TOSHIBA

Leading Innovation

FILE NO. A10-007-1

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Re-edit version.(file volume down)
Contents have NOT been changed.

SERVICE MANUAL

AIR-CONDITIONER

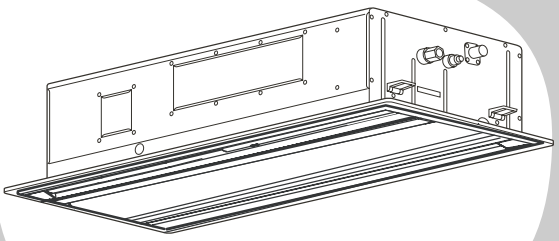
MULTI TYPE

<2-Way Air Discharge Cassette Type>

MMU-AP0072WH, MMU-AP0072WH-TR
MMU-AP0092WH, MMU-AP0092WH-TR
MMU-AP0122WH, MMU-AP0122WH-TR
MMU-AP0152WH, MMU-AP0152WH-TR
MMU-AP0182WH, MMU-AP0182WH-TR
MMU-AP0242WH, MMU-AP0242WH-TR
MMU-AP0272WH, MMU-AP0272WH-TR
MMU-AP0302WH, MMU-AP0302WH-TR
MMU-AP0362WH, MMU-AP0362WH-TR
MMU-AP0482WH, MMU-AP0482WH-TR
MMU-AP0562WH, MMU-AP0562WH-TR

- This Service Manual describes contents of the 2-Way Air Discharge Cassette indoor unit. For the outdoor unit, refer to the Manual with **FILE No. A10-005, A05-004-1**.

HFC
R410A



PRINTED IN JAPAN, Sep., 2010 ToMo

CONTENTS

Original Instruction

Please read carefully through these instructions that contain important information which complies with the “Machinery“ Directive (Directive 2006/42/EC), and ensure that you understand them.

Some of the details provided in these instructions differ from the service manual, and the instructions provided here take precedence.

Generic Denomination: Air Conditioner

Definition of Qualified Installer or Qualified Service Person

The air conditioner must be installed, maintained, repaired and removed by a qualified installer or qualified service person. When any of these jobs is to be done, ask a qualified installer or qualified service person to do them for you.

A qualified installer or qualified service person is an agent who has the qualifications and knowledge described in the table below.

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

Definition of Protective Gear

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

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

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

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

The important contents concerned to the safety are described on the product itself and on this Service Manual.

Please read this Service Manual after understanding the described items thoroughly in the following contents (Indications/Illustrated marks), and keep them.

[Explanation of indications]

Indication	Explanation
⚠ **DANGER**	Indicates contents assumed that an imminent danger causing a death or serious injury of the repair engineers and the third parties when an incorrect work has been executed.
⚠ **WARNING**	Indicates possibilities assumed that a danger causing a death or serious injury of the repair engineers, the third parties, and the users due to troubles of the product after work when an incorrect work has been executed.
⚠ **CAUTION**	Indicates contents assumed that an injury or property damage (*) may be caused on the repair engineers, the third parties, and the users due to troubles of the product after work when an incorrect work has been executed.

* Property damage: Enlarged damage concerned to property, furniture, and domestic animal/pet

[Explanation of illustrated marks]

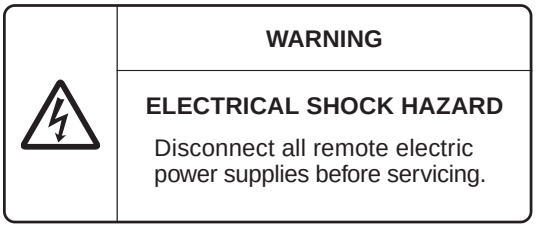
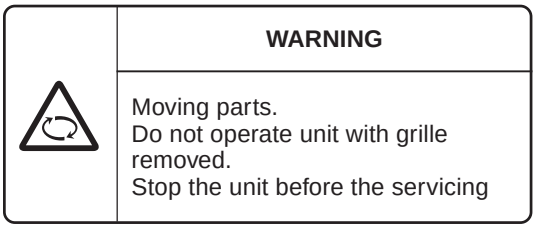
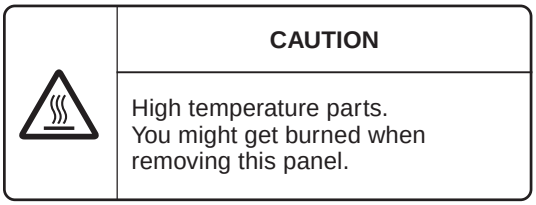
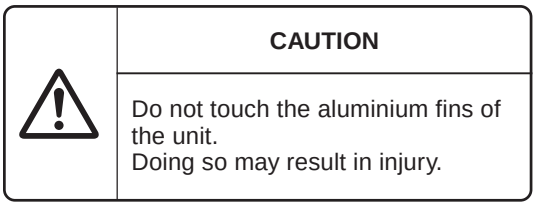
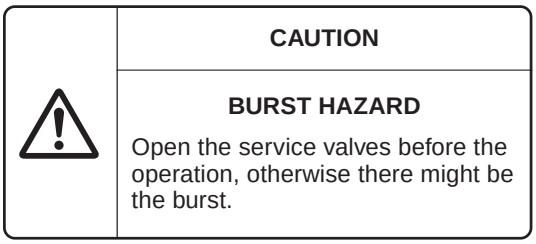
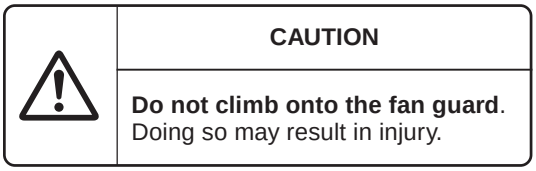
Mark	Explanation
	Indicates prohibited items (Forbidden items to do) The sentences near an illustrated mark describe the concrete prohibited contents.
	Indicates mandatory items (Compulsory items to do) The sentences near an illustrated mark describe the concrete mandatory contents.
	Indicates cautions (Including danger/warning) The sentences or illustration near or in an illustrated mark describe the concrete cautious contents.

Warning Indications on the Air Conditioner Unit

[Confirmation of warning label on the main unit]

Confirm that labels are indicated on the specified positions.

If removing the label during parts replace, stick it as the original.

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

1. PRECAUTIONS FOR SAFETY

⚠ WARNING

General	Before starting to repair the air conditioner, read carefully through the Service Manual, and repair the air conditioner by following its instructions.
	Only qualified service person (∗1) is allowed to repair the air conditioner. Repair of the air conditioner by unqualified person may give rise to a fire, electric shocks, injury, water leaks and/or other problems.
	Only a qualified installer (∗1) or qualified service person (∗1) is allowed to carry out the electrical work of the air conditioner. Under no circumstances must this work be done by an unqualified individual since failure to carry out the work properly may result in electric shocks and/or electrical leaks.
	When transporting the air conditioner, wear shoes with protective toe caps, protective gloves and other protective clothing.
	When connecting the electrical wires, repairing the electrical parts or undertaking other electrical jobs, wear gloves to provide protection for electricians and from heat, insulating shoes and clothing to provide protection from electric shocks. Failure to wear this protective gear may result in electric shocks.
	Electrical wiring work shall be conducted according to law and regulation in the community and installation manual. Failure to do so may result in electrocution or short circuit.
	Only a qualified installer (∗1) or qualified service person (∗1) is allowed to undertake work at heights using a stand of 50 cm or more or to remove the intake grille of the indoor unit to undertake work.
	When working at heights, use a ladder which complies with the ISO 14122 standard, and follow the procedure in the ladder's instructions. Also wear a helmet for use in industry as protective gear to undertake the work.
	When working at heights, put a sign in place so that no-one will approach the work location, before proceeding with the work. Parts and other objects may fall from above, possibly injuring a person below.
	When executing address setting, test run, or troubleshooting through the checking window on the electric parts box, put on insulated gloves to provide protection from electric shock. Otherwise you may receive an electric shock.
	Do not touch the aluminum fin of the outdoor unit. You may injure yourself if you do so. If the fin must be touched for some reason, first put on protective gloves and safety work clothing, and then proceed.
	Do not climb onto or place objects on top of the outdoor unit. You may fall or the objects may fall off of the outdoor unit and result in injury.
	When transporting the air conditioner, wear shoes with additional protective toe caps.
	When transporting the air conditioner, do not take hold of the bands around the packing carton. You may injure yourself if the bands should break.
	Be sure that a heavy unit (10kg or heavier) such as a compressor is carried by two persons.
	This air conditioner has passed the pressure test as specified in IEC 60335-2-40 Annex EE.

⚠ DANGER

Turn off breaker.	Before carrying out the installation, maintenance, repair or removal work, be sure to set the circuit breaker for both the indoor and outdoor units to the OFF position. Otherwise, electric shocks may result.
	Before opening the intake grille of the indoor unit or service panel of the outdoor unit, set the circuit breaker to the OFF position. Failure to set the circuit breaker to the OFF position may result in electric shocks through contact with the interior parts. Only a qualified installer (*1) or qualified service person (*1) is allowed to remove the intake grille of the indoor unit or service panel of the outdoor unit and do the work required.
	Before starting to repair the outdoor unit fan or fan guard, be absolutely sure to set the circuit breaker to the OFF position, and place a “Work in progress” sign on the circuit breaker.
	When cleaning the filter or other parts of the indoor unit, set the circuit breaker to OFF without fail, and place a “Work in progress” sign near the circuit breaker before proceeding with the work.
	When you have noticed that some kind of trouble (such as when an error display has appeared, there is a smell of burning, abnormal sounds are heard, the air conditioner fails to cool or heat or water is leaking) has occurred in the air conditioner, do not touch the air conditioner yourself but set the circuit breaker to the OFF position, and contact a qualified service person. Take steps to ensure that the power will not be turned on (by marking “out of service” near the circuit breaker, for instance) until qualified service person arrives. Continuing to use the air conditioner in the trouble status may cause mechanical problems to escalate or result in electric shocks or other failure.
Electric shock hazard	When you access inside of the service panel to repair electric parts, wait for about five minutes after turning off the breaker. Do not start repairing immediately.Otherwise you may get electric shock by touching terminals of high-voltage capacitors. Natural discharge of the capacitor takes about five minutes.
Prohibition	Place a “Work in progress” sign near the circuit breaker while the installation, maintenance, repair or removal work is being carried out. There is a danger of electric shocks if the circuit breaker is set to ON by mistake.
	Before operating the air conditioner after having completed the work, check that the electrical parts box cover of the indoor unit and service panel of the outdoor unit are closed, and set the circuit breaker to the ON position. You may receive an electric shock if the power is turned on without first conducting these checks.
Stay on protection	If, in the course of carrying out repairs, it becomes absolutely necessary to check out the electrical parts with the electrical parts box cover of one or more of the indoor units and the service panel of the outdoor unit removed in order to find out exactly where the trouble lies, wear insulated heat-resistant gloves, insulated boots and insulated work overalls, and take care to avoid touching any live parts. You may receive an electric shock if you fail to heed this warning. Only qualified service person (∗1) is allowed to do this kind of work.

⚠ WARNING

Check earth wires.	Before troubleshooting or repair work, check the earth wire is connected to the earth terminals of the main unit, otherwise an electric shock is caused when a leak occurs.If the earth wire is not correctly connected, contact an electric engineer for rework.
	After completing the repair or relocation work, check that the ground wires are connected properly.
	Be sure to connect earth wire. (Grounding work) Incomplete grounding causes an electric shock. Do not connect ground wires to gas pipes, water pipes, and lightning rods or ground wires for telephone wires.
Prohibition of modification.	Do not modify the products. Do not also disassemble or modify the parts. It may cause a fire, electric shock or injury.
Use specified parts.	When any of the electrical parts are to be replaced, ensure that the replacement parts satisfy the specifications given in the Service Manual (or use the parts contained on the parts list in the Service Manual). Use of any parts which do not satisfy the required specifications may give rise to electric shocks, smoking and/or a fire.

Do not bring a child close to the equipment.	If, in the course of carrying out repairs, it becomes absolutely necessary to check out the electrical parts with the electrical parts box cover of one or more of the indoor units and the service panel of the outdoor unit removed in order to find out exactly where the trouble lies, put a sign in place so that no-one will approach the work location before proceeding with the work. Third-party individuals may enter the work site and receive electric shocks if this warning is not heeded.
Insulating measures	Connect the cut-off lead wires with crimp contact, etc., put the closed end side upward and then apply a water-cut method, otherwise a leak or production of fire is caused at the users' side.
No fire	When performing repairs using a gas burner, replace the refrigerant with nitrogen gas because the oil that coats the pipes may otherwise burn. When repairing the refrigerating cycle, take the following measures. 1) Be attentive to fire around the cycle. When using a gas stove, etc., be sure to put out fire before work; otherwise the oil mixed with refrigerant gas may catch fire. 2) Do not use a welder in the closed room. When using it without ventilation, carbon monoxide poisoning may be caused. 3) Do not bring inflammables close to the refrigerant cycle, otherwise fire of the welder may catch the inflammables.
Refrigerant	The refrigerant used by this air conditioner is the R410A.
	Check the used refrigerant name and use tools and materials of the parts which match with it. For the products which use R410A refrigerant, the refrigerant name is indicated at a position on the outdoor unit where is easy to see. To prevent miss-charging, the route of the service port is changed from one of the former R22.
	For an air conditioner which uses R410A, never use other refrigerant than R410A. For an air conditioner which uses other refrigerant (R22, etc.), never use R410A. If different types of refrigerant are mixed, abnormal high pressure generates in the refrigerating cycle and an injury due to breakage may be caused.
	When the air conditioner has been installed or relocated, follow the instructions in the Installation Manual and purge the air completely so that no gases other than the refrigerant will be mixed in the refrigerating cycle. Failure to purge the air completely may cause the air conditioner to malfunction.
	Do not charge refrigerant additionally. If charging refrigerant additionally when refrigerant gas leaks, the refrigerant composition in the refrigerating cycle changes resulted in change of air conditioner characteristics or refrigerant over the specified standard amount is charged and an abnormal high pressure is applied to the inside of the refrigerating cycle resulted in cause of breakage or injury. Therefore if the refrigerant gas leaks, recover the refrigerant in the air conditioner, execute vacuuming, and then newly recharge the specified amount of liquid refrigerant. In this time, never charge the refrigerant over the specified amount.
	When recharging the refrigerant in the refrigerating cycle, do not mix the refrigerant or air other than R410A into the specified refrigerant. If air or others is mixed with the refrigerant, abnormal high pressure generates in the refrigerating cycle resulted in cause of injury due to breakage.
	After installation work, check the refrigerant gas does not leak. If the refrigerant gas leaks in the room, poisonous gas generates when gas touches to fire such as fan heater, stove or cocking stove though the refrigerant gas itself is innocuous.
	Never recover the refrigerant into the outdoor unit. When the equipment is moved or repaired, be sure to recover the refrigerant with recovering device. The refrigerant cannot be recovered in the outdoor unit; otherwise a serious accident such as breakage or injury is caused.
Assembly/Wiring	After repair work, surely assemble the disassembled parts, and connect and lead the removed wires as before. Perform the work so that the cabinet or panel does not catch the inner wires. If incorrect assembly or incorrect wire connection was done, a disaster such as a leak or fire is caused at user's side.
Insulator check	After the work has finished, be sure to use an insulation tester set (500V Megger) to check the resistance is 1MΩ or more between the charge section and the non-charge metal section (Earth position). If the resistance value is low, a disaster such as a leak or electric shock is caused at user's side.
Ventilation	When the refrigerant gas leaks during work, execute ventilation. If the refrigerant gas touches to a fire, poisonous gas generates. A case of leakage of the refrigerant and the closed room full with gas is dangerous because a shortage of oxygen occurs. Be sure to execute ventilation.

 Compulsion	When the refrigerant gas leaks, find up the leaked position and repair it surely. If the leaked position cannot be found up and the repair work is interrupted, pump-down and tighten the service valve, otherwise the refrigerant gas may leak into the room. The poisonous gas generates when gas touches to fire such as fan heater, stove or cocking stove though the refrigerant gas itself is innocuous. When installing equipment which includes a large amount of charged refrigerant such as a multi air conditioner in a sub-room, it is necessary that the density does not the limit even if the refrigerant leaks. If the refrigerant leaks and exceeds the limit density, an accident of shortage of oxygen is caused.
	Tighten the flare nut with a torque wrench in the specified manner. Excessive tighten of the flare nut may cause a crack in the flare nut after a long period, which may result in refrigerant leakage.
	Nitrogen gas must be used for the airtight test.
	The charge hose must be connected in such a way that it is not slack.
	For the installation/moving/reinstallation work, follow to the Installation Manual. If an incorrect installation is done, a trouble of the refrigerating cycle, water leak, electric shock or fire is caused.
 Check after repair	Once the repair work has been completed, check for refrigerant leaks, and check the insulation resistance and water drainage. Then perform a trial run to check that the air conditioner is running properly.
	After repair work has finished, check there is no trouble. If check is not executed, a fire, electric shock or injury may be caused. For a check, turn off the power breaker.
	After repair work (installation of front panel and cabinet) has finished, execute a test run to check there is no generation of smoke or abnormal sound. If check is not executed, a fire or an electric shock is caused. Before test run, install the front panel and cabinet.
	Be sure to fix the screws back which have been removed for installation or other purposes.
 Do not operate the unit with the valve closed.	Check the following matters before a test run after repairing piping. • Connect the pipes surely and there is no leak of refrigerant. • The valve is opened. Running the compressor under condition that the valve closes causes an abnormal high pressure resulted in damage of the parts of the compressor and etc. and moreover if there is leak of refrigerant at connecting section of pipes, the air is sucked and causes further abnormal high pressure resulted in burst or injury.
 Check after reinstallation	Only a qualified installer (∗1) or qualified service person (∗1) is allowed to relocate the air conditioner. It is dangerous for the air conditioner to be relocated by an unqualified individual since a fire, electric shocks, injury, water leakage, noise and/or vibration may result.
	Check the following items after reinstallation. 1) The earth wire is correctly connected. 2) The power cord is not caught in the product. 3) There is no inclination or unsteadiness and the installation is stable. If check is not executed, a fire, an electric shock or an injury is caused.
	When carrying out the pump-down work shut down the compressor before disconnecting the refrigerant pipe. Disconnecting the refrigerant pipe with the service valve left open and the compressor still operating will cause air, etc. to be sucked in, raising the pressure inside the refrigeration cycle to an abnormally high level, and possibly resulting in reputing, injury, etc.
 Cooling check	When the service panel of the outdoor unit is to be opened in order for the compressor or the area around this part to be repaired immediately after the air conditioner has been shut down, set the circuit breaker to the OFF position, and then wait at least 10 minutes before opening the service panel. If you fail to heed this warning, you will run the risk of burning yourself because the compressor pipes and other parts will be very hot to the touch. In addition, before proceeding with the repair work, wear the kind of insulated heat-resistant gloves designed to protect electricians.
	Take care not to get burned by compressor pipes or other parts when checking the cooling cycle while running the unit as they get heated while running. Be sure to put on gloves providing protection for electric shock and heat.
	When the service panel of the outdoor unit is to be opened in order for the fan motor, reactor, inverter or the areas around these parts to be repaired immediately after the air conditioner has been shut down, set the circuit breaker to the OFF position, and then wait at least 10 minutes before opening the service panel. If you fail to heed this warning, you will run the risk of burning yourself because the fan motor, reactor, inverter heat sink and other parts will be very hot to the touch. In addition, before proceeding with the repair work, wear the kind of insulated heat-resistant gloves designed to protect electricians.

● Installation	Only a qualified installer (∗1) or qualified service person (∗1) is allowed to install the air conditioner. If the air conditioner is installed by an unqualified individual, a fire, electric shocks, injury, water leakage, noise and/or vibration may result.
	Before starting to install the air conditioner, read carefully through the Installation Manual, and follow its instructions to install the air conditioner.
	Be sure to use the company-specified products for the separately purchased parts. Use of non-specified products may result in fire, electric shock, water leakage or other failure. Have the installation performed by a qualified installer.
	Do not supply power from the power terminal block equipped on the outdoor unit to another outdoor unit. Capacity overflow may occur on the terminal block and may result in fire.
	Do not install the air conditioner in a location that may be subject to a risk of expire to a combustible gas. If a combustible gas leaks and becomes concentrated around the unit, a fire may occur.
	Install the indoor unit at least 2.5 m above the floor level since otherwise the users may injure themselves or receive electric shocks if they poke their fingers or other objects into the indoor unit while the air conditioner is running.
	Install a circuit breaker that meets the specifications in the installation manual and the stipulations in the local regulations and laws.
	Install the circuit breaker where it can be easily accessed by the qualified service person (∗1).
	If you install the unit in a small room, take appropriate measures to prevent the refrigerant from exceeding the limit concentration even if it leaks. Consult the dealer from whom you purchased the air conditioner when you implement the measures. Accumulation of highly concentrated refrigerant may cause an oxygen deficiency accident.
	Do not place any combustion appliance in a place where it is directly exposed to the wind of air conditioner, otherwise it may cause imperfect combustion.

Explanations given to user

- If you have discovered that the fan grille is damaged, do not approach the outdoor unit but set the circuit breaker to the OFF position, and contact a qualified service person to have the repairs done.

  Do not set the circuit breaker to the ON position until the repairs are completed.

Relocation

- Only a qualified installer (∗1) or qualified service person (∗1) is allowed to relocate the air conditioner.

  It is dangerous for the air conditioner to be relocated by an unqualified individual since a fire, electric shocks, injury, water leakage, noise and/or vibration may result.
- When carrying out the pump-down work shut down the compressor before disconnecting the refrigerant pipe.

  Disconnecting the refrigerant pipe with the service valve left open and the compressor still operating will cause air, etc. to be sucked in, raising the pressure inside the refrigeration cycle to an abnormally high level, and possibly resulting in reputing, injury, etc.

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

SPECIFICATIONS

Model	Sound power level (dBA)		Weight (kg)
	Cooling	Heating	
MMU-AP0072WH (–TR)	✻	✻	19 (10)
MMU-AP0092WH (–TR)	✻	✻	19 (10)
MMU-AP0122WH (–TR)	✻	✻	19 (10)
MMU-AP0152WH (–TR)	✻	✻	19 (10)
MMU-AP0182WH (–TR)	✻	✻	26 (14)
MMU-AP0242WH (–TR)	✻	✻	26 (14)
MMU-AP0272WH (–TR)	✻	✻	26 (14)
MMU-AP0302WH (–TR)	✻	✻	26 (14)
MMU-AP0362WH (–TR)	✻	✻	36 (14)
MMU-AP0482WH (–TR)	✻	✻	36 (14)
MMU-AP0562WH (–TR)	✻	✻	36 (14)

✻ Under 70 dBA

DECLARATION OF CONFORMITY

Manufacturer: Toshiba Carrier Corporation
336 Tadehara, Fuji-shi, Shizuoka-ken 416-8521 JAPAN

Authorized Representative/ TCF holder: Nick Ball
Toshiba EMEA Engineering Director
Toshiba Carrier 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: Indoor unit
MMU-AP0072WH, MMU-AP0092WH, MMU-AP0122WH, MMU-AP0152WH, MMU-AP0182WH, MMU-AP0242WH, MMU-AP0272WH, MMU-AP0302WH, MMU-AP0362WH, MMU-AP0482WH, MMU-AP0562WH

MMU-AP0072WH-TR, MMU-AP0092WH-TR, MMU-AP0122WH-TR, MMU-AP0152WH-TR, MMU-AP0182WH-TR, MMU-AP0242WH-TR, MMU-AP0272WH-TR, MMU-AP0302WH-TR, MMU-AP0362WH-TR, MMU-AP0482WH-TR, MMU-AP0562WH-TR

Commercial name: Super Modular Multi System Air Conditioner

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

Complies with the provisions of the following harmonized standard:

EN 378-2: 2008+A1:2009

NOTE

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

• New Refrigerant (R410A)

This air conditioner adopts a new HFC type refrigerant (R410A) which does not deplete the ozone layer.

1. Safety Caution Concerned to New Refrigerant

The pressure of R410A is high 1.6 times of that of the former refrigerant (R22).

Accompanied with change of refrigerant, the refrigerating oil has been also changed.

Therefore, be sure that water, dust, the former refrigerant or the former refrigerating oil is not mixed into the refrigerating cycle of the air conditioner with new refrigerant during installation work or service work.

If an incorrect work or incorrect service is performed, there is a possibility to cause a serious accident.

Use the tools and materials exclusive to R410A to purpose a safe work.

2. Cautions on Installation/Service

(1) Do not mix the other refrigerant or refrigerating oil.

For the tools exclusive to R410A, shapes of all the joints including the service port differ from those of the former refrigerant in order to prevent mixture of them.

(2) As the use pressure of the new refrigerant is high, use material thickness of the pipe and tools which are specified for R410A.

(3) In the installation time, use clean pipe materials and work with great attention so that water and others do not mix in because pipes are affected by impurities such as water, oxide scales, oil, etc.

Use the clean pipes.

Be sure to brazing with flowing nitrogen gas. (Never use gas other than nitrogen gas.)

(4) For the earth protection, use a vacuum pump for air purge.

(5) R410A refrigerant is azeotropic mixture type refrigerant.

Therefore use liquid type to charge the refrigerant. (If using gas for charging, composition of the refrigerant changes and then characteristics of the air conditioner change.)

3. Pipe Materials

For the refrigerant pipes, copper pipe and joints are mainly used.

It is necessary to select the most appropriate pipes to conform to the standard.

Use clean material in which impurities adhere inside of pipe or joint to a minimum.

(1) Copper pipe

<Piping>

The pipe thickness, flare finishing size, flare nut and others differ according to a refrigerant type.

When using a long copper pipe for R410A, it is recommended to select “Copper or copper-base pipe without seam” and one with bonded oil amount 40mg/10m or less.

Also do not use crushed, deformed, discolored (especially inside) pipes. (Impurities cause clogging of expansion valves and capillary tubes.)

<Flare nut>

Use the flare nuts which are attached to the air conditioner unit.

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(2) Joint

The flare joint and socket joint are used for joints of the copper pipe.

The joints are rarely used for installation of the air conditioner.

However clear impurities when using them.

4. Tools

(1) Required Tools for R410A

Mixing of different types of oil may cause a trouble such as generation of sludge, clogging of capillary, etc. Accordingly, the tools to be used are classified into the following three types.

1) Tools exclusive for R410A (Those which cannot be used for conventional refrigerant (R22))
2) Tools exclusive for R410A, but can be also used for conventional refrigerant (R22)
3) Tools commonly used for R410A and for conventional refrigerant (R22)

The table below shows the tools exclusive for R410A and their interchangeability.

Tools exclusive for R410A (The following tools for R410A are required.)

Tools whose specifications are changed for R410A and their interchangeability

No.	Used tool	Usage	R410A air conditioner installation		Conventional air conditioner installation
			Existence of new equipment for R410A	Whether conventional equipment can be used	Whether new equipment can be used with conventional refrigerant
①	Flare tool	Pipe flaring	Yes	∗(Note 1)	Yes
②	Copper pipe gauge for adjusting projection margin	Flaring by conventional flare tool	Yes	∗(Note 1)	∗(Note 1)
③	Torque wrench	Connection of flare nut	Yes	No	No
④	Gauge manifold	Evacuating, refrigerant charge, run check, etc.	Yes	No	No
⑤	Charge hose				
⑥	Vacuum pump adapter	Vacuum evacuating	Yes	No	Yes
⑦	Electronic balance for refrigerant charging	Refrigerant charge	Yes	Yes	Yes
⑧	Refrigerant cylinder	Refrigerant charge	Yes	No	No
⑨	Leakage detector	Gas leakage check	Yes	No	Yes
⑩	Charging cylinder	Refrigerant charge	(Note 2)	No	No

(Note 1) When flaring is carried out for R410A using the conventional flare tools, adjustment of projection margin is necessary. For this adjustment, a copper pipe gauge, etc. are necessary.

(Note 2) Charging cylinder for R410A is being currently developed.

General tools (Conventional tools can be used.)

In addition to the above exclusive tools, the following equipments which serve also for R22 are necessary as the general tools.

1) Vacuum pump
   Use vacuum pump by attaching vacuum pump adapter.
2) Torque wrench
3) Pipe cutter
4) Reamer
5) Pipe bender
6) Level vial
7) Screwdriver (+, –)
8) Spanner or Monkey wrench
9) Hole core drill
10) Hexagon wrench (Opposite side 4mm)
11) Tape measure
12) Metal saw

Also prepare the following equipments for other installation method and run check.

1) Clamp meter
2) Thermometer
3) Insulation resistance tester
4) Electroscope

2. SPECIFICATIONS

2-1. Indoor Unit

MMU-AP0072WH, AP0092WH

(50/60 Hz)

Model name			MMU-AP0072WH	MMU-AP0092WH
Cooling capacity	(∗1) kW		2.2	2.8
Heating capacity	(∗1) kW		2.5	3.2
Electrical charastaristics	Power supply		1 phase 50 Hz 230 V (220 V-240 V) /1 phase 60 Hz 220 V (Separate power supply for indoor units is required.)	
	Running current	A	0.23 / 0.23	0.23 / 0.23
	Power consumption	kW	0.029 / 0.029	0.029 / 0.029
	Starting current	A	0.35 / 0.35	0.35 / 0.35
Appearance			Heat-insulating material attached Zinc hot dipping steel plate	
Outer dimension	Height	mm	295	295
	Width	mm	815	815
	Depth	mm	570	570
Total weight		kg	19	19
Heat exchanger			Finned tube	
Soundproof/Heat-insulating material			Non-flammable insulation	
Fan unit	Fan		Turbo fan	
	Standard air flow (–M, –L)	m³/h	558 (– 498 – 450)	558 (– 498 – 450)
	Motor	W	20	20
Air filter			Standard filter (Long life filter)	
Controller		(∗2)	Remote controller	
Connecting pipe	Gas side	mm	9.5	9.5
	Liquid side	mm	6.4	6.4
Drain port	(Nominal dia. mm)		25 (Polyvinyl chloride tube)	
Sound puressure level	High (–Mid., –Low)	dB	34–32–30	34–32–30
Ceiling panel (∗2)	Model name		RBC-UW283PG(W)-E	
	Appearance (Color)		Moon white (Muncel 2.5GY9.0/0.5)	
	Outer dimension	mm	Height 20 × Width 1050 × Depth 680	
	Total weight	kg	10	10
Remote controller wiring			VCTF 0.5 to 2.0 mm² (2 cores)	
Crossover wiring	(Up to 1000 m) (Up to 2000 m)		MVVS (Shield wire) 1.25 mm² × 2 cores MVVS (Shield wire) 2.00 mm² × 2 cores	
Option parts	Auxiliary fresh air flange		TCB-FF151US-E	
	Filter chamber		TCB-FC283UW-E	
	Super long life filter		TCB-LF283UW-E	
	Wireless remote controller Kit		RBC-AX23UW (W)-E	

(∗1) Cooling / heating capacity is based on single connection operation with standard piping length under Japanese Industrial Standard B 8615 Condition 1.

(∗2) Remote controller and ceiling panel are sold separately.

MMU-AP0122WH, AP0152WH

(50/60 Hz)

Model name			MMU-AP0122WH	MMU-AP0152WH
Cooling capacity	(∗1) kW		3.6	4.5
Heating capacity	(∗1) kW		4.0	5.0
Electrical charastaristics	Power supply		1 phase 50 Hz 230 V (220 V-240 V) /1 phase 60 Hz 220 V (Separate power supply for indoor units is required.)	
	Running current	A	0.23 / 0.23	0.24 / 0.24
	Power consumption	kW	0.029 / 0.029	0.030 / 0.030
	Starting current	A	0.35 / 0.35	0.36 / 0.36
Appearance			Heat-insulating material attached Zinc hot dipping steel plate	
Outer dimension	Height	mm	295	295
	Width	mm	815	815
	Depth	mm	570	570
Total weight		kg	19	19
Heat exchanger			Finned tube	
Soundproof/Heat-insulating material			Non-flammable insulation	
Fan unit	Fan		Turbo fan	
	Standard air flow (–M, –L)	m³/h	558 (– 498 – 450)	600 (–534 – 450)
	Motor	W	20	20
Air filter			Standard filter (Long life filter)	
Controller		(∗2)	Remote controller	
Connecting pipe	Gas side	mm	9.5	12.7
	Liquid side	mm	6.4	6.4
Drain port	(Nominal dia. mm)		25 (Polyvinyl chloride tube)	
Sound puressure level	High (–Mid., –Low)	dB	34–32–30	35–33–30
Ceiling panel (∗2)	Model name		RBC-UW283PG(W)-E	
	Appearance (Color)		Moon white (Muncel 2.5GY9.0/0.5)	
	Outer dimension	mm	Height 20 × Width 1050 × Depth 680	
	Total weight	kg	10	10
Remote controller wiring\			VCTF 0.5 to 2.0 mm² (2 cores)	
Crossover wiring	(Up to 1000 m) (Up to 2000 m)		MVVS (Shield wire) 1.25 mm² × 2 cores MVVS (Shield wire) 2.00 mm² × 2 cores	
Option parts	Auxiliary fresh air flange		TCB-FF151US-E	
	Filter chamber		TCB-FC283UW-E	
	Super long life filter		TCB-LF283UW-E	
	Wireless remote controller Kit		RBC-AX23UW (W)-E	

(∗1) Cooling / heating capacity is based on single connection operation with standard piping length under Japanese Industrial Standard B 8615 Condition 1.

(∗2) Remote controller and ceiling panel are sold separately.

MMU-AP0182WH, AP0242WH

(50/60 Hz)

Model name			MMU-AP0182WH	MMU-AP0242WH
Cooling capacity	(∗1) kW		5.6	7.1
Heating capacity	(∗1) kW		6.3	8.0
Electrical charastaristics	Power supply		1 phase 50 Hz 230 V (220 V-240 V) /1 phase 60 Hz 220 V (Separate power supply for indoor units is required.)	
	Running current	A	0.32 / 0.32	0.39 / 0.39
	Power consumption	kW	0.044 / 0.044	0.054 / 0.054
	Starting current	A	0.48 / 0.48	0.59 / 0.59
Appearance			Heat-insulating material attached Zinc hot dipping steel plate	
Outer dimension	Height	mm	345	345
	Width	mm	1180	1180
	Depth	mm	570	570
Total weight		kg	26	26
Heat exchanger			Finned tube	
Soundproof/Heat-insulating material			Non-flammable insulation	
Fan unit	Fan		Centrifugal fan	
	Standard air flow (–M, –L)	m³/h	900 (– 750 – 618)	1050 (– 840 – 738)
	Motor	W	30	40
Air filter			Standard filter (Long life filter)	
Controller		(∗2)	Remote controller	
Connecting pipe	Gas side	mm	12.7	15.9
	Liquid side	mm	6.4	9.5
Drain port	(Nominal dia. mm)		25 (Polyvinyl chloride tube)	
Sound puressure level	High (–Mid., –Low)	dB	35–33–30	38–35–33
Ceiling panel (∗2)	Model name		RBC-UW803PG(W)-E	
	Appearance (Color)		Moon white (Muncel 2.5GY9.0/0.5)	
	Outer dimension	mm	Height 20 × Width 1415 × Depth 680	
	Total weight	kg	14	14
Remote controller wiring			VCTF 0.5 to 2.0 mm² (2 cores)	
Crossover wiring	(Up to 1000 m) (Up to 2000 m)		MVVS (Shield wire) 1.25 mm² × 2 cores MVVS (Shield wire) 2.00 mm² × 2 cores	
Option parts	Auxiliary fresh air flange		TCB-FF151US-E	
	Filter chamber		TCB-FC803UW-E	
	Super long life filter		TCB-LF803UW-E	
	Wireless remote controller Kit		RBC-AX23UW (W)-E	

(∗1) Cooling / heating capacity is based on single connection operation with standard piping length under Japanese Industrial Standard B 8615 Condition 1.

(∗2) Remote controller and ceiling panel are sold separately.

MMU-AP0272WH, AP0302WH

(50/60 Hz)

Model name			MMU-AP0272WH	MMU-AP0302WH
Cooling capacity		(∗1) kW	8.0	9.0
Heating capacity		(∗1) kW	9.0	10.0
Electrical charastaristics	Power supply		1 phase 50 Hz 230 V (220 V-240 V) /1 phase 60 Hz 220 V (Separate power supply for indoor units is required.)	
	Running current	A	0.39 / 0.39	0.46 / 0.46
	Power consumption	kW	0.054 / 0.054	0.064 / 0.064
	Starting current	A	0.59 / 0.59	0.69 / 0.69
Appearance			Heat-insulating material attached Zinc hot dipping steel plate	
Outer dimension	Height	mm	345	345
	Width	mm	1180	1180
	Depth	mm	570	570
Total weight		kg	26	26
Heat exchanger			Finned tube	
Soundproof/Heat-insulating material			Non-flammable insulation	
Fan unit	Fan		Centrifugal fan	
	Standard air flow (–M, –L)	m³/h	1050 (– 840 – 738)	1260 (– 900 – 780)
	Motor	W	40	50
Air filter			Standard filter (Long life filter)	
Controller		(∗2)	Remote controller	
Connecting pipe	Gas side	mm	15.9	15.9
	Liquid side	mm	9.5	9.5
Drain port	(Nominal dia. mm)		25 (Polyvinyl chloride tube)	
Sound puressure level	High (–Mid., –Low)	dB	38–35–33	40–37–34
Ceiling panel (∗2)	Model name		RBC-UW803PG(W)-E	
	Appearance (Color)		Moon white (Muncel 2.5GY9.0/0.5)	
	Outer dimension	mm	Height 20 × Width 1415 × Depth 680	
	Total weight	kg	14	14
Remote controller wiring			VCTF 0.5 to 2.0 mm² (2 cores)	
Crossover wiring	(Up to 1000 m) (Up to 2000 m)		MVVS (Shield wire) 1.25 mm² × 2 cores MVVS (Shield wire) 2.00 mm² × 2 cores	
Option parts	Auxiliary fresh air flange		TCB-FF151US-E	
	Filter chamber		TCB-FC803UW-E	
	Super long life filter		TCB-LF803UW-E	
	Wireless remote controller Kit		RBC-AX23UW (W)-E	

(∗1) Cooling / heating capacity is based on single connection operation with standard piping length under Japanese Industrial Standard B 8615 Condition 1.

(∗2) Remote controller and ceiling panel are sold separately.

MMU-AP0362WH, AP0482WH, AP0562WH

(50/60 Hz)

Model name			MMU-AP0362WH	MMU-AP0482WH	MMU-AP0562WH
Cooling capacity		(∗1) kW	11.2	14.0	16.0
Heating capacity		(∗1) kW	12.5	16.0	18.0
Electrical charastaristics	Power supply		1 phase 50 Hz 230 V (220 V-240 V) /1 phase 60 Hz 220 V (Separate power supply for indoor units is required.)		
	Running current	A	0.48 / 0.48	0.57 / 0.57	0.75 / 0.75
	Power consumption	kW	0.073 / 0.073	0.088 / 0.088	0.117 / 0.117
	Starting current	A	0.72 / 0.72	0.86 / 0.86	1.13 / 1.13
Appearance			Heat-insulating material attached Zinc hot dipping steel plate		
Outer dimension	Height	mm	345	345	345
	Width	mm	1600	1600	1600
	Depth	mm	570	570	570
Total weight		kg	36	36	36
Heat exchanger			Finned tube		
Soundproof/Heat-insulating material			Non-flammable insulation		
Fan unit	Fan		Centrifugal fan		
	Standard air flow (–M, –L)	m³/h	1740 (–1434–1182)	1800 (–1482–1230)	2040 (–1578–1320)
	Motor	W	70	70	70
Air filter			Standard filter (Long life filter)		
Controller		(∗2)	Remote controller		
Connecting pipe	Gas side	mm	15.9	15.9	15.9
	Liquid side	mm	9.5	9.5	9.5
Drain port	(Nominal dia. mm)		25 (Polyvinyl chloride tube)		
Sound puressure level	High (–Mid., –Low)	dB	42–39–36	43–40–37	46–42–39
Ceiling panel (∗2)	Model name		RBC-UW1403PG(W)-E		
	Appearance (Color)		Moon white (Muncel 2.5GY9.0/0.5)		
	Outer dimension	mm	Height 20 × Width 1835 × Depth 680		
	Total weight	kg	14	14	14
Remote controller wiring			VCTF 0.5 to 2.0 mm² (2 cores)		
Crossover wiring	(Up to 1000 m) (Up to 2000 m)		MVVS (Shield wire) 1.25 mm² × 2 cores MVVS (Shield wire) 2.00 mm² × 2 cores		
Option parts	Auxiliary fresh air flange		TCB-FF151US-E		
	Filter chamber		TCB-FC1403UW-E		
	Super long life filter		TCB-LF1403UW-E		
	Wireless remote controller Kit		RBC-AX23UW (W)-E		

(∗1) Cooling / heating capacity is based on single connection operation with standard piping length under Japanese Industrial Standard B 8615 Condition 1.

(∗2) Remote controller and ceiling panel are sold separately.

MMU-AP0072WH-TR, AP0092WH-TR

(50 Hz)

Model name			MMU-AP0072WH-TR	MMU-AP0092WH-TR
Cooling capacity	(∗1) kW		2.2	2.8
Heating capacity	(∗1) kW		2.5	3.2
Electrical charastaristics	Power supply		1 phase 50 Hz 230 V (220 V-240 V) /1 phase 60 Hz 220 V (Separate power supply for indoor units is required.)	
	Running current	A	0.23	0.23
	Power consumption	kW	0.029	0.029
	Starting current	A	0.35	0.35
Appearance			Heat-insulating material attached Zinc hot dipping steel plate	
Outer dimension	Height	mm	295	295
	Width	mm	815	815
	Depth	mm	570	570
Total weight		kg	19	19
Heat exchanger			Finned tube	
Soundproof/Heat-insulating material			Non-flammable insulation	
Fan unit	Fan		Turbo fan	
	Standard air flow (–M, –L)	m³/h	558 (– 498 – 450)	558 (– 498 – 450)
	Motor	W	20	20
Air filter			Standard filter (Long life filter)	
Controller		(∗2)	Remote controller	
Connecting pipe	Gas side	mm	9.5	9.5
	Liquid side	mm	6.4	6.4
Drain port	(Nominal dia. mm)		25 (Polyvinyl chloride tube)	
Sound puressure level	High (–Mid., –Low)	dB	34–32–30	34–32–30
Ceiling panel (∗2)	Model name		RBC-UW283PG(W)-E	
	Appearance (Color)		Moon white (Muncel 2.5GY9.0/0.5)	
	Outer dimension	mm	Height 20 × Width 1050 × Depth 680	
	Total weight	kg	10	10
Remote controller wiring			VCTF 0.5 to 2.0 mm² (2 cores)	
Crossover wiring	(Up to 1000 m) (Up to 2000 m)		MVVS (Shield wire) 1.25 mm² × 2 cores MVVS (Shield wire) 2.00 mm² × 2 cores	
Option parts	Auxiliary fresh air flange		TCB-FF151US-E	
	Filter chamber		TCB-FC283UW-E	
	Super long life filter		TCB-LF283UW-E	
	Wireless remote controller Kit		RBC-AX23UW (W)-E	

(∗1) Cooling / heating capacity is based on single connection operation with standard piping length under Japanese Industrial Standard B 8615 Condition 1.

(∗2) Remote controller and ceiling panel are sold separately.

MMU-AP0122WH-TR, AP0152WH-TR

(50 Hz)

Model name			MMU-AP0122WH-TR	MMU-AP0152WH-TR
Cooling capacity	(∗1) kW		3.6	4.5
Heating capacity	(∗1) kW		4.0	5.0
Electrical charastaristics	Power supply		1 phase 50 Hz 230 V (220 V-240 V) /1 phase 60 Hz 220 V (Separate power supply for indoor units is required.)	
	Running current	A	0.23	0.24
	Power consumption	kW	0.029	0.030
	Starting current	A	0.35	0.36
Appearance			Heat-insulating material attached Zinc hot dipping steel plate	
Outer dimension	Height	mm	295	295
	Width	mm	815	815
	Depth	mm	570	570
Total weight		kg	19	19
Heat exchanger			Finned tube	
Soundproof/Heat-insulating material			Non-flammable insulation	
Fan unit	Fan		Turbo fan	
	Standard air flow (–M, –L)	m³/h	558 (– 498 – 450)	600 (–534 – 450)
	Motor	W	20	20
Air filter			Standard filter (Long life filter)	
Controller		(∗2)	Remote controller	
Connecting pipe	Gas side	mm	9.5	12.7
	Liquid side	mm	6.4	6.4
Drain port	(Nominal dia. mm)		25 (Polyvinyl chloride tube)	
Sound puressure level	High (–Mid., –Low)	dB	34–32–30	35–33–30
Ceiling panel (∗2)	Model name		RBC-UW283PG(W)-E	
	Appearance (Color)		Moon white (Muncel 2.5GY9.0/0.5)	
	Outer dimension	mm	Height 20 × Width 1050 × Depth 680	
	Total weight	kg	10	10
Remote controller wiring			VCTF 0.5 to 2.0 mm² (2 cores)	
Crossover wiring	(Up to 1000 m) (Up to 2000 m)		MVVS (Shield wire) 1.25 mm² × 2 cores MVVS (Shield wire) 2.00 mm² × 2 cores	
Option parts	Auxiliary fresh air flange		TCB-FF151US-E	
	Filter chamber		TCB-FC283UW-E	
	Super long life filter		TCB-LF283UW-E	
	Wireless remote controller Kit		RBC-AX23UW (W)-E	

(∗1) Cooling / heating capacity is based on single connection operation with standard piping length under Japanese Industrial Standard B 8615 Condition 1.

(∗2) Remote controller and ceiling panel are sold separately.

MMU-AP0182WH-TR, AP0242WH-TR

(50 Hz)

Model name			MMU-AP0182WH-TR	MMU-AP0242WH-TR
Cooling capacity	(∗1) kW		5.6	7.1
Heating capacity	(∗1) kW		6.3	8.0
Electrical charastaristics	Power supply		1 phase 50 Hz 230 V (220 V-240 V) /1 phase 60 Hz 220 V (Separate power supply for indoor units is required.)	
	Running current	A	0.32	0.39
	Power consumption	kW	0.044	0.054
	Starting current	A	0.48	0.59
Appearance			Heat-insulating material attached Zinc hot dipping steel plate	
Outer dimension	Height	mm	345	345
	Width	mm	1180	1180
	Depth	mm	570	570
Total weight		kg	26	26
Heat exchanger			Finned tube	
Soundproof/Heat-insulating material			Non-flammable insulation	
Fan unit	Fan		Centrifugal fan	
	Standard air flow (–M, –L)	m³/h	900 (– 750 – 618)	1050 (– 840 – 738)
	Motor	W	30	40
Air filter			Standard filter (Long life filter)	
Controller		(∗2)	Remote controller	
Connecting pipe	Gas side	mm	12.7	15.9
	Liquid side	mm	6.4	9.5
Drain port	(Nominal dia. mm)		25 (Polyvinyl chloride tube)	
Sound puressure level	High (–Mid., –Low)	dB	35–33–30	38–35–33
Ceiling panel (∗2)	Model name		RBC-UW803PG(W)-E	
	Appearance (Color)		Moon white (Muncel 2.5GY9.0/0.5)	
	Outer dimension	mm	Height 20 × Width 1415 × Depth 680	
	Total weight	kg	14	14
Remote controller wiring			VCTF 0.5 to 2.0 mm² (2 cores)	
Crossover wiring	(Up to 1000 m) (Up to 2000 m)		MVVS (Shield wire) 1.25 mm² × 2 cores MVVS (Shield wire) 2.00 mm² × 2 cores	
Option parts	Auxiliary fresh air flange		TCB-FF151US-E	
	Filter chamber		TCB-FC803UW-E	
	Super long life filter		TCB-LF803UW-E	
	Wireless remote controller Kit		RBC-AX23UW (W)-E	

(∗1) Cooling / heating capacity is based on single connection operation with standard piping length under Japanese Industrial Standard B 8615 Condition 1.

(∗2) Remote controller and ceiling panel are sold separately.

MMU-AP0272WH-TR, AP0302WH-TR

(50 Hz)

Model name			MMU-AP0272WH-TR	MMU-AP0302WH-TR
Cooling capacity	(∗1) kW		8.0	9.0
Heating capacity	(∗1) kW		9.0	10.0
Electrical charastaristics	Power supply		1 phase 50 Hz 230 V (220 V-240 V) /1 phase 60 Hz 220 V (Separate power supply for indoor units is required.)	
	Running current	A	0.39	0.46
	Power consumption	kW	0.054	0.064
	Starting current	A	0.59	0.69
Appearance			Heat-insulating material attached Zinc hot dipping steel plate	
Outer dimension	Height	mm	345	345
	Width	mm	1180	1180
	Depth	mm	570	570
Total weight		kg	26	26
Heat exchanger			Finned tube	
Soundproof/Heat-insulating material			Non-flammable insulation	
Fan unit	Fan		Centrifugal fan	
	Standard air flow (–M, –L)	m³/h	1050 (– 840 – 738)	1260 (– 900 – 780)
	Motor	W	40	50
Air filter			Standard filter (Long life filter)	
Controller		(∗2)	Remote controller	
Connecting pipe	Gas side	mm	15.9	15.9
	Liquid side	mm	9.5	9.5
Drain port	(Nominal dia. mm)		25 (Polyvinyl chloride tube)	
Sound puressure level	High (–Mid., –Low)	dB	38–35–33	40–37–34
Ceiling panel (∗2)	Model name		RBC-UW803PG(W)-E	
	Appearance (Color)		Moon white (Muncel 2.5GY9.0/0.5)	
	Outer dimension	mm	Height 20 × Width 1415 × Depth 680	
	Total weight	kg	14	14
Remote controller wiring			VCTF 0.5 to 2.0 mm² (2 cores)	
Crossover wiring	(Up to 1000 m) (Up to 2000 m)		MVVS (Shield wire) 1.25 mm² × 2 cores MVVS (Shield wire) 2.00 mm² × 2 cores	
Option parts	Auxiliary fresh air flange		TCB-FF151US-E	
	Filter chamber		TCB-FC803UW-E	
	Super long life filter		TCB-LF803UW-E	
	Wireless remote controller Kit		RBC-AX23UW (W)-E	

(∗1) Cooling / heating capacity is based on single connection operation with standard piping length under Japanese Industrial Standard B 8615 Condition 1.

(∗2) Remote controller and ceiling panel are sold separately.

MMU-AP0362WH-TR, AP0482WH-TR, AP0562WH-TR

(50 Hz)

Model name		MMU-	AP0362WH-TR	AP0482WH-TR	AP0562WH-TR
Cooling capacity		(∗1) kW	11.2	14.0	16.0
Heating capacity		(∗1) kW	12.5	16.0	18.0
Electrical charastaristics	Power supply		1 phase 50 Hz 230 V (220 V-240 V) /1 phase 60 Hz 220 V (Separate power supply for indoor units is required.)		
	Running current	A	0.48	0.57	0.75
	Power consumption	kW	0.073	0.088	0.117
	Starting current	A	0.72	0.86	1.13
Appearance			Heat-insulating material attached Zinc hot dipping steel plate		
Outer dimension	Height	mm	345	345	345
	Width	mm	1600	1600	1600
	Depth	mm	570	570	570
Total weight		kg	36	36	36
Heat exchanger			Finned tube		
Soundproof/Heat-insulating material			Non-flammable insulation		
Fan unit	Fan		Centrifugal fan		
	Standard air flow (–M, –L)	m³/h	1740 (–1434–1182)	1800 (–1482–1230)	2040 (–1578–1320)
	Motor	W	70	70	70
Air filter			Standard filter (Long life filter)		
Controller		(∗2)	Remote controller		
Connecting pipe	Gas side	mm	15.9	15.9	15.9
	Liquid side	mm	9.5	9.5	9.5
Drain port	(Nominal dia. mm)		25 (Polyvinyl chloride tube)		
Sound puressure level	High (–Mid., –Low)	dB	42–39–36	43–40–37	46–42–39
Ceiling panel (∗2)	Model name		RBC-UW1403PG(W)-E		
	Appearance (Color)		Moon white (Muncel 2.5GY9.0/0.5)		
	Outer dimension	mm	Height 20 × Width 1835 × Depth 680		
	Total weight	kg	14	14	14
Remote controller wiring			VCTF 0.5 to 2.0 mm² (2 cores)		
Crossover wiring	(Up to 1000 m) (Up to 2000 m)		MVVS (Shield wire) 1.25 mm² × 2 cores MVVS (Shield wire) 2.00 mm² × 2 cores		
Option parts	Auxiliary fresh air flange		TCB-FF151US-E		
	Filter chamber		TCB-FC1403UW-E		
	Super long life filter		TCB-LF1403UW-E		
	Wireless remote controller Kit		RBC-AX23UW (W)-E		

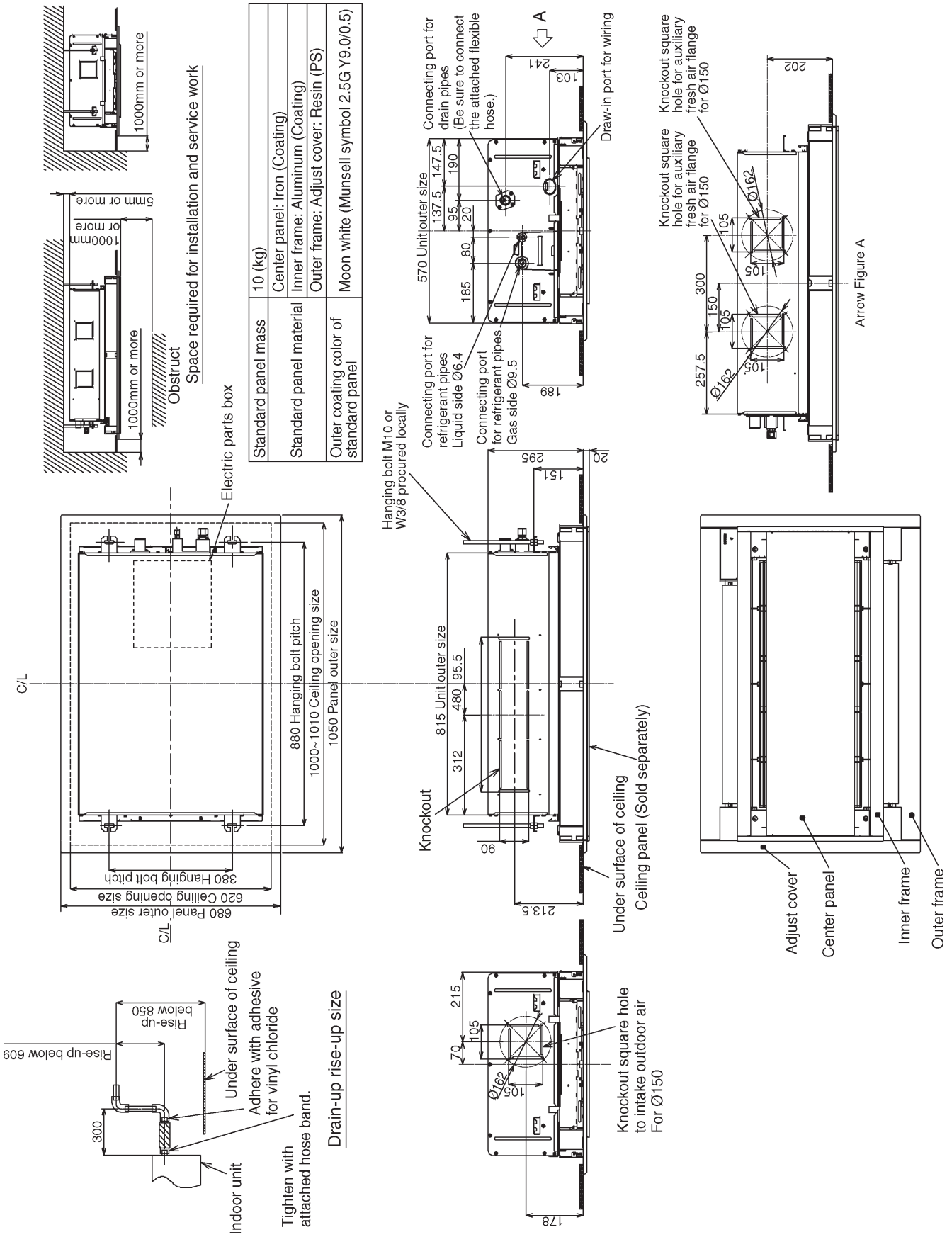
(∗1) Cooling / heating capacity is based on single connection operation with standard piping length under Japanese Industrial Standard B 8615 Condition 1.

(∗2) Remote controller and ceiling panel are sold separately.

