# TOSHIBA Carrier

AIR CONDITIONER (MULTI TYPE)

# SERVICE MANUAL

**Indoor unit** 

<1-way cassette type>

MMU-UP0071YHP-UL MMU-UP0091YHP-UL MMU-UP0121YHP-UL



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Please read carefully through these instructions that contain important information and ensure that you understand them.

## **Definition of Qualified Installer or Qualified Service Person**

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

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

Agent	Qualifications and knowledge which the agent must have
Qualified installer (*1)	<ul> <li>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.</li> <li>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.</li> <li>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 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 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 t</li></ul>
Qualified service person (*1)	<ul> <li>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.</li> <li>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.</li> <li>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 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 individual or individuals or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work.</li> </ul>

# **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 (19.7" (50 cm) or more)	Helmets for use in industry
Transportation of heavy objects	Shoes with additional protective toecap
Repair of outdoor unit	Gloves to provide protection for electricians

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

# [Explanation of indications]

Indication	Explanation
<b>⚠</b> 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.
<b>⚠</b> 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.
<b>⚠</b> 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.

<sup>\*</sup> 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.
0	Indicates mandatory items (Compulsory items to do) The sentences near an illustrated mark describe the concrete mandatory contents.
$\triangle$	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
ELECTRICAL SHOCK HAZARD	WARNING  ELECTRICAL SHOCK HAZARD  Disconnect all remote electric power supplies before servicing.
Moving parts.	WARNING  Moving parts. Do not operate unit with grille removed. Stop the unit before the servicing.
	CAUTION  High temperature parts.  You might get burned when removing this panel.
Do not touch the aluminum	CAUTION  Do not touch the aluminium fins of the unit.  Doing so may result in injury.
BURST HAZARD Open the service valves before	CAUTION  BURST HAZARD  Open the service valves before the operation, otherwise there might be the burst.

# PRECAUTIONS FOR SAFETY

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



# / DANGER

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

Before opening the intake grille of the indoor unit or service panel of the outdoor unit, set the circuit breaker to the OFF position. Failure to set the circuit breaker to the OFF position may result in electric shocks through contact with the interior parts. Only a qualified installer or qualified service person 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 box 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 or qualified service person is allowed to remove the electric box cover and do the work required.

Before starting to repair the outdoor unit fan or fan guard, be absolutely sure to set the circuit breaker to the OFF position, and place a "Work in progress" sign on the circuit breaker.

When cleaning the filter or other parts of the indoor unit, set the circuit breaker to OFF without fail, and place a "Work in progress" sign near the circuit breaker before proceeding with the work.

When you have noticed that some kind of trouble (such as when a check code display has appeared, there is a smell of burning, abnormal sounds are heard, the air conditioner fails to cool or heat or water is leaking) has occurred in the air conditioner, do not touch the air conditioner yourself but set the circuit breaker to the OFF position, and contact a qualified service person. Take steps to ensure that the power will not be turned on (by marking "out of service" near the circuit breaker, for instance) until qualified service person arrives. Continuing to use the air conditioner in the trouble status may cause mechanical problems to escalate or result in electric shocks or other failure.



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

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 is allowed to do this kind of work.

# **. WARNIG**

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 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 or qualified service person 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 or qualified service person is allowed to undertake work at heights using a stand of 19.7"(50cm) or more or to remove the intake grille of the indoor unit to undertake work.

When working at heights, use a ladder which complies with the ISO 14122 standard, and follow the procedure in the ladder's instructions.

Also wear a helmet for use in industry as protective gear to undertake the work.

Before working at heights, put a sign in place so that no-one will approach the work location, before proceeding with the work. Parts and other objects may fall from above, possibly injuring a person below. While carrying out the work, wear a helmet for protection from falling objects.

When executing address setting, test run, or troubleshooting through the checking window on the electric parts box, put on insulated gloves to provide protection from electric shock. Otherwise you may receive an electric shock.

Do not touch the aluminum fin of the unit.

You may injure yourself if you do so. If the fin must be touched for some reason, first put on protective gloves and safety work clothing, and then proceed.

Do not climb onto or place objects on top of the outdoor unit.

You may fall or the objects may fall off the outdoor unit and result in injury.

Use forklift truck 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 hold the bands around the packing carton. You may injure yourself if the bands should break.

Be sure that a heavy unit 22 lbs (10 kg) or heavier such as a compressor is carried by four persons.



Before troubleshooting or repair work, check the earth wire is connected to the earth terminals of the main unit, otherwise an electric shock is caused when a leak occurs. If the earth wire is not correctly connected, contact an electric engineer for rework.

After completing the repair or relocation work, check that the ground wires are connected properly.

Connect earth wire. (Grounding work) Incomplete grounding causes an electric shock. Do not connect earth wires to gas pipes, water pipes, and lightning rods or ground wires for telephone wires.

Prohibition of modification.	Do not modify the products.Do not also disassemble or modify the parts. It may cause a fire, electric shock or injury.
Use specified parts.	When any of the electrical parts are to be replaced, ensure that the replacement parts satisfy the specifications given in the Service Manual (or use the parts contained on the parts list in the Service Manual).  Use of any parts which do not satisfy the required specifications may give rise to electric shocks, smoking and / or a fire.
Do not bring a child close to the equipment.	If, in the course of carrying out repairs, it becomes absolutely necessary to check out the electrical parts with the electrical parts box cover of one or more of the indoor units and the service panel of the outdoor unit removed in order to find out exactly where the trouble lies, put a sign in place so that no-one will approach the work location before proceeding with the work. Third-party individuals may enter the work site and receive electric shocks if this warning is not heeded.
Insulating measures	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	<ul> <li>When performing repairs using a gas burner, replace the refrigerant with nitrogen gas because the oil that coats the pipes may otherwise burn.</li> <li>When repairing the refrigerating cycle, take the following measures.</li> <li>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.</li> <li>2) Do not use a welder in the closed room. When using it without ventilation, carbon monoxide poisoning may be caused.</li> <li>3) Do not bring inflammables close to the refrigerant cycle, otherwise fire of the welder may catch the inflammables.</li> </ul>
	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.
Refrigerant	When the air conditioner has been installed or relocated, follow the instructions in the Installation Manual and purge the air completely so that no gases other than the refrigerant will be mixed in the refrigerating cycle.  Failure to purge the air completely may cause the air conditioner to malfunction.
	Do not charge refrigerant additionally. If charging refrigerant additionally when refrigerant gas leaks, the refrigerant composition in the refrigerating cycle changes resulted in change of air conditioner characteristics or refrigerant over the specified standard amount is charged and an abnormal high pressure is applied to the inside of the refrigerating cycle resulted in cause of breakage or injury. Therefore if the refrigerant gas leaks, recover the refrigerant in the air conditioner, execute vacuuming, and then newly recharge the specified amount of liquid refrigerant. In this time, never charge the refrigerant over the specified amount.
	When recharging the refrigerant in the refrigerating cycle, do not mix the refrigerant or air other than R410A into the specified refrigerant. If air or others is mixed with the refrigerant, abnormal high pressure generates in the refrigerating cycle resulted in cause of injury due to breakage.
	After installation work, check the refrigerant gas does not leak. If the refrigerant gas leaks in the room, poisonous gas generates when gas touches to fire such as fan heater, stove or cooking stove though the refrigerant gas itself is innocuous.
	Never recover the refrigerant into the outdoor unit. When the equipment is moved or repaired, be sure to recover the refrigerant with recovering device.  The refrigerant cannot be recovered in the outdoor unit; otherwise a serious accident such as breakage or injury is caused.

Assembly / Wriring  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.  After the work has finished, be sure to use an insulation tester set (500VMc2) 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.  When the refrigerant gas leaks during work, execute ventilation. If the refrigerant gas touches to a fire, poisonous gas generates. A case of leakage of the refrigerant and the closed room full with gas is dangerous because a shortage of oxygen occurs. Be sure to execute ventilation.  If refrigerant gas has leaked during the installation work, ventilate the room immediately. If the leaked refrigerant gas comes in contact with fire, noxious gas may generate.  After installation work, check the refrigerant gas does not leak. If the refrigerant gas leaks in the room, poisonous gas generates when gas touches to fire such as fan heater, stove or cooking stove though the refrigerant gas itself is innocuous.  When the refrigerant gas leaks, find out the leaked position and repair it surely. If the leaked position cannot be found out and the repair work is interrupted, reclaim and tighten the service valve, otherwise the refrigerant gas may leak into the room. The poisonous gas generates when gas touches to fire such as fan heater, stove or cooking stove though the refrigerant gas itself is innocuous.  When the refrigerant leaks and exceeds the limit concentration, an accident of shortage of oxygen is caused. If the refrigerant leaks and exceeds the limit concentration, an accident of shortage of oxygen
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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.
Check 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.
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.
Only a qualified installer or qualified service person 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 reclaim work shut down the compressor before disconnecting the refrigerant pipe. Disconnecting the refrigerant pipe with the service valve left open and the compressor still operating will cause air, etc. to be sucked in, raising the pressure inside the refrigeration cycle to an abnormally high level, and possibly resulting in rupture, injury, etc.

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.

Only a qualified installer or service person is allowed to do installation work. Inappropriate installation may result in water leakage, electric shock or fire.

Before starting to install the air conditioner, read carefully through the Installation Manual, and follow its instructions to install the air conditioner.

Be sure to use the company-specified products for the separately purchased parts. Use of non-specified products may result in fire, electric shock, water leakage or other failure. Have the installation performed by a qualified installer.

Do not supply power from the power terminal block equipped on the outdoor unit to another outdoor unit. Capacity overflow may occur on the terminal block and may result in fire.

Do not install the air conditioner in a location that may be subject to a risk of expire to a combustible gas. If a combustible gas leaks and becomes concentrated around the unit, a fire may occur.



Install the indoor unit at least 8'2"(2.5 m) above the floor level since otherwise the users may injure themselves or receive electric shocks if they poke their fingers or other objects into the indoor unit while the air conditioner is running.

Install a circuit breaker that meets the specifications in the Installation Manual and the stipulations in the local regulations and laws.

Install the circuit breaker where it can be easily accessed by the agent.

If you install the unit in a small room, take appropriate measures to prevent the refrigerant from exceeding the limit concentration even if it leaks. Consult the dealer from whom you purchased the air conditioner when you implement the measures. Accumulation of highly concentrated refrigerant may cause an oxygen deficiency accident.

Do not place any combustion appliance in a place where it is directly exposed to the wind of air conditioner, otherwise it may cause imperfect combustion.

#### **Explanations given to user**

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

#### Relocation

- Only a qualified installer or qualified service person 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 reclaim work shut down the compressor before disconnecting the refrigerant pipe.
   Disconnecting the refrigerant pipe with the service valve left open and the compressor still operating will cause air, etc. to be sucked in, raising the pressure inside the refrigeration cycle to an abnormally high level, and possibly resulting in rupture, injury, etc.

# Refrigerant R410A

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

# 1. Safety Caution Concerned to R410A Refrigerant

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

Therefore, be sure that water, dust, the former refrigerant or the former refrigerating oil is not mixed into the refrigerating cycle of the air conditioner with new refrigerant during installation work or service work. If an incorrect work or incorrect service is performed, there is a possibility to cause a serious accident. Use the tools and materials exclusive to R410A to purpose a safe work.

## 2. Cautions on Installation/Service

- (1) Do not mix the other refrigerant or refrigerating oil.
  For the tools exclusive to R410A, shapes of all the joints including the service port differ from those of the former refrigerant in order to prevent mixture of them.
- (2) As the use pressure of the new refrigerant is high, use material thickness of the pipe and tools which are specified for R410A.
- (3) In the installation time, use clean pipe materials and work with great attention so that water and others do not mix in because pipes are affected by impurities such as water, oxide scales, oil, etc. Use the clean pipes.
  - Be sure to brazing with flowing nitrogen gas. (Never use gas other than nitrogen gas.)
- (4) For the earth protection, use a vacuum pump for air purge.
- (5) R410A refrigerant is azeotropic mixture type refrigerant.

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

#### 3. Pipe Materials

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

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

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

(1) Copper pipe

#### <Piping>

The pipe thickness, flare finishing size, flare nut and others differ according to a refrigerant type. When using a long copper pipe for R410A, it is recommended to select "Copper or copper-base pipe without seam" and one with bonded oil amount 0.0001/lbs / 32'10" (40mg/10m)

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

#### <Flare nut>

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

#### (2) Joint

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

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

However clear impurities when using them.

#### 4. Tools

(1) Required Tools for R410A

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

- 1) Tools exclusive for R410A
- 2) Tools exclusive for R410A, but can be also used for conventional refrigerant
- 3) Tools commonly used for R410A and for conventional refrigerant

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

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

Tools whose specifications are changed for R410A and their interchangeability

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

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

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

#### General tools (Conventional tools can be used.)

In addition to the above exclusive tools, the following equipments are necessary as the general tools.

Vacuum pump
 Use vacuum pump by attaching vacuum pump adapter.

2) Torque wrench

Pipe cutter

4) Reamer

5) Pipe bender

6) Level vial

7) Screwdriver (+, -)

8) Spanner or Monkey wrench

9) Hole core drill

10) Hexagon wrench (Opposite side 0.16"(4mm))

11) Tape measure

12) Metal saw

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

1) Clamp meter

3) Insulation resistance tester

2) Thermometer

4) Electroscope

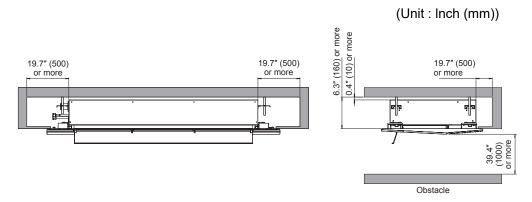
# 1. SPECIFICATIONS

# 1 Way cassette type

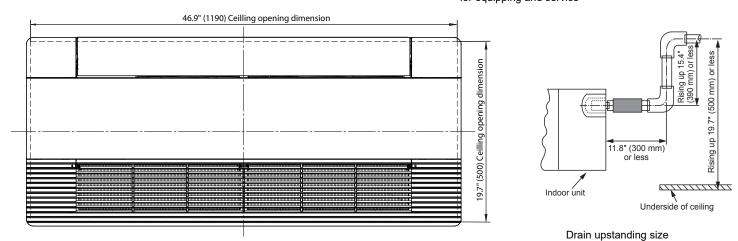
Model name			MMU-UP0071YHP-UL	MMU-UP0091YHP-UL	MMU-UP0121YHP-UL	
Cooling Capacity (Btu/h)			7500	9500	12000	
Heating Capacity (Btu/h)			8500	10500	13500	
	Power supply			1Ph. 208/230V ~ 60Hz.		
Electrical	Running current (A)		0.17	0.18	0.19	
characteristics	Power consumption (kW)		0.017	0.018	0.019	
	Starting current (A)		0.23	0.24	0.25	
	Main unit		Zinc hot dipping steel plate			
Appearance	Ceiling pane	Model name		RBC-UY32P-UL		
	Celling parte	Panel Color	Gran White			
		Height (in)		5.9		
	Main unit	Width (in)		39.0		
Outer diamension		Depth (in)		17.7		
Outer diamension	Ceiling panel	Height (in)	1.1			
		Width (in)	20.8			
l		Depth (in)	44.0			
Total weight Main unit (Ibs)			31			
Total weight Ceiling panel (lbs)			6.6			
Heat exchanger			Finned tube			
Fan		Cross flow fan				
Fan unit	Standard air flo	w H/M/L (cfm)	295/230/160	305/240/170	315/245/170	
	Motor (W)		30			
Air filter			Standard filter attached (Long life filter)			
Controller			Optional			
Sound pressure level H/M/L		. (dB)	38/34/25	39/35/26	40/36/26	
Sound power level H/M/L (dB)		53/49/40 54/50/41 55/51/41		55/51/41		
	Gas	ide (in)	3/8			
Connecting p	pipe Liquid	l (in)	1/4			
Drain port (in		VP25 (Polyvinyl chloride tube: External Dia. 1-1/4 Internal Dia.1)				

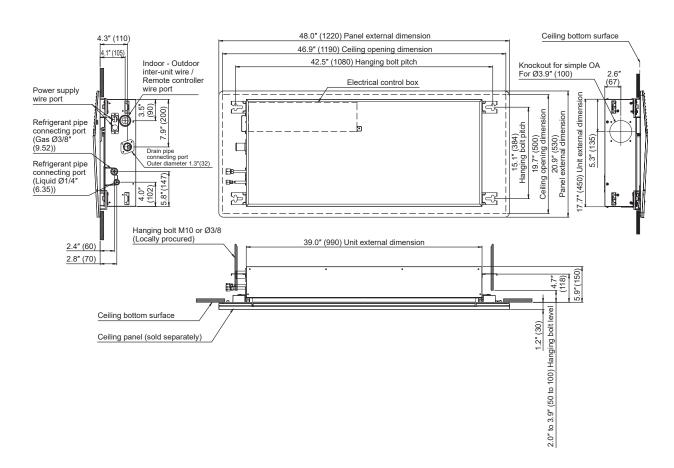
# 2. CONSTRUCTION VIEWS (EXTERNAL VIEWS)

