

# TOSHIBA

**INSTALLATION MANUAL  
MANUEL D'INSTALLATION  
INSTALLATIONS-HANDBUCH  
MANUALE DI INSTALLAZIONE  
MANUAL DE INSTALACIÓN**

## **AIR CONDITIONER CLIMATISEUR KLIMASYSTEM CONDIZIONATORE D'ARIA AIRE ACONDICIONADO**

**Indoor Unit  
Unité intérieure  
Raumeinheit  
Unità interna  
Unidad interior**

**Strictly for commercial use only  
Uniquement à usage commercial  
Nur für den gewerblichen Gebrauch  
Assolutamente solo per uso commerciale  
Únicamente para uso comercial**

**[4-way Air Discharge Cassette Type]  
[Type cassette à 4 voies de soufflage]  
[4-Wege-Kassetten-Modell]  
[Tipo a cassetta per mandata d'aria a 4 vie]  
[Modelo de cassette con descarga de aire de 4 vías]**

**MMU-AP0071MH  
MMU-AP0091MH  
MMU-AP0121MH  
MMU-AP0151MH  
MMU-AP0181MH**

## ADOPTION OF NEW REFRIGERANT

This Air Conditioner adopts a new HFC refrigerant (R410A) which does not destruct the ozone layer.

We would like to express our deepest thanks to your purchase this Air Conditioner.

This manual describes the details of installation method of the indoor unit.

Prior to installation, please read this manual thoroughly to understand the contents.

If you are an installer or a dealer, please pass this manual to the customer and clearly explain the contents.

For piping connections such as Y-shape branch, branching joints, header branch of the indoor and outdoor units must be selected in accordance to the total system capacity.

These items are supplied separately as accessories.

## UTILISATION DU NOUVEAU REFRIGERANT

Ce climatiseur utilise le nouveau réfrigérant HFC (R410A), qui ne détruit pas la couche d'ozone.

Nous vous remercions d'avoir choisi ce climatiseur.

Ce manuel décrit la procédure d'installation de l'unité intérieure.

Avant de procéder à l'installation, veuillez lire attentivement ce manuel et vous assurer d'en avoir compris le contenu.

Si vous êtes un monteur ou un revendeur, veuillez remettre ce manuel au client en lui expliquant clairement son contenu.

Choisissez les raccords des tuyauteries, tels que les embranchements en Y, les raccords d'embranchement, l'embranchement du collecteur des unités intérieures et extérieures, en fonction de la puissance totale du système.

Ces éléments sont des accessoires fournis séparément.

## VERWENDUNG EINES NEUEN KÜHLMITTELS

Dieses Klimagerät arbeitet mit dem neuen HFC Kältemittel R410A. Dieses Kältemittel greift die Ozonschicht nicht an.

Wir danken Ihnen, dass Sie sich für dieses Klimagerät entschieden haben.

In diesem Handbuch wird die Installation der Inneneinheit beschrieben.

Bevor Sie mit der Installation beginnen, lesen Sie dieses Handbuch sorgfältig.

Wenn Sie zu einem Installationsbetrieb oder zu einem Händler gehören, geben Sie das Handbuch an Ihren Kunden weiter und erklären ihm den Inhalt.

Rohrleitungsverbindungen wie Y-Abzweige, Abzweiganschlüsse und Verteiler für Innen- und Außeneinheiten müssen entsprechend der Systemleistung ausgewählt werden.

Diese Teile werden separat als Zubehör geliefert.

## IMPIEGO DI NUOVO REFRIGERANTE

Questo condizionatore d'aria impiega il nuovo refrigerante HFC (R410A) che non distrugge lo strato d'ozono.

Porgiamo i nostri sinceri ringraziamenti per aver acquistato questo condizionatore d'aria.

Questo manuale presenta informazioni dettagliate riguardo come installare l'unità esterna.

Prima d'iniziare l'installazione, leggere attentamente questo manuale per comprendere le istruzioni contenute.

È importante che l'installatore o il rivenditore forniscano questo manuale al cliente e lo informino bene delle istruzioni in esso fornite.

Per il collegamento dei tubi relativi a derivazione Y, giunti di derivazione, collettore di derivazione di unità interne ed esterne, i tubi devono essere scelti in funzione della capacità totale del sistema.

Queste parti sono da acquistare a parte, come parti accessorie.

## ADOPCIÓN DE NUEVO REFRIGERANTE

Este acondicionador de aire utiliza el nuevo refrigerante HFC (R410A) que no daña la capa de ozono.

Gracias por haber adquirido este acondicionador de aire.

Este manual describe en detalle el método de instalación de la unidad interior.

Antes de realizar la instalación, lea detenidamente el manual para entenderlo por completo.

Si es un instalador o un distribuidor, hágale llegar el manual al cliente y explique claramente.

Para las conexiones de la tubería, como la derivación en Y, las juntas de derivación, se deben elegir las derivaciones con colector de las unidades interior y exterior según la capacidad total del sistema.

Estos elementos vienen por separado, en calidad de accesorios.

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







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# Accessory parts and Parts to be procured locally

## □ Accessory parts

Part name	Q'ty	Shape	Usage
Installation Manual	1	This manual	(Ensure handover to customer)
Heat insulating pipe	2		For heat insulation of the pipe connecting section
Installation pattern	1	—	For checking of ceiling opening and the main unit position
Installation gauge	2		For positioning of the ceiling position (To be used with the installation pattern)
Pattern fixing screw	4	M5 x 16L	For attach the installation pattern
Heat insulator	1		For heat insulation of drain connecting section
Washer	8		For hanging unit
Hose band	1		For connecting drain pipe
Flexible hose	1		For adjusting core-out of drain pipe
Heat insulator A	1		For sealing of wire connecting port
Heat insulator B	1		For sealing of wire connecting port

### Refrigerant piping

- Piping material used for the conventional refrigerant cannot be used.
- Use copper pipe only with a wall thickness of 0.8 mm or more for Ø6.4, Ø9.5, Ø12.7.
- Flare nut and flare operations are also different from those of the conventional refrigerant.  
Use the flare nut fitted to the indoor unit of the air conditioner.

# 1 PRECAUTIONS FOR SAFETY

- Ensure that all Local, National and International regulations are satisfied.
- Important safety information are describes in this installation manual.  
Please ensure this manual is read thoroughly and kept for future reference.
- After the installation work, perform a trial operation to check for any problem.  
Follow the Owner's Manual to explain how to use and maintain the unit to the customer.
- Turn off the main power supply switch (or breaker) before any unit maintenance.
- Ask the customer to keep the Installation Manual together with the Owner's Manual.

## CAUTION

### New Refrigerant Air Conditioner Installation

- **THIS AIR CONDITIONER FEATURES A NEW HFC REFRIGERANT (R410A) WHICH DOES NOT DEplete OZONE LAYER.**

The pressure of R410A is 1.6 times higher than that of former refrigerant R22. The refrigerating oil has also been changed. Therefore be sure that any former refrigerant, refrigerant oil or any other contaminants do not enter the refrigerating cycle of the air conditioner, during either installation or service work. If incorrect tools or operating procedures are used, there is a possibility of a serious accident. Use only tools and materials that have been designed to operate with R410A.

To prevent the risk of charging with an incorrect refrigerant, the dimensions of the charging port connections are different to those used for conventional refrigerant. Therefore only tools designed to operate with R410A can be used.

For connecting pipes, use piping specifically designed for R410A.

During installation, ensure pipes are clean and ensure contaminants do not enter the pipes as the system is affected by impurities such as water, oxide scales, dirt, oil, etc. Do not use existing pipe work from previous installation as this will cause problems due to pressure resistances and impurities within the pipe.

## CAUTION

### To Disconnect the Appliance from Main Power Supply.

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

## ⚠ WARNING

- **Ask an authorized dealer or qualified installation professional to install/maintain the air conditioner.**  
Inappropriate installation may result in water leakage, electric shock or fire.
- **Turn off the main power supply switch or breaker before attempting any electrical work.**  
Make sure all power switches are off. Failure to do so may cause an electric shock.
- **Connect all of the installation wiring correctly.**  
If the installation wiring is incorrect electrical parts may be damaged.
- **During the transportation and installation of the air conditioning unit, ensure that gaseous matter other than the specified refrigerant does not enter into the refrigeration cycle.**  
If a refrigerant becomes contaminated with foreign gases, the gas pressure within the refrigerant cycle will become abnormally high and may result in the fracture of pipework and possible human injury.
- **Do not modify this unit by removing any of the safety guards or by overriding any of the safety interlock switches.**
- **Exposure of the unit to water or other forms of moisture before installation may cause a short-circuit of the electrical parts.**  
Do not store it in a wet basement or expose to rain or water.
- **After unpacking the unit, examine for possible damage.**
- **Do not install in a place that might increase the vibration of the unit.**
- **To avoid personal injury (with sharp edges), be careful when handling parts.**
- **Perform installation work properly according to the Installation Manual.**  
Inappropriate installation may result in water leakage, electric shock or fire.
- **When the air conditioner is installed in a small room, provide appropriate measures to ensure that in the event of a refrigerant leak the rooms does not exceed the critical level.**

# 1 PRECAUTIONS FOR SAFETY

- **Install the air conditioner securely in a location where the base can sustain the weight of the unit adequately.**
- **Perform the specified installation work to guard against an earthquake.**  
If the air conditioner is not installed appropriately, accidents may occur due to the unit falling.
- **If refrigerant gas has leaked during the installation work, ventilate the room immediately.**  
If the leaked refrigerant gas comes in contact with fire, noxious gases may be generated.
- **After the installation work, confirm that refrigerant gas does not leak.**  
If refrigerant gas leaks into the room and flows near a fire source, such as a cooking range, noxious gases may be generated.
- **Electrical work must be performed by a qualified electrician in accordance with the Installation Manual. Ensure the power supply to the air conditioner is exclusive to that unit only.**  
An insufficient power supply capacity or inappropriate installation may cause fire.
- **Use only the specified wiring during the unit installation. Ensure that all terminals are securely fixed, so preventing any external forces having a negative effect on the terminals.**
- **Conform to the regulations of the local electric authority when wiring the power supply.**  
Inappropriate grounding may cause an electric shock.
- **Do not install the air conditioner in a location that maybe subjected to a risk of exposure to a combustible gas.**  
If a combustible gas leaks and becomes concentrated around the unit, a fire may occur.

# 2 SELECTION OF INSTALLATION PLACE

## WARNING

- **The air conditioner must be installed in a location that can support the weight of the unit effectively.**  
If the unit is not installed on a foundation that can support its weight effectively, the unit may fall down, resulting in possible human injury.
- **Where required ensure that the units installation is sufficient enough to withstand against an earthquake.**  
An insufficient installation could result in the unit falling, causing possible human injury.
- **Install the air conditioner at a minimum height of 2.5 m from the floor.**  
Do not insert your hands or others into the unit while the air conditioner is operating.

## CAUTION

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

- A place where the unit can be installed horizontally.
- A place where a sufficient servicing space can be maintained for safety maintenance and unit check.
- A place where the drain water can be exited from the unit, without causing a problem.