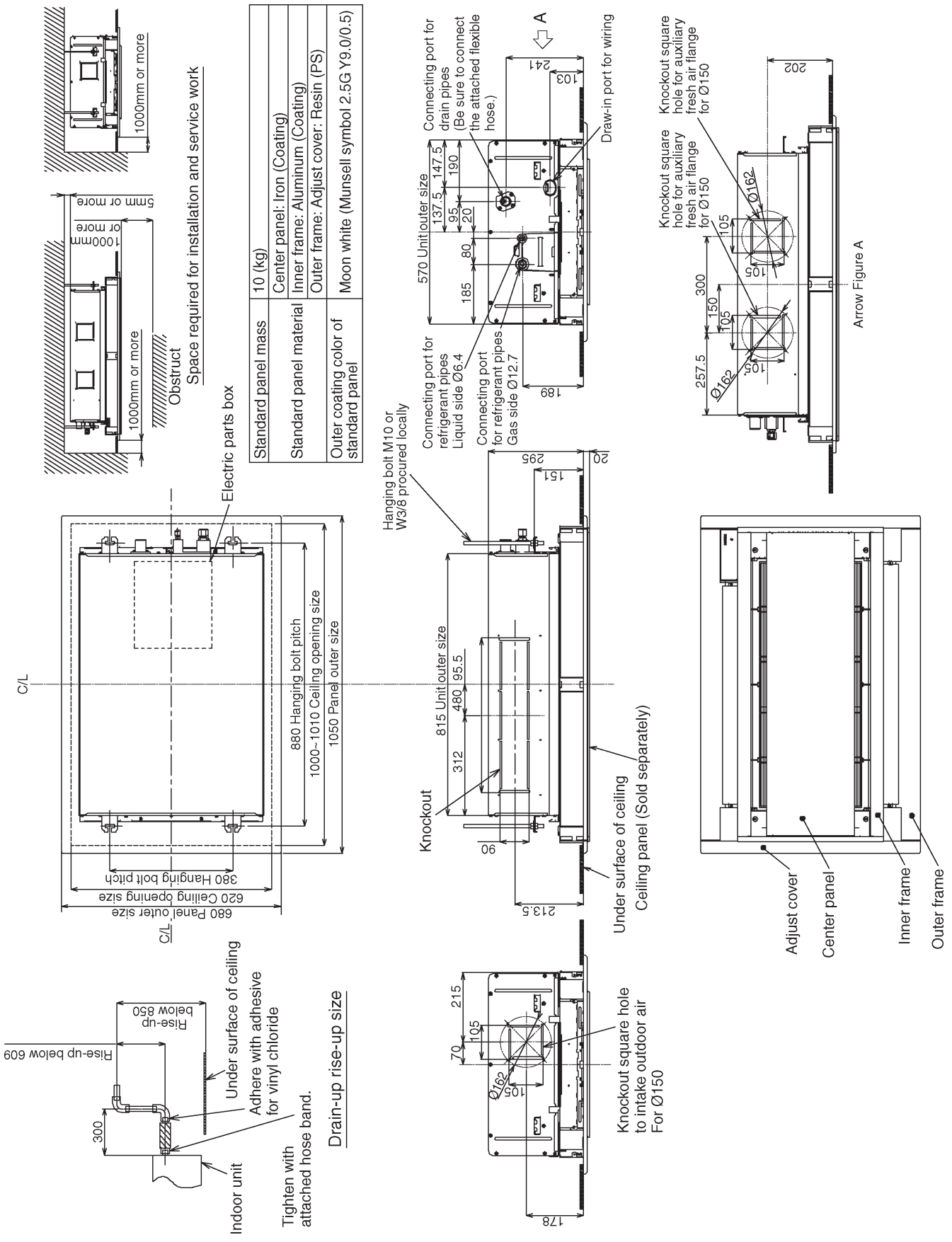
3. CONSTRUCTION VIEWS (EXTERNAL VIEWS)

3-1. 2-Way Air Discharge Cassette Type

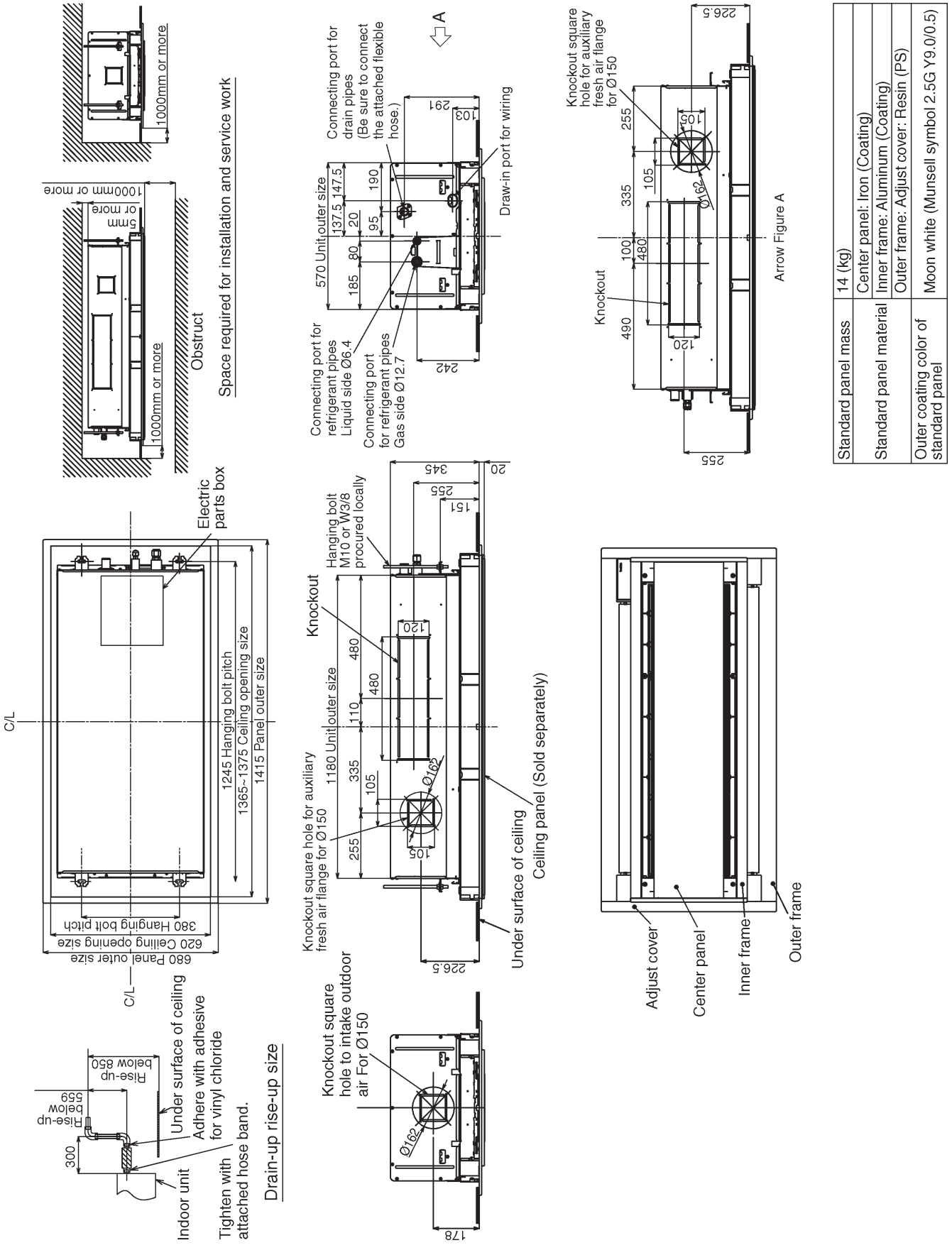
MMU-AP0072WH (-TR), AP0092WH (-TR), AP0122WH (-TR)



MMU-AP0152WH (-TR)

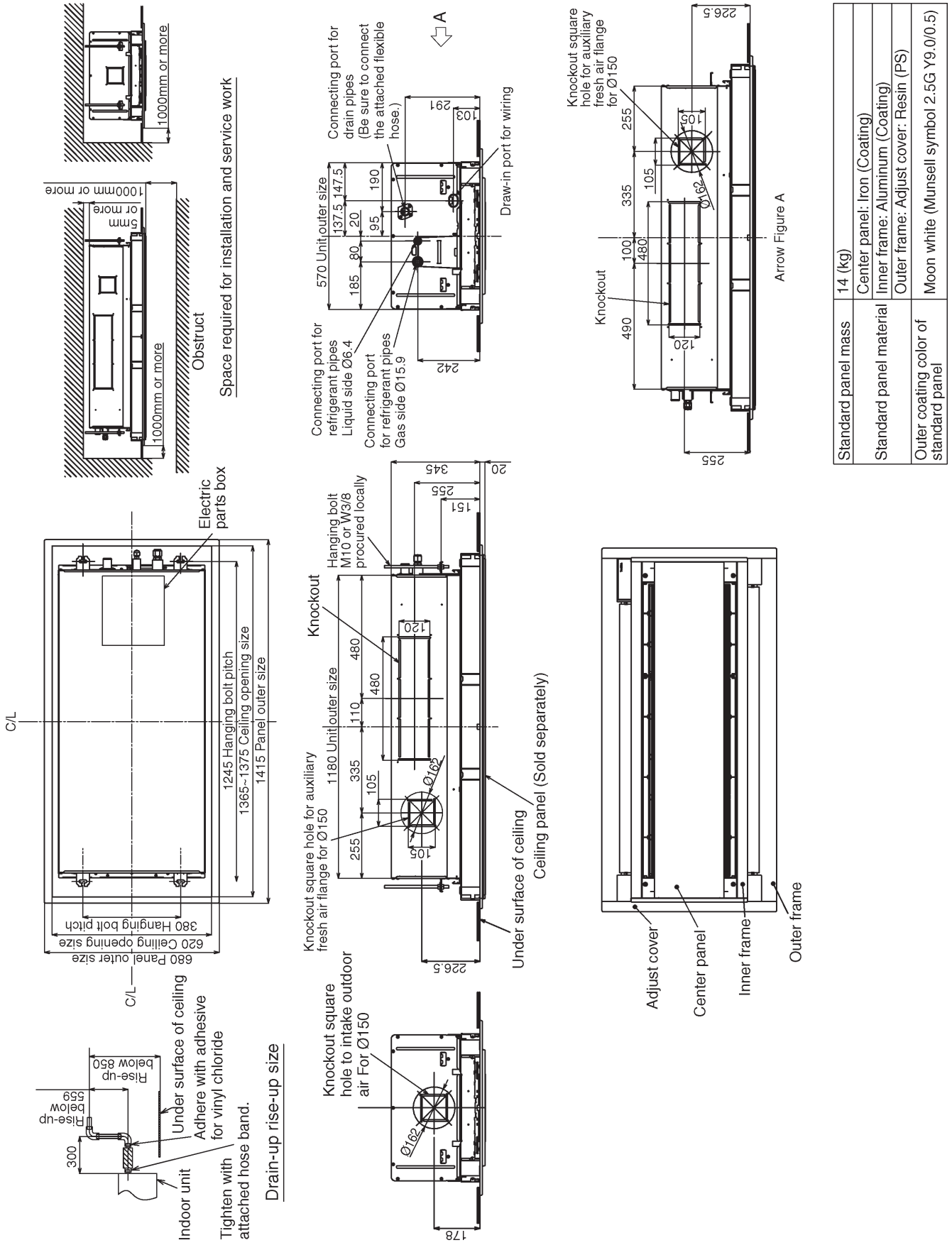


MMU-AP0182WH (-TR)



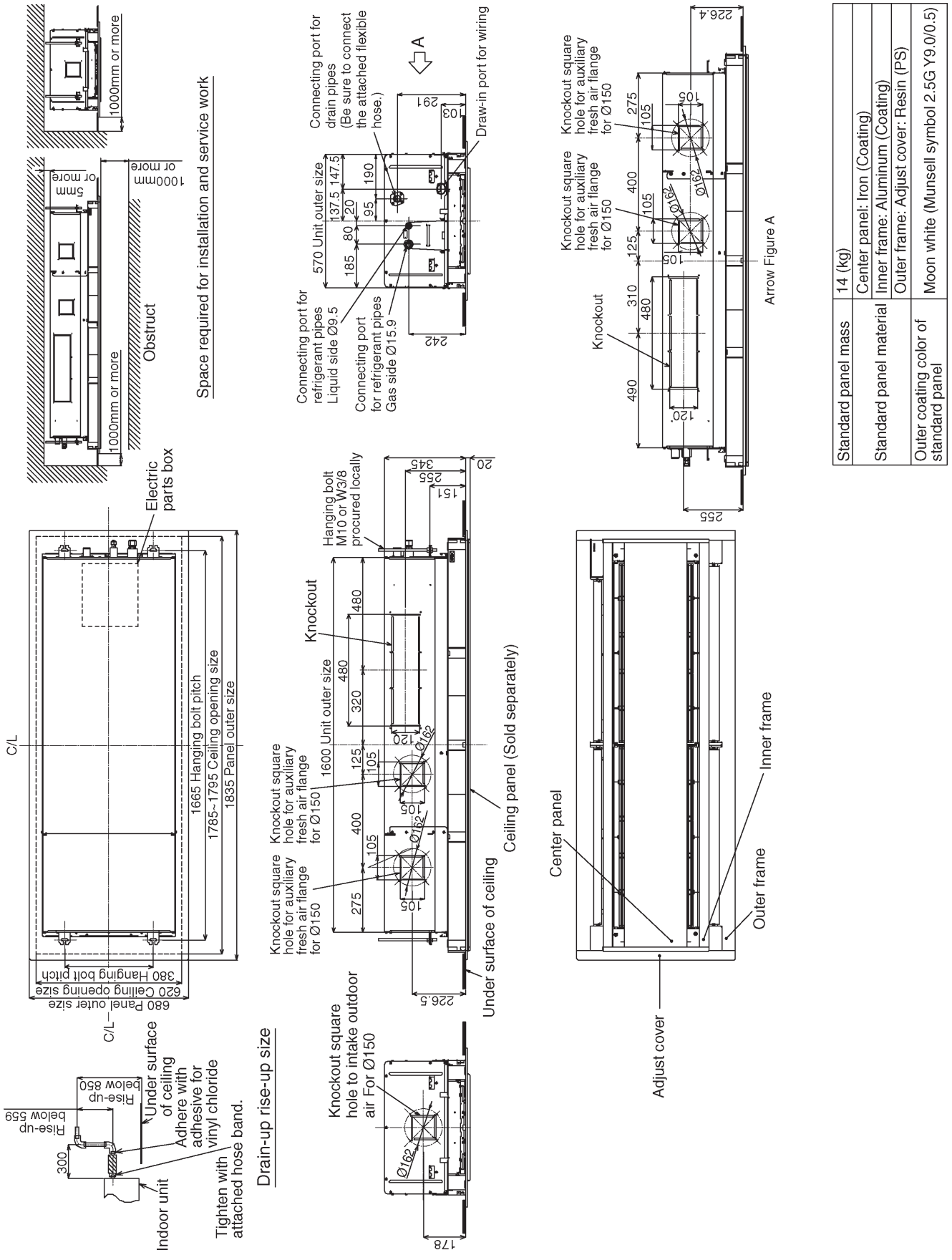
Standard panel mass	14 (kg)
Standard panel material	Center panel: Iron (Coating)
	Inner frame: Aluminum (Coating)
	Outer frame: Adjust cover: Resin (PS)
Outer coating color of standard panel	Moon white (Munsell symbol 2.5G Y9.0/0.5)

MMU-AP0242WH (-TR), AP0272WH (-TR), AP0302WH (-TR)



Standard panel mass	14 (kg)
Standard panel material	Center panel: Iron (Coating)
	Inner frame: Aluminum (Coating)
	Outer frame: Adjust cover: Resin (PS)
Outer coating color of standard panel	Moon white (Munsell symbol 2.5G Y9.0/0.5)

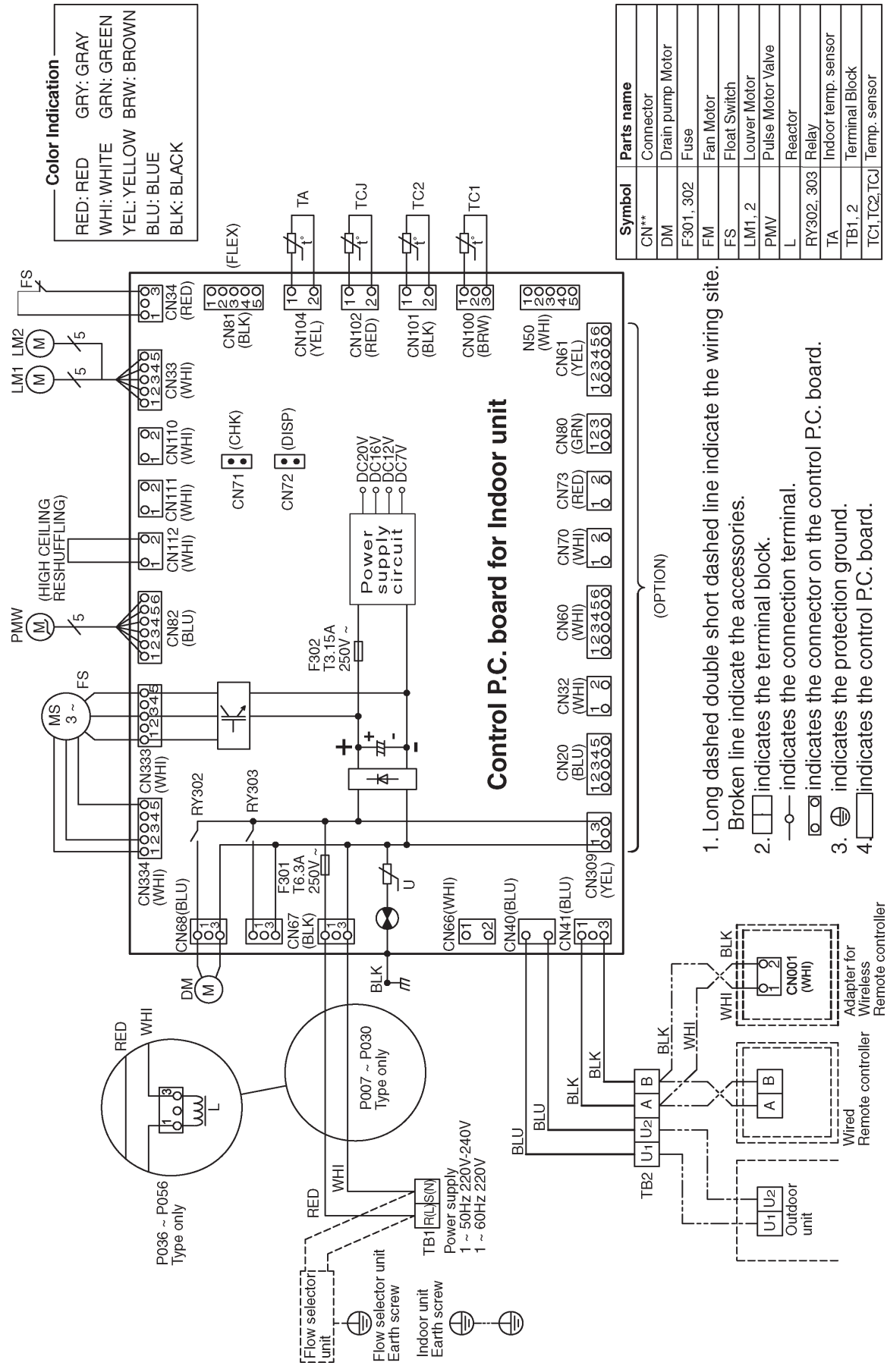
MMU-AP0362WH (-TR), AP0482WH (-TR), AP0562WH (-TR)



Standard panel mass	14 (kg)
Standard panel material	Center panel: Iron (Coating)
	Inner frame: Aluminum (Coating)
	Outer frame: Adjust cover: Resin (PS)
Outer coating color of standard panel	Moon white (Munsell symbol 2.5G Y9.0/0.5)

4. WIRING DIAGRAM

4-1. 2-Way Air Discharge Cassette Type



5. PARTS RATING

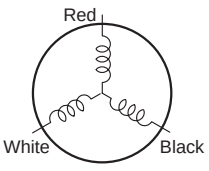
5-1. Parts Rating

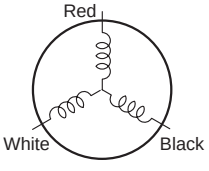
5-1-1. 2-Way Air Discharge Cassette Type

Model name	MMU-							
	AP0072WH	AP0092WH	AP0122WH	AP0152WH	AP0182WH	AP0242WH	AP0272WH	AP0302WH
Fan motor	SWF-230-60-1R				SWF-280-60-1R			
Drain pump motor	ADP-1409							
Float switc	FS-0218-103							
TA sensor	Lead wire length 268 mm							
TC1 sensor	Ø4 size lead wire length : 1200 mm, vinyl tube (Blue)							
TC2 sensor	Ø6 size lead wire length : 1200 mm vinyl tube (Black)							
TCJ sensor	Ø6 size lead wire length : 1200 mm vinyl tube (Red)							
Pulse motor	EMD-MD12TF-3							
PMV	EFM-25YGTF-1			EFM-40YGTF-2				

Model name	MMU-		
	AP0362WH	AP0482WH	AP0562WH
Fan motor	SWF-280-120-2R		
Drain pump motor	ADP-1409		
Float switc	FS-0218-103		
TA sensor	Lead wire length : 268 mm		
TC1 sensor	Ø4 size lead wire length : 1200 mm vinyl tube (Blue)		
TC2 sensor	Ø6 size lead wire length : 1200 mm vinyl tube (Black)		
TCJ sensor	Ø6 size lead wire length : 1200 mm vinyl tube (Red)		
Pulse motor	EMD-MD12TF-3		
PMV	EFM-60YGTF-1		

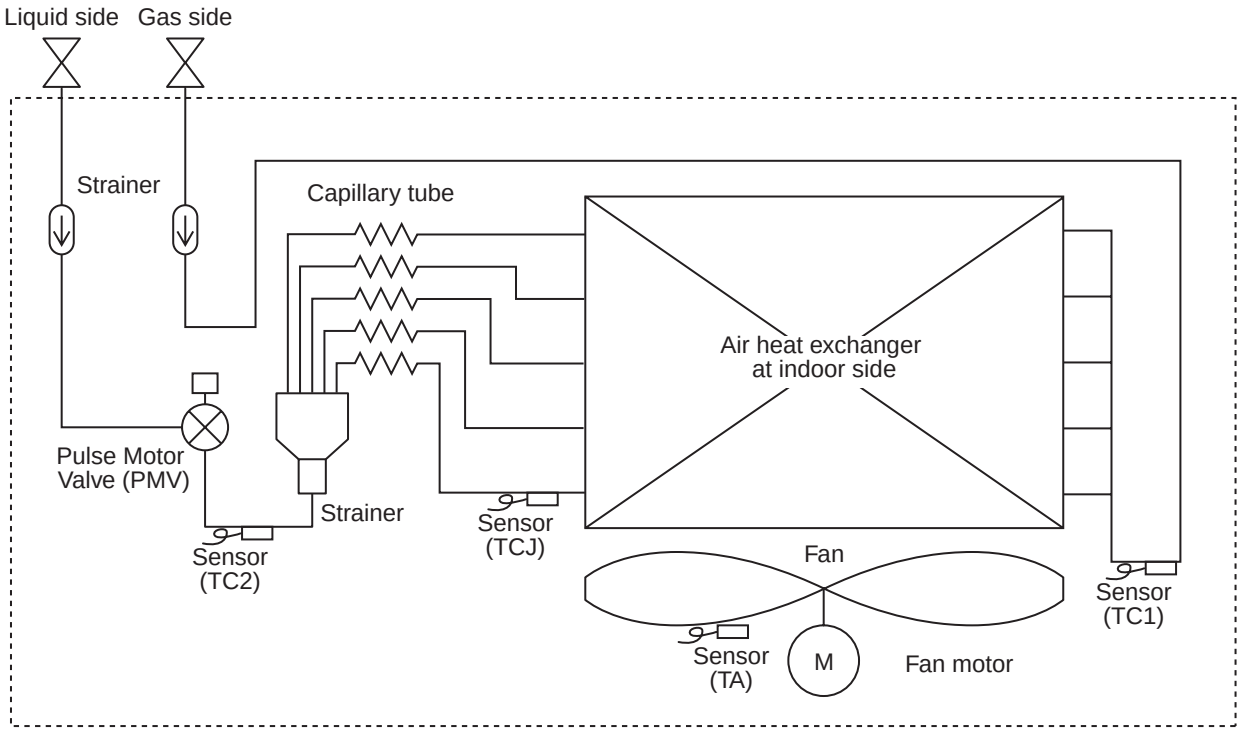
5-1-2. Indoor Unit (Other Parts)

<table>
<tr><th>No.</th><th>Part name</th><th>Checking procedure</th></tr>
<tr><td>1</td><td>Fan motor
(Model: SWF-230-60-1R)</td><td>Measure the resistance value of winding by using the tester.
 

<table>
<tr><th>Position</th><th>Resistance value</th></tr>
<tr><td>Red - White</td><td rowspan="3">87 ± 8.7 Ω</td></tr>
<tr><td>White - Black</td></tr>
<tr><td>Black – Red</td></tr>
</table>
Under 20°C</td></tr>
<tr><td>2</td><td>Fan Motor
(Model: SWF-280-120-2R)</td><td>Measure the resistance value of winding by using the tester.
 

<table>
<tr><th>Position</th><th>Resistance value</th></tr>
<tr><td>Red - White</td><td rowspan="3">37 ± 3.7 Ω</td></tr>
<tr><td>White - Black</td></tr>
<tr><td>Black – Red</td></tr>
</table>
Under 20°C</td></tr>
</table>

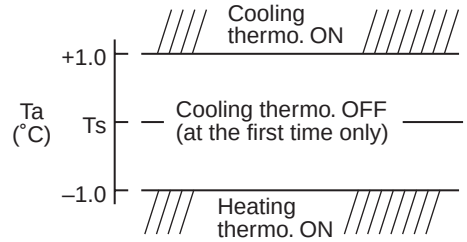
6. REFRIGERATING CYCLE DIAGRAM



Functional part name		Functional outline
Pulse Motor Valve	PMV	(Connector CN082 (6P): Blue) 1) Controls super heat in cooling operation 2) Controls under cool in heating operation 3) Recovers refrigerant oil in cooling operation 4) Recovers refrigerant oil in heating operation
Temp. sensor	1. TA	(Connector CN104 (2P): Yellow) 1) Detects indoor suction temperature
	2. TC1	(Connector CN100 (3P): Brown) 1) Controls PMV super heat in cooling operation
	3. TC2	(Connector CN101 (2P): Black) 1) Controls PMV under cool in heating operation
	4. TCJ	(Connector CN102 (2P): Red) 1) Controls PMV super heat in cooling operation

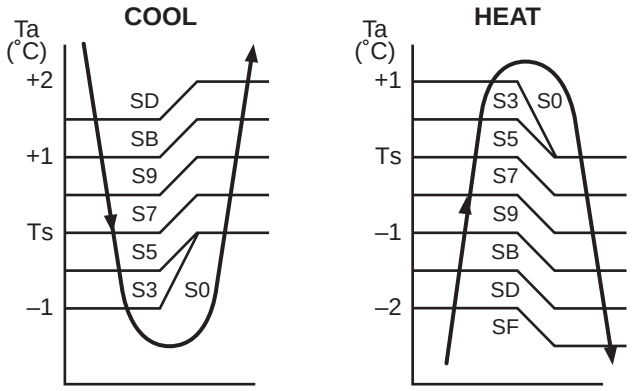
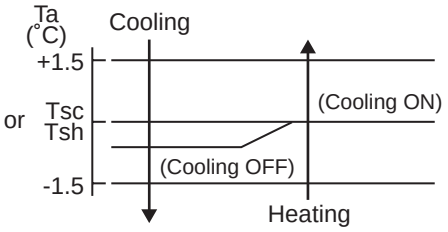
7. CONTROL OUTLINE

7-1. Control Specifications

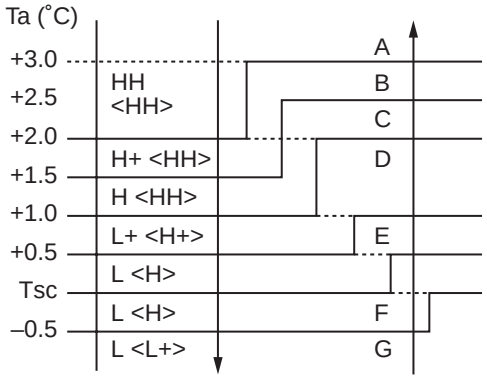
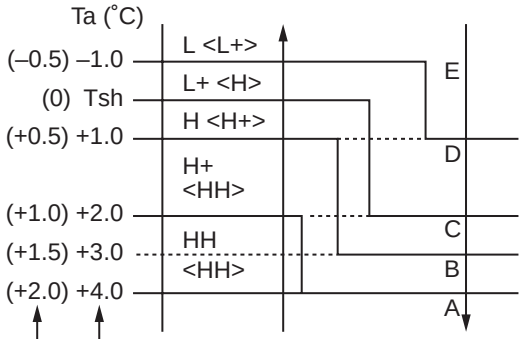
<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>1</td><td>When power supply is reset</td><td>1) Distinction of outdoor unit
When the power supply is reset, the outdoors are distinguished and the control is selected according to the distinguished result.
2) Setting of indoor fan speed and existence of air direction adjustment
Based on EEPROM data, select setting of the indoor fan speed and the existence of air direction adjustment.
3) If resetting the power supply during occurrence of a trouble, the check code is once cleared. After ON/OFF button of the remote controller was pushed and the operation was resumed, if the abnormal status continues, the check code is again displayed on the remote controller.</td><td>Air speed (rpm)/
Air direction adjustment</td></tr>
<tr><td>2</td><td>Operation mode selection</td><td>1) Based on the operation mode selecting command from the remote controller, the operation mode is selected.
<table>
<tr><th>Remote controller command</th><th>Control outline</th></tr>
<tr><td>STOP</td><td>Air conditioner stops.</td></tr>
<tr><td>FAN</td><td>Fan operation</td></tr>
<tr><td>COOL</td><td>Cooling operation</td></tr>
<tr><td>DRY</td><td>Dry operation</td></tr>
<tr><td>HEAT</td><td>Heating operation</td></tr>
<tr><td>AUTO
(SHRM only)</td><td>• Ta and Ts automatically select COOL/HEAT operation mode for operation.
• The operation is performed as shown in the following figure according to Ta value at the first time only.
(In the range of Ts – 1 < Ta < Ts + 1, Cooling thermo. OFF (Fan) / Setup air volume operation continues.)</td></tr>
</table>


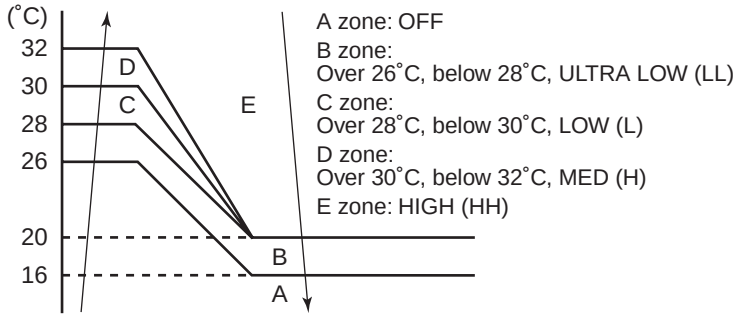
∗ In the SHRM, the automatic mode cannot be selected. While a wireless remote controller is used, the mode is notified by “Pi Pi” (two times) receiving sound and the alternate flashing of [TIMER] and [READY]. To clear the alternate flashing, change the mode on the wireless remote controller.</td><td>Ta: Room temp.
Ts: Setup temp.</td></tr>
<tr><td>3</td><td>Room temp. control</td><td>1) Adjustment range: Remote controller setup temperature (°C)
<table>
<tr><th></th><th>COOL/DRY</th><th>HEAT</th><th>AUTO∗</th></tr>
<tr><td>Wired type</td><td>18 to 29</td><td>18 to 29</td><td>18 to 29</td></tr>
<tr><td>Wireless type</td><td>18 to 30</td><td>16 to 30</td><td>17 to 27</td></tr>
</table></td><td>∗ For SHRM only</td></tr>
</table>

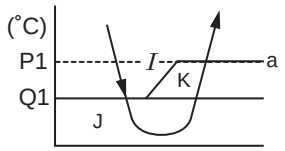
<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>3</td><td>Room temp. control (Continued)</td><td>2) Using the Item code 06, the setup temperature in heating operation can be corrected.
<table><tr><th>Setup data</th><td>0</td><td>2</td><td>4</td><td>6</td></tr><tr><th>Setup temp. correction</th><td>+0°C</td><td>+2°C</td><td>+4°C</td><td>+6°C</td></tr></table>Setting at shipment
<table><tr><th>Setup data</th><td>2</td></tr></table></td><td>Shift of suction temperature in heating operation

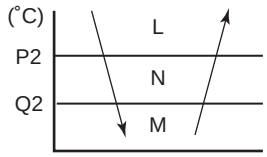
Except while sensor of the remote controller is controlled
(Code No. [32], “0001”)</td></tr>
<tr><td>4</td><td>Automatic capacity control</td><td>1) Based on the difference between Ta and Ts, the operation capacity is determined by the outdoor unit.
 
</td><td>Ts: Setup temp.
Ta: Room temp.</td></tr>
<tr><td>5</td><td>Automatic cooling/heating control</td><td>1) The judgment of selecting COOL/HEAT is carried out as shown below. When +1.5 exceeds against Tsh 10 minutes and after thermo.-OFF, heating operation (Thermo. OFF) exchanges to cooling operation.
Description in the parentheses shows an example of cooling ON/OFF.
 

When –1.5 lowers against Tsc 10 minutes and after thermo. OFF, cooling operation (Thermo. OFF) exchanges to heating operation.
2) For the automatic capacity control after judgment of cooling/heating, see Item 4.
3) For temperature correction of room temp. control in automatic heating, see Item 3.</td><td>* For SHRM only
Tsc: Setup temp. in cooling operation
Tsh: Setup temp. in heating operation + temp. correction of room temp. control</td></tr>
</table>

No.	Item	Outline of specifications	Remarks
6	Air speed selection	1) Operation with (HH), (H), (L) or [AUTO] mode is carried out by the command from the remote controller. 2) When the air speed mode [AUTO] is selected, the air speed varies by the difference between Ta and Ts. **<COOL>**  < > : Indicate automatic cooling.	HH > H+ > H > L+ > L > UL
		• Controlling operation in case when thermo of remote controller works is same as a case when thermo of the body works. • If the air speed has been changed once, it is not changed for 3 minutes. However when the air volume is exchanged, the air speed changes. • When cooling operation has started, select a downward slope for the air speed, that is, the high position. • If the temperature is just on the difference boundary, the air speed does not change.	Code No. 32 0000: Body thermo. (Main unit) 0001: Remote controller thermo.
		<HEAT>  < > : Indicate automatic heating. Body thermostat works. Remote controller thermostat works. Value in the parentheses indicates one when thermostat of the remote controller works. Value without parentheses indicates one when thermostat of the body works. • If the air speed has been changed once, it is not changed for 1 minute. However when the air speed exchanged, the air speed changes. • When heating operation has started, select an upward slope for the air speed, that is, the high position. • If the temperature is just on the difference boundary, the air speed does not change. • In Tc2 ≥ 60°C, the air speed increases by 1 step.	Tc2: Indoor heat exchanger sensor temperature

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>6</td><td>Air speed selection</td><td>
<table>
<tr><th rowspan="2">CODE No.
[5d]</th><th colspan="2">Standard</th><th colspan="2">Type 1</th><th colspan="2">Type 3</th><th colspan="2">Type 6</th></tr>
<tr><th colspan="2">0000</th><th colspan="2">0001</th><th colspan="2">0003</th><th colspan="2">0006</th></tr>
<tr><th>Tap</th><th>HEAT</th><th>COOL</th><th>HEAT</th><th>COOL</th><th>HEAT</th><th>COOL</th><th>HEAT</th><th>COOL</th></tr>
<tr><td>F1</td><td></td><td></td><td></td><td></td><td>HH</td><td>HH</td><td>HH</td><td>HH</td></tr>
<tr><td>F2</td><td></td><td></td><td>HH</td><td>HH</td><td></td><td></td><td></td><td></td></tr>
<tr><td>F3</td><td></td><td></td><td></td><td>H+</td><td>H+, H</td><td>H+, H</td><td>H+, H
L+, L</td><td>H+, H
L+, L</td></tr>
<tr><td>F4</td><td></td><td></td><td>H+</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>F5</td><td></td><td>HH</td><td></td><td>H</td><td></td><td></td><td></td><td></td></tr>
<tr><td>F6</td><td>HH</td><td></td><td>H</td><td></td><td>L+</td><td>L+</td><td></td><td></td></tr>
<tr><td>F7</td><td>H+</td><td>H+</td><td></td><td></td><td>L</td><td>L</td><td></td><td></td></tr>
<tr><td>F8</td><td></td><td>H</td><td></td><td>L+</td><td></td><td></td><td></td><td></td></tr>
<tr><td>F9</td><td>H</td><td></td><td>L+</td><td>L</td><td></td><td></td><td></td><td></td></tr>
<tr><td>FA</td><td></td><td>L+</td><td>L</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>FB</td><td>L+</td><td>L</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>FC</td><td>L</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>FD</td><td>LL</td><td>LL</td><td>LL</td><td>LL</td><td>LL</td><td>LL</td><td>LL</td><td>LL</td></tr>
</table>
3) In heating operation, the mode changes to [LL] if thermostat is turned off.
</td><td>Selection of high ceiling type CODE No. : [5d]</td></tr>
<tr><td>7</td><td>Prevention of cold air discharge</td><td>1. In heating operation, the higher temperature of TC2 sensor and TCJ sensor is compared with temperature of TC1 sensor and then the lower temperature is used to set the upper limit of the fan tap.
• When B zone has continued for 6 minutes, the operation shifts to C zone.
• In defrost time, the control point is set to +6°C.
 
</td><td>TCJ: Temperature of indoor heat exchanger sensor
• In D and E zones, priority is given to remote controller air speed setup.
• In A zone “ ❁ ” is displayed.</td></tr>
</table>

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>8</td><td>Freeze prevention control (Low temp. release)</td><td>
1. In all cooling operation, the air conditioner operates as de-scribed below based upon temp. detected by TC1, TC2 and TCJ sensors.
• When “J” zone is detected for 5 minutes, the thermostat is forcedly off.
• In “K” zone, the timer count is interrupted, and held.
• When “I” zone is detected, the timer is cleared and the operation returns to the normal operation.
• If “J” zone continues, operation of the indoor fan in LOW mode continues until it reaches the “I” zone.
It is reset when the following conditions are satisfied.
Reset conditions
1) TC1 > 12°C and TC2 > 12°C and TCJ > 12°C
2) 20 minutes passed after stop.


<table>
<tr><th></th><th>TC1</th><th>TC2, TCJ</th></tr>
<tr><td>P1</td><td>10°C (5°C)</td><td>–10°C</td></tr>
<tr><td>Q1</td><td>0°C</td><td>–14°C</td></tr>
</table>
2. In all cooling operation, the air conditioner operates as described below based upon temp. detected by TC2 and TCJ sensors.
• When “M” zone is detected for 45 minutes, the thermostat is forcedly off.
• In “N” zone, the timer count is interrupted and held.
• When shifting to “M” zone again, the timer count restarts and continues.
• If “L” zone is detected, the timer is cleared and the operation returns to normal operation.
Reset conditions
1) TC1 > 12°C and TC2 > 12°C and TCJ > 12°C
2) 20 minutes passed after stop.


<table>
<tr><th></th><th>TC2, TCJ</th></tr>
<tr><td>P2</td><td>5°C</td></tr>
<tr><td>Q2</td><td>–2.0°C</td></tr>
</table>
</td><td>
TC1: Temperature of indoor heat exchanger sensor

( ) value:
When the power supply is turned on, the Forced thermo becomes OFF if the temperature is less than this indicated temperature.

∗ In a Model without TC2, TC2 is not judged.
</td></tr>
<tr><td>9</td><td>Recovery control for cooling oil (Refrigerant)</td><td>
The indoor unit which is under STOP/Thermo-OFF status or which operates in [FAN] mode performs the following controls when it received the cooling oil (Refrigerant) recovery signal from the outdoor unit.
1) Opens PMV of the indoor unit with a constant opening degree.
2) Operates the drain pump for approx. 1 minute during recovery control and after finish of control.
</td><td>
• Recovery operation is usually performed every 2 hours.
</td></tr>
</table>

No.	Item	Outline of specifications	Remarks
10	Recovery control for heating refrigerant (Oil)	The indoor unit which is under STOP/Thermo-OFF status or which operates in [FAN] mode performs the following controls when it received the heating refrigerant (Oil) recovery signal from the outdoor unit. 1) Opens PMV of the indoor unit with a constant opening degree. 2) Detects temperature of TC2 and then closes PMV. 3) Counts No. of recovery controls and operates the indoor fan and the drain pump for approx. 1 minute after finish of recovery control until the control count reaches the specified count.	• The indoor unit which is under thermo-OFF (COOL) status or which operates in [FAN] mode stops the indoor fan and displays [READY ⊛]. • Recovery operation is usually performed every 1 hour.
11	Compensation control for short intermittent operation	1) For 3 minutes after start of operation, the operation is forcedly continued even if the unit enters in Thermo-OFF condition. 2) However the thermostat is OFF giving prior to COOL/HEAT selection, READY ⊛ for operation and protective control.	Usually the priority is given to 5 minutes at outdoor controller side.
12	Drain pump control	1) In cooling operation (including DRY operation), this control anytime operates the drain pump. 2) During operation of the drain pump, if the float switch operates, the drain pump continuously operates and a check code is issued. 3) During stop status of the drain pump, if the float switch operates, the thermostat is forcedly off and this control operates the drain pump. After continuous operation of the float switch for approx. 5 minutes, this control stops the operation and a check code is issued.	Check Code [P10]
13	Elimination of retained heat	1) When the unit stopped from [HEAT] operation, the indoor fan operates with [L] for approx. 30 seconds.	
14	HA control	1) ON/OFF operation is available by input of HA signal from the remote site when connected to remote controller or the remote ON/OFF interface. 2) HA control outputs ON/OFF status to HA terminal. 3) The I/O specifications of HA conform to JEMA standard.	When using HA terminal (CN61) for the remote ON/OFF, a connector sold separately is necessary. In case of group operation, use the connector to connect HA terminal to either master or follower indoor unit.
15	Display of filter sign [▦] (Not provided to the wireless type) * Separately set type TCB-AX21E2 is prepared.	1) The filter sign is displayed with LC by sending the filter-reset signal to the remote controller when the specified time (150H/2500H) elapsed as a result of integration of the operation time of the indoor fan. 2) The integrated timer is cleared when the filter-reset signal is received from the remote controller. In this time, if the specified time elapsed, the counted time is reset and the LC display is deleted. **Filter time** 2500H	[▦ FILTER] goes on.

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>16</td><td>Display of [READY]
[HEAT READY]</td><td>< READY> Displayed on the remote controller
1) When the following check codes are indicated
• Open phase of power supply wiring [P05] was detected.
• There is an indoor unit that detected the indoor overflow [P10].
• There is an indoor unit that detected the interlock alarm [L30].
2) During Force Thermo-OFF
• [COOL/DRY] operation is unavailable because the other indoor unit operates with [HEAT] mode.
• [HEAT] operation is unavailable because COOL priority (SW11-bit1 of the Outdoor I/F P. C. board is ON) is set and the other indoor unit operates with [COOL/DRY] mode.
3) The above indoor units that cannot operate stay in Thermo-OFF status.
4) The indoor fan stops because the system performs [Recovery operation for heating refrigerant (Oil)].

<HEAT READY> Displayed on the remote controller
The indoor fan stops in order to prevent discharge of cool air when heating operation started or during heating operation. (including the defrost operation during thermo-OFF)</td><td>• < READY> display
No display for wireless type remote controller

• <HEAT READY> display</td></tr>
<tr><td>17</td><td>Selection of central control mode</td><td>1) Selection of the contents that can be operated by the remote controller at the indoor unit side is possible according to setting at the central controller side.
2) Setting contents

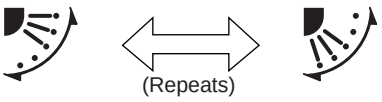
• In case of AI-NET central control
<table>
<tr><th rowspan="2">Operation from AI-NET central control</th><th colspan="6">Operation on RBC-AMT32E</th><th rowspan="2">On RBC-AMT32E</th></tr>
<tr><th>ON/OFF setting</th><th>Operation selection</th><th>Timer setting</th><th>Temp. setting</th><th>Air speed setting</th><th>Air direction setting</th></tr>
<tr><td>[After-push priority]</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td><td rowspan="3">[Center controlling] display</td></tr>
<tr><td>[Center]</td><td>×</td><td>○</td><td>×</td><td>○</td><td>○</td><td>○</td></tr>
<tr><td>[Operation prohibited]</td><td>×</td><td>×</td><td>×</td><td>×</td><td>×</td><td>×</td></tr>
</table>
(○: Operation possible ×: Operation impossible)

• In case of wired remote controller type, [Central control] display (Goes on) in the central control mode
• Display flashes when an item of the operation prohibited was changed on the remote controller.
• In case of wireless remote controller type, the display lamp does not change but the contents that can be operated are same in the central control mode.
(∗1) The operation from the wireless remote controller in the central control mode is notified with the receiving sound, Pi, Pi, Pi, Pi, Pi (5 times).

(∗1)
If the operation select modes are different in the central 2 to 4 from those at the central controller side, the operations Temp. Setting, air volume setting, and air direction setting are inoperable.

• In case of TCC-LINK central control
<table>
<tr><th rowspan="2">Operation from TCC-LINK central control</th><th colspan="6">Operation on RBC-AMT32E</th><th rowspan="2">On RBC-AMT32E</th></tr>
<tr><th>ON/OFF setting</th><th>Operation selection</th><th>Timer setting</th><th>Temp. setting</th><th>Air speed setting</th><th>Air direction setting</th></tr>
<tr><td>Individual</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td><td rowspan="5">[Central control] display</td></tr>
<tr><td>[Central 1]</td><td>×</td><td>○</td><td>×</td><td>○</td><td>○</td><td>○</td></tr>
<tr><td>[Central 2]</td><td>×</td><td>×</td><td>×</td><td>×</td><td>○</td><td>○</td></tr>
<tr><td>[Central 3]</td><td>○</td><td>×</td><td>○</td><td>×</td><td>○</td><td>○</td></tr>
<tr><td>[Central 4]</td><td>○</td><td>×</td><td>○</td><td>○</td><td>○</td><td>○</td></tr>
</table>
(○: Operation possible ×: Operation impossible)</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>18</td><td>Louver control</td><td>
1) Louver position setup
• When the louver position is changed, the position moves necessarily to downward discharge position once to return to the set position.
• The louver position can be set up in the following operation range.
In cooling/dry operation In heating/fan operation

• In group twin/triple operation, the louver positions can be set up collectively or individually.
In case that HEAT refrigerant recovery control was performed in STOP status, the louver position becomes horizontal when the operation is resumed.
2) Swing setup
• [SWING] is displayed and the following display is repeated.
In all operations

(Repeats)
• In group operation, the louver positions can be set up collectively or individually.
3) When the unit stopped or the warning was output, the louver is automatically set to full closed position.
4) When PRE-HEAT ⊛ (Heating ready) is displayed (Heating operation started or defrost operation is performed), heating thermo is off or self-cleaning is performed, the louver is automatically set to horizontal discharge position.
* The louver which air direction is individually set or the locked louver closes fully when the unit stops and the louver is automatically set to horizontal discharge position when PRE-HEAT ⊛ (Heating ready) is displayed, heating thermo is off.

<<Louver lock (Louver fix)>>
• For the air direction setup for each discharge port, the louver position can be locked during the normal operation.
• An arbitrary air direction of an arbitrary louver can be registered and set by keeping UNIT LOUVER button pushed for 4 seconds or more on the remote controller.
• The louver lock can be set by registering the setup data to Item code (DN) [F1] to [F4] according to the following table.
<table>
<tr><th>Item code</th><th>Objective louver No.</th><th>Setup data</th></tr>
<tr><td>F1</td><td>01</td><td rowspan="4">0000: Release (At shipment)
0001: Horizontal discharge position
~
0005: Downward discharge position</td></tr>
<tr><td>F2</td><td>02</td></tr>
<tr><td>F3</td><td>03</td></tr>
<tr><td>F4</td><td>04</td></tr>
</table>
</td><td>
The swinging louver moves usually up to the ceiling side from the louver position of the set time.

On the remote controller before the wired remote controller (RBC-AMT32E), UNIT LOUVER button is not provided.

Carry out setting operation during stop of the unit; otherwise the unit stops operation.
</td></tr>
</table>

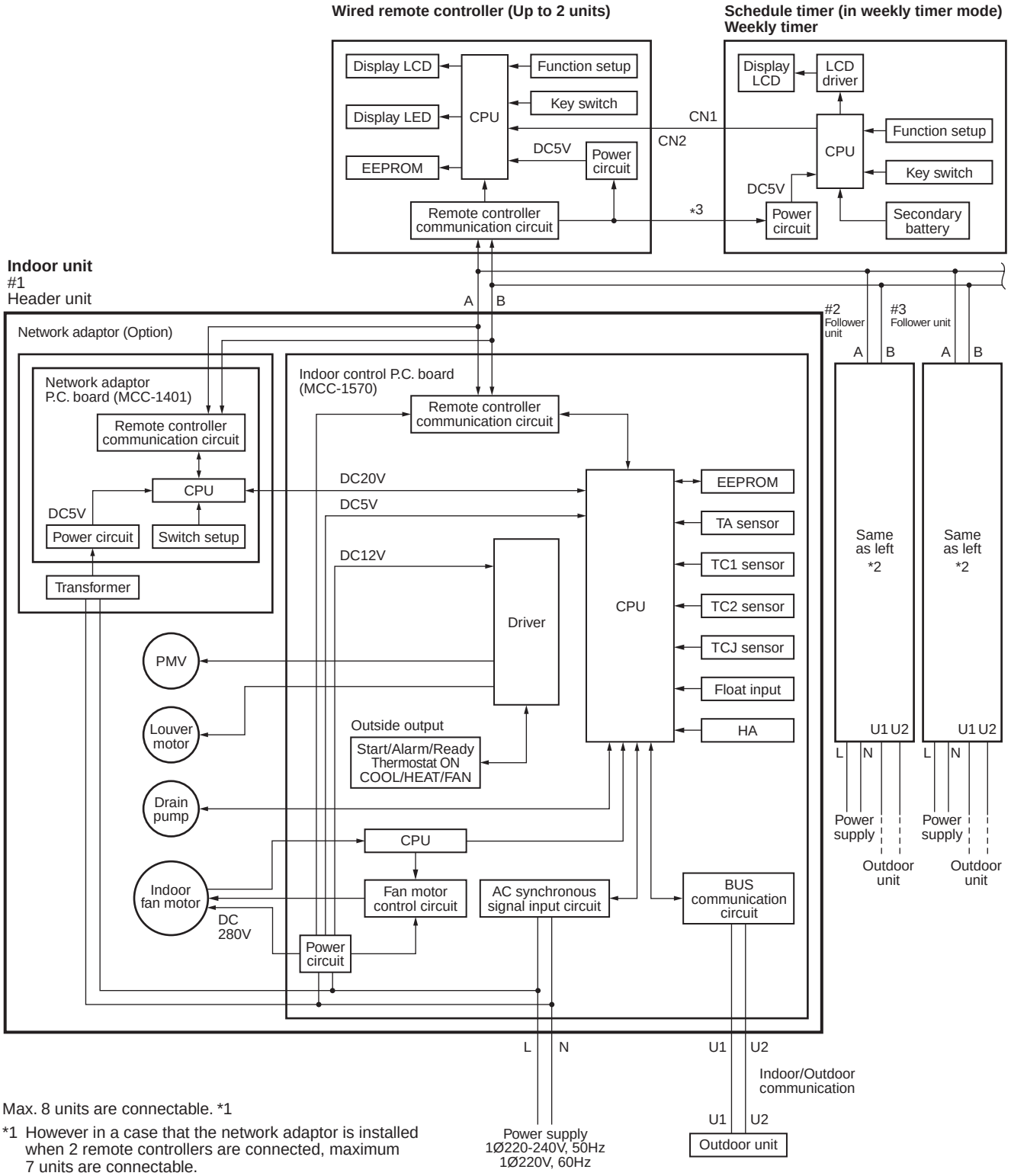
No.	Item	Outline of specifications	Remarks
19	DC motor	1) When the fan stator, positioning is performed for the starter and the rotor. (Vibrate slightly) 2) DC motor operates according to the command from the indoor controller. **(Note)** If the fan rotates by entry of outside air, etc while the air conditioner stopped, the indoor unit may operate as the fan motor stops. **(Note)** If the fan lock was detected, the operation of the indoor unit stops and the error is displayed.	Check code [P12]
20	Save operation	1) The function [Save operation] is not provided to the Super Modular Multi series models.	• If pushing [SAVE] button " ⃠ " on the remote controller, "No function" is displayed.

8. CONFIGURATION OF CONTROL CIRCUIT

8-1. Indoor Unit

8-1-1. Indoor Controller Block Diagram

1. Connection of wired remote controller



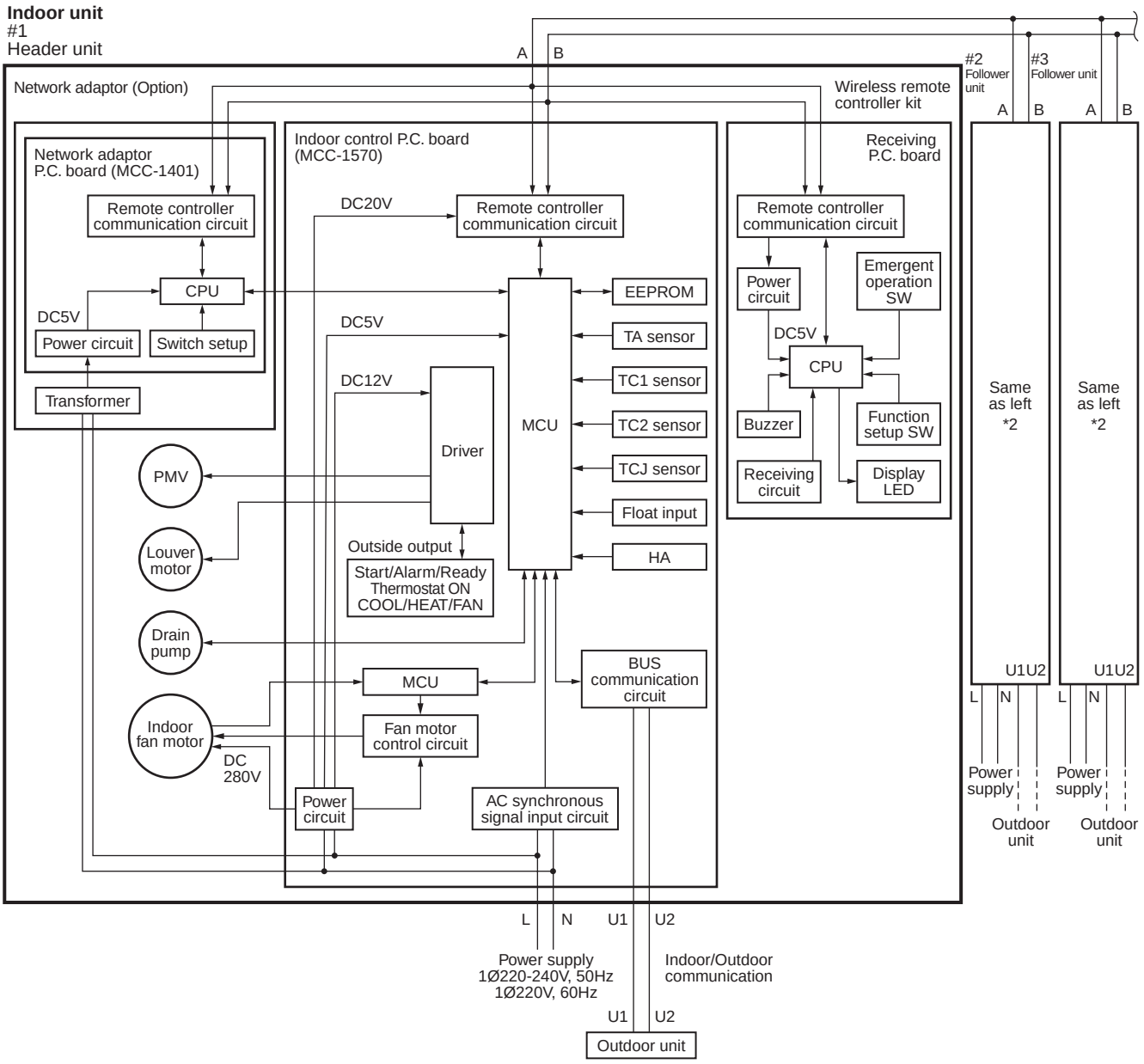
Max. 8 units are connectable. *1

*1 However in a case that the network adaptor is installed when 2 remote controllers are connected, maximum 7 units are connectable.

*2 The network adaptor is installed to only one unit.

*3 The weekly timer cannot be connected to the simple wired remote controller.

2. Connection of wireless remote controller kit

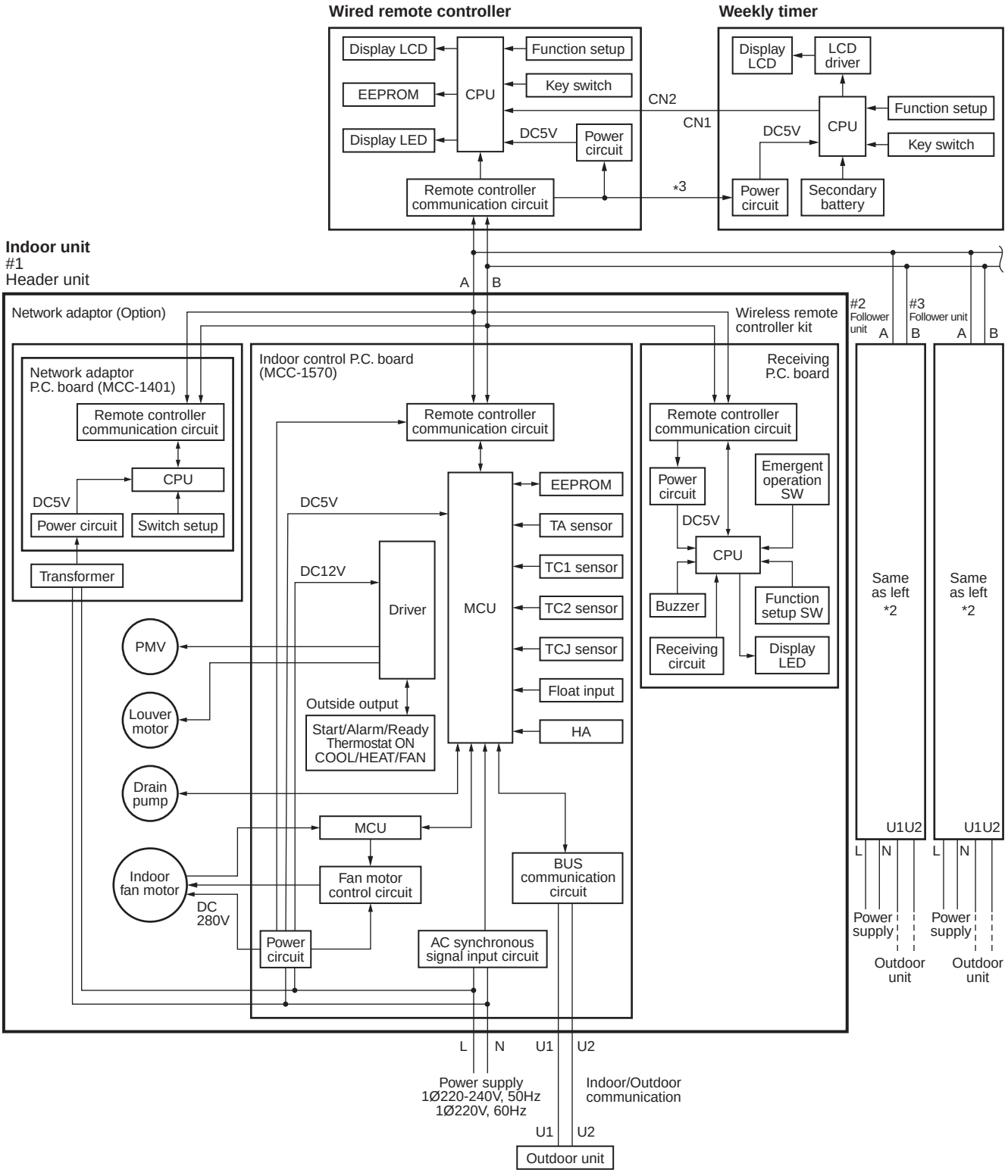


Max. 8 units are connectable. *1

*1 However in a case that the network adaptor is installed when 2 wireless remote controller kits are connected, maximum 7 units are connectable.

