TOSHIBA

FILE NO. A10-1616

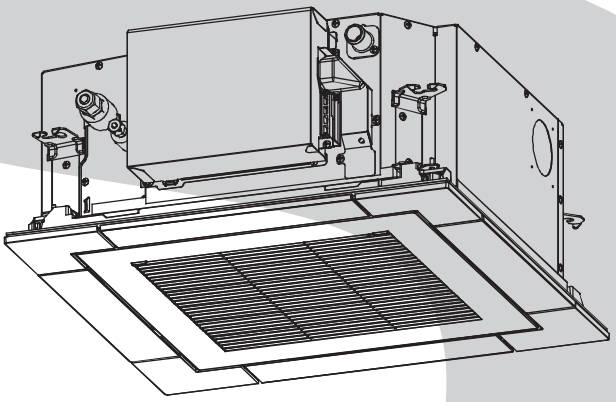
SERVICE MANUAL

AIR-CONDITIONER (SPLIT TYPE)

INDOOR UNIT

<Compact 4-way Cassette type>

RAV-SM307MUT-E (TR)
RAV-SM407MUT-E (TR)
RAV-SM457MUT-E (TR)
RAV-SM567MUT-E (TR)



HFC

R410A

PRINTED IN JAPAN, Mar., 2017 ToMo

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

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

Definition of Protective Gear

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

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

The important contents concerned to the safety are described on the product itself and on this Service Manual.
Please read this Service Manual after understanding the described items thoroughly in the following contents (Indications / Illustrated marks), and keep them.

[Explanation of indications]

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

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

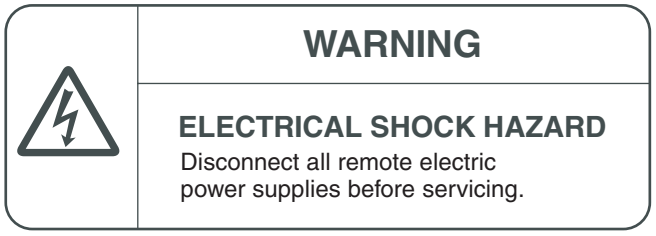
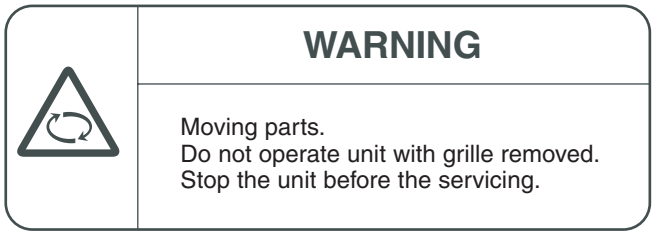
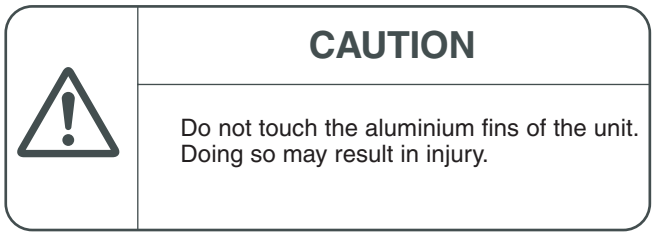
[Explanation of illustrated marks]

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

Warning Indications on the Air Conditioner Unit

[Confirmation of warning label on the main unit]

Confirm that labels are indicated on the specified positions
If removing the label during parts replace, stick it as the original.

Warning indication	Description
	**WARNING** **ELECTRICAL SHOCK HAZARD** Disconnect all remote electric power supplies before servicing.
	**WARNING** Moving parts. Do not operate unit with grille removed. Stop the unit before the servicing.
	**CAUTION** Do not touch the aluminium fins of the unit. Doing so may result in injury.

PRECAUTIONS FOR SAFETY

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

⚠ DANGER

 Turn off breaker	Before carrying out the installation, maintenance, repair or removal work, be sure to set the circuit breaker for both the indoor and outdoor units to the OFF position. Otherwise, electric shocks may result.
	Before opening the intake grille of the indoor unit or service panel of the outdoor unit, set the circuit breaker to the OFF position. Failure to set the circuit breaker to the OFF position may result in electric shocks through contact with the interior parts. Only a qualified installer (*1) or qualified service person (*1) is allowed to remove the intake grille of the indoor unit or service panel of the outdoor unit and do the work required.
	Before opening the electric cover set the circuit breaker to the OFF position. Failure to set the circuit breaker to the OFF position may result in injury through contact with the rotation parts. Only a qualified installer (*1) or qualified service person (*1) is allowed to remove the suction board cover and do the work required.
	Before starting to repair the outdoor unit fan or fan guard, be absolutely sure to set the circuit breaker to the OFF position, and place a “Work in progress” sign on the circuit breaker.
	When cleaning the filter or other parts of the indoor unit, set the circuit breaker to OFF without fail, and place a “Work in progress” sign near the circuit breaker before proceeding with the work.
	When you have noticed that some kind of trouble (such as when 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.
 Electric shock hazard	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.
	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.
 Prohibition	Place a “Work in progress” sign near the circuit breaker while the installation, maintenance, repair or removal work is being carried out. There is a danger of electric shocks if the circuit breaker is set to ON by mistake.
	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.
	Before operating the air conditioner after having completed the work, check that the electrical parts box cover of the indoor unit and service panel of the outdoor unit are closed, and set the circuit breaker to the ON position. You may receive an electric shock if the power is turned on without first conducting these checks.
 Stay on protection	If, in the course of carrying out repairs, it becomes absolutely necessary to check out the electrical parts with the electrical parts box cover of one or more of the indoor units and the service panel of the outdoor unit removed in order to find out exactly where the trouble lies, wear insulated heat-resistant gloves, insulated boots and insulated work overalls, and take care to avoid touching any live parts. You may receive an electric shock if you fail to heed this warning. Only qualified service person (*1) is allowed to do this kind of work.

⚠ WARNIG

General	Before starting to repair the air conditioner, read carefully through the Service Manual, and repair the air conditioner by following its instructions.
	Only qualified service person (*1) is allowed to repair the air conditioner. Repair of the air conditioner by unqualified person may give rise to a fire, electric shocks, injury, water leaks and / or other problems.
	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.
	Only a qualified installer (*1) or qualified service person (*1) is allowed to carry out the electrical work of the air conditioner. Under no circumstances must this work be done by an unqualified individual since failure to carry out the work properly may result in electric shocks and / or electrical leaks.
	When the air conditioner is to be transported, installed, maintained, repaired or removed, wear protective gloves and 'safety' work clothing.
	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.
	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.
	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.
	Only a qualified installer (*1) or qualified service person (*1) is allowed to undertake work at heights using a stand of 50 cm or more or to remove the intake grille of the indoor unit to undertake work.
	When working at heights, use a ladder which complies with the ISO 14122 standard, and follow the procedure in the ladder's instructions. Also wear a helmet for use in industry as protective gear to undertake the work.
	Before working at heights, put a sign in place so that no-one will approach the work location, before proceeding with the work. Parts and other objects may fall from above, possibly injuring a person below. While carrying out the work, wear a helmet for protection from falling objects.
	When executing address setting, test run, or troubleshooting through the checking window on the electric parts box, put on insulated gloves to provide protection from electric shock. Otherwise you may receive an electric shock.
	Do not touch the aluminum fin of the unit. You may injure yourself if you do so. If the fin must be touched for some reason, first put on protective gloves and safety work clothing, and then proceed.
	Do not climb onto or place objects on top of the outdoor unit. You may fall or the objects may fall off of the outdoor unit and result in injury.
	Use forklift to carry in the air conditioner units and use winch or hoist at installation of them.
	When transporting the air conditioner, wear shoes with protective toe caps, protective gloves and other protective clothing.
	When transporting the air conditioner, do not take hold of the bands around the packing carton. You may injure yourself if the bands should break.
	Be sure that a heavy unit (10 kg or heavier) such as a compressor is carried by four persons.
Check earth wires.	Before troubleshooting or repair work, check the earth wire is connected to the earth terminals of the main unit, otherwise an electric shock is caused when a leak occurs.If the earth wire is not correctly connected, contact an electric engineer for rework.
	After completing the repair or relocation work, check that the ground wires are connected properly.
	Connect earth wire. (Grounding work) Incomplete grounding causes an electric shock. Do not connect earth wires to gas pipes, water pipes, and lightning rods or ground wires for telephone wires.

Prohibition of modification.	Do not modify the products.Do not also disassemble or modify the parts. It may cause a fire, electric shock or injury.
Use specified parts.	When any of the electrical parts are to be replaced, ensure that the replacement parts satisfy the specifications given in the Service Manual (or use the parts contained on the parts list in the Service Manual). Use of any parts which do not satisfy the required specifications may give rise to electric shocks, smoking and / or a fire.
Do not bring a child close to the equipment.	If, in the course of carrying out repairs, it becomes absolutely necessary to check out the electrical parts with the electrical parts box cover of one or more of the indoor units and the service panel of the outdoor unit removed in order to find out exactly where the trouble lies, put a sign in place so that no-one will approach the work location before proceeding with the work. Third-party individuals may enter the work site and receive electric shocks if this warning is not heeded.
Insulating measures	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 welder in the closed room. When using it without ventilation, carbon monoxide poisoning may be caused. 3) Do not bring inflammables close to the refrigerant cycle, otherwise fire of the welder may catch the inflammables.
Refrigerant	The refrigerant used by this air conditioner is the R410A.
	Check the used refrigerant name and use tools and materials of the parts which match with it. For the products which use R410A refrigerant, the refrigerant name is indicated at a position on the outdoor unit where is easy to see. To prevent miss-charging, the route of the service port is changed from one of the former R22.
	Do not use any refrigerant different from the one specified for complement or replacement. Otherwise, abnormally high pressure may be generated in the refrigeration cycle, which may result in a failure or explosion of the product or an injury to your body.
	For an air conditioner which uses R410A, never use other refrigerant than R410A. For an air conditioner which uses other refrigerant (R22, etc.), never use R410A. If different types of refrigerant are mixed, abnormal high pressure generates in the refrigerating cycle and an injury due to breakage may be caused.
	When the air conditioner has been installed or relocated, follow the instructions in the Installation Manual and purge the air completely so that no gases other than the refrigerant will be mixed in the refrigerating cycle. Failure to purge the air completely may cause the air conditioner to malfunction.
	Do not charge refrigerant additionally. If charging refrigerant additionally when refrigerant gas leaks, the refrigerant composition in the refrigerating cycle changes resulted in change of air conditioner characteristics or refrigerant over the specified standard amount is charged and an abnormal high pressure is applied to the inside of the refrigerating cycle resulted in cause of breakage or injury. Therefore if the refrigerant gas leaks, recover the refrigerant in the air conditioner, execute vacuuming, and then newly recharge the specified amount of liquid refrigerant. In this time, never charge the refrigerant over the specified amount.
	When recharging the refrigerant in the refrigerating cycle, do not mix the refrigerant or air other than R410A into the specified refrigerant. If air or others is mixed with the refrigerant, abnormal high pressure generates in the refrigerating cycle resulted in cause of injury due to breakage.
	After installation work, check the refrigerant gas does not leak. If the refrigerant gas leaks in the room, poisonous gas generates when gas touches to fire such as fan heater, stove or cocking stove though the refrigerant gas itself is innocuous.
	Never recover the refrigerant into the outdoor unit. When the equipment is moved or repaired, be sure to recover the refrigerant with recovering device. The refrigerant cannot be recovered in the outdoor unit; otherwise a serious accident such as breakage or injury is caused.

 Assembly / Wiring	After repair work, surely assemble the disassembled parts, and connect and lead the removed wires as before. Perform the work so that the cabinet or panel does not catch the inner wires. If incorrect assembly or incorrect wire connection was done, a disaster such as a leak or fire is caused at user's side.
 Insulator check	After the work has finished, be sure to use an insulation tester set (500 V Megger) to check the resistance is 1 MΩ or more between the charge section and the non-charge metal section (Earth position). If the resistance value is low, a disaster such as a leak or electric shock is caused at user's side.
 Ventilation	When the refrigerant gas leaks during work, execute ventilation. If the refrigerant gas touches to a fire, poisonous gas generates. A case of leakage of the refrigerant and the closed room full with gas is dangerous because a shortage of oxygen occurs. Be sure to execute ventilation.
	If refrigerant gas has leaked during the installation work, ventilate the room immediately. If the leaked refrigerant gas comes in contact with fire, noxious gas may generate.
	After installation work, check the refrigerant gas does not leak. If the refrigerant gas leaks in the room, poisonous gas generates when gas touches to fire such as fan heater, stove or cocking stove though the refrigerant gas itself is innocuous.
 Compulsion	When the refrigerant gas leaks, find up the leaked position and repair it surely. If the leaked position cannot be found up and the repair work is interrupted, pump-down and tighten the service valve, otherwise the refrigerant gas may leak into the room. The poisonous gas generates when gas touches to fire such as fan heater, stove or cocking stove though the refrigerant gas itself is innocuous. If the refrigerant leaks and exceeds the limit density, an accident of shortage of oxygen is caused.
	Tighten the flare nut with a torque wrench in the specified manner. Excessive tighten of the flare nut may cause a crack in the flare nut after a long period, which may result in refrigerant leakage.
	Nitrogen gas must be used for the airtight test.
	The charge hose must be connected in such a way that it is not slack.
	For the installation / moving / reinstallation work, follow to the Installation Manual. If an incorrect installation is done, a trouble of the refrigerating cycle, water leak, electric shock or fire is caused.
 Check after repair	Once the repair work has been completed, check for refrigerant leaks, and check the insulation resistance and water drainage. Then perform a trial run to check that the air conditioner is running properly.
	After repair work has finished, check there is no trouble. If check is not executed, a fire, electric shock or injury may be caused. For a check, turn off the power breaker.
	After repair work (installation of front panel and cabinet) has finished, execute a test run to check there is no generation of smoke or abnormal sound. If check is not executed, a fire or an electric shock is caused. Before test run, install the front panel and cabinet.
	Be sure to fix the screws back which have been removed for installation or other purposes.
 Do not operate the unit with the valve closed.	Check the following matters before a test run after repairing piping. • Connect the pipes surely and there is no leak of refrigerant. • The valve is opened. Running the compressor under condition that the valve closes causes an abnormal high pressure resulted in damage of the parts of the compressor and etc. and moreover if there is leak of refrigerant at connecting section of pipes, the air is sucked and causes further abnormal high pressure resulted in burst or injury.
 Check after reinstallation	Only a qualified installer (*1) or qualified service person (*1) is allowed to relocate the air conditioner. It is dangerous for the air conditioner to be relocated by an unqualified individual since a fire, electric shocks, injury, water leakage, noise and / or vibration may result.
	Check the following items after reinstallation. 1) The earth wire is correctly connected. 2) The power cord is not caught in the product. 3) There is no inclination or unsteadiness and the installation is stable. If check is not executed, a fire, an electric shock or an injury is caused.
	When carrying out the pump-down work shut down the compressor before disconnecting the refrigerant pipe. Disconnecting the refrigerant pipe with the service valve left open and the compressor still operating will cause air, etc. to be sucked in, raising the pressure inside the refrigeration cycle to an abnormally high level, and possibly resulting in reputing, injury, etc.

Cooling check	When the service panel of the outdoor unit is to be opened in order for the compressor or the area around this part to be repaired immediately after the air conditioner has been shut down, set the circuit breaker to the OFF position, and then wait at least 10 minutes before opening the service panel. If you fail to heed this warning, you will run the risk of burning yourself because the compressor pipes and other parts will be very hot to the touch. In addition, before proceeding with the repair work, wear the kind of insulated heat-resistant gloves designed to protect electricians.
	Take care not to get burned by compressor pipes or other parts when checking the cooling cycle while running the unit as they get heated while running. Be sure to put on gloves providing protection for heat.
	When the service panel of the outdoor unit is to be opened in order for the fan motor, reactor, inverter or the areas around these parts to be repaired immediately after the air conditioner has been shut down, set the circuit breaker to the OFF position, and then wait at least 10 minutes before opening the service panel. If you fail to heed this warning, you will run the risk of burning yourself because the fan motor, reactor, inverter heat sink and other parts will be very hot to the touch. In addition, before proceeding with the repair work, wear the kind of insulated heat-resistant gloves designed to protect electricians.
Installation	Only a qualified installer or service person is allowed to do installation work. Inappropriate installation may result in water leakage, electric shock or fire.
	Before starting to install the air conditioner, read carefully through the Installation Manual, and follow its instructions to install the air conditioner.
	Be sure to use the company-specified products for the separately purchased parts. Use of non-specified products may result in fire, electric shock, water leakage or other failure. Have the installation performed by a qualified installer.
	Do not supply power from the power terminal block equipped on the outdoor unit to another outdoor unit. Capacity overflow may occur on the terminal block and may result in fire.
	Do not install the air conditioner in a location that may be subject to a risk of expire to a combustible gas. If a combustible gas leaks and becomes concentrated around the unit, a fire may occur.
	Install the indoor unit at least 2.5 m above the floor level since otherwise the users may injure themselves or receive electric shocks if they poke their fingers or other objects into the indoor unit while the air conditioner is running.
	Install a circuit breaker that meets the specifications in the installation manual and the stipulations in the local regulations and laws.
	Install the circuit breaker where it can be easily accessed by the agent.
	If you install the unit in a small room, take appropriate measures to prevent the refrigerant from exceeding the limit concentration even if it leaks. Consult the dealer from whom you purchased the air conditioner when you implement the measures. Accumulation of highly concentrated refrigerant may cause an oxygen deficiency accident.
	Do not place any combustion appliance in a place where it is directly exposed to the wind of air conditioner, otherwise it may cause imperfect combustion.

Explanations given to user

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

Relocation

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

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

Declaration of Conformity

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

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

Hereby declares that the machinery described below:

Generic Denomination: Air Conditioner

Model / type: Indoor unit
<Compact 4-way Cassette type>

RAV-SM307MUT-E	RAV-SM307MUT-TR
RAV-SM407MUT-E	RAV-SM407MUT-TR
RAV-SM457MUT-E	RAV-SM457MUT-TR
RAV-SM567MUT-E	RAV-SM567MUT-TR

Commercial name: Digital Inverter Series, 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 presser level (dBA)		Weight (kg)
	Cooling	Heating	
RAV-SM307MUT-E	∗	∗	15 (2.5)
RAV-SM407MUT-E	∗	∗	15 (2.5)
RAV-SM457MUT-E	∗	∗	15 (2.5)
RAV-SM567MUT-E	∗	∗	15 (2.5)
RAV-SM307MUT-TR	∗	∗	15 (2.5)
RAV-SM407MUT-TR	∗	∗	15 (2.5)
RAV-SM457MUT-TR	∗	∗	15 (2.5)
RAV-SM567MUT-TR	∗	∗	15 (2.5)

∗: Under 70 dBA

1. SPECIFICATIONS

SDI combination
<Single type>

(50/60Hz)

Model name	Indoor Unit			RAV-SM	407MUT-E	457MUT-E	567MUT-E
	Outdoor Unit			RAV-SP	404ATP-E	454ATP-E	564ATP-E
Cooling capacity (Rated (Min.-Max.))				kW	3.6 (1.5 - 4.0)	4.0 (1.5 - 4.5)	5.0 (1.2 - 5.6)
Heating capacity (Rated (Min.-Max.))				kW	4.0 (1.5 - 5.0)	4.5 (1.5 - 5.6)	5.6 (0.9 - 7.4)
Power supply					1phase 50Hz 230V(220V-240V)		
Electrical charastaristics	Cooling	Running current		A	4.69 - 4.30	5.57 - 5.11	7.26 - 6.66
		Power consumption		kW	0.95	1.14	1.55
		Power factor		%	92	93	97
		EER			3.79	3.51	3.23
	Heating	Running current		A	4.74 - 4.35	5.56 - 5.10	7.17 - 6.57
		Power consumption		kW	0.96	1.15	1.53
		Power factor		%	92	94	97
		COP			4.17	3.91	3.66
	Maximum current				15.0	15.0	13.6
Indoor Unit							
Appearance	Main Unit				Zinc hot dipping steel plate * Heat-instulating material attached to only upper plate		
	Ceiling panel (Sold Separately)	Model name			RBC-UM21PG(W)-E		
		Color			Gran White (Mansell 5PB9/1)		
Outer dimension	Main unit	H x W x D (*3)		mm	256 x 575 x 575		
	Ceiling panel (Sold Separately)	H x W x D (*3)		mm	12 x 620 x 620		
Weight	Main unit			kg	15.0		
	Ceiling panel (Sold Separately)			kg	2.5		
Heat exchanger					Finned tube		
Fan unit	Fan				Turbo fan		
	Standard air flow (M+ / M / L+ / L)			m³/h	660(610/552/480/468)	660(610/552/480/468)	798(720/672/562/546)
	Motor			W	60		
Air filter					Standard filter (Long life filter)		
Drain port (Nominal dia. mm)					VP20 (Polyvinyl chloride tube)		
Sound puressure level High (M+ / M / L+ / L)				dB(A)	41 (38 / 36 / 33 / 32)	41 (38 / 36 / 33 / 32)	44 (42 / 39 / 36 / 35)
Sound power level High (M+ / M / L+ / L)				dB(A)	56 (53 / 51 / 48 / 47)	56 (53 / 51 / 48 / 47)	59 (57 / 54 / 51 / 50)
Outdoor Unit							
Refrigarant (Type / Charge weight (kg))					R410A / 1.0		R410A / 1.4
Outer dimension		H x W x D		mm	550 x 780 x 290		
Weight				kg	40		44
Sound puressure level		Cooling/Heating		dB(A)	45 / 47	45 / 47	47 / 48
Sound power level		Cooling/Heating		dB(A)	62 / 64	62 / 64	63 / 64
Pipe connections		Gas / Liquid		mm	Ø 12.7 / Ø 6.4		
		Min. Length		m	5		
		Max. Length		m	30		
		Chargeless		m	20		
		Max. height difference		m	30		
Operation Range		Cooling		˚C	-15 to 43		
		Heating		˚C	-15 to 15		-20 to 15

*1 : The Cooling capacity and electrical characteristics are measured under the conditions specified by JIS B 8615-1 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 lebel are measured in an anechoic chamber in accordance with JIS B 8616. Normally, the values measured in the actual operatin enviroment become larger than the indicated values due to the effects of external sound.

*3 : Height from the ceiling. Depth doesn't include the Erectric parts box.

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

DI combination

<Single type>

(50/60Hz)

Model name	Indoor Unit		RAV-SM	307MUT-E	407MUT-E	567MUT-E
	Outdoor Unit		RAV-SM	304ATP-E	404ATP-E	564ATP-E
Cooling capacity (Rated (Min.-Max.))			kW	2.5 (0.9 - 3.0)	3.6 (0.9 - 4.0)	5.0 (1.5 - 5.6)
Heating capacity (Rated (Min.-Max.))			kW	3.4 (0.8 - 4.5)	4.0 (0.8 - 5.0)	5.3 (1.5 - 6.3)
Power supply				1phase 50Hz 230V(220V-240V)		
Electrical charastaristics	Cooling	Running current	A	2.98 - 2.73	4.40 - 4.03	7.93 - 7.27
		Power consumption	kW	0.59	0.90	1.64
		Power factor	%	90	93	94
		EER		4.24	4.00	3.05
	Heating	Running current	A	3.75 - 3.44	4.64 - 4.26	7.18 - 6.59
		Power consumption	kW	0.76	0.95	1.47
		Power factor	%	92	93	93
		COP		4.47	4.21	3.61
	Maximum current			7.90	9.20	12.5
Indoor Unit						
Appearance	Main Unit			Zinc hot dipping steel plate * Heat-instulating material attached to only upper plate		
	Ceiling panel (Sold Separately)	Model name		RBC-UM21PG(W)-E		
		Color		Gran White (Mansell 5PB9/1)		
Outer dimension	Main unit	H x W x D (*3)	mm	256 x 575 x 575		
	Ceiling panel (Sold Separately)	H x W x D (*3)	mm	12 x 620 x 620		
Weight	Main unit		kg	15.0		
	Ceiling panel (Sold Separately)		kg	2.5		
Heat exchanger				Finned tube		
Fan unit	Fan			Turbo fan		
	Standard air flow (M+ / M / L+ / L)		m^3/h	640(574/520/450/440)	660(610/552/480/468)	798(720/672/562/546)
	Motor		W	60		
Air filter				Standard filter (Long life filter)		
Drain port (Nominal dia. mm)				VP20 (Polyvinyl chloride tube)		
Sound puressure level High (M+ / M / L+ / L)			dB(A)	38 (37 / 36 / 31 / 30)	41 (38 / 36 / 33 / 32)	44 (42 / 39 / 36 / 35)
Sound power level High (M+ / M / L+ / L)			dB(A)	53 (52 / 51 / 46 / 45)	56 (53 / 51 / 48 / 47)	59 (57 / 54 / 51 / 50)
Outdoor Unit						
Refrigarant (Type / Charge weight (kg))				R410A / 0.8	R410A / 1.4	R410A / 1.1
Outer dimension	H x W x D		mm	550 x 780 x 290		
Weight			kg	33	39	40
Sound puressure level	Cooling/Heating		dB(A)	46 / 47	49 / 50	46 / 48
Sound power level	Cooling/Heating		dB(A)	61 / 62	64 / 65	63 / 65
Pipe connections	Gas / Liquid		mm	Ø 9.5 / Ø 6.4	Ø 12.7 / Ø 6.4	
	Min. Length		m	2.0		5.0
	Max. Length		m	20		30
	Chargeless		m	15		20
	Max. height difference		m	10		30
Operation Range	Cooling		˚C	-15 to 46		
	Heating		˚C	-15 to 24		-15 to 15

*1 : The Cooling capacity and electrical characteristics are measured under the conditions specified by JIS B 8615-1 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 lebel are measured in an anechoic chamber in accordance with JIS B 8616. Normally, the values measured in the actual operatin enviroment become larger than the indicated values due to the effects of external sound.

*3 : Height from the ceiling. Depth doesn't include the Erectric parts box.

Notes ;

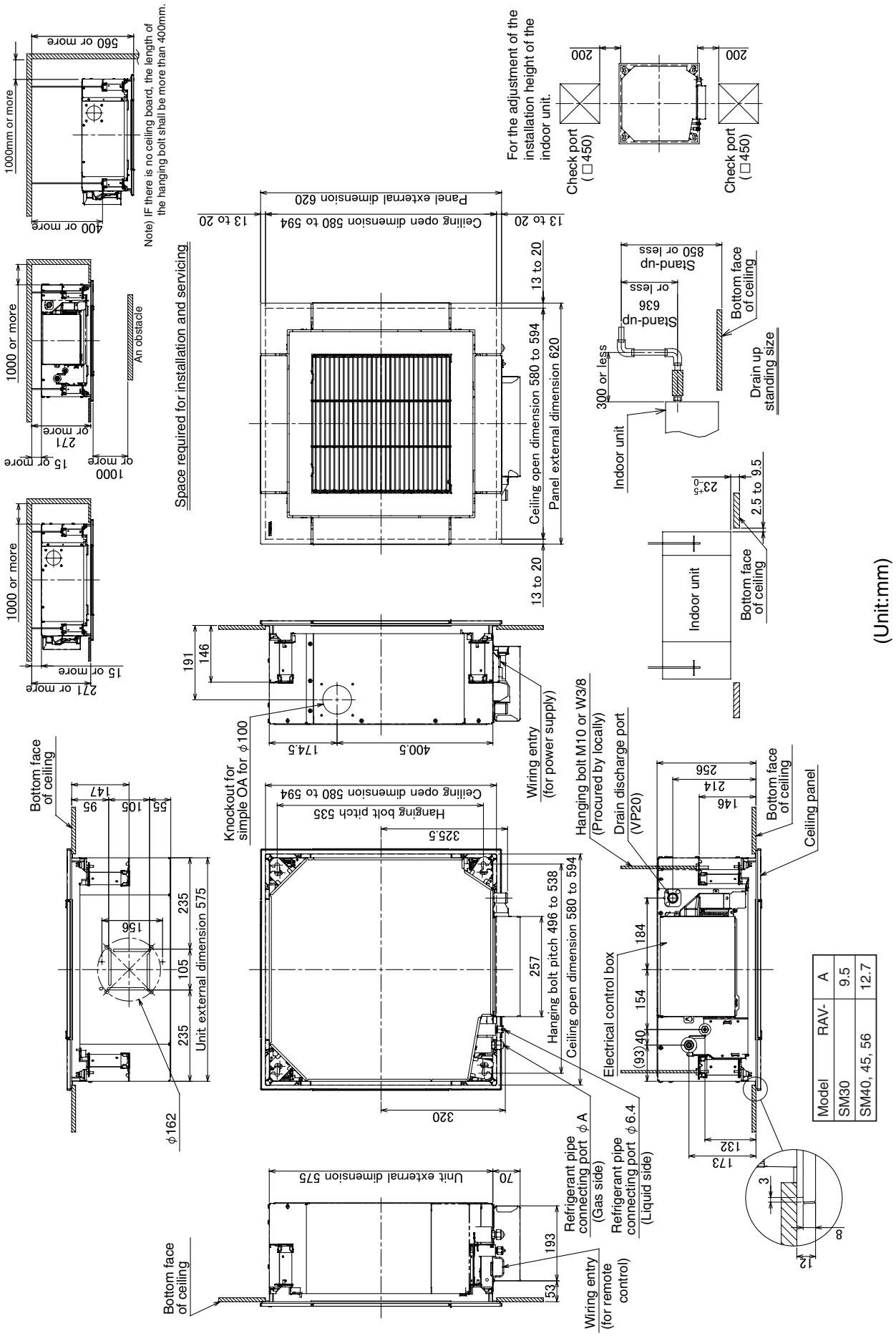
Rated conditions Cooling : Indoor air temperature 27°CDB/ 19 °CWB, Outdoor air temperature 35°CDB
Heating : Indoor air temperature 20°CDB, Outdoor air temperature 7°CDB/ 6 °CWB

Specifications for ErP Lot-10

Compact 4way Air Discharge Cassette <Series 7>

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	DI	Single	1.0	RAV-SM307MUT-E	1	RAV-SM304ATP-E	1	2.5	3.4	5.53	A	2.5	4.60	A++	2.3
2	DI	Single	1.5	RAV-SM407MUT-E	1	RAV-SM404ATP-E	1	3.6	4.0	5.35	A	3.6	4.34	A+	3.2
3	DI	Single	2.0	RAV-SM567MUT-E	1	RAV-SM564ATP-E	1	5.0	5.3	5.49	A	5.0	4.27	A+	3.9
4	SDI	Single	1.5	RAV-SM407MUT-E	1	RAV-SP404ATP-E	1	3.6	4.0	5.87	A+	3.6	4.49	A+	3.4
5	SDI	Single	1.7	RAV-SM457MUT-E	1	RAV-SP454ATP-E	1	4.0	4.5	5.61	A+	4.0	4.49	A+	3.4
6	SDI	Single	2.0	RAV-SM567MUT-E	1	RAV-SP564ATP-E	1	5.0	5.6	5.94	A+	5.0	4.42	A+	3.9

