TOSHIBA

FILE NO. A10-1420

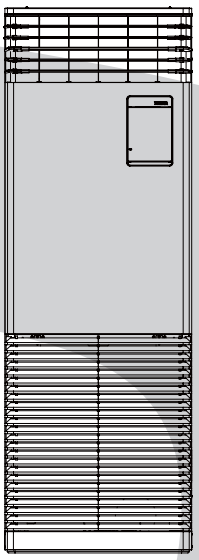
SERVICE MANUAL

AIR-CONDITIONER (MULTI TYPE)

INDOOR UNIT

<Floor Standing Type>

MMF-AP0156H-E (TR)
MMF-AP0186H-E (TR)
MMF-AP0246H-E (TR)
MMF-AP0276H-E (TR)
MMF-AP0366H-E (TR)
MMF-AP0486H-E (TR)
MMF-AP0566H-E (TR)



HFC
R410A

PRINTED IN JAPAN, Jan., 2015 ToMo

CONTENTS

Original instruction

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

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

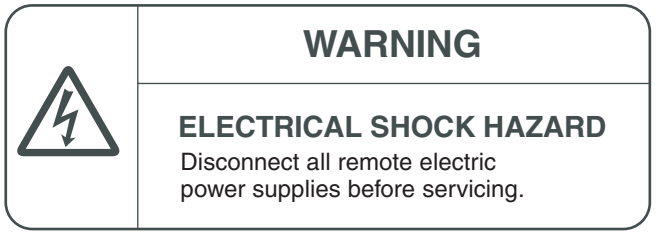
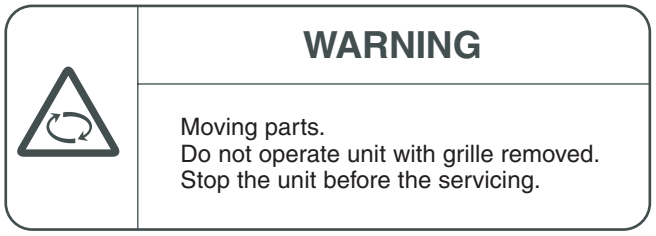
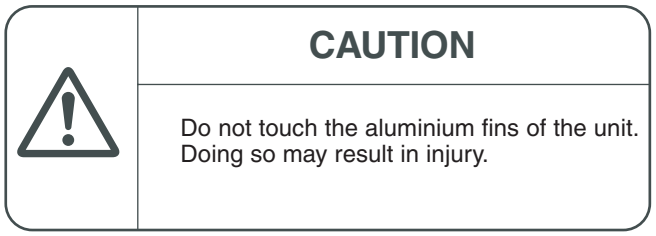
[Explanation of illustrated marks]

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 braeaker	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 electrical box cover 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 an error display has appeared, there is a smell of burning, abnormal sounds are heard, the air conditioner fails to cool or heat or water is leaking) has occurred in the air conditioner, do not touch the air conditioner yourself but set the circuit breaker to the OFF position, and contact a qualified service person. Take steps to ensure that the power will not be turned on (by marking “out of service” near the circuit breaker, for instance) until qualified service person arrives. Continuing to use the air conditioner in the trouble status may cause mechanical problems to escalate or result in electric shocks or other failure.
Electric shock hazard	When you access inside of the 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 outdoor unit. You may injure yourself if you do so. If the fin must be touched for some reason, first put on protective gloves and safety work clothing, and then proceed.
	Do not climb onto or place objects on top of the outdoor unit. You may fall or the objects may fall off of the outdoor unit and result in injury.
	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.
	Be sure to connect earth wire. (Grounding work) Incomplete grounding causes an electric shock. Do not connect ground wires to gas pipes, water pipes, and lightning rods or ground wires for telephone wires.

 Prohibition of modification.	Do not modify the products.Do not also disassemble or modify the parts. It may cause a fire, electric shock or injury.
 Use specified parts.	When any of the electrical parts are to be replaced, ensure that the replacement parts satisfy the specifications given in the Service Manual (or use the parts contained on the parts list in the Service Manual). Use of any parts which do not satisfy the required specifications may give rise to electric shocks, smoking and / or a fire.
 Do not bring a child close to the equipment.	If, in the course of carrying out repairs, it becomes absolutely necessary to check out the electrical parts with the electrical parts box cover of one or more of the indoor units and the service panel of the outdoor unit removed in order to find out exactly where the trouble lies, put a sign in place so that no-one will approach the work location before proceeding with the work. Third-party individuals may enter the work site and receive electric shocks if this warning is not heeded.
 Insulating measures	Connect the cut-off lead wires with crimp contact, etc., put the closed end side upward and then apply a watercut method, otherwise a leak or production of fire is caused at the users' side.
 No fire	When performing repairs using a gas burner, replace the refrigerant with nitrogen gas because the oil that coats the pipes may otherwise burn. When repairing the refrigerating cycle, take the following measures. 1) Be attentive to fire around the cycle. When using a gas stove, etc., be sure to put out fire before work; otherwise the oil mixed with refrigerant gas may catch fire. 2) Do not use a welder in the closed room. When using it without ventilation, carbon monoxide poisoning may be caused. 3) Do not bring inflammables close to the refrigerant cycle, otherwise fire of the welder may catch the inflammables.
 Refrigerant	The refrigerant used by this air conditioner is the R410A.
	Check the used refrigerant name and use tools and materials of the parts which match with it. For the products which use R410A refrigerant, the refrigerant name is indicated at a position on the outdoor unit where is easy to see. To prevent miss-charging, the route of the service port is changed from one of the former R22.
	Do not use any refrigerant different from the one specified for complement or replacement. Otherwise, abnormally high pressure may be generated in the refrigeration cycle, which may result in a failure or explosion of the product or an injury to your body.
	For an air conditioner which uses R410A, never use other refrigerant than R410A. For an air conditioner which uses other refrigerant (R22, etc.), never use R410A. If different types of refrigerant are mixed, abnormal high pressure generates in the refrigerating cycle and an injury due to breakage may be caused.
	When the air conditioner has been installed or relocated, follow the instructions in the Installation Manual and purge the air completely so that no gases other than the refrigerant will be mixed in the refrigerating cycle. Failure to purge the air completely may cause the air conditioner to malfunction.
	Do not charge refrigerant additionally. If charging refrigerant additionally when refrigerant gas leaks, the refrigerant composition in the refrigerating cycle changes resulted in change of air conditioner characteristics or refrigerant over the specified standard amount is charged and an abnormal high pressure is applied to the inside of the refrigerating cycle resulted in cause of breakage or injury. Therefore if the refrigerant gas leaks, recover the refrigerant in the air conditioner, execute vacuuming, and then newly recharge the specified amount of liquid refrigerant. In this time, never charge the refrigerant over the specified amount.
	When recharging the refrigerant in the refrigerating cycle, do not mix the refrigerant or air other than R410A into the specified refrigerant. If air or others is mixed with the refrigerant, abnormal high pressure generates in the refrigerating cycle resulted in cause of injury due to breakage.
	After installation work, check the refrigerant gas does not leak. If the refrigerant gas leaks in the room, poisonous gas generates when gas touches to fire such as fan heater, stove or 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. When installing equipment which includes a large amount of charged refrigerant such as a multi air conditioner in a sub-room, it is necessary that the density does not the limit even if the refrigerant leaks. If the refrigerant leaks and exceeds the limit density, an accident of shortage of oxygen is caused.
	Tighten the flare nut with a torque wrench in the specified manner. Excessive tighten of the flare nut may cause a crack in the flare nut after a long period, which may result in refrigerant leakage.
	Nitrogen gas must be used for the airtight test.
	The charge hose must be connected in such a way that it is not slack.
	For the installation / moving / reinstallation work, follow to the Installation Manual. If an incorrect installation is done, a trouble of the refrigerating cycle, water leak, electric shock or fire is caused.
 Check after repair	Once the repair work has been completed, check for refrigerant leaks, and check the insulation resistance and water drainage. Then perform a trial run to check that the air conditioner is running properly.
	After repair work has finished, check there is no trouble. If check is not executed, a fire, electric shock or injury may be caused. For a check, turn off the power breaker.
	After repair work (installation of front panel and cabinet) has finished, execute a test run to check there is no generation of smoke or abnormal sound. If check is not executed, a fire or an electric shock is caused. Before test run, install the front panel and cabinet.
	Be sure to fix the screws back which have been removed for installation or other purposes.
 Do not operate the unit with the valve closed.	Check the following matters before a test run after repairing piping. • Connect the pipes surely and there is no leak of refrigerant. • The valve is opened. Running the compressor under condition that the valve closes causes an abnormal high pressure resulted in damage of the parts of the compressor and etc. and moreover if there is leak of refrigerant at connecting section of pipes, the air is sucked and causes further abnormal high pressure resulted in burst or injury.
 Check after reinstallation	Only a qualified installer (*1) or qualified service person (*1) is allowed to relocate the air conditioner. It is dangerous for the air conditioner to be relocated by an unqualified individual since a fire, electric shocks, injury, water leakage, noise and / or vibration may result.
	Check the following items after reinstallation. 1) The earth wire is correctly connected. 2) The power cord is not caught in the product. 3) There is no inclination or unsteadiness and the installation is stable. If check is not executed, a fire, an electric shock or an injury is caused.
	When carrying out the pump-down work shut down the compressor before disconnecting the refrigerant pipe. Disconnecting the refrigerant pipe with the service valve left open and the compressor still operating will cause air, etc. to be sucked in, raising the pressure inside the refrigeration cycle to an abnormally high level, and possibly resulting in reputing, injury, etc.

Cooling check	When the service panel of the outdoor unit is to be opened in order for the compressor or the area around this part to be repaired immediately after the air conditioner has been shut down, set the circuit breaker to the OFF position, and then wait at least 10 minutes before opening the service panel. If you fail to heed this warning, you will run the risk of burning yourself because the compressor pipes and other parts will be very hot to the touch. In addition, before proceeding with the repair work, wear the kind of insulated heat-resistant gloves designed to protect electricians.
	Take care not to get burned by compressor pipes or other parts when checking the cooling cycle while running the unit as they get heated while running. Be sure to put on gloves providing protection for 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 a circuit breaker that meets the specifications in the installation manual and the stipulations in the local regulations and laws.
	Install the circuit breaker where it can be easily accessed by the qualified service person (*1).
	If you install the unit in a small room, take appropriate measures to prevent the refrigerant from exceeding the limit concentration even if it leaks. Consult the dealer from whom you purchased the air conditioner when you implement the measures. Accumulation of highly concentrated refrigerant may cause an oxygen deficiency accident.
	Do not place any combustion appliance in a place where it is directly exposed to the wind of air conditioner, otherwise it may cause imperfect combustion.

Explanations given to user

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

Relocation

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

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

Declaration of Conformity

Manufacturer:	Toshiba Carrier Corporation 336 Tadehara, Fuji-shi, Shizuoka-ken 416-8521 JAPAN
Authorized Representative /	Nick Ball
TCF holder:	Toshiba EMEA Engineering Director Toshiba Carrier UK Ltd. Porsham Close, Belliver Industrial Estate, PLYMOUTH, Devon, PL6 7DB. United Kingdom

Hereby declares that the machinery described below:

Generic Denomination:	Air Conditioner	
Model / type:	Indoor unit	
	<Floor Standing Type>	
	MMF-AP0156H-E	MMF-AP0156H-TR
	MMF-AP0186H-E	MMF-AP0186H-TR
	MMF-AP0246H-E	MMF-AP0246H-TR
	MMF-AP0276H-E	MMF-AP0276H-TR
	MMF-AP0366H-E	MMF-AP0366H-TR
	MMF-AP0486H-E	MMF-AP0486H-TR
	MMF-AP0566H-E	MMF-AP0566H-TR
Commercial name:	Super Modular Multi System Air Conditioner Super Heat Recovery Multi System Air Conditioner MiNi-Super Modular Multi System Air Conditioner (MiNi-SMMS series)	

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

NOTE

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

Specifications

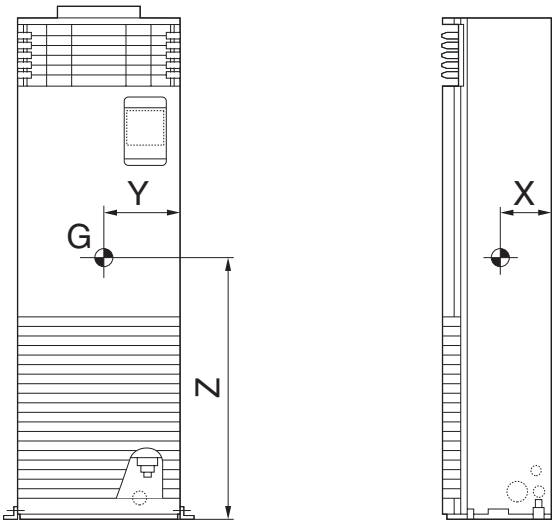
Model	Sound presser level (dBA)		Weight (kg)
	Cooling	Heating	
MMF-AP0156H-E	∗	∗	46
MMF-AP0186H-E	∗	∗	46
MMF-AP0246H-E	∗	∗	47
MMF-AP0276H-E	∗	∗	47
MMF-AP0366H-E	∗	∗	62
MMF-AP0486H-E	∗	∗	62
MMF-AP0566H-E	∗	∗	62
MMF-AP0156H-TR	∗	∗	46
MMF-AP0186H-TR	∗	∗	46
MMF-AP0246H-TR	∗	∗	47
MMF-AP0276H-TR	∗	∗	47
MMF-AP0366H-TR	∗	∗	62
MMF-AP0486H-TR	∗	∗	62
MMF-AP0566H-TR	∗	∗	62

∗: Under 70 dBA

■ Weight centre and weight

(Unit: mm)

Model name	X(mm)	Y(mm)	Z(mm)	Total weight (kg)
MMF-AP0156H-∗	90	290	830	46
MMF-AP0186H-∗				
MMF-AP0246H-∗				47
MMF-AP0276H-∗				
MMF-AP0366H-∗	180	295	860	62
MMF-AP0486H-∗				
MMF-AP0566H-∗				



1. SPECIFICATIONS

Floor Standing Type

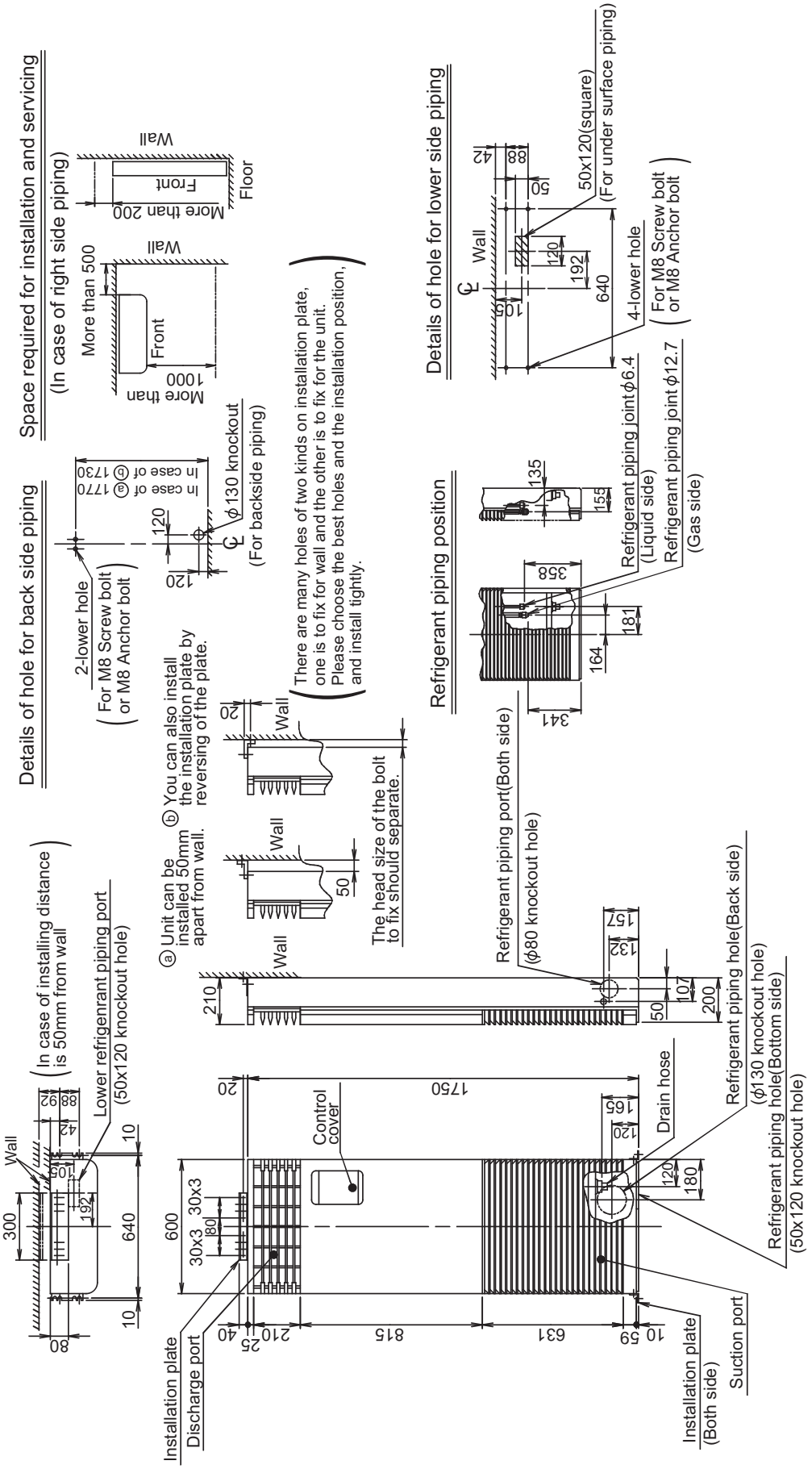
50Hz/60Hz

Model name		MMF-AP	0156H -E(TR)	0186H -E(TR)	0246H -E(TR)	0276H -E(TR)	0366H -E(TR)	0486H -E(TR)	0566H -E(TR)
Cooling Capacity (*1)		kW	4.5	5.6	7.1	8.0	11.2	14.0	16.0
Heating Capacity (*1)		kW	5.0	6.3	8.0	9.0	12.5	16.0	18.0
Electrical charastaristics	Power supply		1phase 50Hz 230V(220V-240V) /1phase 60Hz 220V (Separate power supply for indoor units is required.)						
	Running current	A	0.38 / 0.40		0.60 / 0.63		0.90 / 0.94	1.10 / 1.15	
	Power consumption	kW	0.055		0.089		0.135	0.160	
	Starting current	A	0.53 / 0.56		0.84 / 0.88		1.26 / 1.32	1.54 / 1.61	
Appearance			Silkey Shade (Munsell/ 1Y 8.5/8.0)						
Outer dimension	Height	mm	1750						
	Width	mm	600						
	Depth	mm	210				390		
Weight		kg	46		47		62		
Heat exchanger			Finned tube						
Fan			Centrifugal fan						
Air filter			Standard filter (Simple filter)						
Air Flow (H/M/L)		m^3/h	900 (780 / 660)		1200 (990 / 840)		1920 (1620 /1380)	2160 (1730 /1560)	
Controller			Remote Controller						
Connecting pipe	Gas side	mm	Ø12.7			Ø12.7			
	Liquid side	mm	Ø6.4			Ø9.5			
Drain port diameter		mm	20 (One side of male screw)						
Sound Pressure Level (H/M/L)		dB	46 / 42 / 37		49 / 45 / 39		51 / 46 / 41	54 / 49 / 44	
Sound Power Level (H/M/L)		dB	64 / 60 / 55		67 / 63 / 57		69 / 64 / 59	72 / 67 / 62	

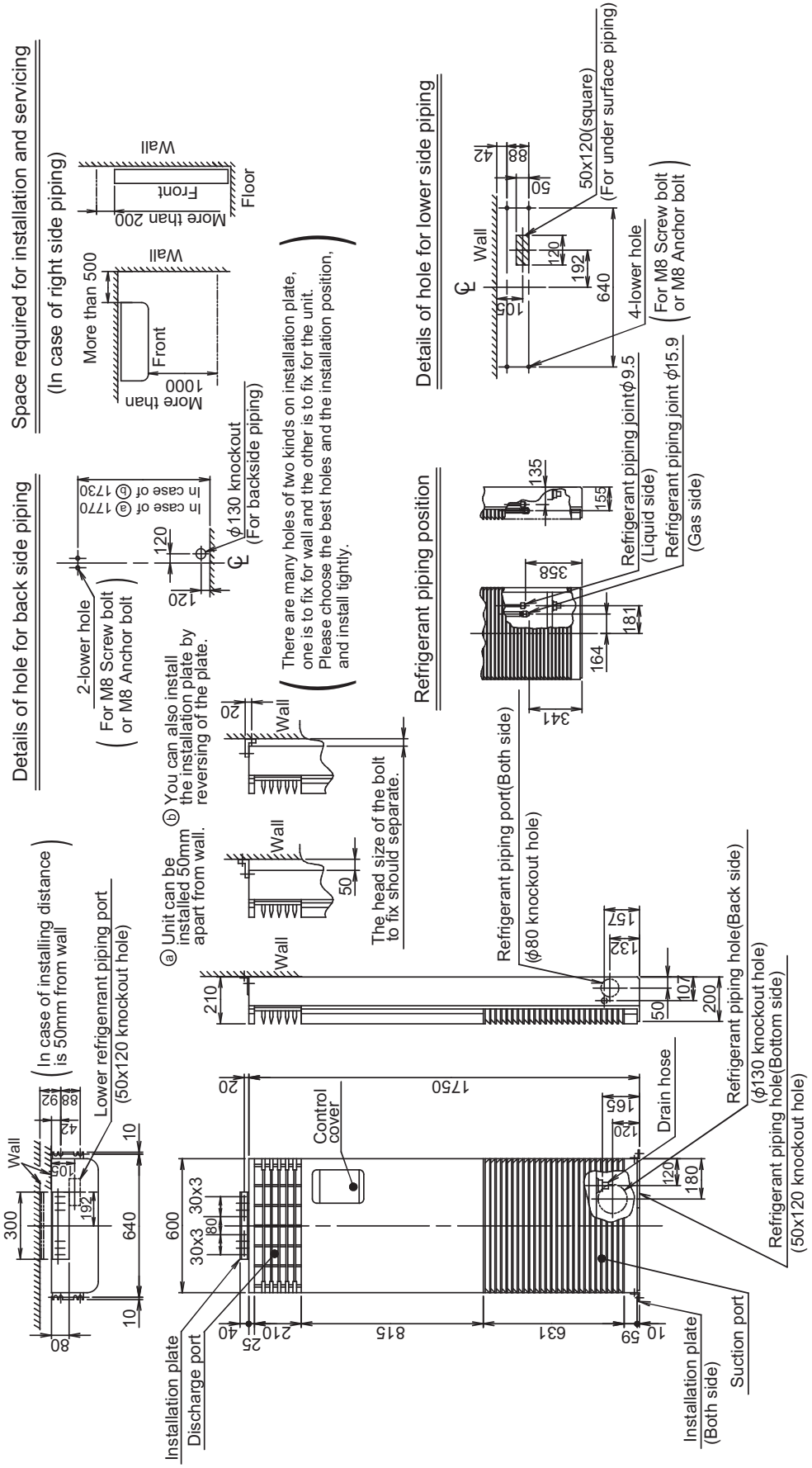
(*1) Cooling / heating capacity is based on single connection operation with standard piping length under Japanese Industrial Standard B 8615 Condition 1.

2. CONSTRUCTION VIEWS (EXTERNAL VIEWS)

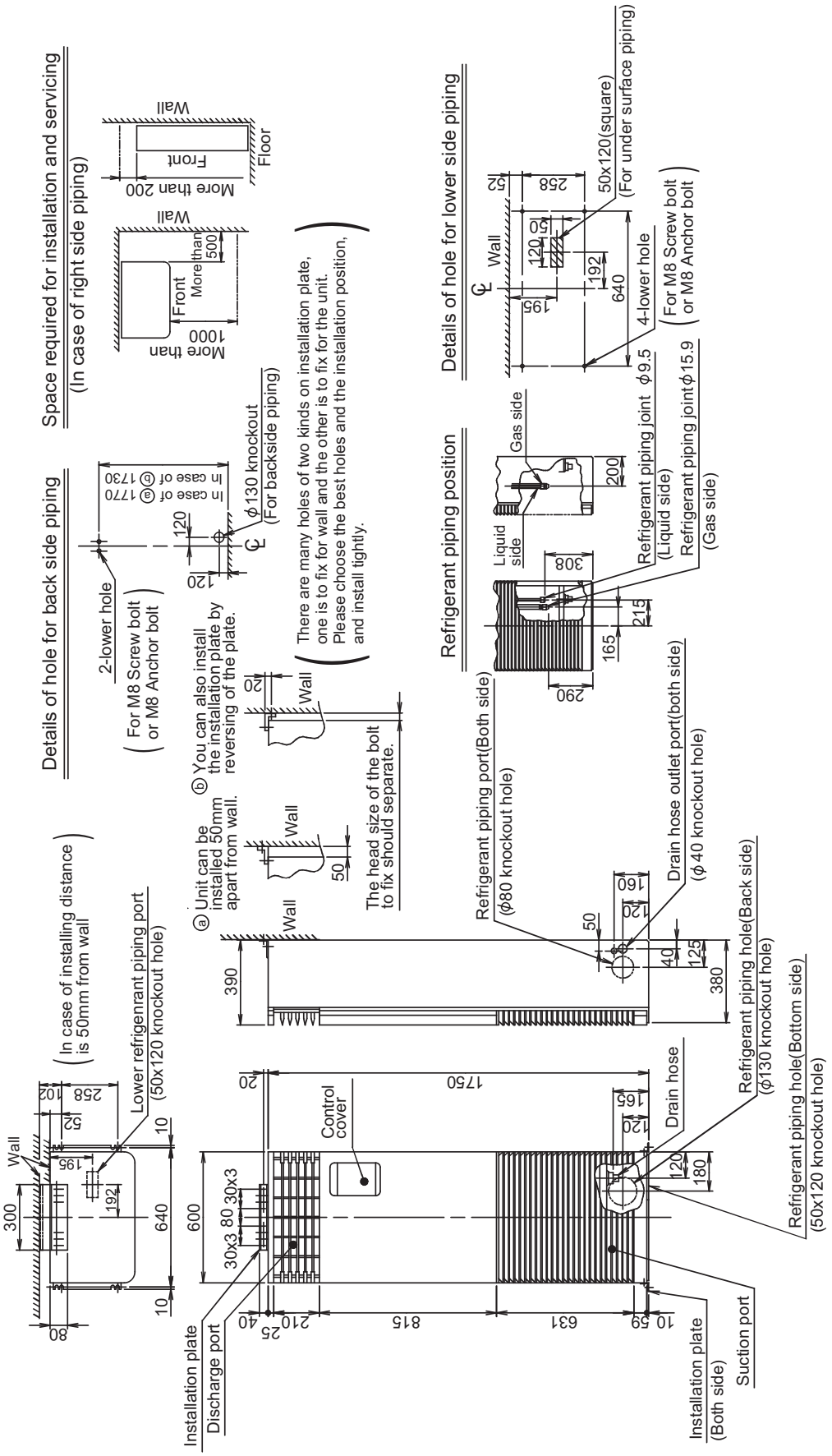
2-1. MMF-AP0156H-E (TR), AP0186H-E (TR)



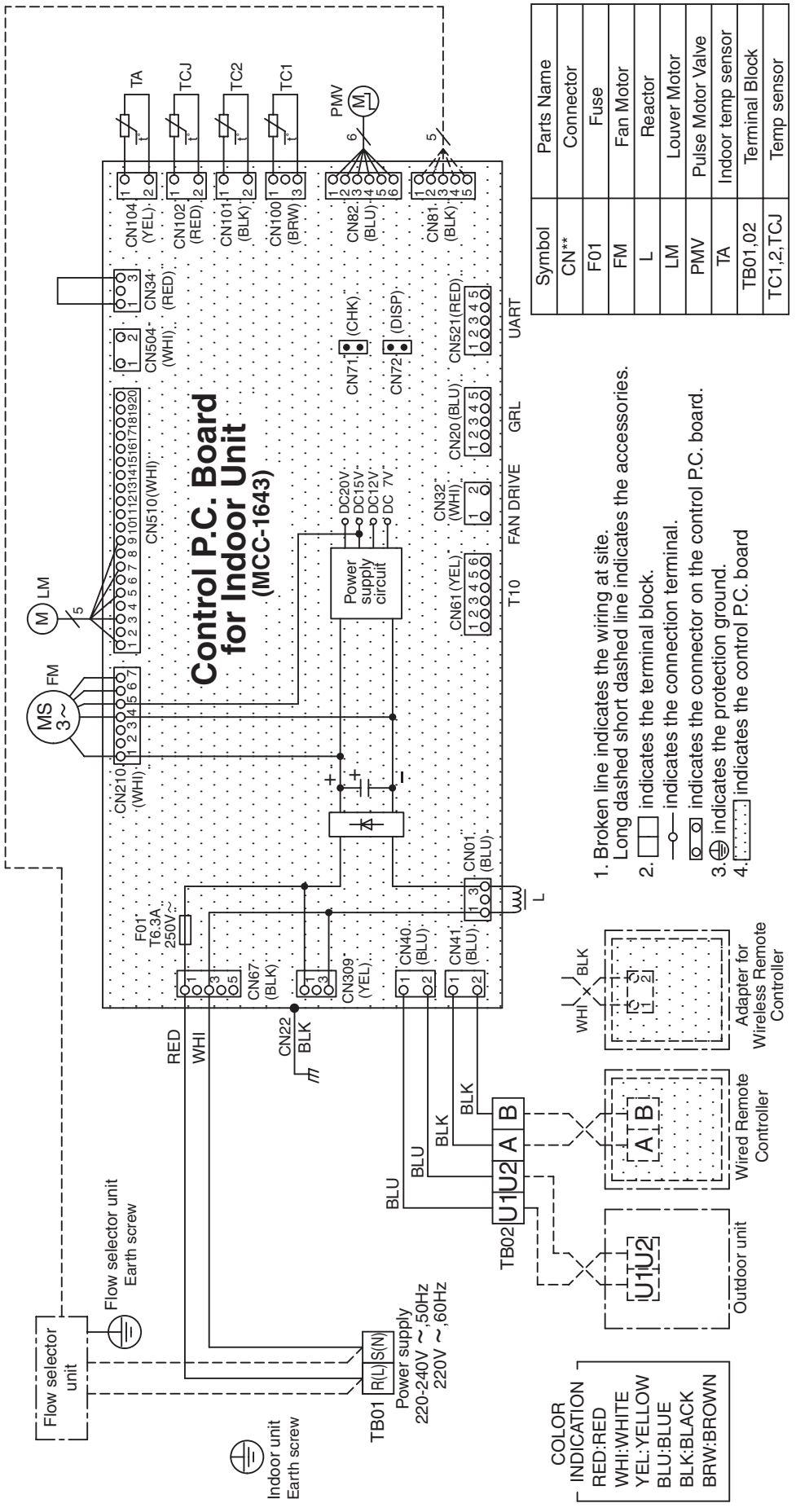
2-2. MMF-AP0246H-E(TR), AP0276H-E (TR)