*2 The network adaptor is installed to only

3. Connection of both wired remote controller and wireless remote controller kit



Max. 8 units are connectable. *1

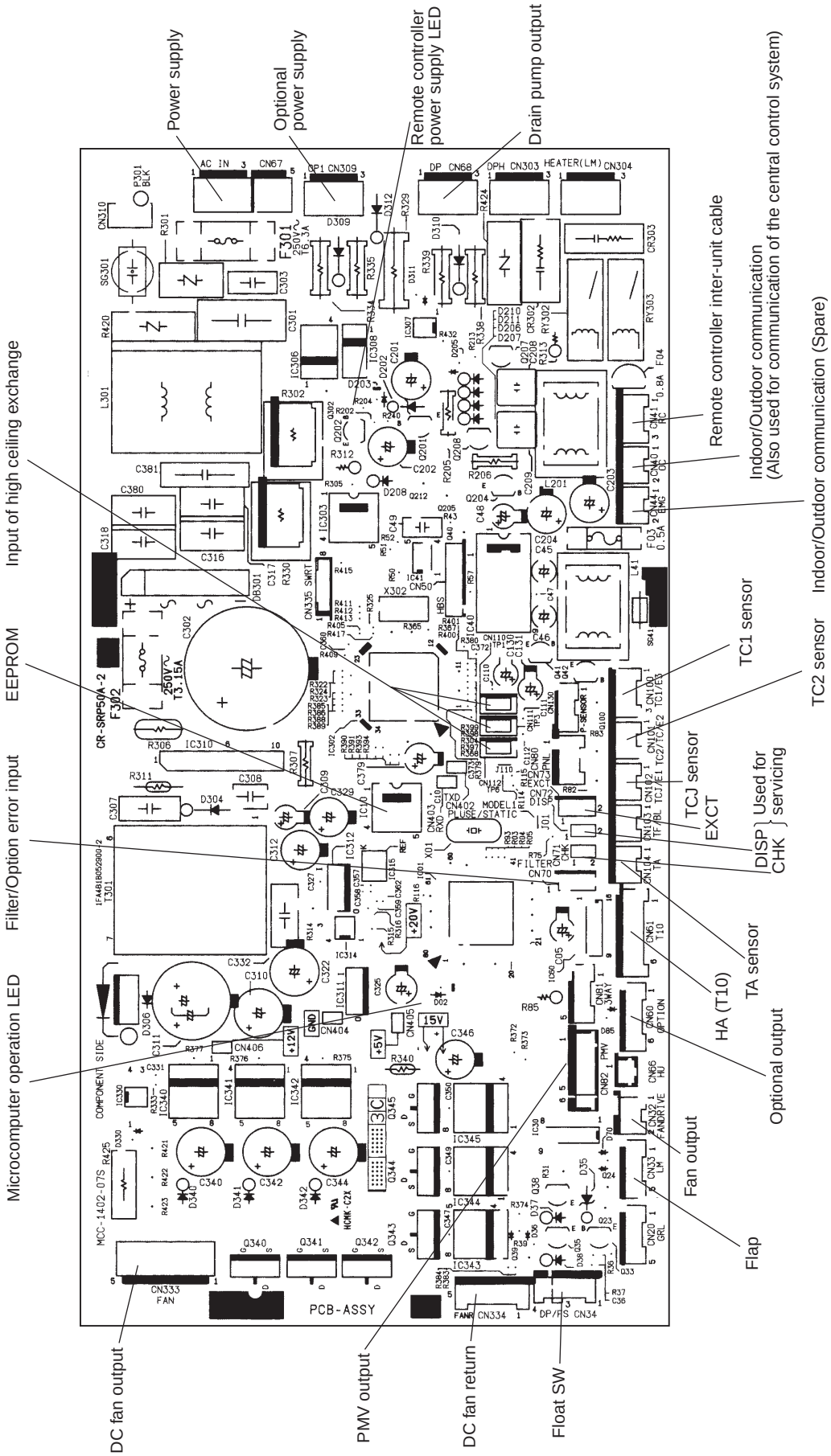
*1 However in a case that the network adaptor is installed when 2 wireless remote controller kits are connected, maximum 7 units are connectable.

*2 The network adaptor is installed to only

*3 The weekly timer cannot be connected to the simple wired remote controller.

8-2. Indoor Print Circuit board

MCC-1402



8-2-1. Optional Connector Specifications of Indoor P.C. Board

Function	Connector No.	Pin No.	Specifications	Remarks
Fan output	CN32	①	DC12V	Shipment setup: ON with indoor unit operation and OFF with stop are linked. * Single operation by FAN button on remote controller is set up from remote controller (DN=31)
		②	Output	
—	CN61	①	ON/OFF input	HA ON/OFF input (J01: YES/NO=Pulse (At shipment) / Static input select)
		②	0V (COM)	
		③	Main prohibition input	Operation stop of main remote controller is permitted / prohibited by input.
		④	Operation output	ON during operation (Answerback of HA)
		⑤	DC12V (COM)	
		⑥	Alarm output	ON during alarm output
Option output	CN60	①	DC12V (COM)	
		②	Defrost output	ON when outdoor unit is defrosted
		③	Thermo ON output	ON during Real thermostat ON (Compressor ON)
		④	COOL output	ON when operation mode is cooling system (COOL, DRY, Cool/Heat Auto cooling)
		⑤	HEAT output	ON when operation mode is heating system (HEAT, Cool/Heat Auto cooling)
		⑥	Fan output	ON when indoor fan is ON (During use of air cleaner/Interlock cabling)
Outside error input	CN80	①	DC12V (COM)	Generate check code “L30” (for 1 minute continuously) to stop forcedly the operation.
		②	DC12V (COM)	
		③	Outside error input	
—	CN20	—	—	—
—	CN70	—	—	—
CHK operation check	CN71	①	Check mode input	Used for indoor operation check. (Outdoor does not communicate with remote controller, and outputs specified operation such as indoor fan “H”, drain pump ON, etc.)
		②	0V	
DISP exhibition mode	CN72	①	Display mode input	Exhibition mode enables to communicate by indoor unit and remote controller only. (When power has been turned on.) Timer short (Usual)
		②	0V	
EXCT demand	CN73	①	Demand input	Indoor unit forced thermostat OFF operation
		②	0V	

8-3. Functions at test run

■ Cooling/Heating test run check

The test run for cooling/heating can be performed from either indoor remote controller or outdoor interface P.C. board.

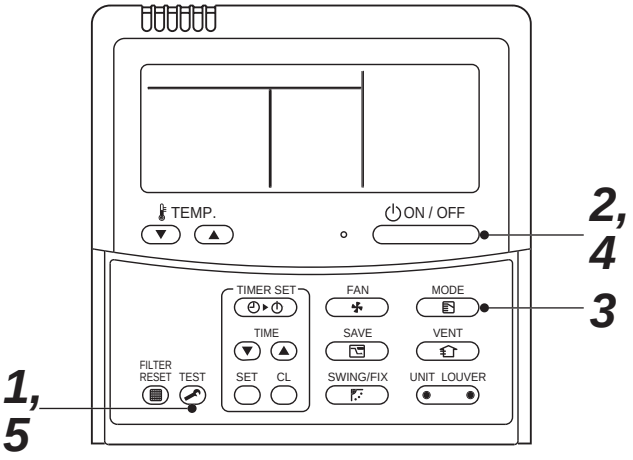
1. Start/Finish operation of test run

⊙ Test run from indoor remote controller

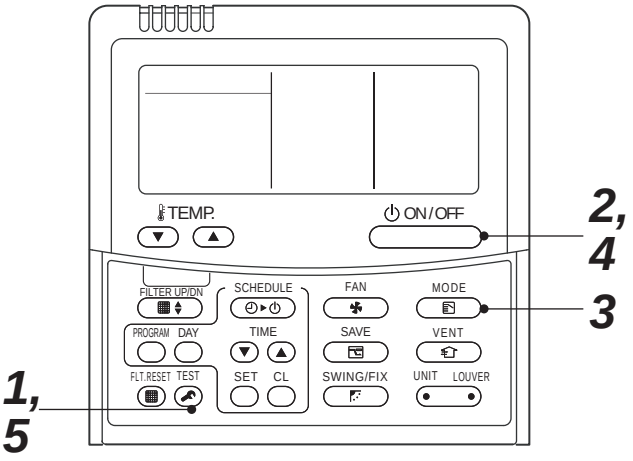
- Wired remote controller: Refer to the below item of “Test run” of the wired remote controller.
- Wireless remote controller: Refer to the next page item of “Test run” of the wireless remote controller.

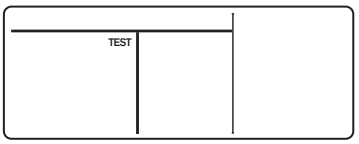
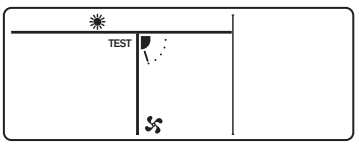
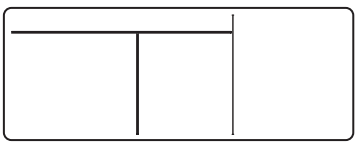
◆ In case of wired remote controller

<RBC-AMT32E>



<RBC-AMS41E>



Procedure	Operation contents
1	Push [TEST] button for 4 seconds or more. [TEST] is displayed at the display part and the mode enters in TEST mode. 
2	Push [ON/OFF] button.
3	Change the mode from [COOL] to [HEAT] using [MODE] button. • Do not use [MODE] button for other mode except [COOL]/[HEAT] modes. • The temperature cannot be adjusted during test run. • The error detection is performed as usual. 
4	After test run, push [ON/OFF] button to stop the operation. (Display on the display part is same to that in Procedure ***1*** .)
5	Push [TEST] button to clear the TEST mode. ([TEST] display in the display part disappears and status becomes the normal stop status.) 

Note) The test run returns to the normal operation after 60 minutes.

◆ In case of wireless remote controller

Procedure	Operation contents	
1	Push [ON/OFF] button on the remote controller. Change the operation mode to [COOL] or [HEAT] using [MODE] button and then select the air speed [H] using [FAN].	
2	**Test run for cooling operation**	**Test run for heating operation**
	Set [18°C] using [Temperature set] button.	Set [30°C] using [Temperature set] button.
3	Set [19°C] using [Temperature set] button immediately after confirmation of the receiving sound “Pi”.	Set [29°C] using [Temperature set] button immediately after confirmation of the receiving sound “Pi”.
4	Set [18°C] using [Temperature set] button immediately after confirmation of the receiving sound “Pi”.	Set [30°C] using [Temperature set] button immediately after confirmation of the receiving sound “Pi”.
5	Next carry out the procedures ***3*** → ***4*** → ***3*** → ***4*** . After approx. 10 seconds, all the indication lamps on the receiving part of the wireless remote controller [ON], [TIMER] and [Ready] flash and start the operation. Repeat operation of procedure ***2*** and after if the lamps do not flash.	
6	After the test run, push [ON/OFF] button to stop the operation.	

<Outline of test run from wireless remote controller>

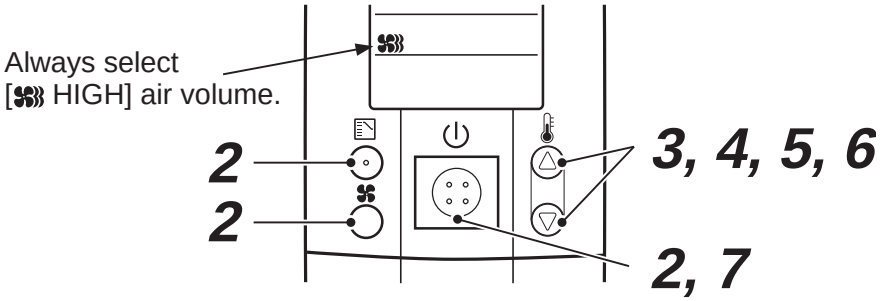
Test run for cooling operation:

ON/OFF → 18°C → 19°C → 18°C → 19°C → 18°C → 19°C → 18°C → (Test run) → ON/OFF

Test run for heating operation:

ON/OFF → 30°C → 29°C → 30°C → 29°C → 30°C → 29°C → 30°C → (Test run) → ON/OFF

Note) The test run returns to the normal operation after 60 minutes.



■ Check function for operation of indoor unit (Functions at indoor unit side)

This function is provided to check the operation of the indoor unit singly without communication with the remote controller or the outdoor unit. This function can be used regardless of operation or stop of the system.

However, if using this function for a long time, a trouble of the equipment may be caused. Limit using this function within several minutes.

[How to operate]

1) Short-circuit CHK pin (CN71 on the indoor P.C. board).
   The operation mode differs according to the indoor unit status in that time.

   Normal time: Both float SW and fan motor are normal.
   Abnormal time: Either one of float SW or fan motor is abnormal.
2) Restricted to the normal time, if short-circuiting DISP pin (CN72 on the indoor P.C. board) in addition to short-circuit of CHK pin (CN71 on the indoor P.C. board), the minimum opening degree (30pls) can be set to the indoor PMV only.

   When open DISP pin, the maximum opening degree (1500pls) can be obtained again.

[How to clear]

Open CHK pin. While the system is operating, it stops once but automatically returns to operation after several minutes.

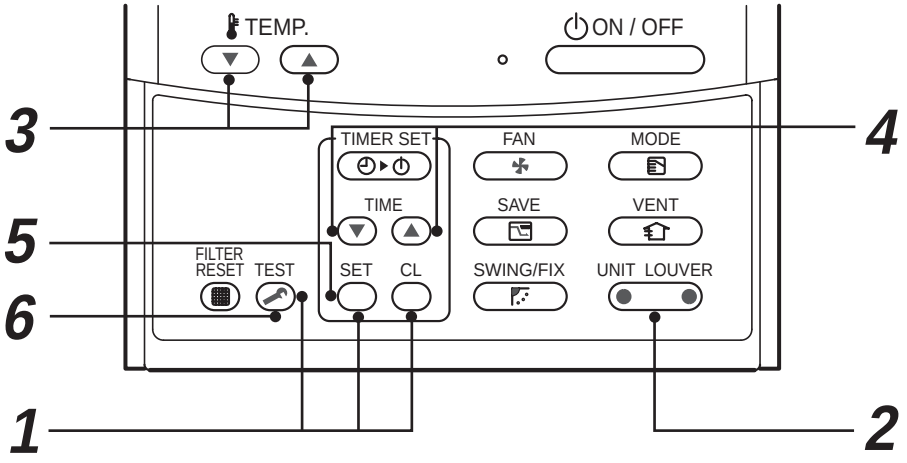
	Short-circuit of CHK pin		
	Normal time		**Abnormal time**
	DISP pin open	**DISP pin short circuit**	
Fan motor	(H)	(H)	Stop
Indoor PMV (*)	Max. opening degree (1500pls)	Min. opening degree (30pls)	Min. opening degree (30pls)
Louver	Horizontal	Horizontal	Immediate stop
Drain pump	ON	ON	ON
Communication	All ignored	All ignored	All ignored
P.C. board LED	Lights	Lights	Flashes

- To exchange the indoor PMV coil, set the indoor PMV to Max. opening degree.
- For the detailed positions of CHK pin (CN71 on indoor P.C. board) and DISP pin (CN72 on indoor P.C. board), refer to the indoor P.C. board MCC-1402.

9. APPLIED CONTROL

9-1. Setup of Selecting Function in Indoor Unit (Be Sure to Execute Setup by a Wired Remote Controller)

<Procedure> Execute the setup operation while the unit stops.



1 **Push SET , CL , and TEST buttons simultaneously for 4 seconds or more.**
The firstly displayed unit No. indicates the header indoor unit address in the group control.
In this time, the fan of the selected indoor unit is turned on.

2 **Every pushing UNIT LOUVER button, the indoor unit numbers in the group control are successively displayed. In this time, the fan of the selected indoor unit only is turned on.**

3 **Specify the CODE No. (DN) using the setup temperature ▼ and ▲ buttons.**

4 **Select the setup data using the timer time ▼ and ▲ buttons.**
(When selecting the CODE No. (DN) to " 33 ", change the temperature indication of the unit from " °C " to " °F " on the remote controller.)

5 **Push SET button. (OK if display goes on.)**
- To change the selected indoor unit, return to procedure ***2*** .
- To change the item to be set up, return to procedure ***3*** .

6 **Pushing TEST button returns the status to normal stop status.**

Table: Function selecting item numbers (DN)
(Items necessary to perform the applied control at the local site are described.)

CODE No. [DN]	Item	Description	At shipment
01	Filter display delay timer	0000 : None 0001 : 150H 0002 : 2500H 0003 : 5000H 0004 : 10000H	0002 : 2500H
02	Dirty state of filter	0000 : Standard 0001 : High degree of dirt (Half of standard time)	0000 : Standard
03	Central control address	0001 : No.1 unit to 0064 : No.64 unit 0099 : Unfixed	0099 : Unfixed
04	Specific indoor unit priority	0000 : No priority 0001 : Priority	0000 : No priority
06	Heating temp shift	0000 : No shift 0001 : +1°C 0002 : +2°C to 0010 : +10°C (Up to +6 recommended)	0002 : +2°C (Floor type 0000: 0°C)
0d	Existence of [AUTO] mode	0000 : Provided 0001 : Not provided (Automatic selection from connected outdoor unit)	0001 : Not provided
0F	Cooling only	0000 : Heat pump 0001 : Cooling only (No display of [AUTO] [HEAT])	0000 : Heat pump
10	Type	0002 : 2-way Air Discharge Cassette	Depending on model type
11	Indoor unit capacity	0000 : Unfixed 0001 to 0034	According to capacity type
12	Line address	0001 : No.1 unit to 0030 : No.30 unit	0099 : Unfixed
13	Indoor unit address	0001 : No.1 unit to 0064 : No.64 unit	0099 : Unfixed
14	Group address	0000 : Individual 0001 : Header unit of group 0002 : Follower unit of group	0099 : Unfixed
19	Louver type (Air direction adjustment)	0000 : No louver 0001 : Swing only 0002 : (1-way Air Discharge Cassette type, Under Ceiling type) 0003 : (2-way Air Discharge Cassette type) 0004 : (4-way Air Discharge Cassette type)	According to type
1E	Temp difference of [AUTO] mode selection COOL → HEAT, HEAT → COOL	0000 : 0 deg to 0010 : 10 deg (For setup temperature, reversal of COOL/HEAT by ± (Data value)/2)	0003 : 3 deg (Ts±1.5)
28	Automatic restart of power failure	0000 : None 0001 : Restart	0000 : None
2A	Selection of option/error input (CN70)	0000 : Filter input 0001 : Alarm input (Air washer, etc.) 0002 : None	0002 : None
2E	HA terminal (CN61) select	0000 : Usual 0001 : Leaving-ON prevention control 0002 : Fire alarm input	0000 : Usual (HA terminal)
31	Ventilating fan control	0000 : Unavailable 0001 : Available	0000 : Unavailable
32	TA sensor selection	0000 : Body TA sensor 0001 : Remote controller sensor	0000 : Body TA sensor
33	Temperature unit select	0000 : °C (at factory shipment) 0001 : °F	0000 : °C

CODE No. [DN]	Item	Description				At shipment
5d	High ceiling selection (Selection of air volume)		**Type**	**AP007 to AP030**	**AP036 to AP056**	0000 : Standard
		0000	Standard (At shipment)	2.7 m	2.7 m	
		0001	High ceiling ①	3.2 m	3.0 m	
		0003	High ceiling ③	3.8 m	3.5 m	
	Filter sold separately	0000 : Standard filter (At shipment) 0001 : Super long life filter				
60	Timer setup (Wired remote controller)	0000 : Available (Operable) 0001 : Unavailable (Operation prohibited)				0000 : Available

TYPE

CODE No. [10]

Setup data	Type	Abbreviated Model name
∗1 0002	2-way Air Discharge Cassette	MMU-AP XXX WH

∗1 : Initial setting value of EEPROM installed on the service P.C. board

Indoor unit capacity

CODE No. [11]

Setup data	Model
0001	007
0003	009
0005	012
0007	015
0009	018
0011	024

Setup data	Model
0012	027
0013	030
0015	036
0017	048
0018	056

9-2. Applied Control in Indoor Unit

■ Remote location ON/OFF control box (TCB-IFCB-4E2)

[Wiring and setup]

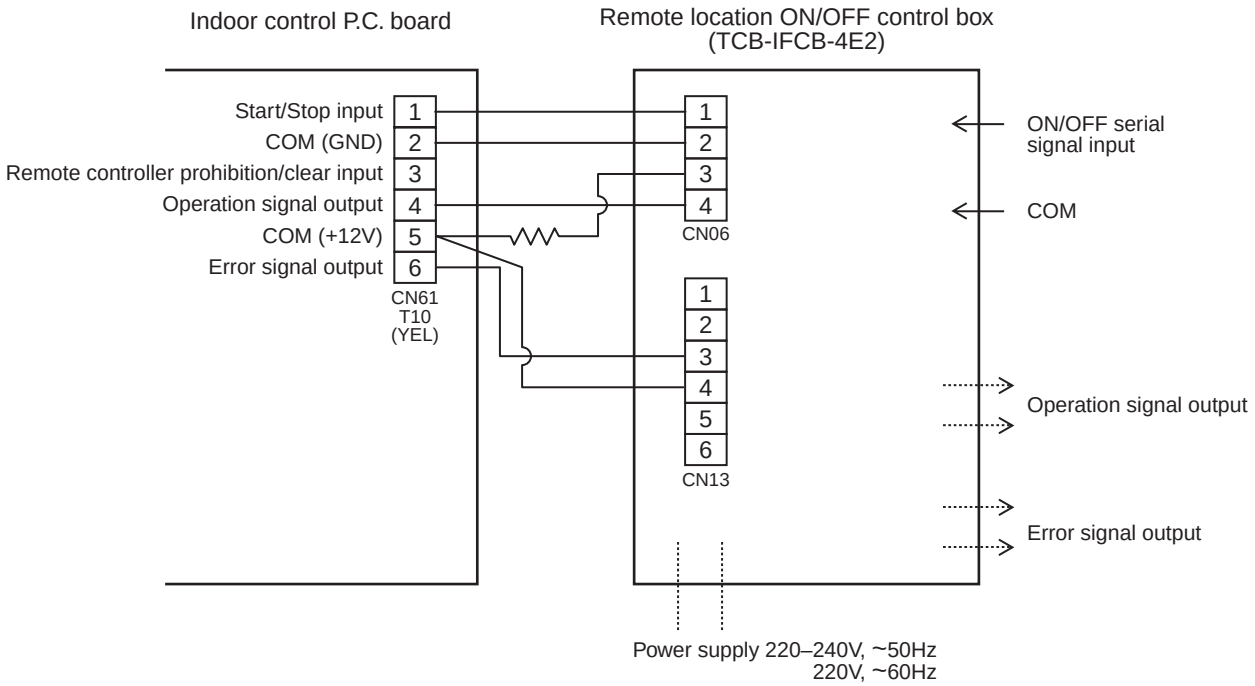
- Use the exclusive connector for connection with the indoor control P.C. board.
- In a group control, the system can operate when connecting with any indoor unit (Control P.C. board) in the group. However when taking out the operation/error signal from the other unit, it is necessary to take out from each unit individually.

1. Control items

1) Start/Stop input signal : Operation start/stop in unit
2) Operation signal : Output during normal operation
3) Error signal : Output during alarm
(Serial communication error or indoor/outdoor protective device) operation

2. Wiring diagram using remote control interface (TCB-IFCB-4E2)

Input IFCB-4E2 : No voltage ON/OFF serial signal
Output No voltage contact for operation, error display
Contact capacity: Below Max. AC240V 0.5A



■ Ventilating fan control from remote controller

[Function]

- The start/stop operation can be operated from the wired remote controller when air to air heat exchanger or ventilating fan is installed in the system.
- The fan can be operated even if the indoor unit is not operating.
- Use a fan which can receive the no-voltage A contact as an outside input signal.
- In a group control, the units are collectively operated and they can not be individually operated.

1. Operation

Handle a wired remote controller in the following procedure.

* Use the wired remote controller during stop of the system.
* Be sure to set up the wired remote controller to the header unit. (Same in group control)
* In a group control, if the wired remote controller is set up to the header unit, both header and follower units are simultaneously operable.

1 **Push concurrently SET + CL + TEST buttons for 4 seconds or more.**

The unit No. displayed firstly indicates the header indoor unit address in the group control.

In this time, the fan of the selected indoor unit turns on.

2 **Every pushing UNIT LOUVER button (button at left side), the indoor unit numbers in group control are displayed successively.**

In this time, the fan of the selected indoor unit only turns on.

3 **Using the setup temp ▼ or ▲ button, specify the CODE No 31 .**

4 **Using the timer time ▼ or ▲ button, select the setup data. (At shipment: 0000)**

The setup data are as follows:

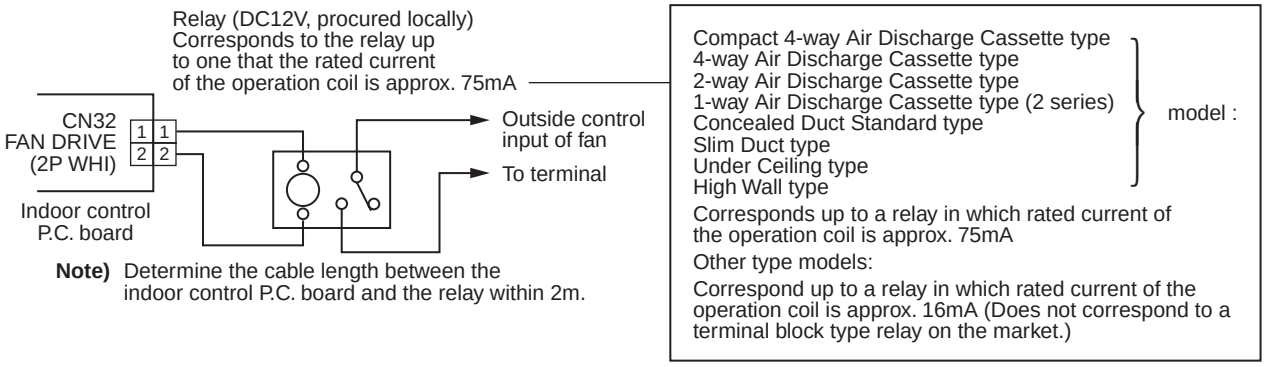
Setup data	Handling of operation of air to air heat exchanger or ventilating fan
0000	Unavailable (At shipment)
0001	Available

5 **Push SET button. (OK if display goes on.)**

- To change the selected indoor unit, go to the procedure ***2***).
- To change the item to be set up, go to the procedure ***3***).

6 **Pushing TEST returns the status to the usual stop status.**

2. Wiring



■ Leaving-ON prevention control

[Function]

- This function controls the indoor units individually. It is connected with cable to the control P.C. board of the indoor unit.
- In a group control, it is connected with cable to the indoor unit (Control P.C. board), and the CODE No. 2E is set to the connected indoor unit.
- It is used when the start operation from outside if unnecessary but the stop operation is necessary.
- Using a card switch box, card lock, etc, the forgotten-OFF of the indoor unit can be protected.
- When inserting a card, start/stop operation from the remote controller is allowed.
- When taking out a card, the system stops if the indoor unit is operating and start/stop operation from the remote controller is forbidden.

1. Control items

1) Outside contact ON : The start/stop operation from the remote controller is allowed.
(Status that card is inserted in the card switch box)

2) Outside contact OFF : If the indoor unit is operating, it is stopped forcedly.
(Start/Stop prohibited to remote controller)
(Status that card is taken out from the card switch box)

∗ When the card switch box does not perform the above contact operation, convert it using a relay with b contact.

2. Operation

Handle the wired remote controller switch in the following procedure.

∗ Use the wired remote controller switch during stop of the system.

1 **Push concurrently SET + CL + TEST buttons for 4 seconds or more.**

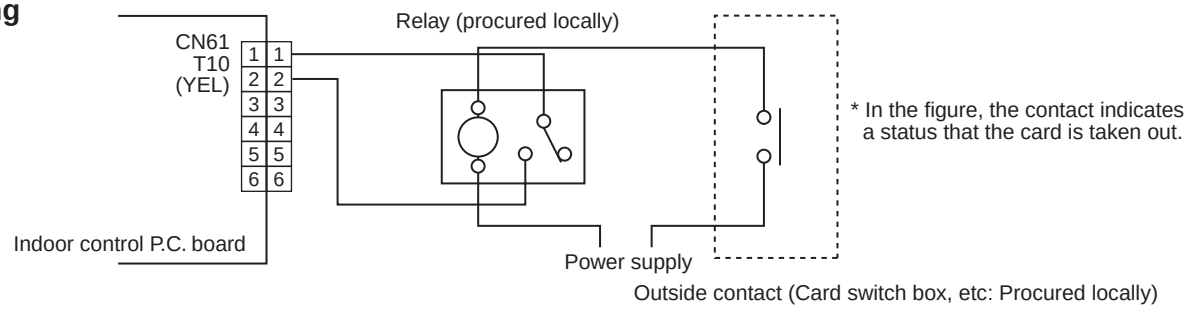
2 **Using the setup temp ▼ or ▲ button, specify the CODE No. 2E.**

3 **Using the timer time ▼ or ▲ button, set 0001 to the setup data.**

4 **Push SET button.**

5 **Push TEST button. (The status returns to the usual stop status.)**

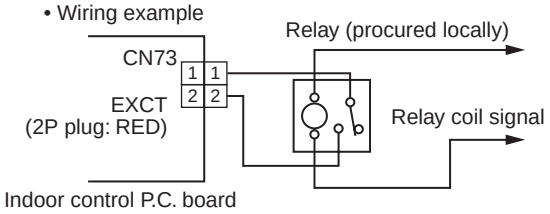
3. Wiring



Note) Determine the cable length between the indoor control P.C. board and the relay within 2m.

■ Power peak-cut from indoor unit

When the relay is turned on, a forced thermostat-OFF operation starts.



Note) Determine the cable length between the indoor or outdoor control P.C. board and the relay within 2m.

■ Address setup (Manual setting from Wired remote controller)

In case that addresses of the indoor units will be determined prior to piping work after wiring work

- Set an indoor unit per a remote controller.
- Turn on power supply.

1 **Push SET + CL + TEST buttons simultaneously for 4 seconds or more.**

2 **(Line address)**
Using the temperature setup ▼ / ▲ buttons, set 12 to the CODE No.

3 **Using timer time ▼ / ▲ buttons, set the line address.**

4 **Push SET button. (OK when display goes on.)**

5 **(Indoor unit address)**
Using the temperature setup ▼ / ▲ buttons, set 13 to the CODE No.

6 **Using timer time ▼ / ▲ buttons, set 1 to the line address.**

7 **Push SET button. (OK when display goes on.)**

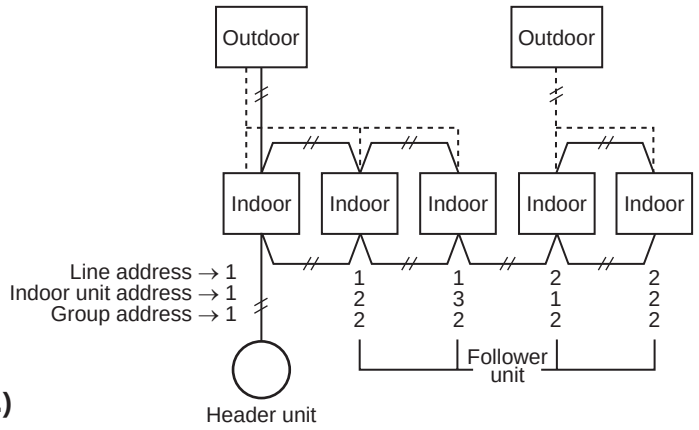
8 **(Group address)**
Using the temperature setup ▼ / ▲ buttons, set 14 to the CODE No.

9 **Using timer time ▼ / ▲ buttons, set 0000 to Individual, 0001 to Header unit and 0002 to follower unit.**

10 **Push SET button. (OK when display goes on.)**

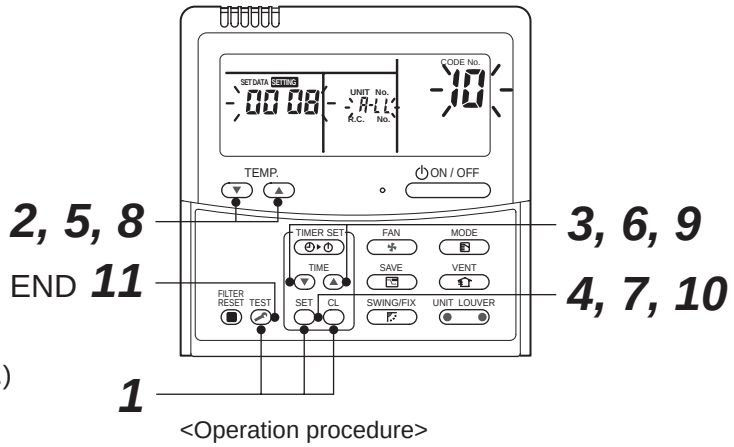
11 **Push TEST button.**
Setup completes.
(The status returns to the usual stop status.)

(Example of 2-lines cabling)
(Real line: Cabling, Broken line: Refrigerant pipe)



For the above example, perform setting by connecting singly the wired remote controller without remote controller inter-unit cable.

Group address
Individual : 0000
Header unit : 0001
Follower unit : 0002
} In case of group control



<Operation procedure>

1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 9 → 10 → 11 END

Note 1)

When setting the line address from the remote controller, do not use Address 29 and 30.

As they are addresses which cannot be set to the outdoor unit, if they are set, the check code [E04] (Indoor/Outdoor communication circuit error) is issued.

Note 2)

When an address was manually set from the remote controller and the central control over the refrigerant lines is carried out, perform the following setting for the Header unit of each line.

- Set the line address for every line using SW13 and 14 on the interface P.C. board of the Header unit in each line.
- Except the least line address No., turn off SW30-2 on the interface P.C. board of the Header units in the lines connected to the identical central control.
  (Draw the terminal resistances of indoor/outdoor and central control line wirings together.)
- For each refrigerant line, connect the relay connector between Header unit [U1U2] and [U3U4] terminals.
- After then set the central control address.
  (For setting of the central control address, refer to the Installation manual for the central remote controller.)

■ Confirmation of indoor unit No. position

1. To know the indoor unit addresses though position of the indoor unit is recognized

- In case of individual operation (Wired remote controller : indoor unit = 1 : 1)
  (Follow to the procedure during operation)

<Procedure>

1 **Push ON / OFF button if the unit stops.**

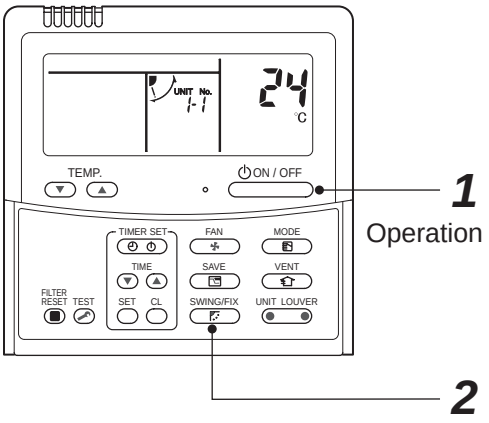
2 **Push UNIT LOUVER button (button at left side).**

Unit No. 1-1 is displayed on LCD.

(It disappears after several seconds.)

The displayed unit No. indicate line address and indoor unit address.

(When other indoor units are connected to the identical remote controller (Group control unit), other unit numbers are also displayed every pushing UNIT LOUVER button (button at left side).



<Operation procedure>

1 **→** ***2*** END

2. To know the position of indoor unit by address

- To confirm the unit No. in the group control
  (Follow to the procedure during operation) (in this procedure, the indoor units in group control stop.)

<Procedure>

The indoor unit numbers in the group control are successively displayed, and fan, louver, and drain pump of the corresponding indoor unit are turned on.
(Follow to the procedure during operation)

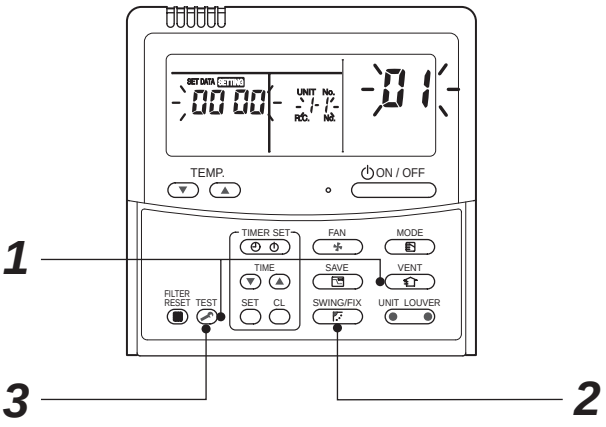
1 **Push VENT and TEST buttons simultaneously for 4 seconds or more.**

- Unit No. ALL is displayed.
- Fans and louvers of all the indoor units in the group control operate.

2 **Every pushing UNIT LOUVER button (button at left side), the unit numbers in the group control are successively displayed.**

- The unit No. displayed at the first time indicates the header unit address.
- Fan and louver of the selected indoor unit only operate.

3 **Push TEST button to finish the procedure.**
All the indoor units in the group control stop.



<Operation procedure>

1 **→** ***2*** **→** ***3*** END

■ Function selection setup

<Procedure> Perform setting while the air conditioner stops.

1 **Push TEST + SET + CL buttons simultaneously for 4 seconds or more.**

The first displayed unit No. is the master indoor unit address in the group control.

In this time, fan and louver of the selected indoor unit operate.

⇩

2 **Every pushing UNIT LOUVER button (button at left side), the indoor unit No. in the group control is displayed one after the other.**

In this time, fan and louver of the selected indoor unit only operate.

⇩

3 **Using the set temperature TEMP. buttons, specify the CODE No. (DN).**

⇩

4 **Using the timer time TIME buttons, select the set data.**

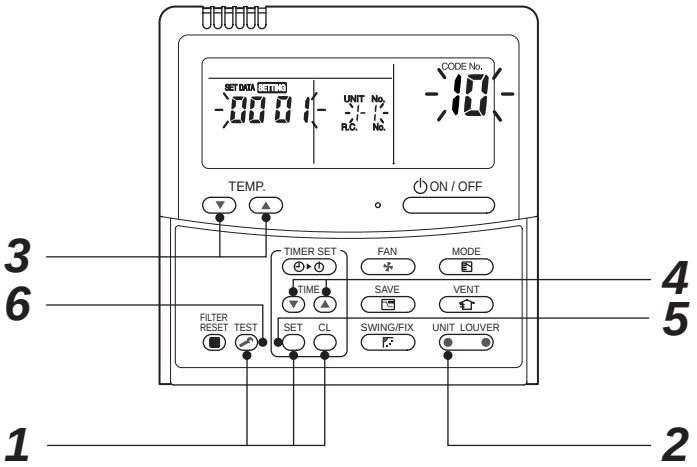
⇩

5 **Push SET button. (OK if indication lights)**

- To change the selected indoor unit, proceed to Procedure ***2*** .
- To change item to be set up, proceed to Procedure ***3*** .

⇩

6 **Pushing TEST button returns the status to the normal stop status.**



<Operation procedure>

1 → ***2*** → ***3*** → ***4*** → ***5*** → ***6*** END

■ How to check all the unit No. from an arbitrary wired remote controller

<Procedure> Carry out this procedure during stop of system.

The indoor unit No. and the position in the identical refrigerant piping can be checked.

An outdoor unit is selected, the identical refrigerant piping and the indoor unit No. are displayed one after the other, and then its fan and louver are on.

1 **Push the timer time button ▼ + TEST simultaneously for 4 seconds or more.**
First line 1 and CODE No. AC (Address Change) are displayed. (Select outdoor unit.)

⇩

2 **Select line address using UNIT LOUVER / SWING/FIX button.**

⇩

3 **Determine the selected line address using SET button.**

- The address of the indoor unit connected to the refrigerant piping of the selected outdoor unit is displayed and the fan and the louver are on.

⇩

4 **Every pushing UNIT LOUVER button (button at left side), the indoor unit No. in the identical piping is displayed one after the other.**

- Only fan and louver of the selected indoor unit start operation.

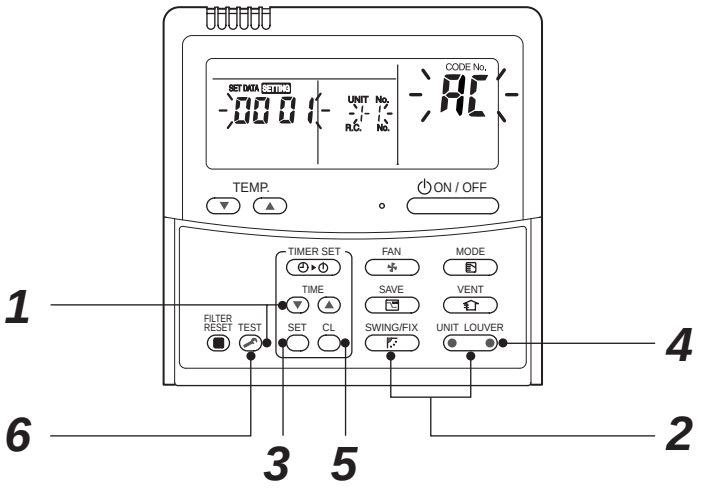
[To select the other line address]

5 **Push CL button and the operation returns to Procedure *2*.**

* The indoor address of other line can be continuously checked.

⇩

6 **Push TEST button and then the procedure finishes.**



<Operation procedure>

1 → ***2*** → ***3*** → ***4*** → ***5*** → ***6*** END

■ How to change all indoor addresses from an arbitrary wired remote controller

(It is possible when setting has finished by automatic addresses.)

Contents: The indoor unit addresses in each identical refrigerant piping line can be changed from an arbitrary wired remote controller.

⊙ Enter in address check/change mode and then change the address.

<Procedure> Carry out this procedure during stop of system.

1 **Push the timer time button (▼) + TEST simultaneously for 4 seconds or more.**
First line 1 and CODE No. AC (Address Change) are displayed.

⇩

2 **Select line address using UNIT LOUVER / SWING/FIX button.**

⇩

3 **Push the SET button.**

- The address of the indoor unit connected to the refrigerant piping of the selected outdoor unit is displayed and the fan and the louver are on.

  First the current indoor address is displayed. (Line address is not displayed.)

⇩

4 **TIME (▼)(▲) button push up/down the indoor address of the SET DATA.**

The set data is changed to a new address.

⇩

5 **Push SET button to determine the set data.**

⇩

6 **Every pushing UNIT LOUVER button (button at left side), the indoor unit No. in the identical piping is displayed one after the other.**

- Only fan and louver of the selected indoor unit start operation.

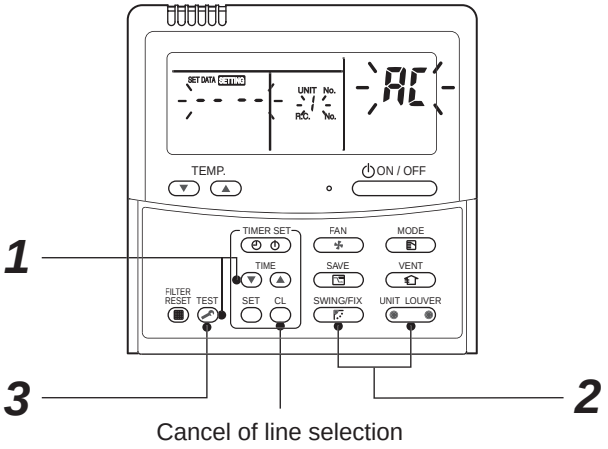
  Repeat the Procedures ***4*** to ***6*** to change all the indoor addresses so that they are not duplicated.

⇩

7 **Push SET button.**
(All the indications of LCD go on.)

⇩

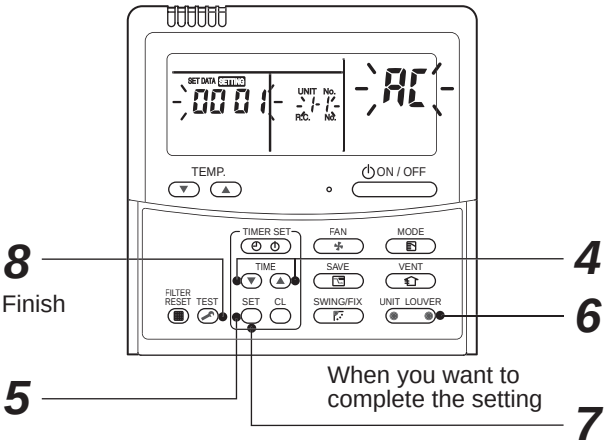
8 **Push TEST button and then the procedure finishes.**



Cancel of line selection

If the UNIT No. is not call up here, the outdoor unit in that line does not exist.

Push CL button to select a line again in the Procedure ***2***.



<Operation procedure>

1 → ***2*** → ***3*** → ***4*** → ***5*** →
6 → ***7*** → ***8*** END

■ Function to clear error

1. Clearing method from remote controller

⊙ How to clear error of outdoor unit

In the unit of refrigerant line connected by indoor unit of the remote controller to be operated, the error of the outdoor unit currently detected is cleared. (Error of the indoor unit is not cleared.)

The service monitor function of the remote controller is utilized.

<Method>

1 **Push CL + TEST buttons simultaneously for 4 seconds or more to change the mode to service monitor mode.**

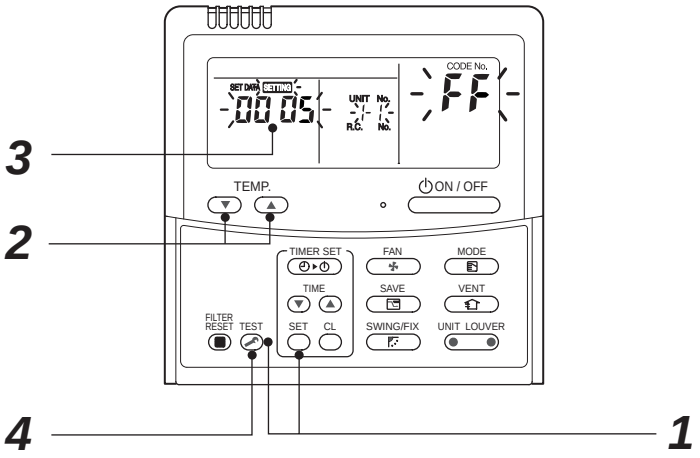
2 **Push TEMP. button to set the CODE No. to [FF].**

3 **The display of A part in the following figure is counted as "0005" → "0004" → "0003" → "0002" → "0001" → "0000" with 5-seconds interval.**

When "0000" appear, the error was cleared.

∗ However counting from "0005" is repeated on the display screen.

4 **When pushing TEST button, the status becomes normal.**



<Operation procedure>

1 → 2 → 3 → 4

Returns to normal status

⊙ How to clear error of indoor unit

The error of indoor unit is cleared by ON / OFF button of the remote controller.
(Only error of the indoor unit connected with remote controller to be operated is cleared.)

■ Monitoring function of remote controller switch

When using the remote controller (Model Name: RBC-AMT32E), the following monitoring function can be utilized.

Calling of display

<Contents>

The temperature of each sensor of the remote controller, indoor unit and outdoor unit and the operating status can be checked by calling the service monitor mode from the remote controller.

<Procedure>

1 **Push TEST + CL buttons simultaneously for 4 seconds or more to call up the service monitor mode. The service monitor goes on and firstly the temperature of the CODE No. 00 is displayed.**

⇩

2 **Push TEMP. button to change CODE No. to the CODE No. to be monitored.**

For display code, refer to the following table.

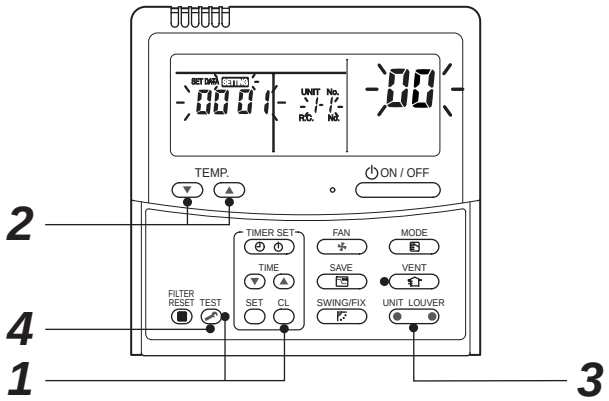
⇩

3 **Push UNIT LOUVER button to change to CODE No. to be monitored.**

The sensor temperature of indoor unit or outdoor unit in its refrigerant line and the operating status are monitored.

⇩

4 **Push TEST button to return the status to the normal display.**



Returns to normal display

<Operation procedure>

1 → 2 → 3 → 4

	CODE No.	Data name	Unit	Display form
Indoor unit data	00	Room temp. (Under control) **(Note 1)**	°C	× 1
	01	Room temp. (Remote controller)	°C	× 1
	02	Indoor suction temp. (TA)	°C	× 1
	03	Indoor coil temp. (TCJ)	°C	× 1
	04	Indoor coil temp. (TC2)	°C	× 1
	05	Indoor coil temp. (TC1)	°C	× 1
	08	Indoor PMV opening degree	pls	× 1/10
	F2	Indoor fan accumulated operation time	h	× 100
	F3	Filter sign time	h	× 1
System data	0A	No. of connected indoor units	unit	
	0B	Total HP of connected indoor units	HP	× 10
	0C	No. of connected outdoor units	unit	
	0D	Total HP of connected outdoor units	HP	× 10

	CODE No.	Data name	Unit	Display form
Individual outdoor unit data (Note 3, 4)	10	Compressor 1 discharge temp. (Td1)	°C	× 1
	11	Compressor 2 discharge temp. (Td2)	°C	× 1
	12	High pressure sensor detection pressure (Pd)	MPa	× 100
	13	Low pressure sensor detection pressure (Ps)	MPa	× 100
	14	Suction temp. (TS)	°C	× 1
	15	Outdoor coil temp. (TE)	°C	× 1
	16	Liquid side temp. (TL)	°C	× 1
	17	Outside temp. (TO)	°C	× 1
	18	Low pressure saturation temp. (TU)	°C	× 1
	19	Compressor 1 current (I1)	A	× 10
	1A	Compressor 2 current (I2)	A	× 10
	1B	PMV1 + 2 opening degree	pls	× 1/10
	1D	Compressor 1, 2 ON/OFF	—	**(Note 2)**
	1E	Outdoor fan mode	—	0 to 31
	1F	Outdoor unit HP	HP	× 1

(Note 1) In the group connection, only data of the header indoor unit is displayed.

(Note 2) 01: Only compressor 1 is ON.
10: Only compressor 2 is ON.
11: Both compressor 1 and 2 are ON.

(Note 3) For the CODE No., an example of header unit is described.

(Note 4) Upper girder of CODE No. indicates the outdoor unit No.
1: Header unit (A)
2: Follower unit (B)
3: Follower unit (C)
4: Follower unit (D)

10. TROUBLESHOOTING

10-1. Troubleshooting Summary

1. Before troubleshooting

1) Applied models

① S-MMS Multi type models

Indoor unit : MMX-APXXX,
Outdoor unit : MMY-MAPXXXXT8X, MMY-MAPXXXHT7X

② Super Heat Recovery Multi type models

Indoor unit : MMX-APXXX,
Outdoor unit : MMY-MAPXXXFT8X

③ Mini-S-MMS Multi type models

Indoor unit : MMX-APXXX,
Outdoor unit : MCY-MAPXXXHT, MCY-MAPXXXHT2X

2) Required tools / measuring devices

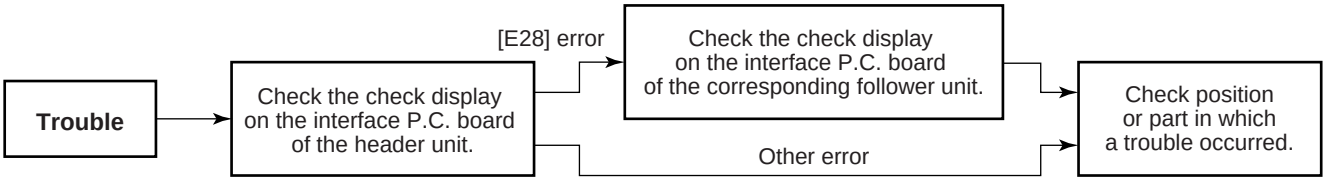
- Screwdrivers (Philips, Minus), spanner, radio pinchers, nipper, push pin for reset switch, etc.
- Tester, thermometer, pressure gauge, etc.

3) Confirmation before check (The following items are not troubles.)

No.	Operation	Check items
1	Compressor does not operate.	• Is not delayed for 3 minutes? (3 minutes after compressor-OFF) • Is not thermostat OFF? • Is not the fan operating or timer? • Is not the system initially communicating? Heating operation cannot be performed under condition of outside temperature 21°C or higher. Cooling operation cannot be performed under condition of outside temperature –5°C or lower.
2	Indoor fan does not work.	• Is not the cold draft prevention being controlled in heating operation?
3	Outdoor fan does not rotate, or fan speed changes.	• Is not low cooling operation being controlled? • Is not a defrost operation being performed?
4	Indoor fan does not stop.	• Is not after-heat elimination operation being controlled after heating operation?
5	Start/stop operation on remote controller is unavailable.	• Is not auxiliary unit or remote control being operated?
6	——	• Is connecting wire of indoor unit or remote controller correct?

2. Troubleshooting procedure

When a trouble occurred, advance the check operation in the following procedure.



NOTE

While a check operation is performed, a malfunction of the microprocessor may be caused due to condition of the power supply or the external noise.

If there is any noise source, change wires of the remote controller and signal wires to shield wires.

10-2. How to check

On the remote controller (Remote controller, Central control remote controller) and on the interface P.C. board of the outdoor unit, LCD display part (Remote controller) or 7-segment display part (on outdoor interface P.C. board) is provided in order to display the operation status.
When a trouble occurred, the method to judge the trouble or defective position of the air conditioner by this self-diagnosis function is shown below.

The following table shows the list of each check code that each device detects. Check the check contents in the following table according to position to be checked.

- Check from the indoor remote controller or TCC-LINK central controller: Refer to “Display on remote controller & TCC-LINK central controller” in the following table.
- Check from outdoor unit: Refer to “Display of outdoor segment” in the following table.
- Check from indoor unit of wireless remote controller: Refer to Sensor lamp display” in the following table.

Check code display list (Indoor unit)

[Indoor unit detects error.]

(∗) ○: Goes on, ◎: Flashes, ●: Goes off
A (Alternate) : Flashing condition is alternate when there are two flashing LED.
S (Simultaneously) : Two LED flash simultaneously when there are two flashing LED.

Check code display			Sensor lamp display				Main defective position	Description
TCC-LINK central & remote controller	Outdoor 7-segment		Block display (∗)					
		Auxiliary code	Operation	Timer	Ready	Flash		
E03	—	—	◎	●	●		Regular communication error between indoor and remote controller	No communication from remote controller and network adapter (No central control system communication also)
E04	—	—	●	●	◎		Regular communication error between indoor and outdoor	No communication from outdoor unit
E08	E08	Duplicated indoor unit No.	◎	●	●		Duplicated indoor address	An address same to self address was detected.
E10	—	—	◎	●	●		Communication error between indoor MCU	Communication error between MCU of main motor microprocessors
E18	—	—	◎	●	●		Regular communication error between header and follower in indoor unit	Regular communication between header and follower units in indoor unit was impossible.
F01	—	—	◎	◎	●	A	Indoor heat exchanger temp. sensor (TCJ) error	Open/short of heat exchanger temp. sensor (TCJ) was detected.
F02	—	—	◎	◎	●	A	Indoor heat exchanger temp. sensor (TC2) error	Open/short of heat exchanger temp. sensor (TC2) was detected.
F03	—	—	◎	◎	●	A	Indoor heat exchanger temp. sensor (TC1) error	Open/short of heat exchanger temp. sensor (TC1) was detected.
F10	—	—	◎	◎	●	A	Room tem. Sensor (TA) error	Open/short of room temp. sensor (TA) was detected.
F11	—	—	◎	◎	●	A	Discharge air temp. sensor (TF) error.	Open/short of discharge air temp. sensor was detected.
F29	—	—	◎	◎	●	S	Indoor or other P.C. board error	Indoor EEPROM error (Other error may be detected.)
L03	—	—	◎	●	◎	S	Duplicated setting of header in indoor group	There were multiple header units in a group.
L07	—	—	◎	●	◎	S	There is group cable in individual indoor unit.	There is even an indoor unit connected to group in individual indoor unit.
L08	L08	—	◎	●	◎	S	Indoor group address is unset.	Indoor group address is unset. (Detected also at outdoor unit side)
L09	—	—	◎	●	◎	S	Indoor capacity is unset.	Capacity of indoor unit is unset.
L20	—	—	◎	○	◎	S	Duplicated central control system address	Setting of central control system address is duplicated.
L30	L30	Detected indoor unit No.	◎	○	◎	S	External error was input in indoor (Interlock).	System abnormally stopped by input of external error (CN80).
P01	—	—	●	◎	◎	A	Indoor AC fan error	Error of indoor AC can was detected. (Fan motor thermal relay operation)
P10	P10	Detected indoor unit No.	●	◎	◎	A	Indoor overflow was detected.	Float switch operated.
P12	—	—	●	◎	◎	A	Indoor DC fan error	Error (Over-current, lock, etc.) of indoor DC fan was detected.
P31	—	—	◎	●	◎	A	Other indoor unit error	Group follower unit cannot be operated by [E03/L03/L07/L08] alarm of header unit.