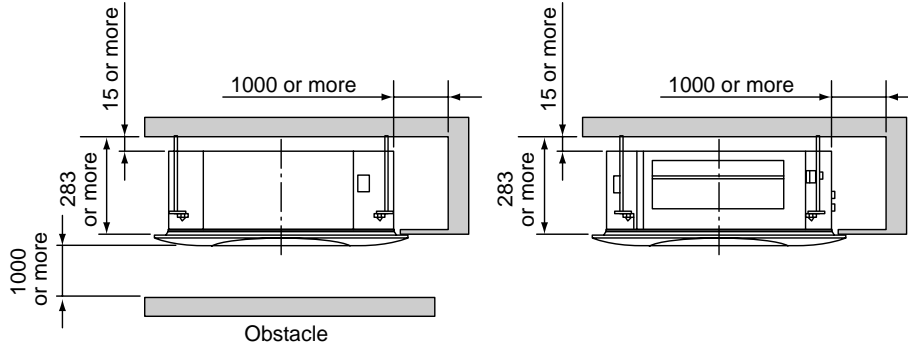
**Avoid installing in the following places.**

- Places exposed to air with a high salt content (seaside area), or places exposed to large quantities of sulfide gas (hot spring). (Should the unit be used in these places, special protective measures are needed.)
- Places exposed to oil, vapor, oil smoke or corrosive gas.
- Places where organic solvent is used nearby.
- Places close to a machine generating high frequency.
- Places where the discharged air blows directly into the window of the neighbouring house. (For outdoor unit)
- Places where the noise from the outdoor unit can be easily transmitted to the neighboring property. (When installing the air conditioner on the boundary with a neighbour, pay due attention to the level of noise.)
- Places with poor ventilation.

## Installation space

Ensure there is sufficient space to install the unit and to perform maintenance work as and when required. Keep 15mm or more for clearance between top plate of the indoor unit and the ceiling surface.

### Installation space



## Ceiling height

Model MMU-	Installable ceiling height
0071 to 0121 type	Up to 2.7 m
0151 to 0181 type	Up to 3.5 m

When the ceiling height exceeds the standard distance of a 4-way discharge cassette as detailed in the following table. The air-flow may not be sufficient to heat the room. It is therefore necessary to set the unit to high ceiling mode or adjust the direction of the ceiling discharge.

If fitting a separately supplied filter, it will also be necessary to set to high ceiling mode.

For setup of the high ceiling mode, refer to the details of Applicable controls "To incorporate a filter sold separately" and "In case of installation to high ceiling" within this Manual.

### Installable ceiling height list

Indoor unit Capacity type	0071 to 0121 type			0151 type			0181 type			Setup of high ceiling
	4-way	3-way	2-way	4-way	3-way	2-way	4-way	3-way	2-way	
Standard (At shipment)	2.7	—	—	2.9	—	—	3.2	—	—	0000
High ceiling (2)	—	—	—	3.2	—	—	3.4	—	—	0002
High ceiling (3)	—	—	—	3.5	—	—	3.5	—	—	0003

(Unit: m)

## REQUIREMENT

- When high ceiling (1) or (3) is used with 4-way blowing, a draft is easily recognized due to drop of discharge temperature.

The air filter cleaning signal duration (Notification of filter cleaning) on the remote controller can be changed according to the condition of installation.

If the room is not heated due to the installation place or construction of the room, the detection temperature of heating can be raised.

For setup method, refer to "Change of lighting term of filter sign" and "To secure better effect of heating" in the Applicable controls of this Manual.

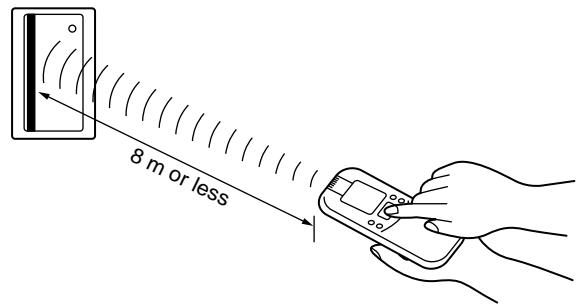
## 2 SELECTION OF INSTALLATION PLACE

### In case of wireless type

The wireless remote controller can be operated up to a maximum of 8 m from the infra-red receiver.

Therefore ensure that the remote controller will be mounted and used within this stated parameter.

- To prevent malfunction do not mount or operate in a location that is subjected to either a fluorescent lamp or direct sunlight.
- A maximum of 6 indoor units with wireless remote control can be installed within the same room.



## 3 INSTALLATION OF INDOOR UNIT

### WARNING

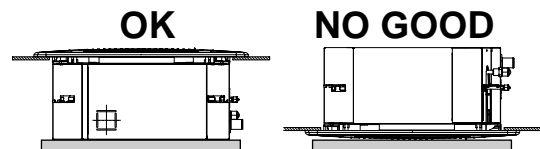
The installation of the air conditioning unit must be positioned in a location that can sufficiently support its weight and give protection against adverse environmental conditions.

Failure to do so may result in unit damage and possible human injury.

Any incomplete installation may also cause possible risk of human injury.

- Unpack the package, take out the product and then place it on the floor so that the same surface directs underneath as it is placed in the package.

If the both sides are turned over, a deformation of mounting metal of the ceiling panel which is sold separately, etc may be caused. Accordingly the product may be damaged and the installation becomes impossible in some cases.



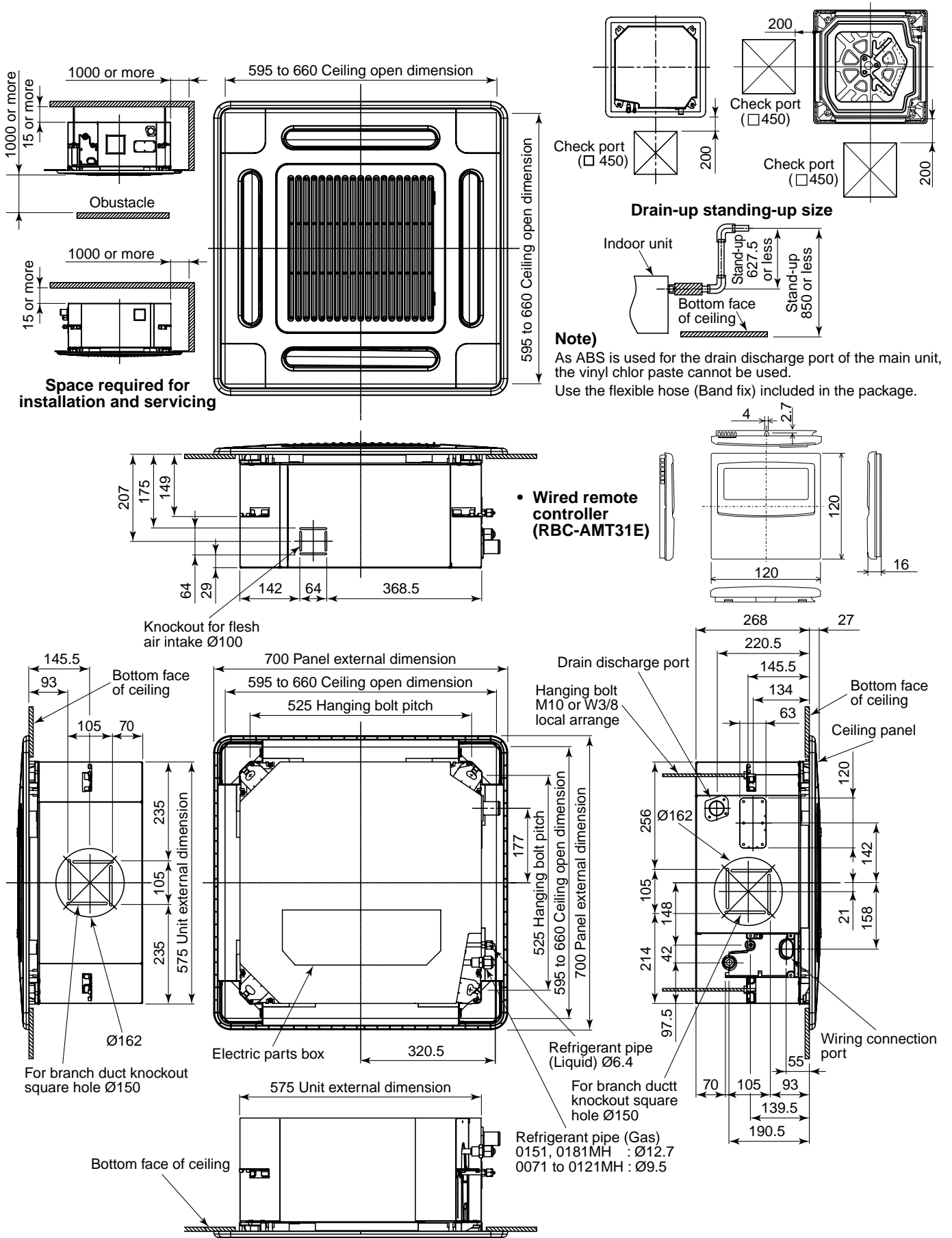
### REQUIREMENT

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

- Do not place heavy objects on the indoor unit. (Even when units are still packaged)
- Always carry the unit as packaged from the factory wherever possible.  
If carrying in the indoor unit unpacked by necessity, be sure to use buffering cloth, etc. to prevent damaging the unit.
- To move the indoor unit, hold the hanging brackets (4 positions) only.  
Do not apply force to other parts (refrigerant pipe, drain pan, foamed parts, or resin parts etc.).
- To be carried by two or more persons. Do not strap the unit in positions other than that stated.



# Dimensional view



# 3 INSTALLATION OF INDOOR UNIT

## Ceiling opening and installation of hanging bolts

- Evaluate and determine the piping and wiring requirements inside the ceiling prior to the hanging of the unit.
- After installation place of the indoor unit has been determined, create opening in ceiling and install the hanging bolts.
- For the ceiling opening size and pitch for hanging bolts refer to the dimensional drawing and the supplied installation pattern.
- Once the ceiling void has been created, ensure that the drain pipe, refrigerant pipes, inter-connecting wires and all control wires are in place prior to installing the actual indoor unit.

Please procure the hanging bolts and nuts for installation of the indoor unit at local site.

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

## How to use the supplied installation pattern

The installation pattern is enclosed within the packaging of the air conditioner.

### Existing ceiling void

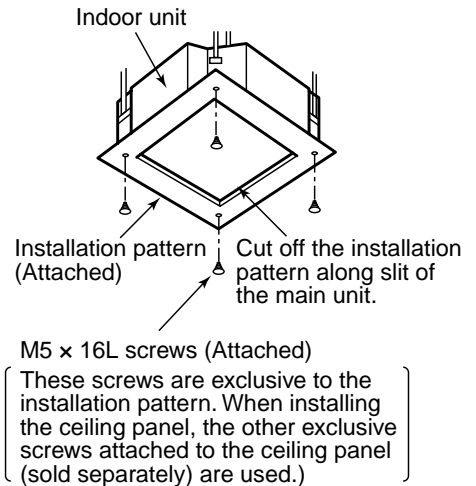
Use the pattern to determine the position and size of the opening and location of the hanging bolts.

### New ceiling void

Use the pattern to determine the position of the new ceiling opening.

Cut off slit section of the main unit of the installation pattern.  
Cut off the outside of the pattern according to size of the ceiling opening. (There is a slit on the standard opening size section.)

- Install the indoor unit after installation of the hanging bolts.
- Using the supplied pattern attach it to the indoor unit using the supplied fixing screws (M5 x 16L 4off). (Screw pattern to the ceiling panel hanging brackets of the indoor unit)
- When creating the opening ensure it is as per the outer dimensions of the supplied pattern.



## Opening a ceiling and installation of hanging bolts

### Treatment of ceiling

The ceiling differs according to the structure of the building. For details, consult your architect.

In the process after the ceiling panels have been removed, it is important to reinforce the ceiling construction and ensure the ceiling remains in a horizontal position. This is to prevent possible vibration of the ceiling panels.

