

SERVICE MANUAL

AIR-CONDITIONER (MULTI TYPE)

INDOOR UNIT

<Compact 4-way Cassette type>

MMU-AP0057MH-E (TR)

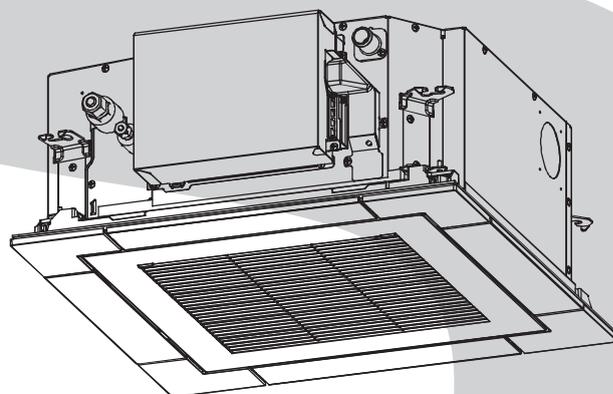
MMU-AP0077MH-E (TR)

MMU-AP0097MH-E (TR)

MMU-AP0127MH-E (TR)

MMU-AP0157MH-E (TR)

MMU-AP0187MH-E (TR)



CONTENTS

PRECAUTIONS FOR SAFETY	6
1. SPECIFICATIONS	13
2. CONSTRUCTION VIEWS (EXTERNAL VIEWS)	15
3. WIRING DIAGRAMS	16
4. PARTS RATING	17
5. REFRIGERANT CYCLE DIAGRAM	18
6. CONTROL OUTLINE	19
7. APPLIED CONTROL AND FUNCTIONS (INCLUDING CIRCUIT CONFIGURATION)	30
7-1. Indoor controller block diagram	30
7-1-1. In Case of Connection of Wired (Simple) Remote Controller	30
7-1-2. In Case of Connection of Wireless Remote Controller	31
7-1-3. Connection of Both Wired (Simple) Remote Controller and Wireless Remote Controller	32
7-2. Indoor Print Circuit Board	33
7-3. Optional connector specifications of indoor P.C. board	34
7-4. Test operation of indoor unit	35
7-5. Method to set indoor unit function DN code	38
7-6. Applied control of indoor unit	42
8. TROUBLESHOOTING	56
8-1. Overview	56
8-2. Troubleshooting method	57
8-3. Troubleshooting based on information displayed on remote controller	63
8-4. Check Codes Displayed on Remote Controller and SMMS-e Outdoor Unit (7-Segment Display on I/F Board) and Locations to Be Checked	67
8-5. Diagnostic Procedure for Each Check Code (Indoor Unit)	81
8-6. Sensor characteristics	85
9. P.C. BOARD EXCHANGE PROCEDURES	87
10. DETACHMENTS	92
11. EXPLODED VIEWS AND PARTS LIST	100

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.

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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 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

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]

Indication	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
	<p style="text-align: center;">WARNING</p> <hr/> <p>ELECTRICAL SHOCK HAZARD Disconnect all remote electric power supplies before servicing.</p>	<p>WARNING</p> <p>ELECTRICAL SHOCK HAZARD Disconnect all remote electric power supplies before servicing.</p>
	<p style="text-align: center;">WARNING</p> <hr/> <p>Moving parts. Do not operate unit with grille removed. Stop the unit before the servicing.</p>	<p>WARNING</p> <p>Moving parts. Do not operate unit with grille removed. Stop the unit before the servicing.</p>
	<p style="text-align: center;">CAUTION</p> <hr/> <p>Do not touch the aluminium fins of the unit. Doing so may result in injury.</p>	<p>CAUTION</p> <p>Do not touch the aluminium fins of the unit. Doing so may result in injury.</p>

PRECAUTIONS FOR SAFETY

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

DANGER

 Turn off breaker	<p>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.</p>
	<p>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.</p>
	<p>Before opening the electric cover set the circuit breaker to the OFF position. Failure to set the circuit breaker to the OFF position may result in injury through contact with the rotation parts. Only a qualified installer (*1) or qualified service person (*1) is allowed to remove the suction board cover and do the work required.</p>
	<p>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.</p>
	<p>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.</p>
	<p>When you have noticed that some kind of trouble (such as when a check code 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.</p>
 Electric shock hazard	<p>When you access inside of the electric cover 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.</p>
	<p>When checking the electric parts, removing the cover of the electric parts box of Indoor Unit and/or service panel of Outdoor Unit inevitably to determine the failure, use gloves to provide protection for electricians, insulating shoes, clothing to provide protection from electric shock and insulating tools. Be careful not to touch the live part. Electric shock may result. Only "Qualified service person" is allowed to do this work.</p>
 Prohibition	<p>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.</p>
	<p>When checking the electric parts, removing the cover of the electric parts box of Indoor Unit and/or front panel of Outdoor Unit inevitably to determine the failure, put a sign "Do not enter" around the site before the work. Failure to do this may result in third person getting electric shock.</p>
	<p>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.</p>
 Stay on protection	<p>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.</p>

 **WARNIG**

 General	<p>Before starting to repair the air conditioner, read carefully through the Service Manual, and repair the air conditioner by following its instructions.</p>
	<p>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.</p>
	<p>Do not use any refrigerant different from the one specified for complement or replacement. Otherwise, abnormally high pressure may be generated in the refrigeration cycle, which may result in a failure or explosion of the product or an injury to your body.</p>
	<p>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.</p>
	<p>When the air conditioner is to be transported, installed, maintained, repaired or removed, wear protective gloves and 'safety' work clothing.</p>
	<p>To connect the electrical wires, repair the electrical parts or undertake other electrical jobs, wear gloves to provide protection for electricians, insulating shoes and clothing to provide protection from electric shocks. Failure to wear this protective gear may result in electric shocks.</p>
	<p>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.</p>
	<p>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.</p>
	<p>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.</p>
	<p>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.</p>
	<p>Before working at heights, put a sign in place so that no-one will approach the work location, before proceeding with the work. Parts and other objects may fall from above, possibly injuring a person below. While carrying out the work, wear a helmet for protection from falling objects.</p>
	<p>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.</p>
	<p>Do not touch the aluminum fin of the unit. You may injure yourself if you do so. If the fin must be touched for some reason, first put on protective gloves and safety work clothing, and then proceed.</p>
	<p>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.</p>
	<p>Use forklift to carry in the air conditioner units and use winch or hoist at installation of them.</p>
	<p>When transporting the air conditioner, wear shoes with protective toe caps, protective gloves and other protective clothing.</p>
<p>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.</p>	
<p>Be sure that a heavy unit (10 kg or heavier) such as a compressor is carried by four persons.</p>	
 Check earth wires.	<p>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.</p>
	<p>After completing the repair or relocation work, check that the ground wires are connected properly.</p>
	<p>Connect earth wire. (Grounding work) Incomplete grounding causes an electric shock. Do not connect earth wires to gas pipes, water pipes, and lightning rods or ground wires for telephone wires.</p>

 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 watercut 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. Do not use any refrigerant different from the one specified for complement or replacement. Otherwise, abnormally high pressure may be generated in the refrigeration cycle, which may result in a failure or explosion of the product or an injury to your body. 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 cooking 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 (500 V Megger) to check the resistance is 1 MΩ 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. If refrigerant gas has leaked during the installation work, ventilate the room immediately. If the leaked refrigerant gas comes in contact with fire, noxious gas may generate. 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 cooking stove though the refrigerant gas itself is innocuous.
 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 cooking 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. <ul style="list-style-type: none"> • 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. <ol style="list-style-type: none"> 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 reputeing, injury, etc.

 Cooling check	<p>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.</p>
	<p>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 heat.</p>
 Installation	<p>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.</p>
	<p>Only a qualified installer or service person is allowed to do installation work. Inappropriate installation may result in water leakage, electric shock or fire.</p>
	<p>Before starting to install the air conditioner, read carefully through the Installation Manual, and follow its instructions to install the air conditioner.</p>
	<p>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.</p>
	<p>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.</p>
	<p>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.</p>
	<p>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.</p>
	<p>Install a circuit breaker that meets the specifications in the installation manual and the stipulations in the local regulations and laws.</p>
	<p>Install the circuit breaker where it can be easily accessed by the agent.</p>
	<p>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.</p>
<p>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.</p>	

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”

Declaration of Conformity

Manufacturer: TOSHIBA CARRIER CORPORATION
336 Tadehara, Fuji-shi, Shizuoka-ken 416-8521 JAPAN

TCF holder: TOSHIBA CARRIER EUROPE S.A.S
Route de Thil
01120 Montluel FRANCE

Hereby declares that the machinery described below:

Generic Denomination: Air Conditioner

Model / type: Indoor unit
<Compact 4-way Cassette type>
MMU-AP0057MH-E MMU-AP0057MH-TR
MMU-AP0077MH-E MMU-AP0077MH-TR
MMU-AP0097MH-E MMU-AP0097MH-TR
MMU-AP0127MH-E MMU-AP0127MH-TR
MMU-AP0157MH-E MMU-AP0157MH-TR
MMU-AP0187MH-E MMU-AP0187MH-TR

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

NOTE

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

Specifications

Model	Sound presser level (dBA)		Weight (kg)
	Cooling	Heating	
MMU-AP0057MH-E	*	*	15 (2.5)
MMU-AP0077MH-E	*	*	15 (2.5)
MMU-AP0097MH-E	*	*	15 (2.5)
MMU-AP0127MH-E	*	*	15 (2.5)
MMU-AP0157MH-E	*	*	15 (2.5)
MMU-AP0187MH-E	*	*	15 (2.5)
MMU-AP0057MH-TR	*	*	15 (2.5)
MMU-AP0077MH-TR	*	*	15 (2.5)
MMU-AP0097MH-TR	*	*	15 (2.5)
MMU-AP0127MH-TR	*	*	15 (2.5)
MMU-AP0157MH-TR	*	*	15 (2.5)
MMU-AP0187MH-TR	*	*	15 (2.5)

※: Under 70 dBA

1. SPECIFICATIONS

Compact 4-Way Cassette Type

(50/60Hz)

Model name			MMU-AP0057MH-E/-TR	MMU-AP0077MH-E/-TR	MMU-AP0097MH-E/-TR	
Cooling Capacity	(*1)	kW	1.7	2.2	2.8	
Heating Capacity	(*1)	kW	1.9	2.5	3.2	
Electrical characteristics	Power supply		1phase 50Hz 230V(220V-240V) / 1phase 60Hz 220V (Separate power supply for indoor units is required.)			
	Running current	A	0.16 / 0.15	0.23 / 0.21	0.24 / 0.22	
	Power consumption	kW	0.016 / 0.016	0.023 / 0.023	0.025 / 0.025	
	Starting current	A	0.28 / 0.27	0.41 / 0.38	0.43 / 0.39	
Appearance	Main Unit		Zinc hot dipping steel plate * Heat-insulating material attached to only upper plate			
	Ceiling Panel (*2)	Model Name	RBC-UM21PG(W)-E			
		Panel Color	Gran White (Mansell 5PB9/1)			
Outer dimension	Main Unit	Height (*3)	mm	256		
		Width	mm	575		
		Depth (*4)	mm	575		
	Ceiling Panel	Height (*3)	mm	12		
		Width	mm	620		
		Depth	mm	620		
Total weight	Main Unit		kg	15		
	Ceiling Panel		kg	2.5		
Heat exchanger			Finned tube			
Soundproof/Heat-insulating material			Non-flammable insulation			
Fan unit	Fan		Turbo fan			
	Standard air flow (M+ / M / L+ / L)		m ³ /h	430(415/400/385/365)	552(500/462/395/378)	570(520/468/395/378)
	Motor		W	60		
Air filter			Standard filter (Long life filter)			
Controller (*2)			Remote controller			
Connecting pipe	Gas side		mm	Ø 9.5		
	Liquid side		mm	Ø 6.4		
Drain port (Nominal dia. mm)			VP20 (Polyvinyl chloride tube)			
Sound pressure level	High (M+ / M / L+ / L)		dB	32 (31 / 30 / 29 / 29)	37 (34 / 33 / 30 / 29)	38 (35 / 33 / 30 / 29)
Sound power level	High (M+ / M / L+ / L)		dB	47 (46 / 45 / 44 / 44)	52 (49 / 48 / 45 / 44)	53 (50 / 48 / 45 / 44)

(*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) Height from the ceiling.

(*4) Depth doesn't including the Electric parts box.

Compact 4-Way Cassette Type

(50/60Hz)

Model name			MMU-AP0127MH-E-TR	MMU-AP0157MH-E-TR	MMU-AP0187MH-E-TR	
Cooling Capacity	(*1)	kW	3.6	4.5	5.6	
Heating Capacity	(*1)	kW	4.0	5.0	6.3	
Electrical characteristics	Power supply		1phase 50Hz 230V(220V-240V) /1phase 60Hz 220V (Separate power supply for indoor units is required.)			
	Running current	A	0.25 / 0.23	0.28 / 0.26	0.46 / 0.46	
	Power consumption	kW	0.027 / 0.027	0.030 / 0.030	0.052 / 0.052	
	Starting current	A	0.44 / 0.41	0.50 / 0.47	0.80 / 0.81	
Appearance	Main Unit		Zinc hot dipping steel plate * Heat-insulating material attached to only upper plate			
	Ceiling Panel (*2)	Model Name	RBC-UM21PG(W)-E			
		Panel Color	Gran White (Mansell 5PB9/1)			
Outer dimension	Main Unit	Height (*3)	mm			
		Width	mm			
		Depth (*4)	mm			
	Ceiling Panel	Height (*3)	mm			
		Width	mm			
		Depth	mm			
Total weight	Main Unit		kg			
	Ceiling Panel		kg			
Heat exchanger			Finned tube			
Soundproof/Heat-insulating material			Non-flammable insulation			
Fan unit	Fan		Turbo fan			
	Standard air flow (M+ / M / L+ / L)		m ³ /h	594(550/504/420/402)	660(600/552/480/468)	840(740/642/540/522)
	Motor		W	60		
Air filter			Standard filter (Long life filter)			
Controller (*2)			Remote controller			
Connecting pipe	Gas side		mm	Ø 9.5	Ø 12.7	
	Liquid side		mm	Ø 6.4		
Drain port (Nominal dia. mm)			VP20 (Polyvinyl chloride tube)			
Sound pressure level	High (M+ / M / L+ / L)		dB	38 (36 / 34 / 31 / 30)	40 (37 / 35 / 32 / 31)	47 (43 / 39 / 36 / 34)
Sound power level	High (M+ / M / L+ / L)		dB	53 (51 / 49 / 46 / 45)	55 (52 / 50 / 47 / 46)	62 (58 / 54 / 51 / 49)

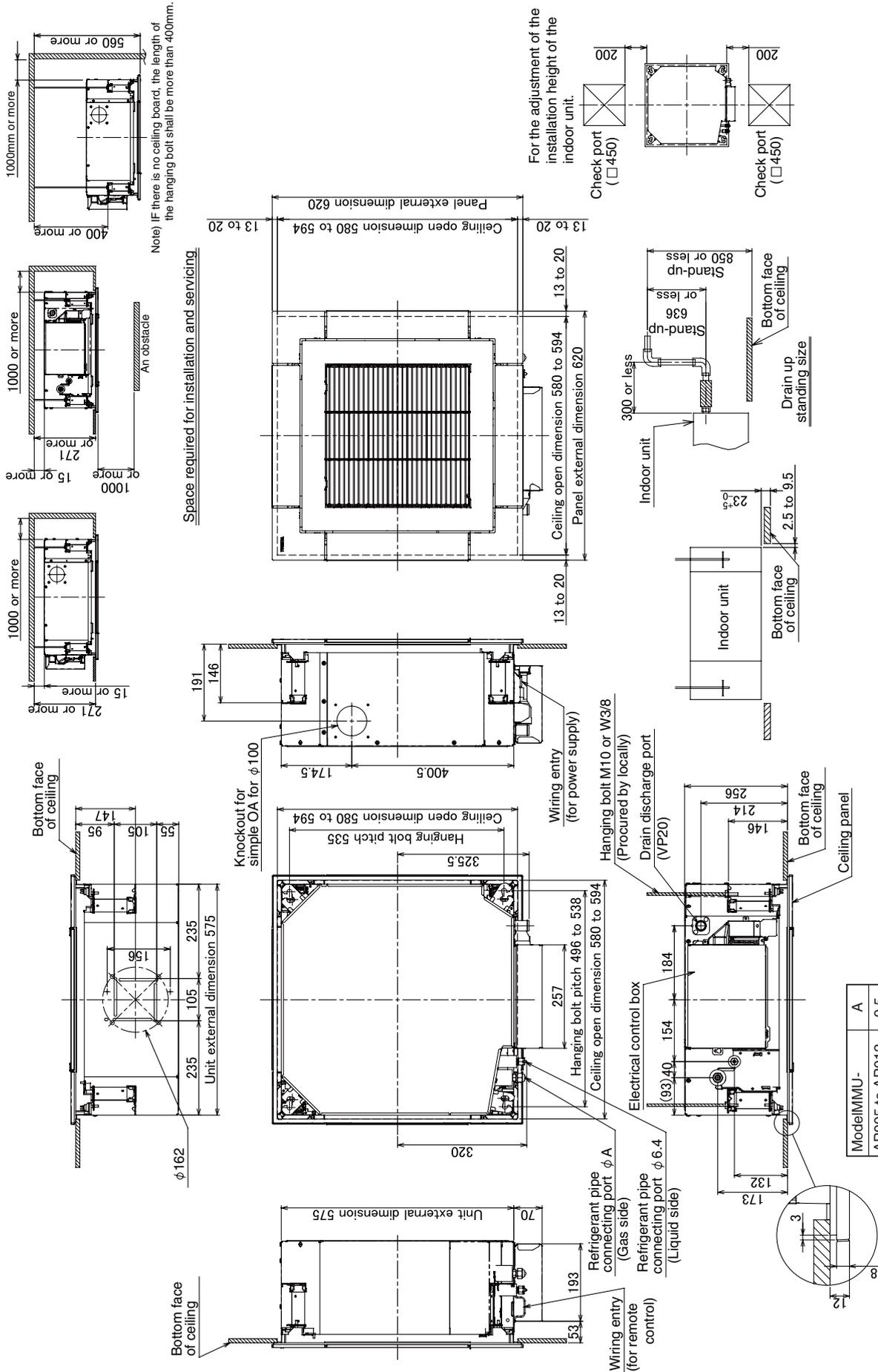
(*1) Cooling / heating capacity is based on single connection operation with standard piping length under Japanese Industrial Standard B 8615 Condition 1.

(*2) Remote controller and ceiling panel are sold separately

(*3) Height from the ceiling.

(*4) Depth doesn't including the Electric parts box.

2. CONSTRUCTION VIEWS (EXTERNAL VIEWS)



Model	MMU-A
AP005 to AP012	9.5
AP015 to AP018	12.7

(Unit:mm)

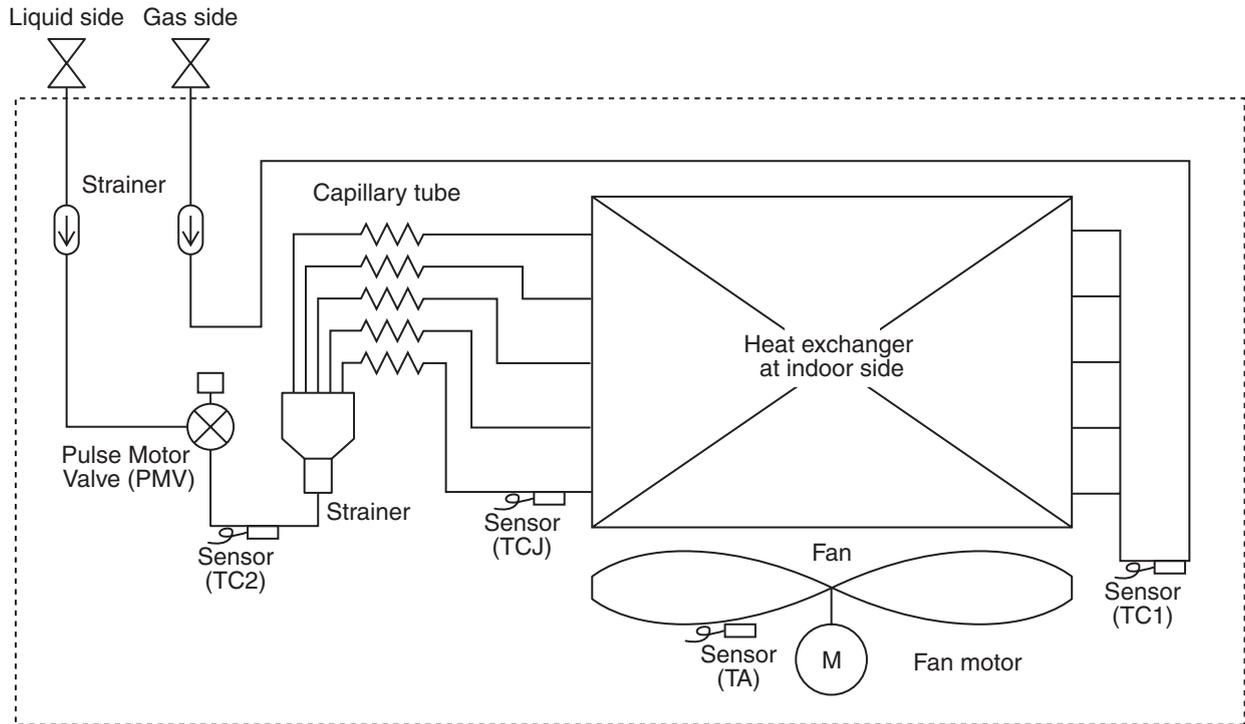
4. PARTS RATING

Indoor unit

Model	MMU-AP	0057MH*	0077MH*	0097MH*	0127MH*	0157MH*	0187MH*
Fan motor		ICF-340D60-1					
Pulse motor		EFM-MD12TF					
Pulse motor valve		EFM-25YGTF-2				EFM-40YGTF-3	
louver motor		MSBPC20F04					
Float switch		FS-0218-102					
Drain pump motor		MDP-1401					
TA sensor		Lead wire length: 818 mm Vinyl tube					
TC1 sensor		Ø4 size lead wire length: 400 mm Vinyl tube					
TC2 sensor		Ø6 size lead wire length: 500 mm Vinyl tube (Black)					
TCJ sensor		Ø6 size lead wire length: 400 mm Vinyl tube (Red)					

5. REFRIGERANT CYCLE DIAGRAM

Indoor unit



Explanation of functional parts in indoor unit

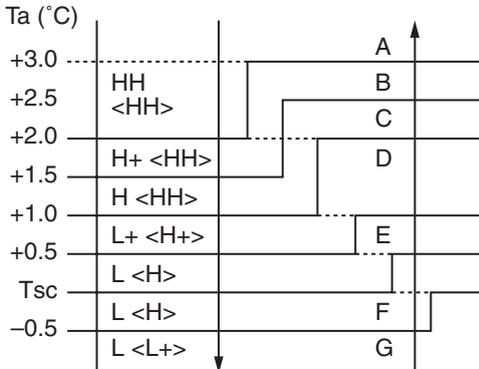
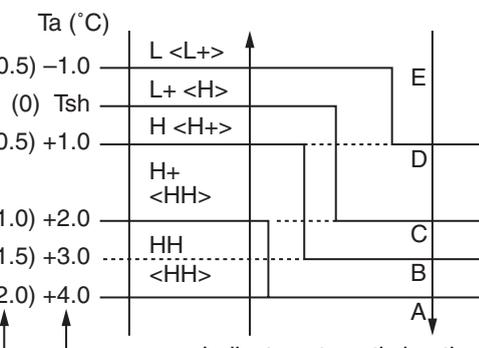
Functional part name		Functional outline
Pulse Motor Valve	PMV	(Connector CN082 (6P): Blue) 1) Controls super heat in cooling operation 2) Controls under cool in heating operation 3) Recovers refrigerant oil in cooling operation 4) Recovers refrigerant oil in heating operation
Temp. Sensor	1.TA	(Connector 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

6. CONTROL OUTLINE

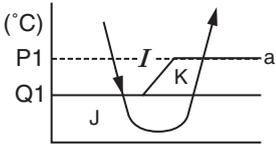
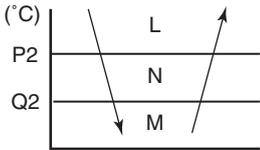
Control Specifications

No.	Item	Outline of specifications	Remarks												
1	When power supply is reset	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.													
2	Operation mode selection	1) Based on the operation mode selecting command from the remote controller, the operation mode is selected. <table border="1" style="margin: 10px 0;"> <thead> <tr> <th>Remote controller command</th> <th>Control outline</th> </tr> </thead> <tbody> <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> </tbody> </table> <p>AUTO (SHRM only)</p> <ul style="list-style-type: none"> 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 $T_s - 1 < T_a < T_s + 1$, Cooling thermo. OFF (Fan) / Setup air volume operation continues.) <p>* 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.</p>	Remote controller command	Control outline	STOP	Air conditioner stops.	FAN	Fan operation	COOL	Cooling operation	DRY	Dry operation	HEAT	Heating operation	Ta: Room temp. Ts: Setup temp.
Remote controller command	Control outline														
STOP	Air conditioner stops.														
FAN	Fan operation														
COOL	Cooling operation														
DRY	Dry operation														
HEAT	Heating operation														
3	Room temp. control	1) Adjustment range: Remote controller setup temperature (°C) <table border="1" style="margin: 10px 0;"> <thead> <tr> <th></th> <th>COOL/DRY</th> <th>HEAT</th> <th>AUTO*</th> </tr> </thead> <tbody> <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>17 to 30</td> <td>17 to 30</td> <td>17 to 30</td> </tr> </tbody> </table>		COOL/DRY	HEAT	AUTO*	Wired type	18 to 29	18 to 29	18 to 29	Wireless type	17 to 30	17 to 30	17 to 30	* For SHRM only
	COOL/DRY	HEAT	AUTO*												
Wired type	18 to 29	18 to 29	18 to 29												
Wireless type	17 to 30	17 to 30	17 to 30												

No.	Item	Outline of specifications	Remarks												
3	Room temp. control (Continued)	2) Using the Item code 06, the setup temperature in heating operation can be corrected. <table border="1" data-bbox="448 286 1099 371"> <thead> <tr> <th>Setup data</th> <th>0</th> <th>2</th> <th>4</th> <th>6</th> </tr> </thead> <tbody> <tr> <td>Setup temp. correction</td> <td>+0°C</td> <td>+2°C</td> <td>+4°C</td> <td>+6°C</td> </tr> </tbody> </table> Setting at shipment <table border="1" data-bbox="448 427 737 470"> <tbody> <tr> <td>Setup data</td> <td>2</td> </tr> </tbody> </table>	Setup data	0	2	4	6	Setup temp. correction	+0°C	+2°C	+4°C	+6°C	Setup data	2	Shift of suction temperature in heating operation Except while sensor of the remote controller is controlled (Code No. [32], "0001")
Setup data	0	2	4	6											
Setup temp. correction	+0°C	+2°C	+4°C	+6°C											
Setup data	2														
4	Automatic capacity control	1) Based on the difference between Ta and Ts, the operation capacity is determined by the outdoor unit. <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div data-bbox="464 622 730 1010"> <p style="text-align: center;">COOL</p> </div> <div data-bbox="815 622 1086 1010"> <p style="text-align: center;">HEAT</p> </div> </div>	Ts: Setup temp. Ta: Room temp.												
5	Automatic cooling/heating control	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. <div style="text-align: center;"> </div> <p>When -1.5 lowers against Tsc 10 minutes and after thermo. OFF, cooling operation (Thermo. OFF) exchanges to heating operation.</p> 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.	* For SHRM only Tsc: Setup temp. in cooling operation Tsh: Setup temp. in heating operation + temp. correction of room temp. control												

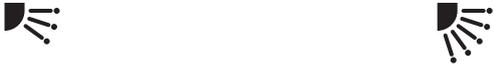
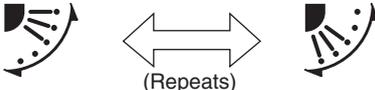
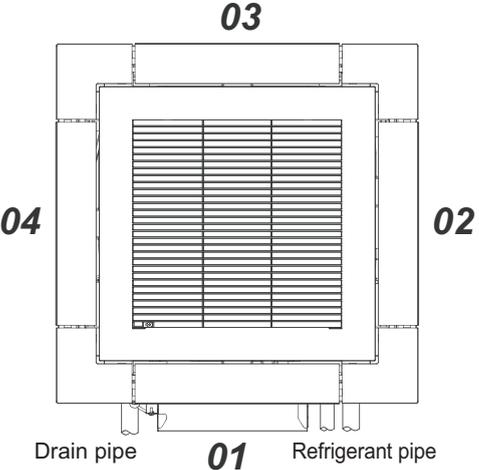
No.	Item	Outline of specifications	Remarks
6	Air speed selection	<p>1) Operation with (HH), (H), (L) or [AUTO] mode is carried out by the command from the remote controller.</p> <p>2) When the air speed mode [AUTO] is selected, the air speed varies by the difference between T_a and T_s.</p> <p><COOL></p>  <p style="text-align: center;">< > : Indicate automatic cooling.</p> <ul style="list-style-type: none"> • 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. <p><HEAT></p>  <p style="text-align: center;">< > : Indicate automatic heating.</p> <p style="text-align: center;"> Body thermostat works. Remote controller thermostat works. </p> <p>Value in the parentheses indicates one when thermostat of the remote controller works. Value without parentheses indicates one when thermostat of the body works.</p> <ul style="list-style-type: none"> • 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 $T_{c2} \geq 60^\circ\text{C}$, the air speed increases by 1 step. 	<p>HH > H+ > H > L+ > L > UL</p> <p>Code No. 32 0000: Body thermo. (Main unit) 0001: Remote controller thermo.</p> <p>Tc2: Indoor heat exchanger sensor temperature</p>

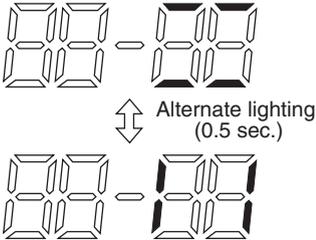
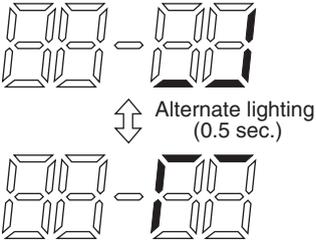
No.	Item	Outline of specifications	Remarks																																																																																																																						
6	Air speed selection (Continued):	<p>* Only AP015 can set up Type 1 and Type 3.</p> <table border="1" data-bbox="533 353 1246 981"> <thead> <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> </tr> <tr> <th colspan="2">0000</th> <th colspan="2">0001</th> <th colspan="2">0003</th> </tr> <tr> <th>SW501 (1)/(2)</th> <th colspan="2">OFF/OFF</th> <th colspan="2">ON/OFF</th> <th colspan="2">OFF/ON</th> </tr> <tr> <th>Tap</th> <th>HEAT</th> <th>COOL</th> <th>HEAT</th> <th>COOL</th> <th>HEAT</th> <th>COOL</th> </tr> </thead> <tbody> <tr><td>F1</td><td></td><td></td><td></td><td></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></tr> <tr><td>F3</td><td></td><td></td><td></td><td>H+</td><td>H+, H</td><td>H+, H</td></tr> <tr><td>F4</td><td></td><td></td><td>H+</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></tr> <tr><td>F6</td><td>HH</td><td></td><td>H</td><td></td><td>L+</td><td>L+</td></tr> <tr><td>F7</td><td>H+</td><td>H+</td><td></td><td></td><td>L</td><td>L</td></tr> <tr><td>F8</td><td></td><td>H</td><td></td><td>L+</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></tr> <tr><td>FA</td><td></td><td>L+</td><td>L</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></tr> <tr><td>FC</td><td>L</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></tr> </tbody> </table> <p>3) In heating operation, the mode changes to [LL] if thermostat is turned off.</p>	CODE No. [5d]	Standard		Type 1*		Type 3*		0000		0001		0003		SW501 (1)/(2)	OFF/OFF		ON/OFF		OFF/ON		Tap	HEAT	COOL	HEAT	COOL	HEAT	COOL	F1					HH	HH	F2			HH	HH			F3				H+	H+, H	H+, H	F4			H+				F5		HH		H			F6	HH		H		L+	L+	F7	H+	H+			L	L	F8		H		L+			F9	H		L+	L			FA		L+	L				FB	L+	L					FC	L						FD	LL	LL	LL	LL	LL	LL	Selection of high ceiling type CODE No. : [5d] or selection of high ceiling on P.C. board SW501
CODE No. [5d]	Standard			Type 1*		Type 3*																																																																																																																			
	0000		0001		0003																																																																																																																				
SW501 (1)/(2)	OFF/OFF		ON/OFF		OFF/ON																																																																																																																				
Tap	HEAT	COOL	HEAT	COOL	HEAT	COOL																																																																																																																			
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F7	H+	H+			L	L																																																																																																																			
F8		H		L+																																																																																																																					
F9	H		L+	L																																																																																																																					
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FB	L+	L																																																																																																																							
FC	L																																																																																																																								
FD	LL	LL	LL	LL	LL	LL																																																																																																																			
7	Prevention of cold air discharge	<p>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.</p> <ul style="list-style-type: none"> 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. <p>A zone: OFF B zone: Over 26°C, below 28°C, ULTRA LOW (LL) C zone: Over 28°C, below 30°C, LOW (L) D zone: Over 30°C, below 32°C, MED (H) E zone: HIGH (HH)</p>	<p>TCJ: Temperature of indoor heat exchanger sensor</p> <ul style="list-style-type: none"> In D and E zones, priority is given to remote controller air speed setup. In A zone “” is displayed. 																																																																																																																						

No.	Item	Outline of specifications	Remarks															
8	Freeze prevention control (Low temp. release)	<p>1. In all cooling operation, the air conditioner operates as de-scribed below based upon temp. detected by TC1, TC2 and TCJ sensors.</p> <ul style="list-style-type: none"> • 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. <p>Reset conditions</p> <p>1) TC1 > 12°C and TC2 > 12°C and TCJ > 12°C 2) 20 minutes passed after stop.</p>  <table border="1" data-bbox="751 752 1070 864"> <thead> <tr> <th></th> <th>TC1</th> <th>TC2, TCJ</th> </tr> </thead> <tbody> <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> </tbody> </table> <p>2. In all cooling operation, the air conditioner operates as described below based upon temp. detected by TC2 and TCJ sensors.</p> <ul style="list-style-type: none"> • 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. <p>Reset conditions</p> <p>1) TC1 > 12°C and TC2 > 12°C and TCJ > 12°C 2) 20 minutes passed after stop.</p>  <table border="1" data-bbox="804 1435 1070 1547"> <thead> <tr> <th></th> <th>TC2, TCJ</th> </tr> </thead> <tbody> <tr> <td>P2</td> <td>5°C</td> </tr> <tr> <td>Q2</td> <td>-2.0°C</td> </tr> </tbody> </table>		TC1	TC2, TCJ	P1	10°C (5°C)	-10°C	Q1	0°C	-14°C		TC2, TCJ	P2	5°C	Q2	-2.0°C	<p>TC1: Temperature of indoor heat exchanger sensor</p> <p>() value: When the power supply is turned on, the Forced thermo becomes OFF if the temperature is less than this indicated temperature.</p> <p>* In a Model without TC2, TC2 is not judged.</p>
	TC1	TC2, TCJ																
P1	10°C (5°C)	-10°C																
Q1	0°C	-14°C																
	TC2, TCJ																	
P2	5°C																	
Q2	-2.0°C																	
9	Recovery control for cooling oil (Refrigerant)	<p>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.</p> <ol style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> • Recovery operation is usually performed every 2 hours. 															