Note) The check code display may be different according to the detected device even same error contents such as communication error.

[Remote controller detects error.]

(∗) ○: Goes on, ◎: Flashes, ●: Goes off
A (Alternate) : Flashing condition is alternate when there are two flashing LED.
S (Simultaneously) : Two LED flash simultaneously when there are two flashing LED.

Check code display			Sensor lamp display				Main defective position	Description
Remote controller	Outdoor 7-segment		Block display (∗)					
		Auxiliary code	Operation	Timer	Ready	Flash		
E01	—	—	◎	●	●		No remote controller header unit, remote controller communication (receive) error	When signal cannot be received from indoor unit, when header of remote controller was not set (including 2 remote controllers)
E02	—	—	◎	●	●		Remote controller communication (send) error	When signal cannot be sent to indoor unit
E09	—	—	◎	●	●		Duplicated remote controller header	In 2-remote controller control, both remote controllers were set to header. (Indoor header stops with alarm and follower unit continues operation.)

[Central controller detects error.]

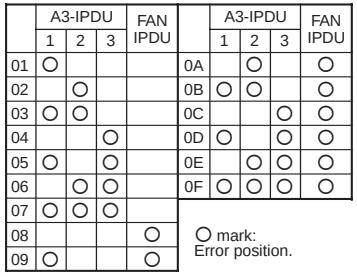
Check code display			Sensor lamp display				Main defective position	Description
TCC-LINK central	Outdoor 7-segment		Block display (∗)					
		Auxiliary code	Operation	Timer	Ready	Flash		
C05	—	—	Is not displayed (In shared use of remote controller)				Central control system communication (send) error	When signal of central control system cannot be sent, there are same multiple central devices (AI-NET)
C06	—	—					Central control system communication (receive) error	When signal of central control system cannot be received
—	—	—					There are multiple network adapters.	There were multiple network adapters (AI-NET) on remote controller communication line.
C12	—	—	—				Batched alarm of interface for general-purpose equipment control	Error of equipment connected to control interface of the general-purpose unit exclusive to TCC-LINK/AI-NET
P30	—	—	According to unit with alarm (Abovementioned)				Group follower unit error	Group follower unit error (For remote controller, [∗∗∗] details is displayed together with unit No.)

Note) The check code display may be different according to the detected device even same error contents such as communication error.

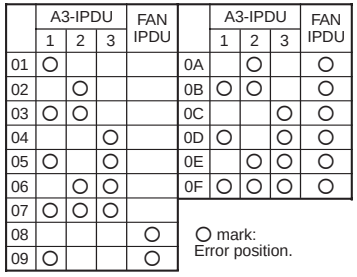
Check code display list (Outdoor unit)

[SMMS-i interface detects error: Main example]

(∗) ○: Goes on, ◎: Flashes, ●: Goes off
A (Alternate) : Flashing condition is alternate when there are two flashing LED.
S (Simultaneously) : Two LED flash simultaneously when there are two flashing LED.

Check code display			Sensor lamp display				Main defective position	Description
Outdoor 7-segment		TCC-LINK central & remote controllers	Block display					
	Auxiliary code		Operation	Timer	Ready	Flash		
E06	No. of indoor units which received signal normally	E06	●	●	◎		Decrease of quantity of indoor units	No communication from indoor unit (Decrease of connected indoor units)
E07	—	(E04)	●	●	◎		Indoor/Outdoor communication circuit error	Signal cannot be sent to indoor unit. (→There is no communication from outdoor unit.)
E08	Duplicated indoor unit number	(E08)	◎	●	●		Duplicated indoor address	There are multiple indoor units having the same address. (Detected also at indoor unit side)
E12	01: Indoor/Outdoor communication 02: Communication between Outdoor units	E12	◎	●	●		Automatic address start error	Automatic indoor address operation while setting automatic address of other system Outdoor automatic address operation while setting automatic indoor address
E15	—	E15	●	●	◎		There is none during auto addressing.	There is no signal receiving from outdoor unit during automatic addressing.
E16	00: Capacity over 01 ~ : No. of connected units	E16	●	●	◎		No. of connected indoor units: Over capacity	Total capacity of indoor units exceeded (total capacity of outdoor units × 135%)
E19	00: No center outdoor unit 02: 2 or more center outdoor units	E19	●	●	◎		No. of center outdoor units error	There is no center outdoor unit or there are 2 or more outdoor units in 1 line.
E20	01: Connected to outdoor of other line 02: Connected to indoor of other line	E20	●	●	◎		Connected to other line during automatic addressing	Indoor unit of other line was detected during automatic address is been setting.
E21	00: Duplicated header units 02: No header unit	E21	●	●	◎		Header heat unit quantity error	There is no header heat unit in the system, or there are multiple header units.
E22	—	E22	●	●	◎		Decrease of heat unit quantity	No communication from heat unit (Decrease of connected heat units)
E23	—	E23	●	●	◎		Send error communication between outdoor units	Sending to other outdoor is unavailable.
E25	—	E25	●	●	◎		Duplicated terminal outdoor address setting	Manually set outdoor address was duplicated.
E26	Receive error of outdoor address	E26	●	●	◎		Decrease of connected outdoor units	No communication from terminal outdoor unit (Decrease of connected terminal outdoor units)
E28	Detected outdoor unit number	E28	●	●	◎		Terminal outdoor error	Center outdoor unit detected terminal outdoor unit error. (For terminal outdoor unit, details are displayed.)
E31		E31	●	●	◎		IPDU communication error	No communication of each IPDU (P.C. board) in inverter box
F04	—	F04	◎	◎	○	A	Outdoor discharge temp. sensor (TD1) error	Open/Short of outdoor discharge temp. sensor (TD1) was detected.
F05	—	F05	◎	◎	○	A	Outdoor discharge temp. sensor (TD2) error	Open/Short of outdoor discharge temp. sensor (TD2) was detected.
F06	01: TE1 02: TE2	F06	◎	◎	○	A	Outdoor heat exchanger temp. sensor (TE1, TE2) error	Open/Short of heat exchanger temp. sensor (TE1, TE2) was detected.
F07	—	F07	◎	◎	○	A	Outdoor liquid temp. sensor (TL) error	Open/Short of outdoor liquid temp. sensor (TL) was detected.
F08	—	F08	◎	◎	○	A	Outdoor outer air temp. sensor (TO) error	Open/Short of outer air temp. sensor (TO) was detected.
F11	—	F11		—			—	—
F12	—	F12	◎	◎	○	A	Outdoor suction temp. sensor (TS1) error	Open/Short of outdoor suction temp. sensor (TS1) was detected.
F15	—	F15	◎	◎	○	A	Outdoor temp. sensor (TE1, TL) miswiring	Miswiring by temp. sensor (TE1, TL) was detected.
F16	—	F16	◎	◎	○	A	Outdoor pressure sensor (Pd, Ps) miswiring	Miswiring by outdoor pressure sensor (Pd, Ps) was detected.
F22	—	F22	◎	◎	○	A	Outdoor discharge temp. sensor (TD3) error	Open/Short of outdoor discharge temp. sensor (TD3) was detected.
F23	—	F23	◎	◎	○	A	Low pressure (Ps) sensor error	Output voltage of low pressure (Ps) sensor detected 0.
F24	—	F24	◎	◎	○	A	High pressure (Pd) sensor error	Output voltage of high pressure (Pd) sensor detected 0 or error value was detected during stop of compressor.
F31	—	F31	◎	◎	○	S	Outdoor EEPROM error	Outdoor EEPROM error (Center unit stops alarm and terminal unit continues operation.).

(*) ○: Goes on, ◎: Flashes, ●: Goes off
A (Alternate) : Flashing condition is alternate when there are two flashing LED.
S (Simultaneously) : Two LED flash simultaneously when there are two flashing LED.

Check code display			Sensor lamp display				Main defective position	Description
Outdoor 7-segment		TCC-LINK central & remote controllers	Block display					
	Auxiliary code		Operation	Timer	Ready	Flash		
H05	—	H05	●	◎	●		Outdoor discharge temp. sensor (TD1) miswiring	Miswiring or mismounting of outdoor discharge temp. sensor (TD1) or coming-out of TD1 sensor was detected.
H15	—	H15	●	◎	●		Outdoor discharge temp. sensor (TD2) miswiring	Miswiring or mismounting of outdoor discharge temp. sensor (TD2) or coming-out of TD2 sensor was detected.
H25	—	H25	●	◎	●		Outdoor discharge temp. sensor (TD3) miswiring	Miswiring or mismounting of outdoor discharge temp. sensor (TD3) or coming-out of TD3 sensor was detected.
H06	—	H06	●	◎	●		Low pressure protective operation	Protection by low pressure (Ps) sensor was detected.
H07	—	H07	●	◎	●		Protection for oil level drop	Protection detection by temp. sensor (TK1 to 5) for oil level detection.
H08	01: TK1 sensor error 02: TK2 sensor error 03: TK3 sensor error 04: TK4 sensor error 05: TK5 sensor error	H08	●	◎	●		Oil level detection temp. sensor (TK1 to 5) error	Open/Short of temp. sensor (TK1 to 5) for oil level detection was detected.
H16	01: TK1 Oil circuit system error 02: TK2 Oil circuit system error 03: TK3 Oil circuit system error 04: TK4 Oil circuit system error 05: TK5 Oil circuit system error	H16	●	◎	●		Detection circuit error	After starting compressor operation, temperature change of temp. sensor (TK1 to 5) for oil level detection was not detected.
L04	—	L04	◎	○	◎	S	Duplicated outdoor system address	Duplicated setting of system address to outdoor units of different refrigerant piping system
L06	No. of preceded indoor units ([L05/L06] by individual display)	L05	◎	●	◎	S	Duplicated priority indoor units (Displayed in priority indoor unit)	Duplicated priority indoor units (For priority indoor unit)
		L06	◎	●	◎	S	Duplicated priority indoor units (Displayed except priority indoor unit)	Duplicated priority indoor units (For indoor units without priority)
L08	—	L08	◎	●	◎	S	Unset indoor group address	There is indoor unit which indoor group address was not set (Detected also at indoor unit side)
L10	—	L10	◎	○	◎	S	Unset outdoor unit capacity	Capacity of outdoor unit is not set. (Exchange service P.C. board.)
L17	—	L17	◎	○	◎	S	Disagreed error of outdoor model	Former model of outdoor unit (Before 3 series) was connected.
L18	—	L18	◎	○	◎	S	Refrigerant change unit system error	COOL/HEAT cycle error by mispiping, etc was detected.
L26	No. of connected heat units	L26	◎	○	◎	S	No. of connected heat unit over	There are 3 or more connected heat units.
L27	No. of connected heat units	L27	◎	○	◎	S	No. of connected heat unit error	Heat unit was not connected, or combination of No. of outdoor units with No. of heat units defective.
L28	—	L28	◎	○	◎	S	No. of connected outdoor units over	No. of connected outdoor units exceeded 4 units
L29		L29	◎	○	◎	S	IPDU quantity error	No. of IPDU (P.C. board) in inverter box is few.
L30	Detection of indoor unit number	(L30)	◎	○	◎	S	Outside error input in indoor (Interlock)	There is indoor unit which abnormally stops by outer error input in 1 system. (← Indoor unit detected.)
P03	—	P03	◎	●	◎	A	Outdoor unit discharge (TD1) temp. error	High temp. error was detected at outdoor discharge temp. sensor (TD1).
P05	00: Open phase shortage detection 01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	P05	◎	●	◎	A	Open phase shortage: Power failure error Inverter DC voltage (Vdc) error	When power supply was turned on, open phase shortage was detected. Over current/Current shortage was detected at inverter DC voltage.

(*) ○: Goes on, ◎: Flashes, ●: Goes off
A (Alternate) : Flashing condition is alternate when there are two flashing LED.
S (Simultaneously) : Two LED flash simultaneously when there are two flashing LED.

Check code display			Sensor lamp display				Main defective position	Description
Outdoor 7-segment		TCC-LINK central & remote controllers	Block display					
	Auxiliary code		Operation	Timer	Ready	Flash		
P07	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	P07	◎	●	◎	A	Heat sink overheat error	High temp. error was detected in outdoor IGBT built-in temp. sensor (TH).
P09	Detection of heat unit number	(P09)	●	◎	◎	A	Heat unit water-shortage error	There is heat unit which was been detected water-shortage in 1 system. (← Heat unit detected.)
P10	Detection of indoor unit number	(P10)	●	◎	◎	A	There is indoor unit which overflow was detected.	There is abnormally stopped indoor unit which was been detected water-overflow in 1 system. (← Indoor unit detected.)
P13	—	P13	●	◎	◎	A	Outdoor liquid back detection error	Liquid back operation was judged from refrigerant cycle status.
P15	01: TS condition 02: TD condition	P15	◎	●	◎	A	Gas leak detection	Outdoor suction temp. sensor (TS1) continuously and repeatedly detected high temperature over standard value.
P17	—	P17	◎	●	◎	A	Outdoor discharge (TD2) temp. error	High temp. error was detected in outdoor discharge temp. sensor (TD2).
P18	—	P18	◎	●	◎	A	Outdoor discharge (TD3) temp. error	High temp. error was detected in outdoor discharge temp. sensor (TD3).
P19	Detection of outdoor unit number	P19	◎	●	◎	A	4-way valve invert error	Refrigerant cycle error was detected in heating operation.
P20	—	P20	◎	●	◎	A	High pressure protection operation	High pressure (Pd) sensor detected pressure over standard value.
P24	Detection of heat unit number	P24	◎	●	◎	A	Heat unit error (Main code)	Heat unit detected error (Heat remote controller displays detailed check code together with model number.)

Check code display list (Outdoor unit)

[SMMS-i unit IPDU detects error: Main example]

(∗) ○: Goes on, ◎: Flashes, ●: Goes off
A (Alternate) : Flashing condition is alternate when there are two flashing LED.
S (Simultaneously) : Two LED flash simultaneously when there are two flashing LED.

Check code display			Sensor lamp display				Main defective position	Description
Outdoor 7-segment		TCC-LINK central & remote controllers	Block display					
	Auxiliary code		Operation	Timer	Ready	Flash		
F13	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	F13	◎	◎	○	A	Outdoor IGBT built-in temp. sensor (TH) error	Open/Short of outdoor unit IGBT built-in temp. sensor (TH) was detected.
H01	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	H01	●	◎	●		Compressor break down	Inverter current (Idc) detection circuit detected over-current.
H02	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	H02	●	◎	●		Compressor error (Lock)	Compressor lock was detected.
H03	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	H03	●	◎	●		Current detection circuit error	Abnormal current was detected during stop of compressor.
P04	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	P04	◎	●	◎	A	High pressure SW system operation	High pressure SW operated.
P07	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	P07	◎	●	◎	A	Heat sink overheat error	High temp. error was detected in outdoor IGBT built-in temp. sensor (TH).
P22	0∗: IGBT circuit 1∗: Position detection circuit error 3∗: Motor lock error 4∗: Motor current detection C∗: TH sensor error D∗: TH sensor error E∗: Inverter DC voltage error (Outdoor fan) **Note)** In position ∗, 0 to F is displayed, but ignore it.	P22	◎	●	◎	A	IPDU for outdoor fan error	IPDU for outdoor fan detected each error.
P26	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	P26	◎	●	◎	A	G-Tr (IGBT) short-circuit protection error	Short-circuit protective operation (Instantaneous over-current) of compressor motor driving circuit element operated.
P29	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	P29	◎	●	◎	A	Compressor position detection circuit system error	Position detection error of compressor motor was detected.

Note) The above check codes are the representative examples and they differ according to the combined outdoor units (Cooling/Heating flex, etc.).
For details, refer to the Service Manual for the corresponding outdoor unit.

10-3. Troubleshooting by Check Display on Remote Controller

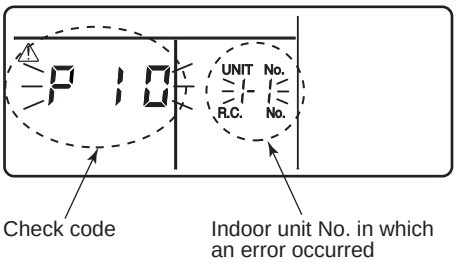
■ In case of wired remote controller (RBC-AMT32E)

1. Confirmation and check

When an error occurred on the air conditioner, the check code and the indoor unit No. are displayed on the display section of the remote controller.

The check code is displayed while the air conditioner operates.

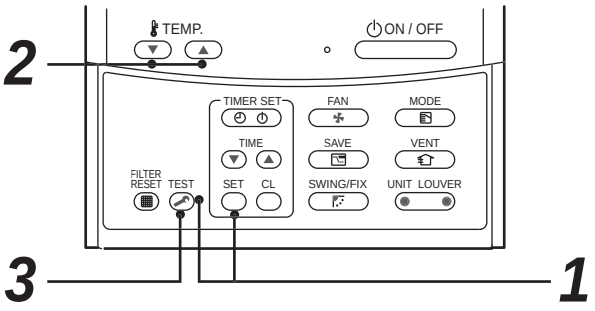
If the display disappeared, operate the air conditioner and check the error based upon the following “Confirmation of error history”.

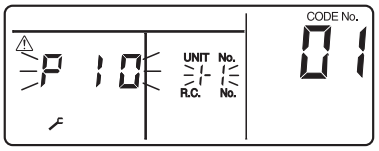


2. Confirmation of error history

When an error occurred on the air conditioner, the error history can be confirmed with the following procedure.
(Up to 4 error histories are stored in memory.)

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



Procedure	Description
1	When pushing SET and TEST buttons simultaneously for 4 seconds or more, the below display appears. If [Service Check] is displayed, the mode enters in the error history mode. • [01: Error history order] is displayed in CODE No. window. • [Check Code] is displayed in check code window. • [Indoor unit address with error] is displayed in UNIT No. 
2	Every pushing temp. set ▼ / ▲ buttons, the error histories stored in the memory are displayed in order. The numbers in CODE No. indicates CODE No. [01] (Latest) to [04] (Oldest). **CAUTION** Do not push CL button because all the error histories of the indoor unit will be deleted.
3	After confirmation, push TEST button to return to the usual display.

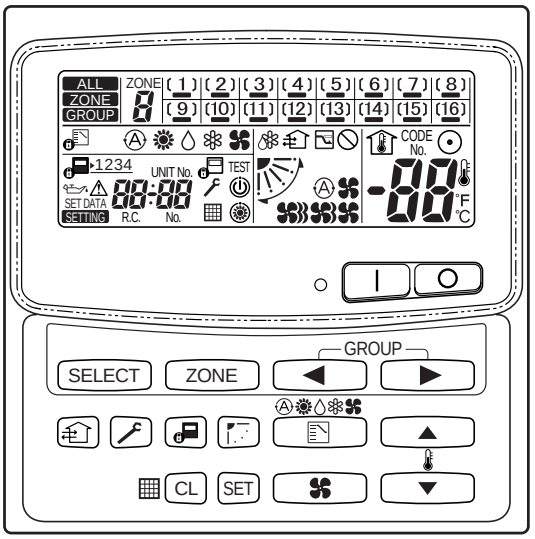
How to read the check monitor display

<7-segment display>

<How to read>

0 1 2 3 4 5 6 7 8 9 A b C d E F H J L P

■ In case of central remote controller (TCB-SC642TLE2)

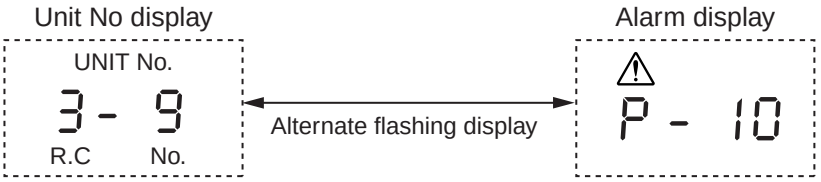


1. Confirmation and check

When a trouble occurred on the air conditioner, the check code and the indoor unit No. are displayed on the display section of the remote controller.

The check code is displayed while the air conditioner operates.

If the display disappeared, operate the air conditioner and check the error based upon the following “Confirmation of error history”.

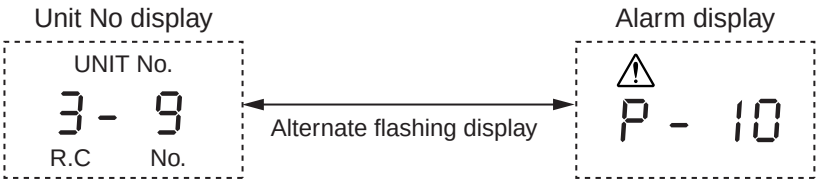


2. Confirmation of error history

When a trouble occurred on the air conditioner, the error history can be confirmed with the following procedure. (Up to 4 error histories are stored in memory.)

This history can be confirmed from either operating or stop.

1) Push [🔧] and [SET] buttons in succession for 4 seconds or more.
2) SERVICE CHECK [🔧] goes on and CODE No. 01 goes on.
3) When selecting (flash) the group number if there is the alarm history, the UNIT number and the latest alarm history are displayed alternately.
   ∗ In this time, the temperature cannot be set up.
4) To confirm the alarm history other than the latest one, push temp. set [▲] / [▼] to select CODE No. (01 to 04).
5) To confirm the alarm in the other group, push [ZONE] and [GROUP ◀] [GROUP ▶] to select the group number Do not push [CL] button because all the alarm histories of the currently selected group are deleted.
6) To finish the service check, push [🔧] button.



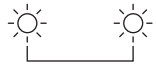
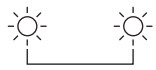
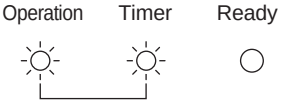
■ Indoor unit display part (Receiving unit) (Wireless type)

When specifying the check code, check 7-segment display on the center unit.

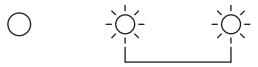
For the check code which is not displayed on the outdoor 7-segment, confirm it in Section "**10-2 How to Check / Check code display list (Indoor unit)**".

● : Goes off, ○ : Goes on, ☼ : Flash (0.5 second)

Lamp indication	Check code	Cause of trouble occurrence
Operation ● Timer ● Ready ● No indication at all	—	Power supply OFF or miswiring between receiving unit and indoor unit
Operation ☼ Flash Timer ● Ready ●	E01	Receiving error — Receiving unit — Miswiring or wire connection error between receiving unit and indoor unit
	E02	Sending error — Receiving unit — Miswiring or wire connection error between receiving unit and indoor unit
	E03	Communication interruption — Miswiring or wire connection error between receiving unit and indoor unit
	E08	Duplicated indoor unit No. (Address) — Setup error
	E09	Duplicated header units of remote controller — Setup error
	E10	Communication error between MCU on indoor unit P.C. board
	E12	Automatic address start error
	E18	Wire connection error between indoor units, indoor power supply OFF
Operation ● Timer ● Ready ☼ Flash	E04	Miswiring or wire connection error between indoor unit and outdoor unit (Communication interruption between indoor and outdoor units)
	E06	Communication (receiving) error between indoor and outdoor units, decrease of No. of connected indoor units
	E07	Communication (sending) error between indoor and outdoor units
	E15	No indoor unit during setting of automatic address
	E16	No. of connected indoor units, capacity over
	E19	Error of No. of header unit
	E20	Disagreement of refrigerant pipe communication during setting of automatic address
	E23	Communication (sending) error between outdoor units
	E25	Duplicated setting of follower unit address
	E26	Communication (receiving) error between outdoor units, decrease of No. of connected outdoor units
	E28	Follower unit error
	E31	IPDU communication error
Operation ● Timer ☼ Ready ☼ Alternate flash	P01	Indoor fan error
	P10	Indoor overflow error
	P12	Indoor fan error
	P13	Outdoor unit liquid back detection error
Operation ☼ Timer ● Ready ☼ Alternate flash	P03	Outdoor unit discharge temp. (TD1) error
	P04	Outdoor unit high pressure switch operation
	P05	Outdoor unit inverter DC voltage (Vdc) error was detected, negative phase error was detected
	P07	Outdoor unit heat sink overheat error: Heat radiation error of electric part (IGBT) in outdoor unit
	P15	Gas leak was detected: Short of refrigerant charge amount
	P17	Outdoor unit discharge temp. (TD2) error
	P18	Outdoor unit discharge temp. (TD3) error
	P19	Outdoor unit 4-way valve inverse error
	P20	High pressure protection error
	P22	Outdoor unit DC fan error
	P26	Outdoor unit G-Tr short-circuit error
	P29	Compressor position detection circuit error
	P31	Other indoor unit stopped due to error in the group.

Lamp indication	Check code	Cause of trouble occurrence
Operation Timer Ready  Alternate flash	F01	Heat exchanger sensor (TCJ) error
	F02	Heat exchanger sensor (TC2) error
	F03	Heat exchanger sensor (TC1) error
	F10	Room temp. sensor (TA) error
	F11	Discharge air temp.sensor (TF) error
		→ Temp. sensor error in indoor unit
Operation Timer Ready  Alternate flash	F04	Discharge temp. sensor (TD1) error
	F05	Discharge temp. sensor (TD2) error
	F06	Heat exchanger sensor (TE1, TE2) error
	F07	Liquid temp. sensor (TL) error
	F08	Outside temp. sensor (TO) error
	F12	Suction temp. sensor (TS1) error
	F13	Heat sink sensor (TH) error
		→ Outdoor unit temp. sensor error
	F15	Misconnection of heat exchanger sensor (TE) with liquid temp. sensor (TL) → Miswiring of temp. sensor in outdoor unit or miss-mounting
	F16	Miswiring between high pressure sensor (Pd) and low pressure sensor (Ps) → Misconnection of pressure sensor in outdoor unit
	F22	Discharge temp. sensor (TD3) error
	F23	Low pressure sensor (Ps) error
	F24	High pressure sensor (Pd) error
		→ Pressure sensor error in outdoor unit
Operation Timer Ready  Simultaneous flash	F29	Indoor unit EEPROM error
Operation Timer Ready  Flash	H01	Compressor break-down
	H02	Compressor lock
	H03	Current detection circuit error
		→ Outdoor unit compressor system error
	H04	Compressor 1 case thermo operation
	H05	Miswiring or mismounting of outdoor discharge temp. sensor (TD1) or coming-off of TD1 sensor
	H06	Low pressure (Ps) drop error
	H07	Oil face drop detection error
		→ Protections stop of outdoor unit
	H08	Oil face detection circuit system temp. sensor (TK1, TK2, TK3, TK4, TK5) error
	H15	Miswiring or mismounting of outdoor discharge temp. sensor (TD2) or coming-off of TD2 sensor
	H16	Oil face detection circuit system error: Outdoor unit TK1, TK2, TK3, TK4 circuit system error
	H25	Miswiring or mismounting of outdoor discharge temp. sensor (TD3) or coming-off of TD3 sensor
Operation Timer Ready  Simultaneous flash	L03	Duplicated header units in indoor unit
	L05	Duplicated priority indoor unit (Displayed in the room with priority)
	L06	Duplicated priority indoor unit (Displayed in a room except one with priority)
	L07	Group cable was connected to individual indoor unit.
	L08	Indoor group address was unset.
	L09	Indoor capacity was unset.
Operation Timer Ready  Simultaneous flash	L04	Duplicated setting of outdoor line address
	L10	Outdoor capacity was unset.
	L17	Disagreement error of outdoor unit type
	L18	Flow selector unit error
	L20	Duplicated address of central control system
	L28	No. of connected outdoor units over
	L29	Defective No. of IPDU
	L30	Indoor unit outside interlock error
Operation Timer Ready  Simultaneous flash	F31	Outdoor unit EEPROM error

■ Others (Except check code)

Lamp indication	Check code	Cause of trouble occurrence
Operation Timer Ready  Simultaneous flash	—	During test run
Operation Timer Ready  Alternate flash	—	COOL/HEAT disagreement (Automatic cooling/heating setup to automatic cooling/heating unavailable model, heating setup to cooling only model)

10-4. Check Code and Check Position Displayed on the Remote Controller and Outdoor Unit (7-Segment Display of Interface)

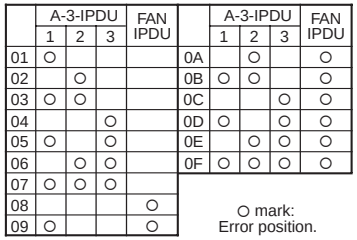
<In case of SUPER MODULAR MULTI SYSTEM>

Check code			Detected position	Check code name	Status	Error detection condition	Check item (position)
Wired remote controller	Outdoor 7-segment display						
	Check code	Auxiliary code					
E01	—	—	Remote controller	Communication error between indoor and remote controller (Detected at remote controller side)	Corresponding unit only stops.	Communication interrupted between indoor P.C. board and remote controller.	• Check remote controller inter-unit cable (A/B). • Check disconnection, connector contact error. • Check indoor power supply. • Check indoor P.C. board error. • Check remote controller address setup. (When two remote controllers operate) • Check remote controller P.C. board.
E02	—	—	Remote controller	Remote controller sending error	Corresponding unit only stops.	Signal could not be sent from remote controller to indoor unit.	• Check the communication wire of remote controller: Exchange remote controller.
E03	—	—	Indoor unit	Communication error between indoor and remote controller (Detected at indoor side)	Corresponding unit only stops.	No communication from remote controller (including wireless) and communication adapter.	• Check remote controller and communication adapter wiring.
E04	—	—	Indoor unit	Indoor/outdoor communication circuit error (Detected at indoor side)	Corresponding unit only stops.	Indoor unit does not receive communication from outdoor unit.	• Check power-ON order of indoor/outdoor. • Check indoor address setup. • Check inter-unit cabling between indoor and outdoor. • Check outdoor end terminal resistance setup (SW30-2).
E06	E06	No. of indoor units which received signal normally	I/F	Decreased number of indoor units	All stop	When signal is not sent for a certain period from the indoor unit which has been used to send signals.	• Check the power supply of indoor unit. (Power-ON) • Check connection of communication line between indoor and outdoor. • Check connector connection for communication in indoor P.C. board. • Check connector connection for communication in outdoor P.C. board. • Check indoor P.C. board failure. • Check outdoor P.C. board (I/F) failure.
—	E07	—	I/F	Indoor/outdoor communication circuit error (Detected at outdoor side)	All stop	Transmission from outdoor to indoor cannot continue for 30 seconds.	• Check outdoor terminator resistor setup (SW30-2). • Check the communication connection between indoor and outdoor.
E08	E08	Duplicated indoor addresses	Indoor I/F	Duplicated indoor addresses	All stop	Multiple indoor unit address setup are duplicated.	• Check indoor address. • Check the change of remote controller connection (Group / individual) after setup of indoor address.
E09	—	—	Remote controller	Duplicated master remote controllers	Corresponding unit only stops.	In 2-remote controller control (including wireless), both are setup as master (Header indoor unit stops and other indoor unit is operating.)	• Check remote controller setup. • Check remote controller P.C. board.
E10	—	—	Indoor unit	Communication error between indoor P.C. board assembly	Corresponding unit only stops.	Communication was not succeeded after power was supplied or during communication.	• Indoor P.C. board failure
E12	E12	01: Indoor/outdoor communication 02: Between outdoors communication	I/F	Automatic address start error	All stop	• When indoor automatic address started, other refrigerant circuit system was setting automatic address. • When outdoor automatic address started, indoor automatic address was executed.	• Setup the address again after disconnecting communication connection with other refrigerant circuit system.

Check code			Detected position	Check code name	Status	Error detection condition	Check item (position)
Wired remote controller	Outdoor 7-segment display						
	Check code	Auxiliary code					
E15	E15	—	I/F	No corresponding indoor unit during automatic address	All stop	Indoor unit is not found when indoor automatic address start was set up.	• Check the communication line connection between indoor and outdoor. • Check the electric power line error in indoor. • Check the noise of surrounding devices. • Power failure • Check indoor P.C. board error.
E16	E16	00: Capacity over 01 to: No. of connected units	I/F	No. of connected indoor units / Capacity over	All stop	• Total capacity of indoor units exceeded 135% of total outdoor capacity. • No. of connected indoor units are more than 48 units. **[Note]** If this code appears after backup setup of outdoor unit trouble, set up "No. capacity-over detection". **<Setup method of "No. capacity-over detection">** Turn on SW09/Bit 2 on I/F P.C. board of outdoor header unit.	• Check the connection capacity of indoor unit. • Check the HP capacity of indoor unit. • Check the indoor/outdoor capacity setup • Check the No. of connected indoor units. • Check the outdoor I/F P.C. board error
E18	—	—	Indoor unit	Communication error between indoor header and follower units	Corresponding unit only stops.	Regular communication between indoor header and follower units	• Check cable of the remote controller. • Check power cabling of indoor. • Check P.C. board of indoor.
E19	E19	00: No header unit 02: Two or more header units	I/F	Header outdoor unit quantity error	All stop	• There are multiple header outdoor units in 1 line. • There is none of header outdoor unit in 1 line.	The outdoor unit connected with communication cable between indoor and outdoor (U1.U2) is the outdoor unit. • Check connection of communication line between indoor and outdoor. • Check outdoor P.C. board(I/F) error.
E20	E20	01: Connection of outdoor of other line 02: Connection of indoor of other line	I/F	Other line unit connected during automatic address	All stop	Unit of other line was connected when indoor automatic address started.	Separate the cable between lines according to automatic address setup method in "Address setup".
E23	E23	—	I/F	Communication sending error between outdoor units	All stop	Transmission of other outdoor unit was unavailable for 30 seconds or more.	• Check power supply in outdoor unit. (Is power supplied?) • Check connection or disconnection of connecting wire between outdoor units. • Check connection of connector for outdoor P.C. board communication. • Check outdoor P.C. board (I/F) error. • Check terminal resistance setting of communication between outdoor units
E25	E25	—	I/F	Duplicated outdoor follower address setup	All stop	Outdoor addresses manually set up are duplicated.	**[Note]** Do not set up the outdoor address manually.
E26	E26	No. of normally received outdoor units	I/F	Decreased number of connected outdoor units	All stop	The signal was not returned for constant from the outdoor unit which was receiving signal.	• Outdoor backup is being set. • Check power supply of outdoor unit. (Is power supplied?) • Check connection or disconnection of connecting wire between outdoor units. • Check connection of connector for outdoor P.C. board communication. • Check outdoor P.C. board (I/F) error.
E28	E28	No. of detected outdoor units	I/F	Outdoor follower unit error	All stop	Outdoor header unit received error code from outdoor follower unit.	• Check the check code of outdoor follower unit.

<Convenient functions>

When pushing SW04 for 1 second or more under condition that [E28] is displayed on 7-segment display of outdoor header unit, the fan of outdoor unit which stopped abnormally starts rotating.
If pushing SW04 and SW05 simultaneously, the fan of normal outdoor unit operates. When pushing SW05 singly, the operation of fan is cleared.

Check code			Detected position	Check code name	Status	Error detection condition	Check item (position)
Wired remote controller	Outdoor 7-segment display						
	Check code	Auxiliary code					
E31	E31		I/F	IPDU communication error	All stop	Communication of each IPDU (P.C. board) in inverter box interrupted.	• Check connection of communication connector and disconnection between IPDU and I/F P.C. board. • Check outdoor P.C. board (I/F, Comp., IPDU, Fan IPDU) error. • Check external noise.
F01	—	—	Indoor unit	Indoor TCJ sensor error	Corresponding unit only stops.	• Resistance value of sensor is infinite or zero. (Open/Short)	• Check connection/cabling of TCJ sensor connector. • Check characteristics of TCJ sensor resistance value. • Check indoor P.C. board error.
F02	—	—	Indoor unit	Indoor TC2 sensor error	Corresponding unit only stops.	• Resistance value of sensor is infinite or zero (Open/Short).	• Check connection/cabling of TC2 sensor connector. • Check characteristics of TC2 sensor resistance value. • Check indoor P.C. board error.
F03	—	—	Indoor unit	Indoor TC1 sensor error	Corresponding unit only stops.	• Resistance value of sensor is infinite or zero (Open/Short).	• Check connection/cabling of TC1 sensor connector. • Check characteristics of TC1 sensor resistance value. • Check indoor P.C. board error.
F04	F04	—	I/F	TD1 sensor error	All stop	• Resistance value of sensor is infinite or zero (Open/Short)	• Check connection of TD1 sensor connector. • Check characteristics of TD1 sensor resistance value. • Check outdoor P.C. board (I/F) error.
F05	F05	—	I/F	TD2 sensor error	All stop	• Resistance value of sensor is infinite or zero (Open/Short)	• Check connection of TD2 sensor connector. • Check characteristics of TD2 sensor resistance value. • Check outdoor P.C. board (I/F) error.
F06	F06	01: TE1 sensor error 02: TE2 sensor error	I/F	TE1, TE2 sensor error	All stop	• Resistance value of sensor is infinite or zero (Open/Short).	• Check connection of TE1, TE2 sensor connector. • Check characteristics of TE1, TE2 sensor resistance value. • Check outdoor P.C. board (I/F) error.
F07	F07	—	I/F	TL sensor error	All stop	• Resistance value of sensor is infinite or zero (Open/Short).	• Check connection of TL sensor connector. • Check characteristics of TL sensor resistance value. • Check outdoor P.C. board (I/F) error.
F08	F08	—	I/F	TO sensor error	All stop	• Resistance value of sensor is infinite or zero (Open/Short).	• Check connection of TO sensor connector. • Check characteristics of TO sensor resistance value. • Check outdoor P.C. board (I/F) error.
F10	—	—	Indoor	Indoor TA sensor error	Corresponding unit only stops.	• Resistance value of sensor is infinite or zero (Open/Short).	• Check connection/cabling of TA sensor connector. • Check characteristics of TA sensor resistance value. • Check indoor P.C. board error.
F12	F12	—	I/F	TS1 sensor error	All stop	• Resistance value of sensor is infinite or zero (Open/Short).	• Check connection of TS1 sensor connector. • Check characteristics of TS1 sensor resistance value. • Check outdoor P.C. board (I/F) error.
F13	F13	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	IPDU	TH sensor error	All stop	• Resistance value of sensor is infinite or zero (Open/Short).	• IGBT built-in temp sensor error → Exchange Comp. IPDU P.C. board.

Check code			Detected position	Check code name	Status	Error detection condition	Check item (position)
Wired remote controller	Outdoor 7-segment display						
	Check code	Auxiliary code					
F15	F15	—	I/F	Outdoor temp sensor miscabling (TE1, TL)	All stop	During operation of compressor in HEAT mode, the TE1 detection temp was higher than that of TL by the specified value continued for 3 minutes or more.	• Check installation of TE1 sensor and TL sensor. • Check characteristics of TE1 and TL sensor resistance value. • Check outdoor P.C. board (I/F) error.
F16	F16	—	I/F	Outdoor pressure sensor miscabling (Pd, Ps)	All stop	High-pressure Pd sensor and low-pressure Ps sensor were exchanged, or output voltages of both sensors are zero.	• Check connection of high-pressure Pd sensor connector. • Check connection of low-pressure Ps sensor connector. • Check pressure sensors Pd and Ps error. • Check outdoor P.C. board (I/F) error. • Check compression error of compressor.
F22	F22	—	I/F	TD3 sensor error	All stop	Sensor resistance value is infinite or 0 (Open/Short)	• Check connection of TD3 sensor connector. • Check resistance value characteristics of TD3. • Check error of outdoor P.C. board (I/F).
F23	F23	—	I/F	Ps sensor error	All stop	Output voltage of Ps sensor was zero.	• Misconnection of Ps sensor and Pd sensor connectors • Check connection of Ps sensor connector. • Check Ps sensor error. • Check compression error of compressor. • Check 4-way valve error. • Check outdoor P.C. board (I/F) error. • Check SV4 circuit error.
F24	F24	—	I/F	Pd sensor error	All stop	Output voltage of Pd sensor was zero. (Sensor Open) Pd > 4.15MPa during stop of compressor	• Check connection of Pd sensor connector. • Check Pd sensor error. • Check outdoor P.C. board (I/F) error.
F29	—	—	Indoor	Indoor other error	Corresponding unit only stops.	Indoor P.C. board did not operate normally.	• Check indoor P.C. board error (EEPROM error).
F31	F31	—	I/F	Outdoor EEPROM error	All stop (∗1)	Outdoor P.C. board (I/F) did not operate normally.	• Check power voltage. • Check power noise. • Check outdoor P.C. board (I/F) error.
H01	H01	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	IPDU	Compressor breakdown	All stop	Inverter current detection circuit detected over-current and stopped.	• Check power voltage. (AC380–415V ± 10%). • Check compressor error. • Check cause of abnormal overload operation. • Check outdoor P.C. board (Comp. IPDU) error.
H02	H02	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	IPDU	Compressor error (lock)	All stop	Over-current was detected several seconds after header compressor had started.	• Check compressor error. • Check power voltage. (AC380–415V ±10%). • Check cable of compressor and phase-missing. • Check connector/terminal connection on IPDU P.C. board. • Check conduction of case heater. (Check activation error due to liquid stagnation in compressor.) • Check outdoor P.C. board (Comp. IPDU) error.
H03	H03	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	IPDU	Current detection circuit system error	All stop	While header compressor stopped, current flowed more than the specified current and was detected.	• Check cabling of current detection circuit system. • Check outdoor P.C. board (Comp. IPDU) error.

(∗1) All stop only in case of the header unit. The follower unit continues operation.

Check code			Detected position	Check code name	Status	Error detection condition	Check item (position)
Wired remote controller	Outdoor 7-segment display						
	Check code	Auxiliary code					
H04	H04	—	I/F	Compressor 1 case thermo operation	All stop	Compressor 1 case thermostat performed protective operation.	• Check compressor 1 case thermo circuit. (Connector, cable, P.C. board) • Check full opening of service valve. (Gas and liquid side) • Check outdoor PMV clogging. (PMV1, 2) • Check SV41 circuit leakage. • Check miscabling/misinstallation of SV41 and SV42. • Check valve open status of indoor PMV. • Check 4-way valve error. • Check refrigerant shortage.
H05	H05	—	I/F	Outdoor unit discharge temp. sensor (TD1) miswiring	All stop	While compressor 1 is operating, the discharge temp. (TD1) does not rise up.	• Check mounting of TD1 sensor. • Check connection and wiring of TD1sensor connector. • Check characteristics of TD1 sensor resistance value. • Check outdoor unit P.C. board (I/F) error.
H06	H06	—	I/F	Low-pressure protective operation	All stop	Low-pressure Ps detected operation lower than 0.02MPa.	• Check full opening of service valve. (Discharge gas, suction gas and liquid side) • Check outdoor PMV clogging. (PMV1, 2) • Check SV2 circuit and SV4 circuit error. • Check low-pressure Ps sensor error. • Check indoor air filter clogging. • Check valve open of indoor PMV. • Check refrigerant pipe clogging. • Check outdoor fan operation. (All heating, mainly heating, part cooling operation) • Check refrigerant shortage.
H07	H07	—	I/F	Protection for oil level drop detection	All stop	The operating compressor detected oil shortage continuously for 2 hours.	**<Check all the outdoor units in the corresponding line.>** • Check full opening of service valve of balance pipe. • Check connection and installation of TK1, TK2, TK3, and TK4 sensors. • Check characteristics of TK1, TK2, TK3, and TK4 resistance values. • Check gas leak and oil leak in the same line. • Check refrigerant stagnation in compressor. • Check error of SV3A, SV3B, SV3C, SV3D, and SV3E valves. • Check clogging of oil separator oil return circuit. • Check clogging of oil-equation circuit.
H08	H08	01: TK1 sensor error 02: TK2 sensor error 03: TK3 sensor error 04: TK4 sensor error 05: TK5 sensor error	I/F	Oil level detective temp sensor error	All stop	• Resistance value of sensor is infinite or zero. (Open/Short)	• Check connection of TK1 sensor connector. • Check characteristics of TK1 sensor resistance value. • Check outdoor P.C. board (I/F) error.
					All stop	• Resistance value of sensor is infinite or zero. (Open/Short)	• Check connection of TK2 sensor connector. • Check characteristics of TK2 sensor resistance value. • Check outdoor P.C. board (I/F) error.
					All stop	• Resistance value of sensor is infinite or zero. (Open/Short)	• Check connection of TK3 sensor connector. • Check characteristics of TK3 sensor resistance value. • Check outdoor P.C. board (I/F) error.
					All stop	• Resistance value of sensor is infinite or zero. (Open/Short)	• Check connection of TK4 sensor connector. • Check characteristics of TK4 sensor resistance value. • Check outdoor P.C. board (I/F) error.
					All stop	• Resistance value of sensor is infinite or zero. (Open/Short)	• Check connection of TK5 sensor connector. • Check characteristics of TK5 sensor resistance value. • Check outdoor P.C. board (I/F) error.

Check code			Detected position	Check code name	Status	Error detection condition	Check item (position)
Wired remote controller	Outdoor 7-segment display						
	Check code	Auxiliary code					
H15	H15	—	I/F	Outdoor unit discharge temp. sensor (TD2) miswiring	All stop	While compressor 2 is operating, the discharge temp. (TD2) does not rise up.	• Check mounting of TD2 sensor. • Check connection and wiring of TD2 sensor connector. • Check characteristics of TD2 sensor resistance value. • Check outdoor unit P.C. board (I/F) error.
H16	H16	01: TK1 oil circuit system error 02: TK2 oil circuit system error 03: TK3 oil circuit system error 04: TK4 oil circuit system error 05: TK5 oil circuit system error	I/F	Oil level detective circuit system error	All stop	Temperature change of TK1 could not be detected though compressor 1 started the operation.	• Check TK1 sensor coming-off. • Check characteristics of TK1 sensor resistance value. • Check TK1, TK2, TK3, TK4 and TK5 misconnection. • Check operation error of SV3E, SV3F valve. • Check capillary clogging of oil-equation circuit and operation error of stop valve. • Check refrigerant stagnation in compressor.
						Temperature change of TK2 could not be detected though compressor 2 started the operation.	• Check TK2 sensor coming-off. • Check characteristics of TK2 sensor resistance value. • Check TK1, TK2, TK3, TK4 and TK5 misconnection. • Check SV3E, SV3F valve operation. • Check capillary clogging of oil equalization circuit and check stop valve operation. • Check refrigerant stagnation in compressor shell.
						Temperature change of TK3 could not be detected though compressor started the operation.	• Check TK3 sensor coming-off. • Check characteristics of TK3 sensor resistance value. • Check TK1, TK2, TK3, TK4 and TK5 misconnection. • Check SV3E, SV3F valve operation. • Check capillary clogging of oil-equalization circuit and check valve operation. • Check refrigerant stagnation in compressor shell.
						Temperature change of TK4 could not be detected though compressor started the operation, or the difference from other TK sensor changed for a constant time only within the specified range.	• Check TK4 sensor coming-off. • Check characteristics of TK4 sensor resistance value. • Check TK1, TK2, TK3, TK4 and TK5 misconnection. • Check SV3E, SV3F valve operation. • Check capillary clogging of oil-equalization circuit and check valve operation. • Check refrigerant stagnation in compressor shell.
						Temperature change of TK5 could not be detected though compressor started the operation, or the difference from other TK sensor changed for a constant time only within the specified range.	• Check TK5 sensor coming-off. • Check characteristics of TK5 sensor resistance value. • Check TK1, TK2, TK3, TK4 and TK5 misconnection. • Check SV3E valve operation error. • Check capillary clogging of oil-equalization circuit and check valve operation error. • Check refrigerant stagnation in compressor.
H25	H25	—	I/F	Outdoor unit discharge temp. sensor (TD3) miswiring	All stop	While compressor 2 is operating, the discharge temp. (TD3) does not rise up.	• Check mounting of TD3 sensor. • Check connection and wiring of TD3 sensor connector. • Check characteristics of TD3 sensor resistance value. • Check outdoor unit P.C. board (I/F) error.
L03	—	—	Indoor	Duplicated indoor center units	Corresponding unit only stops.	There are multiple center units in a group.	• Check indoor address. • Check the change of remote controller connection (Group/individual) after indoor address setup.
L04	L04	—	I/F	Duplicated outdoor line address	All stop	Line address setup is duplicated against the outdoor unit in different refrigerant pipe system.	• Check line address.

<table>
<tr><th colspan="3">Check code</th><th rowspan="3">Detected position</th><th rowspan="3">Check code name</th><th rowspan="3">Status</th><th rowspan="3">Error detection condition</th><th rowspan="3">Check item (position)</th></tr>
<tr><th rowspan="2">Wired remote controller</th><th colspan="2">Outdoor 7-segment display</th></tr>
<tr><th>Check code</th><th>Auxiliary code</th></tr>
<tr><td>L05</td><td>—</td><td>—</td><td>I/F</td><td>Duplicated indoor units with priority (Displayed on indoor unit with priority)</td><td>All stop</td><td>Indoor units with priority were duplicated.</td><td>• Check display of indoor unit with priority.</td></tr>
<tr><td>L06</td><td>L06</td><td>No. of indoor units with priority</td><td>I/F</td><td>Duplicated indoor units with priority (Displayed on the unit other than indoor unit with priority)</td><td>All stop</td><td>Indoor units with priority were duplicated.</td><td>• Check display of indoor unit with priority and outdoor unit.</td></tr>
<tr><td>L07</td><td>—</td><td>—</td><td>Indoor</td><td>Group line in individual indoor unit.</td><td>Corresponding unit only stops.</td><td>At least one indoor unit connected to a group existed in the individual indoor units.</td><td>• Check indoor address.</td></tr>
<tr><td>L08</td><td>L08</td><td>—</td><td>Indoor</td><td>Indoor group / address unset</td><td>Corresponding unit only stops.</td><td>Address was not yet set up.</td><td>• Check indoor address.
Note)
After installation, this code is displayed when the power is firstly turned on.</td></tr>
<tr><td>L09</td><td>—</td><td>—</td><td>Indoor</td><td>Indoor capacity unset</td><td>Corresponding unit only stops.</td><td>Indoor unit capacity was unset.</td><td>Set up indoor capacity. (DN=11)</td></tr>
<tr><td>L10</td><td>L10</td><td>—</td><td>I/F</td><td>Outdoor capacity unset</td><td>All stop</td><td>On the I/F P.C. board for service, jumper line was not cut according to the model.</td><td>Check model setup on outdoor I/F P.C. board A'ssy for service.</td></tr>
<tr><td>L20</td><td>—</td><td>—</td><td>TCC-Link Indoor</td><td>Duplicated central control addresses</td><td>All stop</td><td>Duplicated central control addresses</td><td>• Check central control address.
• Check network adaptor P.C. board. (In case of TCC-Link)</td></tr>
<tr><td>L28</td><td>L28</td><td>—</td><td>I/F</td><td>Quantity over of connected outdoor units</td><td>All stop</td><td>There were more than four outdoor units.</td><td>• Check No. of connected outdoor units. (Max. 4 units per 1 system)
• Check communication line between outdoor units.
• Check outdoor P.C. board (I/F) error.</td></tr>
<tr><td>L29</td><td>L29</td><td>
<table>
<tr><th></th><th colspan="3">A-3-IPDU</th><th rowspan="2">FAN IPDU</th><th></th><th colspan="3">A-3-IPDU</th><th rowspan="2">FAN IPDU</th></tr>
<tr><th></th><th>1</th><th>2</th><th>3</th><th></th><th>1</th><th>2</th><th>3</th></tr>
<tr><td>01</td><td>○</td><td></td><td></td><td></td><td>0A</td><td></td><td>○</td><td></td><td>○</td></tr>
<tr><td>02</td><td></td><td>○</td><td></td><td></td><td>0B</td><td>○</td><td>○</td><td></td><td>○</td></tr>
<tr><td>03</td><td>○</td><td>○</td><td></td><td></td><td>0C</td><td></td><td></td><td>○</td><td>○</td></tr>
<tr><td>04</td><td></td><td></td><td>○</td><td></td><td>0D</td><td>○</td><td></td><td>○</td><td>○</td></tr>
<tr><td>05</td><td>○</td><td></td><td>○</td><td></td><td>0E</td><td></td><td>○</td><td>○</td><td>○</td></tr>
<tr><td>06</td><td></td><td>○</td><td>○</td><td></td><td>0F</td><td>○</td><td>○</td><td>○</td><td>○</td></tr>
<tr><td>07</td><td>○</td><td>○</td><td>○</td><td></td><td colspan="5" rowspan="3">○ mark:
Error position.</td></tr>
<tr><td>08</td><td></td><td></td><td></td><td>○</td></tr>
<tr><td>09</td><td>○</td><td></td><td></td><td>○</td></tr>
</table>
</td><td>I/F</td><td>IPDU quantity error</td><td>All stop</td><td>No. of IPDU units detected when power was turned on were less.</td><td>• Check model setup for outdoor I/F service P.C. board.
• Check connection of UART communication connector.
• Check Comp. IPDU, fan IPDU, and I/F P.C. board error.
Note)
UART: Universal Asynchronous Receiver Transmitter</td></tr>
<tr><td>L30</td><td>L30</td><td>Detected indoor address</td><td>Indoor</td><td>Interlock in indoor unit from outside</td><td>Corresponding unit only stops.</td><td>• Outside error input terminal Detected signal to (CN80) for more 1 minute</td><td>■ Outside device is connected to connector (CN80):
1) Check outside device error.
2) Check indoor P.C. board error.
■ Outside device is not connected to connector (CN80):
1) Check indoor P.C. board error.</td></tr>
<tr><td>—</td><td>L31</td><td>—</td><td>I/F</td><td>Extended IC (Integrated Circuit) error</td><td>Operation continues.</td><td>P.C. board (I/F) parts error</td><td>Check indoor (I/F) P.C. board.</td></tr>
</table>

Check code			Detected position	Check code name	Status	Error detection condition	Check item (position)
Wired remote controller	Outdoor 7-segment display						
	Check code	Auxiliary code					
P01	—	—	Indoor	Indoor fan motor error	Corresponding unit only stops.		• Check the lock of fan motor (AC fan). • Check cabling.
P03	P03	—	I/F	Discharge temp TD1 error	All stop	Discharge temp (TD1) exceeded 115°C.	• Check full opening of outdoor service valves (Gas side, Liquid side). • Check clogging of outdoor PMV. (PMV1,2, 4) • Check characteristics of TD1 sensor resistance value. • Check refrigerant shortage. • Check 4-way valve error. • Check leakage of SV4 circuit. • Check SV4 circuit. (Miswiring and misinstallation of SV41, SV42 and SV43)
P04	P04	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	I/F	Actuation of high-pressure SW	All stop	High-pressure SW actuated.	• Check connection of high-pressure SW connector. • Check Pd pressure sensor error. • Check full opening of outdoor service valves (Gas side, Liquid side). • Check outdoor fan error. • Check outdoor fan motor error. • Check clogging of outdoor PMV. (PMV1,2) • Check clogging of indoor/outdoor heat exchangers. • Check short-circuiting of outdoor suction/discharge air. • Check clogging of SV2 circuit. • Check outdoor P.C. board (I/F) error. • Check indoor fan system error. (Cause of air volume decrease) • Check opening of indoor PMV. • Check miswiring of communication line between indoor and outdoor. • Check operation error of check valve of discharge pipe. • Check SV4 valve circuit. • Check SV5 valve circuit. • Check refrigerant overcharge.
P05	P05	00: 01: Compressor 1 02: Compressor 2 03: Compressor 3	I/F	Open phase shortage/phase sequence detection Inverter DC voltage (Vdc) error (Compressor)	All stop	• Open phase was detected when the power turned on. • Overvoltage/Volt shortage was detected in inverter DC voltage	• Check outdoor P.C. board (I/F) error.
P07	P07	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	IPDU I/F	Heat sink overheat error	All stop	IGBT built-in temp sensor (TH) was overheated.	• Check power voltage. • Check outdoor fan system error. • Check clogging of heat sink cooling duct. • Check fixation between IGBT and heat sink. (Check screwing and contact.) • Check IPDU error.(IGBT built-in temp sensor (TH) error).
P10	P10	Indoor address with trouble	Indoor	Indoor overflow error	All stop	• Float switch operated. • Float switch circuit disconnected or the connector came off.	• Check the float switch connector. • Check operation of drain pump unit. • Check the drain pump circuit. • Check clogging of drain pipe. • Check indoor P.C. board error.
P12	—	—	Indoor	Indoor fan motor error	Corresponding unit only stops.	• The value of motor speed deviated from target value was detected for certain time. • Over-current protection operated.	• Check connection of fan connector and wiring. • Check fan motor error. • Check indoor P.C. board error. • Check influence of outside air control.

