant piping works.
   - The operating pressure of refrigerant is high. If there is a scratch or dent on the pipe or a thinner pipe is used, the pressure strength may be inadequate, which may cause the pipe to break in the worst case.

*** Pipe diameter and thickness (mm)**

Pipe outer diameter		Ø6.4	Ø9.5	Ø12.7	Ø15.9
Thickness	R32, R410A	0.8	0.8	0.8	1.0
	R22				

3. When the outdoor unit was left with the pipes disconnected, or the gas leaked from the pipes and the pipes were not repaired and refilled.
   - There is the possibility of rain water or air, including moisture, entering the pipe.
4. When refrigerant cannot be recovered using a refrigerant recovery unit.
   - There is the possibility that a large quantity of dirty oil or moisture remains inside the pipes.
5. When a commercially available dryer is attached to the existing pipes.
   - There is the possibility that copper green rust has been generated.
6. When the existing air conditioner is removed after refrigerant has been recovered.
   Check if the oil is judged to be clearly different from normal oil.
   - The refrigerator oil is copper rust green in color: There is the possibility that moisture has mixed with the oil and rust has been generated inside the pipe.
   - There is discolored oil, a large quantity of residue, or a bad smell.
   - A large quantity of shiny metal dust or other wear residue can be seen in the refrigerant oil.
7. When the air conditioner has a history of the compressor failing and being replaced.
   - When discolored oil, a large quantity of residue, shiny metal dust, or other wear residue or mixture of foreign matter is observed, trouble will occur.
8. When temporary installation and removal of the air conditioner are repeated such as when leased etc.
9. If the type of refrigerator oil of the existing air conditioner is other than the following oil (Mineral oil), Suniso, Freol-S, MS (Synthetic oil), alkyl benzene (HAB, Barrel-freeze), ester series, PVE only of ether series.
   - The winding-insulation of the compressor may deteriorate.

NOTE

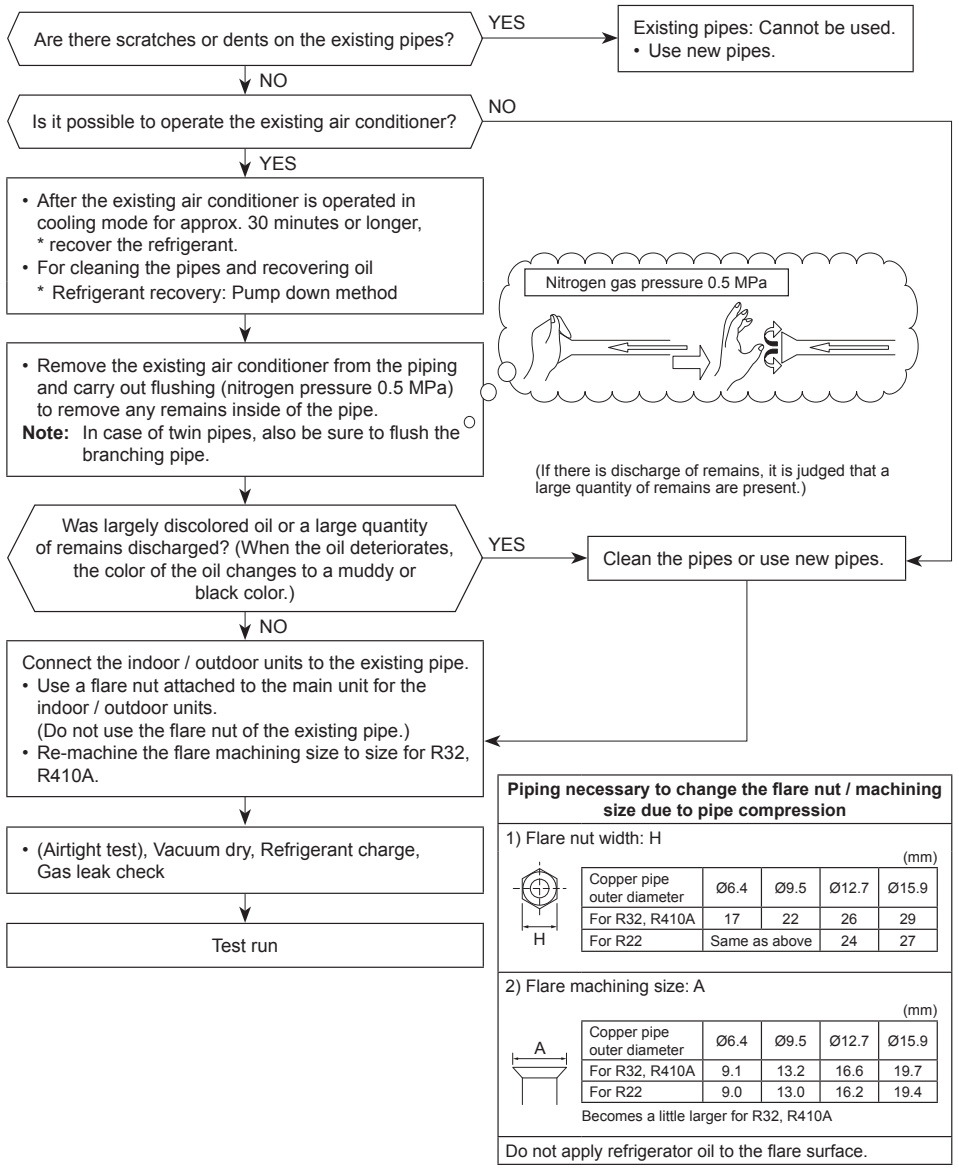
The above descriptions are results have been confirmed by our company and represent our views on our air conditioners, but do not guarantee the use of the existing pipes of air conditioners that have adopted R32, R410A in other companies.

