

TOSHIBA

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SERVICE MANUAL

AIR-CONDITIONER (SPLIT TYPE)

INDOOR UNIT

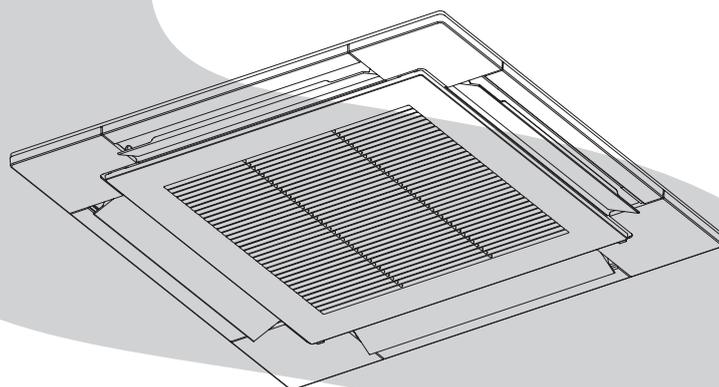
<4-Way Smart Cassette>

RAV-GM561UT-E (TR)

RAV-GM801UT-E (TR)

RAV-GM1101UT-E (TR)

RAV-GM1401UT-E (TR)



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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. 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 toecap |
| 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 | | |
|---|----------------|--|---|
|  <table border="1" data-bbox="311 421 662 645"> <tr> <td data-bbox="311 421 662 504">WARNING</td> </tr> <tr> <td data-bbox="311 504 662 645"> ELECTRICAL SHOCK HAZARD Disconnect all remote electric power supplies before servicing. </td> </tr> </table> | WARNING | ELECTRICAL SHOCK HAZARD Disconnect all remote electric power supplies before servicing. | <p>WARNING</p> <p>ELECTRICAL SHOCK HAZARD Disconnect all remote electric power supplies before servicing.</p> |
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|  <table border="1" data-bbox="311 703 662 927"> <tr> <td data-bbox="311 703 662 786">WARNING</td> </tr> <tr> <td data-bbox="311 786 662 927"> Moving parts. Do not operate unit with grille removed. Stop the unit before the servicing. </td> </tr> </table> | WARNING | Moving parts. Do not operate unit with grille removed. Stop the unit before the servicing. | <p>WARNING</p> <p>Moving parts. Do not operate unit with grille removed. Stop the unit before the servicing.</p> |
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|  <table border="1" data-bbox="311 983 662 1207"> <tr> <td data-bbox="311 983 662 1066">CAUTION</td> </tr> <tr> <td data-bbox="311 1066 662 1207"> High temperature parts. You might get burned when removing this panel. </td> </tr> </table> | CAUTION | High temperature parts. You might get burned when removing this panel. | <p>CAUTION</p> <p>High temperature parts. You might get burned when removing this panel.</p> |
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|  <table border="1" data-bbox="311 1265 662 1489"> <tr> <td data-bbox="311 1265 662 1348">CAUTION</td> </tr> <tr> <td data-bbox="311 1348 662 1489"> Do not touch the aluminum fins of the unit. Doing so may result in injury. </td> </tr> </table> | CAUTION | Do not touch the aluminum fins of the unit. Doing so may result in injury. | <p>CAUTION</p> <p>Do not touch the aluminium fins of the unit. Doing so may result in injury.</p> |
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|  <table border="1" data-bbox="311 1550 662 1774"> <tr> <td data-bbox="311 1550 662 1632">CAUTION</td> </tr> <tr> <td data-bbox="311 1632 662 1774"> BURST HAZARD Open the service valves before the operation, otherwise there might be the burst. </td> </tr> </table> | CAUTION | BURST HAZARD Open the service valves before the operation, otherwise there might be the burst. | <p>CAUTION</p> <p>BURST HAZARD Open the service valves before the operation, otherwise there might be the burst.</p> |
| CAUTION | | | |
| BURST HAZARD Open the service valves before the operation, otherwise there might be the burst. | | | |

Precaution for Safety

The appliance shall be installed in accordance with national wiring regulations. Capacity shortages of the power circuit or an incomplete installation may cause an electric shock or fire.

DANGER

| | |
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|  Check earth wires. | <p>Before carrying out the installation, maintenance, repair or removal work, be sure to set the circuit breaker to the OFF position. Otherwise, electric shocks may result.</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.</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 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>Do not turn ON the circuit breaker under the condition of removing a cabinet, a panel, etc. Otherwise, it leads to an electric shock with a high voltage, resulting in loss of life.</p> |

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

 **WARNING**

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|  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>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>Wear protective gloves and safety work clothing during installation, servicing and removal.</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>When connecting the electrical wires, repairing the electrical parts or undertaking 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>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.</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>When working at heights, put a sign in place so that no-one will approach the work location, before proceeding with the work. Parts and other objects may fall from above, possibly injuring a person below.</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 outdoor unit. You may injure yourself if you do so. If the fin must be touched for some reason, first put on protective gloves and safety work clothing, and then proceed.</p> |
| | <p>Do not climb onto or place objects on top of the outdoor unit. You may fall or the objects may fall of the outdoor unit and result in injury.</p> |
| | <p>When transporting the air conditioner, wear shoes with additional protective toecap.</p> |
| <p>When transporting the air conditioner, do not hold 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> | |
| <p>This air conditioner has passed the pressure test as specified in IEC 60335-2-40 Annex EE.</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> |
|  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> |

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

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|  Stay on protection | If, in the course of carrying out repairs, it becomes absolutely necessary to check out the electrical parts with the electrical parts box cover of one or more of the indoor units and the service panel of the outdoor unit removed in order to find out exactly where the trouble lies, wear insulated heat-resistant gloves, insulated boots and insulated work overalls, and take care to avoid touching any live parts. You may receive an electric shock if you fail to heed this warning. Only qualified service person (*1) is allowed to do this kind of work. |
|  Check earth wires. | Before troubleshooting or repair work, check the earth wire is connected to the earth terminals of the main unit, otherwise an electric shock is caused when a leak occurs. If the earth wire is not correctly connected, contact an electric engineer for rework. After completing the repair or relocation work, check that the earth wires are connected properly. Be sure to 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 earth wires for telephone wires. |
|  Prohibition of modification. | Do not modify the products. Do not also disassemble or modify the parts. It may cause a fire, electric shock or injury. |
|  Use specified parts. | When any of the electrical parts are to be replaced, ensure that the replacement parts satisfy the specifications given in the Service Manual (or use the parts contained on the parts list in the Service Manual). Use of any parts which do not satisfy the required specifications may give rise to electric shocks, smoking and/or a fire. Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere due to the refrigerant leak. |
|  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, place "Keep out" signs around the work site before proceeding. Third-party individuals may enter the work site and receive electric shocks if this warning is not heeded. |
|  Insulating measures | Connect the cut-off lead wires with crimp contact, etc., put the closed end side upward and then apply a water-cut method, otherwise a leak or production of fire is caused at the users' side. Under no circumstances, the power supply wire or the indoor and outdoor connecting wire must not be connected in the middle (Connection using a solder less terminal etc.) Connection trouble in the places where the wire is connected in the middle may give rise to smoking and/or a fire. |
|  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 brazing 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 brazing may catch the inflammables. |

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

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|  Refrigerant | <p>The refrigerant used by this air conditioner is the R32.</p> |
| | <p>Check the used refrigerant name and use tools and materials of the parts which match with it. For the products which use R32 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. Be careful for miss charging since a charging port of R32 is the same diameter as that of R410A.</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>For an air conditioner which uses R32, never use other refrigerant than R32. For an air conditioner which uses other refrigerant (R22, R410A etc.), never use R32. If different types of refrigerant are mixed, abnormal high pressure generates in the refrigerating cycle and an injury due to breakage may be caused. If the different type of refrigerants are mixed in, be sure to recharge the refrigerant</p> |
| | <p>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.</p> |
| | <p>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.</p> |
| | <p>When recharging the refrigerant in the refrigerating cycle, do not mix the refrigerant or air other than R32 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.</p> |
| <p>After the installation work, confirm that refrigerant gas does not leak. If refrigerant gas leaks into the room and flows near a fire source, such as a cooking range, it may generate noxious gases, causing a fire.</p> | |
| <p>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.</p> | |
|  Assembly/ Wiring | <p>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.</p> |
|  Insulator check | <p>After the work has finished, be sure to use an insulation tester set (500VMΩ) to check the resistance is 1MΩ or more between the charge section and the non-charge metal section (Earth position). If the resistance value is low, a disaster such as a leak or electric shock is caused at user's side.</p> |
|  Ventilation | <p>When the refrigerant gas leaks during work, execute ventilation. If the refrigerant gas touches to a fire, it may generate noxious gases, causing a fire. 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.</p> <p>If refrigerant gas has leaked during the installation work, ventilate the room immediately. If the leaked refrigerant gas comes in contact with fire, it may generate noxious gases, causing a fire.</p> |

| | |
|---|--|
|  Compulsion | <p>When the refrigerant gas leaks, find out the leaked position and repair it surely. If the leaked position cannot be found out and the repair work is interrupted, pump-down and tighten the service valve, otherwise the refrigerant gas may leak into the room. When gas touches to fire such as fan heater, stove or cooking stove, it may generate noxious gases, causing a fire though the refrigerant gas itself is innocuous. When installing equipment which includes a large amount of charged refrigerant in a sub-room, it is necessary that the concentration does not the limit even if the refrigerant leaks. If the refrigerant leaks and exceeds the limit concentration, an accident of shortage of oxygen is caused.</p> |
| | <p>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.</p> |
| | <p>Nitrogen gas must be used for the airtight test.</p> |
| | <p>The charge hose must be connected in such a way that it is not slack.</p> |
| | <p>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.</p> |
| | <p>Install the outdoor unit properly in a location that is durable enough to support the weight of the outdoor unit. Insufficient durability may cause the outdoor unit to fall, which may result in injury.</p> |
|  Check after repair | <p>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.</p> |
| | <p>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.</p> |
| | <p>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.</p> |
|  Do not operate the unit with the valve closed. | <p>Check the following matters before a test run after repairing piping.</p> <ul style="list-style-type: none"> • Connect the pipes surely and there is no leak of refrigerant. • The valve is opened. <p>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 suctioned and causes further abnormal high pressure resulted in burst or injury.</p> |
| | <p>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.</p> |
|  Check after reinstallation | <p>Check the following items after reinstallation.</p> <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. <p>If check is not executed, a fire, an electric shock or an injury is caused.</p> |
| | <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> |
|  Cooling check | <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.</p> <p>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> |
|  Cooling | |

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

| | |
|--|---|
|  Installation | <p>Only a qualified installer (*1) or qualified service person (*1) is allowed to install the air conditioner. If the air conditioner is installed by an unqualified individual, a fire, electric shocks, injury, water leakage, noise and/or vibration may result.</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 no 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 expire 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>When transporting the air conditioner, use a forklift truck and when moving the air conditioner by hand, move the unit with 4 people.</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> |
|  Compulsion | <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> |
|  Compulsion | <p>When carrying out the pump-down work shut down the compressor before disconnecting the refrigerant pipe. Disconnecting the refrigerant pipe with the service valve left open and the compressor still operating will cause air, etc. to be sucked in, raising the pressure inside the refrigeration cycle to an abnormally high level, and possibly resulting in rupture, injury, etc.</p> |
| | <p>When removing the brazing parts of suction and discharge pipe for the compressor, remove them at the place ventilated well after recovering the refrigerant. Improper recovering may cause the spurt of the refrigerant and the refrigeration oil, causing an injury.</p> |
|  Prohibition | <p>Do not vent gases to the atmosphere. Venting gases to the atmosphere is prohibited by the law.</p> |

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

CAUTION

| | |
|--|---|
|  Wearing of gloves | <p>Ensure wearing of gloves when performing any work in order to avoid injury from parts, etc. Failure to wear the proper protective gloves cause an injury due to the parts, etc.</p> |
|  Confirm | <p>When performing the brazing work, check whether refrigerant leaks or remains. If the leakage refrigerant gas touches a fire source, it may generate noxious gases, causing a fire.</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 rupture, 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
<4-Way Smart Cassette>
RAV-GM561UT-E RAV-GM561UT-TR
RAV-GM801UT-E RAV-GM801UT-TR
RAV-GM1101UT-E RAV-GM1101UT-TR
RAV-GM1401UT-E RAV-GM1401UT-TR

Commercial name: Super Digital Inverter Series Air Conditioner

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 pressure level (dB(A)) | | Weight (kg) Main unit (Ceiling panel) |
|-----------------|------------------------------|---------|--|
| | Cooling | Heating | |
| RAV-GM561UT-E | * | * | 20 (5) |
| RAV-GM801UT-E | * | * | 25 (5) |
| RAV-GM1101UT-E | * | * | 25 (5) |
| RAV-GM1401UT-E | * | * | 25 (5) |
| RAV-GM561UT-TR | * | * | 20 (5) |
| RAV-GM801UT-TR | * | * | 25 (5) |
| RAV-GM1101UT-TR | * | * | 25 (5) |
| RAV-GM1401UT-TR | * | * | 25 (5) |

※: Under 70 dB(A)

Refrigerant R32

This air conditioner adopts a new HFC type refrigerant (R32) which does not deplete the ozone layer.

1. Safety Caution Concerned to Refrigerant R32

Be sure that water, dust, the former refrigerant or the former refrigerating oil is not mixed into the refrigerating cycle of the air conditioner with refrigerant R32 during installation work or service work.

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

Use the tools and materials exclusive to R32 to purpose a safe work.

2. Safety and Cautions on Installation/Service

<Safety items>

When gas concentration and ignition energy are happened at the same time, R32 has a slight possibility of burning. Although it will not ignite under normal work environment conditions, be aware that the flame spreads if ignition should occur.

It is necessary to carry out installation/servicing safely while taking the following precautions into consideration.

- 1) Never use refrigerant other than specified refrigerant (R32) in an air conditioner which is designed to operate with the specified refrigerant (R32).
If other refrigerant than R32 is used, it may cause personal injury, etc. by a malfunction, a fire, a rupture.
- 2) Since R32 is heavier than air, it tends to accumulate on the bottom (near the floor).
Ventilate properly for the working environment to prevent its combustion.
Especially in a basement or a closed room where is the high risk of the accumulation, ventilate the room with a local exhaust ventilation.
If refrigerant leakage is confirmed in the room or the place where the ventilation is insufficient, do not work until the proper ventilation is performed and the work environment is improved.
- 3) When performing brazing work, be sure to check for leakage refrigerant or residual refrigerant.
If the leakage refrigerant comes into contact with fire, a poisonous gas may occur or it may cause a fire.
Keep adequate ventilation during the work.
- 4) When refrigerant gas leaks during work, execute ventilation. If the leakage refrigerant comes into contact with a fire, a poisonous gas may occur or it may cause a fire.
- 5) In places where installing / repairing air-conditioning equipment, etc., keep the source of ignition such as gas combustion equipment, petroleum combustion equipment, electric heater etc. away. Do not smoke in the place.
- 6) When installing or removing an air conditioner, do not mix air in the refrigerant cycle.
If air or others is mixed with the refrigerant, abnormal high pressure generates in the refrigerating cycle, causing injury due to the breakage.
- 7) After installation work complete, confirm that refrigerant gas is not leaking on the flare connection part or others. If leaked refrigerant comes to contact with a fire, toxic gas may occur, causing a fire.
- 8) Perform the installation work and re-installation according to the installation manual.
Pay attention especially to the area of application. Improper installation may cause refrigeration trouble, water leakage, electric shock, or fire etc.
- 9) Unauthorized modifications to the air conditioner may be dangerous. If a breakdown occurs please call a qualified air conditioner technician or electrician.
Improper repair may result in water leakage, electric shock and fire, etc.
- 10) Carry out the airtight test with nitrogen at a specified pressure. Do not use oxygen or acetylene gas absolutely as it may cause an explosion.
- 11) Always carry a refrigerant leakage detection sensor during the work and work while checking that no refrigerant leaks around working environment.
- 12) If the leakage refrigerant comes into contact with fire, it may cause a fire.
Have a dry powder or CO₂ fire extinguisher adjacent to the charging area.

<Caution items>

- 1) The opposite side dimension of the air-conditioner’s flared nut using R32 and the shape of the charge port are the same as those of R410A.
- 2) Be careful not to charge refrigerant by mistake. Should the different type of refrigerant mix in, be sure to recharge the refrigerant
- 3) Do not mix the other refrigerant or refrigerating oil with the refrigerant.
- 4) Since the pressure of R32 is 1.6 times higher than that of the former refrigerant (R22), use tools and parts with high pressure resistance specification similar to R410A.
- 5) In the installation time, use clean pipe materials and work with great attention so that water and others do not mix in because pipes are affected by impurities such as water, oxide film, oil, etc. Use the clean pipes. Be sure to braze while flowing nitrogen gas in the pipe. (Never use gas other than nitrogen gas.)
- 6) For the earth protection, use a vacuum pump for air purge.
- 7) R32 refrigerant is Single-component refrigerant that does not change its composition. Although it is possible to charge the refrigerant with either liquid or gas, charge it with liquid.

3. Pipe Materials

For the refrigerant pipes, copper pipe and joints are mainly used. It is necessary to select the most appropriate pipes to conform to the standard. Use clean pipes or joints to which little impurities adhere.

1) Copper pipe

<Piping>
 The pipe thickness, flare-finishing size, flare nut and others differ according to a refrigerant type. When using a long copper pipe for R32, it is recommended to select “Copper or copper-base pipe without seam” and one with bonded oil amount 40mg/10m or less. Also do not use crushed, deformed, discolored (especially inside) pipes. (Impurities cause clogging of expansion valves and capillary tubes.)

<Flare nut>
 Use the flare nuts which are attached to the air conditioner unit.

Be sure to select the pipes with copper thickness in the table below since the pressure of an air conditioner using R32 is higher than that of R22.

| Nominal diameter | Outer diameter (mm) | Thickness (mm) R410A or R32 |
|------------------|---------------------|-----------------------------|
| 1/2 | 6.4 | 0.80 |
| 3/8 | 9.5 | 0.80 |
| 1/2 | 12.7 | 0.80 |
| 5/8 | 15.9 | 1.00 |

Make sure not to use a thin copper pipe such as 0.7 mm copper thickness in the market.

2) Joint

The flare joint and socket joint are used for joints of the copper pipe. The joints are rarely used for installation of the air conditioner. However clear impurities when using them.

4. Tools

○: R410A tools available

△: Partly unavailable, ×: R410A tools unavailable

| No. | Installation/service tools | | Use | Applicability to R32 air conditioner or not | Applicability to R22 air conditioner or not |
|-----|---|------------------------------------|---|---|---|
| | Tools / Equipment | specification | | | |
| 1 | Flare tool | Clutch type | Pipe flaring | ○ | ○ |
| 2 | Copper pipe gauge for adjusting projection margin | — | Flaring by conventional flare tool | ○ | — |
| 3 | Torque wrench | — | Tightening of flare nut | ○ | × |
| 4 | Gauge manifold | Port size 1/2"-20UNF (5/16" Flare) | Evacuating, refrigerant charge, run check, etc. | ○ Note 2 | × |
| 5 | Charge hose | High-voltage | | ○ | × |
| 6 | Vacuum pump | — | Vacuum drying | ○ Note 3 1/2"-20UNF(5/16" Flare) | △ Connection diameter 1/4" |
| 7 | Vacuum pump adapter | — | Vacuum drying | ○ Note 4 1/2"-20UNF(5/16" Flare) | △ Connection diameter 1/4" |
| 8 | Electronic balance for refrigerant charging | For 10 kg or 20 kg cylinder | Refrigerant charge | ○ | ○ |
| 9 | Leakage detector | — | Gas leakage check | ○ Note 5 | ○ Note 5 |
| 10 | Refrigerant cylinder | — | Refrigerant charge | × Note 6 | × |
| 11 | Refrigerant recovery cylinder | Exclusive for R32 | Refrigerant recovery container | × Note 7 | × |
| 12 | Refrigerant recovery device | — | Refrigerant recovery device | ○ Note 8 | △ Connection diameter 1/4" |

Note 1 When flaring is carried out for R410A or R32 using the conventional flare tools, adjustment of projection margin is necessary. For this adjustment, a copper pipe gauge, etc. are necessary.

Note 2 When saturation temperature is described, the gauge manifold differs for R410A and R32. If saturation temperature reading is required, special tools exclusive for R32 are required.

Note 3 Since R32 has a slight possibility of burning, be sure to use the tools corresponding to R32.

Note 4 Like R410, a Vacuum pump adapter needs installing to prevent a Vacuum pump oil (mineral oil) from flowing backward into the Charge hose. Mixing of the Vacuum pump oil into R32 refrigerant may cause a trouble such as generation of sludge, clogging of capillary, etc.

Note 5 Be sure to use those tools after confirming they correspond to each refrigerant.

Note 6 For a refrigerant cylinder exclusive for R32, the paint color (or label color) of the cylinder is set to the specified color (light blue) together with the indication of the refrigerant name.

Note 7 Although the container specification is the same as R410A, use a recovering container exclusive for R32 to avoid mixing with other refrigerants.

Note 8 Be careful for miss charging of the refrigerant during work. Miss charging of the refrigerant type may cause not only damage of the equipment but also a fire etc.

General tools

In addition to the above exclusive tools, the following equipment is necessary as the general tools.

- | | |
|-----------------------|---------------------------------|
| 1) Pipe cutter | 6) Spanner or Adjustable wrench |
| 2) Reamer | 7) Hole core drill |
| 3) Pipe bender | 8) Tape measure |
| 4) Level vial | 9) Metal saw |
| 5) Screwdriver (+, -) | |

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

- | | |
|----------------|--|
| 1) Clamp meter | 3) Insulation resistance tester (Megger) |
| 2) Thermometer | 4) Electroscopes |

1. SPECIFICATIONS

SDI combination

<Single type>

| Model name | Indoor Unit | | RAV-GM | 561UT-E | 801UT-E | 1101UT-E | 1401UT-E | |
|--|-------------------------------------|-------------------|------------------------------------|---------------------------|------------------------------|-------------------------------|-------------------------------|------|
| | Outdoor Unit | | RAV-GP | 561ATP-E | 801AT-E | 1101AT-E | 1401AT-E/E1 | |
| Cooling capacity (Rated (Min.-Max.))*1 | | kW | | 5.0(1.2-5.6) | 7.1(1.9-8.0) | 10.0(3.1-12.0) | 12.5(3.1-14.0) | |
| Heating capacity (Rated (Min.-Max.))*1 | | kW | | 5.6(0.9-8.1) | 8.0(1.3-11.3) | 11.2(2.6-13.0) | 14.0(2.6-16.5) | |
| Power supply | | | 1phase 50Hz 230V(220V-240V) | | | | | |
| Electrical characteristics (*1) | Cooling | Running current | A | 5.72-5.24 | 6.70-6.14 | 9.09-8.33 | 13.92-12.76 | |
| | | Power consumption | kW | 1.20 | 1.37 | 1.90 | 2.91 | |
| | | Power factor | % | 94 | 93 | 95 | 95 | |
| | | EER | | 4.17 | 5.18 | 5.26 | 4.30 | |
| | Heating | Running current | A | 6.22-5.70 | 7.01-6.43 | 10.43-9.56 | 14.55-13.33 | |
| | | Power consumption | kW | 1.29 | 1.45 | 2.18 | 3.04 | |
| | | Power factor | % | 93 | 94 | 95 | 95 | |
| | | COP | | 4.34 | 5.52 | 5.14 | 4.61 | |
| | Maximum current | | A | | 13.1 | 20.3 | 20.5 | 20.5 |
| | Indoor Unit | | | | | | | |
| Appearance | Main Unit | | Zinc hot dipping steel plate | | | | | |
| | Ceiling panel (Sold Separately) | Model name | RBC-U41PG(W)-E | | | | | |
| | | Color | Gran White (Mansell 5PB9/1) | | | | | |
| Outer dimension | Main unit | H x W x D (*3) | mm | 256 x 840 x 840 | 319 x 840 x 840 | 319 x 840 x 840 | 319 x 840 x 840 | |
| | Ceiling panel (Sold Separately) | H x W x D (*3) | mm | 30 x 950 x 950 | 30 x 950 x 950 | 30 x 950 x 950 | 30 x 950 x 950 | |
| Weight | Main unit | | kg | 20 | 25 | 25 | 25 | |
| | Ceiling panel (Sold Separately) | | kg | 5 | 5 | 5 | 5 | |
| Heat exchanger | | | Finned tube | | | | | |
| Fan unit | Fan | | Turbo fan | | | | | |
| | Standard air flow (M+ / M / L+ / L) | | m ³ /h | 1050 (990/900/810/750) | 1920 (1392/1290/1140/810) | 2250 (1860/1650/1200/1050) | 2250 (1920/1710/1230/1170) | |
| | Motor | | W | 60 | 130 | 130 | 130 | |
| Air filter | | | Standard filter (Long life filter) | | | | | |
| Drain port (Nominal dia. mm) | | | VP25 (Polyvinyl chloride tube) | | | | | |
| Sound pressure level High (M+ / M / L+ / L) | | | dB(A) | 32(31 / 29 / 28 / 26) | 42(37 / 35 / 32 / 27) | 48(43 / 40 / 37 / 31) | 48(44 / 41 / 38 / 33) | |
| Sound power level High (M+ / M / L+ / L)(*2) | | | dB(A) | 48(47 / 45 / 44 / 43) | 56(50 / 49 / 46 / 43) | 61(55 / 54 / 52 / 46) | 61(56 / 55 / 53 / 48) | |
| Outdoor Unit | | | | | | | | |
| Refrigerant (Type / Charge weight (kg)) | | | | R32/1.35 | R32/1.9 | R32/3.1 | R32/3.1 | |
| Outer dimension | | H x W x D | mm | 630 x 799 x 299 | 1050 x 1010 x 370 | 1550 x 1010 x 370 | 1550 x 1010 x 370 | |
| Weight | | | kg | 45 | 74 | 104 | 104 | |
| Sound pressure level | | Cooling/Heating | dB(A) | 46/48 | 46/48 | 49/50 | 50/51 | |
| Sound power level | | Cooling/Heating | dB(A) | 63/65 | 63/65 | 66/67 | 67/68 | |
| Pipe connections | Gas / Liquid | | mm | DIA 12.7/DIA 6.4 | DIA 15.9/DIA 9.5 | DIA 15.9/DIA 9.5 | DIA 15.9/DIA 9.5 | |
| | Min. Length | | m | 3 | 3 | 3 | 3 | |
| | Max. Length | | m | 50 | 50 | 75 | 75 | |
| | Chargeless | | m | 20 | 30 | 30 | 30 | |
| | Max. height difference | | m | 30 | 30 | 30 | 30 | |
| Operation Range | Cooling | | °C | -15 to 52 | -15 to 52 | -15 to 52 | -15 to 52 | |
| | Heating | | °C | -27 to 15 | -27 to 15 | -27 to 15 | -27 to 15 | |

*1 : The cooling capacity, heating capacity and electrical characteristics are measured under the conditions specified by JIS B8615-1 based on the reference piping.
The reference piping consists of 5m of main piping and 2.5m of branch piping connected with 0 meter height.

*2 : The sound level are measured in an anechoic chamber in accordance with JIS B 8616. Normally, the values measured in the actual operation environment become larger than the indicated values due to the effects of external sound.

*3 : Height from the ceiling.

Notes ;

Rated conditions Cooling : Indoor air temperature 27°CDB/ 19 °CWB, Outdoor air temperature 35°CDB
Heating : Indoor air temperature 20°CDB, Outdoor air temperature 7°CDB/ 6 °CWB

Specifications for ErP Lot-10

4-Way Smart Cassette <Series 1 >

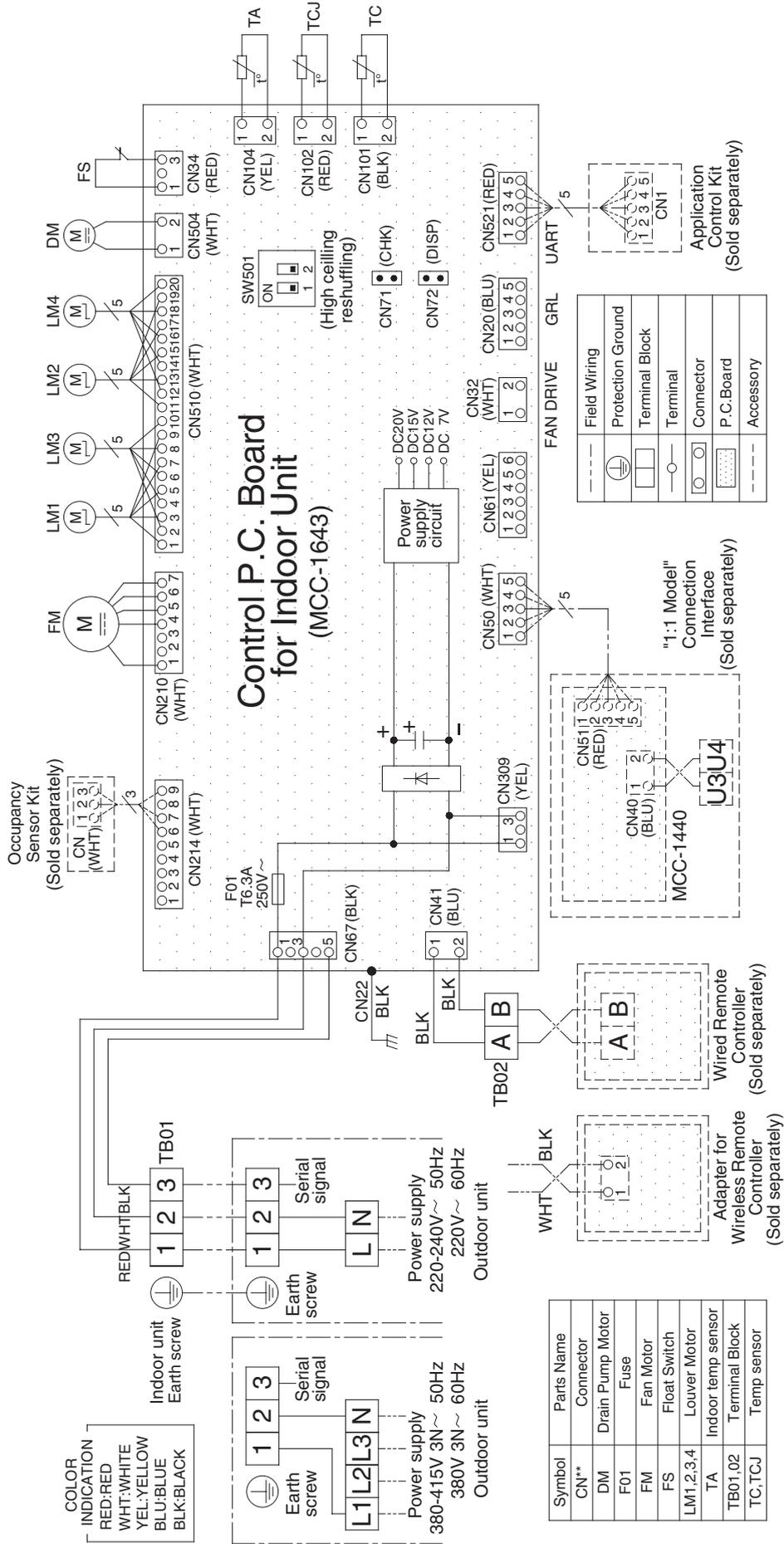
| No | Outdoor unit type | Connection type | HP | Indoor unit | | Outdoor unit | | Rated Capacity (kW) | | Specifications | | | | | |
|----|-------------------|-----------------|----|---------------|-----|----------------|-----|---------------------|---------|----------------|--------------|----------------------|----------------|--------------|--------------------------------|
| | | | | Model name | Qty | Model name | Qty | Cooling | Heating | SEER | Energy Label | Pdesign _C | SCOP (average) | Energy Label | Pdesign _h (average) |
| 1 | SDI | Single | 2 | RAV-GM561UTE | 1 | RAV-GP561ATP-E | 1 | 5.0 | 5.6 | 8.07 | A++ | 5.0 | 5.01 | A++ | 3.8 |
| 2 | SDI | Single | 3 | RAV-GM801UTE | 1 | RAV-GP801ATE | 1 | 7.1 | 8.0 | 9.40 | A++ | 7.1 | 5.51 | A++ | 5.1 |
| 3 | SDI | Single | 4 | RAV-GM1101UTE | 1 | RAV-GP1101AT-E | 1 | 10.0 | 11.2 | 8.80 | A++ | 10.0 | 5.00 | A++ | 9.2 |

Specifications for ErP Lot-6&21

4-Way Smart Cassette <Series 1 >

| No | Outdoor unit type | Connection type | HP | Indoor unit | | Outdoor unit | | Rated Capacity (kW) | | Specifications | | | | | |
|----|-------------------|-----------------|----|---------------|-----|-------------------|-----|---------------------|---------|----------------|---------------------------------|----------------------|----------------|---|--------------------------------|
| | | | | Model name | Qty | Model name | Qty | Cooling | Heating | SEER | Seasonal efficiency η_{sc} | Pdesign _C | SCOP (average) | Seasonal efficiency η_{sh} (average) | Pdesign _h (average) |
| 1 | SDI | Single | 5 | RAV-GM1401UTE | 1 | RAV-GP1401AT-E/E1 | 1 | 12.5 | 14.0 | 8.30 | 329.0% | 12.5 | 4.97 | 195.8% | 9.6 |

3. WIRING DIAGRAMS



4. PARTS RATING

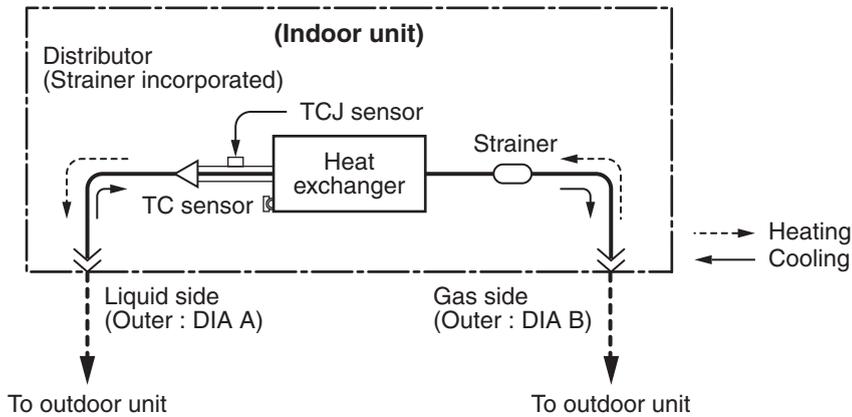
Indoor unit

| Model | RAV- | GM56* | GM80* | GM110* | GM140* |
|------------------|------|---|----------------|--------|--------|
| Fan motor | | ICF-340D60-1 | ICF-340D130-2* | | |
| Louver motor | | MSBPC20F04 | | | |
| Drain pump motor | | PMD-08D12TF-2 | | | |
| Float switch | | FS-0218-102 | | | |
| TA sensor | | Lead wire length: 328 mm Vinyl tube | | | |
| TC sensor | | DIA 6 size lead wire length: 1000 mm Vinyl tube (Black) | | | |
| TCJ sensor | | DIA 6 size lead wire length: 1000 mm Vinyl tube (Red) | | | |

5. SYSTEMATIC REFRIGERATING CYCLE DIAGRAM

5-1. Indoor Unit

- Single type (Combination of 1 indoor unit and 1 outdoor unit)

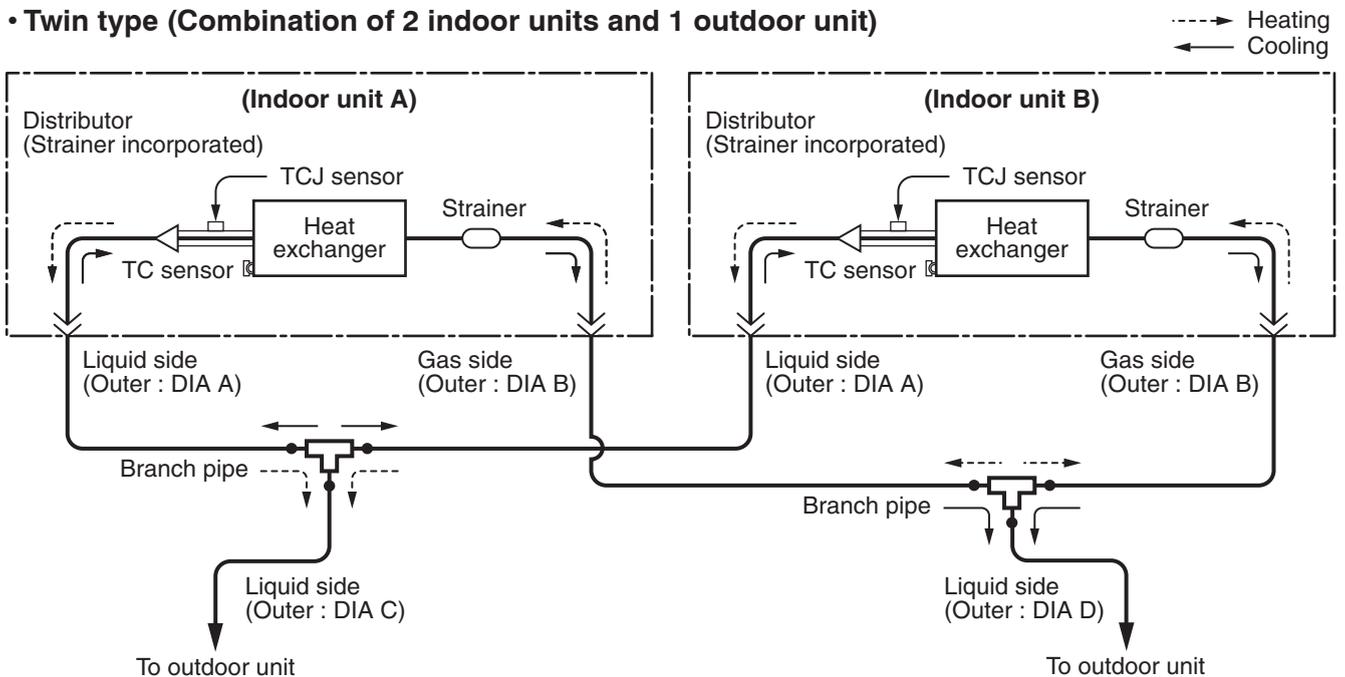


Dimension table

(Unit: mm)

| Indoor unit | Outer diameter of refrigerant pipe | |
|---------------------|------------------------------------|----------------|
| | Liquid side DIA A | Gas side DIA B |
| GM56 type | 6.4 | 12.7 |
| GM80, 110, 140 type | 9.5 | 15.9 |