No.	Item	Outline of specifications	Remarks		
10	Recovery control for heating refrigerant (Oil)	<p>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.</p> <ol style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> • 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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1) When the unit stopped from [HEAT] operation, the indoor fan operates with [L] for approx. 30 seconds. 			
14	HA control	<ol style="list-style-type: none"> 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. 	<p>When using HA terminal (CN61) for the remote ON/OFF, a connector sold separately is necessary.</p> <p>In case of group operation, use the connector to connect HA terminal to either master or follower indoor unit.</p>		
15	Display of filter sign [] (Not provided to the wireless type)	<ol style="list-style-type: none"> 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. <table border="1" data-bbox="483 1877 860 1912" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Filter time</td> <td style="text-align: center;">2500H</td> </tr> </table>	Filter time	2500H	[ FILTER] goes on.
Filter time	2500H				

No.	Item	Outline of specifications	Remarks																																																		
16	Display of [READY] [HEAT READY]	<p>< READY> Displayed on the remote controller</p> <p>1) When the following check codes are indicated</p> <ul style="list-style-type: none"> • 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]. <p>2) During Force Thermo-OFF</p> <ul style="list-style-type: none"> • [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. <p>3) The above indoor units that cannot operate stay in Thermo-OFF status.</p> <p>4) The indoor fan stops because the system performs [Recovery operation for heating refrigerant (Oil)].</p> <p><HEAT READY> Displayed on the remote controller</p> <p>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)</p>	<ul style="list-style-type: none"> • < READY> display No display for wireless type remote controller • <HEAT READY> display 																																																		
17	Selection of central control mode	<p>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.</p> <p>2) Setting contents</p> <p>• In case of TCC-LINK central control</p> <table border="1"> <thead> <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> </thead> <tbody> <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> </tbody> </table> <p>(○: Operation possible ×: Operation impossible)</p>	Operation from TCC-LINK central control	Operation on RBC-AMT32E						On RBC-AMT32E	ON/OFF setting	Operation selection	Timer setting	Temp. setting	Air speed setting	Air direction setting	Individual	○	○	○	○	○	○	[Central control] display	[Central 1]	×	○	×	○	○	○	[Central 2]	×	×	×	×	○	○	[Central 3]	○	×	○	×	○	○	[Central 4]	○	×	○	○	○	○	
Operation from TCC-LINK central control	Operation on RBC-AMT32E						On RBC-AMT32E																																														
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[Central 1]	×	○	×	○	○	○																																															
[Central 2]	×	×	×	×	○	○																																															
[Central 3]	○	×	○	×	○	○																																															
[Central 4]	○	×	○	○	○	○																																															

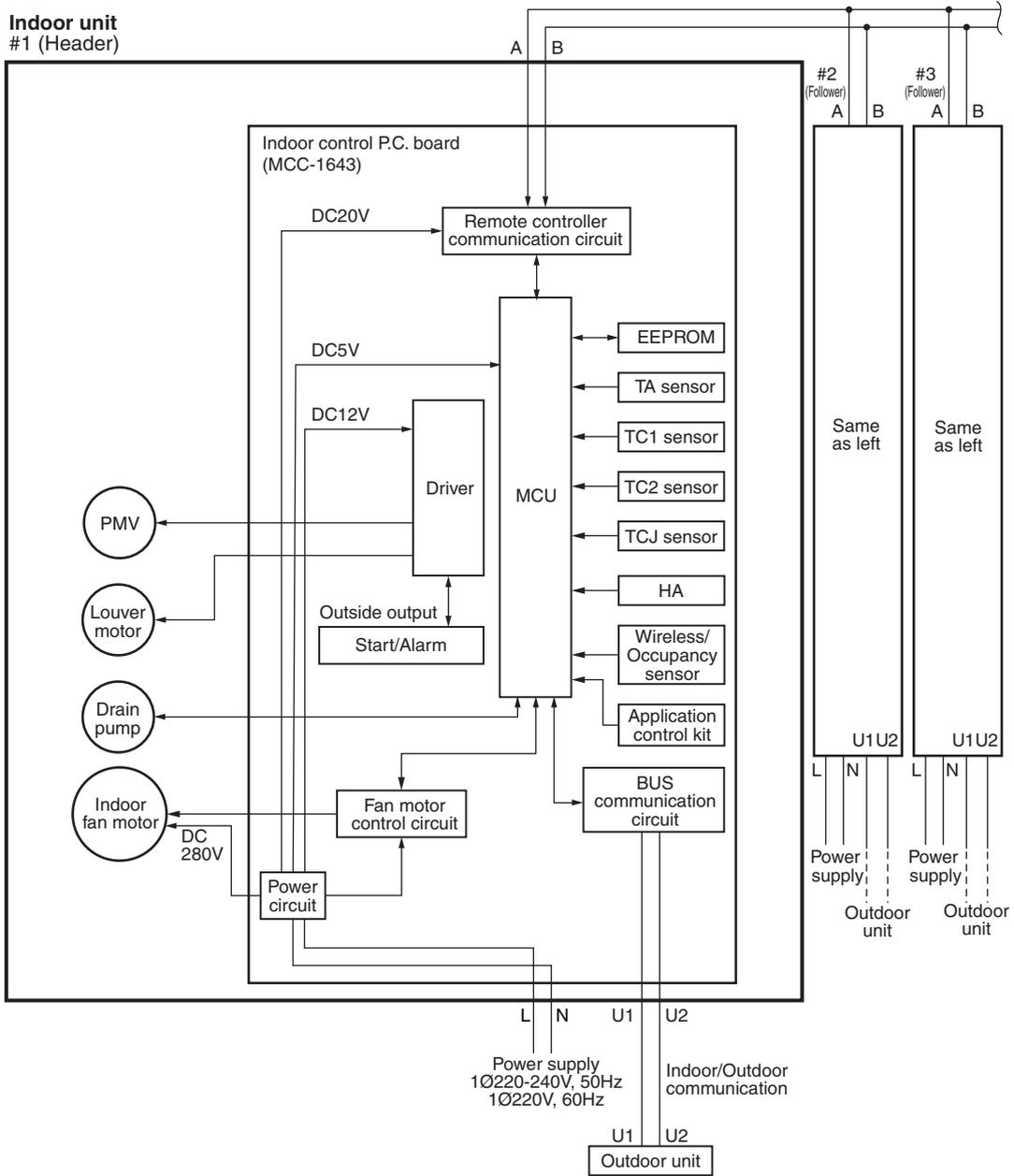
No.	Item	Outline of specifications	Remarks
18	Louver control	<p>1) Louver position setup</p> <ul style="list-style-type: none"> When the louver position is changed, the position moves necessarily to downward discharge position once to return to the set position. The louver position can be set up in the following operation range. <p>In cooling/dry operation In heating/fan operation</p>  <ul style="list-style-type: none"> 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. <p>2) Swing setup</p> <ul style="list-style-type: none"> [SWING] is displayed and the following display is repeated. <p>In all operations</p>  <ul style="list-style-type: none"> In group operation, the louver positions can be set up collectively or individually. <p>3) When the unit stopped or the warning was output, the louver is automatically set to full closed position.</p> <p>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.</p> <p>* 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.</p> <p><<Individual air direction setup>></p> <ul style="list-style-type: none"> Pushing  Louver select button enables every discharge port to set up the air direction. The louver numbers that are displayed on the display part correspond to those in the following figure. In case of no input (key operation) for approx. 5 seconds during setting of individual air direction (during displaying of louver No. on the remote controller screen), the remote controller screen returns to the normal display screen. For the air direction illustration during normal operation, the air direction of the least No. among the louvers which are block-set is displayed. While individual air direction is being set, the remote controller operation (Illustration of air direction) and operation of the real machine are linked. When selecting a case,  Louver select button is not pushed or louver No. is not displayed, the air directions of all the louvers are collectively set up. 	<p>The swinging louver moves usually up to the ceiling side from the louver position of the set time.</p> <p>Setup from the remote controller without  button is unavailable.</p> 

No.	Item	Outline of specifications	Remarks												
18	Louver control (Continued)	<p><<Selection of Swing mode>></p> <ul style="list-style-type: none"> For the Swing mode, the following three types of modes are selectable and settable by keeping Swing/Direction  button pushed for 4 seconds or more on the remote controller. <ol style="list-style-type: none"> Standard (4 pieces: same phase) swing → Data: [0001 (At shipment)] When Swing operation is selected, four louvers align at the horizontal discharge position and then start the Swing operation at the same time. Dual swing → Data: [0002] When operation is selected, the louvers of louver No. [01] and [03] move to the horizontal discharge position, the louvers of louver No. [02] and [04] move to the downward discharge position and then start the Swing operation at the same time. Cycle swing → Data: [0003] When operation is selected, the louver No. [01] moves to the horizontal discharge position, [03] to the downward discharge position, [02] and [04] to the middle position and then start the Swing operation at the same time. <ul style="list-style-type: none"> Three types of the swing modes can be also selected and set by the setup data of Item code (DN) [F0]. In case of selecting the Swing mode, “Dual swing” or “Cycle swing”, the following numerals is displayed at the center of the remote controller screen for approx. 3 seconds when  button was pushed to select [SWING]. (No display for the standard swing) <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Dual swing</p> </div> <div style="text-align: center;">  <p>Cycle swing</p> </div> </div> <p><<Louver lock (Louver fix)>></p> <ul style="list-style-type: none"> 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  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 border="1" data-bbox="448 1883 1102 2051"> <thead> <tr> <th>Item code</th> <th>Objective louver No.</th> <th>Setup data</th> </tr> </thead> <tbody> <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> </tbody> </table>	Item code	Objective louver No.	Setup data	F1	01	0000: Release (At shipment) 0001: Horizontal discharge position ~ 0005: Downward discharge position	F2	02	F3	03	F4	04	<p>Carry out setting operation during stop of the unit; otherwise the unit stops operation.</p> <p>Carry out setting operation during stop of the unit; otherwise the unit stops operation.</p>
Item code	Objective louver No.	Setup data													
F1	01	0000: Release (At shipment) 0001: Horizontal discharge position ~ 0005: Downward discharge position													
F2	02														
F3	03														
F4	04														

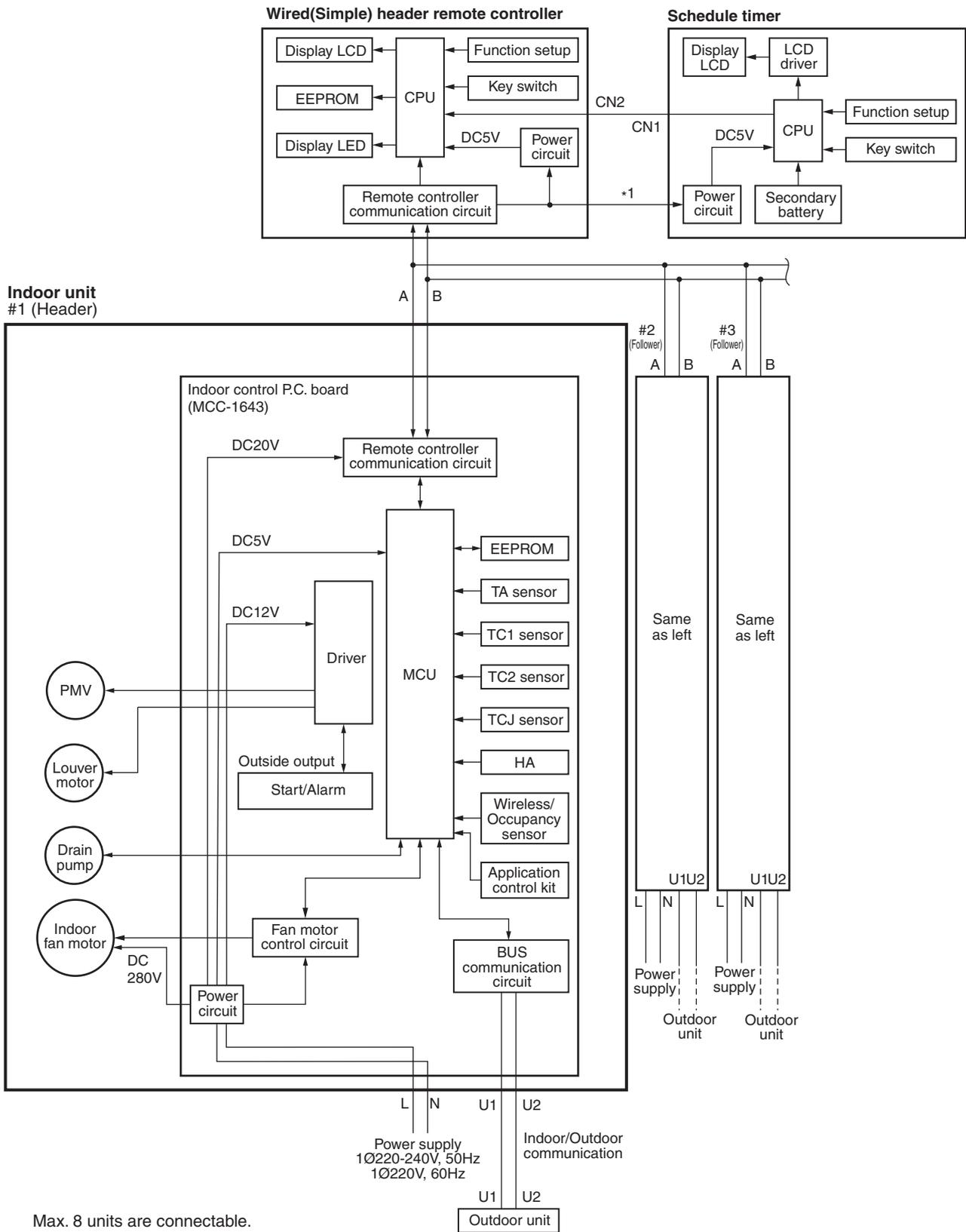
No.	Item	Outline of specifications	Remarks																		
18	Louver control (Continued)	<ul style="list-style-type: none"> If there is the locked louver in the unit, [] goes on the remote controller screen. While the following controls are performed, the louvers operate even if executing the louver lock. <table border="1" data-bbox="459 353 1369 607"> <thead> <tr> <th></th> <th>Control which ignores lock</th> <th>Objective louver No.</th> </tr> </thead> <tbody> <tr> <td>①</td> <td>Operation stop</td> <td>Horizontal discharge position</td> </tr> <tr> <td>②</td> <td>When heating operation started</td> <td>Horizontal discharge position</td> </tr> <tr> <td>③</td> <td>Heating thermo. OFF</td> <td>Horizontal discharge position</td> </tr> <tr> <td>④</td> <td>During defrost operation</td> <td>Horizontal discharge position</td> </tr> <tr> <td>⑤</td> <td>Initialize operation</td> <td>Full-close position</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The real louver corresponding to the louver No. displayed on the remote controller screen during setting of louver lock operates swinging. 		Control which ignores lock	Objective louver No.	①	Operation stop	Horizontal discharge position	②	When heating operation started	Horizontal discharge position	③	Heating thermo. OFF	Horizontal discharge position	④	During defrost operation	Horizontal discharge position	⑤	Initialize operation	Full-close position	<p>For the setting operation, refer to [How to set louver lock] of Installation Manual.</p> <p>It is position check operation and it does not link with the real louver and air direction setup (Illustration on the remote controller screen).</p>
	Control which ignores lock	Objective louver No.																			
①	Operation stop	Horizontal discharge position																			
②	When heating operation started	Horizontal discharge position																			
③	Heating thermo. OFF	Horizontal discharge position																			
④	During defrost operation	Horizontal discharge position																			
⑤	Initialize operation	Full-close position																			
19	DC motor	<ol style="list-style-type: none"> When the fan stator, positioning is performed for the starter and the rotor. (Vibrate slightly) DC motor operates according to the command from the indoor controller. <p>(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.</p> <p>(Note) If the fan lock was detected, the operation of the indoor unit stops and the check code is displayed.</p>	Check code [P12]																		
20	Power saving mode	<ol style="list-style-type: none"> Push the  button on the remote controller The “” segment lights up on the wired remote controller display. The requirement capacity ratio is limited to approximately 75 %. If the power saving operation is enabled, the settings are retained when the operation is stopped, when the mode is changed, or when the power is reset. The power saving operation will be enabled the next time the operation starts. 																			
21	Frequency fixed operation (Test run)	Refer to "7-4. Test operation of indoor unit"	Command frequency is approximately [S7]																		

No.	Item	Outline of specifications	Remarks																		
22	Occupancy sensor	<p>1) During the Occupancy sensor operation (DN code: [B5] [0001] and [B6] [0002 to 0005]), when there is no people in the Occupancy sensor range, it is automatically switched to the operation for the absence.</p> <p>2) The Occupancy sensor operation can change by [DN code : B6] as follows, and operates according to the operation at absent time, if time or absence of the setting contents continues. However time counting starts after the room temperature is stabilized. (after for 30 minutes operation)</p> <table border="1" data-bbox="584 548 1096 685"> <tr> <td data-bbox="584 548 751 584">DN [B6]</td> <td data-bbox="751 548 911 584">Data</td> <td data-bbox="911 548 1096 584">Setting contents</td> </tr> <tr> <td></td> <td data-bbox="751 584 911 620">0000</td> <td data-bbox="911 584 1096 620">Invalid</td> </tr> <tr> <td></td> <td data-bbox="751 620 911 685">0001 to 0005</td> <td data-bbox="911 620 1096 685">30 minutes to 150 minutes (30 minutes each)</td> </tr> </table> <p>3) The operation at absent time can be changed by [DN code : B7].</p> <table border="1" data-bbox="584 770 1096 875"> <tr> <td data-bbox="584 770 751 806">DN [B7]</td> <td data-bbox="751 770 911 806">Data</td> <td data-bbox="911 770 1096 806">Operation at absent time</td> </tr> <tr> <td></td> <td data-bbox="751 806 911 842">0000</td> <td data-bbox="911 806 1096 842">Circulator</td> </tr> <tr> <td></td> <td data-bbox="751 842 911 875">0001</td> <td data-bbox="911 842 1096 875">Operation stop</td> </tr> </table> <p>4) If the operation at absent time stops during group operation, or absence is fixed in each system, the operation starts circular operation once, and then the operation stops when absence was determined on all group.</p>	DN [B6]	Data	Setting contents		0000	Invalid		0001 to 0005	30 minutes to 150 minutes (30 minutes each)	DN [B7]	Data	Operation at absent time		0000	Circulator		0001	Operation stop	The Occupancy sensor can be set up by wired remote controller RBC-AMS54E*
DN [B6]	Data	Setting contents																			
	0000	Invalid																			
	0001 to 0005	30 minutes to 150 minutes (30 minutes each)																			
DN [B7]	Data	Operation at absent time																			
	0000	Circulator																			
	0001	Operation stop																			

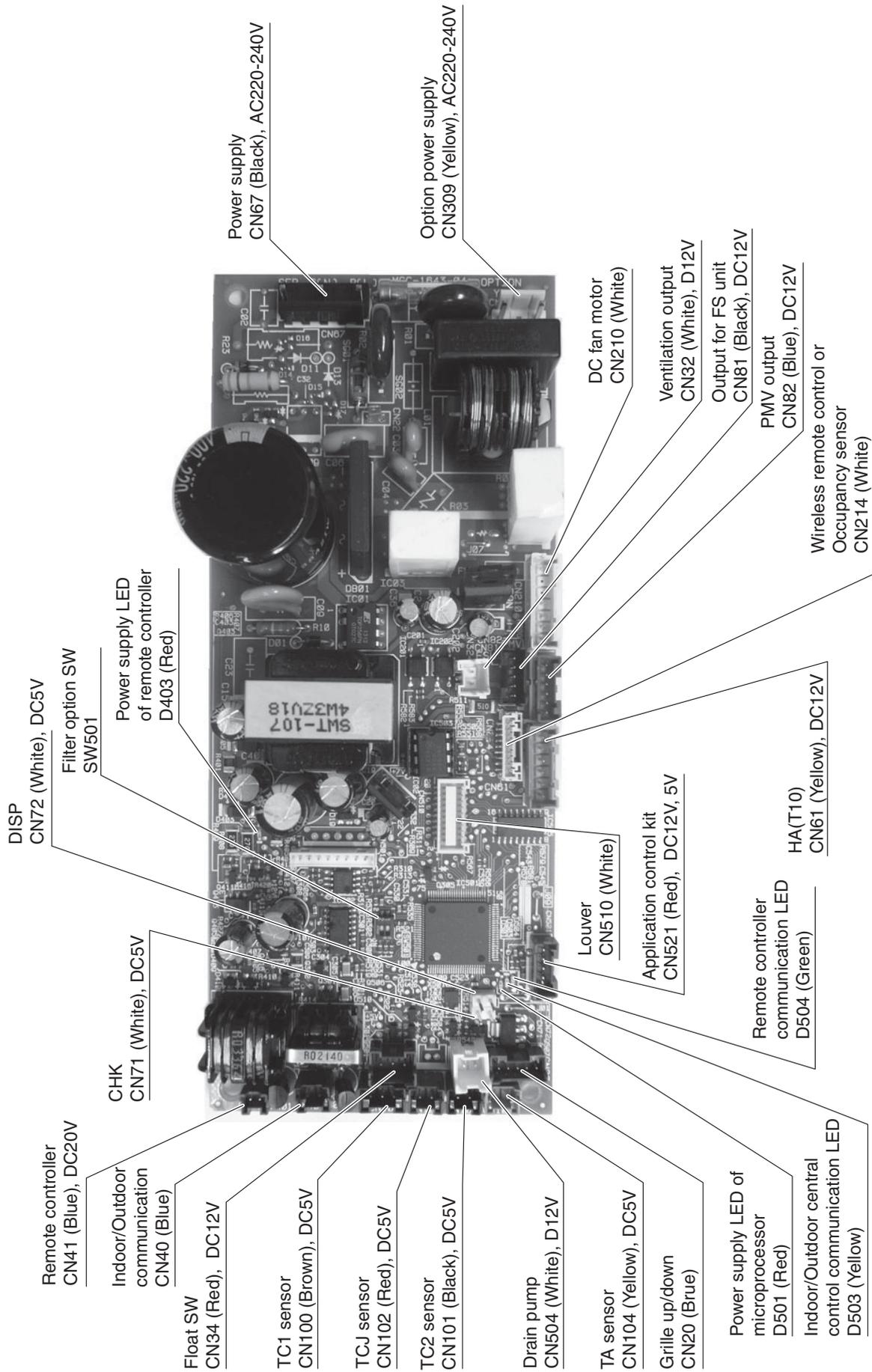
7-1-2. In Case of Connection of Wireless Remote Controller



7-1-3. Connection of Both Wired (Simple) Remote Controller and Wireless Remote Controller



7-2. Indoor Print Circuit Board (MCC-1643)



7-3. Optional connector specifications of indoor P.C. board

Function	Connector No.	Pin No.	Specifications	Remarks
Ventilation output	CN32	1	DC12V	Setting at shipment: Interlock of ON by indoor unit operation, with OFF by stop operation * The single operation setting by FAN button on the remote controller is performed on the remote controller (DN [31] = 0000 → 0001)
		2	Output (Open collector)	
	CN61	1	ON/OFF input	HA ON/OFF input (J01: YES/NO=Pulse (At shipment from factory) /Static input selection)
		2	0V	
		3	Remote controller prohibited input	Permission/Prohibition of remote controller operation stop is performed by input.
		4	Operation output (Open collector)	
		5	DC12V	Operation ON (Answer back of HA)
		6	Warning output (Open collector)	
CHK Operation check	CN71	1		This check is used to check indoor operation. (Performs operation of indoor fan "H", Louver horizontal and Drain pump ON without communication with outdoor and remote controller)
		2	0V	
DISP Exhibition mode	CN72	1		Communication is available by indoor unit and remote controller only.
		2	0V	
Option control kit	CN521	1	12V	Connected Application control kit (TCB-PCUC1E)
		2	5V	
		3	Transmission	
		4	Receive	
		5	0V	
Occupancy sensor input	CN214	1	12V	Connect when using the Occupancy sensor. It is necessary to set the Occupancy sensor [B5] separately when using Occupancy sensor [B5] = "0000" → "0001".
		2		
		3		
		4		
		5		
		6	GND	
		7	5V	
		8		
		9	Occupancy sensor input	

* As the functions operated by old CN60, CN80, CN70 and CN73 have been transported to the Application control kit (TCB-PCUC1E), you need to use them from the Application control kit (Sold separately)

7-4. Test operation of indoor unit

■ Cooling/Heating test run check

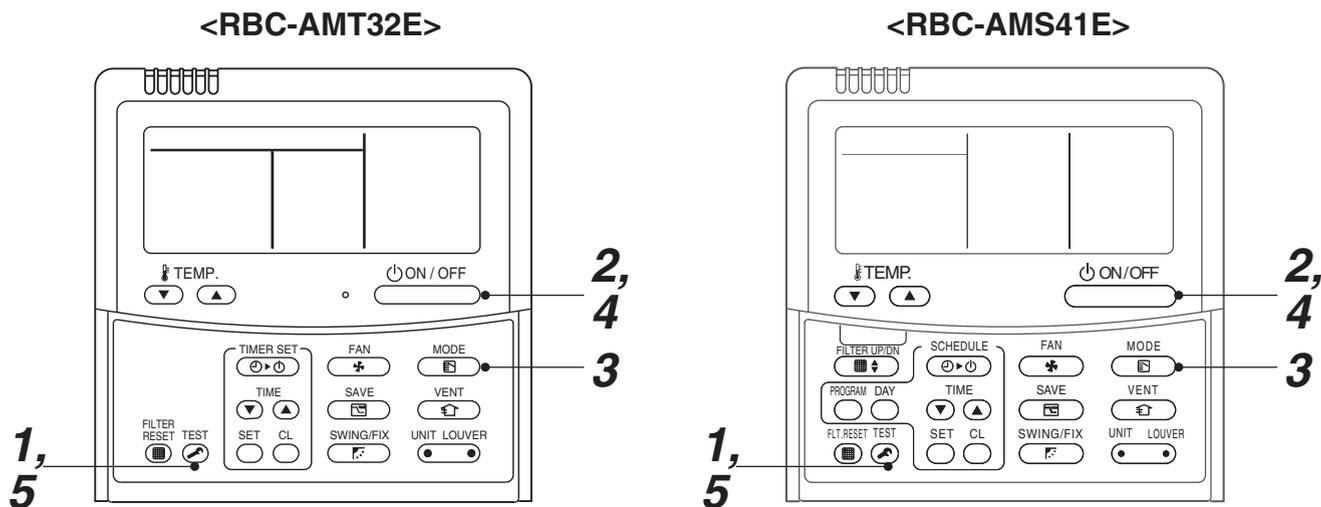
The test run for cooling/heating can be performed from either indoor remote controller or outdoor interface P.C. board.

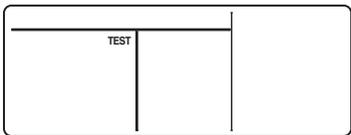
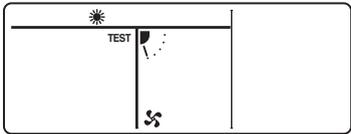
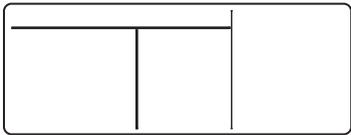
1. Start/Finish operation of test run

◎ 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



Procedure	Operation contents
1	<p>Push [TEST] button for 4 seconds or more. [TEST] is displayed at the display part and the mode enters in TEST mode.</p> 
2	<p>Push [ON/OFF] button.</p>
3	<p>Change the mode from [COOL] to [HEAT] using [MODE] button.</p> <ul style="list-style-type: none"> • Do not use [MODE] button for other mode except [COOL]/[HEAT] modes. • The temperature cannot be adjusted during test run. • The trouble detection is performed as usual. 
4	<p>After test run, push [ON/OFF] button to stop the operation. (Display on the display part is same to that in Procedure 1.)</p>
5	<p>Push [TEST] button to clear the TEST mode. ([TEST] display in the display part disappears and status becomes the normal stop status.)</p> 

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

◆ In case of wireless remote controller

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

2 Push “ON/OFF” button on the remote controller, select [ Cool] or [ Heat] with “MODE” button, and then select [ HIGH] with “FAN” button.

3

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

4

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

5

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

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

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

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

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

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

▼ 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 (30 pls) can be set to the indoor PMV only.
When open DISP pin, the maximum opening degree (1500 pls) 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 (1500 pls)	Min. opening degree (30 pls)	Min. opening degree (30 pls)
Louver	Vertical	Vertical	Immediate stop
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.

7-5. Method to set indoor unit function DN code

(When performing this task, be sure to use a wired remote controller.)

<Procedure> To be performed only when system at rest

- 1 Push the  +  +  buttons simultaneously and hold for at least 4 seconds.

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

Then the fan and louver of the selected indoor unit move.

- 2 Each time the  button (left side of the button) is pressed, one of the indoor unit Nos. under group control is displayed in turn. Then the fan and louver of the selected indoor unit move.

- 3 Use the  button to select the CODE No. (DN code) of the desired function.

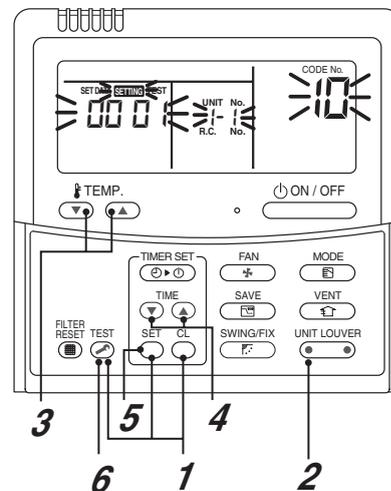
- 4 Use the  button to select the desired SET DATA associated with the selected function.

- 5 Push the  button. (The display changes from flashing to steady.)

- To change the selected indoor unit, go back to step 2.

- To change the selected function, go back to step 3.

- 6 When the  button is pushed, the system returns to normal off state.