1. Cut and remove the ceiling material.
2. Reinforce the cut surface of the ceiling construction and add support for fixing the end of ceiling panel.

### Installation of hanging bolt

Use M10 hanging bolts (4 off, locally procured).

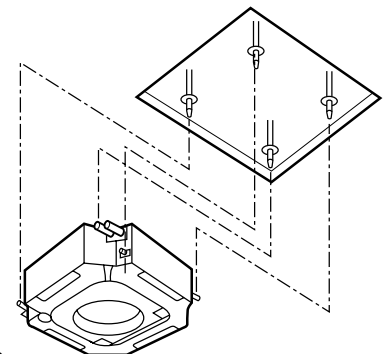
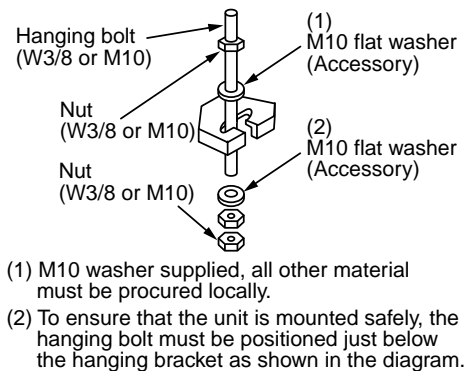
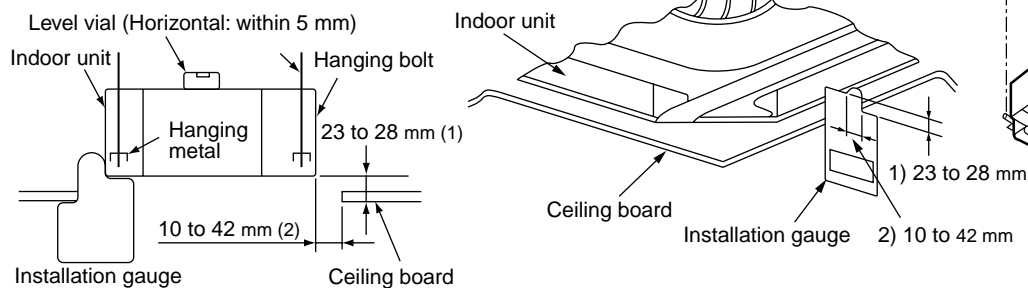
When mounting the unit, set the pitch of the hanging bolts according to the size of the unit as detailed on the dimensional drawing.

New concrete slab	Steel frame structure	Existing concrete slab
Install the bolts with insert brackets or anchor bolts.  (Blade type bracket)    (Slide type bracket)    (Pipe hanging anchor bolt)	Use existing angles or install new support angles.  Hanging bolt    Support angle	Use a hole-in anchors, hole-in plugs, or a hole-in bolts. 

## Installation of indoor unit

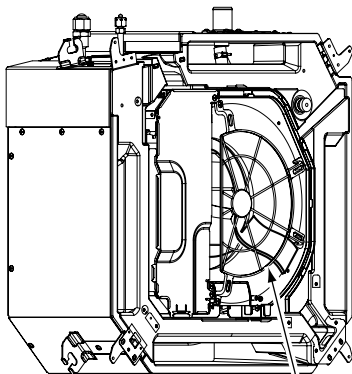
- Attach the nut (M10 or W3/8: Procured locally) and washer (Ø34 mm) to the hanging bolt.
  - Put washers at either side of the T-groove on the hanging bracket of the indoor unit in order to hang the unit.
  - Using a spirit level, check that all four sides are horizontal. (Horizontal positioned within 5 mm)
  - Cut off the installation gauge from the installation pattern.
  - Using the installation gauge check and adjust clearance between the indoor unit and the ceiling opening (1) (10 to 42 mm on each side). Ensure that the unit is level to the ceiling and within a distance of (2) 23 mm to 28 mm below.
- The installation gauge has details of how to use printed on it.

**Note)** Install the indoor unit so that the end part of opening does not come into contact with the drain socket piping.



## REQUIREMENT

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



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

## Installation of ceiling panel (Sold separately)

Install the ceiling panel after completion of the installation of the indoor unit, including all piping and wiring.

Install the ceiling panel as per the supplied Installation Manual.

Check the installation dimensions of the indoor unit and the ceiling opening are correct and then install.

## REQUIREMENT

Ensure the ceiling panel is mated to the ceiling surface or the indoor unit.

If the panel and unit are not mated together this may result in the formation of dew condensation causing a possible water leak.

First remove the 4 corner caps from the ceiling panel and fit to the indoor unit.

## Installation of remote controller (Sold separately)

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

- Do not expose remote controller to direct sunlight or excessive heat.
- When using a wireless type remote controller check receiver on the indoor unit receives a signal.
- For a wireless type controller ensure that it is used and mounted a minimum distance of 1m apart from any other electrical devices (TV, Stereo, etc). As this may cause interference with the devices.

# 4 DRAIN PIPING WORK

## CAUTION

- Install the drain piping so that the water drains effectively.
- Apply heat insulation to prevent dew condensation from forming.
- Incorrectly installed pipework may result in a water leak.

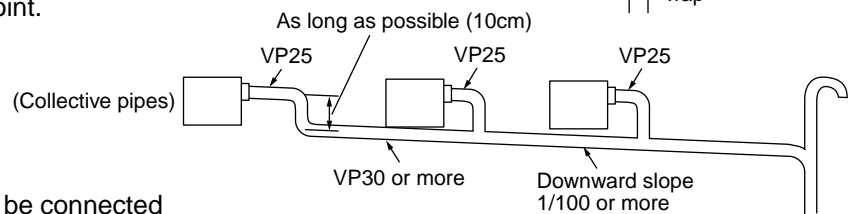
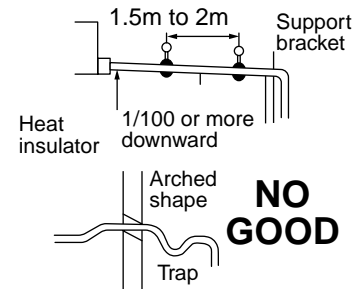
## Pipe material/Insulator and size

The following materials for piping work and insulation are to be procured locally.

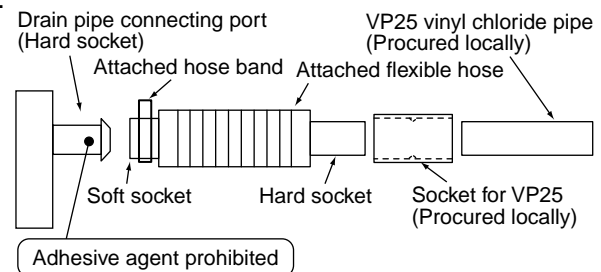
Pipe material	Hard vinyl chloride pipe socket for VP25
	Hard vinyl chloride pipe VP25 (Outer diameter Ø32 mm)
Insulator	Foamed polyethylene foam, thickness: 10 mm or more

## REQUIREMENT

- Ensure insulating of the drain pipes and connecting parts on the indoor units.
- The drain pipe should have a downward slope of at least 1/100 and ensure there are no swells or blockages as this will cause abnormal sounds.
- The maximum traverse length of drain pipe is 20 m. Provide support brackets at intervals of 1.5 to 2 m where necessary to prevent movement.
- Install the combined piping as shown in the illustration.
- Do not create an air purge in the pipework, as the water would leak from this point.

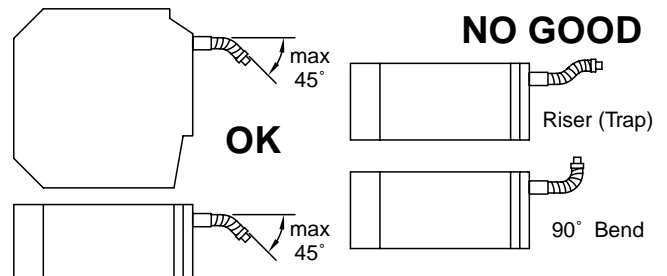


- The hard vinyl-chloride pipe cannot be connected directly to the drain pipe connecting port of the indoor unit. For connection with the drain pipe connecting port, ensure that the supplied flexible hose is fitted.
- Adhesive agent cannot be used for the pipe connecting port (hard socket) on the indoor unit. Be sure to use the supplied hose band for fixing, otherwise there is a risk of damage or water leakage from the drain pipe connecting port.



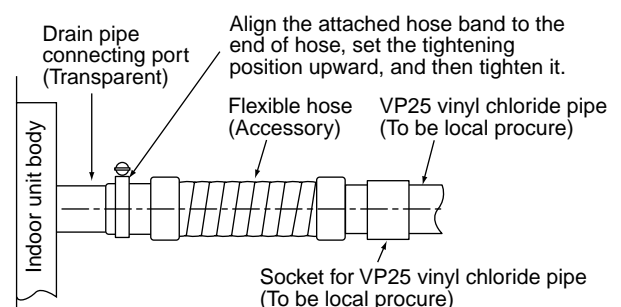
## Connection of flexible hose

- Insert the soft socket of the supplied flexible hose into the connecting port of the drain pipe.
- Align the supplied hose band to the pipe connecting port end, and tighten.



## REQUIREMENT

- Fix the soft socket with the supplied hose band, tighten at the upper position of the unit.
- The supplied flexible hose can bend up to a maximum of 45°



## Connection of drain pipe

- Connect the hard socket (Procured locally) to the hard socket side of the supplied flexible hose which has been installed.
- Connect the drain pipes (Procured locally) in turn to the connected hard sockets.

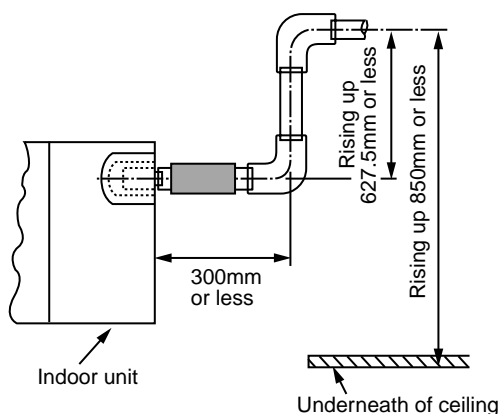
### REQUIREMENT

- Using a adhesive agent for vinyl chloride, connect the hard vinyl chloride pipes so that water does not leak.
- Allow sufficient time for the adhesive to set and harden. (Refer to the instructions of the adhesive.)

## Drain up

When it is not possible to achieve a natural downward slope on the drain pipe, you can create a vertical lift (Drain up) on the pipe.

- Set the height of the drain pipe within 850 mm from the bottom surface of the ceiling.
- The drain pipe should be piped from the drain pipe connecting port horizontally for a maximum of 300 mm and then piped vertically.
- After piping the vertical lift, ensure the pipework is set to a downward gradient.



## Check the draining

After completion of drain piping,

Check water drains away and that no water leaks from any of the connecting parts. At the same time check for any abnormal sounds from the drain pump.

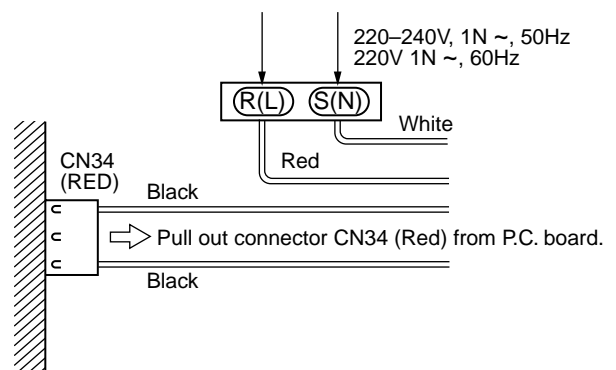
Ensure drainage is checked during cooling mode.