2-3. MMF-AP0366H-E (TR), AP0486H-E (TR), MMF-AP0566H-E (TR)



3. WIRING DIAGRAMS



Symbol	Parts Name
CN**	Connector
F01	Fuse
FM	Fan Motor
L	Reactor
LM	Louver Motor
PMV	Pulse Motor Valve
TA	Indoor temp sensor
TB01,02	Terminal Block
TC1,2,TCJ	Temp sensor

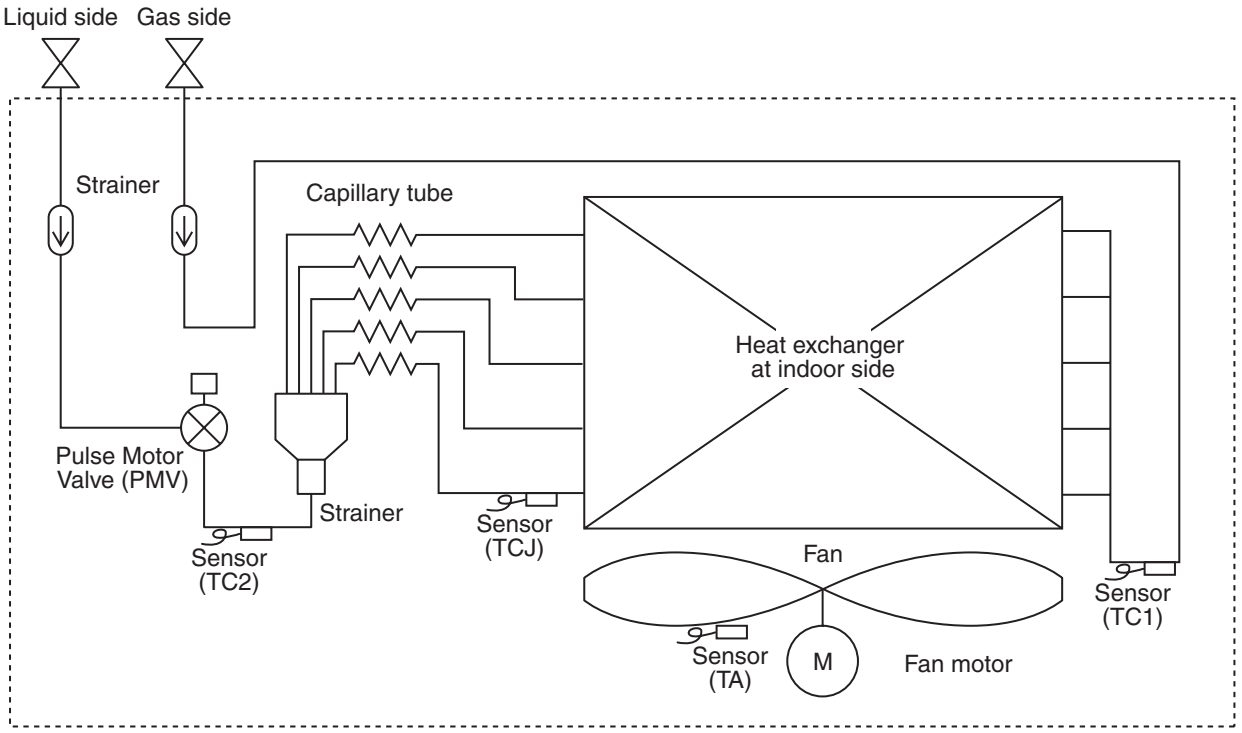
4. PARTS RATING

Indoor unit

Model **MMF-AP**	**0156H***	**0186H***	**0246H***	**0276H***	**0366H***	**0486H***	**0566H***
Fan motor	ICF-340D62-1				ICF-340WD109-1		
Pulse motor	EFM-MD12TF-1						
Pulse motor valve	EDM-B40YGTF-2				EDM-B60YGTF-1		
Driving motor for vertical louver	MP24Z4N						
TA sensor	Lead wire length: 1200 mm Vinyl tube						
TC1 sensor	Ø4 size lead wire length: 1200 mm Vinyl tube (Blue)						
TC2 sensor	Ø6 size lead wire length: 2000 mm Vinyl tube (Black)						
TCJ sensor	Ø6 size lead wire length: 1200 mm Vinyl tube (Red)						

5. REFRIGERANT CYCLE DIAGRAM

Indoor unit



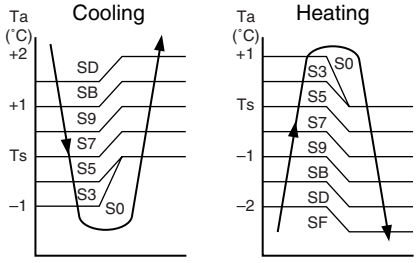
Explanation of functional parts in indoor unit

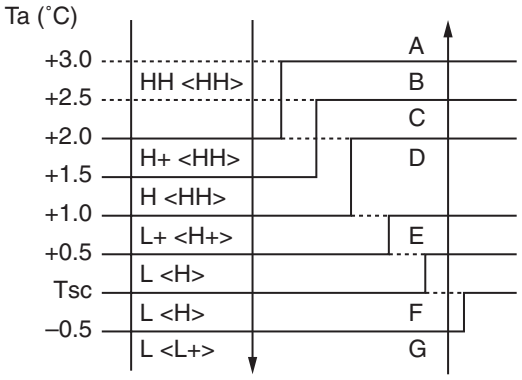
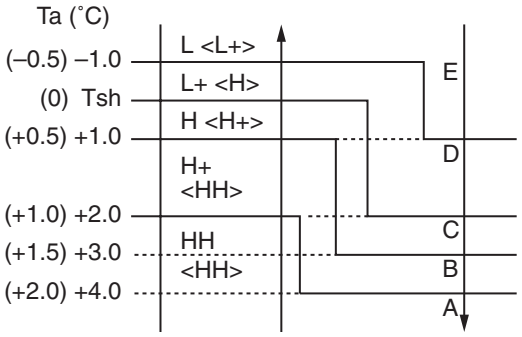
Functional part name		Functional outline
Pulse Motor Valve	PMV	(Connector CN082 (6P): Blue) 1) Controls super heat in cooling operation 2) Controls under cool in heating operation 3) Recovers refrigerant oil in cooling operation 4) Recovers refrigerant oil in heating operation
Temp. Sensor	1.TA	(Connector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

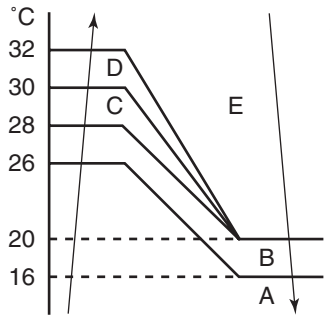
6. CONTROL OUTLINE

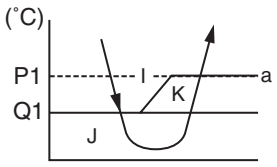
■ Indoor unit

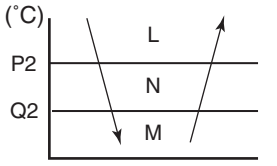
Control specifications

<table>
<tr><th>NO.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>1</td><td>Upon power supply reset</td><td>1. Identification of outdoor unit
When the power supply is reset, the outdoor unit is identified, and control is redirected according to the identification result.
2. Indoor fan speed and air flow direction control availability settings
Settings such as indoor fan speed and air flow direction control availability are replaced on the basis of EEPROM data.
3. If power supply reset is performed in the wake of a fault, the check code is cleared.
If the abnormality persists after the Start / Stop button on the remote controller is pressed to resume operation, the check code is redisplayed on the remote controller.</td><td></td></tr>
<tr><td>2</td><td>Operation selection</td><td>1. The operation mode changes in response to an operation selection command issued via the remote controller.
<table><tr><th>Remote controller command</th><th>Control outline</th></tr><tr><td>STOP</td><td>Air conditioner shutdown</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>Drying operation</td></tr><tr><td>HEAT</td><td>Heating operation</td></tr></table></td><td>Ts: Temperature setting
Ta: Room temperature</td></tr>
<tr><td>3</td><td>Room temp. control</td><td>1. Adjustment range - remote controller temperature setting (°C)
<table><tr><th></th><th>COOL / DRY</th><th>HEAT</th></tr><tr><td>Wired type</td><td>18~29</td><td>18~29</td></tr><tr><td>Wireless type</td><td>18~30</td><td>16~30</td></tr></table>2. In heating operation, the temperature setting may be fine-tuned via the DN code “06”.
<table><tr><td>SET DATA</td><td>0</td><td>2</td><td>4</td><td>6</td></tr><tr><td>Temperature setting adjustment</td><td>+0 ˚C</td><td>+2 ˚C</td><td>+4 ˚C</td><td>+6 ˚C</td></tr></table>Factory default
<table><tr><th>Model type</th><th>SET DATA</th></tr><tr><td>Floor standing (standard, concealed, cabinet)</td><td>0</td></tr><tr><td>Other model</td><td>2</td></tr></table></td><td>Shift in heating suction temperature (not applicable to remote controller thermo operation)</td></tr>
<tr><td>4</td><td>Automatic capacity control</td><td>1. The outdoor unit determines the operational capacities of indoor units according to the difference between Ta and Ts.
 
</td><td>Ts: Temperature setting
Ta: Room temperature</td></tr>
</table>

NO.	Item	Specification outline	Remarks
5	Fan speed control	1. The fan operates in one of the four speed modes of “HIGH (HH)”, “MED (H)”, “LOW (L)” and “AUTO” on the basis of a command issued via the remote controller. (Concealed duct high static pressure type: HH only) 2. In AUTO fan speed mode, the air speed changes according to the difference between Ta and Ts. **<Cooling>**  • Control is identical in remote controller thermo and body thermo operation. Speed modes shown in < > apply to cooling operation under AUTO air conditioner operation mode. • In AUTO fan speed mode, the fan speed remains the same for 3 minutes each time a speed change occurs. However, a speed change command issued via the remote controller can override this, and the fan speed changes accordingly. • At the beginning of cooling operation, a higher speed (steeper downward temperature gradient) is chosen. • As long as the temperature difference remains on a boundary line, the fan speed stays the same. **<Heating>**  Figures inside ( ) applies to remote controller thermo operation. Figures outside ( ) applies to body thermo operation. Speed modes shown in < > apply to heating operation under AUTO air conditioner operation mode. • In AUTO fan speed mode, the fan speed remains the same for 1 minute each time a speed change occurs. However, a speed change command issued via the remote controller can override this, and the fan speed changes accordingly. • At the beginning of heating operation, a higher speed (steeper upward temperature gradient) is chosen. • As long as the temperature difference remains on a boundary line, the fan speed stays the same. • When TC2 ≥ 60 °C, the fan speed is raised by one step. 3. If the air conditioner goes thermo OFF during heating operation, the fan speed drops down to LL (breeze).	HH > H+ > H > L+ > L > UL or LL DN code “32” “0000”: Body thermo “0001”: Remote controller thermo TC2: Indoor heat exchanger sensor temperature “HEATING STANDBY ” displayed

<table>
<tr><th>NO.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>6</td><td>Cold air discharge prevention control</td><td>1. In heating operation, the upper limit of the fan tap is set according to the lower of whichever is the higher between TC2 sensor and TCJ sensor temperatures, on the one hand, and TC1 sensor temperature, on the other.
• If the fan continuously operates in zone B for 6 minutes, it automatically moves into zone C.
• During defrosting, the control point is shifted by +6 °C.
 

A zone: OFF
B zone: 26˚C or above and below 28˚C breeze
C zone: 28˚C or above and below 30˚C Low
D zone: 30˚C or above and below 32˚C Medium
E zone: High</td><td>TCJ: Indoor heat exchanger sensor temperature
• In zones D and E, priority is given to the remote controller fan speed setting.
• In zone A, “HEATING STANDBY” is displayed.</td></tr>
<tr><td>7</td><td>Freeze prevention control (low temp. release)</td><td>1. During cooling, the air conditioner is operated in the manner described below according to the temperature readings of the TC1, TC2 and TCJ sensors.
• If zone J operation is detected for 5 minutes, the air conditioner is forced into thermo OFF.
• In zone K, the timer is put on pause, with the current timer count retained.
• If zone I operation is detected, the timer count is cleared, and the air conditioner returns to normal operation.
• If continuous zone J operation forces the air conditioner into thermo OFF, the indoor fan is operated in breeze mode until it moves into zone I. The control is terminated under the following conditions:
Termination conditions
1) TC1 ≥ 12 °C, TC2 ≥ 12 °C, and TCJ ≥ 12 °C
 

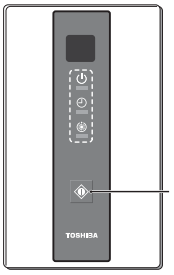
<table>
<tr><th></th><th>TC1</th><th>TC2, TCJ</th></tr>
<tr><td>P1</td><td>10˚C (5˚C)</td><td>–10˚C</td></tr>
<tr><td>Q1</td><td>0˚C</td><td>–14˚C</td></tr>
</table>
2) Passage of 20 minutes after stoppage
2. During cooling, the air conditioner is operated in the manner described below according to the temperature readings of the TC2 and TCJ sensors.
• If zone M operation is detected for 45 minutes, the air conditioner is forced into thermo OFF.
• In zone N, the timer is put on pause, with the current timer count retained.
• When the air conditioner goes back into zone M, timer count is resumed from the retained value.
 

<table>
<tr><th></th><th>TC2, TCJ</th></tr>
<tr><td>P2</td><td>5</td></tr>
<tr><td>Q2</td><td>–2.0</td></tr>
</table>
• If zone L operation is detected, the timer count is cleared, and the air conditioner returns to normal operation.
Reset conditions
1) TC1 ≥ 12 °C, TC2 ≥ 12 °C and TCJ ≥ 12 °C
2) Passage of 20 minutes after stoppage</td><td>TC1:
Indoor heat exchanger sensor temperature
* With models without TC2, TC2 is not part of the control parameters.</td></tr>
</table>

NO.	Item	Specification outline	Remarks
8	Cooling oil (refrigerant) recovery control	While the outdoor unit is recovering cooling oil (refrigerant), the indoor units perform the following control tasks: [common for operational (cooling thermo ON / thermo OFF / FAN), as well as nonoperational indoor units] 1) Open the indoor PMV to a certain degree. 2) Engage in recovery control for a specified period of time and return to normal cooling operation at the end of this period upon terminating the control. 3) Operate the drain pump throughout the recovery control period and for about 1 minute after it.	• Recovery operation normally takes place roughly every 2 hours. • The opening position of the indoor PMV depending on the type and capacity of the indoor unit.
9	Heating refrigerant (oil) recovery control	While the outdoor unit is recovering heating refrigerant (oil), the indoor units perform the following control tasks: 1) Open the indoor PMV to a certain degree. 2) Control the indoor fan according to the operation mode. [Indoor units operating in heating thermo ON / OFF state] Let the indoor fan continue operating, but turn it off if the temperature of the indoor heat exchanger drops. [Indoor units operating in FAN mode] Turn off the indoor fan and display "HEATING STANDBY ⊛ " on the remote controller. [Non-operational indoor units] Keep the indoor fan turned off. 3) Terminate the recovery operation depending on the TC2 temperature reading. The timing of termination is determined by each indoor unit. 4) Operate the indoor fan and drain pump for about 1 minute after the termination of the recovery operation. (Applicable to compact 4-way cassette type and 1- way cassette type)	• Recovery operation normally takes place roughly every hour. • The opening position of the indoor PMV depending on the type and capacity of the indoor unit.
10	Defrosting control	While the outdoor unit is engaged in defrosting control, the indoor units perform the following control tasks: 1) Open the indoor PMV to a certain degree. 2) Control the indoor fan according to the operation mode. [Indoor units operating in heating thermo ON / OFF state] Let the indoor fan continue operating for a while, but turn it off as the temperature of the indoor heat exchanger drops. [Indoor units operating in FAN mode] Let the indoor fan continue operating. [Non-operational indoor units] Keep the indoor fan turned off. 3) As defrosting control comes to an end, it gives way to heating refrigerant (oil) recovery control. (For control details, see "9. Heating refrigerant (oil) recovery control" above.)	• For defrosting commencement conditions, see 5 Control Outline "10. Defrosting control (reverse defrosting method)" in SMMS-i Outdoor Unit Service Manual A10-005 above. • The opening position of the indoor PMV depending on the type and capacity of the indoor unit.
11	Short intermittent operation compensation control	1. For 5 minutes after startup, the system is forced to continue operating even if it reaches the thermo OFF region. 2. However, priority is given to cooling / heating selection, operation standby, and protective control, so that there is no overriding of thermo OFF in these cases.	
12	Elimination of residual heat	1. When the air conditioner is turned off after engaging in heating operation, the indoor fan is operated for about 30 seconds in "breeze" mode.	
13	Filter sign display (not applicable to wireless type) *Provided in the separately mounted type, TCB-AX32E2.	1. The indoor fan's cumulative hours of operation are counted, and when these exceed the prescribed value (150H), a filter replacement signal is sent to the remote controller to display a filter sign on it. 2. When a filter reset signal is received from the remote controller, the timer measuring cumulative hours is cleared. If the prescribed hours have been exceeded, the hours count is reset, with the sign on the remote controller display erased. Filter service life: 150H	"FILTER ▦ " displayed

<table>
<tr><th>NO.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>14</td><td>Operation standby
Heating standby</td><td><Operation standby> ..... Displayed on remote controller
1. When any of the DN codes listed below is displayed
• “P05” - Detection of an open phase in the power supply wiring
• “P10” - Detection of indoor flooding in at least one indoor unit
• “L30” - Detection of an interlock alarm in at least one indoor unit
2. Forced thermo OFF
• “COOL / DRY” operation is unavailable because at least one indoor unit is operating in “HEAT” mode.
• “HEAT” operation is unavailable because at least one indoor unit is operating in “COOL / DRY” mode under priority cooling setting (bit 1 of SW11 on outdoor I/ F P.C. board ON).
3. All indoor units not able to engage in any of the above operations stand by in thermo OFF state.
4. The indoor fan has been turned off because the system is engaged in a heat refrigerant (oil) recovery operation.
<Heating standby> ..... Displayed on remote controller
1. Normal thermo OFF
• During heating, the indoor unit goes thermo OFF as the heating temperature setting is reached.
2. During heating, the fan rotates at a breeze speed (UL or lower) or remains stationary to prevent cold air from being discharged (including defrosting operation).
3. Forced thermo OFF
• “HEAT” operation is unavailable because at least one indoor unit is operating in “COOL / DRY” mode under priority cooling setting (bit 1 of SW11 on outdoor I/ F P.C. board ON).</td><td>• “OPERATION STANDBY ” displayed
No display provided on wireless remote controller

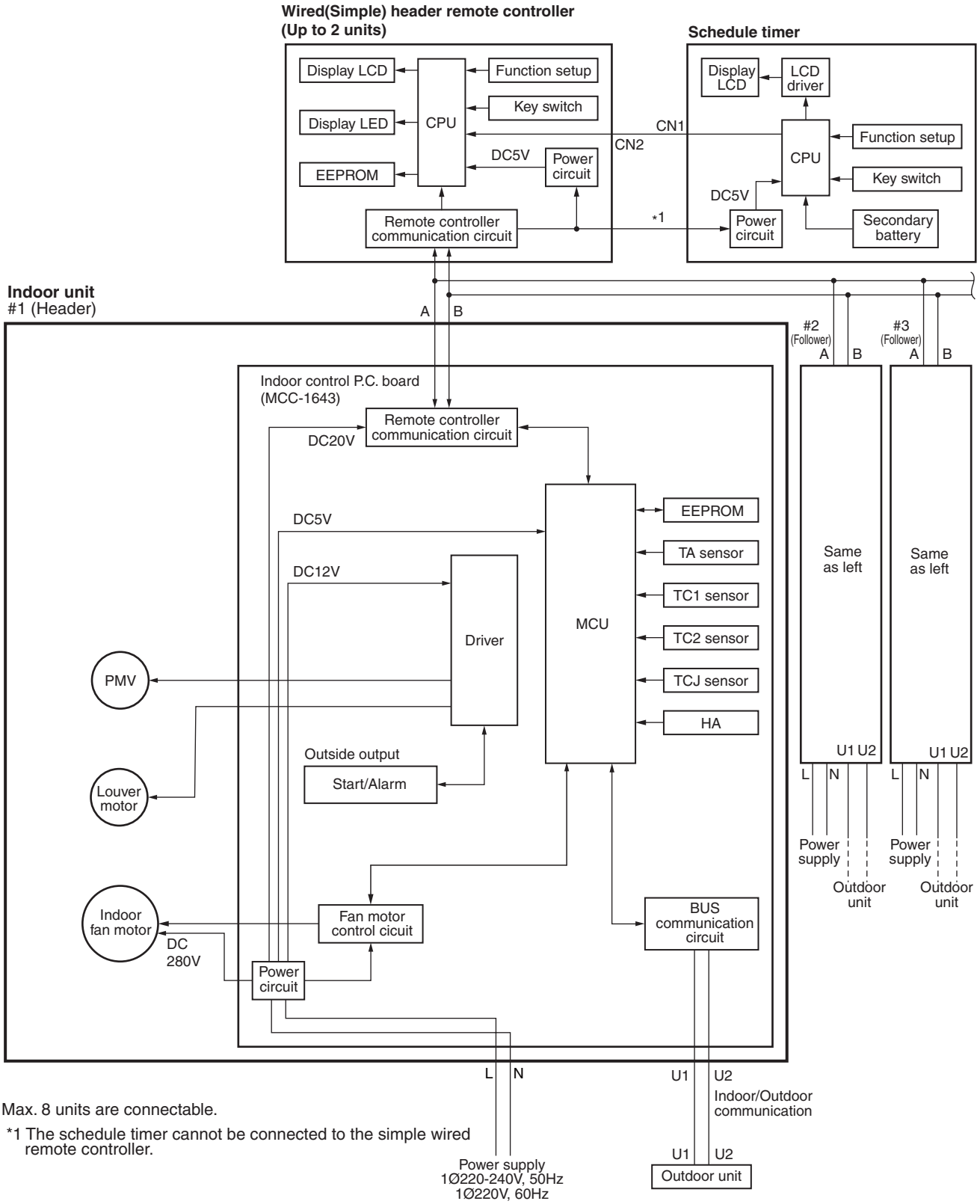
• “HEATING STANDBY ” displayed</td></tr>
<tr><td>15</td><td>Selection of central control mode</td><td>1. The range of operations that can be performed via an indoor unit remote controller can be determined through the setting of the central controller.
2. Setting details
TCC-Link central control
<table>
<tr><th rowspan="2">Operation via TCCLink central control</th><th colspan="6">Operation on RBC-AMT32E</th><th rowspan="2">RBC-AMT32E display</th></tr>
<tr><th>Start / stop selection</th><th>Operation mode selection</th><th>Timer setting</th><th>Temperature setting</th><th>Fan speed setting</th><th>Air flow direction setting</th></tr>
<tr><td>Individual</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td><td rowspan="5">“CENTRAL CONTROL IN PROGRESS”</td></tr>
<tr><td>Central 1</td><td>×</td><td>○</td><td>×</td><td>○</td><td>○</td><td>○</td></tr>
<tr><td>Central 2</td><td>×</td><td>×</td><td>×</td><td>×</td><td>○</td><td>○</td></tr>
<tr><td>Central 3</td><td>○</td><td>×</td><td>○</td><td>×</td><td>○</td><td>○</td></tr>
<tr><td>Central 4</td><td>○</td><td>×</td><td>○</td><td>○</td><td>○</td><td>○</td></tr>
</table>
(○ : Accessible ×: Inaccessible)</td><td>• In the case of a wired remote controller, “CENTRAL CONTROL IN PROGRESS ” is displayed (lit up) while in central control mode.
• The display blinks when a control function inaccessible to a remote controller is chosen.
• A wireless remote controller has the same set of control functions, although there is no display. When a control operation is performed via a wireless remote controller while in central control mode, a peep sound alert (5 times) is provided.</td></tr>
</table>

NO.	Item	Specification outline	Remarks
16	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 an error is displayed.	Check code “P12”
17	Power saving mode	1. Push the SAVE button on the remote controller 2. The “ ” segment lights up on the wired remote controller display. 3. The requirement capacity ratio is limited to approximately 75 %. 4. If the power saving operation is enabled, the settings are retained when the operation is stopped, when the mode is changed, or when the power is reset. The power saving operation will be enabled the next time the operation starts.	The power saving operation cannot be set by the wireless remote controller or wired remote controller of AMT31E or older.
18	Frequency fixed operation (Test run)	**<In case of wired remote controller>** 1) When pushing [CHK] button for 4 seconds or more, [TEST] is displayed on the display screen and the mode enters in Test run mode. 2) Push [ON/OFF] button. 3) Using [MODE] button, set the mode to [COOL] or [HEAT]. • Do not use other mode than [COOL]/[HEAT] mode. • During test run operation, the temperature cannot be adjusted. • An error is detected as usual. • A frequency fixed operation is performed. 4) After the test run, push [ON/OFF] button to stop the operation. (Display in the display part is same as the procedure in Item 1.) 5) Push [CHK] button to clear the test run mode. ([TEST] display in the display part disappears and the status returns to the normal stop status.) **<In case of wireless remote controller>** 1) When TEMPORARY button is pushed for 10 seconds or more, “Pi!” sound is heard and the operation changes to test run. After approx. 3 minutes, a cooling operation starts forcedly. Check cool air starts blowing. If the operation does not start, check wiring again. 2) To stop a test operation, push TEMPORARY button once again (Approx. 1 second). Check wiring / piping of the indoor and outdoor units in test run.  TEMPORARY button	Command frequency is approximately [S7]

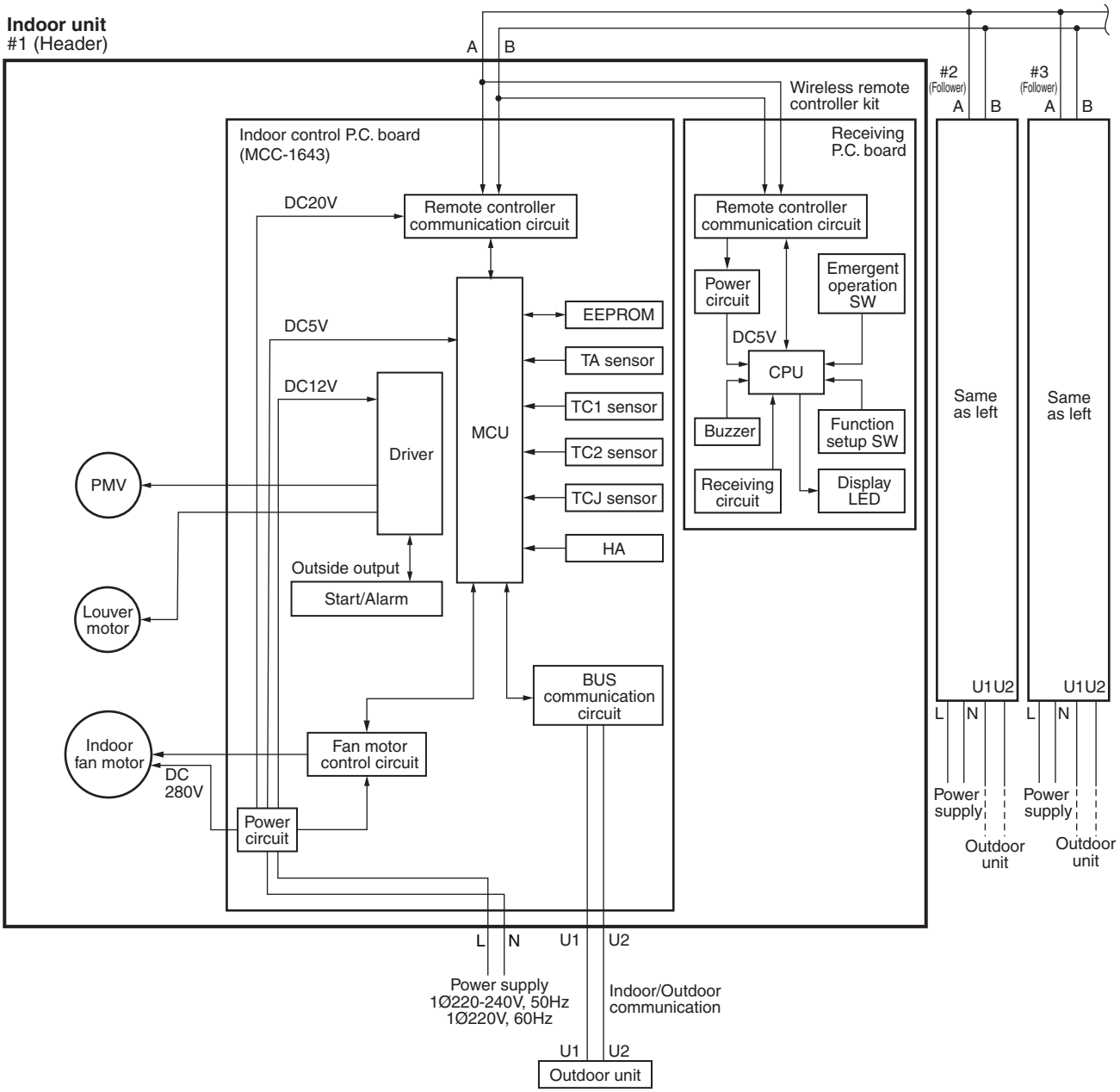
7. APPLIED CONTROL AND FUNCTIONS (INCLUDING CIRCUIT CONFIGURATION)