Function CODE No. (DN Code) table (includes all functions needed to perform applied control on site)

DN	Item	Description				At shipment	
01	Filter display delay timer	0000: None 0002: 2500H 0004: 10000H		0001: 150H 0003: 5000H		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 0099: Unfixed	to	0064: No.64 unit		0099: Unfixed	
04	Specific indoor unit priority	0000: No priority		0001: Priority		0000: No priority	
06	Heating temp shift	0000: 0 °C 0002: +2 °C		to	0001: +1 °C 0010: +10 °C (Up to +6 recommended)	0002 : +2°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	0014 : Compact 4-way Cassette				0014 : Compact 4-way Cassette	
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 0002: Follower unit of group		0001: Header unit of group		0099: Unfixed	
19	Louver type (Air direction adjustment)	0000: No louver 0004: (4-way Air Discharge Cassette type)		0001: Swing only		0004: (4-way Air Discharge Cassette type)	
1E	Temp difference of [AUTO] mode selection COOL → HEAT, HEAT → COOL	0000: 0 deg (For setup temperature, reversal of COOL / HEAT by } (Data value) / 2)		to	0010: 10 deg	0003: 3 deg (Ts ±1.5)	
28	Automatic restart of power failure	0000: None		0001: Restart		0000: None	
2A	Selection of option/Trouble input (TCB-PCUC1E: CN3)	0000: Filter input 0002: None		0001: Alarm input (Air washer, etc.)		0002: None	
2E	HA terminal (CN61) select	0000: Usual 0002: Fire alarm input		0001: Leaving-ON prevention control		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	
5d	High-ceiling adjustment (Air flow selection)	SET DATA	Type	AP005 to AP012	AP015	AP018	0000: Standard
		0000	Standard (factory default)	2.7 m or less	2.9 m or less	3.5 m or less	
		0001	High-ceiling (1)	—	3.2 m or less	—	
		0003	High-ceiling (3)	—	3.5 m or less	—	
60	Timer setting (wired remote controller)	0000: Available (can be performed)		0001: Unavailable (cannot be performed)		0000: Available	
77	Dual set point	0000: Unavailable		0002: Available		0000: Unavailable	
B3	Soft cooling	0000: Unavailable		0001: Available		0001: Available	
B5	Occupancy sensor/ Wireless A-B selection Provided/None	0000: None 0002: Wireless remote controller provided		0001: Occupancy sensor provided		0000: None	
B6	Occupancy sensor Enable/Invalid (Absence time judgment time)	0000: Invalid 0002: 60min. 0005: 150min.		0001: 30min. 0004: 120min.		0002: Enable (60 min.)	

DN	Item	Description		At shipment
B7	Occupancy sensor operation at absent time	0000: Stand by	0001: operation stop	0000: Stand by
D0	Whether the power saving mode can be set by the remote controller	0000: Invalid	0001: Valid	0001: Valid
E6	Wireless remote controller A-B selection	0000: A	0001: B	0000: A
F0	Swing mode	0001 : Standard 0003 : Cycle swing	0002 : Dual swing	0001: Standard
F1	Louver fixed position (Louver No.1)	0000 : Release 0005 : Downward discharge position	0001 : Horizontal discharge position	0000: Not fixed
F2	Louver fixed position (Louver No.2)	0000 : Release 0005 : Downward discharge position	0001 : Horizontal discharge position	0000: Not fixed
F3	Louver fixed position (Louver No.3)	0000 : Release 0005 : Downward discharge position	0001 : Horizontal discharge position	0000: Not fixed
F4	Louver fixed position (Louver No.4)	0000 : Release 0005 : Downward discharge position	0001 : Horizontal discharge position	0000: Not fixed
F6	Presence of Application control kit (TCB-PCUC1E)	0000: None 0001: Exist		0000: None
Fd	Priority operation mode (FS unit)	0000: Heating	0001: Cooling	0000: Heating
FE	FS unit address	0001 : No.1 unit to 0064 : No.64 unit 0099 : Unfixed		0099: Unfixed

**Type
DN code “10”**

Value	Type	Model
0014	Compact 4-way Cassette	MMU-AP***MH*

**Indoor Unit Capacity
DN code “11”**

Value	Capacity
0000*	Invalid
0041	005 type
0001	007 type
0003	009 type
0005	012 type
0007	015 type
0009	018 type

*1 Default value stored in EEPROM mounted on service P.C. board

7-6. Applied control of indoor unit

Control system using remote controller interface (TCB-IFCB-4E2)

Wiring and setting

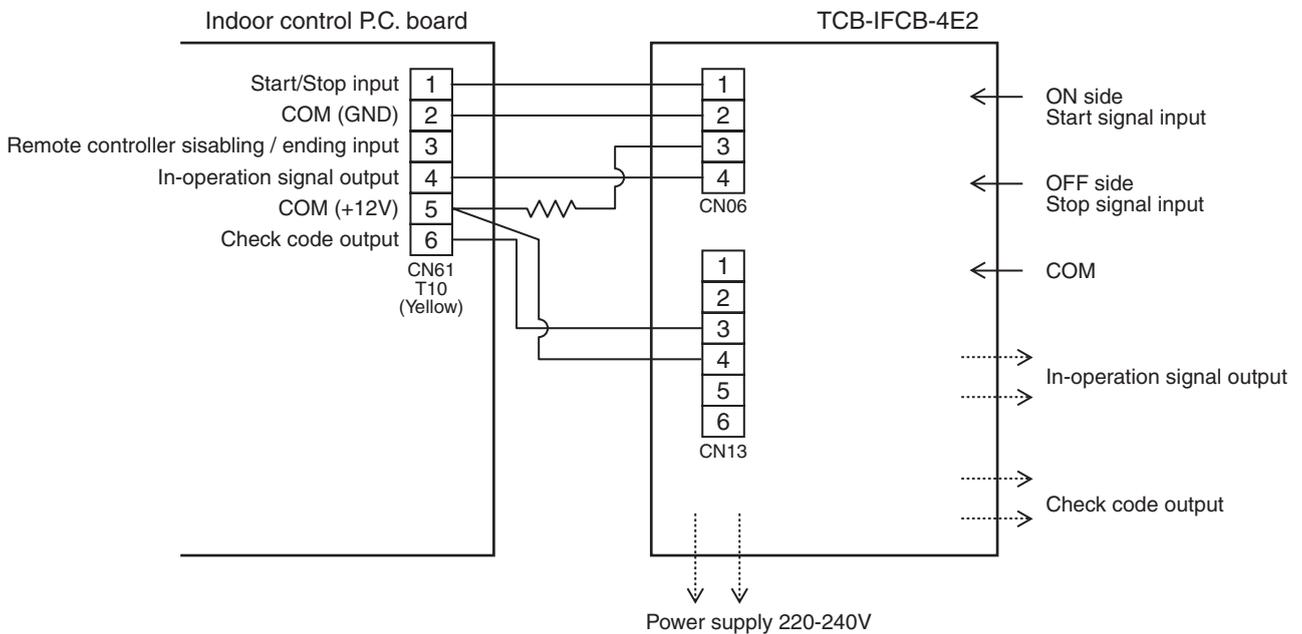
- In the case of group control, the control system functions as long as it is connected to one of the indoor units (control P.C. board) in the group. If it is desired to access the operation and trouble statuses of other units, relevant signals must be brought to it from those units individually.

▼ Control items

- | | |
|-------------------------------|---|
| (1) Start / Stop input signal | Start / stop of unit |
| (2) In-operation signal | Output present while unit in normal operation |
| (3) Check code Output | present while alarm (e.g. serial communication trouble or operation of protective device for indoor / outdoor unit) being activated |

▼ Wiring diagram of control system using remote controller interface (TCB-IFCB-4E2)

- Input IFCB-4E2: No-voltage ON / OFF serial signal
- Output No-voltage contact (in-operation and check code indication)
Contact capacity: Max. AC 240 V, 0.5 A



▼ 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 + + 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 button (left side of the button), 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 SET DATA. (At shipment: 0000)

The setup data are as follows:

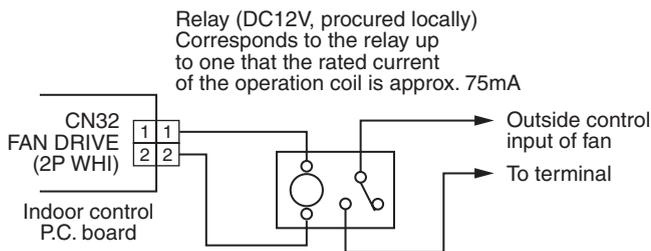
SET DATA	Handling of operation of air to air heat exchanger or ventilating fan
0000	Unavailable (At shipment)
0001	Available

5 Push 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 returns the status to the usual stop status.

2. Wiring



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

▼ 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 is 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 forcibly.
(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.

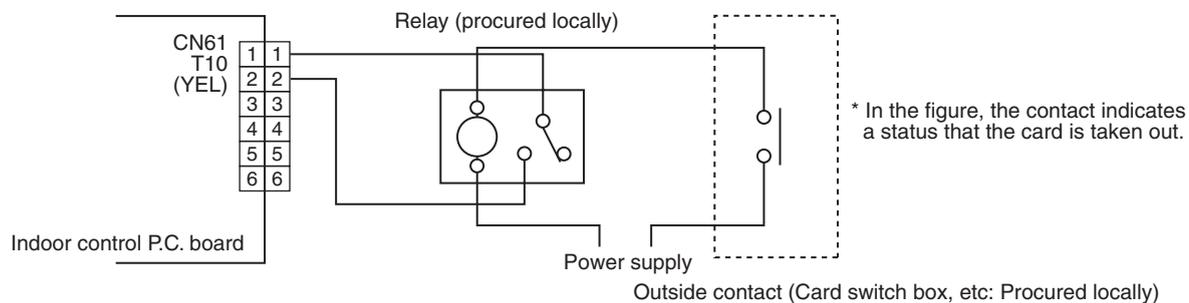
2. Operation

Handle the wired remote controller switch in the following procedure.

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

- 1 Push concurrently  +  +  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 **000** to the SET DATA.**
- 4 Push  button.**
- 5 Push  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 thermo. OFF operation starts.

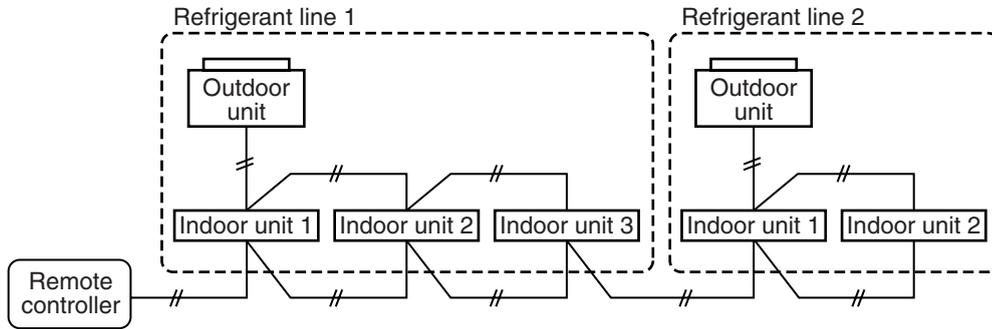
Application control kit (TCB-PCUC1E) is necessary.

Please refer to the manual of Application control kit for a detailed setting.

Manual address setting using the remote controller

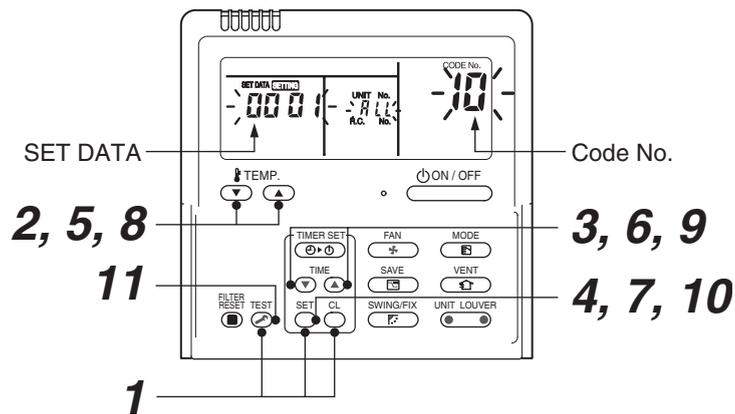
Procedure when setting indoor units' addresses first under the condition that indoor wiring has been completed and outdoor wiring has not been started (manual setting using the remote controller)

▼ Wiring example of 2 refrigerant lines



Line (system) address	1	1	1	2	2
Indoor unit address	1	2	3	1	2
Group address	1 Header unit	2 Follower unit	2 Follower unit	2 Follower unit	2 Follower unit

In the example above, disconnect the remote controller connections between the indoor units and connect a wired remote controller to the target unit directly before address setting.



Pair the indoor unit to set and the remote controller one-to-one.

Turn on the power.

- 1 Push and hold the **SET**, **CL** and **TEST** buttons at the same time for more than 4 seconds. LCD starts flashing.

<Line (system) address>

- 2** Push the TEMP.  /  buttons repeatedly to set the CODE No. to **12**.
- 3** Push the TIME  /  buttons repeatedly to set a system address.
(Match the address with the address on the interface P.C. board of the header outdoor unit in the same refrigerant line.)
- 4** Push  button.
(It is OK if the display turns on.)

<Indoor unit address>

- 5** Push the TEMP.  /  buttons repeatedly to set the CODE No. to **13**.
- 6** Push the TIME  /  buttons repeatedly to set an indoor unit address.
- 7** Push the  button.
(It is OK if the display turns on.)

<Group address>

- 8** Push the TEMP.  /  buttons repeatedly to set the CODE No. to **14**.
- 9** Push the TIME  /  buttons repeatedly to set a group address. If the indoor unit is individual, set the address to **0000** ; header unit, **0001** ; follower unit, **0002** .
Individual : 0000
Header unit : 0001
Follower unit : 0002 } In case of group control
- 10** Push the  button.
(It is OK if the display turns on.)
- 11** Push the  button.
The address setting is complete.
(**SETTING** flashes. You can control the unit after **SETTING** has disappeared.)

NOTE

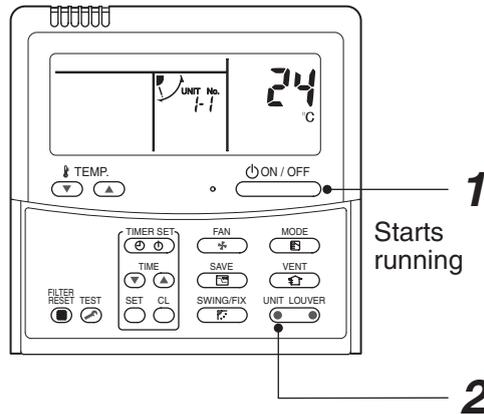
- 1. Do not use address numbers 29 or 30 when setting system addresses using the remote controller. These 2 address numbers cannot be used on outdoor units and the CODE No. [E04] (Indoor / outdoor communication trouble) will appear if they are mistakenly used.**
- 2. If you set addresses to indoor units in 2 or more refrigerate lines manually using the remote controller and will control them centrally, set the header outdoor unit of each line as below.**
 - Set a system address for the header outdoor unit of each line with SW13 and 14 of their interface P.C. boards.
 - Turn off dip switch 2 of SW30 on the interface P.C. boards of all the header outdoor units connected to the same central control, except the unit that has the lowest address. (For unifying the termination of the wiring for the central control of indoor and outdoor units)
 - Connect the relay connectors between the [U1, U2] and [U3, U4] terminals on the header outdoor unit of each refrigerate line.
 - After finishing all the settings above, set the address of the central control devices. (For the setting of the central control address, refer to the installation manuals of the central control devices.)

Confirming the indoor unit addresses and the position of an indoor unit using the remote controller

◆ Confirming the numbers and positions of indoor units

To see the indoor unit address of an indoor unit which you know the position of

- ▼ When the unit is individual (the indoor unit is paired with a wired remote controller one-to-one), or it is a group-controlled one.



(Execute it while the units are running.)

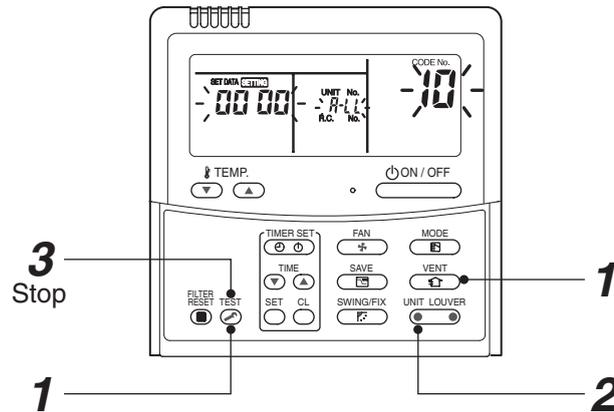
- 1** Push the  button if the units stop.
- 2** Push the  button (left side of the button).

A unit numbers **1-1** is indicated on the LCD (it will disappear after a few seconds). The indicated number shows the system address and indoor unit address of the unit.

When 2 or more indoor units are connected to the remote controller (group-controlled units), a number of other connected units appears each time you push the  button (left side of the button).

To find an indoor unit's position from its address

▼ When checking unit numbers controlled as a group



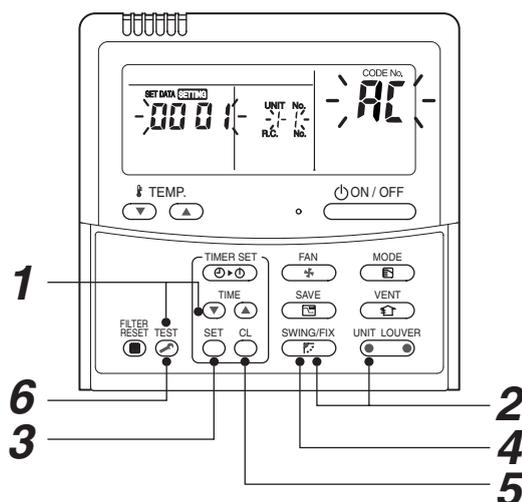
(Execute it while the units are stopped.)

The indoor unit numbers in a group are indicated one after another. The fan and louvers of the indicated units are activated.

- 1 Push and hold the  and  buttons at the same time for more than 4 seconds.**
 - **ALL** appears on UNIT No. on the LCD display.
 - The fans and louvers of all the indoor units in the group are activated.
- 2 Push the  button (left side of the button). Each time you push the button, the indoor unit numbers are indicated one after another.**
 - The first-indicated unit number is the address of the header unit.
 - Only the fan and louvers of the indicated indoor unit are activated.
- 3 Push the  button to finish the procedure.**

All the indoor units in the group stop.

- ▼ To check all the indoor unit addresses using an arbitrary wired remote controller.
(When communication wirings of 2 or more refrigerant lines are interconnected for central control)



(Execute it while the units are stopped.)

You can check indoor unit addresses and positions of the indoor units in a single refrigerant line.

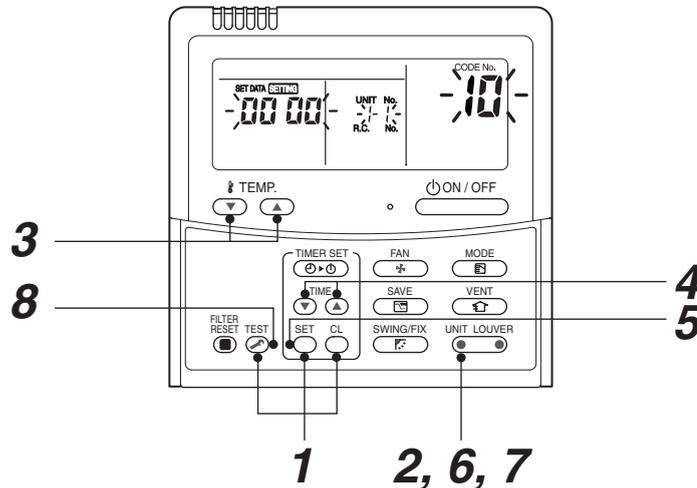
When an outdoor unit is selected, the indoor unit numbers of the refrigerant line of the selected unit are indicated one after another and the fan and louvers of the indicated indoor units are activated.

- 1** Push and hold the TIME and buttons at the same time for more than 4 seconds.
At first, the line 1 and CODE No. (Address Change) are indicated on the LCD display.
(Select an outdoor unit.)
 - 2** Push the button (left side of the button) and buttons repeatedly to select a system address.
 - 3** Push the button to confirm the system address selection.
 - The address of an indoor unit connected to the selected refrigerant line is indicated on the LCD display and its fan and louvers are activated.
 - 4** Push the button (left side of the button). Each time you push the button, the indoor unit numbers of the selected refrigerant line are indicated one after another.
 - Only the fan and louvers of the indicated indoor unit are activated.
- ◆ To select another system address
- 5** Push the button to return to step 2.
 - After returning to step 2, select another system address and check the indoor unit addresses of the line.
 - 6** Push the button to finish the procedure.

◆ Changing the indoor unit address using a remote controller

To change an indoor unit address using a wired remote controller.

- ▼ The method to change the address of an individual indoor unit (the indoor unit is paired with a wired remote controller one-to-one), or an indoor unit in a group. (The method is available when the addresses have already been set automatically.)



(Execute it while the units are stopped.)

- 1** Push and hold the , , and  buttons at the same time for more than 4 seconds. (If 2 or more indoor units are controlled in a group, the first indicated UNIT No. is that of the head unit.)
- 2** Push the  button (left side of the button) repeatedly to select an indoor unit number to change if 2 or more units are controlled in a group. (The fan and louvers of the selected indoor unit are activated.) (The fan of the selected indoor unit is turned on.)
- 3** Push the TEMP.  /  buttons repeatedly to select  for CODE No.
- 4** Push the TIME  /  buttons repeatedly to change the value indicated in the SET DATA section to that you want.
- 5** Push the  button.
- 6** Push the  button (left side of the button) repeatedly to select another indoor UNIT No. to change. Repeat steps **4** to **6** to change the indoor unit addresses so as to make each of them unique.
- 7** Push the  button (left side of the button) to check the changed addresses.
- 8** If the addresses have been changed correctly, push the  button to finish the procedure.

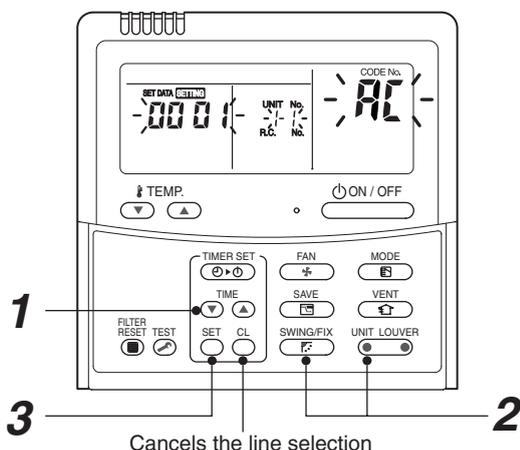
- ▼ To change all the indoor unit addresses using an arbitrary wired remote controller. (The method is available when the addresses have already been set automatically.)

(When communication wirings of 2 or more refrigerant lines are interconnected for central control)

NOTE

You can change the addresses of indoor units in each refrigerant line using an arbitrary wired remote controller.

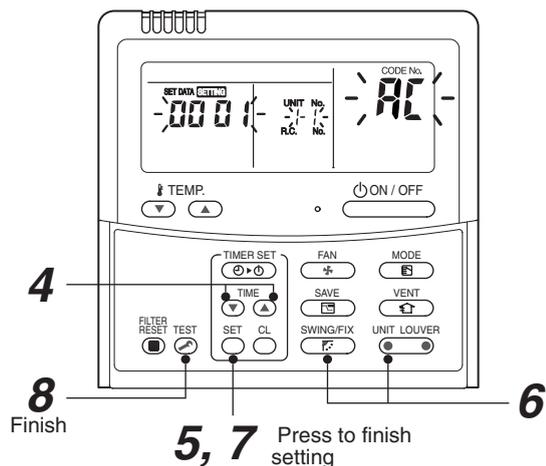
- * Enter the address check / change mode and change the addresses.



If no number appears on UNIT No., no outdoor unit exists on the line. Push button and select another line following step 2.

(Execute it while the units are stopped.)

- 1 Push and hold the TIME (▼) / (▲) buttons at the same time for more than 4 seconds. At first, the line 1 and CODE No. RL (Address Change) are indicated on the LCD display.
- 2 Push the UNIT LOUVER button (left side of the button) and the SWING/FIX buttons repeatedly to select a system address.
- 3 Push the SET button.
 - The address of one of the indoor units connected to the selected refrigerant line is indicated on the LCD display and the fan and louvers of the unit are activated. At first, the current indoor unit address is displayed in SET DATA. (No system address is indicated.)



- 4** Push the TIME ∇ / \blacktriangle buttons repeatedly to change the value of the indoor unit address in SET DATA.
Change the value in SET DATA to that of a new address.
- 5** Push the $\text{\textcircled{O}}$ button to confirm the new address on SET DATA.
- 6** Push the $\text{\textcircled{O}}$ button (left side of the button) repeatedly to select another address to change.
Each time you push the button, the indoor unit numbers in a refrigerant line are indicated one after another. Only the fan and louvers of the selected indoor unit are activated.
Repeat steps 4 to 6 to change the indoor unit addresses so as to make each of them unique.
- 7** Push the $\text{\textcircled{O}}$ button.
(All the segments on the LCD display light up.)
- 8** Push the $\text{\textcircled{O}}$ button to finish the procedure.

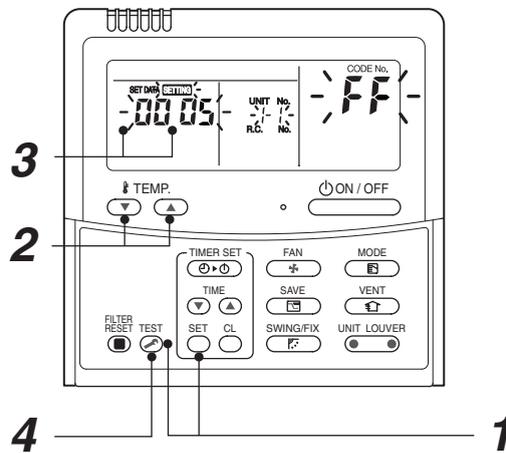
◆ Check code clearing function

How to clear the check code using the wired remote controller

▼ Clearing a check code of the outdoor unit

Clear the currently detected outdoor unit for each refrigerant line to which the indoor unit controlled by the remote controller is connected. (The indoor unit check code is not cleared.) Use the service monitoring function of the remote controller.

- 1 Push and hold the **CL** , and **TEST** for 4 seconds or longer to enter the service monitoring mode.
- 2 Push the **TEMP.** button to set CODE No. to “FF”.
- 3 The display in A of the following figure counts down as follows at 5-second intervals: “0005” → “0004” → “0003” → “0002” → “0001” → “0000”.
The check code is cleared when “0000” appears.
However, the display counts down from “0005” again.
- 4 Push the **TEST** to return the display to normal.



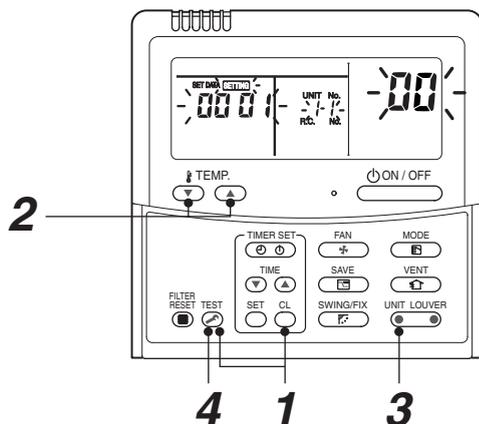
▼ Clearing a check code of the indoor unit

Push the **ON/OFF** button on the remote controller.

(Only the check code of the indoor unit controlled by the remote controller will be cleared.)

Monitoring function of wired remote controller

The following monitoring function is available if the remote controller of RBC-ATM32E is used.



▼ Content

Enter the service monitoring mode using the remote controller to check the sensor temperature or operation status of the remote controller, indoor unit, and outdoor unit.

- 1** Push and hold the , and  for 4 seconds or longer to enter the service monitoring mode.
The service monitor lights up. The temperature of CODE No. **00** appears at first.
- 2** Push the  button to change to CODE No. of the item to monitor. Refer to the following table for CODE No.
- 3** Push the left part of the  button (left side of the button) to change to the item to monitor. Monitor the sensor temperature or operation status of the indoor unit and outdoor unit in the refrigerant line
- 4** Push the  button to return the display to normal.

◆ Target outdoor unit (SMMS-e)

	CODE No.	Data name	Display format	Unit	Remote controller display example
Indoor unit data *2	00	Room temperature (Use to control)	×1	°C	[0024]=24°C
	01	Room temperature (Remote controller)	×1	°C	
	02	Indoor suction air temperature (TA)	×1	°C	
	03	Indoor coil temperature (TCJ)	×1	°C	
	04	Indoor coil temperature (TC2)	×1	°C	
	05	Indoor coil temperature (TC1)	×1	°C	
	06	Indoor discharge air temperature (TF) *1	×1	°C	
	08	Indoor PMV opening	×1/10	pls	[0150]=1500pls
	F3	Filter sign time	×1	h	[2500] = 2500h
	F9	Suction temperature of air to air heat exchanger (TSA) *1	×1	°C	[0024] = 24°C
FA	Outside air temperature (TOA)*1	×1	°C		
System data	0A	No. of connected indoor units	×1	unit	[0048]=48 units
	0B	Total horsepower of connected indoor units	×10	HP	[0415]=41.5HP
	0C	No. of connected outdoor units	×1	unit	[0003]=3 units
	0D	Total horsepower of outdoor units	×10	HP	[0420]=42HP

	CODE No.			Data name	Display format	Unit	Remote controller display example
	U1	U2	U3				
Outdoor unit individual data 1 *3	10	20	30	High-pressure sensor detention pressure (Pd)	×100	MPa	[0123] = 1.23MPa
	11	21	31	Low-pressure sensor detention pressure (Ps)	×100	MPa	
	12	22	32	Compressor 1 discharge temperature (TD1)	×1	°C	[0024] = 24°C
	13	23	33	Compressor 2 discharge temperature (TD2)	×1	°C	
	15	25	35	Outdoor coil temperature (TE1)	×1	°C	
	16	26	36	Outdoor coil temperature (TE2)	×1	°C	
	17	27	37	Outdoor coil temperature (TG1)	×1	°C	
	18	28	38	Outdoor coil temperature (TG2)	×1	°C	
	19	29	39	Outside ambient temperature (TO)	×1	°C	
	1A	2A	3A	Suction temperature (TS1)	×1	°C	
	1C	2C	3C	Suction temperature (TS3)	×1	°C	
	1D	2D	3D	Temperature at liquid side (TL1)	×1	°C	
	1E	2E	3E	Temperature at liquid side (TL2)	×1	°C	
	1F	2F	3F	Temperature at liquid side (TL3)	×1	°C	

	CODE No.			Data name	Display format	Unit	Remote controller display example
	U1	U2	U3				
Outdoor unit individual data 2 *4	50	60	70	PMV1 opening	×1	pls	[0500] = 500pls
	51	61	71	PMV3 opening	×1	pls	
	52	62	72	PMV4 opening	×1	pls	
	53	63	73	1 fan model : Compressor 1 current (I1) 2 fan model : Compressor 1 and Outdoor fan 1 current (I1)	×10	A	[0135] = 13.5A
	54	64	74	1 fan model : Compressor 2 and Outdoor fan 1 current (I2) 2 fan model : Compressor 2 and Outdoor fan 2 current (I2)	×10	A	
	56	66	76	Compressor 1 revolutions	×10	rps	[0642] = 64.2rps
	57	67	77	Compressor 2 revolutions	×10	rps	
	59	69	79	Outdoor fan mode	×1	mode	[0058] = 58 mode
	5A	6A	7A	Compressor IPDU 1 heat sink temperature	×1	°C	[0024] = 24°C
	5B	6B	7B	Compressor IPDU 2 heat sink temperature	×1	°C	
	5D	6D	7D	Outdoor fan IPDU 1 heat sink temperature	×1	°C	
	5E	6E	7E	Outdoor fan IPDU 2 heat sink temperature	×1	°C	
	5F	6F	7F	Outdoor unit horsepower	×1	HP	[0016] = 16HP

Outdoor unit individual data 3 *5	CODE No.			Data name	Display format	Unit	Remote controller display example
	U1	U2	U3				
	90			Heating/cooling recovery controlled	0: Normal 1: Recovery controlled		[0010]=Heating recovery controlled [0001]=Cooling recovery controlled
	91			Pressure release			[0010]=Pressure release controlled
92			Discharge temperature release			[0001]=Discharge temperature release controlled	
93			Follower unit release (U2/U3 outdoor units)	0: Normal 1: Release controlled		[0100]=U2 outdoor unit release controlled [0010]=U3 outdoor unit release controlled [0001]=U4 outdoor unit release controlled	

*1 Only a part of indoor unit types is installed with the discharge air temperature sensor. This temperature is not displayed for other types.

*2 When the units are connected to a group, data of the header indoor unit only can be displayed.

*3 The first digit of an CODE No. indicates the outdoor unit number.

*4 The upper digit of an CODE No. -4 indicates the outdoor unit number.

1* , 5* ... U1 outdoor unit (Header unit)

2* , 6* ... U2 outdoor unit (Follower unit 1)

3* , 7* ... U3 outdoor unit (Follower unit 2)

5 Only the CODE No. 9 of U1 outdoor unit (Header unit) is displayed.

8. TROUBLESHOOTING

8-1. Overview

(1) Before engaging in troubleshooting

(a) Applicable models

All Super Modular Multi System (SMMS-e) models.
(Indoor units: MM*-AP***, Outdoor units: MMY-MAP***6*)

(b) Tools and measuring devices required

- Screwdrivers (Phillips, flat head), spanners, long-nose pliers, nipper, pin to push reset switch, etc.
- Multimeter, thermometer, pressure gauge, etc.