Check code			Detected position	Check code name	Status	Error detection condition	Check item (position)
Wired remote controller	Outdoor 7-segment display						
	Check code	Auxiliary code					
P13	P13	—	I/F	Outdoor liquid back detection error	All stop	**<In cooling>** While the system operated in cooling mode, high ststus of high pressure value was detected in the stopped follower unit. **<In heating>** While the system is operating in HEAT mode, outdoor PMV of which opening degree was 100 pulse or less for a certain time.	• Check full close operation of outdoor PMV (1, 2, 4). • Check Pd and Ps sensor error. • Check clogging of SV2 circuit. • Check clogging of balance pipe. • Check clogging of SV3B circuit. • Check outdoor P.C. board (I/F) error. • Check capillary clogging of oil return circuit from oil separator. • Check leakage of stop valve in discharge assembly part.
P15	P15	01: TS condition	I/F	Gas leak detection (TS1 condition)	All stop	Protective stop which generates when the status that suction temperature is over the judgment standard temperature continued for 10 minutes was repeated for 4 times or more. **<TS error judgment standard temperature>** In cooling operation: 60°C or higher In heating operation: 40°C or higher	• Check refrigerant shortage. • Check full open of outdoor service valves (gas side, liquid side). • Check outdoor PMV clogging (PMV1, 2). • Check characteristics of TS1 sensor resistance value. • Check 4-way valve error. • Check leakage of SV4 circuit.
		02: TD condition	I/F	Gas leak detection (TD condition)	All stop	Protective stop which generates when the status that while compressor is under low frequency operation, the discharge temperature TD1, TD2 or TD3 detected 108°C or more continuously for 10 minutes was repeated for 4 times or more.	• Check refrigerant shortage. • Check outdoor PMV clogging (PMV1, 2). • Check characteristics of TD1, TD2 sensor resistance value. • Check indoor air filter clogging. • Check pipe clogging. • Check SV4 circuit (Valve leakage, misinstallation)
P17	P17	—	I/F	Discharge temp TD2 error	All stop	Protective stop which generates when the discharge temperature (TD2) was over 115°C was repeated for 4 times or more.	• Check full opening of outdoor service valves (gas side, liquid side). • Check clogging of outdoor PMV (PMV1, 2, 4). • Check characteristics of TD2 sensor resistance value. • Check 4-way valve error. • Check leakage of SV4 circuit. • Check SV4 circuit. (Miscabling and misinstallation of SV41, SV42 and SV43)
P18	P18	—	I/F	Discharge temp. TD3 error	All stop	Discharge temp. (TD3) exceeded 115°C.	• Check full opening of outdoor service valve (gas side, liquid side). • Check clogging of outdoor PMV (PMV1, 2, 4) • Check characteristics of TD3 sensor resistance value. • Check 4-way valve error. • Check leakage of SV4 circuit. • Check SV4 circuit (Miswiring and mismounting of SV41, SV42, and SV43).
P19	P19	Detected outdoor unit No.	I/F	4-way valve operation error	All stop	When abnormal refrigerating cycle data was detected in heating	• Error of 4-way valve error. • Check coil error and connector connection of 4-way valve. • Check characteristics of TS1/TE1 sensor resistance value. • Check characteristics of Pd, Ps pressure sensor output voltage. • Check misconnection of TE1 and TL sensors.
P20	P20	—	I/F	High-pressure protective operation	All stop	Pd sensor detected 3.6MPa or more.	• Check Pd pressure sensor error. • Check full opening of service valves (Gas side, Liquid side). • Check outdoor fan error. • Check outdoor fan motor error. • Check clogging of outdoor PMV. (PMV1,2, 4) • Check clogging of indoor/outdoor heat exchangers. • Check air short-circuiting in outdoor unit. • Check clogging of SV2 circuit. • Check outdoor P.C. board (I/F) error. • Check indoor fan system error. (Cause of air volume decrease) • Check valve opening of indoor PMV. • Check miscabling of communication line between indoor and outdoor. • Check operation error of stop valve in discharge assembly part. • Check circuit of gas balance SV4 valve. • Check circuit of SV5 valve. • Check refrigerant overcharge.

Check code			Detected position	Check code name	Status	Error detection condition	Check item (position)
Wired remote controller	Outdoor 7-segment display						
	Check code	Auxiliary code					
P22	P22	0 ∗: IGBT circuit 1 ∗: Output circuit error between each position 3 ∗: Motor lock error 4 ∗: Detection of motor current C ∗: TH sensor error D ∗: TH sensor error E ∗: Inverter DC voltage error (Outdoor unit fan) **Note)** In " ∗ ", 0 to F is displayed, but ignore it.	IPDU	Outdoor fan IPDU error	All stop	**(Auxiliary code: 08)** Fan IPDU position detection circuit Position detection was not normally performed.	• Fan motor check • Connection check of connector for fan motor • Error check of IPDU P.C. board for fan
					All stop	**(Auxiliary code: 0A)** Fan IPDU over-current protective circuit When the fan started and while it is operating, the status that current flows over constant flow was detected	• Fan motor check • Error check of IPDU P.C. board for fan
					All stop	**(Auxiliary code: 0E)** Fan IPDU position detection circuit Position detection was not normally performed.	• Fan motor check • Connection check of connector for fan motor • Error check of IPDU P.C. board for fan
					All stop	**(Auxiliary code: 0F)** Fan IPDU position detection circuit Position detection was not normally performed.	• Fan motor check • Connection check of connector for fan motor • Error check of IPDU P.C. board for fan
					All stop	**(Auxiliary code: 06)** External cause such as blast Position detection was not normally performed. (Restart after 6 seconds)	• Fan motor check • Connection check of connector for fan motor
					All stop	**(Auxiliary code: 04)** External cause such as blast When difference between target rpm and real rpm is 25% or more (Restart after 6 seconds)	• Fan motor check • Connection check of connector for fan motor
					All stop	**(Auxiliary code: 0D)** Fan IPDU position detection circuit Position detection was not normally performed. (Windless status)	• Fan motor check • Connection check of connector for fan motor • Error check of IPDU P.C. board for fan
					All stop	**(Auxiliary code: 0C)** External cause such as blast Position detection was not normally performed. (Windy status) (Restart after 6 seconds)	• Fan motor check • Connection check of connector for fan motor
P26	P26	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	IPDU	G-Tr short-circuit protection error	All stop	Instantaneous over-current was detected when compressor started.	• Check connector connection and wiring on Comp. IPDU P.C. board. • Check compressor error and defect of compressor coil. • Check outdoor P.C. board (Comp. IPDU) error.
P29	P29	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	IPDU	Compressor position detection circuit error	All stop	Position was not normally detected.	• Check connector connection and wiring. • Check compressor error and defect of compressor coil. • Check P.C. board (Comp. IPDU) error.
P31	—	—	Indoor	Other indoor error (Group follower unit error)	Corresponding unit only stops.	E07/L07/L03/L08 was detected when other indoor unit in the group was defective.	• Check indoor P.C. board.

Error detected by TCC-LINK central control device

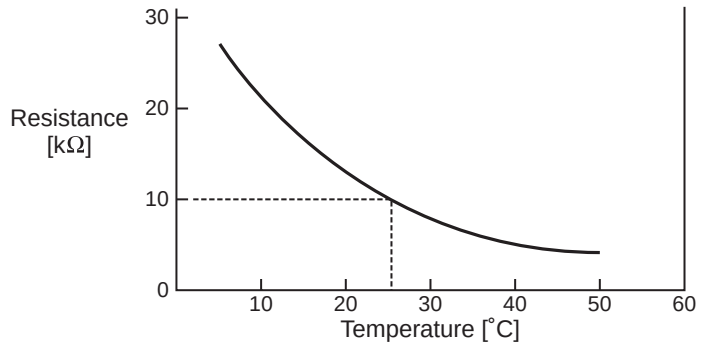
Check code			Detected position	Check code name	Status	Error detection condition	Check item (position)
Display on central control device	Outdoor 7-segment display						
	Check code	Auxiliary code					
C05	—		TCC-LINK	TCC-LINK central control device transmission error	Operation continued.	Signal is not transmit from central control device.	• Check central control device error. • Check communication line error of central control device. • Check setup of terminator resistor.
C06	—			TCC-LINK central control device transmission error	Operation continued.	Signal is not received from central control device.	• Check central control device error. • Check communication line error of central control device. • Check setup of terminator resistor. • Check the power of connecting destination connected device. • Check P.C. board error of the connected device.
C12	—		General-purpose equipment I/F	General-purpose controller control Interface batched alarm	Operation continued.	Error was input in general-purpose equipment control interface.	• Check error input.
P30	Differs according to error contents of the with alarm		TCC-LINK	Follower unit error of group control	Operation continued.	An error occurred in follower unit of the group control. ([P30] is displayed only on the central remote controller.)	• Check the check code of the unit with alarm.
	(L20 is displayed.)			Duplicated central control address	Operation continued.	Central control addresses were duplicated.	• Check the address setup.

10-5. Sensor Characteristics

Indoor Unit

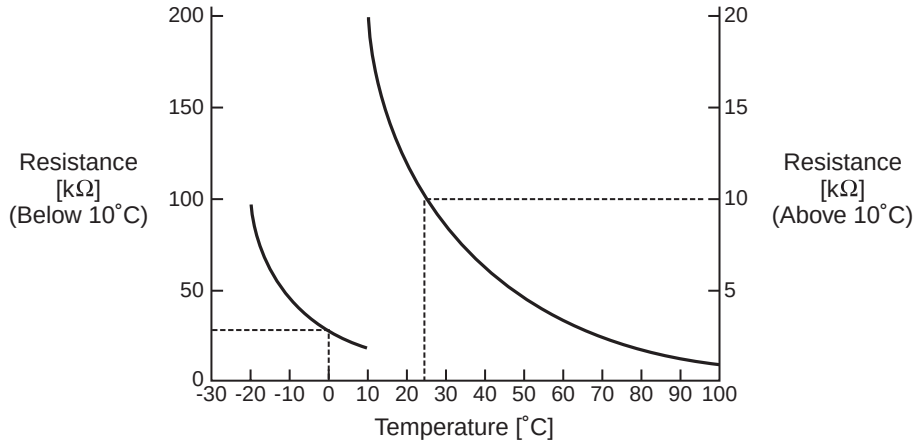
■ Temperature sensor characteristics

Indoor TA sensor



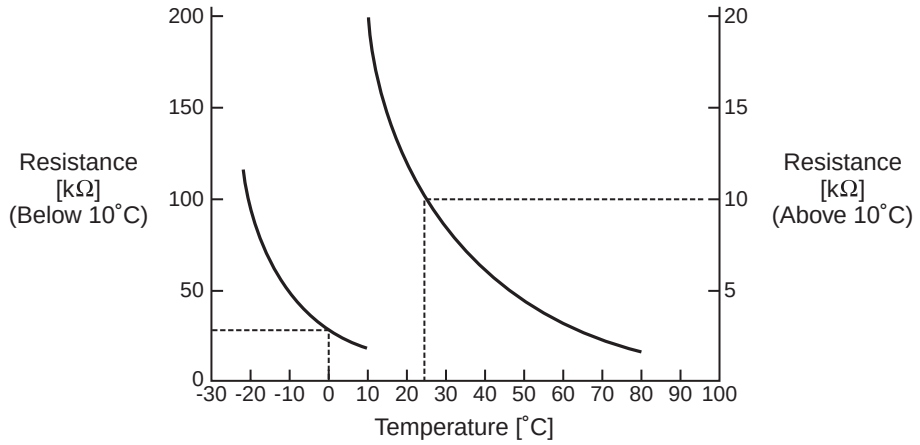
Temperature [C˚]	Resistance value [kΩ]
0	33.9
5	26.1
10	20.3
15	15.9
20	12.6
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.8
60	2.4

Indoor TC1 sensor



Temperature [C˚]	Resistance value [kΩ]
-20	99.9
-15	74.1
-10	55.6
-5	42.2
0	32.8
5	25.4
10	19.8
15	15.6
20	12.4
25	10.0
30	8.1
35	6.5
40	5.3
45	4.4
50	3.6
55	3.0
60	2.5
65	2.1
70	1.8
75	1.5
80	1.3
85	1.1
90	1.0
95	0.8
100	0.7

Indoor TC2,TCJ sensor



Temperature [C˚]	Resistance value [kΩ]
-20	115.2
-15	84.2
-10	62.3
-5	46.6
0	35.2
5	26.9
10	20.7
15	16.1
20	12.6
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.8
60	2.4
65	2.0
70	1.6
75	1.4
80	1.2

11. INSTALLATION MANUAL

Original instruction

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

ADOPTION OF NEW REFRIGERANT

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

Contents

Thank you for purchasing this Toshiba air conditioner.
This Installation Manual describes the methods used to carry out the installation for the indoor unit.
For the installation of the outdoor unit, carry out the work by following the instructions in the Installation Manual provided with the outdoor unit.
This Installation Manual contains important information that complies with the “Machinery Directive” (Directive 2006/42/EC) so read through it carefully to ensure that you understand its contents.
After completing the installation work, hand over this Installation Manual as well as the Owner’s Manual provided with the outdoor unit to the user, and ask the user to keep them in a safe place for future reference.

Provide a dedicated power outlet, which is separate from the one used for the outdoor unit, for supplying the power to the indoor unit.
Also, the Y-shape branching joint or branch header sold separately is required for the piping connections between the indoor unit and outdoor unit.
Select these joints or headers according to the piping system capacity.

Generic Denomination: Air Conditioner

Definition of Qualified Installer or Qualified Service Person

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

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

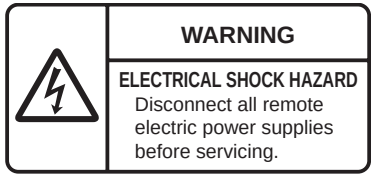
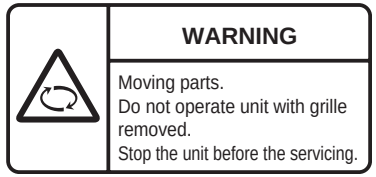
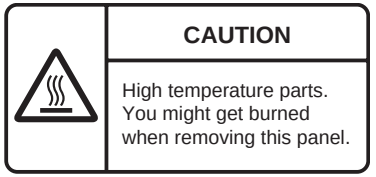
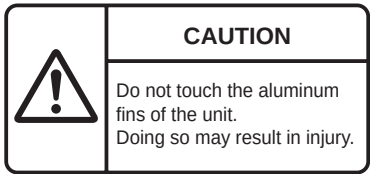
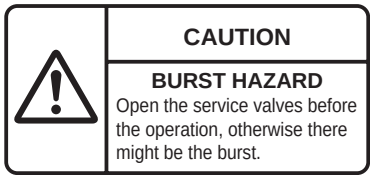
Agent	Qualifications and knowledge which the agent must have
Qualified service person	• The qualified service person is a person who installs, repairs, maintains, relocates and removes the air conditioners made by Toshiba Carrier Corporation. He or she has been trained to install, repair, maintain, relocate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

Definition of Protective Gear

When the air conditioner is to be transported, installed, maintained, repaired or removed, wear protective gloves and ‘safety’ work clothing.
In addition to such normal protective gear, wear the protective gear described below when undertaking the special work detailed in the table below.
Failure to wear the proper protective gear is dangerous because you will be more susceptible to injury, burns, electric shocks and other injuries.

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

■ Warning Indications on the Air Conditioner Unit

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

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1 PRECAUTIONS FOR SAFETY

⚠ WARNING

General

- Before starting to install the air conditioner, read carefully through the Installation Manual, and follow its instructions to install the air conditioner.
- Only a qualified installer (*1) or qualified service person (*1) is allowed to install the air conditioner. If the air conditioner is installed by an unqualified individual, a fire, electric shocks, injury, water leakage, noise and/or vibration may result.
- Before opening the intake grille of the indoor unit or service panel of the outdoor unit, set the circuit breaker to the OFF position. Failure to set the circuit breaker to the OFF position may result in electric shocks through contact with the interior parts. Only a qualified installer (*1) or qualified service person (*1) is allowed to remove the intake grille of the indoor unit or service panel of the outdoor unit and do the work required.
- Before carrying out the installation, maintenance, repair or removal work, be sure to set the circuit breaker to the OFF position. Otherwise, electric shocks may result.
- Place a “Work in progress” sign near the circuit breaker while the installation, maintenance, repair or removal work is being carried out. There is a danger of electric shocks if the circuit breaker is set to ON by mistake.
- Only a qualified installer (*1) or qualified service person (*1) is allowed to undertake work at heights using a stand of 50 cm or more or to remove the intake grille of the indoor unit to undertake work.
- Do not undertake inspections or servicing with all the hooks of the center panel disengaged and with only one or two wires still attached to the center panel. Doing so may cause the center panel to fall down, possibly causing injury to any individuals below.
- Wear protective gloves and safety work clothing during installation, servicing and removal.
- Do not touch the aluminium fin of the outdoor unit. You may injure yourself if you do so. If the fin must be touched for some reason, first put on protective gloves and safety work clothing, and then proceed.
- Do not climb onto or place objects on top of the outdoor unit. You may fall or the objects may fall off of the outdoor unit and result in injury.
- When working at heights, use a ladder which complies with the ISO 14122 standard, and follow the procedure in the ladder’s instructions. Also wear a helmet for use in industry as protective gear to undertake the work.
- When cleaning the filter or other parts, set the circuit breaker to OFF without fail, and place a “Work in progress” sign near the circuit breaker before proceeding with the work.
- When working at heights, put a sign in place so that no-one will approach the work location, before proceeding with the work. Parts and other objects may fall from above, possibly injuring a person below. Furthermore, while carrying out the work, wear a helmet for protection from falling objects.
- The refrigerant used by this air conditioner is the R410A.
- You shall ensure that the air conditioner is transported in stable condition. In case an accident such as dropping of the unit occurs while transporting the air conditioner, contact the dealer.
- Do not move or repair any unit by yourself. There is high voltage inside the unit. You may get electric shock when removing the cover and main unit.

Selection of installation location

- If you install the unit in a small room, take appropriate measures to prevent the refrigerant from exceeding the limit concentration even if it leaks. Consult the dealer from whom you purchased the air conditioner when you implement the measures. Accumulation of highly concentrated refrigerant may cause an oxygen deficiency accident.
- Do not install the air conditioner in a location that may be subject to a risk of exposure to a combustible gas. If a combustible gas leaks and becomes concentrated around the unit, a fire may occur.
- When transporting the air conditioner, wear shoes with additional protective toe caps.
- When transporting the air conditioner, do not take hold of the bands around the packing carton. You may injure yourself if the bands should break.
- Install the indoor unit at least 2.5 m above the floor level since otherwise the users may injure themselves or receive electric shocks if they poke their fingers or other objects into the indoor unit while the air conditioner is running.
- Do not place any combustion appliance in a place where it is directly exposed to the wind of air conditioner, otherwise it may cause imperfect combustion.

Installation

- When the indoor unit is to be suspended, the designated hanging bolts (M10 or W3/8) and nuts (M10 or W3/8) must be used.
- Install the air conditioner at enough strong places to withstand the weight of the unit. If the strength is not enough, the unit may fall down resulting in injury.
- Follow the instructions in the Installation Manual to install the air conditioner. Failure to follow these instructions may cause the product to fall down or topple over or give rise to noise, vibration, water leakage, etc.
- The designated bolts (M10, M12) and nuts (M10, M12) for securing the outdoor unit must be used when installing the unit.
- Install the outdoor unit property in a location that is durable enough to support the weight of the outdoor unit. Insufficient durability may cause the outdoor unit to fall, which may result in injury.
- Carry out the specified installation work to guard against the possibility of high winds and earthquake. If the air conditioner is not installed appropriately, a unit may topple over or fall down, causing an accident.
- If refrigerant gas has leaked at any point during the installation work, ventilate the area. If leaked refrigerant gas should come into contact with flames or sparks, noxious gases may be generated.

Refrigerant piping

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

Electrical wiring

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

Test run

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

Explanations given to user

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

Relocation

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

⚠ CAUTION

New Refrigerant Air Conditioner Installation

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

To Disconnect the Appliance from Main Power Supply

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

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

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

2 ACCESSORY PARTS

■ Accessory parts

Part name	Quantity	Shape	Usage
Installation Manual	1	This manual	Be sure to hand over to customers.
CD-ROM (Installation Manual)	1	—	(For other languages that do not appear in this Installation Manual, please refer to the enclosed CD-ROM.)
Installation pattern	1	—	For confirmation of ceiling opening and indoor unit position
Installation gauge	1		For positioning of ceiling position (Incorporated with the installation pattern)
Pattern fastening screw	4		For attaching the pattern (M5 × ℓ16)
Banding band	4		For anchoring the insulated pipes
Heat insulating pipe	2		For heat insulation of pipe connecting section
Washer	8		For hanging-down unit (M10 × Ø34)
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 (with slit)

■ 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.)

3 SELECTION OF INSTALLATION PLACE

Select a location for the indoor unit where the cool or warm air will circulate evenly.
Avoid installation in the following kinds of locations.

- Locations with acidic or alkaline atmospheres (such as areas with hot springs, factories where chemicals or pharmaceuticals are made and places where the exhaust air from combustion appliances will be sucked into the unit).
  Doing so may cause the heat exchanger (its aluminum fins and copper pipes) and other parts to become corroded.
- Locations with atmospheres with mist of cutting oil or other types of machine oil.
  Doing so may cause the heat exchanger to become corroded, mists caused by the blockage of the heat exchanger to be generated, the plastic parts to be damaged, the heat insulators to peel off, and other such problems to result.
- Locations where vapors from food oils are formed (such as kitchens where food oils are used).
  Blocked filters may cause the air conditioner's performance to deteriorate, condensation to form, the plastic parts to be damaged, and other such problems to result.
- Locations near obstructions such as ventilation openings or lighting fixtures where the flow of the blown air will be disrupted (a disruption of the air flow may cause the air conditioner's performance to deteriorate or the unit to shut down).
- Locations where an in-house power generator is used for the power supply.
  The power line frequency and voltage may fluctuate, and the air conditioner may not work properly as a result.
- On truck cranes, ships or other moving conveyances.
- The air conditioner must not be used for special applications (such as for storing food, plants, precision instruments or art works).
  (The quality of the items stored may be degraded.)
- Locations where high frequencies are generated (by inverter equipment, in-house power generators, medical equipment or communication equipment).
  (Malfunctioning or control trouble in the air conditioner or noise may adversely affect the equipment's operation.)
- Locations where there is anything under the unit installed that would be compromised by wetness.
  (If the drain has become blocked or when the humidity is over 80%, condensation from the indoor unit will drip, possibly causing damage to anything underneath.)
- In the case of the wireless type of system, rooms with the inverter type of fluorescent lighting or locations exposed to direct sunlight.
  (The signals from the wireless remote controller may not be sensed.)
- Locations where organic solvents are being used.
- The air conditioner cannot be used for liquefied carbonic acid cooling or in chemical plants.
- Location near doors or windows where the air conditioner may come into contact with high-temperature, high-humidity outdoor air.
  (Condensation may occur as a result.)
- Locations where special sprays are used frequently.

Ensure that the electrical insulation between the metal parts of structures and metal parts of the air conditioner complies with the laws and regulations enforced in the country where the air conditioner is installed.

⚠ CAUTION

When the air conditioner is installed in the following kinds of locations where the ceiling temperature may be 30°C and the relative humidity may be over 80%, condensation may occur on the outer surfaces of the indoor unit and drip. Therefore, adhere some heat insulators to the side panels (on four sides) of the indoor unit and surface of the ceiling.

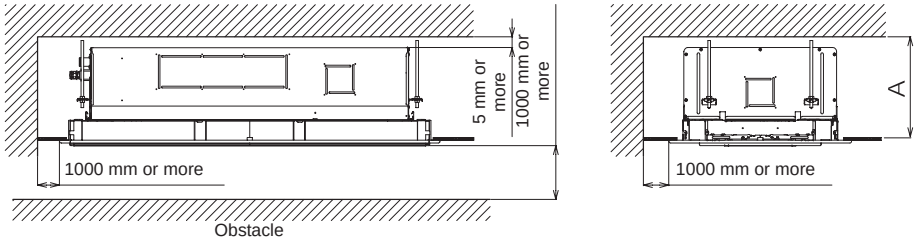
- Kitchens and other locations where high levels of indoor heat are generated
- Locations where the fresh air is supplied through the open space in the ceiling
- Inside ceiling under slate roofs or tiled roofs

Shapes of additional heat insulators (use insulators which are at least 10 mm thick)

Adhesion surfaces (MMU-)	Size (mm)			Q'ty	Remark
	AP007 to AP015	AP018 to AP030	AP036 to AP056		
Heat insulator for ceiling	815 × 570	1180 × 570	1600 × 570	1	–
Heat insulator for outlet side panel	815 × 230	1180 × 280	1600 × 280	2	–
Heat insulator for fresh-air inlet side panel	590 × 230	590 × 280	590 × 280	1	Clearance for the hanging fixtures must be provided.
Heat insulator for piping side panel	590 × 230	590 × 280	590 × 280	1	Clearance for the piping and hanging fixtures must be provided.

■ Installation space

Provide the space required for installing and servicing the indoor unit.
Provide a clearance of at least 5 mm between the top panel of the indoor unit and ceiling.



Installation space

Model: MMU-	Height: A
AP007 to AP015	300 mm or more
AP018 to AP056	350 mm or more

■ Ceiling height

It is hard for the warm air to reach the floor level if the ceiling height exceeds the standard dimension (set at the time of shipment) in the table below. Therefore, the high-ceiling setting must be selected.
For details on how to select this setting, refer to the section “Installing indoor unit on high ceiling” in APPLICABLE CONTROLS of this manual.

Height list of ceiling possible to be installed

(Unit: m)

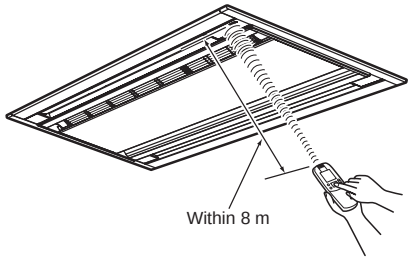
Model: MMU-	AP007 to AP030	AP036 to AP056	SET DATA
Standard (At shipment)	2.7	2.7	0000
High ceiling (1)	3.2	3.0	0001
High ceiling (3)	3.8	3.5	0003

REQUIREMENT

- A high-ceiling installation can only be used for models AP007 to AP012 when the ratio of total connection capacity of the indoor unit to the outdoor unit capacity is 100% or less. Do not use this kind of installation if this capacity is over 100%.
- It is possible to change how long the filter sign (signaling that it is time to clean the filter) is to stay lighted on the remote controller in accordance with the installation conditions.
- It is also possible to raise the detection temperature for the heating if it is hard for the air conditioner to heat up the environment satisfactorily due to a factor such as the location where the indoor unit is installed or the structure of the room.
- For details on the setting, refer to the section “Change of lighting time of filter sign” and “To secure better effect of heating” in APPLICABLE CONTROLS of this manual.

■ In case of wireless type

Decide on the position where the remote controller is to be operated and where the unit is to be installed.
(The wireless type can sense signals within a range of approximately 8 meters. This distance serves as a general guideline. It may be slightly more or slightly less depending on the remaining charge of its batteries.)
- 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 INSTALLATION OF INDOOR UNIT

⚠ CAUTION

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.

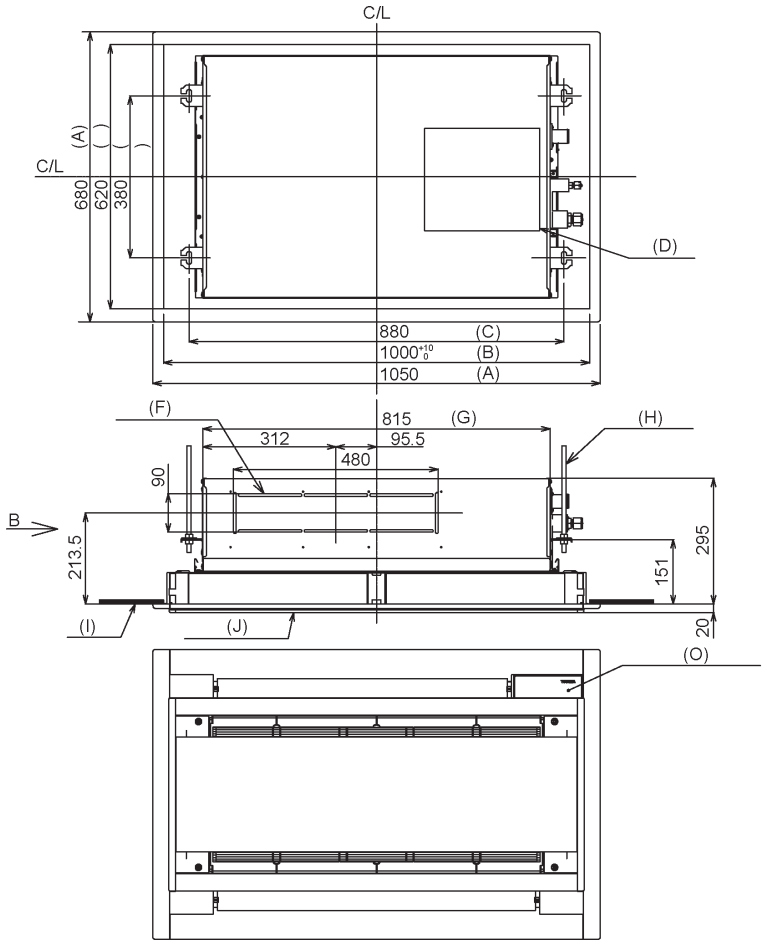
■ External view

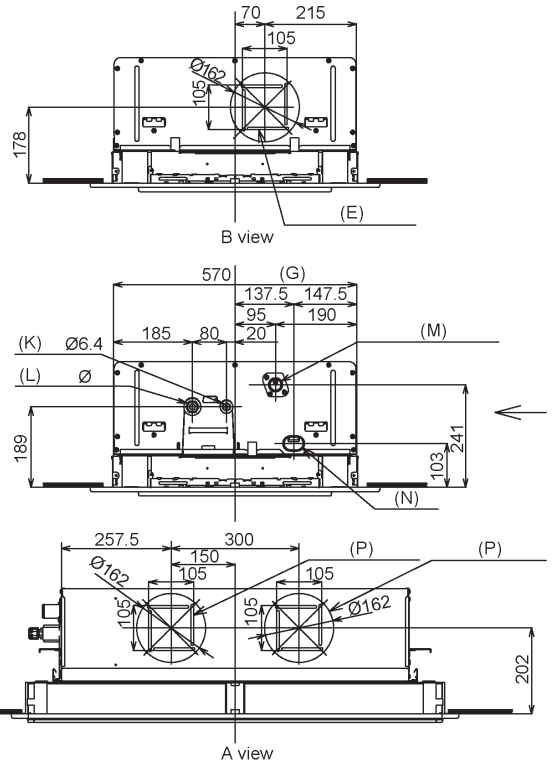
AP007 to AP015

(Unit: mm)

Refrigerant pipe connecting port

Model: MMU-	Gas side: A
AP007 to AP012	Ø9.5
AP015	Ø12.7



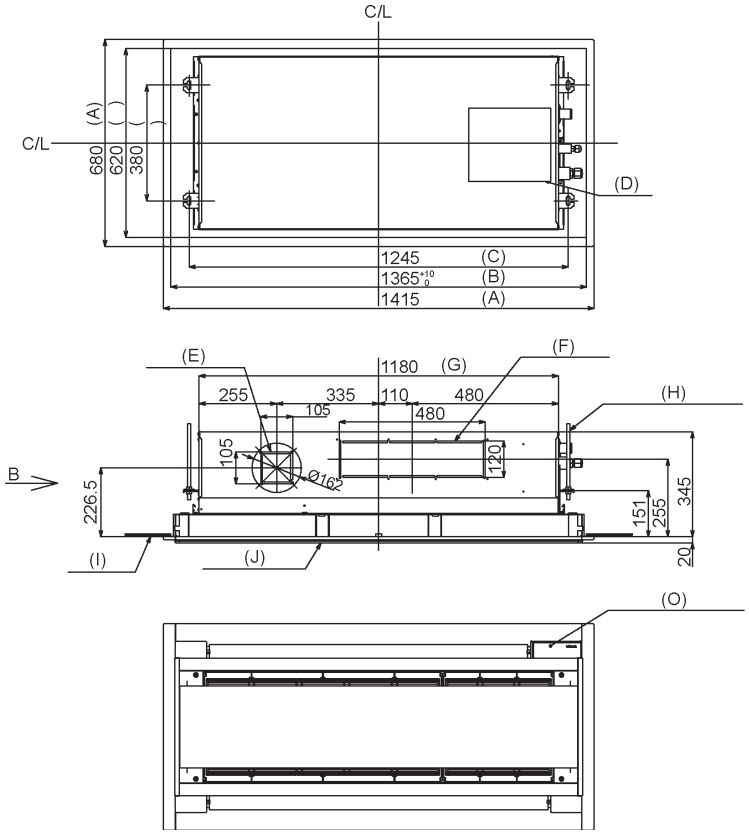


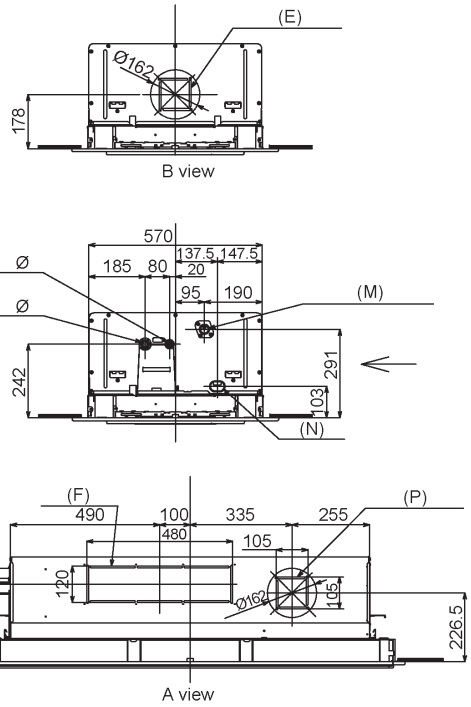
(A)	Panel external dimension	(I)	Ceiling bottom surface
(B)	Ceiling opening dimension	(J)	Ceiling panel (Sold separately)
(C)	Hanging bolt pitch	(K)	Refrigerant pipe connecting port (Liquid)
(D)	Electric parts box	(L)	Refrigerant pipe connecting port (Gas)
(E)	Knockout square hole for auxiliary fresh air flange For Ø150 (Sold separately)	(M)	Drain pipe connecting port (Be absolutely sure to use the flexible hose provided for the connection here.)
(F)	Knockout hole	(N)	Take-in port of wires
(G)	Unit external dimension	(O)	Wireless signal sensor mounting area (Sold separately)
(H)	Hanging bolt M10 or W3/8 (Procured locally)	(P)	Knockout hole

AP018 to AP030 (Unit: mm)

Refrigerant pipe connecting port

Model: MMU-	Liquid side: A	Gas side: B
AP018	Ø6.4	Ø12.7
AP024 to AP030	Ø9.5	Ø15.9





(A)	Panel external dimension	(I)	Ceiling bottom surface
(B)	Ceiling opening dimension	(J)	Ceiling panel (Sold separately)
(C)	Hanging bolt pitch	(K)	Refrigerant pipe connecting port (Liquid)
(D)	Electric parts box	(L)	Refrigerant pipe connecting port (Gas)
(E)	Knockout square hole for auxiliary fresh air flange For Ø150 (Sold separately)	(M)	Drain pipe connecting port (Be absolutely sure to use the flexible hose provided for the connection here.)
(F)	Knockout hole	(N)	Take-in port of wires
(G)	Unit external dimension	(O)	Wireless signal sensor mounting area (Sold separately)
(H)	Hanging bolt M10 or W3/8 (Procured locally)	(P)	Knockout hole

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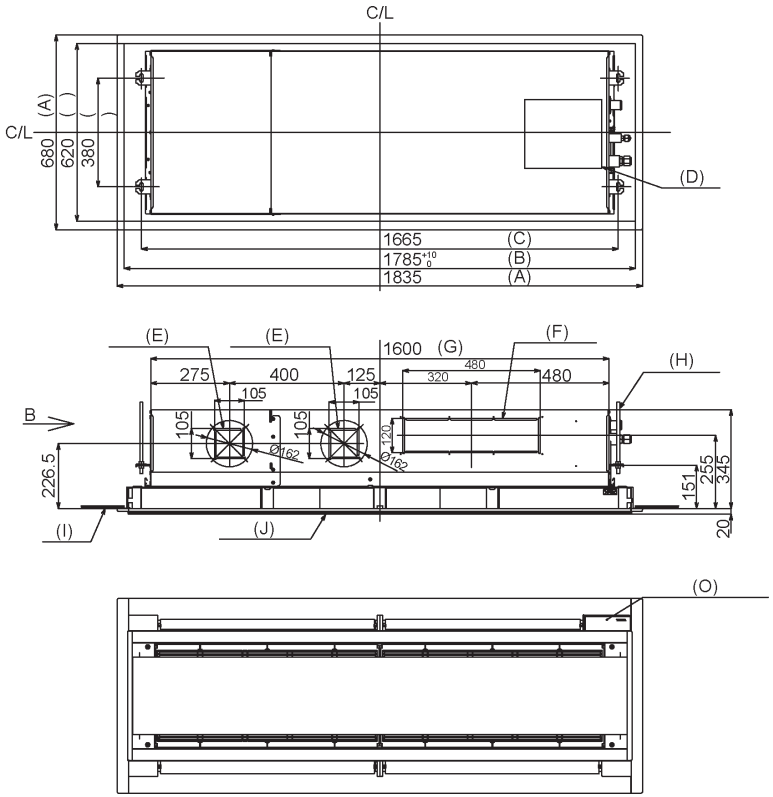
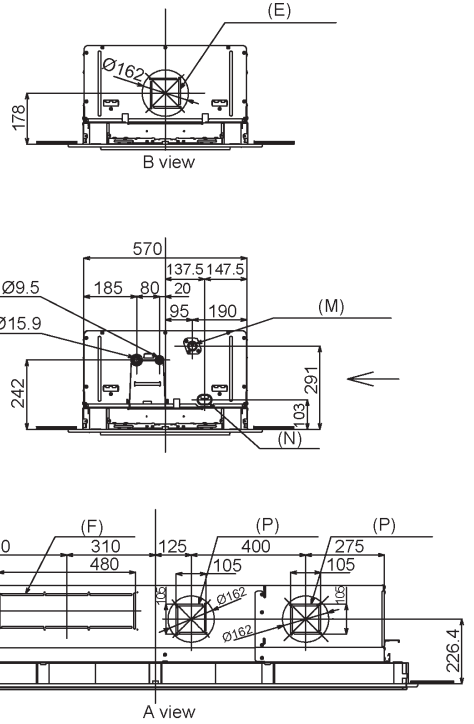
AP036 to AP056

(Unit: mm)





(A)	Panel external dimension	(I)	Ceiling bottom surface
(B)	Ceiling opening dimension	(J)	Ceiling panel (Sold separately)
(C)	Hanging bolt pitch	(K)	Refrigerant pipe connecting port (Liquid)
(D)	Electric parts box	(L)	Refrigerant pipe connecting port (Gas)
(E)	Knockout square hole for auxiliary fresh air flange For Ø150 (Sold separately)	(M)	Drain pipe connecting port (Be absolutely sure to use the flexible hose provided for the connection here.)
(F)	Knockout hole	(N)	Take-in port of wires
(G)	Unit external dimension	(O)	Wireless signal sensor mounting area (Sold separately)
(H)	Hanging bolt M10 or W3/8 (Procured locally)	(P)	Knockout hole

■ Opening a ceiling and installation of hanging bolts

- Decide on the installation position and orientation of the indoor unit while factoring in “SELECTION OF INSTALLATION PLACE” in this manual and the piping and wiring work to be performed after the indoor unit has been suspended from the ceiling.
- 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.

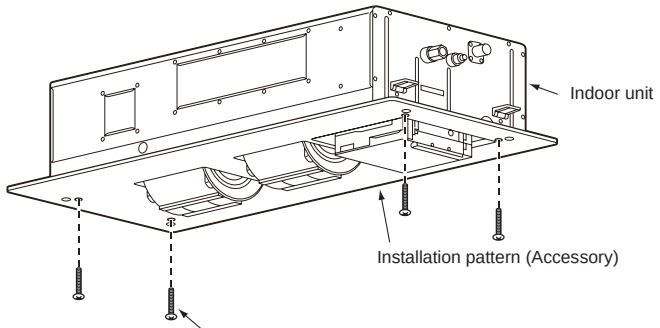
Procure hanging bolts and nuts for installing the indoor unit (these are not supplied).

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

How to use the installation pattern (accessory)

<For existing ceiling>
Use the installation pattern to position 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.
- Screw down the installation pattern on the ceiling panel mounting area of the indoor unit hanging fixtures. (Use the pattern fastening screws: M5 × ℓ16 (accessory).)
- When hanging a ceiling, open the ceiling along the outside dimensions of the installation pattern.



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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.
- Cut and remove the ceiling foundation.
- Reinforce the cut surface of ceiling foundation, and add ceiling foundation for fixing the end of ceiling board.

Installation of hanging bolt

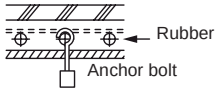
Use M10 or W3/8 hanging bolts (4 pcs, procured locally). Matching to the existing structure, set pitch according to size in the unit external view as shown below.

New concrete slab

Install the bolts with insert brackets or anchor bolts.


(Blade type bracket)

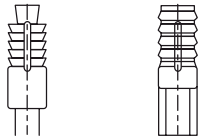

(Slide type bracket)



(Pipe hanging anchor bolt)

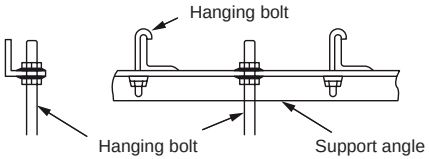
Existing concrete slab

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



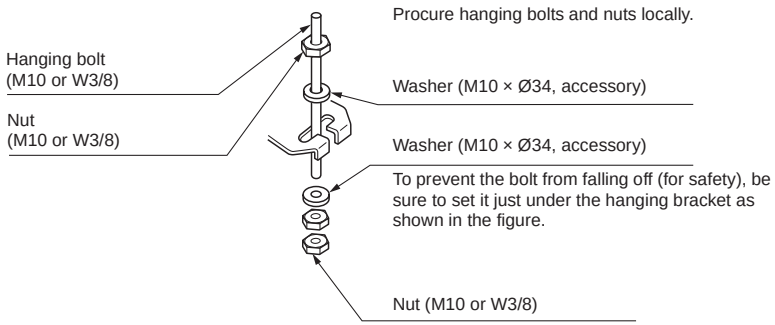
Steel frame structure

Use existing angles or install new support angles.

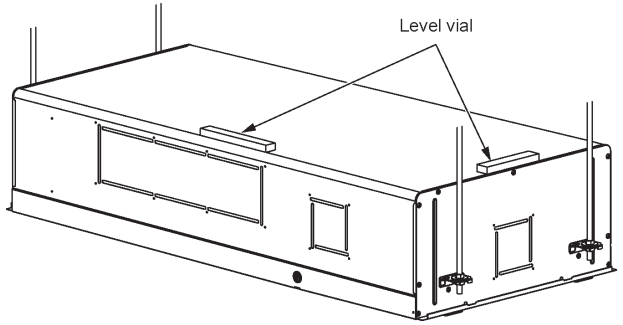


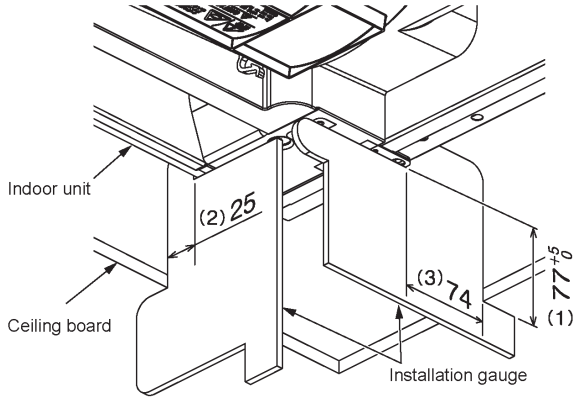
■ Installation of indoor unit

- Attach a nut (M10 or W3/8: procured locally) 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.
- Detach the installation gauge (accessory) from the installation pattern.
- Use the installation gauge to check and adjust the relative positions of the indoor unit and the ceiling opening as well as the suspension height.
  (Orientation of the installation gauge is printed on the gauge.)
  (1) Check that the bottom panel of the indoor unit is positioned 77 to 82 mm higher than the bottom surface of the ceiling panel. (All four corners)
  (2) Check that the clearance between the outlet side (shorter side) of the indoor unit and ceiling panel is 25 mm.
  (3) Check that the clearance between the outlet side (longer side) of the indoor unit and ceiling panel is 74 mm.





⚠ CAUTION

Before installing a model AP007 to AP015 indoor unit, be absolutely sure to remove the tape used for transportation between the fan and bell mouth. Running the unit without removing the tape may damage the fan motor.

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■ Installation of ceiling panel (sold separately)

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

⚠ CAUTION

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.

■ Installation of remote controller (sold separately)

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

- Do not leave the remote controller at a place exposed to the direct sunlight and near a stove.
- Install the remote controller after operating it and checking that the indoor unit can sense its signals properly. (Wireless type)
- Keep the remote controller at least one meter away from a TV set, stereo components or other devices. (Otherwise, the picture may be disrupted or the noise may affect the sound.) (Wireless type)

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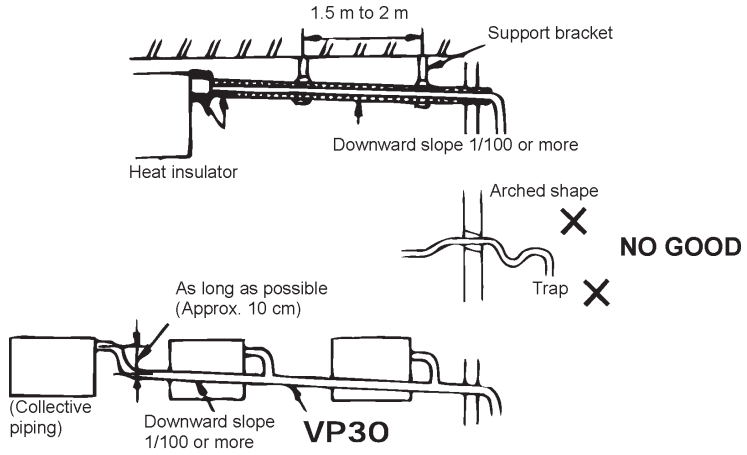
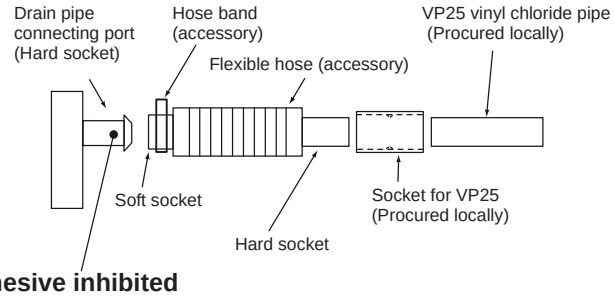
5 DRAIN PIPING WORK

⚠ 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 CONDENSATION. INAPPROPRIATE PIPING WORK MAY RESULT IN WATER LEAKAGE IN THE ROOM AND WET OF FURNITURE.

- Provide the indoor drain piping with proper heat insulation.
- Also be absolutely sure to provide the area where the pipe connects to the indoor unit with proper heat insulation. Improper heat insulation will cause condensation to form.
- Ensure that the drain pipe is sloping downward (at an angle of 1/100 or more), and do not run the pipe up and down (arched shape) or allow it to form traps. Doing so may cause abnormal sounds.
- Restrict the length of the traversing drain pipe to 20 meters or less. In the case of a long pipe, provide support brackets at intervals of 1.5 to 2 meters to prevent flapping.
- Install the collective piping as shown in the following figure.
- Do not provide any air vents. Otherwise, the drain water will spout, causing water to leak.
- Do not allow any force to be applied to the connection area with the drain pipe.
- A hard PVC pipe cannot be connected to the drain pipe connecting port of the indoor unit. Be absolutely sure to use the flexible hose provided for the connections with the drain pipe connecting port.
- Adhesive agents cannot be used for the drain pipe connecting port (hard socket) of the indoor unit. Be absolutely sure to secure the pipe using the hose bands provided. Use of an adhesive agent may damage the drain pipe connecting port or cause water to leak.





Piping/Heat insulating material

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

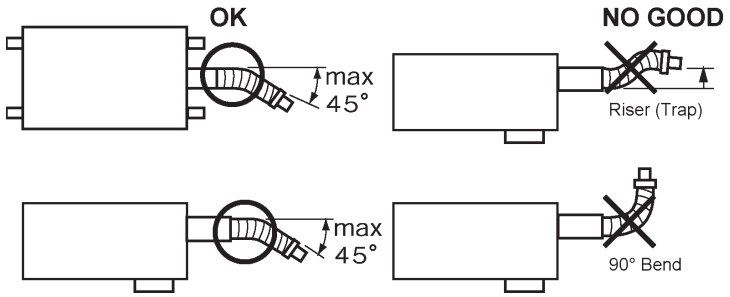
Piping	Socket of hard vinyl chloride pipe for VP25
	Hard vinyl chloride pipe VP25 (Outer dia.: Ø32 mm)
Heat insulator	Foam polyethylene: Thickness 10mm or more

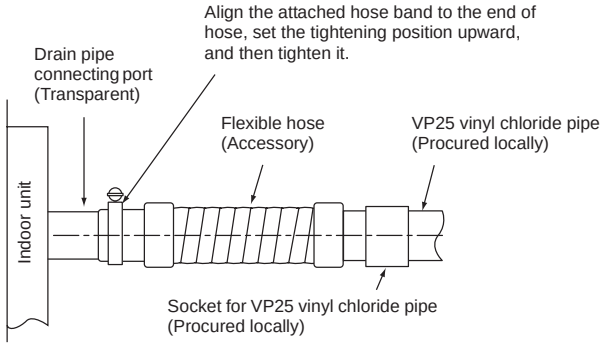
■ Connecting flexible hose

- Insert the soft end socket of the flexible hose provided into the drain pipe connecting port of the indoor unit as far as it will go.
- Align the provided hose band with the end of the pipe connecting port, and tighten it securely.

⚠ CAUTION

- Be absolutely sure to secure the soft end socket with the hose band provided, and ensure that where the band is tightened is facing up.
- Do not use the flexible hose provided with the hose bent to an angle greater than 45° to avoid breakage or clogging.





■ Connecting drain pipe

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

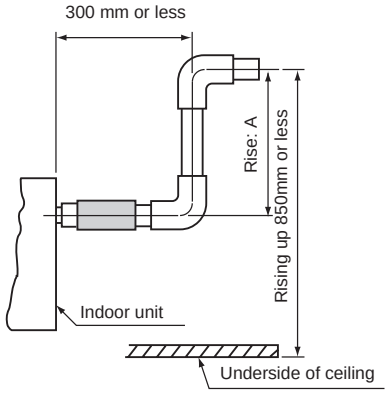
⚠ CAUTION

- 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 underside 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.



Model: MMU-	Rise: A
AP007 to AP015	609 mm or less
AP018 to AP056	559 mm or less

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■ Check the draining

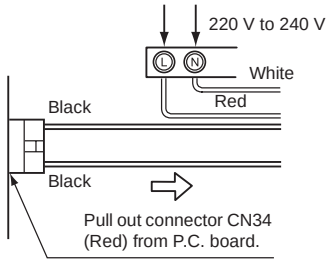
In the test run, check that water drain is properly performed and water does not leak from the connecting part of the pipes. When doing this, also check that no abnormal sounds are heard from the drain pump motor. Be sure to check draining also when installed in heating period.

When the electrical and wiring work has been completed

- Before attaching the panel, pour some water by following the method shown in the following figure. Then, while performing a cooling operation, check that the water drains from the drain pipe connecting port (transparent) and that no water is leaking from the drain pipe.

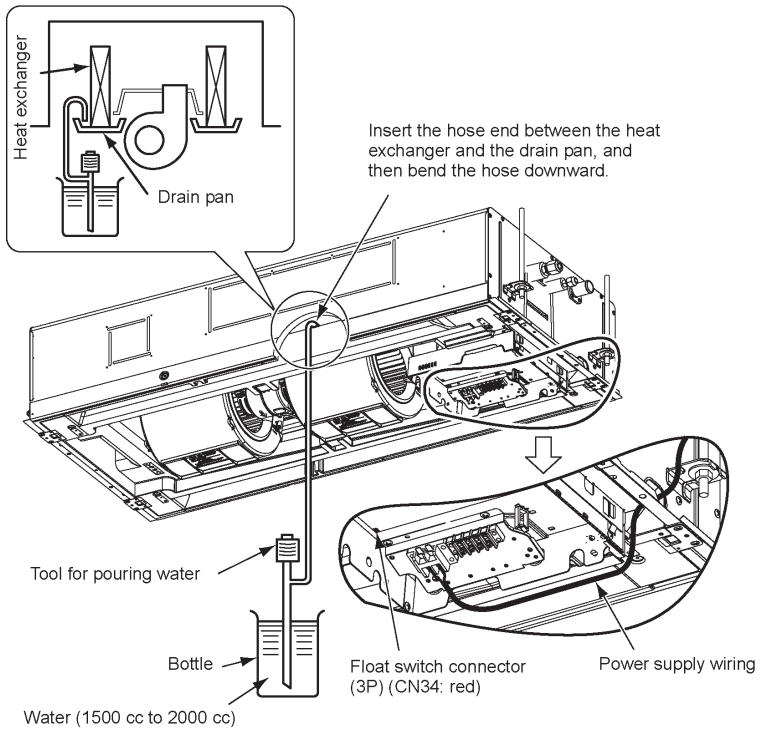
When the electrical and wiring work has not been completed

- Disconnect the float switch connector (3P: red) from the connector (CN34: red) on the printed circuit board inside the electrical parts box. (Before doing this, be absolutely sure that the power has been turned off.)
- Connect a 220 V to 240 V supply voltage to (L) and (N) on the power supply terminal block. (Never apply a 220 V to 240 V voltage to (A), (B), (U1) or (U2) of the power supply terminal block. Otherwise, the printed circuit board may be damaged.)
- Pour the water by following the method shown in the following figure. (Amount of water poured: 1500 cc to 2000 cc)
- When the power is turned on, the drain pump automatically starts running. Check whether the water is draining from the drain pipe connecting port (transparent), and check that no water is leaking from the drain pipe.
- After checking that the water drains and there are no water leaks, turn off the power, connect the float switch connector to its original location (CN34) on the printed circuit board, and return the electrical parts box to its original position.



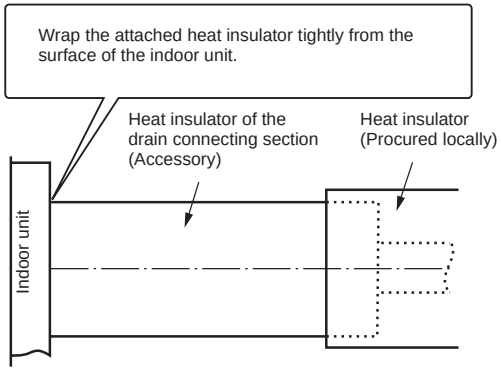
⚠ CAUTION

When pouring the water, pour it slowly. If it is poured with too much force, it will spread around the inside of the indoor unit, possibly causing the unit to malfunction.



■ Perform 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 tightly.
- Cover the drain pipe tightly with a heat insulator procured locally so that it overlaps with the attached heat insulator of the drain connecting section.



6 REFRIGERANT PIPING

⚠ CAUTION

When the refrigerant pipe is long, provide support brackets at intervals of 2.5 m to 3 m to clamp the refrigerant pipe. Otherwise, abnormal sound may be generated.
Be sure to use the flare nut attached with the indoor unit or R410A flare nut.

■ 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-	Pipe size (mm)	
	Gas side	Liquid side
AP007 to AP012	Ø9.5	Ø6.4
AP015 to AP018	Ø12.7	Ø6.4
AP024 to AP056	Ø15.9	Ø9.5

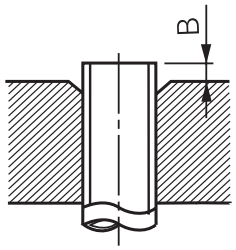
■ Connecting refrigerant piping

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 R410A refrigerant. The flaring dimensions for R410A are different from the ones used for the conventional R22 refrigerant. A new flare tool manufactured for use with the 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.

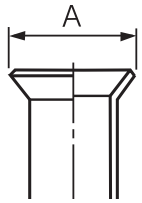
Projection margin in flaring: B (Unit: mm)

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



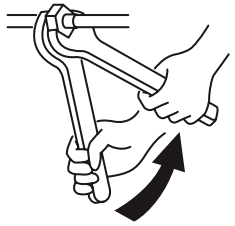
Flaring dia. meter size: A (Unit: mm)

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



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

- 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.
- Be absolutely sure to use two wrenches to connect the indoor unit pipe.



Work using double spanner

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

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

- Tightening torque of flare pipe connections
  Pressure of R410A is higher than that of R22. (Approx. 1.6 times) Therefore, using a torque wrench, tighten the flare pipe connecting sections which connect the indoor and outdoor units of the specified tightening torque.
  Incorrect connections may cause not only a gas leak, but also a trouble of the refrigeration cycle.

⚠ CAUTION

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

■ Airtight test/Air purge, etc.

For airtight test, air purge, addition of refrigerant, and gas leak check, 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.)

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■ Open the valve fully

Open the valve of the outdoor unit fully.

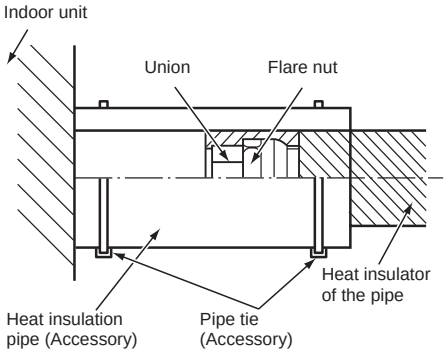
■ Thermal insulation process

Apply thermal insulation for the pipes separately at liquid side and gas side.

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

⚠ CAUTION

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.)