- Twin type (Combination of 2 indoor units and 1 outdoor unit)



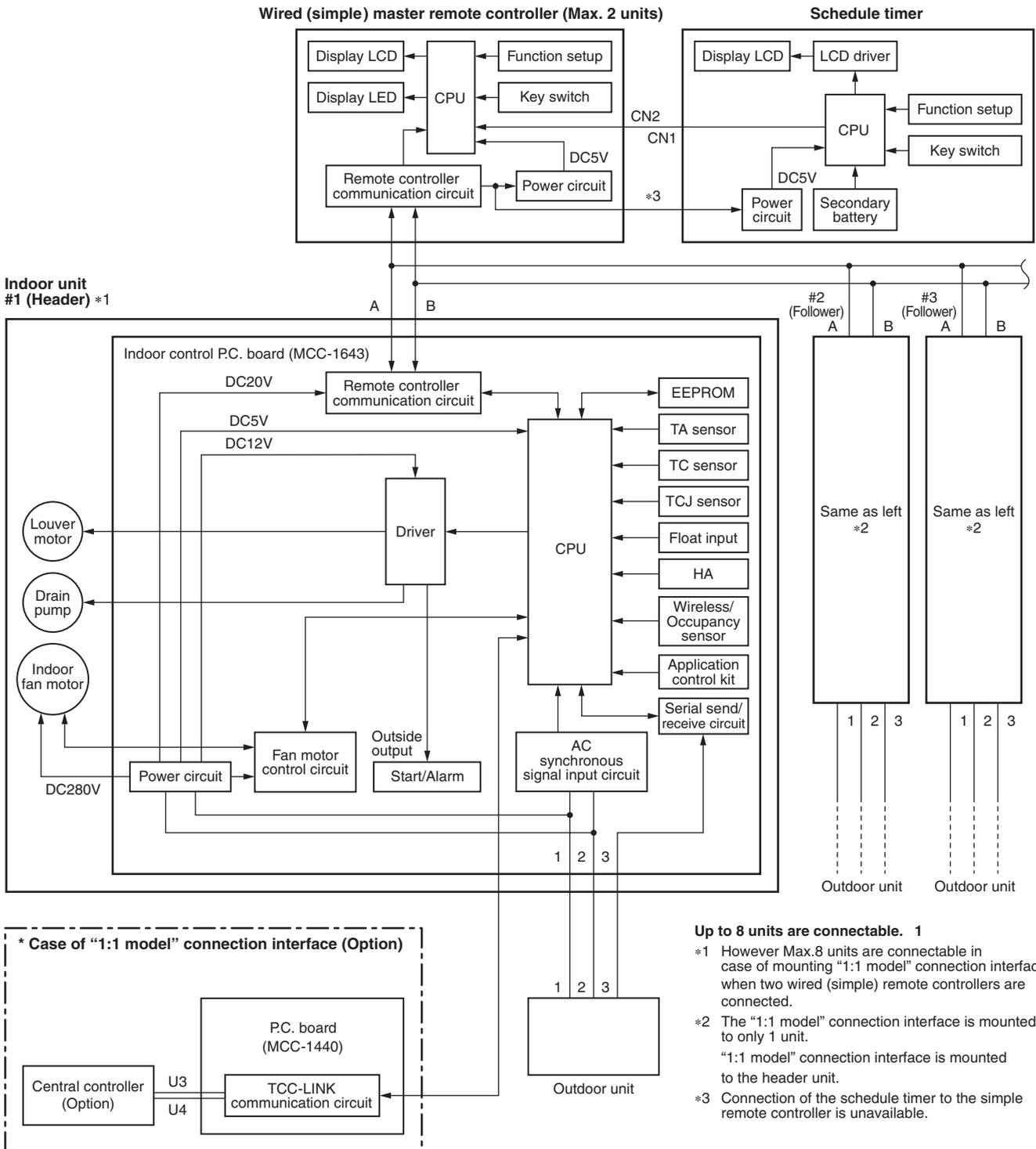
(Unit: mm)

| Indoor unit | Branch pipe | A | B | C | D |
|-------------|-------------|-----|------|-----|------|
| GM56 × 2 | RBC-TWP30E2 | 6.4 | 12.7 | 9.5 | 15.9 |
| GM80 × 2 | RBC-TWP50E2 | 9.5 | 15.9 | 9.5 | 15.9 |

6. INDOOR CONTROL CIRCUIT

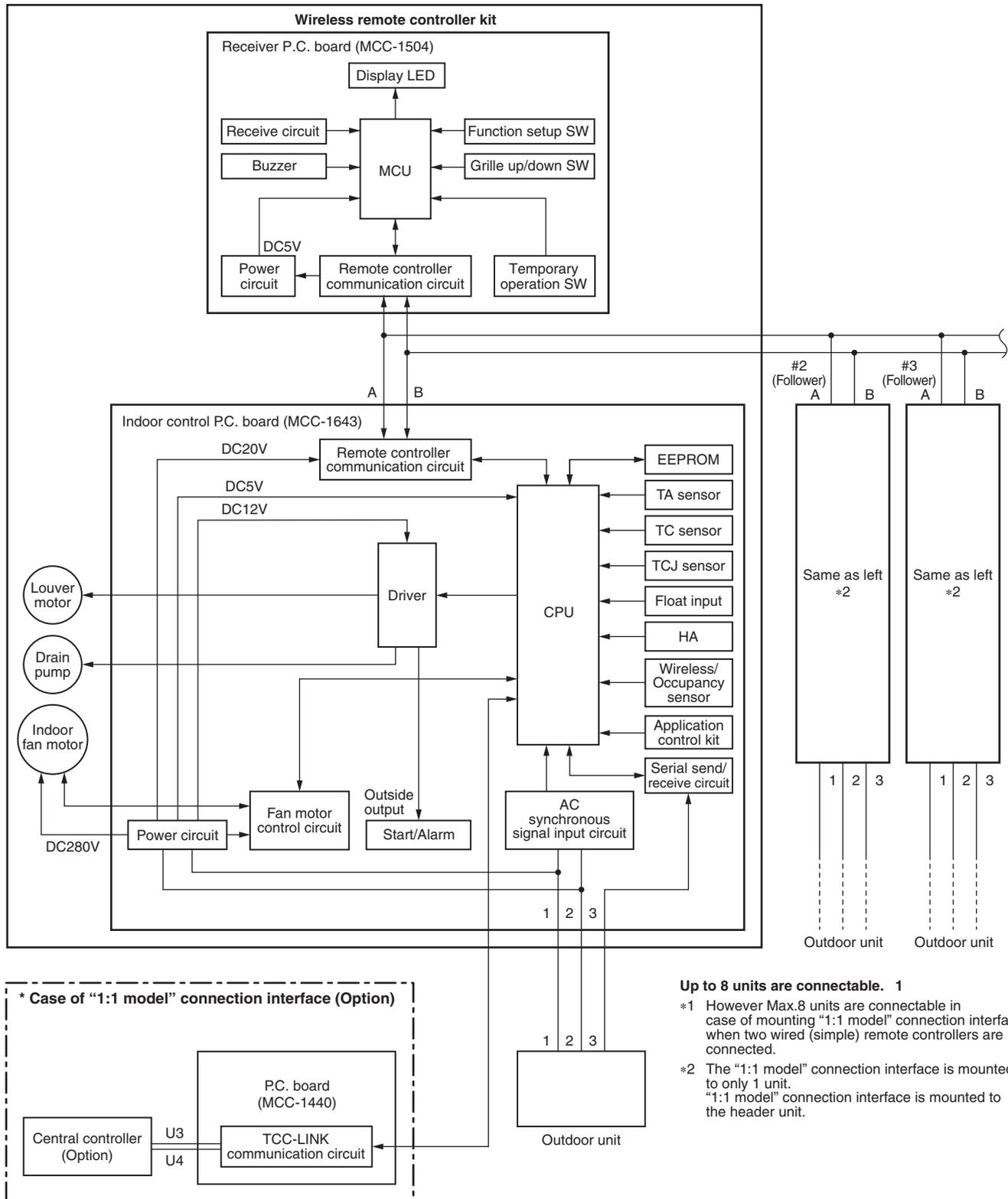
6-1. Indoor Controller Block Diagram

6-1-1. Connection of Wired (Simple) Remote Controller



6-1-2. Connection of Wireless Remote Controller Kit

Indoor unit
#1 (Header) *1



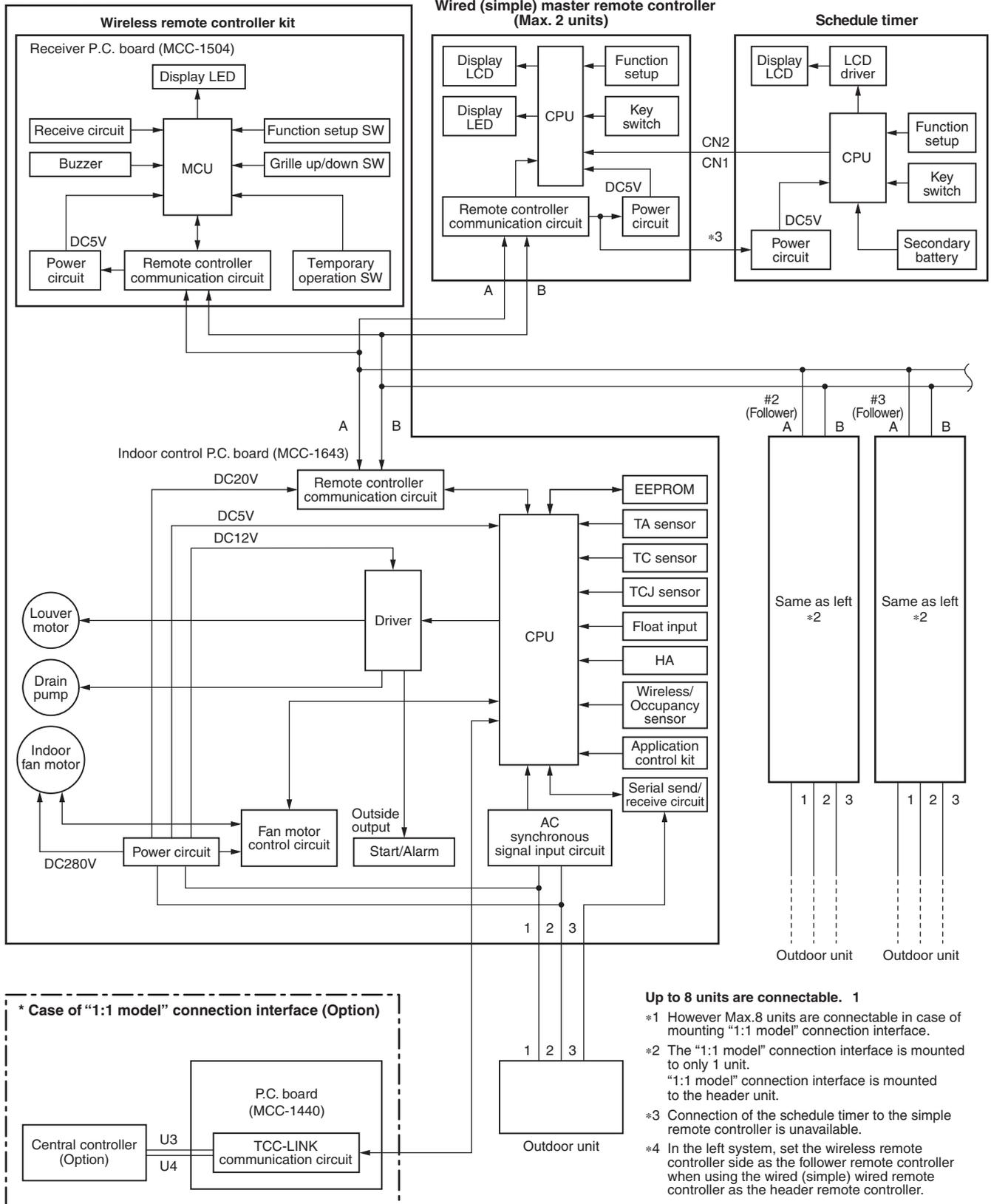
Up to 8 units are connectable. 1

*1 However Max.8 units are connectable in case of mounting "1:1 model" connection interface when two wired (simple) remote controllers are connected.

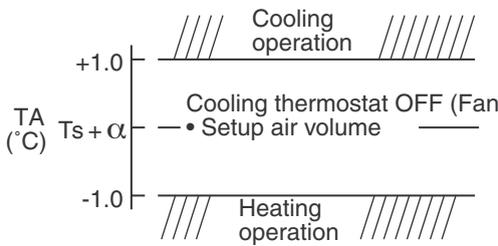
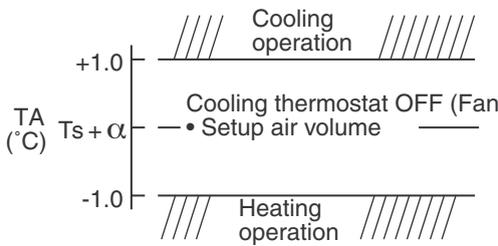
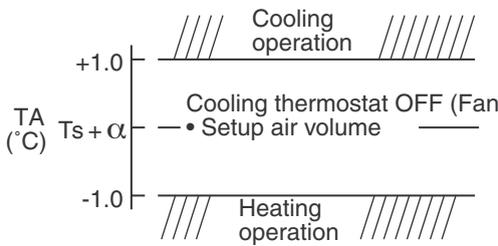
*2 The "1:1 model" connection interface is mounted to only 1 unit. "1:1 model" connection interface is mounted to the header unit.

6-1-3. Connection of Both Wired (Simple) Remote Controller and Wireless Remote Controller Kit

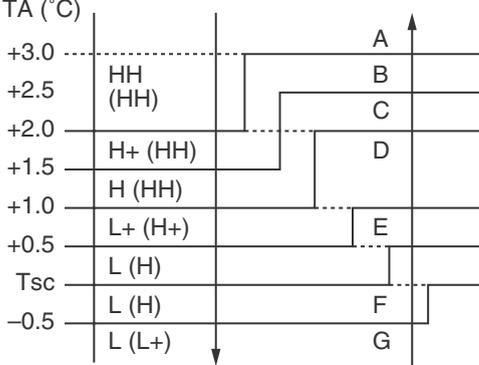
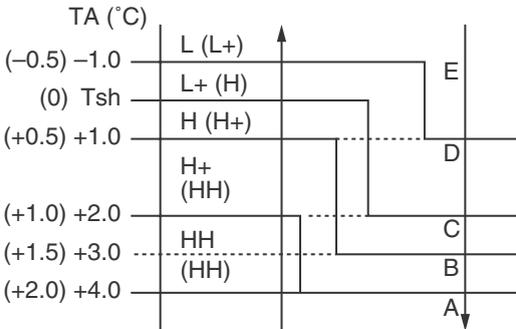
Indoor unit
#1 (Header) *1, *4

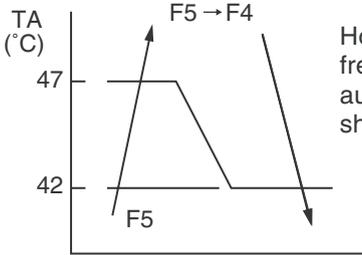


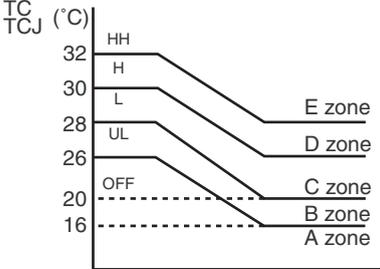
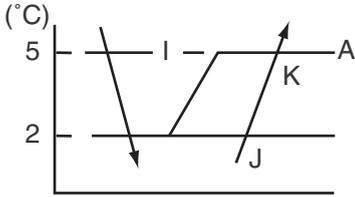
6-2. Control Specifications

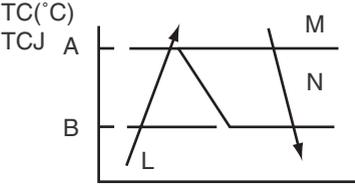
| No. | Item | Outline of specifications | Remarks | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------|--|---|--|-----------------|------|----------------------------|------------|---------------------------------|----------|-------------------------|---------------|---------------|----------|-------------------|------|--|---------------|-------------------------------|------------|-----|----------------------------|------|---------------------------------|-----|-------------------------|------|------------|-----|--|
| 1 | When power supply is reset | <p>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.</p> <p>2) Resetting of indoor fan speed and louver control Based on EEPROM data, select setting of the indoor fan speed and the louver control.</p> | Air speed (rpm)/ Air direction adjustment | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Operation mode selection | <p>1) Based on the operation mode selecting command from the remote controller, the operation mode is selected.</p> <table border="1" style="margin-left: 20px;"> <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> <tr> <td>AUTO</td> <td> <ul style="list-style-type: none"> • COOL/HEAT operation mode is automatically selected by TA, Ts and TO 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 $T_s + \alpha - 1 < TA < T_s + \alpha + 1$, Cooling thermostat OFF (Fan)/Setup air volume operation continues.)  <p>• α is corrected according to the outside temperature.</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Outside temp.</th> <th>Correction value (α)</th> </tr> </thead> <tbody> <tr> <td>TO Nothing</td> <td>0°C</td> </tr> <tr> <td>$TO \geq 24^\circ\text{C}$</td> <td>-1°C</td> </tr> <tr> <td>$24 > TO \geq 18^\circ\text{C}$</td> <td>0°C</td> </tr> <tr> <td>$TO < 18^\circ\text{C}$</td> <td>+1°C</td> </tr> <tr> <td>TO Trouble</td> <td>0°C</td> </tr> </tbody> </table> </td> </tr> </tbody> </table> | Remote controller command | Control outline | STOP | Air conditioner stops. | FAN | Fan operation | COOL | Cooling operation | DRY | Dry operation | HEAT | Heating operation | AUTO | <ul style="list-style-type: none"> • COOL/HEAT operation mode is automatically selected by TA, Ts and TO 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 $T_s + \alpha - 1 < TA < T_s + \alpha + 1$, Cooling thermostat OFF (Fan)/Setup air volume operation continues.)  <p>• α is corrected according to the outside temperature.</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Outside temp.</th> <th>Correction value (α)</th> </tr> </thead> <tbody> <tr> <td>TO Nothing</td> <td>0°C</td> </tr> <tr> <td>$TO \geq 24^\circ\text{C}$</td> <td>-1°C</td> </tr> <tr> <td>$24 > TO \geq 18^\circ\text{C}$</td> <td>0°C</td> </tr> <tr> <td>$TO < 18^\circ\text{C}$</td> <td>+1°C</td> </tr> <tr> <td>TO Trouble</td> <td>0°C</td> </tr> </tbody> </table> | Outside temp. | Correction value (α) | TO Nothing | 0°C | $TO \geq 24^\circ\text{C}$ | -1°C | $24 > TO \geq 18^\circ\text{C}$ | 0°C | $TO < 18^\circ\text{C}$ | +1°C | TO Trouble | 0°C | TA: Room temp. Ts: Setup temp. TO: Outside temp. |
| Remote controller command | Control outline | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STOP | Air conditioner stops. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FAN | Fan operation | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| COOL | Cooling operation | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DRY | Dry operation | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HEAT | Heating operation | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AUTO | <ul style="list-style-type: none"> • COOL/HEAT operation mode is automatically selected by TA, Ts and TO 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 $T_s + \alpha - 1 < TA < T_s + \alpha + 1$, Cooling thermostat OFF (Fan)/Setup air volume operation continues.)  <p>• α is corrected according to the outside temperature.</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Outside temp.</th> <th>Correction value (α)</th> </tr> </thead> <tbody> <tr> <td>TO Nothing</td> <td>0°C</td> </tr> <tr> <td>$TO \geq 24^\circ\text{C}$</td> <td>-1°C</td> </tr> <tr> <td>$24 > TO \geq 18^\circ\text{C}$</td> <td>0°C</td> </tr> <tr> <td>$TO < 18^\circ\text{C}$</td> <td>+1°C</td> </tr> <tr> <td>TO Trouble</td> <td>0°C</td> </tr> </tbody> </table> | Outside temp. | Correction value (α) | TO Nothing | 0°C | $TO \geq 24^\circ\text{C}$ | -1°C | $24 > TO \geq 18^\circ\text{C}$ | 0°C | $TO < 18^\circ\text{C}$ | +1°C | TO Trouble | 0°C | | | | | | | | | | | | | | | | |
| Outside temp. | Correction value (α) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TO Nothing | 0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $TO \geq 24^\circ\text{C}$ | -1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $24 > TO \geq 18^\circ\text{C}$ | 0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $TO < 18^\circ\text{C}$ | +1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TO Trouble | 0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Room temp. control | <p>1) Adjustment range: Remote controller setup temperature (°C)</p> <table border="1" style="margin-left: 20px;"> <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 | | | | | | | | | | | | | | | |
| | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | |

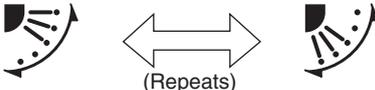
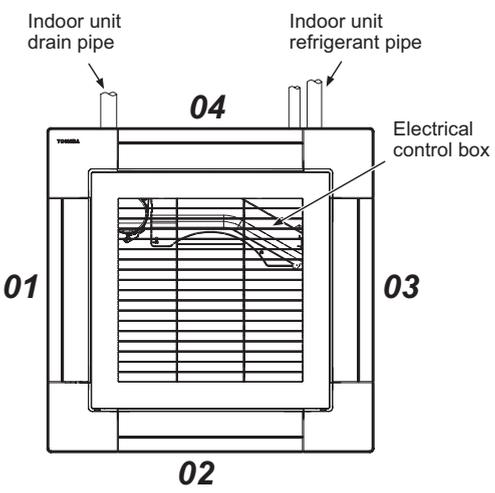
| No. | Item | Outline of specifications | Remarks | | | | | | | | | | | | |
|------------------------|--|--|---|------|---|---|---|------------------------|------|------|------|------|------------|---|---|
| 3 | Room temp. control (Continued) | 2) Using the Item code 06, the setup temperature in heating operation can be corrected. <table border="1" data-bbox="443 286 1096 369"> <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="443 427 732 470"> <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 |
| Setup data | 0 | 2 | 4 | 6 | | | | | | | | | | | |
| Setup temp. correction | +0°C | +2°C | +4°C | +6°C | | | | | | | | | | | |
| Setup data | 2 | | | | | | | | | | | | | | |
| 4 | Automatic capacity control (GA control) | 1) Based on the difference between TA and Ts, the operation frequency is instructed to the outdoor unit. 2) Cooling operation Every 90 seconds, the room temperature difference between temperature detected by TA and Ts and the varied room temperature value are calculated to obtain the correction value of the frequency command and then the present frequency command is corrected. $TA(n) - Ts(n)$: Room temp. difference n : Counts of detection $TA(n-1) - Ts(n)$: Varied room temp. value $n - 1$: Counts of detection of 90 seconds before 3) Heating operation Every 1 minute (60 sec.), the room temperature difference between temperature detected by TA and Ts and the varied room temperature value are calculated to obtain the correction value of the frequency command and then the present frequency command is corrected. $Ts(n) - TA(n)$: Room temp. difference n : Counts of detection $TA(n) - TA(n - 1)$: Varied room temp. value $n - 1$: Counts of detection of 1 minute before 4) Dry operation The frequency correction control is same as those of the cooling operation. However the maximum frequency is limited to approximately "S6". Note) When LOW is set up, the maximum frequency is limited to approximately "SB". | | | | | | | | | | | | | |
| 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 thermostat OFF, heating operation (Thermostat OFF) exchanges to cooling operation. Description in the parentheses shows an example of cooling ON/OFF. <div data-bbox="571 1624 970 1825" style="text-align: center;"> </div> When -1.5 lowers against Tsc 10 minutes and after thermostat OFF, cooling operation (Thermostat OFF) exchanges to heating operation. 2) For the automatic capacity control after judgment of cooling/heating, see Item 4. 3) For temperature correction of room temp. control in automatic heating, see Item 3. | Tsc: Setup temp. in cooling operation Tsh: Setup temp. in heating operation + temp. correction of room temp. control | | | | | | | | | | | | |

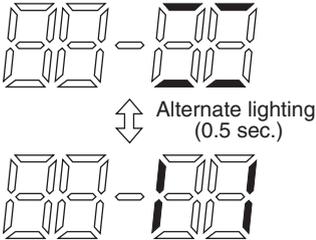
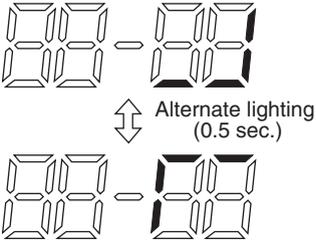
| No. | Item | Outline of specifications | Remarks |
|-----|---------------------|--|---|
| 6 | Air speed selection | <p>1) Operation with (HH), (H+), (H), (L+) (L) or [AUTO] mode is carried out by the command from the remote controller.</p> <p>2) When the air speed mode [AUTO] is selected, the air speed varies by the difference between TA and Ts.</p> <p><COOL></p>  <ul style="list-style-type: none"> Controlling operation in case when thermostat of remote controller works is same as a case when thermostat 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. Mode in the parentheses indicates one in automatic cooling operation. <p><HEAT></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 is 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. Mode in the parentheses indicates one in automatic heating operation. In $TC \geq 60^\circ C$, the air speed increases by 1 step. | <p>HH > H+ > H > L+ > L > UL</p> <p>TC: Indoor heat exchanger sensor temperature</p> |

| No. | Item | Outline of specifications | Remarks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|-------------------------------------|--|------------------|------------------|----------------|----------------|--|----------------|--|---------------|---------|--|--------|--|--------|--|-----|------|------|------|------|------|------|----|--|--|--|--|----|----|----|--|--|----|----|--|--|----|--|--|--|----|-------|-------|----|--|--|----|--|--|--|----|--|----|--|---|--|--|----|----|--|---|--|----|----|----|----|----|--|--|---|---|----|--|---|--|----|--|--|----|---|--|----|---|--|--|----|--|----|---|--|--|--|----|----|---|--|--|--|--|----|---|--|--|--|--|--|----|----|----|----|----|----|----|---|
| 6 | Air speed selection (Continued): | <table border="1" data-bbox="427 230 1158 804"> <thead> <tr> <th data-bbox="432 230 608 297">CODE No. [5d]</th> <th colspan="2" data-bbox="608 230 791 297">Standard 0000</th> <th colspan="2" data-bbox="791 230 884 297">Type 1 0001</th> <th colspan="2" data-bbox="884 230 1153 297">Type 3 0003</th> </tr> <tr> <th data-bbox="432 297 608 331">SW501 (1)/(2)</th> <th colspan="2" data-bbox="608 297 791 331">OFF/OFF</th> <th colspan="2" data-bbox="791 297 884 331">ON/OFF</th> <th colspan="2" data-bbox="884 297 1153 331">OFF/ON</th> </tr> <tr> <th data-bbox="432 331 608 365">Tap</th> <th data-bbox="608 331 699 365">COOL</th> <th data-bbox="699 331 791 365">HEAT</th> <th data-bbox="791 331 884 365">COOL</th> <th data-bbox="884 331 976 365">HEAT</th> <th data-bbox="976 331 1067 365">COOL</th> <th data-bbox="1067 331 1153 365">HEAT</th> </tr> </thead> <tbody> <tr> <td data-bbox="432 365 608 398">F1</td> <td></td> <td></td> <td></td> <td></td> <td>HH</td> <td>HH</td> </tr> <tr> <td data-bbox="432 398 608 432">F2</td> <td></td> <td></td> <td>HH</td> <td>HH</td> <td></td> <td></td> </tr> <tr> <td data-bbox="432 432 608 465">F3</td> <td></td> <td></td> <td></td> <td>H+</td> <td>H+, H</td> <td>H+, H</td> </tr> <tr> <td data-bbox="432 465 608 499">F4</td> <td></td> <td></td> <td>H+</td> <td></td> <td></td> <td></td> </tr> <tr> <td data-bbox="432 499 608 533">F5</td> <td></td> <td>HH</td> <td></td> <td>H</td> <td></td> <td></td> </tr> <tr> <td data-bbox="432 533 608 566">F6</td> <td>HH</td> <td></td> <td>H</td> <td></td> <td>L+</td> <td>L+</td> </tr> <tr> <td data-bbox="432 566 608 600">F7</td> <td>H+</td> <td>H+</td> <td></td> <td></td> <td>L</td> <td>L</td> </tr> <tr> <td data-bbox="432 600 608 633">F8</td> <td></td> <td>H</td> <td></td> <td>L+</td> <td></td> <td></td> </tr> <tr> <td data-bbox="432 633 608 667">F9</td> <td>H</td> <td></td> <td>L+</td> <td>L</td> <td></td> <td></td> </tr> <tr> <td data-bbox="432 667 608 701">FA</td> <td></td> <td>L+</td> <td>L</td> <td></td> <td></td> <td></td> </tr> <tr> <td data-bbox="432 701 608 734">FB</td> <td>L+</td> <td>L</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td data-bbox="432 734 608 768">FC</td> <td>L</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td data-bbox="432 768 608 801">FD</td> <td>LL</td> <td>LL</td> <td>LL</td> <td>LL</td> <td>LL</td> <td>LL</td> </tr> </tbody> </table> <p data-bbox="427 853 1158 1160"> 3) In heating operation, the mode changes to [UL] if thermostat is turned off. 4) If $TA \geq 25^{\circ}\text{C}$ when heating operation has started and when defrost operation has been cleared, the air conditioner operates with (H) mode or higher mode for 1 minute after TC entered in E zone of cool air discharge preventive control (Item 7). 5) In automatic cooling/heating operation, the revolution frequency of (HH) is set larger than that in the standard cooling/heating operation. </p> <div data-bbox="464 1189 1158 1444">  <p data-bbox="799 1211 1158 1323">However the revolution frequency is restricted in the automatic heating operation as shown in the following figure.</p> </div> | CODE No. [5d] | Standard 0000 | | Type 1 0001 | | Type 3 0003 | | SW501 (1)/(2) | OFF/OFF | | ON/OFF | | OFF/ON | | Tap | COOL | HEAT | COOL | HEAT | COOL | HEAT | 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 | <p data-bbox="1182 253 1457 405">Selection of high ceiling type CODE No. : [5d] or selection of high ceiling on P.C. board SW501</p> <p data-bbox="1182 1111 1414 1227">However only when the high ceiling selection is set to [Standard]</p> |
| CODE No. [5d] | Standard 0000 | | Type 1 0001 | | Type 3 0003 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SW501 (1)/(2) | OFF/OFF | | ON/OFF | | OFF/ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tap | COOL | HEAT | COOL | HEAT | COOL | HEAT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Item | Outline of specifications | Remarks |
|-----|---|---|---|
| 7 | Cool air discharge preventive control | <p>1) In heating operation, the indoor fan is controlled based on the detected temperature of TC sensor or TCJ sensor. As shown below, the upper limit of the revolution frequency is restricted.</p> <p>However B zone is assumed as C zone for 6 minutes and after when the compressor activated.</p> <p>In defrost operation, the control value of TC is shifted by 6°C.</p>  | <p>In D and E zones, the priority is given to air volume selection setup of remote controller.</p> <p>In A zone while thermostat is ON, [PRE-HEAT  (Heating ready)] is displayed.</p> <p>TCJ: Indoor heat exchanger sensor temperature</p> |
| 8 | Freeze preventive control (Low temperature release) | <p>1) The cooling operation (including Dry operation) is performed as follows based on the detected temperature of TC sensor or TCJ sensor.</p> <p>When [J] zone is detected for 6 minutes (Following figure), the commanded frequency is decreased from the real operation frequency.</p> <p>After then the commanded frequency changes every 30 seconds while operation is performed in [J] zone.</p> <p>In [K] zone, time counting is interrupted and the operation is held.</p> <p>When [I] zone is detected, the timer is cleared and the operation returns to the normal operation.</p> <p>If the commanded frequency becomes S0 because the operation continues in [J] zone, the return temperature A is raised from 5°C to 12°C until [I] zone is detected and the indoor fan operates with [L] mode.</p>  <p>In heating operation, the freeze-preventive control works if 4-way valve is not changed and the following conditions are satisfied. (However the temperature for J zone dashing control is changed from 2°C to -5°C.)</p> <p><Conditions></p> <ul style="list-style-type: none"> • When ① or ② is established 5 minutes after activation. <ul style="list-style-type: none"> ① $TC_n \leq TC(n-1) - 5$ ② $TC_n < TC(n-1) - 1$ and $TC_n \leq TA < 5^\circ C$ | <p>TCn: TC temperature when 5 minutes elapsed after activation</p> <p>TC (n - 1): TC temperature at start time</p> |

| No. | Item | Outline of specifications | Remarks | | | | | | |
|--------------------|----------------------------|---|--------------------|--|---|---|---------|---------|---|
| 9 | High-temp. release control | <p>1) The heating operation is performed as follows based on the detected temperature of TC sensor or TCJ sensor.</p> <ul style="list-style-type: none"> • When [M] zone is detected, the commanded frequency is decreased from the real operation frequency. After then the commanded frequency changes every 30 seconds while operation is performed in [M] zone. • In [N] zone, the commanded frequency is held. • When [L] zone is detected, the commanded frequency is returned to the original value by approx. 6Hz every 60 seconds. <p>Setup at shipment</p> <table border="1" data-bbox="432 600 676 719"> <thead> <tr> <th colspan="2">Control temp. (°C)</th> </tr> <tr> <th>A</th> <th>B</th> </tr> </thead> <tbody> <tr> <td>55 (53)</td> <td>51 (51)</td> </tr> </tbody> </table>  <p>NOTE: When the operation has started or when TC or TCJ < 30°C at start of the operation or after operation start, temperature is controlled between values in parentheses of A and B.</p> | Control temp. (°C) | | A | B | 55 (53) | 51 (51) | <p>However this control is ignored in case of the follower unit of the twin.</p> <p>Same status as that when “thermostat OFF” (status that the air conditioner enters in the room temp. monitor mode when the temperature reached the setup temperature on the remote controller)</p> |
| Control temp. (°C) | | | | | | | | | |
| A | B | | | | | | | | |
| 55 (53) | 51 (51) | | | | | | | | |
| 10 | Drain pump control | <ol style="list-style-type: none"> 1) In cooling operation (including Dry operation), the drain pump is usually operated. 2) If the float switch works while drain pump drives, the compressor stops, the drain pump continues the operation, and a check code is output. 3) If the float switch works while drain pump stops, the compressor stops and the drain pump operates. If the float switch keeps operating for approx. 4 minutes, a check code is output. 4) The drain pump doesn't stop immediately to decrease the drain water in the drain pan when the cooling operation (including Dry operation) was stopped and drive the drain pump for five minutes. | Check code [P10] | | | | | | |
| 11 | Residual heat elimination | When heating operation stops, in some cases, the indoor fan operates with (L) for approx. 30 seconds. | | | | | | | |

| No. | Item | Outline of specifications | Remarks |
|-----|----------------|--|---|
| 12 | 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 operation, the louver positions can be setup 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 | | | | | | | | | | | | |
|-----------|-------------------------------|--|-----------|----------------------|------------|----|----|--|----|----|----|----|----|----|---|
| 12 | 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; margin: 10px 0;"> <div style="text-align: center;">  <p>↑↓ Alternate lighting (0.5 sec.)</p> <p>Dual swing</p> </div> <div style="text-align: center;">  <p>↑↓ Alternate lighting (0.5 sec.)</p> <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" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <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 | | | | | | | | | | | | | | | | | | |
|-----|--|--|---|----------------------------|----------------------|---|----------------|---------------------|---|--------------------------------|-------------------------------|---|------------------------|-------------------------------|---|--------------------------|-------------------------------|---|----------------------|---------------------|---|
| 12 | 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="475 360 1161 600"> <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>Full-close 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 thermostat 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. <p><To select horizontal wind direction> In the horizontal wind direction during cooling operation, the cold draft less position (Air direction to reduce ceiling contamination) or the smudge reducing position (Air direction to control cold air fall) can be selected. Though the factory default setting is the same as the smudge reducing position setting, changing 0000 to 0002 in DN code "45" can select the cold draft less position. When the spacer for height adjustment separately sold is used or the indoor unit is installed in the place without a ceiling, setting DN code "45" to "0002" and operating the air conditioner in the cold draft less position is recommended.</p> | | Control which ignores lock | Objective louver No. | ① | Operation stop | Full-close position | ② | When heating operation started | Horizontal discharge position | ③ | Heating thermostat 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 | Full-close position | | | | | | | | | | | | | | | | | | | |
| ② | When heating operation started | Horizontal discharge position | | | | | | | | | | | | | | | | | | | |
| ③ | Heating thermostat OFF | Horizontal discharge position | | | | | | | | | | | | | | | | | | | |
| ④ | During defrost operation | Horizontal discharge position | | | | | | | | | | | | | | | | | | | |
| ⑤ | Initialize operation | Full-close position | | | | | | | | | | | | | | | | | | | |
| 13 | HA control | <ol style="list-style-type: none"> This control is connected to telecontrol system or remote start/stop I/F, etc, and start/stop are available by HA signal input from the remote position. This control outputs start/stop status to HA output terminal. I/O specifications conform to JEMA regulations. This control outputs [Operation OFF (STOP) signal] to HA output terminal while self-cleaning works. However selection of [Operation ON (Operating) signal] is possible by changing [0000 (At shipment)] of Item code (DN) [CC] to [0001]. In this case, if HA is input during self-clean operation during operation of the air conditioner, the self-clean operation is not performed. (Unit stops.) | <p>In the group operation, use this control by connecting to either header or follower indoor unit.</p> | | | | | | | | | | | | | | | | | | |
| 14 | Frequency fixed operation (Test run) | <p>Refer to "9-1-1. Test Run Setup on Remote Controller"</p> | <p>Command frequency is approximately [S7]</p> | | | | | | | | | | | | | | | | | | |
| 15 | Filter sign display (Except wireless type) | <ol style="list-style-type: none"> The operation time of the indoor fan is calculated, the filter reset signal is sent to the remote controller when the specified time (2500H) has passed, and it is displayed on LCD. When the filter reset signal has been received from the remote controller, time of the calculation timer is cleared. In this case, the measurement time is reset if the specified time has passed, and display on LCD disappears. | <p>[FILTER ] goes on.</p> | | | | | | | | | | | | | | | | | | |