7-1. Indoor controller block diagram

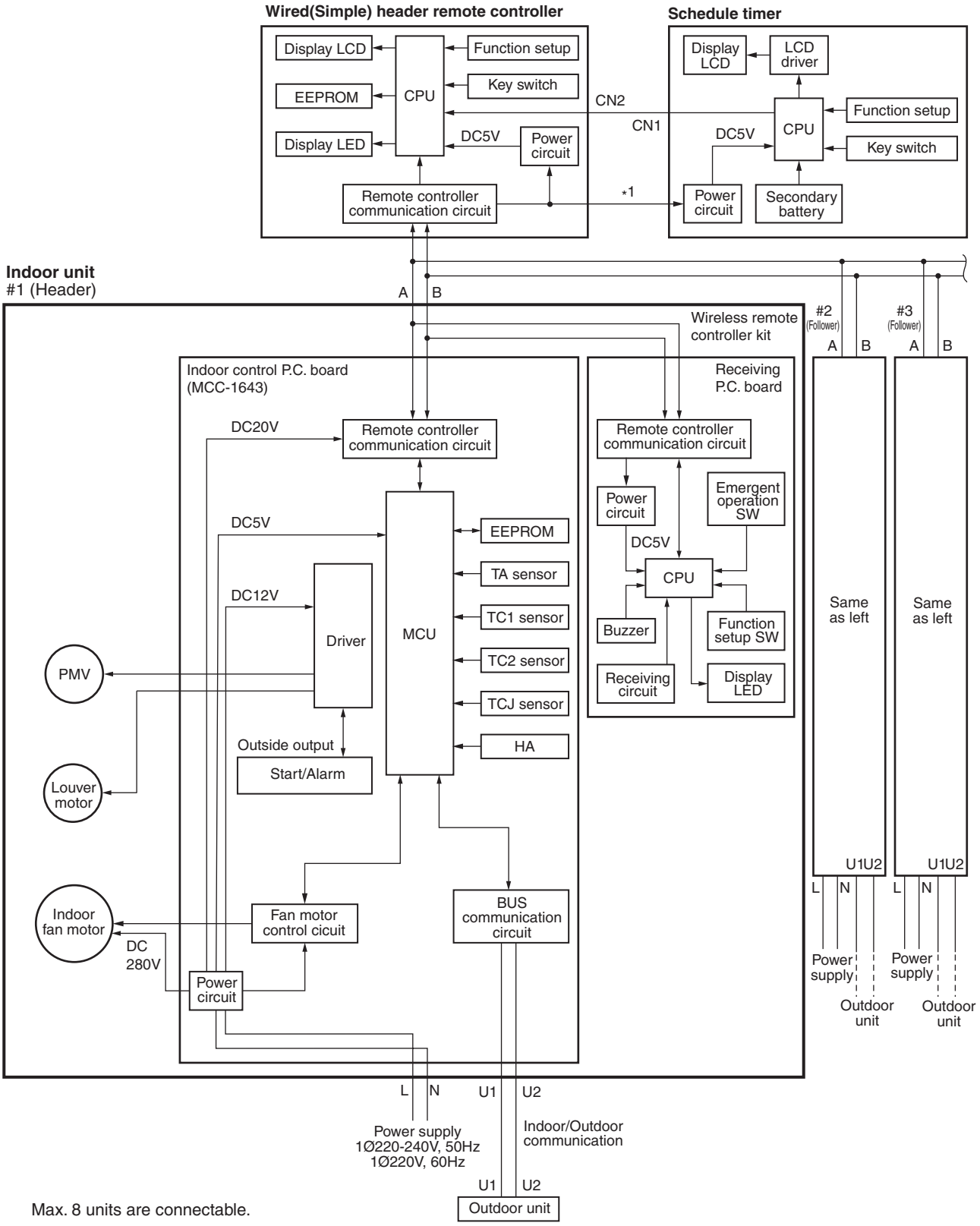
7-1-1. In Case of Connection of Wired (Simple) Remote Controller



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



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

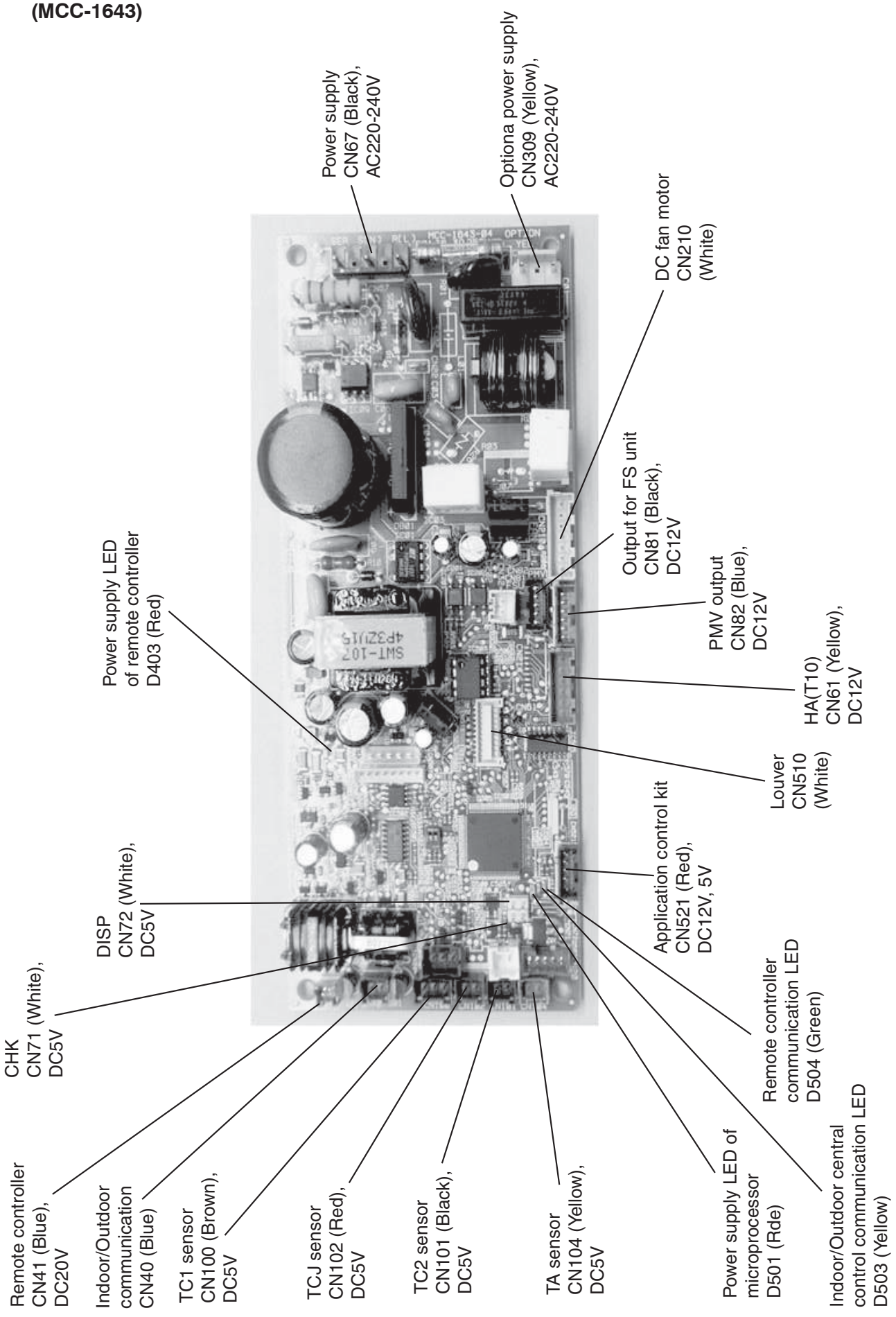


Max. 8 units are connectable.

*1 The schedule timer cannot be connected to the simple wired remote controller.

7-2. 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)	
HA	CN61	1	ON/OFF input	HA ON/OFF input (J01: YES/NO=Pulse (At shipment from factory) /Static input selection)
		2	0V	
		3	Remote controller prohibited input	Permission/Prohibition of remote controller operation stop is performed by input.
		4	Operation output (Open collector)	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)
		2	5V	
		3	Transmission	
		4	Receive	
		5	0V	

7-4. Test operation of indoor unit

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

This function is provided to check the operation of the indoor unit singly without communication with the remote controller or the outdoor unit. This function can be used regardless of operation or stop of the system. However, if using this function for a long time, a trouble of the equipment may be caused. Limit using this function within several minutes.

[How to operate]

1) Short-circuit CHK pin (CN71 on the indoor P.C. board).
   The operation mode differs according to the indoor unit status in that time.
   Normal time: Both float SW and fan motor are normal.
   Abnormal time: Either one of float SW or fan motor is abnormal.
2) Restricted to the normal time, if short-circuiting DISP pin (CN72 on the indoor P.C. board) in addition to short-circuit of CHK pin (CN71 on the indoor P.C. board), the minimum opening degree (30 pls) can be set to the indoor PMV only.
   When open DISP pin, the maximum opening degree (1500 pls) can be obtained again.

[How to clear]

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

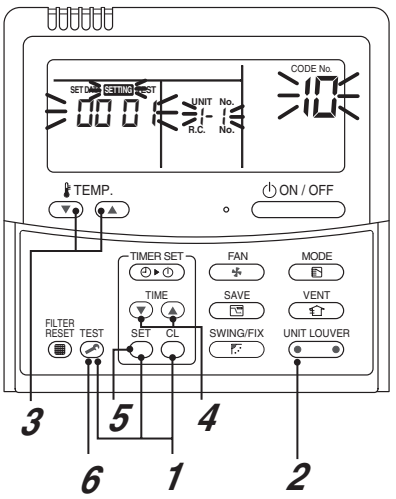
	Short-circuit of CHK pin		
	Normal time		**Abnormal time**
	DISP pin open	**DISP pin short circuit**	
Fan motor	(H)	(H)	Stop
Indoor PMV (*)	Max. opening degree (1500 pls)	Min. opening degree (30 pls)	Min. opening degree (30 pls)
Louver	Vertical	Vertical	Immediate stop
Communication	All ignored	All ignored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

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

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

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

<Procedure> To be performed only when system at rest



1 **Push the TEST + SET + CL buttons simultaneously and hold for at least 4 seconds.**

The unit No. displayed first is the address of the header indoor unit in group control.
Then the fan and louver of the selected indoor unit move.

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

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

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

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

- To change the selected indoor unit, go back to step ***2***.
- To change the selected function, go back to step ***3***.

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

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

DN	Item	Description	At shipment
01	Filter display delay timer	0000: None 0001: 150H 0002: 2500H 0003: 5000H 0004: 10000H	0001: 150H
02	Dirty state of filter	0000: Standard 0001: High degree of dirt (Half of standard time)	0000: Standard
03	Central control address	0001: No.1 unit to 0064: No.64 unit 0099: Unfixed	0099: Unfixed
04	Specific indoor unit priority	0000: No priority 0001: Priority	0000: No priority
06	Heating temp shift	0000: 0 °C 0001: +1 °C 0002: +2 °C to 0010: +10 °C (Up to +6 recommended)	0000: 0 °C
0d	Existence of [AUTO] mode	0000: Provided 0001: Not provided (Automatic selection from connected outdoor unit)	0001: Not provided
0F	Cooling only	0000: Heat pump 0001: Cooling only (No display of [AUTO] [HEAT])	0000: Heat pump
10	Type	0013: Floor Standing	0013: Floor Standing
11	Indoor unit capacity	0000: Unfixed 0001 to 0034	According to capacity type
12	Line address	0001: No.1 unit to 0030: No.30 unit	0099: Unfixed
13	Indoor unit address	0001: No.1 unit to 0064: No.64 unit	0099: Unfixed
14	Group address	0000: Individual 0001: Header unit of group 0002: Follower unit of group	0099: Unfixed
19	Louver type (Air direction adjustment)	0000: No louver 0001: Swing only	0001: Swing only
1E	Temp difference of [AUTO] mode selection COOL → HEAT, HEAT → COOL	0000: 0 deg to 0010: 10 deg (For setup temperature, reversal of COOL / HEAT by } (Data value) / 2)	0003: 3 deg (Ts ±1.5)
28	Automatic restart of power failure	0000: None 0001: Restart	0000: None
2A	Selection of option/error input (TCB-PCUC1E: CN3)	0000: Filter input 0001: Alarm input (Air washer, etc.) 0002: None	0002: None
2E	HA terminal (CN61) select	0000: Usual 0001: Leaving-ON prevention control 0002: Fire alarm input	0000: Usual (HA terminal)
31	Ventilating fan control	0000: Unavailable 0001: Available	0000: Unavailable
32	TA sensor selection	0000: Body TA sensor 0001: Remote controller sensor	0000: Body TA sensor
33	Temperature unit select	0000: °C (at factory shipment) 0001: °F	0000: °C
60	Timer setting (wired remote controller)	0000: Available (can be performed) 0001: Unavailable (cannot be performed)	0000: Available
D0	Whether the power saving mode can be set by the remote controller	0000: Invalid 0001: Valid	0001: Valid
F6	Presence of Application control kit (TCB-PCUC1E)	0000: None 0001: Exist	0000: None

Type
DN code “10”

Value	Type	Model
0013	Floor Standing	MMF-AP∗∗∗H∗

Indoor Unit Capacity
DN code “11”

Value	Capacity
0000*	Invalid
0001	007 type
0003	009 type
0005	012 type
0007	015 type
0009	018 type
0011	024 type
0012	027 type
0013	030 type
0015	036 type
0017	048 type
0018	056 type
0021	072 type
0023	096 type
~	—

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

7-6. Applied control of indoor unit

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

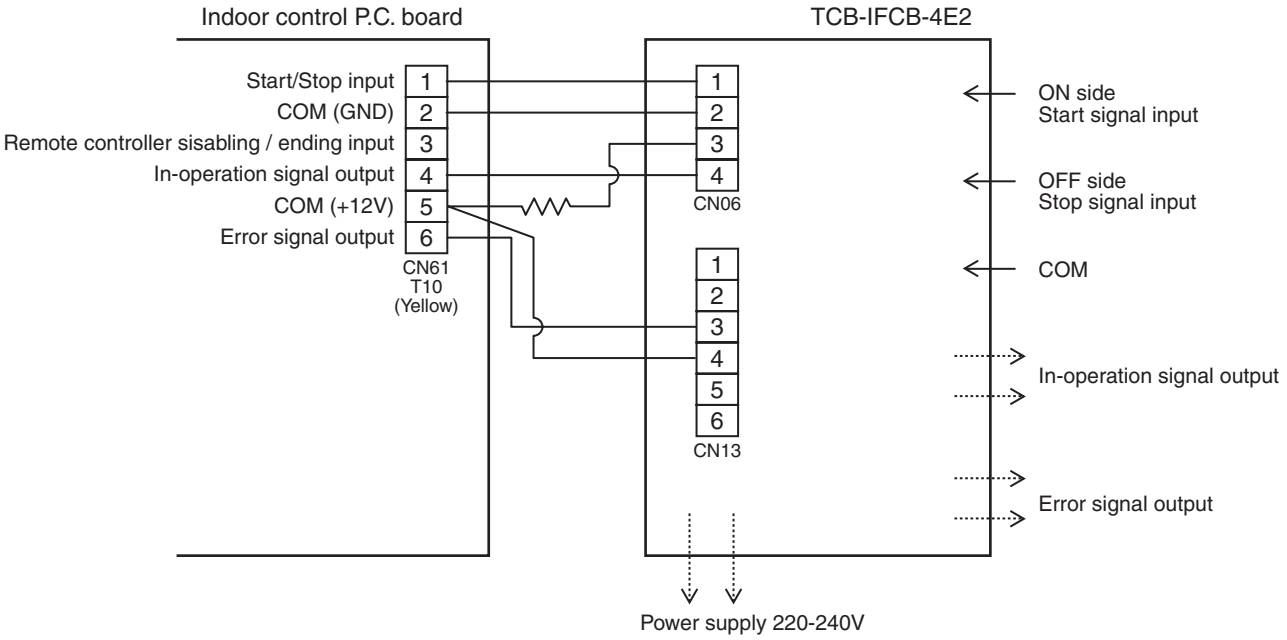
- In the case of group control, the control system functions as long as it is connected to one of the indoor units (control P.C. board) in the group. If it is desired to access the operation and error statuses of other units, relevant signals must be brought to it from those units individually.

▼ Control items

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

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

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



▼Ventilating fan control from remote controller

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

1. Operation

Handle a wired remote controller in the following procedure.

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

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

The unit No. displayed firstly indicates the header indoor unit address in the group control.
In this time, the fan of the selected indoor unit turns on.

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

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

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

4 Using the timer time ▼ or ▲ button, select the SET DATA. (At shipment: 0000)

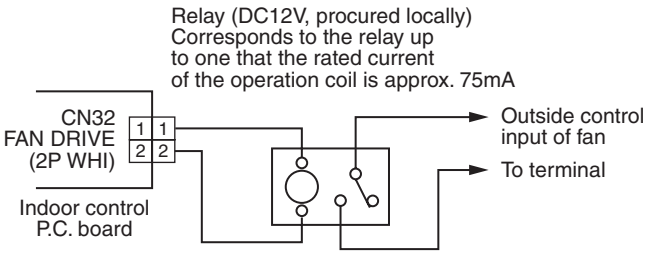
The setup data are as follows:

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

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

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

2. Wiring



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

▼ Leaving-ON prevention control

[Function]

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

1. Control items

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

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

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

2. Operation

Handle the wired remote controller switch in the following procedure.

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

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

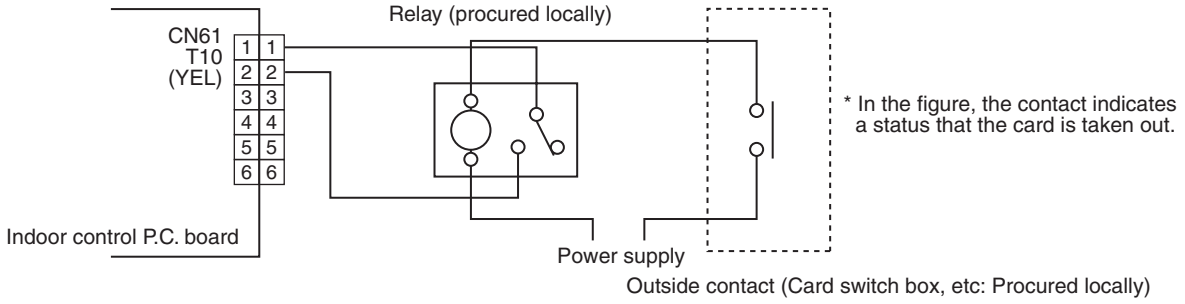
2 **Using the setup temp ▼ or ▲ button, specify the CODE No. 2E.**

3 **Using the timer time ▼ or ▲ button, set 0001 to the SET DATA.**

4 **Push SET button.**

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

3. Wiring



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

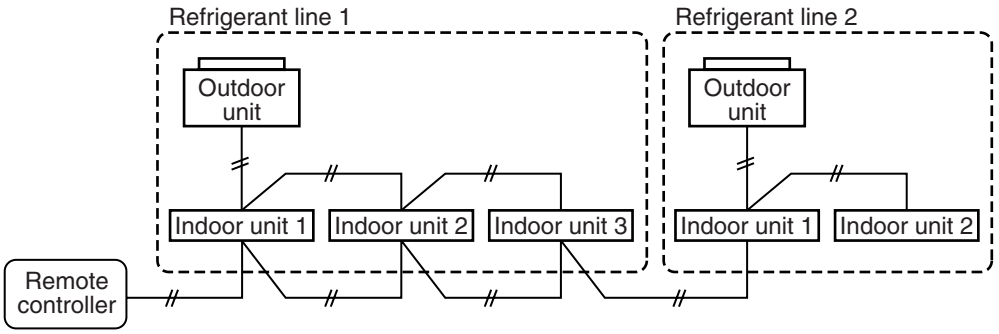
▼ Power peak-cut from indoor unit

When the relay is turned on, a forced thermo. OFF operation starts.
Application control kit (TCB-PCUC1E) is necessary.
Please refer to the manual of Application control kit for a detailed setting.

Manual address setting using the remote controller

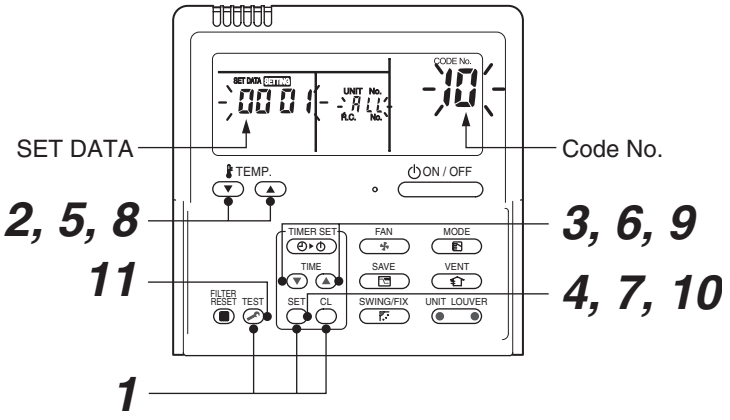
Procedure when setting indoor units' addresses first under the condition that indoor wiring has been completed and outdoor wiring has not been started (manual setting using the remote controller)

▼ Wiring example of 2 refrigerant lines



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

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



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

Turn on the power.

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

<Line (system) address>

2 Push the TEMP. ▽ / △ buttons repeatedly to set the CODE No. to 12 .

3 Push the TIME ▼ / ▲ buttons repeatedly to set a system address.
(Match the address with the address on the interface P.C. board of the header outdoor unit in the same refrigerant line.)

4 Push SET button.
(It is OK if the display turns on.)

<Indoor unit address>

5 Push the TEMP. ▽ / △ buttons repeatedly to set the CODE No. to 13 .

6 Push the TIME ▼ / ▲ buttons repeatedly to set an indoor unit address.

7 Push the SET button.
(It is OK if the display turns on.)

<Group address>

8 Push the TEMP. ▽ / △ buttons repeatedly to set the CODE No. to 14 .

9 Push the TIME ▼ / ▲ buttons repeatedly to set a group address. If the indoor unit is individual, set the address to 0000 ; header unit, 0001 ; follower unit, 0002 .

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

10 Push the SET button.
(It is OK if the display turns on.)

11 Push the TEST button.
The address setting is complete.
(SETTING flashes. You can control the unit after SETTING has disappeared.)

NOTE

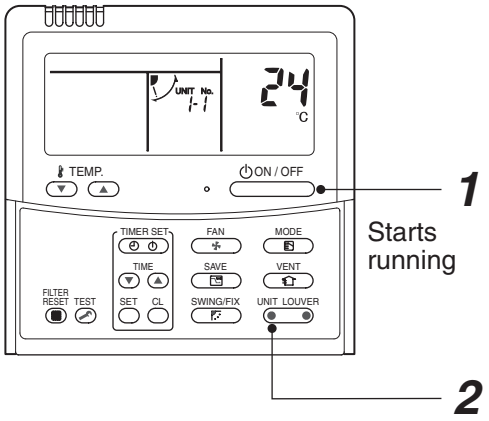
1. **Do not use address numbers 29 or 30 when setting system addresses using the remote controller. These 2 address numbers cannot be used on outdoor units and the CODE No. [E04] (Indoor / outdoor communication error) will appear if they are mistakenly used.**
2. **If you set addresses to indoor units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

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

◆ Confirming the numbers and positions of indoor units

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

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



(Execute it while the units are running.)

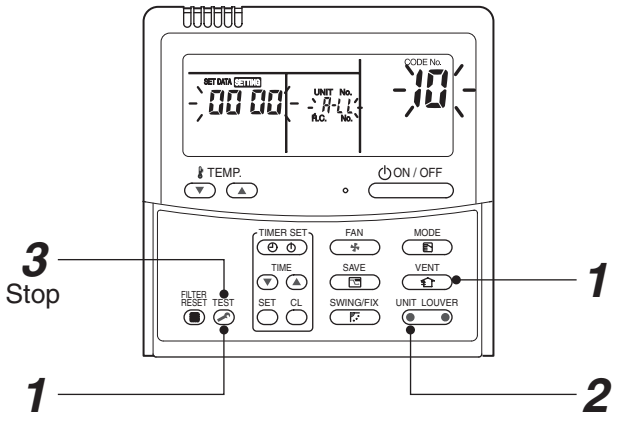
1 **Push the ON / OFF button if the units stop.**

2 **Push the UNIT LOUVER button (left side of the button).**

A unit numbers 1-1 is indicated on the LCD (it will disappear after a few seconds). The indicated number shows the system address and indoor unit address of the unit.
When 2 or more indoor units are connected to the remote controller (group-controlled units), a number of other connected units appears each time you push the UNIT LOUVER button (left side of the button).

To find an indoor unit's position from its address

▼ When checking unit numbers controlled as a group



(Execute it while the units are stopped.)

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

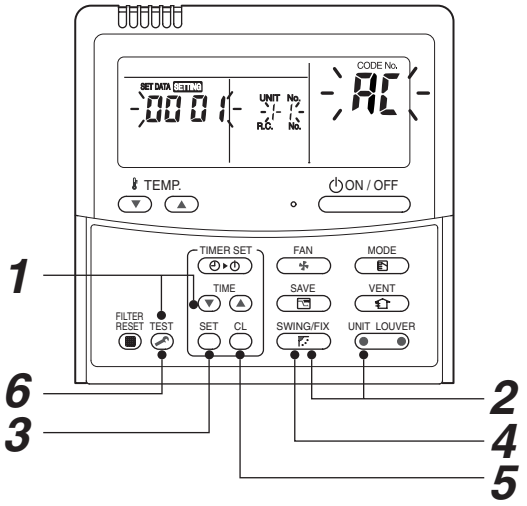
1 **Push and hold the VENT and TEST buttons at the same time for more than 4 seconds.**
- ALL appears on UNIT No. on the LCD display.
- The fans and louvers of all the indoor units in the group are activated.

2 **Push the UNIT LOUVER button (left side of the button). Each time you push the button, the indoor unit numbers are indicated one after another.**
- The first-indicated unit number is the address of the header unit.
- Only the fan and louvers of the indicated indoor unit are activated.

3 **Push the TEST button to finish the procedure.**

All the indoor units in the group stop.

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



(Execute it while the units are stopped.)

You can check indoor unit addresses and positions of the indoor units in a single refrigerant line.
When an outdoor unit is selected, the indoor unit numbers of the refrigerant line of the selected unit are indicated one after another and the fan and louvers of the indicated indoor units are activated.

1 **Push and hold the TIME ▼ and TEST buttons at the same time for more than 4 seconds. At first, the line 1 and CODE No. AC (Address Change) are indicated on the LCD display. (Select an outdoor unit.)**

2 **Push the UNIT LOUVER button (left side of the button) and SWING/FIX buttons repeatedly to select a system address.**

3 **Push the SET button to confirm the system address selection.**

- The address of an indoor unit connected to the selected refrigerant line is indicated on the LCD display and its fan and louvers are activated.

4 **Push the UNIT LOUVER button (left side of the button). Each time you push the button, the indoor unit numbers of the selected refrigerant line are indicated one after another.**

- Only the fan and louvers of the indicated indoor unit are activated.

◆ To select another system address

5 **Push the CL button to return to step *2*.**

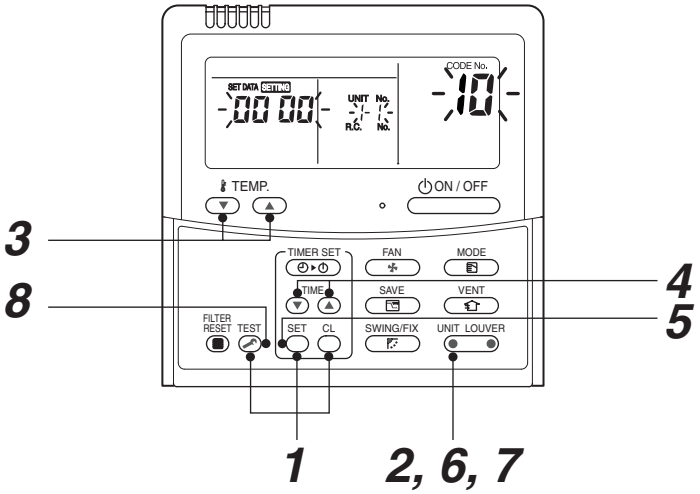
- After returning to step ***2***, select another system address and check the indoor unit addresses of the line.

6 **Push the TEST button to finish the procedure.**

◆ Changing the indoor unit address using a remote controller

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

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



(Execute it while the units are stopped.)