### When the electric work has finished:

- Before installing the ceiling panel, pour water as shown in the following figure, check water drains from the drain pipe connecting port (Transparent) in COOL mode and then check there are no water leaks from the drain pipes.

### When the electric work has not finished:

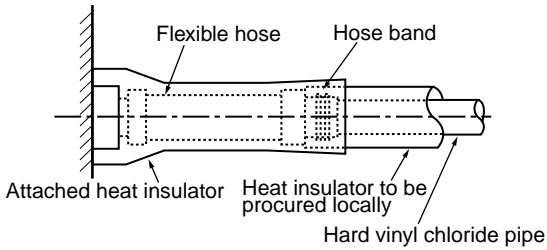
- Pull out the float switch connector (3P: Red) from P.C. board connector (CN34: Red) of the electric parts box. (Ensure the power is turned off.)
- Connect the single-phase 220-240V, 1N, 50Hz (or 220V, 1N, 60Hz) power to the terminal blocks R (L) and S (N). (Never apply 220-240V to (A), (B), (U1) and (U2).)
- Pour water referring to the figure. (Amount: 1500 cc to 2000 cc)
- When the power is turned on, the drain pump motor drives automatically. Check water is drained from the drain pipe connecting port (Transparent), and then check there is no water leak from the drain pipes.
- After checking for water leaks on the drain, turn off the power supply, and re-attach the float switch connector to the original position (CN34) on the P.C. board and refit the electric parts box.



# 4 DRAIN PIPING WORK

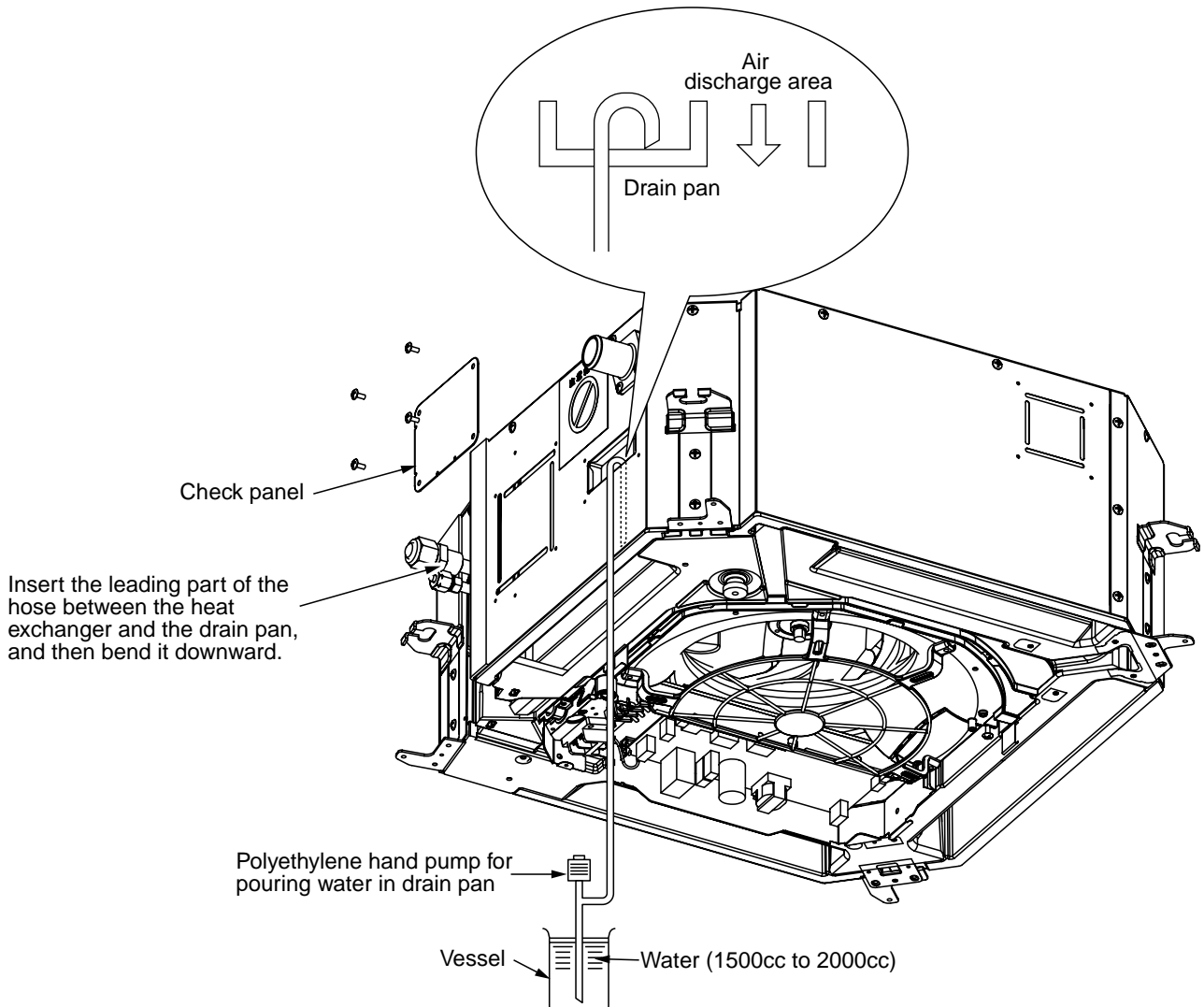
## Thermal insulating process

- After checking of the draining, using the supplied thermal insulation fit to the flexible hose leaving no clearance at the connecting port of the indoor unit.
- Fit locally procured thermal insulation to the drain pipe leaving no clearance between the supplied insulation.



### CAUTION

**Ensure water is poured slowly.**  
To reduce risk of water spreading throughout the unit, resulting in a possible fault.



# 5 REFRIGERANT PIPING

## ⚠ WARNING

- If refrigerant gas leaks during the installation work, ventilate the room immediately.
  - If the leaked refrigerant comes in contact with fire, noxious gas may generate.
- After the installation work, confirm that refrigerant does not leak.
  - If refrigerant gas leaks into the room and flows near to a source of fire, noxious gas maybe generated.

## REQUIREMENT

When using long lengths of refrigerant piping. Provide support brackets at intervals of 2.5 m to 3 m. If the pipes are not fixed abnormal sounds maybe generated. Ensure the supplied R410A flare nuts are used.

## Permissible pipe length and permissible height difference

This differs depending on the outdoor units. For details, refer to the Installation Manual supplied with the outdoor unit.

## Piping material and dimensions

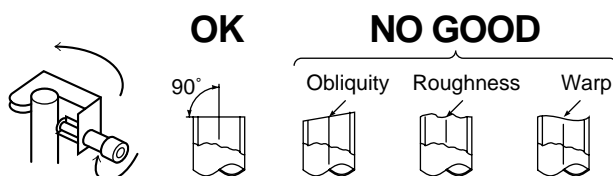
Piping material		Phosphor deoxidization seamless pipe for air conditioner	
Indoor unit capacity type MMU-		0071 to 0121 type	0151 to 0181 type
Pipe size (mm)	Gas side	Ø9.5	Ø12.7
	Liquid side	Ø6.4	Ø6.4

- Use new and clean pipe, ensuring that the pipes are not contaminated with dust, oil, moisture, etc.

## Pipe flaring

### Flaring

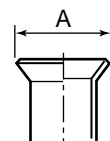
1. Cut the pipe with a pipe cutter.



2. Place flare nut onto the pipe, and flare the pipe. (Use the flare nut fitted to the unit or one that is R410A compatible)

As the flaring sizes of R410A differ from that used on R22. It is recommended to use a dedicated R410A flaring tool. However a conventional flare tool can be used, by adjustment of the projection of the copper pipe.

- Flaring diam. meter size :  
A (Unit : mm)



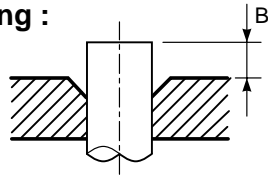
Outer diam. of copper pipe	A <sup>+0</sup> / <sub>-0.4</sub>
	R410A
6.4	9.1
9.5	13.2
12.7	16.6
15.9	19.7

- \* In case of flaring for R410A with the conventional flare tool, make a margin of 0.5 mm longer than that of R22 pipe so that the flare size matches with the specified size.

The copper pipe gauge is useful for adjusting the projection margin size.

# 5 REFRIGERANT PIPING

- Projection margin in flaring :  
B (Unit : mm)



Rigid (Clutch type)

Outer diam. of copper pipe	R410A tool used		Conventional tool used	
	R410A	R22	R410A	R22
6.4	0 to 0.5	(Same as left)	1.0 to 1.5	0.5 to 1.0
9.5	0 to 0.5	(Same as left)	1.0 to 1.5	0.5 to 1.0
12.7	0 to 0.5	(Same as left)	1.0 to 1.5	0.5 to 1.0
15.9	0 to 0.5	(Same as left)	1.0 to 1.5	0.5 to 1.0

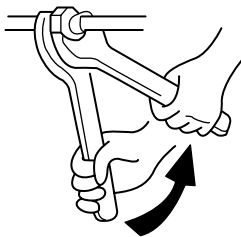
Imperial (Wing nut type)

Outer diam. of copper pipe	R410A	R22
6.4	1.5 to 2.0	1.0 to 1.5
9.5	1.5 to 2.0	1.0 to 1.5
12.7	2.0 to 2.5	1.5 to 2.0
15.9	2.0 to 2.5	1.5 to 2.0

## Connection of refrigerant pipe

Connect all the refrigerant pipes with the flare connection method

- As the unit is sealed to atmospheric pressure. It is not abnormal that no "Push...." sound will be heard upon the removal of the flare nut.
- Ensure use of two spanners for the connecting of the pipework to the indoor unit.



Work using double spanner

- Refer to the following table for tightening torque.

Connecting pipe outer dia. (mm)	Tightening torque (N•m)	Re-tightening torque (N•m)
Ø6.4	14 to 18 (1.4 to 1.8 kgf•m)	18 (1.8 kgf•m)
Ø9.5	33 to 42 (3.3 to 4.2 kgf•m)	42 (4.2 kgf•m)
Ø12.7	50 to 62 (5.0 to 6.2 kgf•m)	50 (5.0 kgf•m)
Ø15.9	68 to 82 (6.8 to 8.2 kgf•m)	68 (6.8 kgf•m)

## Airtight test/Air purge, etc.

For carrying out airtight test, air purge, gas leak check and addition of refrigerant refer to the Installation Manual supplied with the outdoor unit.

## Open fully valves of the outdoor unit

## Gas leak check

Using a leak detector or soapy water, check for gas leaks at the connecting pipework and the caps on the service valves.

## REQUIREMENT

Use a leak detector designed specifically for HFC refrigerant (R410A, R134a, etc.).

## Heat insulating process

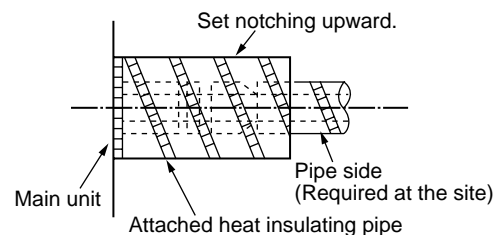
Fit heat insulation to the gas and liquid pipes separately.