(c) Things to check prior to troubleshooting (behaviors listed below are normal)

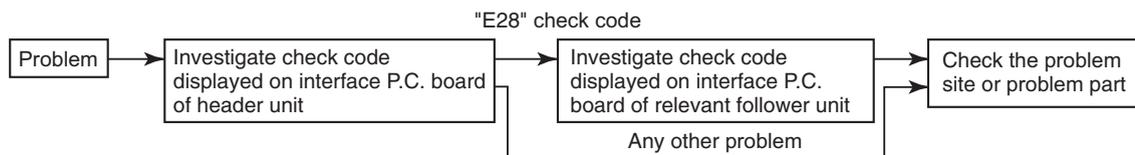
NO.	Behavior	Possible cause
1	A compressor would not start	<ul style="list-style-type: none"> • Could it just be the 3-minute delay period (3 minutes after compressor shutdown)? • Could it just be the air conditioner having gone thermostats OFF? • Could it just be the air conditioner operating in fan mode or put on the timer? • Could it just be the system going through initial communication?
2	An indoor fan would not start	<ul style="list-style-type: none"> • Could it just be cold air discharge prevention control, which is part of heating?
3	An outdoor fan would not start or would change speed for no reason	<ul style="list-style-type: none"> • Could it just be cooling operation under low outside temperature conditions? • Could it just be defrosting operation?
4	An indoor fan would not stop	<ul style="list-style-type: none"> • Could it just be the elimination of residual heat being performed as part of the air conditioner shutdown process after heating operation?
5	The air conditioner would not respond to a start/stop command from a remote controller	<ul style="list-style-type: none"> • Could it just be the air conditioner operation under external or remote control?

CAUTION

The cooling performance may be declining considerably when total operating capacity of cooling indoor units is less than 4 HP WHILE AMBIENT TEMPERATURE IS BELOW 0°C.

(2) Troubleshooting procedure

When a problem occurs, proceed with troubleshooting in accordance with the procedure shown below.



NOTE

Rather than a product trouble (see the List of Check Codes below), the problem could have been caused by a microprocessor malfunction attributable to a poor quality of the power source or an external noise. Check for possible noise sources, and shield the remote controller wiring and signal wires as necessary.

8-2. Troubleshooting method

The remote controllers (main remote controller and central control remote controller) and the interface P.C. board of an outdoor unit are provided with an LCD display (remote controller) or a 7-segment display (outdoor interface P.C. board) to display operational status. Using this self-diagnosis feature, the trouble site / trouble part may be identified in the event of a trouble by following the method described below.

The list below summarizes check codes detected by various devices. Analyze the check code according to where it is displayed and work out the nature of the trouble in consultation with the list.

- When investigating a trouble on the basis of a display provided on the indoor remote controller or TCC-LINK central control remote controller - See the “TCC-LINK remote controller or main remote controller display” section of the list.
- When investigating a trouble on the basis of a display provided on an outdoor unit - See the “Outdoor 7-segment display” section of the list.
- When investigating a trouble on the basis of a wireless remote controller-controlled indoor unit - See the “Indicator light block” section of the list.

List of check codes (indoor unit)

(Check code detected by indoor unit)

IPDU: Intelligent Power Drive Unit (Inverter P.C. board)

○: Lighting, ⊙: Flashing, ●: Goes off

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

SIM: Simultaneous flashing when there are two flashing LED

Check code			Display of receiving unit				Typical trouble on site	Description of check code
TCC-LINK central control or main remote controller display	Outdoor 7-segment display		Indicator light block					
		Sub-code	Operation ⏻	Timer ⌚	Ready ⊙	Flash ⚡		
E03	—	—	⊙	●	●		Indoor-remote controller periodic communication check code	Communication from remote controller or network adaptor has been lost (so has central control communication).
E04	—	—	●	●	⊙		Indoor-outdoor periodic communication check code	Signals are not being received from outdoor unit.
E08	E08	Duplicated indoor address	⊙	●	●		Duplicated indoor address	Indoor unit detects address identical to its own.
E11	—	—	⊙	●	●		Communication check code between Application control kit and indoor unit	Communication check code between Application control kit and indoor unit P.C. board
E18	—	—	⊙	●	●		Check cod in periodic communication between indoor header and follower unit	Periodic communication between indoor header and follower units cannot be maintained.
F01	—	—	⊙	⊙	●	ALT	Indoor heat exchanger temperature sensor (TCJ) check code	Heat exchanger temperature sensor (TCJ) has been open / shortcircuited.
F02	—	—	⊙	⊙	●	ALT	Indoor heat exchanger temperature sensor (TC2) check code	Heat exchanger temperature sensor (TC2) has been open / shortcircuited.
F03	—	—	⊙	⊙	●	ALT	Indoor heat exchanger temperature sensor (TC1) check code	Heat exchanger temperature sensor (TC1) has been open / shortcircuited.
F10	—	—	⊙	⊙	●	ALT	Ambient temperature sensor (TA) check code	Ambient temperature sensor (TA) has been open / shortcircuited.
F11	—	—	⊙	⊙	●	ALT	Discharge temperature sensor (TF) check code	Discharge temperature sensor (TF) has been open / shortcircuited.
F29	—	—	⊙	⊙	●	SIM	P.C. board or other indoor check code	Indoor EEPROM is abnormal (some other trouble may be detected).
F30	—	—	⊙	⊙	○	ALT	Occupancy sensor trouble	Occupancy sensor trouble has been detected.
L03	—	—	⊙	●	⊙	SIM	Duplicated indoor group header unit	There is more than one header unit in group.
L07	—	—	⊙	●	⊙	SIM	Connection of group control cable to stand-alone indoor unit	There is at least one stand-alone indoor unit to which group control cable is connected.
L08	L08	—	⊙	●	⊙	SIM	Indoor group address not set	Address setting has not been performed for one or more indoorunits (also detected at outdoor unit end).
L09	—	—	⊙	●	⊙	SIM	Indoor capacity not set	Capacity setting has not been performed for indoor unit.
L20	—	—	⊙	○	⊙	SIM	Duplicated central control address	There is duplication in central control address setting.
L30	L30	Detected indoor unit No.	⊙	○	⊙	SIM	Indoor external check code input (interlock)	Unit shutdown has been caused by external check code input (CN80).
P01	—	—	●	⊙	⊙	ALT	Indoor AC fan check code	Indoor AC fan check code is detected (activation of fan motor thermal relay).
P10	P10	Detected indoor unit No.	●	⊙	⊙	ALT	Indoor overflow check code	Float switch has been activated.
P12	—	—	●	⊙	⊙	ALT	Indoor DC fan check code	• Indoor DC fan check code (e.g. overcurrent or lock-up) is detected.
P31	—	—	⊙	●	⊙	ALT	Other indoor unit check code	Follower unit cannot be operated due to header unit alarm (E03 / L03 / L07 / L08).

(Check code detected by main remote controller)

Check code			Display of receiving unit				Typical fault site	Description of trouble
Main remote control	Outdoor 7-segment display		Indicator light block					
		Sub-code	Operation ⏻	Timer ⌚	Ready ⊙	Flash		
E01	-	-	⊙	●	●		No master remote control, failure remote control communication (reception)	Signals cannot be received from indoor unit; master remote control has not been set (including two remote control).
E02	-	-	⊙	●	●		Failure remote control communication (transmission)	Signals cannot be transmitted to indoor unit.
E09	-	-	⊙	●	●		Duplicated master remote control	Both remote controls have been set as master remote control in two remote control (alarm and shutdown for header unit and continued operation for follower unit)

(Check code detected by central control device)

Check code			Display of receiving unit				Typical fault site	Description of trouble
TCC-LINK central control	Outdoor 7-segment display		Indicator light block					
		Sub-code	Operation ⏻	Timer ⌚	Ready ⊙	Flash		
C05	-	-					Failure central control communication (transmission)	Central control device is unable to transmit signal due to duplication of central control device
C06	-	-					Failure central control communication (reception)	Central control device is unable to receive signal.
-	-	-					Multiple network adapters	Multiple network adapters are connected to remote control communication line.
C12	-	-					Blanket alarm for general-purpose device control interface	Device connected to general-purpose device control interface for TCC-LINK is failure.
P30	-	-					As per alarm unit (see above)	Group control follower unit trouble Group follower unit is failure (unit No. and above detail [***] displayed on main remote control)

Note: The same trouble, e.g. a communication trouble, may result in the display of different check codes depending on the device that detects it. Moreover, check codes detected by the main remote controller / central control device do not necessarily have a direct impact on air conditioner operation.

Flow selector unit (FS unit) Relation

(Check code detected by indoor unit)

Check code			Display of receiving unit				Typical fault site	Description of trouble
Main remote control	Outdoor 7-segment display		Indicator light block					
		Sub-code	Operation ⏻	Timer ⌚	Ready ⊙	Flash		
E17	-	-	⊙	●	●		Communication trouble between indoor unit (s) and FS unit (s)	There is no communication from FS unit(s)
J03	-	-	●	⊙	⊙		Duplicated FS units	More than one FS units have been set up in one refrigerant line.
J10	-	-	●	⊙	⊙		FS unit overflow trouble	FS unit has been shutdown in one refrigerant line due to detection of overflow
J11	-	-	●	⊙	⊙		FS unit temperature sensor (TCS) trouble	FS unit temperature sensor (TCS) has been open/short-circuited.
L12	L12	-	⊙	○	⊙		FS unit(s) system trouble	FS unit(s) outside the application setting

List of Check Codes (Outdoor Unit)

(Check code detected by SMMS-e outdoor interface - typical examples)

If “HELLO” is displayed on the outdoor 7-segment for 1 minute or more, turn off the power supply once and then turn on the power supply again after passage of 30 seconds or more. When the same symptom appears, it is considered there is a possibility of I/F board trouble.

IPDU: Intelligent Power Drive Unit (Inverter P.C. board)

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

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

SIM: Simultaneous flashing when there are two flashing LED

Check code		Display of receiving unit				Typical problem site	Description of problem																																																																																																			
Outdoor 7-segment display		TCC-LINK central control or main remote control display	Indicator light block																																																																																																							
Sub-code			Operation ⏻	Timer ⌚	Ready ⊙	Flash																																																																																																				
E06	Number of indoor units from which signal is received normally	E06	●	●	◎		Signal lack of indoor unit	Indoor unit initially communicating normally fails to return signal (reduction in number of indoor units connected).																																																																																																		
E07	–	(E04)	●	●	◎		Indoor-outdoor communication circuit trouble	Signal cannot be transmitted to indoor units (→ indoor units left without communication from outdoor unit).																																																																																																		
E08	Duplicated indoor address	(E08)	◎	●	●		Duplicated indoor address	More than one indoor unit are assigned same address (also detected at indoor unit end).																																																																																																		
E12	01: Indoor-outdoor communication 02: Outdoor-outdoor communication	E12	◎	●	●		Automatic address starting trouble	<ul style="list-style-type: none"> Indoor automatic address setting is started while automatic address setting for equipment in other refrigerant line is in progress. Outdoor automatic address setting is started while automatic address setting for indoor units is in progress. 																																																																																																		
E15	–	E15	●	●	◎		Indoor unit not found during automatic address setting	Indoor unit fails to communicate while automatic address setting for indoor units is in progress.																																																																																																		
E16	00: Overloading 01: Number of units connected	E16	●	●	◎		Too many indoor units connected/overloading	Combined capacity of indoor units is too large (more than 135% of combined capacity of outdoor units).																																																																																																		
E19	00: No header unit 02: Two or more header units	E19	●	●	◎		Trouble in number of outdoor header units	There is no or more than one outdoor header unit in one refrigerant line.																																																																																																		
E20	01: Connection of outdoor unit from other refrigerant line 02: Connection of indoor unit from other refrigerant line	E20	●	●	◎		Connection to other refrigerant line found during automatic address setting	Indoor unit from other refrigerant line is detected while indoor automatic address setting is in progress.																																																																																																		
E23	–	E23	●	●	◎		Outdoor-outdoor communication transmission trouble	Signal cannot be transmitted to other outdoor units.																																																																																																		
E25	–	E25	●	●	◎		Duplicated follower outdoor address	There is duplication in outdoor addresses set manually.																																																																																																		
E26	Address of outdoor unit from which signal is not received normally	E26	●	●	◎		Signal lack of outdoor unit	Follower outdoor unit initially communicating normally fails to do so (reduction in number of follower outdoor units connected).																																																																																																		
E28	Detected outdoor unit No.	E28	●	●	◎		Outdoor follower unit trouble	Outdoor header unit detects failure relating to follower outdoor unit (detail displayed on follower outdoor unit).																																																																																																		
E31	<table border="1"> <thead> <tr> <th rowspan="2">Sub-code</th> <th colspan="2">A3-IPDU</th> <th colspan="2">Fan-IPDU</th> <th rowspan="2">Sub-code</th> <th colspan="2">A3-IPDU</th> <th colspan="2">Fan-IPDU</th> </tr> <tr> <th>1</th> <th>2</th> <th>1</th> <th>2</th> <th>1</th> <th>2</th> <th>1</th> <th>2</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>○</td> <td></td> <td></td> <td></td> <td>10</td> <td></td> <td></td> <td></td> <td>○</td> </tr> <tr> <td>02</td> <td></td> <td>○</td> <td></td> <td></td> <td>11</td> <td>○</td> <td></td> <td></td> <td>○</td> </tr> <tr> <td>03</td> <td>○</td> <td>○</td> <td></td> <td></td> <td>12</td> <td></td> <td>○</td> <td></td> <td>○</td> </tr> <tr> <td>08</td> <td></td> <td></td> <td>○</td> <td></td> <td>13</td> <td>○</td> <td>○</td> <td></td> <td>○</td> </tr> <tr> <td>09</td> <td>○</td> <td></td> <td>○</td> <td></td> <td>18</td> <td></td> <td></td> <td>○</td> <td>○</td> </tr> <tr> <td>0A</td> <td></td> <td>○</td> <td>○</td> <td></td> <td>19</td> <td>○</td> <td></td> <td>○</td> <td>○</td> </tr> <tr> <td>0B</td> <td>○</td> <td>○</td> <td>○</td> <td>○</td> <td>1A</td> <td></td> <td>○</td> <td>○</td> <td>○</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1B</td> <td>○</td> <td>○</td> <td>○</td> <td>○</td> </tr> </tbody> </table> <p>Circle (O): IPDU trouble</p> <p>80 : Communication trouble between MCU and Sub MCU</p>	Sub-code	A3-IPDU		Fan-IPDU		Sub-code	A3-IPDU		Fan-IPDU		1	2	1	2	1	2	1	2	01	○				10				○	02		○			11	○			○	03	○	○			12		○		○	08			○		13	○	○		○	09	○		○		18			○	○	0A		○	○		19	○		○	○	0B	○	○	○	○	1A		○	○	○						1B	○	○	○	○	E31	●	●	◎		IPDU communication trouble Sub MCU communication trouble	There is no communication between IPDUs (P.C. boards) in inverter box.
Sub-code	A3-IPDU		Fan-IPDU		Sub-code	A3-IPDU		Fan-IPDU																																																																																																		
	1	2	1	2		1	2	1	2																																																																																																	
01	○				10				○																																																																																																	
02		○			11	○			○																																																																																																	
03	○	○			12		○		○																																																																																																	
08			○		13	○	○		○																																																																																																	
09	○		○		18			○	○																																																																																																	
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					1B	○	○	○	○																																																																																																	
F04	–	F04	◎	◎	○	ALT	Outdoor discharge temperature sensor (TD1) trouble	Outdoor discharge temperature sensor (TD1) has been open/short-circuited.																																																																																																		
F05	–	F05	◎	◎	○	ALT	Outdoor discharge temperature sensor (TD2) trouble	Outdoor discharge temperature sensor (TD2) has been open/short-circuited.																																																																																																		
F06	01: TE1 02: TE2	F06	◎	◎	○	ALT	Outdoor heat exchanger liquid side temperature sensor (TE1, TE2) trouble	Outdoor heat exchanger liquid side temperature sensors (TE1, TE2) have been open/short-circuited.																																																																																																		
F07	01: TL1 02: TL2 03: TL3	F07	◎	◎	○	ALT	Outdoor liquid temperature sensor (TL1, TL2, TL3) trouble	Outdoor liquid temperature sensor (TL1, TL2, TL3) has been open/short-circuited.																																																																																																		
F08	–	F08	◎	◎	○	ALT	Outdoor outside air temperature sensor (TO) trouble	Outdoor outside air temperature sensor (TO) has been open/short-circuited.																																																																																																		

Check code		Display of receiving unit				Typical problem site	Description of problem	
Outdoor 7-segment display		TCC-LINK central control or main remote control display	Indicator light block					
	Sub-code			Operation ⏻	Timer ⌚	Ready ⊗	Flash	
F09	01: TG1 02: TG2						Outdoor heat exchanger gas side temperature sensor (TG1, TG2) trouble	Outdoor heat exchanger gas side temperature sensors (TG1, TG2) have been open/-short circuited.
F12	01: TS1 03: TS3	F12	⊗	⊗	○	ALT	Outdoor suction temperature sensor (TS1,TS3) trouble	Outdoor suction temperature sensor (TS1,TS3) has been open/short-circuited.
F15	–	F15	⊗	⊗	○	ALT	Outdoor temperature sensor (TE1,TL1) wiring trouble	Wiring trouble in outdoor temperature sensors (TE1,TL1) has been detected.
F16	–	F16	⊗	⊗	○	ALT	Outdoor pressure sensor (Pd, Ps) wiring trouble	Wiring trouble in outdoor pressure sensors (Pd, Ps) has been detected.
F23	–	F23	⊗	⊗	○	ALT	Low pressure sensor (Ps) trouble	Output voltage of low pressure sensor (Ps) is zero.
F24	–	F24	⊗	⊗	○	ALT	High pressure sensor (Pd) trouble	Output voltage of high pressure sensor (Pd) is zero or provides abnormal readings when compressors have been turned off.
F31	–	F31	⊗	⊗	○	SIM	Outdoor EEPROM trouble	Outdoor EEPROM is failure (alarm and shutdown for header unit and continued operation for follower unit)
H05	–	H05	●	⊗	●		Outdoor discharge temperature sensor (TD1) wiring trouble	Wiring/installation trouble or detachment of outdoor discharge temperature sensor (TD1) has been detected
H06	–	H06	●	⊗	●		Activation of low-pressure protection	Low pressure (Ps) sensor detects abnormally low operating pressure.
H07	–	H07	●	⊗	●		Low oil level protection	Temperature sensor for oil level detection (TK1,TK2,TK4,TK5) detects abnormally low oil level.
H08	01: TK1 sensor trouble 02: TK2 sensor trouble 04: TK4 sensor trouble 05: TK5 sensor trouble	H08	●	⊗	●		Trouble in temperature sensor for oil level detection (TK1,TK2,TK4,TK5)	Temperature sensor for oil level detection (TK1,TK2,TK4,TK5) has been open/short-circuited.
H15	–	H15	●	⊗	●		Outdoor discharge temperature sensor (TD2) wiring trouble	Wiring/installation trouble or detachment of outdoor discharge temperature sensor (TD2) has been detected.
H16	01: TK1 oil circuit trouble 02: TK2 oil circuit trouble 04: TK4 oil circuit trouble 05: TK5 oil circuit trouble	H16	●	⊗	●		Oil level detection circuit trouble	No temperature change is detected by temperature sensor for oil level detection (TK1,TK2,TK4,TK5) despite compressor having been started.
L04	–	L04	⊗	○	⊗	SIM	Duplicated outdoor refrigerant line address	Identical refrigerant line address has been assigned to outdoor units belonging to different refrigerant piping systems.
L06	Number of priority indoor units (check code L05 or L06 depending on individual unit)	L05	⊗	●	⊗	SIM	Duplicated priority indoor unit (as displayed on priority indoor unit)	More than one indoor unit have been set up as priority indoor unit.
		L06	⊗	●	⊗	SIM	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)	More than one indoor unit have been set up as priority indoor unit.
L08	–	(L08)	⊗	●	⊗	SIM	Indoor group address not set	Address setting have not been performed for one or more indoor units (also detected at indoor end).
L10	–	L10	⊗	○	⊗	SIM	Outdoor capacity not set	Outdoor unit capacity has not been set (after P.C. board replacement).
L17	–	L17	⊗	○	⊗	SIM	Outdoor model incompatibility trouble	Old model outdoor unit (prior to 6 series) has been connected.
L23	–	L23	⊗	○	⊗	SIM	SW setting mistake	Bit 3 and 4 of SW17 are turning on.
L28	–	L28	⊗	○	⊗	SIM	Too many outdoor units connected	More than three outdoor units have been connected.

Check code				Display of receiving unit				Typical problem site	Description of problem										
Outdoor 7-segment display				TCC-LINK central control or main remote control display	Indicator light block														
Sub-code	A3-IPDU		Fan-IPDU		Sub-code	A3-IPDU		Fan-IPDU		Operation ⏻	Timer ⏰	Ready ⊗	Flash						
	1	2	1	2		1	2	1	2										
L29	01	○			10				○	L29	⊗	○	⊗	SIM	Trouble in number IPDUs	There are insufficient number of IPDUs (P.C. boards) in inverter box.			
	02		○		11	○			○										
	03	○	○			12		○									○		
	08			○		13	○	○									○		
	09	○		○		18			○								○		
	0A		○	○		19	○		○								○		
	0B	○	○	○	○	1A	○	○	○								○		
						1B	○	○	○								○		
	Circle (○): IPDU trouble																		
	80 : Communication trouble between MCU and Sub MCU																		
	L30	Detected indoor unit No.			(L30)														⊗
P03	-			P03							⊗	●	⊗	ALT	Outdoor discharge (TD1) temperature trouble	Outdoor discharge temperature sensor (TD1) has detected abnormally high temperature.			
P05	00: Open phase detected			P05							⊗	●	⊗	ALT	Open phase/power failure	Open phase is detected when power is turned on. Inverter DC voltage is too high (overvoltage) or too low (undervoltage).			
	01: Compressor 1 02: Compressor 2				Inverter DC voltage (Vdc) trouble MG-CTT trouble														
P07	01: Compressor 1 02: Compressor 2			P07							⊗	●	⊗	ALT	Heat sink overheating trouble	Temperature sensor built into IPM (TH) detects overheating.			
P10	Detected indoor unit No.			(P10)							●	⊗	⊗	ALT	Indoor unit overflow	Indoor unit has been shutdown in one refrigerant line due to detection of overflow (detected by indoor unit).			
P13	-			P13							●	⊗	⊗	ALT	Outdoor liquid backflow detection trouble	State of refrigerant cycle circuit indicates liquid backflow operation.			
P15	01: TS condition 02: TD condition			P15							⊗	●	⊗	ALT	Gas leak detection	Outdoor suction temperature sensor (TS1) detects sustained and repeated high temperatures that exceed standard value.			
P17	-			P17							⊗	●	⊗	ALT	Outdoor discharge (TD2) temperature trouble	Outdoor discharge temperature sensor (TD2) detects abnormally high temperature.			
P19	Outdoor unit No. detected			P19							⊗	●	⊗	ALT	4-way valve reversing trouble	Abnormality in refrigerating cycle is detected during heating operation.			
P20	-			P20							⊗	●	⊗	ALT	Activation of high-pressure protection	High pressure (Pd) sensor detects high pressure that exceeds standard value.			

MG-CTT: Magnet contactor

(Check code detected by IPDU featuring in SMMS-e standard outdoor unit - typical examples)

Check code		Display of receiving unit				Typical problem site	Description of problem	
Outdoor 7-segment display		TCC-LINK central control or main remote control display	Indicator light block					Flash
Sub-code			Operation ⏻	Timer ⌚	Ready ⊗			
F13	01: Compressor 1 02: Compressor 2	F13	⊗	⊗	○	ALT	Trouble in temperature sensor built into indoor IPM (TH)	Temperature sensor built into indoor IPM (TH) has been open/short-circuited.
H01	01: Compressor 1 02: Compressor 2	H01	●	⊗	●		Compressor breakdown	Inverter current (Idc) detection circuit detects overcurrent.
H02	01: Compressor 1 02: Compressor 2	H02	●	⊗	●		Compressor trouble (lockup)	Compressor lockup is detected
H03	01: Compressor 1 02: Compressor 2	H03	●	⊗	●		Current detection circuit trouble	Abnormal current is detected while inverter compressor is turned off.
P04	01: Compressor 1 02: Compressor 2	P04	⊗	●	⊗	ALT	Activation of high-pressure SW	High-pressure SW is activated.
P07	01: Compressor 1 02: Compressor 2	P07	⊗	●	⊗	ALT	Heat sink overheating trouble	Temperature sensor built into IPM (TH) detects overheating or has been short-circuited.
P22	#0:Element short circuit #1:Position detection circuit trouble #3:Motor lock trouble #4:Motor current trouble #C:TH Sensor temperature trouble #D:TH Sensor short circuit/release trouble #E:Vdc voltage trouble *Put in Fan IPDU No. in [#] mark	P22	⊗	●	⊗	ALT	Outdoor fan IPDU trouble	Outdoor fan IPDU detects trouble.
P26	01: Compressor 1 02: Compressor 2	P26	⊗	●	⊗	ALT	Activation of IPM short-circuit protection	Short-circuit protection for compressor motor driver circuit components is activated (momentary overcurrent).
P29	01: Compressor 1 02: Compressor 2	P29	⊗	●	⊗	ALT	Compressor position detection circuit trouble	Compressor motor position detection trouble is detected.

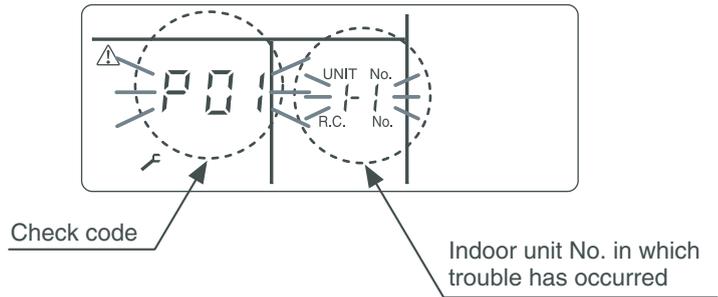
Note: The above check codes are examples only, and different check codes may be displayed depending on the outdoor unit configuration

8-3. Troubleshooting based on information displayed on remote controller

Using main remote controller (RBC-AMT32E)

(1) Checking and testing

When a trouble occurs to an air conditioner, a check code and indoor unit No. are displayed on the display window of the remote controller. Check codes are only displayed while the air conditioner is in operation. If the display has already disappeared, access check code history by following the procedure described below.



(2) Trouble history

The trouble history access procedure is described below (up to four check codes stored in memory). Check code history can be accessed regardless of whether the air conditioner is in operation or shut down.

<Procedure> To be performed when system at rest

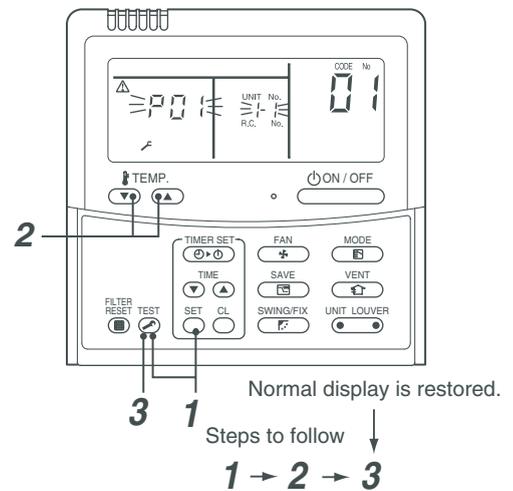
1 Invoke the SERVICE CHECK mode by pressing the + buttons simultaneously and holding for at least 4 seconds.

The letters "SERVICE CHECK" light up, and the check code "01" is displayed, indicating the trouble history. This is accompanied by the indoor unit No. to which the trouble history is related and a check code.

2 To check other trouble history items, press the button to select another check code.

Check code "01" (latest) → Check code "04" (oldest)
Note: Trouble history contains four items.

3 When the button is pushed, normal display is restored.



REQUIREMENT

Do not push the button as it would erase the whole trouble history of the indoor unit.

How to read displayed information

<7-segment display symbols>

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

<Corresponding alphanumerical letters>

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

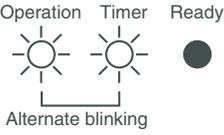
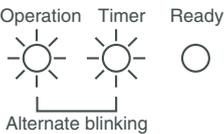
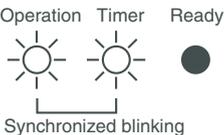
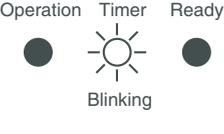
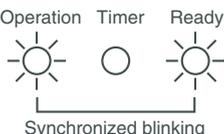
Using indoor unit indicators (receiving unit light block) (wireless type)

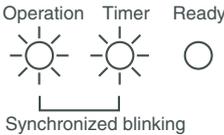
To identify the check code, check the 7-segment display on the header unit. To check for check codes not displayed on the 7-segment display, consult the “List of Check Codes (Indoor Unit)” in “8-2. Troubleshooting method”.

● : Goes off ○ : Lighting ☀ : Blinking (0.5 seconds)

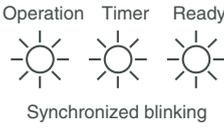
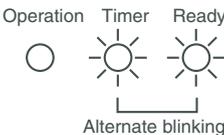
Light block	Check code	Cause of trouble			
Operation ● Timer ● Ready ● All lights out	–	Power turned off or trouble in wiring between receiving and indoor units			
Operation ☀ Timer ● Ready ● Blinking	E01	Trouble reception	Receiving unit	Trouble or poor contact in wiring between receiving unit and indoor units	
	E02	Trouble transmission			
	E03	Loss of communication			
		E08	Duplicated indoor unit No. (address)		Setting trouble
		E09	Duplicated master remote controller		
		E11	Communication trouble between Application control kit and indoor unit P.C. board		
		E12	Automatic address starting trouble		
		E18	Trouble or poor contact in wiring between indoor units, indoor power turned off		
Operation ● Timer ● Ready ☀ Blinking		E04	Trouble or poor contact in wiring between indoor and outdoor units (loss of indoor-outdoor communication)		
	E06	Trouble reception in indoor-outdoor communication (dropping out of indoor unit)			
	E07	Trouble transmission in indoor-outdoor communication			
	E15	Indoor unit not found during automatic address setting			
	E16	Too many indoor units connected / overloading			
	E19	Trouble in number of outdoor header units			
	E20	Detection of refrigerant piping communication trouble during automatic address setting			
	E23	Trouble transmission in outdoor-outdoor communication			
	E25	Duplicated follower outdoor address			
	E26	Trouble reception in outdoor-outdoor communication, dropping out of outdoor unit			
	E28	Outdoor follower unit trouble			
	E31	IPDU communication trouble			
	Operation ● Timer ☀ Ready ☀ Alternate blinking	P01	Indoor AC fan trouble		
P10		Indoor overflow trouble			
P12		Indoor DC fan trouble			
P13		Outdoor liquid backflow detection trouble			
Operation ☀ Timer ● Ready ☀ Alternate blinking	P03	Outdoor discharge (TD1) temperature trouble			
	P04	Activation of outdoor high-pressure SW			
	P05	Open phase / power failure Inverter DC voltage (Vdc) trouble MG-CTT trouble			
	P07	Outdoor heat sink overheating trouble - Poor cooling of electrical component (IGBT) of outdoor unit			
	P15	Gas leak detection - insufficient refrigerant charging			
	P17	Outdoor discharge (TD2) temperature trouble			
	P18	Outdoor discharge (TD3) temperature trouble			
	P19	Outdoor 4-way valve reversing trouble			
	P20	Activation of high-pressure protection			
	P22	Outdoor fan IPDU trouble			
	P26	Outdoor G-Tr short-circuit trouble			
	P29	Compressor position detection circuit trouble			
	P31	Shutdown of other indoor unit in group due to trouble (group follower unit trouble)			

MG-CTT: Magnet contactor

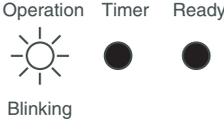
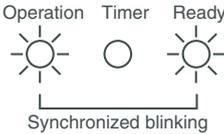
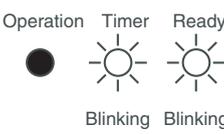
Light block	Check code	Cause of trouble	
Operation Timer Ready  Alternate blinking	F01	Heat exchanger temperature sensor (TCJ) trouble	Indoor unit temperature sensor trouble
	F02	Heat exchanger temperature sensor (TC2) trouble	
	F03	Heat exchanger temperature sensor (TC1) trouble	
	F10	Ambient temperature sensor (TA) trouble	
	F11	Discharge temperature sensor (TF) trouble	
Operation Timer Ready  Alternate blinking	F04	Discharge temperature sensor (TD1) trouble	Outdoor unit temperature sensor trouble
	F05	Discharge temperature sensor (TD2) trouble	
	F06	Heat exchanger temperature sensor (TE1, TE2) trouble	
	F07	Liquid temperature sensor (TL) trouble	
	F08	Outside air temperature sensor (TO) trouble	
	F12	Suction temperature sensor (TS1) trouble	
	F13	Heat sink sensor (TH) trouble	
	F15	Wiring trouble in heat exchanger sensor (TE1) and liquid temperature sensor (TL) Outdoor unit temperature sensor wiring / installation trouble	
	F16	Wiring trouble in outdoor high pressure sensor (Pd) and low pressure sensor (Ps) Outdoor pressure sensor wiring trouble	
		F22	Outdoor discharge temperature sensor (TD3) trouble
F23		Low pressure sensor (Ps) trouble	
F24		High pressure sensor (Pd) trouble	
Operation Timer Ready  Synchronized blinking	F29	Failure in indoor EEPROM	
Operation Timer Ready  Blinking	H01	Compressor breakdown	Outdoor unit compressor related trouble
	H02	Compressor lockup	
	H03	Current detection circuit trouble	
	H05	Wiring / installation trouble or detachment of outdoor discharge temperature sensor (TD1)	
	H06	Abnormal drop in low-pressure sensor (Ps) reading	Protective shutdown of outdoor unit
	H07	Abnormal drop in oil level	
	H08	Trouble in temperature sensor for oil level detection circuit (TK1, TK2, TK3, TK4 or TK5)	
	H15	Wiring / installation trouble or detachment of outdoor discharge temperature sensor (TD2)	
	H16	Oil level detection circuit trouble - Trouble in outdoor unit TK1, TK2, TK3, TK4 or TK5 circuit	
	H25	Wiring / installation trouble or detachment of outdoor discharge temperature sensor (TD3)	
Operation Timer Ready  Synchronized blinking	L03	Duplicated indoor group header unit	
	L05	Duplicated priority indoor unit (as displayed on priority indoor unit)	
	L06	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)	
	L07	Connection of group control cable to stand-alone indoor unit	
	L08	Indoor group address not set	
	L09	Indoor capacity not set	
Operation Timer Ready  Synchronized blinking	L04	Duplicated outdoor refrigerant line address	
	L10	Outdoor capacity not set	
	L17	Outdoor model incompatibility trouble	
	L18	Flow selector units trouble	
	L20	Duplicated central control address	
	L28	Too many outdoor units connected	
	L29	Trouble in number of IPDUs	
	L30	Indoor external interlock trouble	

Light block	Check code	Cause of trouble
Operation Timer Ready 	F30	Occupancy sensor trouble
	F31	Outdoor EEPROM trouble

Other (indications not involving check code)

Light block	Check code	Cause of trouble
Operation Timer Ready 	–	Test run in progress
Operation Timer Ready 	–	Setting incompatibility (automatic cooling / heating setting for model incapable of it and heating setting for cooling-only model)

Flow selector unit (FS unit) Relation

Light block	Check code	Cause of trouble
Operation Timer Ready 	E17	Communication trouble between indoor unit(s) and FS unit(s)
Operation Timer Ready 	L12	FS unit(s) system trouble
	L24	FS unit(s) setting trouble
Operation Timer Ready 	J03	Duplicated FS units
	J10	FS unit overflow trouble
	J11	FS unit temperature sensor(TCS) trouble

8-4. Check Codes Displayed on Remote Controller and SMMS-e Outdoor Unit (7-Segment Display on I/F Board) and Locations to Be Checked

For other types of outdoor units, refer to their own service manuals.