# 1-way cassette type

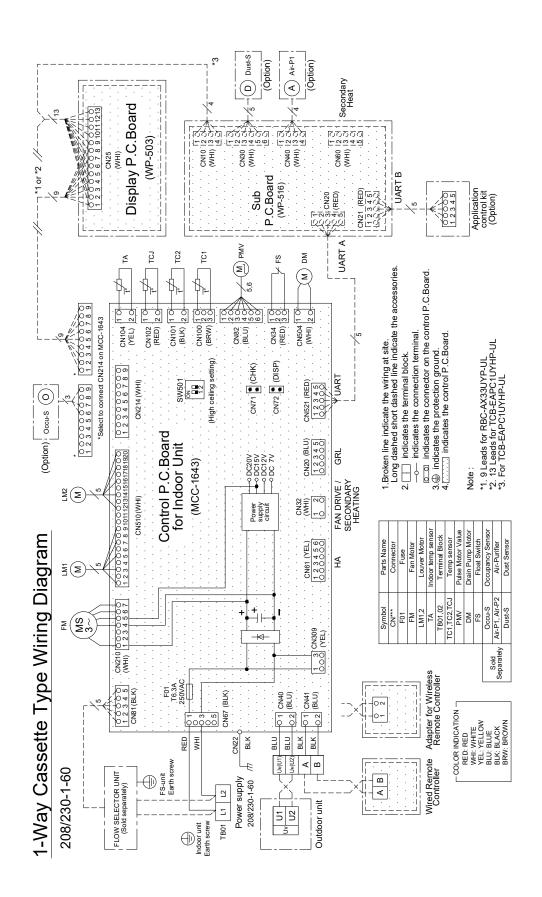


The space that is necessary for equipping and service





# 3. WIRING DIAGRAM

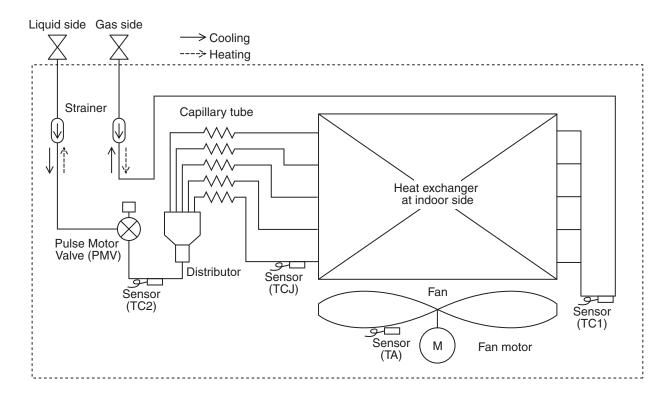


# 4. PARTS RATING

	MMU-			
Model	UP007 UP009 UP012			
Fan motor	ICF-340-30-6A			
Motor for horizontal grille	24BYJ48-ST			
Pulse motor valve	PAM-B25YGTF-1			
TA sensor	Lead wire length : 8.6" (218 mm) Vinyl tube			
TC1 sensor	Ø0.16" (4 mm) size lead wire length: 39.4" (1000 mm) Vinyl tube (Brown)			
TC2 sensor	Ø0.24" (6 mm) size lead wire length : 39.4" (1000 mm) Vinyl tube (Black)			
TCJ sensor	Ø0.24" (6 mm) size lead wire length : 39.4" (1000 mm) Vinyl tube (Red)			
Float switch	FS-1A-31-3			
Drain pump motor	PMD-08D12TF-2			

# 5. REFRIGERANT CYCLE DIAGRAM

# **Indoor unit**



# Explanation of functional parts in indoor unit

Functional part	t name	Functional outline
Pulse Motor Valve	PMV	(Connector CN82 (6P): Blue)  1) Controls superheat in cooling operation 2) Controls subcool in heating operation 3) Recovers refrigerant oil in cooling operation 4) Recovers refrigerant oil in heating operation
Temp. Sensor	TA	(Connector CN104 (2P): Yellow) 1) Detects indoor suction temperature
	TC1	(Connector CN100 (3P): Brown) 1) Controls PMV superheat in cooling operation
	TC2	(Connector CN101 (2P): Black) 1) Controls PMV subcool in heating operation
	TCJ	(Connector CN102 (2P): Red) 1) Controls PMV superheat in cooling operation

# **6. CONTROL OUTLINE**

# **Control Specifications**

No.	Item	Outline of specifications	Remarks
1	When power supply is reset	<ol> <li>Distinction of outdoor unit         When the power supply is reset, the outdoors are         distinguished and the control is selected according to the         distinguished result.</li> <li>Setting of indoor fan speed and existence of air direction         adjustment         Based on EEPROM data, select setting of the indoor fan         speed and the existence of air direction adjustment.</li> <li>If resetting the power supply during occurrence of a         trouble, the check code is once cleared. After ON/OFF         button of the remote controller was pushed and the         operation was resumed, if the abnormal status continues,         the check code is again displayed on the remote controller.</li> </ol>	
2	Operation mode selection	Based on the operation mode selecting command from the remote controller, the operation mode is selected.      Remote controller Control outline	
		command	
		STOP Air conditioner stops.	
		FAN Fan operation	
		COOL Cooling operation	
		DRY Dry operation	
		HEAT Heating operation	
		<ul> <li>AUTO (Heat recovery system outdoor unit type)</li> <li>TA and Ts automatically select COOL/HEAT operation mode for operation.</li> <li>The operation is performed as shown in the following figure according to Ta value at the first time only. (In the range of Ts - 1 - 1.8°F (1°C) &lt; Ta &lt; Ts + 1, 1.8°F (1°C) + Cooling thermo. OFF (Fan) / Setup air volume operation continues.)</li> </ul>	TA: Room temp. Ts: Setup temp.
		Ta (°F) +1.8 +1.0  Ta (°F) Ts  Cooling thermo. ON  Tightharpoonup (1)  Cooling thermo. OFF (1) (at the first time only)	
		-1.0   - //// Heating //////	
		* Only Heat recovery system outdoor unit type can select automatic mode. While a wireless remote controller is used, the mode is notified by "Pi Pi" (two times) receiving sound and the alternate flashing of [TIMER ①] and [READY ⑧]. To clear the alternate flashing, change the mode on the wireless remote controller.	
3	Room temp. control	1) Adjustment range: Remote controller setup temperature (°F[°C])    COOL/DRY	* For Heat recovery system outdoor unit type

No.	Item	Outline	Remarks				
3	Room temp. control (Continued)	Using the Item code 0 operation can be composed by the composed by the composed by the composed by the code of the code o			perature 4	in heating	Shift of return air temperature in heating operation
		Temperature setting adjustment	+0 °F [+0°C]	+3.6 °F [+2°C]	+7.2 °F [+4°C]	+10.8 °F [+6°C]	Except while sensor of
		Setting at shipment		[ [ 2 0]	[110]	[100]	the remote controller is
		Mod	del			Set data	(Code No. [32], "0001")
		Floor standing cabinet, Fl Floor standing	0				
		Other models				2	
4	Automatic capacity control		1a(F) 1a +3.6 +2 +1.8 +1 Ts Ts SS SD +1.8 +1 SB TS TS SS ST TS SS SS SS				
5	Automatic cooling/heating control	1) The judgment of select shown below. When +2 10 minutes and after th (Thermostat OFF) exch Description in the parer cooling ON/OFF.  Ta Ta Co (°F) (°C) +2.7 +1.5	.7°F (+1 ermosta langes to hatheses  colling  (Cooling  lowers a DFF, cool hanges acity cor em 4. ensatior	.5°C) exc t OFF, he o cooling shows and ( g OFF) Heati gainst Ts ling oper to heatin ntrol after	ceeds age eating of operation operation operation goperation goperation goperation goperation goperation goperation operation	gainst Tsh peration on. ole of  ON)  nutes tion. ent of	* For Heat recovery system outdoor unit type Tsc: Setup temp. in cooling operation Tsh: Setup temp. in heating operation + temp. compensation of room temp. control

No.	Item	Outline of specifications	Remarks
6	Fan speed selection	1) By the command from remote control, fan speed is changed. ((HH), (H+), (H), (L+), (L) or [AUTO])  2) When the fan speed mode [AUTO] is selected, the fan speed varies by the difference between TA and Ts.  CCOOL>  Ta (°F) Ta (°C) +5.4 +3.0 HH B +4.5 +2.5 HH > C +5.4 +3.0 HH > D +1.8 +1.0 H+ <hh> D +1.8 +1.0 H &gt; H <hh> D +1.8 +1.0 H &gt; H <hh> D +0.9 +0.5 L <h> E -0.9 -0.5 L <h> G  C &gt; : Indicate automatic cooling.</h></h></hh></hh></hh>	HH > H+ > H > L+ > L > UL  Depending on the remote controller used, (H+) and (L+) cannot be selected.  For Floor Standing Concealed Type, or Floor Standing Cabinet Type, (HH), (H), (L) or [AUTO] can be selected regardless of remote controller models.
		Fan speed mode [AUTO] in case when remote controller sensor works is equal to that in case when indoor unit sensor works.  If the fan speed has been changed once, it is not changed for 3 minutes. However when the air volume is changed, the fan speed changes.  When cooling operation has started, select a downward slope for the fan speed, that is, the high position.  If the temperature is just on the difference boundary, the fan speed does not change  Ta (°F) Ta (°C) L < L +> L + CH >	Code No. [32] 0000: Indoor unit sensor (Main unit) 0001: Remote controller sensor
		the remote controller works.  Value without parentheses indicates one when sensor of the indoor unit sensor works.  • If the fan speed has been changed once, it is not changed for 1 minute. However when the fan speed changed, the fan speed changes.  • When heating operation has started, select an upward slope for the fan speed, that is, the high position.  • If the temperature is just on the difference boundary, the fan speed does not change.  • In TC2 ≥ 60°C, the fan speed increases by 1 step.	TC2: Temperature of indoor heat exchanger sensor

No.	Item	Outline of specifications	Remarks	
7	Prevention of cold air discharge	<ol> <li>In heating operation, the higher temperature of TC2 sensor and TCJ sensor is compared with temperature of TC1 sensor and then the lower temperature is used to set the upper limit of the fan tap.</li> <li>When B zone has continued for 6 minutes, the operation shifts to C zone.</li> <li>In defrost time, the control point is set to +10.8 °F [+6°C].</li> <li>(°F) (°C) 89.6 32 86 30 82.4 28 78.8 26 C zone: Over 78.8°F(26°C), below 82. C zone: Over 82.4°F(28°C), below 82. C zone: Over 86°F(30°C), below 89.6 E zone: HIGH (HH)</li> </ol>		
		33.8 16A		
8	Freeze prevention control (Low temp. release)	<ol> <li>In all cooling operation, the air conditioner operates as described below based upon temp. detected by TC1, TC2 and TCJ sensors.</li> <li>When "J" zone is detected for 5 minutes, the thermostat is forcedly off.</li> <li>In "K" zone, the timer count is interrupted, and held.</li> <li>When "I"zone is detected, the timer is cleared and the operation returns to the normal operation.</li> <li>If "J" zone continues, operation of the indoor fan in LOW mode continues until it reaches the "I"zone. It is reset when the following conditions are satisfied.</li> <li>Reset conditions</li> <li>TC1 ≥ 53.6°F(12°C) and TC2 ≥ 53.6°F(12°C) and TCJ ≥ 53.6°F(12°C)</li> <li>20 minutes passed after stop.</li> </ol>	TC1: Temperature of indoor heat exchanger sensor  ( ) value: When the power supply is	
		turned on, the forced thermostat becomes OFF if the temperature is less than this indicated temperature.		

No.	Item	Outline of specifications	Remarks
9	Refrigerant (Oil) recovery control in cooling operation	Indoor units during stop/thermostat OFF or FAN operation perform following controls when a refrigerant (compressor oil) recovery signal is received from outdoor unit at the cooling operation,  (1) Opening the indoor unit PMV at constant valve opening. (For a maximum of about 4 minutes)  (2) Operating the drain pump for about one minute, during recovery control and after the control finished.  Also, indoor unit fan or louvers may operate depending on the indoor unit type.	Control is performed per two hours or when the outdoor unit determines its need.(It varies depending on the indoor units connected.)
10	Refrigerant (Oil) recovery control in heating operation	Indoor units during stop/thermostat OFF or FAN operation perform following controls when a refrigerant (compressor oil) recovery signal is received from outdoor unit at the heating operation,  (1) Opening the indoor unit PMV at constant valve opening. (For a maximum of about 20 minutes)  (2) TC2 temperature is detected to close its PMV. Also, the fan, louvers, drain pump may operate for about one minute after recovery control finished depending on indoor unit types, until the number of recovery control reaches the predetermined number.  NOTE  The PMV, indoor fan, or louvers may operate through the outdoor unit instruction.  For its detail, refer to the outdoor unit service guide.	Indoor unit during cooling thermostat OFF or FAN operation stops the indoor fan and displays "Operation standby (())".  Control is performed per one hour or when the outdoor unit determines its need.(It varies depending on the indoor units connected.)
11	Compensation control for short intermittent operation	<ol> <li>For 3 minutes after start of operation, the operation is forcedly continued even if the unit enters in Thermostat-OFF condition.</li> <li>However the thermostat is OFF giving prior to COOL/HEAT selection, READY  for operation and protective control.</li> </ol>	Usually the priority is given to 5 minutes at outdoor controller side.
12	Drain pump control	<ol> <li>In cooling operation (including DRY operation), this control anytime operates the drain pump.</li> <li>During operation of the drain pump, if the float switch operates, the drain pump continuously operates and a check code is issued.</li> <li>During stop status of the drain pump, if the float switch operates, the thermostat is forcedly off and this control operates the drain pump. After continuous operation of the float switch for approx. 5 minutes, this control stops the operation and a check code is issued.</li> </ol>	Check Code [P10]  • A model with a drain pump: 4-way Concealed Duct High Static Duct Fresh air
13	Elimination of retained heat	When the unit stopped from [HEAT] operation, the indoor fan operates with [L] for approx. 30 seconds.	
14	HA control	<ol> <li>ON/OFF operation is available by input of HA signal from the remote site when connected to remote controller or the remote ON/OFF interface.</li> <li>HA control outputs ON/OFF status to HA terminal.</li> <li>The input-output specifications of HA conform to JEMA standard.</li> </ol>	When using HA terminal (CN61) for the remote ON/OFF, a connector sold separately is necessary.  In case of group operation, use the connector to connect HA terminal to either master or follower indoor unit.

No.	Item	Outline of specifications							Remarks
15	Alarm output setup	indoo outpu Follo	alarm outpu or unit durin ut in the hea wing the tab Ala he Not including Including the	(Refer t connect indoor F (MCC-1	etor CN61 o 8-3-1,8-3-2. Optional tor specifications of P.C.board 643 eto change the setting tile operation stops.				
16	Display of filter sign [ III ] (Not provided to the wireless type)	re tii op 2) T re Ir	The filter sign is displayed with LC by sending the filter- reset signal to the remote controller when the specified time (150H/2500H) elapsed as a result of integration of the operation time of the indoor fan.  The integrated timer is cleared when the filter-reset signal is received from the remote controller. In this time, if the specified time elapsed, the counted time is reset and the liquid crystal display is deleted.						
17	Display of [READY] [HEAT READY]	1) W • • • 2) D • • 3) T T 4) T <heacher co<="" company="" td=""  =""><td colspan="5"><ul> <li>&lt; READY&gt; Displayed on the remote controller</li> <li>1) When the following check codes are indicated <ul> <li>Open phase of power supply wiring [P05] was detected.</li> <li>There is an indoor unit that detected the indoor overflow [P10].</li> <li>There is an indoor unit that detected the interlock alarm [L30].</li> </ul> </li> <li>2) During Force Thermostat-OFF <ul> <li>[COOL/DRY] operation is unavailable because the other indoor unit operates with [HEAT] mode.</li> <li>[HEAT] operation is unavailable because COOL priority (SW11-bit1 of the Outdoor I/F P. C. board is ON) is set and the other indoor unit operates with [COOL/DRY] mode.</li> </ul> </li> <li>3) The above indoor units that cannot operate stay in Thermostat-OFF status.</li> <li>4) The indoor fan stops because the system performs [Recovery operation for heating refrigerant (Oil)].</li> <li><heat ready=""> Displayed on the remote controller</heat></li> <li>The indoor fan stops in order to prevent discharge of cool air when heating operation started or during heating operation.</li> </ul></td><td>No contype</td><td>EADY (*) &gt; display display for wireless remote controller  AT READY (*) &gt; lay</td></heacher>	<ul> <li>&lt; READY&gt; Displayed on the remote controller</li> <li>1) When the following check codes are indicated <ul> <li>Open phase of power supply wiring [P05] was detected.</li> <li>There is an indoor unit that detected the indoor overflow [P10].</li> <li>There is an indoor unit that detected the interlock alarm [L30].</li> </ul> </li> <li>2) During Force Thermostat-OFF <ul> <li>[COOL/DRY] operation is unavailable because the other indoor unit operates with [HEAT] mode.</li> <li>[HEAT] operation is unavailable because COOL priority (SW11-bit1 of the Outdoor I/F P. C. board is ON) is set and the other indoor unit operates with [COOL/DRY] mode.</li> </ul> </li> <li>3) The above indoor units that cannot operate stay in Thermostat-OFF status.</li> <li>4) The indoor fan stops because the system performs [Recovery operation for heating refrigerant (Oil)].</li> <li><heat ready=""> Displayed on the remote controller</heat></li> <li>The indoor fan stops in order to prevent discharge of cool air when heating operation started or during heating operation.</li> </ul>					No contype	EADY (*) > display display for wireless remote controller  AT READY (*) > lay
18	Selection of central control mode	a 2) S	Selection of emote contractording to Setting conte	roller at the setting at t ents	indoor unit he central o	side is pos	ssible ide.		
	central contro	oller	ON/OFF setting	Operation selection	Timer setting	Temp. setting	Fan speed setting	Air direction setting	
	Individual		0	0	0	0	0	0	
	[Central 1]		×	0	×	0	0	0	
	[Central 3]		X 0	X	× 0	×	0	0	-
	[Central 3]		0	×	0	X 0	0	0	
	(O: Operation poss	eible 🔀	_						1

No.	Item	Outline of spec	ifications	Remarks
19	Louver control	<ul> <li>1) Louver position setup</li> <li>• When the louver position is chanceessarily to downward dischathe set position.</li> <li>• The louver position can be set range.</li> <li>In cooling/dry operation</li> </ul>	arge position once to return to	
		<ul> <li>In group twin/triple operation, the up collectively or individually. In case that HEAT refrigerant reformed in STOP status, the loughorizontal when the operation in Swing setup Compact 4-way, 2-way cassette,</li> <li>[SWING] is displayed and the form of the swing state of the swing swing state of the swing state of the swing state of the swing swing state of the swing swing state of the swing s</li></ul>	ecovery control was perver position becomes s resumed.  1-way cassette (SH):	
		(Repeat  In group operation, the louver p	,	
		collectively or individually.  Floor standing:  • [SWING] is displayed and the fo		
		)		
		As for Floor standing, the vertice horizontal direction. (Perform vertical wind direction. In group operation, the louver percollectively or individually.  When the unit stopped or the war automatically set to full closed possible. (Heating operation started or defror heating thermostat is off or self-cle is automatically set to horizontal direction is louver closes fully when the unautomatically set to horizontal of HEAT (Heating ready) is disposited.	adjustment manually) positions can be set up rning was output, the louver is sition.  dy) is displayed st operation is performed), aning is performed, the louver scharge position.  Is individually set or the locked it stops and the louver is discharge position when PRE-	

No.	Item		Outline of specifications		Remarks	
19	Louver control (Continued)	If there remote     While to operate	For the setting operarefer to [How to set I lock] of Installation N	ouver		
			Control which ignores lock	Object	tive louver No.	
		1	Operation stop	Full-	close position	
		2	When heating operation started	Horizontal	discharge position	
		3	Heating thermostat OFF	Horizontal	discharge position	
		4	During defrost operation	Horizontal	discharge position	
		(5)	Initialize operation	Full-o	close position	
		on the	al louver corresponding to the louver N remote controller screen during setting erates swinging.		It is position check op and it does not link w real louver and air dir setup (Illustration on remote controller scre	ith the ection the
20	DC motor	starte 2) DC m the in (Note) I	n the fan starts, positioning is performer and the rotor. (Vibrate slightly) notor operates according to the commidoor controller.  If the fan rotates by entry of outside a he air conditioner stopped, the indoor operate as the fan motor stops.  If the fan lock was detected, the operandoor unit stops and the check code	Check code [P12]		
21	Power saving mode	1. Push 2. The control 3. The rapprof 4. If the are remode The ptime remode out	the save button on the remote cont segment lights up on the wired coller display. equirement capacity ratio is limited to eximately 75 %. power saving operation is enabled, the etained when the operation is stopped is changed, or when the power is repower saving operation will be enabled the operation starts. Operation may differ depending on the door unit. Refer to the Service Manual door unit.			