7 ELECTRICAL WORK

⚠ WARNING

1. **Using the specified wires, ensure to connect the wires, and fix wires securely so that the external tension to the wires do not affect the connecting part of the terminals.**
   Incomplete connection or fixation may cause a fire, etc.
2. **Be sure to connect earth wire. (grounding work)**
   Incomplete earthing cause an electric shock.
   Do not connect earth wires to gas pipes, water pipes, lightning rods or earth wires for telephone wires.
3. **Appliance shall be installed in accordance with national wiring regulations.**
   Capacity shortage of power circuit or incomplete installation may cause an electric shock or a fire.

CAUTION

- If incorrect/incomplete wiring is carried out, it will cause an electrical fire or smoke.
- Be sure to 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.
- Be sure to use the cord clamps attached to the product.
- Do not damage or scratch the conductive core and inner insulator of power and inter-connecting wires when peeling them.
- Use the power cord and Inter-connecting wire of specified thickness, type, and protective devices required.
- Never connect 220 V – 240 V power to the terminal blocks (Ⓤ1, Ⓤ2, Ⓐ, Ⓑ, etc.) for control wiring.(Otherwise, the system will fail.)

REQUIREMENT

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

■ Power supply wire and communication wires specifications

Power supply wire and communication wires are procured locally.
For the power supply specifications, follow to the 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 V – 240 V ~, 50 Hz 220 V ~, 60 Hz	
Power supply switch/circuit breaker or power supply wiring/fuse rating for indoor units should be selected by the accummulated 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

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

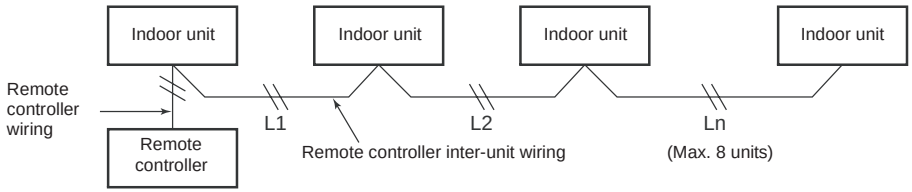
Remote controller wiring

- 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 AC220–240V 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, etc.



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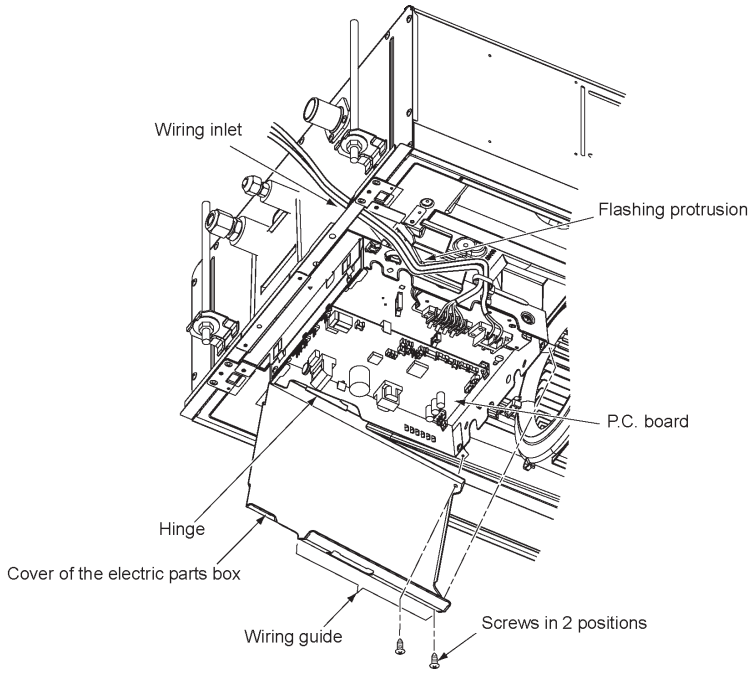
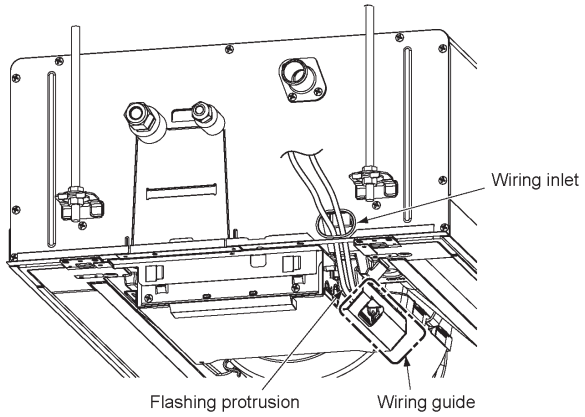
■ Wire connection

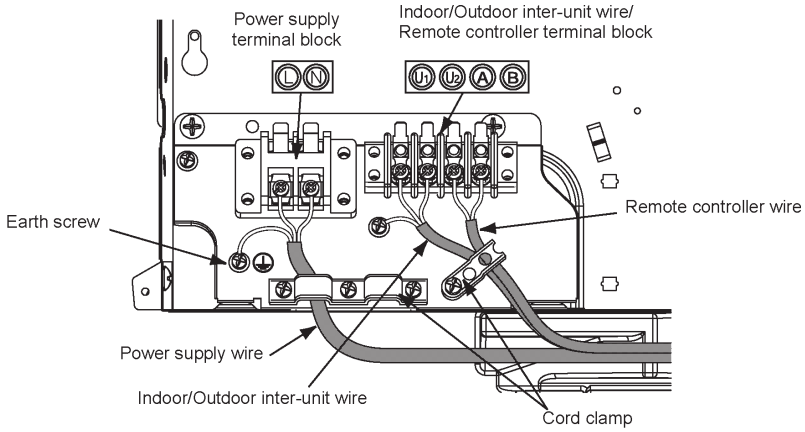
REQUIREMENT

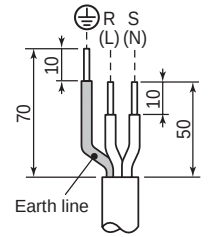
- Be sure to pass the wires through the bushing of wiring connection port of the indoor unit.
- Keep a margin (Approx. 100 mm) on a wire to hang down the electric parts box at servicing, etc.
- The low-voltage circuit is provided for the remote controller.

- Remove the two screws used to mount the cover of the electrical parts box, and slide the cover to open it. (The cover of the electric parts box remains hanged to the hinge.)
- Connect the power cable, indoor/outdoor inter-unit wire and remote controller wire to the terminal block of the electrical parts box.
- Tighten the screws of the terminal block, and fix the wires with cord clamp attached to the electric parts box. (Do not apply tension to the connecting section of the terminal block.)
- Using the attached thermal insulation material, seal the pipe connecting port. Otherwise, dewing may be caused.
- Mount the cover of the electric parts box without pinching wires. (Mount the cover after wiring on the ceiling panel.)
- Pass the wires underneath the flashing protrusion of the drain pan, and stow them inside the wiring guide of the electrical parts box cover.



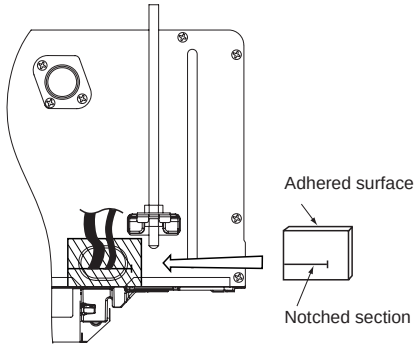






Power supply wire

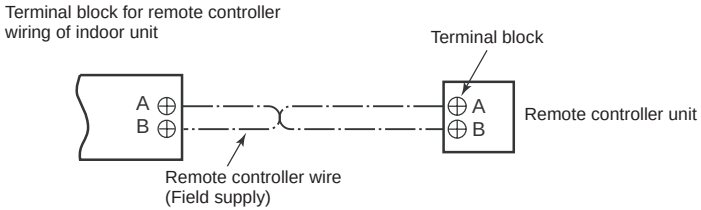
Thermal insulation to wiring connecting port



■ 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



■ Address setup

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

■ Wiring on the ceiling panel

According to the Installation Manual of the ceiling panel, connect the connector (5P: White) of the ceiling panel to the connector (CN33: White) on P.C. board of the electric parts box.

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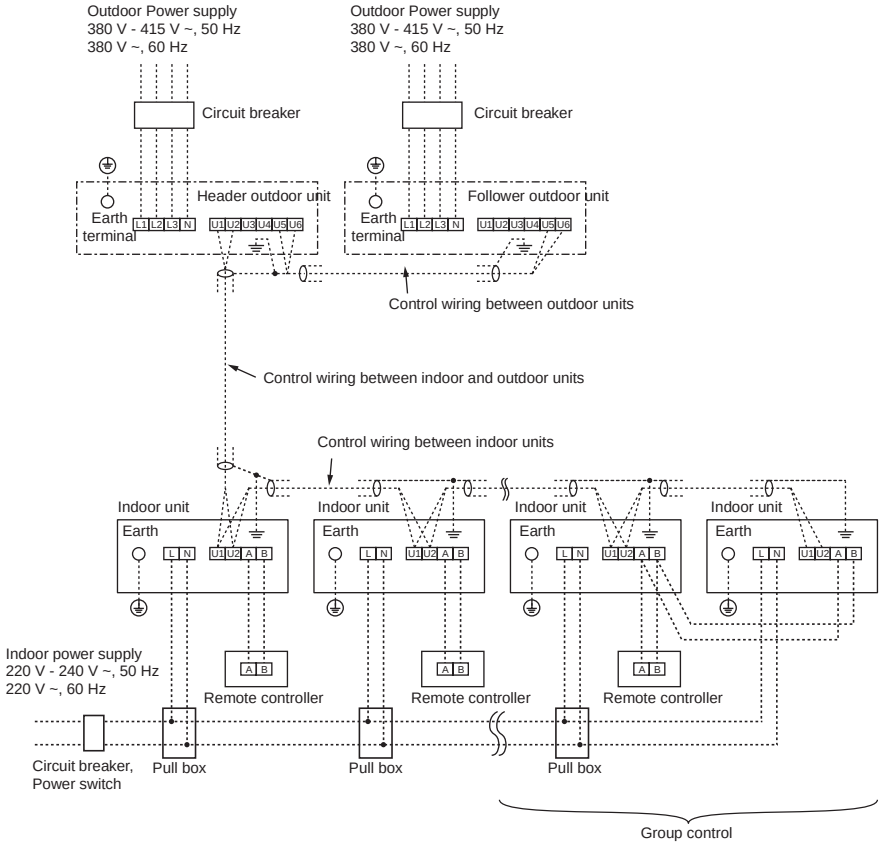
■ Wiring between indoor and outdoor units

NOTE

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

Wiring example



8 APPLICABLE CONTROLS

REQUIREMENT

When using the air conditioner 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 minutes) 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 setting). 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.

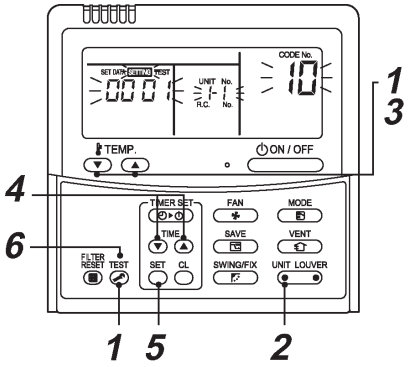
■ Basic procedure for changing settings

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

Requirement when setting the CODE No.

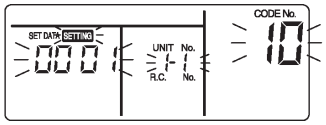
Set only the CODE No. shown in the following table: Do NOT set any other CODE No.
If a CODE No. not listed is set, it may not be possible to operate the air conditioner or other trouble with the product may result.

* The displays appearing during the setting process differ from the ones for previous remote controllers (AMT31E). (There are more CODE No.)



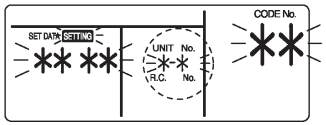
1 Push and hold TEST button and "TEMP." ▼ button simultaneously for at least 4 seconds. After a while, the display flashes as shown in the figure. Confirm that the CODE No. is [10].

- If the CODE No. is not [10], push TEST button to clear the display content, and repeat the procedure from the beginning. (No operation of the remote controller is accepted for a while after TEST button is pushed.)
  (While air conditioners are operated under the group control, "ALL" is displayed first. When UNIT LOUVER is pushed, the indoor unit number displayed following "ALL" is the header unit.)



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

2 Each time you push UNIT LOUVER button, indoor unit numbers in the control group change cyclically. Select the indoor unit you want to change settings for.
The fan of the selected unit runs and the louvers start swinging. You can confirm the indoor unit for which you want to change settings.



Using "TEMP." ▼ / ▲ buttons, specify CODE No. [✱✱].

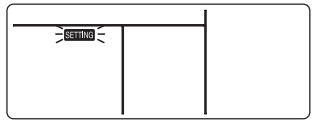
4 Using timer "TIME" ▼ / ▲ buttons, select SET DATA [✱✱✱✱].

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

- To change settings of another indoor unit, repeat from Procedure ***2***.
- To change other settings of the selected indoor unit, repeat from Procedure ***3***.

Use SET button to clear the settings. To make settings after SET button was pushed, repeat from Procedure ***2***.

6 When settings have been completed, push TEST button to determine the settings.
When TEST button is pushed, SETTING flashes and then the display content disappears and the air conditioner enters the normal stop mode.
(While SETTING is flashing, no operation of the remote controller is accepted.)



Installing indoor unit on high ceiling

When the ceiling on which the indoor unit is to be installed is higher than 2.7 meters, the air volume must be adjusted so establish the high-ceiling setting.

- Follow to the basic operation procedure (***1*** → ***2*** → ***3*** → ***4*** → ***5*** → ***6***).
- For the CODE No. in Procedure ***3***, specify [5d].
- Select the SET DATA for Procedure ***4*** from the "Height list of ceiling possible to be installed" table in this manual.

When installing separately sold filters

Be sure to make Filter setting when installing separately sold filters.

* Separately sold filters cannot be installed in an indoor unit on a high ceiling.

- The operating procedure is the same as that for "Installing indoor unit on high ceiling."
- As the SET DATA in procedure ***4***, select the SET DATA of the filter installed from the table below.

SET DATA	Filter
0000	Normal filter (Factory setting)
0001	Super long life filter

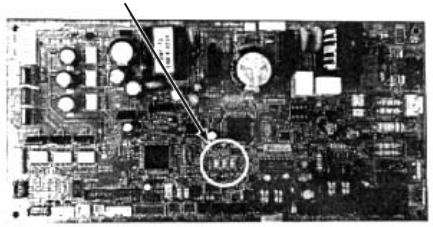
■ With a remote controller-less system (group control)

Besides the switching method using the wired remote controller as a way to establish the high-ceiling and filter settings, switching is also possible by changing over the short plug settings on the indoor printed circuit board as shown in the following table.

* However, once these settings are changed, 0001 can be set easily, but bear in mind that to return to the 0000 data, it will be necessary to change the short plugs over to the standard (factory setting) positions and rewrite the data back to SET DATA 0000 from the wired remote controller.

• Change over the short plugs on the indoor printed circuit board, and select the desired setting.

Short plug positions (CN112, CN111 and CN110 from the left)



Short plug position (Short / Open)	CN112 CN111 CN110	CN112 CN111 CN110	CN112 CN111 CN110
SET DATA	0000	0001	0003
Ceiling height	2.7 m	3.2 m (AP007 to AP030)	3.8 m (AP007 to AP030)
		3.0 m (AP036 to AP056)	3.5 m (AP036 to AP056)
Filter	Standard filter (Factory setting)	Super long life filter	—

■ 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 ***3***, specify [01].

• For the SET DATA in Procedure ***4***, select the SET DATA of Filter sign lighting time from the following table.

SET DATA	Filter sign lighting time
0000	None
0001	150 hours
0002	2500 hours (Factory setting)
0003	5000 hours
0004	10000 hours

■ 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 ***3***, specify [06].

• For the SET DATA in Procedure ***4***, select the SET DATA of Detection temp shift value to be set up from the following table.

SET DATA	Detection temp shift value
0000	No shift
0001	+1°C
0002	+2°C (Factory setting)
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 maximum 8 units.

• For wiring procedure and wiring method of the individual line (Identical refrigerant line) system, refer to “ELECTRICAL WORK” 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.

■ Ventilator (procured locally)

Select this setting when a locally procured ventilator has been connected.

Follow the basic operation procedure (***1*** → ***2*** → ***3*** → ***4*** → ***5*** → ***6***).

• For the CODE No. in Procedure ***3***, specify [31].

• Select “0001” as the SET DATA in procedure ***4***.

SET DATA	Ventilator
0000	Not provided (Factory setting)
0001	Provided

9 TEST RUN

■ Before test run

- Before turning on the power supply, carry out the following procedure.
  1. Using 500 V-megger, check that resistance of 1 M or more exists between the terminal block of the power supply and the earth (earthing). If resistance of less than 1 M is detected, do not run the unit.
  2. Check all 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.
- Never press the electromagnetic contactor to forcibly perform a test run. (This is very dangerous because the protective device does not work.)
- Before starting a test run, be sure to set addresses following the Installation Manual supplied with the outdoor unit.

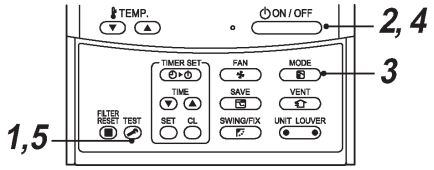
■ How to execute a test run

- When a fan operation is to be performed for an individual indoor unit, turn off the power, short CN72 on the circuit board, and then turn the power back on. (First set the operating mode to “fan,” and then operate.) When the test run has been performed using this method, do NOT forget to release the shorting of CN72 after the test run is completed.
- Using the remote controller, operate the unit as usual. For the procedure of the operation, refer to the attached Owner’s Manual. A forced test run can be executed in the following procedure even if the operation stops by thermo.-OFF. In order to prevent a continuous operation, the forced test run is released after 60 minutes have passed and returns to the usual operation.

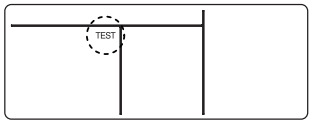
⚠ CAUTION

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

In case of wired remote controller

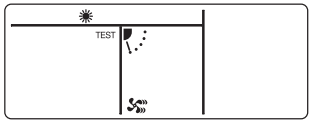


1 When the TEST button is pressed and held for at least 4 seconds, “TEST” appears on the display, and the test run mode is established.
(While the test run is underway, “TEST” remains on the display.)



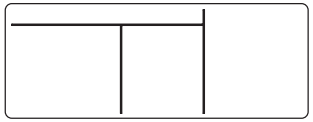
2 Push ON / OFF button.

3 Using MODE 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 does not work during test run.
- The detection of error is performed as usual.

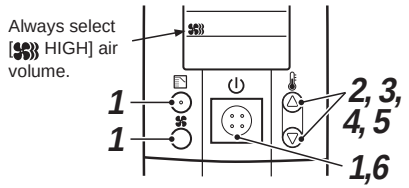


4 After the test run, push ON / OFF button to stop a test run.
(Display part is same as procedure ***1***.)

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



In case of wireless remote controller



1 Push ⏻ (ON/OFF) button on the remote controller, select [❄ COOL] or [☀ HEAT] with ▨ (MODE) button, and then select [HIGH] with (FAN) button.

2 **Cooling test run:**
Set the temperature to 18°C with 🌡 (temp. setup) buttons.
Heating test run:
Set the temperature to 30°C with 🌡 (temp. setup) buttons.

3 **Cooling test run:**
After confirming a signal receiving sound “beep” immediately set the temperature to 19°C with 🌡 (temp. setup) buttons.
Heating test run:
After confirming a signal receiving sound “beep” immediately set the temperature to 29°C with 🌡 (temp. setup) buttons.

4 **Cooling test run:**
After confirming a signal receiving sound “beep” immediately set the temperature to 18°C with the temp. setup buttons.
Heating test run:
After confirming a signal receiving sound “beep” immediately set the temperature to 30°C with the temp. setup buttons.

5 Repeat procedures ***3*** → ***4*** → ***5*** → ***6***.
Indicators “Operation”, “Timer”, and “Ready” 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 from procedure ***1***.

6 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 → 18 °C → 19 °C → 18 °C → 19 °C → 18 °C → 19 °C → 18 °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

10 MAINTENANCE

⚠ CAUTION

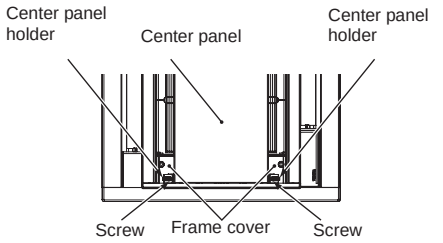
- **Before maintenance, be sure to turn off the circuit breaker.**
- **Do not clean the filter with all the hooks of the center panel disengaged and with only one or two wires still attached to the center panel. Doing so may cause the center panel to fall down, possibly causing injury to any individuals below.**

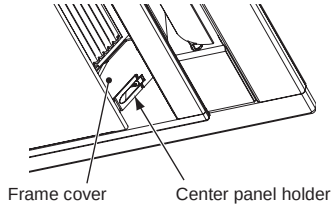
Cleaning of air filter

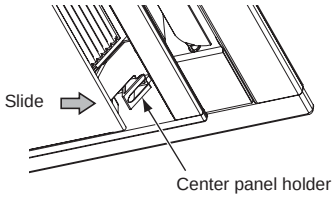
- If ▦ is displayed on the remote controller, maintain the air filter.
- Clogging of the air filter reduce cooling/heating performance.

Cleaning of panel and air filter

1. Turn off the air conditioner
   - Set the circuit breaker to OFF.
2. Open the center panel
   - Loosen the screws on the center panel holders fixed to the frame covers by turning them about three times. There is a frame cover on each long side of the panel.
     While removing the center panel, as the panel moves, the panel pushes the center panel holders and makes the holders slide.





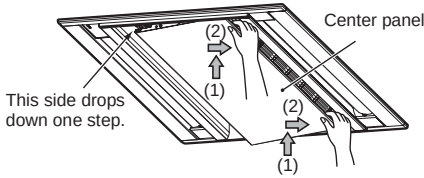


- The direction in which the center panel opens is fixed.
  The side that moves when the edge of the center panel is pushed upward is the end that opens; the end that barely moves is the hooking side.

2-1. While pushing the edge at the opening side of the center panel upward (1), pull the panel toward the opening side (2).

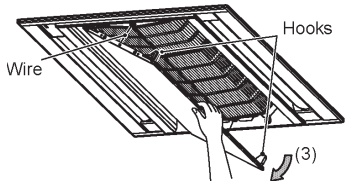
2-2. When the panel is pulled toward the opening side, the hooking side drops down by one step, and the hooks at the opening side are disengaged.

* Take hold of the center panel near the hooks at both ends, and disengage the opening side hooks one at a time.
If the center panel holders refuse to slide, loosen the screws a little more using the screwdriver.

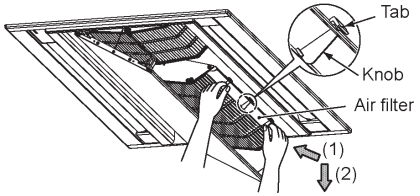


2-3. Once you have checked that the hooking side at both ends has dropped down by one step, slowly rotate the panel downward (3), and open it.

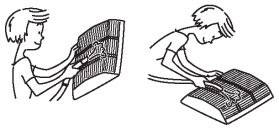
* The center panel opens until there is no more slack in the wires at both ends.



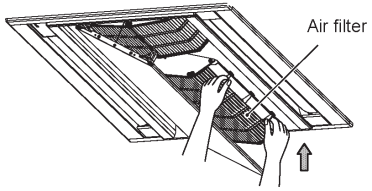
3. Remove the air filter
   - Take hold of the air filter knobs, and while pushing the filter diagonally (1), pull it downward (2), and remove it from the openings of the center panel.



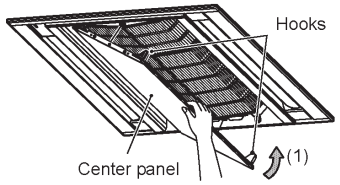
4. Remove the dust using a vacuum cleaner or rinsing it off in water
   - When dust has accumulated on the filter, it can be cleaned effectively using lukewarm or cold water into which some neutral detergent has been dissolved.
   - After rinsing off the filter, allow it dry out in the shade.



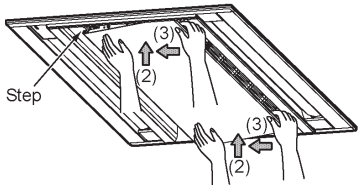
5. Mount the air filter
   - Insert the air filter until it touches the back surface. Take hold of the knobs, raise the air filter until it touches the back surface, left go of the knobs, and install.



6. Close the center panel
   - Slowly rotate the center panel upward (1), and close it.



   - With the opening side of the center panel now closed, while lifting the step of the hooking side (2), slide the center panel toward the hooking side (3), and secure it.
     * Take hold of the center panel near the hooks at both ends, and engage the hooks one at a time.



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7. Return the center panel holders to their original positions, and tighten the two screws at the left and two screws at the right (total: 4 screws) using the screwdriver.
   Make sure that the center panel is securely fixed with the center panel holders and does not open.
8. Check the filter
   - From the two intakes, check that the filter tabs are not disengaged. If they are, take hold of the knobs, and push the filter in so that the tabs are inserted.
9. Set the circuit breaker to ON.
   - Push FILTER RESET button.
   - "FILTER ▦" disappears.

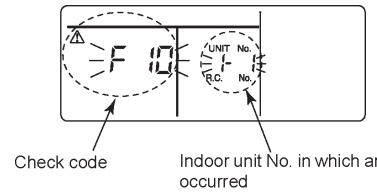
⚠ CAUTION

- Do not start the air conditioner while leaving the panel and air filter removed.
- Push FILTER RESET button. (▦ indication will be turned off.)

11 TROUBLE SHOOTING

■ Confirmation and check

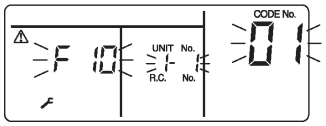
When a trouble occurred in the air conditioner, the check code and the indoor unit No. appear on the display part of the remote controller.
The check code is only displayed during the operation.
If the display disappears, operate the air conditioner according to the following "Confirmation of error history" for confirmation.



■ Confirmation of error history

When a trouble occurred on the air conditioner, the trouble history can be confirmed with the following procedure. (The trouble history is stored in memory up to 4 troubles.)
The history can be confirmed from both operating status and stop status.

1 When pushing and holding SET and TEST buttons at the same time for 4 seconds or more, the following display appears.
If [🔧 Service check] is displayed, the mode enters in the trouble history mode.
- [**01** : Order of trouble history] is displayed in CODE No. window.
- [Check code] is displayed in CHECK window.
- [Indoor unit No. in which an error occurred] is displayed in Unit No.

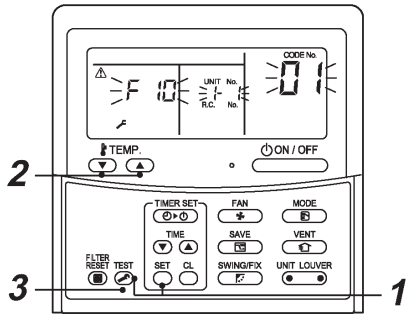


2 Every pushing of "TEMP." ▼ / ▲ button used to set temperature, the trouble history stored in memory is displayed in order.
The numbers in CODE No. indicate CODE No. [**01**] (latest) [**04**] (oldest).

⚠ CAUTION

Do not push CL button because all the trouble history of the indoor unit will be deleted.

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



Check method

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

Check code list

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

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

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

Check code				Wireless remote controller				Check code name	Judging device
Wired remote controller display	Outdoor unit 7-segment display		AI-NET central control display	Sensor block display of receiving unit					
		Auxiliary code		Operation	Timer	Ready	Flash		
E01	—	—	—	◎	●	●		Communication error between indoor unit and remote controller (Detected at remote controller side)	Remote controller
E02	—	—	—	◎	●	●		Remote controller transmission error	Remote controller
E03	—	—	97	◎	●	●		Communication error between indoor unit and remote controller (Detected at indoor unit side)	Indoor unit
E04	—	—	04	●	●	◎		Communication circuit error between indoor/ outdoor unit (Detected at indoor unit side)	Indoor unit
E06	E06	No. of indoor units in which sensor has been normally received	04	●	●	◎		Decrease of No. of indoor units	I/F
—	E07	—	—	●	●	◎		Communication circuit error between indoor/ outdoor unit (Detected at outdoor unit side)	I/F
E08	E08	Duplicated indoor unit addrsses	96	◎	●	●		Duplicated indoor unit addresses	Indoor unit • I/F
E09	—	—	99	◎	●	●		Duplicated master remote controllers	Remote controller
E10	—	—	CF	◎	●	●		Communication error between indoor unit MCU	Indoor unit
E12	E12	01: Indoor/Outdoor units communication 02: Outdoor/Outdoor units communication	42	◎	●	●		Automatic address start error	I/F
E15	E15	—	42	●	●	◎		No indoor unit during automatic addressing	I/F
E16	E16	00: Capacity over 01 ~: No. of connected units	89	●	●	◎		Capacity over / No. of connected indoor units	I/F
E18	—	—	97, 99	◎	●	●		Communication error between header and follower units	Indoor unit

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Check code				Wireless remote controller				Check code name	Judging device
Wired remote controller display	Outdoor unit 7-segment display		AI-NET central control display	Sensor block display of receiving unit					
		Auxiliary code		Operation	Timer	Ready	Flash		
E19	E19	00: No header 02: Two or more header units	96	●	●	☼		Outdoor header units quantity error	I/F
E20	E20	01: Outdoor unit of other line connected 02: Indoor unit of other line connected	42	●	●	☼		Other line connected during automatic address	I/F
E21	E21	02: No header unit 00: Multiple number of header units	42	●	●	☼		Error in number of heat storage master units	I/F
E22	E22	—	42	●	●	☼		Reduction in number of heat storage units	I/F
E23	E23	—	15	●	●	☼		Sending error in communication between outdoor units Error in number of heat storage units (trouble with reception)	I/F
E25	E25	—	15	●	●	☼		Duplicated follower outdoor addresses	I/F
E26	E26	No. of outdoor units which received signal normally	15	●	●	☼		Decrease of No. of connected outdoor units	I/F
E28	E28	Detected outdoor unit number	d2	●	●	☼		Follower outdoor unit error	I/F
E31	E31	Number of IPDU (*1)	CF	●	●	☼		IPDU communication error	I/F
F01	—	—	0F	☼	☼	●	ALT	Indoor unit TCJ sensor error	Indoor unit
F02	—	—	0d	☼	☼	●	ALT	Indoor unit TC2 sensor error	Indoor unit
F03	—	—	93	☼	☼	●	ALT	Indoor unit TC1 sensor error	Indoor unit
F04	F04	—	19	☼	☼	○	ALT	TD1 sensor error	I/F
F05	F05	—	A1	☼	☼	○	ALT	TD2 sensor error	I/F
F06	F06	01: TE1 sensor 02: TE2 sensor	18	☼	☼	○	ALT	TE1 sensor error TE2 sensor error	I/F
F07	F07	—	18	☼	☼	○	ALT	TL sensor error	I/F
F08	F08	—	1b	☼	☼	○	ALT	TO sensor error	I/F
F10	—	—	OC	☼	☼	●	ALT	Indoor unit TA sensor error	Indoor unit
F12	F12	—	A2	☼	☼	○	ALT	TS1 sensor error	I/F
F13	F13	01: Comp. 1 side 02: Comp. 2 side 03: Comp. 3 side	43	☼	☼	○	ALT	TH sensor error	IPDU
F15	F15	—	18	☼	☼	○	ALT	Outdoor unit temp. sensor miscabling (TE, TL)	I/F
F16	F16	—	43	☼	☼	○	ALT	Outdoor unit pressure sensor miscabling (Pd, Ps)	I/F
F22	F22	—	B2	☼	☼	○	ALT	TD3 sensor error	I/F
F23	F23	—	43	☼	☼	○	ALT	Ps sensor error	I/F
F24	F24	—	43	☼	☼	○	ALT	Pd sensor error	I/F
F29	—	—	12	☼	☼	●	SIM	Indoor unit other error	Indoor unit

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Check code				Wireless remote controller				Check code name	Judging device
Wired remote controller display	Outdoor unit 7-segment display		AI-NET central control display	Sensor block display of receiving unit					
		Auxiliary code		Operation	Timer	Ready	Flash		
F31	F31	—	1C	☼	☼	○	SIM	Indoor unit EEPROM error	I/F
H01	H01	01: Comp. 1 side 02: Comp. 2 side 03: Comp. 3 side	IF	●	☼	●		Compressor break down	IPDU
H02	H02	01: Comp. 1 side 02: Comp. 2 side 03: Comp. 3 side	1d	●	☼	●		Compressor trouble (lock)	IPDU
H03	H03	01: Comp. 1 side 02: Comp. 2 side 03: Comp. 3 side	17	●	☼	●		Current detect circuit system error	IPDU
H04	H04	—	44	●	☼	●		Comp. 1 case thermo operation	I/F
H05	H05	—	—	●	☼	●		TD1 sensor miswiring	I/F
H06	H06	—	20	●	☼	●		Low pressure protective operation	I/F
H07	H07	—	d7	●	☼	●		Oil level down detective protection	I/F
H08	H08	01: TK1 sensor error 02: TK2 sensor error 03: TK3 sensor error 04: TK4 sensor error 05: TK5 sensor error	d4	●	☼	●		Oil level detective temp sensor error	I/F
H14	H14	—	44	●	☼	●		Comp. 2 case thermo operation	I/F
H15	H15	—	—	●	☼	●		TD2 sensor miswiring	I/F
H16	H16	01: TK1 oil circuit system error 02: TK2 oil circuit system error 03: TK3 oil circuit system error 04: TK4 oil circuit system error 05: TK5 oil circuit system error	d7	●	☼	●		Oil level detective circuit error	I/F
H25	H25	—	—	●	☼	●		TD3 sensor miswiring	I/F
L03	—	—	96	☼	●	☼	SIM	Indoor unit center unit duplicated	Indoor unit
L04	L04	—	96	☼	○	☼	SIM	Outdoor unit line address duplicated	I/F
L05	—	—	96	☼	●	☼	SIM	Duplicated indoor units with priority (Displayed in indoor unit with priority)	I/F
L06	L06	No. of indoor units with priority	96	☼	●	☼	SIM	Duplicated indoor units with priority (Displayed in unit other than indoor unit with priority)	I/F
L07	—	—	99	☼	●	☼	SIM	Group line in individual indoor unit	Indoor unit
L08	L08	—	99	☼	●	☼	SIM	Indoor unit group/Address unset	Indoor unit, I/F
L09	—	—	46	☼	●	☼	SIM	Indoor unit capacity unset	Indoor unit
L10	L10	—	88	☼	○	☼	SIM	Outdoor unit capacity unset	I/F

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Check code				Wireless remote controller				Check code name	Judging device
Wired remote controller display	Outdoor unit 7-segment display		AI-NET central control display	Sensor block display of receiving unit					
		Auxiliary code		Operation	Timer	Ready	Flash		
L17	—	—	46	☼	○	☼	SIM	Outdoor unit type mismatch error	I/F
L20	—	—	98	☼	○	☼	SIM	Duplicated central control addresses	AI-NET, Indoor unit
L26	L26	Number of heat storage units connected	46	☼	○	☼	SIM	Too many heat storage units connected	I/F
L27	L27	Number of heat storage units connected	46	☼	○	☼	SIM	Error in number of heat storage units connected	I/F
L28	L28	—	46	☼	○	☼	SIM	Too many outdoor units connected	I/F
L29	L29	Number of IPDU (*1)	CF	☼	○	☼	SIM	No. of IPDU error	I/F
L30	L30	Detected indoor unit address	b6	☼	○	☼	SIM	Indoor unit outside interlock	Indoor unit
—	L31	—	—	—				Extended I/C error	I/F
P01	—	—	11	●	☼	☼	ALT	Indoor fan motor error	Indoor unit
P03	P03	—	1E	☼	●	☼	ALT	Discharge temp. TD1 error	I/F
P04	P04	01: Comp. 1 side 02: Comp. 2 side 03: Comp. 3 side	21	☼	●	☼	ALT	High-pressure SW system operation	IPDU
P05	P05	00: 01: Comp. 1 side 02: Comp. 2 side 03: Comp. 3 side	AF	☼	●	☼	ALT	Phase missing detection /Power failure detection Inverter DC voltage error (comp.) Inverter DC voltage error (comp.) Inverter DC voltage error (comp.)	I/F
P07	P07	01: Comp. 1 side 02: Comp. 2 side 03: Comp. 3 side	IC	☼	●	☼	ALT	Heat sink overheat error	IPDU, I/F
P09	P09	Detected heat storage address	47	●	☼	☼	ALT	No heat storage unit water error	Heat storage unit
P10	P10	Detected indoor unit address	Ob	●	☼	☼	ALT	Indoor unit overflow error	Indoor unit
P12	—	—	11	●	☼	☼	ALT	Indoor unit fan motor error	Indoor unit
P13	P13	—	47	●	☼	☼	ALT	Outdoor liquid back detection error	I/F
P15	P15	01: TS condition 02: TD condition	AE	☼	●	☼	ALT	Gas leak detection	I/F
P17	P17	—	bb	☼	●	☼	ALT	Discharge temp. TD2 error	I/F
P18	P18	—	E2	☼	●	☼	ALT	Discharge temp. TD3 error	I/F
P19	P19	Detected outdoor unit number	O8	☼	●	☼	ALT	4-way valve inverse error	I/F
P20	P20	—	22	☼	●	☼	ALT	High-pressure protective operation	I/F

115

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

*1 Number of IPDU

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

Error detected by TCC-LINK central control device

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

TCC-LINK : TOSHIBA Carrier Communication Link.

12 SPECIFICATIONS

Model	Sound power level (dBA)		Weight (kg)
	Cooling	Heating	Main unit (Ceiling panel)
MMU-AP0072WH	*	*	19 (10)
MMU-AP0092WH	*	*	19 (10)
MMU-AP0122WH	*	*	19 (10)
MMU-AP0152WH	*	*	19 (10)
MMU-AP0182WH	*	*	26 (14)
MMU-AP0242WH	*	*	26 (14)
MMU-AP0272WH	*	*	26 (14)
MMU-AP0302WH	*	*	26 (14)
MMU-AP0362WH	*	*	36 (14)
MMU-AP0482WH	*	*	36 (14)
MMU-AP0562WH	*	*	36 (14)

* Under 70 dBA

Declaration of Conformity

Manufacturer: Toshiba Carrier Corporation
336 Tadehara, Fuji-shi, Shizuoka-ken 416-8521 JAPAN

Authorized Representative/ TCF holder: Nick Ball
Toshiba EMEA Engineering Director
Toshiba Carrier 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-AP0072WH, MMU-AP0092WH, MMU-AP0122WH, MMU-AP0152WH, MMU-AP0182WH, MMU-AP0242WH, MMU-AP0272WH, MMU-AP0302WH, MMU-AP0362WH, MMU-AP0482WH, MMU-AP0562WH

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

Complies with the provisions of the following harmonized standard:

EN 378-2: 2008+A1: 2009

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

WARNINGS ON REFRIGERANT LEAKAGE

Check of Concentration Limit

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

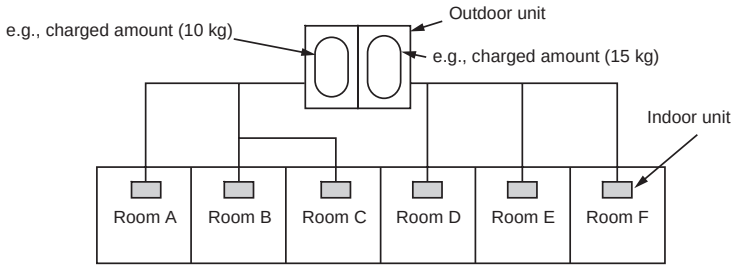
The refrigerant R410A which is used in the air conditioner is safe, without the toxicity or combustibility of ammonia, and is not restricted by laws to be imposed which protect the ozone layer. However, since it contains more than air, it poses the risk of suffocation if its concentration should rise excessively. Suffocation from leakage of R410A is almost non-existent. With the recent increase in the number of high concentration buildings, however, the installation of multi air conditioner systems is on the increase because of the need for effective use of floor space, individual control, energy conservation by curtailing heat and carrying power etc.
Most importantly, the multi air conditioner system is able to replenish a large amount of refrigerant compared with conventional individual air conditioners. If a single unit of the multi conditioner system is to be installed in a small room, select a suitable model and installation procedure so that if the refrigerant accidentally leaks out, its concentration does not reach the limit (and in the event of an emergency, measures can be made before injury can occur).
In a room where the concentration may exceed the limit, create an opening with adjacent rooms, or install mechanical ventilation combined with a gas leak detection device.
The concentration is as given below.

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

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

▼NOTE 1

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

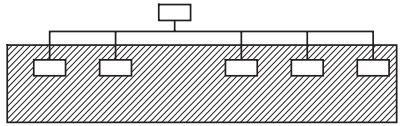


For the amount of charge in this example:
The possible amount of leaked refrigerant gas in rooms A, B and C is 10 kg.
The possible amount of leaked refrigerant gas in rooms D, E and F is 15 kg.

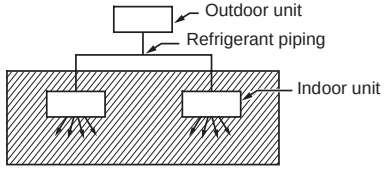
Important

▼NOTE 2

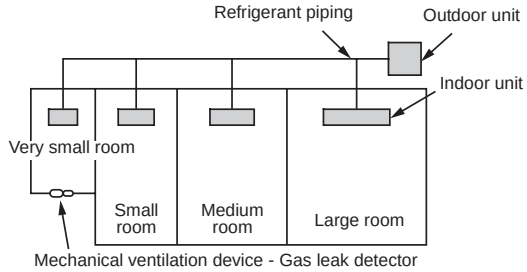
The standards for minimum room volume are as follows.
(1) No partition (shaded portion)



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

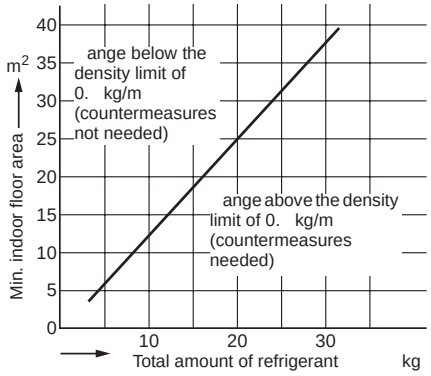


(3) If an indoor unit is installed in each partitioned room and the refrigerant piping is interconnected, the smallest room of course becomes the object. But when a mechanical ventilation is installed interlocked with a gas leakage detector in the smallest room where the density limit is exceeded, the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



▼NOTE 3

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



■ CONFIRMATION OF INDOOR UNIT SETUP

Prior to delivery to the customer, check the address and setup of the indoor unit, which has been installed in this time and fill the check sheet (Table below). Deta 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. Be sure to fill this sheet and then pass this Installation Manual to the customers.

Indoor unit setup check sheet

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

12. P.C. BOARD EXCHANGE PROCEDURES

12-1. Indoor Unit

12-1-1. Exchange of P.C. Board for Indoor Service

Part code	Model type	P.C. board model
4316V437	MMU-AP ** 2WH series	MCC-1402

Requirement at exchange of P.C. board assembly for indoor service

Before exchange, in the fixed memory (hereinafter EEPROM, IC10) installed on the indoor P.C. board, the type exclusive to the model and the capacity code are stored at shipment from the factory. The important setup data such as line/indoor/group address which are set up (Auto/Manual) or high ceiling exchange setup at installation time, respectively.

Proceed with exchange of P.C. board assembly for indoor service in the following procedure.

After exchange work, check again the setup for indoor unit No. or group header/follower units to confirm whether the setup contents are correct or not, and then check also the refrigerant circuit system by a test operation, etc.

<Exchange procedure>

Method 1

Before exchange, it is possible to turn on power of the indoor unit and read out the setup contents from the wired remote controller.

Readout of EEPROM data: **Procedure 1**

⇩

Exchange of P.C. board for service & power ON: **Procedure 2**

⇩

Writing-in of the readout EEPROM data: **Procedure 3**

⇩

Power supply reset
(All the indoor units connected to the remote controller in case of group operation control)

Method 2

Before exchange, it is impossible to read out the setup contents due to EEPROM error.

Exchange of P.C. board for service & power ON: **Procedure 2**

⇩

Writing-in of the setup data such as the model name, capacity code, indoor unit address high ceiling setup, connection setup of option,
etc to EEPROM based upon customer's information: **Procedure 3**

⇩

Power supply reset (All the indoor units connected to the remote controller in case of group operation control)

Procedure 1 : Readout setup contents from EEPROM

(Contents of EEPROM with setup changed at local site include setup at shipment from the factory are read out.)

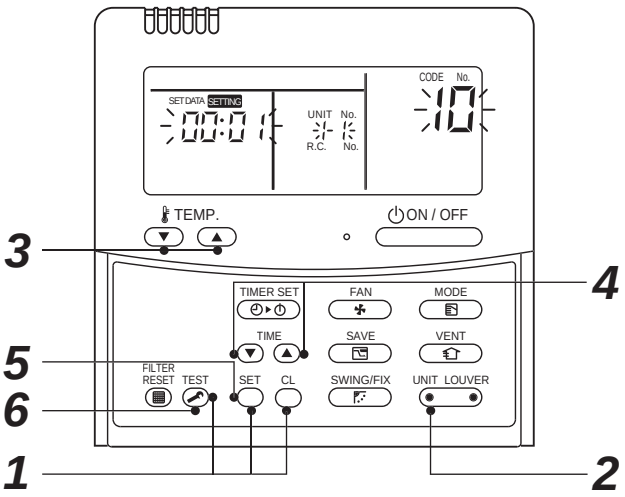
1. Push SET + CL + TEST buttons simultaneously for 4 seconds or more. ***1***
   - In a group operation control, the firstly displayed unit No. indicates the header indoor unit No.
     In this case, **10** is displayed in the CODE No. (DN). The fan of the selected indoor unit operates, and also starts swinging in a model with louver.
2. Every pushing UNIT LOUVER (button at left side), the indoor unit Nos. in the group control are displayed successively. ***2***
   Specify the indoor unit No. to be exchanged.
   - The fan of the selected indoor unit operates, and also starts swinging in a model with louver.
3. Using temperature setup TEMP. buttons, the CODE No. (DN) can be moved up/down one by one. ***3***
4. First change the CODE No. (DN) from **10** → **01** . (Setup of filter sign lighting time)
   In this time, make a note of contents of the displayed setup data.
5. In the next time, change the CODE No. (DN) using TEMP. buttons.
   Make a note of contents of the setup data as same as the above.
6. Then repeat item 5., and make a note of contents of the important setup data as indicated in the attached table (Example).
   - The CODE No. (DN) is consisted with **01** to **FF**.
     DN No. may jump on the way.
7. When noting has finished, push TEST button to return to the normal stop status. ***6***
   (It requires approx. 1 minute to operate the remote controller.)

CODE No. necessary at minimum

CODE No. (DN)	Contents
10	Type
11	Indoor unit capacity
12	Line address
13	Indoor address
14	Group address

Type and capacity of the indoor unit are necessary to set up the revolution frequency of the fan.

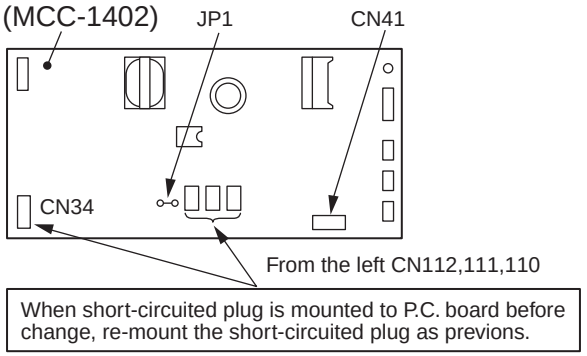
<Remote controller operation diagram>



Procedure 2 : Exchange of P.C. board for service

1. Exchange P.C. board with a P.C. board for service.

   In this time, the jumper line (cut) setup or the (short-circuit) connecting connector setup on the previous P.C. board should be reflected on P.C. board for service. (See the blow figures.)



2. It is necessary to set Indoor unit to be exchanged : Remote controller = 1 : 1

   Based upon the system configuration, turn on power of the indoor unit with one of the following items.

   1) Single (Individual) operation

      Turn on power of the indoor units and proceed to **Procedure 3**.

   2) Group operation

      A) In case that power of the exchanged indoor unit only can be turned on

         Turn on power of the exchanged indoor unit only and proceed to **Procedure 3**.

      B) In case that power of the indoor units cannot be turned on individually (***Case 1***)

         a) Remove temporarily the group wire connected to the terminal blocks A and B of the exchanged indoor unit.

         b) After connecting the remote controller wire only to the removed terminal block, turn on power of the indoor units and proceed to **Procedure 3**.

      ∗ When the above methods cannot be used, follow to the two cases below.

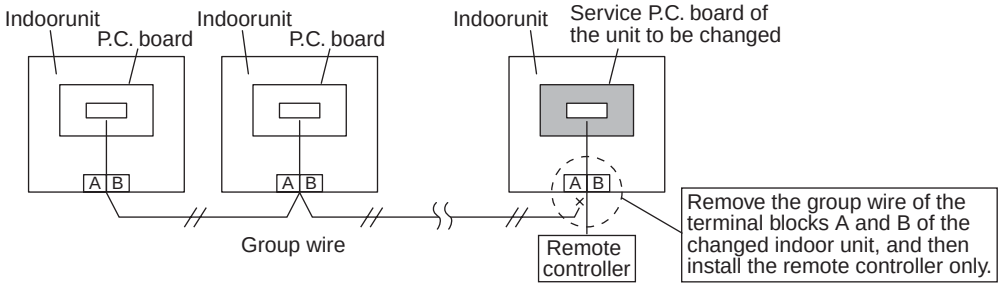
      C) In case that power of the indoor units cannot be turned on individually (***Case 2***)

         a) Remove all CN41 connectors of the indoor units in the same group except those of the exchanged indoor unit.

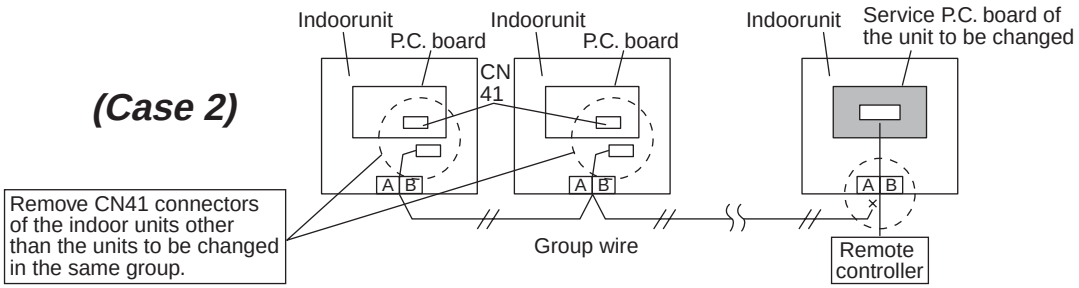
         b) Turn on power of the indoor units and proceed to **Procedure 3**.

      ∗ After **Procedure 3** operation has finished, be sure to return the temporarily removed group wire or CN41 connector to the original connection.

(Case 1)



(Case 2)



Procedure 3 : Writing-in of setup contents to EEPROM

(The EEPROM contents which are installed on the service P.C. board have been set up at shipment from the factory.)

1. Push SET + CL + TEST buttons simultaneously for 4 seconds or more. **1**
   (**ALL** is displayed in the UNIT No box.)

   In this time, **10** is displayed in the CODE No. (DN). The fan of the indoor unit operates, and also starts swinging in a model with louver.
2. Using temperature setup TEMP. buttons, the CODE No. (DN) can be moved one step up 1 or down one by one. **3**
3. First set up the type and capacity code of the indoor unit.
   (The data at shipment from the factory is written in EEPROM by changing the type and capacity code.)
   1) Set **10** to the CODE No. (DN). (As before)
   2) Using the timer time TIME buttons, set up the type. **4**
      (For example, 0002 indicates 2-way Air Discharge Cassette type.): Refer to the attached table.
   3) Push SET button. (OK if display goes on.) **5**
   4) Using temperature setup TEMP. buttons, set **11** to the CODE No. (DN).
   5) Using the timer time TIME buttons, set up the capacity code.
      (For example, 0012 indicates 27 class.): Refer to the attached table.
   6) Push SET button. (OK if display goes on.)
   7) Push TEST button to return to the normal stop status.
4. In the next, the contents such as address setup, which were set up at the local site after installation are written in EEPROM. Execute again the operation in the above item 1).
5. Using temperature setup TEMP. buttons, set **01** to the CODE No. (DN).
   (Lighting time setup for filter sign)
6. Compare the contents of the setup data which is displayed in this time with contents noted in a memo in **Procedure 1** and customer's information.
   1) If data is incorrect, change it using the timer time TIME buttons so that it matches with contents noted in a memo, and then push SET button. (OK if display goes on.)
   2) Do nothing if data is same as those in the memo.
7. Using temperature setup TEMP. buttons, change the CODE No. (DN).

   Check also the contents of the setup data and then change them it to those in the memo.
8. Then repeat operations in items 6. and 7.
9. After setup operation, push TEST button to return to the normal stop status. **6**

   In a group operation, turn off the power supply once, return the group wires between indoor units and CN41 connectors as before, and then turn on power of all the indoor units.
   (It requires approx. 1 minute to operate the remote controller.)

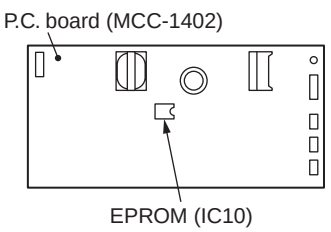
   * The CODE No. (DN) is consisted with **01** to **FF**. DN No. may jump on the way.
     Even if pushing SET button after changing the data incorrectly, the data can be returned to one before change by pushing CL button before changing the CODE No. (DN).

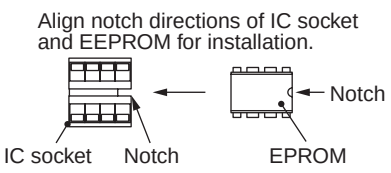
<EEPROM layout>

EEPROM (IC10) is attached to IC socket. To remove it, use a pair of tweezers, etc.

To attach EEPROM, arrange the direction as shown in the following figures.

* In exchanging time, pay attention not to bend the lead wire of IC.





<Make a note of the setup contents. (CODE No. list (Example))>

CODE No. (DN)	Item	Setting data	Factory-set value	
01	Filter sign lighting time		Depending on type	
02	Filter pollution level		0000: Standard	
03	Central control address		0099: Not determined	
06	Heating suction temperature shift		0002: +2°C (Flooring installation type: 0)	
0d	Existence of automatic COOL/HEAT mode		0001: No auto mode cooling/heating	∗ Automatic selection by connected outdoor unit
0F	Cooling only		0000: Heat pump	
10	Type		Depending on model type	
11	Indoor unit capacity		Depending on capacity type	
12	System address		0099: Not determined	
13	Indoor unit address		0099: Not determined	
14	Group address		0099: Not determined	
19	Louver type (wind direction adjustment)		Depending on type	
1E	Temperature range of cooling/heating automatic SW control point		0003: 3 deg (Ts ± 1.5)	
28	Power failure automatic recovery		0000: None	
2A	Option/Abnormal input (CN70) SW		0002: Humidifier	
31	Ventilation fan (standalone)		0000: Not available	
32	Sensor SW (Selection of static pressure)		0002: Body sensor	
5d	High ceiling SW		0000: Standard	
60	Timer setting (wired remote controller)		0000: Available	
F0	Swing mode		0000: Standard	
F1	Louver fixing position (Louver No.1)		0000: Not fixed	
F2	Louver fixing position (Louver No.2)		0000: Not fixed	
F3	Louver fixing position (Louver No.3)		0000: Not fixed	
F4	Louver fixing position (Louver No.4)		0000: Not fixed	

Type
CODE No. [10]

Setup data	Type	Model abb. name
0000	1-way Air Discharge Cassette	MMU-AP ∗∗∗ SH
0001 ∗1, ∗2	4-way Air Discharge Cassette	MMU-AP ∗∗∗ 2H
0002	2-way Air Discharge Cassette	MMU-AP ∗∗ 2WH
0003	1-way Air Discharge Cassette (Compact type)	MMU-AP ∗∗∗ YH
0004	Concealed Duct Standard	MMD-AP ∗∗∗ BH
0005	Slim Duct	MMD-AP ∗∗∗ SPH MMD-AP ∗∗∗ SH
0006	Concealed Duct High Static Pressure	MMD-AP ∗∗∗ H
0007	Under Ceiling	MMC-AP ∗∗∗ H
0008	High Wall	MMK-AP ∗∗∗ H
0009	—	—
0010	Floor Standing Cabinet	MML-AP ∗∗∗ H
0011	Floor Standing Concealed	MML-AP ∗∗∗ BH
0012	—	—
0013	Floor Standing (Below 6HP)	MMF-AP ∗∗∗ H
0014	Compact 4-way Air Discharge Cassette	MMU-AP ∗∗∗ MH

Indoor unit capacity
CODE No. [11]

Setup data	Model	Setup data	Model
0000∗	Invalid	0016	—
0001	007 type	0017	048 type
0002	—	0018	056 type
0003	009 type	0019	—
0004	—	0020	—
0005	012 type	0021	072 type
0006	—	0022	—
0007	015 type	0023	096 type
0008	—	0024	—
0009	018 type	0025	—
0010	—	0026	—
0011	024 type	0027	—
0012	027 type	0028	—
0013	030 type	~	—
0014	—	0034	—
0015	036 type		

∗ The initial setup value of EEPROM installed on the service P.C. board

∗ <Model name: MMU-AP ∗∗∗ 2H>
For the above models, set CODE No. to " CE " and the setting data 0000 (initial) to "0001".