Main remote controller	Check code		Location of detection	Description	System status	Problem detection condition(s)	Check items (locations)
	Outdoor 7-segment display	Sub-code					
	Check code						
E01	—	—	Remote controller	Indoor-remote controller communication problem (detected at remote controller end)	Stop of corresponding unit	Communication between indoor P.C. board and remote controller is disrupted.	<ul style="list-style-type: none"> • Check remote controller inter-unit tie cable (A/B). • Check for broken wire or connector bad contact. • Check indoor power supply. • Check for defect in indoor P.C. board. • Check remote controller address settings (when two remote controllers are in use). • Check remote controller P.C. board.
E02	—	—	Remote controller	Remote controller transmission problem	Stop of corresponding unit	Signal cannot be transmitted from remote controller to indoor unit.	<ul style="list-style-type: none"> • Check internal transmission circuit of remote controller. --- Replace remote controller as necessary.
E03	—	—	Indoor unit	Indoor-remote controller communication problem (detected at indoor end)	Stop of corresponding unit	There is no communication from remote controller (including wireless) or network adaptor.	<ul style="list-style-type: none"> • Check remote controller and network adaptor wiring.
E04	—	—	Indoor unit	Indoor-outdoor communication circuit problem (detected at indoor end)	Stop of corresponding unit	Indoor unit is not receiving signal from outdoor unit.	<ul style="list-style-type: none"> • Check order in which power was turned on for indoor and outdoor units. • Check indoor address setting. • Check indoor-outdoor tie cable. • Check outdoor terminator resistor setting (SW30, Bit 2).
E06	E06	No. of indoor units from which signal is received normally	I/F	Signal lack of indoor unit	All stop	Indoor unit initially communicating normally fails to return signal for specified length of time.	<ul style="list-style-type: none"> • Check power supply to indoor unit. (Is power turned on?) • Check connection of indoor-outdoor communication cable. • Check connection of communication connectors on indoor P.C. board. • Check connection of communication connectors on outdoor P.C. board. • Check for defect in indoor P.C. board. • Check for defect in outdoor P.C. board (I/F).
—	E07	—	I/F	Indoor-outdoor communication circuit problem (detected at outdoor end)	All stop	Signal cannot be transmitted from outdoor to indoor units for 30 seconds continuously.	<ul style="list-style-type: none"> • Check outdoor terminator resistor setting (SW30, Bit 2). • Check connection of indoor-outdoor communication circuit.
E08	E08	Duplicated indoor address	Indoor unit I/F	Duplicated indoor address	All stop	More than one indoor unit are assigned same address.	<ul style="list-style-type: none"> • Check indoor addresses. • Check for any change made to remote controller connection (group/individual) since indoor address setting.
E09	—	—	Remote controller	Duplicated master remote controller	Stop of corresponding unit	In two remote controller configuration (including wireless), both controllers are set up as master. (Header indoor unit is shut down with alarm, while follower indoor units continue operating.)	<ul style="list-style-type: none"> • Check remote controller settings. • Check remote controller P.C. boards.

Main remote controller	Check code		Location of detection	Description	System status	Problem detection condition(s)	Check items (locations)
	Outdoor 7-segment display						
	Check code	Sub-code					
E11	—	Communication trouble between Application control kit and indoor unit	Indoor unit	Indoor-Application control kit communication problem	Stop	Displayed when problem is detected	<ol style="list-style-type: none"> 1. Check connector indoor unit (CN521(red) Application control kit (CN 1 (red) 2. Check connection of indoor-Application control kit communication line. 3. Check indoor P.C. board. 4. Check Application control kit P.C. board.
E12	E12	01: Indoor-outdoor communication 02: Outdoor-outdoor communication	I/F	Automatic address starting problem	All stop	<ul style="list-style-type: none"> • Indoor automatic address setting is started while automatic address setting for equipment in other refrigerant line is in progress. • Outdoor automatic address setting is started while automatic address setting for indoor units is in progress. 	<ul style="list-style-type: none"> • Perform automatic address setting again after disconnecting communication cable to that refrigerant line.
E15	E15	—	I/F	Indoor unit not found during automatic address setting	All stop	Indoor unit cannot be detected after indoor automatic address setting is started.	<ul style="list-style-type: none"> • Check connection of indoor-outdoor communication line. • Check for trouble in indoor power supply system. • Check for noise from other devices. • Check for power failure. • Check for defect in indoor P.C. board.
E16	E16	00: Overloading 01:- No. of units connected	I/F	Too many indoor units connected	All stop	<ul style="list-style-type: none"> • Combined capacity of indoor units exceeds 135% of combined capacity of outdoor units. <p>Note: If this code comes up after backup setting for outdoor unit failure is performed, perform “No overloading detected” setting.</p> <p><“No overloading detected” setting method> Turn on SW09/Bit 2 on I/F P.C. board of outdoor header unit.</p> <ul style="list-style-type: none"> • More than 64 indoor units are connected. 	<ul style="list-style-type: none"> • Check capacities of indoor units connected. • Check combined HP capacities of indoor units. • Check HP capacity settings of outdoor units. • Check No. of indoor units connected. • Check for defect in outdoor P.C. board (I/F).
E18	—	—	Indoor unit	Problem in communication between indoor header and follower units	Stop of corresponding unit	Periodic communication between indoor header and follower units cannot be maintained.	<ul style="list-style-type: none"> • Check remote controller wiring. • Check indoor power supply wiring. • Check P.C. boards of indoor units.
E19	E19	00: No header unit 02: Two or more header units	I/F	Problem in number of outdoor header units	All stop	<ul style="list-style-type: none"> • There are more than one outdoor header units in one line. • There is no outdoor header unit in one line. 	<p>Outdoor header unit is outdoor unit to which indoor-outdoor tie cable (U1,U2) is connected.</p> <ul style="list-style-type: none"> • Check connection of indoor-outdoor communication line. • Check for defect in outdoor P.C. board (I/F).
E20	E20	01: Connection of outdoor unit from other line 02: Connection of indoor unit from other line	I/F	Connection to other line found during automatic address setting	All stop	Equipment from other line is found to have been connected when indoor automatic address setting is in progress.	Disconnect inter-line tie cable in accordance with automatic address setting method explained in “Address setting” section.

Main remote controller	Check code		Location of detection	Description	System status	Problem detection condition(s)	Check items (locations)																																																																																				
	Outdoor 7-segment display																																																																																										
	Check code	Sub-code																																																																																									
E23	E23	—	I/F	Outdoor-outdoor communication transmission trouble	All stop	Signal cannot be transmitted to other outdoor units for at least 30 seconds continuously.	<ul style="list-style-type: none"> • Check power supply to outdoor units. (Is power turned on?) • Check connection of tie cables between outdoor units for bad contact or broken wire. • Check communication connectors on outdoor P.C. boards. • Check for defect in outdoor P.C. board (I/F). • Check termination resistance setting for communication between outdoor units. 																																																																																				
E25	E25	—	I/F	Duplicated follower outdoor address	All stop	There is duplication in outdoor addresses set manually.	Note: Do not set outdoor addresses manually.																																																																																				
E26	E26	Address of outdoor unit from which signal is not received normally	I/F	Signal lack of outdoor unit	All stop	Outdoor unit initially communicating normally fails to return signal for specified length of time.	<ul style="list-style-type: none"> • Backup setting is being used for outdoor units. • Check power supply to outdoor unit. (Is power turned on?) • Check connection of tie cables between outdoor units for bad contact or broken wire. • Check communication connectors on outdoor P.C. boards. • Check for defect in outdoor P.C. board (I/F). 																																																																																				
E28	E28	Detected outdoor unit No.	I/F	Outdoor follower unit problem	All stop	Outdoor header unit receives check code from outdoor follower unit.	<ul style="list-style-type: none"> • Check check code displayed on outdoor follower unit. <p><Convenient functions> If SW04 is pressed and held for at least 1 second while [E28] is displayed on the 7-segment display of outdoor header unit, the fan of the outdoor unit that has been shut down due to a trouble comes on. If SW04 and SW05 are pressed simultaneously, the fans of normal outdoor units come on. To stop the fan or fans, press SW05 on its own.</p>																																																																																				
E31	E31	<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">A3-IPDU</th> <th colspan="2">Fan-IPDU</th> </tr> <tr> <th>1</th> <th>2</th> <th>1</th> <th>2</th> </tr> </thead> <tbody> <tr><td>01</td><td>○</td><td></td><td></td><td></td></tr> <tr><td>02</td><td></td><td>○</td><td></td><td></td></tr> <tr><td>03</td><td>○</td><td>○</td><td></td><td></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> <tr><td>0A</td><td></td><td>○</td><td>○</td><td></td></tr> <tr><td>0B</td><td>○</td><td>○</td><td>○</td><td></td></tr> <tr><td>10</td><td></td><td></td><td></td><td>○</td></tr> <tr><td>11</td><td>○</td><td></td><td></td><td>○</td></tr> <tr><td>12</td><td></td><td>○</td><td></td><td>○</td></tr> <tr><td>13</td><td>○</td><td>○</td><td></td><td>○</td></tr> <tr><td>18</td><td></td><td></td><td>○</td><td>○</td></tr> <tr><td>19</td><td>○</td><td></td><td>○</td><td>○</td></tr> <tr><td>1A</td><td></td><td>○</td><td>○</td><td>○</td></tr> <tr><td>1B</td><td>○</td><td>○</td><td>○</td><td>○</td></tr> </tbody> </table> <p>Circle (○): IPDU trouble</p>		A3-IPDU		Fan-IPDU		1	2	1	2	01	○				02		○			03	○	○			08			○		09	○		○		0A		○	○		0B	○	○	○		10				○	11	○			○	12		○		○	13	○	○		○	18			○	○	19	○		○	○	1A		○	○	○	1B	○	○	○	○	I/F	IPDU communication problem	All stop	Communication is disrupted between IPDUs (P.C. boards) in inverter box.	<ul style="list-style-type: none"> • Check wiring and connectors involved in communication between IPDU-I/F P.C. board for bad contact or broken wire. • Check for defect in outdoor P.C. board (I/F, A3-IPDU or Fan IPDU). • Check for external noise.
				A3-IPDU		Fan-IPDU																																																																																					
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		80		Communication problem between MCU and Sub MCU	All stop	Communication between MCU and Sub MCU stopped.	<ul style="list-style-type: none"> • Operation of power supply reset (OFF for 60 seconds or more) • Outdoor I/F PC board trouble check 																																																																																				

Main remote controller	Check code		Location of detection	Description	System status	Problem detection condition(s)	Check items (locations)
	Outdoor 7-segment display						
	Check code	Sub-code					
F01	—	—	Indoor unit	Indoor TCJ sensor problem	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TCJ sensor connector and wiring. • Check resistance characteristics of TCJ sensor. • Check for defect in indoor P.C. board.
F02	—	—	Indoor unit	Indoor TC2 sensor problem	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TC2 sensor connector and wiring. • Check resistance characteristics of TC2 sensor. • Check for defect in indoor P.C. board.
F03	—	—	Indoor unit	Indoor TC1 sensor problem	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TC1 sensor connector and wiring. • Check resistance characteristics of TC1 sensor. • Check for defect in indoor P.C. board.
F04	F04	—	I/F	TD1 sensor problem	All stop	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TD1 sensor connector. • Check resistance characteristics of TD1 sensor. • Check for defect in outdoor P.C. board (I/F).
F05	F05	—	I/F	TD2 sensor problem	All stop	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TD2 sensor connector. • Check resistance characteristics of TD2 sensor. • Check for defect in outdoor P.C. board (I/F).
F06	F06	01: TE1 sensor problem 02: TE2 sensor problem	I/F	TE1/TE2 sensor problem	All stop	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TE1/TE2 sensor connectors. • Check resistance characteristics of TE1/TE2 sensors. • Check for defect in outdoor P.C. board (I/F).
F07	F07	01: TL1 sensor problem 02: TL2 sensor problem 03: TL3 sensor problem	I/F	TL1/TL2/TL3 sensor problem	All stop	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TL1/TL2/TL3 sensor connector. • Check resistance characteristics of TL1/TL2/TL3 sensor. • Check for defect in outdoor P.C. board (I/F).
F08	F08	—	I/F	TO sensor problem	All stop	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TO sensor connector. • Check resistance characteristics of TO sensor. • Check for defect in outdoor P.C. board (I/F).
F09	F09	01: TG1 sensor problem 02: TG2 sensor problem	I/F	TG1/TG2 sensor problem	All stop	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TG1/TG2 sensor connectors. • Check resistance characteristics of TG1/TG2 sensors. • Check for defect in outdoor P.C. board (I/F).
F10	—	—	Indoor unit	Indoor TA sensor problem	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TA sensor connector and wiring. • Check resistance characteristics of TA sensor. • Check for defect in indoor P.C. board.

Main remote controller	Check code		Location of detection	Description	System status	Problem detection condition(s)	Check items (locations)
	Outdoor 7-segment display						
	Check code	Sub-code					
F11	—	—	Indoor unit	Indoor TF sensor problem	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TF sensor connector and wiring. • Check resistance characteristics of TF sensor. • Check for defect in indoor P.C. board.
F12	F12	01: TS1 sensor problem 03: TS3 sensor problem	I/F	TS1/TS3 sensor problem	All stop	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TS1/TS3 sensor connector • Check resistance characteristics of TS1/TS3 sensor. • Check for defect in indoor P.C. board.
F13	F13	01: Compressor 1 side 02: Compressor 2 side	IPDU	TH sensor problem	All stop	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Defect in IPM built-in temperature sensor → Replace A3-IPDU P.C. board.
F15	F15	—	I/F	Outdoor temperature sensor wiring problem (TE1, TL1)	All stop	During compressor operation in HEAT mode, TL1 continuously provides temperature reading higher than indicated by TL1 by at least specified margin for 3 minutes or more.	<ul style="list-style-type: none"> • Check installation of TE1 and TL1 sensors. • Check resistance characteristics of TE1 and TL1 sensors. • Check for outdoor P.C. board (I/F) problem.
F16	F16	—	I/F	Outdoor pressure sensor wiring problem (Pd, Ps)	All stop	Readings of high-pressure Pd sensor and lowpressure Ps sensor are switched. Output voltages of both sensors are zero.	<ul style="list-style-type: none"> • Check connection of high-pressure Pd sensor connector. • Check connection of low-pressure Ps sensor connector. • Check for defect in pressure sensors Pd and Ps. • Check for trouble in outdoor P.C. board (I/F). • Check for deficiency in compressive output of compressor.
F23	F23	—	I/F	Ps sensor problem	All stop	Output voltage of Ps sensor is zero.	<ul style="list-style-type: none"> • Check for connection problem involving Ps sensor and Pd sensor connectors. • Check connection of Ps sensor connector. • Check for defect in Ps sensor. • Check for deficiency in compressive output of compressor. • Check for defect in 4-way valve. • Check for defect in outdoor P.C. board (I/F). • Check for defect in SV4 circuit.
F24	F24	—	I/F	Pd sensor problem	All stop	Output voltage of Pd sensor is zero (sensor open-circuited). Pd > 4.15MPa despite compressor having been turned off.	<ul style="list-style-type: none"> • Check connection of Pd sensor connector. • Check for defect in Pd sensor. • Check for defect in outdoor P.C. board (I/F).
F29	—	—	Indoor unit	Other indoor problem	Stop of corresponding unit	Indoor P.C. board does not operate normally.	<ul style="list-style-type: none"> • Check for defect in indoor P.C. board (failure EEPROM)
F30	F30	—	I/F	Occupancy sensor trouble	Continued operation		<ul style="list-style-type: none"> • Check Occupancy sensor. • Check P.C. boards of indoor units.
F31	F31	—	I/F	Outdoor EEPROM problem	All stop *1	Outdoor P.C. board (I/F) does not operate normally.	<ul style="list-style-type: none"> • Check power supply voltage. • Check power supply noise. • Check for defect in outdoor P.C. board (I/F).
H01	H01	01: Compressor 1 side 02: Compressor 2 side	IPDU	Compressor breakdown	All stop	Inverter current detection circuit detects overcurrent and shuts system down.	<ul style="list-style-type: none"> • Check power supply voltage. (AC380-415V ± 10%). • Check for defect in compressor. • Check for possible cause of abnormal overloading. • Check for defect in outdoor P.C. board (A3-IPDU).

Main remote controller	Check code		Location of detection	Description	System status	Problem detection condition(s)	Check items (locations)
	Outdoor 7-segment display						
	Check code	Sub-code					
H02	H02	01: Compressor 1 side 02: Compressor 2 side	IPDU	Compressor problem (lockup) MG-CTT problem	All stop	Overcurrent is detected several seconds after startup of inverter compressor.	<ul style="list-style-type: none"> • Check for defect in compressor. • Check power supply voltage. (AC380-415V ± 10%). • Check compressor system wiring, particularly for open phase. • Check connection of connectors/terminals on A3-IPDU P.C. board. • Check conductivity of case heater. (Check for refrigerant problem inside compressor.) • Check for defect in outdoor P.C. board (A3-IPDU). • Check outdoor MG-CTT.
H03	H03	01: Compressor 1 side 02: Compressor 2 side	IPDU	Current detection circuit problem	All stop	Current flow of at least specified magnitude is detected despite inverter compressor having been shut turned off.	<ul style="list-style-type: none"> • Check current detection circuit wiring. • Check defect in outdoor P.C. board (A3-IPDU).
H05	H05	—	I/F	TD1 sensor miswiring (incomplete insertion)	All stop	Discharge temperature of compressor 1 (TD1) does not increase despite compressor being in operation.	<ul style="list-style-type: none"> • Check installation of TD1 sensor. • Check connection of TD1 sensor connector and wiring. • Check resistance characteristics of TD1 sensor. • Check for defect in outdoor P.C. board (I/F).
H06	H06	—	I/F	Activation of low-pressure protection	All stop	Low-pressure Ps sensor detects operating pressure lower than 0.02MPa.	<ul style="list-style-type: none"> • Check service valves to confirm full opening (both gas and liquid sides). • Check outdoor PMVs for clogging (PMV1, 3). • Check for defect in SV2 or SV4 circuits. • Check for defect in low-pressure Ps sensor. • Check indoor filter for clogging. • Check valve opening status of indoor PMV. • Check refrigerant piping for clogging. • Check operation of outdoor fan (during heating). • Check for insufficiency in refrigerant quantity.
H07	H07	—	I/F	Low oil level protection	All stop	Operating compressor detects continuous state of low oil level for about 2 hours.	<p><All outdoor units in corresponding line to be checked></p> <ul style="list-style-type: none"> • Check balance pipe service valve to confirm full opening. • Check connection and installation of TK1, TK2, TK4, and TK5 sensors. • Check resistance characteristics of TK1, TK2, TK4, and TK5 sensors. • Check for gas or oil leak in same line. • Check for refrigerant problem inside compressor casing. • Check SV3A, SV3B, SV3C, SV3D valves for defect. • Check oil return circuit of oil separator for clogging. • Check oil equalizing circuit for clogging.

*1 Total shutdown in case of header unit
Continued operation in case of follower unit

MG-CTT: Magnet contactor

Main remote controller	Check code		Location of detection	Description	System status	Problem detection condition(s)	Check items (locations)
	Outdoor 7-segment display						
	Check code	Sub-code					
H08	H08	01: TK1 sensor problem 02: TK2 sensor problem 04: TK4 sensor problem 05: TK5 sensor problem	I/F	Trouble in temperature sensor for oil level detection	All stop	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TK1 sensor connector. • Check resistance characteristics of TK1 sensor. • Check for defect in outdoor P.C. board (I/F).
					All stop	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TK2 sensor connector. • Check resistance characteristics of TK2 sensor. • Check for defect in outdoor P.C. board (I/F).
					All stop	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TK4 sensor connector. • Check resistance characteristics of TK4 sensor. • Check for defect in outdoor P.C. board (I/F).
					All stop	Sensor resistance is infinity or zero (open/short circuit).	<ul style="list-style-type: none"> • Check connection of TK5 sensor connector. • Check resistance characteristics of TK5 sensor. • Check for defect in outdoor P.C. board (I/F).
H15	H15	—	I/F	TD2 sensor miswiring (incomplete insertion)	All stop	Discharge temperature of (TD2) does not increase despite compressor 2 being in operation.	<ul style="list-style-type: none"> • Check installation of TD2 sensor. • Check connection of TD2 sensor connector and wiring. • Check resistance characteristics of TD2 sensor. • Check for defect in outdoor P.C. board (I/F).

Main remote controller	Check code		Location of detection	Description	System status	Problem detection condition(s)	Check items (locations)
	Outdoor 7-segment display						
	Check code	Sub-code					
H16	H16	01: TK1 oil circuit problem	I/F	Oil level detection circuit trouble	All stop	No temperature change is detected by TK1 despite compressor 1 having been started.	<ul style="list-style-type: none"> • Check for disconnection of TK1 sensor. • Check resistance characteristics of TK1 sensor. • Check for connection trouble involving TK1, TK2, TK4, and TK5 sensors. • Check for clogging in oil equalizing circuit capillary and failure operation in check valve. • Check for refrigerant entrapment inside compressor.
		02: TK2 oil circuit problem				No temperature change is detected by TK2 despite compressor 2 having been started.	<ul style="list-style-type: none"> • Check for disconnection of TK2 sensor. • Check resistance characteristics of TK2 sensor. • Check for connection trouble involving TK1, TK2, TK4, and TK5 sensors. • Check for clogging in oil equalizing circuit capillary and failure operation in check valve. • Check for refrigerant entrapment inside compressor.
		04: TK4 oil circuit problem				No temperature change is detected by TK4 despite compressor having been started.	<ul style="list-style-type: none"> • Check for disconnection of TK4 sensor. • Check resistance characteristics of TK4 sensor. • Check for connection trouble involving TK1, TK2, TK4, and TK5 sensors. • Check for clogging in oil equalizing circuit capillary and failure operation in check valve. • Check for refrigerant entrapment inside compressor.
		05: TK5 oil circuit problem				No temperature change is detected by TK5 despite compressor having been started.	<ul style="list-style-type: none"> • Check for disconnection of TK5 sensor. • Check resistance characteristics of TK5 sensor. • Check for connection trouble involving TK1, TK2, TK4, and TK5 sensors. • Check for clogging in oil equalizing circuit capillary and failure operation in check valve. • Check for refrigerant entrapment inside compressor.
L02	L02	—	Indoor unit	Outdoor units model disagreement problem	Stop of corresponding unit	In case of different outdoor unit (Not corresponded to Air to Air Heat Exchanger type)	<ul style="list-style-type: none"> • Check outdoor unit model. (Check whether the outdoor unit corresponds to Air to Air Heat Exchanger type or not.)
L03	—	—	Indoor unit	Duplicated indoor header unit	Stop of corresponding unit	There are more than one header units in group.	<ul style="list-style-type: none"> • Check indoor addresses. • Check for any change made to remote controller connection (group/ individual) since indoor address setting.
L04	L04	—	I/F	Duplicated outdoor line address	All stop	There is duplication in line address setting for outdoor units belonging to different refrigerant piping systems.	<ul style="list-style-type: none"> • Check line addresses.
L05	—	—	I/F	Duplicated priority indoor unit (as displayed on priority indoor unit)	All stop	More than one indoor units have been set up as priority indoor unit.	<ul style="list-style-type: none"> • Check display on priority indoor unit.

Main remote controller	Check code		Location of detection	Description	System status	Problem detection condition(s)	Check items (locations)																																																																																				
	Outdoor 7-segment display																																																																																										
	Check code	Sub-code																																																																																									
L06	L06	No. of priority indoor units	I/F	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)	All stop	More than one indoor units have been set up as priority indoor unit.	• Check displays on priority indoor unit and outdoor unit.																																																																																				
L07	—	—	Indoor unit	Connection of group control cable to standalone indoor unit	Stop of corresponding unit	There is at least one standalone indoor unit to which group control cable is connected.	• Check indoor addresses.																																																																																				
L08	L08	—	Indoor unit	Indoor group / addresses not set	Stop of corresponding unit	Address setting has not been performed for indoor units.	• Check indoor addresses. Note: This code is displayed when power is turned on for the first time after installation.																																																																																				
L09	—	—	Indoor unit	Indoor capacity not set	Stop of corresponding unit	Capacity setting has not been performed for indoor unit.	Set indoor capacity. (DN = 11)																																																																																				
L10	L10	—	I/F	Outdoor capacity not set	All stop	Jumper wire provided on P.C. board for servicing I/F P.C. board has not been removed as required for given model.	Check model setting of P.C. board for servicing outdoor I/F P.C. board.																																																																																				
L20	—	—	Network adaptor Indoor unit	Duplicated central control address	All stop	There is duplication in central control address setting.	• Check central control addresses. • Check network adaptor P.C. board .																																																																																				
L23	—	—	I/F	SW setting mistake	All stop	Outdoor P.C. board (I/F) does not operate normally.	• Check switch setting of Bit 3 and 4 of SW17 in outdoor P.C. board (I/F).																																																																																				
L28	L28	—	I/F	Too many outdoor units connected	All stop	There are more than three outdoor units.	• Check No. of outdoor units connected (Only up to 3 units per system allowed). • Check communication lines between outdoor units. • Check for defect in outdoor P.C. board (I/F).																																																																																				
L29	L29	<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">A3-IPDU</th> <th colspan="2">Fan-IPDU</th> </tr> <tr> <th>1</th> <th>2</th> <th>1</th> <th>2</th> </tr> </thead> <tbody> <tr><td>01</td><td>○</td><td></td><td></td><td></td></tr> <tr><td>02</td><td></td><td>○</td><td></td><td></td></tr> <tr><td>03</td><td>○</td><td>○</td><td></td><td></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> <tr><td>0A</td><td></td><td>○</td><td>○</td><td></td></tr> <tr><td>0B</td><td>○</td><td>○</td><td>○</td><td></td></tr> <tr><td>10</td><td></td><td></td><td></td><td>○</td></tr> <tr><td>11</td><td>○</td><td></td><td></td><td>○</td></tr> <tr><td>12</td><td></td><td>○</td><td></td><td>○</td></tr> <tr><td>13</td><td>○</td><td>○</td><td></td><td>○</td></tr> <tr><td>18</td><td></td><td></td><td>○</td><td>○</td></tr> <tr><td>19</td><td>○</td><td></td><td>○</td><td>○</td></tr> <tr><td>1A</td><td></td><td>○</td><td>○</td><td>○</td></tr> <tr><td>1B</td><td>○</td><td>○</td><td>○</td><td>○</td></tr> </tbody> </table> <p>Circle (O): IPDU trouble</p>		A3-IPDU		Fan-IPDU		1	2	1	2	01	○				02		○			03	○	○			08			○		09	○		○		0A		○	○		0B	○	○	○		10				○	11	○			○	12		○		○	13	○	○		○	18			○	○	19	○		○	○	1A		○	○	○	1B	○	○	○	○	I/F	Problem in No. of IPDUs	All stop	Insufficient number of IPDUs are detected when power is turned on.	• Check model setting of P.C. board for servicing outdoor I/F P.C. board. • Check connection of UART communication connector. • Check A3-IPDU, fan IPDU, and I/F P.C. board for defect.
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L30	L30	Detected indoor address	Indoor unit	External interlock of indoor unit	Stop of corresponding unit	• Signal is present at external trouble input terminal (CN80) for 1 minute.	When external device is connected to CN80 connector: 1) Check for defect in external device. 2) Check for defect in indoor P.C. board. When external device is not connected to CN80 connector: 1) Check for defect in indoor P.C. board.																																																																																				
—	L31	—	I/F	Extended IC problem	Continued operation	There is part failure in P.C. board (I/F).	Check outdoor P.C. board (I/F).																																																																																				
P01	—	—	Indoor unit	Indoor fan motor problem	Stop of corresponding unit		• Check the lock of fan motor (AC fan). • Check wiring.																																																																																				

Main remote controller	Check code		Location of detection	Description	System status	Problem detection condition(s)	Check items (locations)
	Outdoor 7-segment display						
	Check code	Sub-code					
P03	P03	—	I/F	Discharge temperature TD1 problem	All stop	Discharge temperature (TD1) exceeds 115 °C.	<ul style="list-style-type: none"> • Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check outdoor PMVs (PMV1, 3) for clogging. • Check resistance characteristics of TD1 sensor. • Check for insufficiency in refrigerant quantity. • Check for defect in 4-way valve. • Check for leakage of SV4 circuit. • Check SV4 circuit (wiring or installation trouble in SV41 or SV42).
P04	P04	01: Compressor 1 side 02: Compressor 2 side	IPDU	Activation of high-pressure SW	All stop	High-pressure SW is activated.	<ul style="list-style-type: none"> • Check connection of high-pressure SW connector. • Check for defect in Pd pressure sensor. • Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check for defect in outdoor fan. • Check for defect in outdoor fan motor. • Check outdoor PMVs (PMV1, 3) for clogging. • Check indoor/outdoor heat exchangers for clogging. • Check for short-circuiting of outdoor suction/discharge air flows. • Check SV2 circuit for clogging. • Check for defect in outdoor P.C. board (I/F). • Check for trouble in indoor fan system (possible cause of air flow reduction). • Check opening status of indoor PMV. • Check indoor-outdoor communication line for wiring trouble. • Check for failure operation of check valve in discharge pipe convergent section. • Check gas balancing SV4 valve circuit. • Check SV5 valve circuit. • Check for refrigerant overcharging.
P05	P05	00: 01: Compressor 1 side 02: Compressor 2 side	I/F	Detection of open phase/phase sequence Inverter DC voltage (Vdc) problem (compressor) MG-CTT problem	All stop	<ul style="list-style-type: none"> • Open phase is detected when power is turned on. • Inverter DC voltage is too high (overvoltage) or too low (undervoltage). 	<ul style="list-style-type: none"> • Check for defect in outdoor P.C. board (I/F). • Check wiring of outdoor power supply.
P07	P07	01: Compressor 1 side 02: Compressor 2 side	IPDU I/F	Heat sink overheating problem	All stop	Temperature sensor built into IPM (TH) is overheated.	<ul style="list-style-type: none"> • Check power supply voltage. • Check outdoor fan system problem. • Check heat sink cooling duct for clogging. • Check IPM and heat sink for thermal performance for failure installation. (e.g. mounting screws and thermal conductivity) • Check for defect in A3-IPDU. (failure IPM built-in temperature sensor (TH))

MG-CTT: Magnet contactor

Main remote controller	Check code		Location of detection	Description	System status	Problem detection condition(s)	Check items (locations)
	Outdoor 7-segment display						
	Check code	Sub-code					
P10	P10	Detected indoor address	Indoor unit	Indoor overflow problem	All stop	<ul style="list-style-type: none"> • Float switch operates. • Float switch circuit is open-circuited or disconnected at connector. 	<ul style="list-style-type: none"> • Check float switch connector. • Check operation of drain pump. • Check drain pump circuit. • Check drain pipe for clogging. • Check for defect in indoor P.C. board.
P12	—	—	Indoor unit	Indoor fan motor problem	Stop of corresponding unit	<ul style="list-style-type: none"> • Motor speed measurements continuously deviate from target value. • Overcurrent protection is activated. 	<ul style="list-style-type: none"> • Check connection of fan connector and wiring. • Check for defect in fan motor. • Check for defect in indoor P.C. board. • Check impact of outside air treatment (OA).
P13	P13	—	I/F	Outdoor liquid backflow detection problem	All stop	<p><During cooling operation> When system is in cooling operation, high pressure is detected in follower unit that has been turned off.</p> <p><During heating operation> When system is in heating operation, outdoor PMV 1 or 3 continuously registers opening of 300p or less while under superheat control.</p>	<ul style="list-style-type: none"> • Check full-close operation of outdoor PMV (1, 3, 4). • Check for defect in Pd or Ps sensor. • Check gas balancing circuit (SV2) for clogging. • Check balance pipe. • Check SV3B circuit for clogging. • Check defect in outdoor P.C. board (I/F). • Check capillary of oil separator oil return circuit for clogging. • Check for leakage of check valve in discharge pipe convergent section.
P15	P15	01: TS condition	I/F	Gas leakdetection (TS1 condition)	All stop	Protective shutdown due to sustained suction temperature at or above judgment criterion for at least 10 minutes is repeated four times or more. <TS trouble judgment criterion> In cooling operation: 60 °C In heating operation: 40 °C	<ul style="list-style-type: none"> • Check for insufficiency in refrigerant quantity. • Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check PMVs (PMV1, 3) for clogging. • Check resistance characteristics of TS1 sensor. • Check for defect in 4-way valve. • Check SV4 circuit for leakage
		02: TD condition	I/F	Gas leak detection (TD condition)	All stop	Protective shutdown due to sustained discharge temperature (TD1 or TD2) at or above 108 °C for at least 10 minutes is repeated four times or more.	<ul style="list-style-type: none"> • Check for insufficiency in refrigerant quantity. • Check PMVs (PMV 1, 3) for clogging. • Check resistance characteristics of TD1 and TD2 sensors. • Check indoor filter for clogging. • Check piping for clogging. • Check SV4 circuit (for leakage or coil installation trouble).
P17	P17	—	I/F	Discharge temperature TD2 problem	All stop	Discharge temperature (TD2) exceeds 115 °C.	<ul style="list-style-type: none"> • Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check outdoor PMVs (PMV1, 3, 4) for clogging. • Check resistance characteristics of TD2 sensor. • Check for defect in 4-way valve. • Check SV4 circuit for leakage. • Check SV4 circuit (for wiring or installation trouble involving SV41 and SV42).