1 **Push and hold the SET , CL , and TEST buttons at the same time for more than 4 seconds.**
(If 2 or more indoor units are controlled in a group, the first indicated UNIT No. is that of the head unit.)

2 **Push the UNIT LOUVER button (left side of the button) repeatedly to select an indoor unit number to change if 2 or more units are controlled in a group. (The fan and louvers of the selected indoor unit are activated.)**
(The fan of the selected indoor unit is turned on.)

3 **Push the TEMP. ▼ / ▲ buttons repeatedly to select 3 for CODE No.**

4 **Push the TIME ▼ / ▲ buttons repeatedly to change the value indicated in the SET DATA section to that you want.**

5 **Push the SET button.**

6 **Push the UNIT LOUVER button (left side of the button) repeatedly to select another indoor UNIT No. to change.**
Repeat steps ***4*** to ***6*** to change the indoor unit addresses so as to make each of them unique.

7 **Push the UNIT LOUVER button (left side of the button) to check the changed addresses.**

8 **If the addresses have been changed correctly, push the TEST button to finish the procedure.**

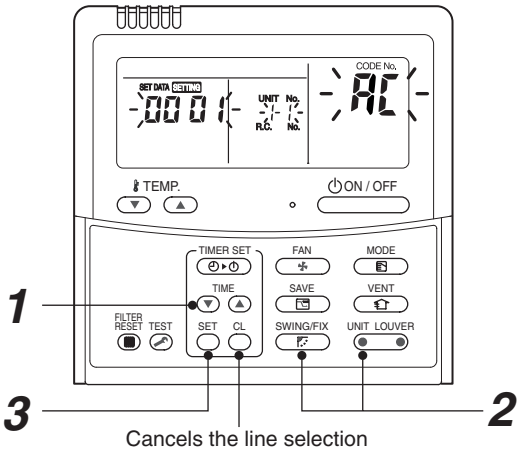
▼ To change all the indoor unit addresses using an arbitrary wired remote controller. (The method is available when the addresses have already been set automatically.)

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

NOTE

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

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



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

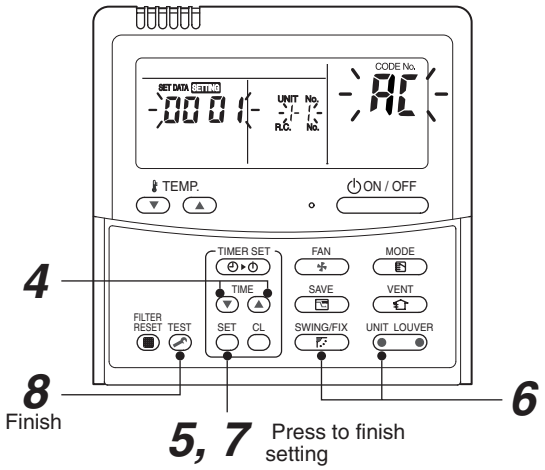
(Execute it while the units are stopped.)

1 **Push and hold the TIME ▼ / ▲ buttons at the same time for more than 4 seconds. At first, the line 1 and CODE No. AC (Address Change) are indicated on the LCD display.**

2 **Push UNIT LOUVER button (left side of the button) and SWING/FIX buttons repeatedly to select a system address.**

3 **Push the SET button.**

- The address of one of the indoor units connected to the selected refrigerant line is indicated on the LCD display and the fan and louvers of the unit are activated.
  At first, the current indoor unit address is displayed in SET DATA.
  (No system address is indicated.)



4 **Push the TIME ▼ / ▲ buttons repeatedly to change the value of the indoor unit address in SET DATA.**
Change the value in SET DATA to that of a new address.

5 **Push the SET button to confirm the new address on SET DATA.**

6 **Push the UNIT LOUVER button (left side of the button) repeatedly to select another address to change.**
Each time you push the button, the indoor unit numbers in a refrigerant line are indicated one after another. Only the fan and louvers of the selected indoor unit are activated.
Repeat steps ***4*** to ***6*** to change the indoor unit addresses so as to make each of them unique.

7 **Push the SET button.**
(All the segments on the LCD display light up.)

8 **Push the TEST button to finish the procedure.**

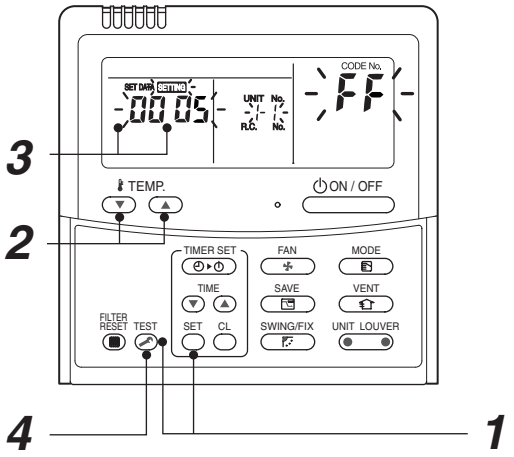
◆ Error clearing function

How to clear the error using the wired remote controller

▼ Clearing an error of the outdoor unit

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

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

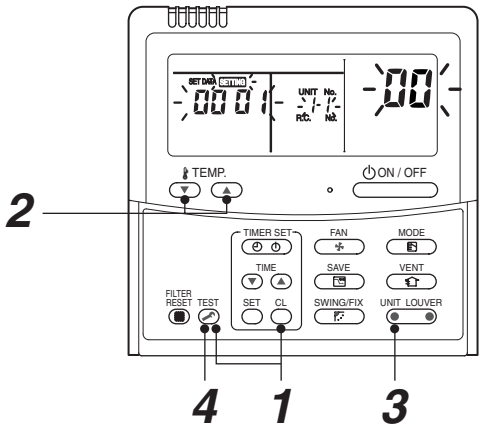


▼ Clearing an error of the indoor unit

Push the ON / OFF button on the remote controller.
(Only the error of the indoor unit controlled by the remote controller will be cleared.)

Monitoring function of wired remote controller

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



▼ Content

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

1 **Push and hold the (TEST) , and (CL) for 4 seconds or longer to enter the service monitoring mode.**
The service monitor lights up. The temperature of CODE No. 00 appears at first.

2 **Push the (TEMP.) button to change to CODE No. of the item to monitor. Refer to the following table for CODE No.**

3 **Push the left part of the (UNIT LOUVER) button (left side of the buton) to change to the item to monitor. Monitor the sensor temperature or operation status of the indoor unit and outdoor unit in the refrigerant line**

4 **Push the to (TEST) return the display to normal.**

◆ Target outdoor unit (SMMS, SHRM, Mini-SMMS – Series 1 – 2)

	CODE No.	Data	Format	Unit	Remote controller display example
Indoor unit data	00	Room temperature (in control) *1	×1	˚C	[0024]=24 ˚C
	01	Room temperature (Remote controller)	×1	˚C	
	02	Air Temperature (TA)	×1	˚C	
	03	Coil Temperature (TCJ)	×1	˚C	
	04	Coil Temperature (TC2)	×1	˚C	
	05	Coil Temperature (TC1)	×1	˚C	
	08	PMV	×1	pls	[0050]=500 pls
System unit data	0A	Number of connected indoor units	×1	—	[0048]=48
	0B	Total horse power of connected indoor units	×1	HP	[0415]=41.5 HP
	0C	Number of connected outdoor units	×1	—	[0004]=4
	0D	Total horse power of outdoor units	×1	HP	[0420]=42 HP

	CODE No.				Data	Format	Unit	Remote controller display example
	U1	U2	U3	U4				
Individual data 1 of outdoor unit *3	10	20	30	40	Discharge temperature of compressor 1 (Td1)	×1	˚C	[0024]=24 ˚C
	11	21	31	41	Discharge temperature of compressor 2 (Td2)	×1	˚C	
	12	22	32	42	Detection pressure of high-pressure sensor (Pd)	×1	MPa	[0123]=1.23 MPa
	13	23	33	43	Detection pressure of low-pressure sensor (Ps)	×1	MPa	
	14	24	34	44	Suction Temperature (TS)	×1	˚C	[0024]=24 ˚C
	15	25	35	45	Coil Temperature 1 (TE)	×1	˚C	
	16	26	36	46	Liquid Temperature (TL)	×1	˚C	
	17	27	37	47	Outdoor Temperature (TO)	×1	˚C	
	18	28	38	48	Low-pressure saturation temperature (TU)	×1	˚C	
	19	29	39	49	Current of compressor 1 (I1)	×1	A	[0135]=13.5 A
	1A	2A	3A	4A	Current of compressor 2 (I2)	×1	A	
	1B	2B	3B	4B	PMV1 + 2	×1	pls	[0050]=500 pls
	1C	2C	3C	4C	PMV3	×1	pls	[0050]=500 pls
	1D	2D	3D	4D	Compressor 1, 2 ON/OFF	*2	—	
	1E	2E	3E	4E	Outdoor fan mode	×1	—	[0031]=Mode 31
	1F	2F	3F	4F	Horse power of outdoor unit	×1	HP	[0016]=16HP

*1 In the case of group connection, only the header indoor unit data can be displayed.

*2 01 ... Only compressor 1 is on
10 ... Only compressor 2 is on
11 ... Both compressor 1 and 2 are on

*3 The upper digit of CODE No. indicates the outdoor unit No.
U1 outdoor unit (Header unit)
U2 outdoor unit (follower unit 1)
U3 outdoor unit (follower unit 2)
U4 outdoor unit (follower unit 3)

◆ Target outdoor unit (SMMS-i – Series 4)

	CODE No.	Data	Format	Unit	Remote controller display example
Indoor unit data *2	00	Room temperature (in control)	×1	˚C	[0024]=24 ˚C
	01	Room temperature (Remote controller)	×1	˚C	
	02	Air Temperature (TA)	×1	˚C	
	03	Coil Temperature (TCJ)	×1	˚C	
	04	Coil Temperature (TC2)	×1	˚C	
	05	Coil Temperature (TC1)	×1	˚C	
	06	Discharge temperature (TF) *1	×1	˚C	
	08	PMV	×1/10	pls	[0150]=1500 pls
	09	Air Suction Temperature of direct expansion coil (TSA) *1	×1	˚C	[0024]=24 ˚C
	FA	Outdoor Air Temperature (TOA) *1	×1	˚C	
System unit data	0A	Number of connected indoor units	×1	—	[0048]=48
	0B	Total horse power of connected indoor units	×10	HP	[0415]=41.5HP
	0C	Number of connected outdoor units	×1	—	[0004]=4
	0D	Total horse power of outdoor units	×10	HP	[0420]=42HP

	CODE No.				Data	Format	Unit	Remote controller display example
	U1	U2	U3	U4				
Individual data 1 of outdoor unit *3	10	20	30	40	Detection pressure of high-pressure sensor (Pd)	×100	MPa	[0123]=1.23 MPa
	11	21	31	41	Detection pressure of low-pressure sensor (Ps)	×100	MPa	
	12	22	32	42	Discharge temperature of compressor 1 (Td1)	×1	˚C	[0024]=24 ˚C
	13	23	33	43	Discharge temperature of compressor 2 (Td2)	×1	˚C	
	14	24	34	—	Discharge temperature of compressor 3 (Td3)	×1	˚C	
	15	25	35	45	Suction Temperature (TS)	×1	˚C	
	16	26	36	46	Coil Temperature 1 (TE1)	×1	˚C	
	17	27	37	—	Coil Temperature 2 (TE2)	×1	˚C	
	18	28	38	48	Liquid Temperature (TL)	×1	˚C	
	19	29	39	49	Outdoor Temperature (TO)	×1	˚C	
	1A	2A	3A	4A	PMV1 + 2	×1	pls	[0050]=500 pls
	1B	2B	3B	—	PMV4	×1	pls	
	1C	2C	3C	4C	Current of compressor 1 (I1)	×10	A	[0135]=13.5 A
	1D	2D	3D	4D	Current of compressor 2 (I2)	×10	A	
	1E	2E	3E	—	Current of compressor 3 (I3)	×10	A	
	1F	2F	3F	4F	Outdoor fan current (IFan)	×10	A	

*1 The TF/TSA/TOA sensors are equipped only with some types of indoor units. The data does not appear for other types.

*2 In the case of group connection, only the header indoor unit data can be displayed.

*3 The upper digit of CODE No. indicates the outdoor unit No.

*4 [(The upper digit of CODE No.) − 4] indicates the outdoor unit No.
1∗, 5∗ ... U1 outdoor unit (Header unit)
2∗, 6∗ ... U2 outdoor unit (follower unit 1)
3∗, 7∗ ... U3 outdoor unit (follower unit 2)
4∗, 8∗ ... U4 outdoor unit (follower unit 3)

*5 Only CODE No. 5• of U1 outdoor unit (Header unit) is displayed.

	CODE No.				Data	Format	Unit	Remote controller display example
	U1	U2	U3	U4				
Individual data 2 of outdoor unit *4	50	60	70	80	Rotation of compressor 1	×10	rps	[0642]=64.2 rps
	51	61	71	81	Rotation of compressor 2	×10	rps	
	52	62	72	—	Rotation of compressor 3	×10	rps	
	53	63	73	83	Outdoor fan mode	×1	Mode	[0058]=Mode 58
	54	64	74	84	Heat sink temperature of compressor IPDU1	×1	˚C	[0024]=24 ˚C
	55	65	75	85	Heat sink temperature of compressor IPDU2	×1	˚C	
	56	66	76	—	Heat sink temperature of compressor IPDU3	×1	˚C	
	57	67	77	87	Heat sink temperature of outdoor fan IPDU	×1	˚C	
	58	—	—	—	In heat/cool collecting control *5	0: Normal 1: In collecting control		[0010] = In heat collecting control [0001] = In cool collecting control
	59	—	—	—	Pressure release *5	0: Normal 1: In release control		[0010] = In pressure release control
	5A	—	—	—	Discharge temperature release *5			[0001] = In discharge temperature release control
	5B	—	—	—	Terminal unit release (U2 / U3 / U4 outdoor unit) *5			[0100] = In U2 outdoor unit release control [0010] = In U3 outdoor unit release control [0001] = In U4 outdoor unit release control
	5F	6F	7F	8F	Horse power of outdoor unit	×1	HP	[0016]=16HP

*1 The TF / TSA / TOA sensors are equipped only with some types of indoor units. The data does not appear for other types.

*2 In the case of group connection, only the header indoor unit data can be displayed.

*3 The upper digit of CODE No. indicates the outdoor unit No.

*4 [(The upper digit of CODE No.) − 4] indicates the outdoor unit No.
1∗, 5∗ ... U1 outdoor unit (Center unit)
2∗, 6∗ ... U2 outdoor unit (terminal unit 1)
3∗, 7∗ ... U3 outdoor unit (terminal unit 2)
4∗, 8∗ ... U4 outdoor unit (terminal unit 3)

*5 Only CODE No. 5∗ of U1 outdoor unit (Center unit) is displayed.

◆ LED display of circuit board

1. D501 (Red)

- D501 goes on at the same time when the power supply is turned on. (Goes on with operation of the main microprocessor)
- D501 flashes with 1-second interval (every 0.5 second) : When there is no EEPROM or write-in error
- D501 flashes with 10-seconds interval (every 5 second) : In DISP mode
- D501 flashes with 2-seconds interval (every 1 second) : During setting of function exchange (EEPROM)

2. D403 (Red)

- D403 goes on when power is supplied to the remote controller. (ON in hardware)

3. D503 (Yellow): Indoor/Outdoor central control

- D503 goes on for 5 seconds at the first half during communication with the central controller.
- D503 flashes for 5 seconds with 0.2-second interval at the latter half during communication with outdoor unit. (Goes on for 0.1 second, goes off for 0.1 second)

4. D504 (Green): Remote controller communication

- D504 goes on for 5 seconds at the first half during communication with remote controller. (Header unit of group)
- In the group indoor unit, D504 flashes for 5 seconds with 0.2-second interval at the latter half during communication between header and follower unit. (Goes on for 0.1 second, goes off for 0.1 second)

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)

8. TROUBLESHOOTING

8-1. Overview

(1) Before engaging in troubleshooting

(a) Applicable models

All Super Module Multi (SMMS, SHRM, Mini-SMMS, SMMS-i) models.
(Indoor units: MMO-APOOO, Outdoor units: MMY-MAPOOOO*, MCY-MAPOOOHT*)

(b) Tools and measuring devices required

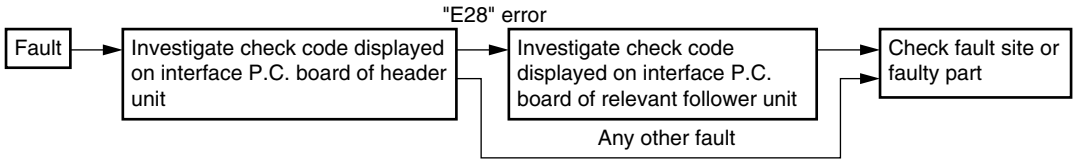
- Screwdrivers (Philips, flat head), spanners, long-nose pliers, nipper, pin to push reset switch, etc.
- Multimeter, thermometer, pressure gauge, etc.

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

NO.	Behavior	Possible cause
1	A compressor would not start	• Could it just be the 3-minute delay period (3 minutes after compressor shutdown)? • Could it just be the air conditioner having gone thermo OFF? • Could it just be the air conditioner operating in fan mode or put on the timer? • Could it just be the system going through initial communication?
2	An indoor fan would not start	• Could it just be cold air discharge prevention control, which is part of heating?
3	An outdoor fan would not start or would change speed for no reason	• Could it just be cooling operation under low outside temperature conditions? • Could it just be defrosting operation?
4	An indoor fan would not stop	• Could it just be the elimination of residual heat being performed as part of the air conditioner shutdown process after heating operation?
5	The air conditioner would not respond to a start / stop command from a remote controller	• Could it just be the air conditioner operation under external or remote controller?

(2) Troubleshooting procedure

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



NOTE

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

8-2. Troubleshooting method

On the remote controller (Wired remote controller, Central control remote controller) and on the interface P.C. board of the outdoor unit, LCD display part (Remote controller) or 7-segment display part (on outdoor interface P.C. board) is provided in order to display the operation status.

When a trouble occurred, the method to judge the trouble or defective position of the air conditioner by this self-diagnosis function is shown below.

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

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

Check code display list (Indoor unit)

[Indoor unit detects error.]

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

Check code display			Receiver lamp display				Main defective position	Description
TCC-LINK central & remote controller	Outdoor 7-segment		Block display (*)					
		Auxiliary code	Operation	Timer	Ready	Flash		
E03	—	—	◎	●	●		Regular communication error between indoor and remote controller	No communication from remote controller and network adapter (No central control system communication also)
E04	—	—	●	●	◎		Regular communication error between indoor and outdoor	No communication from outdoor unit
E08	E08	Duplicated indoor unit No.	◎	●	●		Duplicated indoor address	An address same to self address was detected.
E11	—	—	◎	●	●		Communication error between Application control kit and indoor unit	Communication error between Application control kit and indoor unit P.C. board
E18	—	—	◎	●	●		Regular communication error between header and follower in indoor unit	Regular communication between header and follower units in indoor unit was impossible.
F01	—	—	◎	◎	●	A	Indoor heat exchanger temp. sensor (TCJ) error	Open/short of heat exchanger temp. sensor (TCJ) was detected.
F02	—	—	◎	◎	●	A	Indoor heat exchanger temp. sensor (TC2) error	Open/short of heat exchanger temp. sensor (TC2) was detected.
F03	—	—	◎	◎	●	A	Indoor heat exchanger temp. sensor (TC1) error	Open/short of heat exchanger temp. sensor (TC1) was detected.
F10	—	—	◎	◎	●	A	Room tem. Sensor (TA) error	Open/short of room temp. sensor (TA) was detected.
F29	—	—	◎	◎	●	S	Indoor or other P.C. board error	Indoor EEPROM error (Other error may be detected.)
L03	—	—	◎	●	◎	S	Duplicated setting of header in indoor group	There were multiple header units in a group.
L07	—	—	◎	●	◎	S	There is group cable in individual indoor unit.	There is even an indoor unit connected to group in individual indoor unit.
L08	L08	—	◎	●	◎	S	Indoor group address is unset.	Indoor group address is unset. (Detected also at outdoor unit side)
L09	—	—	◎	●	◎	S	Indoor capacity is unset.	Capacity of indoor unit is unset.
L20	—	—	◎	○	◎	S	Duplicated central control system address	Setting of central control system address is duplicated.
L30	L30	Detected indoor unit No.	◎	○	◎	S	External error was input in indoor (Interlock).	System abnormally stopped by input of external error (CN80).
P01	—	—	●	◎	◎	A	Indoor AC fan error	Error of indoor AC can was detected. (Fan motor thermal relay operation)
P10	P10	Detected indoor unit No.	●	◎	◎	A	Indoor overflow was detected.	Float switch operated.
P12	—	—	●	◎	◎	A	Indoor DC fan error	Error (Over-current, lock, etc.) of indoor DC fan was detected.
P31	—	—	◎	●	◎	A	Other indoor unit error	Group follower unit cannot be operated by [E03/L03/L07/L08] alarm of header unit.

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

[Remote controller detects error.]

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

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

[Central controller detects error.]

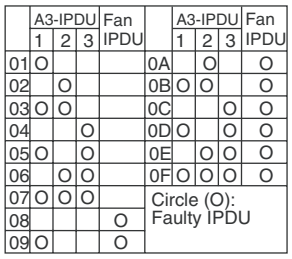
Check code display			Receiver lamp display				Main defective position	Description
TCC-LINK central	Outdoor 7-segment		Block display (*)					
		Auxiliary code	Operation	Timer	Ready	Flash		
C05	—	—	Is not displayed (In shared use of remote controller)				Central control system communication (send) error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

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

List of check codes (outdoor unit)

(Errors detected by SMMS-i outdoor interface - typical examples)

IPDU: Intelligent Power Drive Unit (Inverter P.C. board)
○ :Lighting, ◎ : Flashing, ● : Goes off
ALT.: Flashing is alternately when there are two flashing LED
SIM: Simultaneous flashing when there are two flashing LED

Check code			Display of receiving unit				Typical fault site	Description of error
Outdoor 7-segment display		TCC-LINK central control or main remote controller display	Indicator light block					
	Sub-code		Operation ⏻	Timer 🕘	Ready	Flash		
E06	Number of indoor units from which signal is received normally	E06	●	●	◎		Dropping out of indoor unit	Indoor unit initially communicating normally fails to return signal (reduction in number of indoor units connected).
E07	–	(E04)	●	●	◎		Indoor-outdoor communication circuit error	Signal cannot be transmitted to indoor units (→ indoor units left without communication from outdoor unit).
E08	Duplicated indoor address	(E08)	◎	●	●		Duplicated indoor address	More than one indoor unit is assigned same address (also detected at indoor unit end).
E12	01: Indoor-outdoor communication 02: Outdoor-outdoor communication	E12	◎	●	●		Automatic address starting error	• Indoor automatic address setting is started while automatic address setting for equipment in other refrigerant line is in progress. • Outdoor automatic address setting is started while automatic address setting for indoor units is in progress.
E15	–	E15	●	●	◎		Indoor unit not found during automatic address setting	Indoor unit fails to communicate while automatic address setting for indoor units is in progress.
E16	00: Overloading 01: Number of units connected	E16	●	●	◎		Too many indoor units connected / overloading	Combined capacity of indoor units is too large (more than 135 % of combined capacity of outdoor units).
E19	00: No header unit 02: Two or more header units	E19	●	●	◎		Error in number of outdoor header units	There is no or more than one outdoor header unit in one refrigerant line.
E20	01: Connection of outdoor unit from other refrigerant line 02: Connection of indoor unit from other refrigerant line	E20	●	●	◎		Connection to other refrigerant line found during automatic address setting	Indoor unit from other refrigerant line is detected while indoor automatic address setting is in progress.
E23	–	E23	●	●	◎		Outdoor-outdoor communication transmission error	Signal cannot be transmitted to other outdoor units.
E25	–	E25	●	●	◎		Duplicated follower outdoor address	There is duplication in outdoor addresses set manually.
E26	Address of outdoor unit from which signal is not received normally	E26	●	●	◎		Dropping out of outdoor unit	Follower outdoor unit initially communicating normally fails to do so (reduction in number of follower outdoor units connected).
E28	Detected outdoor unit No.	E28	●	●	◎		Outdoor follower unit error	Outdoor header unit detects fault relating to follower outdoor unit (detail displayed on follower outdoor unit).
E31		E31	●	●	◎		IPDU communication error	There is no communication between IPDUs (P.C. boards) in inverter box.
F04	–	F04	◎	◎	○	ALT	Outdoor discharge temperature sensor (TD1) error	Outdoor discharge temperature sensor (TD1) has been open / short-circuited.
F05	–	F05	◎	◎	○	ALT	Outdoor discharge temperature sensor (TD2) error	Outdoor discharge temperature sensor (TD2) has been open / short-circuited.
F06	01: TE1 02: TE2	F06	◎	◎	○	ALT	Outdoor heat exchanger temperature sensor (TE1, TE2) error	Outdoor heat exchanger temperature sensors (TE1, TE2) have been open / short-circuited.
F07	–	F07	◎	◎	○	ALT	Outdoor liquid temperature sensor (TL) error	Outdoor liquid temperature sensor (TL) has been open / short-circuited.
F08	–	F08	◎	◎	○	ALT	Outdoor outside air temperature sensor (TO) error	Outdoor outside air temperature sensor (TO) has been open / short-circuited.
F11	–	F11						

Check code			Display of receiving unit				Typical fault site	Description of error
Outdoor 7-segment display		TCC-LINK central control or main remote controller display	Indicator light block					
	Sub-code		Operation	Timer	Ready	Flash		
F12	–	F12	◎	◎	○	ALT	Outdoor suction temperature sensor (TS1) error	Outdoor suction temperature sensor (TS1) has been open / short-circuited.
F13	01: Compressor 1 02: Compressor 2 03: Compressor 3	F13	◎	◎	○	ALT	Outdoor IGBT built-in temperature sensor (TH) error	Open-circuit or short-circuit of the outdoor IGBT built-in temperature sensor (TH) was detected.
F15	–	F15	◎	◎	○	ALT	Outdoor temperature sensor (TE1, TL) wiring error	Wiring error in outdoor temperature sensors (TE1, TL) has been detected.
F16	–	F16	◎	◎	○	ALT	Outdoor pressure sensor (Pd, Ps) wiring error	Wiring error in outdoor pressure sensors (Pd, Ps) has been detected.
F22	–	F22	◎	◎	○	ALT	Outdoor discharge temperature sensor (TD3) error	Outdoor discharge temperature sensor (TD3) has been open / short-circuited.
F23	–	F23	◎	◎	○	ALT	Low pressure sensor (Ps) error	Output voltage of low pressure sensor (Ps) is zero.
F24	–	F24	◎	◎	○	ALT	High pressure sensor (Pd) error	Output voltage of high pressure sensor (Pd) is zero or provides abnormal readings when compressors have been turned off.
F31	–	F31	◎	◎	○	SIM	Outdoor EEPROM error	Outdoor EEPROM is faulty (alarm and shutdown for header unit and continued operation for follower unit)
H01	01: Compressor 1 02: Compressor 2 03: Compressor 3	H01	●	◎	●		Compressor breakdown	Overcurrent of the inverter current (Idc) detection circuit was detected.
H02	01: Compressor 1 02: Compressor 2 03: Compressor 3	H02	●	◎	●		Compressor error (Lock)	Compressor lock was detected.
H03	01: Compressor 1 02: Compressor 2 03: Compressor 3	H03	●	◎	●		Current detection circuit error	Current error was detected while the compressor was stopped.
H04		H05	●	◎	●		Compressor 1 case thermo activation	Compressor 1 case thermo was activated for protection.
H05	–	H05	●	◎	●		Outdoor discharge temperature sensor (TD1) wiring error	Wiring / installation error or detachment of outdoor discharge temperature sensor (TD1) has been detected.
H06	–	H06	●	◎	●		Activation of low-pressure protection	Low pressure (Ps) sensor detects abnormally low operating pressure.
H07	–	H07	●	◎	●		Activation of low-pressure protection	Temperature sensor for oil level detection (TK1-5) detects abnormally low oil level.
H08	01: TK1 sensor error 02: TK2 sensor error 03: TK3 sensor error 04: TK4 sensor error 05: TK5 sensor error	H08	●	◎	●		Error in temperature sensor for oil level detection (TK1-5)	Temperature sensor for oil level detection (TK1-5) has been open / short-circuited.
H14	–	H14	●	◎	●		Compressor 2 case thermo activation	Compressor 2 case thermo was activated for protection.
H15	–	H15	●	◎	●		Outdoor discharge temperature sensor (TD2) wiring error	Wiring / installation error or detachment of outdoor discharge temperature sensor (TD2) has been detected.
H16	01: TK1 oil circuit error 02: TK2 oil circuit error 03: TK3 oil circuit error 04: TK4 oil circuit error 05: TK5 oil circuit error	H16	●	◎	●		Oil level detection circuit error	No temperature change is detected by temperature sensor for oil level detection (TK1-5) despite compressor having been started.
H25	–	H25	●	◎	●		Outdoor discharge temperature sensor (TD3) wiring error	Wiring / installation error or detachment of outdoor discharge temperature sensor (TD3) has been detected.
L04	–	L04	◎	○	◎	SIM	Duplicated outdoor refrigerant line address	Identical refrigerant line address has been assigned to outdoor units belonging to different refrigerant piping systems.
L06	Number of priority indoor units (check code L05 or L06 depending on individual unit)	L05	◎	●	◎	SIM	Duplicated priority indoor unit (as displayed on priority indoor unit)	More than one indoor unit has been set up as priority indoor unit.
		L06	◎	●	◎	SIM	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)	More than one indoor unit has been set up as priority indoor unit.