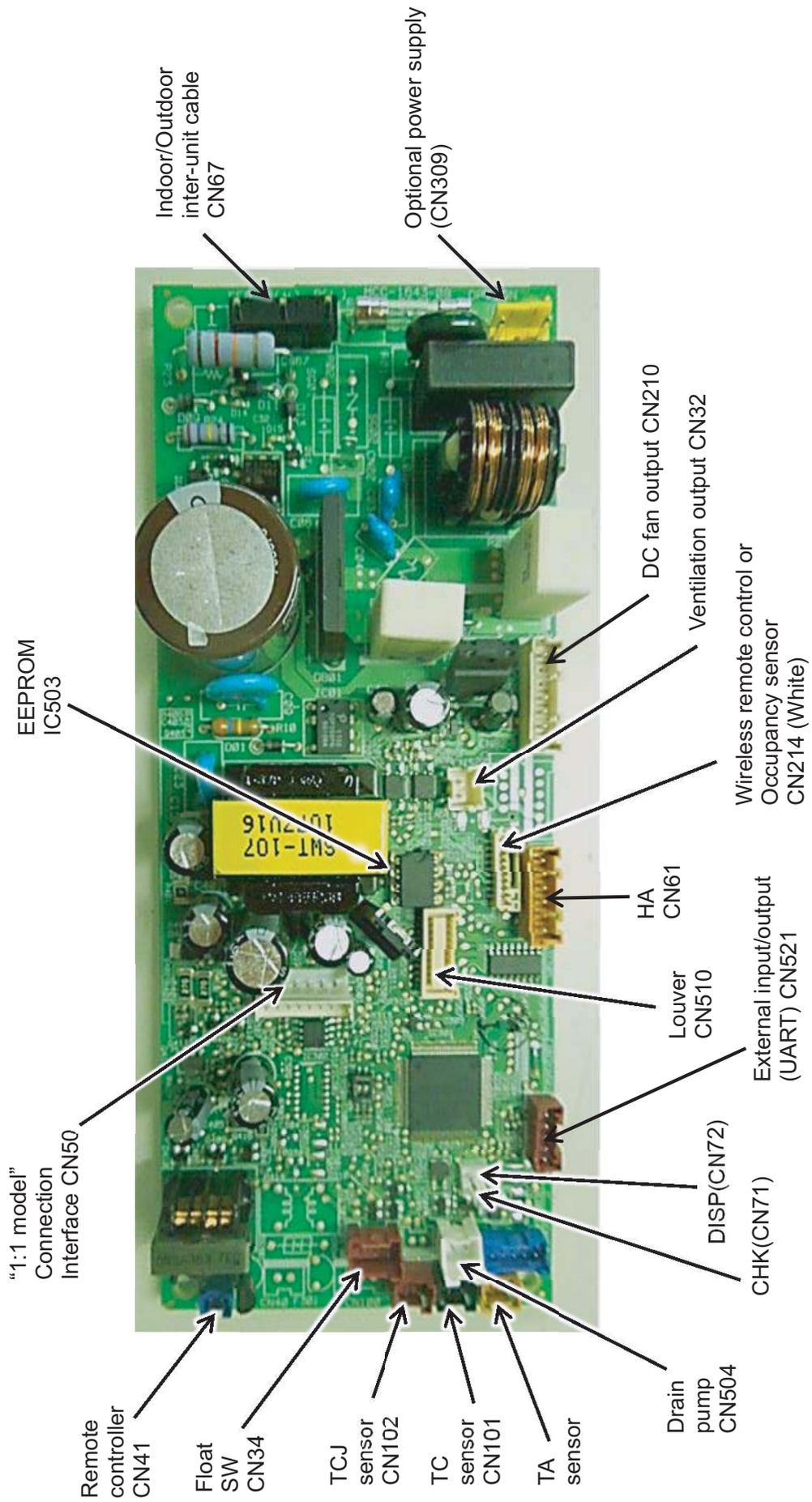
| No. | Item | Outline of specifications | Remarks |
|-----|--------------------------------|---|---|
| 16 | Central control mode selection | <p>1) Setting at the central controller side enables to select the contents which can be operated on the remote controller at indoor unit side.</p> <p>* In case of the wireless type, the display lamp does not change but the contents are same. If operating an item which is prohibited by the central control mode from the remote controller, it is notified with the receive sound, Pi, Pi, Pi, Pi, Pi (5 times).</p> | |
| 17 | Energy saving operation | <p>1) When the "Energy saving operation" is selected during AUTO mode, energy-saving operation will be carried out. (In RBC-AMS55E*, COOL and HEAT mode can also be selected.)</p> <p>2) The setup temperature is shifted (corrected) in the range not to lose the comfort ability according to input values of various sensors.</p> <p>3) Data (Input value room temp. TA, Outside temp. TO, Air volume, Indoor heat exchanger sensor temp. TC) for 20 minutes are taken the average to calculate correction value of the setup temperature.</p> <p>4) The setup temperature is shifted every 20 minutes, and the shifted range is as follows. In cooling time: +1.5 to - 1.0°C In heating time: -1.5 to +1.0°C</p> | Wired remote control (RBC-AMS55E*) is required. |
| 18 | Max. frequency cut control | <p>1) This control is operated by selecting [AUTO] operation mode.</p> <p>2) COOL operation mode: It is controlled according to the following figure if $TO < 28^{\circ}\text{C}$.</p> <p>3) HEAT operation mode: It is controlled according to the following figure if $TO > 15^{\circ}\text{C}$.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div data-bbox="478 1680 925 1904" style="text-align: center;"> <p>TA(°C)</p> <p>Normal control</p> <p>Max. frequency is restricted to approximately the rated cooling frequency</p> </div> <div data-bbox="957 1635 1420 1859" style="text-align: center;"> <p>TA(°C)</p> <p>Max. frequency is restricted to approximately the rated heating frequency</p> <p>Normal control</p> </div> </div> | |

| No. | Item | Outline of specifications | Remarks |
|-----|----------------------------|---|--|
| 19 | DC motor | <p>1) When the fan operation has started, positioning of the stator and the rotor are performed. (Moves slightly with tap sound)</p> <p>2) The motor operates according to the command from the indoor controller.</p> <p>Notes)</p> <ul style="list-style-type: none"> • When the fan rotates while the air conditioner stops due to entering of outside air, etc, the air conditioner may operate while the fan motor stops. • When a fan lock is found, the air conditioner stops, and a trouble is displayed. | Check code [P12] |
| 20 | Power saving | <p>1) Turn on  button on the remote controller.</p> <p>2) During operation of save operation,  lights on the wired remote controller.</p> <p>3) During power save operation, the current release control is performed with the restriction ratio set in EEPROM on the outdoor unit.</p> <p>4) The restriction ratio can be set by keeping  button pushed for 4 seconds or more on the remote controller.</p> <p>5) When validating the power save operation, the next operation starts with power save operation valid because contents are held even when operation stops, operation mode changes or power supply is reset.</p> <p>6) The restriction ratio can be set by changing the setup data of CODE No. (DN) [C2] in the range of 50 to 100% (every 1%, Setting at shipment: 75%).</p> | <p>Operation and display also are unavailable on the wired remote controller RBC-AMT31E and before.</p> <p>Carry out setting operation during stop of the unit; otherwise the unit stops operation.</p> <p>For the setup operation, refer to "Power saving mode" of Installation Manual.</p> |
| 21 | Drain pump delay operation | <p>When a cooling operation (including dry operation) is stopped, the drain pump continues operating for 5 minutes to reduce drain water in drain pan.</p> | |

| No. | Item | Outline of specifications | Remarks | | | | | | | | | | | | | | | | | | |
|---------|---|---|---|------|------------------|--|------|---------|--|--------------|--|---------|------|--------------------------|--|------|------------|--|------|----------------|--|
| 22 | 8°C heating/ Frost protective operation | <p>1) This functional is intended for the cold latitudes and performs objective heating operation (8°C heating operation).</p> <p>2) This function is valid only for combination with the outdoor units.</p> <p>3) Using the indoor DN code [D1] (1 bit), Valid/Invalid of this function is set up at the customer's side. * The setup by DN code is Invalid [0]/Valid [1] and Invalid [0] has been set at the shipment.</p> <p>4) This operation is the heating operation which sets 8°C as the setup temperature of the target.</p> <p>5) This function starts operation by pushing temperature button  during heating operation; besides by pushing  button for 4 seconds or more after temperature reached the minimum set temperature.</p> <p>6) To stop/release this operation, select and execute one from the following operations.</p> <p>① Push  button: Heating operation (18°C setting) continues.</p> <p>② Push [START/STOP] button: Air conditioner stops. (Heating 18°C operation at the next start)</p> <p>③ Push  : Other operation mode is selected and the operation continues.</p> <p>7) As the setup temperature is 8°C and the human heating is not targeted, the cold air discharge preventive control (Item 7) is made invalid to suppress the intermittent operation.</p> <p>8) The settings of the air direction and air volume are changeable during this operation.</p> <p>9) The indoor fan stops to protect the compressor for 2 minutes after start of heating operation (Thermostat ON) by this function.</p> | <p>In a group connection, if there is even one combination with other unit, "This function is not provided." is displayed.</p> <p>The setup temperature jumps from [18] to [8].</p> | | | | | | | | | | | | | | | | | | |
| 23 | 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="587 1541 1098 1675"> <tr> <td>DN [B6]</td> <td>Data</td> <td>Setting contents</td> </tr> <tr> <td></td> <td>0000</td> <td>Invalid</td> </tr> <tr> <td></td> <td>0001 to 0005</td> <td>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="587 1765 1098 1865"> <tr> <td>DN [B7]</td> <td>Data</td> <td>Operation at absent time</td> </tr> <tr> <td></td> <td>0000</td> <td>Circulator</td> </tr> <tr> <td></td> <td>0001</td> <td>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> <p>* DN [06] and DN [B7] can be set on the "Occupancy sensor" menu of the wired remote controller RBC - AMS55E *.</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 | <p>The Occupancy sensor can be set up by wired remote controller RBC-AMS55E*</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 | | | | | | | | | | | | | | | | | | | |

6-3. Indoor Print Circuit Board

<MCC-1643>



6-4. 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) | |
| HA | 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 | 0V | 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 | | |
| DISP Exhibition mode | CN72 | 1 | 0V | Communication is available by indoor unit and remote controller only. |
| | | 2 | | |
| Option control kit | CN521 | 1 | 12V | Connected Application control kit (TCB-PCUC2E) |
| | | 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 | |

* To use the functions operated by CN60, CN80, CN70 and CN73, which are provided for other models, use the Application control kit (TCB-PCUC2E) sold separately.

7. TROUBLESHOOTING

7-1. Summary of Troubleshooting

<Wired remote controller type>

1. Before troubleshooting

1) Required tools/instruments

- ⊕ and ⊖ screwdrivers, spanners, Needle-nose pliers, nippers, push pins for reset switch
- Tester, thermometer, pressure gauge, etc.

2) Confirmation points before check

a) The following operations are normal.

1. Compressor does not operate.

- Is the air conditioner being controlled by the 3-minute protective function?
- Is it in standby status though the room temperature has reached the setup temperature?
- Is it being operated in timer mode or fan mode?
- Is the remote controller set in “heating” under the high outside air temperature?

2. Indoor fan does not operate.

- Is the air conditioner being controlled by the cool air discharge preventive function in “heating”?

3. Indoor fan does not operate or fan speed changes.

- Is the air conditioner being controlled by high-temperature release function in “heating”?
- Is the remote controller set in “cooling” under the low outside air temperature?
- Is the air conditioner being operated in defrost operation?

4. ON/OFF operation cannot be performed from remote controller.

- Is the air conditioner being operated by the central control system?
- Is an automatic address being set up?

(When the power is turned on at the first time or when indoor unit address setting is changed, the operation cannot be performed for maximum approx. 5 minutes after power-ON.)

- Is a test run of the air conditioner being carried out?

b) Did you return the cabling to the initial positions?

c) Are connecting cables of indoor unit and remote controller correct?

2. Troubleshooting procedure

When a trouble occurred, check the parts along with the following procedure.



NOTE :

For cause of a trouble except the items to be checked, miss diagnosis of microcomputer is considered due to outer noise or power conditions. If there is any noise source, change the cables of the remote controller to shield cables.

<Wireless remote controller type>

1. Before troubleshooting

1) Required tools/instruments

- ⊕ and ⊖ screwdrivers, spanners, Needle-nose pliers, nippers, etc.
- Tester, thermometer, pressure gauge, etc.

2) Confirmation points before check

a) The following operations are normal.

1. Compressor does not operate.

- Is the air conditioner being controlled by the 3-minute protective function?
- Is it in standby status though the room temperature has reached the setup temperature?
- Is it being operated in timer mode or fan mode?
- Is the remote controller set in “heating” under the high outside air temperature?

2. Indoor fan does not operate.

- Is the air conditioner being controlled by the cool air discharge preventive function in “heating”?

3. Indoor fan does not operate or fan speed changes.

- Is the air conditioner being controlled by high-temperature release function in “heating”?
- Is the remote controller set in “cooling” under the low outside air temperature?
- Is the air conditioner being operated in defrost operation?

4. ON/OFF operation cannot be performed from remote controller.

- Is the air conditioner in forced operation?
- Is it being operated by the central control system?
- Is an automatic address being set up?
(When the power is turned on at the first time or when indoor unit address setting is changed, the operation cannot be performed for maximum approx. 5 minutes after power-ON.)
- Is a test run of the air conditioner being carried out?

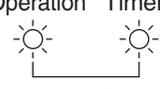
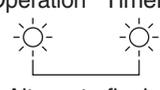
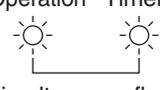
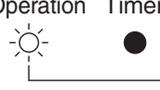
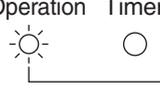
b) Did you return the cabling to the initial positions?

c) Are connecting cables between indoor unit and receiving unit correct?

2. Troubleshooting procedure

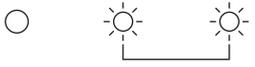
When a trouble occurred, check the parts along with the following procedure.



| Lamp indication | Check code | Cause of trouble occurrence |
|--|------------|--|
| Operation Timer Ready  Alternate flash | F01 | Heat exchanger sensor (TCJ) trouble Heat exchanger sensor (TC) trouble Room air temperature sensor (TA) trouble } Indoor unit sensor trouble |
| | F02 | |
| | F10 | |
| Operation Timer Ready  Alternate flash | F04 | Discharge temp. sensor (TD) trouble Temp. sensor (TE) trouble Temp. sensor (TL) trouble Temp. sensor (TO) trouble Temp. sensor (TS) trouble Temp. sensor (TH) trouble Temp. Sensor miswiring (TE, TS) } Sensor trouble of outdoor unit *1 |
| | F06 | |
| | F07 | |
| | F08 | |
| | F12 | |
| | F13 | |
| | F15 | |
| Operation Timer Ready  Simultaneous flash | F29 | Indoor EEPROM trouble |
| Operation Timer Ready  Simultaneous flash | F30 | Occupancy sensor trouble |
| | F31 | Outdoor EEPROM trouble |
| Operation Timer Ready  Flash | H01 | Compressor break down Compressor lock Current detection circuit trouble Case thermostat worked. Outdoor unit low pressure system trouble } Outdoor compressor system trouble *1 |
| | H02 | |
| | H03 | |
| | H04 | |
| | H06 | |
| Operation Timer Ready  Simultaneous flash | L03 | Duplicated header indoor units There is indoor unit of group connection in individual indoor unit. Unsetting of group address Missed setting (Unset indoor capacity) } → AUTO address * If group construction and address are not normal when power supply turned on, automatically goes to address setup mode. |
| | L07 | |
| | L08 | |
| | L09 | |
| Operation Timer Ready  Simultaneous flash | L10 | Unset model type (Service board) Duplicated indoor central addresses Outdoor unit and other trouble Outside interlock trouble Negative phase trouble } Others |
| | L20 | |
| | L29 | |
| | L30 | |
| | L31 | |

*1: These are representative examples and the check code differs according to the outdoor unit to be combined.

7-2-2. Others (Other than Check Code)

| Lamp indication | Check code | Cause of trouble occurrence |
|--|------------|---|
| Operation Timer Ready  Simultaneous flash | — | During test run |
| Operation Timer Ready  Alternate flash | — | Disagreement of cool/heat (Automatic cool/heat setting to automatic cool/heat prohibited model, or setting of heating to cooling-only model) |

7-2-3. Check Code List (Indoor)

(Indoor unit detected) ○ : Go on, ◎ : Flash, ● : Go off ALT (Alternate): Alternate flashing when there are two flashing LED SIM (Simultaneous): Simultaneous flashing when there are two flashing LED

| Check code indication TCC-LINK central & Wired remote controller | Lamp indication | | | Representative trouble position | Explanation of trouble contents | Air conditioner operation | |
|--|-------------------------------|-------|-------|--|--|---------------------------|---------------------------|
| | Block indication Operation | Timer | Ready | | | Automatic reset | Operation continuation |
| E03 | ◎ | ● | ● | Regular communication trouble between indoor and remote controller | No communication from remote controller and network adapter (Also no communication from central control system) | ✓ | — |
| E04 | ◎ | ● | ◎ | Indoor/Outdoor serial trouble | There is trouble on serial communication between indoor and outdoor units | ✓ | — |
| E08 | ◎ | ● | ● | Duplicated indoor addresses | Same address as yours was detected. | ✓ | — |
| E11 | ◎ | ● | ● | Communication trouble between Application control kit and indoor unit | Communication trouble between Application control kit and indoor unit P.C. board | ✓ | — |
| E18 | ◎ | ● | ● | Regular communication trouble between indoor header and follower units | Regular communication between indoor header and follower units is impossible. Communication between twin header (master) and follower (sub) units is impossible. | ✓ | — |
| F01 | ◎ | ◎ | ● | Indoor unit, Heat exchanger (TCJ) trouble | Open/short-circuit was detected on heat exchanger (TCJ). | ✓ | — |
| F02 | ◎ | ◎ | ● | Indoor unit, Heat exchanger (TC) trouble | Open/short-circuit was detected on heat exchanger (TC). | ✓ | — |
| F10 | ◎ | ◎ | ● | Indoor unit, Room temp. sensor (TA) trouble | Open/short-circuit was detected on room temp. sensor (TA). | ✓ | — |
| F29 | ◎ | ◎ | ● | Indoor unit, other indoor P.C. board trouble | EEPROM trouble (Other trouble may be detected. If no trouble, automatic address is repeated.) | — | — |
| F30 | ◎ | ◎ | ○ | Occupancy sensor trouble | Occupancy sensor trouble has been detected. | — | ✓ |
| L03 | ◎ | ◎ | ◎ | Duplicated setting of indoor group header unit | There are multiple header units in a group. | — | — |
| L07 | ◎ | ◎ | ◎ | There are group cable in individual indoor unit. | When even one group connection indoor unit exists in individual indoor unit. | — | — |
| L08 | ◎ | ◎ | ◎ | Unset indoor group address | Indoor group address is unset. | — | — |
| L09 | ◎ | ◎ | ◎ | Unset indoor capacity | Capacity of indoor unit is unset. | — | — |
| L20 | ◎ | ◎ | ◎ | Duplicated central control system address | Duplicated setting of central control system address | ✓ | — |
| L30 | ◎ | ◎ | ◎ | Outside trouble input to indoor unit (Interlock) | Abnormal stop by outside trouble (CN80) input | — | — |
| P01 | ◎ | ◎ | ◎ | Indoor unit, AC fan trouble | An trouble of indoor AC fan was detected. (Fan motor thermal relay worked.) | — | — |
| P10 | ◎ | ◎ | ◎ | Indoor unit, overflow detection | Floater switch worked. | — | — |
| P12 | ◎ | ◎ | ◎ | Indoor unit, DC fan trouble | Indoor DC fan trouble (Over-current/Lock, etc.) was detected. | — | — |
| P19 | ◎ | ◎ | ◎ | 4-way valve system trouble | In heating operation, a trouble was detected by temp. down of indoor heat exchanger sensor. | ✓ | — |
| P31 | ◎ | ◎ | ◎ | Other indoor unit trouble | Follower unit in group cannot operate by warning from [E03/L03/L07/L08] of header unit. | ✓ | — |

◇ When this warning was detected before group construction/address check finish at power supply was turned on, the mode shifts automatically to AUTO address setup mode.

(Remote controller detected)

| Check code indication Wired remote controller | Lamp indication | | | Representative trouble position | Explanation of trouble contents | Air conditioner operation | |
|--|-------------------------------|-------|-------|--|--|---------------------------|---------------------------|
| | Block indication Operation | Timer | Ready | | | Automatic reset | Operation continuation |
| E01 | ◎ | ● | ● | No master remote controller, Remote controller communication (Receive) trouble | Signal cannot be received from indoor unit. Master remote controller was not set. (including 2 remote controllers) | — | — |
| E02 | ◎ | ● | ● | Remote controller communication (Send) trouble | Signal cannot be sent to indoor unit. | — | — |
| E09 | ◎ | ● | ● | Duplicated master remote controller | In 2-remote controller control, both were set as master. (Indoor master unit stops warning and follower unit continues operation.) | — | △ |

△ : It is based on a situation.

(Central control devices detected)

| Check code indication TCC-LINK central | Lamp indication | | | Representative trouble position | Explanation of trouble contents | Air conditioner operation | |
|---|--|-------|-------|--|---|---------------------------|---------------------------|
| | Block indication Operation | Timer | Ready | | | Automatic reset | Operation continuation |
| C05 | Is not displayed. (Common use of wired remote controller, etc.) | | | Central control system communication (send) trouble | Signal sending operation of central control system is impossible. There are multiple same central devices. (AI-NET) | — | — |
| C06 | | | | Central control system communication (receive) trouble | Signal receiving operation of central control system is impossible. | — | — |
| C12 | — | | | General-purpose device control interface batched warning | An trouble on device connected to general-purpose device control interface of exclusive to TCC-LINK/AI-NET | — | — |
| P30 | By warning unit (Above-mentioned) | | | Group follower unit is trouble. | Group follower unit is trouble. (For remote controller, above-mentioned [****] details are displayed with unit No. | — | — |

NOTE: Even for the same contents of trouble such as communication trouble, the display of check code may differ according to detection device. When wired remote controller or central controller detects an trouble, it is not necessarily related to operation of the air conditioner. In this list, the check codes that outdoor unit detects are not described.

Trouble mode detected by indoor unit

| Operation of diagnostic function | | | | Judgment and measures |
|----------------------------------|--|--|------------------------------------|---|
| Check code | Cause of operation | Status of air conditioner | Condition | |
| E03 | No communication from remote controller (including wireless) and communication adapter | Stop (Automatic reset) | Displayed when trouble is detected | 1. Check cables of remote controller and communication adapters. • Remote controller LCD display OFF (Disconnection) • Central remote controller [97] check code |
| E04 | The serial signal is not output from outdoor unit to indoor unit. • Miswiring of inter-unit wire • Serial communication circuit trouble of outdoor P.C. board • Serial communication circuit trouble of indoor P.C. board | Stop (Automatic reset) | Displayed when trouble is detected | 1. Outdoor unit does not completely operate. • Inter-unit wire check, correction of miswiring • Check outdoor P.C. board. Correct wiring of P.C. board. 2. When outdoor unit normally operates • Check P.C. board (Indoor receiving / Outdoor sending). |
| E08 | Duplicated indoor unit address | Stop | Displayed when trouble is detected | 1. Check whether remote controller connection (Group/Individual) was changed or not after power supply turned on (Finish of group construction/Address check). * If group construction and address are not normal when the power has been turned on, the mode automatically shifts to address setup mode. (Resetting of address) |
| L03 | Duplicated indoor header unit | | | |
| L07 | There is group wire in individual indoor unit. | | | |
| L08 | Unset indoor group address | | | |
| L09 | Unset indoor capacity | Stop | Displayed when trouble is detected | 1. Set indoor capacity (DN=11) |
| L30 | Abnormal input of outside interlock | Stop | Displayed when trouble is detected | 1. Check outside devices. 2. Check indoor P.C. board. |
| P10 | Float switch operation • Float circuit, Disconnection, Coming-off, Float switch contact trouble | Stop | Displayed when trouble is detected | 1. Trouble of drain pump 2. Clogging of drain pump 3. Check float switch. 4. Check Application control kit (TCB-PCUC2E) |
| P12 | Indoor DC fan trouble | Stop | Displayed when trouble is detected | 1. Position detection trouble 2. Check fan motor (Protective circuit operation). 3. Indoor fan locked. 4. Check indoor P.C. board. |
| P19 | 4-way valve system trouble • After heating operation has started, indoor heat exchangers temp. is down. | Stop (Automatic reset) | Displayed when trouble is detected | 1. Check 4-way valve. 2. Check 2-way valve and check valve. 3. Check indoor heat exchanger (TC/TCJ). 4. Check indoor P.C. board. |
| P31 | Unit automatically stops while warning is output to other indoor units. | Stop (Follower unit) (Automatic reset) | Displayed when trouble is detected | 1. Judge follower unit while header unit is [E03], [L03], [L07] or [L08]. 2. Check indoor P.C. board. |
| F01 | Coming-off, disconnection or short-circuit of indoor heat exchanger temp. sensor (TCJ) | Stop (Automatic reset) | Displayed when trouble is detected | 1. Check indoor heat exchanger temp. sensor (TCJ). 2. Check indoor P.C. board. |
| F02 | Coming-off, disconnection or short-circuit of indoor heat exchanger temp. sensor (TC) | Stop (Automatic reset) | Displayed when trouble is detected | 1. Check indoor heat exchanger temp. sensor (TC). 2. Check indoor P.C. board. |
| F10 | Coming-off, disconnection or short-circuit of indoor room air temp. sensor (TA) | Stop (Automatic reset) | Displayed when trouble is detected | 1. Check indoor room air temp. sensor (TA). 2. Check indoor P.C. board. |
| F29 | Indoor EEPROM trouble • EEPROM access trouble | Stop (Automatic reset) | Displayed when trouble is detected | 1. Check indoor EEPROM. (including socket insertion) 2. Check indoor P.C. board. |
| E11 | Communication trouble between Application control kit and indoor unit | Stop (Automatic reset) | Displayed when trouble is detected | 1. Check power supply/communication harness. 2. Check indoor P.C. board. |
| F30 | Occupancy sensor trouble | Operation | Displayed when trouble is detected | 1. Check occupancy sensor wiring. 2. Check indoor P.C. board. |
| E18 | Regular communication trouble between indoor header and follower units and between master and sub units | Stop (Automatic reset) | Displayed when trouble is detected | 1. Check remote controller wiring. 2. Check indoor power supply wiring. 3. Check indoor P.C. board. |

Trouble mode detected by remote controller or central controller (TCC-LINK)

| Operation of diagnostic function | | | | Judgment and measures |
|---|---|---|------------------------------------|--|
| Check code | Cause of operation | Status of air conditioner | Condition | |
| Not displayed at all (Operation on remote controller is impossible.) | No communication with header indoor unit <ul style="list-style-type: none"> Remote controller wiring is not correct. Power of indoor unit is not turned on. Automatic address cannot be completed. | Stop | — | Power supply trouble of remote controller, Indoor EEPROM trouble <ol style="list-style-type: none"> Check remote controller inter-unit wiring. Check remote controller. Check indoor power wiring. Check indoor P.C. board. Check indoor EEPROM. (including socket insertion) Automatic address repeating phenomenon generates. |
| E01 *1 | No communication with header indoor unit <ul style="list-style-type: none"> Disconnection of inter-unit wire between remote controller and header indoor unit (Detected by remote controller side) | Stop (Automatic reset) * If central controller exists, operation continues. | Displayed when trouble is detected | Receiving trouble from remote controller <ol style="list-style-type: none"> Check remote controller inter-unit wiring. Check remote controller. Check indoor power wiring. Check indoor P.C. board. |
| E02 | Signal send trouble to indoor unit (Detected by remote controller side) | Stop (Automatic reset) * If central controller exists, operation continues. | Displayed when trouble is detected | Sending trouble of remote controller <ol style="list-style-type: none"> Check sending circuit inside of remote controller. → Replace remote controller. |
| E09 | There are multiple master remote controllers. (Detected by remote controller side) | Stop (Follower unit continues operation.) | Displayed when trouble is detected | <ol style="list-style-type: none"> In 2-remote controllers (including wireless), there are multiple header units. Check that there are 1 master remote controller and other sub remote controllers. |
| L20 Central controller L20 | Duplicated indoor central addresses on communication of central control system (Detected by indoor/central controller side) | Stop (Automatic reset) | Displayed when trouble is detected | <ol style="list-style-type: none"> Check setting of central control system network address. (Network adapter SW01) Check network adapter P.C. board. |
| — *2 Central controller (Send) C05 (Receive) C06 | Communication circuit trouble of central controller (Detected by central controller side) | Continues (By remote controller) | Displayed when trouble is detected | <ol style="list-style-type: none"> Check communication wire / miswiring Check communication (U3, U4 terminals) Check network adapter P.C. board. Check central controller (such as central control remote controller, etc.) Check terminal resistance. (TCC-LINK) |
| — Central controller P30 | Indoor Gr sub unit trouble (Detected by central controller side) | Continuation/Stop (According to each case) | Displayed when trouble is detected | Check the check code of the corresponding unit from remote controller. |

*1 The check code cannot be displayed by the wired remote controller.
(Usual operation of air conditioner becomes unavailable.)

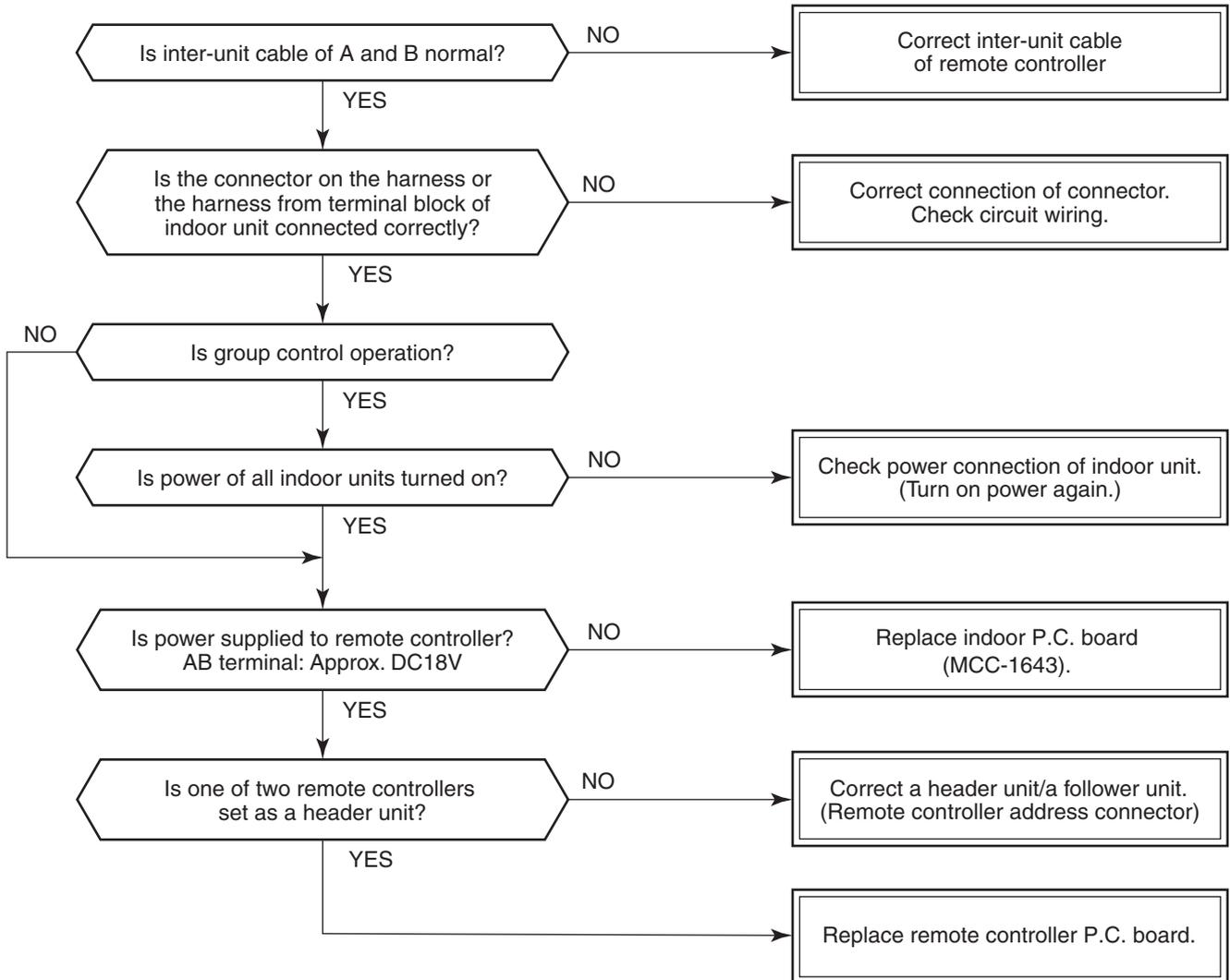
For the wireless models, a trouble is notified with indication lamp.

*2 This trouble is related to communication of remote controller (A, B), central system (TCC-LINK U3, U4), and [E01], [E02], [E03], [E09] or [E18] is displayed or no check display on the wired remote controller according to the contents.