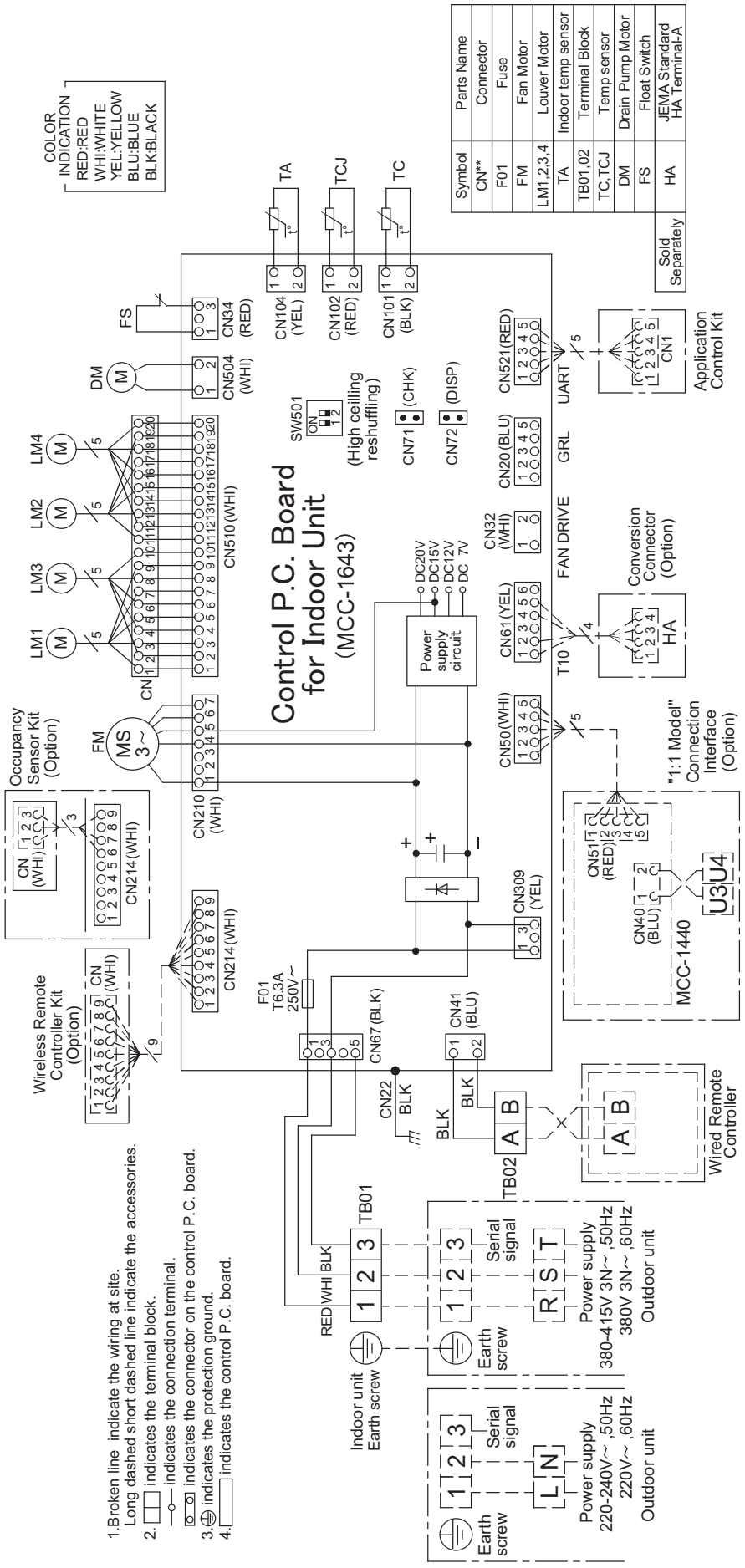
2. CONSTRUCTION VIEWS (EXTERNAL VIEWS)



Model	RAV-	A
SM30		9.5
SM40, 45, 56		12.7

(Unit:mm)

3. WIRING DIAGRAMS



4. PARTS RATING

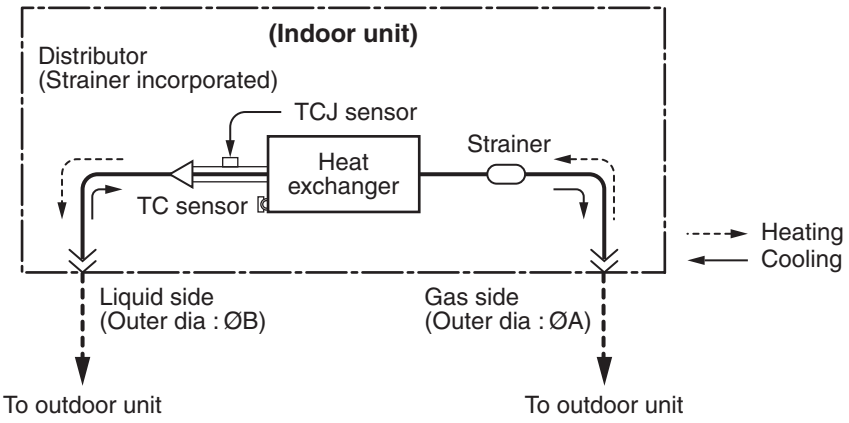
Indoor unit

Model RAV-	SM30∗	SM40∗	SM45∗	SM56∗
Fan motor	ICF-340D60-1			
Louver motor	MSBPC20F04			
Float switch	FS-0218-102			
Drain pump motor	MDP-1401			
TA sensor	Lead wire length: 818 mm Vinyl tube			
TC sensor	Ø6 size lead wire length: 500 mm Vinyl tube (Black)			
TCJ sensor	Ø6 size lead wire length: 400 mm Vinyl tube (Red)			

5. SYSTEMATIC REFRIGERATING CYCLE DIAGRAM

5-1. Indoor Unit

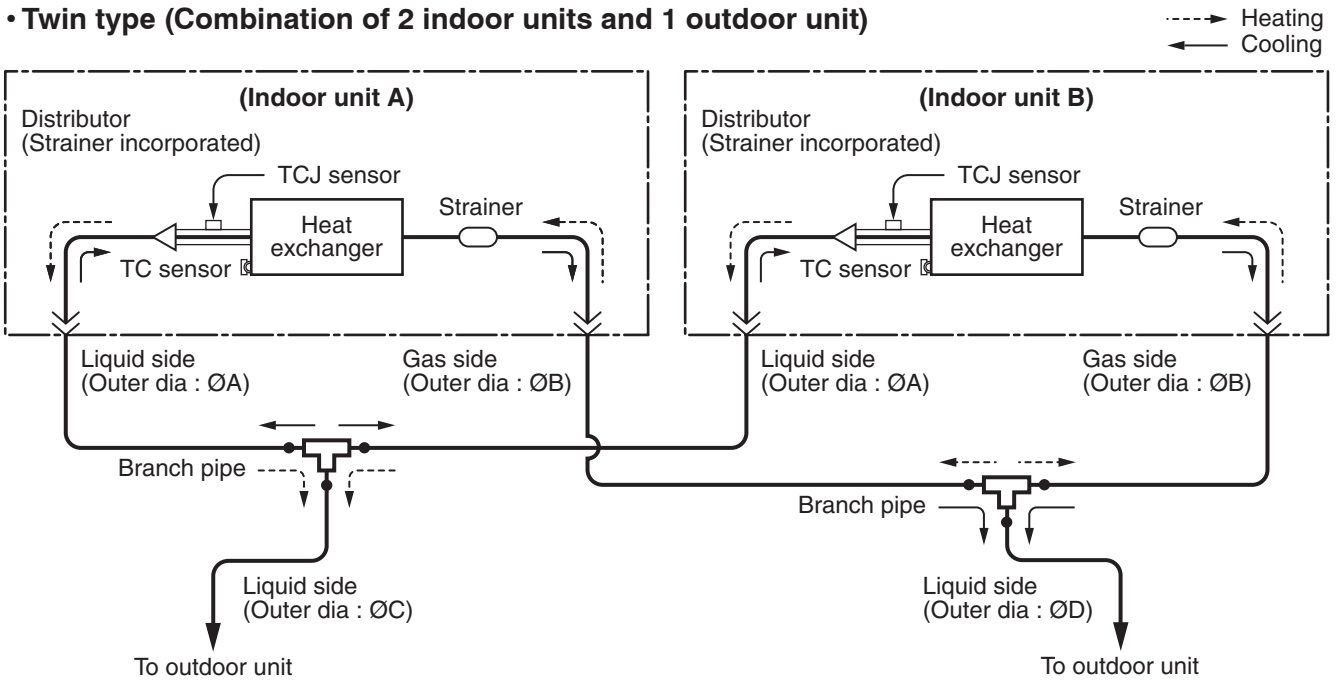
• Single type (Combination of 1 indoor unit and 1 outdoor unit)



Dimension table

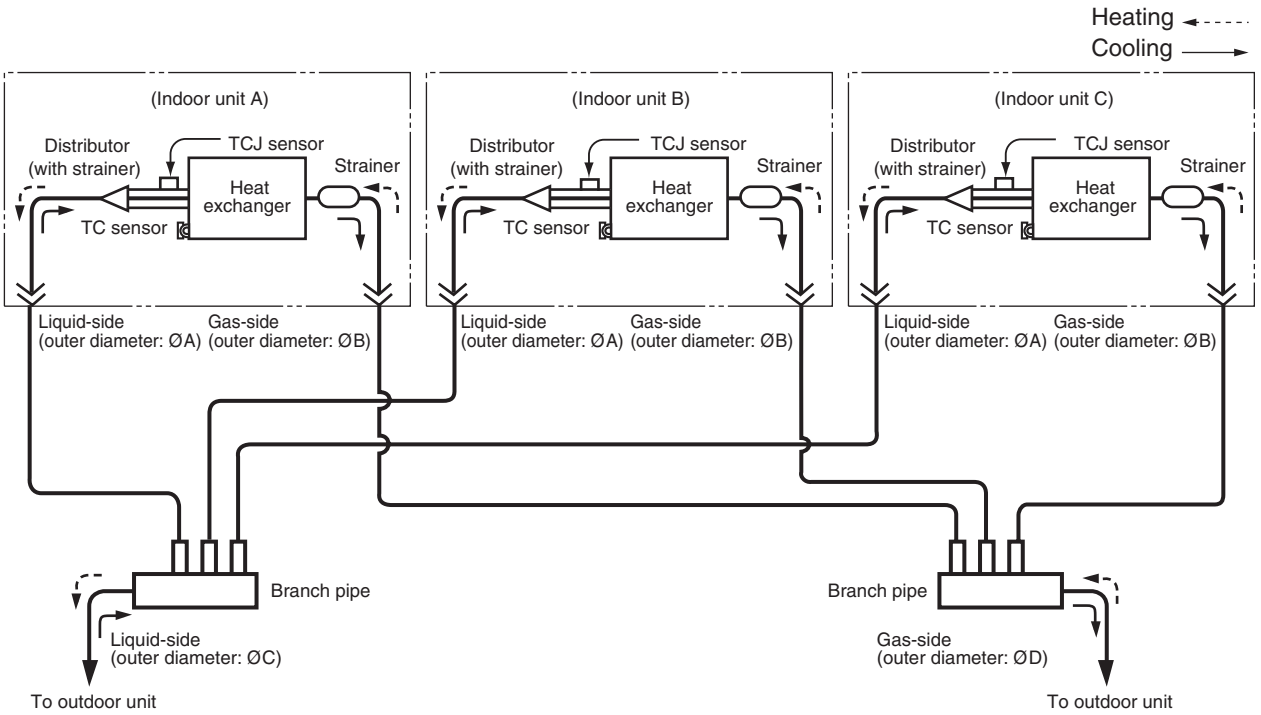
Indoor unit	Outer diameter of refrigerant pipe	
	Gas side ØA	Liquid side ØB
SM30 type	9.5	6.4
SM40, 45, 56 type	12.7	6.4

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



Indoor unit	Branch pipe	A	B	C	D
SM40 × 2	RBC-TWP30E2	6.4	12.7	9.5	15.9
SM56 × 2	RBC-TWP30E2	6.4	12.7	9.5	15.9

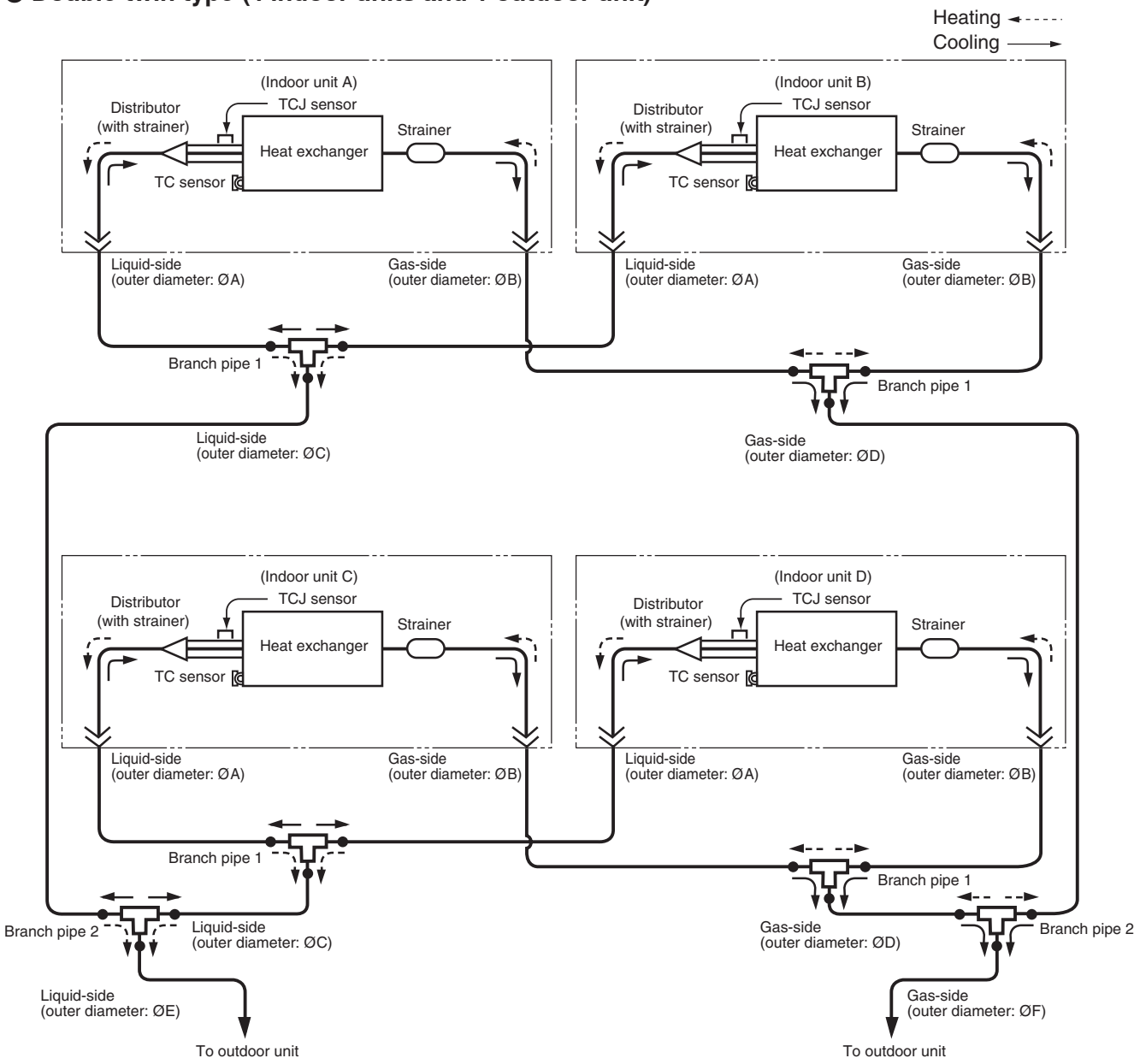
● Triple type (3 indoor units and 1 outdoor unit)



Dimension table

Indoor unit	Branch pipe	A	B	C	D
SM56X3	RBC-TRP100E	6.4	12.7	9.5	15.9

● Double-twin type (4 indoor units and 1 outdoor unit)



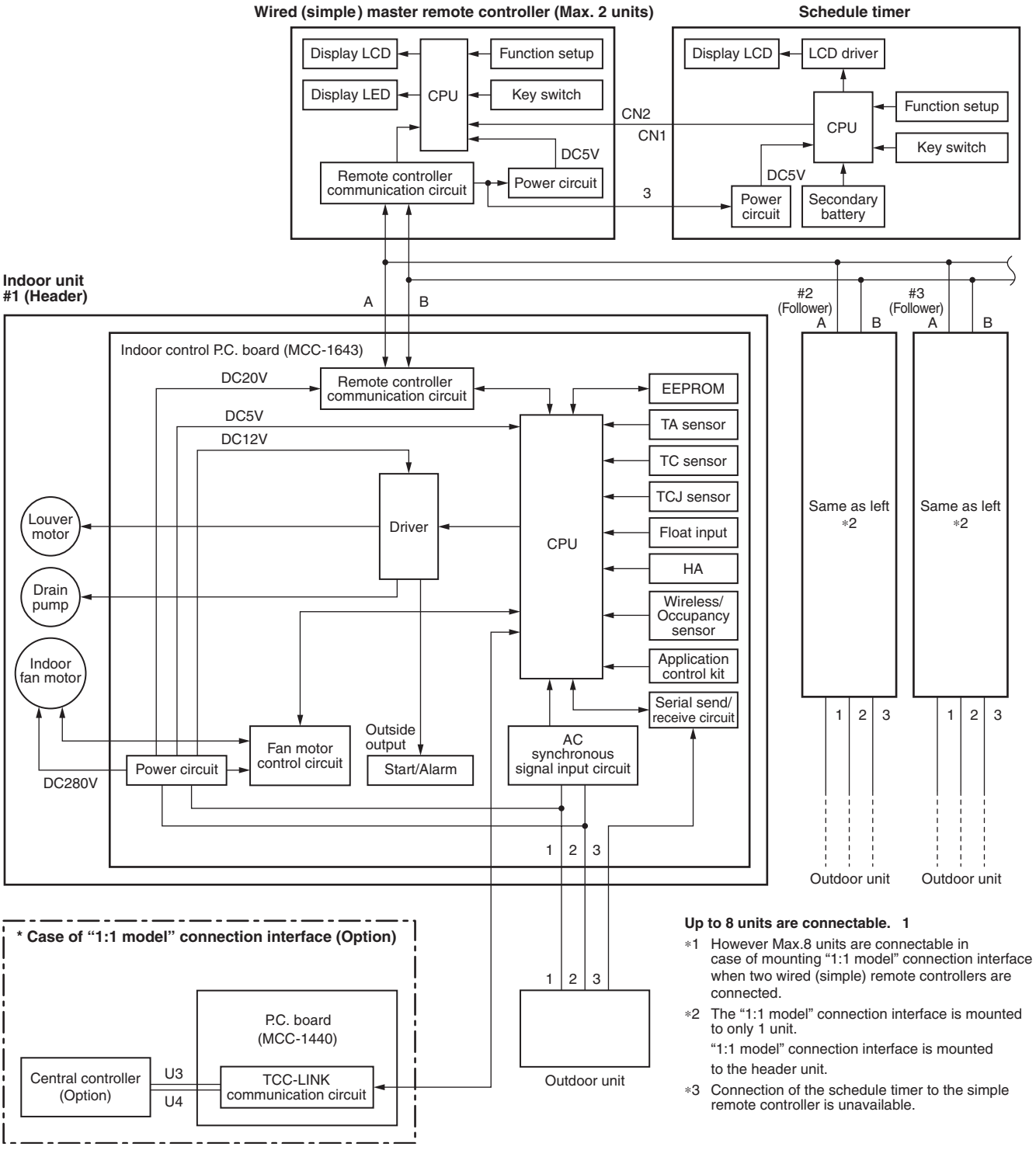
Dimension table

Indoor unit	Branch pipe 1	Branch pipe 2	A	B	C	D	E	F
SM56x4	RBC-TWP30E2x2	RBC-TWP101E	6.4	12.7	9.5	15.9	12.7	28.6

6. INDOOR CONTROL CIRCUIT

6-1. Indoor Controller Block Diagram

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



Up to 8 units are connectable. 1

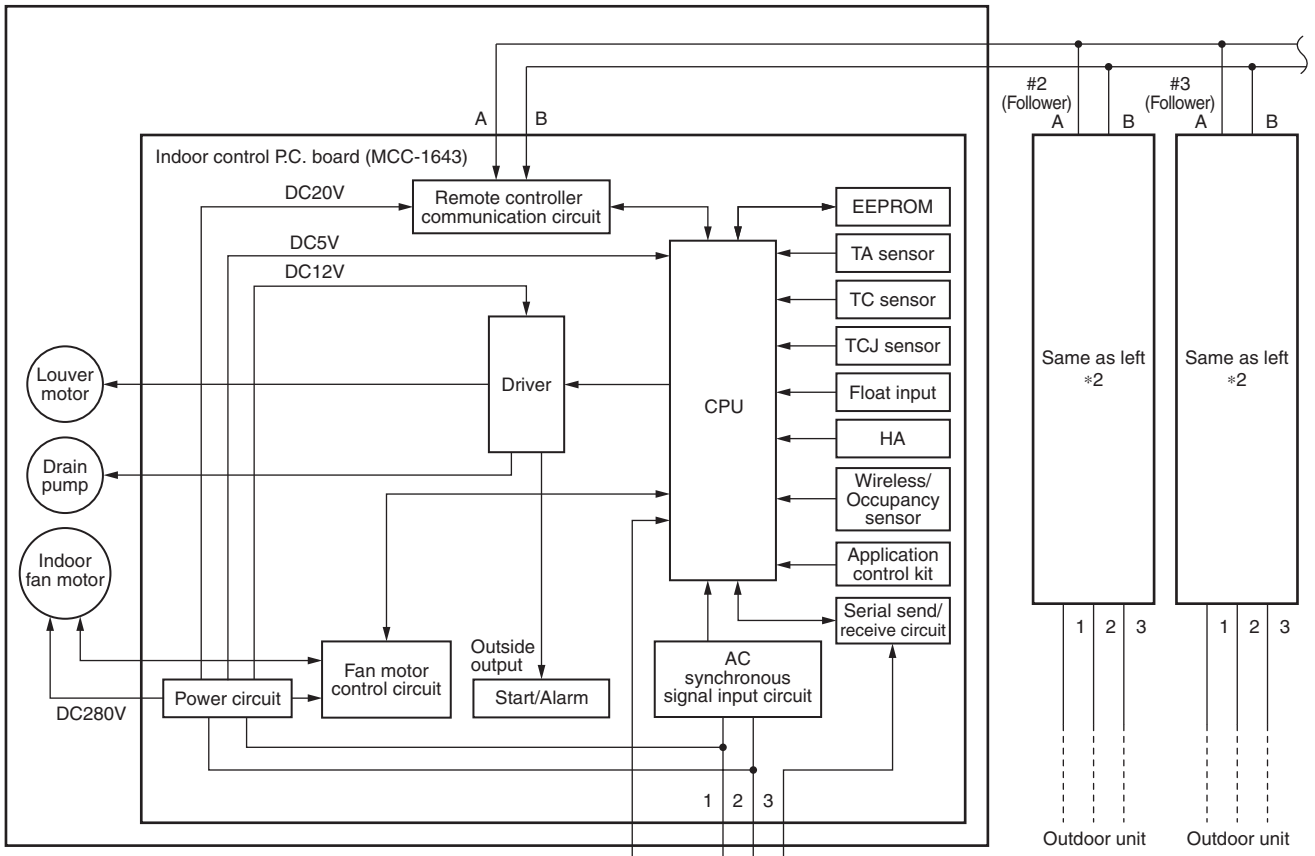
∗1 However Max.8 units are connectable in case of mounting "1:1 model" connection interface when two wired (simple) remote controllers are connected.

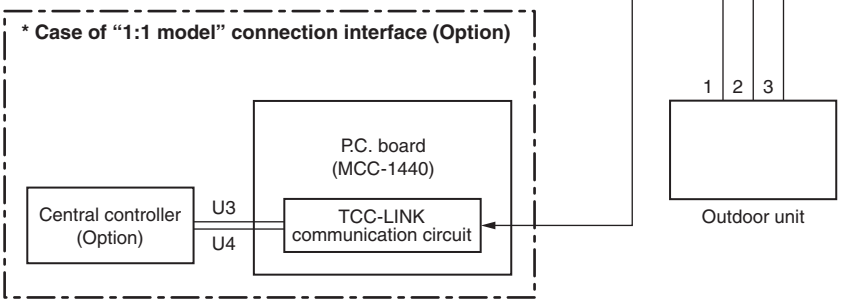
∗2 The "1:1 model" connection interface is mounted to only 1 unit.
"1:1 model" connection interface is mounted to the header unit.

∗3 Connection of the schedule timer to the simple remote controller is unavailable.

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

Indoor unit
#1 (Header)



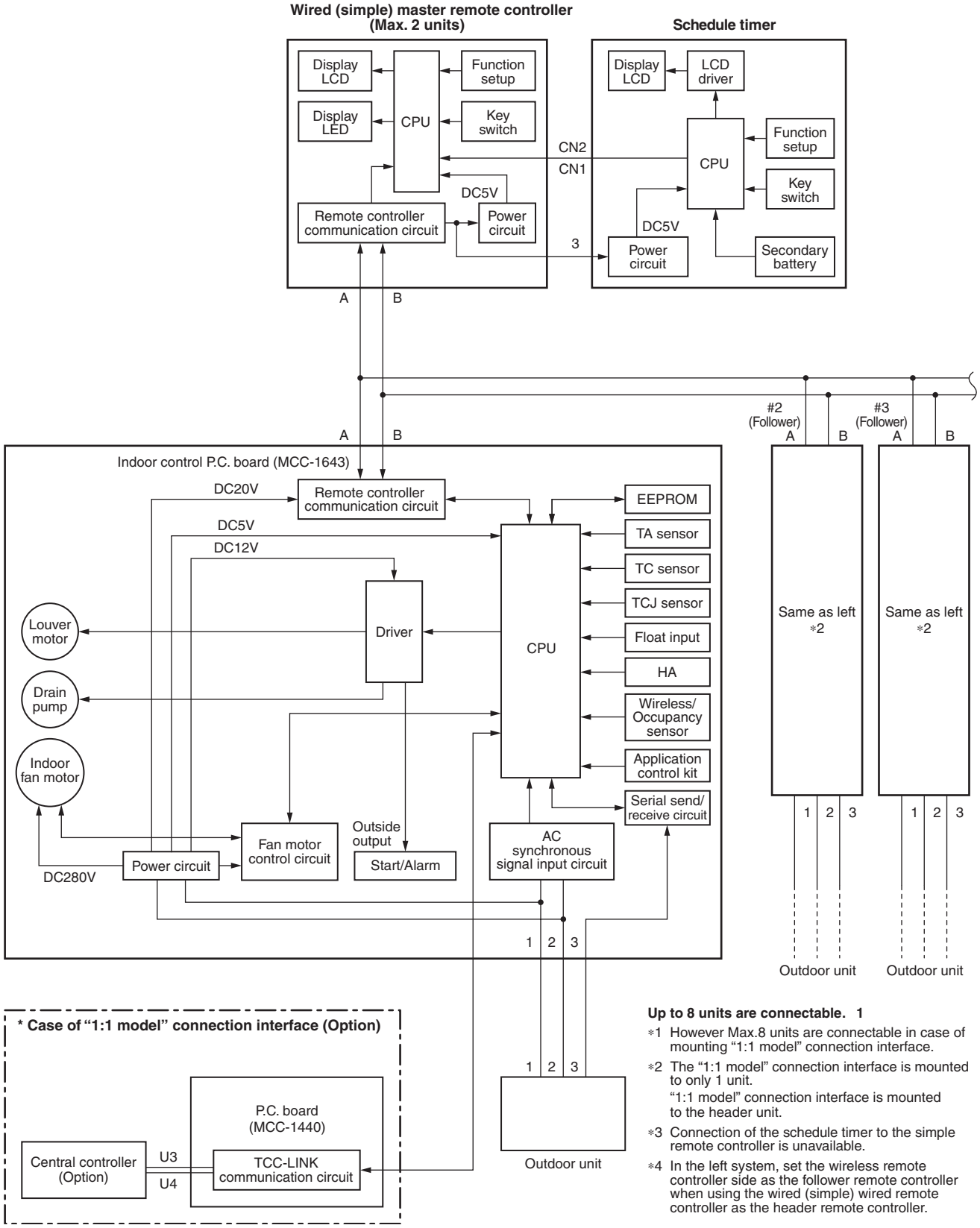


Up to 8 units are connectable. 1

∗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



Up to 8 units are connectable. 1

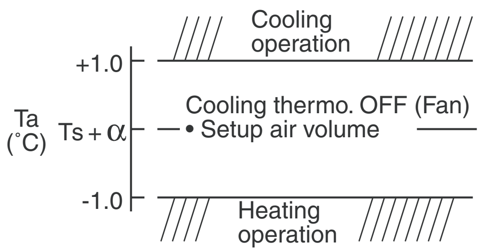
∗1 However Max.8 units are connectable in case of mounting "1:1 model" connection interface.

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

∗3 Connection of the schedule timer to the simple remote controller is unavailable.

∗4 In the left system, set the wireless remote controller side as the follower remote controller when using the wired (simple) wired remote controller as the header remote controller.

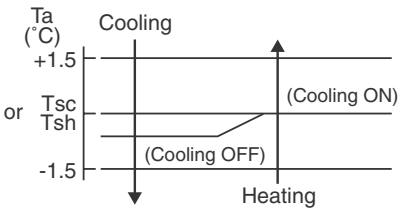
6-2. Control Specifications

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>1</td><td>When power supply is reset</td><td>1) Distinction of outdoor unit
When the power supply is reset, the outdoors are distinguished and the control is selected according to the distinguished result.
2) Setting of indoor fan speed and existence of air direction adjustment
Based on EEPROM data, select setting of the indoor fan speed and the existence of air direction adjustment.</td><td>Air speed (rpm)/
Air direction adjustment</td></tr>
<tr><td>2</td><td>Operation mode selection</td><td>1) Based on the operation mode selecting command from the remote controller, the operation mode is selected.
<table>
<tr><th>Remote controller command</th><th>Control outline</th></tr>
<tr><td>STOP</td><td>Air conditioner stops.</td></tr>
<tr><td>FAN</td><td>Fan operation</td></tr>
<tr><td>COOL</td><td>Cooling operation</td></tr>
<tr><td>DRY</td><td>Dry operation</td></tr>
<tr><td>HEAT</td><td>Heating operation</td></tr>
<tr><td>AUTO</td><td>• 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 $Ts + \alpha - 1 < Ta < Ts + \alpha + 1$, Cooling thermo. OFF (Fan)/Setup air volume operation continues.)</td></tr>
</table>


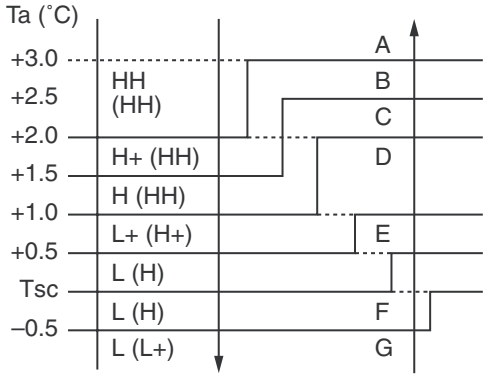
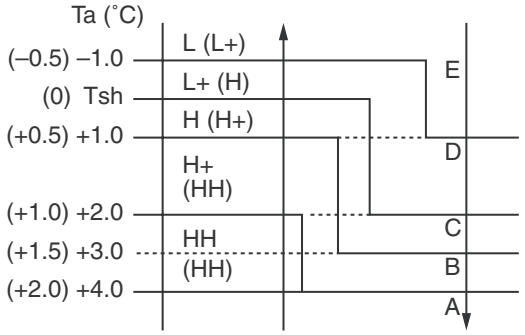
• α is corrected according to the outside temperature.
<table>
<tr><th>Outside temp.</th><th>Correction value (α)</th></tr>
<tr><td>TO Nothing</td><td>0K</td></tr>
<tr><td>$To \geq 24$˚C</td><td>–1K</td></tr>
<tr><td>$24 > To \geq 18$˚C</td><td>0K</td></tr>
<tr><td>$To < 18$˚C</td><td>+1K</td></tr>
<tr><td>To Trouble</td><td>0K</td></tr>
</table></td><td>Ta: Room temp.
Ts: Setup temp.
To: Outside temp.

k = deg</td></tr>
<tr><td>3</td><td>Room temp. control</td><td>1) Adjustment range: Remote controller setup temperature (˚C)
<table>
<tr><th></th><th>COOL/DRY</th><th>HEAT</th><th>AUTO</th></tr>
<tr><td>Wired type</td><td>18 to 29</td><td>18 to 29</td><td>18 to 29</td></tr>
<tr><td>Wireless type</td><td>17 to 30</td><td>17 to 30</td><td>17 to 30</td></tr>
</table></td><td></td></tr>
</table>

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

(GA control)</td><td>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”.</td><td></td></tr>
<tr><td>5</td><td>Automatic cooling/heating control</td><td>1) The judgment of selecting COOL/HEAT is carried out as shown below. When +1.5 exceeds against Tsh 10 minutes and after thermo.-OFF, heating operation (Thermo. OFF) exchanges to cooling operation. Description in the parentheses shows an example of cooling ON/OFF.
 

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

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

No.	Item	Outline of specifications	Remarks
6	Air speed selection (Continued):	* Only SM30 can not set up Type 1 and Type 3.	Selection of high ceiling type CODE No. : [5d] or selection of high ceiling on P.C. board SW501

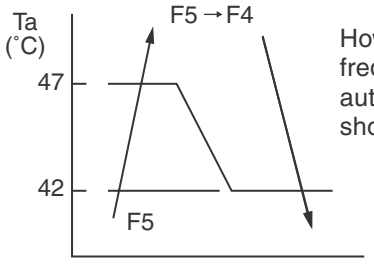
CODE No. [5d]	Standard		Type 1*		Type 3*	
	0000		0001		0003	
SW501 (1)/(2)	OFF/OFF		ON/OFF		OFF/ON	
Tap	HEAT	COOL	HEAT	COOL	HEAT	COOL
F1					HH	HH
F2			HH	HH		
F3				H+	H+, H	H+, H
F4			H+			
F5		HH		H		
F6	HH		H		L+	L+
F7	H+	H+			L	L
F8		H		L+		
F9	H		L+	L		
FA		L+	L			
FB	L+	L				
FC	L					
FD	LL	LL	LL	LL	LL	LL

3) In heating operation, the mode changes to [UL] if thermostat is turned off.