<table>
<tr><th colspan="2">Check code</th><th rowspan="3">TCC-LINK central control or main remote controller display</th><th colspan="4">Display of receiving unit</th><th rowspan="3">Typical fault site</th><th rowspan="3">Description of error</th></tr>
<tr><th colspan="2">Outdoor 7-segment display</th><th colspan="3">Indicator light block</th><th rowspan="2">Flash</th></tr>
<tr><th></th><th>Sub-code</th><th>Operation ⏻</th><th>Timer 🕘</th><th>Ready ❁</th></tr>
<tr><td>L08</td><td>–</td><td>(L08)</td><td>◎</td><td>●</td><td>◎</td><td>SIM</td><td>SIM Indoor group address not set</td><td>Address setting has not been performed for one or more indoor units (also detected at indoor end).</td></tr>
<tr><td>L10</td><td>–</td><td>L10</td><td>◎</td><td>○</td><td>◎</td><td>SIM</td><td>Outdoor capacity not set</td><td>Outdoor unit capacity has not been set (after P.C. board replacement).</td></tr>
<tr><td>L17</td><td>–</td><td>L17</td><td>◎</td><td>○</td><td>◎</td><td>SIM</td><td>Outdoor model incompatibility error</td><td>Old model outdoor unit (prior to 3 series) has been connected.</td></tr>
<tr><td>L18</td><td>–</td><td>L18</td><td>◎</td><td>○</td><td>◎</td><td>SIM</td><td>FS (Flow Selector) unit error</td><td>Cooling / heating cycle error resulting from piping error is detected.</td></tr>
<tr><td>L28</td><td></td><td>L28</td><td>◎</td><td>○</td><td>◎</td><td>SIM</td><td>Too many outdoor units connected</td><td>More than four outdoor units have been connected.</td></tr>
<tr><td>L29</td><td>SMMS (Series 1)
01: A3-IPDU1 error
02: A3-IPDU2 error
03: A3-IPDU1/A3-IPDU2 error
04: Fan IPDU error
05: A3-IPDU1
+ Fan IPDU error
06: A3-IPDU2
+ Fan IPDU error
07: All IPDU error
SMMS-i (Series 4)
<table><tr><th></th><th colspan="3">A3-IPDU</th><th>Fan IPDU</th><th></th><th colspan="3">A3-IPDU</th><th>Fan IPDU</th></tr><tr><th></th><th>1</th><th>2</th><th>3</th><th></th><th></th><th>1</th><th>2</th><th>3</th><th></th></tr><tr><td>01</td><td>O</td><td></td><td></td><td></td><td>0A</td><td></td><td>O</td><td></td><td>O</td></tr><tr><td>02</td><td></td><td>O</td><td></td><td></td><td>0B</td><td>O</td><td>O</td><td></td><td>O</td></tr><tr><td>03</td><td>O</td><td>O</td><td></td><td></td><td>0C</td><td></td><td></td><td>O</td><td>O</td></tr><tr><td>04</td><td></td><td></td><td>O</td><td></td><td>0D</td><td>O</td><td></td><td>O</td><td>O</td></tr><tr><td>05</td><td>O</td><td></td><td>O</td><td></td><td>0E</td><td></td><td>O</td><td>O</td><td>O</td></tr><tr><td>06</td><td></td><td>O</td><td>O</td><td></td><td>0F</td><td>O</td><td>O</td><td>O</td><td>O</td></tr><tr><td>07</td><td>O</td><td>O</td><td>O</td><td></td><td colspan="5" rowspan="3">Circle (O): Faulty IPDU</td></tr><tr><td>08</td><td></td><td></td><td></td><td>O</td></tr><tr><td>09</td><td>O</td><td></td><td></td><td>O</td></tr></table></td><td>L29</td><td>◎</td><td>○</td><td>◎</td><td>SIM</td><td>Error in number of IPDUs</td><td>There are insufficient number of IPDUs (P.C. boards) in inverter box.</td></tr>
<tr><td>L30</td><td>Detected indoor unit No.</td><td>(L30)</td><td>◎</td><td>○</td><td>◎</td><td>SIM</td><td>Indoor external error input (interlock)</td><td>Indoor unit has been shut down for external error input in one refrigerant line (detected by indoor unit).</td></tr>
<tr><td>P03</td><td>–</td><td></td><td>◎</td><td>●</td><td>◎</td><td>ALT</td><td>Outdoor discharge (TD1) temperature error</td><td>Outdoor discharge temperature sensor (TD1) has detected abnormally high temperature.</td></tr>
<tr><td>P04</td><td>P0301: Compressor 1
02: Compressor 2
03: Compressor 3</td><td>P04</td><td>◎</td><td>●</td><td>◎</td><td>ALT</td><td>High-pressure SW activation</td><td>High-pressure SW was activated.</td></tr>
<tr><td rowspan="2">P05</td><td>00: Open phase detected</td><td rowspan="2">P05</td><td rowspan="2">◎</td><td rowspan="2">●</td><td rowspan="2">◎</td><td rowspan="2">ALT</td><td>Open phase / power failure</td><td rowspan="2">Open phase is detected when power is turned on. Inverter DC voltage is too high (overvoltage) or too low (undervoltage).</td></tr>
<tr><td>01: Compressor 1
02: Compressor 2
03: Compressor 3</td><td>Inverter DC voltage (Vdc) error
MG-CTT error</td></tr>
<tr><td>P07</td><td>01: Compressor 1
02: Compressor 2
03: Compressor 3</td><td>P07</td><td>◎</td><td>●</td><td>◎</td><td>ALT</td><td>Heat sink overheating error</td><td>Temperature sensor built into IGBT (TH) detects overheating.</td></tr>
<tr><td>P10</td><td>Indoor unit No. detected</td><td>(P10)</td><td>●</td><td>◎</td><td>◎</td><td>ALT</td><td>Indoor unit overflow</td><td>Indoor unit has been shutdown in one refrigerant line due to detection of overflow (detected by indoor unit).</td></tr>
<tr><td>P13</td><td>–</td><td>P13</td><td>●</td><td>◎</td><td>◎</td><td>ALT</td><td>Outdoor liquid backflow detection error</td><td>State of refrigerant cycle circuit indicates liquid backflow operation.</td></tr>
<tr><td>P15</td><td>01: TS condition
02: TD condition</td><td>P15</td><td>◎</td><td>●</td><td>◎</td><td>ALT</td><td>Gas leak detection</td><td>Outdoor suction temperature sensor (TS1) detects sustained and repeated high temperatures that exceed standard value.</td></tr>
<tr><td>P17</td><td>–</td><td>P17</td><td>◎</td><td>●</td><td>◎</td><td>ALT</td><td>Outdoor discharge (TD2) temperature error</td><td>Outdoor discharge temperature sensor (TD2) detects abnormally high temperature.</td></tr>
<tr><td>P18</td><td>–</td><td>P18</td><td>◎</td><td>●</td><td>◎</td><td>ALT</td><td>Outdoor discharge (TD3) temperature error</td><td>Outdoor discharge temperature sensor (TD3) detects abnormally high temperature.</td></tr>
<tr><td>P19</td><td>Outdoor unit No. detected</td><td>P19</td><td>◎</td><td>●</td><td>◎</td><td>ALT</td><td>4-way valve reversing error</td><td>Abnormality in refrigerating cycle is detected during heating operation.</td></tr>
<tr><td>P20</td><td>–</td><td>P20</td><td>◎</td><td>●</td><td>◎</td><td>ALT</td><td>Activation of high-pressure protection</td><td>High pressure (Pd) sensor detects high pressure that exceeds standard value.</td></tr>
</table>

MG-CTT: Magnet contactor

(Errors detected by IPDU featuring in SMMS-i standard outdoor unit - typical examples)

Check code			Display of receiving unit				Typical fault site	Description of error
Outdoor 7-segment display		TCC-LINK central control or main remote controller display	Indicator light block					
	Sub-code		Operation	Timer	Ready	Flash		
F13	01: Compressor 1 02: Compressor 2 03: Compressor 3	F13	◎	◎	○	ALT	Error in temperature sensor built into indoor IGBT (TH)	Temperature sensor built into indoor IGBT (TH) has been open / short-circuited.
H01	01: Compressor 1 02: Compressor 2 03: Compressor 3	H01	●	◎	●		Compressor breakdown	Inverter current (Idc) detection circuit detects overcurrent.
H02	01: Compressor 1 02: Compressor 2 03: Compressor 3	H02	●	◎	●		Compressor error (lockup)	Compressor lockup is detected
H03	01: Compressor 1 02: Compressor 2 03: Compressor 3	H03	●	◎	●		Current detection circuit error	Abnormal current is detected while inverter compressor is turned off.
P04	01: Compressor 1 02: Compressor 2 03: Compressor 3	P04	◎	●	◎	ALT	Activation of high-pressure SW	High-pressure SW is activated.
P07		P07	◎	●	◎	ALT	Heat sink overheating error	Temperature sensor built into IGBT (TH) detects overheating.
P20		P20	◎	●	◎	ALT	High-pressure protection activation	High-pressure (Pd) sensor detected a value over the criteria.
P22	SMMS (Series 1) 04: Rotation difference error 06: Maximum rotation exceeded 08: Out of step 0A: Idc activation 0C: Fan lock 0d: Lock 0E: Sync error 0F: Control error SMMS-i (Series 4) 0..: IGBT circuit 1..: Position detection circuit error 3..: Motor lockup error 4..: Motor current detection C..: TH sensor error D..: TH sensor error E..: Inverter DC voltage error (outdoor fan) Note: Although letters 0 to F appear at locations indicated by "∗", please ignore them.	P22	◎	●	◎	ALT	Outdoor fan IPDU error	Outdoor fan IPDU detects error.
P26	01: Compressor 1 02: Compressor 2 03: Compressor 3	P26	◎	●	◎	ALT	Activation of G-Tr (IGBT) short-circuit protection	Short-circuit protection for compressor motor driver circuit components is activated (momentary overcurrent).
P29	01: Compressor 1 02: Compressor 2 03: Compressor 3	P29	◎	●	◎	ALT	Compressor position detection circuit error	Compressor motor position detection error is detected.

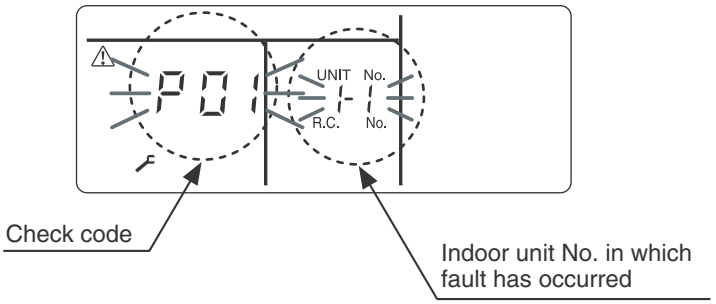
Note: The above check codes are examples only, and different check codes may be displayed depending on the outdoor unit configuration (e.g. a Super heat recovery multi system). For details, see the service manual for the outdoor unit.

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

Using main remote controller (RBC-AMT32E)

(1) Checking and testing

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



(2) Error history

The error history access procedure is described below (up to four errors stored in memory).
Error history can be accessed regardless of whether the air conditioner is in operation or shut down.

<Procedure> To be performed when system at rest

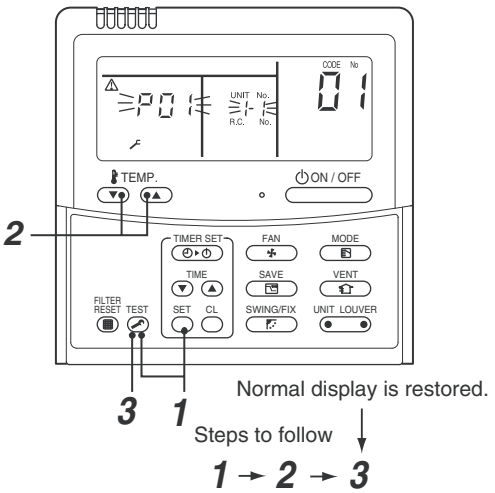
1 **Invoke the SERVICE CHECK mode by pressing the TEST + SET buttons simultaneously and holding for at least 4 seconds.**

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

2 **To check other error history items, press the TEMP. button to select another check code.**

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

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



REQUIREMENT

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

How to read displayed information

<7-segment display symbols>

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

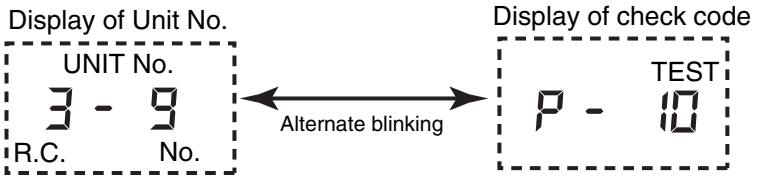
<Corresponding alphanumerical letters>

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

Using TCC-LINK central control remote controller (TCB-SC642TLE2)

(1) Checking and testing

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



(2) Error history

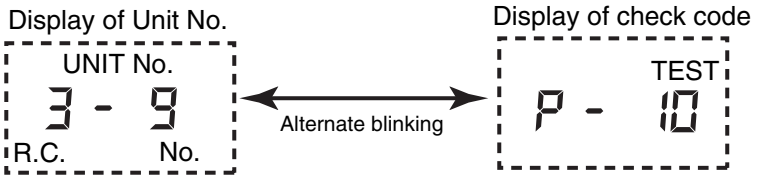
The error history access procedure is described below (up to four errors stored in memory).
Error history can be accessed regardless of whether the air conditioner is in operation or shut down.

1 **Push the TEST + SET buttons simultaneously and hold for at least 4 seconds.**

2 **The letters " SERVICE CHECK" light up, and the check code "01" is displayed.**

3 **When a group No. is selected (blinking), if there is an error history, the UNIT No. and the latest error history information are displayed alternately.**

***** During this procedure, the temperature setting feature is unavailable.



4 **To check other error history items, push the TEMP. button to select another check code (01-04.).**

5 **To check check code relating to another group, push (ZONE) and (GROUP) ◁ ▷ buttons to select a group No.**
Do not push the CL button as it would erase the whole error history of the selected group.

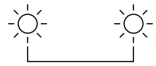
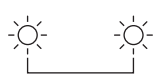
6 **To finish off the service check, push the TEST button.**

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

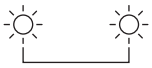
To identify the check code, check the 7-segment display on the header unit. To check for check codes not displayed on the 7-segment display, consult the "List of Check Codes (Indoor Unit)" in "8-2. Troubleshooting method".

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

Lamp indication	Check code	Cause of trouble occurrence
Operation ● Timer ● Ready ● No indication at all	—	Power supply OFF or miswiring between receiving unit and indoor unit
Operation ☼ Flash Timer ● Ready ●	E01	Receiving error } Receiving unit } Miswiring or wire connection error between receiving unit and indoor unit
	E02	Sending error } Receiving unit } Miswiring or wire connection error between receiving unit and indoor unit
	E03	Communication interruption } Miswiring or wire connection error between receiving unit and indoor unit
	E08	Duplicated indoor unit No. (Address) } Setup error
	E09	Duplicated header units of remote controller } Setup error
	E11	Communication error between Application control kit and indoor unit P.C. board
	E12	Automatic address start error
	E18	Wire connection error between indoor units, indoor power supply OFF
Operation ● Timer ● Ready ☼ Flash	E04	Miswiring or wire connection error between indoor unit and outdoor unit (Communication interruption between indoor and outdoor units)
	E06	Communication (receiving) error between indoor and outdoor units, decrease of No. of connected indoor units
	E07	Communication (sending) error between indoor and outdoor units
	E15	No indoor unit during setting of automatic address
	E16	No. of connected indoor units, capacity over
	E19	Error of No. of center unit
	E20	Disagreement of refrigerant pipe communication during setting of automatic address
	E23	Communication (sending) error between outdoor units
	E25	Duplicated setting of follower unit address
	E26	Communication (receiving) error between outdoor units, decrease of No. of connected outdoor units
	E28	Follower unit error
	E31	IPDU communication error
Operation ● Timer ☼ Ready ☼ Alternate flash	P10	Indoor overflow error
	P12	Indoor fan error
	P13	Outdoor unit liquid back detection error
Operation ☼ Timer ● Ready ☼ Alternate flash	P03	Outdoor unit discharge temp. (TD1) error
	P04	Outdoor unit high pressure switch operation
	P05	Outdoor unit open phase error was detected, negative phase error was detected
	P07	Outdoor unit heat sink overheat error: Heat radiation error of electric part (IGBT) in outdoor unit
	P15	Gas leak was detected: Short of refrigerant charge amount
	P17	Outdoor unit discharge temp. (TD2) error
	P19	Outdoor unit 4-way valve inverse error
	P20	High pressure protection error
	P22	Outdoor unit DC fan error
	P26	Outdoor unit G-Tr short-circuit error
	P29	Compressor position detection circuit error
	P31	Other indoor unit stopped due to error in the group.

Lamp indication	Check code	Cause of trouble occurrence	
Operation Timer Ready  Alternate flash	F01	Heat exchanger sensor (TCJ) error	Temp. sensor error in indoor unit
	F02	Heat exchanger sensor (TC2) error	
	F03	Heat exchanger sensor (TC1) error	
	F10	Room temp. sensor (TA) error	
Operation Timer Ready  Alternate flash	F04	Discharge temp. sensor (TD1) error	Outdoor unit temp. sensor error
	F05	Discharge temp. sensor (TD2) error	
	F06	Heat exchanger sensor (TE1) error	
	F07	Liquid temp. sensor (TL) error	
	F08	Outside temp. sensor (TO) error	
	F12	Suction temp. sensor (TS1) error	
	F13	Heat sink sensor (TH) error	
	F15	Misconnection of heat exchanger sensor (TE) with liquid temp. sensor (TL) → Miswiring of temp. sensor in outdoor unit or miss-mounting	
	F16	Miswiring between high pressure sensor (Pd) and low pressure sensor (Ps) → Misconnection of pressure sensor in outdoor unit	
	F23	Low pressure sensor (Ps) error	Pressure sensor error in outdoor unit
	F24	High pressure sensor (Pd) error	
Operation Timer Ready  Simultaneous flash	F29	Indoor unit EEPROM error	
Operation Timer Ready  Flash	H01	Compressor break-down	Outdoor unit compressor system error
	H02	Compressor lock	
	H03	Current detection circuit error	
	H04	Compressor 1 case thermo operation	
	H06	Low pressure (Ps) drop error	Protections stop of outdoor unit
	H07	Oil face drop detection error	
	H08	Oil face detection circuit system temp. sensor (TK1, TK2, TK3, TK4) error	
	H14	Compressor 2 chase thermo operation: Protective device of outdoor unit operated.	
	H16	Oil face detection circuit system error: Outdoor unit TK1, TK2, TK3, TK4 circuit system error	
Operation Timer Ready  Simultaneous flash	L03	Duplicated header units in indoor unit	
	L05	Duplicated priority indoor unit (Displayed in the room with priority)	
	L06	Duplicated priority indoor unit (Displayed in a room except one with priority)	
	L07	Group cable was connected to individual indoor unit.	
	L08	Indoor group address was unset.	
	L09	Indoor capacity was unset.	
Operation Timer Ready  Simultaneous flash	L04	Duplicated setting of outdoor line address	
	L10	Outdoor capacity was unset.	
	L17	Disagreement error of outdoor unit type	
	L18	COOL/HEAT select unit system error	
	L20	Duplicated address of central control system	
	L28	No. of connected outdoor units over	
	L29	Defective No. of IPDU	
	L30	Indoor unit outside interlock error	
Operation Timer Ready  Simultaneous flash	F31	Outdoor unit EEPROM error	

■ Others (Except check code)

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

8-4. Check codes displayed on remote controller and SMMS outdoor unit (7-segment display on I/F board) and locations to be checked

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

Check code			Location of detection	Description	System status	Error detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
E01	—	—	Remote controller	Indoor-remote controller communication error (detected at remote controller end)	Stop of corresponding unit	Communication between indoor P.C. board and remote controller is disrupted.	• Check remote controller inter-unit tie cable (A / B). • Check for broken wire or connector bad contact. • Check indoor power supply. • Check for defect in indoor P.C. board. • Check remote controller address settings (when two remote controllers are in use). • Check remote controller P.C. board.
E02	—	—	Remote controller	Remote controller transmission error	Stop of corresponding unit	Signal cannot be transmitted from remote controller to indoor unit.	• Check internal transmission circuit of remote controller. --- Replace remote controller as necessary.
E03	—	—	Indoor unit	Indoor-remote controller communication error (detected at indoor end)	Stop of corresponding unit	There is no communication from remote controller (including wireless) or network adaptor.	• Check remote controller and network adaptor wiring.
E04	—	—	Indoor unit	Indoor-outdoor communication circuit error (detected at indoor end)	Stop of corresponding unit	Indoor unit is not receiving signal from outdoor unit.	• Check order in which power was turned on for indoor and outdoor units. • Check indoor address setting. • Check indoor-outdoor tie cable. • Check outdoor termination resistance setting (SW30, Bit 2).
E06	E06	No. of indoor units from which signal is received normally	I/F	Dropping out of indoor unit	All stop	Indoor unit initially communicating normally fails to return signal for specified length of time.	• Check power supply to indoor unit. (Is power turned on?) • Check connection of indoor-outdoor communication cable. • Check connection of communication connectors on indoor P.C. board. • Check connection of communication connectors on outdoor P.C. board. • Check for defect in indoor P.C. board. • Check for defect in outdoor P.C. board (I/F).
—	E07	—	I/F	Indoor-outdoor communication circuit error (detected at outdoor end)	All stop	Signal cannot be transmitted from outdoor to indoor units for 30 seconds continuously.	• Check outdoor termination resistance setting (SW30, Bit 2). • Check connection of indoor-outdoor communication circuit.
E08	E08	Duplicated indoor address	Indoor unit I/F	Duplicated indoor address	All stop	More than one indoor unit is assigned same address.	• Check indoor addresses. • Check for any change made to remote controller connection (group / individual) since indoor address setting.
E09	—	—	Remote controller	Duplicated master remote controller	Stop of corresponding unit	In two remote controller configuration (including wireless), both controllers are set up as master. (Header indoor unit is shut down with alarm, while follower indoor units continue operating.)	• Check remote controller settings. • Check remote controller P.C. boards.
E10	—	—	Indoor unit	Indoor inter-MCU communication error	Stop of corresponding unit	Communication cannot be established / maintained upon turning on of power or during communication.	• Check for defect in indoor P.C. board.
E12	E12	01: Indoor-outdoor communication 02: Outdooroutdoor communication	I/F	Automatic address starting error	All stop	• Indoor automatic address setting is started while automatic address setting for equipment in other refrigerant line is in progress. • Outdoor automatic address setting is started while automatic address setting for indoor units is in progress.	• Perform automatic address setting again after disconnecting communication cable to that refrigerant line.
E15	E15	—	I/F	Indoor unit not found during automatic address setting	All stop	Indoor unit cannot be detected after indoor automatic address setting is started.	• Check connection of indoor-outdoor communication line. • Check for error in indoor power supply system. • Check for noise from other devices. • Check for power failure. • Check for defect in indoor P.C. board.

Check code			Location of detection	Description	System status	Error detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
E16	E16	00: Overloading 01-: No. of units connected	I/F	Too many indoor units connected	All stop	• Combined capacity of indoor units exceeds 135% of combined capacity of outdoor units. **Note:** **If this code comes up after backup setting for outdoor unit failure is performed, perform "No overloading detected" setting.** < "No overloading detected" setting method> Turn on SW09/Bit 2 on I/F P.C. board of outdoor header unit. • More than 48 indoor units are connected.	• Check capacities of indoor units connected. • Check combined HP capacities of indoor units. • Check HP capacity settings of outdoor units. • Check No. of indoor units connected. • Check for defect in outdoor P.C. board (I/F).
E18	—	—	Indoor unit	Error in communication between indoor header and follower units	Stop of corresponding unit	Periodic communication between indoor header and follower units cannot be maintained.	• Check remote controller wiring. • Check indoor power supply wiring. • Check P.C. boards of indoor units.
E19	E19	00: No header unit 02: Two or more header units	I/F	Error in number of outdoor header units	All stop	• There is more than one outdoor header unit in one line. • There is no outdoor header unit in one line.	Outdoor header unit is outdoor unit to which indoor outdoortie cable (U1,U2) is connected. • Check connection of indoor-outdoor communication line. • Check for defect in outdoor P.C. board (I/F).
E20	E20	01: Connection of outdoor unit from other line 02: Connection of indoor unit from other line	I/F	Connection to other line found during automatic address setting	All stop	Equipment from other line is found to have been connected when indoor automatic address setting is in progress.	Disconnect inter-line tie cable in accordance with automatic address setting method explained in "Address setting" section.
E23	E23	—	I/F	Outdoor outdoor communication transmission error	All stop	Signal cannot be transmitted to other outdoor units for at least 30 seconds continuously.	• Check power supply to outdoor units. (Is power turned on?) • Check connection of tie cables between outdoor units for bad contact or broken wire. • Check communication connectors on outdoor P.C. boards. • Check for defect in outdoor P.C. board (I/F). • Check termination resistance setting for communication between outdoor units.
E25	E25	—	I/F	Duplicated follower outdoor address	All stop	There is duplication in outdoor addresses set manually.	**Note:** **Do not set outdoor addresses manually.**
E26	E26	Address of outdoor unit from which signal is not received normally	I/F	Dropping out of outdoor unit	All stop	Outdoor unit initially communicating normally fails to return signal for specified length of time.	• Backup setting is being used for outdoor units. • Check power supply to outdoor unit. (Is power turned on?) • Check connection of tie cables between outdoor units for bad contact or broken wire. • Check communication connectors on outdoor P.C. boards. • Check for defect in outdoor P.C. board (I/F).
E28	E28	Detected outdoor unit No.	I/F	Outdoor follower unit error	All stop	Outdoor header unit receives error code from outdoor follower unit.	• Check check code displayed on outdoor follower unit. <Convenient functions> If SW04 is pressed and held for at least 1 second while [E28] is displayed on the 7-segmentdisplay of outdoor header unit, the fan of the outdoor unit that has been shut down due to an error comes on. If SW04 and SW05 are pressed simultaneously, the fans of normal outdoor units come on. To stop the fan or fans, press SW05 on its own.