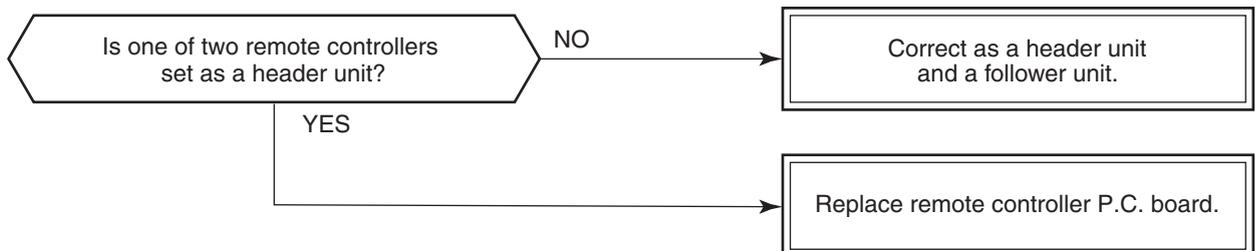
7-2-4. Diagnostic Procedure for Each Check Code (Indoor Unit)

Check code

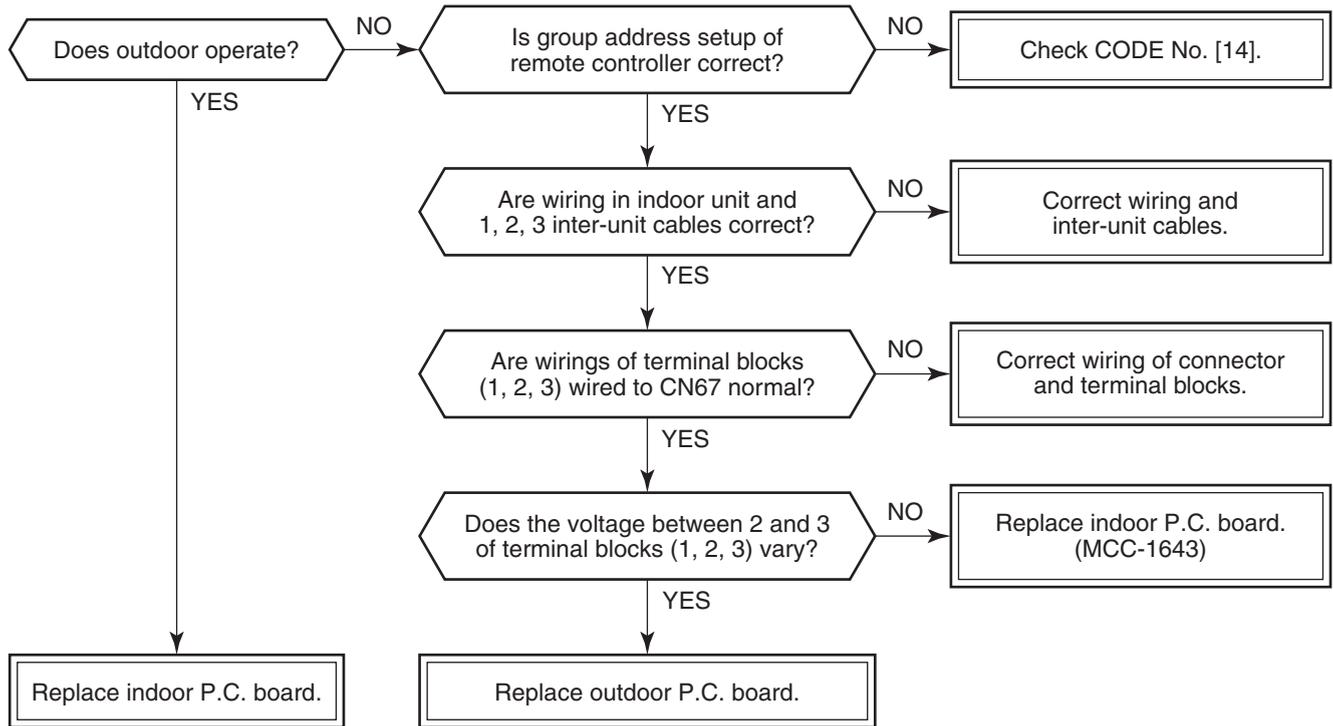
[E01 trouble]



[E09 trouble]



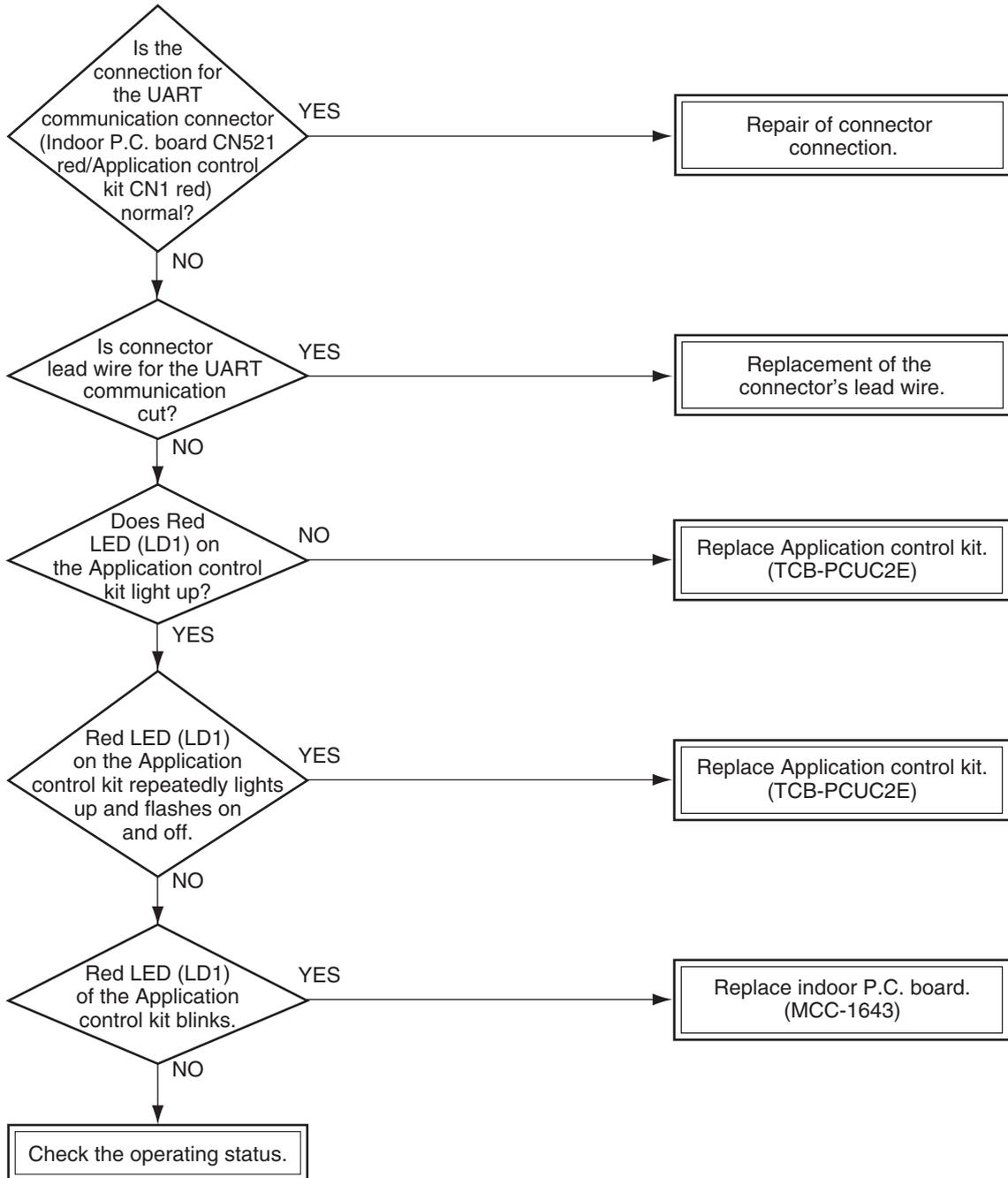
[E04 trouble]



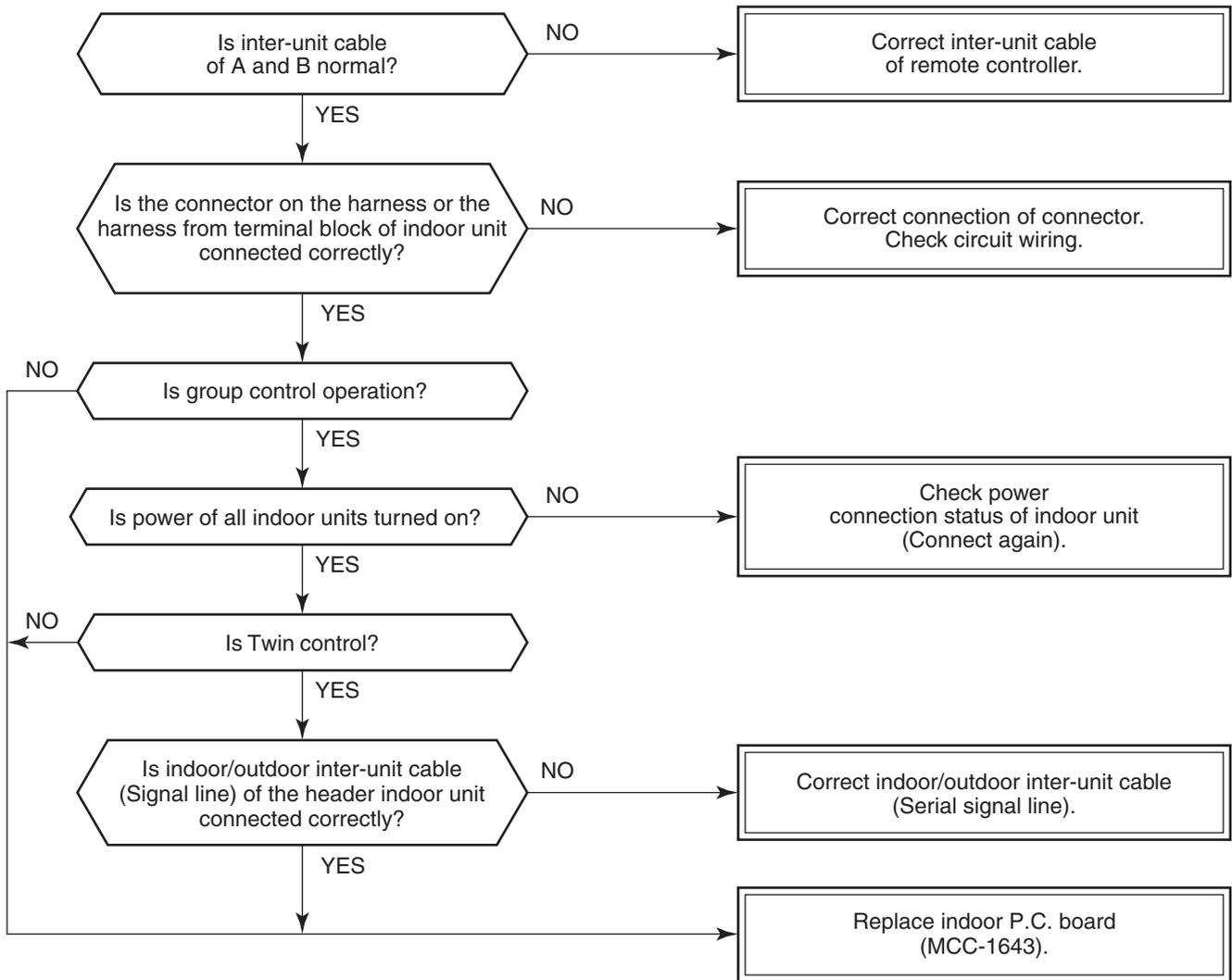
As shown in the following figure, carry out measurement within 20 seconds after the power was turned on.



[E11 trouble]



[E18 trouble]



[E08, L03, L07, L08 trouble]

E08: Duplicated indoor unit No.

L03: There are 2 or more header units in a group control.

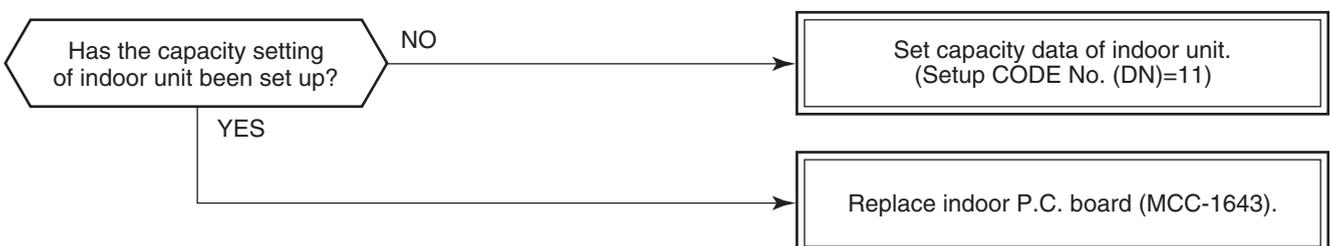
L07: There is 1 or more group address [Individual] in a group control.

L08: The indoor group address is unset. (In case DN code [14] is 0099)

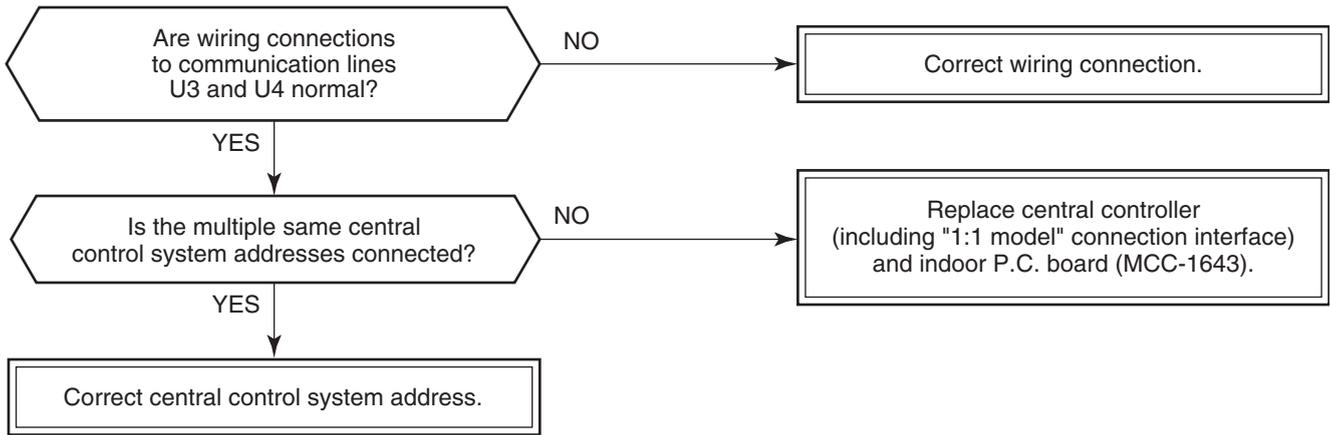
If the above trouble is detected when power supply turned on, the mode enters automatically in the automatic address set mode. (Check code is not output.)

However, if the above trouble is detected during the automatic address set mode, a check code may be output.

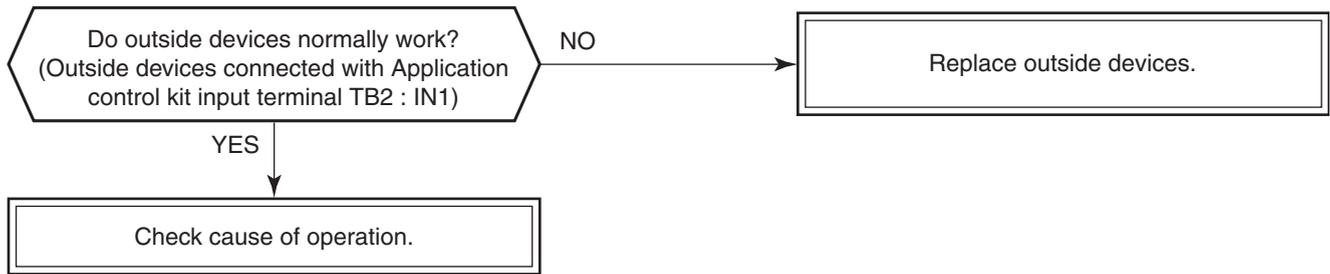
[L09 trouble]



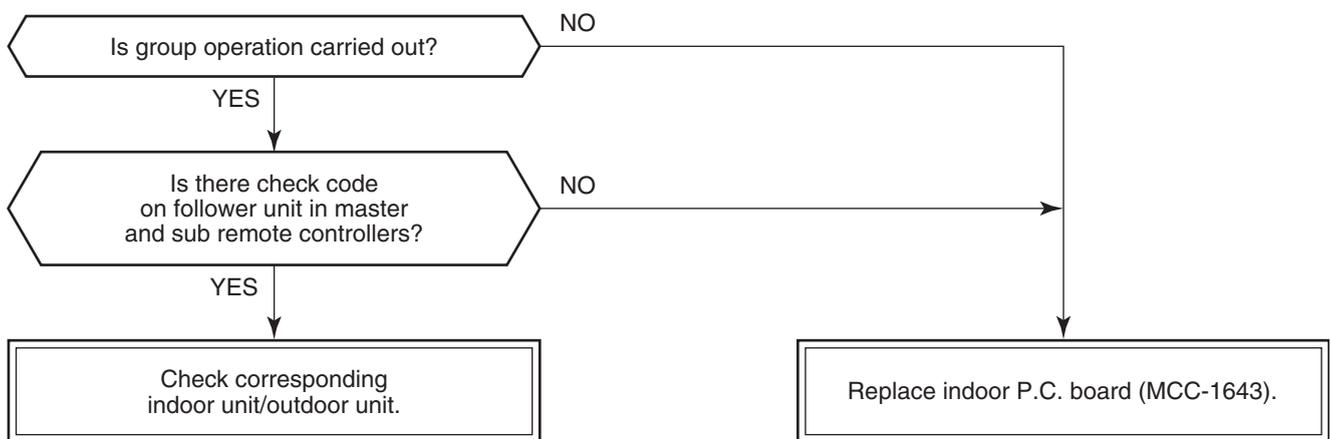
[L20 trouble]



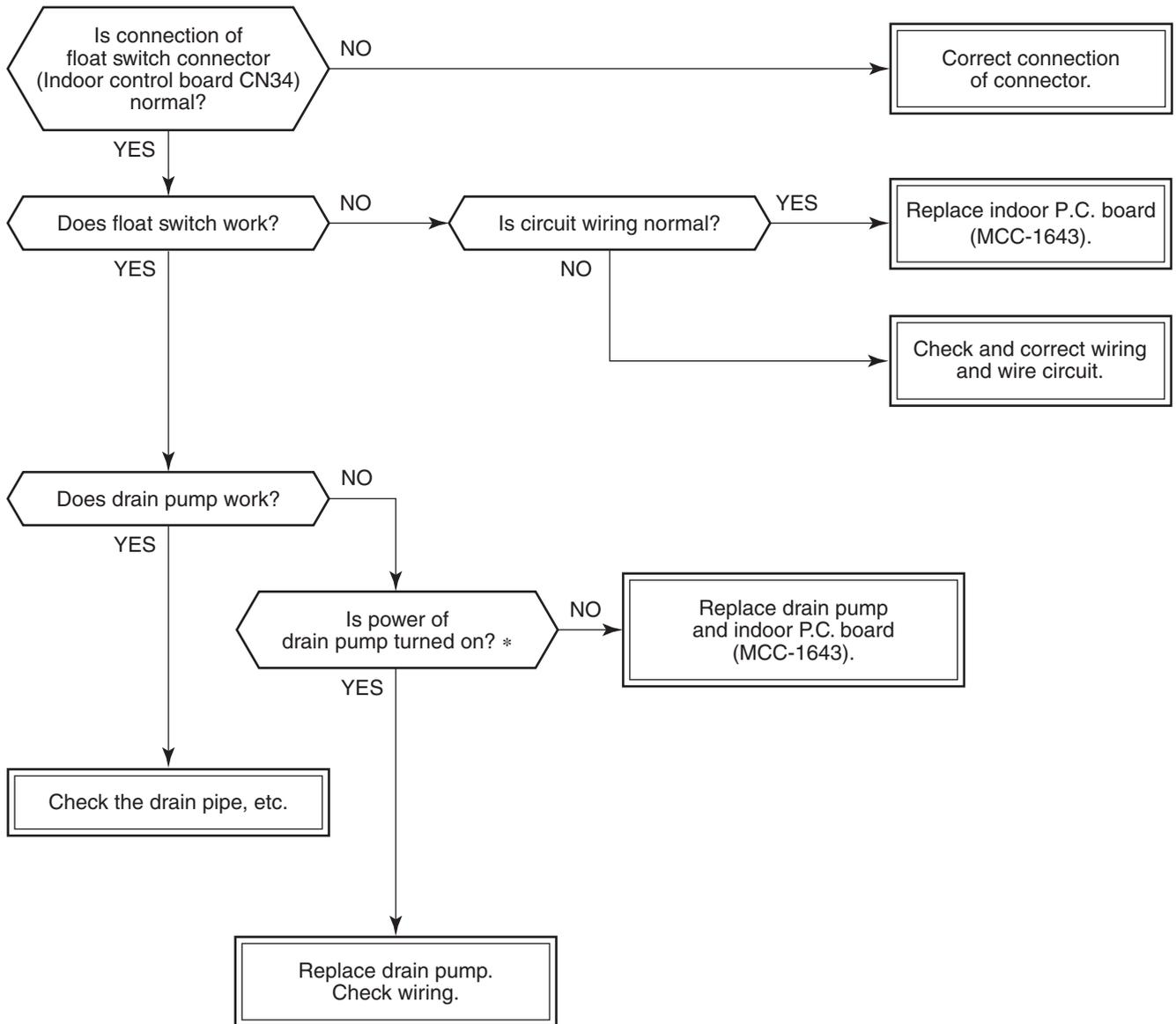
[L30 trouble]



[P30 trouble] (Central controller)

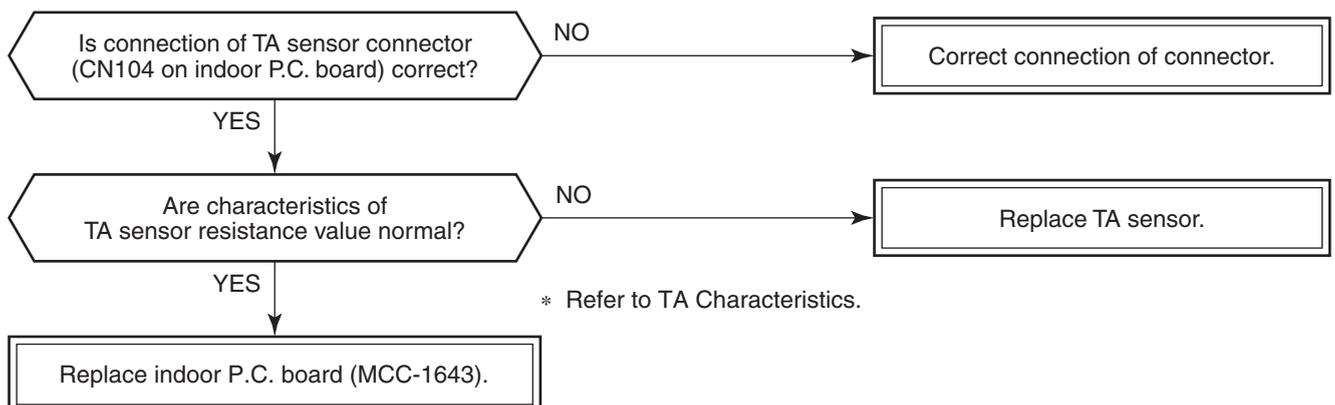


[P10 trouble]

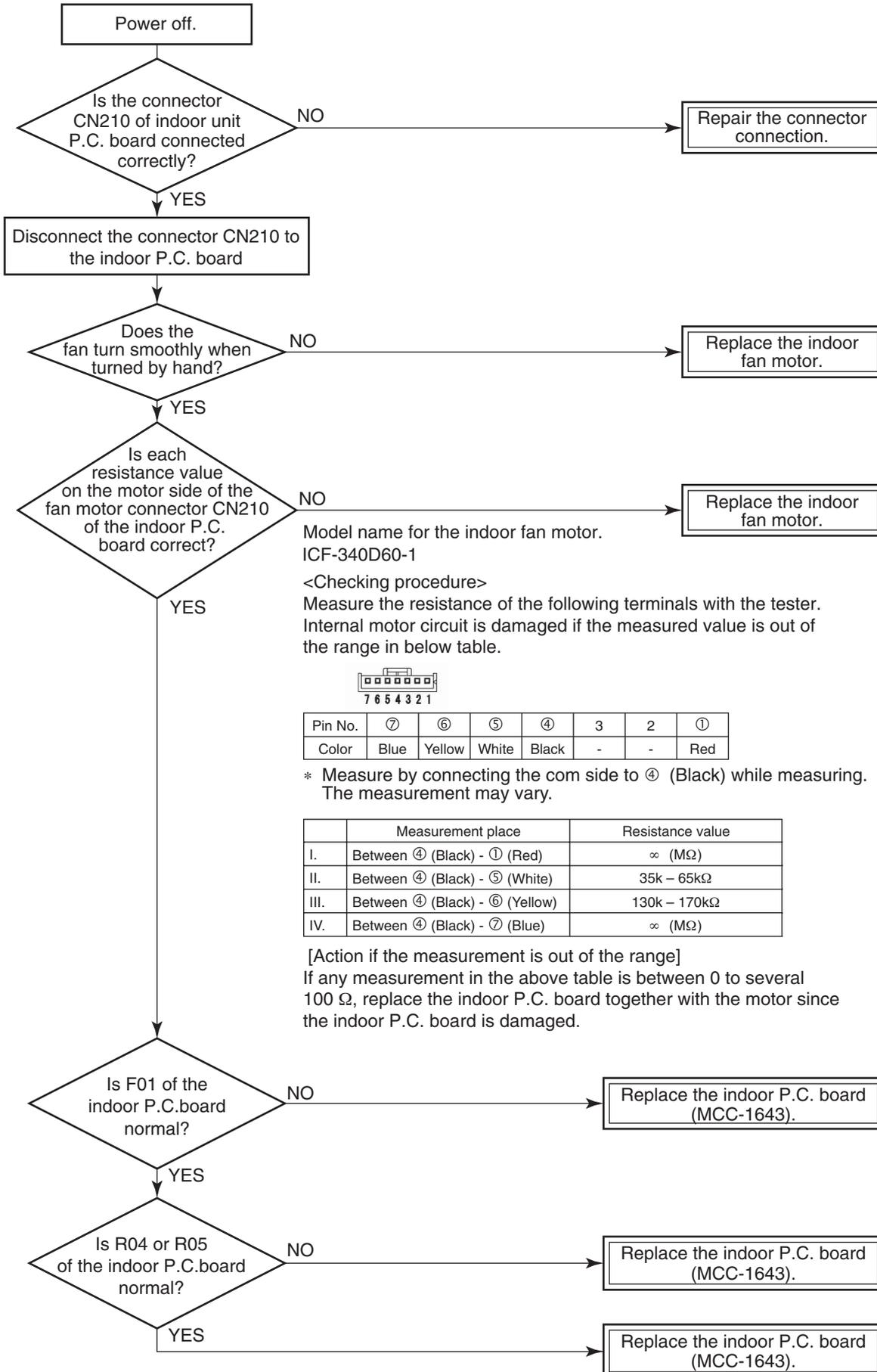


* Check that voltage of 1-2 pin of CN504 on the indoor P.C. board is +12V. (1 pin is plus (+).)

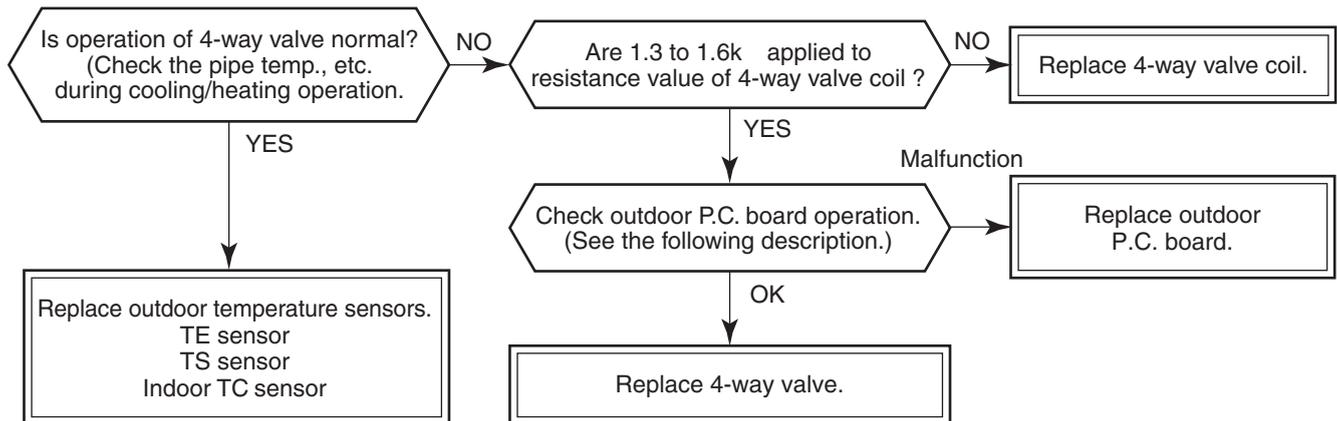
[F10 trouble]



[P12 trouble]

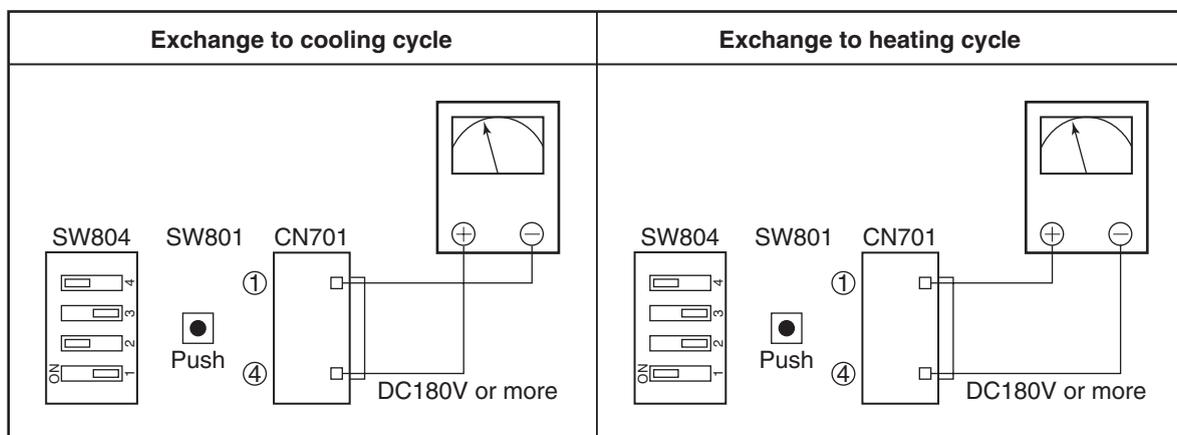


[P19 trouble]



Operation check direction of the outdoor P.C. board (In case of 4-way valve with self-prevention function)

- 1) Set the DIP switch SW804 as same as the following table and push SW801 for approx. 1 second. It enables you to check the change operation to cooling cycle or heating cycle.
 - Only for approx. 10 seconds, the power is turned on.
 - As the amount of heat generation in coil (coil: resistance R700) is large, when checking the operation continuously, wait 1 minute or more until the next check. (There is no problem if a coil is not connected.)
- 2) After check, turn off all the DIP switches SW804.

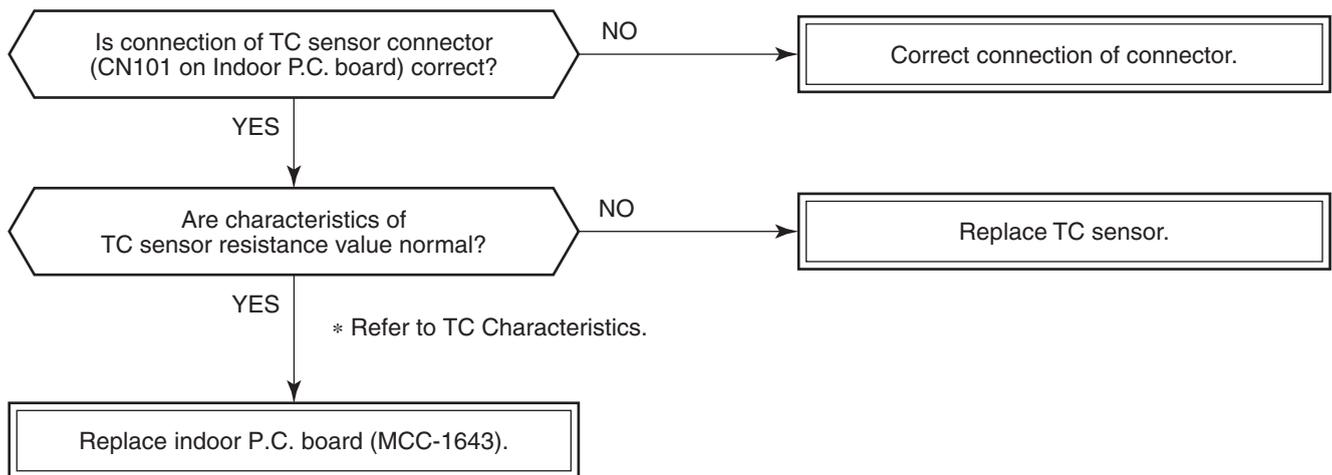


Check by tester

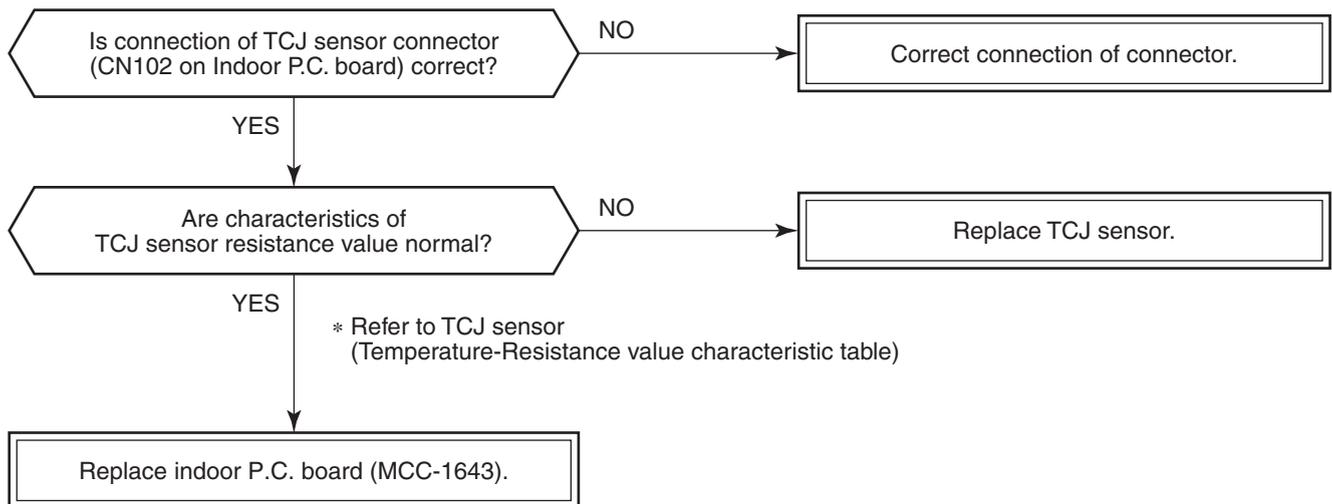
Analog tester: Good article if over DC180V

Digital tester: Although in some cases, the value varied and indicated. If the maximum value is DC180V or more, it is good article.

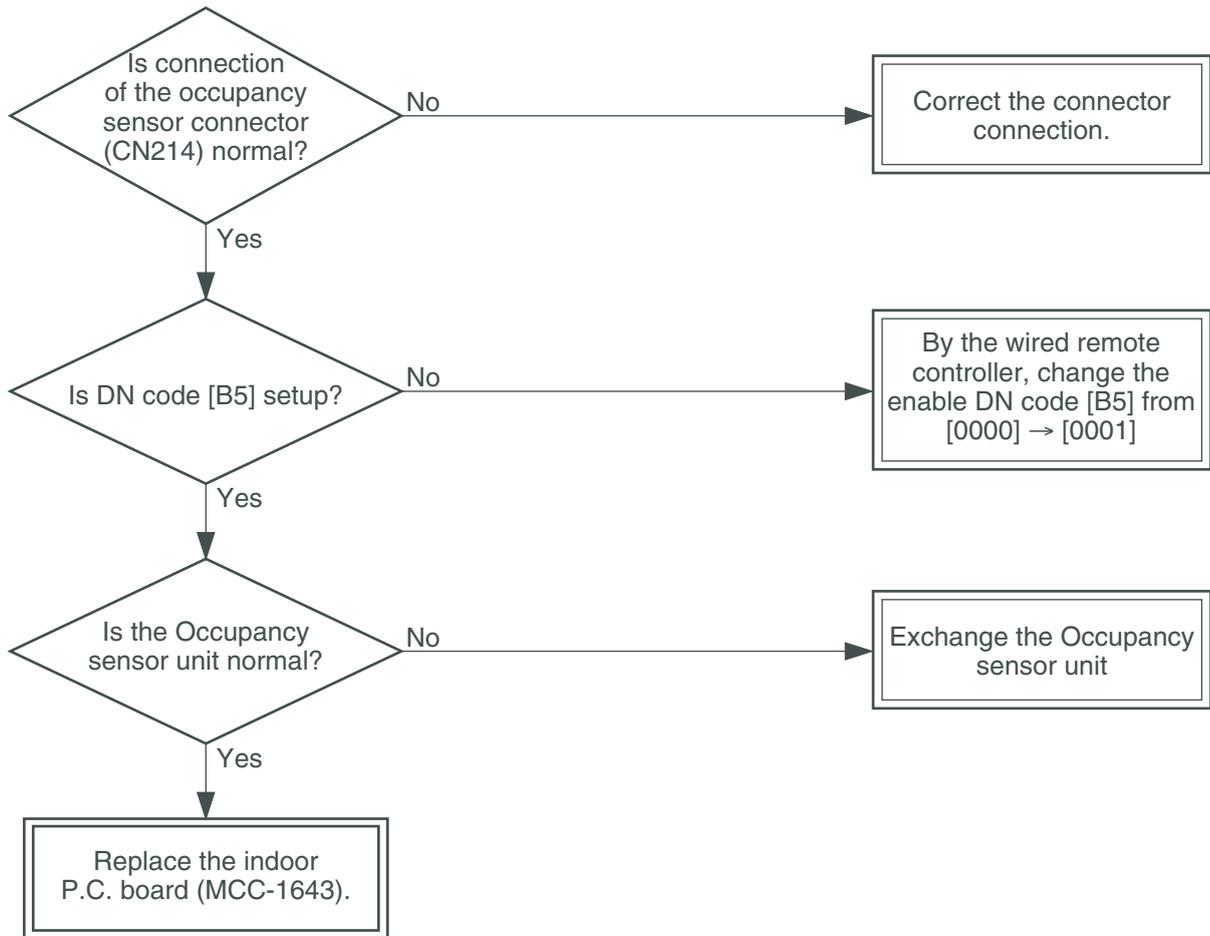
[F02 trouble]



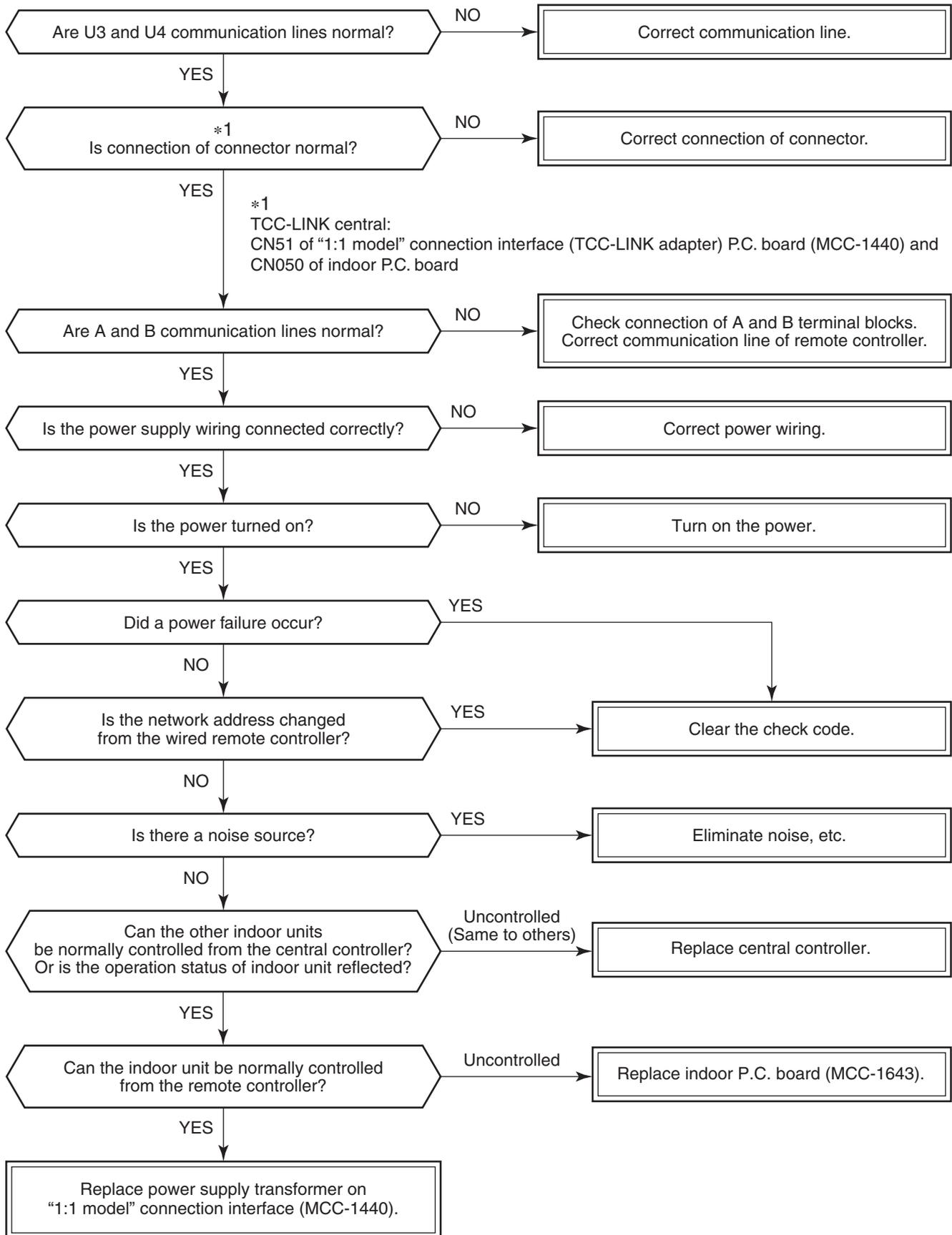
[F01 trouble]



[F30 trouble]



[C06 trouble] (“1:1 model” connection interface)



[E03 trouble] (Header indoor unit)

[E03 trouble] is detected when the indoor unit cannot receive a signal from the remote controller (also central controller).