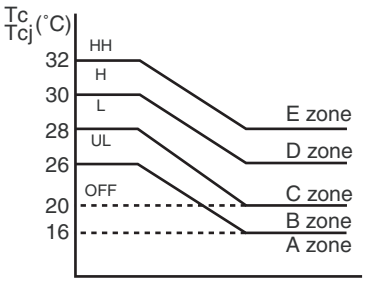
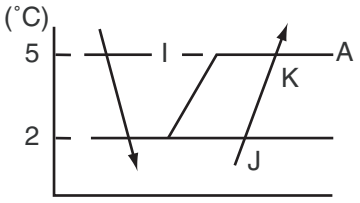
4) If Ta ≥ 25˚C when heating operation has started and when defrost operation has been cleared, the air conditioner operates with (H) mode or higher mode for 1 minute after Tc entered in E zone of cool air discharge preventive control (Item 7).

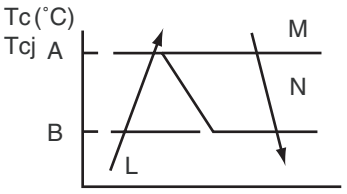
5) In automatic cooling/heating operation, the revolution frequency of (HH) is set larger than that in the standard cooling/heating operation.

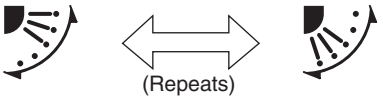
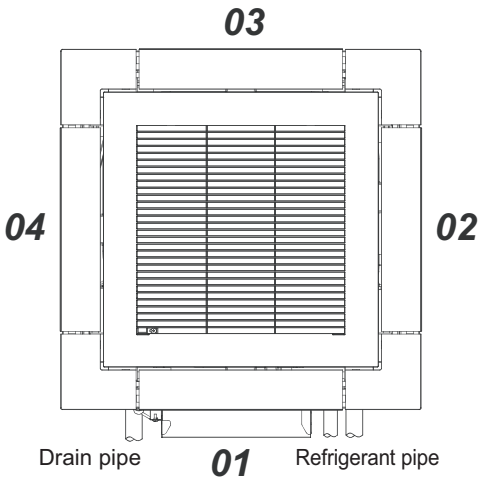
However only when the high ceiling selection is set to [Standard]

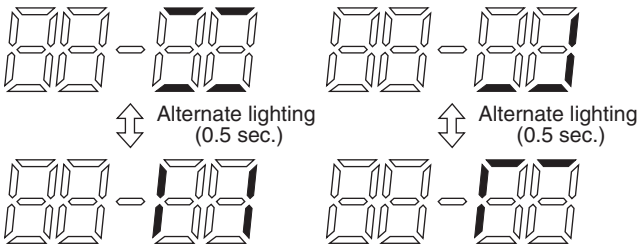


However the revolution frequency is restricted in the automatic heating operation as shown in the following figure.

No.	Item	Outline of specifications	Remarks
7	Cool air discharge preventive control	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. However B zone is assumed as C zone for 6 minutes and after when the compressor activated. In defrost operation, the control value of Tc is shifted by 6˚C.  	In D and E zones, the priority is given to air volume selection setup of remote controller. In A zone while thermo is ON, [PRE-HEAT ❋ (Heating ready)] is displayed. Tcj: Indoor heat exchanger sensor temperature
8	Freeze preventive control (Low temperature release)	1) The cooling operation (including Dry operation) is performed as follows based on the detected temperature of Tc sensor or Tcj sensor. When [J] zone is detected for 6 minutes (Following figure), the commanded frequency is decreased from the real operation frequency. After then the commanded frequency changes every 30 seconds while operation is performed in [J] zone. In [K] zone, time counting is interrupted and the operation is held. When [I] zone is detected, the timer is cleared and the operation returns to the normal operation. 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.  In heating operation, the freeze-preventive control works if 4-way valve is not exchanged and the following conditions are satisfied. (However the temperature for J zone dashing control is changed from 2˚C to –5˚C.) **<Conditions>** • When ① or ② is established 5 minutes after activation. ① Tcn ≤ Tc (n – 1) – 5 ② Tcn < Tc (n – 1) – 1 and Tcn ≤ Ta < 5˚C	Tcj: Indoor heat exchanger sensor temperature **Tcn:** Tc temperature when 5 minutes elapsed after activation **Tc (n – 1):** Tc temperature at start time

No.	Item	Outline of specifications	Remarks
9	High-temp. release control	1) The heating operation is performed as follows based on the detected temperature of Tc sensor or Tcj sensor. • 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. **Setup at shipment** Control temp. (˚C): A = 56 (54), B = 52 (52)  **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.	However this control is ignored in case of the follower unit of the twin. 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)
10	Drain pump control	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	After-heat elimination	When heating operation stops, in some cases, the indoor fan operates with (L) for approx. 30 seconds.	

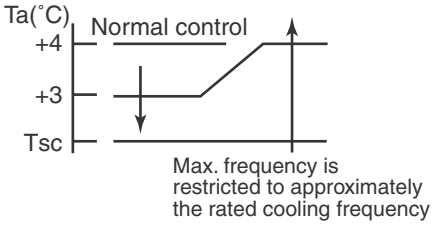
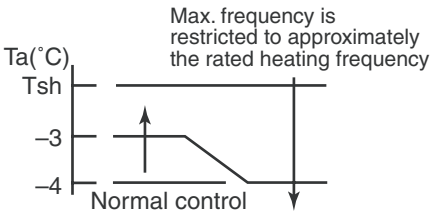
No.	Item	Outline of specifications	Remarks
12	Louver control	1) Louver position setup • When the louver position is changed, the position moves necessarily to downward discharge position once to return to the set position. • The louver position can be set up in the following operation range. **In cooling/dry operation** **In heating/fan operation**  • In group twin/triple operation, the louver positions can be set up collectively or individually. In case that HEAT refrigerant recovery control was performed in STOP status, the louver position becomes horizontal when the operation is resumed. 2) Swing setup • [SWING] is displayed and the following display is repeated. **In all operations**  (Repeats) • In group operation, the louver positions can be set up collectively or individually. 3) When the unit stopped or the warning was output, the louver is automatically set to full closed position. 4) When PRE-HEAT (Heating ready) is displayed (Heating operation started or defrost operation is performed), heating thermo is off or self-cleaning is performed, the louver is automatically set to horizontal discharge position. * The louver which air direction is individually set or the locked louver closes fully when the unit stops and the louver is automatically set to horizontal discharge position when PRE-HEAT (Heating ready) is displayed, heating thermo is off. **<<Individual air direction setup>>** • Pushing UNIT LOUVER 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, UNIT LOUVER Louver select button is not pushed or louver No. is not displayed, the air directions of all the louvers are collectively set up.  *03* *04* *02* Drain pipe *01* Refrigerant pipe	The swinging louver moves usually up to the ceiling side from the louver position of the set time. Setup from the remote controller without UNIT LOUVER button is unavailable.

No.	Item	Outline of specifications	Remarks
12	Louver control (Continued)	**<<Selection of Swing mode>>** • For the Swing mode, the following three types of modes are selectable and settable by keeping Swing/Direction SWING/FIX button pushed for 4 seconds or more on the remote controller. 1) 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. 2) 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. 3) 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. • 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 SWING/FIX button was pushed to select [SWING]. (No display for the standard swing)  **Dual swing** **Cycle swing** **<<Louver lock (Louver fix)>>** • For the air direction setup for each discharge port, the louver position can be locked during the normal operation. • An arbitrary air direction of an arbitrary louver can be registered and set by keeping UNIT LOUVER button pushed for 4 seconds or more on the remote controller. • The louver lock can be set by registering the setup data to Item code (DN) [F1] to [F4] according to the following table.	Carry out setting operation during stop of the unit; otherwise the unit stops operation. Carry out setting operation during stop of the unit; otherwise the unit stops operation.

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	

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>12</td><td>Louver control
(Continued)</td><td>• 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><tr><th></th><th>Control which ignores lock</th><th>Objective louver No.</th></tr><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 thermo. OFF</td><td>Horizontal discharge position</td></tr><tr><td>④</td><td>During defrost operation</td><td>Horizontal discharge position</td></tr><tr><td>⑤</td><td>Initialize operation</td><td>Full-close position</td></tr></table>• The real louver corresponding to the louver No. displayed on the remote controller screen during setting of louver lock operates swinging.</td><td>For the setting operation, refer to [How to set louver lock] of Installation Manual.

It is position check operation and it does not link with the real louver and air direction setup (Illustration on the remote controller screen).</td></tr>
<tr><td>13</td><td>HA control</td><td>1) This control is connected to TV control or remote start/stop I/F, etc, and start/stop are available by HA signal input from the remote position.
2) This control outputs start/stop status to HA output terminal.
3) I/O specifications conform to JEMA regulations.
4) 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.)</td><td>In the group operation, use this control by connecting to either header or follower indoor unit.</td></tr>
<tr><td>14</td><td>Frequency fixed operation (Test run)</td><td>Refer to "9-1-1. Test Run Setup on Remote Controller"</td><td>Command frequency is approximately [S7]</td></tr>
<tr><td>15</td><td>Filter sign display (Except wireless type)</td><td>1) 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.
2) 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.</td><td>[FILTER ▦] goes on.</td></tr>
</table>

No.	Item	Outline of specifications	Remarks
16	Central control mode selection	1) Setting at the central controller side enables to select the contents which can be operated on the remote controller at indoor unit side. 2) Setup contents • 64 line central controller (TCB-SC642TLE2) [Individual]: Operated on the remote controller (Priority to second pushing) [Central 1]: ON/OFF operation cannot be operated on the remote controller. [Central 2]: ON/OFF, mode selection, temp. setup operations cannot be operated on the remote controller. [Central 3]: Mode selection and temp. setup operations cannot be operated on the remote controller. [Central 4]: Mode selection cannot be operated on the remote controller. ∗ 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).	Display at remote controller side (No display) [Central] goes on [Central] goes on [Central] goes on [Central] goes on
17	Energy saving operation	1) When the "Energy saving operation" is selected during AUTO mode, energy-saving operation will be carried out. (In RBC-AMS54E*, COOL and HEAT mode can also be selected.) 2) The setup temperature is shifted (corrected) in the range not to lose the comfort ability according to input values of various sensors. 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. 4) The setup temperature is shifted every 20 minutes, and the shifted range is as follows. In cooling time: +1.5 to – 1.0K In heating time: –1.5 to +1.0K	Wireless remote control (RBC-AMS54E*) is required.
18	Max. frequency cut control	1) This control is operated by selecting [AUTO] operation mode. 2) COOL operation mode: It is controlled according to the following figure if To < 28˚C.  3) HEAT operation mode: It is controlled according to the following figure if To > 15˚C.  	

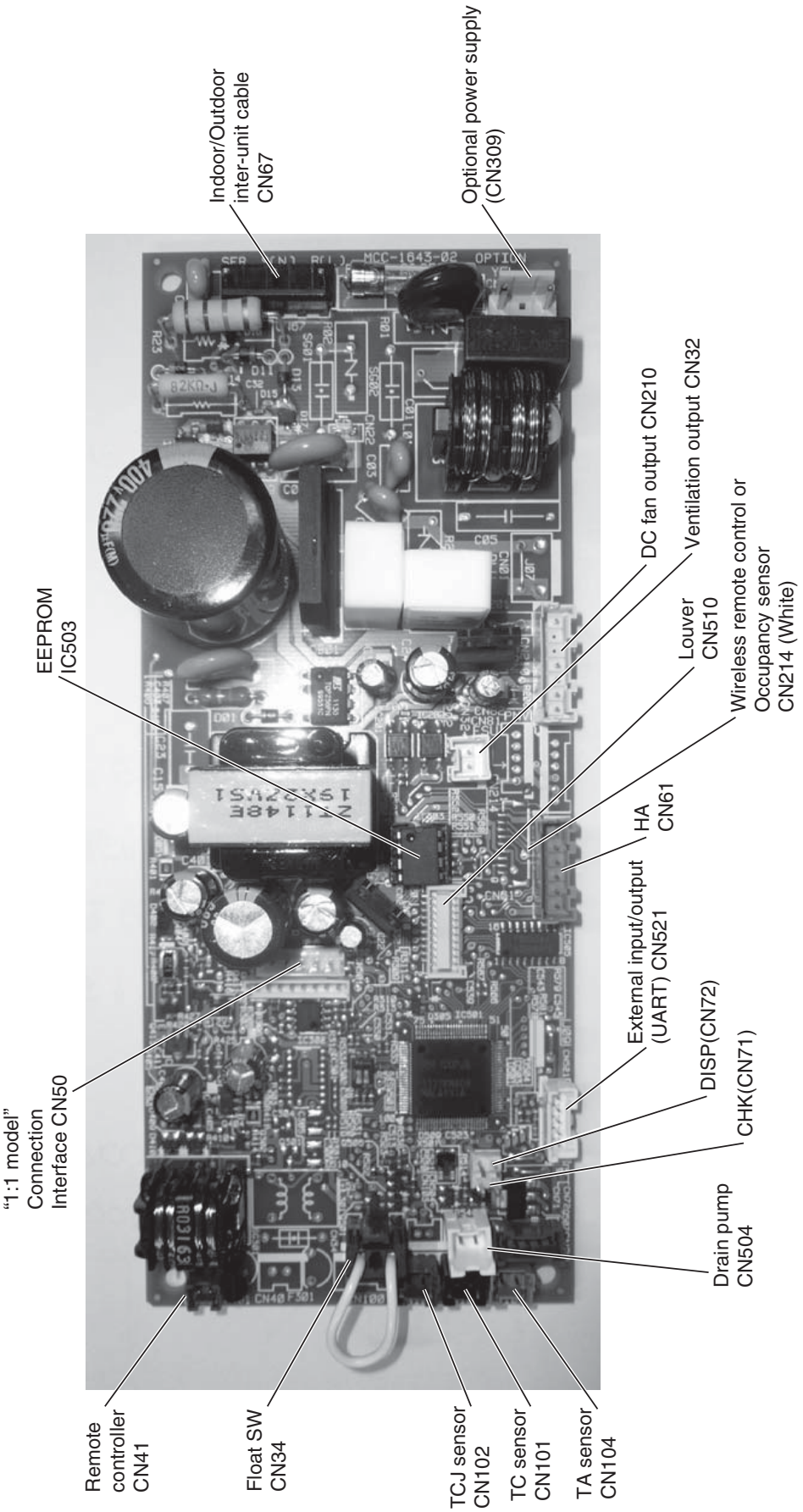
No.	Item	Outline of specifications	Remarks
19	DC motor	1) When the fan operation has started, positioning of the stator and the rotor are performed. (Moves slightly with tap sound) 2) The motor operates according to the command from the indoor controller. **Notes)** • When the fan rotates while the air 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	1) Turn on SAVE button on the remote controller. 2) During operation of save operation, SAVE lights on the wired remote controller. 3) During power save operation, the current release control is performed with the restriction ratio set in EEPROM on the outdoor unit. 4) The restriction ratio can be set by keeping SAVE button pushed for 4 seconds or more on the remote controller. 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. 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%).	Operation and display also are unavailable on the wired remote controller RBC-AMT31E and before. Carry out setting operation during stop of the unit; otherwise the unit stops operation. For the setup operation, refer to "Power saving mode" of Installation Manual.

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>21</td><td>8˚C heating/
Frost protective
operation</td><td>1) This functional is intended for the cold latitudes and performs objective heating operation (8˚C heating operation).
2) This function is valid only for combination with the outdoor units (Super Digital Inverter (SDI) 4-series outdoor units).
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.
4) This operation is the heating operation which sets 8˚C as the setup temperature of the target.
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.
6) To stop/release this operation, select and execute one from the following operations.
① Push (▲) button: Heating operation (18˚C setting) continues.
② Push [START/STOP] button: Air conditioner stops. (Heating 18˚C operation at the next start)
③ Push MODE : Other operation mode is selected and the operation continues.
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.
8) The settings of the air direction and air volume are changeable during this operation.
9) The indoor fan stops to protect the compressor for 2 minutes after start of heating operation (Thermo-ON) by this function.</td><td>In a group connection, if there is even one combination with other unit, “This function is not provided.” is displayed.

The setup temperature jumps from [18] to [8].</td></tr>
<tr><td>22</td><td>Occupancy
sensor</td><td>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.
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)
DN [B6]
<table><tr><th>Data</th><th>Setting contents</th></tr><tr><td>0000</td><td>Invalid</td></tr><tr><td>0001 to 0005</td><td>30 minutes to 150 minutes (30 minutes each)</td></tr></table>
3) The operation at absent time can be changed by [DN code : B7].
DN [B7]
<table><tr><th>Data</th><th>Operation at absent time</th></tr><tr><td>0000</td><td>Circulator</td></tr><tr><td>0001</td><td>Operation stop</td></tr></table>
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.</td><td>The Occupancy sensor can be set up by wired remote controller RBC-AMS54E*</td></tr>
</table>

6-3. Indoor Print Circuit Board

<MCC-1643>



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

* As the functions operated by old CN60, CN80, CN70 and CN73 have been transported to the Application control kit (TCB-PCUC1E-1), you need to use them from the Application control kit (Sold separately)

7. TROUBLESHOOTING

7-1. Summary of Troubleshooting

<Wired remote controller type>

1. Before troubleshooting

1) Required tools/instruments
   - ⊕ and ⊖ screwdrivers, spanners, radio cutting 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 not 3-minutes delay (3 minutes after compressor OFF)?
         - Is not the outdoor unit in standby status though the remote controller reached the setup temperature?
         - Does not timer operate during fan operation?
         - Is not an overflow trouble detected on the indoor unit?
         - Is not outside high-temperature operation controlled in heating operation?
      2. Indoor fan does not rotate.
         - Does not cool air discharge preventive control work in heating operation?
      3. Outdoor fan does not rotate or air volume changes.
         - Does not high-temperature release operation control work in heating operation?
         - Does not outside low-temperature operation control work in cooling operation?
         - Is not defrost operation performed?
      4. ON/OFF operation cannot be performed from remote controller.
         - Is not the control operation performed from outside/remote side?
         - Is not 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 not being carried out a test run by operation of the outdoor controller?
   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.

Trouble → **Confirmation of check code display** → **Check defective position and parts.**

NOTE :

For cause of a trouble, power conditions or malfunction/erroneous diagnosis of microcomputer due to outer noise is considered except the items to be checked. 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, radio cutting 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 not 3-minutes delay (3 minutes after compressor OFF)?
         - Is not the outdoor unit in standby status though the remote controller reached the setup temperature?
         - Does not timer operate during fan operation?
         - Is not an overflow trouble detected on the indoor unit?
         - Is not outside high-temperature operation controlled in heating operation?
      2. Indoor fan does not rotate.
         - Does not cool air discharge preventive control work in heating operation?
3) Outdoor fan does not rotate or air volume changes.
   - Does not high-temperature release operation control work in heating operation?
   - Does not outside low-temperature operation control work in cooling operation?
   - Is not defrost operation performed?
4) ON/OFF operation cannot be performed from remote controller.
   - Is not forced operation performed?
   - Is not the control operation performed from outside/remote side?
   - Is not automatic address being set up?
   - Is not being carried out a test run by operation of the outdoor controller?

   a) Did you return the cabling to the initial positions?
   b) Are connecting cables between indoor unit and receiving unit correct?

2. Troubleshooting procedure

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

1) Outline of judgment
   The primary judgment to check where a trouble occurred in indoor unit or outdoor unit is performed with the following method.

Method to judge the erroneous position by flashing indication on the display part of indoor unit (sensors of the receiving unit)

The indoor unit monitors operating status of the air conditioner, and the blocked contents of self-diagnosis are displayed restricted to the following cases if a protective circuit works.

7-2. Troubleshooting

7-2-1. Outline of judgment

The primary judgment to check whether a trouble occurred in the indoor unit or outdoor unit is carried out with the following method.

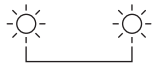
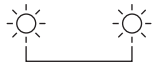
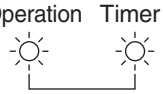
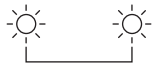
Method to judge the erroneous position by flashing indication on the display part of the indoor unit (sensors of the receiving part)

The indoor unit monitors the operating status of the air conditioner, and the blocked contents of self-diagnosis are displayed restricted to the following cases if a protective circuit works.

● : Go off, ○ : Go on, ☼ : Flash (0.5 sec.)

Lamp indication	Check code	Cause of trouble occurrence
Operation ● Timer ● Ready ● No indication at all	—	Power supply OFF or miswiring between receiving unit and indoor unit
Operation ☼ Timer ● Ready ● Flash	E01	Receiving trouble } Receiving unit } Miswiring or wire connection trouble between receiving unit and indoor unit
	E02	Sending trouble } Receiving unit } Miswiring or wire connection trouble between receiving unit and indoor unit
	E03	Communication stop } Miswiring or wire connection trouble between receiving unit and indoor unit
	E08	Duplicated indoor unit No. } Setup trouble
	E09	Duplicated header units of remote controller } Setup trouble
	E11	Communication trouble between Application control kit and indoor unit P.C. board
	E18	Wire connection trouble between indoor units, Indoor power OFF (Communication stop between indoor header and follower or between main and sub indoor twin)
Operation ● Timer ● Ready ☼ Flash	E04	Miswiring between indoor unit and outdoor unit or connection trouble (Communication stop between indoor and outdoor units)
Operation ● Timer ☼ Ready ☼ Alternate flash	P10	Overflow was detected. } Protective device of indoor unit worked.
	P12	Indoor DC fan trouble } Protective device of indoor unit worked.
Operation ☼ Timer ● Ready ☼ Alternate flash	P03	Outdoor unit discharge temp. trouble } Protective device of outdoor unit worked. ∗1
	P04	Outdoor high pressure system trouble } Protective device of outdoor unit worked. ∗1
	P05	Negative phase detection trouble } Outdoor unit trouble
	P07	Heat sink overheat trouble } Outdoor unit trouble
	P15	Gas leak detection trouble } Outdoor unit trouble
	P19	4-way valve system trouble (Indoor or outdoor unit judged.)
	P20	Outdoor unit high pressure protection
	P22	Outdoor unit: Outdoor unit trouble } Protective device of outdoor unit worked. ∗1
	P26	Outdoor unit: Inverter Idc operation } Protective device of outdoor unit worked. ∗1
	P29	Outdoor unit: Position detection trouble } Protective device of outdoor unit worked. ∗1
	P31	Stopped because of trouble of other indoor unit in a group (Check codes of E03/L03/L07/L08)

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

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

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	Lamp indication				Representative defective position	Explanation of trouble contents	Air conditioner operation	
TCC-LINK central & Wired remote controller	Block indication						Automatic reset	Operation continuation
	Operation	Timer	Ready	Flash				
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 (main) and follower (sub) units is impossible.	○	×
F01	◎	◎	●	ALT	Indoor unit, Heat exchanger (TCJ) trouble	Open/short was detected on heat exchanger (TCJ).	○	×
F02	◎	◎	●	ALT	Indoor unit, Heat exchanger (TC) trouble	Open/short was detected on heat exchanger (TC).	○	×
F10	◎	◎	●	ALT	Indoor unit, Room temp. sensor (TA) trouble	Open/short was detected on room temp. sensor (TA).	○	×
F29	◎	◎	●	SIM	Indoor unit, other indoor P.C. board trouble	EEPROM trouble (Other trouble may be detected. If no trouble, automatic address is repeated.	×	×
F30	◎	◎	○	ALT	Occupancy sensor trouble	Occupancy sensor trouble has been detected.		○
L03	◎	●	◎	SIM	Duplicated setting of indoor group header unit ✧	There are multiple header units in a group.	×	×
L07	◎	●	◎	SIM	There is group cable in individual indoor unit. ✧	When even one group connection indoor unit exists in individual indoor unit.	×	×
L08	◎	●	◎	SIM	Unset indoor group address ✧	Indoor group address is unset.	×	×
L09	◎	●	◎	SIM	Unset indoor capacity	Capacity of indoor unit is unset.	×	×
L20	◎	○	◎	SIM	Duplicated central control system address	Duplicated setting of central control system address	○	×
L30	◎	○	◎	SIM	Outside trouble input to indoor unit (Interlock)	Abnormal stop by outside trouble (CN80) input	×	×
P01	●	◎	◎	ALT	Indoor unit, AC fan trouble	An trouble of indoor AC fan was detected. (Fan motor thermal relay worked.)	×	×
P10	●	◎	◎	ALT	Indoor unit, overflow detection	Float switch worked.	×	×
P12	●	◎	◎	ALT	Indoor unit, DC fan trouble	Indoor DC fan trouble (Over-current/Lock, etc.) was detected.	×	×
P19	◎	●	◎	ALT	4-way valve system trouble	In heating operation, an trouble was detected by temp. down of indoor heat exchanger sensor.	○	×
P31	◎	●	◎	ALT	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	Lamp indication				Representative defective position	Explanation of trouble contents	Air conditioner operation	
Wired remote controller	Block indication						Automatic reset	Operation continuation
	Operation	Timer	Ready	Flash				
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.)	×	△

(Central control devices detected)

Check code indication	Lamp indication				Representative defective position	Explanation of trouble contents	Air conditioner operation	
TCC-LINK central	Block indication						Automatic reset	Operation continuation
	Operation	Timer	Ready	Flash				
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 defective.	Group follower unit is defective. (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 • Defective serial sending circuit on outdoor P.C. board • Defective serial receiving circuit on 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-PCUC1E-1)
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	Own unit 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 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 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 of indoor heat exchanger temp. sensor (TA)	Stop (Automatic reset)	Displayed when trouble is detected	1. Check indoor heat exchanger 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 aster and follower units and between main 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 • 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 1. Check remote controller inter-unit wiring. 2. Check remote controller. 3. Check indoor power wiring. 4. Check indoor P.C. board. 5. Check indoor EEPROM. (including socket insertion) Automatic address repeating phenomenon generates.
E01 2	No communication with header indoor unit • Disconnection of inter-unit wire between remote controller and header indoor unit (Detected by remote controller side)	Stop (Automatic reset) * If center exists, operation continues.	Displayed when trouble is detected	Receiving trouble from remote controller 1. Check remote controller inter-unit wiring. 2. Check remote controller. 3. Check indoor power wiring. 4. Check indoor P.C. board.
E02	Signal send trouble to indoor unit (Detected by remote controller side)	Stop (Automatic reset) * If center exists, operation continues.	Displayed when trouble is detected	Sending trouble of remote controller 1. Check sending circuit inside of remote controller. → Replace remote controller.
E09	There are multiple main remote controllers. (Detected by remote controller side)	Stop (Follower unit continues operation.)	Displayed when trouble is detected	1. In 2-remote controllers (including wireless), there are multiple header units. Check that there are 1 main 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	1. Check setting of central control system network address. (Network adapter SW01) 2. Check network adapter P.C. board.
— *3 Central controller (Send) C05 (Receive) C06	Comm Communication circuit trouble of central (Detected by central controller side)	Continues (By remote controller)	Displayed when trouble is detected	1. Check communication wire / miswiring 2. Check communication (U3, U4 terminals) 3. Check network adapter P.C. board. 4. Check central controller (such as central control remote controller, etc.) 5. 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.

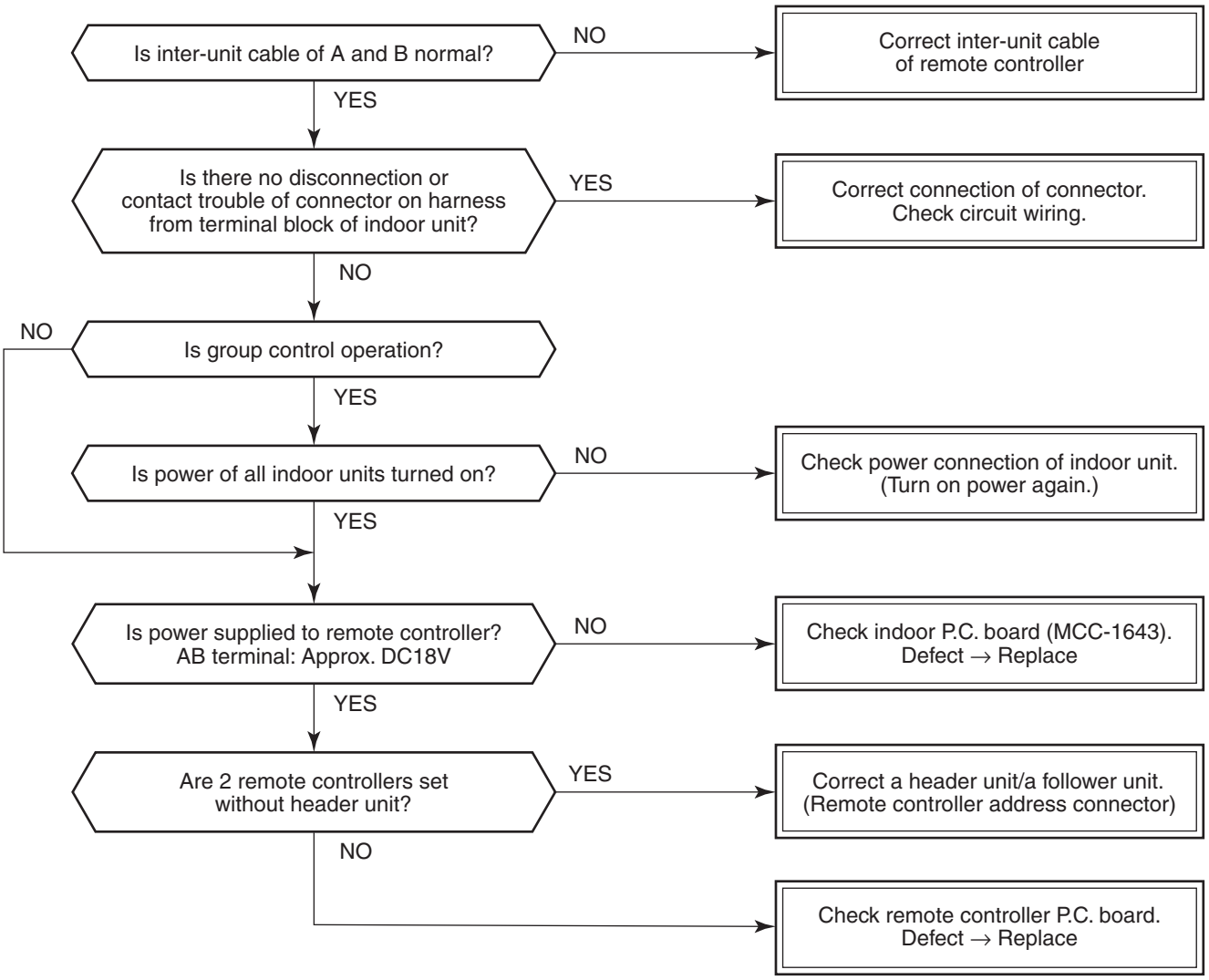
*2 The check code cannot be displayed by the wired remote controller.
(Usual operation of air conditioner becomes unavailable.)
For the wireless models, an trouble is notified with indication lamp.

*3 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.