Curing of pipes

When removing and opening the indoor or outdoor unit for a long time, cure the pipes as follows:

- Otherwise rust may be generated when moisture or foreign matter due to condensation enters the pipes.
- The rust cannot be removed by cleaning, and new pipes are necessary.

Placement location	Term	Curing manner
Outdoors	1 month or more	Pinching
	Less than 1 month	Pinching or taping
Indoors	Every time	



Piping necessary to change the flare nut / machining size due to pipe compression

1) Flare nut width: H

(mm)

Copper pipe outer diameter	Ø6.4	Ø9.5	Ø12.7	Ø15.9
For R32, R410A	17	22	26	29
For R22	Same as above		24	27

2) Flare machining size: A

(mm)

Copper pipe outer diameter	Ø6.4	Ø9.5	Ø12.7	Ø15.9
For R32, R410A	9.1	13.2	16.6	19.7
For R22	9.0	13.0	16.2	19.4

Becomes a little larger for R32, R410A

Do not apply refrigerator oil to the flare surface.

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.

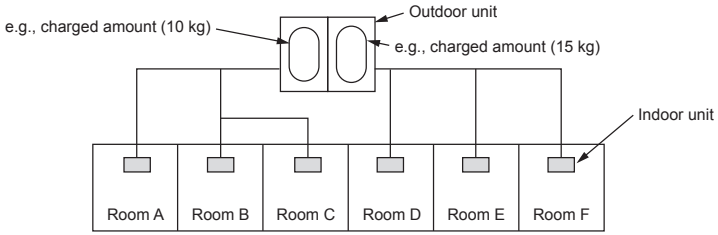
Refrigerant R32
The refrigerant R32 which is used in the air conditioner is mildly flammable. In Europe and areas where IEC standards apply, EN/IEC 60335-2-40 is the applicable standard. The refrigerant R32 does not have the toxicity of ammonia, and is not restricted by laws to be imposed which protect the ozone layer. If this appliance is connected with the outdoor unit containing R32 refrigerant, refer to the Installation and Owner's Manual attached to the outdoor unit.

Refrigerant R410A
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 space, individual control, energy conservation by curtailing heat and carrying power etc.
Most importantly, the multi air conditioner system is able to hold 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 imposed by the local regulation, create an opening with adjacent rooms, or install mechanical ventilation or isolation, combined with a gas leak detection device, which complies with the local regulatory requirements.
The concentration calculation method is as given below. Please note the concentration limit between R32 and R410A refrigerant differs.

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

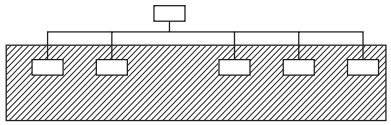
Refrigerant Concentration Limit shall be in accordance with local regulations.

▼ 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.



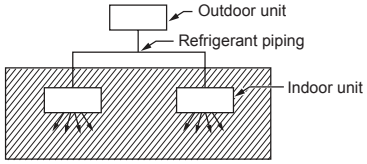
For the amount of charge in this example:
The possible amount of leaked refrigerant gas in rooms A, B and C is 10 kg.
The possible amount of leaked refrigerant gas in rooms D, E and F is 15 kg.