During cooling mode, the temperature of the liquid and the gas pipes are reduced. Therefore ensure sufficient insulation is fitted to prevent dew condensation.

- On the gas side ensure that the heat insulation used is heat resistant to a minimum temperature of 120°C
- Using the supplied heat insulation. Insulate the interconnecting parts of the indoor unit, ensuring that there is no exposure of any refrigerant pipework. As detailed in the below illustration.

## REQUIREMENT

Apply the thermal 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.)





# 6 ELECTRIC WORK

## WARNING

1. **Using the specified wires, ensure the wires are connected and securely fixed so that no external force can transmit to the connecting part of the terminals.**

Poor connection may cause risk of fire, etc.

2. **Ensure connection of earth wire. (Grounding work)**

Do not connect the earth wire to a gas pipe, mains water pipe, lightning rod, or the earth wire of a telephone. Incorrect earthing will cause risk of an electric shock.

3. **For electrical installation work, strictly follow the Local and national Regulations of each country and the Installation Manual. A designated power supply must be used.**

Capacity shortage of the power supply or incomplete installation may cause an electric shock or a fire.

## CAUTION

**Ensure an earth leakage breaker is installed.**

Failure to install, may result in a electric shock.

## REQUIREMENT

- For power supply wiring, strictly conform to the Local authorities in each country.
- For wiring of the power supply of the outdoor units, follow to the outdoor unit Installation Manual.
- Never connect 220–240V control wiring to the terminal blocks (U1, U2, U3, U4, U5, U6) fault will be. (Caused.)
- Arrange the electrical wiring so that they do not come into contact with high-temperature parts of the pipework; this is to prevent the risk of insulation melting and causing a possible accident.
- After connecting wires to the terminal block. Secure wiring with cable clamp.
- Store wiring Install control wiring and refrigerant piping within the same line.
- Do not turn on power of the indoor unit until vacuuming of the refrigerant pipe has finished.

# 6 ELECTRIC WORK

## Power supply specifications

Power supply wiring and communication wiring are to be procured locally.

For the power supply specification, follow the table below. Ensure power supply is adequate. An insufficient power supply could result in unit failure.

For specification of the power capacity of the outdoor unit and the power supply wires, refer to the Installation Manual supplied with the outdoor unit.

Indoor unit power supply (*1)	Power supply	220–240V, 1N ~ 50Hz 220V, 1N ~ 60Hz	
	Power supply switch/Earth leakage breaker or power supply wiring/fuse rating for indoor units should be selected by the accommodated total current values of the indoor units.		
	Power supply wiring	20 m or less	Twist wire : 2.0 mm <sup>2</sup>
Communication line	Indoor/Outdoor inter-unit wiring (*2)	Q'ty	2
		Wire size	(Up to 1000 m) Twist wire : 1.25 mm <sup>2</sup> (Up to 2000 m) Twist wire : 2.0 mm <sup>2</sup>
	Central control line wiring (*3)	Q'ty	2
		Wire size	(Up to 1000 m) Twist wire : 1.25 mm <sup>2</sup> (Up to 2000 m) Twist wire : 2.0 mm <sup>2</sup>
	Remote controller wiring (*4)	Q'ty	2
		Wire size	Twist wire : 0.5 to 2.0 mm <sup>2</sup>

### Indoor unit power supply (\*1)

- Indoor unit power supply, must have a dedicated supply and be separate to that of the outdoor unit.
- Arrange the power supplies to the indoor and outdoor units, so that a common earth leakage breaker and main switch can be used.
- Power supply cable specification : Cable 3-core 2.5 mm<sup>2</sup>, in conformity with Design 60245 IEC 57.

### Indoor/Outdoor inter-unit wiring, Central controller wiring (\*2) (\*3)

- Use a 2 core non polarity cable.
- To prevent any possible noise issues, use a shielded 2 core wire.
- The total stated length of communication wiring is determined by the interconnecting length of indoor to outdoor cable plus the length of the central control communication cable.

### Remote controller wiring (\*4)

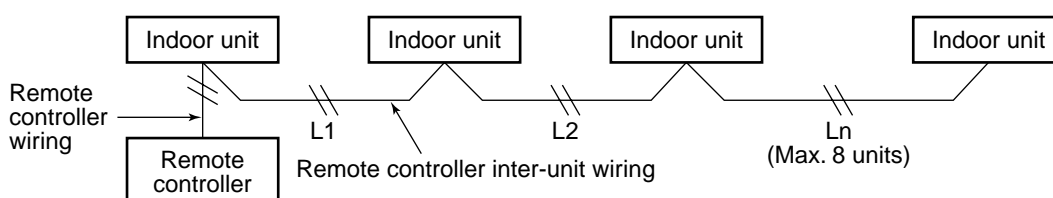
- For wiring remote controllers a 2 core polarity cable must be used.

Remote controller wiring, remote controller inter-unit wiring	Twist wire: 0.5mm <sup>2</sup> to 2.0 mm <sup>2</sup> × 2
---	---

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

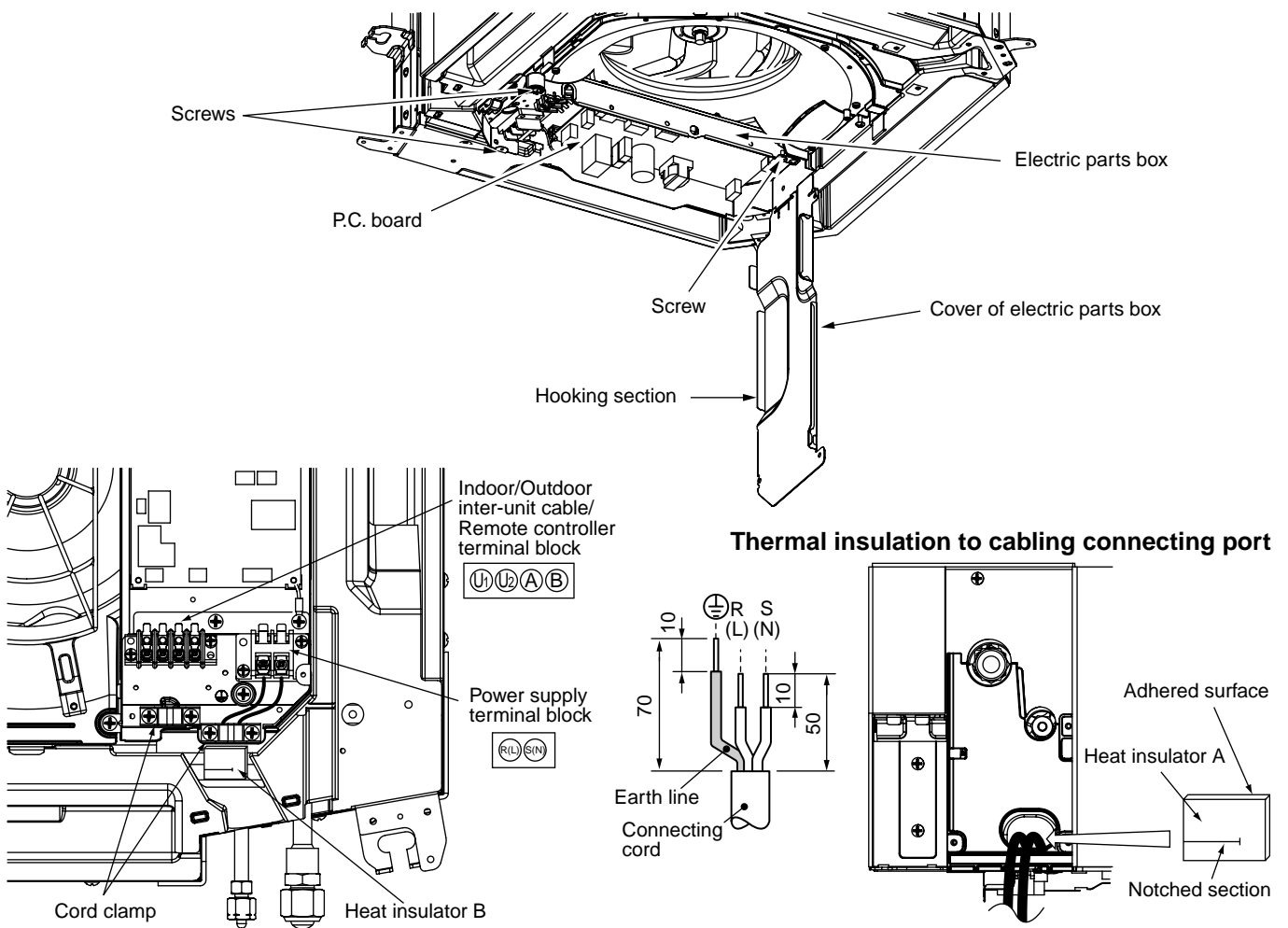
The remote controller wire (Communication line) and AC220–240V (Power supply) wires cannot be parallel to contact each other and cannot be stored in the same conduits. If doing so, a trouble may be caused on the control system due to noise, etc.



## Cable connection

### REQUIREMENT

- Be sure to locate the cable through the cable connection port of the indoor unit.
  - Ensure additional wire length of approximately 100 mm at the indoor unit electric parts box. This is to enable ease of any service work in the future.
  - The low-voltage circuit is provided for the remote controller.
- Remove the cover of the electric parts box by removing the mounting screws (3 off) and push the hooking section. (The cover of the electric parts box remains hanged to the hinge.)
  - Tighten the screws on the terminal block and secure the cables with cord clamp fitted to the electric parts box. (Do not apply tension to the connecting section of the terminal block.)
  - Using the supplied thermal insulation for the sealing of the cable connecting port, seal the cable connecting port. (Otherwise dew condensation may be caused.)
  - Mount the cover of the electric parts box ensuring the cables are not pinched. (Mount the cover after the ceiling panel has been wired to the electric box.)