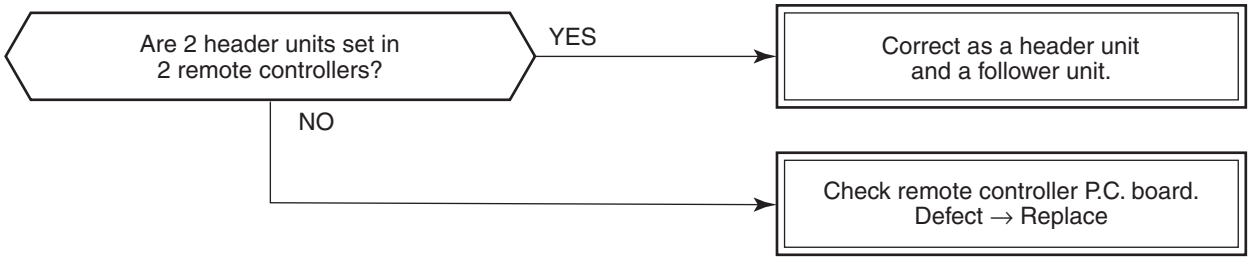
7-2-4. Diagnostic Procedure for Each Check Code (Indoor Unit)

Check code

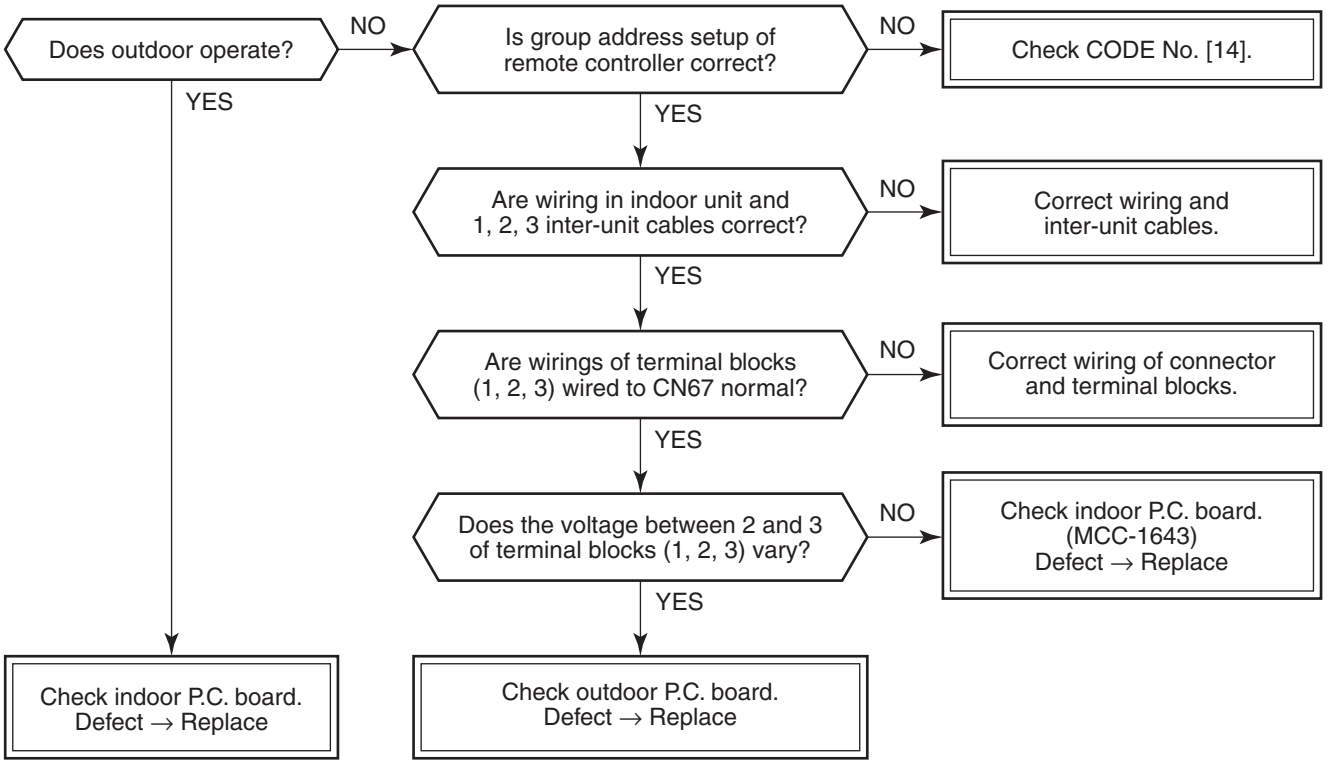
[E01 trouble]



[E09 trouble]

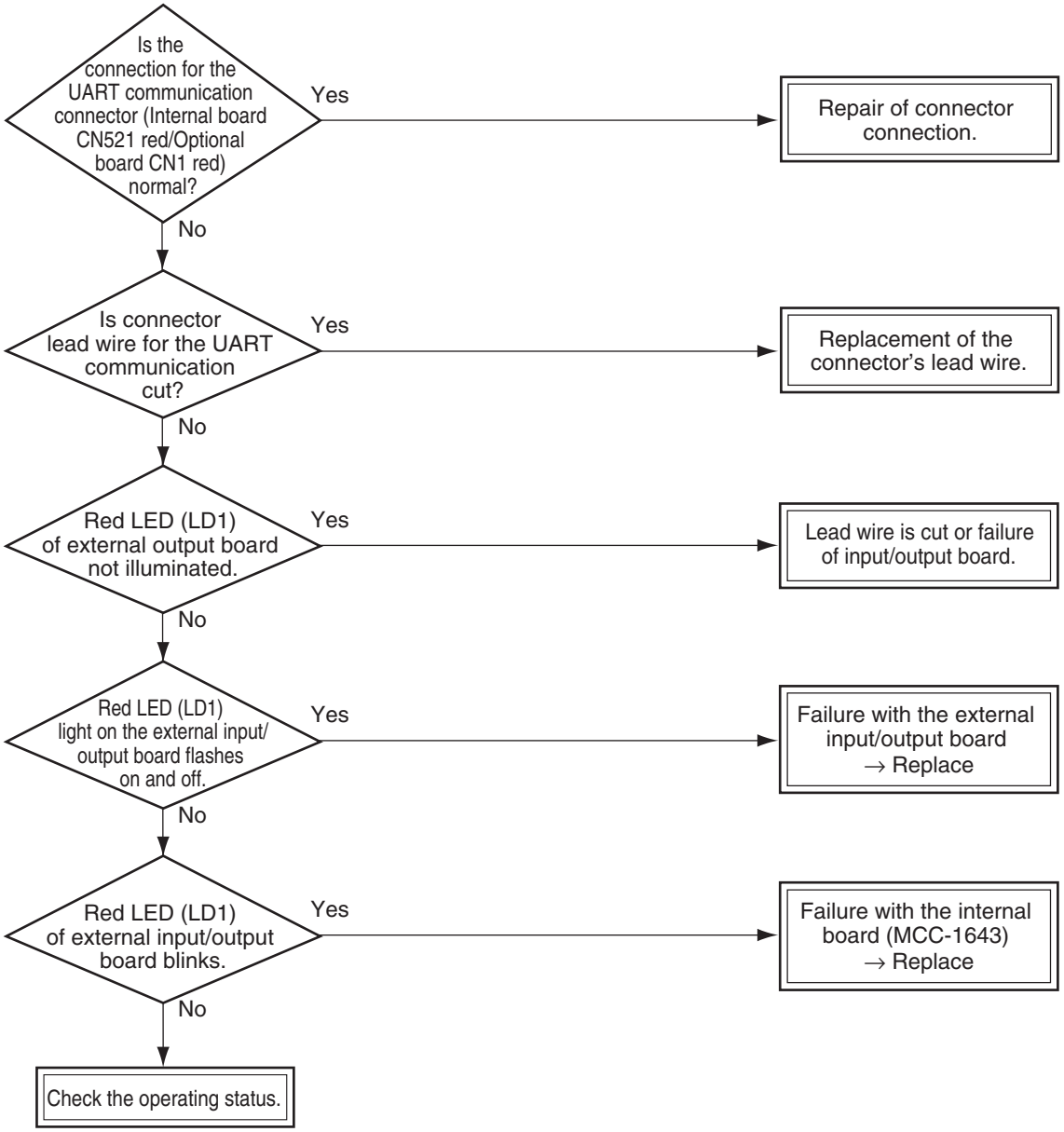


[E04 trouble]

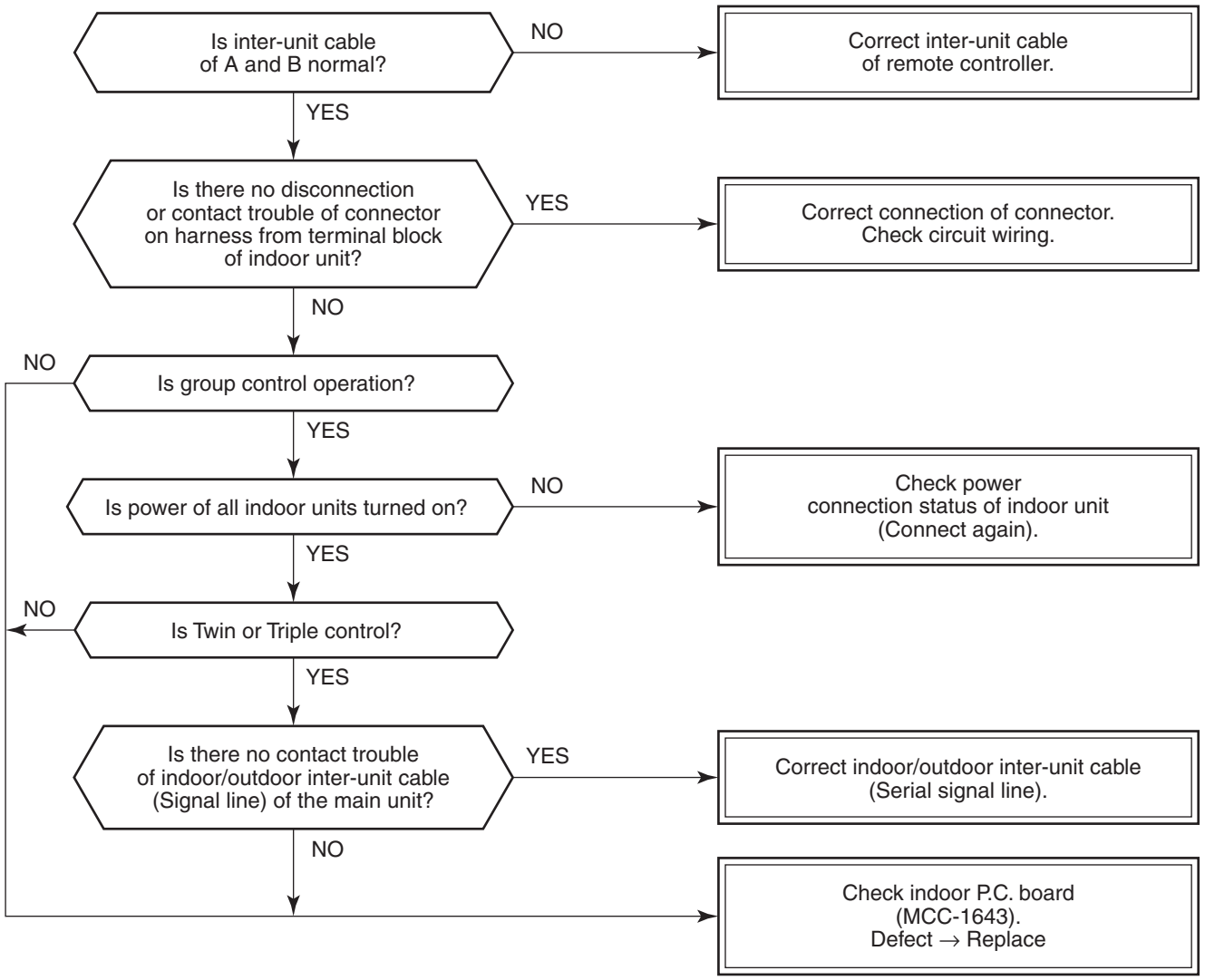


As shown in the following figure, carry out measurement within 20 seconds after the power was turned on.

[E11 trouble]


Is the connection for the UART communication connector (Internal board CN521 red/Optional board CN1 red) normal?
Yes
Repair of connector connection.
No
Is connector lead wire for the UART communication cut?
Yes
Replacement of the connector's lead wire.
No
Red LED (LD1) of external output board not illuminated.
Yes
Lead wire is cut or failure of input/output board.
No
Red LED (LD1) light on the external input/ output board flashes on and off.
Yes
Failure with the external input/output board → Replace
No
Red LED (LD1) of external input/output board blinks.
Yes
Failure with the internal board (MCC-1643) → Replace
No
Check the operating status.

[E18 trouble]



[E08, L03, L07, L08 trouble]

E08: Duplicated indoor unit No.

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

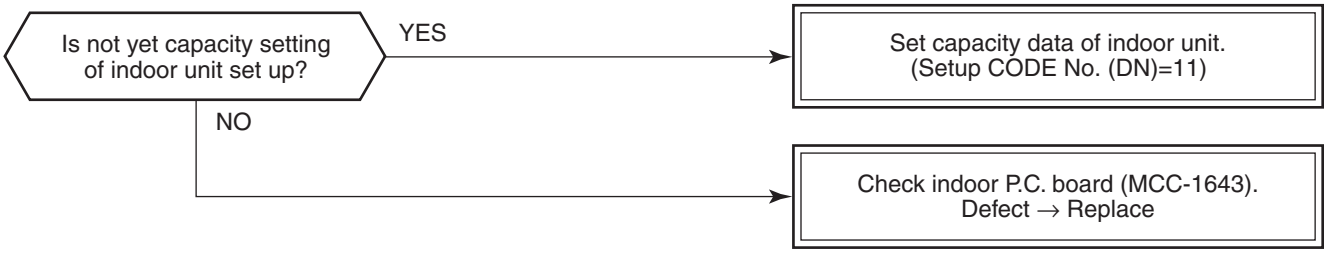
L07: There is 1 or more group address [Individual] in a group control.

L08: The indoor group address is unset. (**CODE No. 99**)

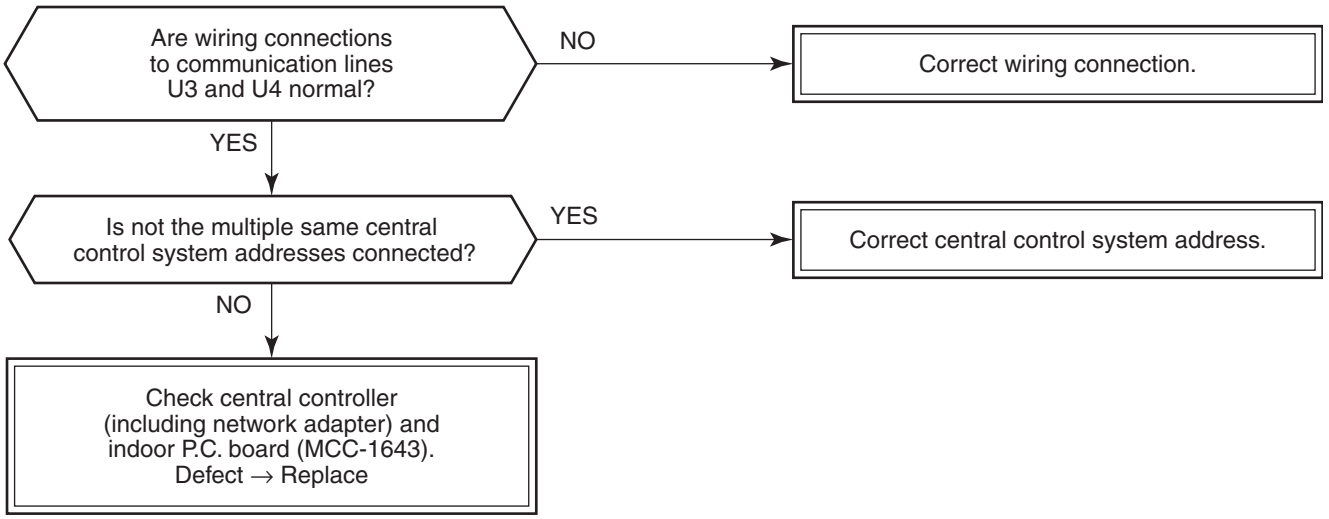
If the above trouble is detected when power supply turned on, the mode enters automatically in the automatic address set mode. (Check code is not output.)

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

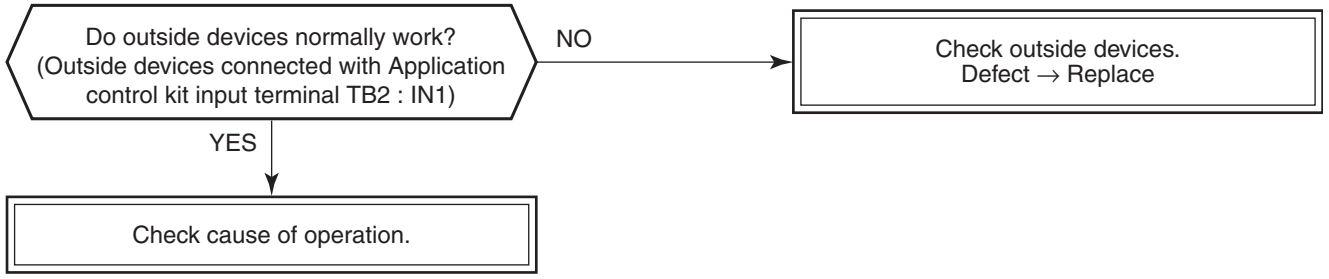
[L09 trouble]



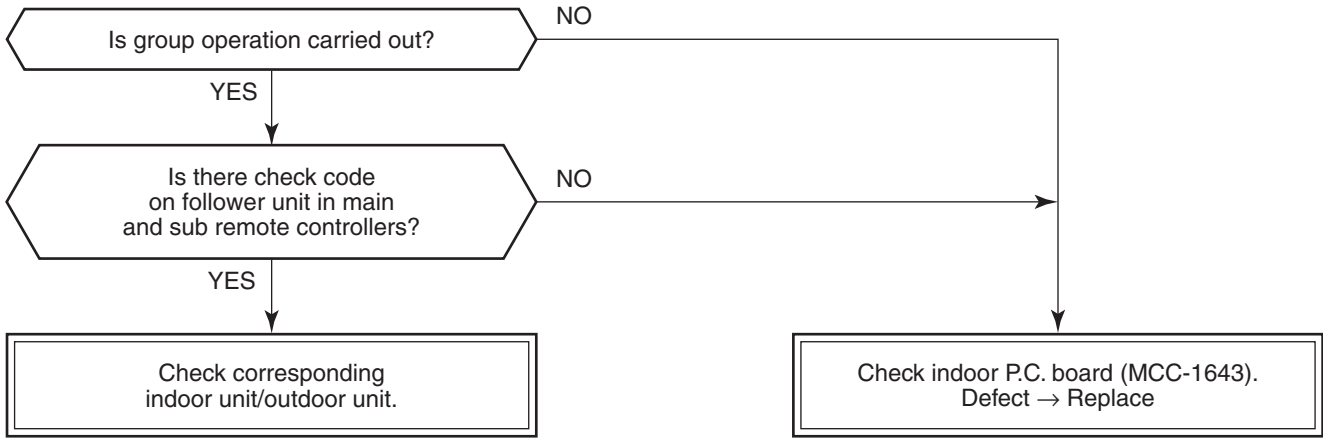
[L20 trouble]



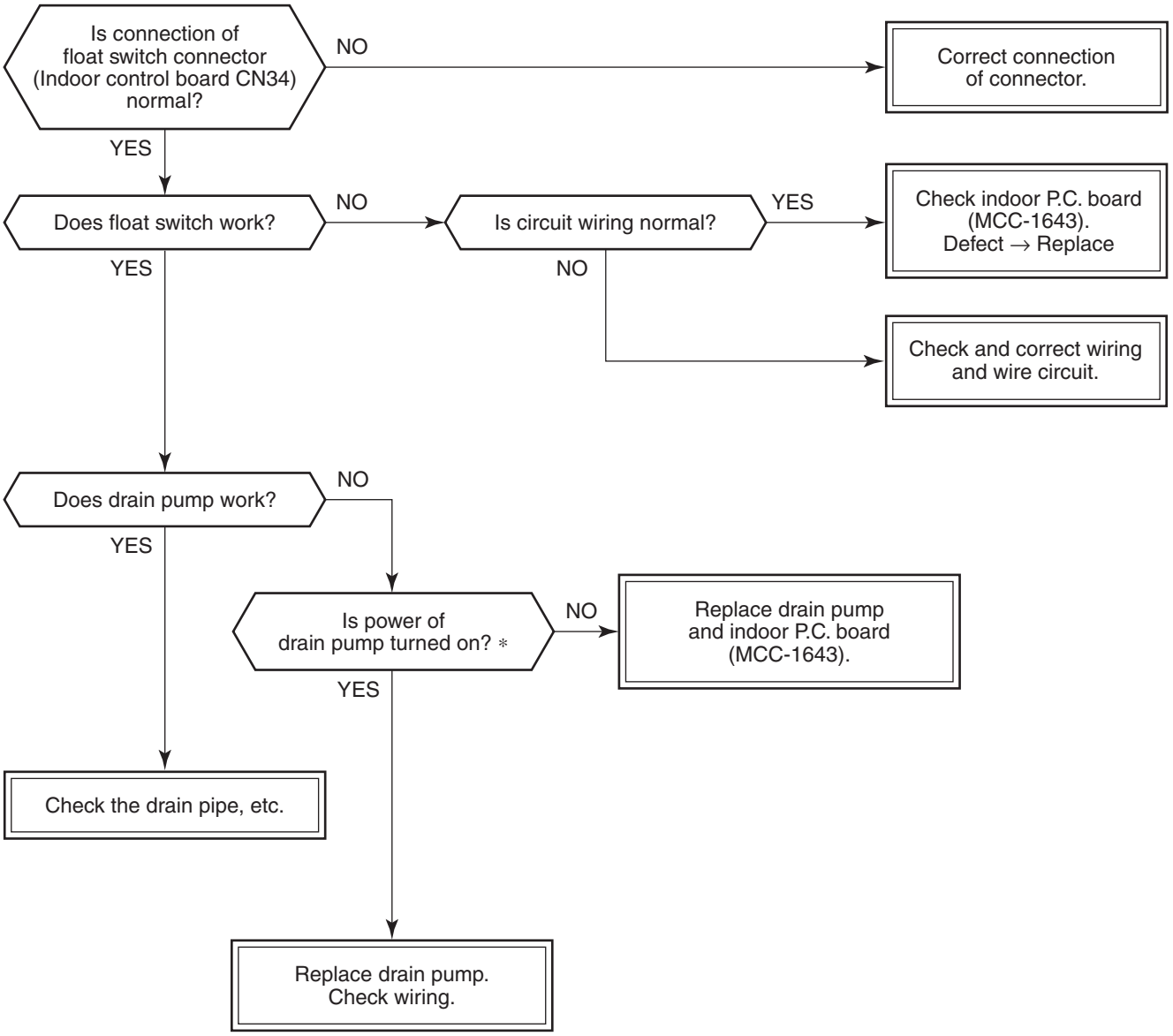
[L30 trouble]



[P30 trouble] (Central controller)

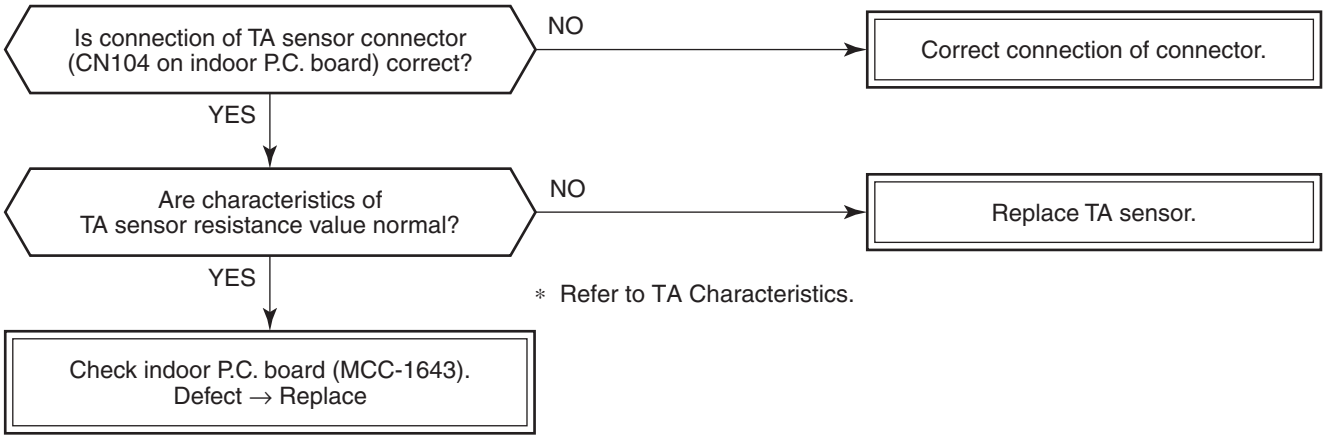


[P10 trouble]



* 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]

Power off.

Is not connection trouble or disconnection on the connector CN210 of indoor unit P.C. board?

YES → Repair the connector connection.

NO

Disconnect the connector CN210 to the indoor P.C. board

Does the fan turn smoothly when turned by hand?

NO → Replace the indoor fan motor.

YES

Is each resistance value on the motor side of the fan motor connector CN210 of the indoor P.C. board correct?

NO → Replace the indoor fan motor.

Model name for the indoor fan motor.
ICF-340D60-1

<Checking procedure>
Measure the resistance of the following terminals with the tester.
Internal motor circuit is damaged if the measured value is out of the range in below table.

Pin No.	⑦	⑥	⑤	④	3	2	①
Color	Blue	Yellow	White	Black	-	-	Red

* Measure by connecting the com side to ④ (Black) while measuring. The measurement may vary.

	Measurement place	Resistance value
		a, b, c
I.	Between ④ (Black) - ① (Red)	∞ (MΩ)
II.	Between ④ (Black) - ⑤ (White)	35k – 65kΩ
III.	Between ④ (Black) - ⑥ (Yellow)	130k – 170kΩ
IV.	Between ④ (Black) - ⑦ (Blue)	∞ (MΩ)

[Action if the measurement is out of the range]
If any measurement in the above table is between 0 to several 100 Ω, replace the indoor P.C. board together with the motor since the indoor P.C. board is damaged.

YES

Is F01 of the indoor P.C. board open?

YES → Replace the indoor P.C. board (MCC-1643).

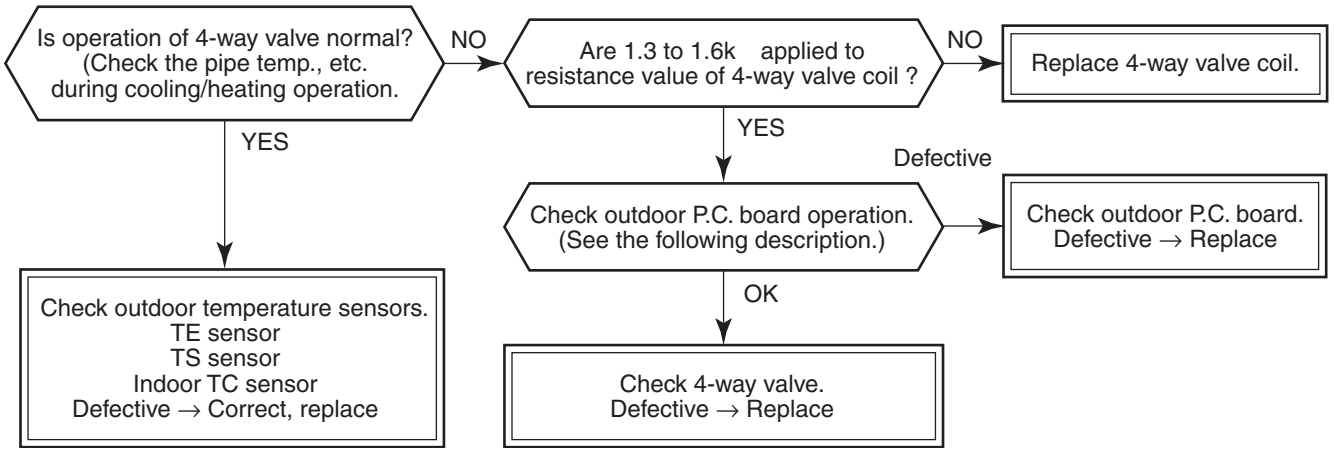
NO

Is R04 or R05 of the indoor P.C. board open?

YES → Replace the indoor P.C. board (MCC-1643).

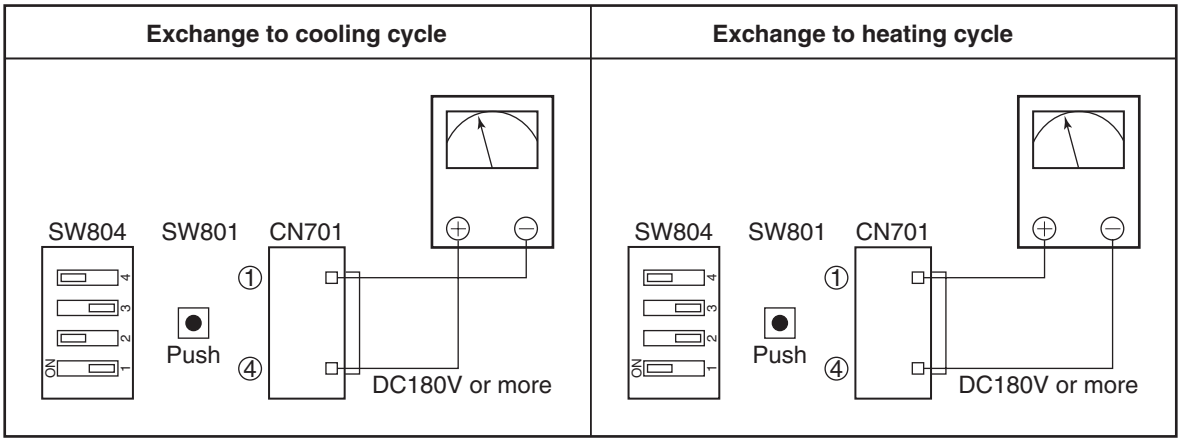
NO → Check the indoor P.C. board (MCC-1643). If failure → Replace

[P19 trouble]



Operation check direction of the outdoor P.C. board (In case of self-preservation valve)

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 exchange operation to cooling cycle or heating cycle.
   - Only for approx. 10 seconds, the power is turned on.
   - As the heat value of part (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.