<table>
<tr><th colspan="2">Check code</th><th rowspan="2">Location of detection</th><th rowspan="2">Description</th><th rowspan="2">System status</th><th rowspan="2">Error detection condition(s)</th><th rowspan="2">Check items (locations)</th></tr>
<tr><th>Main remote controller</th><th>Outdoor 7-segment display
Check code</th><th>Sub-code</th></tr>
<tr><td>E31</td><td>E31</td><td>SMMS (Series 1)
01: A3-IPDU1 error
02: A3-IPDU2 error
03: A3-IPDU1/ A3- IPDU2 error
04: Fan IPDU error
05: A3-IPDU1 + Fan IPDU error
06: A3-IPDU2 + Fan IPDU error
07: All IPDU error or Communication error between IPDU and I/F circuit board or Outdoor I/F circuit board error
SMM-i (Series 4)
<table><tr><th></th><th colspan="3">A3-IPDU</th><th>Fan</th></tr><tr><th></th><th>1</th><th>2</th><th>3</th><th>IPDU</th></tr><tr><td>01</td><td>O</td><td></td><td></td><td></td></tr><tr><td>02</td><td></td><td>O</td><td></td><td></td></tr><tr><td>03</td><td>O</td><td>O</td><td></td><td></td></tr><tr><td>04</td><td></td><td></td><td>O</td><td></td></tr><tr><td>05</td><td>O</td><td></td><td>O</td><td></td></tr><tr><td>06</td><td></td><td>O</td><td>O</td><td></td></tr><tr><td>07</td><td>O</td><td>O</td><td>O</td><td></td></tr><tr><td>08</td><td></td><td></td><td></td><td>O</td></tr><tr><td>09</td><td>O</td><td></td><td></td><td>O</td></tr><tr><td>0A</td><td></td><td>O</td><td></td><td>O</td></tr><tr><td>0B</td><td>O</td><td>O</td><td></td><td>O</td></tr><tr><td>0C</td><td></td><td></td><td>O</td><td>O</td></tr><tr><td>0D</td><td>O</td><td></td><td>O</td><td>O</td></tr><tr><td>0E</td><td></td><td>O</td><td>O</td><td>O</td></tr><tr><td>0F</td><td>O</td><td>O</td><td>O</td><td>O</td></tr><tr><td>80</td><td></td><td></td><td></td><td></td></tr></table>Symbol O signifies site of IPDU error.</td><td>I/F</td><td>IPDU communication error</td><td>All stop</td><td>Communication is disrupted between IPDUs (P.C. boards) in inverter box.</td><td>• Check wiring and connectors involved in communication between IPDU-I/F P.C. board for bad contact or broken wire.
• Check for defect in outdoor P.C. board (I/F, A3-IPDU or Fan IPDU).
• Check for external noise.</td></tr>
<tr><td>F01</td><td>—</td><td>—</td><td>Indoor unit</td><td>Indoor TCJ sensor error</td><td>Stop of corresponding unit</td><td>Sensor resistance is infinity or zero (open / short circuit).</td><td>• Check connection of TCJ sensor connector and wiring.
• Check resistance characteristics of TCJ sensor.
• Check for defect in indoor P.C. board.</td></tr>
<tr><td>F02</td><td>—</td><td>—</td><td>Indoor unit</td><td>Indoor TC2 sensor error</td><td>Stop of corresponding unit</td><td>Sensor resistance is infinity or zero (open / short circuit).</td><td>• Check connection of TC2 sensor connector and wiring.
• Check resistance characteristics of TC2 sensor.
• Check for defect in indoor P.C. board.</td></tr>
<tr><td>F03</td><td>—</td><td>—</td><td>Indoor unit</td><td>Indoor TC1 sensor error</td><td>Stop of corresponding unit</td><td>Sensor resistance is infinity or zero (open / short circuit).</td><td>• Check connection of TC1 sensor connector and wiring.
• Check resistance characteristics of TC1 sensor.
• Check for defect in indoor P.C. board.</td></tr>
<tr><td>F04</td><td>F04</td><td>—</td><td>I/F</td><td>TD1 sensor error</td><td>All stop</td><td>Sensor resistance is infinity or zero (open / short circuit).</td><td>• Check connection of TD1 sensor connector.
• Check resistance characteristics of TD1 sensor.
• Check for defect in outdoor P.C. board (I/F).</td></tr>
<tr><td>F05</td><td>F05</td><td>—</td><td>I/F</td><td>TD2 sensor error</td><td>All stop</td><td>Sensor resistance is infinity or zero (open / short circuit).</td><td>• Check connection of TD2 sensor connector.
• Check resistance characteristics of TD2 sensor.
• Check for defect in outdoor P.C. board (I/F).</td></tr>
<tr><td>F06</td><td>F06</td><td>01:
TE1 sensor error
02:
TE2 sensor error</td><td>I/F</td><td>TE1/TE2 sensor error</td><td>All stop</td><td>Sensor resistance is infinity or zero (open / short circuit).</td><td>• Check connection of TE1/TE2 sensor connectors.
• Check resistance characteristics of TE1/TE2 sensors.
• Check for defect in outdoor P.C. board (I/F).</td></tr>
<tr><td>F07</td><td>F07</td><td>—</td><td>I/F</td><td>TL sensor error</td><td>All stop</td><td>Sensor resistance is infinity or zero (open / short circuit).</td><td>• Check connection of TL sensor connector.
• Check resistance characteristics of TL sensor.
• Check for defect in outdoor P.C. board (I/F).</td></tr>
</table>

Check code			Location of detection	Description	System status	Error detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
F08	F08	—	I/F	TO sensor error	All stop	Sensor resistance is infinity or zero (open / short circuit).	• Check connection of TO sensor connector. • Check resistance characteristics of TO sensor. • Check for defect in outdoor P.C. board (I/F).
F10	—	—	Indoor unit	Indoor TA sensor error	Stop of corresponding unit	Sensor resistance is infinity or zero (open / short circuit).	• Check connection of TA sensor connector and wiring. • Check resistance characteristics of TA sensor. • Check for defect in indoor P.C. board.
F11	—	—	Indoor unit	Indoor TF sensor error	Stop of corresponding unit	Sensor resistance is infinity or zero (open / short circuit).	• Check connection of TF sensor connector and wiring. • Check resistance characteristics of TF sensor. • Check for defect in indoor P.C. board.
F12	F12	—	I/F	TS1 sensor error	All stop	Sensor resistance is infinity or zero (open / short circuit).	• Check connection of TS1 sensor connector. • Check resistance characteristics of TS1 sensor. • Check for defect in outdoor P.C. board (I/F).
F13	—	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	IPDU	TH sensor error	All stop	Sensor resistance is infinity or zero (open / short circuit).	• Defect in IGBT built-in temperature sensor → Replace A3-IPDU P.C. board.
F15	F15	—	I/F	Outdoor temperature sensor wiring error (TE1, TL)	All stop	During compressor operation in HEAT mode, TE1 continuously provides temperature reading higher than indicated by TL by at least specified margin for 3 minutes or more.	• Check installation of TE1 and TL sensors. • Check resistance characteristics of TE1 and TL sensors. • Check for outdoor P.C. board (I/F) error.
F16	F16	—	I/F	Outdoor pressure sensor wiring error (Pd, Ps)	All stop	Readings of high-pressure Pd sensor and lowpressure Ps sensor are switched. Output voltages of both sensors are zero.	• Check connection of highpressure Pd sensor connector. • Check connection of lowpressure Ps sensor connector. • Check for defect in pressure sensors Pd and Ps. • Check for error in outdoor P.C. board (I/F). • Check for deficiency in compressive output of compressor.
F22	F22	—	I/F	TD3 sensor error	All stop	Sensor resistance is infinity or zero. (open / short circuit)	• Check connection of TD3 sensor connector. • Check resistance characteristics of TD3 sensor. • Check for defect in outdoor P.C. board (I/F).
F23	F23	—	I/F	Ps sensor error	All stop	Output voltage of Ps sensor is zero.	• Check for connection error involving Ps sensor and Pd sensor connectors. • Check connection of Ps sensor connector. • Check for defect in Ps sensor. • Check for deficiency in compressive output of compressor. • Check for defect in 4-way valve. • Check for defect in outdoor P.C. board (I/F). • Check for defect in SV4 circuit.
F24	F24	—	I/F	Pd sensor error	All stop	Output voltage of Pd sensor is zero (sensor open-circuited). Pd > 4.15 MPa despite compressor having been turned off.	• Check connection of Pd sensor connector. • Check for defect in Pd sensor. • Check for defect in outdoor P.C. board (I/F).
F29	—	—	Indoor unit	Other indoor error	Stop of corresponding unit	Indoor P.C. board does not operate normally.	• Check for defect in indoor P.C. board (faulty EEPROM)
F31	F31	—	I/F	Outdoor EEPROM error	All stop *1	Outdoor P.C. board (I/F) does not operate normally.	• Check power supply voltage. • Check power supply noise. • Check for defect in outdoor P.C. board (I/F).
H01	H01	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	IPDU	Compressor breakdown	All stop	Inverter current detection circuit detects overcurrent and shuts system down.	• Check power supply voltage. (380-415V ± 10 %). • Check for defect in compressor. • Check for possible cause of abnormal overloading. • Check for defect in outdoor P.C. board (A3-IPDU).

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

Check code			Location of detection	Description	System status	Error detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
H02	H02	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	IPDU	Compressor error (lockup) MG-CTT error	All stop	Overcurrent is detected several seconds after startup of inverter compressor.	• Check for defect in compressor. • Check power supply voltage. (380-415V ± 10 %). • Check compressor system wiring, particularly for open phase. • Check connection of connectors / terminals on A3-IPDU P.C. board. • Check conductivity of case heater. (Check for refrigerant entrapment inside compressor.) • Check for defect in outdoor P.C. board (A3-IPDU). • Check outdoor MG-CTT.
H03	H03	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	IPDU	Current detection circuit error	All stop	Current flow of at least specified magnitude is detected despite inverter compressor having been shut turned off.	• Check current detection circuit wiring. • Check defect in outdoor P.C. board (A3-IPDU).
H05	H05	—	I/F	TD1 sensor miswiring (incomplete insertion)	All stop	Discharge temperature of compressor 1 (TD1) does not increase despite compressor being in operation.	• Check installation of TD1 sensor. • Check connection of TD1 sensor connector and wiring. • Check resistance characteristics of TD1 sensor. • Check for defect in outdoor P.C. board (I/F).
H06	H06	—	I/F	Activation of low-pressure protection	All stop	Low-pressure Ps sensor detects operating pressure lower than 0.02 MPa.	• Check service valves to confirm full opening (both gas and liquid sides). • Check outdoor PMVs for clogging (PMV1, 2). • Check for defect in SV2 or SV4 circuits. • Check for defect in lowpressure Ps sensor. • Check indoor filter for clogging. • Check valve opening status of indoor PMV. • Check refrigerant piping for clogging. • Check operation of outdoor fan (during heating). • Check for insufficiency in refrigerant quantity.
H07	H07	—	I/F	Low oil level protection	All stop	Operating compressor detects continuous state of low oil level for about 2 hours.	<All outdoor units in corresponding line to be checked> • Check balance pipe service valve to confirm full opening. • Check connection and installation of TK1, TK2, TK3, TK4, and TK5 sensors. • Check resistance characteristics of TK1, TK2, TK3, TK4, and TK5 sensors. • Check for gas or oil leak in same line. • Check for refrigerant entrapment inside compressor casing. • Check SV3A, SV3B, SV3C, SV3D, SV3E, and SV3F valves for defect. • Check oil return circuit of oil separator for clogging. • Check oil equalizing circuit for clogging.

MG-CTT: Magnet contactor

Check code			Location of detection	Description	System status	Error detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
H08	H08	01: TK1 sensor error 02: TK2 sensor error 03: TK3 sensor error 04: TK4 sensor error 05: TK5 sensor error	I/F	Error in temperature sensor for oil level detection	All stop	Sensor resistance is infinity or zero (open / short circuit).	• Check connection of TK1 sensor connector. • Check resistance characteristics of TK1 sensor. • Check for defect in outdoor P.C. board (I/F).
					All stop	Sensor resistance is infinity or zero (open / short circuit).	• Check connection of TK2 sensor connector. • Check resistance characteristics of TK2 sensor. • Check for defect in outdoor P.C. board (I/F).
					All stop	Sensor resistance is infinity or zero (open / short circuit).	• Check connection of TK3 sensor connector. • Check resistance characteristics of TK3 sensor. • Check for defect in outdoor P.C. board (I/F).
					All stop	Sensor resistance is infinity or zero (open / short circuit).	• Check connection of TK4 sensor connector. • Check resistance characteristics of TK4 sensor. • Check for defect in outdoor P.C. board (I/F).
					All stop	Sensor resistance is infinity or zero (open / short circuit).	• Check connection of TK5 sensor connector. • Check resistance characteristics of TK5 sensor. • Check for defect in outdoor P.C. board (I/F).
H14	H14	—	I/F	Compressor 2 case thermo activation	All stop	Compressor 2 case thermo was activated.	• Check Compressor 2 case thermo circuit. (Connector, Wiring, Circuit board) • Open and check the service valve. (Gas side, Liquid side) • Check the outdoor PMV clogging (PMV1, 2). • Check the SV42 circuit. • Check the SV4 circuit (SV41 / 42 miswiring). • Check the opening status of indoor PMV. • Check the 4-way valve error. • Check the refrigerant shortage.
H15	H15	—	I/F	TD2 sensor miswiring (incomplete insertion)	All stop	Air discharge temperature of (TD2) does not increase despite compressor 2 being in operation.	• Check installation of TD2 sensor. • Check connection of TD2 sensor connector and wiring. • Check resistance characteristics of TD2 sensor. • Check for defect in outdoor P.C. board (I/F).

Check code			Location of detection	Description	System status	Error detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
		SMMS (1 series) 01: TK1 oil circuit error 02: TK2 oil circuit error 03: TK3 oil circuit error 04: TK4 oil circuit error	I/F	Oil detection circuit error	All stop	The temperature change of TK1 cannot be detected even after Compressor 1 starts operating.	• Check the TK1 sensor installation. • Check the TK1 sensor resistant characteristics. • Check the misconnection of TK1, TK2, TK3, or TK4. • Check the SV3E valve error. • Check the oil circuit capillary clogging and non-return valve error. • Check the hibernating refrigerant in compressor.
		SMMS (1 series) 01: TK1 oil circuit error 02: TK2 oil circuit error 03: TK3 oil circuit error 04: TK4 oil circuit error	I/F	Oil detection circuit error	All stop	The temperature change of TK2 cannot be detected even after Compressor 2 starts operating.	• Check the TK2 sensor installation. • Check the TK2 sensor resistant characteristics. • Check the misconnection of TK1, TK2, TK3, or TK4. • Check the SV3E valve error. • Check the oil circuit capillary clogging and non-return valve error. • Check the hibernating refrigerant in compressor.
						The temperature change of TK3 cannot be detected even after Compressor 3 starts operating.	• Check the TK3 sensor installation. • Check the TK3 sensor resistant characteristics. • Check the misconnection of TK1, TK2, TK3, or TK4. • Check the SV3E valve error. • Check the oil circuit capillary clogging and non-return valve error. • Check the hibernating refrigerant in compressor.
						The temperature change of TK4 cannot be detected even after Compressor 4 starts operating, or the temperature difference from that of the other TK sensor changes only in the specified range for a given time or longer.	• Check the TK4 sensor installation. • Check the TK4 sensor resistant characteristics. • Check the misconnection of TK1, TK2, TK3, or TK4. • Check the SV3E valve error. • Check the oil circuit capillary clogging and non-return valve error. • Check the hibernating refrigerant in compressor.
H16	H16	SMMS-i (4 series) 01: TK1 oil circuit error 02: TK2 oil circuit error 03: TK3 oil circuit error 04: TK4 oil circuit error 05: TK5 oil circuit error	I/F	Oil level detection circuit error	All stop	No temperature change is detected by TK1 despite compressor 1 having been started.	• Check for disconnection of TK1 sensor. • Check resistance characteristics of TK1 sensor. • Check for connection error involving TK1, TK2, TK3, TK4, and TK5 sensors • Check for faulty operation in SV3E or SV3F valve. • Check for clogging in oil equalizing circuit capillary and faulty operation in check valve. • Check for refrigerant entrapment inside compressor.
						No temperature change is detected by TK2 despite compressor 2 having been started.	• Check for disconnection of TK2 sensor. • Check resistance characteristics of TK2 sensor. • Check for connection error involving TK1, TK2, TK3, TK4, and TK5 sensors • Check for faulty operation in SV3E or SV3F valve. • Check for clogging in oil equalizing circuit capillary and faulty operation in check valve. • Check for refrigerant entrapment inside compressor.
						No temperature change is detected by TK3 despite compressor 3 having been started.	• Check for disconnection of TK3 sensor. • Check resistance characteristics of TK3 sensor. • Check for connection error involving TK1, TK2, TK3, TK4, and TK5 sensors • Check for faulty operation in SV3E or SV3F valve. • Check for clogging in oil equalizing circuit capillary and faulty operation in check valve. • Check for refrigerant entrapment inside compressor.

Check code			Location of detection	Description	System status	Error detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
H16	H16	SMMS-i (4 series) 01: TK1 oil circuit error 02: TK2 oil circuit error 03: TK3 oil circuit error 04: TK4 oil circuit error 05: TK5 oil circuit error	I/F	Oil level detection circuit error	All stop	No temperature change is detected by TK4 despite compressor having been started.	• Check for disconnection of TK4 sensor. • Check resistance characteristics of TK4 sensor. • Check for connection error involving TK1, TK2, TK3, TK4, and TK5 sensors • Check for faulty operation in SV3E or SV3F valve. • Check for clogging in oil equalizing circuit capillary and faulty operation in check valve. • Check for refrigerant entrapment inside compressor.
						No temperature change is detected by TK5 despite compressor having been started.	• Check for disconnection of TK5 sensor. • Check resistance characteristics of TK5 sensor. • Check for connection error involving TK1, TK2, TK3, TK4, and TK5 sensors • Check for faulty operation in SV3E valve. • Check for clogging in oil equalizing circuit capillary and faulty operation in check valve. • Check for refrigerant entrapment inside compressor.
H25	H25	—	I/F	TD3 sensor miswiring (incomplete insertion)	All stop	Air discharge temperature (TD3) does not increase despite compressor 3 being in operation.	• Check installation of TD3 sensor. • Check connection of TD3 sensor connector and wiring. • Check resistance characteristics of TD3 sensor. • Check for defect in outdoor P.C. board (I/F).
L02	L02	—	Indoor unit	Outdoor unit model mismatch error	Only the target unit stopped	An error was found on the outdoor unit model.	• Check the model name of the outdoor unit. • Check the miswiring of the communication line between indoor and outdoor.
L03	—	—	Indoor unit	Duplicated indoor header unit	Stop of corresponding unit	There is more than one header unit in group.	• Check indoor addresses. • Check for any change made to remote controller connection (group / individual) since indoor address setting.
L04	L04	—	I/F	Duplicated outdoor line address	All stop	There is duplication in line address setting for outdoor units belonging to different refrigerant piping systems.	• Check line addresses.
L05	—	—	I/F	Duplicated priority indoor unit (as displayed on priority indoor unit)	All stop	More than one indoor unit has been set up as priority indoor unit.	• Check display on priority indoor unit.
L06	L06	No. of priority indoor units	I/F	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)	All stop	More than one indoor unit have been set up as priority indoor unit.	• Check displays on priority indoor unit and outdoor unit.
L07	—	—	Indoor unit	Connection of group control cable to standalone indoor unit	Stop of corresponding unit	There is at least one stand-alone indoor unit to which group control cable is connected.	• Check indoor addresses.
L08	L08	—	Indoor unit	Indoor group / addresses not set	Stop of corresponding unit	Address setting has not been performed for indoor units.	• Check indoor addresses. **Note:** **This code is displayed when power is turned on for the first time after installation.**
L09	—	—	Indoor unit	Indoor capacity not set	Stop of corresponding unit	Capacity setting has not been performed for indoor unit.	Set indoor capacity. (DN = 11)
L10	L10	—	I/F	Outdoor capacity not set	All stop	Jumper wire provided on P.C. board for servicing I/F P.C. board has not been removed as required for given model.	Check model setting of P.C. board for servicing outdoor I/F P.C. board.
L17	L17	Target indoor address	I/F	Outdoor unit model mismatch error		The outdoor unit model is duplicate. The Cool/Heat Flex series 1/2 are duplicate.	• Check the outdoor unit model.

<table>
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<tr><th rowspan="2">Main remote controller</th><th colspan="2">Outdoor 7-segment display</th></tr>
<tr><th>Check code</th><th>Sub-code</th></tr>
<tr><td>L18</td><td>L18</td><td>—</td><td>I/F</td><td>Cool / heat switch unit error</td><td>Only the target unit stopped</td><td>The heating operation was performed without the coolonly setting configured in a cool-only room where a cool / heat switch unit is not connected.</td><td>• Check the remote controller setting. (DN=“0F”)
• Check the cool / heat switching unit.
• Check the piping connection of the switching unit. (Miswiring of discharge gas / suction gas)
• Check the SVS / SVD valve miswiring / misinstallation.</td></tr>
<tr><td>L20</td><td>—</td><td>—</td><td>AI-NET Indoor unit</td><td>Duplicated central control address</td><td>All stop</td><td>There is duplication in central control address setting.</td><td>• Check central control addresses.
• Check network adaptor P.C. board (applicable to AI-NET).</td></tr>
<tr><td>L28</td><td>L28</td><td>—</td><td>I/F</td><td>Too many outdoor units connected</td><td>All stop</td><td>There are more than four outdoor units.</td><td>• Check No. of outdoor units connected (Only up to 4 units per system allowed).
• Check communication lines between outdoor units.
• Check for defect in outdoor P.C. board (I/F).</td></tr>
<tr><td>L29</td><td>L29</td><td>SMMS (Series 1)
01: A3-IPDU1 error
02: A3-IPDU2 error
03: A3-IPDU1/ A3-IPDU2 error
04: Fan IPDU error
05: A3-IPDU1 + Fan IPDU error
06: A3-IPDU2 + Fan IPDU error
07: All IPDU error or Communication error between IPDU and I/F circuit board or Outdoor I/F circuit board error
SMM-i (Series 4)
<table><tr><th></th><th colspan="3">A3-IPDU</th><th>Fan</th></tr><tr><th></th><th>1</th><th>2</th><th>3</th><th>IPDU</th></tr><tr><td>01</td><td>O</td><td></td><td></td><td></td></tr><tr><td>02</td><td></td><td>O</td><td></td><td></td></tr><tr><td>03</td><td>O</td><td>O</td><td></td><td></td></tr><tr><td>04</td><td></td><td></td><td>O</td><td></td></tr><tr><td>05</td><td>O</td><td></td><td>O</td><td></td></tr><tr><td>06</td><td></td><td>O</td><td>O</td><td></td></tr><tr><td>07</td><td>O</td><td>O</td><td>O</td><td></td></tr><tr><td>08</td><td></td><td></td><td></td><td>O</td></tr><tr><td>09</td><td>O</td><td></td><td></td><td>O</td></tr><tr><td>0A</td><td></td><td>O</td><td></td><td>O</td></tr><tr><td>0B</td><td>O</td><td>O</td><td></td><td>O</td></tr><tr><td>0C</td><td></td><td></td><td>O</td><td>O</td></tr><tr><td>0D</td><td>O</td><td></td><td>O</td><td>O</td></tr><tr><td>0E</td><td></td><td>O</td><td>O</td><td>O</td></tr><tr><td>0F</td><td>O</td><td>O</td><td>O</td><td>O</td></tr><tr><td>80</td><td></td><td></td><td></td><td></td></tr></table>Symbol O signifies site of IPDU error.</td><td>I/F</td><td>Error in No. of IPDUs</td><td>All stop</td><td>Insufficient number of IPDUs are detected when power is turned on.</td><td>• Check model setting of P.C. board for servicing outdoor I/F P.C. board.
• Check connection of UART communication connector.
• Check A3-IPDU, fan IPDU, and I/F P.C. board for defect.</td></tr>
<tr><td>L30</td><td>L30</td><td>Detected indoor address</td><td>Indoor unit</td><td>External interlock of indoor unit</td><td>Stop of corresponding unit</td><td>• Signal is present at external error input terminal (CN80) for 1 minute.</td><td>When external device is connected to CN80 connector:
1) Check for defect in external device.
2) Check for defect in indoor P.C. board.
When external device is not connected to CN80 connector:
1) Check for defect in indoor P.C. board.</td></tr>
<tr><td>—</td><td>L31</td><td>—</td><td>I/F</td><td>Extended IC error</td><td>Continued operation</td><td>There is part failure in P.C. board (I/F).</td><td>Check outdoor P.C. board (I/F).</td></tr>
<tr><td>P01</td><td>—</td><td>—</td><td>Indoor unit</td><td>Indoor fan motor error</td><td>Stop of corresponding unit</td><td></td><td>• Check the lock of fan motor (AC fan).
• Check wiring.</td></tr>
</table>

Check code			Location of detection	Description	System status	Error detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
P03	P03	—	I/F	Discharge temperature TD1 error	All stop	Discharge temperature (TD1) exceeds 115 ˚C.	• Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check outdoor PMVs (PMV1, 2, 4) for clogging. • Check resistance characteristics of TD1 sensor. • Check for insufficiency in refrigerant quantity. • Check for defect in 4-way valve. • Check for leakage of SV4 circuit. • Check SV4 circuit (wiring or installation error in SV41, SV42 or SV43).
P04	P04	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	IPDU	Activation of high-pressure SW	All stop	High-pressure SW is activated.	• Check connection of highpressure SW connector. • Check for defect in Pd pressure sensor. • Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check for defect in outdoor fan. • Check for defect in outdoor fan motor. • Check outdoor PMVs (PMV1, 2) for clogging. • Check indoor / outdoor heat exchangers for clogging. • Check for short-circuiting of outdoor suction / discharge air flows. • Check SV2 circuit for clogging. • Check for defect in outdoor P.C. board (I/F). • Check for error in indoor fan system (possible cause of air flow reduction). • Check opening status of indoor PMV. • Check indoor-outdoor communication line for wiring error. • Check for faulty operation of check valve in discharge pipe convergent section. • Check gas balancing SV4 valve circuit. • Check SV5 valve circuit. • Check for refrigerant overcharging.
P05	P05	SMMS (Series 1) 01: Open phase detected 02: Phase sequence error	I/F	Open phase detected, Phase sequence error	All stop	• Phase sequence error was detected when the power is turned on. • Open phase error was detected when the power is turned on.	• Check the phase sequence of outdoor power wiring. • Check the outdoor PC board (I/F) error.
		SMMS-i (Series 4) 00:	I/F	Detection of open phase / phase sequence	All stop	• Open phase is detected when power is turned on. • Inverter DC voltage is too high (overvoltage) or too low (undervoltage).	• Check for defect in outdoor P.C. board (I/F).
		01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side		Inverter DC voltage (Vdc) error (compressor) MG-CTT error			
P07	P07	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	IPDU I/F	Heat sink overheating error	All stop	Temperature sensor built into IGBT (TH) is overheated.	• Check power supply voltage. • Check outdoor fan system error. • Check heat sink cooling duct for clogging. • Check IGBT and heat sink for thermal performance for faulty installation. (e.g. mounting screws and thermal conductivity) • Check for defect in A3-IPDU. (faulty IGBT built-in temperature sensor (TH))
P10	P10	Detected indoor address	Indoor unit	Indoor overflow error	All stop	• Float switch operates. • Float switch circuit is open-circuited or disconnected at connector.	• Check float switch connector. • Check operation of drain pump. • Check drain pump circuit. • Check drain pipe for clogging. • Check for defect in indoor P.C. board.

MG-CTT: Magnet contactor

Check code			Location of detection	Description	System status	Error detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
P12	—	—	Indoor unit	Indoor fan motor error	Stop of corresponding unit	• Motor speed measurements continuously deviate from target value. • Overcurrent protection is activated.	• Check connection of fan connector and wiring. • Check for defect in fan motor. • Check for defect in indoor P.C. board. • Check impact of outside air treatment (OA). • Check static pressure setting.
P13	P13	—	I/F	Outdoor liquid backflow detection error	All stop	<During cooling operation> When system is in cooling operation, high pressure is detected in follower unit that has been turned off. <During heating operation> When system is in heating operation, outdoor PMV 1 or 2 continuously registers opening of 100p or less while under SH control.	• Check full-close operation of outdoor PMV (1, 2, 4). • Check for defect in Pd or Ps sensor. • Check gas balancing circuit (SV2) for clogging. • Check balance pipe. • Check SV3B circuit for clogging. • Check defect in outdoor P.C. board (I/F). • Check capillary of oil separator oil return circuit for clogging. • Check for leakage of check valve in discharge pipe convergent section.
P15	P15	01: TS condition	I/F	Gas leakdetection (TS1 condition)	All stop	Protective shutdown due to sustained suction temperature at or above judgment criterion for at least 10 minutes is repeated four times or more. <TS error judgment criterion> In cooling operation: 60 ˚C In heating operation: 40 ˚C	• Check for insufficiency in refrigerant quantity. • Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check PMVs (PMV1, 2) for clogging. • Check resistance characteristics of TS1 sensor. • Check for defect in 4-way valve. • Check SV4 circuit for leakage
		02: TD condition	I/F	Gas leak detection (TD condition)	All stop	Protective shutdown due to sustained discharge temperature (TD1, TD2 or TD3) at or above 108 ˚C for at least 10 minutes is repeated four times or more.	• Check for insufficiency in refrigerant quantity. • Check PMVs (PMV 1, 2) for clogging. • Check resistance characteristics of TD1, TD2 and TD3 sensors. • Check indoor filter for clogging. • Check piping for clogging. • Check SV4 circuit (for leakage or coil installation error).
P17	P17	—	I/F	Discharge temperature TD2 error	All stop	Discharge temperature (TD2) exceeds 115 ˚C.	• Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check outdoor PMVs (PMV1, 2, 4) for clogging. • Check resistance characteristics of TD2 sensor. • Check for defect in 4-way valve. • Check SV4 circuit for leakage. • Check SV4 circuit (for wiring or installation error involving SV41, SV42 and SV43).
P18	P18	—	I/F	Discharge temperature TD3 error	All stop	Discharge temperature (TD3) exceeds 115 ˚C.	• Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check outdoor PMVs (PMV1, 2, 4) for clogging. • Check resistance characteristics of TD3 sensor. • Check for defect in 4-way valve. • Check SV43 circuit for leakage. • Check SV4 circuit (for wiring or installation error involving SV41, SV42 and SV43).
P19	P19	Detected outdoor unit No.	I/F	4-way valve reversing error	All stop	Abnormal refrigerating cycle data is collected during heating operation.	• Check for defect in main body of 4-way valve. • Check for coil defect in 4-way valve and loose connection of its connector. • Check resistance characteristics of TS1 and TE1 sensors. • Check output voltage characteristics of Pd and Ps pressure sensors. • Check for wiring error involving TE1 and TL sensors.

Check code			Location of detection	Description	System status	Error detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
P20	P20	—	I/F	Activation of high-pressure protection	All stop	Pd sensor detects pressure equal to or greater than 3.6 MPa.	• Check for defect in Pd pressure sensor. • Check service valves (gas side, liquid side) to confirm full opening. • Check for defect in outdoor fan. • Check for defect in outdoor fan motor. • Check outdoor PMVs (PMV1, 2, 4) for clogging. • Check indoor / outdoor heat exchangers for clogging. • Check for short-circuiting of outdoor suction / discharge air flows. • Check SV2 circuit for clogging. • Check for defect in outdoor P.C. board (I/F). • Check for defect in indoor fan system (possible cause of air flow reduction). • Check opening status of indoor PMV. • Check indoor-outdoor communication line for wiring error. • Check for faulty operation of check valve in discharge pipe convergent section. • Check gas balancing SV4 valve circuit. • Check SV5 valve circuit. • Check for refrigerant overcharging.
P22	P22	SMMS (Series 1) 08: Out of step 0A: IDC activation 0E: Sync error 0F: Control error 06: Maximum rotation exceeded 04: Rotation difference error 0D: Lock 0C: Fan lock	IPDU	Outdoor fan IPDU error	All stop	(Sub code: 08) FAN IPDU position detection circuit Position detection is not performed properly.	• Check the fan motor. • Check the connector connection for fan motor. • Check the error of IPDU board for fan.
					All stop	(Sub code: 0A) FAN IPDU overcurrent protection circuit Overcurrent was detected when the fan started running or during operation.	• Check the fan motor. • Check the error of IPDU board for fan.
					All stop	(Sub code: 0E) FAN IPDU position detection circuit Position detection is not performed properly.	• Check the fan motor. • Check the connector connection for fan motor. • Check the error of IPDU board for fan.
					All stop	(Sub code: 0F) FAN IPDU position detection circuit Position detection is not performed properly.	• Check the fan motor. • Check the connector connection for fan motor. • Check the error of IPDU board for fan.
					All stop	(Sub code: 06) External factors such as blast Position detection is not performed properly. (Restarted in 6 seconds)	• Check the fan motor. • Check the error of IPDU board for fan.
					All stop	(Sub code: 04) External factors such as blast The difference between targeted rotation and actual rotation is 25% or more. (Restarted in 6 seconds)	• Check the fan motor. • Check the error of IPDU board for fan.
					All stop	(Sub code: 0D) FAN IPDU position detection circuit Position detection is not performed properly. (No wind)	• Check the fan motor. • Check the connector connection for fan motor. • Check the error of IPDU board for fan.
					All stop	(Sub code: 0C) External factors such as blast Position detection is not performed properly. (Wind blows) (Restarted in 6 seconds)	• Check the fan motor. • Check the error of IPDU board for fan.