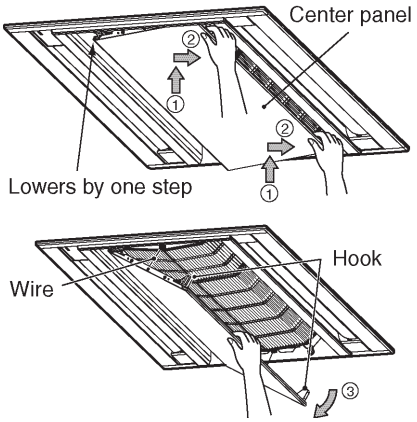
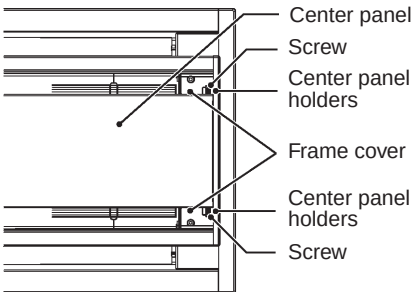
13. DETACHMENTS

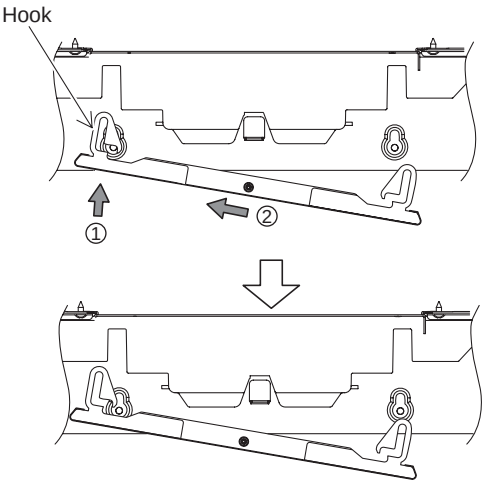
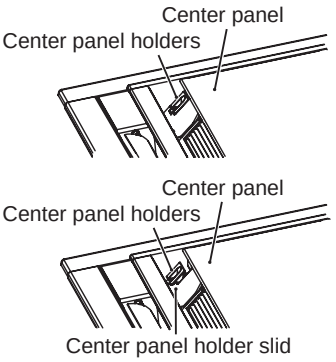
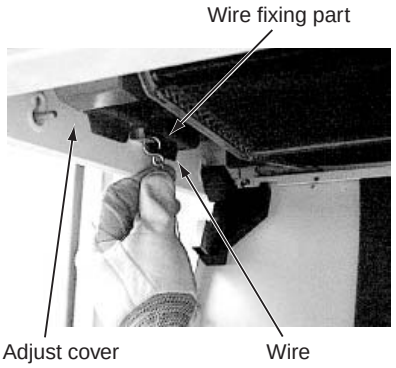
13-1. Indoor Unit (2-Way Air Discharge Cassette Type)

(MMU-AP0072WH to AP0562WH)
Ceiling Panel (RBC-UW283PG(W)-E, UW803PG(W)-E, UW1403PG(W)-E))

For detachment, they are expediently expressed as follows:

AP009: MMU-AP0072WH to AP0152WH (Ceiling panel: RBC-UW283PG(W)-E)
AP027: MMU-AP0182WH to AP0302WH (Ceiling panel: RBC-UW803PG(W)-E)
AP048: MMU-AP0362WH to AP0562WH (Ceiling panel: RBC-UW1403PG(W)-E)

No.	Part name	Procedure	Remarks
		REQUIREMENT Be sure to wear gloves when working; otherwise an injury may be caused by parts, etc.	
①	Center panel	**1. Detachment** 1) Stop operation of the air conditioner and then turn off the breaker switch. 2) Remove the center panel as the following procedure. Loosen the screws on the center panel holders fixed to the frame covers by turning them about three times. (Figure 2) **Note)** There is a frame cover on each long side of the panel. Loosen all four screws on the center panel holders. The center panel holders will slide as shown in Figure 3 when the center panel is detached. 3) When the ceiling panel is placed horizontally, you will find that the opening side is lowered and the hinge side remains level. (If it is difficult to distinguish the side, press the edges of the center panel. The opening side will move down lower.)	**Figure 1**  **Figure 2** 

No.	Part name	Procedure	Remarks
①	Center panel (Continued)	**Note)** If the center panel holders do not slide, loosen the screws a little more. The direction to open the center panel is beforehand decided. The opening side is the moving side when pushing edge of the center panel upward, and the side which does not practically move is the hanging side. • While pushing edge ① of opening port side of the center panel, pull it to the opening port side ② . • When pulling the panel, the hanging side lowers by one step and the hook at opening port side is removed. ∗ Hold the positions near the hook at both sides of the center panel, and remove hooks at opening port sides one by one. • Confirm that hanging sides at both sides lowered by one step, turn it downward slowly ③ and open the center panel. ∗ Open the center panel until there is no slackness on the wire at both sides. 4) Take off the wire from fixing part of wire on the adjust cover. 5) While lifting up the center panel ① upward, slide it to the hanged direction ② . The hook is removed. 	**Figure 3**   

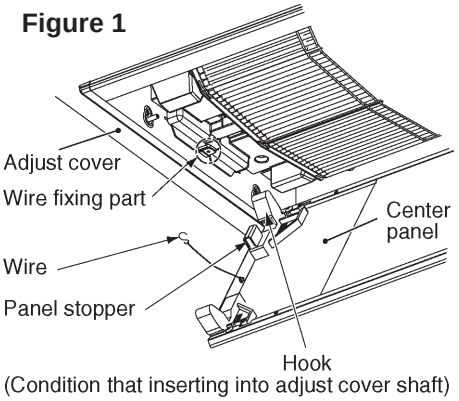
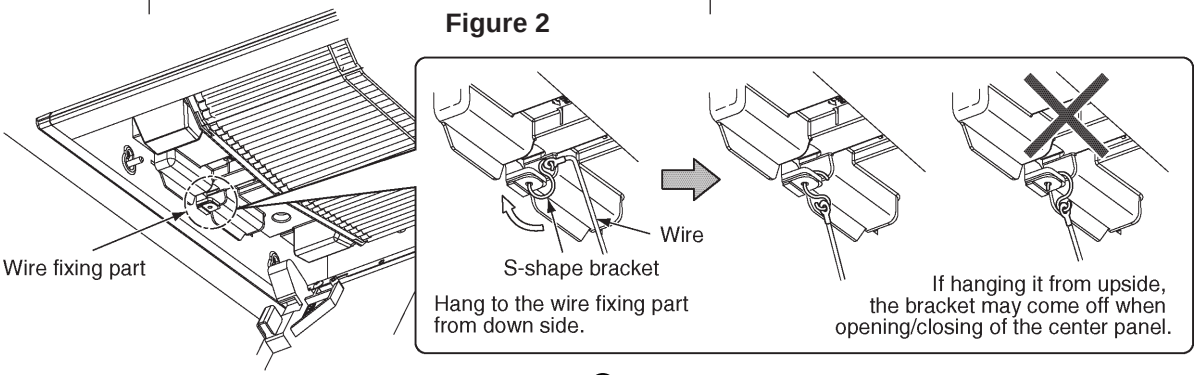
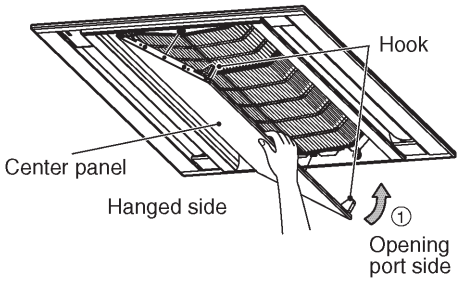
No.	Part name	Procedure	Remarks
①	Center panel (Continued)	**2. Attachment** 1) Insert hook of the center panel into shaft of the adjust cover. (2 positions at left and right sides) Insert hook attached with a panel stopper. **Note)** Be sure to attach a hook with panel stopper at first. If attaching a hook without panel stopper at first, the center panel cannot be attached. 2) Hang S-shape bracket of the wire to the wire fixing part from down side. **Note)** If hanging it from upside, the bracket may come off when opening/closing of the center panel. The wire is provided to prevent falling of the center panel. Be sure to attach it to the wire fixing part.	**Figure 1**  (Condition that inserting into adjust cover shaft)

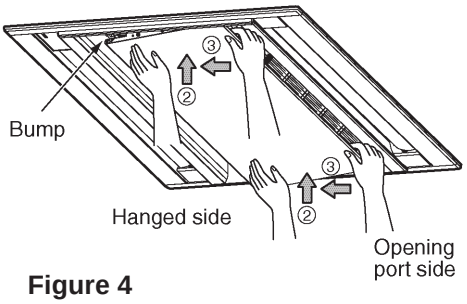
Figure 2



3) Turn the center panel slowly to ① direction and then close it.

Figure 3

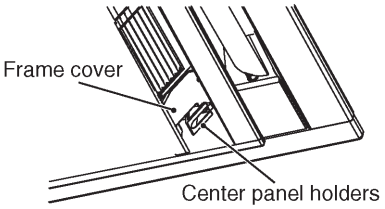


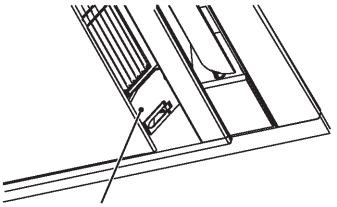


4) Under condition that opening port side of the center panel closes, lift up the bump at hanged side ② and then slide it to ③ hanged side to fix it.
Hold the positions near the hooks at both sides of the center panel, and fix it to the unit one by one.

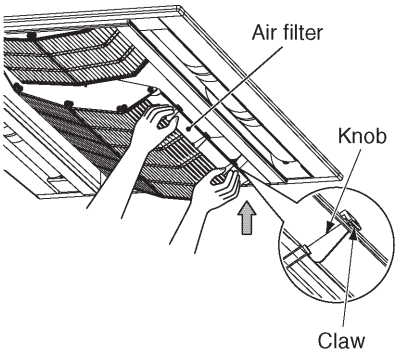
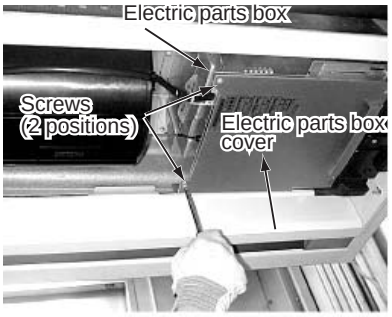
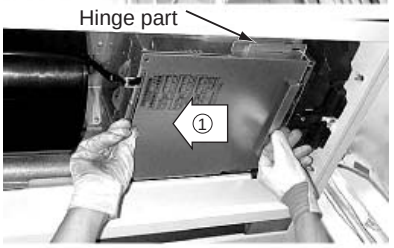
5) Push the four center panel holders inside and make them level with the frame cover, and tighten the screws which were loosened when detaching the center cover. (Figure 4)

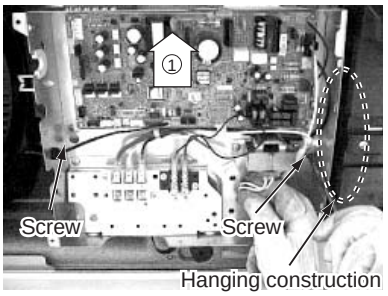
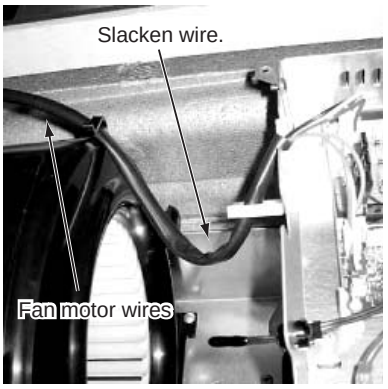
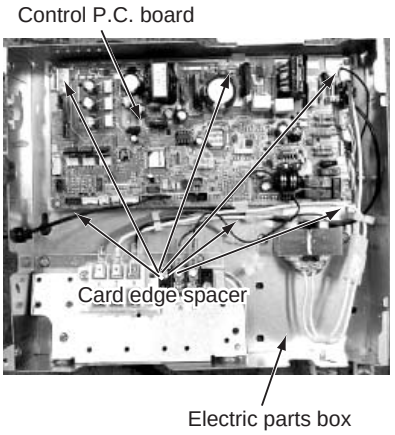
Figure 4

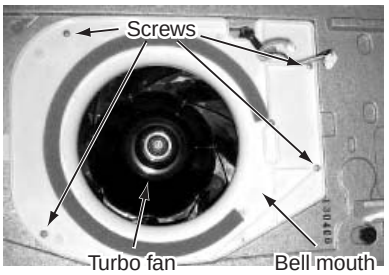
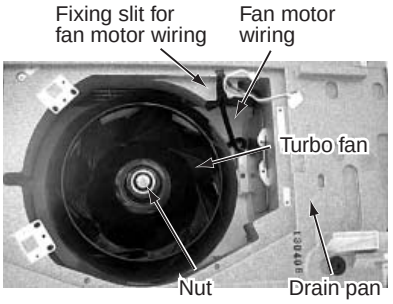
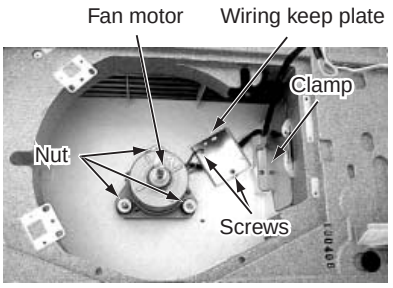


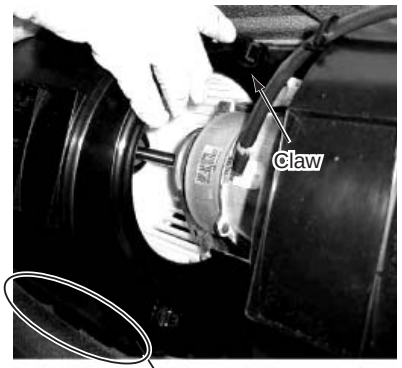
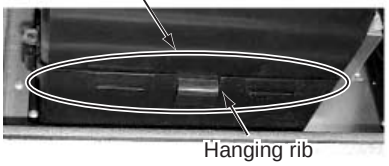
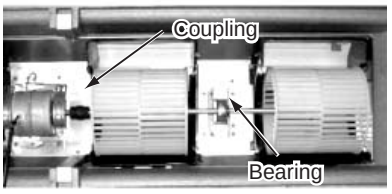
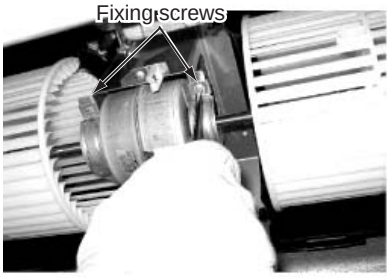
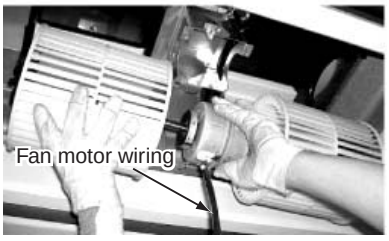
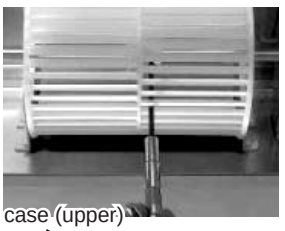
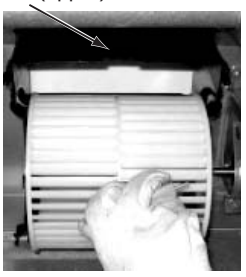


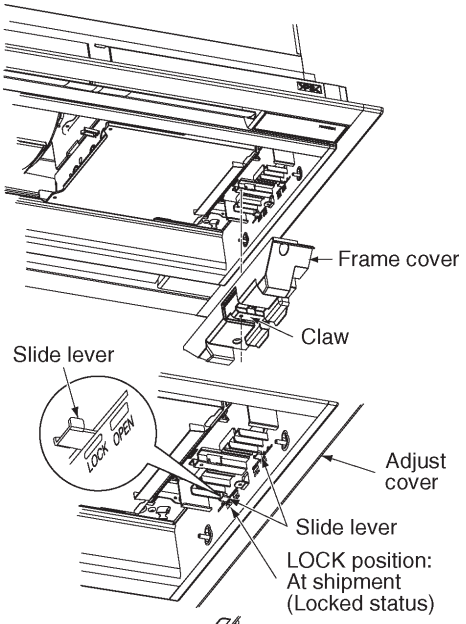
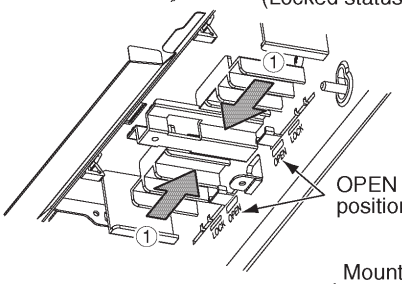
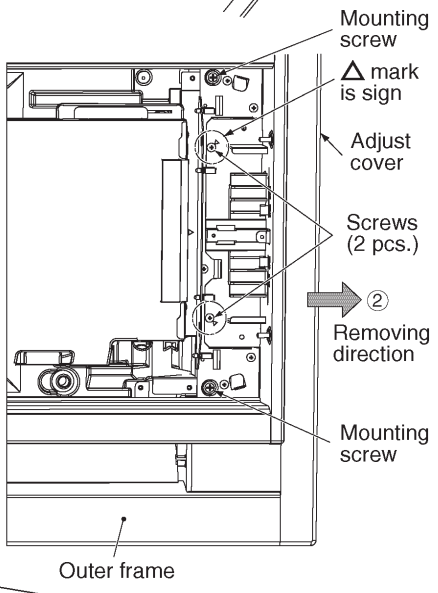
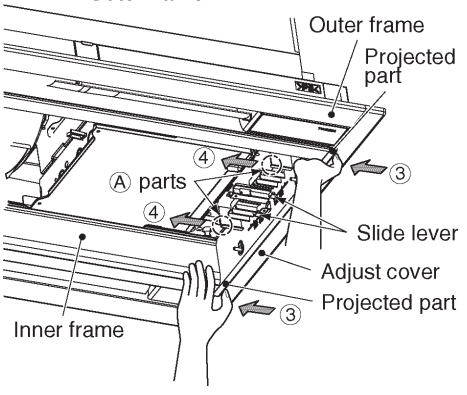
Push the center panel holders in until they are level with the Frame cover and fix them with the loosened screws.

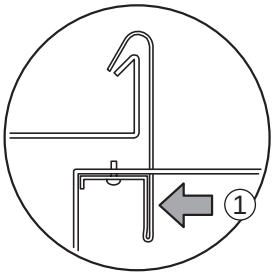
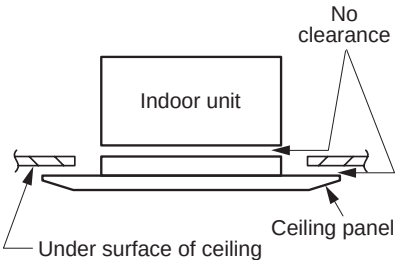
No.	Part name	Procedure	Remarks
②	Air filter	**1. Detachment** 1) Perform work Detachment 1 of ① . 2) Hold knob of the air filter, pull downward ② while pushing slantingly upward ① and then remove claws from frame of the center panel. **2. Attachment** 1) Enter the air filter until it hits the back end of the frame of one side. Hold another knob, lift up the air filter until it hits the back, and leave the knob to attach the air filter.	
③	Electric parts box	**1. Detachment** 1) Perform work Detachment 1 of ② . 2) Take off screws. (Ø4 × 8, 2 pcs.) 3) When sliding the box to the arrow direction ① in the figure, the electric parts box cover opens at the hinge part as the axis. 4) Remove indoor/outdoor connecting wire and remote controller wiring from each terminal block. 5) Remove the connectors connected from the control P.C. board to other parts. **Note)** Before removing the connectors, unlock the lock of housing part. CN33: Louver motor (5P: White) CN34: Float switch (3P: Red) CN41: Remote controller terminal block (3P: Blue) (Terminal block screws: 2P) CN68: Drain pump (3P: Blue) CN67: Power supply terminal block (5P: Black) (Terminal block screws: 3P) CN82: PMV (6P: Blue) CN100: TC1 sensor (3P: Brown) CN101: TC2 sensor (2P: Black) CN102: TCJ sensor (2P: Red) CN104: Room temp. sensor (2P: Orange) CN333: Fan motor power supply (5P: White) CN334: Fan motor position detection (5P: White)	   

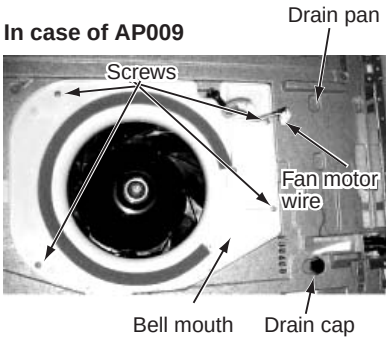
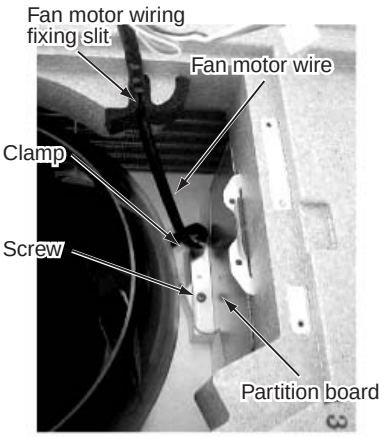
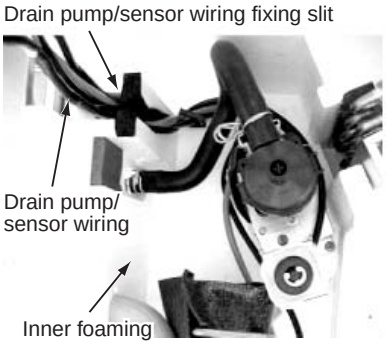
No.	Part name	Procedure	Remarks
③	Electric parts box (Continued)	6) Take off screws in the electric parts box. (Ø4 × 8, 2 pcs.) 7) The hanging structure is set at the side of the electric parts box. Remove the electric parts box by sliding it to the arrow mark in the figure. **2. Attachment** 1) Attach the electric parts box and then connect with wires as original. 2) Be sure to perform wiring in the electric parts box as original. **Note)** For the connectors, check there is no coming-off or connection error. In cases of AP027 and AP048, slacken the fan motor wires at side of the electric parts box. (As the air filter will be entered, slackness is required.) 3) Attach both air filter and center panel as original.	 **In case of AP027/AP048** 
④	Control P.C. board	**1. Detachment** 1) Perform work Detachment 1 of ③ . (In the works of 1 of ③ , detachment of the control P.C. board is possible even if skipping works 6) and after.) 2) Unlock the locks of the card edge spacers (at 6 positions) in the electric parts box and then remove the control P.C. board. **2. Attachment** 1) Attach the control P.C. board in the electric parts box as original. 2) Attach the electric parts box as original. 3) Be sure to perform wiring in the electric parts box as original. **Note)** For the connectors, check there is no coming-off or connection error. In cases of AP027 and AP048, slacken the fan motor wires at side of the electric parts box. (As the air filter will be entered, slackness is required.) 4) Attach both air filter and center panel as original.	

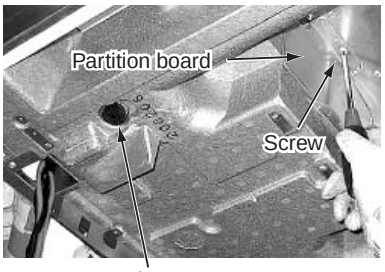
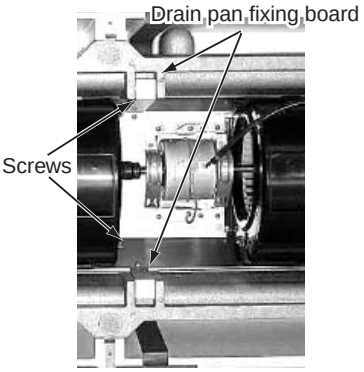
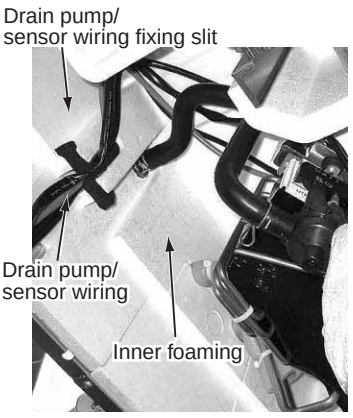
No.	Part name	Procedure	Remarks
⑤	Fan motor Turbo fan Bell mouth	**1. Detachment (In case of AP009)** 1) Perform work Detachment 1 of ③ . 2) Take off screws (Ø4 × 8, 4 pcs.) and then remove the bell mouth. 3) Take off nut and remove the turbo fan while supporting the turbo fan so that it does not fall. 4) Take off screws (Ø4 × 8, 2 pcs.) which fix the piping keep plate and then remove the piping keep plate. 5) Remove the fan motor wire from the clamp. 6) Take off nuts (3 positions) and then remove the fan motor. **Note)** Take off nuts while supporting the fan motor so that it does not fall. **2. Attachment (In case of AP009)** 1) Attach all the fan motor, turbo fan, bell mouth and electric parts box as original. Be sure to perform wiring in the electric parts box as original. **Note)** Pass the fan motor wires necessarily through the clamp and the specified fixing slit of the drain pan. 2) Check that the turbo fan does not hit the fan motor wiring by turning lightly the turbo fan with hands. 3) Attach the air filter and the center panel as original.	**In case of AP009 type**   

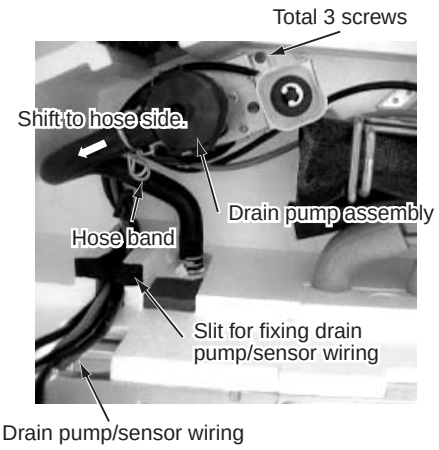
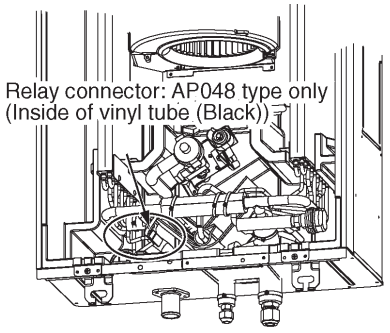
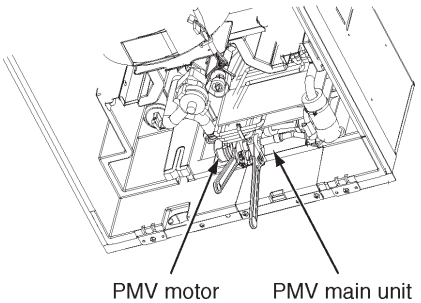
No.	Part name	Procedure	Remarks
⑥	Fan motor Fan Fan case	**1. Detachment (In cases of AP027/AP048)** 1) Perform work Detachment 1 of ② . 2) In the works of 1 of ③ , perform works to open the electric parts box cover and remove connectors of the fan motor wiring. 3) Open the fan case (lower) while pushing claws (at both sides or the case) of the fan case (lower). 4) Remove the hanging rib at opposite side of the claw and then open the fan case (lower). • As shown in Photo 1, in case of AP048, the fan motor and the shaft are connected in coupling and fixed to cabinet with bearing. Remove it if necessary. Coupling: Hexagon socket screw (For 3mm, 2 pcs.) Fixing stool for bearing: M6 screw (2 pcs.) Bearing: Hexagon socket screw (For 2.5mm, 1 pc.) 5) Take off screw of earth wire of the fan motor. 6) Take off fixing screw of fixing sheet metal (2 pcs.) at side of the fan motor. (Ø5 × 16, 2 pcs.) **Note)** Take off the fixing screws while supporting the fan motor so that it does not fall. 7) Pull out the fan from the shaft by loosening hexagon socket screw. (For 3mm, 1 pc.) **2. Attachment (In cases of AP027/AP048)** 1) Adjust the hexagon socket screw so that it fits groove of the shaft and then insert the fan into the shaft. 2) Screw the fan motor with the fixing sheet metal. (Ø5 × 16, 2 pcs.) **Note)** Match direction of the fan motor with turning direction of the fan and then fix the fan motor wiring so that it is set at piping side. 3) Fix the earth wire by screw as original. 4) Using hexagon socket screw, fix the fan by positioning so that the fan is set at the center against the fan case (upper). **Note)** For fixing the fan, use torque wrench and tighten it with 4.9 Nm or more. 5) Attach the fan case (lower) as original, and check the fan can turn smoothly without touching with the fan case. 6) Connect the fan motor wires as original and then attach the electric parts box cover. Be sure to perform wiring in the electric parts box as original. 7) Attach the air filter and the center panel as original.	**In case of AP027/AP048**   **In case of AP048 (Photo 1)**     

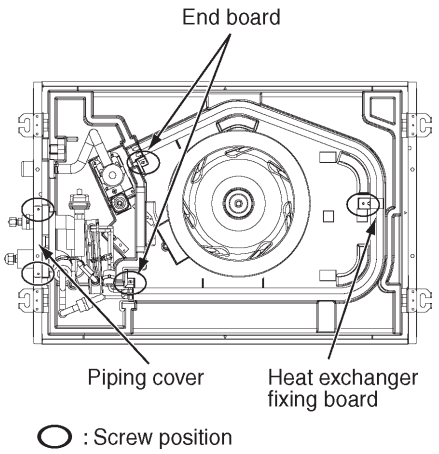
No.	Part name	Procedure	Remarks
⑦	Frame cover Adjust cover	**1. Detachment** 1) Perform work of Detachment 1 of ② . 2) Take off screw (Ø4 × 10, 1 pc.) and then remove the frame cover while pushing the claw to inner side. 3) Take off screws which fix the adjust cover. (Ø4 × 10, 2 pcs.: △ mark is sign.) 4) Move the slide levers (2 positions) to inner side to move them to OPEN position ① . Move the slide levers while pushing them. 5) Remove the adjust cover while sliding it to the arrow mark direction ② by pushing it with hands so that it does not fall. **2. Attachment** 1) Loosen the mounting screws (Ø5 × 40, 2 pcs.) which fix the indoor unit and the ceiling panel and then lower the ceiling panel by approx. 10mm. **Note)** If you do not loosen the mounting screws, the adjust cover is not fixed. 2) Referring to the diagram “How to mount the adjust cover”, push the projected part of the adjust cover by thumb in the inner frame while widening it with hands. ③ In this time, be sure to insert claws into the inner and outer frames. 3) Pull (A) part to the arrow direction until one side each matches with the hole part (△ mark is sign.) and then move the slide lever to the LOCK position ④ . Move the slide lever while pushing it. 4) Using screws (Ø4 × 10, 2 pcs.) taken off in 1. Detachment of ⑥ , fix it. **Note)** When attaching the adjust cover, be sure to move it until there is no clearance at matching part with the outer frame. 5) Tighten screws (Ø5 × 40, 2 pcs.) loosened in 1) Attachment of 2- ⑦ as original. 6) Put in claw of the frame cover and then fix it with screw (Ø4 × 10, 1 pc.) **Note)** Perform attachment as original. The incomplete attachment may cause dewing. In attachment work, be sure that the louver motor wires are not caught in. 7) Attach the air filter and the center panel as original.	   

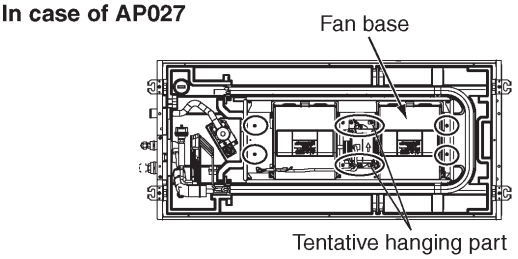
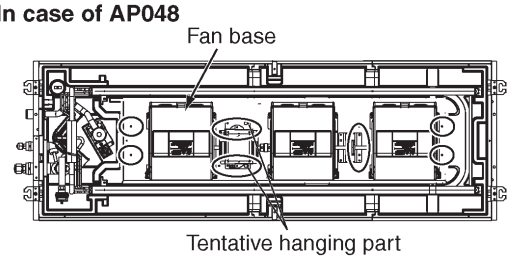
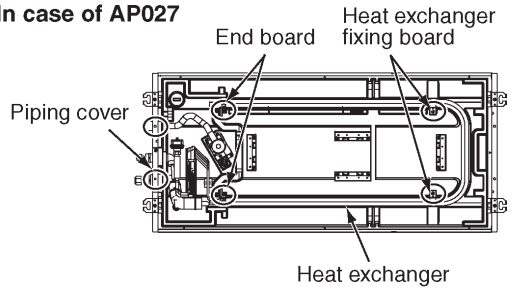
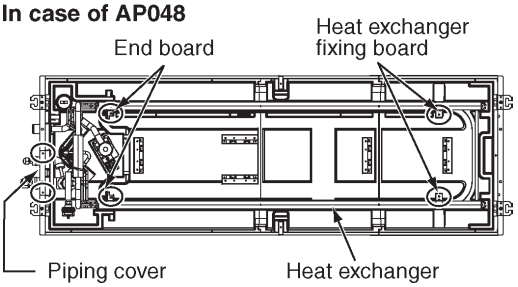
No.	Part name	Procedure	Remarks
⑧	Ceiling panel	**1. Detachment** 1) Perform work Detachment 1 of ② . 2) In the works of 1 Detachment of ③ , perform works to open the electric parts box cover and remove connector of the louver motor wiring. 3) In the works of 1 Detachment of ⑥ , perform work to remove the frame cover. 4) Take off the mounting screws (Ø5 × 40, 4 pcs. for AP009 and AP027, 6 pcs. for AP048) which fix the indoor unit and the ceiling panel. 5) Lower the tentative hooks (Total 2 psc. at left and right) slowly while pushing them with fingers ① . The position of tentative hook at the left side differs a little from hook at right side. **2. Attachment** 1) Put the ceiling panel slantingly. Hang one side of the tentative hook to the indoor unit, lift up the other hook horizontally and hang it. **Note)** When hanging the ceiling panel, match the louver motor wiring side of the ceiling panel with the electric parts box side of the indoor unit. 2) Check that the tentative hooks at the both sides of the ceiling panel are surely hanged and then leave the hands. For the ceiling panel, tighten the mounting screws (Ø5 × 40, 4 psc. for AP009, 6 psc. for AP048) until it stick firmly to the indoor unit. **Note)** When tightening the mounting screws, check there is no catching of wire. Check there is no clearance between indoor unit and ceiling panel, and between ceiling panel and under face of the ceiling.	  

No.	Part name	Procedure	Remarks
⑨	Drain pan	**1. Detachment (In case of AP009)** 1) Perform work Detachment 1 of ③ . Perform work Detachment 1 of ⑦ . 2) Take off the drain cap and then extract accumulated drain water in the drain pan. **Note)** When taking off the drain cap, be sure to receive drain water in a bucket, etc. 3) Remove the bell mouth followed to work of Detachment 1 of ⑤ and release fixing of the fan motor. 4) Remove the fan motor wiring from clamp on the partition board. 5) Take off screw (Ø4 × 8, 1 pc.) which fixes the partition board and then remove it as if lifting up it. 6) Take off screws at 4 corners (Ø4 × 8, 4 pcs.) which fix the drain pan and then pull out the drain pan quietly. **2. Attachment (In case of AP009)** 1) Attach the drain pan as original while passing the fan motor wiring and the drain pump/ sensor wiring through the specified hole. **Note)** Be sure to pass the drain pump sensor wiring through the specified fixing slit of the inner foaming. Be sure to pass also the fan motor wiring through the clamp and the fixing slit. 2) Attach all the partition board, bell mouth, electric parts box, ceiling panel, air filter and center panel as original. For wiring in the electric parts box, be sure to wire it as original.	**In case of AP009**    

No.	Part name	Procedure	Remarks
⑨	Drain pan (Continued)	**1. Detachment (In cases of AP027/AP048)** 1) Perform work Detachment 1 of ③ . Perform work Detachment 1 of ⑦ . 2) Take off the drain cap and then extract accumulated drain water in the drain pan. **Note)** When taking off the drain cap, be sure to receive drain water in a bucket, etc. 3) Take off screw (Ø4 × 8, 1 pc.) which fixes the partition board and then remove it as if lifting up it. • As shown in the right Photo, the drain pan is fixed by the drain pan fixing sheet metal at the both sides of the fan motor. Take off each screw and then remove the drain pan fixing board. (Ø4 × 8, 1 pc. each) 4) Take off screws at 4 corners (Ø4 × 8, 4 pcs.) which fix the drain pan and then pull out the drain pan quietly. **2. Attachment (In cases of AP027/AP048)** 1) Attach the drain pan as original while passing the fan motor wiring and the drain pump sensor wiring through the specified hole. **Note)** Be sure to pass the drain pump sensor wiring through the specified fixing slit of the inner foaming. 2) Attach all the partition board, electric parts box, ceiling panel, air filter and center panel as original. For wiring in the electric parts box, be sure to wire it as original. • Be sure necessarily to attach the drain pan fixing sheet metal for AP048 type.	**In cases of AP027/AP048**  **In case of AP048**   

No.	Part name	Procedure	Remarks
⑩	Drain pump	**1. Detachment** 1) Perform work Detachment 1 of ⑨ . 2) Pick the hose band and shift it from the pump connecting part and then remove the drain hose. 3) Take off screws which fix the drain pump assembly and then remove the drain pump assembly. (Ø4 × 8, 3 pcs.) **2. Attachment** 1) Using screws taken off from the drain pump assembly, fix the assembly as original. 2) Fix the drain pump wiring to the slit for fixing the drain pump/sensor wiring. 3) Connect the drain pump as original and then attach the hose band. **Note)** Insert the drain hose up to the back of the pup connecting part, and apply a band at the white mark of the hose. 4) Attach all the drain pan, partition board, electric parts box ceiling panel, air filter and center panel as original. For wiring in the electric parts box, be sure to wire it as original.	
⑪	PMV motor	**1. Detachment** 1) Perform work Detachment 1 of ⑧ . 2) Remove the relay connector of PMV motor. (Only relay connector of AP048 type is connected in the vinyl tube. Therefore cut off the bundling band which fixes the tube and then remove the relay connector.) 3) Peel off the butyl rubber adhered to PMV main unit until you can see PMV main unit, loosen nut which fixes PMV motor with double spanner and then remove PMV motor. **2. Attachment** 1) Attach PMV motor and relay connector as original. **Note)** Control the tightening torque of PMV main unit and PMV motor at 7.84 ± 0.98 Nm.	 

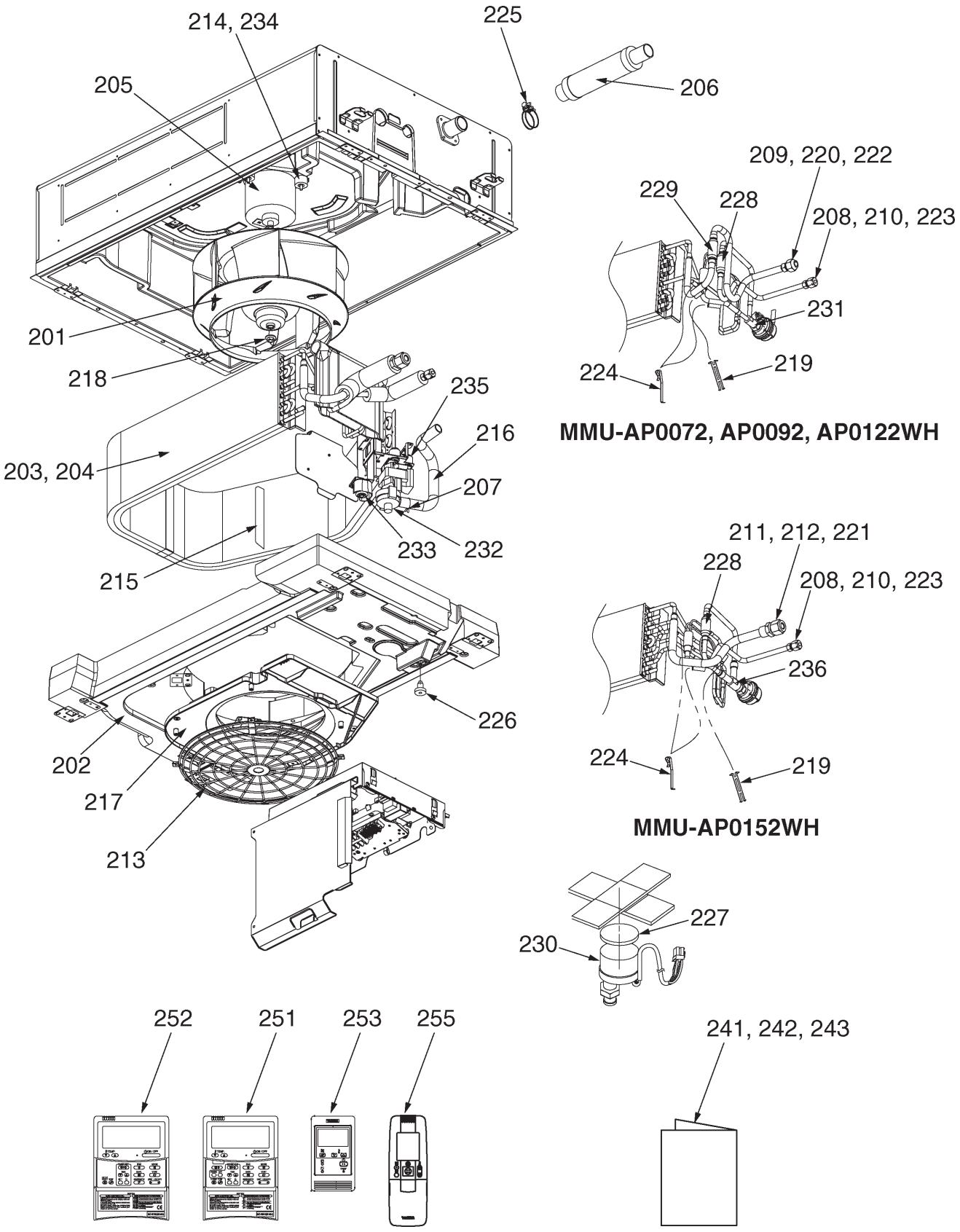
No.	Part name	Procedure	Remarks
⑫	Heat exchanger	**1. Detachment (In case of AP009)** 1) Recover the refrigerant gas and then remove the refrigerant pipe of the indoor unit. 2) Perform work of Detachment 1 of ⑧ . 3) Pull out wires of TC1 sensor, TC2 sensor and TCJ sensor from the holder. 4) Take off screws (Ø4 × 8, 2 pcs.) and the piping cover. 5) Take off screw (Ø4 × 8, 1 pc.) and then remove the heat exchanger fixing board. 6) While pressing the heat exchanger, take off screws fixing (Ø4 × 8, 1 pc. each) of the end boards (2 pcs.), and then take out the heat exchanger slowly. **2. Attachment (In case of AP009)** 1) Set the heat exchanger at the original position and then fix all the end board, heat exchanger fixing board and piping cover with taken-off screws as original. 2) Insert wires for TC1 sensor, TC2 sensor and TCJ sensor into the holder and perform wiring as original. 3) Attach all the drain pan, partition board, bell mouth, electric parts box, ceiling panel, air filter and center panel as original. Be sure to perform drawing of wires as same as original drawing.	**In case of AP009** 

No.	Part name	Procedure	Remarks
⑫	Heat exchanger (Continued)	**1. Detachment (In cases of AP027/AP048)** 1) Recover the refrigerant gas and then remove the refrigerant piping of the indoor unit. 2) Perform work Detachment 1 of ⑧ . 3) Take off screws and remove the fan base. (For the tentative hanging parts at 2 positions, it is all right only to loosen screws.) AP027 type (Hexagon socket screw Ø4 × 10, 10 pcs.) AP048 type (Hexagon socket screw Ø4 × 10, 13 pcs.) **Note)** The fan or fan motor are attached to the fan base. If the base is heavy, remove each for working. 4) Pull out wires of TC1 sensor, TC2 sensor and TCJ sensor from the holder. 5) Take off screws (Ø4 × 10, 2 pcs.) and then remove the piping cover. 6) Take off screw (Ø4 × 10, 1 pc. each) and then remove the heat exchanger fixing boards (2 pcs.). 7) While pressing the heat exchanger, take off screws fixing (Ø4 × 10, 1 pc. each) of the end boards (2 pcs.), and then take out the heat exchanger slowly. **2. Attachment (In case of AP027/AP048)** 1) Set the heat exchanger at the original position and then fix all the end board, heat exchanger fixing board and piping cover with taken-off screws as original. 2) Insert wires for TC1 sensor, TC2 sensor and TCJ sensor into the holder and perform wiring as original. 3) Attach all the drain pan, partition board, bell mouth, electric parts box, ceiling panel, air filter and center panel as original. Be sure to perform drawing of wires as same as original drawing. 3) Attach all the drain pan, partition board, electric parts box, ceiling panel, air filter and center panel as original. Be sure to perform drawing of wires as same as original drawing.	⬭ : Screw position **In case of AP027**  **In case of AP048**  **In case of AP027**  **In case of AP048** 

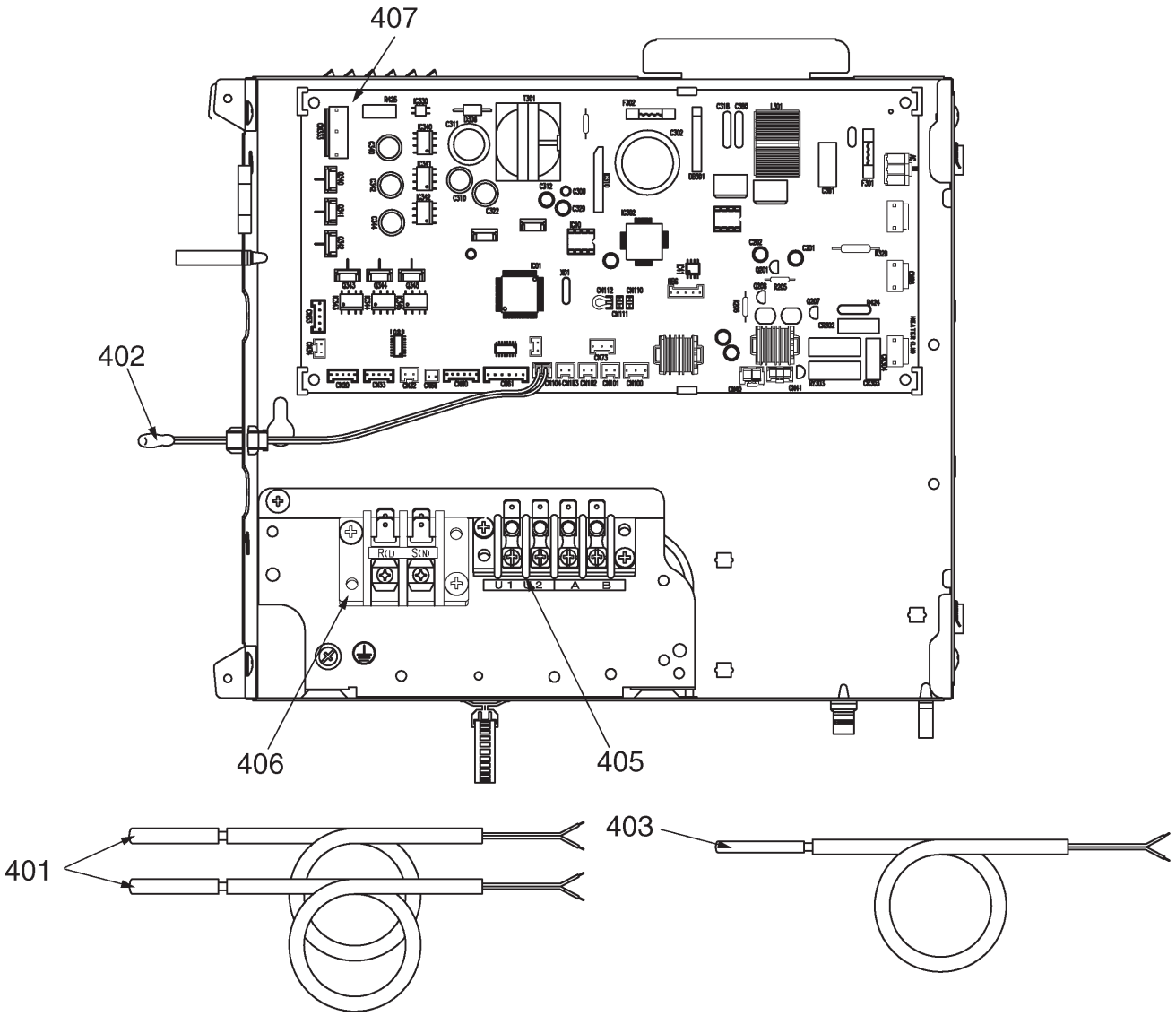
14. EXPLODED VIEWS AND PARTS LIST

14-1. Indoor Unit

MMU-AP0072WH, MMU-AP0092WH, MMU-AP0122WH, MMU-AP0152WH

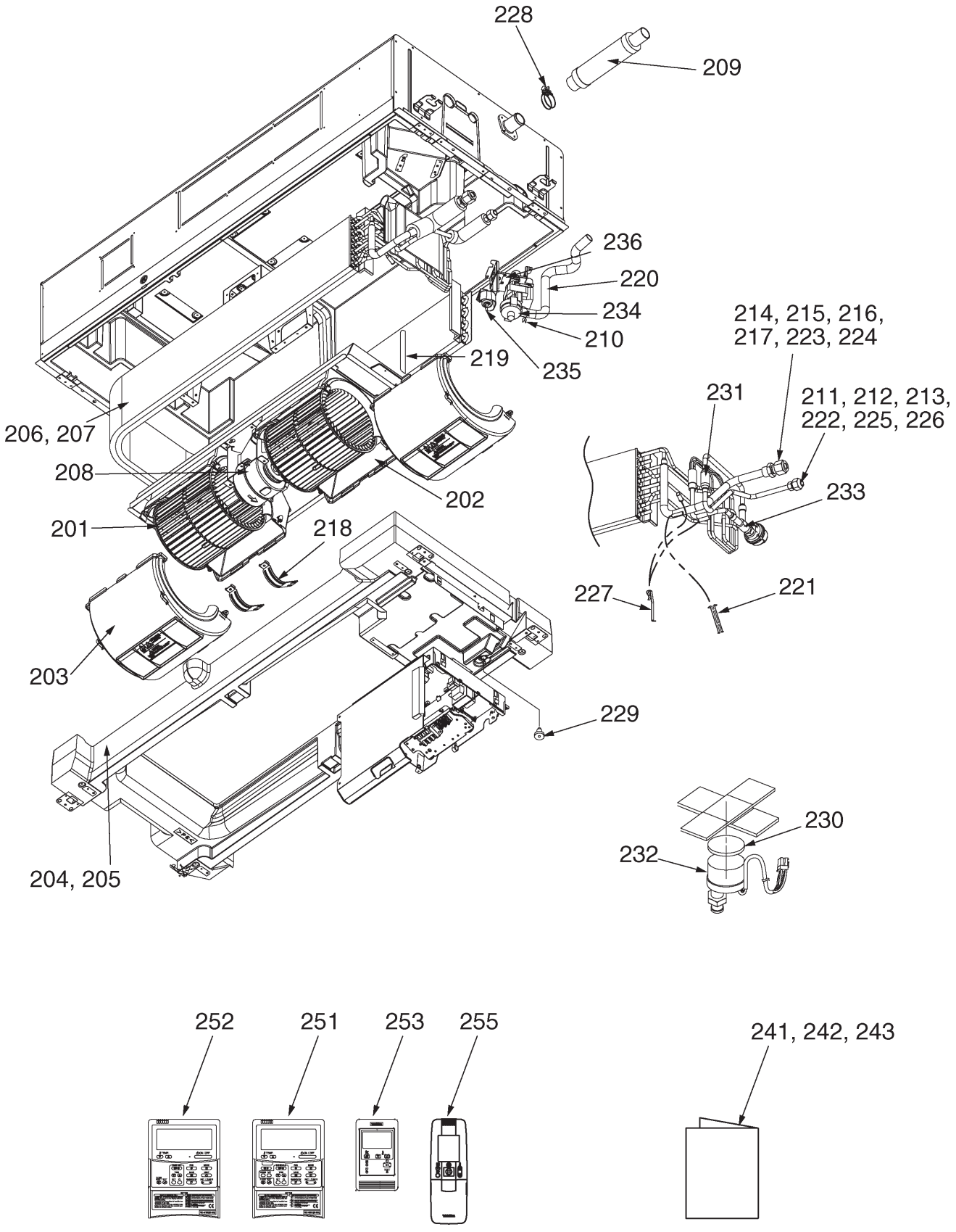


Location No.	Parts No.	Description	Model Name MMU-AP			
			0072WH	0092WH	0122WH	0152WH
201	43120225	Fan Ass'y, Turbo, TG321	1	1	1	1
202	43172191	Pan Ass'y, Drain	1	1	1	1
203	4314J341	Refrigeration Cycle Ass'y	1	1	1	
204	4314J342	Refrigeration Cycle Ass'y				1
205	4312C048	Motor, Fan, DK8-53A280HA	1	1	1	1
206	43170244	Hose, Drain, 25A	1	1	1	1
207	43079249	Band, Hose	1	1	1	1
208	43047685	Nut, Flare, 1/4 IN	1	1	1	1
209	43049776	Socket 3/8"	1	1	1	
210	43149351	Socket 1/4"	1	1	1	1
211	43047688	Nut, Flare, 1/2 IN				1
212	43149353	Socket 1/2"				1
213	43191632	Guard, Fan	1	1	1	1
214	43139137	Rubber, Cushion	3	3	3	3
215	43122099	Plate, Wind	3	3	3	3
216	43170246	Hose, Drain	1	1	1	1
217	43122100	Bell Mouth	1	1	1	1
218	43097212	Nut	1	1	1	1
219	43107215	Holder, Sensor	1	1	1	1
220	43047609	Bonnet	1	1	1	
221	43147195	Bonnet, 1/2 IN				1
222	43149355	Nut, Flare, 3/8 IN	1	1	1	
223	43049697	Bonnet	1	1	1	1
224	43019904	Holder, Sensor	2	2	2	2
225	43179135	Band, Hose	1	1	1	1
226	43179110	Plug	1	1	1	1
227	43149314	Sheet, PMV	1	1	1	1
228	43147664	Strainer	1	1	1	1
229	4314Q051	Strainer	1	1	1	
230	43146707	Motor, PMV, EDM-MD12TF-3	1	1	1	1
231	43146713	Valve, PMV, EDM-B25YGTF-3	1	1	1	
232	43177014	Pump, Drain, ADP-1409, 960L	1	1	1	1
233	43151284	Switch, Float	1	1	1	1
234	43197155	Washer	3	3	3	3
235	43179126	Rubber, Pump, Drain	3	3	3	3
236	43146726	Body, PMV				1
241	431S8086	Owner's Manual, MMY-MAP1201HT8-E	1	1	1	1
242	431S8205	Owner's Manual, MMY-MAP0804HT8-E	1	1	1	1
243	4318T727	Owner's Manual, MCY-MAP0401HT	1	1	1	1
251	43166012	Remote Controller, SX-A5EE	1	1	1	1
252	43166011	Remote Controller, SX-A4EE	1	1	1	1
253	43166004	Remote Controller, SX-A11JE2	1	1	1	1
255	43166006	Remote Controller, WH-H1JE2	1	1	1	1

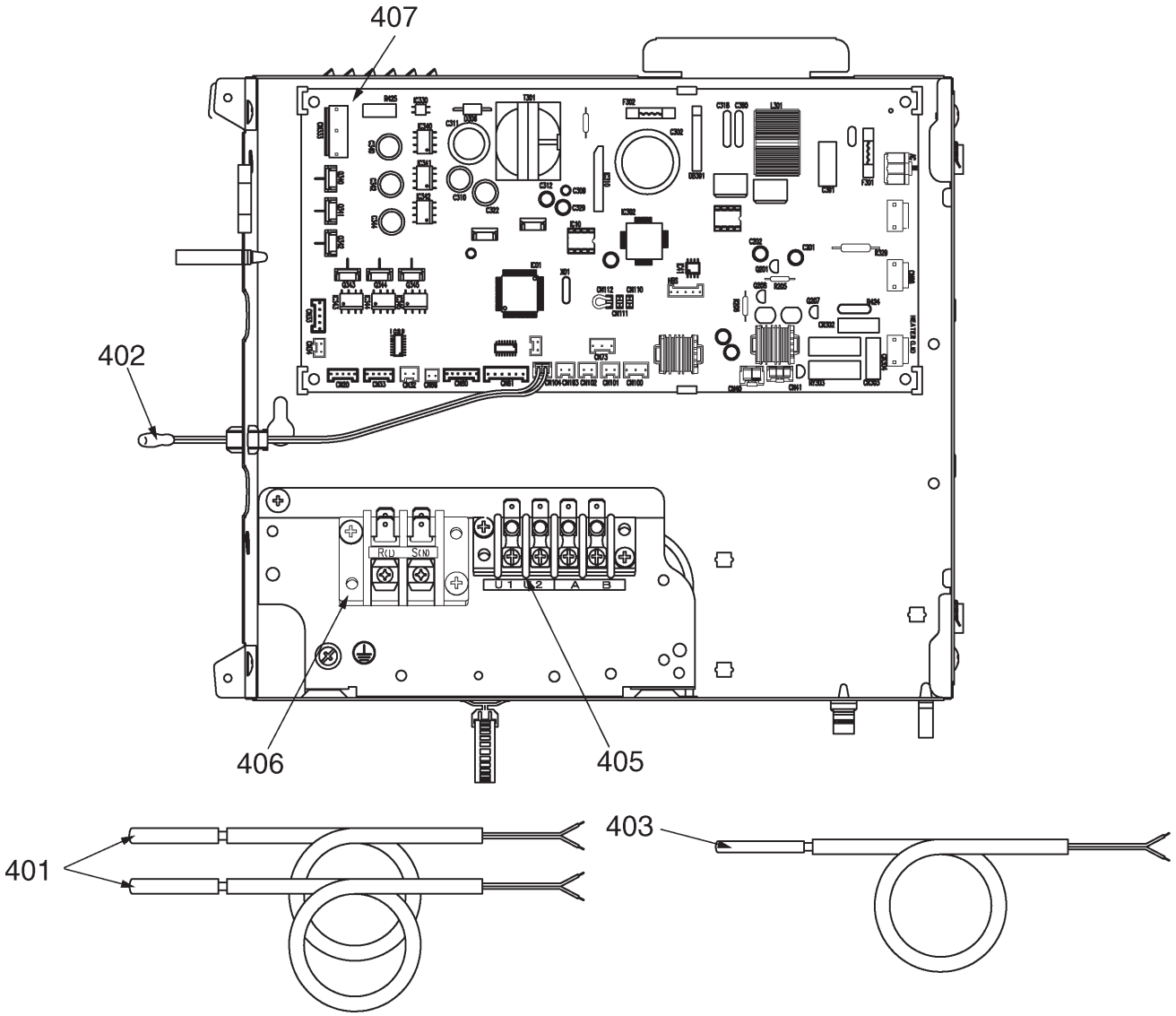


Location No.	Parts No.	Description	Model Name MMU-AP			
			0072WH	0092WH	0122WH	0152WH
401	43050425	Sensor Ass'y Service, TC (F6)	2	2	2	2
402	43050426	Sensor, Service, TA	1	1	1	1
403	43150320	Sensor Ass'y Service, TG (F4)	1	1	1	1
405	43160582	Terminal, 4P, AC30V / DC42V, 1A	1	1	1	1
406	43160575	Terminal Block, 2P, AC300V 20A	1	1	1	1
407	4316V437	P.C. board Ass'y, MCC-1402	1	1	1	1