Main remote controller	Check code		Location of detection	Description	System status	Problem detection condition(s)	Check items (locations)
	Outdoor 7-segment display						
	Check code	Sub-code					
P19	P19	Detected outdoor unit No.	I/F	4-way valve reversing problem	All stop	Abnormal refrigerating cycle data is collected during heating operation.	<ul style="list-style-type: none"> • Check for defect in main body of 4-way valve. • Check for coil defect in 4-way valve and loose connection of its connector. • Check resistance characteristics of TS1 and TE1, TE2 sensors. • Check output voltage characteristics of Pd and Ps pressure sensors. • Check for wiring problem involving TE1 and TL1 sensors.
P20	P20	—	I/F	Activation of high-pressure protection	All stop	<p><During cooling operation> Pd sensor detects pressure equal to or greater than 3.85 MPa.</p> <p><During heating operation> Pd sensor detects pressure equal to or greater than 3.6 MPa.</p>	<ul style="list-style-type: none"> • Check for defect in Pd pressure sensor. • Check service valves (gas side, liquid side) to confirm full opening. • Check for defect in outdoor fan. • Check for defect in outdoor fan motor. • Check outdoor PMV (PMV1, 3, 4) for clogging. • Check indoor/outdoor heat exchangers for clogging. • Check for short-circuiting of outdoor suction/discharge air flows. • Check SV2 circuit for clogging. • Check for defect in outdoor P.C. board (I/F). • Check for defect in indoor fan system (possible cause of air flow reduction). • Check opening status of indoor PMV. • Check indoor-outdoor communication line for wiring problem. • Check for failure operation of check valve in discharge pipe convergent section. • Check gas balancing SV4 valve circuit. • Check SV5 valve circuit. • Check for refrigerant overcharging.

Main remote controller	Check code		Location of detection	Description	System status	Problem detection condition(s)	Check items (locations)
	Outdoor 7-segment display						
	Check code	Sub-code					
P22	P22	#0: Element short circuit	IPDU	Outdoor fan IPDU problem *Put in Fan IPDU No. in [#] mark	All stop	(Sub code: #0) Fan IPDU over current protection circuit Flow of current equal to or greater than the specified value is detected during startup of the fan.	<ul style="list-style-type: none"> • Check fan motor. • Check for defect in fan IPDU P.C. board.
		#1: Position detection circuit problem			All stop	(Sub code: #1) Fan IPDU position detection circuit Position detection is not going on normally.	<ul style="list-style-type: none"> • Check fan motor. • Check connection of fan motor connector. • Check for defect in fan IPDU P.C. board.
		#3: Motor lock problem			All stop	(Sub code: #3) Gusty wind, an obstruction, or another external factor Speed estimation is not going on normally.	<ul style="list-style-type: none"> • Check fan motor. • Check for defect in fan IPDU P.C. board.
		#4: Motor current problem			All stop	(Sub code: #4) Fan IPDU over current protection circuit Flow of current equal to or greater than the specified value is detected during operation of the fan.	<ul style="list-style-type: none"> • Check fan motor. • Check connection of fan motor connector. • Check for defect in fan IPDU P.C. board.
		#C: TH sensor temperature problem			All stop	(Sub code: #C) Higher temperature than the specified value is detected during operation of the fan.	<ul style="list-style-type: none"> • Check fan motor. • Check for defect in fan IPDU P.C. board.
		#D: TH sensor short circuit/release problem			All stop	(Sub code: #D) The resistance value of the sensor is infinite or zero (open or short circuit).	<ul style="list-style-type: none"> • Check for defect in fan IPDU P.C. board.
		#E: Vdc voltage problem			All stop	(Sub code: #E) Fan IPDU DC voltage protection circuit The DC voltage higher or lower than the specified value is detected.	<ul style="list-style-type: none"> • Check power voltage of the main power supply. • Check for defect in fan IPDU P.C. board. • Check connection of fan IPDU P.C. board.
P26	P26	01: Compressor 1 side 02: Compressor 2 side	IPDU	IPM shortcircuit protection problem	All stop	Overcurrent is momentarily detected during startup of compressor.	<ul style="list-style-type: none"> • Check connector connection and wiring on A3-IPDU P.C. board. • Check for defect in compressor (layer shortcircuit). • Check for defect in outdoor P.C. board (A3-IPDU).
P29	P29	01: Compressor 1 side 02: Compressor 2 side	IPDU	Compressor position detection circuit problem	All stop	Position detection is not going on normally.	<ul style="list-style-type: none"> • Check wiring and connector connection. • Check for compressor layer short-circuit. • Check for defect in A3-IPDU P.C. board.
P31	—	—	Indoor unit	Other indoor trouble (group follower unit trouble)	Stop of corresponding unit	There is trouble in other indoor unit in group, resulting in detection of E07/L07/L03/L08.	<ul style="list-style-type: none"> • Check indoor P.C. board.

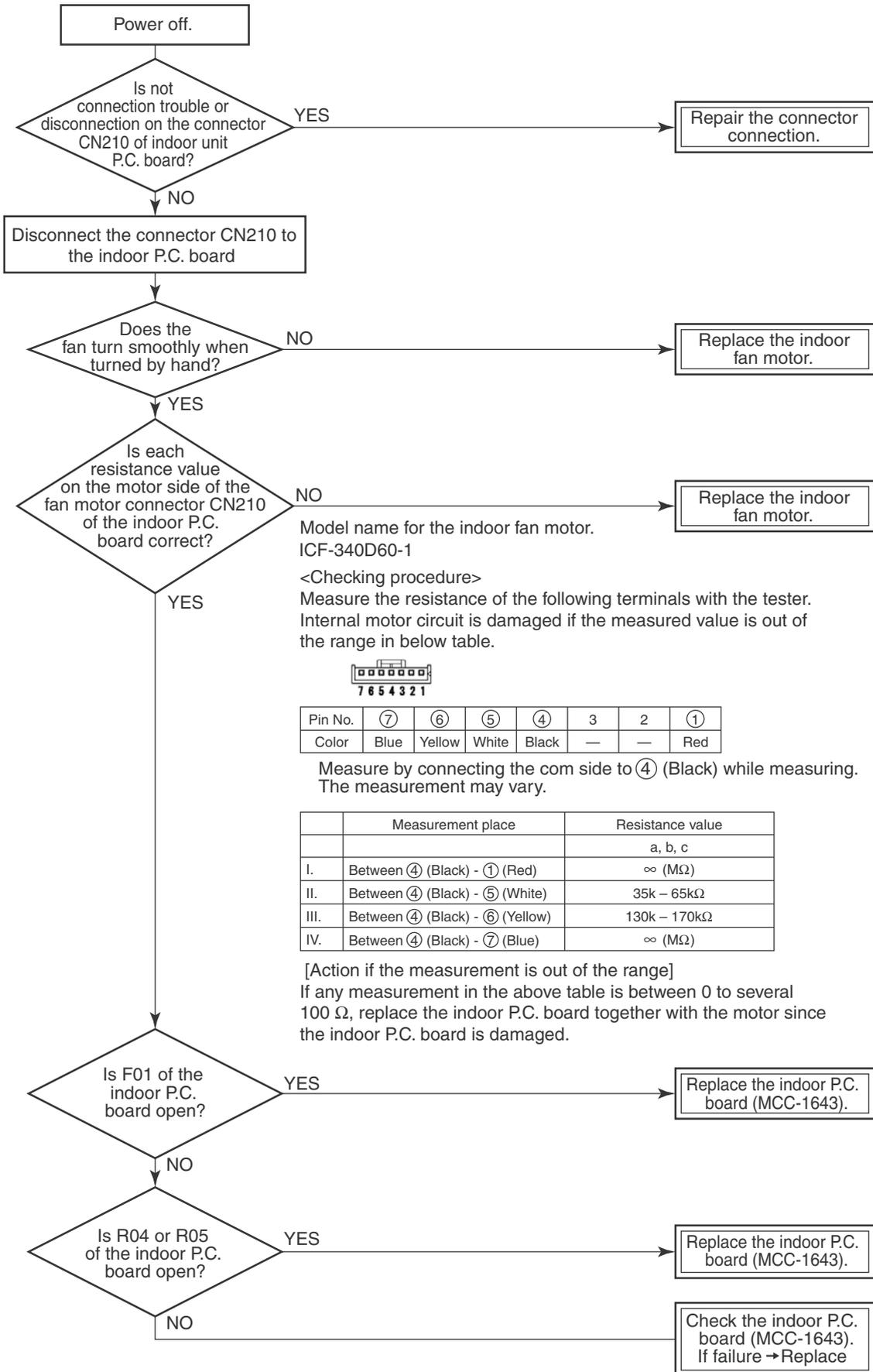
Check codes Detected by TCC-LINK Central Control Device

Check code		Location of detection	Description	System status	Problem detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display					
Sub-code						
C05	—	—	TCC-LINK TCC-LINK central control device transmission problem	Continued operation	Central control device is unable to transmit signal.	<ul style="list-style-type: none"> • Check for defect in central control device. • Check for defect in central control communication line. • Check termination resistance setting.
C06	—	—	TCC-LINK TCC-LINK central control device reception problem	Continued operation	Central control device is unable to receive signal.	<ul style="list-style-type: none"> • Check for defect in central control device. • Check for defect in central control communication line. • Check termination resistance setting. • Check power supply for devices at other end of central control communication line. • Check defect in P.C. boards of devices at other end of central control communication line.
C12	—	—	General-purpose device I/F Blanket alarm for general-purpose device control interface	Continued operation	Trouble signal is input to control interface for general-purpose devices.	<ul style="list-style-type: none"> • Check problem input.
P30	Differs according to nature of alarm-causing problem		TCC-LINK Group control follower unit problem	Continued operation	Trouble occurs in follower unit under group control. ([P30] is displayed on central control remote controller.)	<ul style="list-style-type: none"> • Check check code of unit that has generated alarm.
	(L20 displayed.)		— Duplicated central control address	Continued operation	There is duplication in central control addresses.	<ul style="list-style-type: none"> • Check address settings.

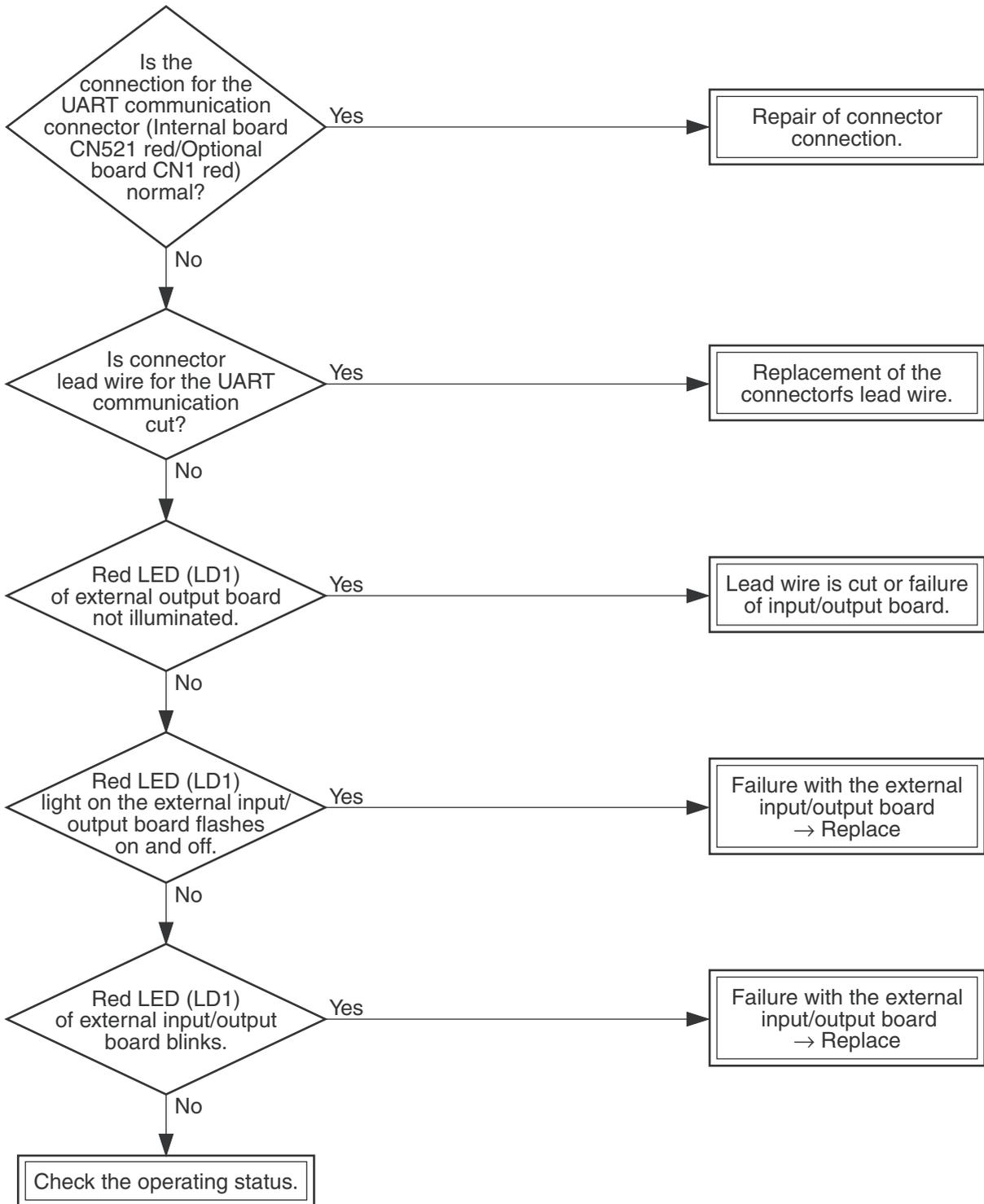
8-5. Diagnostic Procedure for Each Check Code (Indoor Unit)

* Please refer to the multi outdoor unit service manual excluding these.

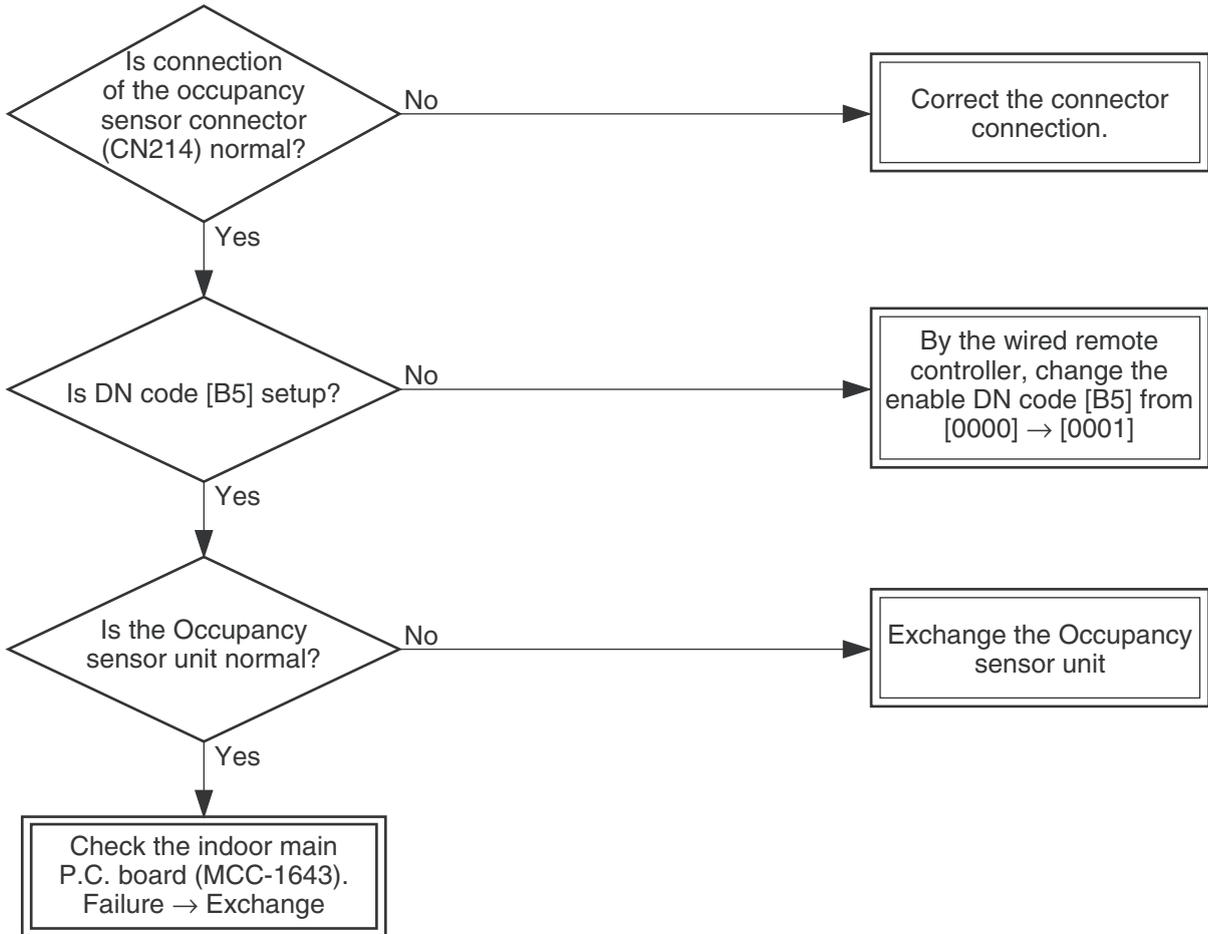
[P12 trouble]



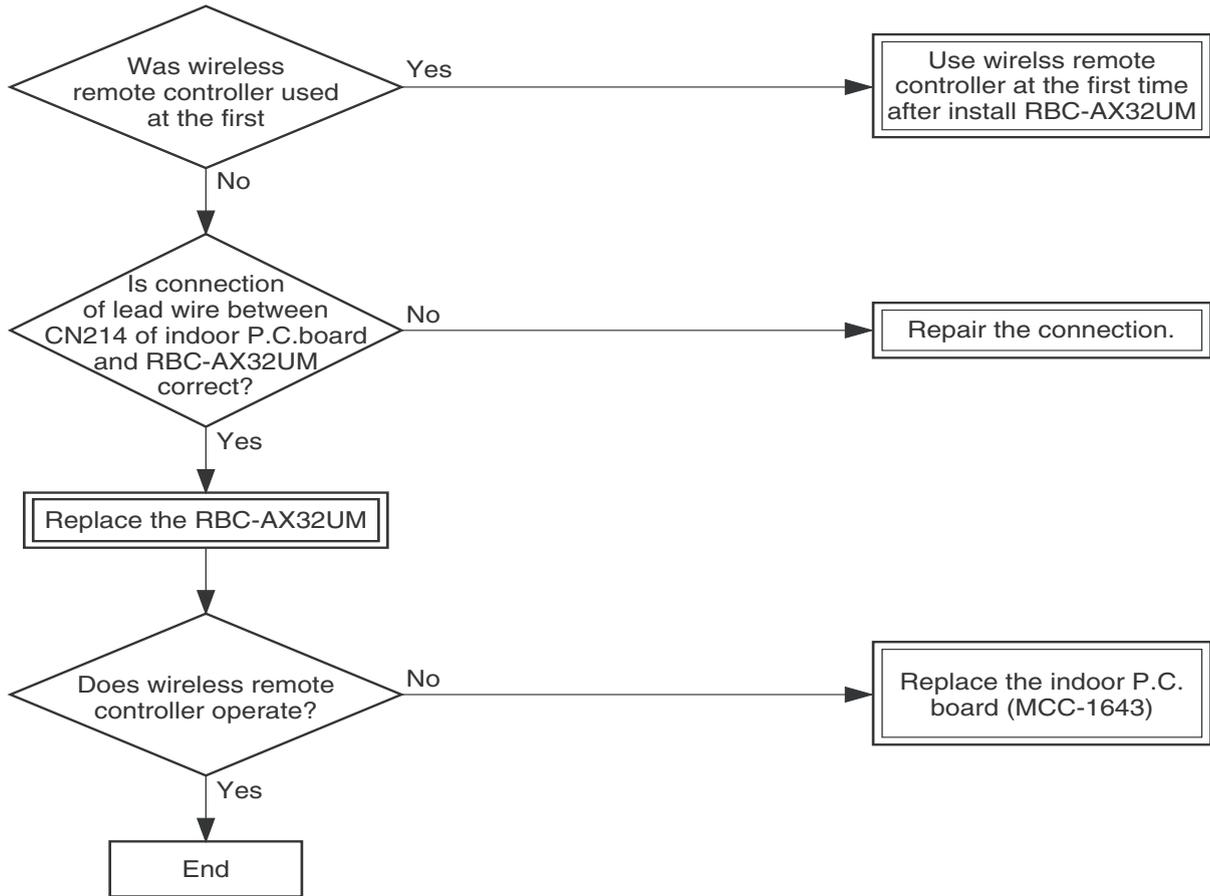
[E11 trouble]



[F30 trouble]



[Wireless remote controller trouble]

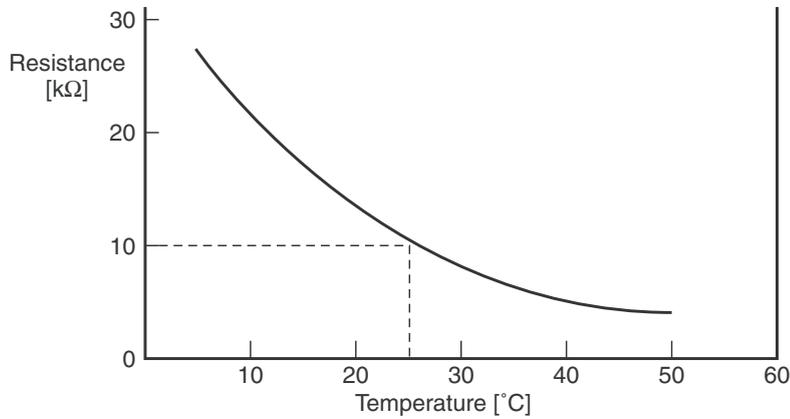


8-6. Sensor characteristics

Indoor unit

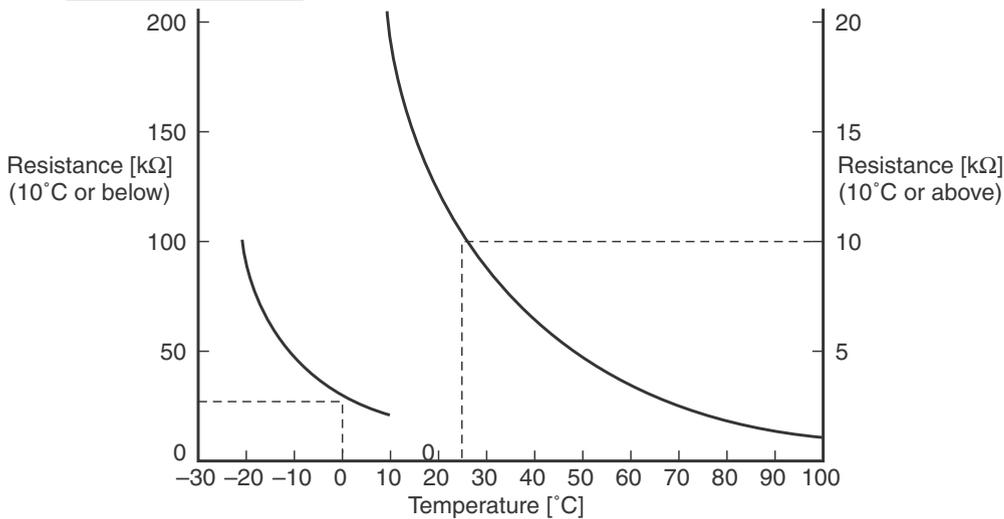
▼ Temperature sensor characteristics

Indoor TA sensor



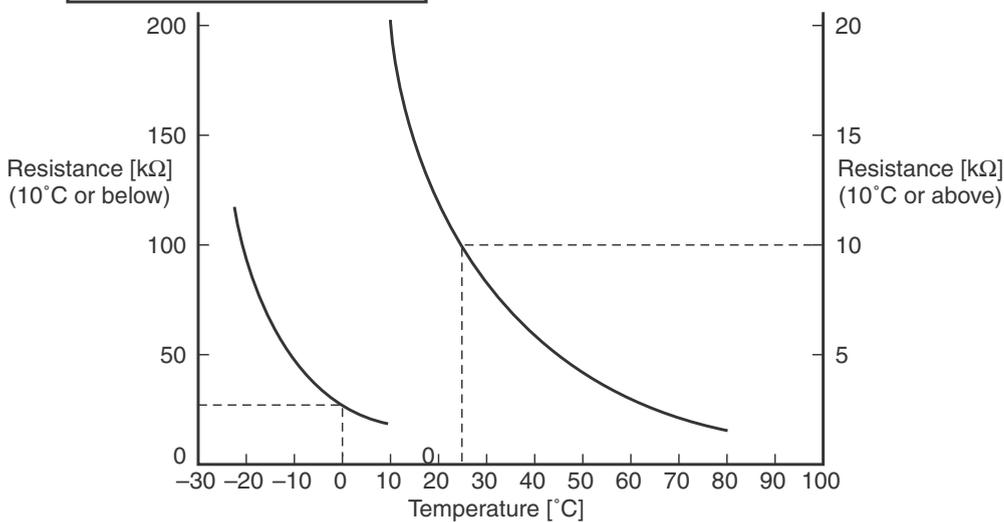
Temperature [°C]	Resistance [kΩ]
0	33.9
5	26.1
10	20.3
15	15.9
20	12.6
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.6
60	2.4

Indoor TC1 sensor



Temperature [°C]	Resistance [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 and TCJ sensors



Temperature [°C]	Resistance [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

<Maintenance/Check list>

Aiming in environmental preservation, it is strictly recommended to clean and maintain the indoor/outdoor units of the operating air conditioning system regularly to secure effective operation of the air conditioner.

It is also recommended to maintain the units once a year regularly when operating the air conditioner for a long time.

Check periodically signs of rust or scratches, etc. on coating of the outdoor units.

Repair the defective position or apply the rust resisting paint if necessary.

If an indoor unit operates for approx. 8 hours or more per day, usually it is necessary to clean the indoor/outdoor units once three months at least.

These cleaning and maintenance should be carried out by a qualified dealer.

Although the customer has to pay the charge for the maintenance, the life of the unit can be prolonged.

Failure to clean the indoor/outdoor units regularly will cause shortage of capacity, freezing, water leakage or trouble on the compressor.

Part name	Object		Contents of check	Contents of maintenance
	Indoor	Outdoor		
Heat exchanger	○	○	• Blocking with dust, damage check	• Clean it when blocking is found.
Fan motor	○	○	• Audibility for sound	• When abnormal sound is heard
Filter	○	—	• Visual check for dirt and breakage	• Clean with water if dirty • Replace if any breakage
Fan	○	○	• Visual check for swing and balance • Check adhesion of dust and external appearance.	• Replace fan when swinging or balance is remarkably poor. • If a large dust adheres, clean it with brush or water.
Suction/ Discharge grille	○	—	• Visual check for dirt and scratch	• Repair or replace it if deformation or damage is found.
Drain pan	○	—	• Check blocking by dust and dirt of drain water.	• Clean drain pan, Inclination check
Face panel, Louver	○	—	• Check dirt and scratch.	• Cleaning/Coating with repair painting
External appearance	—	○	• Check rust and peeling of insulator • Check peeling and floating of coating film	• Coating with repair painting

9. P.C. BOARD EXCHANGE PROCEDURES

■ Indoor unit

9-1. Replacement of indoor P.C. boards

Part code	Model type	P.C. board type
431-6V-592	MMU-AP***7MH series	MCC-1643

<Note: when replacing the P.C. board for indoor unit servicing>

The nonvolatile memory (hereafter called EEPROM, IC503) on the indoor unit P.C. board before replacement includes the model specific type information and capacity codes as the factory-set value and the important setting data which have been automatically or manually set when the indoor unit is installed, such as system/indoor/group addresses, high ceiling select setting, etc.

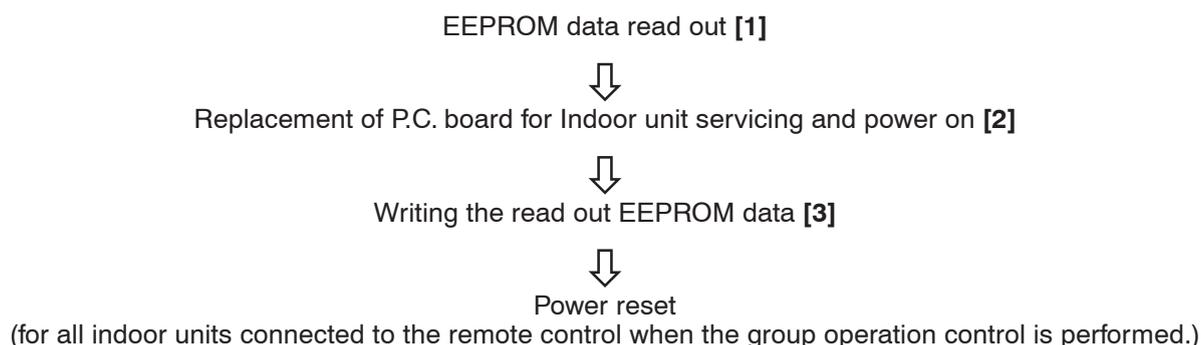
When replacing the P.C. board for indoor unit servicing, follow the procedures below.

After replacement completes, confirm whether the settings are correct by checking the indoor unit No., Group header unit/follower unit settings and perform the cooling cycle confirmation through the trial operation.

<Replacement procedures>

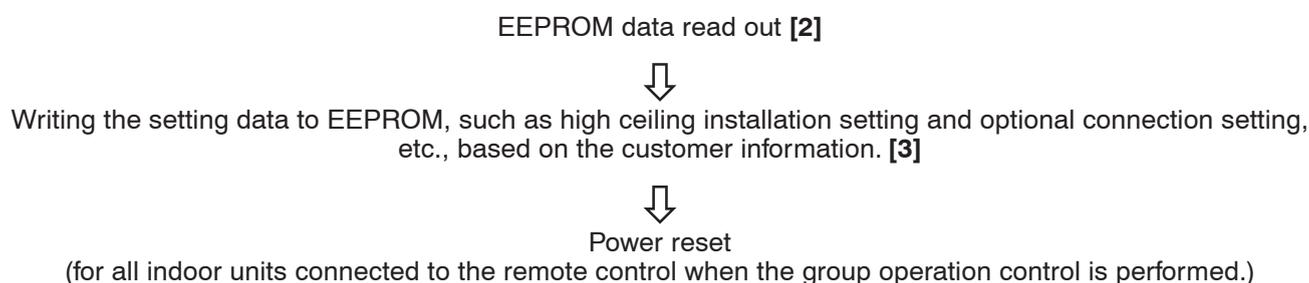
CASE 1

Before replacement, the indoor unit can be turned on and the setting data can be read out by wired remote control operation.



CASE 2

The EEPROM before replacement is defective and the setting data cannot be read out.



[1] Setting data read out from EEPROM

The setting data modified on the site, other than factory-set value, stored in the EEPROM shall be read out.

Step 1 Push ○^{SET} , ○^{CL} and ○^{TEST} button on the remote controller simultaneously for more than 4 seconds.