Check code			Location of detection	Description	System status	Error detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
P22	P22	SMMS-i (Series 4) 0.: IGBT circuit 1.: Position detection circuit error 3.: Motor lockup error 4.: Motor current detection C.: TH sensor temperature error D.: TH sensor error E.: Inverter DC voltage error (outdoor fan) **Note: Although letters 0 to F appear at locations indicated by " ∗ ", please ignore them.**	IPDU	Outdoor fan IPDU error	All stop	(Sub code: 0∗) Fan IPDU over current protection circuit Flow of current equal to or greater than the specified value is detected during startup of the fan.	• Check fan motor. • Check for defect in fan IPDU P.C. board.
					All stop	(Sub code: 1∗) Fan IPDU position detection circuit Position detection is not going on normally.	• Check fan motor. • Check connection of fan motor connector. • Check for defect in fan IPDU P.C. board.
					All stop	(Sub code: 3∗) Gusty wind, an obstruction, or another external factor Speed estimation is not going on normally.	• Check fan motor. • Check for defect in fan IPDU P.C. board.
					All stop	(Sub code:4∗) Fan IPDU over current protection circuit Flow of current equal to or greater than the specified value is detected during operation of the fan.	• Check fan motor. • Check connection of fan motor connector. • Check for defect in fan IPDU P.C. board.
					All stop	(Sub code: C∗) Higher temperature than the specified value is detected during operation of the fan.	• Check fan motor. • Check for defect in fan IPDU P.C. board.
					All stop	(Sub code: D∗) The resistance value of the sensor is infinite or zero (open or short circuit).	• Check for defect in fan IPDU P.C. board.
					All stop	(Sub code: E∗) Fan IPDU DC voltage protection circuit The DC voltage higher or lower than the specified value is detected.	• Check power voltage of the main power supply. • Check for defect in fan IPDU P.C. board. • Check connection of fan IPDU P.C. board.
P26	P26	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	IPDU	G-TR shortcircuit protection error	All stop	Overcurrent is momentarily detected during startup of compressor.	• Check connector connection and wiring on A3-IPDU P.C. board. • Check for defect in compressor (layer shortcircuit). • Check for defect in outdoor P.C. board (A3-IPDU).
P29	P29	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	IPDU	Compressor position detection circuit error	All stop	Position detection is not going on normally.	• Check wiring and connector connection. • Check for compressor layer short-circuit. • Check for defect in A3-IPDU P.C. board.
P31	—	—	Indoor unit	Other indoor error (group follower unit error)	Stop of corresponding unit	There is error in other indoor unit in group, resulting in detection of E07/L07/L03/L08.	• Check indoor P.C. board.

Errors detected by TCC-LINK central control device

Check code			Location of detection	Description	System status	Error detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
C05	—	—	TCC-LINK	TCC-LINK central control device transmission error	Continued operation	Central control device is unable to transmit signal.	• Check for defect in central control device. • Check for defect in central control communication line. • Check termination resistance setting.
C06	—	—		TCC-LINK central control device reception error	Continued operation	Central control device is unable to receive signal.	• Check for defect in central control device. • Check for defect in central control communication line. • Check termination resistance setting. • Check power supply for devices at other end of central control communication line. • Check defect in P.C. boards of devices at other end of central control communication line.
C12	—	—	General-purpose device I/F	Blanket alarm for general-purpose device control interface	Continued operation	Error signal is input to control interface for general-purpose devices.	• Check error input.
P30	Differs according to nature of alarm-causing error		TCC-LINK	Group control follower unit error	Continued operation	Error occurs in follower unit under group control. ([P30] is displayed on central control remote controller.)	• Check check code of unit that has generated alarm.
	(L20 displayed.)			Duplicated central control address	Continued operation	There is duplication in central control addresses.	• Check address settings.

[P12 error]

Power off.

Is not connection error 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.

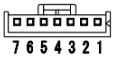
YES

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-340D62-1, ICF-340WD109-1

<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).

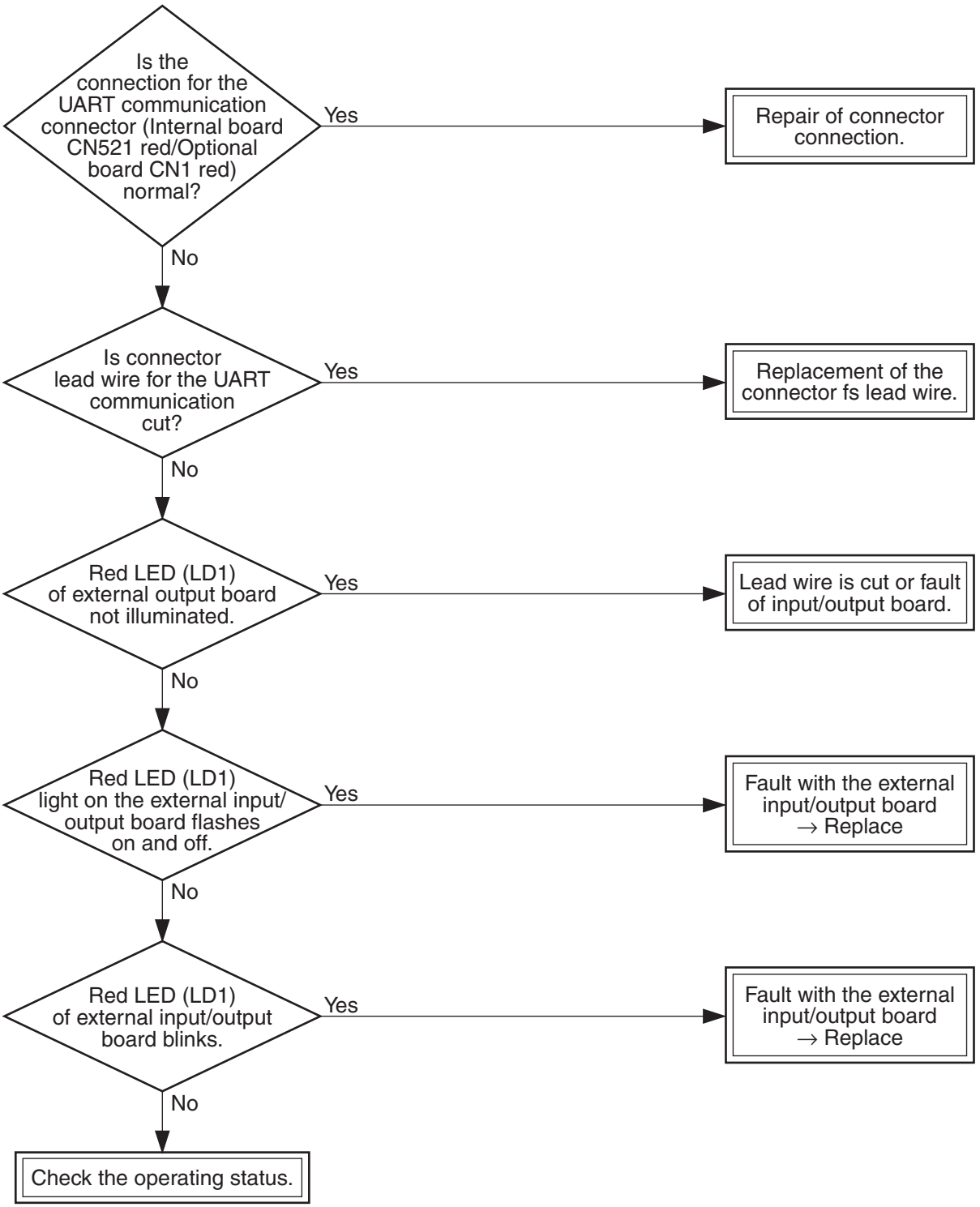
NO → Check the indoor P.C. board (MCC-1643). If faulty→Replace

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

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

Check code

[E11 error]

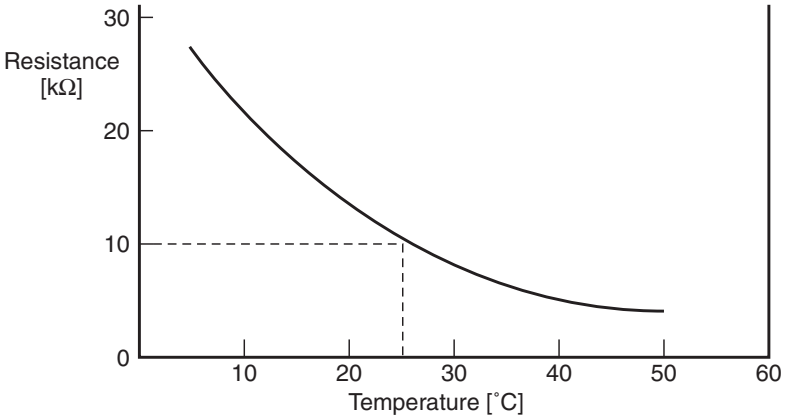


8-6. Sensor characteristics

Indoor unit

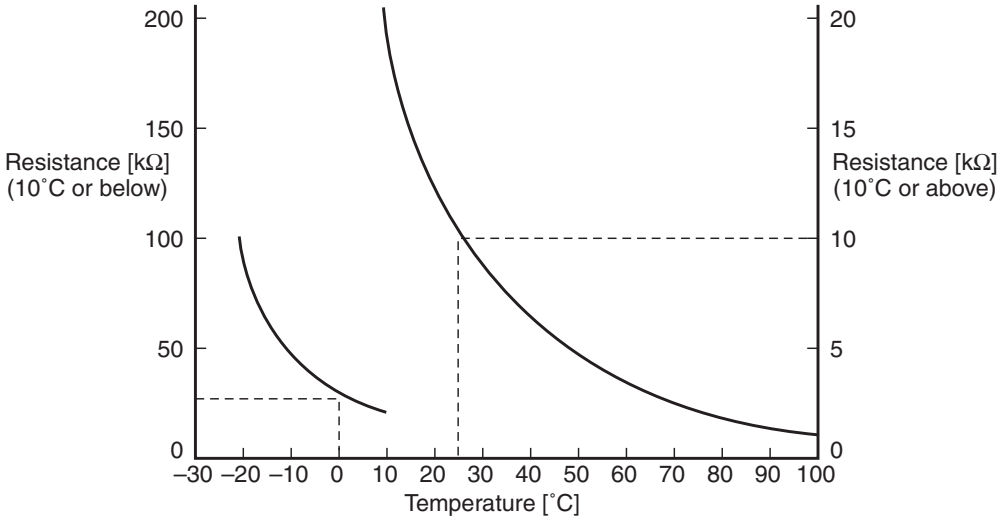
▼ Temperature sensor characteristics

Indoor TA sensor



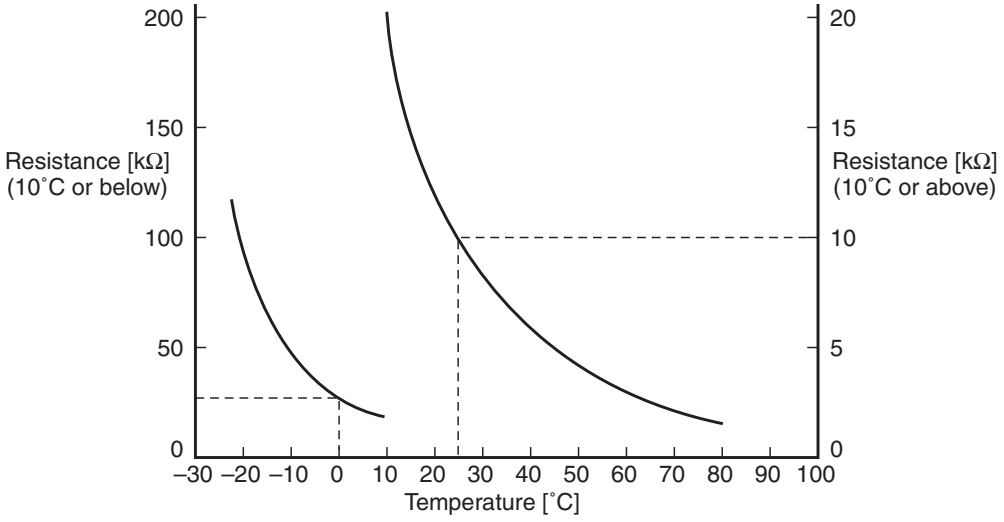
Temperature [˚C]	Resistance [kΩ]
0	33.9
5	26.1
10	20.3
15	15.9
20	12.6
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.6
60	2.4

Indoor TC1 sensor



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

Indoor TC2 and TCJ sensors



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

<Maintenance/Check list>

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

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

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

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

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

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

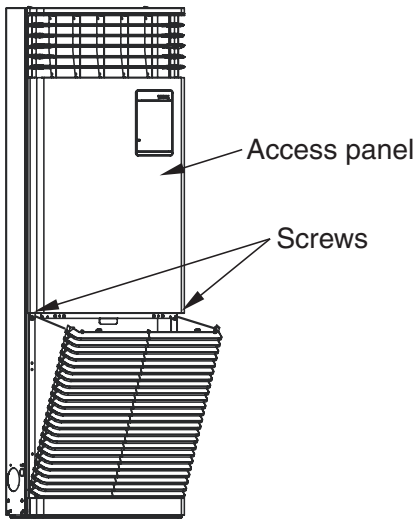
Although the customer has to pay the charge for the maintenance, the life of the unit can be prolonged.

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

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

▼To open the access panel

Use a screwdriver to unfasten the screws of the access panel (two places), slide the cabinet upward by approximately 30mm, and pull it out toward you.



9. P.C. BOARD EXCHANGE PROCEDURES

■ Indoor unit

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

Part code	Model type	P.C. board type
431-6V-549	MMF-AP∗∗∗6H series	MCC-1643

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

The nonvolatile memory (hereafter called EEPROM, IC503) on the indoor unit P.C. board before replacement includes the model specific type information and capacity codes as the factory-set value and the important setting data which have been automatically or manually set when the indoor unit is installed, such as system/indoor/group addresses, high ceiling select setting, etc.
When replacing the P.C. board for indoor unit servicing, follow the procedures below.
After replacement completes, confirm whether the settings are correct by checking the indoor unit No., Group header unit/follower unit settings and perform the cooling cycle confirmation through the trial operation.

<Replacement procedures>

CASE 1

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

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.)

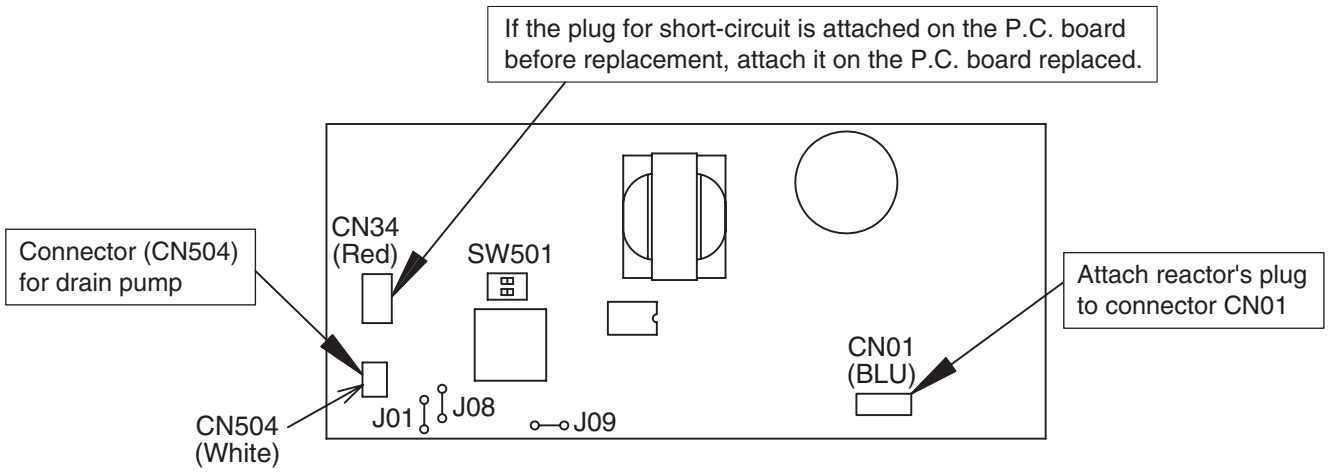
CODE No. required at least

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 It is necessary to set indoor unit to be exchanged: Remote controller = 1 : 1
Based upon the system configuration, turn on power of the indoor unit with one of the following items.

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

2) Group operation

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

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

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

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

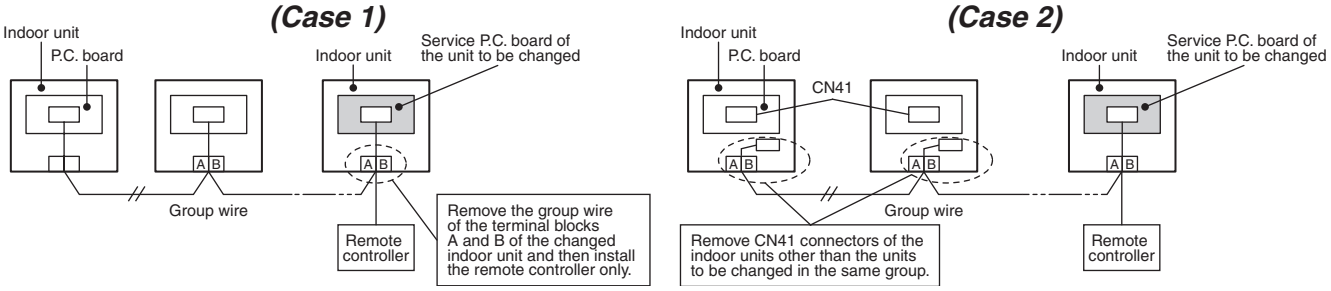
* When the above methods cannot be used, follow to the two cases below.

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

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

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

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



[3] Writing the setting data to EEPROM

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

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

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

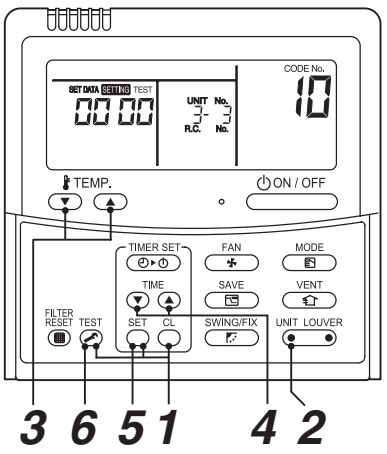
Step 2 Every time when UNIT LOUVER (left side button) button is pushed, the indoor unit No. in the group control operation are displayed in order.
(The settings stored in the EEPROM of the P.C. board for indoor unit servicing are the factory-set values.)
Specify the indoor unit No. with its P.C. board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

Step 3 Select the CODE No. (DN) can be selected by pushing the ▼ / ▲ 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, AP027 Type is set to "0012". Refer to table 3)
6. Push SET button.
(The setting completes if the setting data are displayed.)

<Fig. 1 RBC-AMT32E>



Step 4 Write the on-site setting data to the EEPROM, such as address setting, etc. Perform the steps 1 and 2 above again.

Step 5 Change the CODE No. (DN) to "01" by pushing ▼ / ▲ buttons for the temperature setting. (this is the setting for the filter sign lighting time.)

Step 6 Check the setting data displayed at this time with the setting data put down in [1].

1. If the setting data is different, modify the setting data by pushing ▼ / ▲ buttons for the timer setting to the data put down in [1].
   The operation completes if the setting data is displayed.
2. If the data is the same, proceed to next step.

Step 7 Change the CODE No. (DN) by pushing ▼ / ▲ buttons for the temperature setting. As described above, check the setting data and modify to the data put down in [1].

Step 8 Repeat the steps 6 and 7.

Step 9 After the setting completes, push TEST button to return to the normal stop status. (It takes approx. 1 min until the remote controller operation is available again.)

* The CODE No. (DN) are ranged from "01" to "FF". The CODE No. (DN) is not limited to be serial No. Even after modifying the data wrongly and pushing 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.

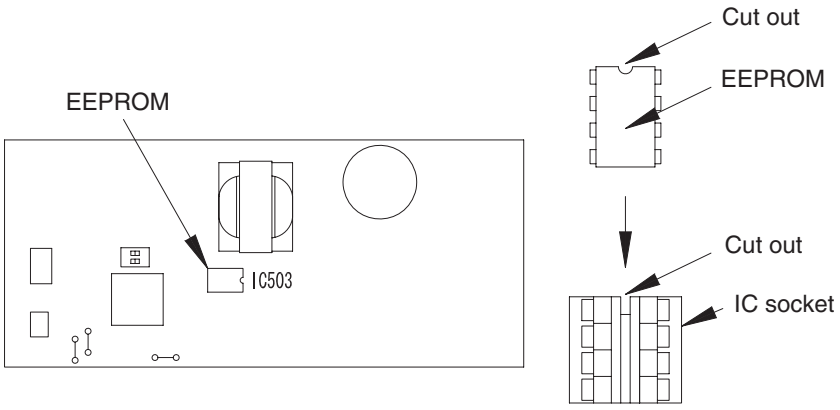


Table 1. Setting data (CODE No. table (example))

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 (flooring installation type: 0)
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
60	Timer setting (wired remote controller)		0000: Available
C2	Demand setting (outdoor unit current demand)		0075: 75 %
d0	Remote controller operation save function		0001: Enable
F6	Presence of Application control kit		0000: None

Table 2. Type: CODE No. 10

Setting data	Type	Model abb. name
0013	Floor Standing	MMF-AP✻✻✻H✻

Table 3.
Indoor unit capacity: CODE No. 11

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

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

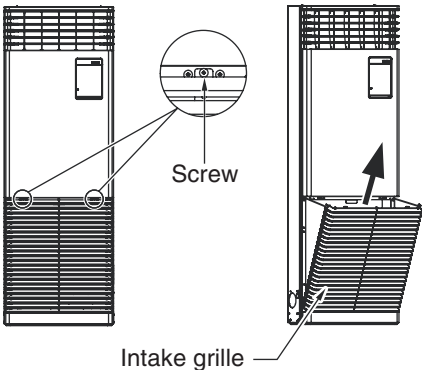
10. DETACHMENTS

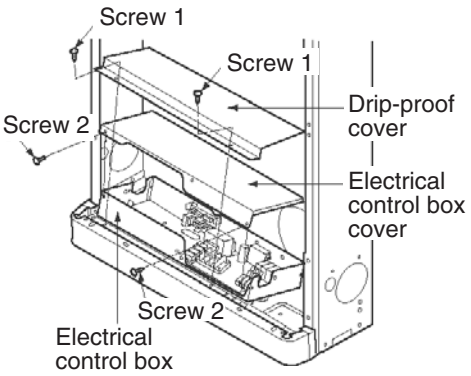
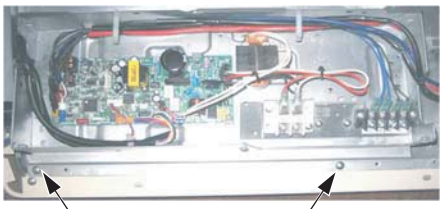
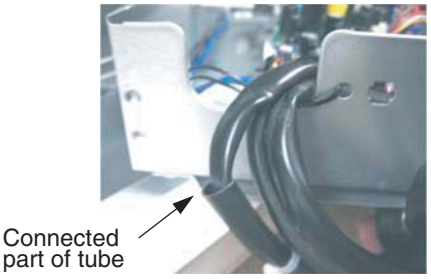
⚠ WARNING

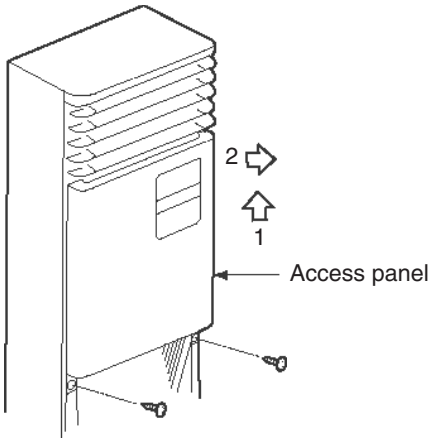
Be sure to stop operation of the air conditioner before work and then turn off switch of the breaker.

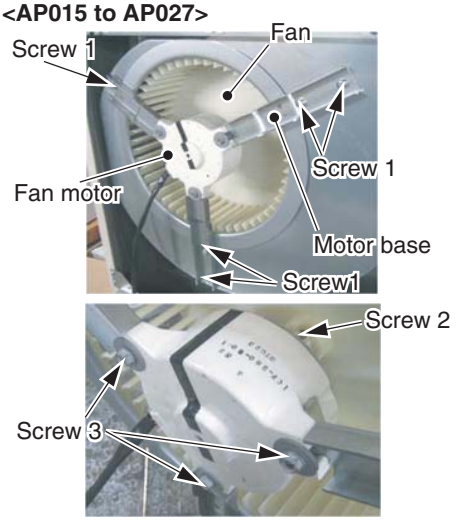
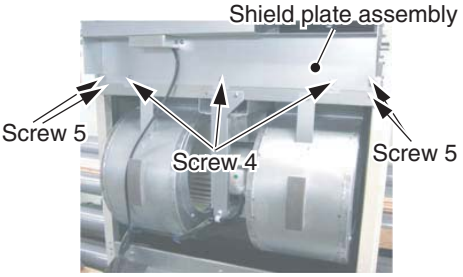
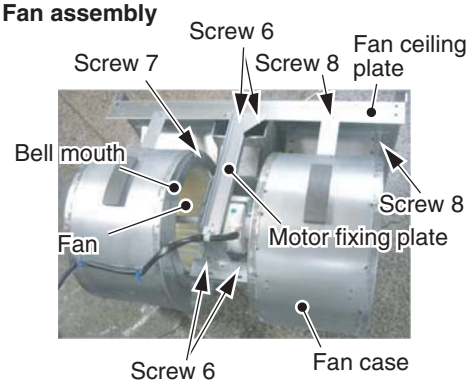
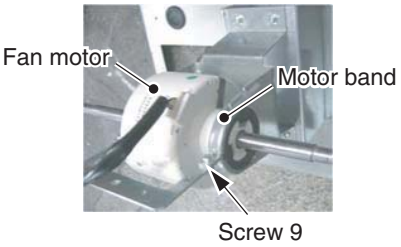
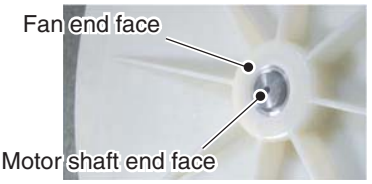
⚠CAUTION

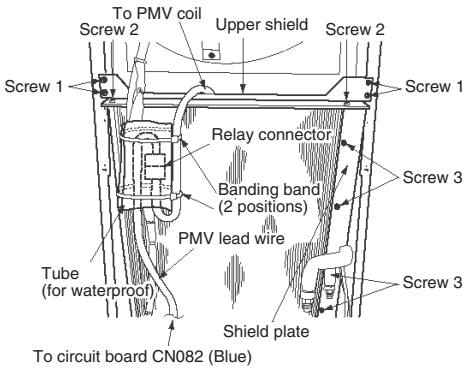
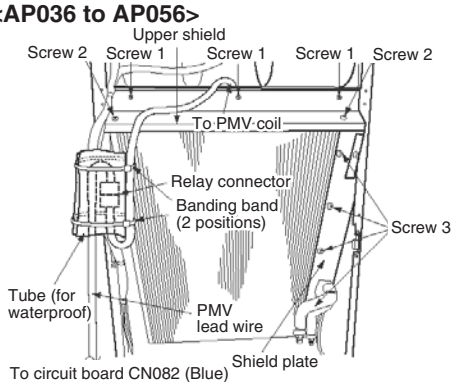
Be sure to put on gloves during working time; otherwise an injury will be caused by a part, etc.

No.	Part name	Procedure	Remarks
1	Intake grille	**1. Detachment** 1) Remove the two screws that fix the intake grille. • The screws are designed to stay on the intake grille. 2) Pull the upper part of the intake grille toward you, remove two strings that connect the intake grille with the main unit, and then remove the intake grille while lifting up it. **2. Attachment** 1) Attach the intake grille in the reverse way of detachment, and then fix it with two screws. **⚠ CAUTION** For reason of safety, be sure to fix the intake grille with screws.	