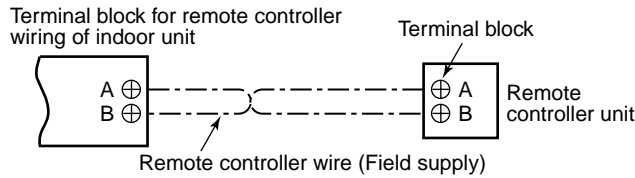


# 6 ELECTRIC WORK

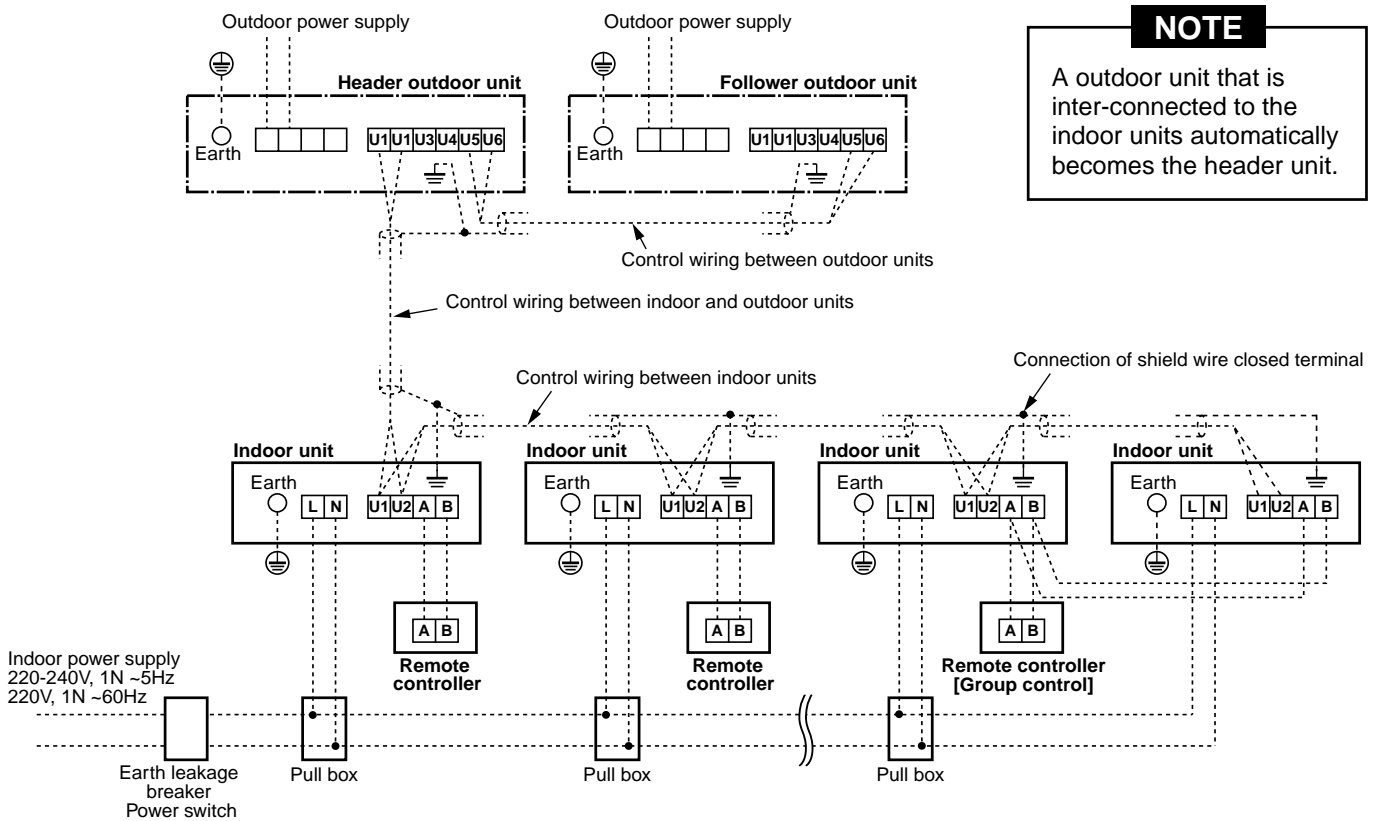
## Remote controller wiring

- Strip approximately 14 mm of insulation off of the connecting wires.
- As the remote controller wire has no 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



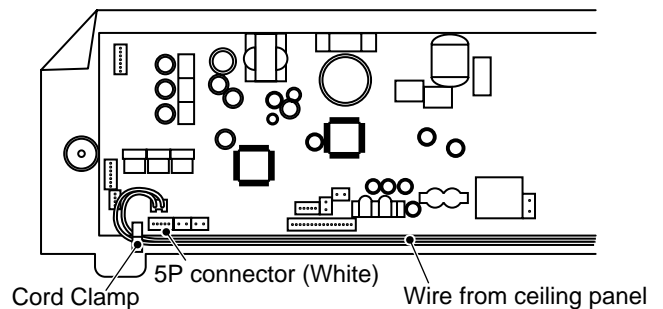
**NOTE**  
A outdoor unit that is inter-connected to the indoor units automatically becomes the header unit.

## Address setup

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

## Wiring on the ceiling panel

As per the Installation Manual of the ceiling panel, connect the connector (2P: Red) of the ceiling panel to the connector (5P: White) onto the P.C. board within the electric parts box.



# 7 APPLICABLE CONTROLS

## NOTIFICATION

When using the equipment for the first time, the remote controller will not accept any commands for a short period of time.

- **Automatic address**
  - While automatic addressing no operations can be performed on the remote control.
  - Automatic addressing will take a maximum duration of 10 minutes (generally 5 minutes).
- **Upon turning on the unit after completion of automatic addressing, a maximum period of 10 minutes (generally 3 minutes) are required prior to the start up operation of the outdoor unit.**

All indoor units are shipped from factory as standard. Change if necessary.

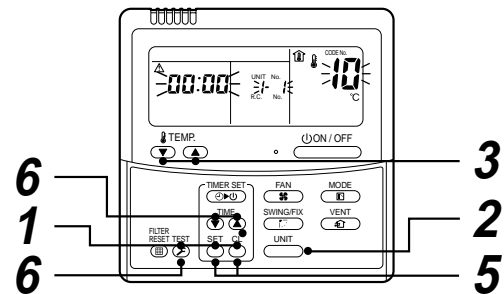
To change the setup use the main remote controller (wired remote controller).

\* The setup change for wireless remote controller, sub remote controller or a unit without a controller (Centrally controlled.) is not possible. In such cases, temporarily install a separate main remote controller.

### Applicable control setup

#### Basic operation procedure for setup change

Change the setup while operation of the equipment is stopped.  
(Be sure to stop the operation of a set.)



Procedure	Description
1	<p>Push the <b>SET</b>, <b>CL</b> and <b>TEST</b> buttons simultaneously for 4 seconds or more, after a while, the display part flashes as shown in the figure.</p> <p>Check that the displayed item code is [10].</p> <ul style="list-style-type: none"> <li>• If the item code indicates any characters other than [10], push the <b>TEST</b> button to erase the display and retry the operation from the first step. (For some time after the <b>TEST</b> button has been pushed, the operation of the remote controller cannot be accepted.)</li> <li>(In a group control, the firstly displayed indoor unit No. becomes the center unit.)</li> </ul>
2	<p>Each time the <b>UNIT</b> button is pressed, the indoor unit No. in the group control is displayed consecutively. Select the indoor unit that requires a change to the setup. During this time the indoor unit that is selected can be confirmed as the louver and fan will be operated.</p>
3	<p>Using <b>TEMP.</b> buttons, select the item code [**].</p>
4	<p>Using the <b>TIME</b> buttons, select set data [****].</p>
5	<p>Push the <b>SET</b> button. During this time, if the display changes from flashing to permanently on, the setup is complete.</p> <ul style="list-style-type: none"> <li>• To change the setup of an indoor unit that is not selected, restart operation from Procedure 2.</li> <li>• To change to a different setup within the selected indoor unit, restart operation from Procedure 3.</li> </ul> <p>Pushing the <b>CL</b> button clears the set up contents which has been set. In this case, restart from Procedure 2.</p>
6	<p>When the setup is finished, push the <b>TEST</b> button. (The setup is configured.) Pushing the <b>TEST</b> button deletes the display and returns the status to the normal stopped status. (For a period of time after the <b>TEST</b> button has been pushed, the remote controller will not accept any commands.)</p>

# 7 APPLICABLE CONTROLS

## In case of installation to high ceiling

When the unit is to be installed at a height that exceeds the standard value, adjustment to the air volume is necessary.

- For the operation procedure, refer to the item “To incorporate a filter sold separately”.
- For the “Setup data” in Procedure 4 , select from the “Installable ceiling height list”.

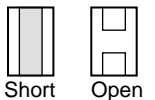


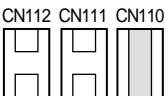
## In case of remote controller-less (Group control)

To set the unit to high ceiling operation, there is a method that requires the changing of the short plugs on the indoor P.C. board. The details are shown in the below table.

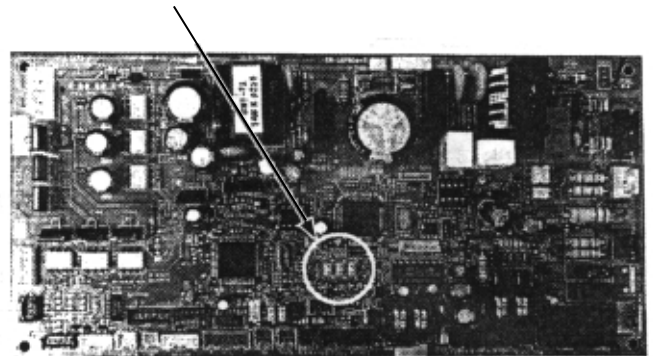
This method is only to be used where a standard wired remote controller (Group control) is not used.

\* Upon changing the high ceiling setting

- **Select setting by the changing of the short plugs on the indoor P.C. board.**

Short plug position	Set data	Filter sold separately
 Short      Open		
CN112 CN111 CN110 	0000	Standard filter (At shipment)
CN112 CN111 CN110 	0002	High ceiling (2)
CN112 CN111 CN110 	0003	High ceiling (3)

- **Short plug position (CN112, CN111, CN110 from the left)**



### Change of lighting time of filter sign

Depending on the conditions of the installation, the time period of the filter clean sign can be changed.

Follow to the basic operation procedure

(**1** → **2** → **3** → **4** → **5** → **6**).

- For the item code in Procedure **3**, specify [01].
- For the [Set data] in Procedure **4**, select the setup data of filter sign lighting time from the following table.

Setup data	Filter sign lighting time
0000	None
0001	150H
0002	2500H (At shipment from factory)
0003	5000H
0004	10000H

### Increased heating effect

If it is not possible to achieve satisfactory heating due to the installation environment or the structure of the room. The detected temperature can be increased. Also use a circulator, etc to circulate hot air near the ceiling.

Follow to the basic operation procedure

(**1** → **2** → **3** → **4** → **5** → **6**).

- For the item code in Procedure **3**, specify [06].
- For the set data in Procedure **4**, select the setup data of the required temperature shift value from the below table.

Setup data	Detection temp shift value
0000	No shift
0001	+1°C
0002	+2°C (At shipment from factory)
0003	+3°C
0004	+4°C
0005	+5°C
0006	+6°C

### Group control

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

- For cabling procedure and cables of the individual line (Identical refrigerant line) system, refer to “Electric work” in this Manual.
- Wiring between indoor units in a group is performed in the following method.

Connect the indoor units by connecting the remote controller inter-unit cables from the remote controller terminal blocks (A, B) of the indoor unit connected with a remote controller to the remote controller terminal blocks (A, B) of the other indoor unit. (No polarity)

- For address setup, refer to the Installation Manual supplied with the outdoor unit.

# 8 TEST RUN

## Before test operation

- Before turning on the power supply, carry out the following procedures.
  - 1) Using 500V-megger, check there is 1MΩ or more between the terminal block of the power supply and the earth. If 1MΩ or less is detected, do not run the unit.
  - 2) Check that all the valves of the outdoor unit are fully opened.
- Never push the electromagnetic contactor to carry out a forced test operation. (It is very dangerous because a protective device does not work.)

## WARNING

To protect the compressor at startup. Ensure the power supply is left on for 12 or more hours before operation.

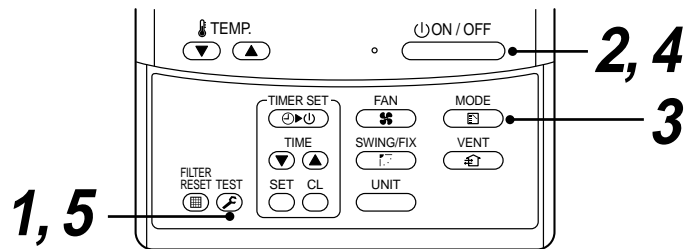
## How to execute test operation

- To carry out a fan operation in a single indoor unit, firstly turn off the power supply to the unit. Then short CN72 found on the P.C. board. Once completed turn the power to the unit back on and start the unit in FAN only mode. Upon completion of the test do not forget to remove the short circuit on CN72.
- Using the remote controller, check the unit is in normal operation. For the operation procedure, refer to the supplied Owner's Manual. A forced test operation can be executed in the following procedure under the condition of thermo.-OFF of room temperature. In order to prevent the test operation from running continuously, the operation will cease after a period of 60 minutes. The unit will then return back to its original operation.