No.	Item	Outline of specifications	Remarks
22	Secondary heating	Secondary heating can be used while heating operations are performed. <control (normal="" mode)="" outline="">  1) If the difference between the indoor temperature and the outdoor temperature is large while the air conditioner is operating, turn ON the secondary heating.  2) This function is valid when the CODE No. (DN) [DC] is set to "0001" (32.9°F(0.5°C)) to "0010" (41°F(5.0°C)) using the wired remote controller, and the output to the external heating source will turn ON if the room temperature satisfies the condition.  3) The output will always stay ON while defrosting operations are being performed.</control>	
		TA TS TAH OFF TAL OFF TAL OFF TAL ON  ON  A  The output can be turned on by the outdoor temperature when CODE No. (DN) [C7] is set to "0001" (33.8°F(1°C)) to "0010" (50°F(10°C)) using the wired remote controller.	TAH: Temp.set air high (= Ts - a ) TAL: Temp.set air low (= TAH - b )
		TOL OFF ON C	TO <sub>H</sub> : Temp.set out high TO <sub>L</sub> : Temp.set out low (= TO <sub>H</sub> - c)
		<ul> <li><control (flip="" mode)="" outline=""></control></li> <li>1) If the difference between the room temperature and the set temperature is large while using secondary heating, run the air conditioner.</li> <li>2) This function is valid when the CODE No. (DN) [C5] is set to "0001" (Flip mode) or the CODE No. (DN) [C7] is set to "0001" (33.8°F(1°C)) to "0010" (50°F(10°C)) using the wired remote controller, and when the output is switched ON when the room temperature satisfies the conditions.</li> <li>* The outdoor temperature determination is invalid whilst this control is performed.</li> </ul>	
		TAL ON a	

DN [C5]	Data 0000 0001	Secondary heating mode  Normal mode (Factory default)	
1)	0000	Normal mode (Factory default)	
		` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` `	
DN IC61	0001		
DN IC61		Flip mode	
	Data	TOн: Set temp. out (high) [°F(°C)]	
	-0015	"-0015": 5°F(-15°C) to "0015": 59°F(15°C)	
	to	"0000": 32°F(0°C) (Factory default)	
	0015		
DN [C7]	Data	с : ТОн - TОL [°F(°С)]	
	0000	Unavailable (Factory default)	
	0001	0001: 33.8°F(1°C) to "0010": 50°F(10°C)	
	to		
	0010		
DN [DB]	Data	b : ТАн - ТАL [°F(°С)]	
	0001	"0001": 32.9°F(0.5°C) to "0010": 41°F(5.0°C)	
		"0006": 37.4°F(3°C) (Factory default)	
	0010		
DN [DC]	Data	a : Ts - TAн (Normal mode)[°F(°C)]	
		TA∟ - Ts (Flip mode)[°F(°C)]	
	0000	Unavailable (Factory default)	
		0001: 33.8°F(1°C) to "0010": 50°F(10°C)	
Indoor F  CN60 Option output (6P WHI)  Indoor cont P.C. board  * The output the wired controller  Monit CODE	Relay Corrections of the state carremote coffor operations of the state carrendom or the s	connect to secondary heating unit  Desponds to the relay up to one that the rated ont of the operation coil is approx. 75mA  Connect to secondary heating unit  Desponds to the relay up to one that the rated ont of the operation coil is approx. 75mA  Connect to secondary heating unit  Desponds to the relay up to one that the rated ont of the operation of the relay within 2m.  Desponds to the relay up to one that the rated ont of the operation on the secondary heating unit  Desponds to the relay up to one that the rated ont of the remote indoor control is approx. 75mA  Connect to secondary heating unit  Desponds to the relay up to one that the rated ont of the remote indoor control is approx. 75mA  Connect to secondary heating unit  Desponds to the relay up to one that the rated ont of the rated ont of the relay within 2m.	
	CN60 Option output (6P WHI)  Indoor cont P.C. board  * The output the wired controller  Monit	DN [C7] Data  0000 0001 to 0010  DN [DB] Data 0001 to 0010  DN [DC] Data  0000 0001 to 0010 <wiring> 1) Use ① - ④ pin (O indoor P.C. board  Relay Correcurre CN60 Option output (6P WHI) 3 3 4 4 5 5 6 6 Note Indoor control P.C. board  * The output state ca the wired remote co controller for operat  Monitor Sec CODE No. E5</wiring>	DN [C7]  Data  C: TOH - TOL [°F(°C)]  0000  Unavailable (Factory default)  0001  0001: 33.8°F(1°C) to "0010": 50°F(10°C)  to 0010  DN [DB]  Data  b: TAH - TAL [°F(°C)]  0001  0001  "0001": 32.9°F(0.5°C) to "0010": 41°F(5.0°C)  to "0006": 37.4°F(3°C) (Factory default)  0010  DN [DC]  Data  a: Ts - TAH (Normal mode)[°F(°C)]  TAL - Ts (Flip mode)[°F(°C)]  0000  Unavailable (Factory default)  0001  0001  Viring> 1) Use ① - ④ pin (Cooling output, DC 12 V) of CN60 on indoor P.C. board for output.  Relay (DC12V, procured locally)  Corresponds to the relay up to one that the rated current of the operation coil is approx. 75mA  CN60  Option output  (6P WHI)  Note) Determine the cable length between the indoor control P.C. board and the relay within 2m.  * The output state can be checked from "Monitor function" on the wired remote controller. The manual for the remote controller for operation methods of "Monitor function".  Monitor  Secondary heating output  CODE No. : Unavailabl

# 7. COMMUNICATION TYPE, MODEL NAMES AND THE MAXIMUM NUMBER OF CONNECTABLE UNITS

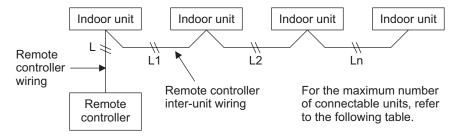
7-1. This air conditioning (U series) has new communication specifications, and TU2C-Link (U series) and TCC-Link (other than U series) differ in a communication type. For the communication type and the model names such as each unit or remote controllers, refer to the following table.

Communication type	TU2C-Link (U series and future models)	TCC-Link (Other than U series)
Outdoor unit	MMY-M <u>U</u> P***  ↑  This letter indicates U series model.	Other than U series MMY-MAP*** MCY-MHP***
Indoor unit	MM*- <u>U</u> P***  ↑  This letter indicates U series model.	Other than U series MM*-AP***
Wired remote controller	RBC-A** <u>U</u> ***  ↑  This letter indicates U series model.	Other than U series
Wireless remote controller kit & receiver unit	RBC-AX <u>U</u> ***  ↑  This letter indicates U series model.	Other than U series
Remote sensor	TCB-TC** <u>U</u> ***  ↑  This letter indicates U series model.	Other than U series

U series outdoor unit : SMMS-u (MMY-MUP\*\*\* )
Other than U series outdoor unit : SMMS-i, SMMS-e etc. (MMY-MAP\*\*\* )

# 7-2. If TU2C-Link (U series) is combined with TCC-Link (other than U series), the wiring specifications and the maximum number of connectable indoor units during group control operation will be changed.

- (1) For wiring specifications, carry out the installation, maintenance, or repair according to the attached Installation Manual.
- (2) For a communication type combination and the max. number of connectable indoor units, refer to the following table.
  - Only when all outdoor unit, indoor unit and remote control are a U series, communication method is TU2C-LINK, and the maximum number of connectable units will be 16.



The combination of unit type and the number of the maximum connection of a communication method

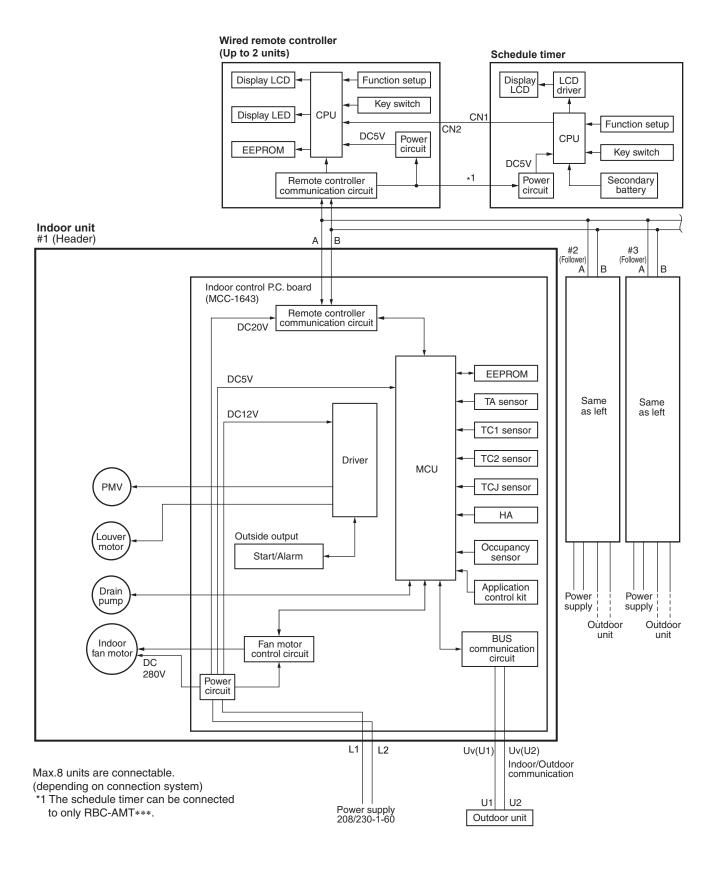
		Unit type							
Outdoor unit	U series	U series	U series	U series	*	*	*	*	
Indoor unit	U series	U series	*	*	U series	U series	*	*	
Remote controller Remote sensor	U series	*	U series	*	U series	*	U series	*	
Communication type	TU2C-Link	TCC-Link							
Maximum number of connectable units	16	8							

<sup>\*</sup> Other than U series

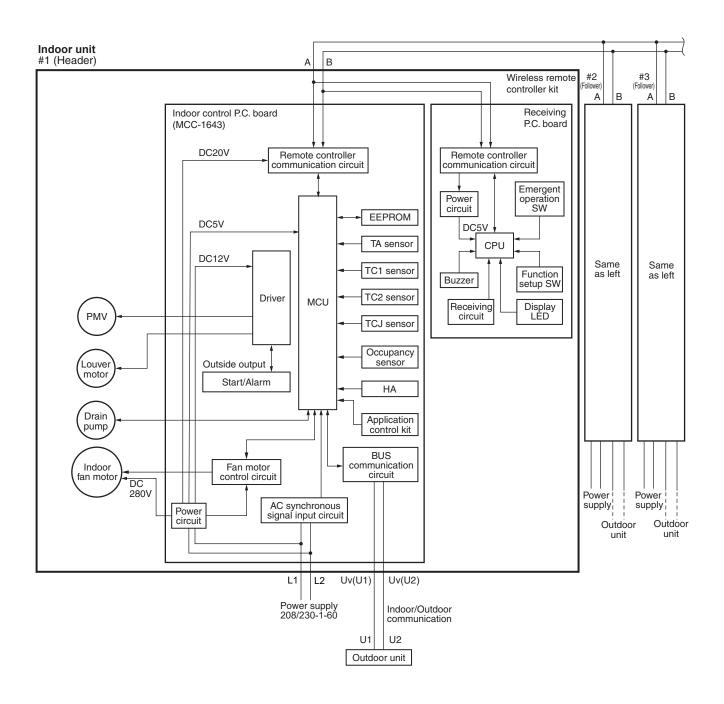
# 8. CONFIGURATION OF CONTROL CIRCUIT

# 8-1. Indoor controller block diagram (MCC-1643)

## 8-1-1. In case of connection of wired remote controller

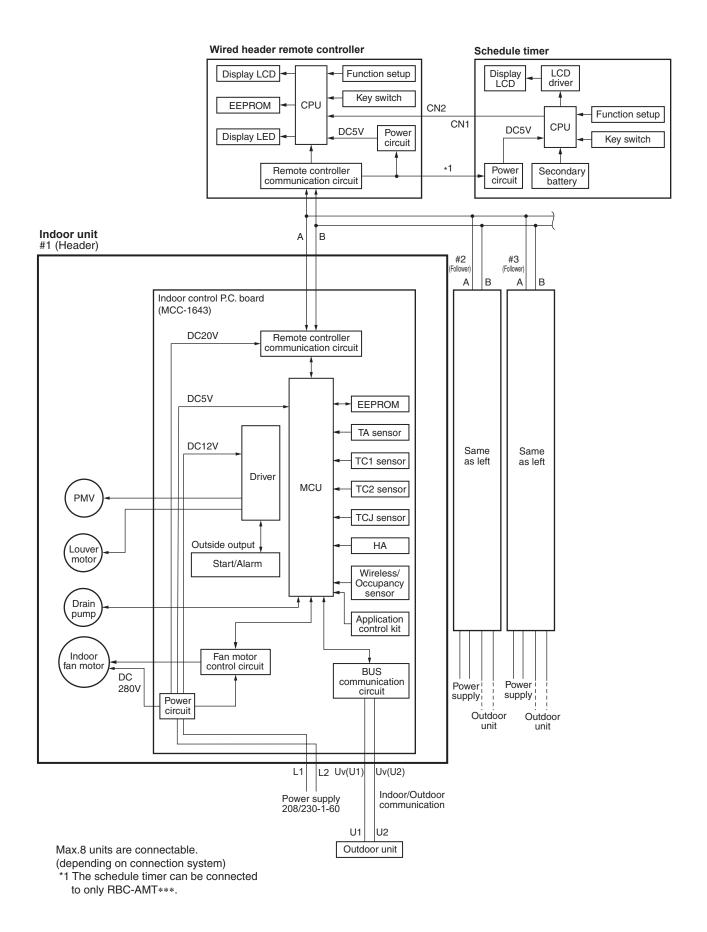


## 8-1-2. In case of connection of wireless remote controller

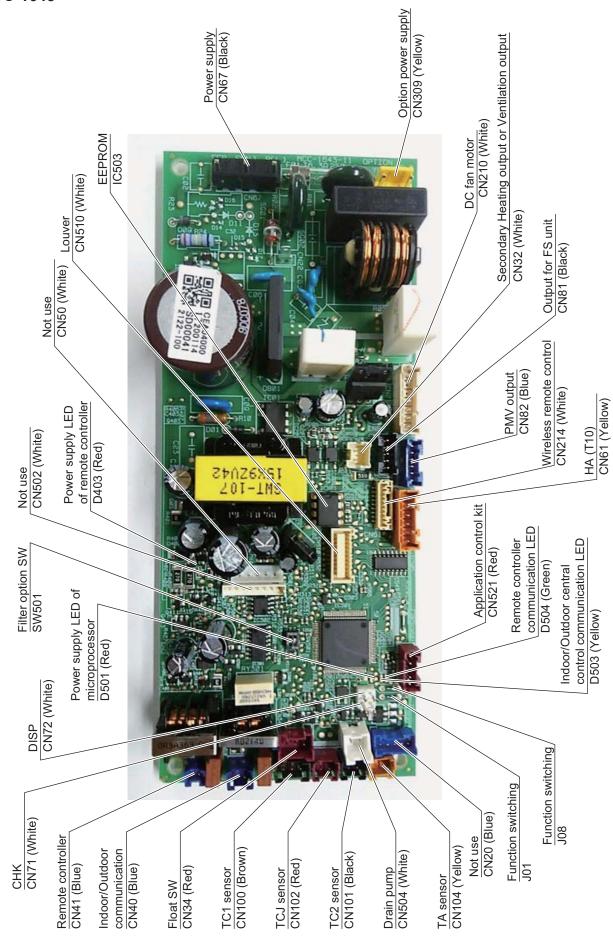


Max.8 units are connectable.
(depending on connection system)
\*1 The schedule timer can be connected
to only RBC-AMT\*\*\*.