Check A and B remote controllers and communication lines of the central control system U3 and U4.

As communication is impossible, this check code [E03] is not displayed on the remote controller and the central controller. [E01] is displayed on the remote controller and [C06 trouble] is displayed on the central controller.

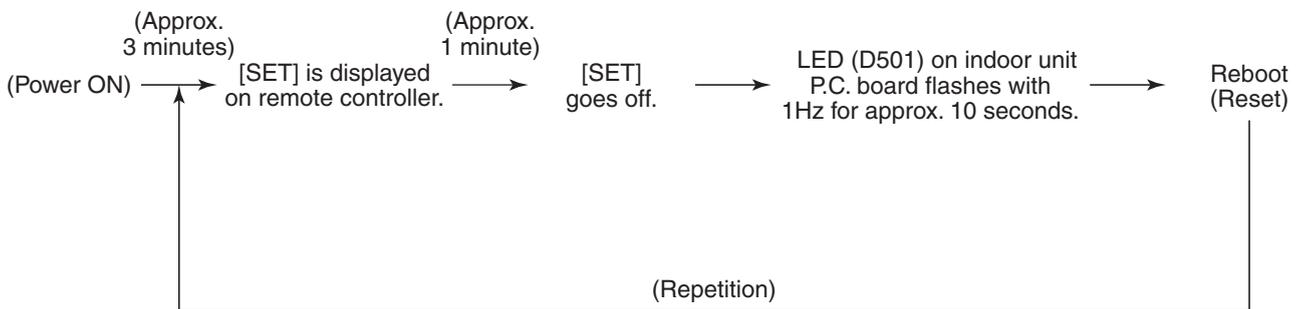
If these check codes generate during operation, the air conditioner stops.

[F29 trouble]

This check code indicates a detection trouble of IC503 non-volatile memory (EEPROM) on the indoor unit P.C. board, which generated during operation of the air conditioner. Replace the service P.C. board.

* When EEPROM was not inserted when power supply turned on or when the EEPROM data read/write operation is impossible at all, the automatic address mode is repeated. In this time, [C06 trouble] is displayed on the central controller.

[P31 trouble] (Follower indoor unit)



When the header unit of a group operation detected [E03], [L03], [L07] or [L08] trouble, the follower unit of the group operation detects [P31 trouble] and then the unit stops.

There is no display of the check code or alarm history of the wired remote controller. (In this model, the mode enters in automatic address set mode when the header unit detected [L03], [L07] or [L08] trouble.)

Temperature sensor

Temperature – Resistance value characteristic table

TA, TC, TCJ, TE, TS, TO sensors

TD, TL sensors

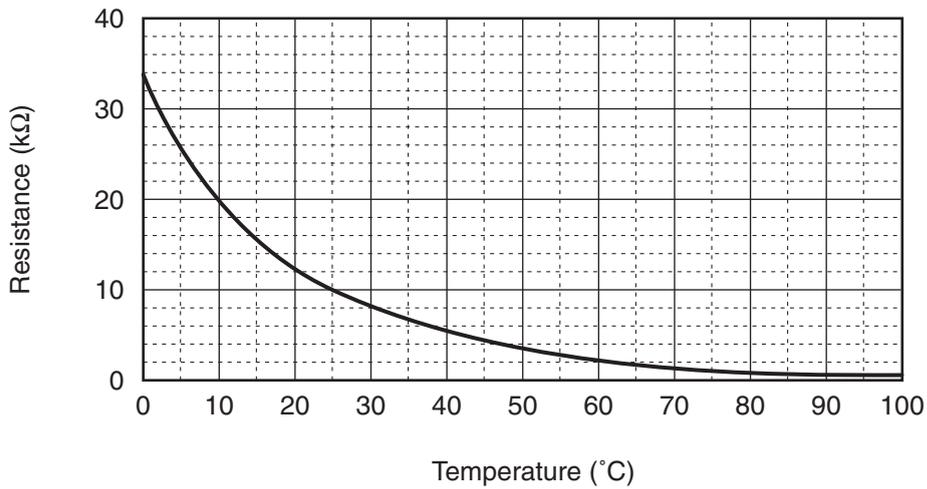
Representative value

Representative value

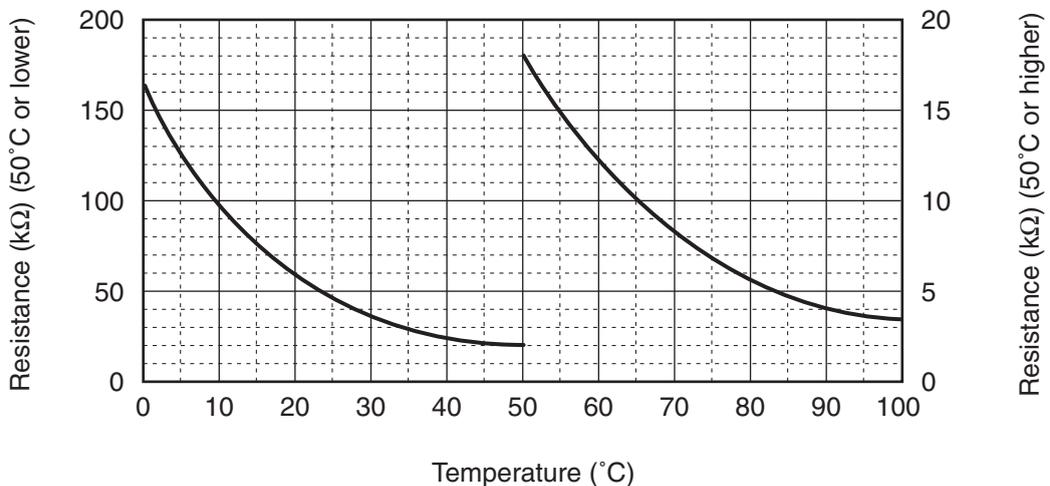
| Temperature (°C) | Resistance value (kΩ) | | |
|------------------|-----------------------|------------------|-----------------|
| | (Minimum value) | (Standard value) | (Maximum value) |
| 0 | 32.33 | 33.80 | 35.30 |
| 10 | 19.63 | 20.35 | 21.09 |
| 20 | 12.23 | 12.59 | 12.95 |
| 25 | 9.75 | 10.00 | 10.25 |
| 30 | 7.764 | 7.990 | 8.218 |
| 40 | 5.013 | 5.192 | 5.375 |
| 50 | 3.312 | 3.451 | 3.594 |
| 60 | 2.236 | 2.343 | 2.454 |
| 70 | 1.540 | 1.623 | 1.709 |
| 80 | 1.082 | 1.146 | 1.213 |
| 90 | 0.7740 | 0.8237 | 0.8761 |
| 100 | 0.5634 | 0.6023 | 0.6434 |

| Temperature (°C) | Resistance value (kΩ) | | |
|------------------|-----------------------|------------------|-----------------|
| | (Minimum value) | (Standard value) | (Maximum value) |
| 0 | 150.5 | 161.3 | 172.7 |
| 10 | 92.76 | 99.05 | 105.6 |
| 20 | 58.61 | 62.36 | 66.26 |
| 25 | 47.01 | 49.93 | 52.97 |
| 30 | 37.93 | 40.22 | 42.59 |
| 40 | 25.12 | 26.55 | 28.03 |
| 50 | 17.00 | 17.92 | 18.86 |
| 60 | 11.74 | 12.34 | 12.95 |
| 70 | 8.269 | 8.668 | 9.074 |
| 80 | 5.925 | 6.195 | 6.470 |
| 90 | 4.321 | 4.507 | 4.696 |
| 100 | 3.205 | 3.336 | 3.468 |

TA, TC, TCJ, TE, TS, TO sensors



TD, TL sensors



* As TH sensor (Outdoor unit heat sink temp. sensor) is incorporated in the outdoor control P.C. board, the resistance value cannot be measured.

8. REPLACEMENT OF SERVICE P.C. BOARD

8-1. Indoor Unit

CAUTION

<Model name: RAV-GM***UT*>

For the above models, set the CODE No. “ ” and the setting data “0000” (initial) to “0001”.

<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.

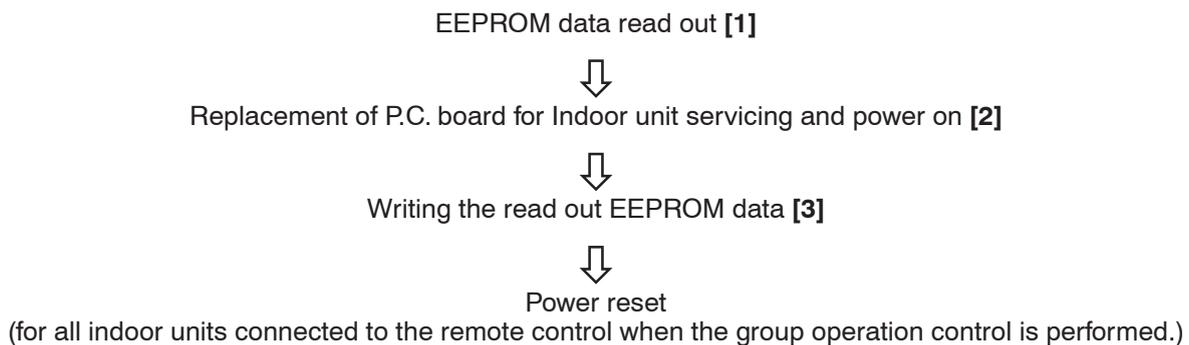
When replacing the P.C. board for indoor unit servicing, follow the procedures below.

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>

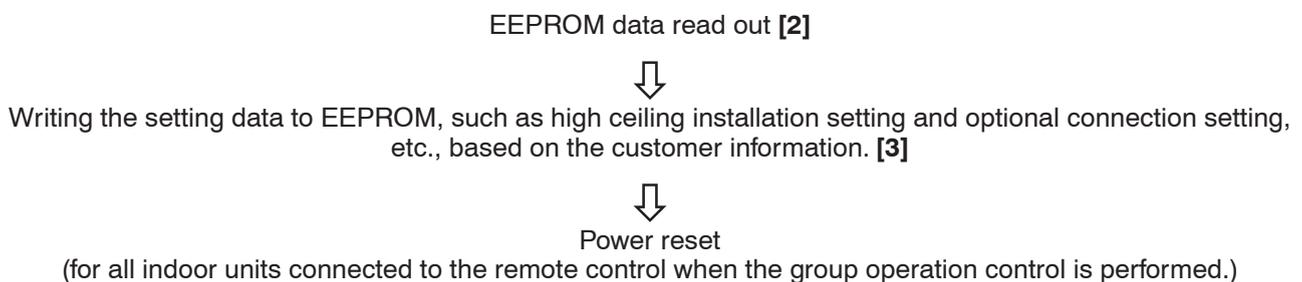
CASE 1

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 trouble 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 ,  and  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 “  ”. 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  (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  →  by pushing  /  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  /  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 “  ” to “ FF ”. The CODE No. (DN) may skip.

Step 3 After writing down all setting data, push  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

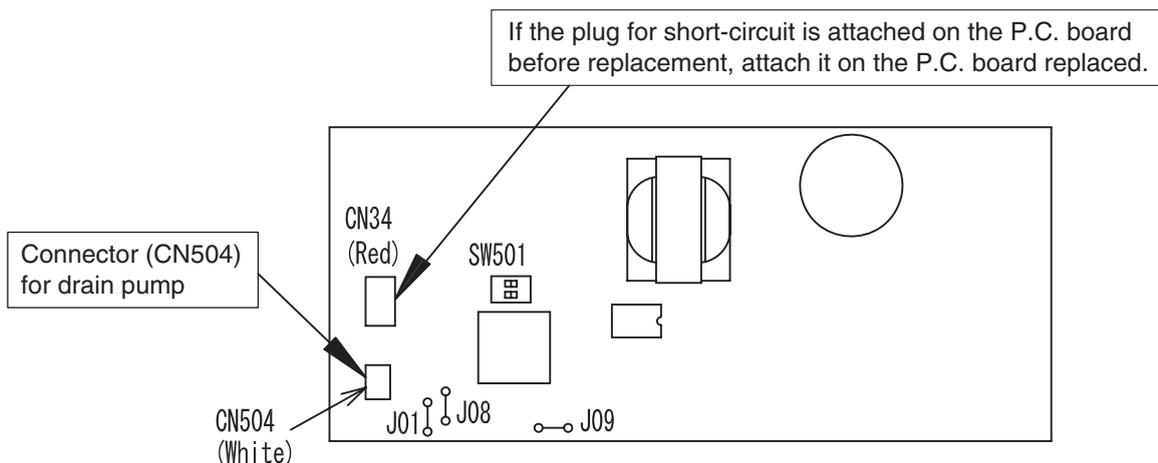
| DN | Contents |
|----|----------------------|
| 10 | Type |
| 11 | Indoor unit capacity |
| 12 | System address |
| 13 | Indoor unit address |
| 14 | Group address |

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 (cut), switch SW501, (short-circuit) connector CN34 as the setting of the P.C. board before replacement.



Step 2 According to the system configuration, turn on the indoor unit following to the either methods shown below.

a) Single operation (Indoor unit is used as standalone.)

Turn on the indoor unit.

1. After completion of the auto-address setting mode (required time: approx. 5 min.), proceed to [3]. (System address = 1, Indoor unit address = 1, Group address = 0 (standalone) are automatically set.)

2. Push ,  and  buttons simultaneously for more than 4 seconds to interrupt the auto-address setting mode, and proceed to [3]. (The unit No. “  ” is displayed.)

b) Group operation (including twin system)

Turn on the indoor unit(s) with its P.C. board replaced to the P.C. board for indoor unit servicing, according to either methods 1 or 2 shown below.

1. Turn on only the indoor unit with its P.C. board replaced. (Be sure to confirm the remote controller is surely connected. If not, the operation [3] cannot be performed.)
Perform either methods 1 or 2 described in item a) above.
2. Turn on the multiple indoor units including the indoor unit with its P.C. board replaced.
 - Twin 1 system only
 - All group connections

After completion of the auto-address setting mode (required time: approx. 5 min.), proceed to [3].

* The header unit of the group may be changed by performing the auto-address setting. Also, the system address/Indoor unit address of the indoor unit with its P.C. board replaced may be assigned to the addresses (not used) other than those of the indoor units without its P.C. board replaced.

It is recommended to keep the information in advance, which refrigerant system the indoor unit belongs to or whether the indoor unit works as the header unit or the follower unit in the group control operation.

[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 , and 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 (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.)

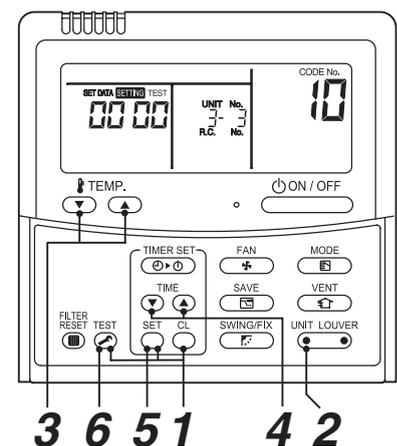
Specify the indoor unit No. with its P.C. board replaced to the P.C. board for indoor unit servicing. (You cannot perform this operation if “ ALL ” is displayed.)

Step 3 Select the CODE No. (DN) can be selected by pushing the / 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.

1. Set the CODE No. (DN) to “ 10 ”. (without change)
2. Select the type by pushing / buttons for the timer setting.
(For example, 4-way Cassette Type is set to “0001”. Refer to table 2)
3. Push button.
(The operation completes if the setting data is displayed.)
4. Change the CODE No. (DN) to “ 11 ” by pushing / buttons for the temperature setting.
5. Select the capacity by pushing / buttons for the timer setting.
(For example, 80 Type is set to “ 00 12 ”. Refer to table 3)
6. Push button.
(The setting completes if the setting data are displayed.)
7. Using the set temperature / buttons, set “ 1E ” to the CODE No. (DN).
8. Using the timer time / buttons, set the dat. (0001)
9. Push button (The setting completes if the setting data are displayed.)
10. Push the button to return to the normal stop status
(It takes approx. 1 min until the remote control operation is available again.)

<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 ^{TEST} button to return to the normal stop status. (It takes approx. 1 min until the remote control 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 ^{SET} 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.

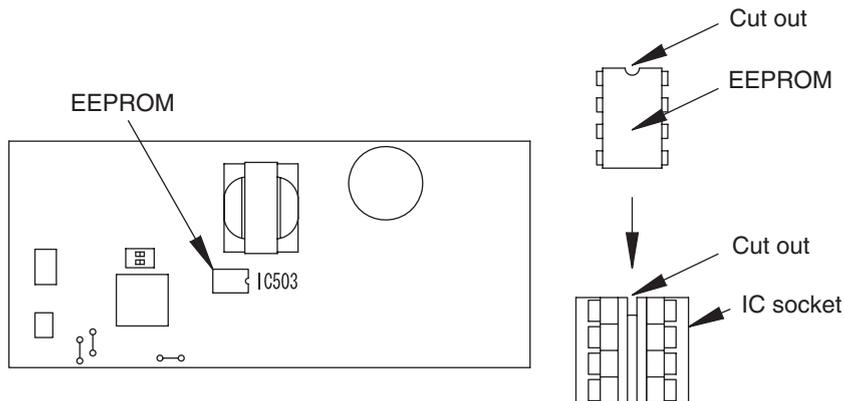


Table 1. Setting data (CODE No. table (example))

| 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 | | Depending on Type |
| 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 °C (Ts ±1.5) |
| 28 | Power failure automatic recovery | | 0000: None |
| 2b | Thermostat output SW | | 0000: Thermostat 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 |
| 8b | Correction of high heat feeling | | 0000: None |
| 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 |
| C2 | Demand setting (outdoor unit current demand) | | 0075: 75 % |
| d0 | Remote controller operation save function | | 0001: Enable |
| d1 | Frost protection function | | 0000: None |
| 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 |

Table 2. Type: CODE No. 10

| Setting data | Type | Type name abb. |
|--------------|---------------------|----------------|
| 0001* | 4-way Cassette Type | RAV-GM***UT* |

* ⚠ CAUTION
 <Model name: RAV-GM***UT*>
 For above models, set the CODE No. to " CE " and the setting data " 0000 " (initial) to " 0001 ".

Table 3. Indoor unit capacity: CODE No. 11

| Setting data | Type |
|--------------|---------|
| 0000* | Disable |
| 0009 | 56 |
| 0012 | 80 |
| 0015 | 110 |
| 0017 | 140 |

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

9. SETUP AT LOCAL SITE AND OTHERS

9-1. Indoor Unit

9-1-1. Test Run Setup on Remote Controller

<Wired remote controller>

- When pushing  button on the remote controller for 4 seconds or more, "TEST" is displayed on LC display. Then push  button.
 - "TEST" is displayed on LC display during operation of Test Run.
 - During Test Run, temperature cannot be adjusted but air volume can be selected.
 - In heating and cooling operation, a command to fix the Test Run frequency is output.
 - Detection of trouble is performed as usual. However, do not use this function except case of Test Run because it applies load on the unit.
- Use either heating or cooling operation mode for [TEST].

NOTE : The outdoor unit does not operate after power has been turned on or for approx. 3 minutes after operation has stopped.
- After a Test Run has finished, push  button again and check that [TEST] on LC display has gone off. (To prevent a continuous test run operation, 60-minutes timer release function is provided to this remote controller.)

<Wireless remote controller>

◆ In case of wireless remote controller

- 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.
- 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 → 18 °C → 17 °C → 18 °C → 17 °C → 18 °C → 17 °C → 18 °C → (test run) → ON/OFF

▼ **Heating test run:**

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

9-1-2. Forced Defrost Setup of Remote Controller (For wired remote controller only)

(Preparation in advance)

1 Push  +  +  buttons simultaneously for 4 seconds or more on the remote controller. (Push buttons while the air conditioner stops.)

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

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

Select a header indoor unit (outdoor unit is connected) which is to be defrosted. In this time, fan and louver of the selected indoor unit operate.

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

4 Using the timer time   buttons, set time to data **000** l. (**0000** at shipment)

5 Push  button. (OK if indication lights)

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

(Practical operation)

- Push ON/OFF  button.
- Select the HEAT mode.
- After a while, the forced defrost signal is sent to the outdoor unit and then the outdoor unit starts defrost operation. (The forced defrost operation is performed for Max. 12 minutes.)
- After defrost operation finished, the operation returns to the heating operation.

To execute the defrost operation again, start procedure from above item **1**.

(If the forced defrost operation was executed once, setting of the above forced defrost operation is cleared.)

9-1-3. LED Display on P.C. Board

1. D501 (Red)

- It goes on (Goes on by operation of the main microcomputer) at the same time when the power supply is turned on.
- It flashes with 1-second interval (every 0.5 second): When there is no EEPROM or writing-in operation fails.
- It flashes with 10-seconds interval (every 5 second): During DISP mode
- It flashes with 2-seconds interval (every 1 second): While setting of function select (EEPROM)

2. D403 (Red)

- It goes on when power supply of the remote controller is turned on. (Lights on hardware)

3. D503 (Yellow): Main bus communication

- For the indoor unit connecting to the central control device, D503 alternates between flashing for 5 seconds and lighting for 5 seconds when the PC board receives the communication signal.
- For the indoor unit disconnecting to the central control device, D503 flashes every 5 seconds when the air conditioner continues to stop the operation.

4. D504 (Green): Sub bus communication

- It flashes for 5 seconds in the first half of communication with the remote controller. (Group header unit)
- It flashes with 0.2-second interval (for 0.1 second) for 5 second in the latter half of communication between header and follower in the Gr indoor unit.

5. D14 (Orange)

- It flashes while receiving the serial signal from the outdoor unit. (Hardware)

6. D15 (Green)

- It flashes while sending the serial signal to the outdoor unit. (Hardware)

9-1-4. Function Selection Setup

<Procedure> Perform setting while the air conditioner stops.

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

The first displayed unit No. is the header indoor unit address in the group control.
In this time, fan and louver of the selected indoor unit operate.



2 Every pushing **UNIT LOUVER** button (button at left side), the indoor unit No. in the group control is displayed one after the other. In this time, fan and louver of the selected indoor unit only operate.



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



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

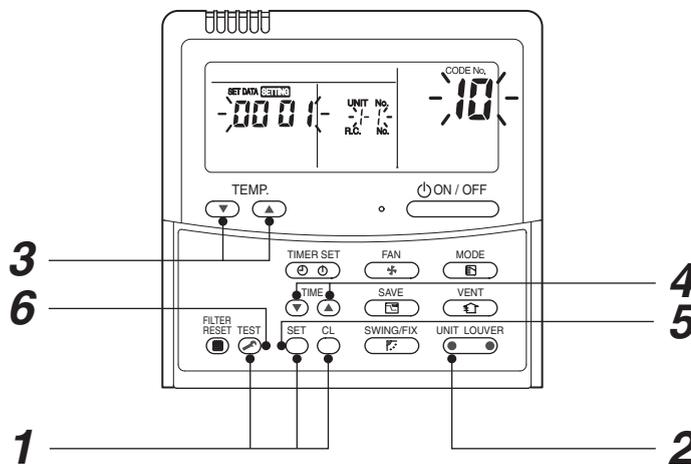


5 Push **SET** button. (OK if indication lights)

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



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



<Operation procedure>

1 → 2 → 3 → 4 → 5 → 6 END

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 to 0064: No.64 unit 0099: Unfixed | 0099: Unfixed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04 | Specific indoor unit priority | 0000: No priority 0001: Priority | 0000: No priority | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 06 | Heating temp shift | 0000: 0 °C to 0001: +1 °C 0002: +2 °C to 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 | 0001 : 4-way Cassette to 0037 0000 : 1-way Cassette to 0037 | 0001 : 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 0001: Swing only 0004: (4-way Air Discharge Cassette type) | 0004: (4-way Air Discharge Cassette type) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1E | Temp difference of [AUTO] mode selection COOL → HEAT, HEAT → COOL | 0000: 0 °C to 0010: 10 °C (For setup temperature, reversal of COOL / HEAT by } (Data value) / 2) | 0003: 3 °C (Ts ±1.5) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | Automatic restart of power failure | 0000: None 0001: Restart | 0000: None | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2A | Selection of option/Trouble input (TCB-PCUC2E: 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | Wind direction setting | 0000 : Smudge reducing position 0002 : Cold draft less position | 0000 : Smudge reducing position | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5d | High-ceiling adjustment (Air flow selection) | <table border="1"> <thead> <tr> <th colspan="11">Unit : m</th> </tr> <tr> <th>Model RAV-</th> <th colspan="3">GM56</th> <th colspan="3">GM80</th> <th colspan="3">GM110, GM140</th> <th>Setup of high ceiling</th> </tr> <tr> <th>Discharge direction</th> <th>4-way</th> <th>3-way</th> <th>2-way</th> <th>4-way</th> <th>3-way</th> <th>2-way</th> <th>4-way</th> <th>3-way</th> <th>2-way</th> <th>Setup data</th> </tr> </thead> <tbody> <tr> <td>Standard (Factory default)</td> <td>2.8</td> <td>3.2</td> <td>3.5</td> <td>3.0</td> <td>3.3</td> <td>3.6</td> <td>3.9</td> <td>4.2</td> <td>4.5</td> <td>0000</td> </tr> <tr> <td>High ceiling (1)</td> <td>3.2</td> <td>3.5</td> <td>3.8</td> <td>3.3</td> <td>3.5</td> <td>3.8</td> <td>4.2</td> <td>4.4</td> <td>4.6</td> <td>0001</td> </tr> <tr> <td>High ceiling (3)</td> <td>3.5</td> <td>3.8</td> <td>—</td> <td>3.6</td> <td>3.8</td> <td>—</td> <td>4.5</td> <td>4.6</td> <td>—</td> <td>0003</td> </tr> </tbody> </table> | Unit : m | | | | | | | | | | | Model RAV- | GM56 | | | GM80 | | | GM110, GM140 | | | Setup of high ceiling | Discharge direction | 4-way | 3-way | 2-way | 4-way | 3-way | 2-way | 4-way | 3-way | 2-way | Setup data | Standard (Factory default) | 2.8 | 3.2 | 3.5 | 3.0 | 3.3 | 3.6 | 3.9 | 4.2 | 4.5 | 0000 | High ceiling (1) | 3.2 | 3.5 | 3.8 | 3.3 | 3.5 | 3.8 | 4.2 | 4.4 | 4.6 | 0001 | High ceiling (3) | 3.5 | 3.8 | — | 3.6 | 3.8 | — | 4.5 | 4.6 | — | 0003 | 0000: Standard |
| Unit : m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Model RAV- | GM56 | | | GM80 | | | GM110, GM140 | | | Setup of high ceiling | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Discharge direction | 4-way | 3-way | 2-way | 4-way | 3-way | 2-way | 4-way | 3-way | 2-way | Setup data | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Standard (Factory default) | 2.8 | 3.2 | 3.5 | 3.0 | 3.3 | 3.6 | 3.9 | 4.2 | 4.5 | 0000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High ceiling (1) | 3.2 | 3.5 | 3.8 | 3.3 | 3.5 | 3.8 | 4.2 | 4.4 | 4.6 | 0001 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High ceiling (3) | 3.5 | 3.8 | — | 3.6 | 3.8 | — | 4.5 | 4.6 | — | 0003 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6E | Setting for air direction kit (1) | <table border="1"> <thead> <tr> <th></th> <th>GM56</th> <th>GM80</th> <th>GM110</th> <th>GM140</th> </tr> </thead> <tbody> <tr> <td>Standard (factory default)</td> <td>0000</td> <td>0000</td> <td>0000</td> <td>0000</td> </tr> <tr> <td>3-way air flow</td> <td>0000</td> <td>0000</td> <td>0080</td> <td>0075</td> </tr> <tr> <td>2-way air flow</td> <td>0090</td> <td>0090</td> <td>0080</td> <td>0070</td> </tr> </tbody> </table> | | GM56 | GM80 | GM110 | GM140 | Standard (factory default) | 0000 | 0000 | 0000 | 0000 | 3-way air flow | 0000 | 0000 | 0080 | 0075 | 2-way air flow | 0090 | 0090 | 0080 | 0070 | 0000: Standard | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | GM56 | GM80 | GM110 | GM140 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Standard (factory default) | 0000 | 0000 | 0000 | 0000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3-way air flow | 0000 | 0000 | 0080 | 0075 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-way air flow | 0090 | 0090 | 0080 | 0070 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

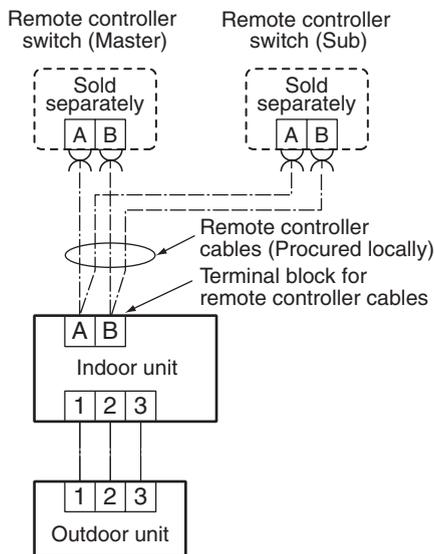
| DN | Item | Description | | | | At shipment | |
|----|---|--|------|--------------------------------------|-------|----------------------------|------|
| 88 | Setting for air direction kit (2) | | GM56 | GM80 | GM110 | According to capacity type | |
| | | Standard (factory default) | 0000 | 0072 | 0075 | | 0070 |
| | | 3-way air flow | 0060 | 0060 | 0050 | | 0048 |
| | | 2-way air flow | 0050 | 0050 | 0040 | | 0038 |
| b3 | Soft cooling | 0000: Unavailable | | 0001: Available | | 0001: Available | |
| b5 | Occupancy sensor/ | 0000: None | | 0001: Occupancy sensor provided | | 0000: None | |
| b6 | Occupancy sensor Enable/Invalid (Absence time judgment time) | 0000: Invalid | | 0001: 30min. | | 0002: Enable (60 min.) | |
| | | 0002: 60min. | | 0004; 120min. | | | |
| b7 | Occupancy sensor operation at absent time | 0000: Stand by | | 0001: operation stop | | 0000: Stand by | |
| | | 0005; 150min. | | | | | |
| d0 | Whether the power saving mode can be set by the remote controller | 0000: Invalid | | 0001: Valid | | 0001: Valid | |
| 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-PCUC2E) | 0000: None 0001: Exist | | | | 0000: None | |

9-1-5. Wiring and Setting of Remote Controller Control

2-remote controller control (Controlled by 2 remote controllers)

This control is to operate 1 or multiple indoor units are operated by 2 remote controllers.
(Max. 2 remote controllers are connectable.)

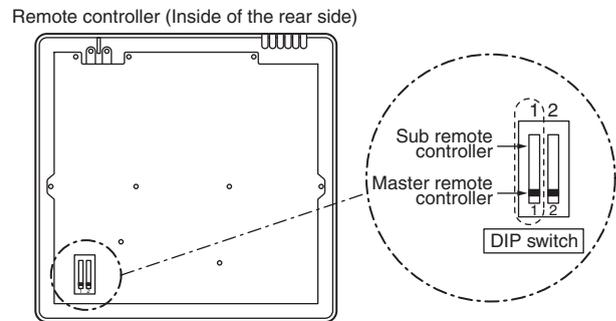
• When connected 2 remote controllers operate an indoor unit



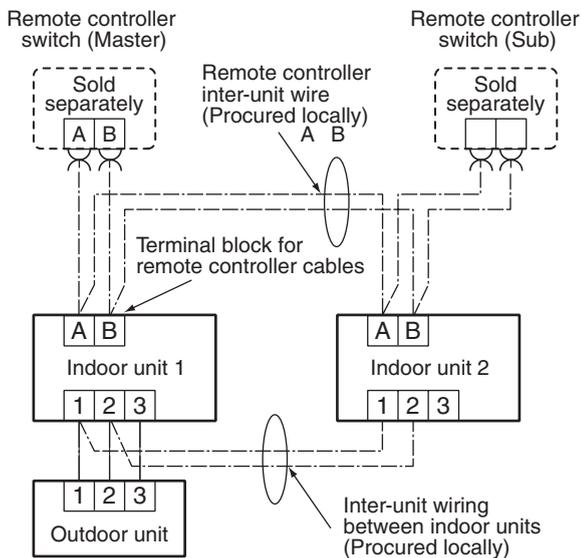
<Wired remote controller>

How to set wired remote controller as sub remote controller

Change DIP switch inside of the rear side of the remote controller switch from remote controller master to sub. (In case of RBC-AMT32E)



• When connected 2 remote controllers operate the twin



(Setup method)

One or multiple indoor units are controlled by 2 remote controllers.
(Max. 2 remote controllers are connectable.)

[Operation]

1. The operation contents can be changed by Last-push-priority.
2. Use a timer on either Master remote controller or Sub remote controller.

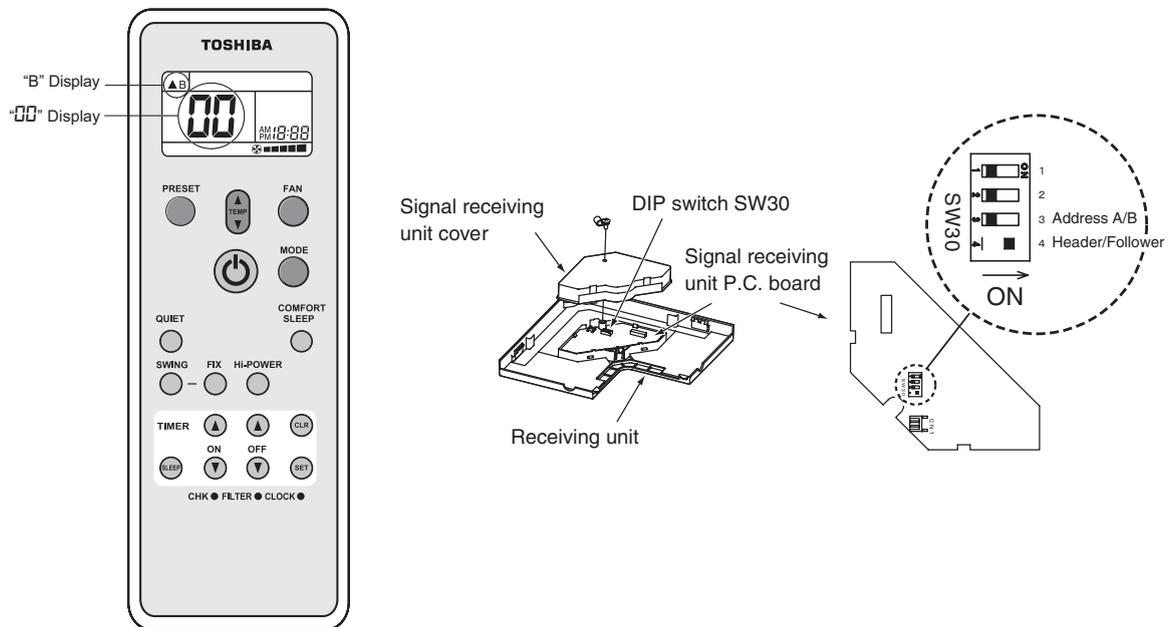
<Wireless remote controller>

Wireless remote controller A-B selection

Using 2 wireless remote controllers for the respective air conditioners, when the 2 air conditioners are closely installed. Address (A-B selection) must be changed on both signal receiving unit and wireless remote controller.