## NOTE

Do not use a forced operation in cases other than test operation because it applies an excessive load onto the air conditioner.

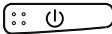



## In case of wired remote controller

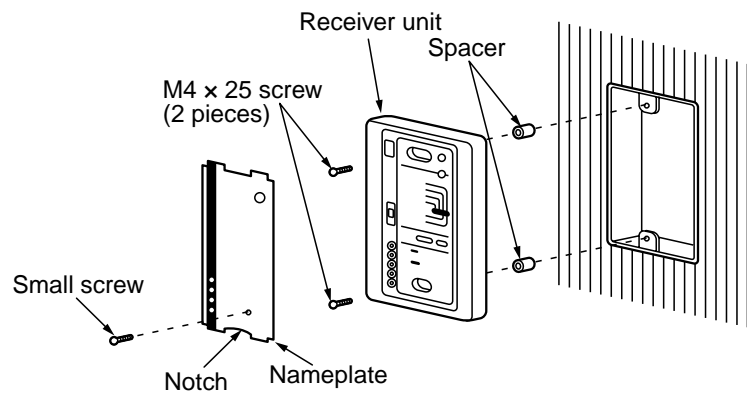


Procedure	Description	
<b>1</b>	Keep the <b>TEST</b> button pushed down for 4 seconds or more. [TEST] is displayed on the display part and the selection of the test mode is permitted.	
<b>2</b>	Push <b>ON/OFF</b> button.	
<b>3</b>	Using <b>MODE</b> button, select the operation mode, [COOL] or [HEAT]. • Do not run the air conditioner in a mode other than [COOL] or [HEAT]. • The temperature controlling function will not work during the test operation. • Fault detection will perform as usual.	
<b>4</b>	After the test operation, push the <b>ON/OFF</b> button to stop the operation. (Display part is the same as procedure <b>1</b> )	
<b>5</b>	Push the <b>TEST</b> button to cancel (release from) the test operation mode. ([TEST] disappears on the display part and the status returns to a normal.)	



## In case of wireless remote controller

Procedure	Description
<b>1</b>	Remove a small screw which fixes the nameplate of the receiver unit. Remove the nameplate of the sensor section by inserting a minus screwdriver, etc into the notch at the bottom of the plate, and set the Dip switch to [TEST RUN ON].
<b>2</b>	Execute a test operation with  button on the wireless remote controller. <ul style="list-style-type: none"> <li>• , , and  LED flash during test operation.</li> <li>• Under status of [TEST RUN ON], the temperature adjustment from the wireless remote controller is invalid.</li> </ul> Do not use this method in the operation other than test operation because the equipment is damaged.
<b>3</b>	Use either COOL or HEAT operation mode for a test operation. * The outdoor unit does not operate approx. 3 minutes after power-ON and operation stop.
<b>4</b>	After the test operation finished, stop the air conditioner from the wireless remote controller, and return Dip switch of the receiver section as before. (A 60-minutes timer clearing function is attached to the receiver section in order to prevent a continuous test operation.)



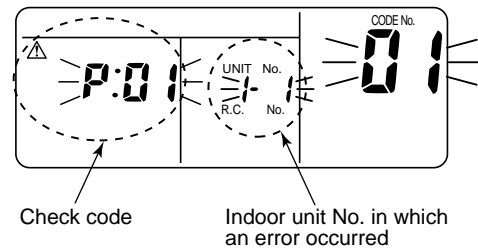
# 9 TROUBLESHOOTING

## Confirmation and check

When a fault occurs in the air conditioner, the check code and the indoor unit No. will appear on the display part of the remote controller.

The check code will only be displayed while the unit is in operation.

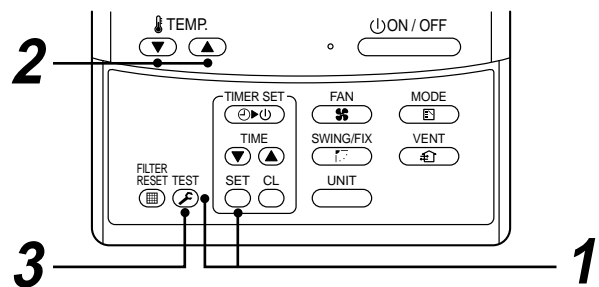
If the display disappears, operate the air conditioner according to the following "Confirmation of error history" for confirmation.



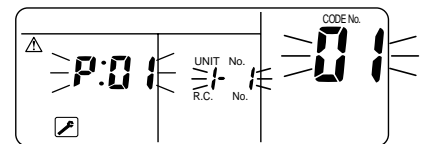
## Confirmation of error history

When a fault occurs in the air conditioner, the error history can be confirmed with the following procedure. (The error history is stored in memory and can contain up to 4 errors).

This history can be confirmed from either the operating status or the stop status.



Procedure	Description
1	<p>When pushing the <b>SET</b> and <b>TEST</b> buttons simultaneously for 4 seconds or more, the display similar to the one shown in the figure to the right will appear.</p> <p>If [Service Check] is displayed, the fault code will be stored in the error history mode.</p> <ul style="list-style-type: none"> <li>• 01 (Order of error history) is displayed in CODE No. window.</li> <li>• Check Code is displayed in the CHECK window.</li> <li>• The indoor unit address, where the fault has occurred will be displayed in the UNIT No. window.</li> </ul>
2	<p>When pushing the <b>TEMP.</b> buttons, the error history stored within the memory will be displayed in chronological order.</p> <p>The numbers displayed within the CODE No. window can vary between 1 and 4. 1 being the most recent fault and 4 being the oldest.</p> <p><b>CAUTION</b></p> <p>Do not push the <b>CL</b> button as this will erase all of the error history for that indoor unit.</p>
3	<p>After confirmation, push the <b>TEST</b> button. This will return the display back to its original mode.</p>



## Check method

On the remote controller (Main remote controller, Central control remote controller) and the interface P.C. board of the outdoor unit, a check display LCD (Remote controller) or 7-segment display (on the outdoor interface P.C. board) operation is provided. Therefore the operation status can be known. Using this self-diagnosis function, a fault and the location of this fault within the air conditioning system can be located, 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 a fault from the indoor remote controller: See "Main remote controller display" in the list.
- In case of a fault from the outdoor unit: See "Outdoor 7-segment display" in the list.
- In case of a fault from the indoor unit with a wireless remote controller:  
See "Sensor block display of receiving unit" in the list.

### Terminology

AI-NET : Artificial Intelligence.

IPDU : Intelligent Power Drive Unit

○ : Lighting, ✖ : Flashing, ● : Goes off

ALT. : Flashing is alternately when there are two flashing LED.

SIM : Simultaneous flashing when there are two flashing LED.

Check code			Wireless remote controller				Check code name	Judging device
Main remote controller display	Outdoor 7-segment display	AI-NET central control display	Sensor block display of receiving unit					
	Auxiliary code		Operation	Timer	Ready	Flash		
E01	—	—	✖	●	●		Communication error between indoor and remote controller (Detected at remote controller side)	Remote controller
E02	—	—	✖	●	●		Remote controller transmission error	Remote controller
E03	—	97	✖	●	●		Communication error between indoor and remote controller (Detected at indoor side)	Indoor
E04	—	04	●	●	✖		Communication circuit error between indoor/outdoor (Detected at indoor side)	Indoor
E06	E06 No. of indoor units in which sensor has been normally received	04	●	●	✖		Decrease of No. of indoor units	I/F
—	E07	—	●	●	✖		Communication circuit error between indoor/outdoor (Detected at outdoor side)	I/F
E08	E08 Duplicated indoor addresses	96	✖	●	●		Duplicated indoor addresses	Indoor / I/F
E09	—	99	✖	●	●		Duplicated main remote controllers	Remote controller
E10	—	CF	✖	●	●		Communication error between indoor MCU	Indoor
E12	E12 01: Indoor/Outdoor communication 02: Communication between outdoor units	42	✖	●	●		Automatic address start error	I/F
E15	E15	42	●	●	✖		Indoor is nothing during automatic addressing	I/F
E16	E16 00: Capacity over 01 ~: No. of connected units	89	●	●	✖		Capacity over / No. of connected indoor units	I/F
E18	—	97, 99	✖	●	●		Communication error between indoor units	Indoor
E19	E19 00: Header is nothing 02: Two or more header units	96	●	●	✖		Outdoor header units quantity error	I/F
E20	E20 01: Outdoor of other line connected 02: Indoor of other line connected	42	●	●	✖		Other line connected during automatic address	I/F
E23	E23	15	●	●	✖		Sending error in communication between outdoor units	I/F
E25	E25	15	●	●	✖		Duplicated follower outdoor addresses	I/F
E26	E26 No. of outdoor units which received signal normally	15	●	●	✖		Decrease of No. of connected outdoor units	I/F
E28	E28 Detected outdoor unit number	d2	●	●	✖		Follower outdoor unit error	I/F
E31	E31 01: IPDU1 error 02: IPDU2 error 03: IPDU1, 2 error 04: Fan IPDU error 05: IPDU + Fan IPDU error 06: IPDU2 + Fan IPDU error 07: All IPDU error	CF	●	●	✖		IPDU communication error	I/F