▼ NOTE 2
The standards for minimum room volume are as follows.
1) No partition (shaded portion)

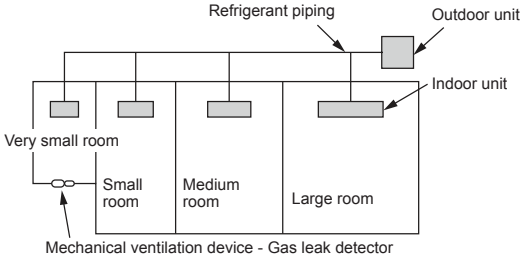


Important

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
System compliance has been completed to IEC60335-2-40 Ed6. If EN378 compliance is required please refer separately to EN378 for guidance.

■ 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

Indoor unit	Indoor unit	Indoor unit	Indoor unit
Room name	**Room name**	**Room name**	**Room name**
Model	**Model**	**Model**	**Model**

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])

Line	Indoor	Group	Line	Indoor	Group	Line	Indoor	Group	Line	Indoor	Group

Central control address	Central control address	Central control address	Central control address

Various setup

Have you changed high ceiling setup? 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.) * In case of replacement of jumper blocks on indoor microcomputer P.C. Board, setup is automatically changed.

High ceiling setup (CODE NO. [5d])		High ceiling setup (CODE NO. [5d])		High ceiling setup (CODE NO. [5d])		High ceiling setup (CODE NO. [5d])	
☐ NO CHANGE	[0000]	☐ NO CHANGE	[0000]	☐ NO CHANGE	[0000]	☐ NO CHANGE	[0000]
☐ STANDARD	[0001]	☐ STANDARD	[0001]	☐ STANDARD	[0001]	☐ STANDARD	[0001]
☐ HIGH CEILING 1	[0002]	☐ HIGH CEILING 1	[0002]	☐ HIGH CEILING 1	[0002]	☐ HIGH CEILING 1	[0002]
☐ HIGH CEILING 3	[0003]	☐ HIGH CEILING 3	[0003]	☐ HIGH CEILING 3	[0003]	☐ HIGH CEILING 3	[0003]

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.)

Filter sign lighting time (CODE NO. [01])		Filter sign lighting time (CODE NO. [01])		Filter sign lighting time (CODE NO. [01])		Filter sign lighting time (CODE NO. [01])	
☐ NO CHANGE		☐ NO CHANGE		☐ NO CHANGE		☐ NO CHANGE	
☐ NONE	[0000]	☐ NONE	[0000]	☐ NONE	[0000]	☐ NONE	[0000]
☐ 150H	[0001]	☐ 150H	[0001]	☐ 150H	[0001]	☐ 150H	[0001]
☐ 2500H	[0002]	☐ 2500H	[0002]	☐ 2500H	[0002]	☐ 2500H	[0002]
☐ 5000H	[0003]	☐ 5000H	[0003]	☐ 5000H	[0003]	☐ 5000H	[0003]
☐ 10000H	[0004]	☐ 10000H	[0004]	☐ 10000H	[0004]	☐ 10000H	[0004]

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.)

Detected temp, shift value setup (CODE NO. [06])		Detected temp, shift value setup (CODE NO. [06])		Detected temp, shift value setup (CODE NO. [06])		Detected temp, shift value setup (CODE NO. [06])	
☐ NO CHANGE		☐ NO CHANGE		☐ NO CHANGE		☐ NO CHANGE	
☐ NO SHIFT	[0000]	☐ NO SHIFT	[0000]	☐ NO SHIFT	[0000]	☐ NO SHIFT	[0000]
☐ +1°C	[0001]	☐ +1°C	[0001]	☐ +1°C	[0001]	☐ +1°C	[0001]
☐ +2°C	[0002]	☐ +2°C	[0002]	☐ +2°C	[0002]	☐ +2°C	[0002]
☐ +3°C	[0003]	☐ +3°C	[0003]	☐ +3°C	[0003]	☐ +3°C	[0003]
☐ +4°C	[0004]	☐ +4°C	[0004]	☐ +4°C	[0004]	☐ +4°C	[0004]
☐ +5°C	[0005]	☐ +5°C	[0005]	☐ +5°C	[0005]	☐ +5°C	[0005]
☐ +6°C	[0006]	☐ +6°C	[0006]	☐ +6°C	[0006]	☐ +6°C	[0006]

Incorporation of parts sold separately	Incorporation of parts sold separately	Incorporation of parts sold separately	Incorporation of parts sold separately

Have you incorporated the following parts sold separately? If incorporated, fill check mark [×] in each [ITEM].
(When incorporating, the setup change is necessary in some cases. For setup change method, refer to Installation Manual attached to each part sold separately.)

☐ Others ( )	☐ Others ( )	☐ Others ( )	☐ Others ( )
☐ Others ( )	☐ Others ( )	☐ Others ( )	☐ Others ( )

CARRIER AIR CONDITIONING (THAILAND) CO., LTD.

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