Wireless remote controller B setup

1. Push the START/STOP button to operate the air conditioner. Push it again to stop the air conditioner.
2. Push  [Temporary] button on the signal receiving unit to operate the air conditioner.
3. Point the wireless remote controller at the indoor unit.
4. Push and hold **CHK** ● button on the wireless remote controller by the tip of the pencil. “” will be shown on the display.
5. Push the **MODE**  button during pushing **CHK** ●.
“B” will be shown on the display and “” will be disappear and the air conditioner will turn OFF. The wireless remote controller B is memorized.



Note:

- Repeat above step to reset wireless remote controller to be A.
- The wireless remote controllers do not display “A”.
- The factory default of the wireless remote controllers is “A”.

Signal receiving unit (A-B selection) setting

1. Turn off the indoor unit power supply.
2. Remove the screw on the signal receiving unit cover and then remove the signal receiving cover.
3. Turn on the bit 3 of DIP switch SW30 on the signal receiving unit P.C. board.

9-1-6. Monitor Function of Remote Controller Switch

■ Calling of sensor temperature display

<Contents>

Each data of the remote controller, indoor unit and outdoor unit can be understood by calling the service monitor mode from the remote controller.

<Procedure>

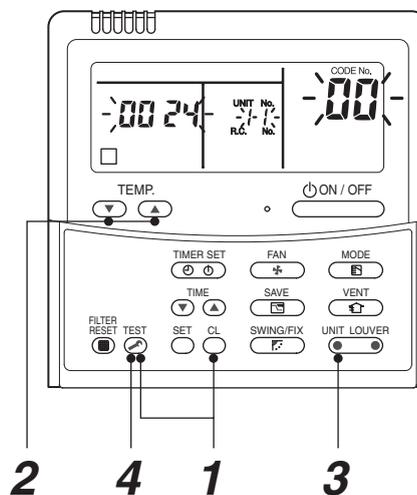
- 1 Push **TEST** + **CL** buttons simultaneously for 4 seconds to call the service monitor mode.

The service monitor goes on, the header indoor unit No. is displayed at first and then the temperature of CODE No. **00** is displayed.



- 2 Push temperature set **TEMP.** buttons and then change the CODE No. of data to be monitored.

The CODE No. list is shown below.



<Operation procedure>

1 → 2 → 3 → 4

Returned to usual display

| | CODE No. | Data name | Unit |
|------------------|----------|--|-------|
| Indoor unit data | 01 | Room temperature (Remote controller) | °C |
| | 02 | Indoor suction temperature (TA) | °C |
| | 03 | Indoor heat exchanger (Coil) temperature (TCJ) | °C |
| | 04 | Indoor heat exchanger (Coil) temperature (TC) | °C |
| | 07 | Indoor fan revolution frequency | rpm |
| | F2 | Indoor fan calculated operation time | ×100h |
| | F3 | Filter sign time | ×1h |
| | | | |

| | CODE No. | Data name | Unit | |
|-------------------|----------|--|-------|--|
| Outdoor unit data | 60 | Outdoor heat exchanger (Coil) temperature (TE) | °C | |
| | 61 | Outside temperature (TO) | °C | |
| | 62 | Compressor discharge temperature (TD) | °C | |
| | 63 | Compressor suction temperature (TS) | °C | |
| | 65 | Heat sink temperature (TH) | °C | |
| | 6A | Operation current (× 1/10) | A | |
| | 6D | Outdoor heat exchanger (Coil) temperature (TL) | °C | |
| | 70 | Compressor operation frequency | rps | |
| | 72 | Outdoor fan revolution frequency (Lower) | rpm | |
| | 73 | Outdoor fan revolution frequency (Upper) | rpm | |
| | F1 | Compressor calculated operation time | ×100h | |
| | | | | |
| | | | | |



- 3 Push **UNIT LOUVER** (left side button) button to select the indoor unit to be monitored. Each data of the indoor unit and its outdoor units can be monitored.



- 4 Pushing **TEST** button returns the status to the usual display.

*1 The indoor discharge temperature of CODE No. **F2** is the estimated value from TC or TCJ sensor. Use this value to check discharge temperature at test run.

(A discharge temperature sensor is not provided to this model.)

- The data value of each item is not the real time, but value delayed by a few seconds to ten-odd seconds.
- If the combined outdoor unit is one before 2 or 3 series, the outdoor unit data [6D], [70], [72] and [73] are not displayed.

■ Calling of trouble history

<Contents>

The trouble contents in the past can be called.

<Procedure>

1 Push **SET** + **TEST** buttons simultaneously for 4 seconds or more to call the service check mode.

Service Check goes on, the **CODE No. 01** is displayed, and then the content of the latest alarm is displayed.

The number and trouble contents of the indoor unit in which an trouble occurred are displayed.

2 In order to monitor another trouble history, push the set temperature **▼** / **▲** buttons to change the trouble history No. (CODE No.)

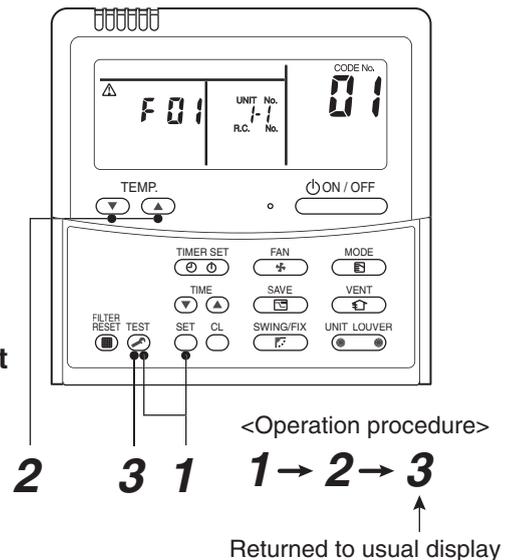
CODE No. 01 (Latest) → **CODE No. 04** (Old)

NOTE : 4 trouble histories are stored in memory.

3 Pushing **TEST** button returns the display to usual display.

REQUIREMENT

Do not push **CL** button, otherwise all the trouble histories of the indoor unit are deleted. If the trouble histories are deleted by pushing **CL** button, turn off the power supply once and then turn on the power supply again. When the trouble which is same as one occurred at the last before deletion continuously occurs again, it may not be stored in memory.



(Group control operation)

In a group control, operation of maximum 8 indoor units can be controlled by a remote controller.

Twin of an outdoor unit is one of the group controls.

The indoor unit connected with outdoor unit (Individual/Header of twin) controls room temperature according to setting on the remote controller.

<System example>



1. Display range on remote controller

The setup range (Operation mode/Air volume select/Setup temp) of the indoor unit which was set to the header unit is reflected on the remote controller.

1) Concealed duct high static pressure type is not set up on the header unit.

- If the Concealed duct high static pressure type is the header unit:

Operation mode: [Cooling/Heating AUTO] [HEAT] [COOL] [FAN] and no [DRY]
 Air volume select: [HIGH]

- When the operation mode is [DRY], [FAN] stops in concealed duct high static pressure models.

2. Address setup

If there is no serial communication between indoor and outdoor when the power is turned on, it is judged as follower unit of the twin. (Every time when the power is turned on)

- The judgment of header (wired) / follower (simple) of twin is carried out every time. It is not stored in nonvolatile memory.

Turn on power of the indoor unit to be controlled in a group within 3 minutes after setting of automatic address.

If power of the indoor unit is not turned on within 3 minutes (completion of automatic address setting), the system is rebooted and the automatic address setting will be judged again.

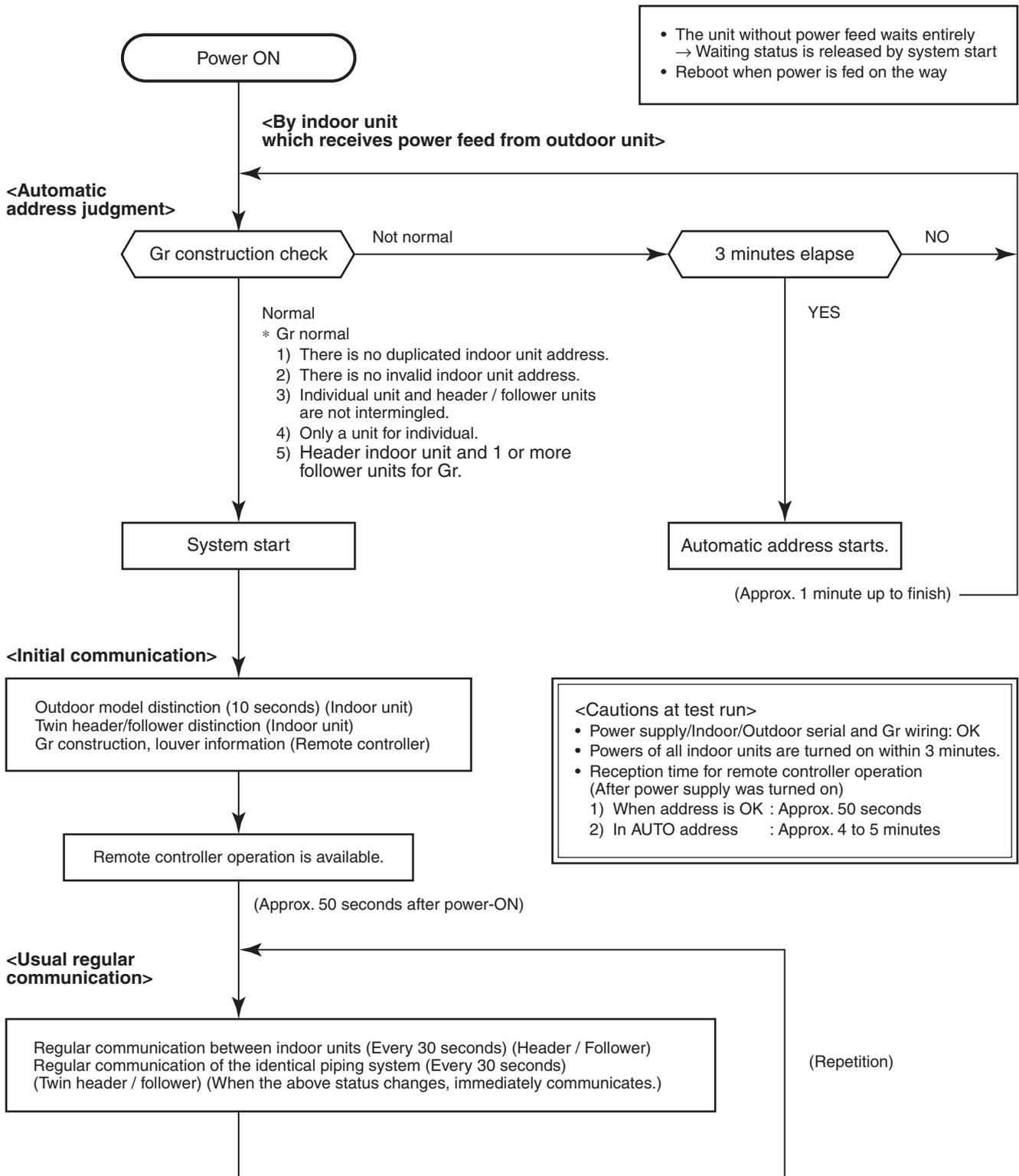
1) Connect indoor/outdoor connecting wire surely.

2) Check line address/indoor address/group address of the unit one by one.

Especially in case of twin check whether they are identical system address or not.

3) The unit No. (line/indoor gout address) which have been set once keep the present status as a rule if the unit No. is not duplicated with one of another unit.

Indoor unit power-ON sequence



- In a group operation, if the indoor unit which was fed power after judgment of automatic address cannot receive regular communication from the header unit and regular communication on identical pipe within 120 seconds after power was turned on, it reboots (system reset).
→ The operation starts from judgment of automatic address (Gr construction check) again.
(If the address of the header unit was determined in the previous time, the power fed to the header unit and reboot works, the header unit may change though the indoor unit line address is not changed.)

9-2. Setup at Local Site / Others

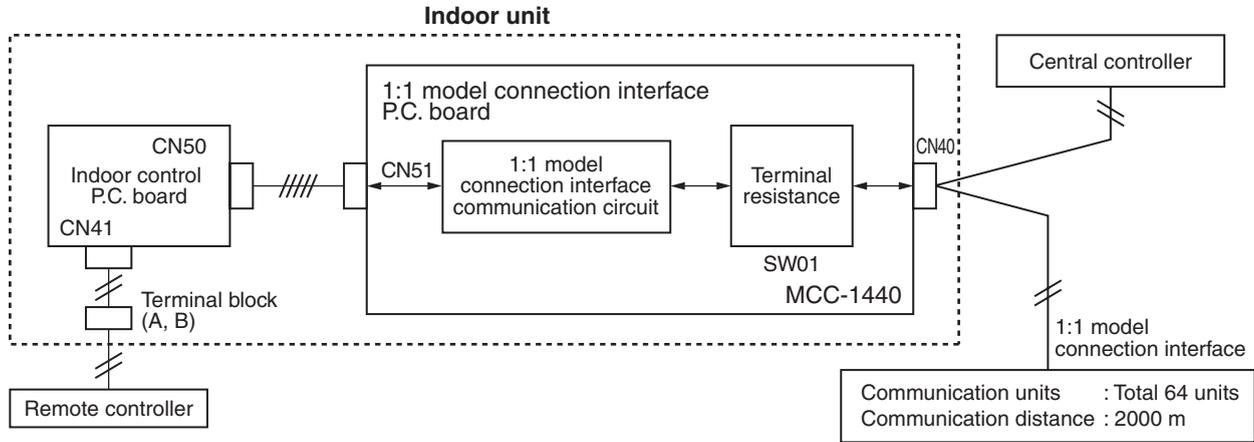
Model name: TCB-PCNT30TLE2

9-2-1. 1:1 Model Connection Interface (TCC-LINK adapter)

1. Function

This model is an optional P.C. board to connect the indoor unit to 1:1 model connection interface.

2. Microprocessor block diagram

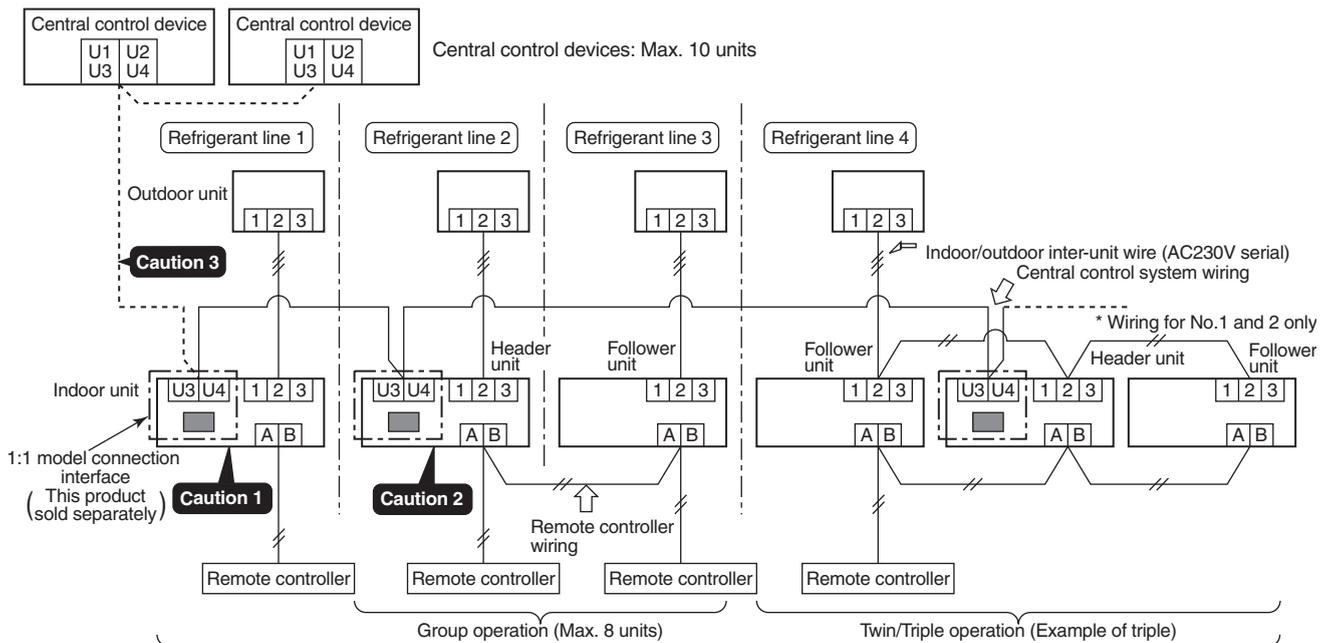


3. 1:1 model connection interface wiring connection

! CAUTION

- 1) When controlling DI, SDI series collectively, 1:1 model connection interface (This option) is required.
- 2) In case of group operation, twin-triple operation, the 1:1 model connection interface is necessary to be connected to the header unit.
- 3) Connect the central control devices to the central control system wiring.
- 4) When controlling DI, SDI series only, turn on only Bit 1 of SW01 of the least line of the system address No. (OFF when shipped from the factory)

*** In case of DI, SDI series, the address is necessary to be set up again from the wired remote controller after automatic addressing.**



Indoor units in all refrigerant lines: Max. 64 units
[If mixed with SMMS (Link wiring), multi indoor units are included.]
* However group follower units of SDI, DI series are not included in number of the units.

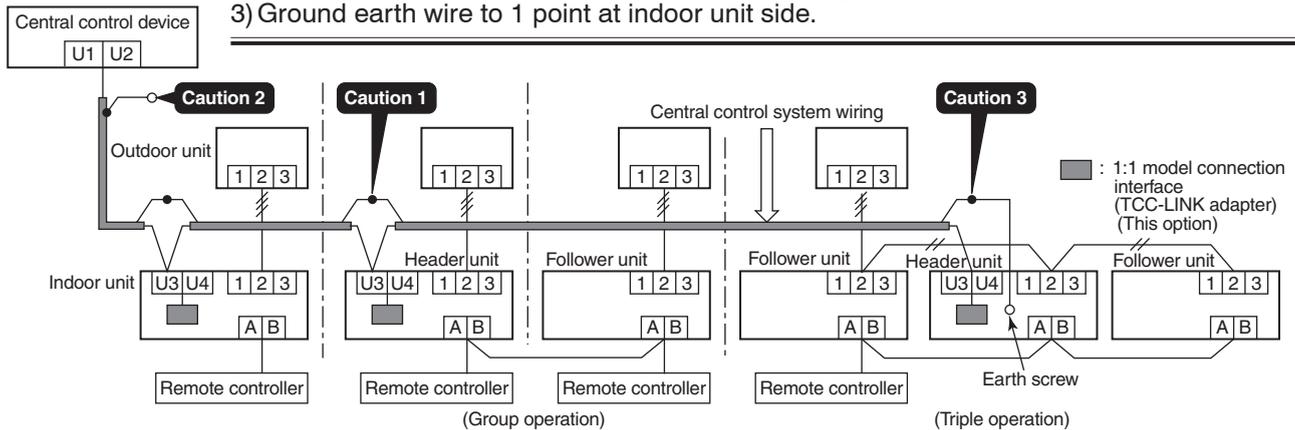
4. Wiring Specifications

- Use 2-core with no polar wire.
- Match the length of wire to wire length of the central control system. If mixed in the SMMS system, the wire length is lengthened with all indoor/outdoor inter-unit wire length at side.
- To prevent noise trouble, use 2-core shield wire.
- Connect the shield wire by closed-end connection and apply open process (insulating process) to the last terminal. Ground the earth wire to 1 point at indoor unit side. (In case of central controlling of digital inverter (DI, SDI) unit setup)

| No. of wires | Size |
|--------------|---|
| 2 | Up to 1000m: twisted wire 1.25mm ² Up to 2000m: twisted wire 2.0mm ² |

⚠ CAUTION

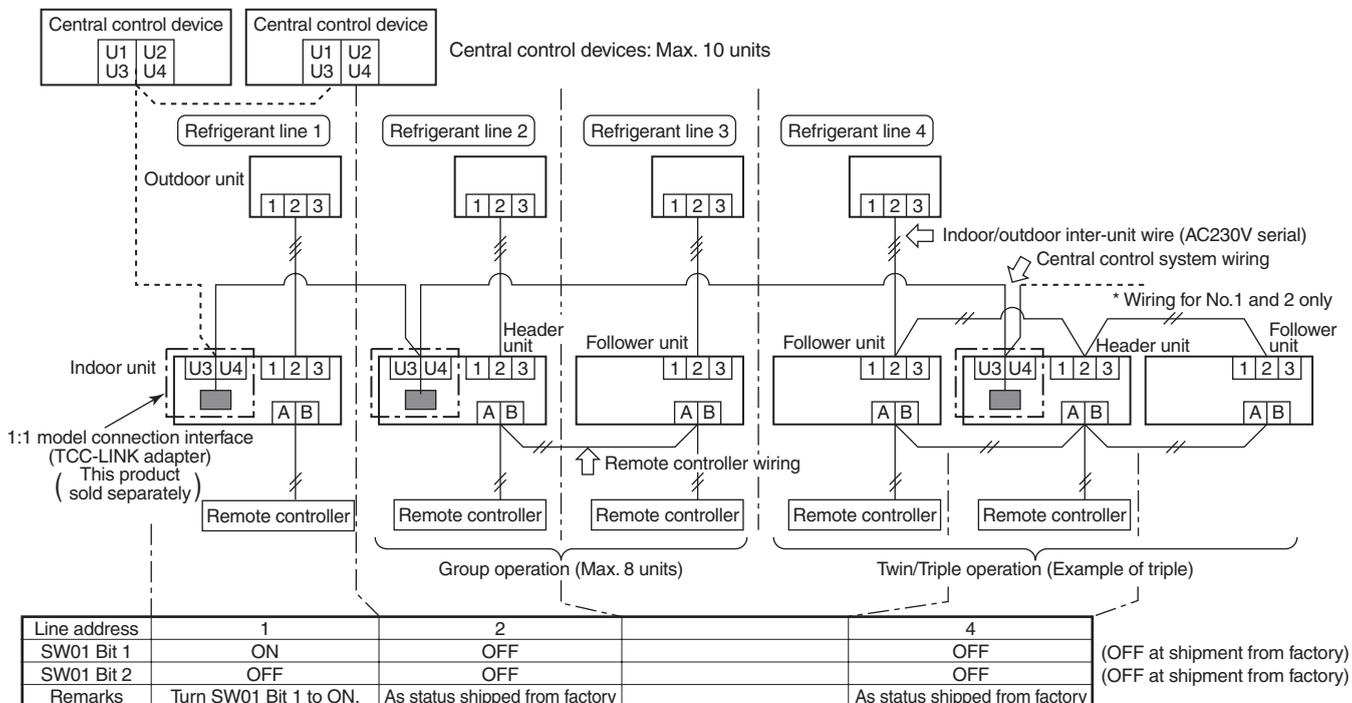
- 1) Closed-end connection of shield wire (Connect all the connecting parts of each indoor unit)
- 2) Apply open process to the last terminal (insulating process).
- 3) Ground earth wire to 1 point at indoor unit side.



5. P.C. Board Switch (SW01) Setup

When performing collective control by customized setup only, the setup of terminator is necessary.

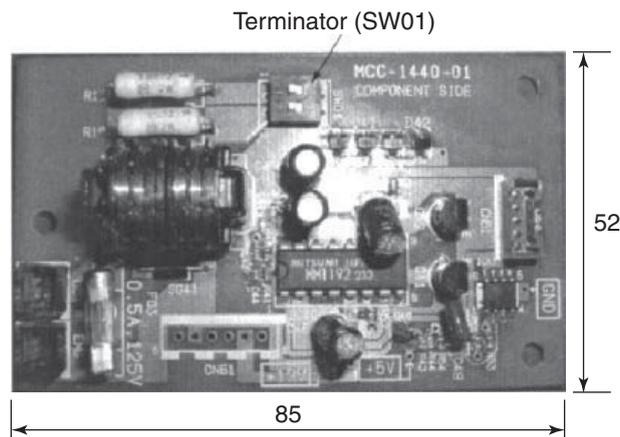
- Using SW01, set up the terminator.
- Set up the terminator to only the interface connected to the indoor unit of least line address No.



(Reference) Setup contents of switch

| SW01 | | Terminator | Remarks |
|-------|-------|------------|--|
| Bit 1 | Bit 1 | | |
| OFF | OFF | None | Mixed with SMMS (Link wiring) at shipment from factory |
| ON | OFF | 100Ω | Central control by digital inverter only |
| OFF | ON | 75Ω | Spare |
| ON | ON | 43Ω | Spare |

6. External view of P.C. board assembly



7. Address setup

In addition to set up the central control address, it is necessary to change the indoor unit number. (Line/Indoor/Group address). For details, refer to 1:1 model connection interface Installation Manual.

9-3. How to Set up Central Control Address Number

When connecting the indoor unit to the central control remote controller using 1:1 model connection interface, it is necessary to set up the central control address number.

- The central control address number is displayed as the line No. of the central control remote controller.

How to set up from indoor unit side by remote controller

<Procedure> Perform setup while the unit stops.

1 Push + buttons for 4 seconds or more.

When group control is executed, first the unit No. is displayed and all the indoor units in the group control are selected. In this time, fans of all the selected indoor units are turned on. (Fig. 1)
(Keep displayed status without pushing button (button of the left side).)

In case of individual remote controller which is not group-controlled, Line address and Indoor unit address are displayed.

2 Using temperature setup buttons, specify CODE No. 03.

3 Using timer time buttons, select the SET DATA. The setup data is shown in the table below (Table 1).

4 Push button. (OK if display goes on.)

- To change the item to be set up, return to Procedure 2.

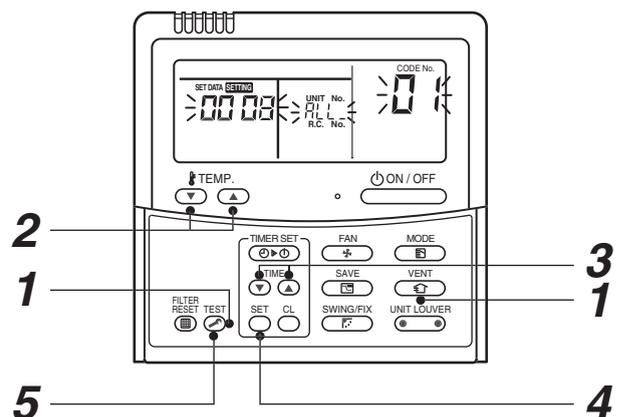
5 Push button.

The status returns to usual stop status.

(Table 1)

| SET DATA | Central control address No. |
|----------|--|
| 0001 | 1 |
| 0002 | 2 |
| 0003 | 3 |
| ⋮ | ⋮ |
| 0064 | 64 |
| 0099 | Unset (Setup at shipment from factory) |

(Fig.1)

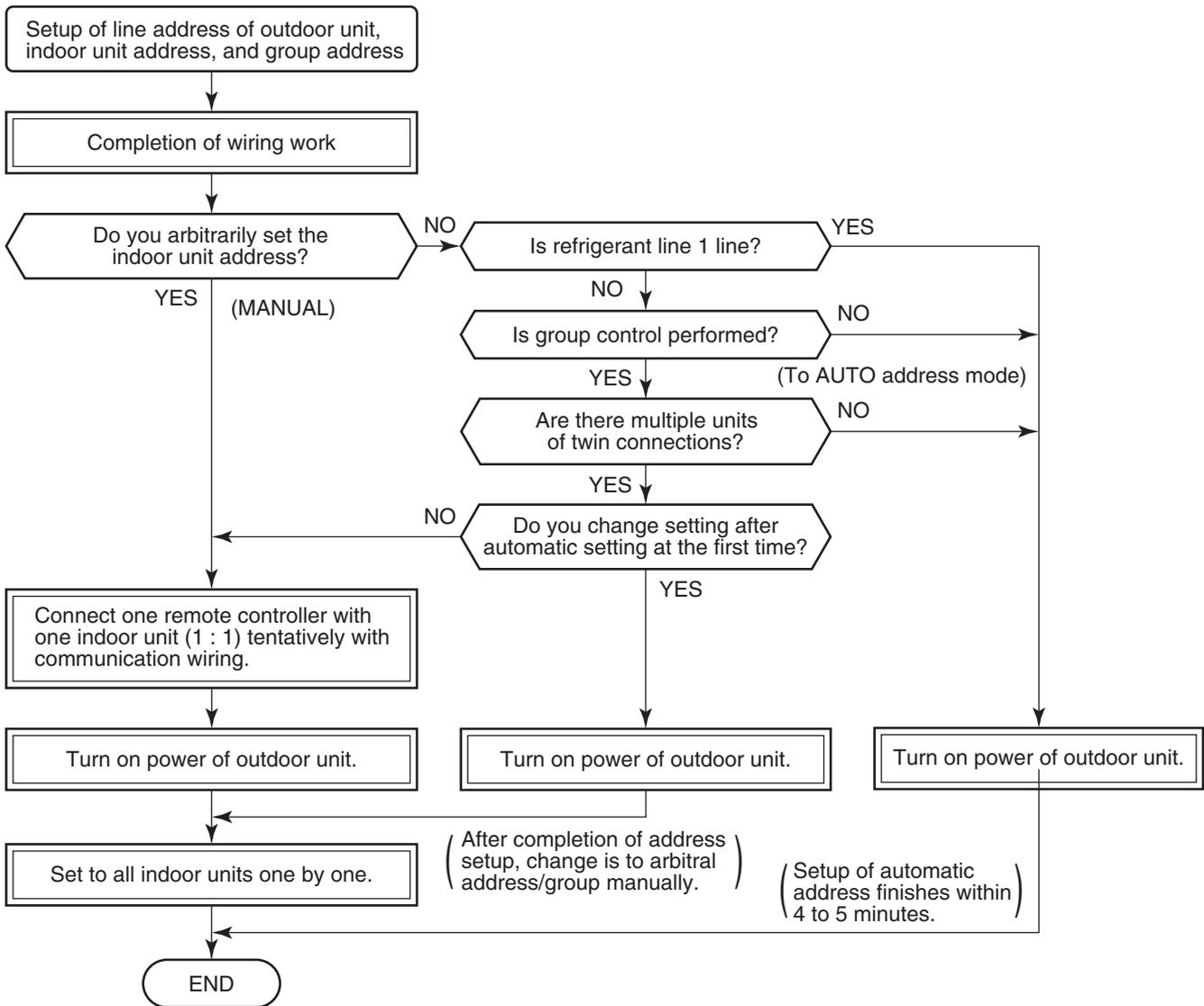


10. ADDRESS SETUP

10-1. Address Setup

<Address setup procedure>

When an outdoor unit and an indoor unit are connected and they are twin or when an outdoor unit is connected to each indoor unit respectively in the group operation even if multiple refrigerant lines are provided, the automatic address setup completes with power-ON of the outdoor unit. The operation of the remote controller is not accepted while automatic address works. (Approx. 4 to 5 minutes)



- When the following addresses are not stored in the neutral memory (IC10) on the indoor P.C. board, a test run operation cannot be performed. (Unfixed data at shipment from factory)

| | CODE No. | Data at shipment | SET DATA range |
|---------------------|----------|------------------|--|
| Line address | 12 | 0099 | 0001 (No. 1 unit) to 0030 (No. 30 unit) |
| Indoor unit address | 13 | 0099 | 0001 (No. 1 unit) to 0064 (No. 64 unit) Max. value of indoor units in the identical refrigerant line |
| Group address | 14 | 0099 | 0000 : Individual (Indoor units which are not controlled in a group) 0001 : Header unit (1 indoor unit in group control) 0002 : Follower unit (Indoor units other than header unit in group control) |

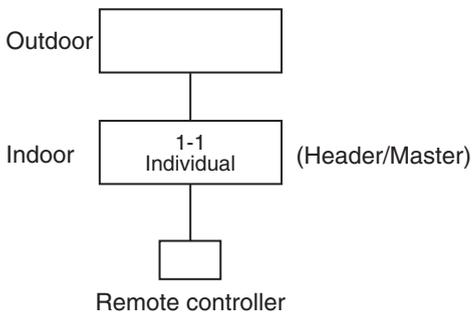
10-2. Address Setup & Group Control

<Terminology>

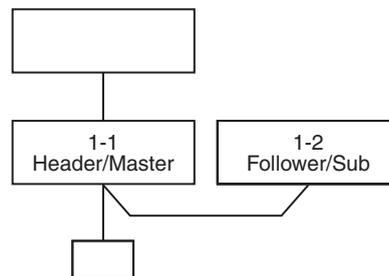
- Indoor unit No. : N – n = Outdoor unit line address N (Max. 30) – Indoor unit address n (Max. 64)
- Group address : 0 = Single (Not group control)
 1 = Header unit in group control
 2 = Follower unit in group control
- Header unit (= 1) : The representative of multiple indoor units in group operation sends/receives signals to/from the remote controllers and follower indoor units.
 (*It has no relation with an indoor unit which communicates serially with the outdoor units.)
 The operation mode and setup temperature range are displayed on the remote controller LCD. (Except air direction adjustment of louver)
- Follower unit (= 2) : Indoor units other than header unit in group operation
 Basically, follower units do not send/receive signals to/from the remote controllers.
 (Except trouble and response to demand of service data)
- Master unit (Representative unit) (Header Twin) : This unit communicates with the indoor unit (sub) which serial-communicates with the outdoor units and sends/receives signal (Command from compressor) to/from the outdoor units as the representative of the cycle control in the indoor units of the identical line address within the minimum unit which configures one of the refrigerating cycles of Twin.
- Sub unit (Subordinate unit) (Follower Twin) : Indoor units excluding the header unit in Twin
 This unit communicates with (Header) indoor unit in the identical line address and performs control synchronized with (Header) indoor unit.
 This unit does not perform the signal send/receive operation with the outdoor units.:
 N judgment for serial signal trouble.

10-2-1. System configuration

1. Single

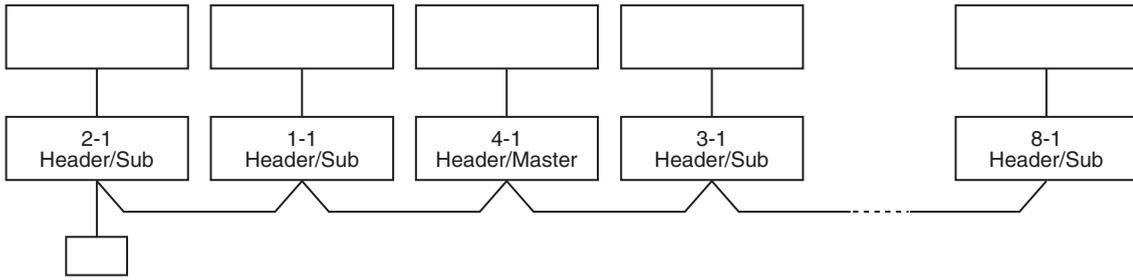


2. Twin

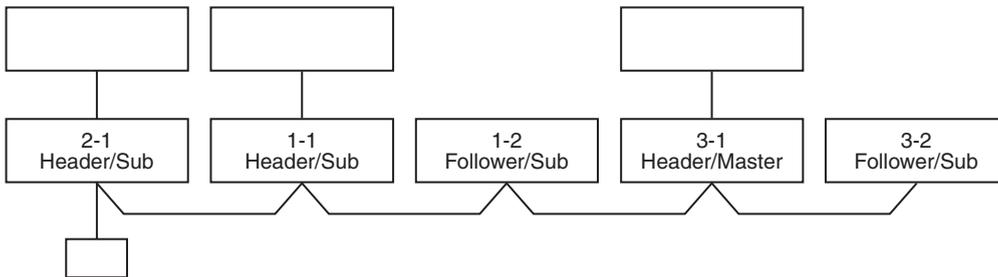


4. Single group operation

- Each indoor unit controls the outdoor unit individually.



5. Multiple groups operation (Manual address setting)



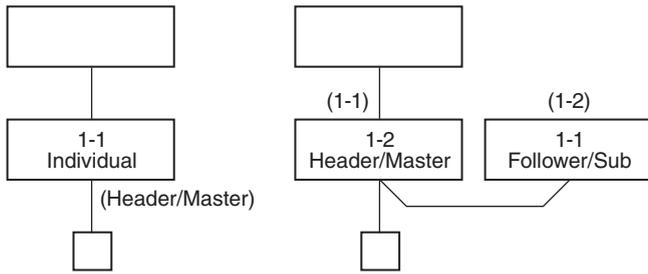
- Master unit: The master unit receives the indoor unit data (thermostat status) of the sub (Without identical line address & indoor/outdoor serial) and then finally controls the outdoor compressor matching with its own thermostat status. The master unit sends this command information to the sub unit.
- Sub unit: The sub unit receives the indoor unit data from the master (With identical line address & indoor/outdoor serial) and then performs the thermostat operation synchronized with the master unit. The sub unit sends own thermostat ON/OFF demand to the master unit.

(Example)

No. 1-1 master unit sends/receives signal to/from No. 1-2 and No. 1-3 sub units.
(It is not influenced by the line 2 or 3 address indoor unit.)