* When the group operation control is performed, the unit No. displayed for the first time is the header unit No.

At this time, the CODE No. (DN) shows “ $\text{□} \text{□}$ ”. Also, the fan of the indoor unit selected starts its operation and the swing operation also starts if it has the louvers.

Step 2 Every time when the $\text{○}^{\text{UNIT LOUVER}}$ (left side button) button is pushed, the indoor unit No. under the group control is displayed in order. Specify the indoor unit No. to be replaced.

1. **Change the CODE No. (DN) to $\text{□} \text{□} \rightarrow \text{□} \text{□}$ by pushing $\text{○}^{\text{DOWN}} / \text{○}^{\text{UP}}$ buttons for the temperature setting. (this is the setting for the filter sign lighting time.)**

At this time, be sure to write down the setting data displayed.

2. Change the CODE No. (DN) by pushing $\text{○}^{\text{DOWN}} / \text{○}^{\text{UP}}$ buttons for the temperature setting. Similarly, be sure to write down the setting data displayed.

3. Repeat the step 2-2 to set the other settings in the same way and write down the setting data as shown in the table 1 (example).

* The CODE No. (DN) are ranged from “ $\text{□} \text{□}$ ” to “ FF ”. The CODE No. (DN) may skip.

Step 3 After writing down all setting data, push ○^{TEST} button to return to the normal stop status. (It takes approx. 1 min until the remote controller operation is available again.)

CODE No. required at least

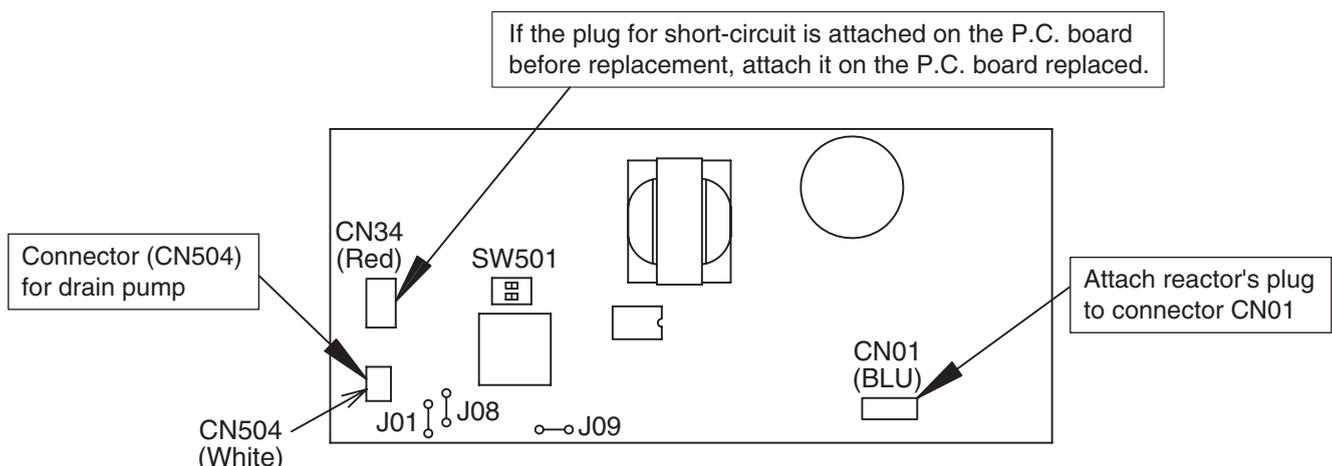
DN	Contents
10	Type
11	Indoor unit capacity
12	System address
13	Indoor unit address
14	Group address

1. The CODE No. for the Indoor unit type and Indoor unit capacity are required to set the rotation number setting of the fan.
2. If the system/indoor/group addresses are different from those before replacement, the auto-address setting mode starts and the manual resetting may be required again. (when the multiple units group operation including twin system.)

[2] P.C. Board for indoor unit servicing replacement procedures

Step 1 Replace the P.C. board to the P.C. board for indoor unit servicing.

At this time, perform the same setting of the jumper wire (J01, J08, J09) setting, switch SW501, (short-circuit) connector CN34 as the setting of the P.C. board before replacement.



Step 2 It is necessary to set indoor unit to be exchanged: Remote controller = 1 : 1

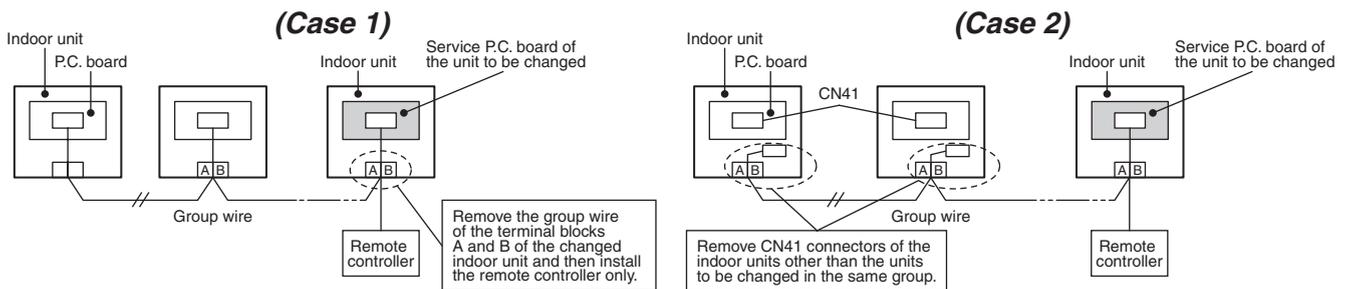
Based upon the system configuration, turn on power of the indoor unit with one of the following items.

1) Single (Individual) operation. Turn on power of the indoor units and proceed to [3].

2) Group operation

A) In case that power of the exchanged indoor unit only can be turned on
Turn on power of the exchanger indoor unit only and proceed to [3].

- B) In case that power of the indoor units cannot be turned on individually (**Case 1**)
- Remove temporarily the group wire connected to the terminal blocks A and B of the exchanged indoor unit.
 - After connecting the remote controller wire only to the removed terminal block, turn on power of the indoor units and proceed to [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 in individually (**Case 2**)
- Remove all CN41 connectors of the indoor units in the same group except those of the exchanged indoor unit.
 - Turn on power of the indoor units and proceed to [3].
- * After [3] operation has finished, be sure to return the temporarily removed group wire or CN41 connector to the original connection.



[3] Writing the setting data to EEPROM

The settings stored in the EEPROM of the P.C. board for indoor unit servicing are the factory-set values.

Step 1 Push SET , CL and TEST buttons on the remote controller simultaneously for more than 4 seconds.

* In the group control operation, the unit No. displayed for the first time is the header unit No. At this time, the CODE No. (DN) shows "10". Also, the fan of the indoor unit selected starts its operation and the swing operation starts if it has the louvers. (The unit No. "ALL" is displayed if the auto-address setting mode is interrupted in [2] step 2 a))

Step 2 Every time when UNIT LOUVER (left side button) button is pushed, the indoor unit No. in the group control operation are displayed in order. (The settings stored in the EEPROM of the P.C. board for indoor unit servicing are the factory-set values.)

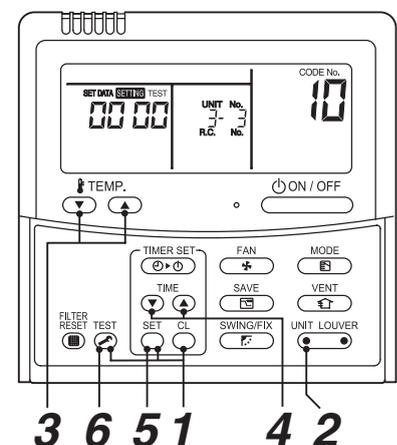
Specify the indoor unit No. with its P.C. board replaced to the P.C. board for indoor unit servicing. (You cannot perform this operation if "ALL" is displayed.)

Step 3 Select the CODE No. (DN) can be selected by pushing the TEMP. / ON/OFF button for the temperature setting.

• Set the indoor unit type and capacity. The factory-set values shall be written to the EEPROM by changing the type and capacity.

- Set the CODE No. (DN) to "10" (without change)
- Select the type by pushing TEMP. / ON/OFF buttons for the timer setting. (For example, 4-way Cassette Type is set to "0001". Refer to table 2)
- Push SET button. (The operation completes if the setting data is displayed.)
- Change the CODE No. (DN) to "11" by pushing TEMP. / ON/OFF buttons for the temperature setting.
- Select the capacity by pushing TEMP. / ON/OFF buttons for the timer setting. (For example, AP018 Type is set to "0009". Refer to table 3)
- Push SET button. (The setting completes if the setting data are displayed.)

<Fig. 1 RBC-AMT32E>



- Step 4** Write the on-site setting data to the EEPROM, such as address setting, etc. Perform the steps 1 and 2 above again.
- Step 5** Change the CODE No. (DN) to “01” by pushing ▼ / ▲ buttons for the temperature setting. (this is the setting for the filter sign lighting time.)
- Step 6** Check the setting data displayed at this time with the setting data put down in [1].
1. If the setting data is different, modify the setting data by pushing ▼ / ▲ buttons for the timer setting to the data put down in [1].
The operation completes if the setting data is displayed.
 2. If the data is the same, proceed to next step.
- Step 7** Change the CODE No. (DN) by pushing ▼ / ▲ buttons for the temperature setting. As described above, check the setting data and modify to the data put down in [1].
- Step 8** Repeat the steps 6 and 7.
- Step 9** After the setting completes, push  button to return to the normal stop status. (It takes approx. 1 min until the remote controller operation is available again.)
- * The CODE No. (DN) are ranged from “01” to “FF”. The CODE No. (DN) is not limited to be serial No. Even after modifying the data wrongly and pushing  button, it is possible to return to the data before modification by pushing  button if the CODE No. (DN) is not changed.

<Fig. 2 EEPROM layout diagram>

The EEPROM (IC503) is attached to the IC socket. When detaching the EEPROM, use a tweezers, etc. Be sure to attach the EEPROM by fitting its direction as shown in the figure.

* Do not bend the IC lead when replacing.

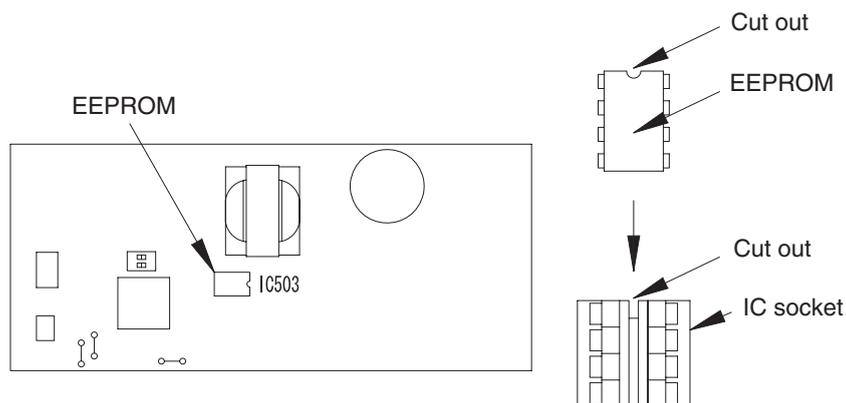


Table 1. Setting data (CODE No. table (example))

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
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
2b	Thermo output SW (T10 ③)		0000: Thermo ON
31	Ventilation fan (standalone)		0000: Not available
32	Sensor SW (Selection of static pressure)		0000: Body sensor
5d	High ceiling SW		0000: Standard
60	Timer setting (wired remote controller)		0000: Available
77	Dual set point		0000: Unavailable
B3	Soft cooling		0001: Available
B5	Occupancy sensor: Provided/None		0000: None
B6	Occupancy sensor: Enable/Invalid (Judgment time of absence)		0002: Enable (60 min.)
B7	Occupancy sensor: Operation at absent time		0000: Stand by
d0	Remote controller operation save function		0001: Enable
F0	Swing mode		0001: Standard
F1	Louver fixing position (Flap No. 1)		0000: Not fixed
F2	Louver fixing position (Flap No. 2)		0000: Not fixed
F3	Louver fixing position (Flap No. 3)		0000: Not fixed
F4	Louver fixing position (Flap No. 4)		0000: Not fixed
F6	Presence of Application control kit		0000: None
Fd	Priority operation mode (FS unit)		0000: Heating
FE	FS unit address		0099: Unfixed

Table 2. Type: CODE No. 10

Setting data	Type	Model abb. name
0014	Compact 4-way Cassette	MMU-AP***MH*

Table 3. Indoor unit capacity: CODE No. 11

Setting data	Model	Setting data	Model
0000*	Invalid	0005	012 type
0041	005 type	0006	—
0001	007 type	0007	015 type
0002	—	0008	—
0003	009 type	0009	018 type
0004	—		

* EEPROM initial value on the P.C. board for indoor unit servicing.

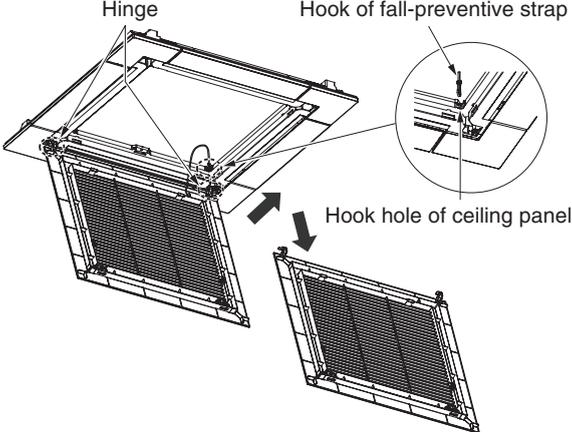
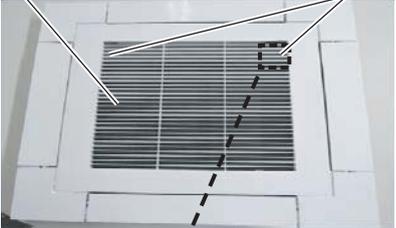
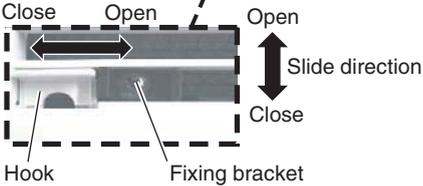
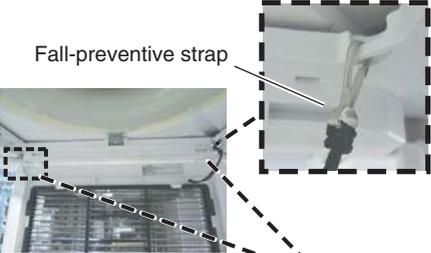
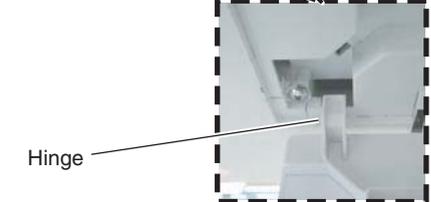
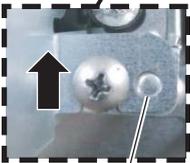
10. DETACHMENTS

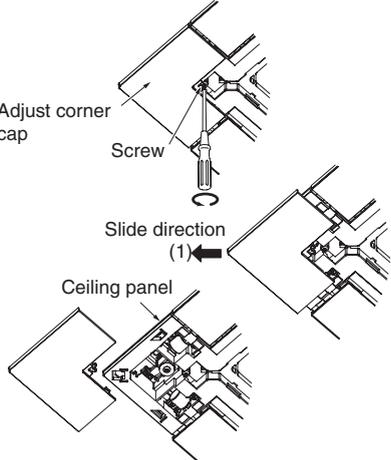
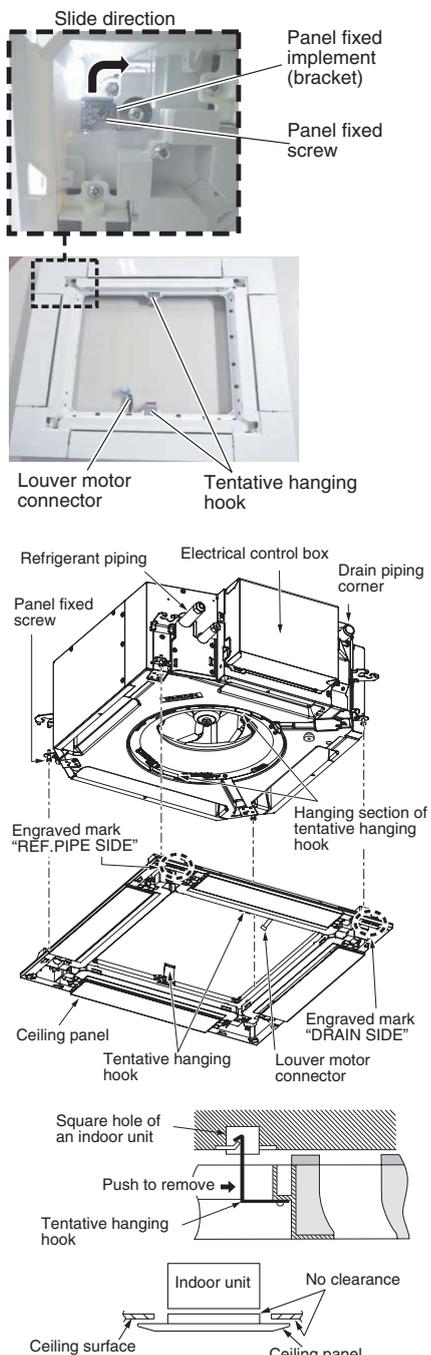
⚠ WARNING

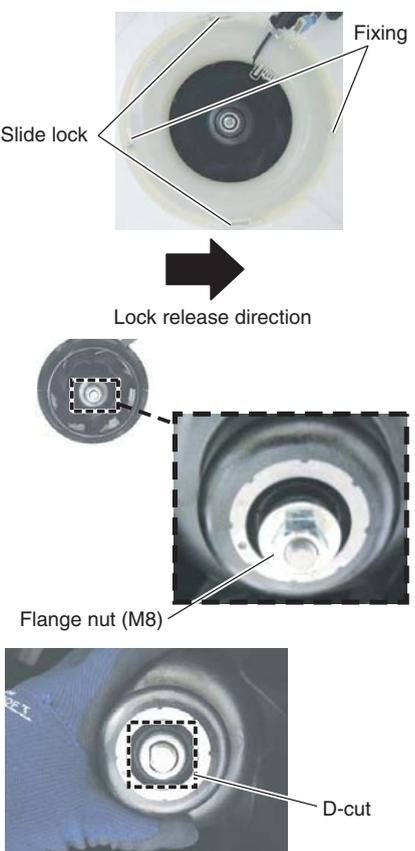
Be sure to stop operation of the air conditioner before work and then turn off switch of the breaker.

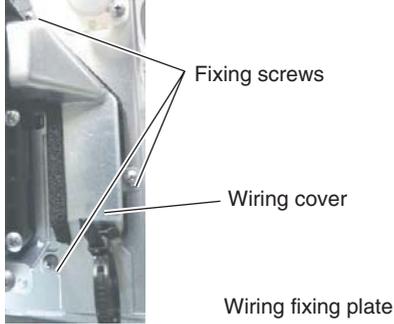
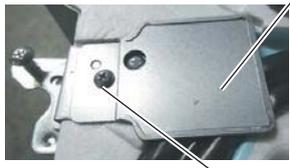
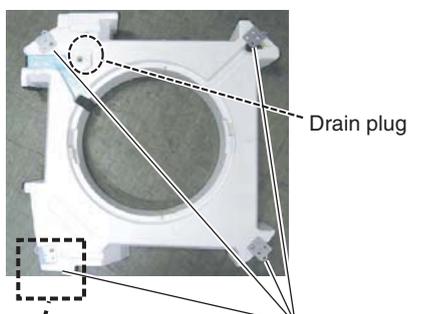
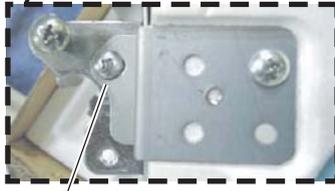
⚠ CAUTION

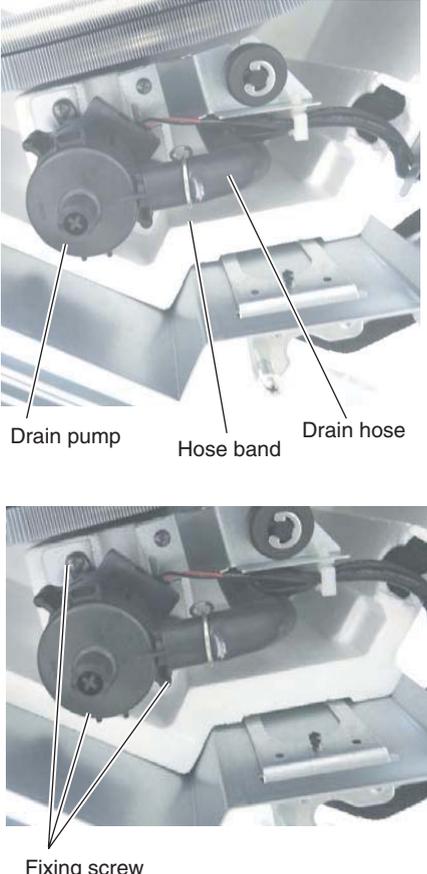
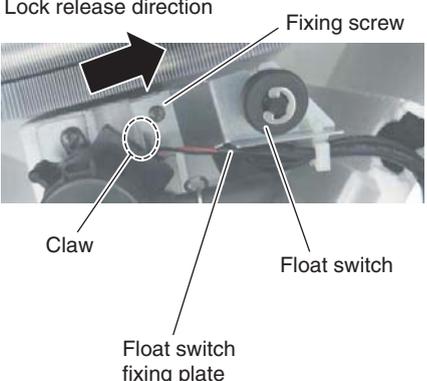
Be sure to put on gloves during working time; otherwise an injury will be caused by a part etc.

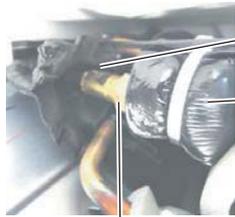
No.	Part name	Procedure	Remarks
①	Air intake grille	<p>1. Detachment</p> <ol style="list-style-type: none"> 1) Stop operation of the air conditioner and then turn off switch of the circuit breaker. 2) Loosen the fixing screw. And slide the fixing bracket toward the inside. (Ø4 × 8, 1 pcs.) 3) Holding the air intake grille, slide the hook in the direction of the arrow and slowly open the grille. 4) Remove the hook of the fall-preventive strap from the ceiling panel. Remove the hinge section of the air intake grille from the ceiling panel while the air intake grille is opened. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Hook the hinge of the air intake grille to the main panel, and then attach the fall-preventive strap. 2) Close the air intake grille, and then slide the hook. 3) Slide the grille fixing bracket to fix it with the screws. (Ø4 × 8, 1pc.) 	<p>Air intake grille Hook</p>  <p>Close Open Open Slide direction Close</p>  <p>Hook Fixing bracket</p> <p>Fall-preventive strap</p>  <p>Hinge</p> 
②	Electric parts cover	<p>1. Detachment</p> <ol style="list-style-type: none"> 1) Loosen the fixing screws (2 places) of the electric parts cover. (Ø4 × 8, 2 pcs.) 2) Slide the electric parts cover toward upper side to remove it. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Slide the electric parts cover to attach it. (Arrange the boss at the electric parts side just on the boss hole at the cover side.) 2) Tighten the screws of the electric parts cover (2 positions) to fix it. (Ø4 × 8, 2 pcs.) 	 <p>Electric parts cover</p>   <p>Boss part</p>

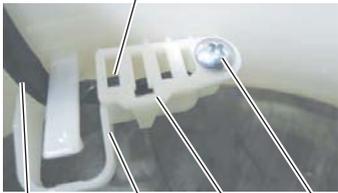
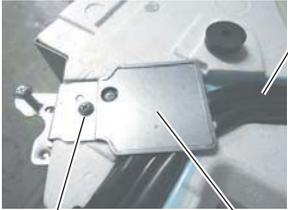
No.	Part name	Procedure	Remarks
③	Adjust corner cap	<p>1. Detachment</p> <ol style="list-style-type: none"> 1) Remove the air intake grille. (Refer to 1 of ①.) 2) Loosen the fixing screws on the adjust corner cap. (Ø4 × 12, 4 pcs.) 3) Slide the adjust corner cap to outside to remove it. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Matching claws (5 positions) of the adjust corner cap to holes of the panel main unit holes and attach them. 2) Tighten the fixing screws of the adjust corner cap (Ø4 × 12, 4 pcs.). <p>NOTE</p> <p>Tighten the screw with a hand screwdriver and do not use a tool such as a electric screwdriver. Tightening torque : 1 N•m or less</p>	
④	Ceiling panel	<p>1. Detachment</p> <ol style="list-style-type: none"> 1) Remove the air intake grille and the adjust corner cap. (Refer to 1 of ① and 1 of ③.) 2) Remove the louver motor connector. 3) By sliding the panel fixing bracket of the corner part, remove it from the fixing screws. (Total 4 positions) 4) Push the tentative hanging hook at the center part of the ceiling panel main body toward the outside of the ceiling panel, and then remove the ceiling panel from the indoor unit. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Match the louver motor connector of the ceiling panel so that it directs to the electric parts side, and then hook the tentative hanging hook at the center part of the ceiling panel main body to the bell mouth. 2) Connect the louver motor connectors at the ceiling panel side and the indoor unit side. 3) Lift up the panel corner part and put out the screw head of the panel fixed implement. Slide the panel fixed bracket, and then fix the indoor unit and the ceiling panel. (Total 4 positions). * In case of loosening screws of the panel fixed implement so that screw head is out under the panel fixed implement, retighten the screws after work. 4) Following to the works in items ③-2 and ①-2, attach the adjust corner cap and the air intake grille as original. <p>NOTE</p> <ul style="list-style-type: none"> • The ceiling panel aligns directionally with the indoor unit. Check that the lead wires of louver motor connector are on the electrical control box side. • When a clearance is found between the ceiling surface and the ceiling panel, readjust height of the indoor unit even if the screws have been tightened. 	

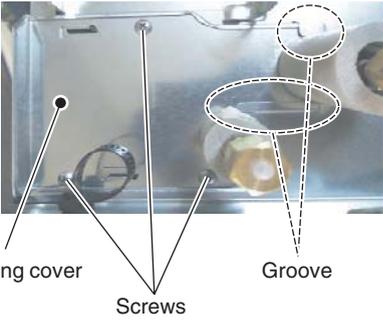
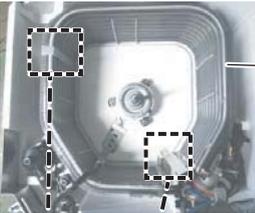
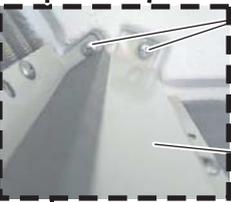
No.	Part name	Procedure	Remarks
⑤	Control P.C. board	<p>1. Detachment</p> <ol style="list-style-type: none"> 1) Remove the electric parts cover. (Refer to 1 of ②) 2) Remove connectors which are connected from the control P.C. board to the other parts and then remove wiring from the clamp. <p>NOTE</p> <hr/> <p>Unlock the lock of the housing part and then remove the connector.</p> <hr/> <p>CN34 : Float switch (3P, Red) CN41 : Remote controller (2P, Blue) CN40 : Control wires (2P, Blue) CN67 : Power supply wires (5P, Black) CN100 : TC1 sensor (2P, Brown) CN101 : TC2 sensor (2P, Black) CN102 : TCJ sensor (2P, Red) CN104 : Room temp. (TA) sensor (2P, Yellow) CN82 : PMV (6P, Blue) CN510 : Louver motor (20P, White) CN504 : Drain pump (2P, White) CN210 : Fan motor (7P, White) CN22 : Earth wire (Tab terminal)</p> <ol style="list-style-type: none"> 3) Unlock the locks of the card edge spacer (4 positions) and remove the control P. C. board. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Fix the control board to the card edge spacer (4 positions). 2) Connect the removed connectors as original, which were unconnected in item 1. Detachment, and fix the wires with clamps. 3) Following to the work in ②-2, attach the electric parts covers as original. 	 <p>Clamp</p> <p>Clamp</p> <p>Card edge spacer</p>
⑥	Turbo fan	<p>1. Detachment</p> <ol style="list-style-type: none"> 1) Remove the air intake grille. (Refer to 1 of ①.) 2) Loosen the fix screws (2 positions) of the bell mouth, rotate the bell mouth, and then take off it. (Ø4 × 10, 2 pcs.) 3) Loosen the flange nut (M8) at the center part of the turbo fan, and then take off (Counter clockwise) * Supporting with hands, take off the turbo fan so that it will not fall down. <p>NOTE</p> <hr/> <p>Use a box wrench for attachment and detachment of the turbo fan. If using monkey wrench etc., the other parts may be damaged in work.</p> <hr/> <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Match the D-cut of the motor shaft with the boss part D-cut of the turbo fan, and then insert the turbo fan into the motor shaft. 2) Tighten M8 nut with flange. (Tightening torque of the turbo fan: 5.4+0.5, -0.2N•m) 3) Slide the Bell mouth removed in item 1-2) and attach it then fix it with screws. (Ø4 × 10, 2 pcs.). 4) Following to the work in item ①-2, attach the air intake grille as original. <p>NOTE</p> <hr/> <p>(Tightening torque of the turbo fan: 5.4 (+0.5, -0.2)N•m)</p>	 <p>Slide lock</p> <p>Fixing</p> <p>Lock release direction</p> <p>Flange nut (M8)</p> <p>D-cut</p>

No.	Part name	Procedure	Remarks
⑦	Drain pan	<p>1. Detachment</p> <ol style="list-style-type: none"> 1) Remove the ceiling panel and the electrical parts covers. (Refer to items ④-1 and ②-1.) 2) Remove the wiring cover. (Fixing screw $\varnothing 4 \times 8$, 3pcs.) 3) Remove the wiring fixing plate. (Fixing screw $\varnothing 4 \times 8$, 1pc.) 4) Remove the connectors of the fan motor lead wire, louver motor lead wire, and room temperature (TA) sensor from the control P.C. board, and then remove the wiring from the clamp. * Pull out the wires from the hole at the side face of the electric parts. CN210: Fan motor (7P, White) CN510: Louver motor lead wire (20P, White) CN104: TA (Room temperature) sensor (2P, Yellow) 5) Remove the drain plug of the drain pan, and extract the stayed drain water. * Be careful that water is extracted at a stretch when taking off the drain plug. * When taking off the drain plug, be sure to prepare a bucket, etc. for spilled water. 6) Remove the fixing screws of the drain pan fixing bracket. ($\varnothing 4 \times 8$, 4 pcs.) 7) Using the both hands, hold the water-spilling port part of the drain pan and then slowly pull out the foaming parts firstly. * As there is remained water in the drain pan, clear it carefully. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Arrange direction of the drain pan directly to the foaming parts and insert it. * Pass the fan motor lead wire through the inner side of the drain pan. 2) Attach the fixing screws of the drain pan fixing implement which was taken off in item 1-6). ($\varnothing 4 \times 12$, 4 pcs.) 3) Insert the drain plug. (Put the tool with thin top in the hole of the drain plug, and then push the plug in.) 4) Perform wiring works to original arrangement, wiring of the fan motor, louver motor lead wires, and the room temperature (TA) sensor, and then attach the wiring fixing bracket and the wiring cover. 5) Following to works in items ④-2 and ②-2, attach the panel, electric parts cover as original. 	     <p>Push in the drain plug with the thin tip tool.</p>

No.	Part name	Procedure	Remarks
⑧	Drain pump	<p>1. Detachment</p> <ol style="list-style-type: none"> 1) Remove the drain pan. (Refer to ⑦-1.) 2) Remove the drain pump connector (CN504: 2P, White) connected to the control P.C. board and remove the lead wires from the clamp. 3) Remove the fixing screws to remove the drain pump. (Ø4 × 10, 3 pcs.) 4) Move the knob of the hose band which fixes the drain hose a little from pump connecting part to the hose side, and then remove the drain hose from the drain pump. * Be careful that water may be out. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Confirm the direction of the drain pump, and then fix it with screws. (Ø4 × 10, 3 pcs.) 2) Connect the drain hose to the drain pump. * For the drain hose, insert up to the root of the connecting part. * Attach a band to the marked position of the hose, and the knob of a hose band is attached to the deep side of a set. 3) Pass the drain pump wiring through side plate and clamp, and then connect the connector to the control P.C. board. 4) Following to work in ⑦-2, attach the drain pan, panel, and electrical parts covers as original. 	 <p>Drain pump Hose band Drain hose</p> <p>Fixing screw</p>
⑨	Float switch	<p>1. Detachment</p> <ol style="list-style-type: none"> 1) Remove the drain pan. (Refer to ⑦-1.) 2) Remove the float switch connector (CN34 3P, Red) connected to the control P.C. board, and then take off the lead wires from the clamp. 3) Remove the screws which fix the float switch. (Ø4 × 8, 1 pc.) 4) Slide the float switch fixed bracket as direction shown in the right figure, and then take off it from the claw. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Insert the float switch fixing plate into the claw, and tighten the fixing screw. 2) Pass the float switch lead wires through the side plate and the clamp, and then connect the connector to the control P.C. board. 3) Following to work in ⑦-2, attach the covers of the drain pan, panel, and electric parts box as original. 	 <p>Lock release direction Fixing screw</p> <p>Claw Float switch</p> <p>Float switch fixing plate</p>