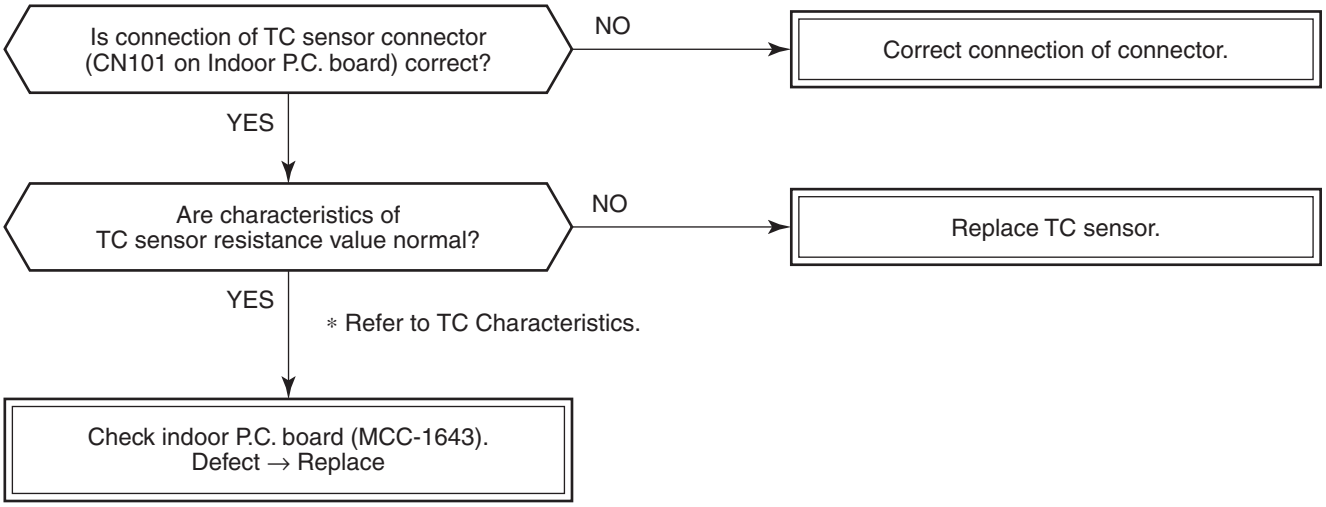


Check by tester

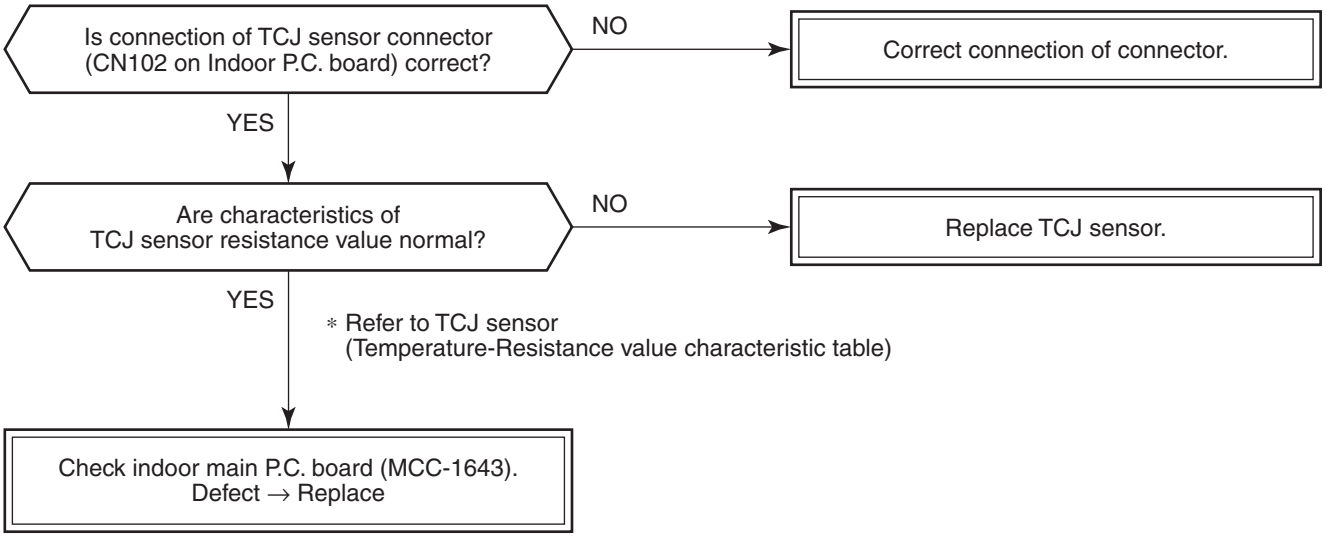
Analog tester: Good article if over DC180V

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

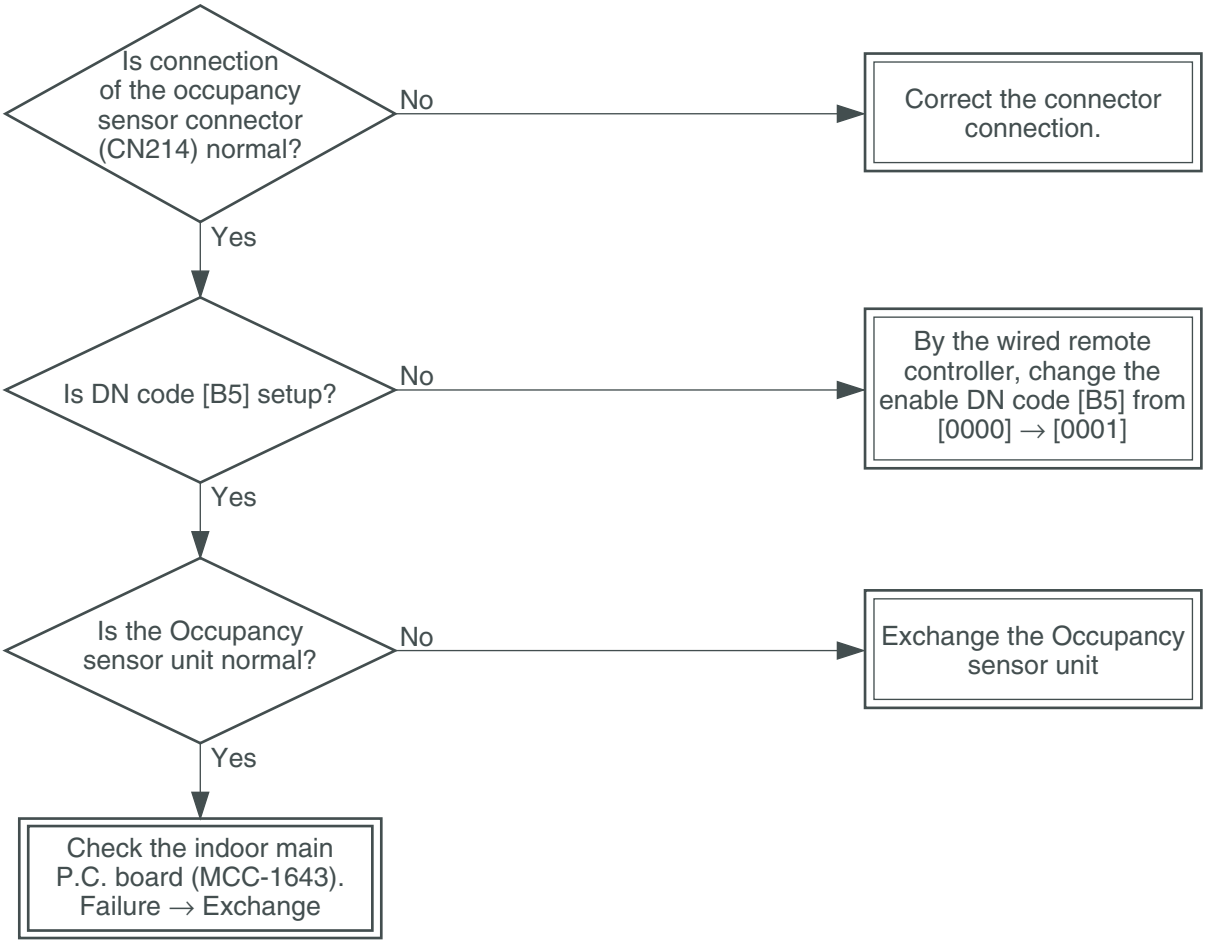
[F02 trouble]



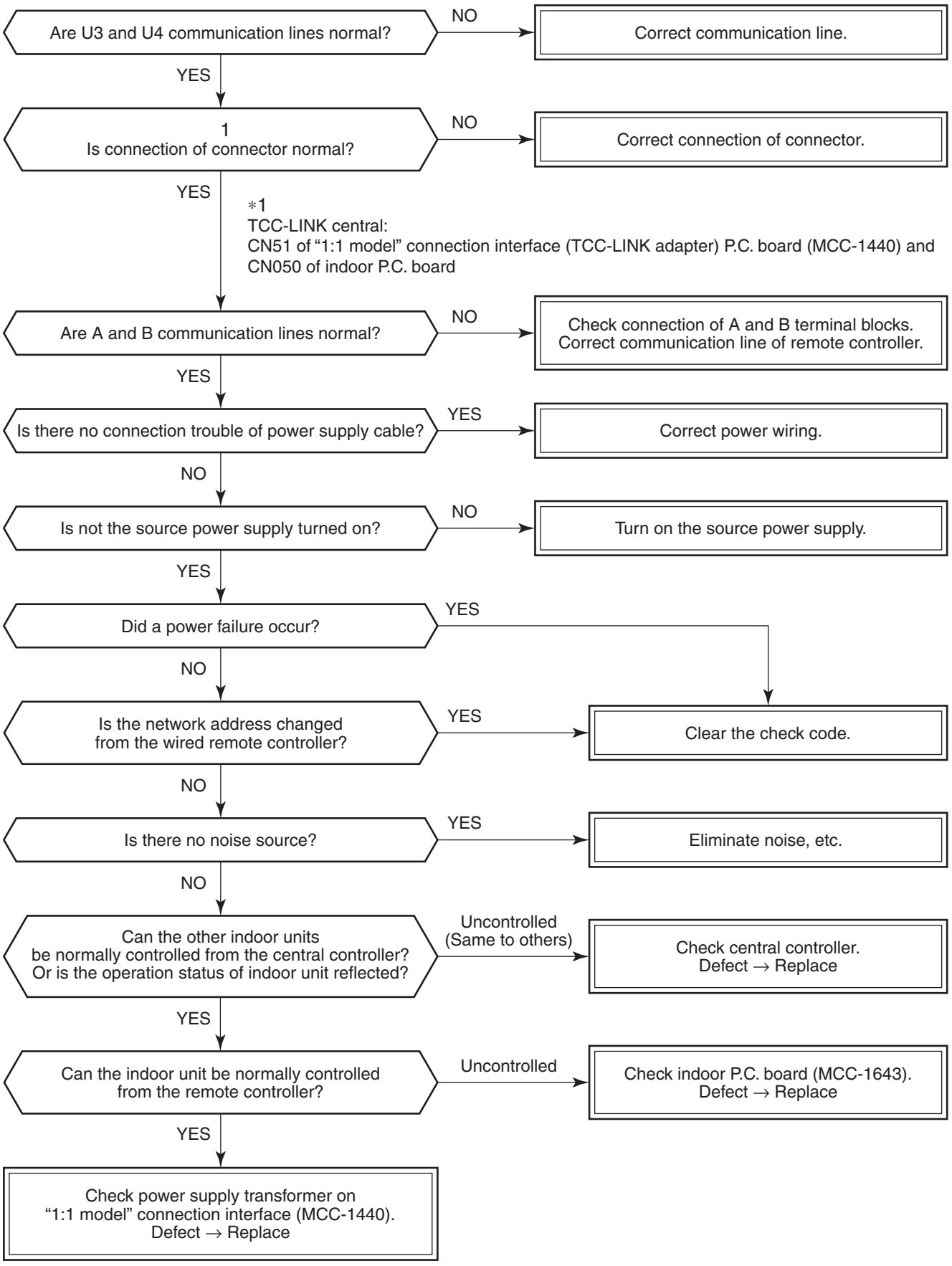
[F01 trouble]



[F30 trouble]


Is connection of the occupancy sensor connector (CN214) normal?
No
Correct the connector connection.
Yes
Is DN code [B5] setup?
No
By the wired remote controller, change the enable DN code [B5] from [0000] → [0001]
Yes
Is the Occupancy sensor unit normal?
No
Exchange the Occupancy sensor unit
Yes
Check the indoor main P.C. board (MCC-1643). Failure → Exchange

[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.

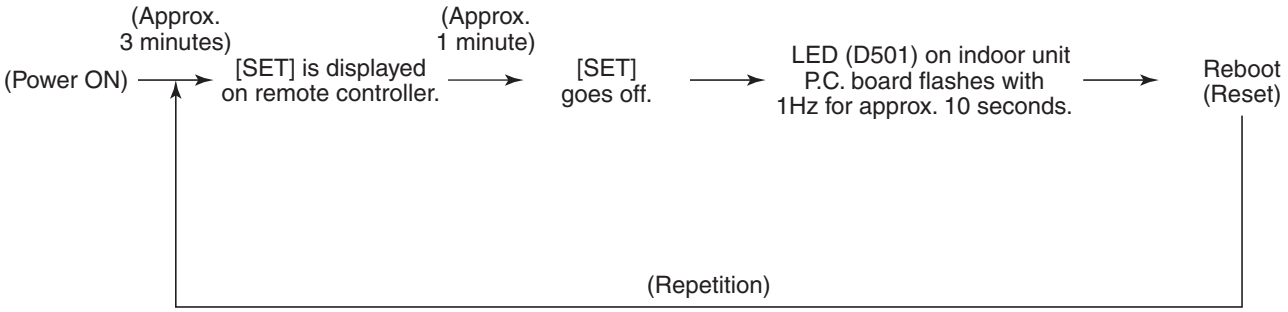
As communication is impossible, this check code [E03] is not displayed on the remote controller and the central controller. [E01] is displayed on the remote controller and [C06 trouble] is displayed on the central controller.

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.

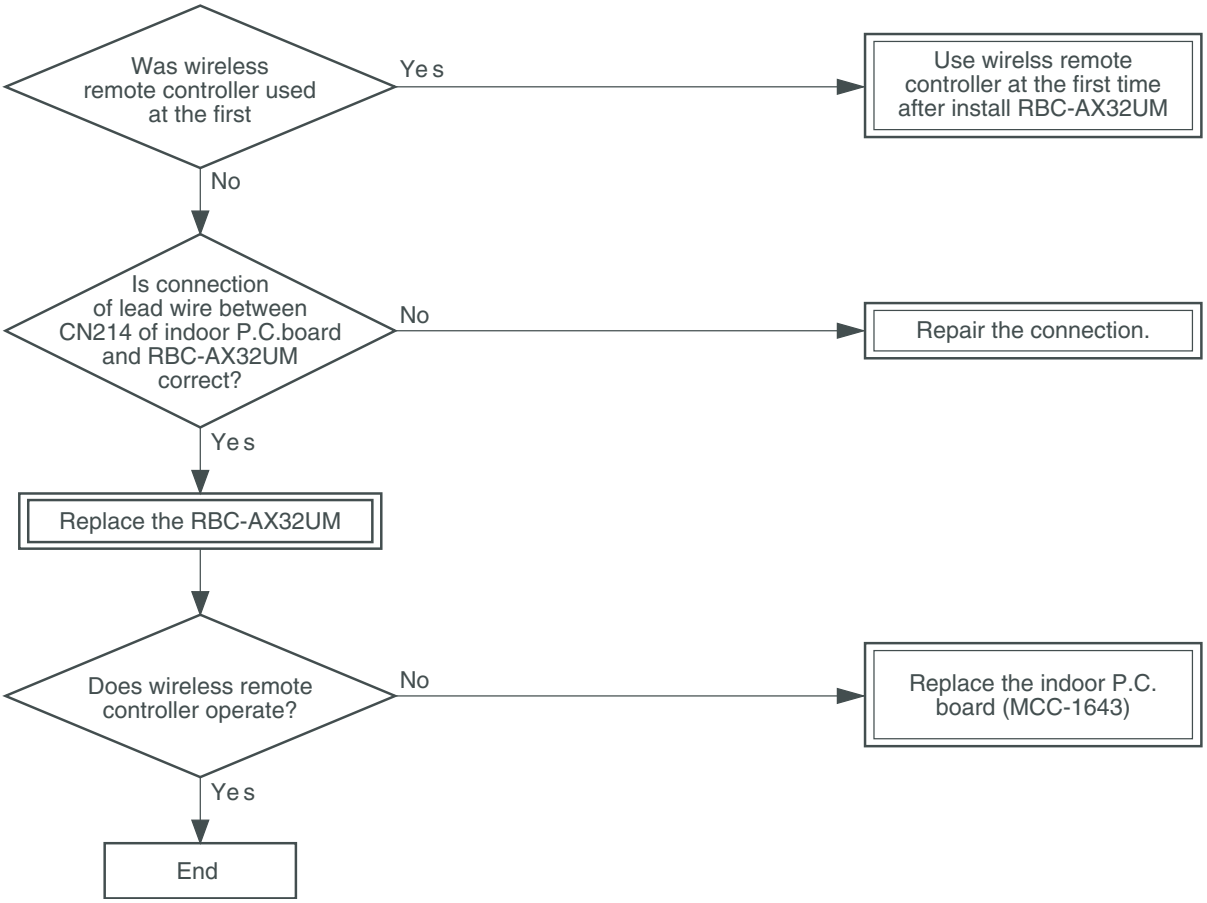


[P31 trouble] (Follower indoor unit)

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.)

[Wireless remote controller trouble]



Temperature sensor Temperature – Resistance value characteristic table

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

Representative value

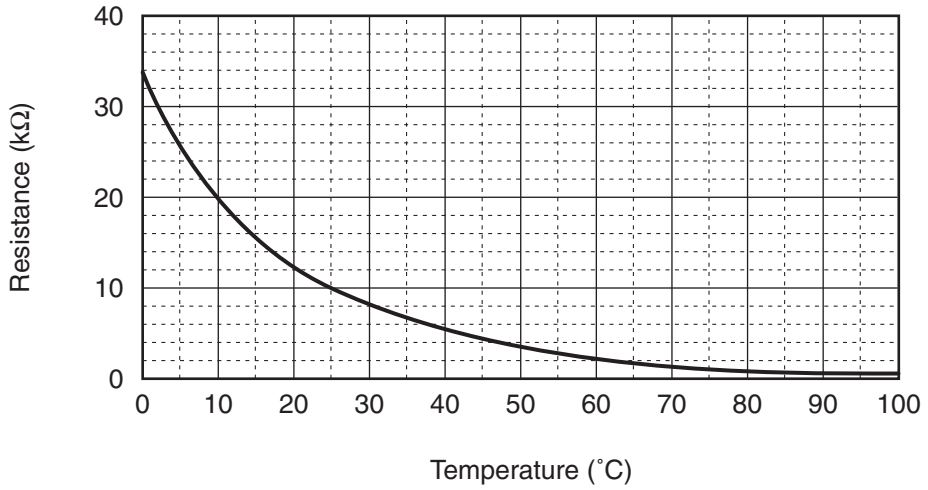
Temperature (˚C)	Resistance value (kΩ)		
	(Minimum value)	(Standard value)	(Maximum value)
0	32.33	33.80	35.30
10	19.63	20.35	21.09
20	12.23	12.59	12.95
25	9.75	10.00	10.25
30	7.764	7.990	8.218
40	5.013	5.192	5.375
50	3.312	3.451	3.594
60	2.236	2.343	2.454
70	1.540	1.623	1.709
80	1.082	1.146	1.213
90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

TD, TL sensors

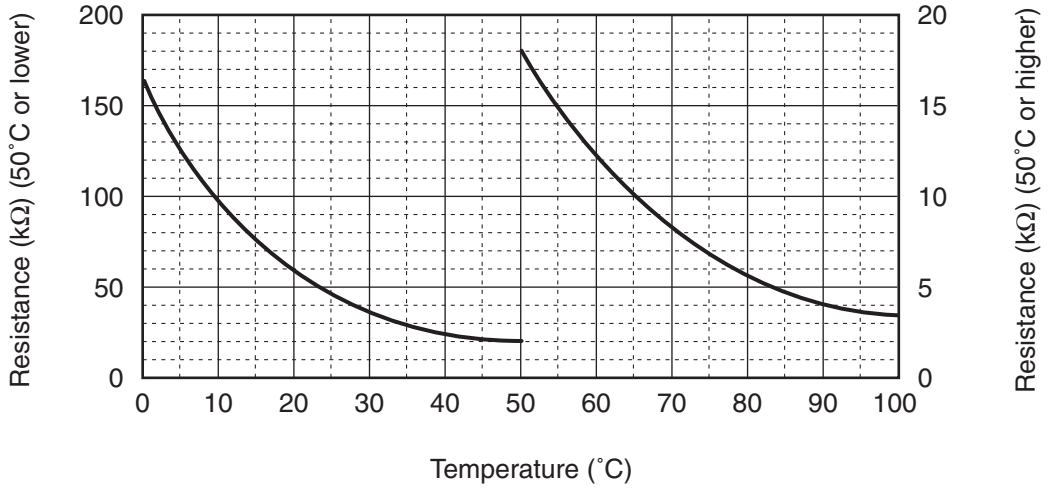
Representative value

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. Indoort Unit

⚠ CAUTION

<Model name: RAV-SM∗∗∗MUT∗>
For the above models, set the CODE No. " CE " 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.

EEPROM data read out **[1]**

⇩

Replacement of P.C. board for Indoor unit servicing and power on **[2]**

⇩

Writing the read out EEPROM data **[3]**

⇩

Power reset
(for all indoor units connected to the remote control when the group operation control is performed.)

CASE 2

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

EEPROM data read out **[2]**

⇩

Writing the setting data to EEPROM, such as high ceiling installation setting and optional connection setting, etc., based on the customer information. **[3]**

⇩

Power reset
(for all indoor units connected to the remote control when the group operation control is performed.)

[1] Setting data read out from EEPROM

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

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

∗ When the group operation control is performed, the unit No. displayed for the first time is the header unit No.
At this time, the CODE No. (DN) shows " 10 ". 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 UNIT LOUVER (left side button) button is pushed, the indoor unit No. under the group control is displayed in order. Specify the indoor unit No. to be replaced.

1. **Change the CODE No. (DN) to 10 → 01 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 " 01 " to " FF ". The CODE No. (DN) may skip.

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

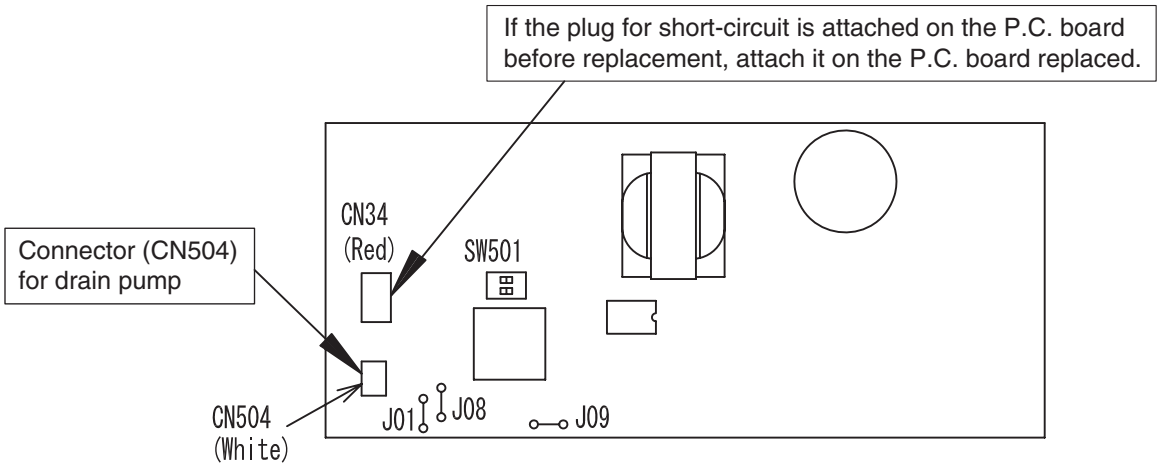
CODE No. required at least

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

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

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

Step 1 Replace the P.C. board to the P.C. board for indoor unit servicing.
At this time, perform the same setting of the jumper wire (J01, J08, J09) setting (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 SET , CL and TEST buttons simultaneously for more than 4 seconds to interrupt the auto-address setting mode, and proceed to [3]. (The unit No. " ALL " is displayed.)

b) Group operation (including twin triple and double 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 or triple or double 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 cooling 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 SET , CL and TEST buttons on the remote controller simultaneously for more than 4 seconds.

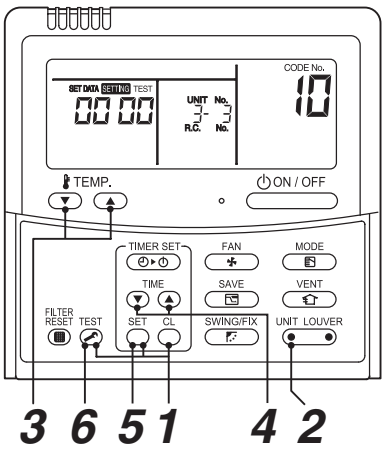
* In the group control operation, the unit No. displayed for the first time is the header unit No..
  At this time, the CODE No. (DN) shows " 10 ". Also, the fan of the indoor unit selected starts its operation and the swing operation starts if it has the louvers.
  (The unit No. " ALL " is displayed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

Step 2 Every time when UNIT LOUVER (left side button) button is pushed, the indoor unit No. in the group control operation are displayed in order.
(The settings stored in the EEPROM of the P.C. board for indoor unit servicing are the factory-set values.)
Specify the indoor unit No. with its P.C. board replaced to the P.C. board for indoor unit servicing.
(You cannot perform this operation if " ALL " is displayed.)

Step 3 Select the CODE No. (DN) can be selected by pushing the ▼ / ▲ 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 SET 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 SET button.
     (The setting completes if the setting data are displayed.)

<Fig. 1 RBC-AMT32E>



Setting Ceiling indoor unit model only

7. Using the set temperature ▼ / ▲ buttons, set " CE " to the CODE No. (DN).
8. Using the timer time / buttons, set the dat. (0001)
9. Push SET button (The setting completes if the setting data are displayed.)
10. Push TEST the button to return to the normal stop status
    (It takes approx. 1 min until the remote control operation is available again.)

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 CL button if the CODE No. (DN) is not changed.

<Fig. 2 EEPROM layout diagram>

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

* Do not bend the IC lead when replacing.

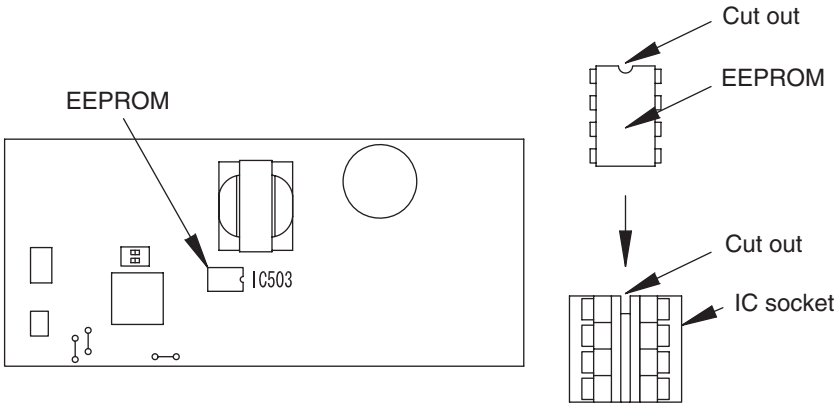


Table 1. Setting data (CODE No. table (example))

CODE No. (DN)	Item	Setting data	Factory-set value
01	Filter sign lighting time		Depending on Type
02	Filter pollution level		0000: standard
03	Central control address		0099: Not determined
06	Heating suction temperature shift		0002: +2 ˚C
0F	Cooling only		0000: Heat pump
10	Type		Depending on model type
11	Indoor unit capacity		Depending on capacity type
12	System address		0099: Not determined
13	Indoor unit address		0099: Not determined
14	Group address		0099: Not determined
19	Louver type (wind direction adjustment)		Depending on Type.
1E	Temperature range of cooling/heating automatic SW control point		0003: 3 deg (Ts ±1.5)
28	Power failure automatic recovery		0000: None
2b	Thermo output SW (T10 ③)		0000: Thermo ON
31	Ventilation fan (standalone)		0000: Not available
32	Sensor SW (Selection of static pressure)		0000: Body sensor
5d	High ceiling SW		0000: Standard
60	Timer setting (wired remote controller)		0000: Available
77	Dual set point		0000: Unavailable
8b	Connection 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∗1	4-way Cassette Type	RAV-SM∗∗∗UT∗
0014∗2	Compact 4-way Cassette Type	RAV-SM∗∗∗MUT∗

∗1 EEPROM initial value on the P.C. board for indoor unit servicing.

∗2 ⚠ CAUTION
<Model name: RAV-SM∗∗∗MUT∗>
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
0003	30
0006	40
0007	45
0009	56

∗ 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>

1. When pushing TEST button on the remote controller for 4 seconds or more, “TEST” is displayed on LC display. Then push ON / OFF 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.
2. 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.
3. After a Test Run has finished, push TEST 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

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

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

3

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

4

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

5

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

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

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

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

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

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

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

(Preparation in advance)

1 **Push TEST + SET + CL 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 UNIT LOUVER button (button of the left side), the indoor unit No. in the group control is displayed one after the other.**

Select a main 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 TEMP. buttons, specify the CODE No. (DN) 8C.**

4 **Using the timer time TIME buttons, set time to data 0001. (0000 at shipment)**

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

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

(Practical operation)

- Push ON/OFF ON / OFF button.
- Select the HEAT mode.
- After 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

- It goes on for 5 seconds in the first half of communication with the central controller.

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.**

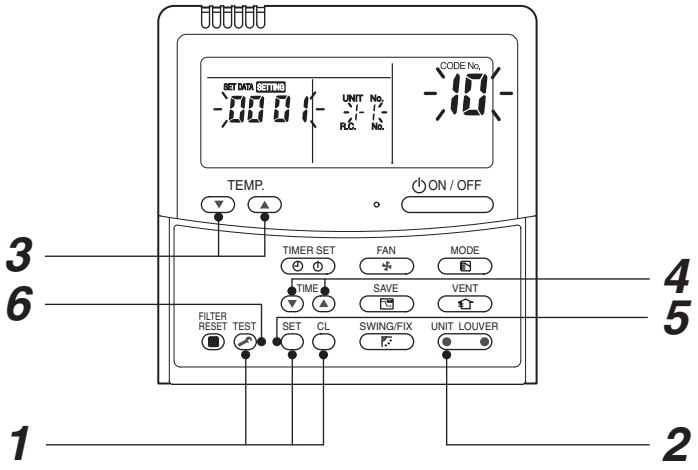
⇩

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)

<table>
<tr><th>DN</th><th>Item</th><th>Description</th><th>At shipment</th></tr>
<tr><td>01</td><td>Filter display delay timer</td><td>0000: None
0001: 150H
0002: 2500H
0003: 5000H
0004: 10000H</td><td>0002 : 2500H</td></tr>
<tr><td>02</td><td>Dirty state of filter</td><td>0000: Standard
0001: High degree of dirt (Half of standard time)</td><td>0000: Standard</td></tr>
<tr><td>03</td><td>Central control address</td><td>0001: No.1 unit to 0064: No.64 unit
0099: Unfixed</td><td>0099: Unfixed</td></tr>
<tr><td>04</td><td>Specific indoor unit priority</td><td>0000: No priority
0001: Priority</td><td>0000: No priority</td></tr>
<tr><td>06</td><td>Heating temp shift</td><td>0000: 0 °C
0001: +1 °C
0002: +2 °C to 0010: +10 °C
(Up to +6 recommended)</td><td>0002 : +2°C</td></tr>
<tr><td>0d</td><td>Existence of [AUTO] mode</td><td>0000: Provided
0001: Not provided (Automatic selection from connected outdoor unit)</td><td>0001: Not provided</td></tr>
<tr><td>0F</td><td>Cooling only</td><td>0000: Heat pump
0001: Cooling only (No display of [AUTO] [HEAT])</td><td>0000: Heat pump</td></tr>
<tr><td>10</td><td>Type</td><td>0014 : Compact 4-way Cassette</td><td>0014 : Compact 4-way Cassette</td></tr>
<tr><td>11</td><td>Indoor unit capacity</td><td>0000: Unfixed
0001 to 0034</td><td>According to capacity type</td></tr>
<tr><td>12</td><td>Line address</td><td>0001: No.1 unit to 0030: No.30 unit</td><td>0099: Unfixed</td></tr>
<tr><td>13</td><td>Indoor unit address</td><td>0001: No.1 unit to 0064: No.64 unit</td><td>0099: Unfixed</td></tr>
<tr><td>14</td><td>Group address</td><td>0000: Individual
0001: Header unit of group
0002: Follower unit of group</td><td>0099: Unfixed</td></tr>
<tr><td>19</td><td>Louver type
(Air direction adjustment)</td><td>0000: No louver
0001: Swing only
0004: (4-way Air Discharge Cassette type)</td><td>0004: (4-way Air Discharge Cassette type)</td></tr>
<tr><td>1E</td><td>Temp difference of [AUTO] mode selection
COOL → HEAT,
HEAT → COOL</td><td>0000: 0 deg to 0010: 10 deg
(For setup temperature, reversal of COOL / HEAT by } (Data value) / 2)</td><td>0003: 3 deg
(Ts ±1.5)</td></tr>
<tr><td>28</td><td>Automatic restart of power failure</td><td>0000: None
0001: Restart</td><td>0000: None</td></tr>
<tr><td>2A</td><td>Selection of option/Trouble input (TCB-PCUC1E-1: CN3)</td><td>0000: Filter input
0001: Alarm input (Air washer, etc.)
0002: None</td><td>0002: None</td></tr>
<tr><td>2E</td><td>HA terminal (CN61) select</td><td>0000: Usual
0001: Leaving-ON prevention control
0002: Fire alarm input</td><td>0000: Usual
(HA terminal)</td></tr>
<tr><td>31</td><td>Ventilating fan control</td><td>0000: Unavailable
0001: Available</td><td>0000: Unavailable</td></tr>
<tr><td>32</td><td>TA sensor selection</td><td>0000: Body TA sensor
0001: Remote controller sensor</td><td>0000: Body TA sensor</td></tr>
<tr><td>33</td><td>Temperature unit select</td><td>0000: °C (at factory shipment)
0001: °F</td><td>0000: °C</td></tr>
<tr><td>5d</td><td>High-ceiling adjustment
(Air flow selection)</td><td>
<table>
<tr><th>SET DATA</th><th>Type</th><th>SM30</th><th>SM40, 45</th><th>SM56</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>2.7 m or less</td><td>2.9 m or less</td><td>3.2 m or less</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>—</td><td>3.2 m or less</td><td>3.4 m or less</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>—</td><td>3.5 m or less</td><td>3.5 m or less</td></tr>
</table>
</td><td>0000: Standard</td></tr>
<tr><td>60</td><td>Timer setting
(wired remote controller)</td><td>0000: Available (can be performed)
0001: Unavailable (cannot be performed)</td><td>0000: Available</td></tr>
<tr><td>77</td><td>Dual set point</td><td>0000: Unavailable
0002: Available</td><td>0000: Unavailable</td></tr>
<tr><td>B3</td><td>Soft cooling</td><td>0000: Unavailable
0001: Available</td><td>0001: Available</td></tr>
<tr><td>B5</td><td>Occupancy sensor/
Wireless A-B selection
Provided/None</td><td>0000: None
0001: Occupancy sensor provided
0002: Wireless remote controller provided</td><td>0000: None</td></tr>
<tr><td>B6</td><td>Occupancy sensor
Enable/Invalid
(Absence time judgment time)</td><td>0000: Invalid
0001: 30min.
0002: 60min.
0004; 120min.
0005; 150min.</td><td>0002: Enable
(60 min.)</td></tr>
</table>

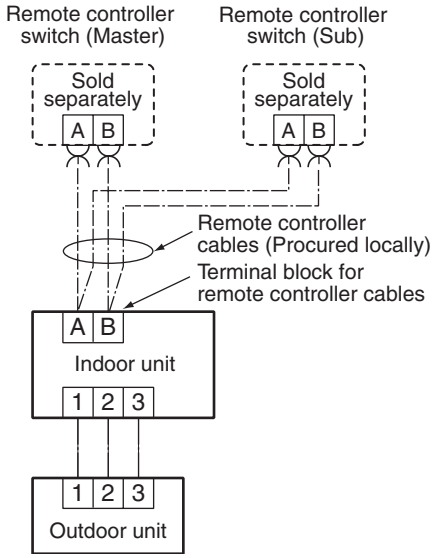
DN	Item	Description		At shipment
B7	Occupancy sensor operation at absent time	0000: Stand by	0001: operation stop	0000: Stand by
d0	Whether the power saving mode can be set by the remote controller	0000: Invalid	0001: Valid	0001: Valid
E6	Wireless remote controller A-B selection	0000: A	0001: B	0000: A
F0	Swing mode	0001 : Standard 0003 : Cycle swing	0002 : Dual swing	0001: Standard
F1	Louver fixed position (Louver No.1)	0000 : Release 0005 : Downward discharge position	0001 : Horizontal discharge position	0000: Not fixed
F2	Louver fixed position (Louver No.2)	0000 : Release 0005 : Downward discharge position	0001 : Horizontal discharge position	0000: Not fixed
F3	Louver fixed position (Louver No.3)	0000 : Release 0005 : Downward discharge position	0001 : Horizontal discharge position	0000: Not fixed
F4	Louver fixed position (Louver No.4)	0000 : Release 0005 : Downward discharge position	0001 : Horizontal discharge position	0000: Not fixed
F6	Presence of Application control kit (TCB-PCUC1E-1)	0000: None 0001: Exist		0000: None

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

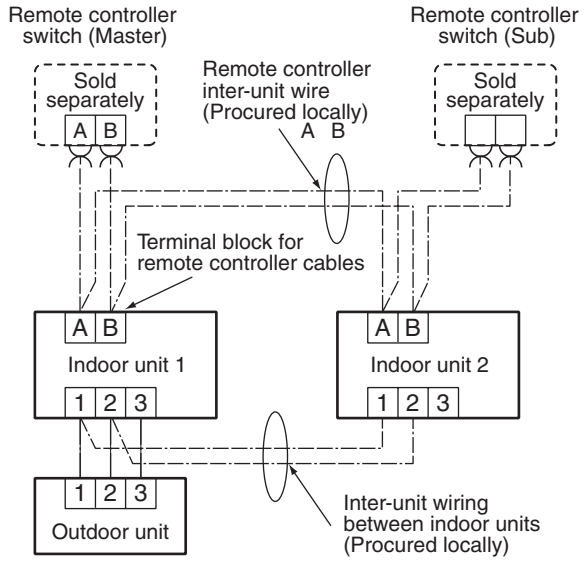
2-remote controller control (Controlled by 2 remote controllers)

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**



- **When connected 2 remote controllers operate the twin**



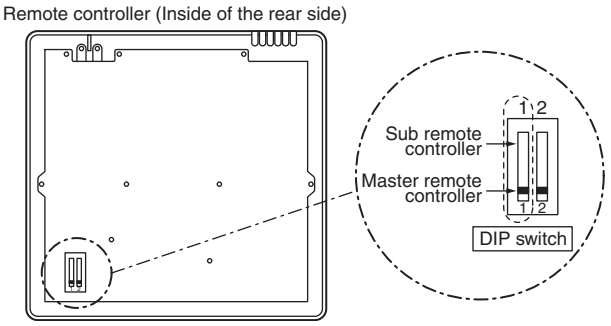
(Setup method)

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

<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)



[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.