10-2-2. Automatic Address Example from Unset Address (No miswiring)

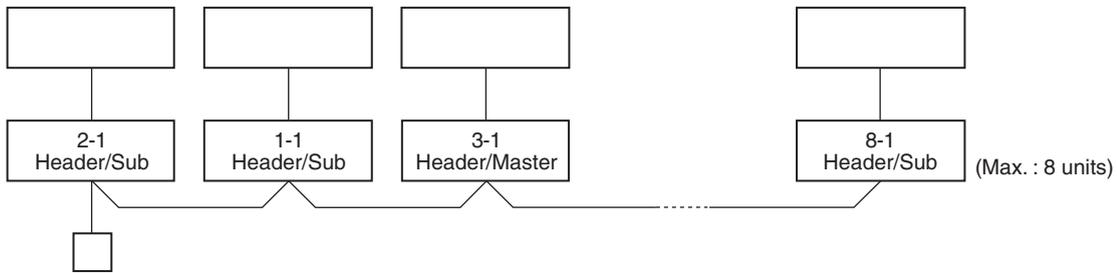
1. Standard (One outdoor unit)



Only turning on source power supply (Automatic completion)

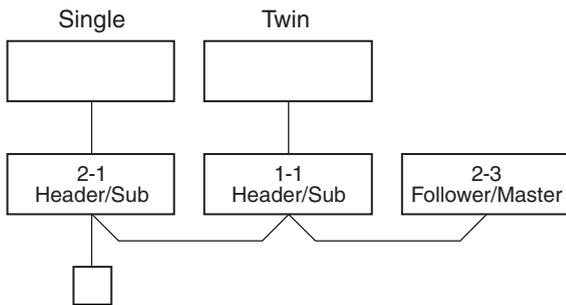
2. Group operation

(Multiple outdoor units = Multiple indoor units with serial communication only, without twin)

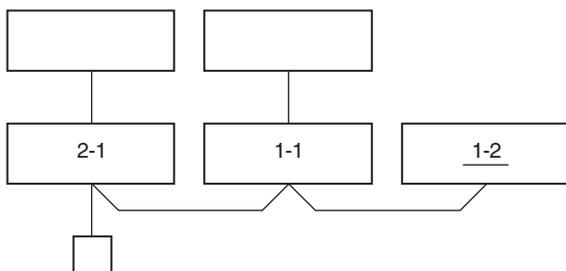


Only turning on source power supply (Automatic completion)

3. Multiple groups operation



Change is necessary
Manually change addresses of the multiple sub units
simultaneously from the remote controller.

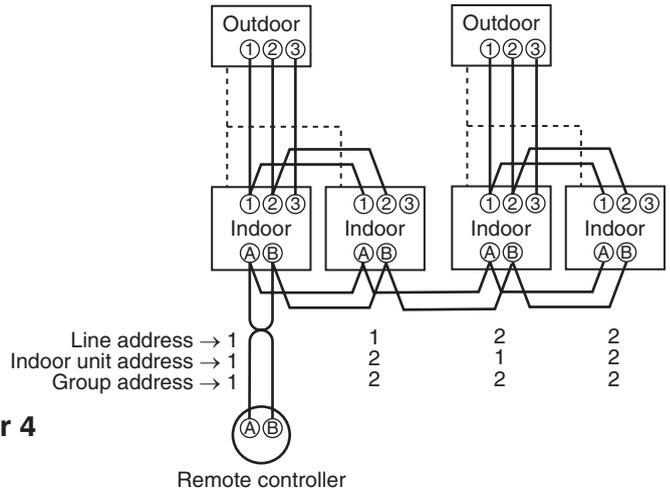


10-3. Address Setup (Manual Setting from Remote Controller)

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

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

(Example of 2-lines wiring)
(Solid line: Wiring, Broken line: Refrigerant pipe)



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

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

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

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

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

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

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

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

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

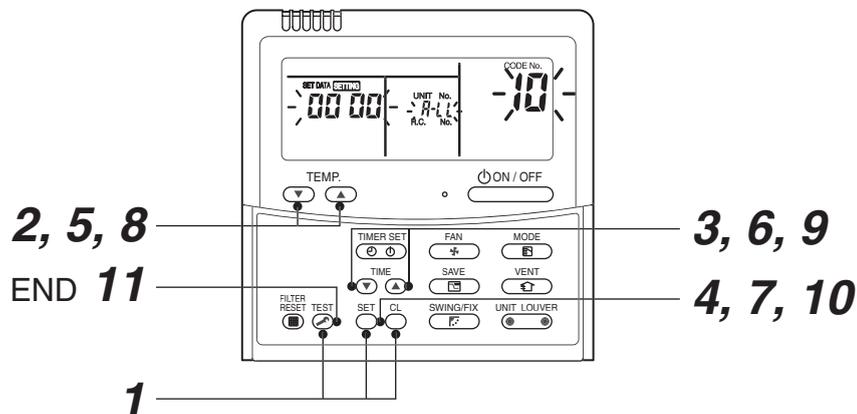
10 Push **SET** button. (OK when display goes on.)

11 Push **TEST** button.

Setup completes. (The status returns to the usual stop status.)

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

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



<Operation procedure>

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

10-4. Confirmation of Indoor Unit No. Position

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

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

<Procedure>

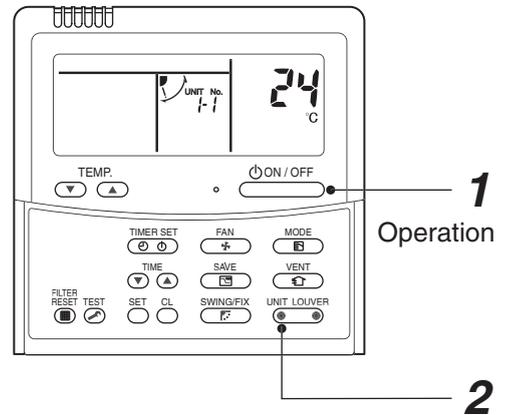
1 Push  button if the unit stops.

2 Push  button (button of the left side).

Unit No. 1-1 is displayed on LCD.

(It disappears after several seconds.)

The displayed unit No. indicate line address and indoor unit address. (When other indoor units are connected to the identical remote controller (Group control unit), other unit numbers are also displayed every pushing  button (button of the left side).



<Operation procedure>

1 → 2 END

2. To know the position of indoor unit body by address

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

<Procedure>

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

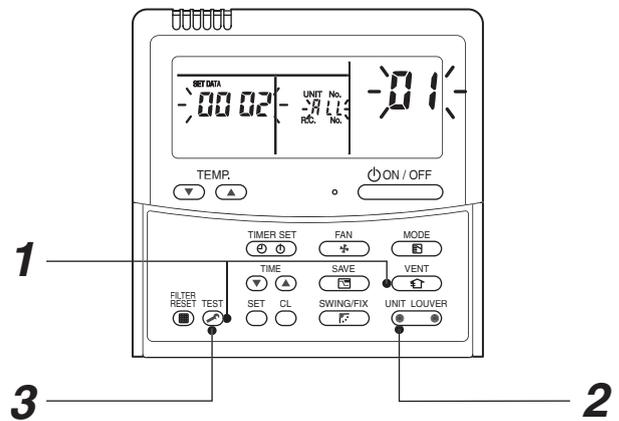
1 Push  and  buttons simultaneously for 4 seconds or more.

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

2 Every pushing  button (button of the left side), the unit numbers in the group control are successively displayed.

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

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



<Operation procedure>

1 → 2 → 3 END

<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 trouble 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 |

11. DETACHMENTS

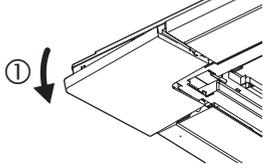
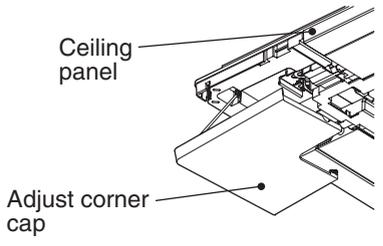
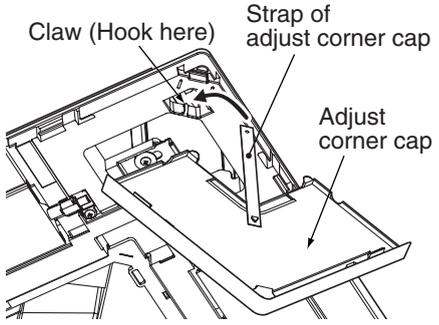
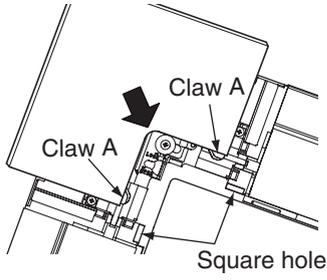
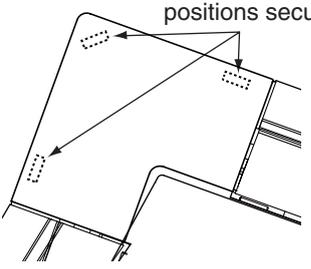
⚠ WARNING

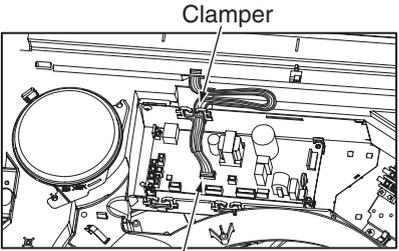
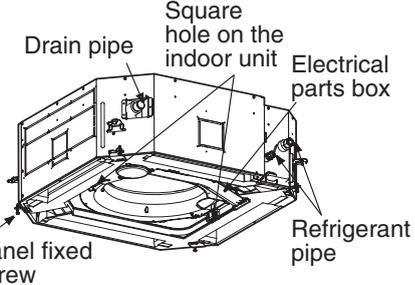
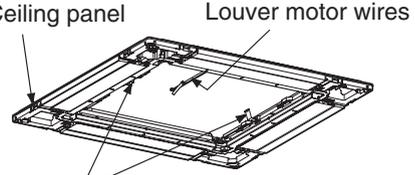
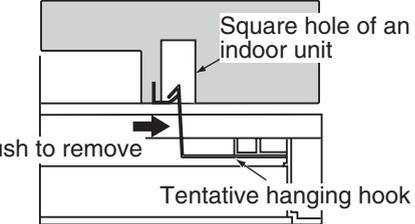
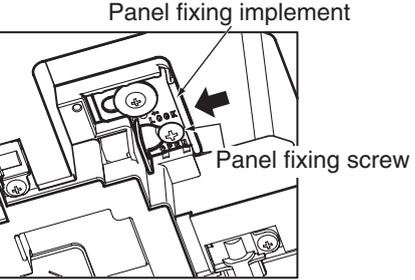
Be sure to stop operation of the air conditioner before work and then turn off switch of the breaker.

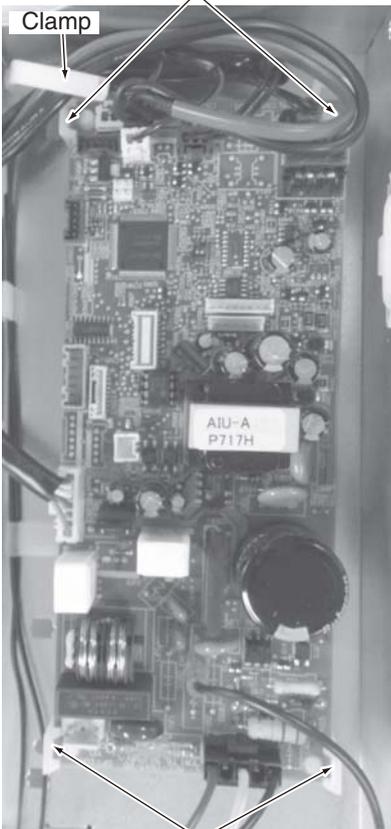
⚠ CAUTION

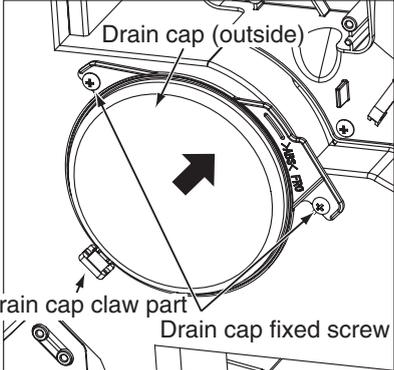
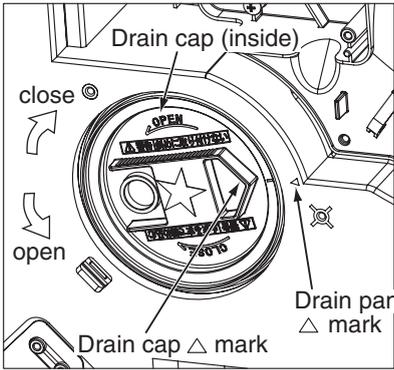
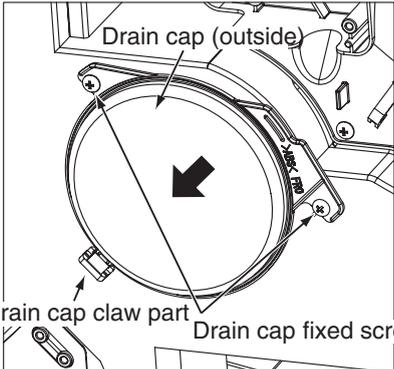
Be sure to put on gloves during working time; otherwise an injury will be caused by a part etc.

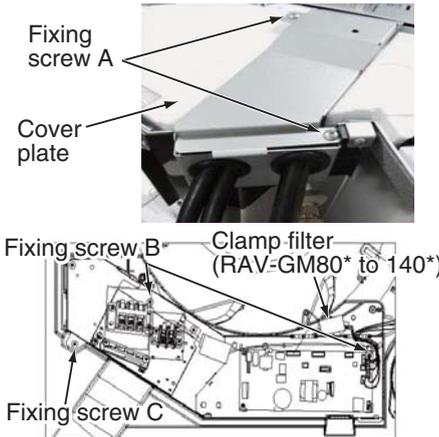
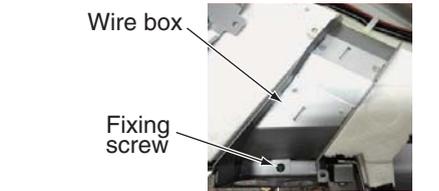
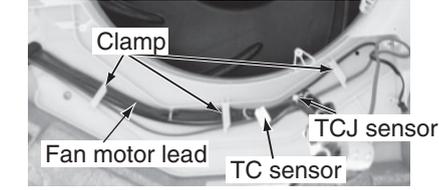
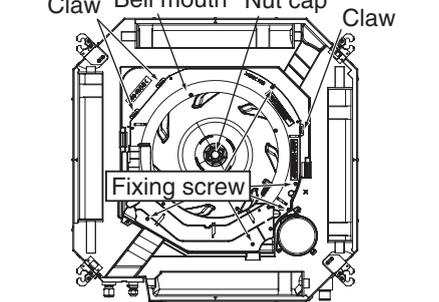
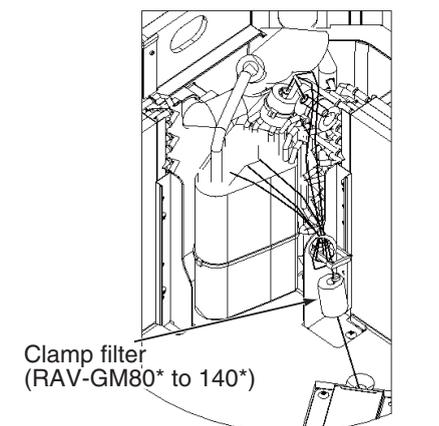
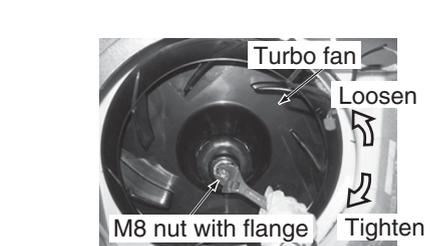
| No. | Part name | Procedure | Remarks |
|-----|----------------------|---|---------|
| ① | Suction grille | <p>1. Detachment</p> <ol style="list-style-type: none"> 1) Stop operation of the air conditioner and then turn off switch of the breaker. 2) Slide the 2 hooks of the suction grille inward and then hang down the suction grille while pushing the suction grille. 3) Remove a strap connecting the panel and the suction grille and then remove the suction grille. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Hook the suction grille to the panel. 2) Attach strap of the suction grille to the panel as before. 3) Close the suction grille, slide the knobs outward and then fix the panel. | |
| ② | Electric parts cover | <p>1. Detachment</p> <ol style="list-style-type: none"> 1) Carry out work of item 1. of ①. 2) Remove the fixing screw A which fixes the electric parts cover and loosen the fixing screw B. 3) Slide the electric parts cover to the arrow direction in order to open. (The electric parts cover remains hung.) <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Hook the suction grille to the panel. 2) Tighten the fixing screws A and B and then fix the electric parts box cover. 3) Following to work of item 2 of ①, mount the suction grille as before. | |

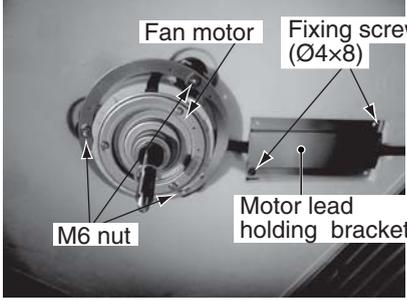
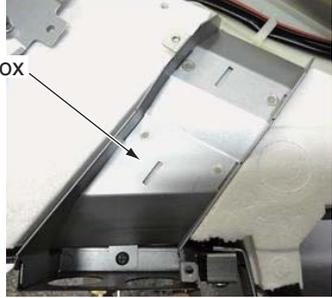
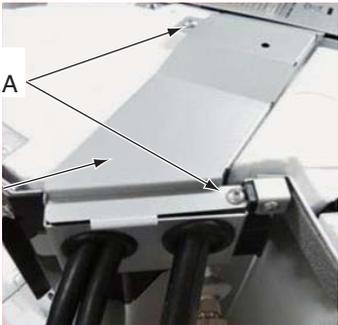
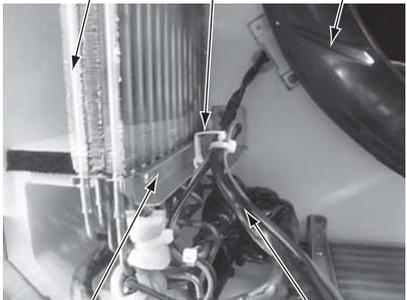
| No. | Part name | Procedure | Remarks |
|-----|-------------------|---|---|
| ③ | Adjust corner cap | <p>1. Detachment</p> <p>1) Pull the knob of the adjust corner cap to the arrow direction ①, remove the adjust corner cap.</p> <div data-bbox="363 320 967 443" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>NOTE : The adjust corner cap will remain hung on a falling-preventive strap.</p> </div> <p>2. Attachment</p> <p>1) Hook the fall-prevention strap securely to the claw of the ceiling panel if it remains removed.</p> <p>2) Insert claw of the adjust corner cap with the arrow direction into the square hole of the panel. (2 positions)</p> <p>3) Insert claws of the adjust corner cap into the positions indicated with arrow marks so that they fit in 3 positions.</p> |  <p>①</p>  <p>Ceiling panel</p> <p>Adjust corner cap</p>  <p>Claw (Hook here)</p> <p>Strap of adjust corner cap</p> <p>Adjust corner cap</p>  <p>Claw A</p> <p>Claw A</p> <p>Square hole</p> <p>Insert the claw B into the three positions securely.</p>  |

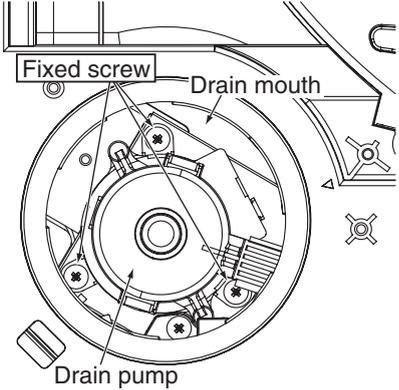
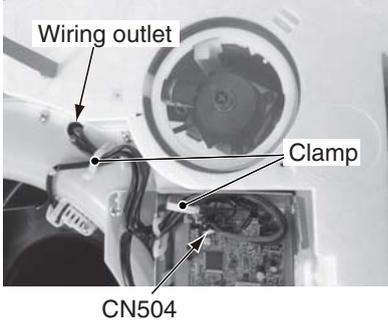
| No. | Part name | Procedure | Remarks |
|-----|---------------|--|--|
| ④ | Ceiling panel | <p>1. Detachment</p> <ol style="list-style-type: none"> 1) Carry out works of item 1 of ② and item 1 of ③. 2) Remove the flap connector (CN510, White, 20P) connected to the control P.C. board and then remove the lead wire from the clamp. <div data-bbox="363 389 965 510" style="border: 1px solid black; padding: 5px;"> <p>NOTE : Unlock the lock of the housing part and then remove the connector.</p> </div> <ol style="list-style-type: none"> 3) Slide the panel fixing brackets (4 positions) outward. (Loosen the panel fixing 4 screws when the panel fixing brackets do not move.) 4) Push the tentative bracket outward and then remove the ceiling panel. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Insert the tentative brackets (2 positions) of the ceiling panel into square holes of the indoor unit and then hook the panel tentatively. <div data-bbox="363 831 965 996" style="border: 1px solid black; padding: 5px;"> <p>NOTE : The ceiling panel has the directional properties against the indoor unit. Direct the louver motor wire to the electric parts box side of the indoor unit.</p> </div> <ol style="list-style-type: none"> 2) Pass the head of the panel fixing screw through hole of the panel fixing bracket and then slide the panel fixing bracket inward. (If loosening the panel fixing screws in removing, tighten them) 3) Following to work of item 2 of ③, attach the adjust corner cap as before. 4) Connect the louver connector (CN510, White, 20P) as before and then fix the lead wire with clamp. 5) Following to work of item 2 of ②, mount the electric parts box cover and the suction grille as before. |  <p style="text-align: center;">CN510</p>   <p style="text-align: right;">(Fig. 3)</p>   |

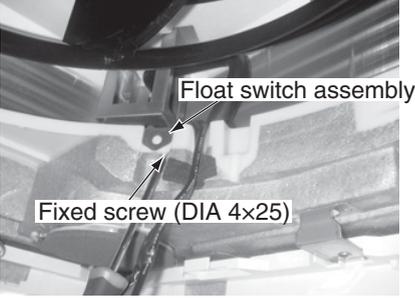
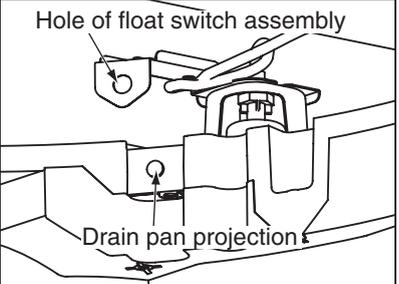
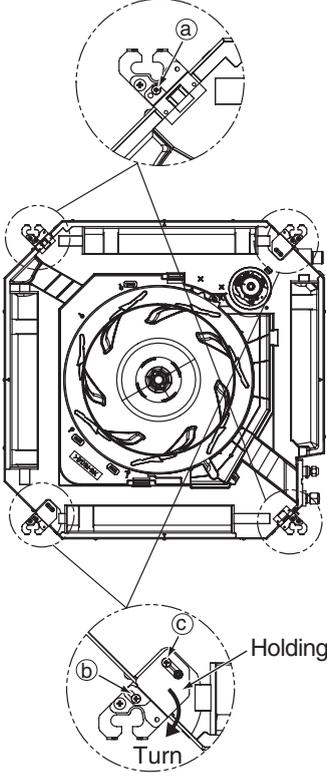
| No. | Part name | Procedure | Remarks |
|-----|--------------------|---|---|
| ⑤ | Control P.C. board | <p>1. Detachment</p> <ol style="list-style-type: none"> 1) Carry out work of item 1 of ②. 2) Remove connectors which are connected from the control P.C. board to the other parts and then remove wiring from the clamp. CN510 : Louver motor (20P, White) CN34 : Float switch (3P, Red) CN504 : Drain pump (2P, White) CN101 : TC sensor (2P, Black) CN102 : TCJ sensor (2P, Red) CN104 : Room temp. Sensor (2P, Orange) CN333 : Fan motor power supply (5P, White) CN334 : Fan motor position detection (3P, White) <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>NOTE : Unlock the lock of the housing part and then remove the connector.</p> </div> <ol style="list-style-type: none"> 3) Unlock the locks of the card edge spacer (4 positions) and then remove the control P.C. board. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Fix the control P.C. board to the card edge spacer (4 positions). 2) Connect the connector removed in item 1 as before and then fix the wiring with the clamp. 3) Following to work of item 2 of ③, mount the electric parts box cover and the suction grille as before. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>NOTE : When removing the electric parts box, do not remove the wire box assembly fixing screw. Otherwise, the wire box assembly will come off.</p> </div> | <p style="text-align: center;">Card edge spacer</p>  <p style="text-align: center;">Card edge spacer</p> <p>Wire box assembly</p>  <p style="text-align: center;">Fixing screw</p> |

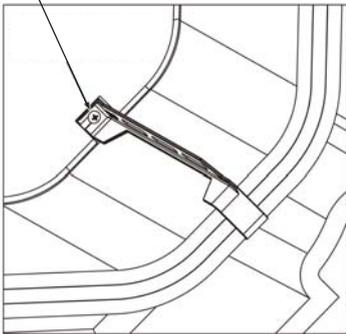
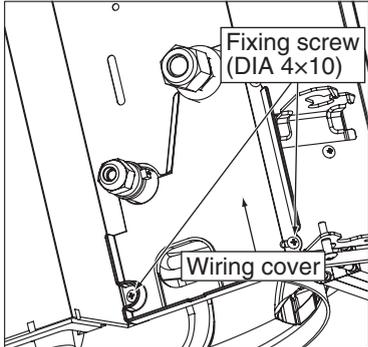
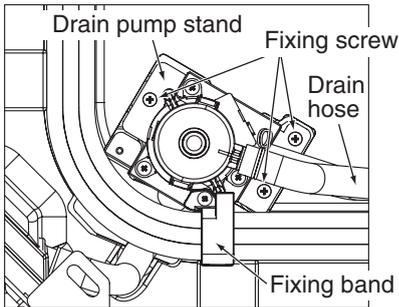
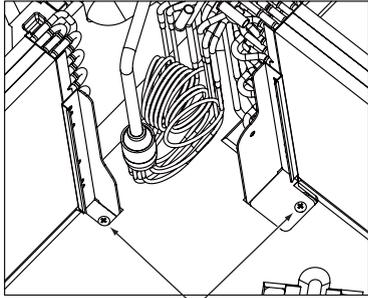
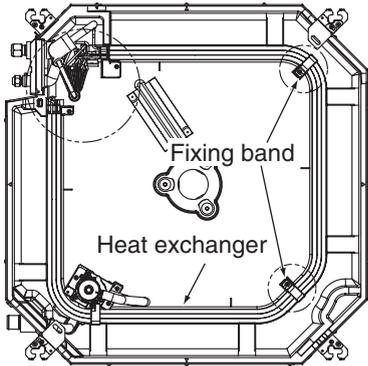
| No. | Part name | Procedure | Remarks |
|-----|-----------|---|--|
| ⑥ | Drain cap | <p>1. Detachment</p> <ol style="list-style-type: none"> 1) Carry out work of item 1 of ①. 2) Loosen screws (2 positions) fixing the drain cap (outside) and then turn the drain cap to the arrow mark direction to remove it. <div data-bbox="363 383 965 506" style="border: 1px solid black; padding: 5px;"> <p>NOTE : The drain cap (outside) is hung down because a strap is attached to it.</p> </div> <ol style="list-style-type: none"> 3) Turn the drain cap (inside) one round into OPEN direction to loosen it and then drain the drain water accumulated in the drain pan. <div data-bbox="363 633 965 875" style="border: 1px solid black; padding: 5px;"> <p>NOTE : Be sure to catch drain water using a bucket, etc. when loosening the drain cap. The insulating materials are adhered to the drain cap (outside) and opening part of the drain pan; be careful that they do not come off. If the insulating materials have come off, stick them as before using double-faces tape, etc.</p> </div> <ol style="list-style-type: none"> 4) Turn the drain cap once again to OPEN → direction to remove it. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Insert the drain cap (inside), turn it to CLOSE → direction until the position where “Click sound” is heard and it cannot be turned more over (Position where △ mark of the drain pan matches with △ mark of the drain cap (inside)) and then fix it. <div data-bbox="363 1189 965 1411" style="border: 1px solid black; padding: 5px;"> <p>NOTE : When attaching the drain cap (inside), remove dirt attached to the packing. And tighten the cap with care so that it is securely attached. If the cap is attached with dust or dirt on it, or it is not securely attached, water leakage is caused.</p> </div> <ol style="list-style-type: none"> 2) Slide the drain cap (outside) and then hook the claw part to attach it with the fixing screw as original. <div data-bbox="363 1507 965 1648" style="border: 1px solid black; padding: 5px;"> <p>NOTE : Be sure to hook the claw part when attaching the drain cap (outside). Improper to attach it cause the water leakage.</p> </div> <ol style="list-style-type: none"> 3) Following to work of item 2 of ①, mount the suction grille as before. |    |

| No. | Part name | Procedure | Remarks |
|-----|-----------|--|--|
| ⑦ | Fan motor | <p>1. Detachment</p> <ol style="list-style-type: none"> 1) Carry out work of item 1 of ②. 2) Remove connectors which are connected from the control P.C. board to the other parts and then remove each wiring from the clamp. CN510 : Louver motor (20P, White) CN34 : Float switch (3P, Red) CN504 : Drain pump (2P, White) CN101 : TC sensor (2P, Black) CN102 : TCJ sensor (2P, Red) CN104 : Room temp. Sensor (2P, Orange) CN210 : Fan motor (7P, White) <div data-bbox="363 589 965 698" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>NOTE : Unlock the lock of the housing part and then remove the connector.</p> </div> <ol style="list-style-type: none"> 3) Remove the fixing screw A and then remove the cover plate. (Only RAV-GM80* to 140*) (Fixing screw A: DIA 4 × 10, 2 pcs) 4) Remove the fixing screws B and C, and then remove the electric parts box. (Fixing screw B: DIA 4 × 10, 3 pcs, Fixing screw C: DIA 4 × 8, 1 pc.) 5) Remove the fixing screw and then remove the wire box assembly. (Fixing screw : DIA 4 × 10, 1 pcs) (Only RAV-GM80* ~ 140*) 6) Remove the fan motor lead, TC sensor and TCJ sensor from clamp of the bell mouth. 7) Remove the fixing screws and then remove the bell mouth. (DIA 4 × 10, 5 pcs, three claws) 8) Remove the fixing screws and then remove the nut cap. (DIA 4 × 10, 2 pcs.) 9) Remove the fixing nut and then remove the turbo fan. (M8 nut with flange, 1 pc.) 10) Remove the fixing screws and then remove the motor lead holding bracket. (DIA 4 × 8, 2 pcs.) 11) Cut the binding band and then remove it from the clamp. 12) Remove the fixing nut and then remove the fan motor. (DIA 6 nut, 3 pcs.) <div data-bbox="363 1424 965 1572" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>NOTE : When replacing the fan motor, be sure to remove the clamp filter from the fan motor. (RAV-GM56* : 1 pcs, RAV-GM80* to GM140 : 2</p> </div> <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Fix the parts as before in order of fan motor → motor lead holding bracket → turbo fan → nut cap → bell mouth. <div data-bbox="363 1704 965 2072" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>NOTE : Fix the motor lead to the clamp using binding band as before so that it does not slack. Fix it so that wiring does not come in contact with heat exchanging aluminum fin, turbo fan, or heat exchange plate. When fixing the turbo fan, be sure to match the D-cut of the fan boss with D-cut of the motor shaft. Using a torque wrench, fix the turbo fan and tighten it to 5.4 $\pm_{0.2}^{0.5}$ Nm. Using a torque wrench, fix the motor (three positions) and tighten it to 4.9 $\pm_{0.5}^{0.5}$ Nm.</p> </div> | <p>Remarks</p>       |

| No. | Part name | Procedure | Remarks |
|-----|--------------------------|---|--|
| ⑦ | Fan motor (Continued) | <p>2) Fix the fan motor lead, TC sensor and TCJ sensor with the clamp of the bell mouth.</p> <p>3) Mount the wire box assembly with the fixing screw. (DIA 4 × 10, 1 pcs)</p> <p>4) Mount the electric parts box with the fixing screws B and C. (B : DIA 4 × 10, 3 pcs, C : DIA 4 × 8, 1 pcs)</p> <p>5) Connect the connector removed in item 1 as before and then fix wiring with the clamp.</p> <p>6) Mount the cover plate with the fixing screw A (DIA 4 × 10, 2 pcs)</p> <p>7) Following to work of item 2 of ③, mount the electric parts box cover and the suction grille as before.</p> <div data-bbox="363 638 965 772" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>NOTE : When replacing the fan motor, be sure to attach the removed clamp filter to the original position. (RAV-GM56* : 1 pcs, RAV-GM80* to GM140 : 2 pcs)</p> </div> |      |

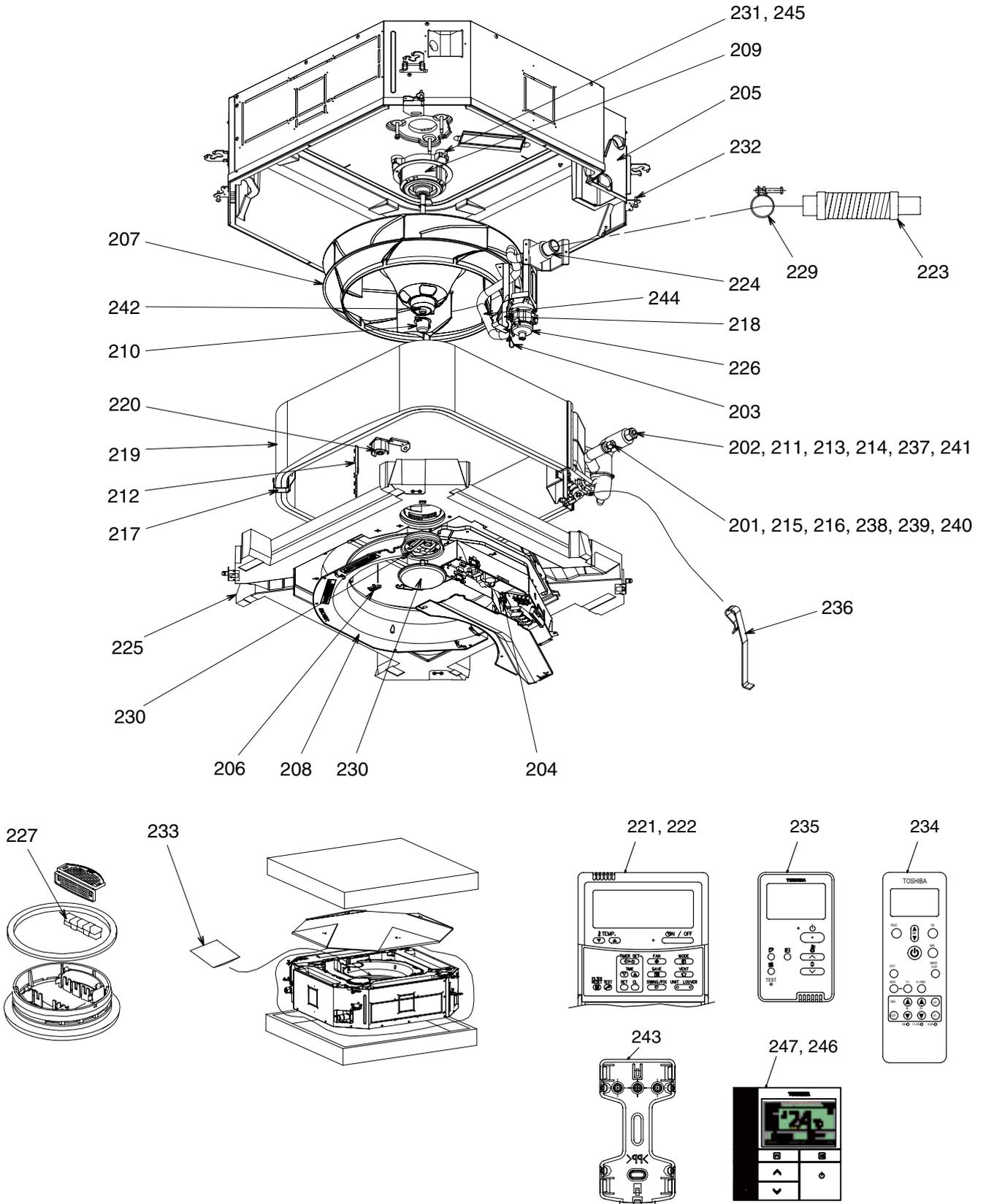
| No. | Part name | Procedure | Remarks |
|-----|------------|---|--|
| ⑧ | Drain pump | <p>1. Detachment</p> <ol style="list-style-type: none"> 1) Carry out works of item 1 of ② and item 1 of ⑥. 2) Remove the drain pump connector (CN504, White, 2P) connected to the control P.C. board and then remove the lead wire from the clamp. 3) Remove the fixing screws and then remove the drain pump. (DIA 4 × 10, 3 pcs.) 4) As shown in the right figure, first pull out the connecting part of the drain pump and the drain hose from the drain port and then take out the drain pump. 5) Set direction of the knob of the hose band downward, slide it from the pump connecting part to the hose side and then remove the drain hose from the drain pump. 6) Pass the connector of the drain pump lead wire through the wiring taking-out port and then take out the drain pump. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Put your hand into the drain port and pass the connector of the drain pump lead wire through the wiring taking-out port. 2) Connect the drain hose to the drain pump as before. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>NOTE : Insert the drain hose up to the end of the drain pump connecting part, apply band to the white or yellow mark position of the hose and then set the band knob upward.</p> </div> <ol style="list-style-type: none"> 3) Return the drain pump to the indoor unit and then mount it as before using the fixing screws. (DIA 4 × 10, 3 pcs.) 4) Connect the drain pump connector (CN504, White, 2P) to the control P.C. board and then fix it as before with the clamp. 5) Following to words of item 2 of ⑥ and item 2 of ② mount the drain cap, the electric parts box cove and the suction grille as before. |    |

| No. | Part name | Procedure | Remarks |
|-----|-----------------------|--|--|
| ⑨ | Float switch assembly | <p>1. Detachment</p> <ol style="list-style-type: none"> 1) Carry out works of item 1 of ⑦ and works from 1) to 7). 2) Remove the fixing screw and then remove the float switch assembly. (DIA 4 × 25, 1 pc.) <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Mount the float switch assembly as before with the fixing screw. <div data-bbox="363 510 963 651" style="border: 1px solid black; padding: 5px;"> <p>NOTE : When mounting the float switch assembly, match hole of the float switch assembly with projection of the drain pan.</p> </div> <ol style="list-style-type: none"> 2) Mount the bell mouth as before. (DIA 4 × 10, 4 pcs, three claws) 3) Following to works of item 2 of ⑦ and works from 2) to 7), attach the parts as before. |   |
| ⑩ | Drain pan | <p>1. Detachment</p> <ol style="list-style-type: none"> 1) Carry out works of item 1 of ④, (removing the ceiling panel) item 1 of ⑥, (removing the drain cap), item 1 of ⑦ (removing the bell mouth and the electric parts box) and works from 2) to 7). 2) Remove the fixing screws ① to remove the drain pan. (DIA 4 × 10, 2 pcs.) 3) Remove two screws ③ fixing the holding plate and loosen two screws ② on the side of the hanging hook. <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Fix parts as before in order of drain cap → drain pan → bell mouth → wire box assembly. <div data-bbox="363 1328 963 1491" style="border: 1px solid black; padding: 5px;"> <p>NOTE : For inserting the drain pan, perform the work while directing the holding plate outward since the holding plate interrupts its work if it directs to inside of the body.</p> </div> <ol style="list-style-type: none"> 2) Following to works of item 2 of ⑦ and works from 2) to 7), attach parts as before. |   |

| No. | Part name | Procedure | Remarks |
|-----|----------------|---|--|
| ⑪ | Heat exchanger | <p>1. Detachment</p> <ol style="list-style-type: none"> 1) Recover the refrigerant gas. 2) Carry out work of item 1 of ⑩. 3) Remove refrigerant pipe at indoor unit side. 4) Remove the fixing screws and then remove the piping cover. (DIA 4 ×10, 3 pcs.) 5) Remove the drain hose from the drain pump and remove the fixing screws to remove the drain pump stand. (DIA 4 ×8, 3 pcs.) 6) While pushing the heat exchanger, remove the fixing band, fixing screws and the heat exchanger. (DIA 4 ×8, 4 pcs.) <p>2. Attachment</p> <ol style="list-style-type: none"> 1) Mount the heat exchanger with the fixing band and the fixing screws. (DIA 4 ×8, 4 pcs.) 2) Fix the parts as before in order of drain pump stand → piping cover. 3) Connect the refrigerant pipe as before and then apply vacuuming. 4) Following to work of item 2 of ⑩, attach the parts as before. <p>Heat exchanger fixing band</p> <p>Loosen this screw to remove the fixing bracket</p>  | <p><RAV-GM80 to GM140></p> <p>Piping cover assembly Fixing screw</p>  <p>Fixing screw Fixing screw</p> <p><RAV-GM56></p>    <p>Heat exchanger fixing screw</p>  |