## 8-1-3. Connection of both wired remote controller and wireless remote controller



# 8-2. Indoor Print Circuit Board MCC-1643



Optional connector specifications of indoor P.C. board (MCC-1643)

Connector No.	Color	Function	Compact 4-way Cassette	2-way Cassette	1-way Cassette (SH)	Floor standing	Pin No.	Specifications	Remarks
CN32	White	Ventilation	0	0	0	0	$\Theta$	DC12V	Secondary Heating Output (DN [191] = 01)
							0	Output (Open collector)	secondary neating can be used wnie neating operation are performed.
									Ventilation Output (DN [191] = 00)
									Single operation by FAN button on remote controller is set up from remote controller (DN = 31)
CN34	Red	Input for float SW	•		•	X (With short- circuit	00	DC12V NC	Normal when between ①-③ short-circuits, but abnormal when open-circuits. (check code "P10" appears)
						connector)	6	Float SW input	
CN61	Yellow HA	НА	0	0	0	0	Θ	ON/OFF input	HA ON/OFF input (J01: YES/NO=Pulse (At shipment from factory) /Static input selection)
							0		
								Remote controller prohibited input	Permission/Prohibition of remote controller operation stop is performed by input.
								= -	Operation ON (Answer back of HA)
							9 @	UCTZV (COM) Warning output (Open collector)	Warning output ON
CN71	White	CHK Operation check	0	0	0	0	90	Check mode input 0V	This check is used to check indoor operation. (Performs operation of indoor fan "H", Louver horizontal and Drain pump ON without communication with outdoor and remote controller)
CN72	White	DISP Exhibition mode	0	0	0	0	90	DISP mode input 0V	Communication is available by indoor unit and remote controller only (When the power is turned on). Shortening time of timer (Always)
CN81	Black	Output for Flow selector unit	⊲	⊲	⊲	⊲	⊝ ⊗ ⊕ ⊗	DC12V EP valve output (Open collector) Balance valve output (Open collector) Suction valve output (Open collector) Discharge valve output (Open collector)	
CN309	Yellow	Yellow Output power supply for option	0	0	0	0	90	AC230V AC230V	This can be used as power supply for option devices.
CN521	Red	Connection for option P.C.board	٥	◁	◁	◁	00000	DC12V DC5V Send Receive 0V	Connected Application control kit (TCB-PCUC2E)

Use in standard, ○: Available, △: Use by connecting parts sold separately, x: Unavailable
 \* To use the functions operated by CN60, CN70 and CN73, which are provided for other P.C.board, use the Application control kit (TCB-PCUC2E) sold separately.

## 8-3. Functions at test run

# ■ Cooling/Heating test run check

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

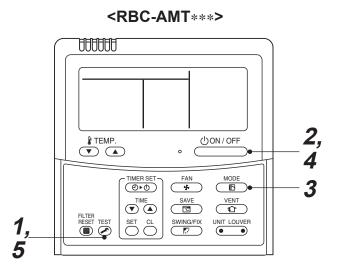
# 1. Start/Finish operation of test run

#### **⊙** Test run from indoor remote controller

Wired remote controller: Refer to the below item of "Test run" of the wired remote controller.

Wireless remote controller: Refer to the next page item of "Test run" of the wireless remote controller.

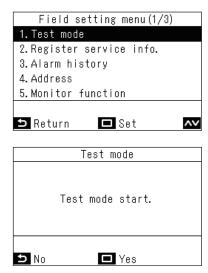
## ♦ In case of wired remote controller



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

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

# <RBC-AWSU52-UL>



		2:00 (	MOTI)
Test	Test		

(2)	Room		12:00 (Mon)			
		Te	est			

(3)		Test mode
		Test mode stop.
	⊅ No	■ Yes

1	In the "Field setting menu" screen, press [
	then press [  Set/Fix]

2				
_	Press	[	ON/OFF	ON/OFF

- → Operation starts, and in test mode screen (1) opens. (While stopped, it is screen (2))
- → Test mode is done while the operating mode is set to "Cool" or "Heat".
- → The temperature cannot be set in test mode.
- → Check codes are displayed in the normal way.

3	After completing test mode, in the "Field
	setting menu" screen, press [ $ riangle$ ] and [ $ riangle$ ]
	to select "Test mode", and then press
	[ Set/Fix]
	Sergen (2) appears

→ Screen (3) appears.

→ Press [ ☐ Set/Fix] to end test mode and do normal operation.

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

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

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

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

## [How to operate]

1) Short-circuit CHK pin (CN71 on the indoor P.C. board).

The operation mode differs according to the indoor unit status in that time.

Normal time: Both float SW and fan motor are normal.

Abnormal time: Either one of float SW or fan motor is abnormal.

2) Restricted to the normal time, if short-circuiting DISP pin (CN72 on the indoor P.C. board) in addition to short-circuit of CHK pin (CN71 on the indoor P.C. board), the minimum opening degree (30pls) can be set to the indoor PMV only.

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

#### [How to clear]

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

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

- To exchange the indoor PMV coil, set the indoor PMV to Max. opening degree.
- For the detailed positions of CHK pin (CN71 on indoor P.C. board) and DISP pin (CN72 on indoor P.C. board), refer to the indoor P.C. board MCC-1643.

## 9. APPLIED CONTROL

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

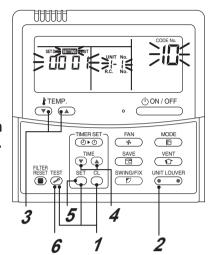
### <RBC-AMT\*\*\*>

**1** Push the ⊘ + ○ + ○ buttons simultaneously and hold for at least 4 seconds.

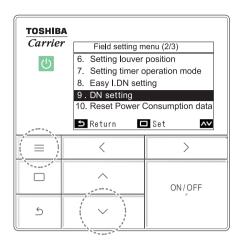
The unit No. displayed first is the address of the header indoor unit in group control.

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

- 2 Each time the button (left side of the button) is pressed, one of the indoor unit Nos. under group control is displayed in turn. Then the fan and louver of the selected indoor unit move.
- 3 Use the ⊕ button to select the CODE No. (DN code) of the desired function.
- **4** Use the button to select the desired SET DATA associated with the selected function.
- **5** Push the  $\stackrel{\mathbb{S}^{\text{ET}}}{\bigcirc}$  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  $\boldsymbol{3}$ .
- 6 When the <sup>™</sup> button is pushed, the system returns to normal off state.



#### <RBC-AWSU52-UL>



Field setting menu (2/3)
6. Setting louver position
7. Setting timer operation mode
8. Easy I.DN setting
9. DN setting
10. Reset Power Consumption data

- Press [ Menu] to open the "Menu" Press and hold [  $\equiv$  Menu] and [  $\vee$  ] at the same time to open "Field setting menu" → Press and hold 4 seconds. In the "Field setting menu" screen, press  $\lceil \land \rceil$  and  $\lceil \lor \rceil$  to select "DN setting", and then press [ Set/Fix] Press [ \( \simes \) and [ \( \simes \) ] to select "Indoor unit" or "Outdoor unit", and the press [ Set/ → If "Indoor unit" was selected, the fans and lovvres of the indoor units operate. When doing group connections: → The fans and louvres of the selected indoor units operate. **3** Press [ < ] to black highlight the item code (DN), and then press [ $\land$ ] and [ $\lor$ ] to set the item code 4 Press [ > ] to black highlight the data, and then press [  $ilde{ riangle}$  ] and [  $ilde{ riangle}$  ] to set the data
- → "Continue?" is displayed.
   To set the data of other item codes (DN), press [ □ Set/Fix]

5 After finishing setting the data of the item

- → "∑" appears while data is changing.

code (DN), press [ Set/Fix]

When doing group connections:

### NOTE

For details on item codes and data to be set, refer to the Installation Manual and Service manual of the indoor unit and outdoor unit.

## Indoor unit function Code No. (DN Code) table

(includes functions needed to perform applied control on site)

DN	Item	Description	At shipment	
	Filter display delay timer	0000: None 0001: 150H	Depending on model	
01		0002: 2500H 0003: 5000H	type	
		0004: 10000H		
02	Dirty state of filter	0000: Standard	0000: Standard	
		0001: High degree of dirt (Half of standard time)		
	Central control address	0001: No.1 unit to 0064: No.64 unit TCC-LINK	00Un/0099: Unfixed *1	
03		0001: No.1 unit to 0128: No.128 unit TU2C-LINK		
		00Un: Unfixed (When using U series remote controller)		
	Connection in all any unit	0099: Unfixed (Other than U series remote controller)	0000. Na mianit	
04	Specific indoor unit	0000: No priority 0001: Priority	0000: No priority	
	priority Heating temp. shift	0000: 0°F(0°C) 0001: +1.8°F(+1°C)	Depending on model	
06	l leating temp. smit	0000: +3.6°F(+2°C) to 0010: +18°F(+10°C)	type	
00		(Up to +6 recommended)	lype	
	Demand control	0000: Demand input 0001: O2 sensor input	0000: Demand input	
	(CN73 / CN4)	0002: Card input setup.3 0003: Fire alarm input	oooo. Demana input	
		0004: Card input setup.4 (Normal open)		
0b		0005: Fire alarm input 0006: Notice cord (202)		
		(Normal close) 0008: Card input setup.1		
		0007: Card input setup.5		
		0009: Card input setup.2		
	Existence of [AUTO]	0000: Provided	0001: Not provided	
0d	mode	0001: Not provided		
		(Automatic selection from connected outdoor unit)		
0F	Cooling only	0000: Heat pump	0000: Heat pump	
		0001: Cooling only (No display of [AUTO] [HEAT])		
10	Туре	Refer to Type DN code "10" list	Depending on model	
			type	
11	Indoor unit capacity	0000: Unfixed 0001 to 0034	According to capacity	
	I See and decree	Refer to Indoor Unit Capacity DN code "11" list 0001: No.1 unit to 0064: No.30 unit TCC-LINK	type	
	Line address	0001: No.1 unit to 0064: No.30 unit TCC-LINK 0001: No.1 unit to 0128: No.128 unit TU2C-LINK	00Un/0099: Unfixed *1	
12				
		00Un: Unfixed (When using U series remote controller) 0099: Unfixed (Other than U series remote controller)		
	Indoor unit address	0001: No.1 unit to 0064: No.64 unit TCC-LINK 00Un/0099: Unfixed		
	lindoor driit address	10001: No.1 unit to 0128: No.128 unit TU2C-LINK	OUUII/0099. Ulliked 1	
13		00Un: Unfixed (When using U series remote controller)		
		0099: Unfixed (Other than U series remote controller)		
	Group address	0000: Individual 0001: Header unit of group	00Un/0099: Unfixed *1	
٠,,		0002: Follower unit of group		
14		00Un: Unfixed (When using U series remote controller)		
		0099: Unfixed (Other than U series remote controller)		
19	Louver type	0000: No louver 0001: Swing only	Depending on model	
	(Air direction adjustment)	0004: (4-way Air Discharge Cassette type, etc.)	type	
	Temp difference of	0000: 0°F(0°C) to 0010: 18°F(10°C) (Ts ± 9.0°F(5°C))	0003: 5.4°F(3°C)	
1E	[AUTO] mode selection		(Ts ±2.7°F(1.5°C))	
'-	COOL → HEAT,			
	HEAT → COOL	Ts:Remote controller setup temp.		
28	Automatic restart of	0000: None 0001: Restart	0001: Restart	
	power failure			
2A	Selection of option/Trouble	0000: Filter input 0001: Alarm input	0002: None	
<u> </u>	input (TCB-PCUC2E: CN3)	0002: None (Air washer, etc.)	0000 11 1	
	HA terminal (CN61)	0000: Usual 0001: Card input setup.1 (3)	0000: Usual	
2E	select	0002: Fire alarm input 0003: Card input setup.2 (4) (arbiter contact)	(HA terminal)	
		0004: Notice cord (201) 0005: Card input setup.5		
	N (1) (2) (5) (4)		0000 11 " 11	
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	

DN	Item	Description		At shipment	
33	Temperature unit select	0000: °C 0001: °F		0001: °F	
5d	External static pressure High-ceiling adjustment (Air flow selection)			Depending on model type	
60	Timer setting (wired remote controller)	0000: Available (can be performed)	0001: Unavailable (cannot be performed)	0000: Available	
77	Dual set point	0000: Unavailable	0002: Available	0000: Unavailable	
79	Alarm output setup of the header unit	0000: Not including the state of following unit	0001: Including the state of following unit	0000: Not including the state of following unit	
7A	Change unit 0.9°F(0.5°C) or 1.8°F(1°C) on remote	0000: 1.8°F(0.5°C)	0001: 0.9°F(1°C)	0001: 0.9°F(1°C)	
b3	Soft cooling	0000: Unavailable	0001: Available	0001: Available	
b5	Occupancy sensor/ Wireless Remote controller Provided / None	0000: None 0002: Wireless remote control	0001: Occupancy sensor provided ler provided	0000: None	
b6	Occupancy sensor Enable / Invalid (Absence time judgment time)	0000: Invalid 0002: 60min. 0005: 150min.	0001: 30min. 0004: 120min.	0002: Enable (60 min.)	
b7	Occupancy sensor operation at absent time	0000: Stand by	0001: operation stop	0000: Stand by	
d0	Whether the power saving mode can be set by the remote controller	0000: Invalid	0001: Valid	0001: Valid	
E0	Destination	0000: Domestic	0001: North America	0001: North America	
<b>E</b> 6	Wireless remote controller A-B selection	0000: A	0001: B	0000: A	
F6	Presence of Application control kit (TCB-PCUC2E)	0000: None	0001: Exist	0000: None	
FC	Communication protocol *2	0000:TCC-LINK	0003:TU2C-LINK	0000: TCC-LINK	
Fd	Priority operation mode (FS unit)	0000: Heating	0001: Cooling	0000: Heating	
FE	FS unit address			00Un/0099: Unfixed *1	

DN	ltem	Description	At shipment
180	Notice code number 01	0000: None 0001 ~ 0255 : Notice code	0000: None
181	Notice code number 02	0129 : Notice code (201) 0130 : Notice code (202) (0001 ~ 0255 : TU2C-LINK only)	0000: None
182	Notice code number 03	(coor ozoo : rozo zmaromy)	0000: None
183	Notice code number 04		0000: None
184	Notice code number 05		0000: None
185	Notice code number 06		0000: None
186	Notice code number 07		0000: None
187	Notice code number 08		0000: None
188	Notice code number 09		0000: None
189	Notice code number 10		0000: None
191	Secondary Heat / Ventilation output port switching	0000: Ventilation output 0001: Secondary heating output	0001 : Secondary heating output
103	Remote controller	0000: Use 0001: Do not use Indoor unit production after Jun-2021 does not need this DN setting. The serial number is 12600001 or upper.	0000 : Use
1FB	Central device control state	0000: No central device control (Remote controller use is possible) 0001: Central device control (Remote controller use is impossible)	0000: No central device control
1FC	Indoor Unit terminating resistance	0000: OFF 0001: ON	0000: OFF

<sup>\*1</sup> Display order of "00Un" and "0099" varies depending on remote controller models or communication types.

## For Central control address (DN [03]), Indoor unit address (DN [13]), FS unit address (DN [FE])

Remote controller	Communication type	Display order	
U series	TU2C-LINK	$\cdots \Leftrightarrow 0128 \Leftrightarrow 00Un \Leftrightarrow 0001 \Leftrightarrow \cdots$	
U Series	TCC-LINK	··· ⇔ 0064 ⇔ 00Un ⇔ 0001 ⇔ ···	
Other than U series	TCC-LINK	··· ⇔ 0064 ⇔ 0099 ⇔ 0001 ⇔ ···	

## For Line address (DN [12])

Remote controller	Communication type	Display order	
U series	TU2C-LINK	··· ⇔ 0128 ⇔ 00Un ⇔ 0001 ⇔ ···	
U Series	TCC-LINK	··· ⇔ 0030 ⇔ 00Un ⇔ 0001 ⇔ ···	
Other than U series	TCC-LINK	··· ⇔ 0030 ⇔ 0099 ⇔ 0001 ⇔ ···	

## For Group address (DN [14])

Remote controller	Communication type	Display order	
Lloorion	TU2C-LINK	··· ⇔ 0002 ⇔ 00Un ⇔ 0000 ⇔ ··	
U series	TCC-LINK	\$\infty\$ 0002 \$\infty\$ 00011 \$\infty\$ 0000 \$\infty\$	
Other than U series	TCC-LINK	$\cdots \Leftrightarrow 0002 \Leftrightarrow 0099 \Leftrightarrow 0000 \Leftrightarrow \cdots$	

<sup>\*2</sup> Communication protocol can be automatically switched with the setup in the outdoor unit during installation.

## Type DN code "10"

	Value Type  0000*1 4-way cassette		Model
			MMU-UP***HP-UL
	0003 1-way cassette		MMU-UP***YHP-UL

<sup>\*1 :</sup> Initial setting value of EEPROM installed on the service P.C.Board.

# Indoor Unit Capacity DN code "11"

## ■ 1-way cassette type

Value	Capacity
0000*1	Invalid
0001	0071 type
0003	0091 type
0005	0121 type

### 9-2. Applied Control in Indoor Unit

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

### [Wiring and setup]

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

### 1. Control items

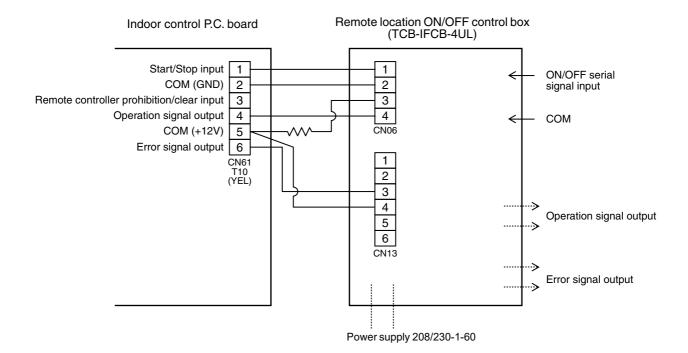
Start/Stop input signal : Operation start/stop in unit
 Operation signal : Output during normal operation

3) Error signal : Output during alarm

(Serial communication error or indoor/outdoor protective device) operation

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

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



## Ventilating fan control from remote controller

### [Function]

- The start / stop operation can be operated from the wired remote controller when air to air heat exchanger or ventilating fan is installed in the system.
- The fan can be operated even if the indoor unit is not operating.
- Use a fan which can receive the no-voltage normally-open contact as an outside input signal.
- In a group control, the units are collectively operated and they cannot be individually operated.
- \* Ventilation function the code No.191 must be setting data 0000 (refer indoor unit function code no. table.)

## 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.

#### <RBC-AMT\*\*\*>

1	Push concurrently $\stackrel{\text{SET}}{\bigcirc}$ + $\stackrel{\text{CL}}{\bigcirc}$ + $\stackrel{\text{TEST}}{\bigcirc}$ buttons for 4 seconds or more.
	The unit No. displayed firstly indicates the header indoor unit address in the group control. In this time, the fan of the selected indoor unit turns on.

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

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

- 3 Using the setup temp Tor 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)
000 (	Available

- 5 Push  $\overset{\text{SET}}{\bigcirc}$  button. (OK if display goes on.)
  - To change the selected indoor unit, go to the procedure 2).
  - To change the item to be set up, go to the procedure 3).
- 6 Pushing ♠ returns the status to the usual stop status.