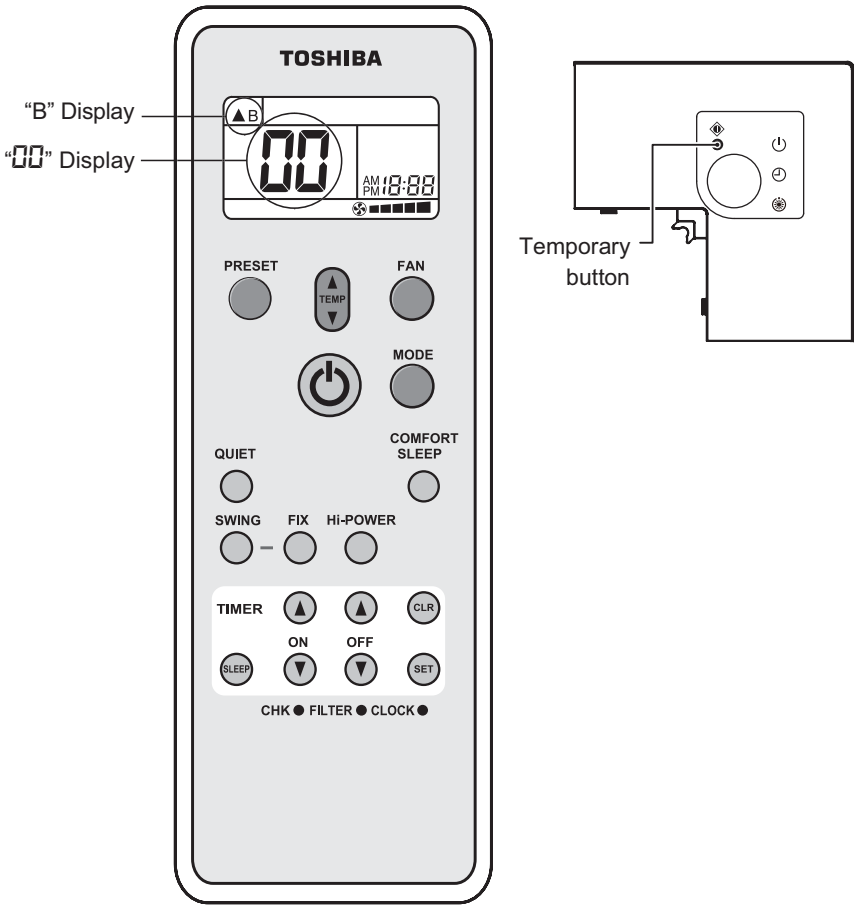
<Wireless remote controller>

Wireless remote controller A-B selection

Using 2 wireless remote controllers for the respective air conditioners, when the 2 air conditioners are closely installed.

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. " 00 " will be shown on the display.
5. Push the MODE ● button during pushing **CHK●**.
   "B" will be shown on the display and " 00 " 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".

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>

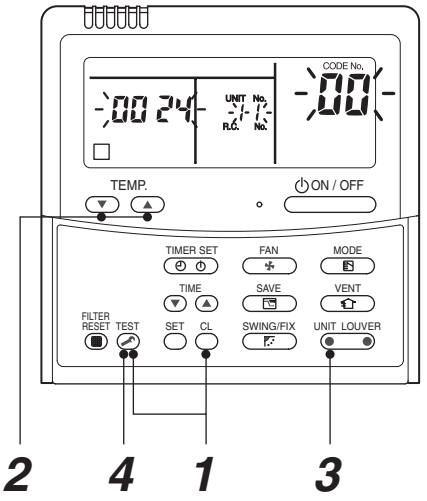
1 Push TEST + CL buttons simultaneously for 4 seconds to call the service monitor mode.

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. F8 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>

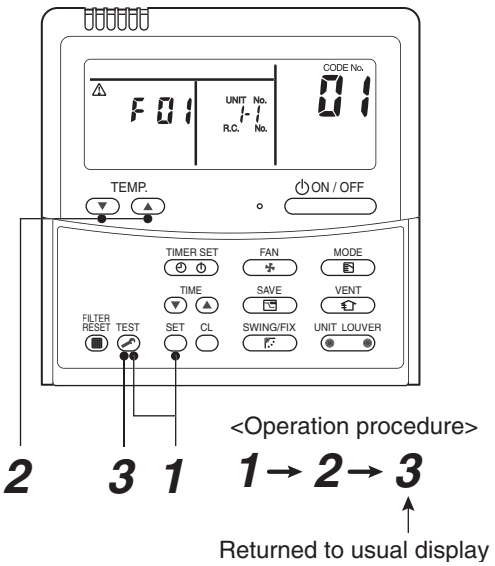
1 **Push SET + TEST buttons simultaneously for 4 seconds or more to call the service check mode.**

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.**



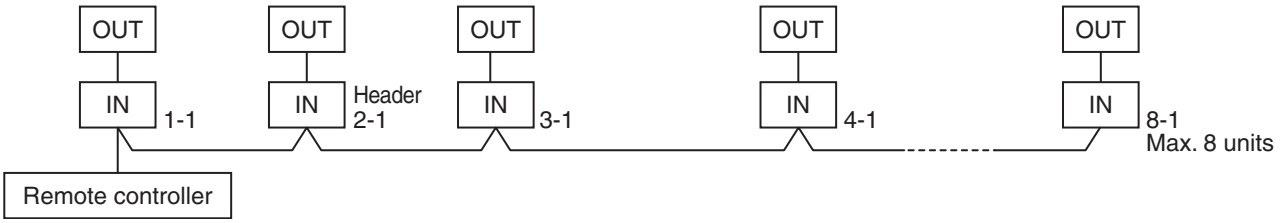
REQUIREMENT

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, triple or double 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.

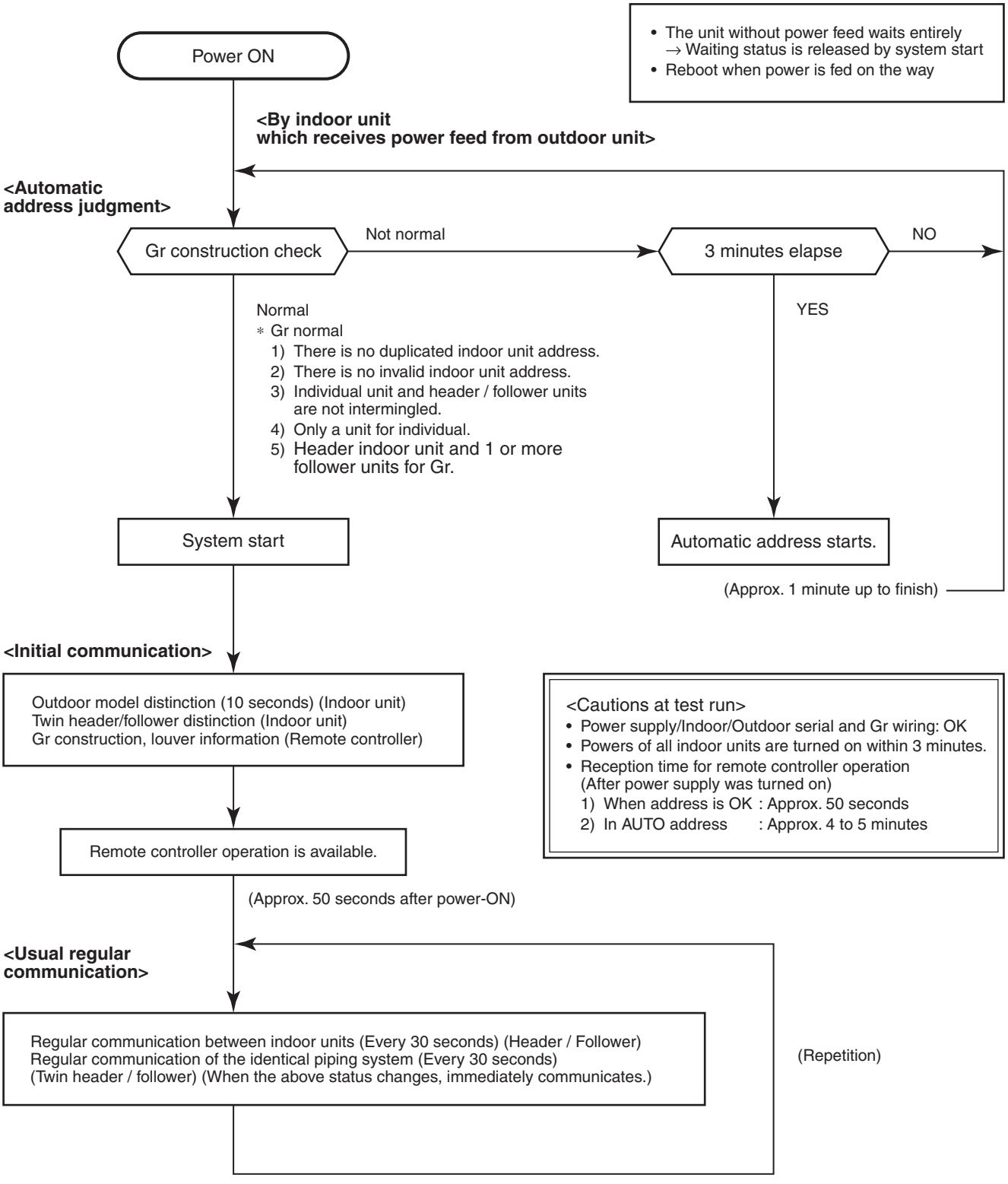
<System example>



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, triple, double 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

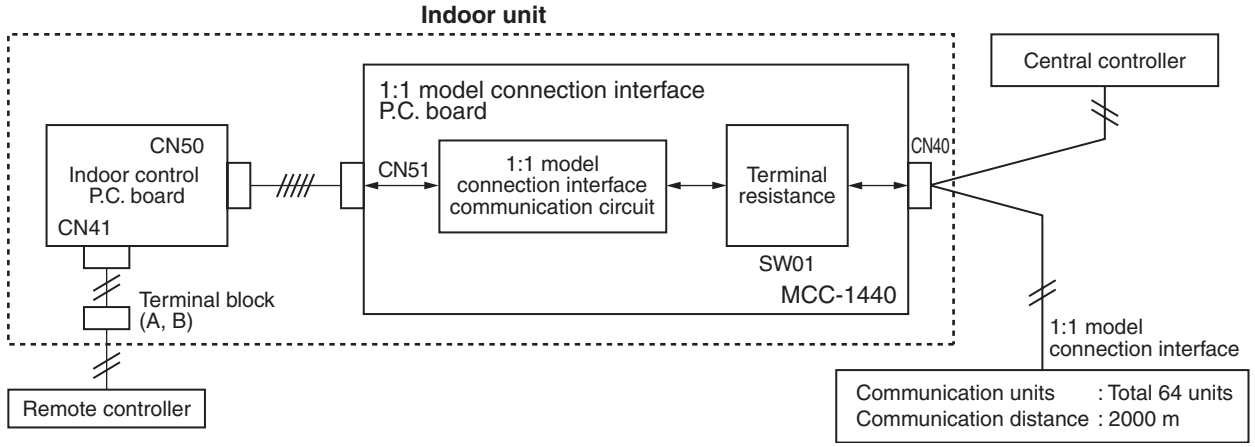
Model name: TCB-PCNT30TLE2

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

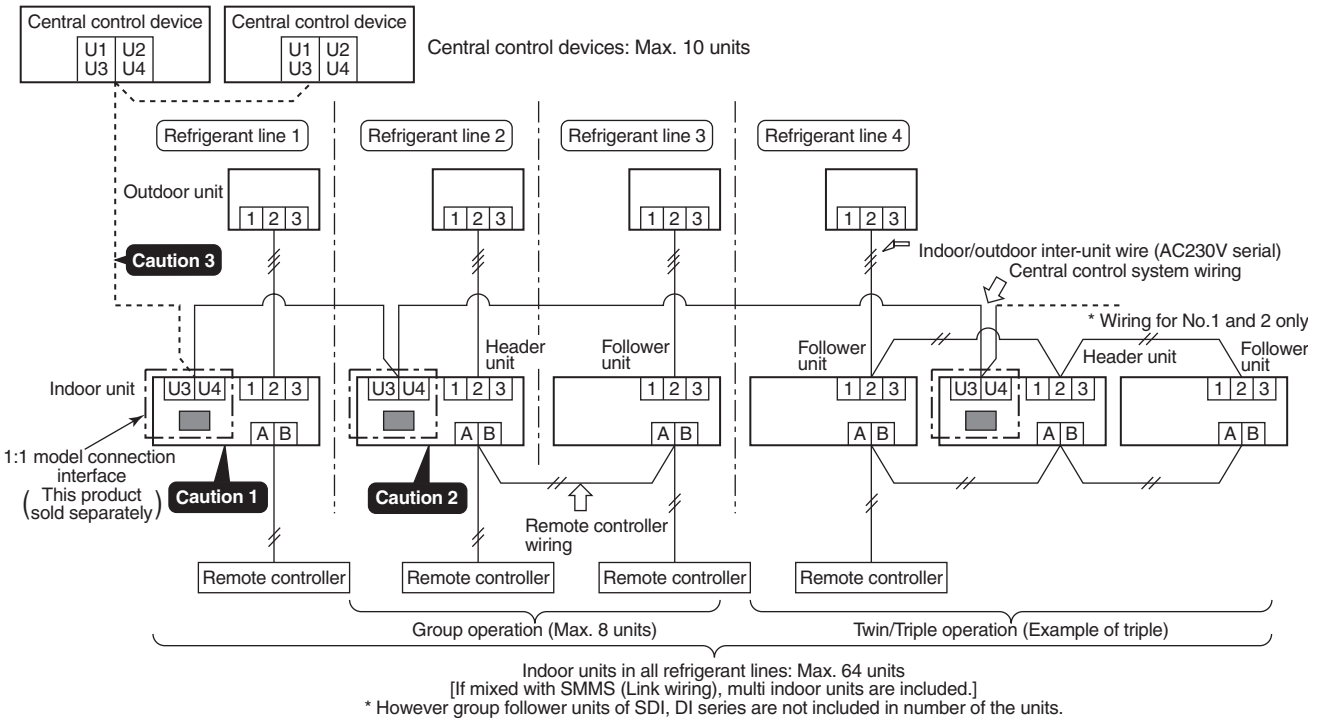


3. 1:1 model connection interface wiring connection

⚠ 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.**



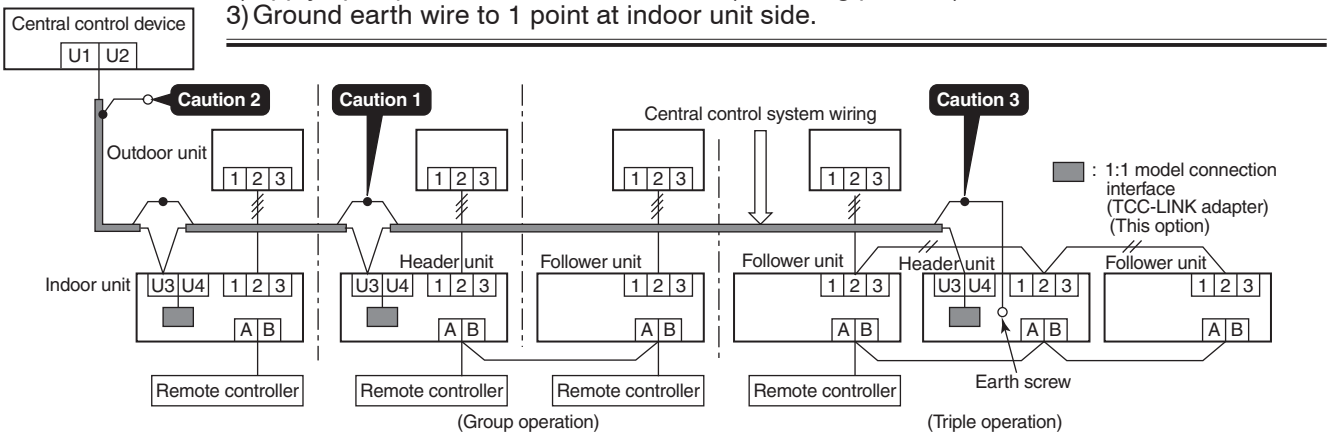
4. Wiring Specifications

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

- 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)

⚠ CAUTION

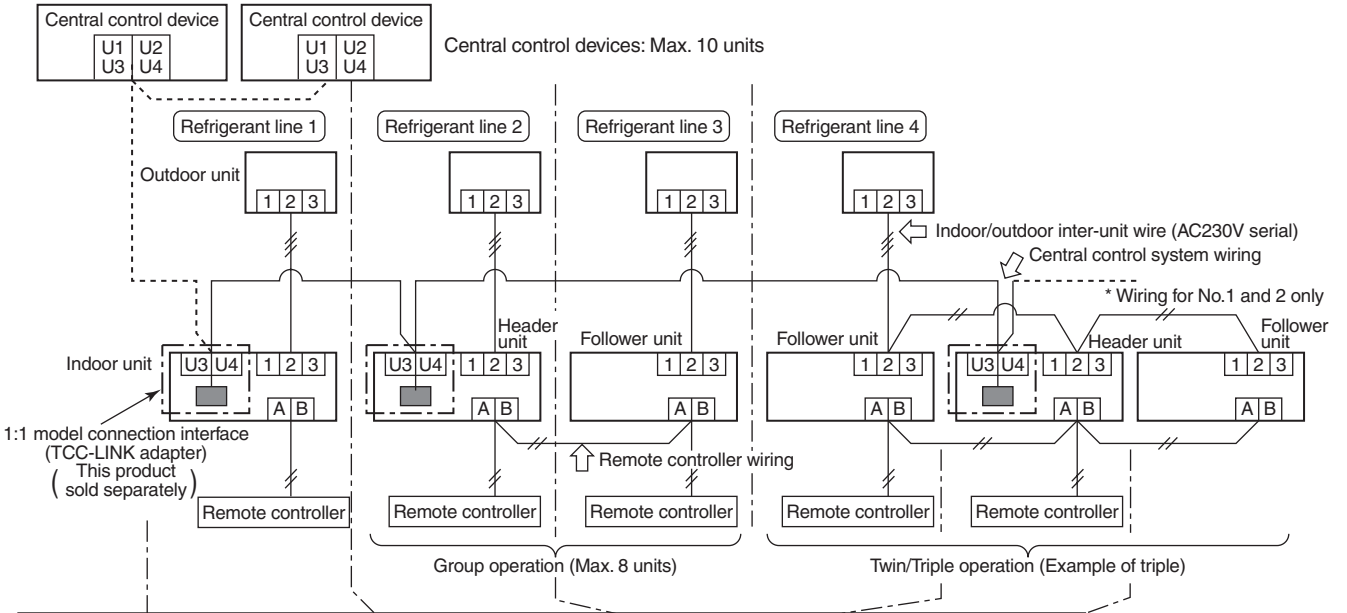
1) Closed-end connection of shield wire (Connect all the connecting parts of each indoor unit)
2) Apply open process to the last terminal (insulating process).
3) Ground earth wire to 1 point at indoor unit side.



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.

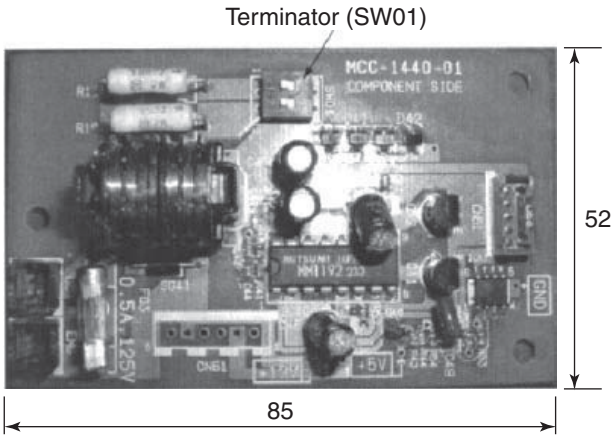


Line address	1	2		4	
SW01 Bit 1	ON	OFF		OFF	(OFF at shipment from factory)
SW01 Bit 2	OFF	OFF		OFF	(OFF at shipment from factory)
Remarks	Turn SW01 Bit 1 to ON.	As status shipped from factory		As status shipped from factory	

(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 TEST + VENT 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 ALL displayed status without pushing UNIT LOUVER 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 TEMP. buttons, specify CODE No. 03.

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

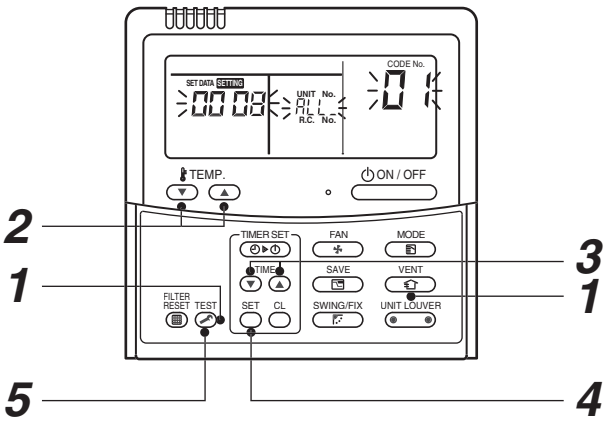
4 Push SET button. (OK if display goes on.)

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

5 Push TEST button.

The status returns to usual stop status.

(Fig.1)



(Table 1)

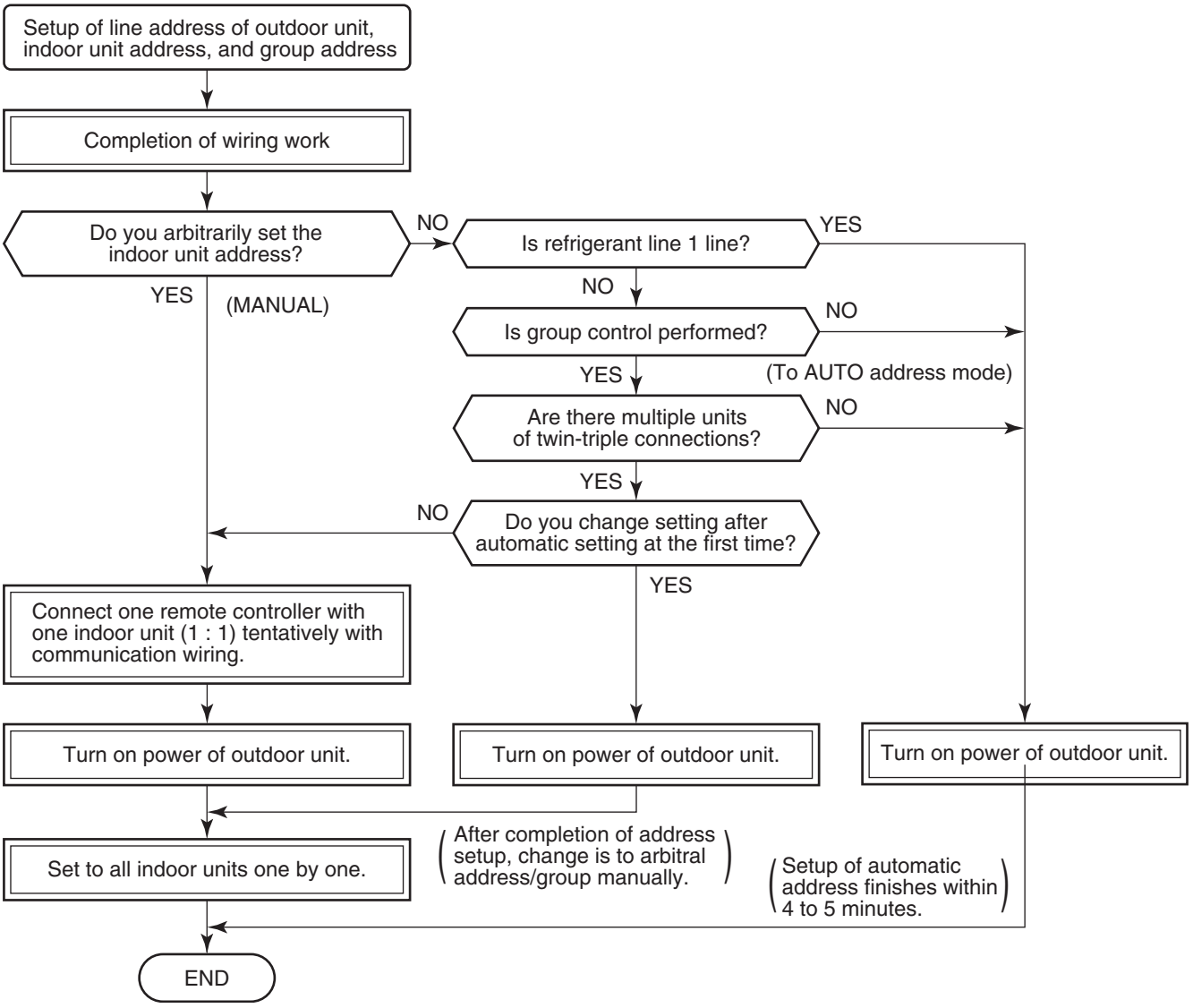
SET DATA	Central control address No.
0001 0002 0003 : 0064	1 2 3 : 64
0099	Unset (Setup at shipment from factory)

10. ADDRESS SETUP

10-1. Address Setup

<Address setup procedure>

When an outdoor unit and an indoor unit are connected and they are twin-triple, 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 (Double twin = 4)
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)

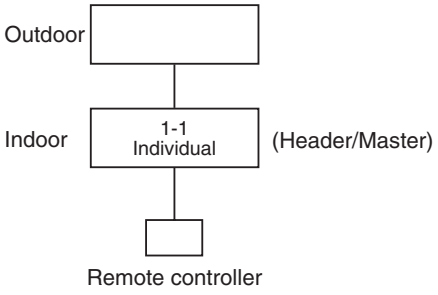
Follower unit (= 2) : Indoor units other than header unit in group operation
Basically, follower units do not send/receive signals to/from the remote controllers.
(Except trouble and response to demand of service data)

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, Triple, Double twin.

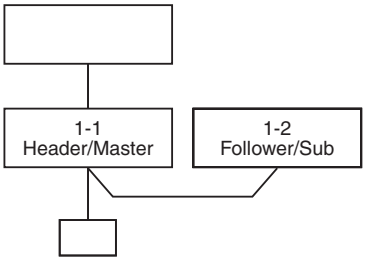
Sub unit (Subordinate unit) (Follower Twin) : Indoor units excluding the header unit in Twin, Triple, Double twin
This unit communicates with (Header) indoor unit in the identical line address and performs control synchronized with (Header) indoor unit.
This unit does not perform the signal send/receive operation with the outdoor units.:
N judgment for serial signal trouble.