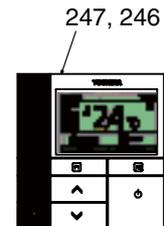
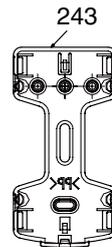
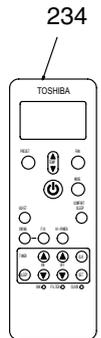
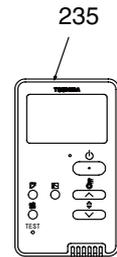
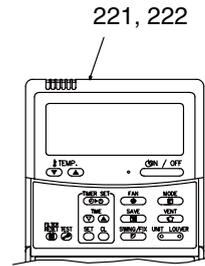
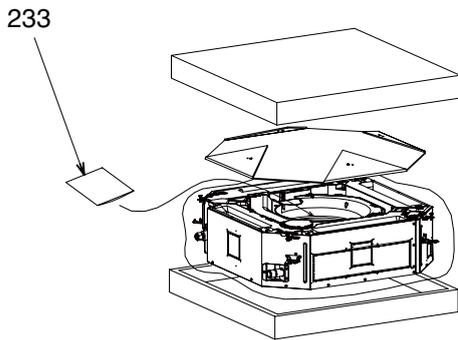
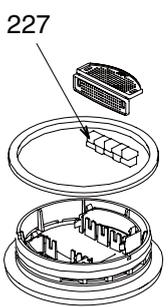
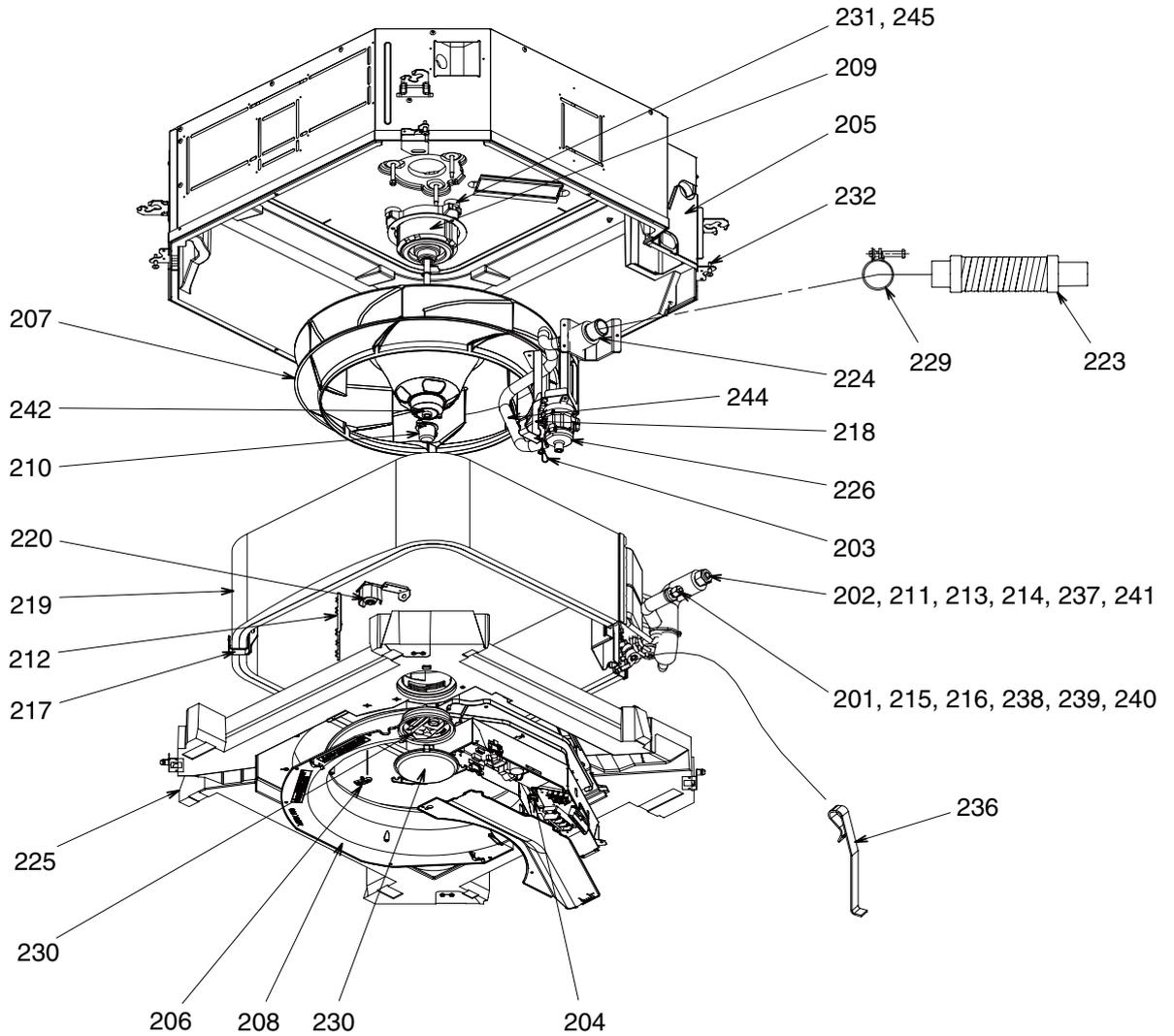
12. EXPLODED VIEWS AND PARTS LIST

12-1. RAV-GM561UT-E, GM801UT-E, GM1101UT-E, GM1401UT-E



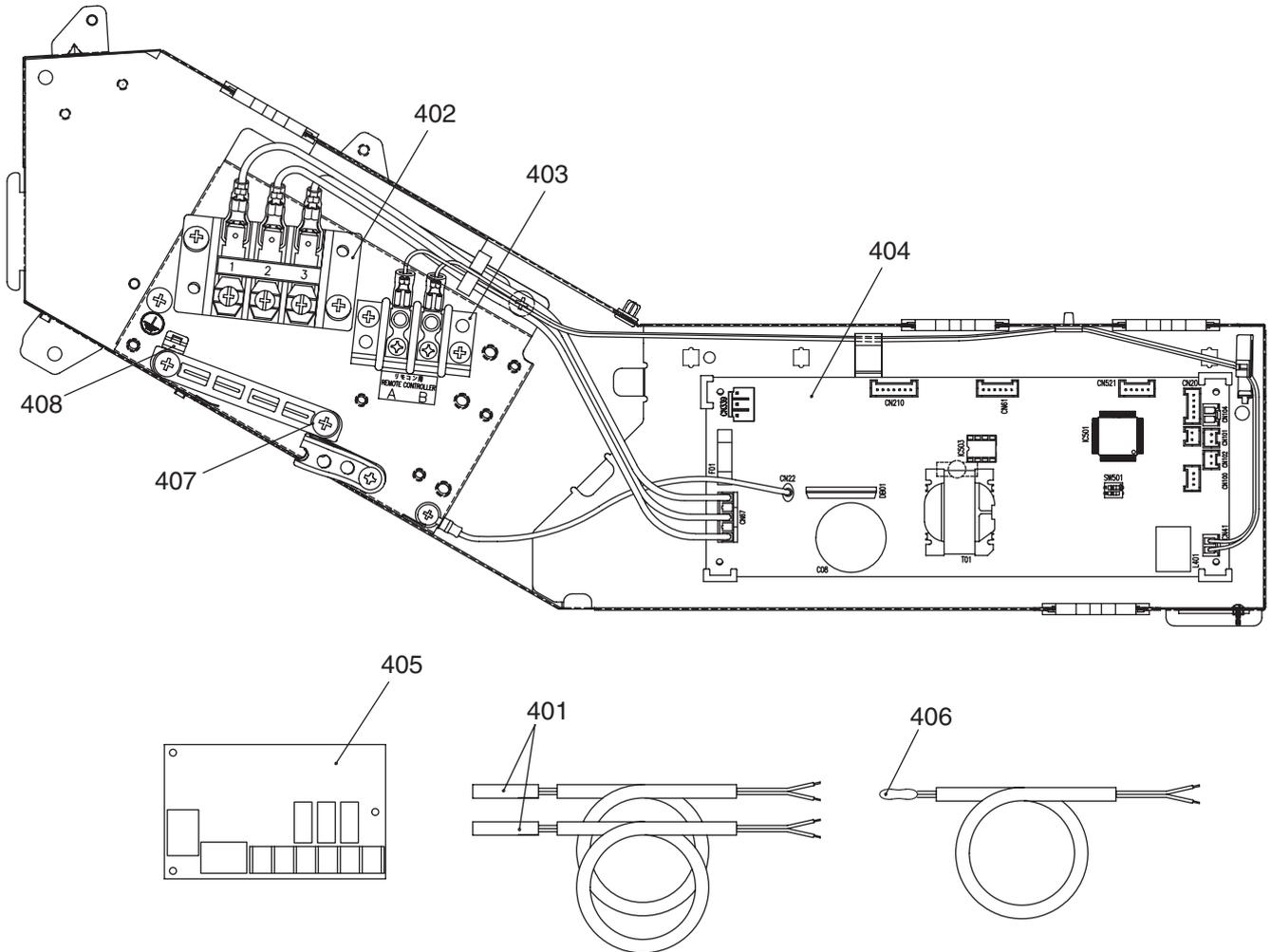
| Location No. | Part No. | Description | Q'ty/Set | | RAV-GM | |
|--------------|----------|---------------------------------------|----------|---------|----------|----------|
| | | | 561UT-E | 801UT-E | 1101UT-E | 1401UT-E |
| 201 | 43149498 | SOCKET | | 1 | 1 | 1 |
| 202 | 43149501 | NUT,FLARE,1/2,IN | 1 | | | |
| 203 | 43079249 | BAND, HOSE | 1 | 1 | 1 | 1 |
| 204 | 43089147 | CLAMP, WIRE | 4 | 4 | 4 | 4 |
| 205 | 43119497 | COVER ASSY | 1 | | | |
| 205 | 43119500 | COVER ASSY | | 1 | 1 | 1 |
| 206 | 43119498 | COVER, SENSOR | 1 | 1 | 1 | 1 |
| 207 | 43120248 | FAN, ASSY TURB | 1 | | | |
| 207 | 43120286 | FAN,ASSY,TURB | | 1 | 1 | 1 |
| 208 | 43122110 | BELL MOUTH | 1 | 1 | 1 | 1 |
| 209 | 4312C131 | MOTOR,FAN, ICF-340D60-1 | 1 | | | |
| 209 | 4312C167 | MOTOR,ASSY,FAN | | 1 | 1 | 1 |
| 210 | 43139166 | CAP, NUT | 1 | 1 | 1 | 1 |
| 211 | 43047692 | BONNET | 1 | | | |
| 212 | 43122152 | PLATE,WIND | | 4 | 4 | 4 |
| 213 | 43149494 | SOCKET,1/2,IN | 1 | | | |
| 214 | 43149496 | SOCKET, 5/8,IN | | 1 | 1 | 1 |
| 215 | 43149497 | SOCKET,1/4,IN | 1 | | | |
| 216 | 43149500 | NUT,FLARE,3/8,IN | | 1 | 1 | 1 |
| 217 | 43149423 | FIX,BAND,EVAPORATOR | 2 | | | |
| 217 | 43149424 | FIX,BAND,EVAPORATOR | | 2 | 2 | 2 |
| 218 | 43149425 | FIX,BAND,EVAPORATOR | 1 | 1 | 1 | 1 |
| 219 | 4314J570 | REFRIGERATION CYCLE ASSY | 1 | | | |
| 219 | 4314J571 | REFRIGERATION CYCLE ASSY | | | 1 | 1 |
| 219 | 4314J572 | REFRIGERATION CYCLE ASSY | | 1 | | |
| 220 | 43151299 | SWITCH ASSY, FLOAT, FS-0218-102 | 1 | 1 | 1 | 1 |
| 221 | 43166011 | REMOTE CONTROLLER, SX-A4EE | 1 | | | |
| 222 | 43166012 | REMOTE CONTROLLER, SX-A5EE | 1 | 1 | 1 | 1 |
| 223 | 43170244 | HOSE, DRAIN | 1 | 1 | 1 | 1 |
| 224 | 43170254 | SOCKET, ASSY DRAIN | 1 | 1 | 1 | 1 |
| 225 | 43172251 | PAN,DRAIN | 1 | | | |
| 225 | 43172266 | PAN,DRAIN | | 1 | 1 | 1 |
| 226 | 43177024 | PUMP,DRAIN, PMD-08D12TF-2 | 1 | 1 | 1 | 1 |
| 227 | 43179152 | GLASS,ASSY | 1 | 1 | 1 | 1 |
| 228 | 43179154 | LID ASSY, INSIDE | 1 | 1 | 1 | 1 |
| 229 | 43179163 | BAND, HOSE | 1 | 1 | 1 | 1 |
| 230 | 43179164 | LID,ASSY,OUTSIDE | 1 | 1 | 1 | 1 |
| 231 | 43197199 | WASHER | 1 | 1 | 1 | 1 |
| 232 | 43197206 | SCREW,FIX,PANEL | 4 | 4 | 4 | 4 |
| 233 | 431S8340 | OWNERS,MANUAL | 1 | 1 | 1 | 1 |
| 234 | 43166018 | REMOTE CONTROLLER, WIRELESS, WH-L11SE | 1 | 1 | 1 | 1 |
| 235 | 43166022 | REMOTE CONTROLLER, SX-U01EE | 1 | 1 | 1 | 1 |
| 236 | 43F19904 | HOLDER, SENSOR (TS) | 2 | 2 | 2 | 2 |
| 237 | 43149495 | NUT,FLARE,5/8,IN | | 1 | 1 | 1 |
| 238 | 43149499 | NUT,FLARE,1/4,IN | 1 | | | |
| 239 | 43F47609 | BONNET, 3/8,IN | | 1 | 1 | 1 |
| 240 | 43F49697 | BONNET, 1/4,IN | 1 | | | |
| 241 | 43194029 | BONNET, 5/8 IN | | 1 | 1 | 1 |
| 242 | 43F97212 | NUT | 1 | 1 | 1 | 1 |
| 243 | 43F83071 | HOLDER, REMOTE, CONTROLLER | 1 | 1 | 1 | 1 |
| 244 | 43170281 | HOSE,ASSY,DRAIN | 1 | | | |
| 244 | 43170282 | HOSE,ASSY,DRAIN | | 1 | 1 | 1 |
| 245 | 43139186 | RUBBER,CUSHION | | 3 | 3 | 3 |
| 246 | 43166036 | REMOTE CONTROLLER, RBC-AMS55E-EN | 1 | 1 | 1 | 1 |
| 247 | 43166037 | REMOTE CONTROLLER, RBC-AMS55E-ES | 1 | 1 | 1 | 1 |

12-2. RAV-GM561UT-TR, GM801UT-TR, GM1101UT-TR, GM1401UT-TR



| Location No. | Part No. | Description | Q'ty/Set | | RAV-GM | |
|--------------|----------|---------------------------------------|----------|----------|-----------|-----------|
| | | | 561UT-TR | 801UT-TR | 1101UT-TR | 1401UT-TR |
| 201 | 43149498 | SOCKET | | 1 | 1 | 1 |
| 202 | 43149501 | NUT,FLARE,1/2,IN | 1 | | | |
| 203 | 43079249 | BAND, HOSE | 1 | 1 | 1 | 1 |
| 204 | 43089147 | CLAMP, WIRE | 4 | 4 | 4 | 4 |
| 205 | 43119497 | COVER ASSY | 1 | | | |
| 205 | 43119500 | COVER ASSY | | 1 | 1 | 1 |
| 206 | 43119498 | COVER, SENSOR | 1 | 1 | 1 | 1 |
| 207 | 43120248 | FAN, ASSY TURB | 1 | | | |
| 207 | 43120286 | FAN,ASSY,TURB | | 1 | 1 | 1 |
| 208 | 43122110 | BELL MOUTH | 1 | 1 | 1 | 1 |
| 209 | 4312C131 | MOTOR,FAN, ICF-340D60-1 | 1 | | | |
| 209 | 4312C167 | MOTOR,ASSY,FAN | | 1 | 1 | 1 |
| 210 | 43139166 | CAP, NUT | 1 | 1 | 1 | 1 |
| 211 | 43047692 | BONNET | 1 | | | |
| 212 | 43122152 | PLATE,WIND | | 4 | 4 | 4 |
| 213 | 43149494 | SOCKET,1/2,IN | 1 | | | |
| 214 | 43149496 | SOCKET, 5/8,IN | | 1 | 1 | 1 |
| 215 | 43149497 | SOCKET,1/4,IN | 1 | | | |
| 216 | 43149500 | NUT,FLARE,3/8,IN | | 1 | 1 | 1 |
| 217 | 43149423 | FIX,BAND,EVAPORATOR | 2 | | | |
| 217 | 43149424 | FIX,BAND,EVAPORATOR | | 2 | 2 | 2 |
| 218 | 43149425 | FIX,BAND,EVAPORATOR | 1 | 1 | 1 | 1 |
| 219 | 4314J570 | REFRIGERATION CYCLE ASSY | 1 | | | |
| 219 | 4314J571 | REFRIGERATION CYCLE ASSY | | | 1 | 1 |
| 219 | 4314J572 | REFRIGERATION CYCLE ASSY | | 1 | | |
| 220 | 43151299 | SWITCH ASSY, FLOAT, FS-0218-102 | 1 | 1 | 1 | 1 |
| 221 | 43166011 | REMOTE CONTROLLER, SX-A4EE | 1 | | | |
| 222 | 43166012 | REMOTE CONTROLLER, SX-A5EE | 1 | 1 | 1 | 1 |
| 223 | 43170244 | HOSE, DRAIN | 1 | 1 | 1 | 1 |
| 224 | 43170254 | SOCKET, ASSY DRAIN | 1 | 1 | 1 | 1 |
| 225 | 43172251 | PAN,DRAIN | 1 | | | |
| 225 | 43172266 | PAN,DRAIN | | 1 | 1 | 1 |
| 226 | 43177024 | PUMP,DRAIN, PMD-08D12TF-2 | 1 | 1 | 1 | 1 |
| 227 | 43179152 | GLASS,ASSY | 1 | 1 | 1 | 1 |
| 228 | 43179154 | LID ASSY, INSIDE | 1 | 1 | 1 | 1 |
| 229 | 43179163 | BAND, HOSE | 1 | 1 | 1 | 1 |
| 230 | 43179164 | LID,ASSY,OUTSIDE | 1 | 1 | 1 | 1 |
| 231 | 43197199 | WASHER | 1 | 1 | 1 | 1 |
| 232 | 43197206 | SCREW,FIX,PANEL | 4 | 4 | 4 | 4 |
| 233 | 431S8343 | OWNERS,MANUAL | 1 | 1 | 1 | 1 |
| 234 | 43166018 | REMOTE CONTROLLER, WIRELESS, WH-L11SE | 1 | 1 | 1 | 1 |
| 235 | 43166022 | REMOTE CONTROLLER, SX-U01EE | 1 | 1 | 1 | 1 |
| 236 | 43F19904 | HOLDER, SENSOR (TS) | 2 | 2 | 2 | 2 |
| 237 | 43149495 | NUT,FLARE,5/8,IN | | 1 | 1 | 1 |
| 238 | 43149499 | NUT,FLARE,1/4,IN | 1 | | | |
| 239 | 43F47609 | BONNET, 3/8,IN | | 1 | 1 | 1 |
| 240 | 43F49697 | BONNET, 1/4,IN | 1 | | | |
| 241 | 43194029 | BONNET, 5/8 IN | | 1 | 1 | 1 |
| 242 | 43F97212 | NUT | 1 | 1 | 1 | 1 |
| 243 | 43F83071 | HOLDER, REMOTE, CONTROLLER | 1 | 1 | 1 | 1 |
| 244 | 43170281 | HOSE,ASSY,DRAIN | 1 | | | |
| 244 | 43170282 | HOSE,ASSY,DRAIN | | 1 | 1 | 1 |
| 245 | 43139186 | RUBBER,CUSHION | | 3 | 3 | 3 |
| 246 | 43166036 | REMOTE CONTROLLER, RBC-AMS55E-EN | 1 | 1 | 1 | 1 |
| 247 | 43166037 | REMOTE CONTROLLER, RBC-AMS55E-ES | 1 | 1 | 1 | 1 |

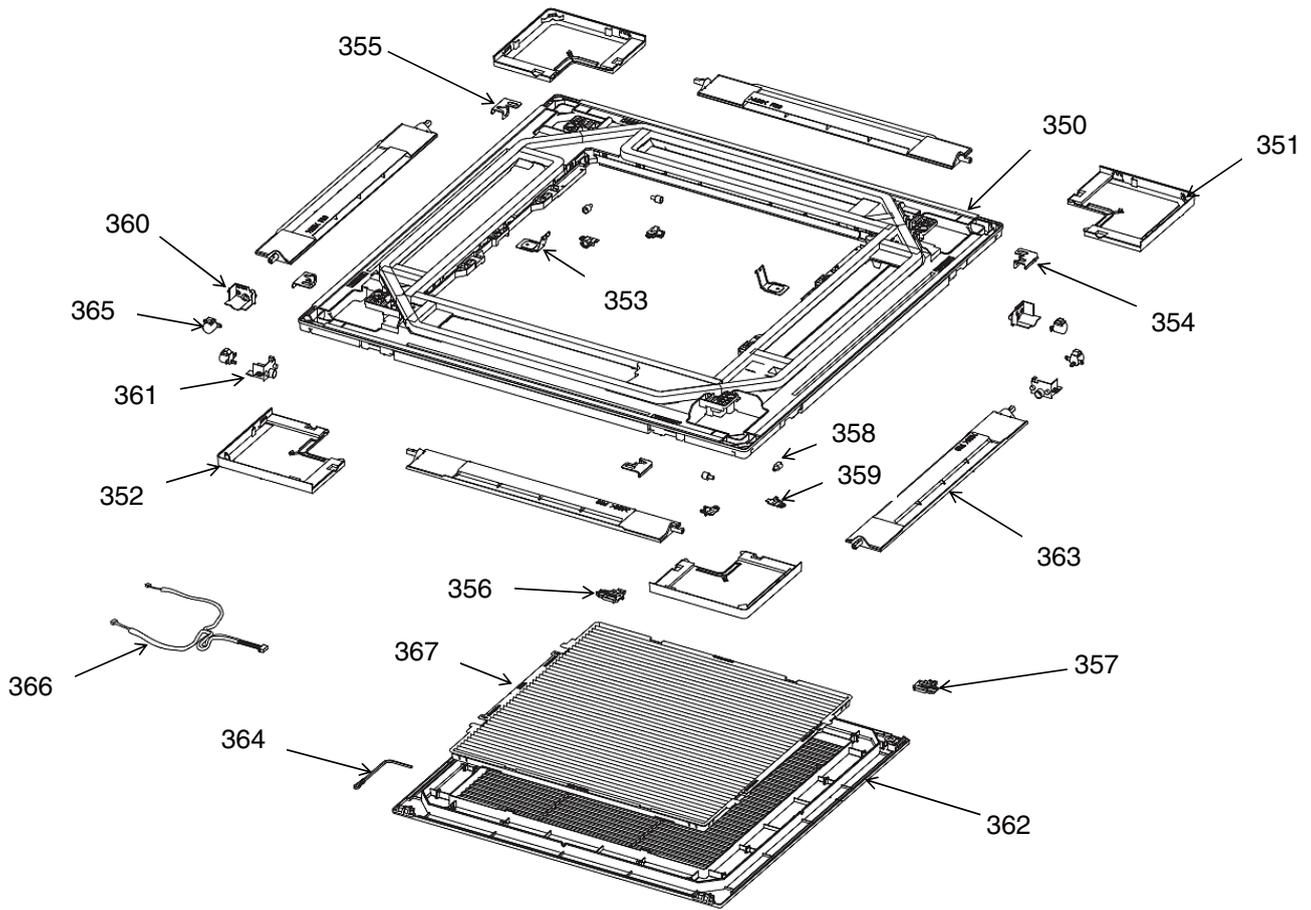
E-Parts



| Location No. | Part No. | Description | Q'ty/Set RAV-GM | | | |
|--------------|----------|-------------------------------|---------------------|---------------------|-----------------------|-----------------------|
| | | | 561UT-E 561UT-TR | 801UT-E 801UT-TR | 1101UT-E 1101UT-TR | 1401UT-E 1401UT-TR |
| 401 | 43050425 | SENSOR ASSY, SERVICE, TC (F6) | 2 | 2 | 2 | 2 |
| 402 | 43160565 | TERMINAL BLOCK, 3P, 20A | 1 | 1 | 1 | 1 |
| 403 | 43160568 | TERMINAL, 2P | 1 | 1 | 1 | 1 |
| 404 | 4316V656 | PC BOARD ASSY, MCC-1643 | 1 | 1 | 1 | 1 |
| 405 | 43459017 | PC BOARD ASSY, TCB-PCUC1E | 1 | 1 | 1 | 1 |
| 406 | 43F50426 | SENSOR, SERVICE, TA | 1 | 1 | 1 | 1 |
| 407 | 43163057 | CLAMP, DOWN | 1 | 1 | 1 | 1 |
| 408 | 43163058 | CLAMP, UP | 1 | 1 | 1 | 1 |

◆ Ceiling panel

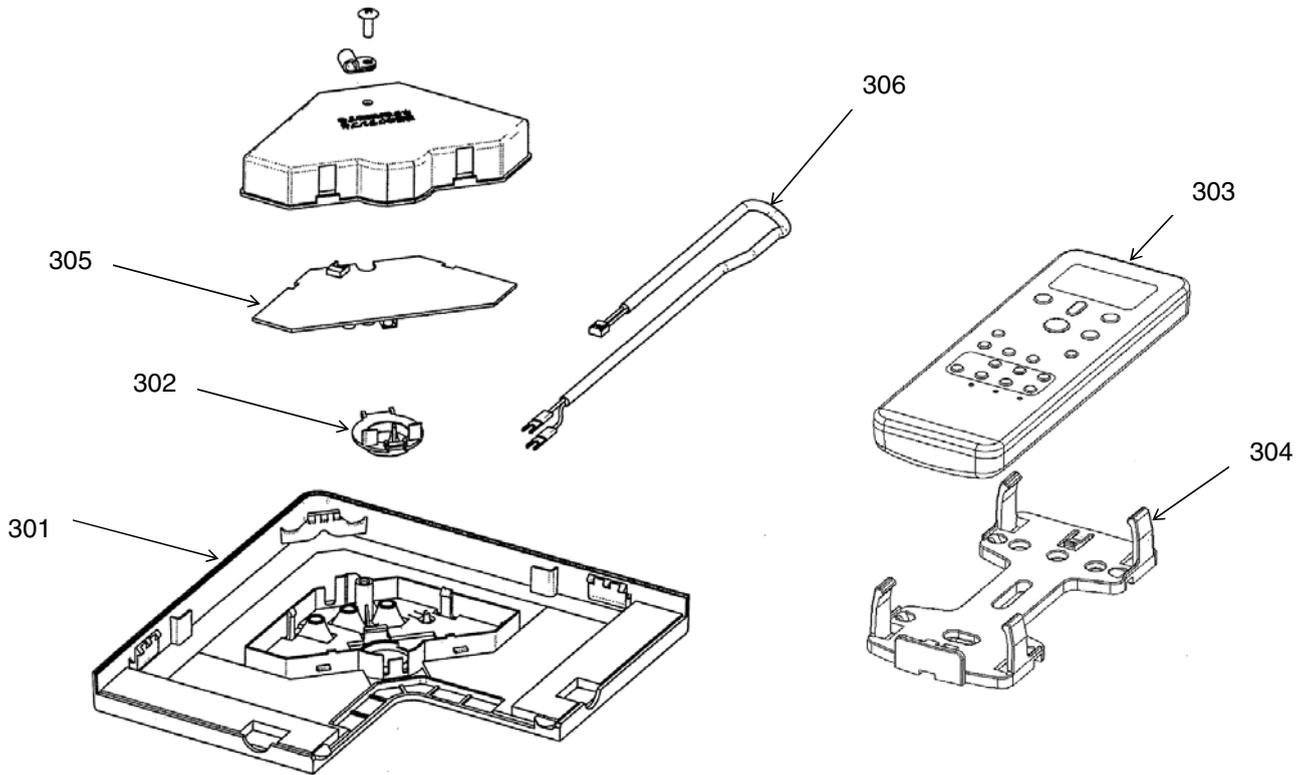
RBC-U41PG(W)-E



| Location No. | Part No. | Description | Q'ty/Set RBC-U41PG(W)-E |
|--------------|----------|-----------------------|----------------------------|
| 350 | 43400085 | PANEL, INSULATOR ASSY | 1 |
| 351 | 43401049 | PANEL, COVER ASSY | 3 |
| 352 | 43401054 | PANEL, COVER ASSY | 1 |
| 353 | 43407167 | FIX,HANGER | 2 |
| 354 | 43407168 | PLATE, FIX PANEL | 2 |
| 355 | 43407169 | PLATE, FIX PANEL | 2 |
| 356 | 43407170 | HOOK | 1 |
| 357 | 43407174 | HOOK | 1 |
| 358 | 43407178 | CAP, AXIS | 4 |
| 359 | 43407179 | COVER, AXIS | 4 |
| 360 | 43407180 | FIX, MOTOR | 2 |
| 361 | 43407181 | FIX, MOTOR | 2 |
| 362 | 43409224 | GRILLE, AIR INLET | 1 |
| 363 | 43409232 | LOUVER ASSY | 4 |
| 364 | 43419022 | STRING | 1 |
| 365 | 43421006 | MOTOR, LOUVER | 4 |
| 366 | 43460130 | LEAD, MOTOR | 1 |
| 367 | 43480017 | AIR FILTER | 1 |

◆ Wireless remote controller kit

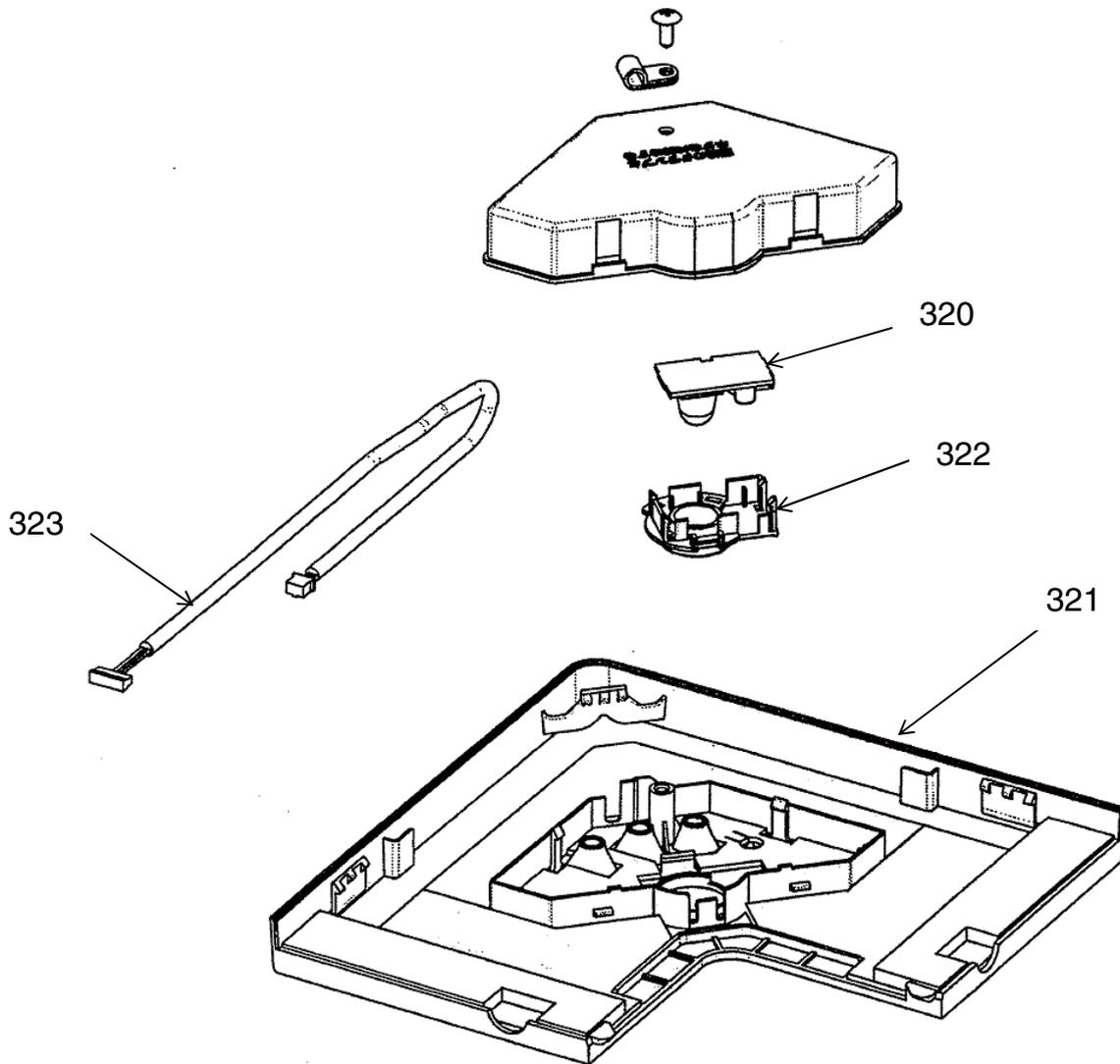
RBC-AX41U(W)-E



| Location No. | Part No. | Description | Q'ty/Set RBC-AX41U(W)-E |
|--------------|----------|---------------------------------------|----------------------------|
| 301 | 43108039 | COVER, INSULATOR ASSY | 1 |
| 302 | 43408061 | COVER, WIRELESS | 1 |
| 303 | 43166018 | REMOTE CONTROLLER, WIRELESS, WH-L11SE | 1 |
| 304 | 43F83071 | HOLDER, REMOTE, CONTROLLER | 1 |
| 305 | 43459018 | PC BOARD ASSY | 1 |
| 306 | 43460132 | LEAD ASSY | 1 |

◆ Occupancy sensor

TCB-SIR41U-E



| Location No. | Part No. | Description | Q'ty/Set TCB-SIR41U-E |
|--------------|----------|----------------------|--------------------------|
| 320 | 43469067 | THERMOSTAT | 1 |
| 321 | 43408060 | COVER,INSULATOR ASSY | 1 |
| 322 | 43408062 | COVER, SENSOR | 1 |
| 323 | 43460131 | LEAD,SENSOR | 1 |

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Revision record

| | | | |
|-------------|---|---------------|------------|
| First issue | — | — | Mar., 2018 |
| Revision 1 | Words were corrected. | All the pages | Sep., 2019 |
| Revision 2 | Description of parts list was changed. | Page 99, 101 | Apr., 2021 |
| Revision 3 | The outdoor unit "E1" series was added. | Page 17, 18 | Jul., 2021 |
| Revision 4 | Deleted the word. | Page 92 | Nov., 2021 |