No.	Part name	Procedure	Remarks
2	Electric parts box	**1. Detachment** 1) Carry out the work of item 1-1. 2) Remove the Screw 1 (two screws) from the drip-proof cover on the bottom plate. * This work is unnecessary for Models AP036 to AP056. 3) Remove the Screw 2 (two screws) from the electrical control box cover. 4) Remove the the indoor/outdoor communication wires and the remote controller wires from each terminal block. 5) Remove the connectors and others which connected to P.C. board. **NOTE** When removing the connectors, unlock the lock. CN01 : Reactor (3P, Blue) CN40 : Indoor/Outdoor communication terminal block (2P, Blue) CN41 : Remove controller terminal block (2P, Blue) CN67 : Power supply terminal block (5P: Black) CN82 : PMV output (6P, Blue) CN100 : TC1 sensor (3P, Brown) CN101 : TC2 sensor (2P: Black) CN102 : TCJ sensor (2P, Red) CN104 : Room temperature (2P, Yellow) CN210 : Fan motor (7P, White) CN510 : Louver motor (20P, White) 6) Remove the Screw 3 (two screws) that fix the electric parts box, slide it toward right, and then remove the electric parts box. 7) Unlock the lock of the card edge spacer, and then remove the P.C. board. **2. Attachment** 1) Attach the P.C. board and the electric parts box, and then perform wiring as before. 2) Attach the electrical control box cover and the drip-proof cover. **NOTE** • Check there is no incorrect wiring or no dislocation of connector. • Set the connected part of tube of the fan motor lead wire at a place out of the electric parts box.	  P.C. board  

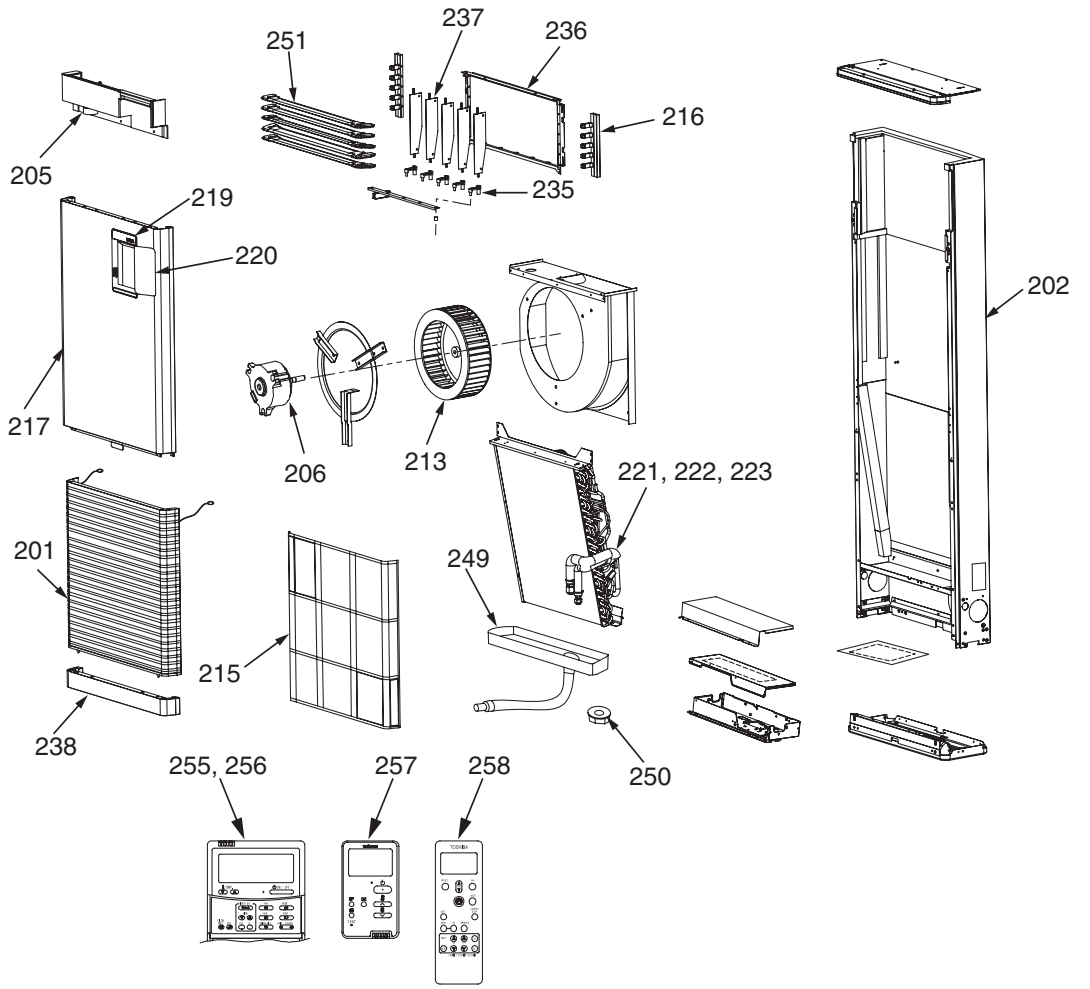
No.	Part name	Procedure	Remarks
3	Access panel	**1. Detachment** 1) Carry out the work of item 1-1. 2) Remove the two screws of the Access panel, slide the Access panel approx. 30mm upward, and remove the Access panel while drawing it toward you. • The screws are designed to stay on the Access panel. **2. Attachment** 1) Attach the Access panel in the reverse way of detachment, and then fix it with two screws. ⚠ **CAUTION** For reason of safety, be sure to fix the Access panel with screws.	

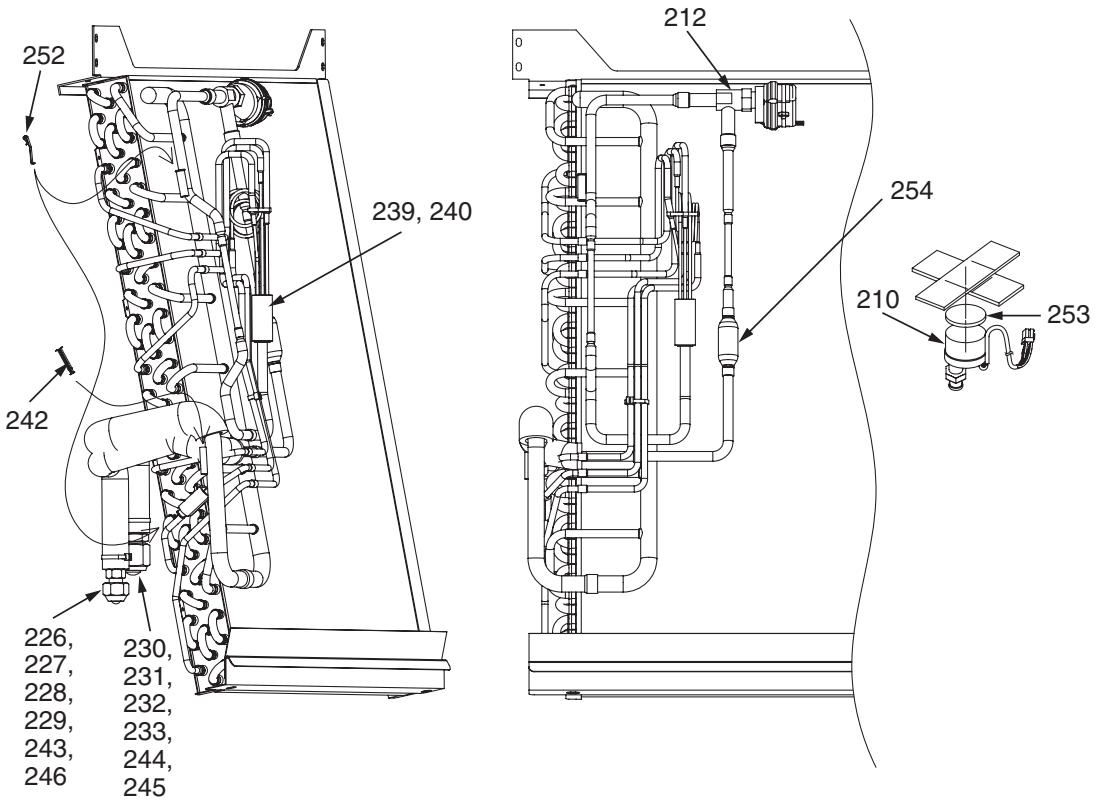
No.	Part name	Procedure	Remarks
4	Fan, Fan motor	**1. Detachment** 1) Carry out the works of items 1-1 and 3-1. 2) Cut off the bundling band that fixes the fan motor lead wire to remove the fan motor connector in the electric parts box. **▼ AP015 ~ AP027** 3) Remove the Screw 1 (five screws) that fix the motor base, and then take out the motor base, fan motor, and fan. 4) Loosen a Screw 2 that fixes the fan and then remove the fan. 5) Remove the Screw 3 (three screws) and then remove the fan motor. **▼ AP036 ~ AP056** 3) Remove the Screw 4 (three screws) that fix the shield plate assembly, and then remove the shield plate assembly. 4) Remove the Screw 5 (five screws) that fix the ceiling plate of the fan assembly, and then draw out the fan with assembly. 5) Remove the Screw 6 (four screws) that fix the motor fixing plate, and then remove the motor fixing plate. 6) Remove the Screw 7 (four screws for left and right each) that fixes right and left bell-mouth, take off left and right fan case fixing Screw 8 (four screws for left and right), and then remove the fan case. 7) Remove the a screw that fixes the fan, and then remove the fan from the fan motor. 8) Remove the Screw 9 (a screw for right and left each) of the left and right motor band, and then remove the fan motor. **2. Attachment** 1) Attach the fan motor, fan and others in the reverse way of detachment, and then perform wiring as before. **NOTE** • Mount AP015 to AP027 fans so that bump difference when putting motor shaft end face and fan end face together is within ± 1mm. • For attachment of AP036 to AP056 fans, set so that the fan locates at the center of the fan case. • Tighten the fan screw with 4.9N•m or more with a torque wrench.	**<AP015 to AP027>**  **<AP036 to AP056>**  **Fan assembly**   **<AP015 to AP027>** 

No.	Part name	Procedure	Remarks
5	Heat exchanger	**1. Detachment** 1) Carry out the works of items 1-1 and 3-1. **▼ AP015 to AP027** 2) Remove the tube of the relay part of PMV, and then remove the relay connector. 3) Remove the Screw 1 (four screws) that fixes the main unit and heat exchanger assembly, and then draw out the heat exchanger assembly toward you. 4) Remove the Screw 2 (two screws) of the heat exchanger, and then remove the upper shield plate. 5) Remove the Screw 3 (four screws) of the heat exchanger assembly, and then remove the shield plate. 6) Remove three types of temperature sensors from the heat exchanger assembly. **▼ AP036 to AP056** 2) Remove the tube of the PMV relay part to remove the relay connector. 3) Remove the Screw 1 (three screws) that fixes the main unit and the heat exchanger assembly, and then draw out the heat exchanger assembly toward you. 4) Remove the Screw 2 (two screws) of the heat exchanger assembly, and then remove the upper shield plate. 5) Remove the Screw 3 (four screws) of the heart exchanger assembly, and then remove the shield plate. 6) Remove three types of the temperature sensors from the heat exchanger assembly. **2. Attachment** 1) Attach the temperature sensor, shield plate, and heat exchanger assembly in the reverse way of the detachment, and then perform wiring of PMV relay lead wire as before.	**<AP015 to AP027>**  **<AP036 to AP056>** 

11. EXPLODED VIEWS AND PARTS LIST

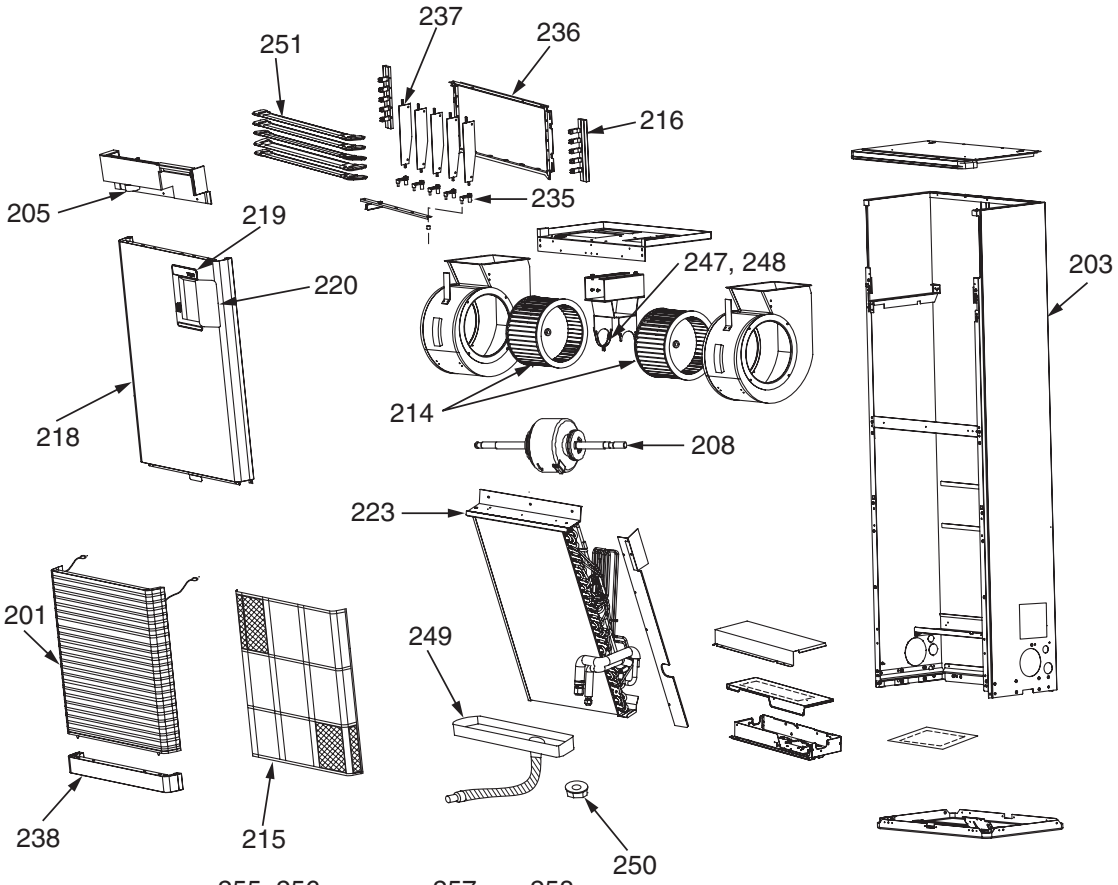
MMF-AP0156H∗, MMF-AP0186H∗, MMF-AP0246H∗, MMF-AP0276H∗

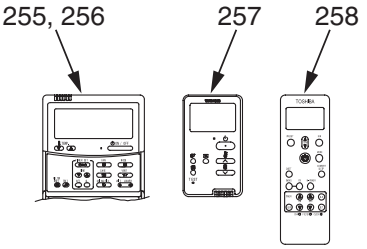


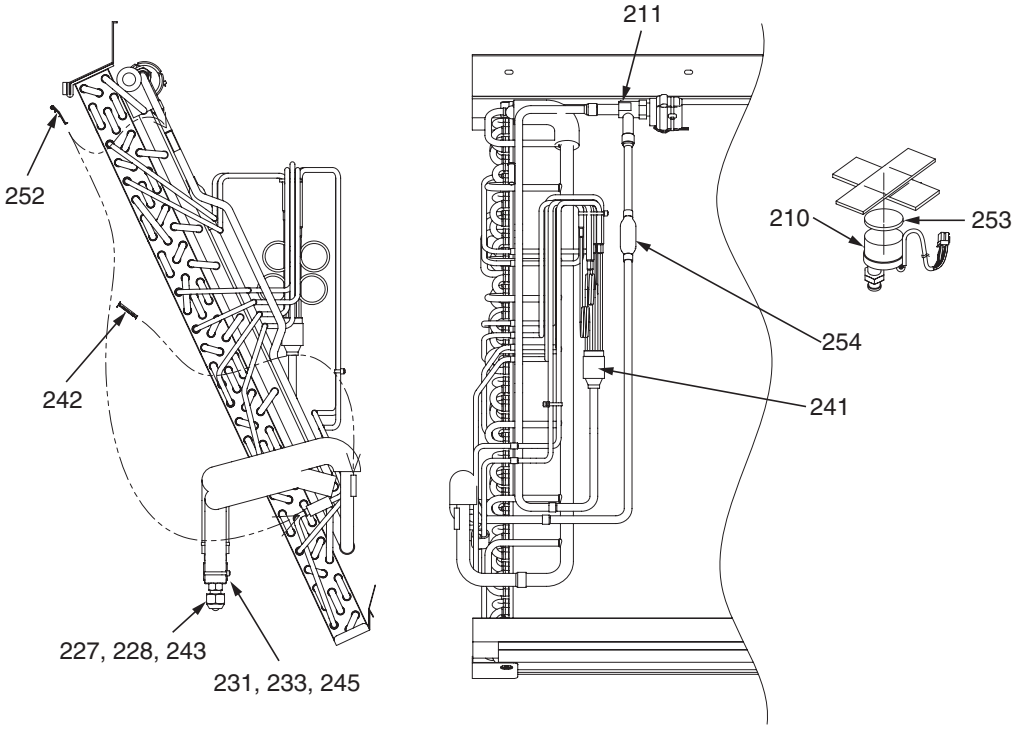


Location No.	Part No.	Description	Q'ty/Set	MMF-AP✻✻✻✻H-E(TR)		
			0156	0186	0246	0276
201	43109392	GRILLE, INLET	2	2	2	2
202	43100388	CASE ASSY	1	1	1	1
205	43F2C076	MOTOR, LOUVER	1	1	1	1
206	4312C133	MOTOR, FAN, ICF-340D62-1	1	1	1	1
210	43146707	MOTOR, PMV, EDM-MD12TF-3	1	1	1	1
212	43146726	BODY, PMV	1	1	1	1
213	43120271	FAN, MULTI BLADE	1	1	1	1
215	43180238	AIR FILTER	1	1	1	1
216	43139132	CLAMP, GRILLE	2	2	2	2
217	4310A119	CABINET ASSY	1	1	1	1
219	43101357	PANEL, REMOTE CONTROLER	1	1	1	1
220	43101345	COVER, REMOTE CONTROLER	1	1	1	1
221	4314J410	EVAPORATOR ASSY	1	1		
222	4314J411	EVAPORATOR ASSY			1	1
223	4314J358	REFRIGERATION CYCLE ASSY	1	1		
224	4314J359	REFRIGERATION CYCLE ASSY			1	1
226	43F47685	NUT, FLARE, 1/4, IN	1	1		
227	43149355	NUT, FLARE, 3/8, IN			1	1
228	43049776	SOCKET, 3/8, IN			1	1
229	43149351	SOCKET, 1/4, IN	1	1		
230	43047688	NUT, FLARE, 1/2, IN	1	1		
231	43149352	NUT, FLARE, 5/8, IN			1	1
232	43149353	SOCKET, 1/2, IN	1	1		
233	43149354	SOCKET, 5/8, IN			1	1
235	43139093	CONNECTION ROD	5	5	5	5
236	3759V024	GRILLE ASSY	1	1	1	1
237	43109207	GRILLE, OUTLET, VERTICAL	5	5	5	5
238	43100373	CABINET, LOWER	1	1	1	1
239	4314Q084	DISTRIBUTOR ASSY	1	1		
240	4314Q085	DISTRIBUTOR ASSY			1	1
242	43107215	HOLDER, SENSOR	1	1	1	1
243	43F47609	BONNET, 3/8, IN			1	1
244	43147195	BONNET, 1/2 IN	1	1		
245	43194029	BONNET, 5/8 IN			1	1
246	43F49697	BONNET, 1/4, IN	1	1		
249	43172090	PAN, DRAIN	1	1	1	1
250	43197136	WASHER	1	1	1	1
251	43109412	GRILLE, OUTLET, HORIZONTAL	5	5	5	5
252	43F19904	HOLDER, SENSOR (TS)	2	2	2	2
253	43149314	SHEET, PMV	1	1	1	1
254	43147664	STRAINER	1	1	1	1
255	43166011	REMOTE CONTROLLER, SX-A4EE	1	1	1	1
256	43166012	REMOTE CONTROLLER, SX-A5EE	1	1	1	1
257	43166022	REMOTE CONTROLLER, SX-U01EE	1	1	1	1
258	43166018	REMOTE CONTROLLER, WIRELESS, WH-L11SE	1	1	1	1

MMF-AP0366H∗, MMF-AP0486H∗, MMF-AP0566H∗

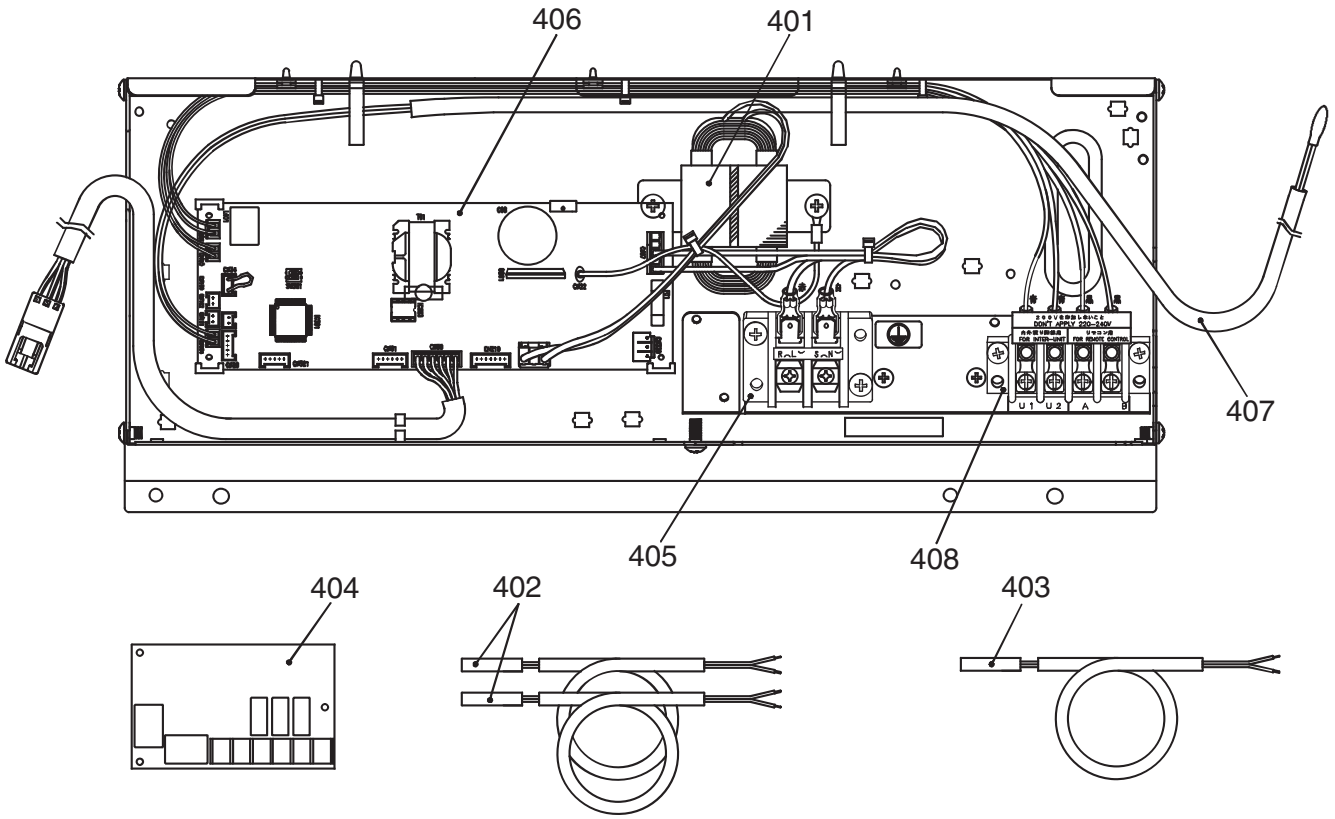






Location No.	Part No.	Description	Q'ty/Set	MMF-AP✻✻✻H-E(TR)	
			0366	0486	0566
201	43109392	GRILLE, INLET	2	2	2
203	43102650	CASE ASSY	1	1	1
205	43F2C076	MOTOR, LOUVER	1	1	1
208	4312C134	MOTOR, FAN, ICF-340WD109-1	1	1	1
210	43146707	MOTOR, PMV, EDM-MD12TF-3	1	1	1
211	43146723	BODY, PMV	1	1	1
214	43120272	FAN, MULTI BLADE	2	2	2
215	43180238	AIR FILTER	1	1	1
216	43139132	CLAMP, GRILLE	2	2	2
218	4310A120	CABINET ASSY	1	1	1
219	43101357	PANEL, REMOTE CONTROLER	1	1	1
220	43101345	COVER, REMOTE CONTROLER	1	1	1
223	4314J412	EVAPORATOR ASSY	1	1	1
224	4314J360	REFRIGERATION CYCLE ASSY	1	1	1
227	43149355	NUT, FLARE, 3/8, IN	1	1	1
228	43049776	SOCKET, 3/8, IN	1	1	1
231	43149352	NUT, FLARE, 5/8, IN	1	1	1
233	43149354	SOCKET, 5/8, IN	1	1	1
235	43139093	CONNECTION ROD	5	5	5
236	3759V024	GRILLE ASSY	1	1	1
237	43109207	GRILLE, OUTLET, VERTICAL	5	5	5
238	43100373	CABINET, LOWER	1	1	1
241	4314Q086	DISTRIBUTOR ASSY	1	1	1
242	43107215	HOLDER, SENSOR	1	1	1
243	43F47609	BONNET, 3/8, IN	1	1	1
245	43194029	BONNET, 5/8, IN	1	1	1
247	43139154	BAND, MOTOR, LEFT	2	2	2
248	43139155	BAND, MOTOR, RIGHT	2	2	2
249	43172090	PAN, DRAIN	1	1	1
250	43197136	WASHER	1	1	1
251	43109412	GRILLE, OUTLET, HORIZONTAL	5	5	5
252	43F19904	HOLDER, SENSOR (TS)	2	2	2
253	43149314	SHEET, PMV	1	1	1
254	43147664	STRAINER	1	1	1
255	43166011	REMOTE CONTROLLER, SX-A4EE	1	1	1
256	43166012	REMOTE CONTROLLER, SX-A5EE	1	1	1
257	43166022	REMOTE CONTROLLER, SX-U01EE	1	1	1
258	43166018	REMOTE CONTROLLER, WIRELESS, WH-L11SE	1	1	1

E-Parts



Location No.	Part No.	Description	Q'ty/Set MMF-AP∗∗∗∗H-E(TR)
			0156, 0186, 0246, 0276, 0366, 0486, 0566
401	44258091	REACTOR, CH-49-Z-T	1
402	43050425	SENSOR ASSY, SERVICE,TC(F6)	2
403	43150320	SENSOR ASSY, SERVICE,TG(F4)	1
404	43459017	PC BOARD ASSY, TCB-PCUC1E	1
405	43160575	TERMINAL BLOCK, 2P, 20A	1
406	4316V549	PC BOARD ASSY, MCC-1643	1
407	43F50426	SENSOR, SERVICE, TA	1
408	43160582	TERMINAL, 4P	1

WARNINGS ON REFRIGERANT LEAKAGE

Check of Concentration Limit

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

The refrigerant R410A which is used in the air conditioner is safe, without the toxicity or combustibility of ammonia, and is not restricted by laws to be imposed which protect the ozone layer. However, since it contains more than air, it poses the risk of suffocation if its concentration should rise excessively. Suffocation from leakage of R410A is almost non-existent. With the recent increase in the number of high concentration buildings, however, the installation of multi air conditioner systems is on the increase because of the need for effective use of floor space, individual control, energy conservation by curtailing heat and carrying power etc.

Most importantly, the multi air conditioner system is able to replenish a large amount of refrigerant compared with conventional individual air conditioners. If a single unit of the multi conditioner system is to be installed in a small room, select a suitable model and installation procedure so that if the refrigerant accidentally leaks out, its concentration does not reach the limit (and in the event of an emergency, measures can be made before injury can occur).

In a room where the concentration may exceed the limit, create an opening with adjacent rooms, or install mechanical ventilation combined with a gas leak detection device.

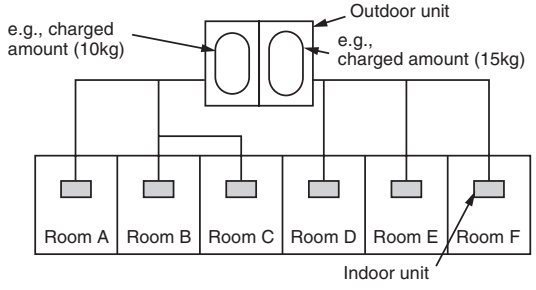
The concentration is as given below.

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

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

NOTE 1 :

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



For the amount of charge in this example:

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

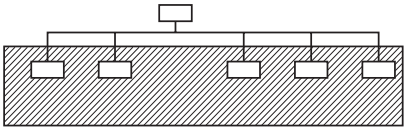
The possible amount of leaked refrigerant gas in rooms D, E and F is 15kg.

Important

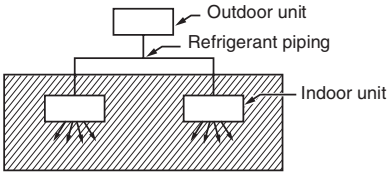
NOTE 2 :

The standards for minimum room volume are as follows.

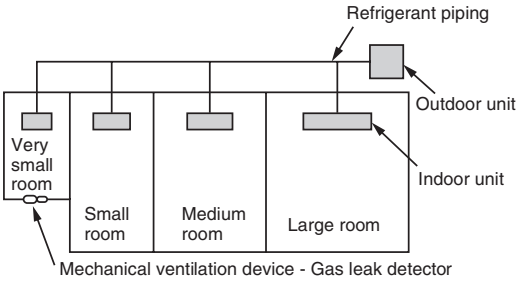
(1) No partition (shaded portion)



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



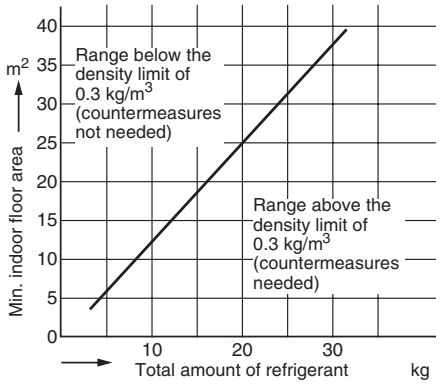
(3) If an indoor unit is installed in each partitioned room and the refrigerant piping is interconnected, the smallest room of course becomes the object. But when a mechanical ventilation is installed interlocked with a gas leakage detector in the smallest room where the density limit is exceeded, the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



NOTE 3 :

The minimum indoor floor area compared with the amount of refrigerant is roughly as follows:

(When the ceiling is 2.7m high)



TOSHIBA CARRIER CORPORATION

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