10-2-1. System configuration

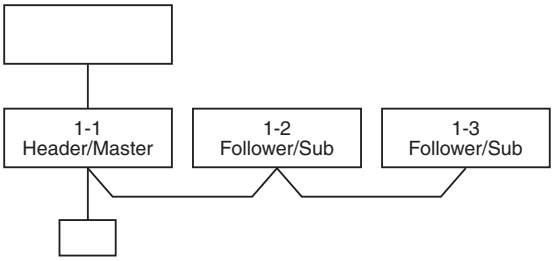
1. Single



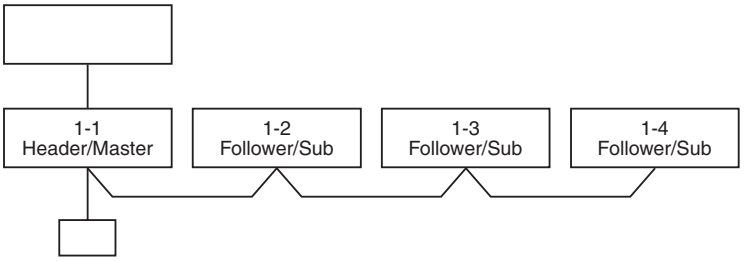
2. Twin



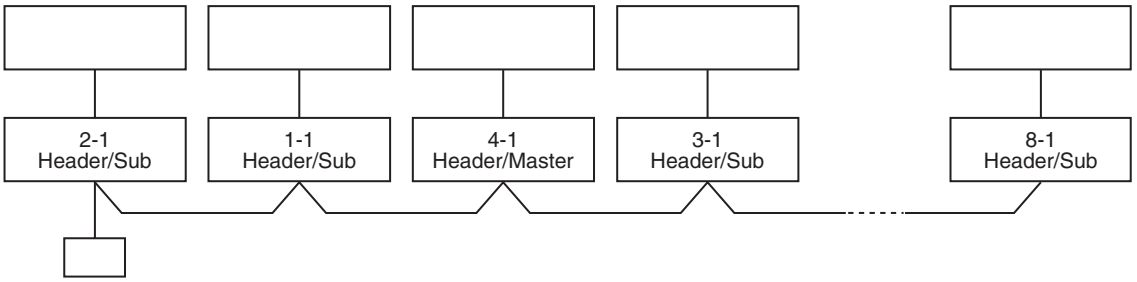
3. Triple



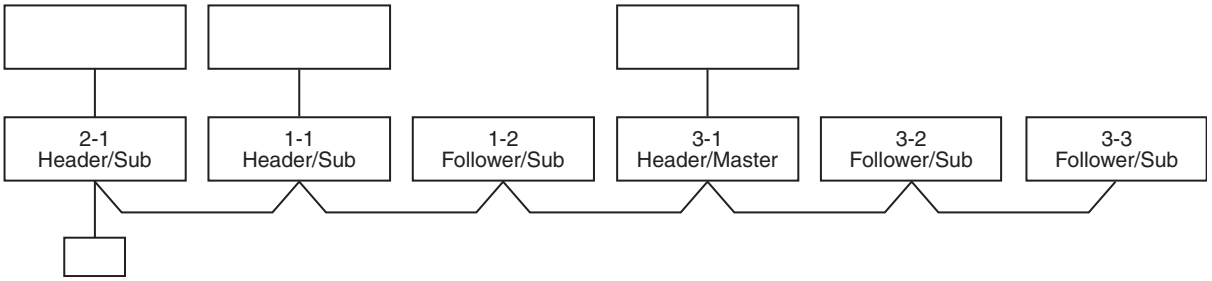
4. Double twin



4. Single group operation
   • Each indoor unit controls the outdoor unit individually.



5. Multiple groups operation (Manual address setting)



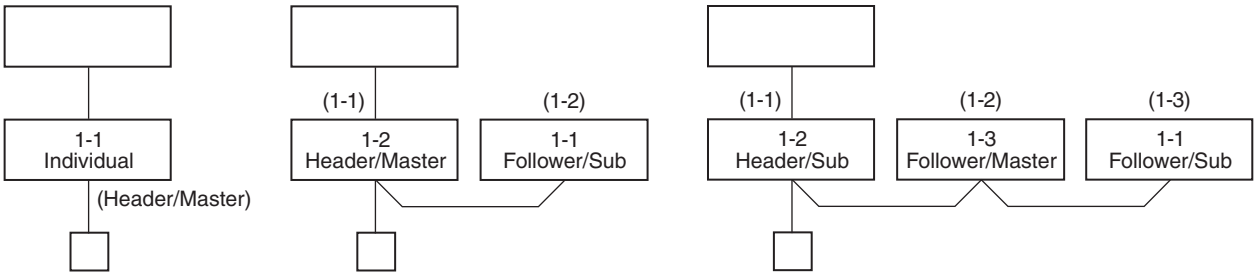
   • Master unit: The master unit receives the indoor unit data (thermo status) of the sub (Without identical line address & indoor/outdoor serial) and then finally controls the outdoor compressor matching with its own thermo status.
     The master unit sends this command information to the sub unit.
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

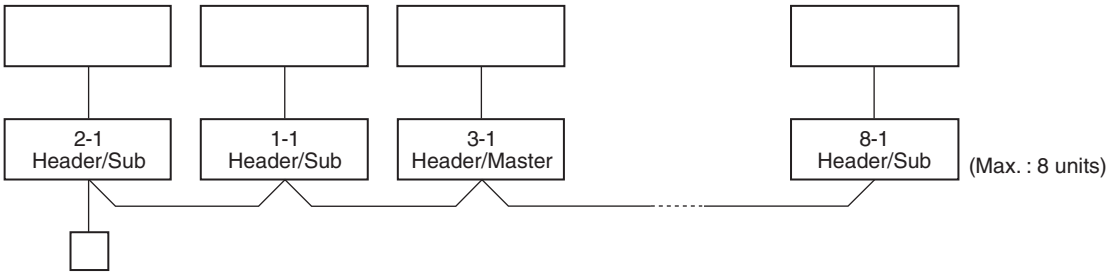
10-2-2. Automatic Address Example from Unset Address (No miswiring)

1. Standard (One outdoor unit)



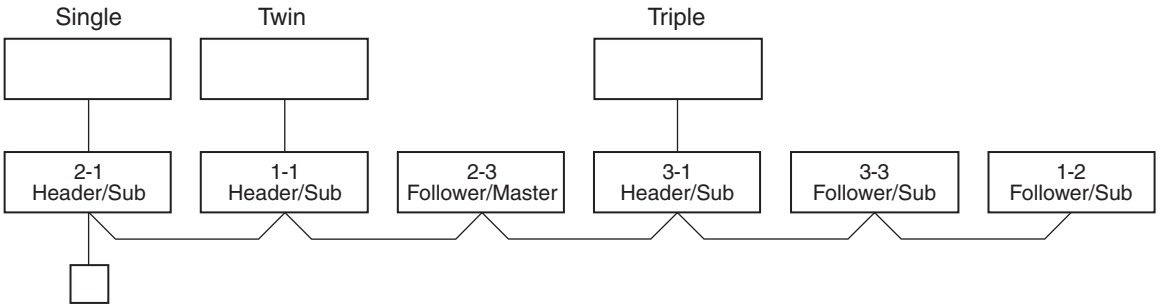
Only turning on source power supply (Automatic completion)

2. Group operation
   (Multiple outdoor units = Multiple indoor units with serial communication only, without twin)

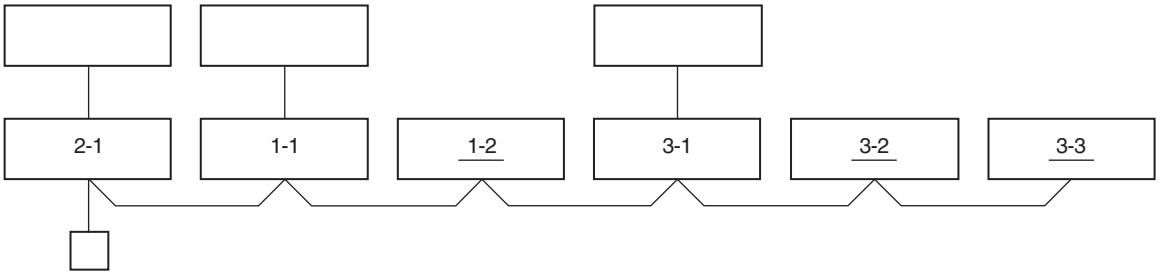


Only turning on source power supply (Automatic completion)

3. Multiple groups operation



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

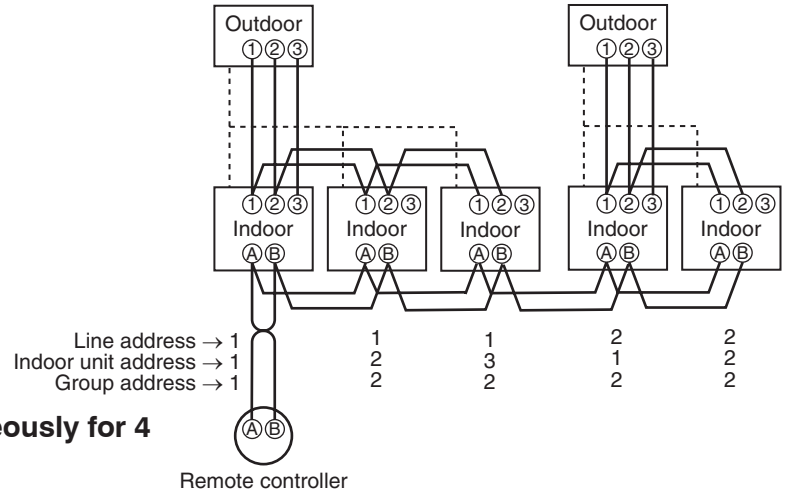


10-3. Address Setup (Manual Setting from Remote Controller)

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)
(Real 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.**

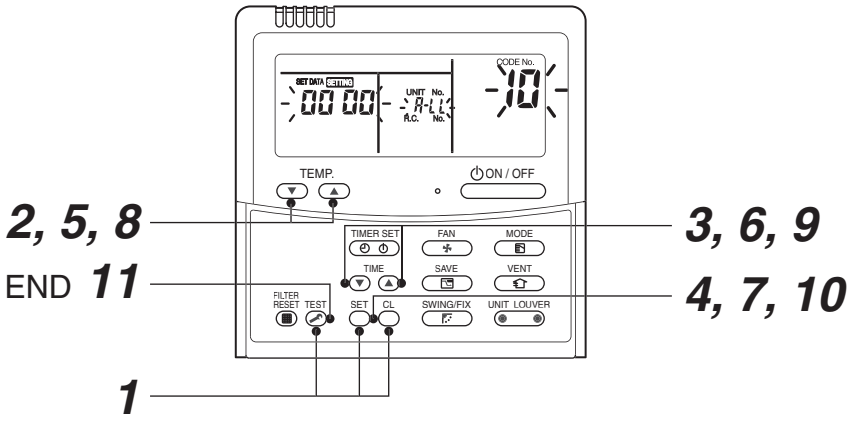
10 **Push SET button. (OK when display goes on.)**

11 **Push TEST button.**

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

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

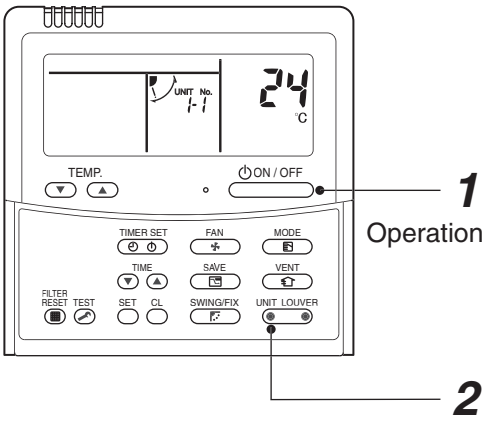
- In case of individual operation (Wired remote controller : indoor unit = 1 : 1)
  (Follow to the procedure during operation)

<Procedure>

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

2 **Push UNIT LOUVER 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 UNIT LOUVER 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)

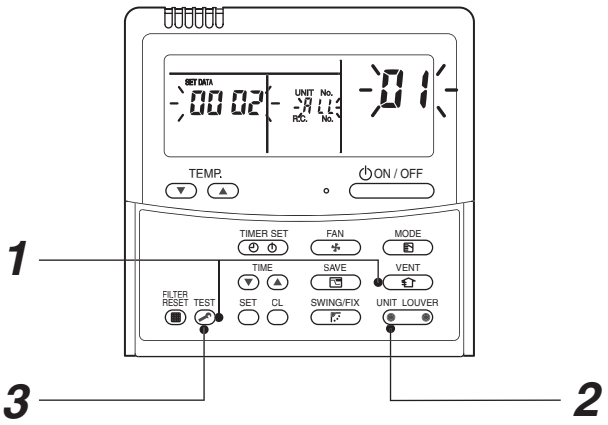
1 **Push VENT and TEST buttons simultaneously for 4 seconds or more.**

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

2 **Every pushing UNIT LOUVER button (button 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 TEST 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 defective position or apply the rust resisting paint if necessary.

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

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

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

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

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

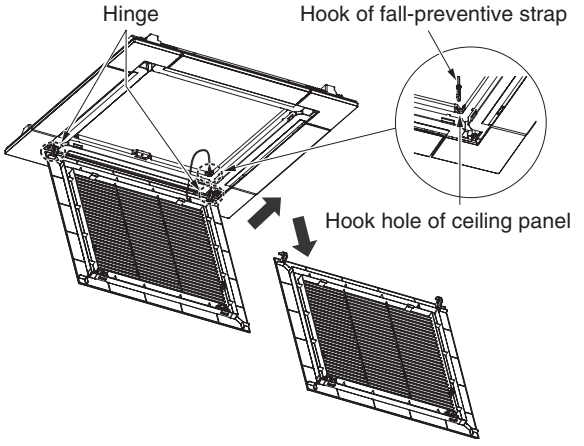
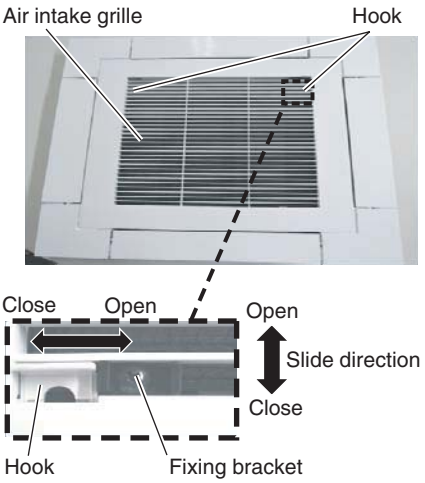
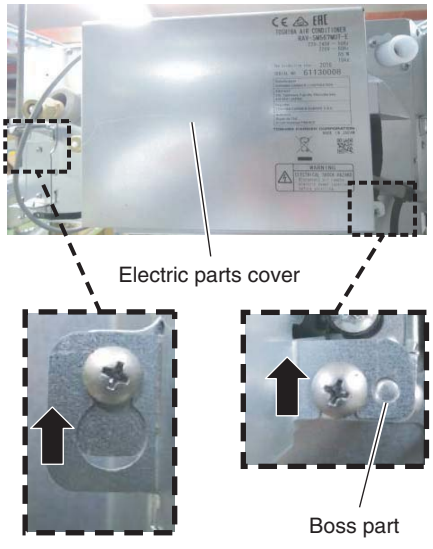
11. DETACHMENTS

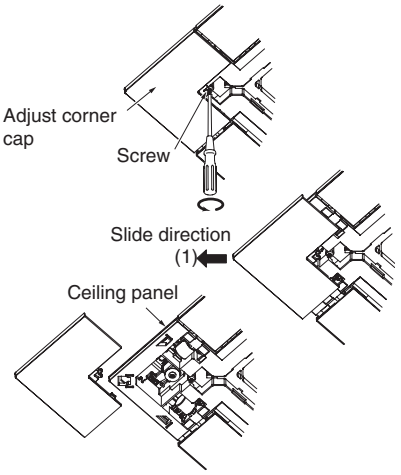
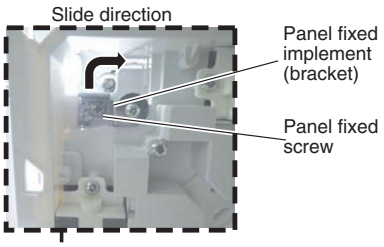
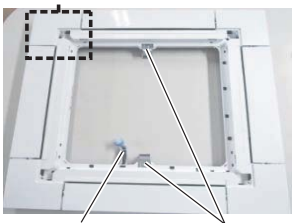
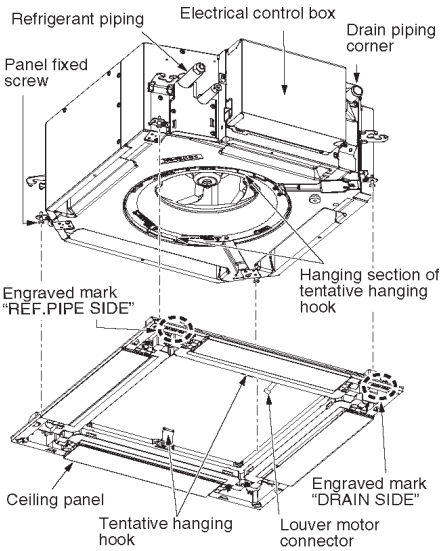
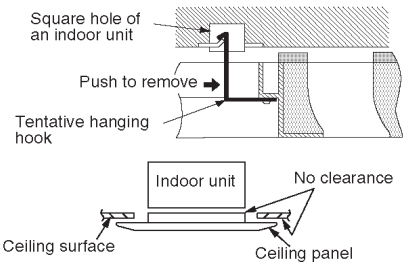
⚠ WARNING

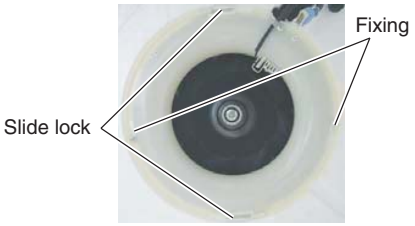
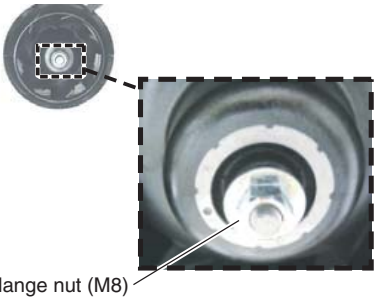
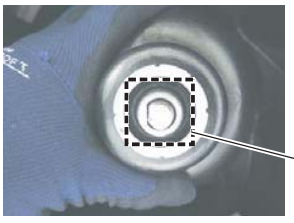
Be sure to stop operation of the air conditioner before work and then turn off switch of the breaker.

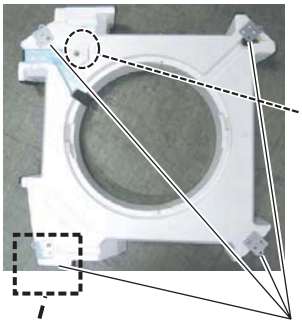
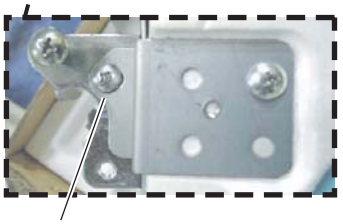
⚠ CAUTION

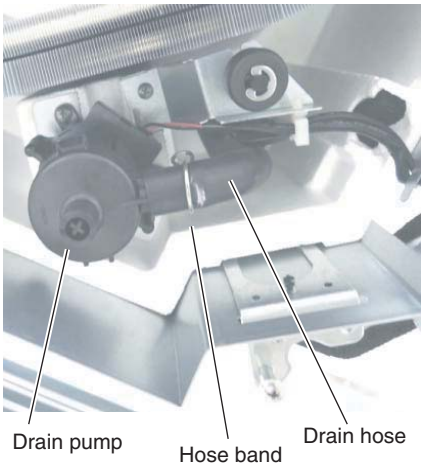
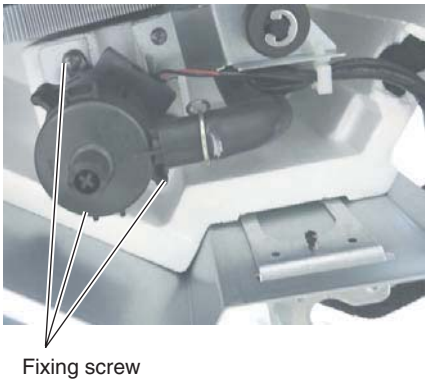
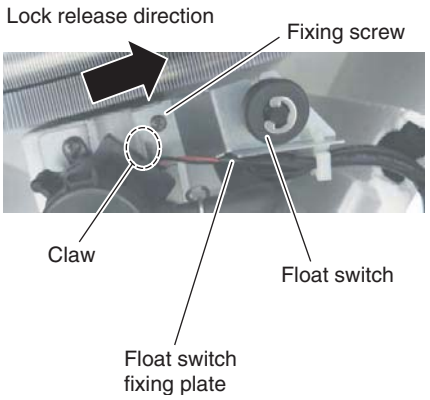
Be sure to put on gloves during working time; otherwise an injury will be caused by a part etc.

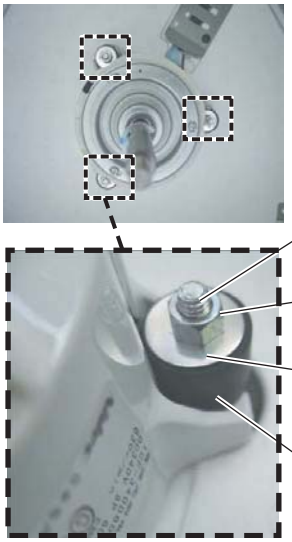
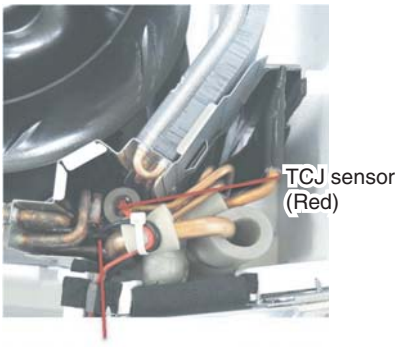
No.	Part name	Procedure	Remarks
①	Air intake grille	**1. Detachment** 1) Stop operation of the air conditioner and then turn off switch of the circuit breaker. 2) Loosen the fixing screw. And slide the fixing bracket toward the inside. (Ø4 × 8, 1 pcs.) 3) Holding the air intake grille, slide the hook in the direction of the arrow and slowly open the grille. 4) Remove the hook of the fall-preventive strap from the ceiling panel. Remove the hinge section of the air intake grille from the ceiling panel while the air intake grille is opened. **2. Attachment** 1) Hook the hinge of the air intake grille to the main panel, and then attach the fall-preventive strap. 2) Close the air intake grille, and then slide the hook. 3) Slide the grille fixing bracket to fix it with the screws. (Ø4 × 8, 1pc.) 	 
②	Electric parts cover	**1. Detachment** 1) Loosen the fixing screws (2 places) of the electric parts cover. (Ø4 × 8, 2 pcs.) 2) Slide the electric parts cover toward upper side to remove it. **2. Attachment** 1) Slide the electric parts cover to attach it. (Arrange the boss at the electric parts side just on the boss hole at the cover side.) 2) Tighten the screws of the electric parts cover (2 positions) to fix it. (Ø4 × 8, 2 pcs.)	

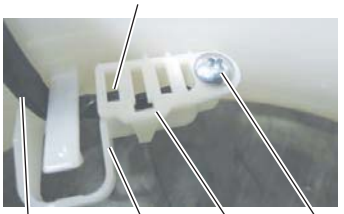
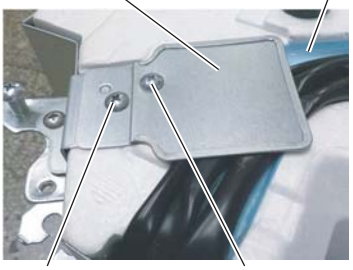
No.	Part name	Procedure	Remarks
③	Adjust corner cap	**1. Detachment** 1) Remove the air intake grille. (Refer to 1 of ①.) 2) Loosen the fixing screws on the adjust corner cap. (Ø4 × 12, 4 pcs.) 3) Slide the adjust corner cap to outside to remove it. **2. Attachment** 1) Matching claws (5 positions) of the adjust corner cap to holes of the panel main unit holes and attach them. 2) Tighten the fixing screws of the adjust corner cap (Ø4 × 12, 4 pcs.). **NOTE** Tighten the screw with a hand screwdriver and do not use a tool such as a electric screwdriver. Tightening torque : 1 N•m or less	
④	Ceiling panel	**1. Detachment** 1) Remove the air intake grille and the adjust corner cap. (Refer to 1 of ①and 1 of ③.) 2) Remove the louver motor connector. 3) By sliding the panel fixing bracket of the corner part, remove it from the fixing screws. (Total 4 positions) 4) Push the tentative hanging hook at the center part of the ceiling panel main body toward the outside of the ceiling panel, and then remove the ceiling panel from the indoor unit. **2. Attachment** 1) Match the louver motor connector of the ceiling panel so that it directs to the electric parts side, and then hook the tentative hanging hook at the center part of the ceiling panel main body to the bell mouth. 2) Connect the louver motor connectors at the ceiling panel side and the indoor unit side. 3) Lift up the panel corner part and put out the screw head of the panel fixed implement. Slide the panel fixed bracket, and then fix the indoor unit and the ceiling panel. (Total 4 positions). * In case of loosening screws of the panel fixed implement so that screw head is out under the panel fixed implement, retighten the screws after work. 4) Following to the works in items ③-2 and ①-2, attach the adjust corner cap and the air intake grille as original. **NOTE** • The ceiling panel aligns directionally with the indoor unit. Check that the lead wires of louver motor connector are on the electrical control box side. • When a clearance is found between the ceiling surface and the ceiling panel, readjust height of the indoor unit even if the screws have been tightened.	   

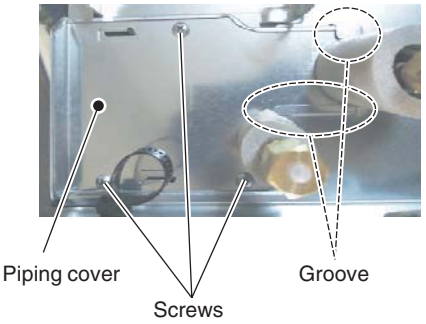
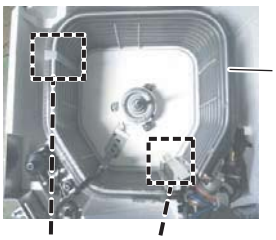
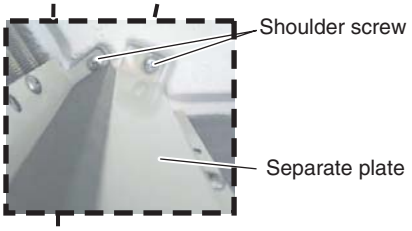
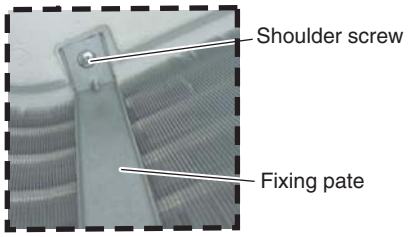
No.	Part name	Procedure	Remarks
⑤	Control P.C. board	**1. Detachment** 1) Remove the electric parts cover. (Refer to 1 of ②) 2) Remove connectors which are connected from the control P.C. board to the other parts and then remove wiring from the clamp. **NOTE** Unlock the lock of the housing part and then remove the connector. CN34 : Float switch (3P, Red) CN41 : Remote controller (2P, Blue) CN40 : Control wires (2P, Blue) CN67 : Power supply wires (5P, Black) CN101 : TC sensor (2P, Black) CN102 : TCJ sensor (2P, Red) CN104 : Room temp. (TA) sensor (2P, Yellow) CN510 : Louver motor (20P, White) CN504 : Drain pump (2P, White) CN210 : Fan motor (7P, White) CN22 : Earth wire (Tab terminal) 3) Unlock the locks of the card edge spacer (4 positions) and remove the control P. C. board. **2. Attachment** 1) Fix the control board to the card edge spacer (4 positions). 2) Connect the removed connectors as original, which were unconnected in item 1. Detachment, and fix the wires with clamps. 3) Following to the work in ②-2, attach the electric parts covers as original.	
⑥	Turbo fan	**1. Detachment** 1) Remove the air intake grille. (Refer to 1 of ①.) 2) Loosen the fix screws (2 positions) of the bell mouth, rotate the bell mouth, and then take off it. (Ø4 × 10, 2 pcs.) 3) Loosen the flange nut (M8) at the center part of the turbo fan, and then take off (Counter clockwise) * Supporting with hands, take off the turbo fan so that it will not fall down. **NOTE** Use a box wrench for attachment and detachment of the turbo fan. If using monkey wrench etc., the other parts may be damaged in work. **2. Attachment** 1) Match the D-cut of the motor shaft with the boss part D-cut of the turbo fan, and then insert the turbo fan into the motor shaft. 2) Tighten M8 nut with flange. (Tightening torque of the turbo fan: 5.4+0.5, -0.2N•m) 3) Slide the Bell mouth removed in item 1-2) and attach it then fix it with screws. (Ø4 × 10, 2 pcs.). 4) Following to the work in item ①-2, attach the air intake grille as original. **NOTE** (Tightening torque of the turbo fan: 5.4 (+0.5, -0.2)N•m)	  Lock release direction  

No.	Part name	Procedure	Remarks
⑦	Drain pan	**1. Detachment** 1) Remove the ceiling panel and the electrical parts covers. (Refer to items ④-1 and ②-1.) 2) Remove the wiring cover. (Fixing screw Ø4 × 8, 3pcs.) 3) Remove the wiring fixing plate. (Fixing screw Ø4 × 8, 1pc, Ø4 × 10, 1pc.) 4) Remove the connectors of the fan motor lead wire, louver motor lead wire, and room temperature (TA) sensor from the control P.C. bard, and then remove the wiring from the clamp. * Pull out the wires from the hole at the side face of the electric parts. CN210: Fan motor (7P, White) CN510: Louver motor lead wire (20P, White) CN104: TA (Room temperature) sensor (2P, Yellow) 5) Remove the drain plug of the drain pan, and extract the stayed drain water. * Be careful that water is extracted at a stretch when taking off the drain plug. * When taking off the drain plug, be sure to prepare a bucket, etc. for spilled water. 6) Remove the fixing screws of the drain pan fixing bracket. (Ø4 × 8, 4 pcs.) 7) Using the both hands, hold the water-spilling port part of the drain pan and then slowly pull out the foaming parts firstly. * As there is remained water in the drain pan, clear it carefully. **2. Attachment** 1) Arrange direction of the drain pan directly to the foaming parts and insert it. * Pass the fan motor lead wire through the inner side of the drain pan. 2) Attach the fixing screws of the drain pan fixing implement which was taken off in item 1-6). (Ø4 × 12, 4 pcs.) 3) Insert the drain plug. (Put the tool with thin top in the hole of the drain plug, and then push the plug in.) 4) Perform wiring works to original arrangement, wiring of the fan motor, louver motor lead wires, and the room temperature (TA) sensor, and then attach the wiring fixing bracket and the wiring cover. 5) Following to works in items ④-2 and ②-2, attach the panel, electric parts cover as original.	 Fixing screws Wiring cover Wiring fixing plate Fixing screw (Ø4 × 10)  Fixing screw (Ø4 × 8)  Drain plug Drain pan fixing bracket  Fixing screw (4 positions)  Drain plug Push in the drain plug with the thin tip tool.

No.	Part name	Procedure	Remarks
⑧	Drain pump	**1. Detachment** 1) Remove the drain pan. (Refer to ⑦-1.) 2) Remove the drain pump connector (CN504: 2P, White) connected to the control P.C. board and remove the lead wires from the clamp. 3) Remove the fixing screws to remove the drain pump. (Ø4 × 10, 3 pcs.) 4) Move the knob of the hose band which fixes the drain hose a little from pump connecting part to the hose side, and then remove the drain hose from the drain pump. * Be careful that water may be out. **2. Attachment** 1) Confirm the direction of the drain pump, and then fix it with screws. (Ø4 × 10, 3 pcs.) 2) Connect the drain hose to the drain pump. * For the drain hose, insert up to the root of the connecting part. * Attach a band to the marked position of the hose, and the knob of a hose band is attached to the deep side of a set. 3) Pass the drain pump wiring through side plate and clamp, and then connect the connector to the control P.C. board. 4) Following to work in ⑦-2, attach the drain pan, panel, and electrical parts covers as original.	 
⑨	Float switch	**1. Detachment** 1) Remove the drain pan. (Refer to ⑦-1.) 2) Remove the float switch connector (CN34 3P, Red) connected to the control P.C. board, and then take off the lead wires from the clamp. 3) Remove the screws which fix the float switch. (Ø4 × 8, 1 pc.) 4) Slide the float switch fixed bracket as direction shown in the right figure, and then take off it from the claw. **2. Attachment** 1) Insert the float switch fixing plate into the claw, and tighten the fixing screw. 2) Pass the float switch lead wires through the side plate and the clamp, and then connect the connector to the control P.C. board. 3) Following to work in ⑦-2, attach the covers of the drain pan, panel, and electric parts box as original.	

No.	Part name	Procedure	Remarks
⑩	Fan motor	**1. Detachment** 1) Remove the turbo fan, electric parts cover, wiring cover and wiring fixing plate. (Refer to ⑥-1, ②-1, ⑦-1-2, ⑦-1-3.) 2) Remove the fan motor connector (CN210, White, 7P) connected to the control P.C. board, and then take off the lead wires from the clamp. 3) Remove the shoulder screws (Black, 2pcs.) of the motor lead wiring cover, and separate the lead wires and the lead wire cover. 4) Remove the hexagon nuts (M6) which fix the motor, and the washers. (3 pcs. Each). * When taking off them, hold them with a hand so that motor will not fall down. 5) Remove the motor with rubber cushion from the bolt. **2. Attachment** 1) Pass rubber cushion of the motor in the bolt, put the washer and the hexagon nut in this order, and then tighten to fix them. (Tightening toque: 4.9 ± 0.5N•m) 2) Pass the lead wire through the motor lead wire fixing plate removed in 1-3), and then fix it with shoulder screw. 3) Perform wiring of the motor lead wires as original, connect the connector to the control P.C. board, and then attach the wiring fixing plate and the wiring cover. 4) Following to works in ⑥-2 and ②-2, attach the turbo fan and the electric parts covers.	 
⑪	TC TCJ Sensor	**1. Detachment** 1) Remove the drain pan. (Refer to ⑦-1.) 2) Pull out the sensor to be exchanged from the sensor holder. 3) Remove the connector connected to the control P.C. board, and take off wires from the clamp. (Refer to ⑤.) **2. Attachment** 1) Insert the sensor to be exchanged into the specified sensor. (Refer to the right figure.) 2) Perform wiring of the sensor as original.	