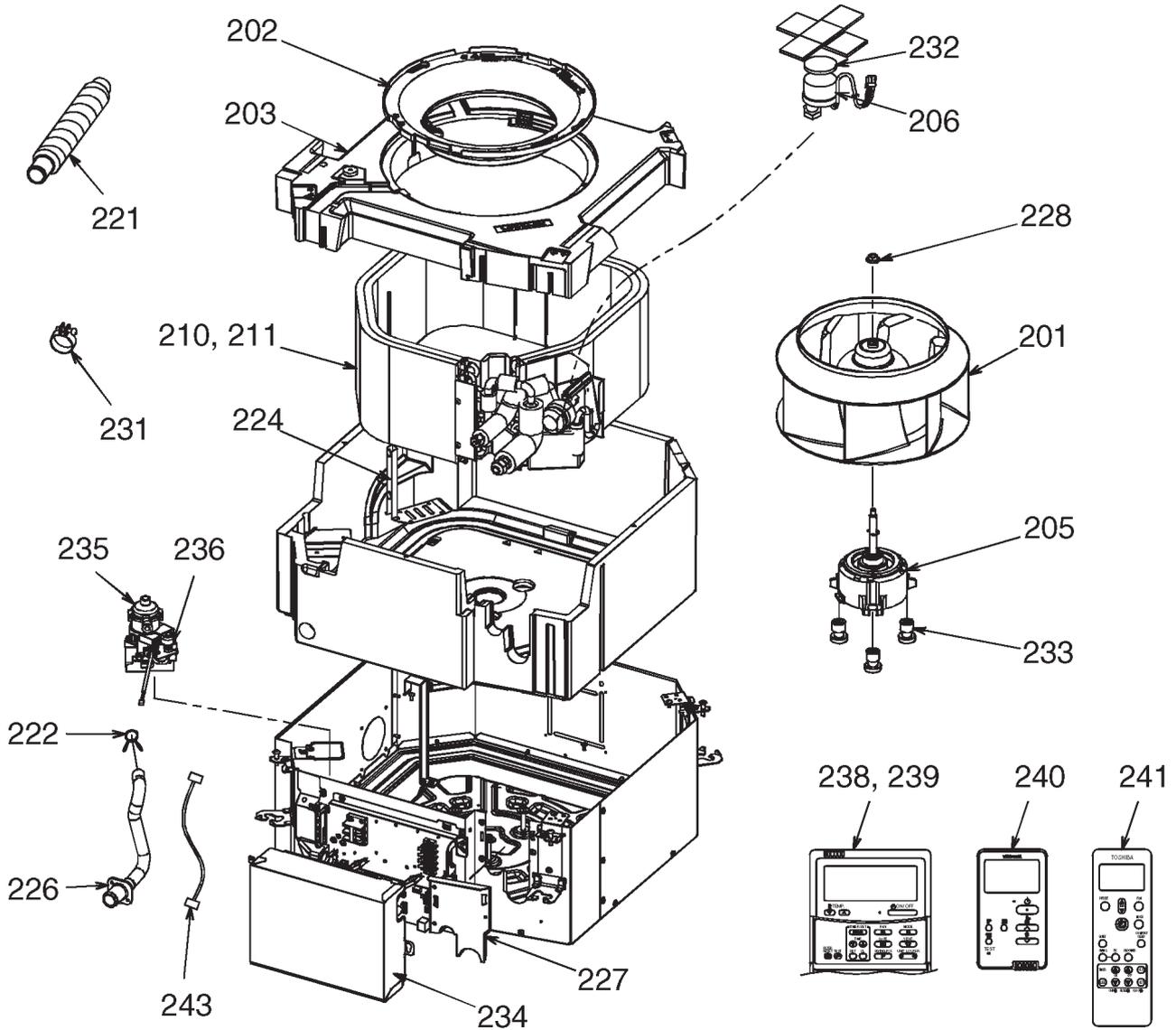
No.	Part name	Procedure	Remarks
⑩	Fan motor	<p>1. Detachment</p> <ol style="list-style-type: none"> 1) Remove the turbo fan, electric parts cover, wiring cover and wiring fixing plate. (Refer to ⑥-1, ②-1, ⑦-1-2, ⑦-1-3.) 2) Remove the fan motor connector (CN210, White, 7P) connected to the control P.C. board, and then take off the lead wires from the clamp. 3) Remove the shoulder screws (Black, 2pcs.) of the motor lead wiring cover, and separate the lead wires and the lead wire cover. 4) Remove the hexagon nuts (M6) which fix the motor, and the washers. (3 pcs. Each). * When taking off them, hold them with a hand so that motor will not fall down. 5) Remove the motor with rubber cushion from the bolt. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Pass rubber cushion of the motor in the bolt, put the washer and the hexagon nut in this order, and then tighten to fix them. (Tightening torque: $4.9 \pm 0.5N \cdot m$) 2) Pass the lead wire through the motor lead wire fixing plate removed in 1-3), and then fix it with shoulder screw. 3) Perform wiring of the motor lead wires as original, connect the connector to the control P.C. board, and then attach the wiring fixing plate and the wiring cover. 4) Following to works in ⑥-2 and ②-2, attach the turbo fan and the electric parts covers. 	 <p>Shoulder screws (Black)</p> <p>Motor lead wire cover</p>   <p>Bolt</p> <p>Hexagon nut</p> <p>Washer</p> <p>Rubber cushion</p>
⑪	PMV motor	<p>1. Detachment</p> <ol style="list-style-type: none"> 1) Remove the drain pan. (Refer to ⑦-1) 2) Remove the PMV connectors (CN82, Blue, 6pcs.) connected to the control P.C. board, and take off the lead wires from the clamp. 3) Using a cutter, etc., enter a break on the butyl rubber adhered on PMV body, peel the rubber until PMV body can be visible. (Adhere it as original after exchange.) * Peel butyl rubber so that the main body will not be damaged. 4) After loosening the nut which fixes PMV motor with the two spanners, remove the PMV motor. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Attach the PMV motor as original. <p>NOTE</p> <p>Tightening torque of the PMV body and the PMV motor: $7.84 \pm 0.98N \cdot m$.</p>	 <p>PMV body</p> <p>PMV motor</p> <p>Nut</p>  <p>Tighten the nut of PMV motor.</p>

No.	Part name	Procedure	Remarks
⑫	TC1 TC2 TCJ Sensor	<p>1. Detachment</p> <ol style="list-style-type: none"> 1) Remove the drain pan. (Refer to ⑦-1.) 2) Pull out the sensor to be exchanged from the sensor holder. 3) Remove the connector connected to the control P.C. board, and take off wires from the clamp. (Refer to ⑤.) <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Insert the sensor to be exchanged into the specified sensor. (Refer to the right figure.) 2) Perform wiring of the sensor as original. 	 <p>TCJ sensor (Red) TC1 sensor (Blue) TC2 sensor (Black)</p>
⑬	TA sensor	<p>1. Detachment</p> <ol style="list-style-type: none"> 1) Remove the panel, electric parts box cover, wiring cover and wiring fixing plate. (Refer to ④-1, ②-1, ⑦-1-2, ⑦-1-3.) 2) Disconnect TA sensor connector (CN104 Yellow, 2P) which is connected to the control P.C. board, and take off the lead wire from the clamp. 3) Remove the screw of the TA sensor cover. (Ø4 × 10, 1pc.) 4) Remove TA sensor from the TA sensor fixed implement. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Fix TA sensor to TA sensor fixing implement, and fix the TA sensor cover with screw. (Ø4 × 10, 1 pc.) 2) Perform wiring of TA sensor as original. 	<p>Adjust position of the tube so that the tube of TA sensor will be included in the cover.</p>  <p>TA sensor TA sensor fixing bracket Fixing screw TA sensor cover</p>  <p>Fixing screw Groove for wiring of the drain pan Wiring fixing plate</p>

No.	Part name	Procedure	Remarks
⑭	Heat exchanger	<p>1. Detachment</p> <ol style="list-style-type: none"> 1) Recover refrigerant gas. 2) Remove the refrigerant pipe at indoor unit side. 3) Remove the drain pan. (Refer ⑦-1.) 4) Disconnect the heat exchanger sensor (TC1, TC2, TCJ), PMV lead wires connectors from the control P.C. board, and then remove their lead wires from the clamp. (Refer to ⑤-1.) 5) Remove the fixing screws of the piping cover and take off the piping cover. (Ø4 × 8, 3 pcs.) 6) Remove the shoulder screws of the separate plate (2 positions) and fixing plate (1 position), and then remove the heat exchanger. (3 shoulder screws) <p>NOTE</p> <hr/> <p>* Supporting with a hand, remove the heat exchanger so that it will not be fallen down.</p> <p>* Take note that you will not get hurt by touching to Aluminum fin. Be sure to put on the protective gloves and the safety working clothing.</p> <hr/> <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Attach the heat exchanger as original with the separate plate and the fixing plate. 2) Slide the piping cover to the groove, fix it to the side plate, and then use the screws. (Ø4 × 8, 3 pcs.) 3) Perform wiring of the sensor and PMV lead wires as original. 4) Connect the refrigerant pipe as before and then apply vacuuming. 5) Following to the work in ⑦-2, attach the parts as original. 	<p>Remarks</p>    
<p>NOTE</p> <hr/> <p>After assembling, check if that there is no abnormal sound, vibration, or puncture. Check the exchange point when you have a problem.</p> <hr/>			

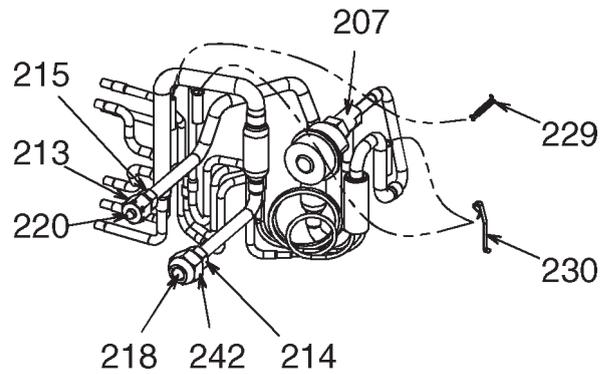
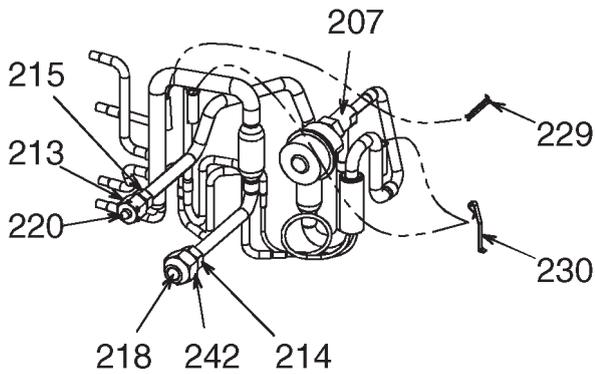
11. EXPLODED VIEWS AND PARTS LIST

MMU-AP0057MH-E (TR), AP0077MH-E (TR), AP0097MH-E (TR), AP0127MH-E (TR)

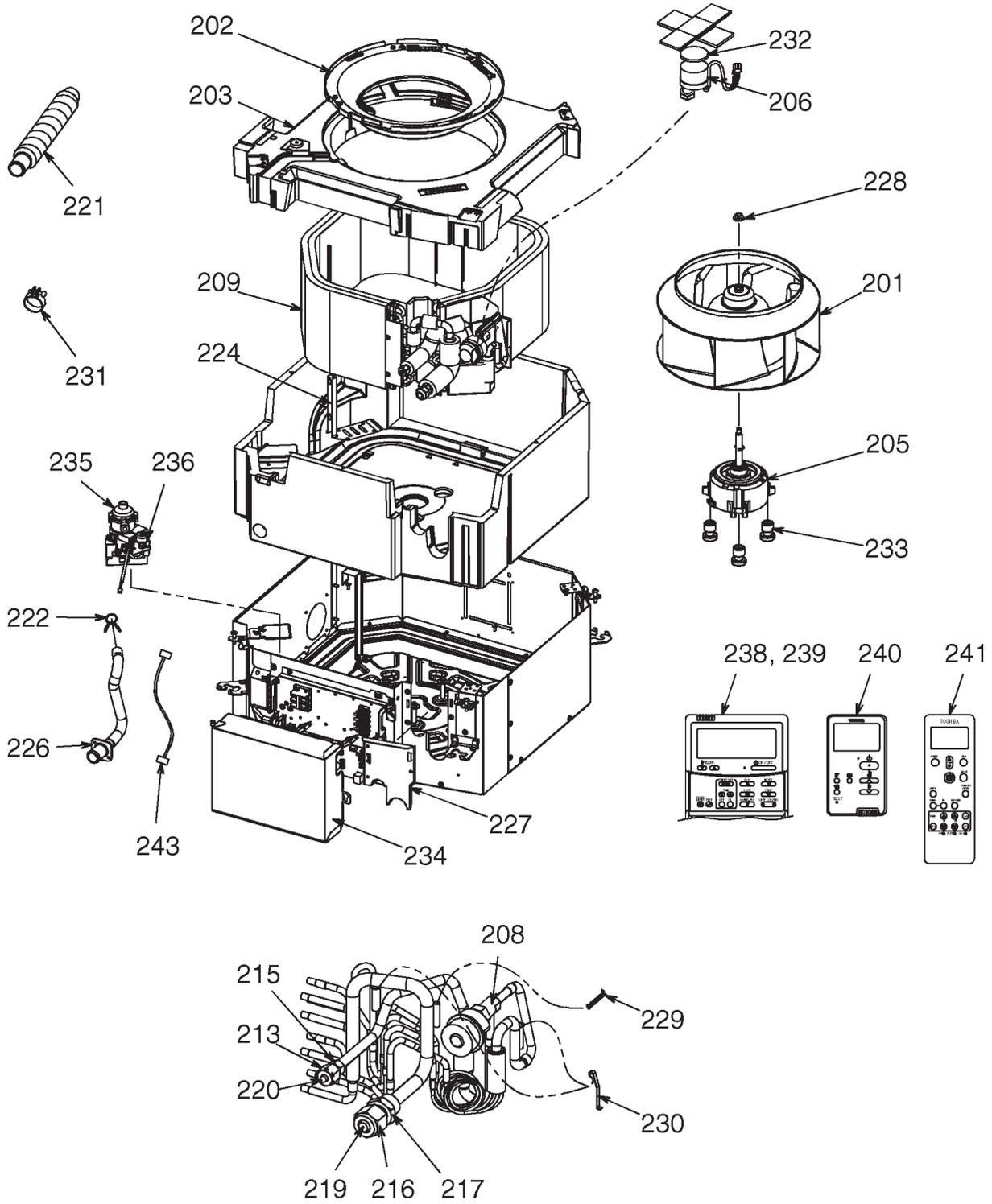


MMU-AP0057MH-E (TR)

MMU-AP0077MH-E (TR) ~ AP0127MH-E (TR)

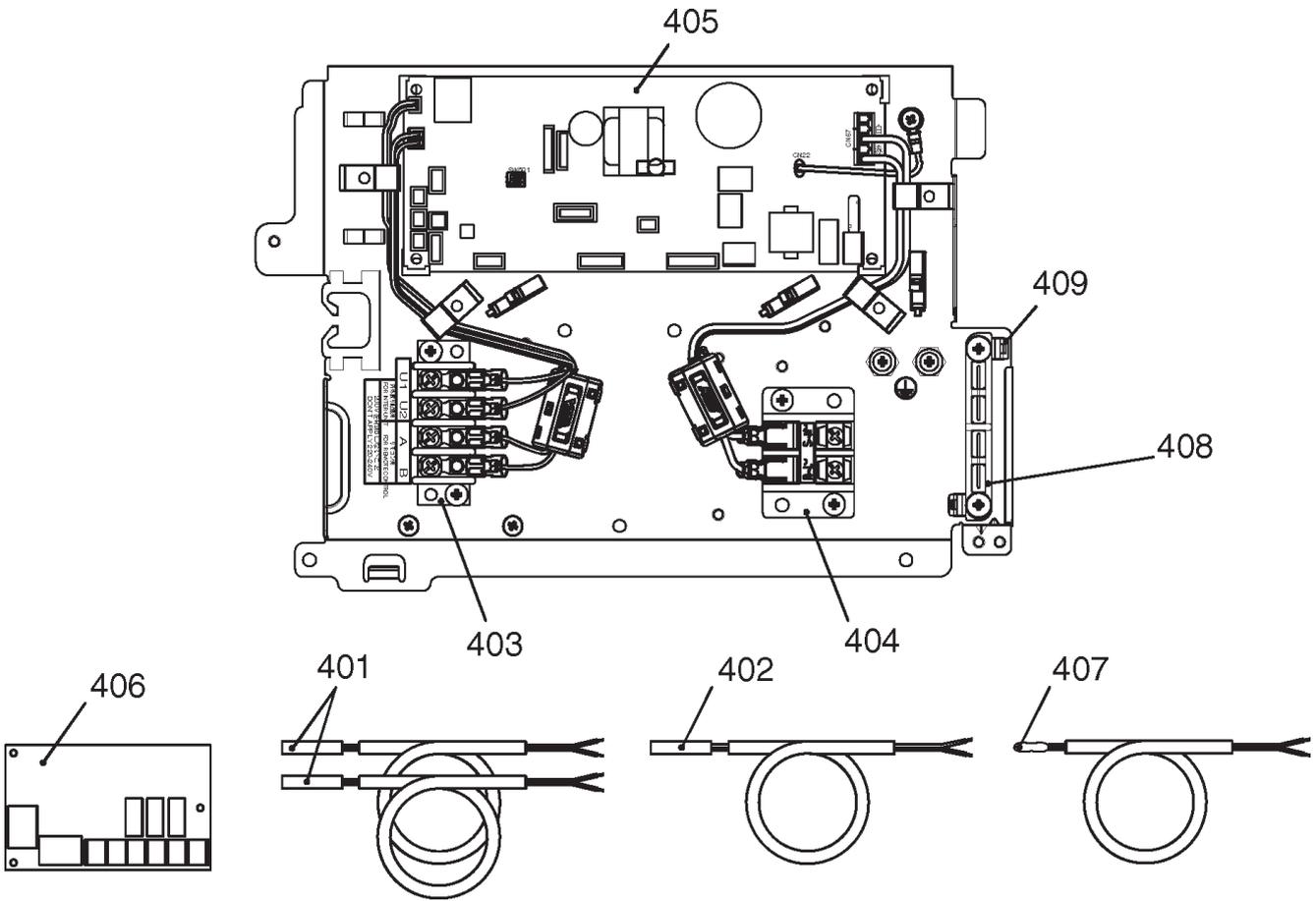


MMU-AP0157MH-E (TR), AP0187MH-E (TR)



Location No.	Part No.	Description	Q'ty/Set MMU-AP****MH-E (TR)					
			0057	0077	0097	0127	0157	0187
201	43120277	FAN, ASSY TURBO, TG321	1	1	1	1	1	1
202	43122165	BELL MOUTH	1	1	1	1	1	1
203	43172259	PAN ASSY, DRAIN	1	1	1	1	1	1
205	4312C161	MOTOR, FAN, ICF-340D60-1(N)	1	1	1	1	1	1
206	4314N098	MOTOR, PMV, EFM-MD12TF-3	1	1	1	1	1	1
207	43146713	VALVE, PMV, EDM-B25YGTF-3	1	1	1	1		
208	43146714	VALVE, PMV, EDM-B40YGTF-3					1	1
209	4314J557	REFRIGERATION CYCLE ASSY					1	1
210	4314J558	REFRIGERATION CYCLE ASSY		1	1	1		
211	4314J559	REFRIGERATION CYCLE ASSY	1					
213	43F47685	NUT, FLARE, 1/4 IN	1	1	1	1	1	1
214	43049776	SOCKET, 3/8 IN	1	1	1	1		
215	43149351	SOCKET, 1/4 IN	1	1	1	1	1	1
216	43047688	NUT, FLARE, 1/2 IN					1	1
217	43149353	SOCKET, 1/2 IN					1	1
218	43F47609	BONNET, 3/8 IN	1	1	1	1		
219	43147195	BONNET, 1/2 IN					1	1
220	43F49697	BONNET, 1/4 IN	1	1	1	1	1	1
221	43170276	HOSE, DRAIN	1	1	1	1	1	1
222	43079249	BAND, HOSE	1	1	1	1	1	1
224	43163052	HOLDER, LEAD, FAN MOTOR	1	1	1	1	1	1
226	43170277	HOSE, DRAIN	1	1	1	1	1	1
227	43119542	COVER, PIPE	1	1	1	1	1	1
228	43F97212	NUT	1	1	1	1	1	1
229	43107215	HOLDER, SENSOR	1	1	1	1	1	1
230	43F19904	HOLDER, SENSOR (TS)	2	2	2	2	2	2
231	43179170	BAND, HOSE	2	2	2	2	2	2
232	43149314	SHEET, PMV	1	1	1	1	1	1
233	43139187	RUBBER, CUSHION	3	3	3	3	3	3
234	43162087	COVER, E-BOX	1	1	1	1	1	1
235	43177021	PUMP, DRAIN	1	1	1	1	1	1
236	43151323	SWITCH, FLOAT	1	1	1	1	1	1
238	43166011	REMOTE CONTROLLER,SX-A4EE	1	1	1	1	1	1
239	43166012	REMOTE CONTROLLER,SX-A5EE	1	1	1	1	1	1
240	43166022	REMOTE CONTROLLER,SX-U01EE	1	1	1	1	1	1
241	43166018	REMOTE CONTROLLER, WIRELESS, WH-L11SE	1	1	1	1	1	1
242	43149355	NUT, FLARE, 3/8 IN	1	1	1	1		
243	43160663	LEAD, RELAY	1	1	1	1	1	1

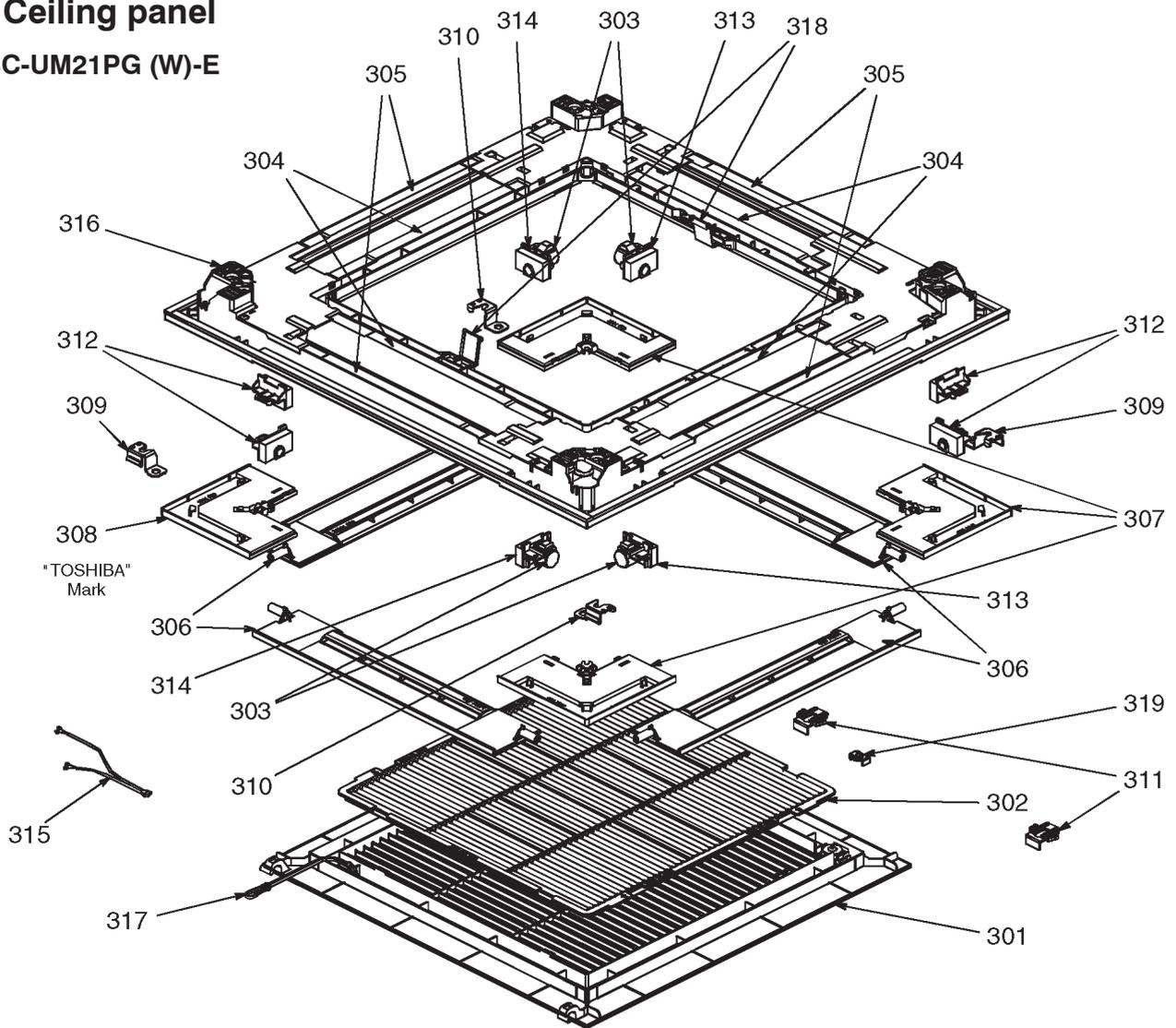
E-Parts



Location No.	Part No.	Description	Q'ty/Set MMU-AP****MH-E (TR)					
			0057	0077	0097	0127	0157	0187
401	43050425	SENSOR ASSY, SERVICE, TC (F6)	2	2	2	2	2	2
402	43150320	SENSOR ASSY, SERVICE, TG (F4)	1	1	1	1	1	1
403	43160574	TERMINAL, 4P	1	1	1	1	1	1
404	43160626	TERMINAL BLOCK, 2P, 20A	1	1	1	1	1	1
405	4316V592	PC BOARD ASSY, MCC-1643	1	1	1	1	1	1
406	43459017	PC BOARD ASSY, TCB-PCUC1E	1	1	1	1	1	1
407	43F50426	SENSOR, SERVICE, TA	1	1	1	1	1	1
408	43163057	CLAMP, DOWN	1	1	1	1	1	1
409	43163058	CLAMP, UP	1	1	1	1	1	1

◆ Ceiling panel

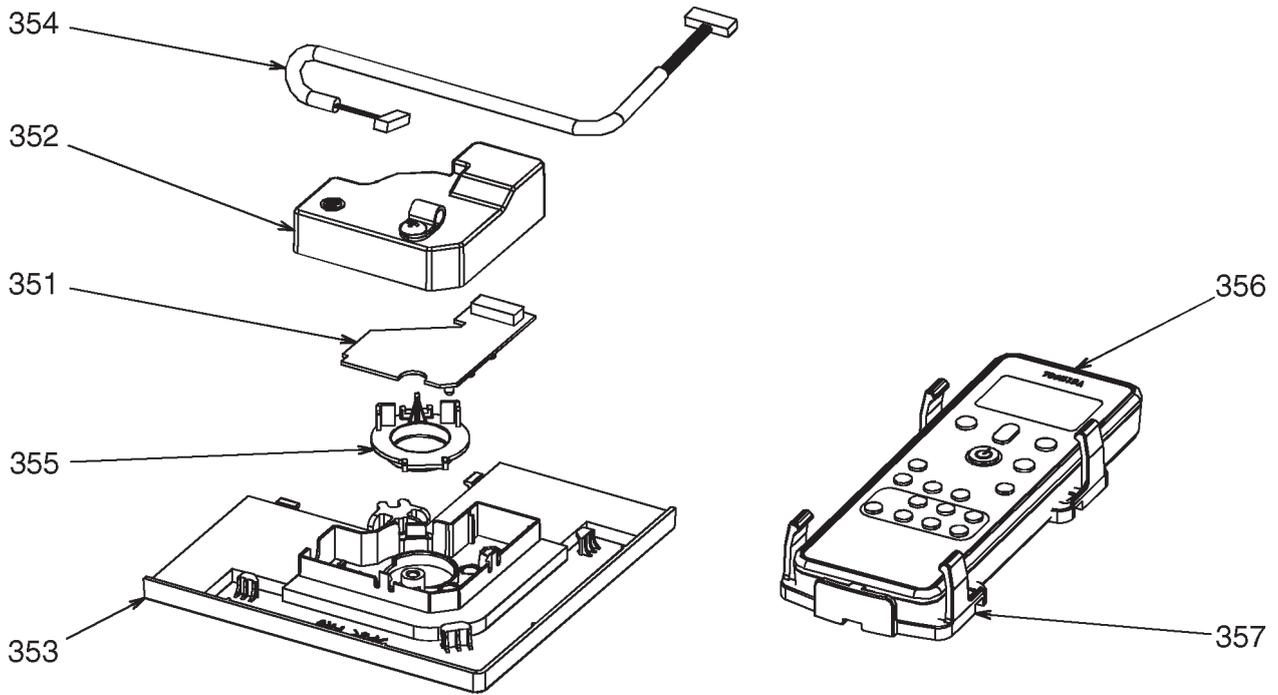
RBC-UM21PG (W)-E



Location No.	Part No.	Description	Q'ty/Set RBC-UM21PG(W)-E
301	43109441	GRILLE, AIR INLET	1
302	43180361	AIR FILTER	1
303	4342D001	MOTOR, LOUVER, MSBPC20F04	4
304	43107296	OUTLET, AIR FORM	4
305	43107297	OUTLET, AIR FORM	4
306	43122166	LOUVER ASSY	4
307	4310A142	COVER, PANEL ASSY	3
308	4310A143	COVER, PANEL ASSY	1
309	43107298	PLATE, FIX PANEL (A)	2
310	43107299	PLATE, FIX PANEL (B)	2
311	43107300	HOOK	2
312	43107301	CAP, AXIS	4
313	43107302	FIX, MOTOR ASSY	2
314	43107303	FIX, MOTOR ASSY	2
315	43160664	LEAD, MOTOR	1
316	4310A144	PANEL, HINS ASSY	1
317	43419022	STRING	1
318	43107304	HANGER	2
319	43107305	FIX, GRILLE	1

◆ Wireless remote controller kit

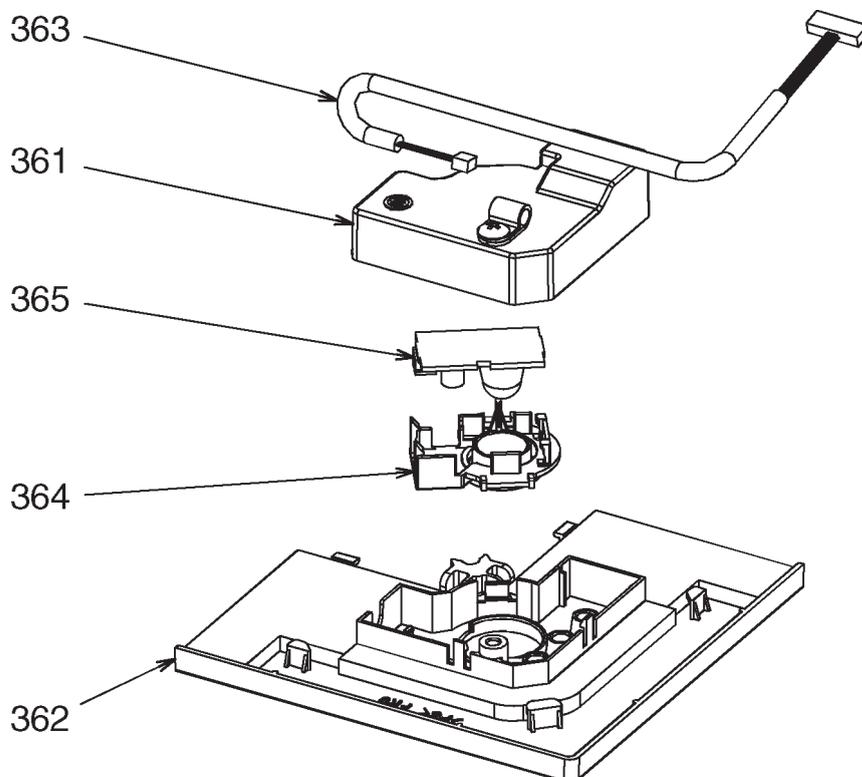
RBC-AX32UM (W)-E



Location No.	Part No.	Description	Q'ty/Set RBC-AX32UM(W)-E
351	4316V616	PC BOARD ASSY, REMOTE RECIEVER	1
352	43162088	COVER, WRS	1
353	43108036	COVER, PANEL WRS	1
354	43160665	LEAD	1
355	43408061	COVER, WIRELESS	1
356	43166018	REMOTE CONTROLLER, WIRELESS, WH-L11SE	1
357	43F83071	HOLDER, REMOTE, CONTROLLER	1

◆ Occupancy sensor

TCB-SIR41UM-E



Location No.	Part No.	Description	Q'ty/Set TCB-SIR41UM-E
361	43162088	COVER, WRS	1
362	43108037	COVER, PANEL WRS	1
363	43160666	LEAD	1
364	43408062	COVER, SENSOR	1
365	43469067	THERMOSTAT	1

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Revision record

First issue	—	—	Jan., 2017
Revision 1	The item of CODE NO. C2 was deleted.	Page 91	Jun., 2017