### <RBC-AWSU52-UL>

- 1 Press [ Menu] to open the "Menu"
- **2** Press and hold [  $\equiv$  Menu] and [  $\sim$  ] at the same time to open "Field setting menu"
  - → Press and hold 4 seconds.
- $oldsymbol{3}$  In the "Field setting menu" screen, press [  $oldsymbol{\triangle}$ ] and [  $oldsymbol{\square}$ ] to select "DN setting", and then press [  $oldsymbol{\square}$  Set/Fix]
- 4 Press [ ∧ ] and [ ∨ ] to select "Indoor unit" or "Outdoor unit", and the press [ □ Set/Fix]
  - → If "Indoor unit" was selected, the fans and lovvres of the indoor units operate.

When doing group connections:

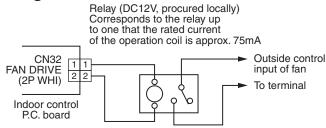
- → The fans and louvers of the selected indoor units operate.
- 5 Press [ < ] to black highlight the item code (DN), and then press [ △ ] and [ ∨ ] to set the item code No. 31.
- **6** Press [ > ] to black highlight the data, and then press [ < ] and [ < ] to set the data (At shipment : 0000).

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

- 7 After finishing setting the data of the item code (DN), press [ Set/Fix]
  - → "Continue?" is displayed.
- 8 To set the data of other item codes (DN), press [ Set/Fix] To not do other settings, press [ Return]
  - → The changes are fixed, and the "Field setting menu" screen returns.
  - → "∑" appears while data is changing.

When doing group connections:

## 2. Wiring



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

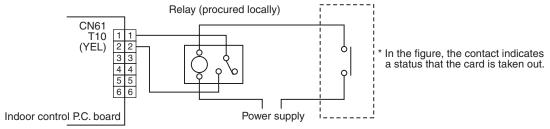
## ■ Auto-off feature control

## [Function]

- This function controls the indoor units individually. It is used when the start operation from outside is unnecessary but the stop operation is necessary.
- A card switch box or card lock helps protect customers from forgetting to turn off the indoor unit. (not including the following Card Input 3)
- It is connected with connector on the indoor control P.C. board, and switched with the Code No. and jumper wire setup for use.

# [Setup method] (1) Wiring

Connecting to the CN61 connector



Outside contact (Card switch box, etc: Procured locally)

NOTE) Determine the cable length between the indoor control P.C. board and the relay within 3m.

## (2) Code (DN) setup

Set Code (DN) according to set indoor unit function DN code.

Connector	Jumper wire (J01)	Code No. (DN)	Set data	Function
	Short-circuit (Factory default)	002E	0000 (Factory default)	"HA normal setup" (pulse)
			0001	"Card Input 1" setup
			0003	"Card Input 2" setup
CN61			0005	"Card Input 5" setup
	Open-circuit (cut)		0000 (Factory default)	"HA normal setup" (Static)
			0001	"Card Input 3" setup
			0003	"Card Input 4" setup

## [Control items]

Function	External contact terminal										
runction	Close (Status that card is inserted)	Open (Status that card is taken out)									
Card Input 1	Manual prohibition release (Manual operation)	Manual prohibition (Operation stop)									
Card Input 2	Manual prohibition release (Automatic operation)	Manual prohibition (Operation stop)									
Card Input 3	Operation status continues (Do nothing)	Operation status continues and setting temperature changes (COOL/DRY: 84.2°F(29°C), HEAT: 64.4°F(18°C))									
Card Input 4	Manual prohibition release (The status returns to operating condition before removing the card.)	Manual prohibition (Operation stop)									
Card Input 5	1) To change a setting temperature by changing data at DN code No. 172 to 174.  2) The operation mode can be set by changing data (0000, 0001, 0002) at DN code No. 16b.  0000: operation mode is the same at the current mode. (factory setting default)  0001: operation mode returns to the previous mode when card was inserted. (in case of the previous mode is off operation, the operation mode is also off.)  0002: operation mode starts at the same previous mode when the card was inserted. (the operation mode is on operation even the previous mode is off operation.)  See contents below for DN settings and detailed operations.										

<sup>\*</sup> For the card switch box that does not involve contact operation described above, convert signals with a relay including a normally-closed contact.

## [Card input setup.5 Code (DN)]

Loa										
DN	Item	Description	At shipment							
16C	Open mode Set temp. (Cool, Dry)	-0015 : 5°F(-15°C) to 0060 : 140°F(60°C)	0027:80.6°F(27°C)							
16d	Open mode Set temp. (Heat)	-0015 : 5°F(-15°C) to 0060 : 140°F(60°C)	0020 : 68°F(20°C)							
16E	Open mode Set temp. (Auto)	-0015 : 5°F(-15°C) to 0060 : 140°F(60°C)	0024 : 75.2°F(24°C)							
16F	Open mode Fan speed (All operation mode)	0000 : No change	0000 : No change							
170	Open mode Wind direction (Cool, Dry, Fan)	0000 : No change	0000 : No change							
171	Open mode Wind direction (Heat)	0000 : No change	0000 : No change							
16A	Open mode Operation	0000 : No change 0001 : Run operation	0000 : No change							
172	Close mode Set temp. (Cool, Dry)	-0015 : 5°F(-15°C) to 0060 : 140°F(60°C)	0024 : 75.2°F(24°C)							
173	Close mode Set temp. (Heat)	-0015 : 5°F(-15°C) to 0060 : 140°F(60°C)	0024 : 75.2°F(24°C)							
174	Close mode Set temp. (Heat)	-0015 : 5°F(-15°C) to 0060 : 140°F(60°C)	0024 : 75.2°F(24°C)							
16b	Close mode Operation	0000 : No change 0001 : Card ON mode operation 0002 : Run operation (Card ON mode setting)	0000 : No change							

[The example of Card Input 5 setting]

	Code No. (DN) setting [16A] [16b] [16C] [16d] [16F] [170] [171] [172] [173]									External con	tact terminal
Case.	[16A] data	[16b] data	[16C] data	[16d] data	[16F] data	[170] data	[171] data	[172] data	[173] data	Close (Status that card is inserted)	Open (Status that card is taken n out)
(1)	0000	0000	0027	0020	0000	0000	0000	0024	0024	<ul> <li>The operation mode continues running at the same as the current mode.</li> <li>The setting temperature of cooling/dry and heating mode is changed to 75.2°F(24°C) and 75.2°F(24°C) respectively due to change in code No. 172, 173.</li> </ul>	The operation mode continues running at the same as the current mode. The setting temperature of cooling/dry and heating mode is changed to 80.6°F(27°C) and 68°F(20°C) respectively due to change in code No. 16C, 16d.
(2)*	0000	0001	0027	0020	0003	0001	0001	0024	0024	<ul> <li>The operation mode is running at the same mode as the last time when the card was inserted due to change in code no. 16b.</li> <li>* The operation mode will be off if the mode at the last time was in off operation. Also, the fan speed will the same as the last time when the card is inserted.</li> <li>• The setting temperature of cooling/dry and heating mode is changed to 75.2°F(24°C) and 75.2°F(24°C) respectively due to change in code No. 172, 173.</li> </ul>	The operation mode continues running at the same as the current mode. The setting temperature of cooling/dry and heating mode is changed to 80.6°F(27°C) and 68°F(20°C) respectively due to change in code no. 172, 173. The fan speed for all operation modes is changed due to change in code no.16F. The wind direction of Cooling/dry/fan and heating mode are changed due to change in code No. 170, 171 respectively.
(3)*	0000	0002	0027	0020	0003	0001	0001	0024	0024	The operation mode is running at the same mode as the last time when the card was inserted. Also, the operation mode will be on even the mode was in off operation at the last time due to change in code no. 16B. The fan speed will the same as the last time when the card is inserted. The setting temperature of cooling/dry and heating mode is changed to 75.2°F(24°C) and 75.2°F(24°C) respectively due to change in code No. 172, 173.	Same operation as case (2)
(4)	0001	0000	0027	0020	0003	0001	0001	0024	0024	<ul> <li>The operation mode continues running at the same as the current mode.</li> <li>The setting temperature of cooling/dry and heating mode is changed to 75.2°F(24°C) and 75.2°F(24°C) respectively due to change in code No. 172, 173.</li> </ul>	<ul> <li>Due to change in code no. 16A, the operation mode will be as below.</li> <li>When the operation is ON, the operation mode will continue running at the same as the current mode.</li> <li>When the operation is OFF, the air conditioner will turn on automatically.</li> <li>The setting temperature of cooling/dry and heating mode is changed to 80.6°F(27°C) and 68°F(20°C) respectively due to change in code No. 172, 173.</li> <li>The fan speed for all operation modes is changed due to change in code no.16F.</li> <li>The wind direction of Cooling/dry/fan and heating mode are changed due to change in code No. 170, 171 respectively.</li> </ul>

<sup>\*</sup> The history operation mode is only recorded when the card is inserted even if the operation mode is changed when the card is taken out, there is no related to the history operation mode.

## ■ Notice code signal

Notice code is a function dedicated to TU2C-Link communication. See service manual for u series outdoor unit for details of Notice code.

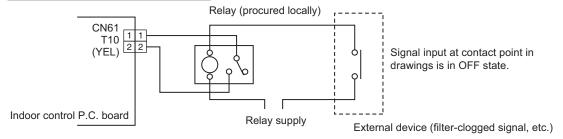
## [Function]

- Notice Code is issued if there is signal input to connector of outdoor unit P.C. board. This can be used in cases such as when confirming state of outdoor unit (filter clogging, etc.) by air conditioner system.
- Used by switching functions with settings of Code No. (DN Code).
- · Notice Code is continuously issued while input signal is ON.

## [Setup method]

### (1) Wiring

Connecting to the CN61 connector



Note) Determine the cable length between the indoor control P.C. board and the relay within 3m.

### (2) Code (DN) setup and Notice code

Set Code (DN) according to set indoor unit function DN code.

Connector	Code No. (DN)	Set data	Notice code		
CN61	002E	0004	201		

<sup>\*</sup> Setting of Code No. (DN Code) is necessary to display Notice code mark at remote controller. Set data corresponding to Notice code to be used to one of Code No. 180 to 189, in accordance with following table. In case where data other than 0000 is already set, set to other Code No. (DN Code).

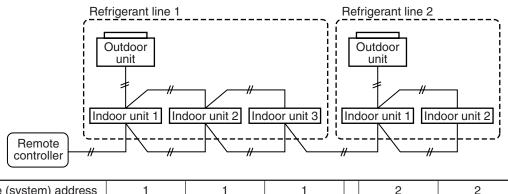
Code No. (DN)	Set data	Notice code			
0180	0000	OFF (Factory default)			
to	0129	201			
0189	0130	202			

<sup>\*</sup> It may take up to ten minutes to be displayed on remote controller after Notice code is issued.

## ■ 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)

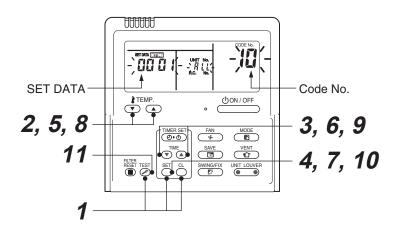
### **▼** Wiring example of 2 refrigerant lines



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.

### <RBC-AMT\*\*\*>



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

### Turn on the power.

**1** Push and hold the  $\overset{\text{SET}}{\bigcirc}$ ,  $\overset{\alpha}{\bigcirc}$  and  $\overset{\text{TEST}}{\triangleright}$  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 🛭 .
- **3** Push the TIME T / 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  $\stackrel{\text{set}}{\bigcirc}$  button. (It is OK if the display turns on.)

### <Indoor unit address>

- **5** Push the TEMP.  $\bigcirc$  /  $\bigcirc$  buttons repeatedly to set the CODE No. to  $\bigcirc$  .
- 6 Push the TIME ▼ / ♠ buttons repeatedly to set an indoor unit address.
- **7** Push the  $\stackrel{\text{set}}{\bigcirc}$  button.

(It is OK if the display turns on.)

### <Group address>

Follower unit

- **8** Push the TEMP. 🐨 / 🖎 buttons repeatedly to set the CODE No. to 🖽 .
- 9 Push the TIME / buttons repeatedly to set a group address. If the indoor unit is individual, set the address to 0000; header unit, 000 1; follower unit, 0002.

Individual : 0000 Header unit : 0001

 $\begin{array}{c} 00001 \\ 0002 \end{array}$  In case of group control

10 Push the button.

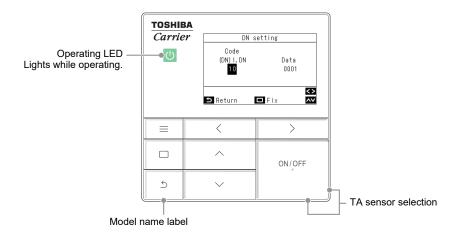
(It is OK if the display turns on.)

11 Push the button.

The address setting is complete.

( SETTING flashes. You can control the unit after SETTING has disappeared.)

#### <RBC-AWSU52-UL>



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

- 1 Press [ Menu] to open the "Menu"
- $oldsymbol{2}$  Press and hold [  $\equiv$  Menu] and [  $oldsymbol{oldsymbol{ iny}}$  ] at the same time to open "Field setting menu"
  - → Press and hold 4 seconds.
- $m{3}$  In the "Field setting menu" screen, press [ igtriangle ] and [ igtriangle ] to select "DN setting", and then press [ igtriangle Set/Fix]
- **4** Press [ ∧ ] and [ ∨ ] to select "Indoor unit" or "Outdoor unit", and the press [ □ Set/Fix]
  - → If "Indoor unit" was selected, the fans and lovvres of the indoor units operate.

When doing group connections:

→ The fans and louvres of the selected indoor units operate.

### <Line (system) address>

- **5** Press [ < ] to black highlight the item code (DN), and then press [ < ] and [ < / > ] to set the item code No. to 12.
- **6** Press  $[\ \ \ \ ]$  to black highlight the data, and then press  $[\ \ \ \ \ ]$  and  $[\ \ \ \ \ \ ]$  to set the data system address.

(Match the address with the address on the interface P.C.board of the header outdoor unit in the same refrigerant line.)

- 7 After finishing setting the data of the item code (DN), press [  $\square$  Set/Fix]
  - → "Continue?" is displayed.

# <Indoor unit address>

- 8 Press [ < ] to black highlight the item code (DN), and then press [ < ] and [ < ] to set the item code No. to 13.
- **9** Press [  $\triangleright$  ] to black highlight the data, and then press [  $\triangleright$  ] and [  $\triangleright$  ] to set the data indoor unit address.
- $m{10}$  After finishing setting the data of the item code (DN), press [ lacksquare Set/Fix]

→ "Continue?" is displayed.

### <Group address>

- 11 Press [ < ] to black highlight the item code (DN), and then press [ < ] and [ < ] to set the item code No. to 14.
- Press [ > ] to black highlight the data, and then press [ < ] and [ < ] to set the data indoor unit address. 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

- 13 After finishing setting the data of the item code (DN), press [ 🗆 Set/Fix]
  - → "Continue?" is displayed.
- 14 To set the data of other item codes (DN), press [ Set/Fix] To not do other settings, press [ Return]
  - → The changes are fixed, and the "Field setting menu" screen returns.
  - → "∑" appears while data is changing.

When doing group connections:

→ Press [ ⑤ Return] to open the unit selection screen. In the unit selection screen, press [ ⑤ Return] to briefly display "∑", and then return to the "Field setting menu" screen.

### NOTE

### <In the case of combining with outdoor units of Super Modular Multi System u series (SMMS-u)>

- Turn ON DIP switch 1 of SW100 on the header outdoor unit interface P.C. board the lowest system address number.
- 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 manual of the central control devices.)

### < In the case of combining with outdoor units other than Super Modular Multi System u series (SMMS-u)>

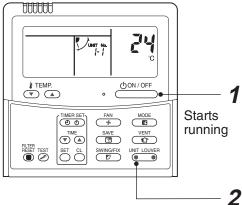
- Set a system address for the header outdoor unit of each line with SW13 and 14 of their interface P.C. boards.
- Turn off dip switch 2 of SW30 on the interface P.C. boards of all the header outdoor units connected to the same central control, except the unit that has the lowest address. (For unifying 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.)

## ◆ To find an indoor unit's position from its address

Procedure to know the position of indoor unit body by address while indoor unit No. is known.

· Confirm each indoor unit address while indoor unit is stopped. (Be sure to stop air conditioner.)

### <RBC-AMT\*\*\*>



(Execute it while the units are running.)

- 1 Push the  $\bigcirc$  button if the units stop.
- Push the button (left side of the button).

  A unit numbers !- I 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).

#### <RBC-AWSU52-UL>

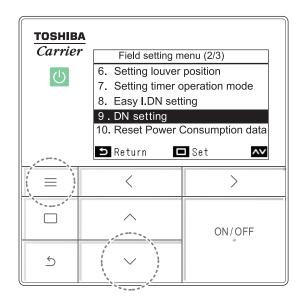
### [Procedure]

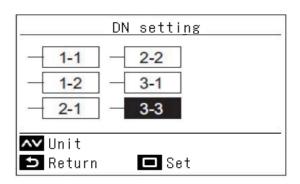
The position of indoor unit body by address

- 1 Push the [ MENU] button to display the menu screen.
- **2** Push and hold the [ MENU] button and the [ ✓ ] button at the same time to display the "Field setting menu".
  - → Push and hold the buttons for more than 4 seconds.
- **3** Push the [ △ ] / [ ✓ ] button to select "7. DN setting" on the "Field setting menu" screen, then push the "[ □ ] Set"
- 4 Push the unit to confirm the address of indoor unit.
  - → The selected unit changes as follows each time the button is pushed:

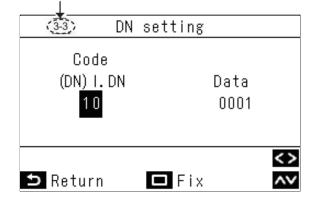


- **5** Push the [ Set/Fix]
  - → The setting display for the selected unit appears.
  - → When the group control is used, the fan and louver of the selected indoor unit operate.
- 6 Push the [ MENU] button to set the other Code(DN) and Data. After "Continue?" is displayed on the screen, push the [ ⑤ Return ] to finish the setting operation. " ☒ Setting" appears on the screen for a while, then the screen returns to the "Field setting menu" screen.





Address is displayed here.