No.	Part name	Procedure	Remarks
⑫	TA sensor	**1. Detachment** 1) Remove the panel, electric parts box cover, wiring cover and wiring fixing plate. (Refer to ④-1, ②-1, ⑦-1-2, ⑦-1-3.) 2) Disconnect TA sensor connector (CN104 Yellow, 2P) which is connected to the control P.C. board, and take off the lead wire from the clamp. 3) Remove the screw of the TA sensor cover. (Ø4 × 10, 1pc.) 4) Remove TA sensor from the TA sensor fixed implement. **2. Attachment** 1) Fix TA sensor to TA sensor fixing implement, and fix the TA sensor cover with screw. (Ø4 × 10, 1 pcs, Ø4 × 8, 1 pcs.) 2) Perform wiring of TA sensor as original.	Adjust position of the tube so that the tube of TA sensor will be included in the cover.  TA sensor TA sensor fixing bracket Fixing screw TA sensor cover Wiring fixing plate Groove for wiring of the drain pan  Fixing screw (Ø4 × 8) Fixing screw (Ø4 × 10)

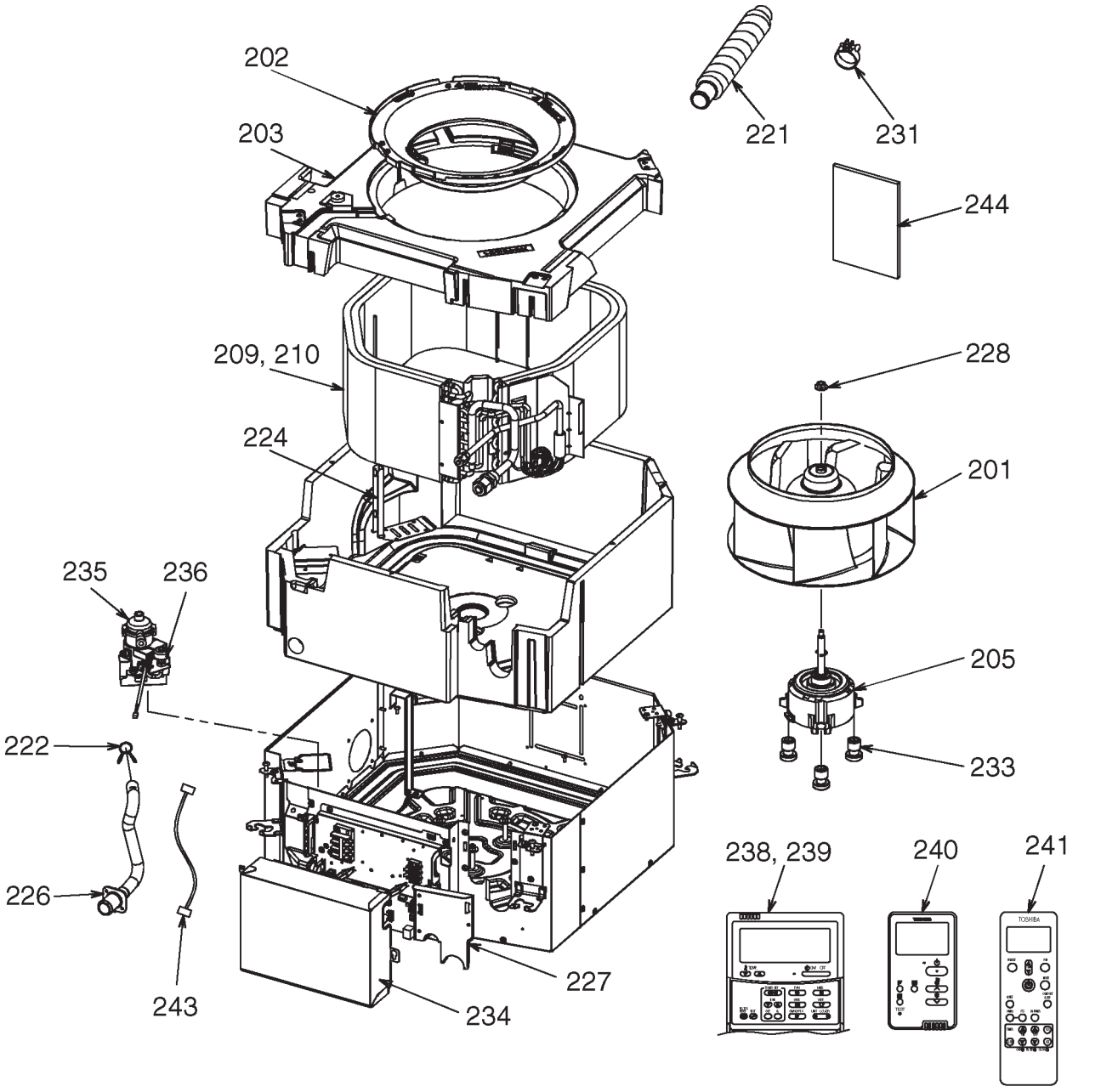
No.	Part name	Procedure	Remarks
⑬	Heat exchanger	**1. Detachment** 1) Recover refrigerant gas. 2) Remove the refrigerant pipe at indoor unit side. 3) Remove the drain pan. (Refer ⑦-1.) 4) Disconnect the heat exchanger sensor (TC1, TC2, TCJ), PMV lead wires connectors from the control P.C. board, and then remove their lead wires from the clamp. (Refer to ⑤-1.) 5) Remove the fixing screws of the piping cover and take off the piping cover. (Ø4 × 8, 3 pcs.) 6) Remove the shoulder screws of the separate plate (2 positions) and fixing plate (1 position), and then remove the heat exchanger. (3 shoulder screws) **NOTE** * Supporting with a hand, remove the heat exchanger so that it will not be fallen down. * Take note that you will not get hurt by touching to Aluminum fin. Be sure to put on the protective gloves and the safety working clothing. **2. Attachment** 1) Attach the heat exchanger as original with the separate plate and the fixing plate. 2) Slide the piping cover to the groove, fix it to the side plate, and then use the screws. (Ø4 × 8, 3 pcs.) 3) Perform wiring of the sensor and PMV lead wires as original. 4) Connect the refrigerant pipe as before and then apply vacuuming. 5) Following to the work in ⑦-2, attach the parts as original.	   

NOTE

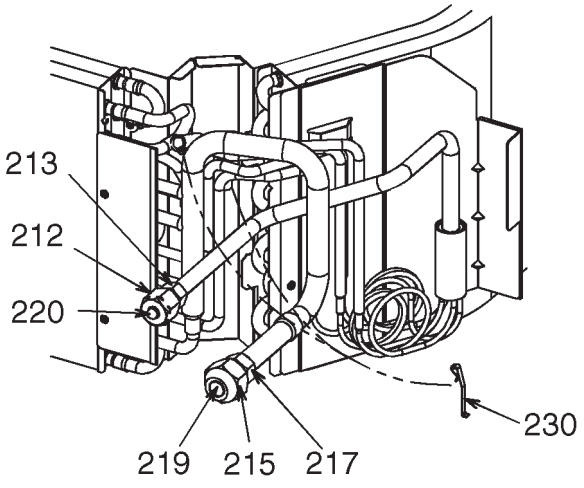
After assembling, check if that there is no abnormal sound, vibration, or puncture. Check the exchange point when you have a problem.

12. EXPLODED VIEWS AND PARTS LIST

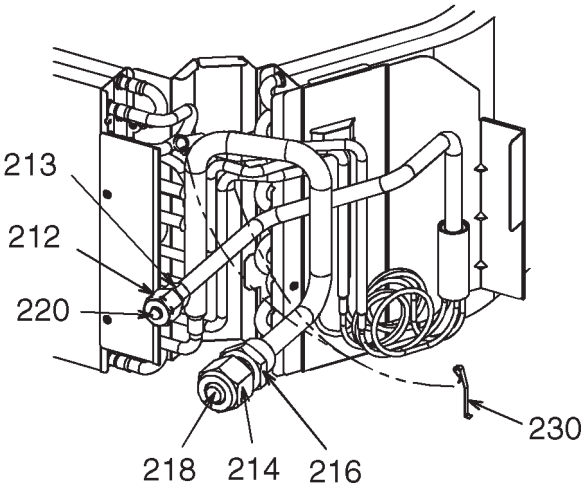
RAV-SM307MUT-E, SM407MUT-E, SM457MUT-E, SM567MUT-E



RAV-SM307MUT-E

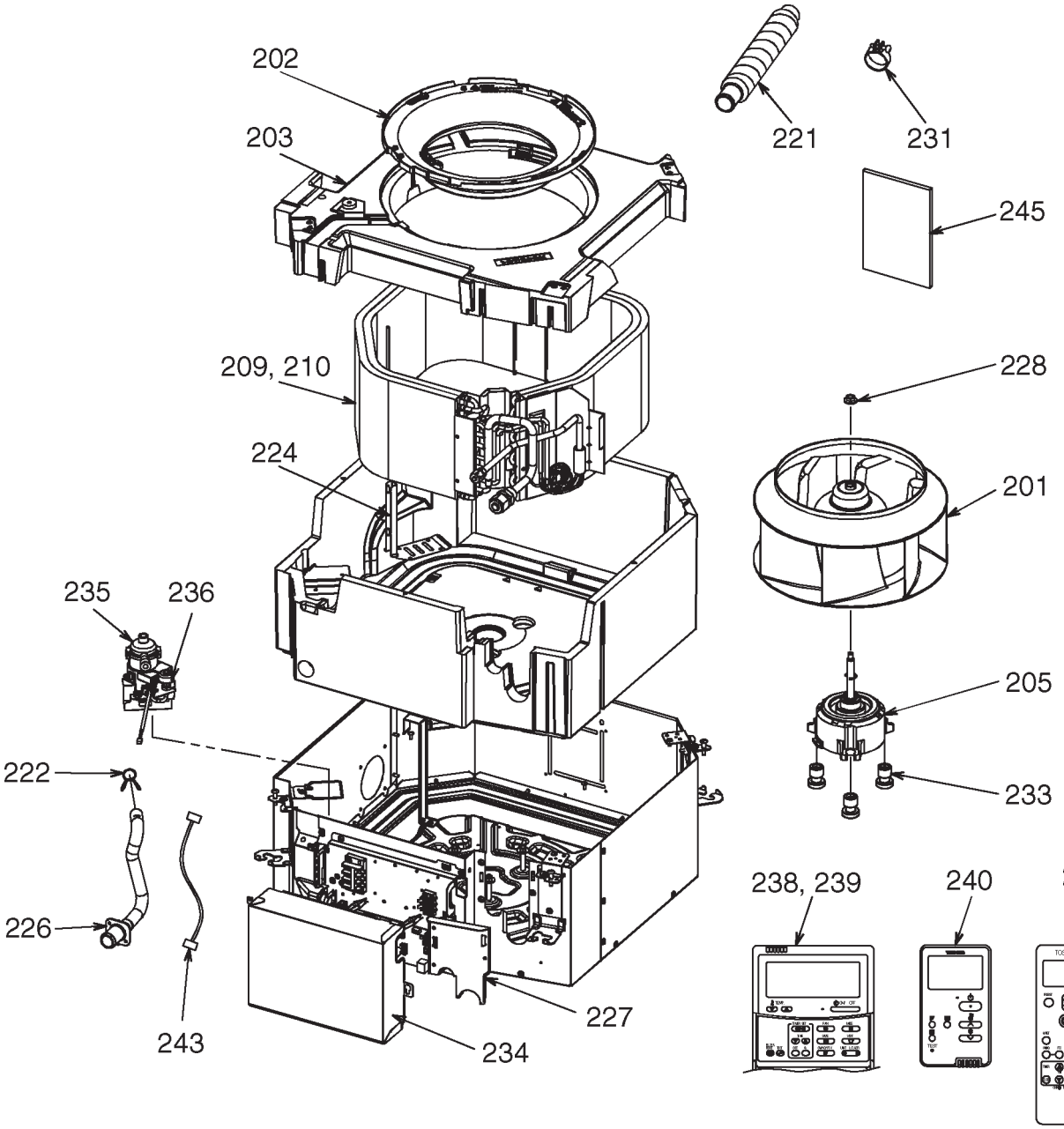


RAV-SM407MUT-E~SM567MUT-E

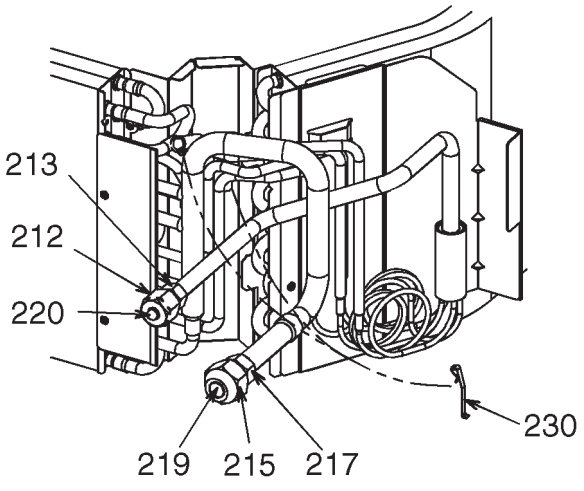


Location No.	Part No.	Description	Q'ty/Set	RAV-SM∗∗∗∗MUT-E		
			SM307	SM407	SM457	SM567
201	43120277	FAN, ASSY TURBO	1	1	1	1
202	43122165	BELL MOUTH	1	1	1	1
203	43172259	PAN ASSY, DRAIN	1	1	1	1
205	4312C161	MOTOR, FAN, ICF-340D60-1(N)	1	1	1	1
209	4314J560	REFRIGERATION CYCLE ASSY		1	1	1
210	4314J561	REFRIGERATION CYCLE ASSY	1			
212	43F47685	NUT, FLARE, 1/4 IN	1	1	1	1
213	43149351	SOCKET, 1/4 IN	1	1	1	1
214	43047688	NUT, FLARE, 1/2 IN		1	1	1
215	43149355	NUT, FLARE, 3/8 IN	1			
216	43149353	SOCKET, 1/2 IN		1	1	1
217	43049776	SOCKET, 3/8 IN	1			
218	43147195	BONNET, 1/2 IN		1	1	1
219	43F47609	BONNET, 3/8 IN	1			
220	43F49697	BONNET, 1/4 IN	1	1	1	1
221	43170276	HOSE, DRAIN, VP20	1	1	1	1
222	43079249	BAND, HOSE	1	1	1	1
224	43163052	HOLDER, LEAD, FAN MOTOR	1	1	1	1
226	43170277	HOSE, DRAIN	1	1	1	1
227	43119542	COVER, PIPE	1	1	1	1
228	43F97212	NUT	1	1	1	1
230	43F19904	HOLDER, SENSOR (TS)	2	2	2	2
231	43179170	BAND, HOSE	2	2	2	2
233	43139187	RUBBER, CUSHION	3	3	3	3
234	43162087	COVER, E-BOX	1	1	1	1
235	43177021	PUMP, DRAIN	1	1	1	1
236	43151323	SWITCH, FLOAT	1	1	1	1
238	43166011	REMOTE CONTROLLER, SX-A4EE	1	1	1	1
239	43166012	REMOTE CONTROLLER, SX-A5EE	1	1	1	1
240	43166022	REMOTE CONTROLLER, SX-U01EE	1	1	1	1
241	43166018	REMOTE CONTROLLER, WIRELESS, WH-L11SE	1	1	1	1
243	43160663	LEAD, RELAY	1	1	1	1
244	431S8320	OWNERS MANUAL	1	1	1	1

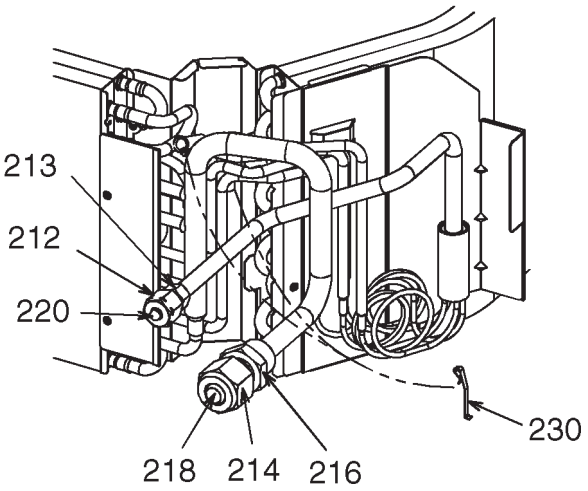
RAV-SM307MUT-TR, SM407MUT-TR, SM457MUT-TR, SM567MUT-TR



RAV-SM307MUT-TR

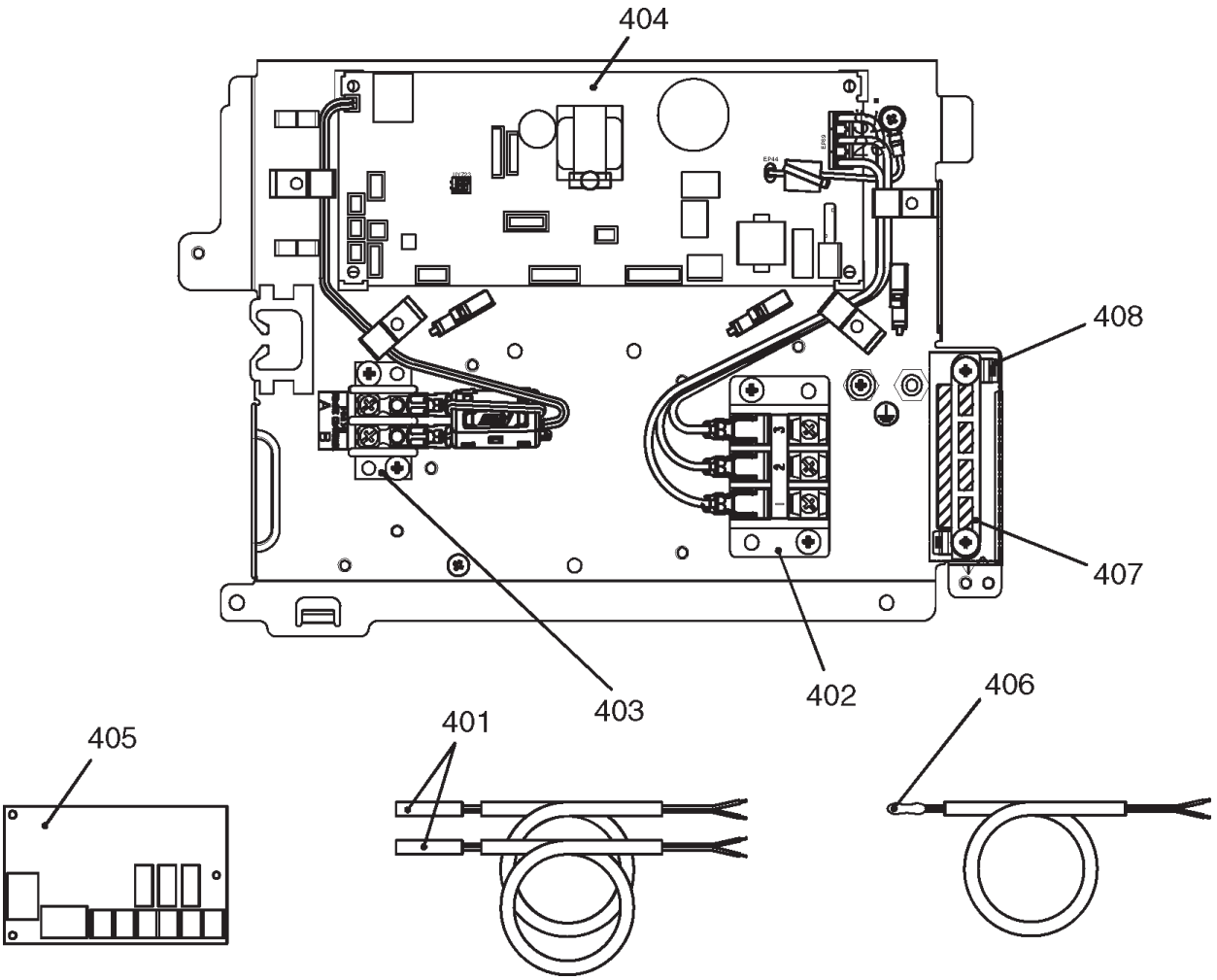


RAV-SM407MUT-TR~SM567MUT-TR



Location No.	Part No.	Description	Q'ty/Set	RAV-SM∗∗∗∗MUT-TR		
			SM307	SM407	SM457	SM567
201	43120277	FAN, ASSY TURBO	1	1	1	1
202	43122165	BELL MOUTH	1	1	1	1
203	43172259	PAN ASSY, DRAIN	1	1	1	1
205	4312C161	MOTOR, FAN, ICF-340D60-1(N)	1	1	1	1
209	4314J560	REFRIGERATION CYCLE ASSY		1	1	1
210	4314J561	REFRIGERATION CYCLE ASSY	1			
212	43F47685	NUT, FLARE, 1/4 IN	1	1	1	1
213	43149351	SOCKET, 1/4 IN	1	1	1	1
214	43047688	NUT, FLARE, 1/2 IN		1	1	1
215	43149355	NUT, FLARE, 3/8 IN	1			
216	43149353	SOCKET, 1/2 IN		1	1	1
217	43049776	SOCKET, 3/8 IN	1			
218	43147195	BONNET, 1/2 IN		1	1	1
219	43F47609	BONNET, 3/8 IN	1			
220	43F49697	BONNET, 1/4 IN	1	1	1	1
221	43170276	HOSE, DRAIN, VP20	1	1	1	1
222	43079249	BAND, HOSE	1	1	1	1
224	43163052	HOLDER, LEAD, FAN MOTOR	1	1	1	1
226	43170277	HOSE, DRAIN	1	1	1	1
227	43119542	COVER, PIPE	1	1	1	1
228	43F97212	NUT	1	1	1	1
230	43F19904	HOLDER, SENSOR (TS)	2	2	2	2
231	43179170	BAND, HOSE	2	2	2	2
233	43139187	RUBBER, CUSHION	3	3	3	3
234	43162087	COVER, E-BOX	1	1	1	1
235	43177021	PUMP, DRAIN	1	1	1	1
236	43151323	SWITCH, FLOAT	1	1	1	1
238	43166011	REMOTE CONTROLLER, SX-A4EE	1	1	1	1
239	43166012	REMOTE CONTROLLER, SX-A5EE	1	1	1	1
240	43166022	REMOTE CONTROLLER, SX-U01EE	1	1	1	1
241	43166018	REMOTE CONTROLLER, WIRELESS, WH-L11SE	1	1	1	1
243	43160663	LEAD, RELAY	1	1	1	1
245	431S8321	OWNERS MANUAL	1	1	1	1

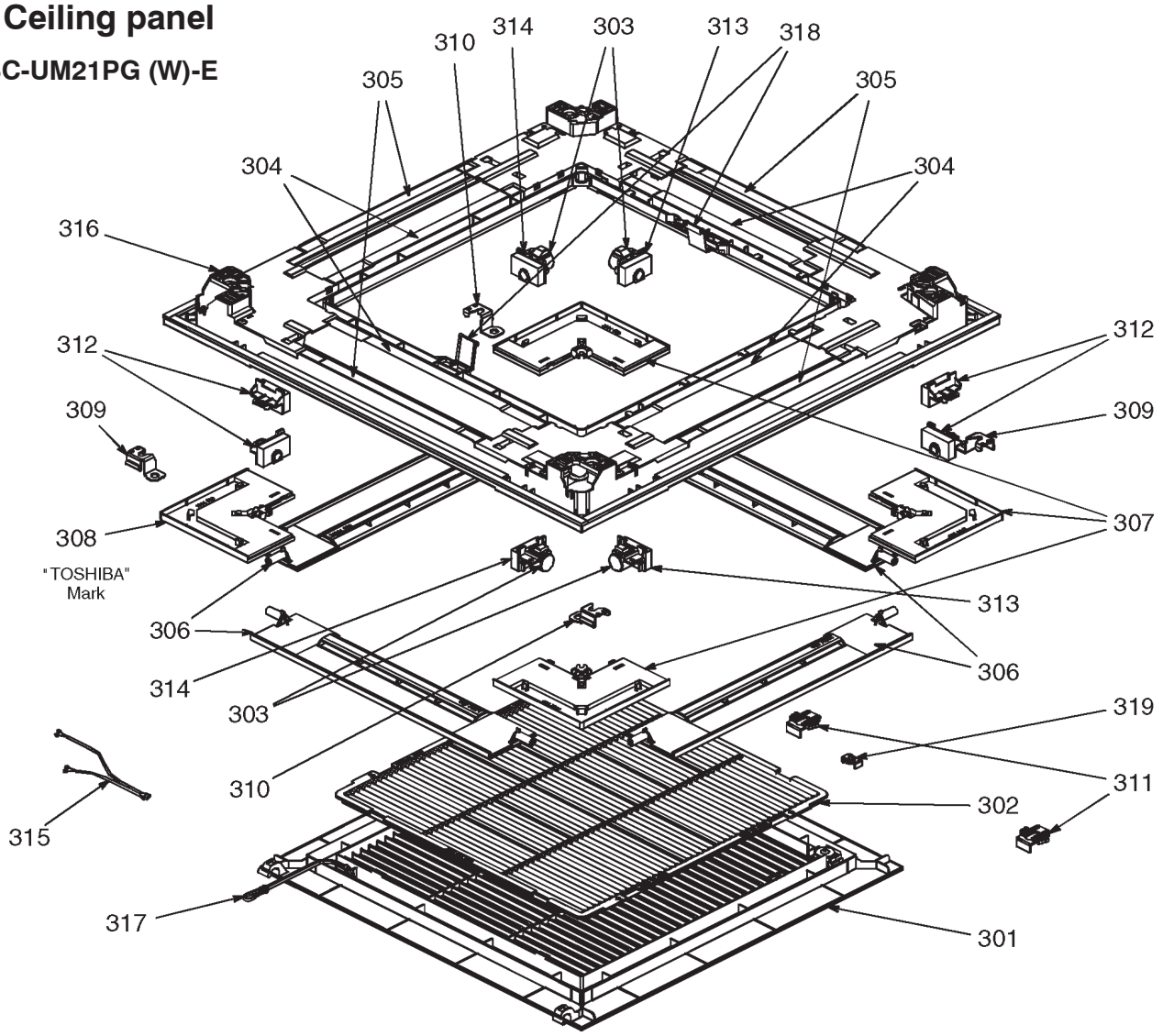
E-Parts



Location No.	Part No.	Description	Q'ty/Set	RAV-SM∗∗∗∗MUT-E (TR)		
			SM307	SM407	SM457	SM567
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	4316V618	P.C. BOARD ASSY, MCC-1643	1	1	1	1
405	43459017	P.C. 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

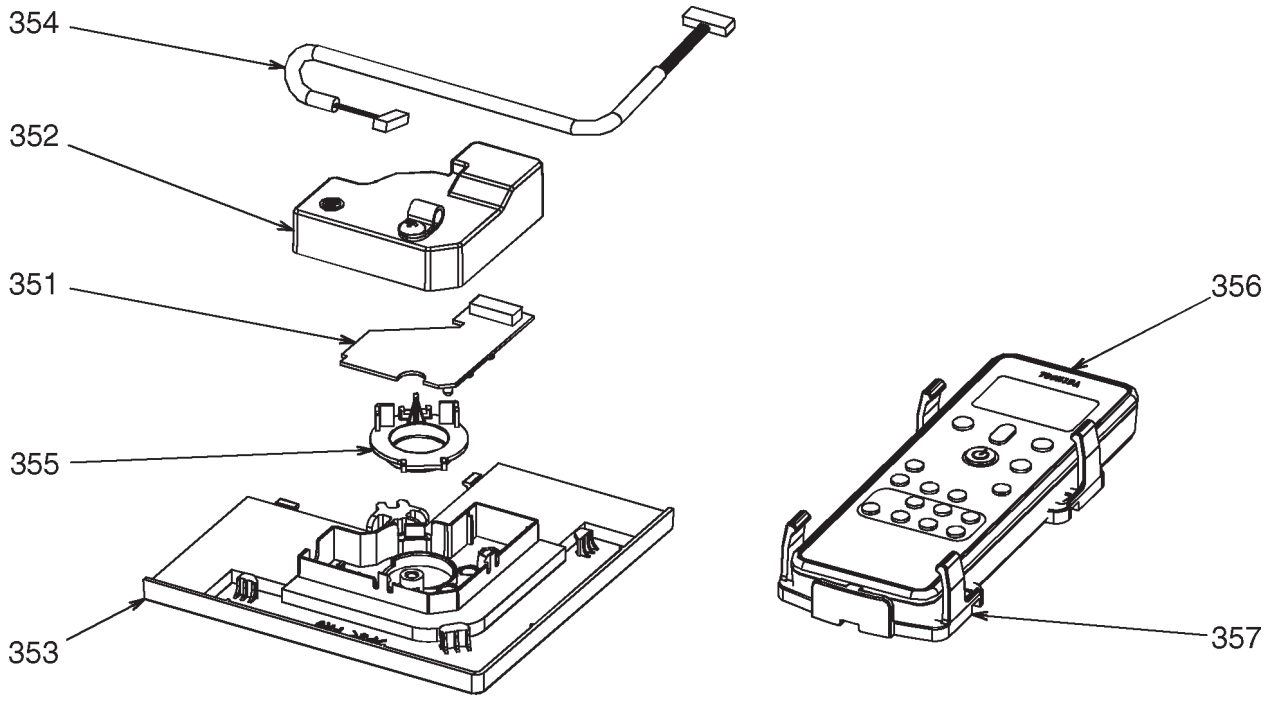
RBC-UM21PG (W)-E



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

◆ Wireless remote controller kit

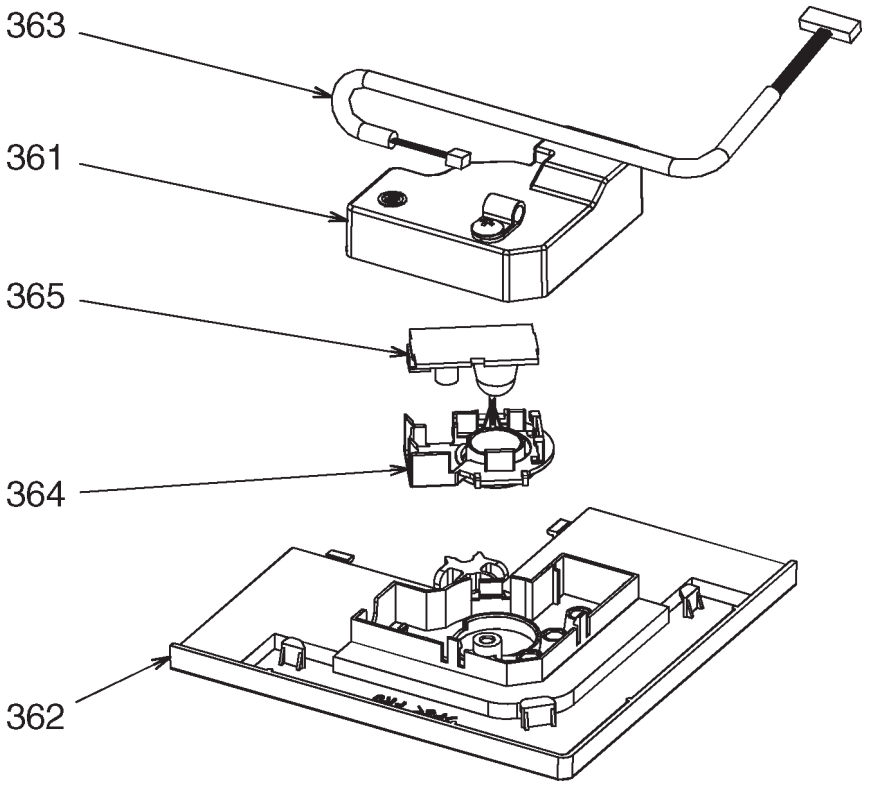
RBC-AX32UM (W)-E



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

◆ Occupancy sensor

TCB-SIR41UM-E



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

TOSHIBA CARRIER CORPORATION
72-34 Horikawa-cho, Saiwai-ku, Kawasaki-shi, Kanagawa 212-8585, JAPAN