MMU-AP0182WH, MMU-AP0242WH, MMU-AP0272WH, MMU-AP0302WH

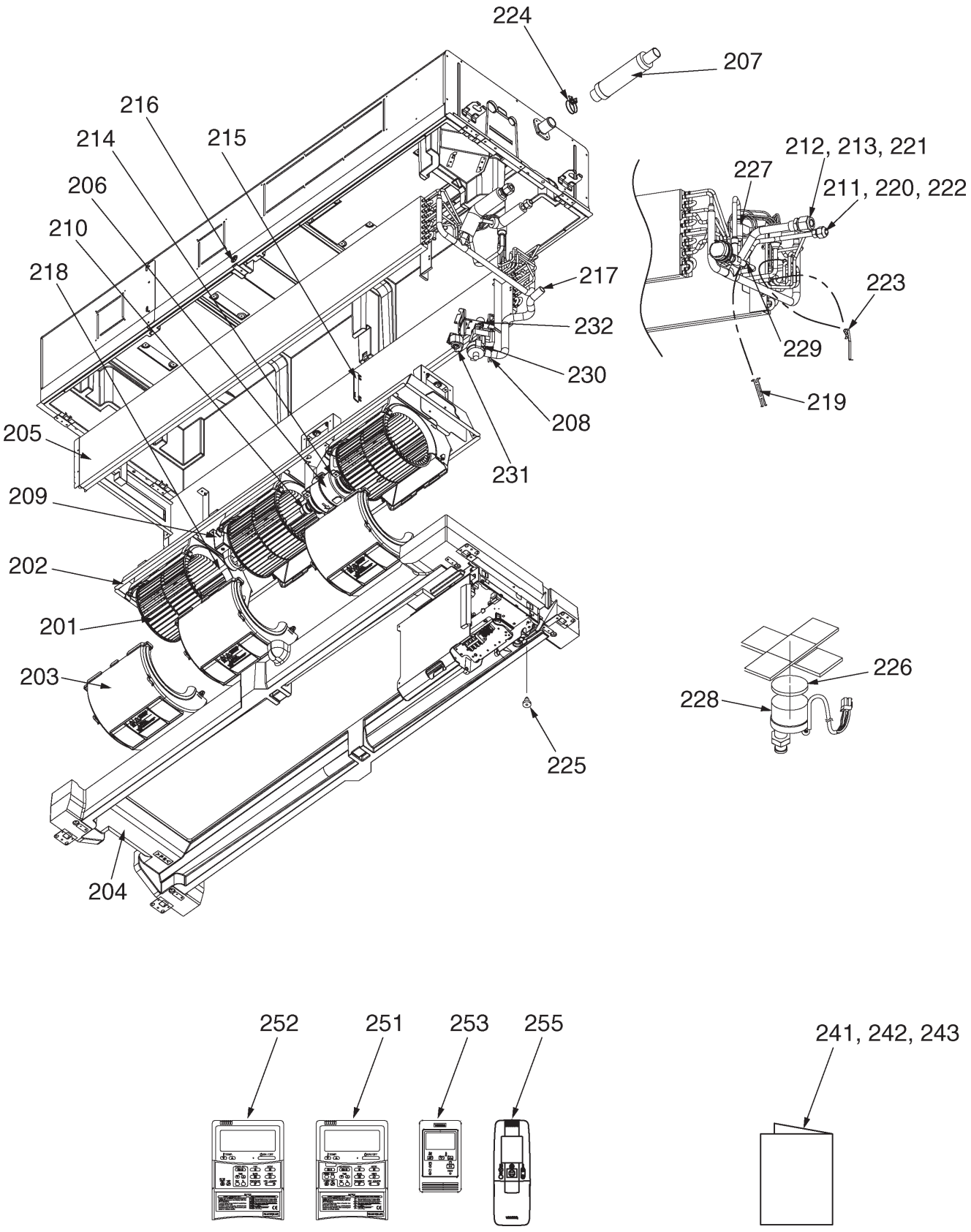


Location No.	Parts No.	Description	Model Name MMU-AP			
			0182WH	0242WH	0272WH	0302WH
201	43120239	Fan, Multi Blade	2	2	2	2
202	43122097	Case, Fan	2	2	2	2
203	43122098	Case, Fan	2	2	2	2
204	43172192	Pan Ass'y Drain	1			
205	43172193	Pan Ass'y Drain		1	1	1
206	4314J343	Refrigeration Cycle Ass'y	1			
207	4314J344	Refrigeration Cycle Ass'y		1	1	1
208	43121742	Motor, Fan, SWF-280-60-1R	1	1	1	1
209	43170244	Hose, Drain, 25A	1	1	1	1
210	43079249	Band, Hose	1	1	1	1
211	43047685	Nut, Flare, 1/4 IN	1			
212	43049776	Socket, 3/8"		1	1	1
213	43149351	Socket, 1/4"	1			
214	43047688	Nut, Flare, 1/2 IN	1			
215	43149352	Nut, Flare, 5/8 IN		1	1	1
216	43149353	Socket, 1/2"	1			
217	43149354	Socket, 5/8"		1	1	1
218	43139152	Band, Motor	2	2	2	2
219	43122099	Plate, Wind	4	4	4	4
220	43170247	Hose, Drain	1	1	1	1
221	43107215	Holder, Sensor	1	1	1	1
222	43047609	Bonnet		1	1	1
223	43147195	Bonnet, 1/2 IN	1			
224	43194029	Bonnet		1	1	1
225	43149355	Nut, Flare, 3/8 IN		1	1	1
226	43049697	Bonnet	1			
227	43019904	Holder, Sensor	2	2	2	2
228	43179135	Band, Hose	1	1	1	1
229	43179110	Plug	1	1	1	1
230	43149314	Sheet, PMV	1	1	1	1
231	43147664	Strainer	1	1	1	1
232	43146707	Motor, PMV, EDM-MD12TF-3	1	1	1	1
233	43146726	Body, PMV	1	1	1	1
234	43177014	Pump, Drain, ADP-1409, 960L	1	1	1	1
235	43151284	Switch, Float	1	1	1	1
236	43179126	Rubber, Pump, Drain	3	3	3	3
241	431S8086	Owner's Manual, MMY-MAP1201HT8-E	1	1	1	1
242	431S8205	Owner's Manual, MMY-MAP0804HT8-E	1	1	1	1
243	4318T727	Owner's Manual, MCY-MAP0401HT	1	1	1	1
251	43166012	Remote Controller, SX-A5EE	1	1	1	1
252	43166011	Remote Controller, SX-A4EE	1	1	1	1
253	43166004	Remote Controller, SX-A11JE2	1	1	1	1
255	43166006	Remote Controller, WH-H1JE2	1	1	1	1

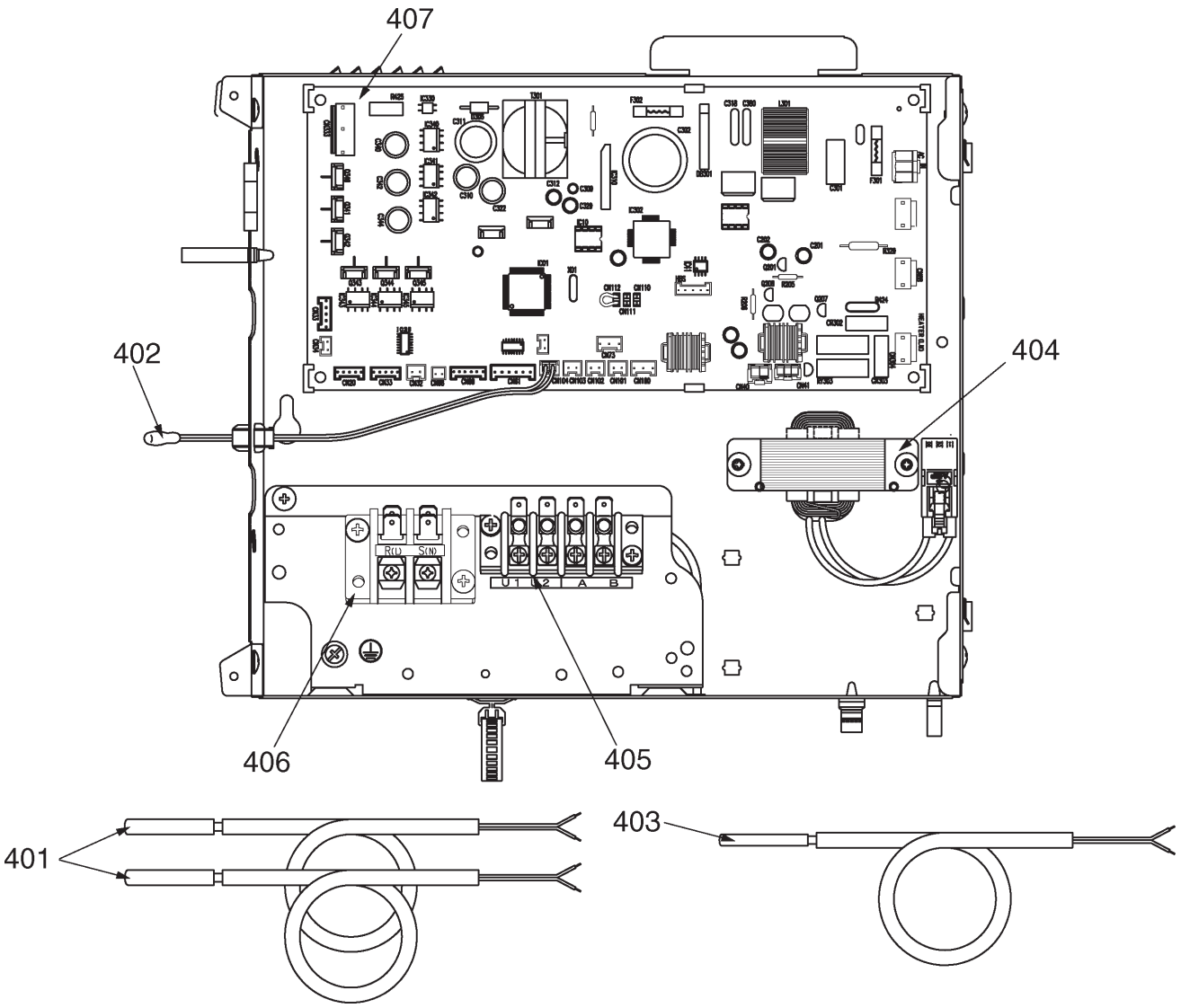


Location No.	Parts No.	Description	Model Name MMU-AP			
			0182WH	0242WH	0272WH	0302WH
401	43050425	Sensor Ass'y Service, TC (F6)	2	2	2	2
402	43050426	Sensor, Service, TA	1	1	1	1
403	43150320	Sensor Ass'y Service, TG (F4)	1	1	1	1
405	43160582	Terminal, 4P, AC30V / DC42V, 1A	1	1	1	1
406	43160575	Terminal Block, 2P, AC300V 20A	1	1	1	1
407	4316V437	P.C. board Ass'y, MCC-1402	1	1	1	1

MMU-AP0362WH, MMU-AP0482WH, MMU-AP0562WH

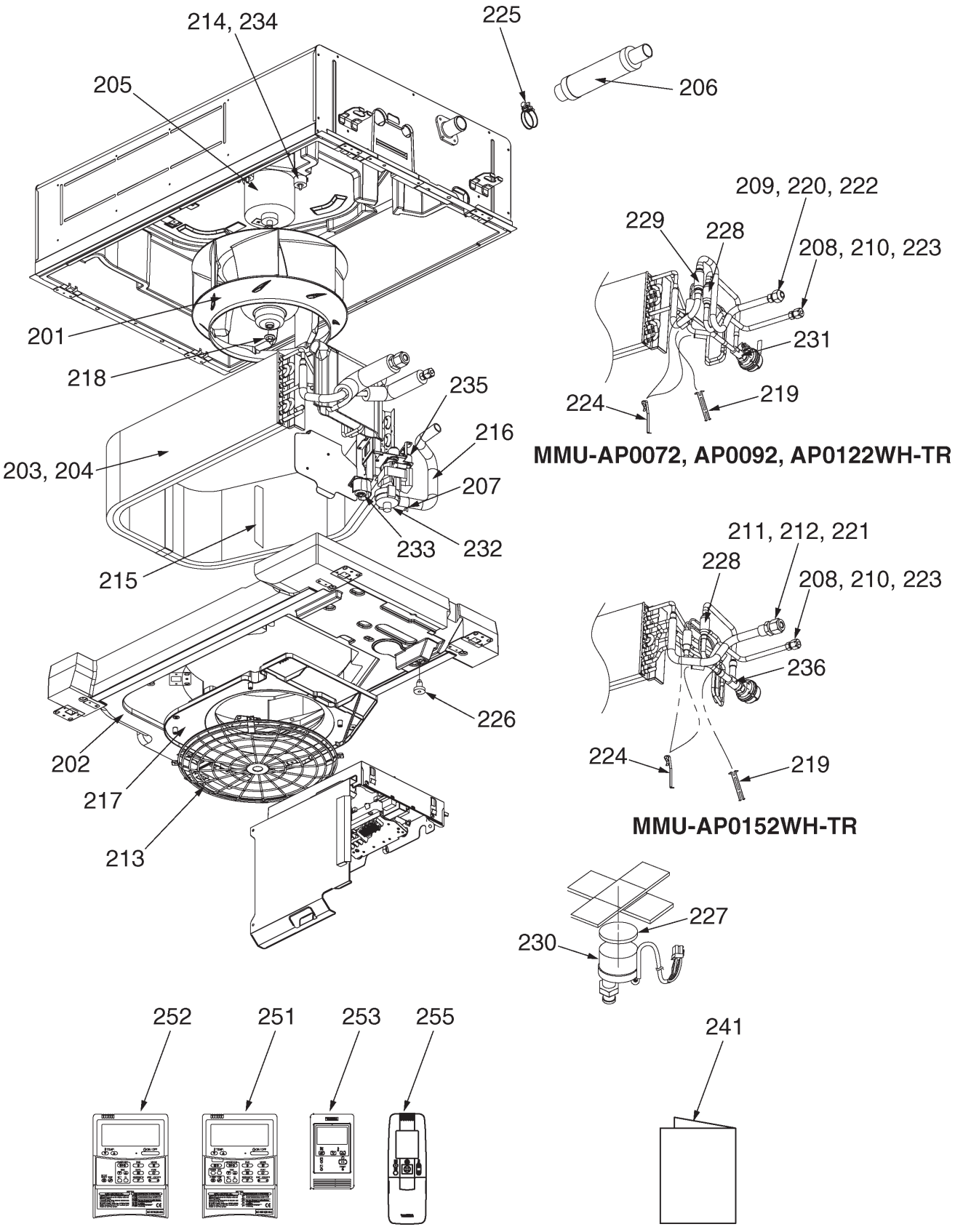


Location No.	Parts No.	Description	Model Name MMU-AP		
			0362WH	0482WH	0562WH
201	43120239	Fan, Multi Blade	3	3	3
202	43122097	Case, Fan	3	3	3
203	43122098	Case, Fan	3	3	3
204	43172194	Pan Ass'y, Drain	1	1	1
205	4314J345	Refrigeration Cycle Ass'y	1	1	1
206	43121741	Motor, Fan, SWF-280-120-2R	1	1	1
207	43170244	Hose, Drain, 25A	1	1	1
208	43079249	Band, Hose	1	1	1
209	43125131	Bearing, Shaft	1	1	1
210	43125162	Coupling	1	1	1
211	43049776	Socket, 3/8"	1	1	1
212	43149352	Nut, Flare, 5/8 IN	1	1	1
213	43149354	Socket, 5/8"	1	1	1
214	43139152	Band, Motor	2	2	2
215	43122099	Plate, Wind	6	6	6
216	43119479	Nut	2	2	2
217	43170247	Hose, Drain	1	1	1
218	43125166	Shaft	1	1	1
219	43107215	Holder, Sensor	1	1	1
220	43047609	Bonnet	1	1	1
221	43194029	Bonnet	1	1	1
222	43149355	Nut, Flare, 3/8 IN	1	1	1
223	43019904	Holder, Sensor	2	2	2
224	43179135	Band, Hose	1	1	1
225	43179110	Plug	1	1	1
226	43149314	Sheet, PMV	1	1	1
227	43147664	Strainer	1	1	1
228	43146707	Motor, PMV, EDM-MD12TF-3	1	1	1
229	43146723	Body, PMV	1	1	1
230	43177014	Pump, Drain, ADP-1409, 960L	1	1	1
231	43151284	Switch, Float	1	1	1
232	43179126	Rubber, Pump, Drain	3	3	3
241	431S8086	Owner's Manual, MMY-MAP1201HT8-E	1	1	1
242	431S8205	Owner's Manual, MMY-MAP0804HT8-E	1	1	1
243	4318T727	Owner's Manual, MCY-MAP0401HT	1	1	1
251	43166012	Remote Controller, SX-A5EE	1	1	1
252	43166011	Remote Controller, SX-A4EE	1	1	1
253	43166004	Remote Controller, SX-A11JE2	1	1	1
255	43166006	Remote Controller, WH-H1JE2	1	1	1

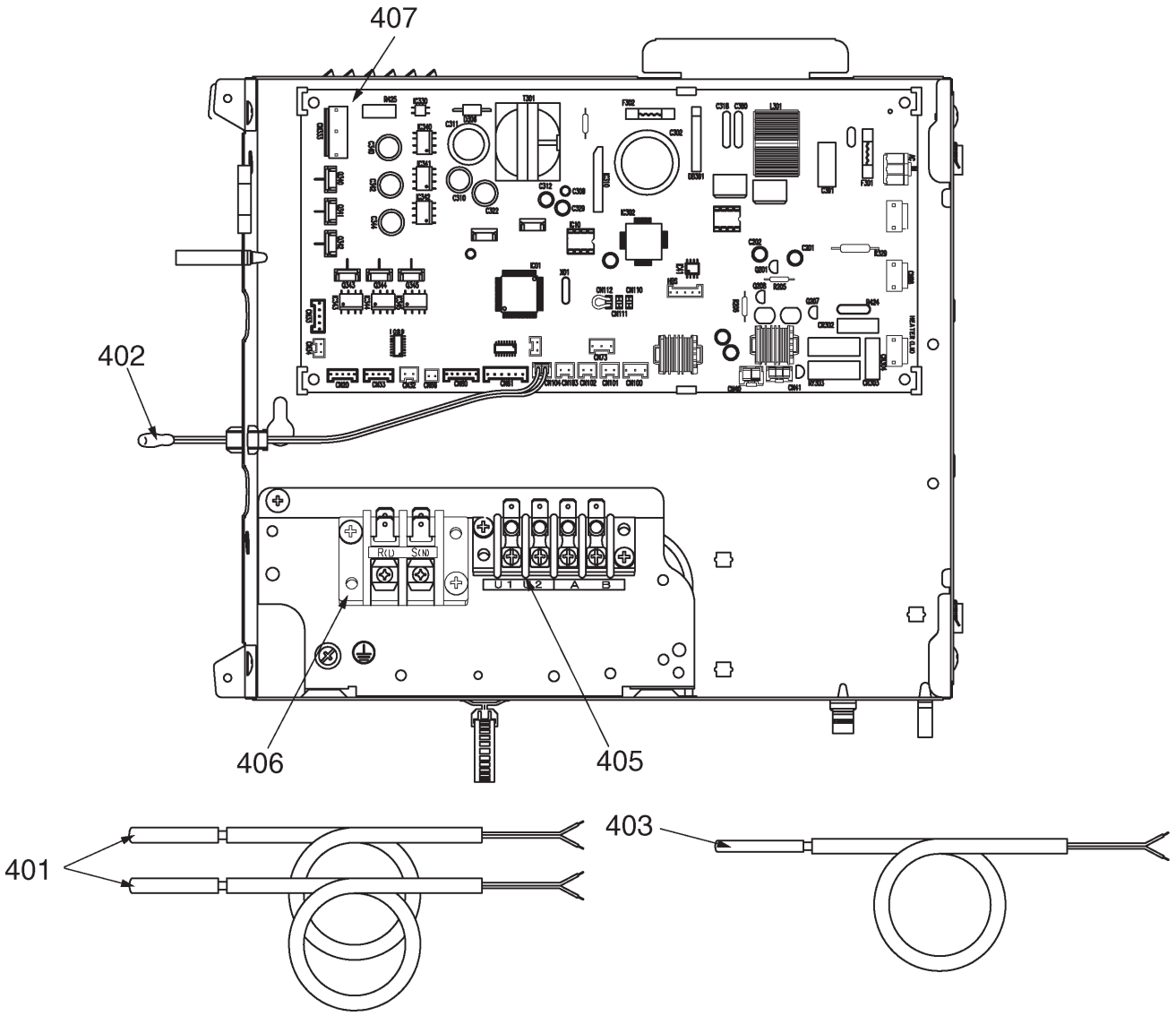


Location No.	Parts No.	Description	Model Name MMU-AP		
			0362WH	0482WH	0562WH
401	43050425	Sensor Ass'y, Service, TC (F6)	2	2	2
402	43050426	Sensor, Service, TA	1	1	1
403	43150320	Sensor Ass'y, Service, TG (F4)	1	1	1
404	43158193	Reactor, CH-43-2Z-T	1	1	1
405	43160582	Terminal, 4P, AC30V / DC42V, 1A	1	1	1
406	43160575	Terminal Block, 2P, AC300V, 20A	1	1	1
407	4316V437	P.C. board Ass'y, MCC-1402	1	1	1

MMU-AP0072WH-TR, MMU-AP0092WH-TR, MMU-AP0122WH-TR, MMU-AP0152WH-TR

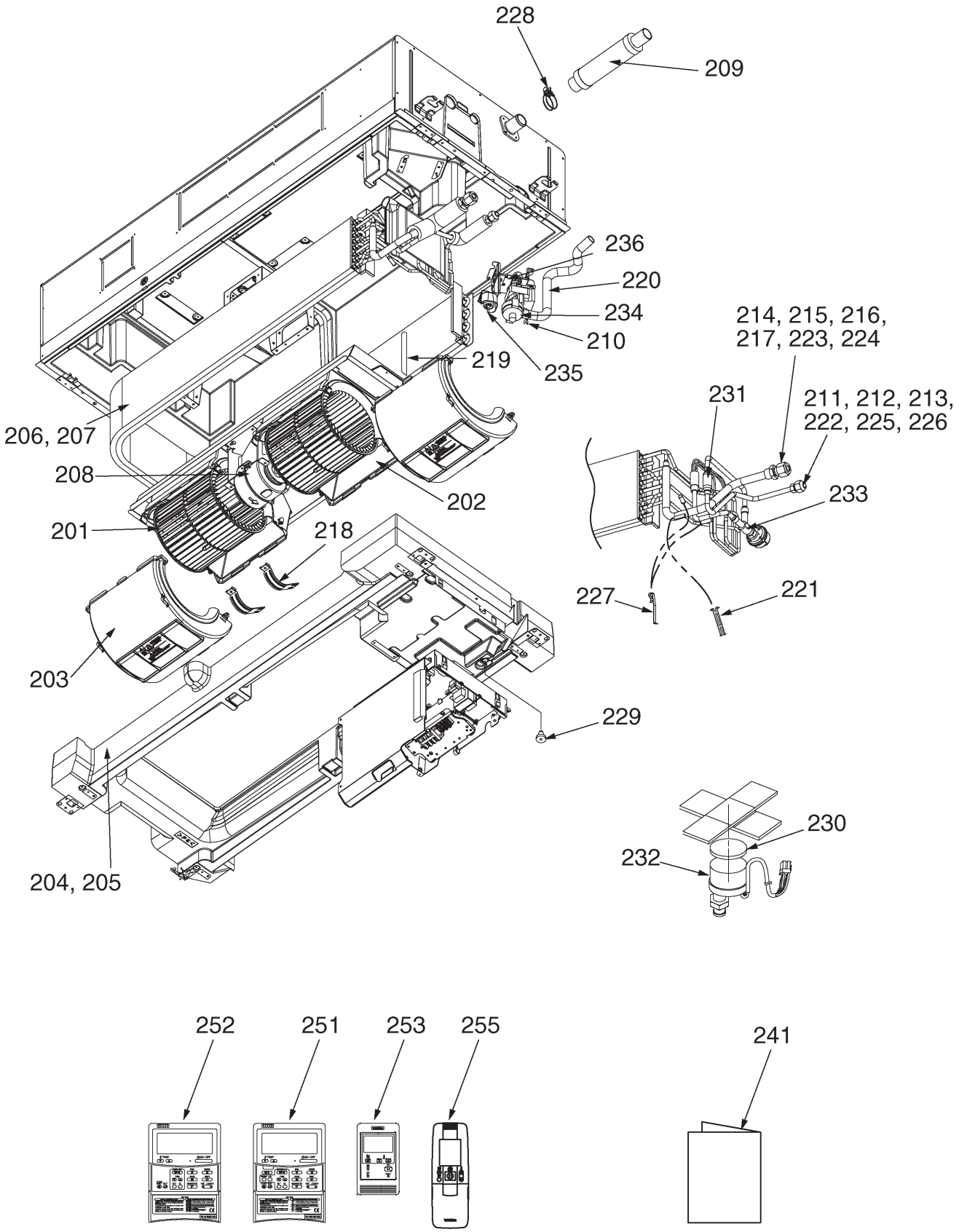


Location No.	Parts No.	Description	Model Name MMU-AP			
			0072WH-TR	0092WH-TR	0122WH-TR	0152WH-TR
201	43120225	Fan Ass'y, Turbo, TG321	1	1	1	1
202	43172191	Pan Ass'y, Drain	1	1	1	1
203	4314J341	Refrigeration Cycle Ass'y	1	1	1	
204	4314J342	Refrigeration Cycle Ass'y				1
205	4312C048	Motor, Fan, DK8-53A280HA	1	1	1	1
206	43170244	Hose, Drain, 25A	1	1	1	1
207	43079249	Band, Hose	1	1	1	1
208	43047685	Nut, Flare, 1/4 IN	1	1	1	1
209	43049776	Socket 3/8"	1	1	1	
210	43149351	Socket 1/4"	1	1	1	1
211	43047688	Nut, Flare, 1/2 IN				1
212	43149353	Socket 1/2"				1
213	43191632	Guard, Fan	1	1	1	1
214	43139137	Rubber, Cushion	3	3	3	3
215	43122099	Plate, Wind	3	3	3	3
216	43170246	Hose, Drain	1	1	1	1
217	43122100	Bell Mouth	1	1	1	1
218	43097212	Nut	1	1	1	1
219	43107215	Holder, Sensor	1	1	1	1
220	43047609	Bonnet	1	1	1	
221	43147195	Bonnet, 1/2 IN				1
222	43149355	Nut, Flare, 3/8 IN	1	1	1	
223	43049697	Bonnet	1	1	1	1
224	43019904	Holder, Sensor	2	2	2	2
225	43179135	Band, Hose	1	1	1	1
226	43179110	Plug	1	1	1	1
227	43149314	Sheet, PMV	1	1	1	1
228	43147664	Strainer	1	1	1	1
229	4314Q051	Strainer	1	1	1	
230	43146707	Motor, PMV, EDM-MD12TF-3	1	1	1	1
231	43146713	Valve, PMV, EDM-B25YGTF-3	1	1	1	
232	43177014	Pump, Drain, ADP-1409, 960L	1	1	1	1
233	43151284	Switch, Float	1	1	1	1
234	43197155	Washer	3	3	3	3
235	43179126	Rubber, Pump, Drain	3	3	3	3
236	43146726	Body, PMV				1
241	431S8206	Owner's Manual, MMY-MAP0804HT8-TR	1	1	1	1
251	43166012	Remote Controller, SX-A5EE	1	1	1	1
252	43166011	Remote Controller, SX-A4EE	1	1	1	1
253	43166004	Remote Controller, SX-A11JE2	1	1	1	1
255	43166006	Remote Controller, WH-H1JE2	1	1	1	1

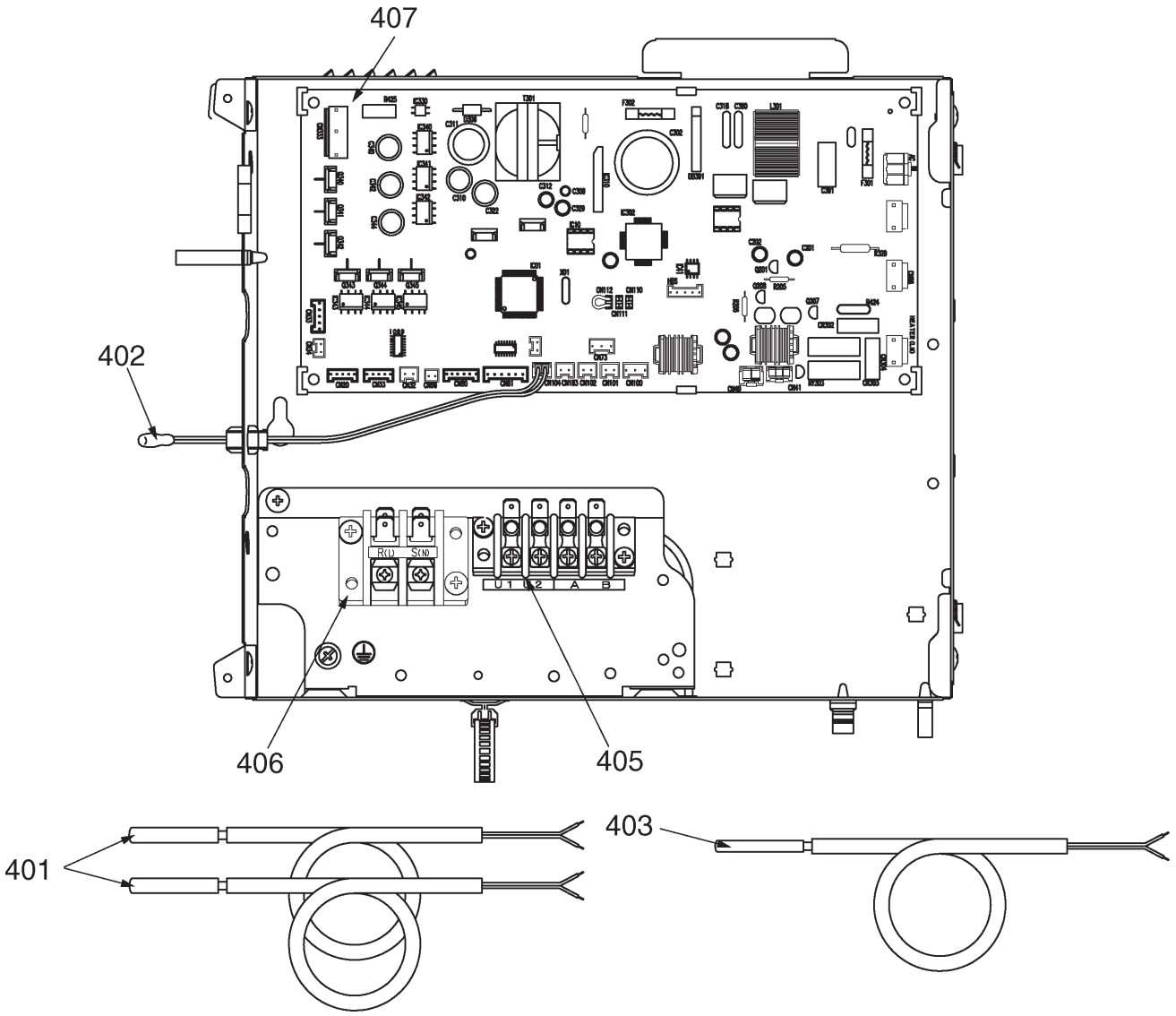


Location No.	Parts No.	Description	Model Name MMU-AP			
			0072WH-TR	0092WH-TR	0122WH-TR	0152WH-TR
401	43050425	Sensor Ass'y Service, TC (F6)	2	2	2	2
402	43050426	Sensor, Service, TA	1	1	1	1
403	43150320	Sensor Ass'y Service, TG (F4)	1	1	1	1
405	43160582	Terminal, 4P, AC30V / DC42V, 1A	1	1	1	1
406	43160575	Terminal Block, 2P, AC300V 20A	1	1	1	1
407	4316V437	P.C. board Ass'y, MCC-1402	1	1	1	1

MMU-AP0182WH-TR, MMU-AP0242WH-TR, MMU-AP0272WH-TR, MMU-AP0302WH-TR

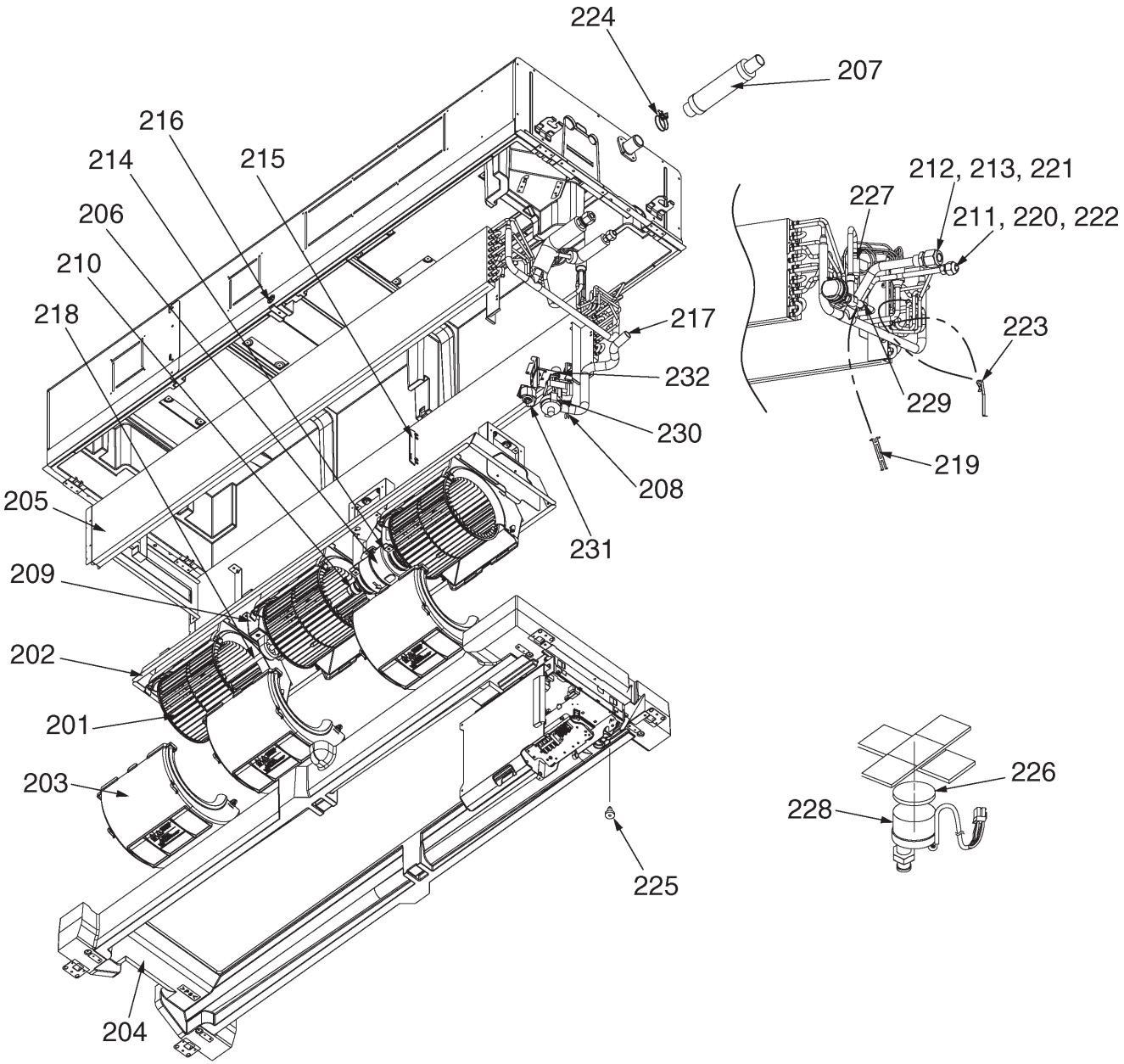


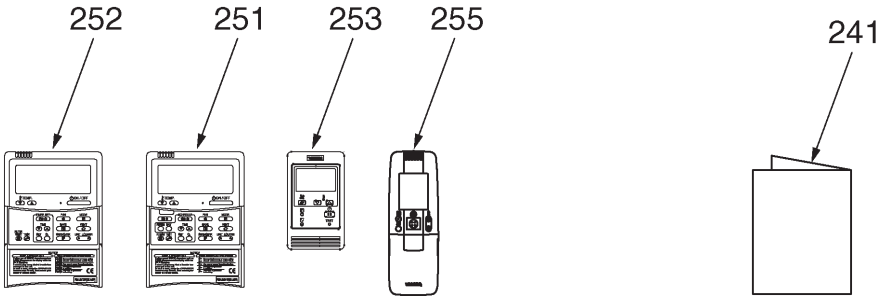
Location No.	Parts No.	Description	Model Name MMU-AP			
			0182WH-TR	0242WH-TR	0272WH-TR	0302WH-TR
201	43120239	Fan, Multi Blade	2	2	2	2
202	43122097	Case, Fan	2	2	2	2
203	43122098	Case, Fan	2	2	2	2
204	43172192	Pan Ass'y Drain	1			
205	43172193	Pan Ass'y Drain		1	1	1
206	4314J343	Refrigeration Cycle Ass'y	1			
207	4314J344	Refrigeration Cycle Ass'y		1	1	1
208	43121742	Motor, Fan, SWF-280-60-1R	1	1	1	1
209	43170244	Hose, Drain, 25A	1	1	1	1
210	43079249	Band, Hose	1	1	1	1
211	43047685	Nut, Flare, 1/4 IN	1			
212	43049776	Socket, 3/8"		1	1	1
213	43149351	Socket, 1/4"	1			
214	43047688	Nut, Flare, 1/2 IN	1			
215	43149352	Nut, Flare, 5/8 IN		1	1	1
216	43149353	Socket, 1/2"	1			
217	43149354	Socket, 5/8"		1	1	1
218	43139152	Band, Motor	2	2	2	2
219	43122099	Plate, Wind	4	4	4	4
220	43170247	Hose, Drain	1	1	1	1
221	43107215	Holder, Sensor	1	1	1	1
222	43047609	Bonnet		1	1	1
223	43147195	Bonnet, 1/2 IN	1			
224	43194029	Bonnet		1	1	1
225	43149355	Nut, Flare, 3/8 IN		1	1	1
226	43049697	Bonnet	1			
227	43019904	Holder, Sensor	2	2	2	2
228	43179135	Band, Hose	1	1	1	1
229	43179110	Plug	1	1	1	1
230	43149314	Sheet, PMV	1	1	1	1
231	43147664	Strainer	1	1	1	1
232	43146707	Motor, PMV, EDM-MD12TF-3	1	1	1	1
233	43146726	Body, PMV	1	1	1	1
234	43177014	Pump, Drain, ADP-1409, 960L	1	1	1	1
235	43151284	Switch, Float	1	1	1	1
236	43179126	Rubber, Pump, Drain	3	3	3	3
241	431S8206	Owner's Manual, MMY-MAP0804HT8-TR	1	1	1	1
251	43166012	Remote Controller, SX-A5EE	1	1	1	1
252	43166011	Remote Controller, SX-A4EE	1	1	1	1
253	43166004	Remote Controller, SX-A11JE2	1	1	1	1
255	43166006	Remote Controller, WH-H1JE2	1	1	1	1



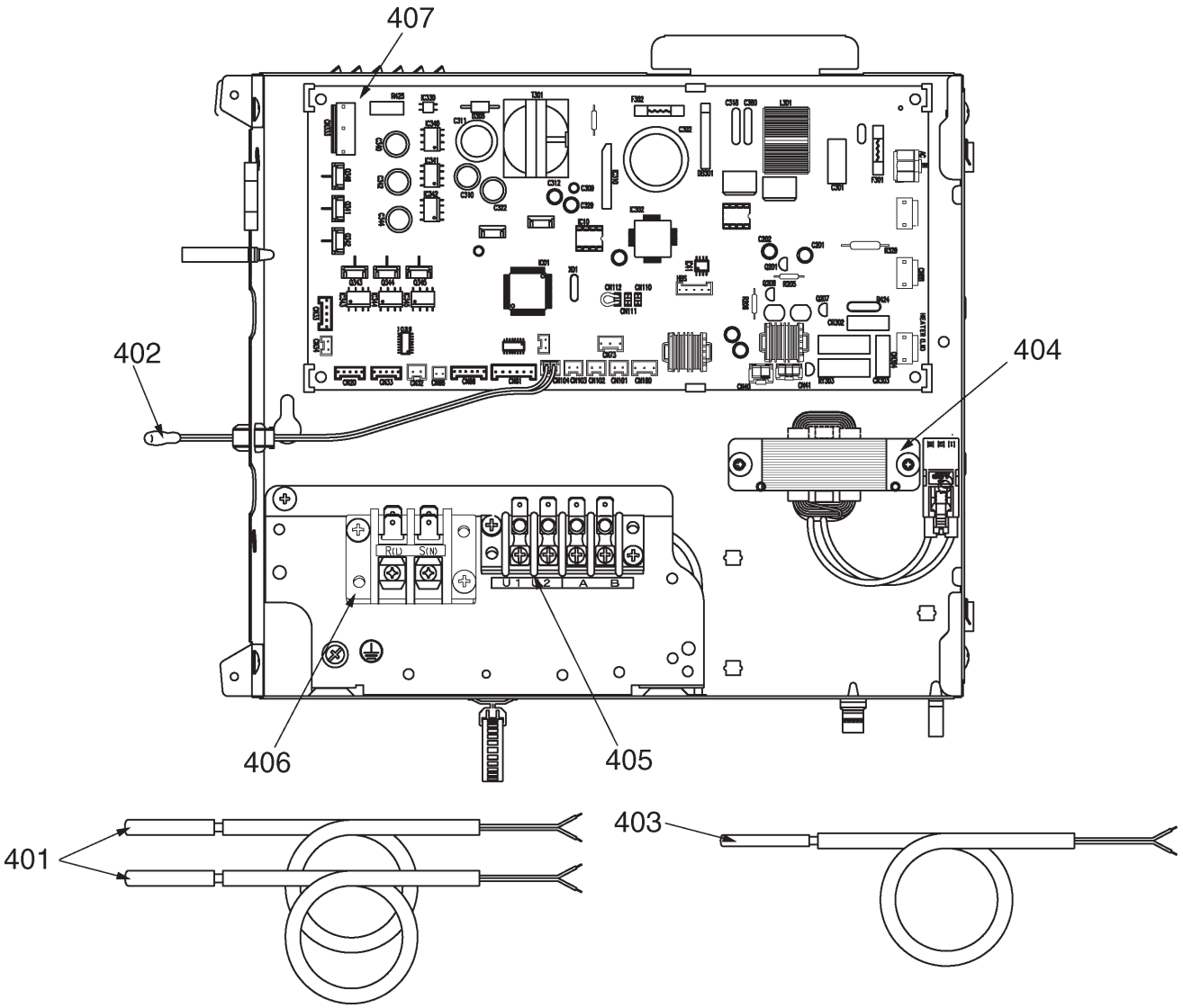
Location No.	Parts No.	Description	Model Name MMU-AP			
			0182WH-TR	0242WH-TR	0272WH-TR	0302WH-TR
401	43050425	Sensor Ass'y, Service, TC (F6)	2	2	2	2
402	43050426	Sensor, Service, TA	1	1	1	1
403	43150320	Sensor Ass'y, Service, TG (F4)	1	1	1	1
405	43160582	Terminal, 4P, AC30V / DC42V, 1A	1	1	1	1
406	43160575	Terminal Block, 2P, AC300V, 20A	1	1	1	1
407	4316V437	P.C. board Ass'y, MCC-1402	1	1	1	1

MMU-AP0362WH-TR, MMU-AP0482WH-TR, MMU-AP0562WH-TR



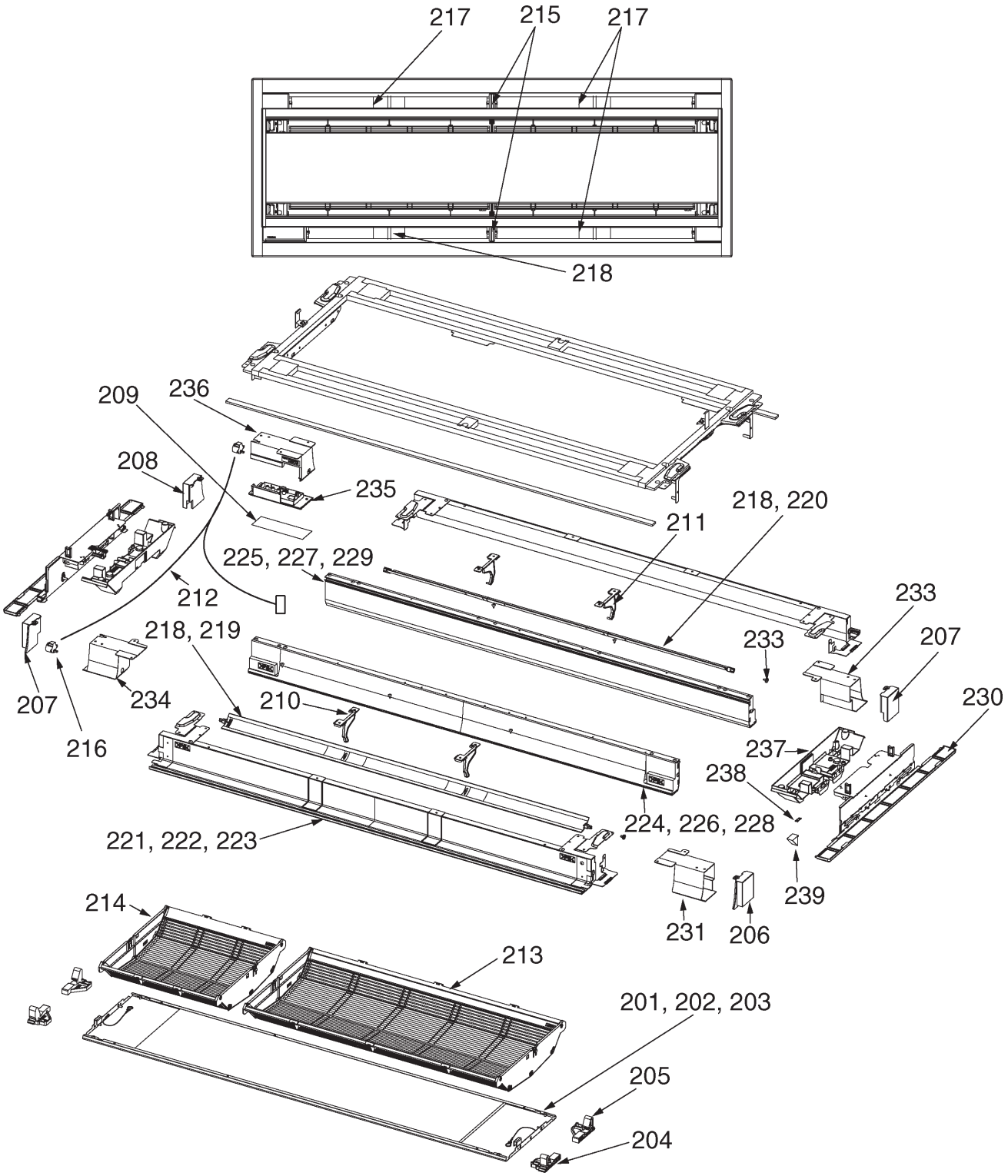


Location No.	Parts No.	Description	Model Name MMU-AP		
			0362WH-TR	0482WH-TR	0562WH-TR
201	43120239	Fan, Multi Blade	3	3	3
202	43122097	Case, Fan	3	3	3
203	43122098	Case, Fan	3	3	3
204	43172194	Pan Ass'y, Drain	1	1	1
205	4314J345	Refrigeration Cycle Ass'y	1	1	1
206	43121741	Motor, Fan, SWF-280-120-2R	1	1	1
207	43170244	Hose, Drain, 25A	1	1	1
208	43079249	Band, Hose	1	1	1
209	43125131	Bearing, Shaft	1	1	1
210	43125162	Coupling	1	1	1
211	43049776	Socket, 3/8"	1	1	1
212	43149352	Nut, Flare, 5/8 IN	1	1	1
213	43149354	Socket, 5/8"	1	1	1
214	43139152	Band, Motor	2	2	2
215	43122099	Plate, Wind	6	6	6
216	43119479	Nut	2	2	2
217	43170247	Hose, Drain	1	1	1
218	43125166	Shaft	1	1	1
219	43107215	Holder, Sensor	1	1	1
220	43047609	Bonnet	1	1	1
221	43194029	Bonnet	1	1	1
222	43149355	Nut, Flare, 3/8 IN	1	1	1
223	43019904	Holder, Sensor	2	2	2
224	43179135	Band, Hose	1	1	1
225	43179110	Plug	1	1	1
226	43149314	Sheet, PMV	1	1	1
227	43147664	Strainer	1	1	1
228	43146707	Motor, PMV, EDM-MD12TF-3	1	1	1
229	43146723	Body, PMV	1	1	1
230	43177014	Pump, Drain, ADP-1409, 960L	1	1	1
231	43151284	Switch, Float	1	1	1
232	43179126	Rubber, Pump, Drain	3	3	3
241	431S8206	Owner's Manual, MMY-MAP0804HT8-TR	1	1	1
251	43166012	Remote Controller, SX-A5EE	1	1	1
252	43166011	Remote Controller, SX-A4EE	1	1	1
253	43166004	Remote Controller, SX-A11JE2	1	1	1
255	43166006	Remote Controller, WH-H1JE2	1	1	1



Location No.	Parts No.	Description	Model Name MMU-AP		
			0362WH-TR	0482WH-TR	0562WH-TR
401	43050425	Sensor Ass'y, Service, TC (F6)	2	2	2
402	43050426	Sensor, Service, TA	1	1	1
403	43150320	Sensor Ass'y, Service, TG (F4)	1	1	1
404	43158193	Reactor, CH-43-2Z-T	1	1	1
405	43160582	Terminal, 4P, AC30V / DC42V, 1A	1	1	1
406	43160575	Terminal Block, 2P, AC300V, 20A	1	1	1
407	4316V437	P.C. board Ass'y, MCC-1402	1	1	1

RBC-UW283PG (W)-E, RBC-UW803PG (W)-E, RBC-UW1403PG (W)-E



Location No.	Parts No.	Description	Model Name RBC-UW		
			283PG (W)-E	803PG (W)-E	1403PG (W)-E
201	43409195	Panel, 941L	1		
202	43409196	Panel, 1306L		1	
203	43409197	Panel, 1726L			1
204	43407134	Hook, Inlet	2	2	2
205	43407135	Hook, Inlet	2	2	2
206	43403007	Cover, Spacer	1	1	1
207	43403008	Cover, Spacer	2	2	2
208	43403009	Cover, Spacer	1	1	1
209	43408036	Mark, TOSHIBA	1	1	1
210	43407136	Fix, Louver, Middle	1	2	2
211	43407137	Fix, Louver, Middle	1	2	2
212	43460115	Lead Ass'y, Motor	1	1	1
213	43409193	Filter Ass'y	1	1	2
214	43409194	Filter Ass'y		1	
215	43407138	Spacer, Louver, Middle			2
216	4302C063	Motor, Louver, MP24Z	2	2	2
217	43409189	Louver	1		3
218	43409190	Louver	1		1
219	43409191	Louver		1	
220	43409192	Louver		1	
221	43400069	Frame, Outlet	2		
222	43400071	Frame, Outlet		2	
223	43400073	Frame, Outlet			2
224	43400060	Frame, Inlet	1		
225	43400061	Frame, Inlet	1		
226	43400062	Frame, Inlet		1	
227	43400063	Frame, Inlet		1	
228	43400064	Frame, Inlet			1
229	43400065	Frame, Inlet			1
230	43400066	Cover, Body	2	2	2
231	43401030	Spacer	1	1	1
232	43401031	Spacer	1	1	1
233	43407140	Cap, Louver	2	2	2
234	43401033	Spacer, Motor	1	1	1
235	43401034	Base Ass'y, P.C. board	1	1	1
236	43401035	Cover, P.C. board	1	1	1
237	43100492	Cover Ass'y, Frame	2	2	2
238	43108025	Fix, Plate	4	4	4
239	43108024	Fix, Panel	4	4	4

WARNINGS ON REFRIGERANT LEAKAGE

Check of Concentration Limit

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

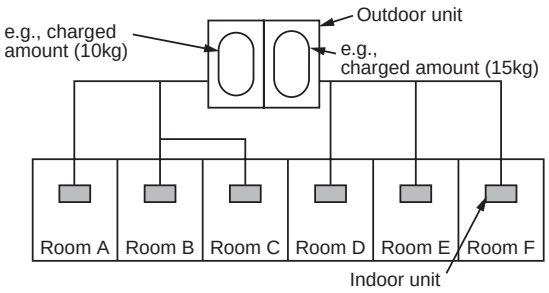
The refrigerant R410A which is used in the air conditioner is safe, without the toxicity or combustibility of ammonia, and is not restricted by laws to be imposed which protect the ozone layer. However, since it contains more than air, it poses the risk of suffocation if its concentration should rise excessively. Suffocation from leakage of R410A is almost non-existent. With the recent increase in the number of high concentration buildings, however, the installation of multi air conditioner systems is on the increase because of the need for effective use of floor space, individual control, energy conservation by curtailing heat and carrying power etc.
Most importantly, the multi air conditioner system is able to replenish a large amount of refrigerant compared with conventional individual air conditioners. If a single unit of the multi conditioner system is to be installed in a small room, select a suitable model and installation procedure so that if the refrigerant accidentally leaks out, its concentration does not reach the limit (and in the event of an emergency, measures can be made before injury can occur).
In a room where the concentration may exceed the limit, create an opening with adjacent rooms, or install mechanical ventilation combined with a gas leak detection device.
The concentration is as given below.

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

The concentration limit of R410A which is used in multi air conditioners is 0.3kg/m³.

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:

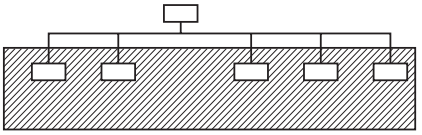
The possible amount of leaked refrigerant gas in rooms A, B and C is 10kg.
The possible amount of leaked refrigerant gas in rooms D, E and F is 15kg.

Important

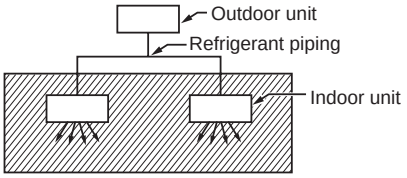
NOTE : 2

The standards for minimum room volume are as follows.

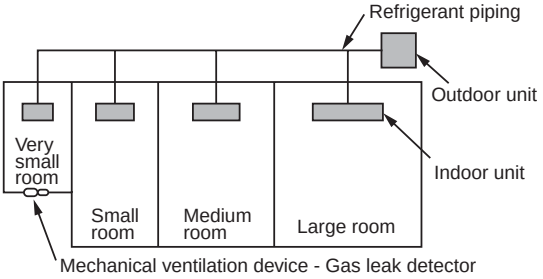
(1) No partition (shaded portion)



(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).

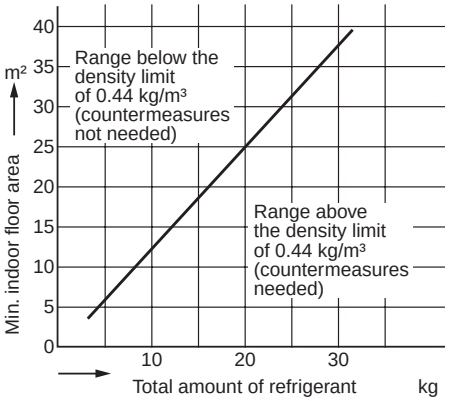


(3) If an indoor unit is installed in each partitioned room and the refrigerant tubing is interconnected, the smallest room of course becomes the object. But when a mechanical ventilation is installed interlocked with a gas leakage detector in the smallest room where the density limit is exceeded, the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



NOTE 3 :

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



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