## ◆ Check code clearing function

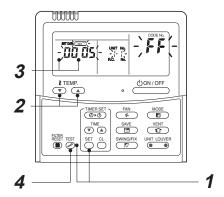
How to clear the check code using the wired remote controller

#### <RBC-AMT\*\*\*>

- ▼ Clearing a check code of the outdoor unit Clear the currently detected outdoor unit for each refrigerant line to which the indoor unit controlled by the remote controller is connected. (The indoor unit check code is not cleared.) Use the service monitoring function of the remote controller.
- Push and hold the <sup>a</sup> , and <sup>™</sup> for 4 seconds or longer to enter the service monitoring mode.
- **2** Push the ♣™ 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"  $\rightarrow$  "0004"  $\rightarrow$  "0003"  $\rightarrow$  "00002"  $\rightarrow$  "00000".

The check code is cleared when "DDDD" appears. However, the display counts down from "DDDS" again.

**4** Push the **b** to return the display to normal.



▼ Clearing a check code of the indoor unit

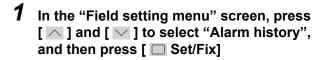
Push the \_\_\_\_\_\_\_ button on the remote controller.

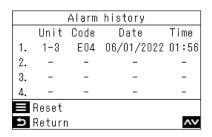
(Only the check code of the indoor unit controlled by the remote controller will be cleared.)

#### <RBC-AW5U52-UL>

Displays the last 10 check codes, and at which unit and when they occurred.



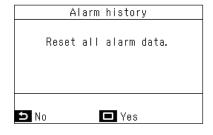




### NOTE

- The check code history data shows a history of 10 occurrences. If the occurrences exceed 10, the oldest data is deleted.
- If the same check code occurs repeatedly, the date of the first occurrence is displayed.

## **Deleting check code history**



Press [ ■ Menu] while the "Alarm history" screen is displayed
→ "Reset all alarm data." is displayed.

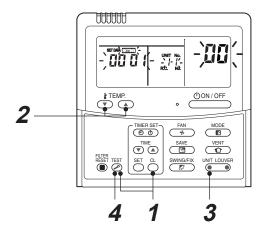
2 Press [ Set/Fix]

### REQUIREMENT

If you are using 2 remote controllers, delete the history at each remote controller.

### ▼ Monitoring function of wired remote controller

### <RBC-AMT\*\*\*>



#### Content

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

- 1 Push and hold the ♠ , and ♠ for 4 seconds or longer to enter the service monitoring mode.
  - The service monitor lights up. The CODE No. 22 appears at first.
- 2 Push the 🕁 button to change to CODE No. of the item to monitor. Refer to the next page for CODE No.
- **3** Push the left part of the button (left side of the button) to change to the item to monitor. Monitor the sensor temperature or operation status of the indoor unit and outdoor unit in the refrigerant line.
- **4** Push the  $\stackrel{\text{\tiny TEST}}{\triangleright}$  button to return the display to normal.

### <RBC-AWSU52-UL>

Displays the codes and data indicating the operating condition and temperature of each sensor on the indoor units, outdoor units, and remote controllers.

Monitor	function
Code	Data
0.0	0024
	^V

1	In the "Field setting menu" screen, press
	[ $ riangle$ ] and [ $ riangle$ ] to select "Monitor function",
	and then press [ 🔲 Set/Fix]

- → In a group connection, after a selection in the unit selection screen, move to the "Monitor function" screen.

## 2 Press [ S Return]

→ Return to the "Field setting menu" screen.

## ◆ Indoor service monitor list

	Code No.	Data name	Display format	Unit	Remote controller display example
	00	Room temperature (Use to control)	×1	°F(°C)	
	01	Room temperature (Remote controller)	×1	°F(°C)	
	02	Indoor suction air temperature (TA)	×1	°F(°C)	
	03	Indoor coil temperature (TCJ)	×1	°F(°C)	
ata *	04	Indoor coil temperature (TC2)	×1	°F(°C)	
10	05	Indoor coil temperature (TC1)	×1	°F(°C)	
r unit	06	Indoor discharge air temperature (TF) **	×1	°F(°C)	
Indoor	07	Indoor fan motor number of revolutions**	×1	rpm	[0600] = 600rpm
=	08	Indoor PMV opening	×1/10	pls	[0150]=1500pls
	F3	Filter sign time	×1	h	[2500] = 2500h
	F9 Suction temperature of air to air heat exchanger (TSA) **		×1	°F(°C)	[0024] = 75.2°F(24°C)
	FA	Outside air temperature (TOA) **	×1	°F(°C)	, ,

<sup>\*</sup> When the units are connected to a group, data of the header indoor unit only can be displayed.

<sup>\*\*</sup> There is also a model which cannot be displayed.

<sup>•</sup> Refer to the service manual of an outdoor unit for "outdoor service monitor list".

## 10. TROUBLESHOOTING

### 10-1. Overview

- (1) Before engaging in troubleshooting
  - (a) Applicable models

All Super Modular Multi System (SMMS-\*) models.

(Indoor units: MM\*-UP\*\*\*, Outdoor units: MMY-M\*P\*\*\*)

- (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	The air conditioner is being controlled by the 3-minute protective function.  It is in standby status though the room temperature has reached the setup temperature.  It is being operated in timer mode or fan mode.  It is being in initial communication.
2	An indoor fan would not start	The air conditioner is being controlled by the cool air discharge preventive function in "heating"?
3	An outdoor fan would not start or would change speed for no reason	The air conditioner is being operated in "cooling" under the low outside air temperature. It is being operated in defrost operation.
4	An indoor fan would not stop	The air conditioner is being controlled by function of residual heat elimination 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	The air conditioner is being operated under external or remote controller.

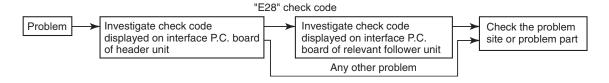


## **CAUTION**

The cooling performance may be declining considerably when total operating capacity of cooling indoor units is less than 4 HP while ambient temperature is below.

### (2) Troubleshooting procedure

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



### NOTE

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

## 10-2. Troubleshooting method

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

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

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

### List of check codes (indoor unit)

(Check code detected by indoor unit)

IPDU: Compressor / Fan inverter P.C. board

O: 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						
Remote	Outo	loor 7-segment display	Indic	ator li	ght blo	ock	Typical trouble on site	Description of check code
controller display		Sub-code	Operatio	n Timer	Ready	Flash	Typical trouble on site	Description of check code
E03	_	_	0	•	•		Indoor-remote controller periodic communication check code	Communication from remote controller or network adaptor has been lost (so has central control communication).
E04	_	_	•		0		Indoor-outdoor periodic communication check code	Signals are not being received from outdoor unit.
E08	E08	Duplicated indoor address	0				Duplicated indoor address	Indoor unit detects address identical to its own.
E10	_	_	0	•	•		Communication trouble between indoor unit MCU	Communication trouble between main MCU and the motor microcomputer MCU
E11	_	_	0		•		Communication check code between Application control kit and indoor unit	Communication check code between Application control kit and indoor unit P.C. board
E18	_	_	0	•	•		Check cod in periodic communication between indoor header and follower unit	Periodic communication between indoor header and follower units cannot be maintained.
F01	_	_	0	0	•	ALT	Indoor heat exchanger temperature sensor (TCJ) check code	Heat exchanger temperature sensor (TCJ) has been open / short-circuit.
F02	_	_	0	0	•	ALT	Indoor heat exchanger temperature sensor (TC2) check code	Heat exchanger temperature sensor (TC2) has been open / short-circuit.
F03	_	_	0	0	•	ALT	Indoor heat exchanger temperature sensor (TC1) check code	Heat exchanger temperature sensor (TC1) has been open / short-circuit.
F10	_	_	0	0		ALT	Ambient temperature sensor (TA) check code	Ambient temperature sensor (TA) has been open / short-circuit.
F11	_	_	0	0	•	ALT	Discharge temperature sensor (TF) check code	Discharge temperature sensor (TF) has been open / short-circuit.
F29	_	_	0	0	•	SIM	P.C. board or other indoor check code	Indoor EEPROM is abnormal (some other trouble may be detected).
F30	_	_	0	0	0	ALT	Occupancy sensor trouble	Occupancy sensor trouble has been detected.
L03	_	_	0	•	0	SIM	Duplicated indoor group header unit	There is more than one header unit in group.
L07	_	_	0	•	0	SIM	Connection of group control cable to a single indoor unit	There is at least one a single indoor unit to which group control cable is connected.
L08	L08	_	0	•	0	SIM	Indoor group address not set	Address setting has not been performed for one or more indoor units (also detected at outdoor unit end).
L09	_	_	0		0	SIM	Indoor capacity not set	Capacity setting has not been performed for indoor unit.
L20	_	_	0	0	0	SIM	Duplicated central control address	There is duplication in central control address setting.
L30	L30	Detected indoor unit No.	0	0	0	SIM	Indoor external check code input (interlock)	Unit shutdown has been caused by external check code input (CN80).
P01	_	-	•	0	0	ALT	Indoor AC fan check code	Indoor AC fan check code is detected (activation of fan motor thermal relay).
P10	P10	Detected indoor unit No.		0	0	ALT	Indoor overflow check code	Float switch has been activated.
P12	_	-	•	0	0	ALT	Indoor DC fan check code	Indoor DC fan check code (e.g. overcurrent or lock-up) is detected.
P31	_	_	0	•	0	ALT	Other indoor unit check code	Follower unit cannot be operated due to header unit alarm (E03 /L03 / L07 / L08).

### (Check code detected by remote controller)

Che	Display	of re	ceiving	g unit					
	Outo	loor 7-segment display	Indicator light block				Typical trouble site	Description of trouble	
Remote control		Sub-code	Operation (1)	ration Timer Ready		Flash	Typical trouble site	Description of trouble	
E01	-	-	0	•	•		No master remote control, failure remote control communication (reception)	Signals cannot be received from indoor unit; master remote control has not been set (including two remote control).	
E02	-	-	0	•	•		Failure remote control communication (transmission)	Signals cannot be transmitted to indoor unit.	
E09	-	-	0	•	•		Duplicated master remote control	Both remote controls have been set as master remote control in two remote control (alarm and shutdown for header unit and continued operation for follower unit)	

## (Check code detected by central control device)

Che	ck cc	ode	Display of re	ceiving	g unit				
	Outo	loor 7-segment display	Indicator light block			Typical trouble site	Description of trouble		
Central control		Sub-code	Operation Timer Ready		Flash	Typical trouble site	Description of trouble		
C05	-	-	No indication (when main remote control			Failure central control communication (transmission)	Central control device is unable to transmit signal due to duplication of central control device		
C06	-	-	also in use)			Failure central control communication (reception)	Central control device is unable to receive signal.		
C12	-	-	_	-		Bracket alarm for general- purpose device control interface	Device connected to general-purpose device control interface is trouble.		
P30 (L20)	_	_	(L20 is displa	(L20 is displayed.)		(L20 is displayed.)		Communication Link	Duplication addresses of indoor units in central control device     With the combination of air conditioning system, the indoor unit may detect the check code of L20

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

## Flow selector unit (FS unit) Relation

(Check code detected by indoor unit)

Check code			Display of receiving unit						
	Outo	loor 7-segment display	Indicator light block			ock	Typical trouble site	Description of trouble	
Main remote control		Sub-code	Operation (1)	Timer	Ready	Flash	Typical trouble site	2000. phon of flouric	
E17	-	-	0	•	•		Communication trouble between indoor unit (s) and FS unit (s)	There is no communication from FS unit(s)	
J03	-	-	•	0	0		Duplicated FS units	More than one FS units have been set up in one refrigerant line.	
J10	-	-	•	0	0		FS unit overflow trouble	FS unit has been shutdown in one refrigerant line due to detection of overflow	
J11	-	_	•	0	0		FS unit temperature sensor (TCS) trouble	FS unit temperature sensor (TCS) has been open/short-circuited.	
L12	L12	-	0	0	0		FS unit(s) system trouble	FS unit(s) outside the application setting	

### **List of Check Codes (Outdoor Unit)**

(Check code detected by outdoor interface - typical examples)

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

: 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 Outdoor 7-segment display Central Indicator light block Description of problem Typical problem site control or main remote Operation Timer Ready controller display Sub-code Flash Indoor unit initially communicating normally fails to Number of indoor units from which E06 E06 Signal lack of indoor unit return signal (reduction in number of indoor units 0 signal is received normally Signal cannot be transmitted to indoor units Indoor-outdoor F07 (E04) 0 communication circuit indoor units left without communication from outdoor unit). More than one indoor unit are assigned same E08 Duplicated indoor address (E08) Duplicated indoor address address (also detected at indoor unit end). Indoor automatic address setting is started while automatic address setting for equipment in other 01: Indoor-outdoor communication Automatic address starting refrigerant line is in progress. E12 02: Outdoor-outdoor E12 0 Outdoor automatic address setting is started trouble communication while automatic address setting for indoor units is in progress. Indoor unit not found Indoor unit fails to communicate while automatic F15 F15 during automatic address 0 address setting for indoor units is in progress. settina Combined capacity of indoor units is too large. 00: Capacity over Too many indoor units E16 The maximum combined of indoor units shown in 0 01: Number of units connected connected/capacity over the specification table. 00: No header unit Trouble in number of There is no or more than one outdoor header unit E19 0 02: Two or more header units outdoor header units in one refrigerant line. 01: Connection of outdoor unit from Connection to other Indoor unit from other refrigerant line is detected other refrigerant line refrigerant line found F20 F20 0 while indoor automatic address setting is in 02: Connection of indoor unit from during automatic address progress. other refrigerant line setting Outdoor-outdoor Signal cannot be transmitted to other outdoor E23 E23 communication 0 units. transmission trouble Duplicated follower There is duplication in outdoor addresses set E25 0 outdoor address manually. Follower outdoor unit initially communicating Address of outdoor unit from which E26 Signal lack of outdoor unit normally fails to do so (reduction in number of 0 signal is not received normally follower outdoor units connected). Outdoor header unit detects trouble relating to Outdoor follower unit E28 E28 Detected outdoor unit No 0 follower outdoor unit (detail displayed on follower trouble outdoor unit) P.C.board Compressor Fan Motor P.C.board Compressor Fan Motor 1 2 1 2 1 2 1 2 01 0 11 0 0 0 0 P.C. board communication 0 12 03 O O 13 O 0 trouble There is no communication between P.C. boards E31 F31 0 18 0 in inverter box 0 Sub MCU 09 O 0 19 O communication trouble 0 0 1A 0B O O O 1B O O O Circle (O): Trouble P.C. board 80 : Communication trouble between MCU and Sub MCU Outdoor discharge Outdoor discharge temperature sensor (TD1) has F04 F04 0 0 0 ALT temperature sensor (TD1) been open/short-circuited. trouble Outdoor discharge Outdoor discharge temperature sensor (TD2) has F05 F05 0 ALT temperature sensor (TD2) 0 0 been open/short-circuited. trouble Outdoor heat exchanger 01: TE1 sensor Outdoor heat exchanger liquid side temperature 02: TE2 sensor liquid side temperature F06 F06 0 0 0 ALT sensors (TE1, TE2, TE3) have been open/ sensor (TE1, TE2, TE3) 03: TE3 sensor short-circuited. trouble Outdoor liquid temperature Outdoor liquid temperature sensor (TL1,TL2,TL3) 02: TL2 sensor sensor (TL1,TL2,TL3) F07 ALT 0 0  $\bigcirc$ has been open/short-circuited. 03: TL3 sensor trouble Outdoor outside air Outdoor air temperature sensor (TO) has been F08 F08 0 0 0 ALT temperature sensor (TO) open/short-circuited. trouble Outdoor heat exchanger 01: TG1 sensor Outdoor heat exchanger gas side temperature gas side temperature sensor (TG1, TG2, TG3) F09 F09 0 ALT 0 0 02: TG2 sensor sensors (TG1, TG2, TG3) have been open/ 03: TG3 sensor short-circuited. trouble

	Check code		Display	of re	ceiving	g unit			
	Outdoor 7-segment display	Central control or main	Indica	ator li	ight ble	ock	Typical problem site	Description of problem	
	Sub-code	remote controller display	Operation	Timer	Ready	Flash	Typical problem site	Description of problem	
F12	01: TS1 sensor 03: TS3 sensor	F12	0	0	0	ALT	Outdoor suction temperature sensor (TS1,TS3) trouble	Outdoor suction temperature sensor (TS1,TS3) has been open/short-circuited.	
F15	_	F15	0	0	0	ALT	Outdoor temperature sensor (TE1,TL1) wiring trouble	Wiring trouble in outdoor temperature sensors (TE1,TL1) has been detected.	
F16	_	F16	0	0	0	ALT	Outdoor pressure sensor (Pd, Ps) wiring trouble	Wiring trouble in outdoor pressure sensors (Pd, Ps) has been detected.	
F23	_	F23	0	0	0	ALT	Low pressure sensor (Ps) trouble	Output voltage of low pressure sensor (Ps) is zero.	
F24	_	F24	0	0	0	ALT	High pressure sensor (Pd) trouble	Output voltage of high pressure sensor (Pd) is zero or provides abnormal readings when compressors have been turned off.	
F31	_	F31	0	0	0	SIM	Outdoor EEPROM trouble	Outdoor EEPROM is failure (alarm and shutdown for header unit and continued operation for follower unit)	
H05	_	H05	•	0	•		Outdoor discharge temperature sensor (TD1) wiring trouble	Wiring/installation trouble or detachment of outdoor discharge temperature sensor (TD1) has been detected.	
H06	_	H06	•	0	•		Activation of low-pressure protection	Low pressure (Ps) sensor detects abnormally low operating pressure.	
H07	_	H07	•	0	•		Low oil level protection	Temperature sensor for oil level detection (TK1,TK2) detects abnormally low oil level.	
H08	01: TK1 sensor trouble 02: TK2 sensor trouble	H08	•	0	•		Trouble in temperature sensor for oil level detection (TK1,TK2)	Temperature sensor for oil level detection (TK1,TK2) has been open/short-circuited.	
H15	_	H15	•	0	•		Outdoor discharge temperature sensor (TD2) wiring trouble	Wiring/installation trouble or detachment of outdoor discharge temperature sensor (TD2) has been detected.	
H16	01: TK1 oil circuit trouble 02: TK2 oil circuit trouble	H16	•	0	•		Oil level detection circuit trouble	No temperature change is detected by temperature sensor for oil level detection (TK1,TK2) despite compressor having been started.	
L04	-	L04	0	0	0	SIM	Duplicated outdoor refrigerant line address	Identical refrigerant line address has been assigned to outdoor units belonging to different refrigerant piping systems.	
	Number of priority indoor units	L05	0	•	0	SIM	Duplicated priority indoor unit (as displayed on priority indoor unit)	More than one indoor unit have been set up as priority indoor unit.	
L06	(check code L05 or L06 depending on individual unit)	L06	0	•	0	SIM	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)	More than one indoor unit have been set up as priority indoor unit.	
L08	_	(L08)	0	•	0	SIM	Indoor group address not set	Address setting have not been performed for one or more indoor units (also detected at indoor end).	
L10	-	L10	0	0	0	SIM	Outdoor capacity not set	Outdoor unit capacity has not been set (after P.C. board replacement).	
L17	_	L17	0	0	0	SIM	Outdoor model incompatibility trouble	Old model outdoor unit has been connected.	
L23	_	L23	0	0	0	SIM	SW setting mistake		
L28	-	L28	0	0	0	SIM	Too many outdoor units connected	More than five outdoor units have been connected.	