# 9 TROUBLESHOOTING

Main remote controller display	Check code		Wireless remote controller				Check code name	Judging device	
	Outdoor 7-segment display	AI-NET central control display	Sensor block display of receiving unit						
			Operation	Timer	Ready	Flash			
F01	—	—	0F	☒	☒	●	ALT	Indoor TCJ sensor error	Indoor
F02	—	—	0d	☒	☒	●	ALT	Indoor TC2 sensor error	Indoor
F03	—	—	93	☒	☒	●	ALT	Indoor TC1 sensor error	Indoor
F04	F04	—	19	☒	☒	○	ALT	TD1 sensor error	I/F
F05	F05	—	A1	☒	☒	○	ALT	TD2 sensor error	I/F
F06	F06	—	18	☒	☒	○	ALT	TE1 sensor error	I/F
F07	F07	—	18	☒	☒	○	ALT	TL sensor error	I/F
F08	F08	—	1b	☒	☒	○	ALT	TO sensor error	I/F
F10	—	—	OC	☒	☒	●	ALT	Indoor TA sensor error	Indoor
F12	F12	—	A2	☒	☒	○	ALT	TS1 sensor error	I/F
F13	F13	01: Comp. 1 side 02: Comp. 2 side	43	☒	☒	○	ALT	TH sensor error	IPDU
F15	F15	—	18	☒	☒	○	ALT	Outdoor temp. sensor miscabling (TE, TL)	I/F
F16	F16	—	43	☒	☒	○	ALT	Outdoor pressure sensor miscabling (Pd, Ps)	I/F
F23	F23	—	43	☒	☒	○	ALT	Ps sensor error	I/F
F24	F24	—	43	☒	☒	○	ALT	Pd sensor error	I/F
F29	—	—	12	☒	☒	●	SIM	Indoor other error	Indoor
F31	F31	—	1C	☒	☒	○	SIM	Indoor EEPROM error	I/F
H01	H01	01: Comp. 1 side 02: Comp. 2 side	IF	●	☒	●		Compressor break down	IPDU
H02	H02	01: Comp. 1 side 02: Comp. 2 side	1d	●	☒	●		Magnet switch error Overcurrent relay operation Compressor trouble (lock)	MG-SW Overcurrent relay IPDU
H03	H03	01: Comp. 1 side 02: Comp. 2 side	17	●	☒	●		Current detect circuit system error	IPDU
H04	H04	—	44	●	☒	●		Comp 1 case thermo operation	I/F
H06	H06	—	20	●	☒	●		Low pressure protective operation	I/F
H07	H07	—	d7	●	☒	●		Oil level down detective protection	I/F
H08	H08	01: TK1 sensor error 02: TK2 sensor error 03: TK3 sensor error 04: TK4 sensor error	d4	●	☒	●		Oil level detective temp sensor error	I/F
H14	H14	—	44	●	☒	●		Comp 2 case thermo operation	I/F
H16	H16	01: TK1 oil circuit system error 02: TK2 oil circuit system error 03: TK3 oil circuit system error 04: TK4 oil circuit system error	d7	●	☒	●		Oil level detective circuit error Magnet switch error Overcurrent relay operation	I/F MG-SW Overcurrent relay
L03	—	—	96	☒	●	☒	SIM	Indoor center unit duplicated	Indoor
L04	L04	—	96	☒	○	☒	SIM	Outdoor line address duplicated	I/F
L05	—	—	96	☒	●	☒	SIM	Duplicated indoor units with priority (Displayed in indoor unit with priority)	I/F
L06	L06	No. of indoor units with priority	96	☒	●	☒	SIM	Duplicated indoor units with priority (Displayed in unit other than indoor unit with priority)	I/F
L07	—	—	99	☒	●	☒	SIM	Group line in individual indoor unit	Indoor
L08	L08	—	99	☒	●	☒	SIM	Indoor group/Address unset	Indoor, I/F
L09	—	—	46	☒	●	☒	SIM	Indoor capacity unset	Indoor
L10	L10	—	88	☒	○	☒	SIM	Outdoor capacity unset	I/F
L20	L20	—	98	☒	○	☒	SIM	Duplicated central control addresses	AI-NET, Indoor
L28	L28	—	46	☒	○	☒	SIM	Over No. of connected outdoor units	I/F
L29	L29	01: IPDU1 error 02: IPDU2 error 03: IPDU3 error 04: Fan IPDU error 05: IPDU1 + Fan IPDU error 06: IPDU2 + Fan IPDU error 07: All IPDU error	CF	☒	○	☒	SIM	No. of IPDU error	I/F
L30	L30	Detected indoor address	b6	☒	○	☒	SIM	Indoor outside interlock	Indoor
—	L31	—	—	—	—	—		Extended I/C error	I/F

Check code			Wireless remote controller				Check code name	Judging device	
Main remote controller display	Outdoor 7-segment display	AI-NET central control display	Sensor block display of receiving unit						
	Auxiliary code		Operation	Timer	Ready	Flash			
P01	—	11	●	☒	☒	ALT	Indoor fan motor error	Indoor	
P03	P03	1E	☒	●	☒	ALT	Discharge temp. TD1 error	I/F	
P04	P04	01: Comp. 1 side 02: Comp. 2 side	☒	●	☒	ALT	High-pressure SW system operation	IPDU	
P05	P05	01: Phase-missing detection 02: Phase error	☒	●	☒	ALT	Phase-missing detection /Phase error	I/F	
P07	P07	01: Comp. 1 side 02: Comp. 2 side	☒	●	☒	ALT	Heat sink overheat error	IPDU, I/F	
P10	P10	Detected indoor address	●	☒	☒	ALT	Indoor overflow error	Indoor	
P12	—	11	●	☒	☒	ALT	Indoor fan motor error	Indoor	
P13	P13	—	●	☒	☒	ALT	Outdoor liquid back detection error	I/F	
P15	P15	01: TS condition 02: TD condition	☒	●	☒	ALT	Gas leak detection	I/F	
P17	P17	—	☒	●	☒	ALT	Discharge temp. TD2 error	I/F	
P19	P19	Detected outdoor unit number	☒	●	☒	ALT	4-way valve inverse error	I/F	
P20	P20	—	☒	●	☒	ALT	High-pressure protective operation	I/F	
P22	P22	0 — : IGBT short 1 — : Fan motor position detective circuit error 3 — : Fan motor trouble C — : TH sensor temp. error (Heat sink overheat) D — : TH sensor error E — : Vdc output error	1A	☒	●	☒	ALT	Outdoor fan IPDU error	IPDU
P26	P26	01: Comp. 1 side 02: Comp. 2 side	14	☒	●	☒	ALT	G-TR short protection error	IPDU
P29	P29	01: Comp. 1 side 02: Comp. 2 side	16	☒	●	☒	ALT	Comp position detective circuit system error	IPDU
P31	P31	—	47	☒	●	☒	ALT	Other indoor unit error (Group terminal unit error)	Indoor
—	—	—	b7	By alarm device		ALT	Error in indoor group	AI-NET	
—	—	—	97	—			AI-NET communication system error	AI-NET	
—	—	—	99	—			Duplicated network adapters	AI-NET	

### Error detected by TCC-LINK central control device

Check code			Wireless remote controller				Check code name	Judging device
Central control device indication	Outdoor 7-segment display	AI-NET central control display	Sensor block display of receiving unit					
	Auxiliary code		Operation	Timer	Ready	Flash		
C05	—	—	—				Sending error in TCC-LINK central control device	TCC-LINK
C06	—	—	—				Receiving error in TCC-LINK central control device	TCC-LINK
C12	—	—	—				Batch alarm of general-purpose equipment control interface	General-purpose equipment I/F
P30	Differs according to error contents of unit with occurrence of alarm						Group control branching unit error	TCC-LINK
	—	—	(L20 is displayed.)				Duplicated central control addresses	

### Terminology

TCC-LINK : TOSHIBA Carrirea Comunication Link.

# 9 TROUBLESHOOTING

## New check code

### 1. Difference between the new check code and the current system

The displaying method of the check code will change from this model onwards.

	Check code in current system	New check code
Used characters	Hexadecimal notation, 2 digits	Alphabet + Decimal notation, 2 digits
Characteristics of code classification	Few classification of communication/incorrect setup system	Many classification of communication/incorrect setup system
Block display	Indoor P.C. board, Outdoor P.C. board, Cycle, Communication	Communication/Incorrect setup (4 ways), Indoor protection, Outdoor protection, Sensor, Compressor protection, etc.

#### Display on wired remote controller

- [△] goes on.
- [UNIT No.] + Check code + Operation lamp (Green) flash

#### Display on sensor part of wireless remote controller

- Block display will show a combination of [⏻] [⌚] [⚙️] symbols.

#### Display on 7-segment in outdoor unit

- Unit No. and check code are displayed.
- In case of error the auxiliary code, check code and sub-code are displayed alternately.

Display	Classification
A	Unused
C	Central control system error
E	Communication system error
F	Each sensor error (Failure)
H	Compressor protective system error
J	Unused
L	Setup error, Other errors
P	Protective device operation

### 2. Special mention

- When the air conditioner stops and the error is cleared, the check code display on the remote controller will also disappear.

However, if the error continues after the unit has been stopped, the check code will immediately be displayed when the unit is restarted.

# 10 MAINTENANCE




Prior to maintenance, ensure the power supply is turned off.

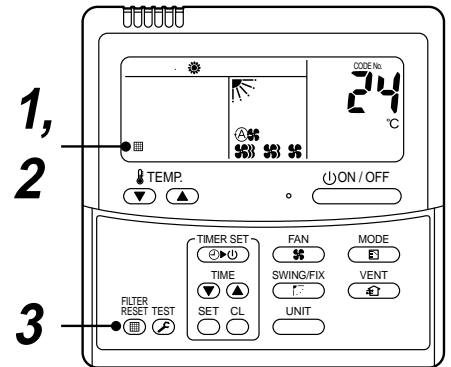
## CAUTION

Do not handle the buttons with wet hands as this will cause the risk of electric shock.



### Daily maintenance

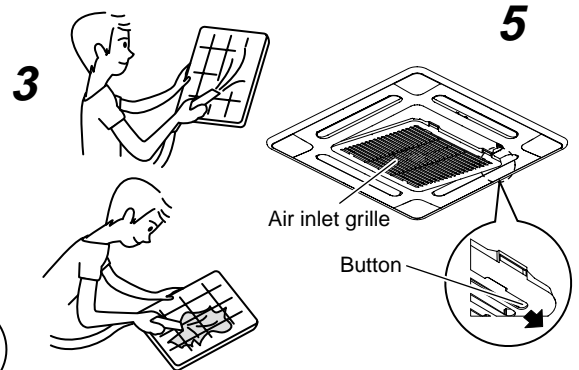
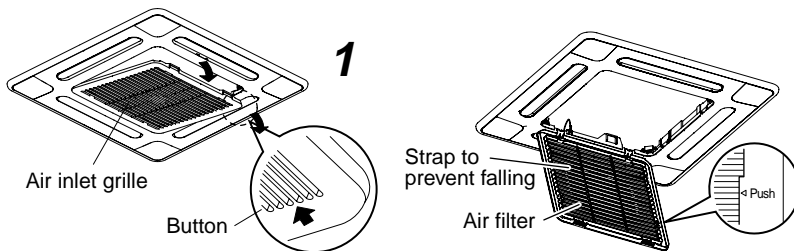
#### Cleaning of air filter

- 1 If  is displayed on the remote controller, maintenance to the air filter is required.
- 2 Clogging of the air filter decreases cooling/heating efficiency.
- 3 After cleaning, push the .  display disappears.



#### [4-way Air Discharge Cassette Type]

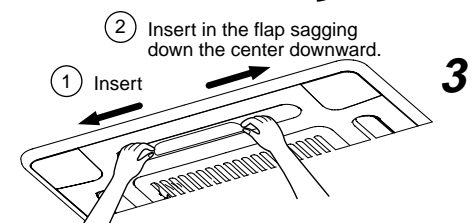
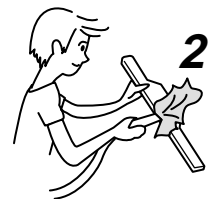
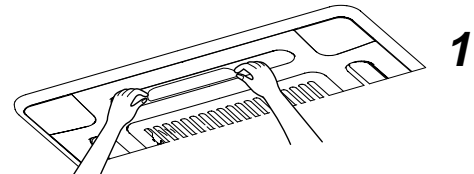
- 1 Open the air inlet grille.
  - Slide the air inlet grille buttons to detach the air inlet grille from the main ceiling panel. Lower the grille slowly whilst holding.
- 2 Take out the air filter.
  - Push the extrusion of the air filter away from the grille and remove.
- 3 Cleaning with water or vacuum cleaner
  - If dirt is heavy, clean the air filter using tepid water with a neutral detergent or just water.
  - After cleaning with water, dry the air filter sufficiently in a shaded place.
- 4 Mount the air filter.
- 5 Close the air inlet grille.
  - Close the air inlet grille, slide the button to locate into the ceiling panel fixing securely.
- 6 Push the .
  -  display disappears.



### Cleaning of air outlet flap

The air outlet flap can be removed to clean if necessary.

- 1 Remove the air outlet flap.
  - Holding both ends of the air outlet flap, remove it by sagging the center downwards.
- 2 Clean the air outlet flap with water.
  - If dirt is heavy, clean the air outlet flap using tepid water with neutral detergent or just water.
- 3 Mount the air outlet flap.
  - First push in the one side, and insert the opposite side by sagging the center downwards.



### Be careful to insert the flap in the correct direction.

Insert the flap with the printed mark facing upwards, and the arrow on the flap pointing in the outward direction.