	Check code		Display	of red	ceiving	unit			
	Outdoor 7-segment display	Central control or	Indica	ator li	ght blo	ock	Typical problem site	Description of problem	
	Sub-code	main remote controller display	Operation	Timer	Ready	Flash	Typical problem site	,	
L29	P.C.board   Compressor   Fan Motor   1   2	L29	<b>©</b>	0	0	SIM	Trouble in number of P.C. boards	There are insufficient number of P.C. board in inverter box.	
L30	Detected indoor unit No.	(L30)	0	0	0	SIM	Indoor external trouble input (interlock)	Indoor unit has been shut down for external trouble input in one refrigerant line (detected by indoor unit).	
P03	-	P03	0	•	0	ALT	Outdoor discharge (TD1) temperature trouble	Outdoor discharge temperature sensor (TD1) has detected abnormally high temperature.	
P05	00: Power detection trouble 01: Open phase 02: Power supply miswiring	P05	0	•	0	ALT	Power detection trouble /Open phase detection /Power supply miswiring detection	Open phase is detected when power is turned on. Inverter DC voltage is too high (overvoltage) or too low (undervoltage).	
D07	1 : Compressor 1 heat sink trouble 2 : Compressor 2 heat sink trouble	D07				A . F	Heat sink overheating trouble	Temperature sensor built into IPM (TH) detects overheating.	
P07	04: Heat sink dew condensation	P07	© 	• ©	(O)	ALT	Heat sink dew condensation trouble	Outdoor liquid temperature sensor (TL2) has detected abnormally low temperature.	
P10	Indoor unit No. detected	(P10)	•	0	0	ALT	Indoor unit overflow	Indoor unit has been shutdown in one refrigerant line due to detection of overflow (detected by indoor unit).	
P11	_	P11	•	0	0	ALT	Outdoor heat exchanger freeze trouble	Remaining frost on outdoor heat exchanger has been detected repeatedly.	
P13	_	P13	•	0	0	ALT	Outdoor liquid backflow detection trouble	State of refrigerant cycle circuit indicates liquid backflow operation.	
P15	P15 01: TS condition 02: TD condition		0	•	0	ALT	Gas leak detection	Outdoor suction temperature sensor (TS1) detects sustained and repeated high temperatures that exceed standard value.	
P17	P17 –		0	•	0	ALT	Outdoor discharge (TD2) temperature trouble	Outdoor discharge temperature sensor (TD2) detects abnormally high temperature.	
P19	P19 Outdoor unit No. detected		0	•	0	ALT	4-way valve reversing trouble	Abnormality in refrigerating cycle is detected during heating operation.	
P20	-	P20	0	•	0	ALT	Activation of high-pressure protection	High pressure (Pd) sensor detects high pressure that exceeds standard value.	

MG-CTT: Magnet contactor

(Check code detected by Inverter of Compressor featuring in outdoor unit - typical examples)

	Check code		Display of receiving unit						
	Outdoor 7-segment display	Central control or	Indica	ator li	ight blo	ock	Typical problem site	Description of proplem	
	Sub-code	main remote controller display	Operation (1)	Timer	Ready	Flash	Typical problem site	2000	
F13	1*: Compressor 1 2*: Compressor 2	F13	0	0	0	ALT	Trouble in temperature sensor built into indoor IPM (TH)	Temperature sensor built into indoor IPM (TH) has been open/short-circuited.	
H01	1*: Compressor 1 2*: Compressor 2	H01	•	0	•		Compressor breakdown	Inverter current (Idc) detection circuit detects overcurrent.	
H02	1*: Compressor 1 2*: Compressor 2	H02	•	0	•		Compressor trouble (lockup)	Compressor lockup is detected	
H03	1*: Compressor 1 2*: Compressor 2	H03	•	0	•		Current detection circuit trouble	Abnormal current is detected while inverter compressor is turned off.	
P04	01: Compressor 1 02: Compressor 2	P04	0	•	0	ALT	Activation of high-pressure SW	High-pressure SW is activated.	
P05	01: Compressor 1 side 02: Compressor 2 side	P05	0	•	0	ALT	Compressor Vdc trouble	Inverter DC voltage is too high (overvoltage) or too low (undervoltage).	
P07	01: Compressor 1 side 02: Compressor 2 side	P07	0	•	0	ALT	Heat sink overheat trouble	Temperature sensor built into IPM (TH) detects overheating.	
P11	-	P11	•	0	0	ALT	Outdoor heat exchanger freeze trouble	Remaining frost on outdoor heat exchanger has been detected repeatedly.	
P22	1*: Fan P.C. board 1 2*: Fan P.C. board 2	P22	0	•	0	ALT	Outdoor fan P.C. board trouble	Outdoor fan P.C. board detects trouble.	
P26	1*: Compressor 1 2*: Compressor 2	P26	0	•	0	ALT	Activation of IPM, compressor short-circuit protection	Short-circuit protection for compressor motor driver circuit components is activated (momentary overcurrent).	
P29	1*: Compressor 1 2*: Compressor 2	P29	0	•	0	ALT	Compressor position detection circuit trouble	Compressor motor position detection trouble is detected.	

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

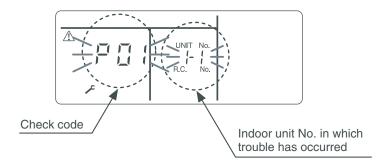
## 10-3. Troubleshooting by check Display on Remote Controller

## <RBC-AMT\*\*\*>

### (1) Checking and testing

When a trouble occurs to an air conditioner, a check code and indoor unit No. are displayed on the display window of the remote controller. Check codes are only displayed while the air conditioner is in operation.

If the display has already disappeared, access check code history by following the procedure described below.



### (2) Trouble history

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

### <Procedure> To be performed when system at rest

1 Invoke the SERVICE CHECK mode by pressing the 

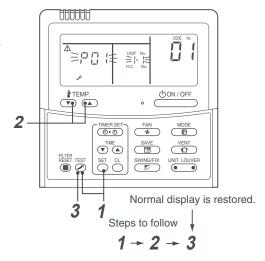
□ buttons simultaneously and holding for at least 4 seconds.

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

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

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

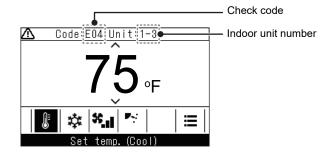
**3** When the button is pushed, normal display is restored.

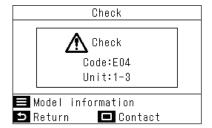


## **CAUTION**

Do not push the  $\stackrel{\alpha}{\smile}$  button as it would erase the whole trouble history of the indoor unit.

### <RBC-AWSU52-UL>





When an error occurs in the air conditioner, the check code and the indoor unit number flash on the display of the remote controller.

\* The check code is only displayed during the operation.

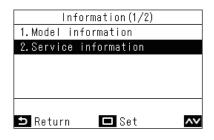
When the check code and indoor unit number are displayed, pressing [ Return] opens the "Check" screen.

In the "Check" screen, press [ Set/Fix] to show the contacts.

Press [ Menu] to display "Model information".

## **■** Contact information for repairs

You can look for contact information for repairs.



In the "Information" screen, press [ ] and [ ] to select "Service information", and then press [ Set/Fix]

## 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 "10-2. Troubleshooting method".

■: Goes off ○: Lighting -: Blinking (0.5 seconds)

Light block	Check code	ck code Cause of trouble							
Operation Timer Ready  All lights out	-	Power turned off or trouble in wiring between receiving and indoor units							
Operation Timer Ready	E01	Trouble reception	Receiving unit	Trouble or poor contact in					
	E02	Trouble transmission	ouble transmission						
- <del>-</del>	E03	Loss of communication		and indoor units					
Blinking	E08	Duplicated indoor unit No. (addr	ress)	Setting trouble					
	E09	Duplicated master remote contr	oller	Cotting trouble					
	E10	Communication trouble between	n indoor unit MCU						
	E11	Communication trouble between	n Application control kit and indoo	or unit P.C. board					
	E12	Automatic address starting troul	ole						
	E18	Trouble or poor contact in wiring	g between indoor units, indoor po	wer turned off					
Operation Timer Ready	E04	Trouble or poor contact in wiring (loss of indoor-outdoor commun	g between indoor and outdoor un iication)	its					
• • - <u>Ö</u> -	E06	Trouble reception in indoor-outo	loor communication (dropping ou	it of indoor unit)					
Blinking	E07	Trouble transmission in indoor-o	outdoor communication						
9	E15	Indoor unit not found during aut	omatic address setting						
	E16	Too many indoor units connected	ed / overloading						
	E19	Trouble in number of outdoor header units							
	E20	Detection of refrigerant piping co	tion of refrigerant piping communication trouble during automatic address setting						
	E23	Trouble transmission in outdoor	outdoor communication						
	E25	Duplicated follower outdoor add	ress						
	E26	Trouble reception in outdoor-ou	tdoor communication, dropping o	out of outdoor unit					
	E28	Outdoor follower unit trouble							
	E31	P.C. board communication troul	ole						
Operation Timer Ready	P01	Indoor AC fan trouble							
	P10	Indoor overflow trouble							
~ ~ ~	P11	Outdoor heat exchanger freezin	g trouble						
Alternate blinking	P12	Indoor DC fan trouble							
	P13	Outdoor liquid backflow detection	on trouble						
	P03	Outdoor discharge (TD1) tempe	rature trouble						
Operation Timer Ready	P04	Activation of outdoor high-press	ure SW						
Alternate blinking	P05	Open phase / power failure Inverter DC voltage (Vdc) troubl MG-CTT trouble	е						
J	P07	Outdoor heat sink overheating to outdoor unit	rouble - Poor cooling of electrical	component (IGBT) of					
	P15	Gas leak detection - insufficient	refrigerant charging						
	P17	Outdoor discharge (TD2) tempe	rature trouble						
	P18	Outdoor discharge (TD3) tempe	rature trouble						
	P19	Outdoor 4-way valve reversing t	rouble						
	P20	Activation of high-pressure prote	ection						
	P22	Outdoor fan P.C. board trouble							
	P26	Outdoor IPM, Compressor shor	t-circuit trouble						
	P29	Compressor position detection of	circuit trouble						
	P31	Shutdown of other indoor unit in	group due to trouble (group follo	ower unit trouble)					

MG-CTT: Magnet contactor

Light block	Check code	Cause of trouble			
Operation Timer Ready	F01	Heat exchanger temperature sensor (TCJ) trouble			
Operation Timer Ready	F02	Heat exchanger temperature sensor (TC2) trouble			
-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\	F03	Heat exchanger temperature sensor (TC1) trouble	Indoor unit temperature sensor trouble		
LI Alternate blinking	F10	Ambient temperature sensor (TA) trouble			
, memate similing	F11	Discharge temperature sensor (TF) trouble			
Operation Timer Ready	F04	Discharge temperature sensor (TD1) trouble Discharge			
Sportation Fields	F05	temperature sensor (TD2) trouble			
- <del></del>	F06	Heat exchanger temperature sensor (TE1, TE2) trouble			
L Alternate blinking	F07	Liquid temperature sensor (TL) trouble	Outdoor unit temperature		
<b>3</b>	F08	Outside air temperature sensor (TO) trouble	sensor trouble		
	F09	TG1,TG2 or TG3 sensor trouble			
	F12	Suction temperature sensor (TS1) trouble			
	F13	Heat sink sensor (TH) trouble			
	F15	Wiring trouble in heat exchanger sensor (TE1) and liquid temper Outdoor unit temperature sensor wiring / installation trouble	ature sensor (TL)		
	F16	Wiring trouble in outdoor high pressure sensor (Pd) and low pres Outdoor pressure sensor wiring trouble	ssure sensor (Ps)		
	F22	Outdoor discharge temperature sensor (TD3) trouble			
	F23	Low pressure sensor (Ps) trouble			
	F24	High pressure sensor (Pd) trouble	Outdoor unit pressure sensor trouble		
	F30	Occupancy sensor trouble	liouble		
	F31	Indoor unit EEPROM trouble			
Operation Timer Ready	F29	Failure in indoor EEPROM			
Operation Timer Ready	H01	Compressor breakdown			
	H02	Compressor lockup Outdoor unit compres related trouble			
$\sim$	H03	Current detection circuit trouble			
Blinking	H04	Comp. 1 case thermostat operation			
	H05	Wiring / installation trouble or detachment of outdoor discharge to	emperature sensor (TD1)		
	H06	Abnormal drop in low-pressure sensor (Ps) reading	Protective shutdown of outdoor unit		
	H07	Abnormal drop in oil level			
	H08	Trouble in temperature sensor for oil level detection circuit (TK1,	TK2, TK3, TK4 or TK5)		
	F14	Comp. 2 case thermostat operation			
	H15	Wiring / installation trouble or detachment of outdoor discharge to	· · · · · · · · · · · · · · · · · · ·		
	H16	Oil level detection circuit trouble - Trouble in outdoor unit TK1, TI			
	H25	Wiring / installation trouble or detachment of outdoor discharge to	emperature sensor (TD3)		
Operation Timer Ready	L02	Model mismatched of indoor and outdoor unit			
-\( -\( -\)	L03	Duplicated indoor group header unit	+\		
<u> </u>	L05	Duplicated priority indoor unit (as displayed on priority indoor unit	<u>′</u>		
Synchronized blinking	L06	Duplicated priority indoor unit (as displayed on indoor unit other to	man phonty indoor unit)		
	L07 L08	Connection of group control cable to a single indoor unit			
	L08	Indoor group address not set Indoor capacity not set			
	L09	Duplicated outdoor refrigerant line address			
Operation Timer Ready	L104	Outdoor capacity not set			
-\overline{\times}-\overline{\times}-	L10	Outdoor model incompatibility trouble			
	L17	Flow selector units trouble			
Synchronized blinking	L20	Duplicated central control address			
	L28	Too many outdoor units connected			
	L29	Trouble in number of P.C. boards			
	L30	Indoor external interlock trouble (External abnormal input)			
	LUU	mador external interioric flouble (External abriornial input)			

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

## Other (indications not involving check code)

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

## Flow selector unit (FS unit) Relation

Light block	Check code	Cause of trouble
Operation Timer Ready  Blinking	E17	Communication trouble between indoor unit(s) and FS unit(s)
Operation Timer Ready	L12	FS unit(s) system trouble
Synchronized blinking	L24	FS unit(s) setting trouble
Operation Timer Ready	J03	Duplicated FS units
• -\tilde{\ti}	J10	FS unit overflow trouble
Blinking Blinking	J11	FS unit temperature sensor(TCS) trouble

# 10-4. Check Codes Displayed on Remote Controller and SMMS series 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					
Main	Outdoor	7-segment display	Location of	Description	System status	Check code detection	Check items (locations)
remote controller	Check code	Sub-code	detection	2000		condition(s)	(1000110110)
E01	_	_	Remote controller	Indoor-remote controller communication trouble (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 failure 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 trouble	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.
E04	_	_	Indoor unit	Indoor-outdoor communication circuit trouble (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 terminator resistor setting (SW100, Bit 2).
E04	E06	No. of indoor units from which signal is received normally	I/F	Dropping out of indoor unit	All stop	Condition 1 All indoor unit initially communicating normally fails to return signal for specified length of time.  Condition 2 Outdoor I / F board SW103, Bit4 : OFF (Factory default)	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 failure in indoor P.C. board. Check for failure in outdoor P.C. board (I/F).
	_	_	Indoor unit	Indoor-outdoor communication circuit trouble	Only specified indoor units stop	Condition 1 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 indoor-outdoor power-on sequence. Check indoor address setting Check wiring of Indoor-outdoor communication wires Check outdoor terminator resistor setting (SW100, Bit 2).

	Check	code					
		7-segment display	Location of	Description	System status	Check code detection condition(s)	Check items (locations)
remote controller	Check	Sub-code	detection			Condition(3)	
		No. of indoor units from which signal is received normally	Indoor unit	Indoor-outdoor communication circuit trouble (E04)	All stop	Condition 1 One indoor unit or more initially communicating normally fails to return signal for specified length of time.  Condition 2 Outdoor I / F board SW103, Bit4 : ON (To switch the check code detection condition.)	Check power supply to indoor unit.  (Is power turned on?) Check indoor-outdoor power-on sequence. Check indoor address setting Check wiring of Indoor-outdoor communication wires Check outdoor terminator resistor setting (SW100, Bit 2).
E04/E06	E06		I/F	Dropping out of indoor unit (E06)		Display on main remote controller. Indoor units unavailable for indoor / outdoor communication. :E04 Indoor units available for indoor / outdoor communication. : E06	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 failure in indoor P.C. board. Check for failure in outdoor P.C. board. Check for failure in outdoor P.C. board (I/F).
_	E07	_	I/F	Indoor-outdoor communication circuit trouble (detected at outdoor end)	All stop	Signal cannot be transmitted from outdoor to indoor units for 30 seconds continuously.	Check outdoor terminator resistor setting (SW100, Bit 2).     Check connection of indoor-outdoor communication circuit.
E08	E08	Duplicated indoor address	Indoor unit I/F	Duplicated indoor address	All stop	More than one indoor unit are assigned same address.	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 trouble	Stop of corresponding unit	Communication cannot be established/maintained upon turning on of power or during communication.	Check for failure in indoor P.C. board
E12	E12	01: Indoor-outdoor communication 02: Outdoor-outdoor communication	I/F	Automatic address starting trouble	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 trouble in indoor power supply system. Check for noise from other devices. Check for power failure. Check for failure in indoor P.C. board.

	Check	code	Location				
Main remote	Outdoor Check	7-segment display	of	Description	System status	Check code detection condition(s)	Check items (locations)
controller	code	Sub-code	detection			, ,	
E16	E16	00: Capacity over 01-: No. of units connected	I/F	Too many indoor units connected	All stop	Combined capacity of indoor units is too large.  Note: If this code comes up after backup setting for outdoor unit failure is performed, perform "No capacity over detected" setting.  <"No capacity over detected" setting method> Turn on SW103 / Bit 3 on I/F P.C. board of outdoor header unit. For Cooling Only model, this check code is not displayed even if it exceeds the combined capacity of indoor units.	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 failure in outdoor P.C. board (I/F).
						More than 128 indoor units are connected.	
E18	_	_	Indoor unit	Trouble 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	Trouble in number of outdoor header units	All stop	There are more than one outdoor header units in one line. There is no outdoor header unit in one line.	Outdoor header unit is outdoor unit to which indooroutdoor tie cable (U1,U2) is connected.  • Check connection of indoor-outdoor communication line.  • Check for failure 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	Outdooroutdoor communication transmission trouble	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 failure in outdoor P.C. board (I/F). Check termination resistance setting for communication between outdoor units.
E25	E25	_	I/F	Duplicated follower outdoor address	All stop	There is duplication in outdoor addresses set manually.	Note: Do not set outdoor addresses manually.
E26	E26	Address of outdoor unit from which signal is not received normally	I/F	Signal lack of outdoor unit	All stop	Outdoor unit initially communicating normally fails to return signal for specified length of time.	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 failure in outdoor P.C. board (I/F).

	Check	code					
	Outdoor	7-segment display	Location of	Description	System status	Check code detection	Check items (locations)
remote controller	Check	Sub-code	detection			condition(s)	
E28	E28	Detected outdoor unit No.	I/F	Outdoor follower unit trouble	All stop	Outdoor header unit receives trouble 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- segment display of outdoor header unit, the fan of the outdoor unit that has been shut down due to an trouble comes on. If SW04 and SW05 are pressed simultaneously, the fans of normal outdoor units come on. To stop the fan or fans, press SW05 on its own.
E31	E31	P.C.board   Compressor   Fan Motor   1   2   1   2   2   1   2   01   0   0   0   0   0   0   0   0	I/F	P.C. board communication trouble	All stop	Communication is disrupted between P.C. board in inverter box.	Check wiring and connectors involved in communication between P.C. board I/F P.C. board for bad contact or broken wire. Check for failure in outdoor P.C. board (I/F, comp. P.C. board or Fan P.C. board). Check for external noise.
		80		Communication trouble between MCU and Sub MCU	All stop	Communication between MCU and Sub MCU stopped.	Operation of power supply reset (OFF for 60 seconds or more) Outdoor I/F PC board trouble check
F01	_	_	Indoor unit	Indoor TCJ sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	Check connection of TCJ sensor connector and wiring. Check resistance characteristics of TCJ sensor. Check for failure in indoor P.C. board.
F02	_	_	Indoor unit	Indoor TC2 sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	Check connection of TC2 sensor connector and wiring. Check resistance characteristics of TC2 sensor. Check for failure in indoor P.C. board.
F03	_	_	Indoor unit	Indoor TC1 sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	Check connection of TC1 sensor connector and wiring. Check resistance characteristics of TC1 sensor. Check for failure in indoor P.C. board.
F04	F04	_	I/F	TD1 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	Check connection of TD1 sensor connector. Check resistance characteristics of TD1 sensor. Check for failure in outdoor P.C. board (I/F).

	Check	code	Location				
Main remote		7-segment display	Location	Description	System status	Check code detection condition(s)	Check items (locations)
controller	Check code	Sub-code	detection				
F05	F05	_	I/F	TD2 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	Check connection of TD2 sensor connector. Check resistance characteristics of TD2 sensor. Check for failure in outdoor P.C. board (I/F).
F06	F06	01: TE1 sensor trouble 02: TE2 sensor trouble 03: TE3 sensor trouble	I/F	TE1/TE2/TE3 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	Check connection of TE1/TE2/TE3 sensor connectors. Check resistance characteristics of TE1/TE2/TE3 sensors. Check for failure in outdoor P.C. board (I/F).
F07	F07	01: TL1 sensor trouble 02: TL2 sensor trouble 03: TL3 sensor trouble	I/F	TL1/TL2/TL3 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	Check connection of TL1/ TL2/TL3 sensor connector. Check resistance characteristics of TL1/TL2/ TL3 sensor. Check for failure in outdoor P.C. board (I/F).
F08	F08	_	I/F	TO sensor trouble	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 failure in outdoor P.C. board (I/F).
F09	F09	01: TG1 sensor trouble 02: TG2 sensor trouble 03: TG3 sensor trouble	I/F	TG1/TG2/TG3 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	Check connection of TG1/TG2/TG3 sensor connectors. Check resistance characteristics of TG1/TG2/TG3 sensors. Check for failure in outdoor P.C. board (I/F).
F10	_	_	Indoor unit	Indoor TA sensor trouble	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 failure in indoor P.C. board.
F11	_	_	Indoor unit	Indoor TF sensor trouble	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 failure in indoor P.C. board.
F12	F12	01: TS1 sensor trouble 03: TS3 sensor trouble	I/F	TS1/TS3 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	Check connection of TS1/TS3 sensor connector Check resistance characteristics of TS1/TS3 sensor. Check for failure in indoor P.C. board.
F13	F13	1*: Compressor 1 side 2*: Compressor 2 side	Compressor P.C. board	TH sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	Failure in IPM built-in temperature sensor     → Replace Compressor     P.C. board.
F15	F15	_	I/F	Outdoor temperature sensor wiring trouble (TE1, TL1)	All stop	During compressor operation in HEAT mode, TL1 continuously provides temperature reading higher than indicated by TL1 by at least specified margin for 3 minutes or more.	Check installation of TE1 and TL1 sensors. Check resistance characteristics of TE1 and TL1 sensors. Check for outdoor P.C. board (I/F) trouble

	Check		Location			Charles de de d	
Main remote	Outdoor Check	7-segment display	of	Description	System status	Check code detection condition(s)	Check items (locations)
controller	code	Sub-code	detection			, ,	
F16	F16	_	I/F	Outdoor pressure sensor wiring trouble (Pd, Ps)	All stop	Readings of high-pressure Pd sensor and low-pressure Ps sensor are switched. Output voltages of both sensors are zero.	Check connection of high-pressure Pd sensor connector. Check connection of low-pressure Ps sensor connector. Check for failure in pressure sensors Pd and Ps. Check for trouble in outdoor P.C. board (I/F). Check for compressor poor compression.
F23	F23	_	I/F	Ps sensor trouble	All stop	Output voltage of Ps sensor is zero.	Check for connection trouble involving Ps sensor and Pd sensor connectors. Check connection of Ps sensor connector. Check for failure in Ps sensor. Check for compressor poor compression. Check for failure in 4-way valve. Check for failure in outdoor P.C. board (I/F). Check for failure in SV4 circuit.
F24	F24	_	I/F	Pd sensor trouble	All stop	Output voltage of Pd sensor is zero (sensor open-circuited). Pd > 4.15MPa despite compressor having been turned off.	Check connection of Pd sensor connector. Check for failure in Pd sensor. Check for failure in outdoor P.C. board (I/F).
F29	_	_	Indoor unit	Other indoor trouble	Stop of corresponding unit	Indoor P.C. board does not operate normally.	Check for failure in indoor P.C. board (failure EEPROM)
F31	F31	_	I/F	Outdoor EEPROM trouble	All stop *1	Outdoor P.C. board (I/F) does not operate normally.	Check power supply voltage. Check power supply noise. Check for failure in outdoor P.C. board (I/F).
H01	H01	1*: Compressor 1 side 2*: Compressor 2 side	Compressor P.C. board	Compressor breakdown	All stop	Inverter current detection circuit detects overcurrent and shuts system down.	Check power supply voltage. (AC380V-415V ± 10%). Check for failure in compressor. Check for possible cause of abnormal overloading. Check for failure in outdoor P.C. board (Compressor).
H02	H02	1*: Compressor 1 side 2*: Compressor 2 side	Compressor P.C. board	Compressor trouble (lockup) MG-CTT trouble	All stop	Overcurrent is detected several seconds after startup of inverter compressor.	Check for failure in compressor. Check power supply voltage. (AC380V-415V ± 10%). Check compressor system wiring, particularly for open phase. Check connection of connectors/terminals on compressor P.C. board. Check conductivity of case heater. (Check for refrigerant problem inside compressor.) Check for failure in outdoor P.C. board (Compressor). Check outdoor MG-CTT.
H03	H03	1*: Compressor 1 side 2*: Compressor 2 side	Compressor P.C. board	Current detection circuit trouble	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 failure in outdoor P.C. board (Compressor).

<sup>\*1</sup> Total shutdown in case of header unit Continued operation in case of follower unit

	Check	code					
Main remote		7-segment display	Location of	Description	System status	Check code detection condition(s)	Check items (locations)
controller	Check	Sub-code	detection			condition(3)	
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 failure in outdoor P.C. board (I/F).
H06	H06	_	I/F	Activation of low-pressure protection	All stop	Low-pressure Ps sensor detects operating pressure lower than 0.02MPa.	Check service valves to confirm full opening (both gas and liquid sides). Check outdoor PMVs for clogging (PMV1, 2, 3). Check for failure in SV4 circuits. Check for failure in low-pressure Ps sensor. Check indoor filter for clogging. Check valve opening status of indoor PMV. Check refrigerant piping for clogging. Check operation of outdoor fan (during heating). Check for insufficiency in refrigerant quantity.
H07	H07	_	VF	Low oil level protection	All stop	Operating compressor detects continuous state of low oil level for about 2 hours.	<all be="" checked="" corresponding="" in="" line="" outdoor="" to="" units=""> <ul> <li>Check connection and installation of TK1 and TK2 sensors.</li> <li>Check resistance characteristics of TK1 and TK2 sensors.</li> <li>Check for gas or oil leak in same line.</li> <li>Check for refrigerant problem inside compressor casing.</li> <li>Check SV3D, SV3F valves for failure.</li> <li>Check oil return circuit of oil separator for clogging.</li> <li>Check oil equalizing circuit for clogging.</li> </ul></all>
H08	H08	01: TK1 sensor trouble 02: TK2 sensor trouble	I/F	Trouble 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 failure in outdoor P.C. board (I/F).
	1100				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 failure in outdoor P.C. board (I/F).
H15	H15	_	I/F	TD2 sensor miswiring (incomplete insertion)	All stop	Discharge temperature of (TD2) does not increase despite compressor 2 being in operation.	Check installation of TD2 sensor. Check connection of TD2 sensor connector and wiring. Check resistance characteristics of TD2 sensor. Check for failure in outdoor P.C. board (I/F).

	Check		Location				
Main remote		7-segment display	of	Description	System status	Check code detection condition(s)	Check items (locations)
controller	Check code	Sub-code	detection				
		01: TK1 oil circuit trouble 02: TK2 oil circuit trouble	I/F	Oil level detection circuit trouble	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 trouble involving TK1 and TK2 sensors Check for clogging in oil equalizing circuit capillary. Check for refrigerant entrapment inside compressor.
H16	H16					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 trouble involving TK1 and TK2 sensors Check SV3F valve malfunction. Check for clogging in oil equalizing circuit capillary. Check for refrigerant entrapment inside compressor.
H17	H17	1*: Compressor 1 side 2*: Compressor 2 side	Compressor P.C. board	Compressor trouble (Step-out)	All stop	Judged that the synchronization could not be taken.	Check power supply voltage. (AC380V-415V ± 10%). Check for failure in compressor. Check for possible cause of abnormal overloading. Check for failure in outdoor P.C. board (compressor).
L02	L02	_	Indoor unit	Outdoor units model disagreement trouble	Stop of corresponding unit	In case of different outdoor unit (Not corresponded to Air to Air Heat Exchanger type)	Check outdoor unit model. (Check whether the outdoor unit corresponds to Air to Air Heat Exchanger type or not.)
L03	_	_	Indoor unit	Duplicated indoor header unit	Stop of corresponding unit	There are more than one header units in group.	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 units have 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 units have been set up as priority indoor unit.	Check displays on priority indoor unit and outdoor unit.
L07	_	_	Indoor unit	Connection of group control cable to standalone indoor unit	Stop of corresponding unit	There is at least one standalone indoor unit to which group control cable is connected.	Check indoor addresses.
L08	L08	_	Indoor unit	Indoor group / addresses not set	Stop of corresponding unit	Address setting has not been performed for indoor units.	Check indoor addresses.  Note:     This code is displayed when power is turned on for the first time after installation.
L09			Indoor unit	Indoor capacity not set	Stop of corresponding unit	Capacity setting has not been performed for indoor unit.	Set indoor capacity. (DN = 11)

	Check	code					
Main remote		7-segment display	Location of	Description	System status	Check code detection condition(s)	Check items (locations)
controller	Check code	Sub-code	detection			Containon(o)	
L10	L10	_	I/F	Outdoor capacity not set	All stop	Initial setting of I/F P.C. board has not been implemented.	Check model setting of P.C. board for servicing outdoor I/F P.C. board.
L20	_	_	Network adaptor Indoor unit	Duplicated central control address	All stop	There is duplication in central control address setting.	Check central control addresses.
L23	_	_	I/F	SW setting mistake	All stop	Outdoor P.C. board (I/F) does not operate normally.	Check switch setting of outdoor P.C. board (I/F).
L28	L28	_	I/F	Too many outdoor units connected	All stop	There are more than 5 outdoor units.	Check No. of outdoor units connected (Only up to 5 units per system allowed). Check communication lines between outdoor units. Check for failure in outdoor P.C. board (I/F).
L29	L29	P.C. board   Compressor   Fan Motor   1   2   1   2   2   1	I/F	Trouble in No. of P.C. board	All stop	Insufficient number of P.C. board are detected when power is turned on.	Check model setting of P.C. board for servicing outdoor I/F P.C. board.     Check connection of UART communication connector.     Check compressor P.C. board, fan P.C. board, and I/F P.C. board for failure.
L30	L30	Detected indoor address	Indoor unit	Indoor external interlock (External abnormal input)	Stop of corresponding unit	Indoor unit has been shut down due to external abnormal input signal.	When external device is connected:  1) Check for trouble in external device.  2) Check for trouble in indoor P.C. board. When external device is not connected:  1) Check for trouble in indoor P.C. board.
_	L31	_	I/F	Extended IC trouble	Continued operation	There is part failure in P.C. board (I/F).	Check outdoor P.C. board (I/F).
P01	_	_	Indoor unit	Indoor fan motor trouble	Stop of corresponding unit		Check the lock of fan motor (AC fan).     Check wiring.
P03	P03	_	I/F	Discharge temperature TD1 trouble	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, 3, 4) for clogging. Check resistance characteristics of TD1 sensor. Check for insufficiency in refrigerant quantity. Check for failure in 4-way valve. Check for leakage of SV4 circuit. Check SV4 circuit (wiring or installation trouble in SV41 or SV42).

	Check		Location			Chark and detection	
remote	Outdoor	7-segment display	of detection	Description	System status	Check code detection condition(s)	Check items (locations)
P04	P04	Sub-code  1*: Compressor 1 side 2*: Compressor 2 side	I/F	Activation of high-pressure SW	All stop	High-pressure SW is activated.	Check connection of highpressure SW connector. Check for failure in Pd pressure sensor. Check outdoor service valves (gas side, liquid side) to confirm full opening. Check for failure in outdoor fan. Check for failure in outdoor fan motor. Check outdoor PMVs (PMV1, 2, 3) for clogging. Check indoor/outdoor heat exchangers for clogging. Check for short-circuiting of outdoor suction/discharge air flows. Check for failure in outdoor P.C. board (I/F). Check for trouble in indoor fan system (possible cause of air flow reduction). Check opening status of indoor PMV. Check indoor-outdoor communication line for wiring trouble. Check for failure operation of check valve in discharge pipe convergent section. Check gas balancing SV4 valve circuit.
P05	P05	00: Power detection trouble 01: Open phase 02: Power supply miswiring 1*: Compressor 1 side 2*: Compressor 2 side	I/F  Compressor P.C. board	Power detection trouble / Open phase detection / Power supply miswiring Compressor Vdc trouble	All stop	Open phase is detected when power is turned on. Inverter DC voltage is too high (overvoltage) or too low (undervoltage).	Check for failure in outdoor P.C. board (I/F). Check wiring of outdoor power supply. Check power supply voltage.
P07	P07	1*: Compressor 1 side 2*: Compressor 2 side 01: Compressor 1 heat sink trouble 02: Compressor 2 heat sink trouble 04: Heat sink	Compressor P.C. board	Heat sink overheating trouble  Heat sink overheating trouble Heat sink dew condensation trouble	All stop	Condensation detection on heat sink has occurred four times or more in operation. Temperature sensor built into IPM (TH) is overheated.	Check outdoor fan system trouble. Check IPM and heat sink for thermal performance for failure installation. (e.g. mounting screws and thermal conductivity) Check for failure in Compressor P.C. board. (failure IPM built-in temperature sensor (TH)) Check outdoor fan system trouble. Check IPM and heat sink for thermal performance for troubled installation. (e. g. mounting screws and thermal conductivity)
107	107	04: Heat sink dew condensation					Check for failure in compressor P.C. board. (failure IPM built-in temperature sensor (TH)) Check shortage of refrigerant. Check outdoor service valves. Check connection of TL2 sensor. Check resistance characteristics of TL2 sensor. Check resistance characteristics of TO sensor. Check malfunctions of Pd and Ps sensors. Check outdoor I/F P.C. board malfunction. Check PMV2 and PMV3

	Check	code	1 41				
Main remote		7-segment display	Location of	Description	System status	Check code detection condition(s)	Check items (locations)
controller	Check code	Sub-code	detection			oonanion(o)	
P10	P10	Detected indoor address	Indoor unit	Indoor overflow trouble	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 failure in indoor P.C. board.
P11		_	I/F	Outdoor heat exchanger freeze trouble	All stop	Outdoor heat exchanger remaining frost detection has occurred eight times or more due to abnormal frost formation in heating operation.	Check shortage of refrigerant. Check connection of TE1, TE2 and TE3 sensors. Check resistance characteristics of TE1, TE2, and TE3 sensors. Check disconnection of TS1 sensor. Check resistance characteristics of TS1 sensor. Check outdoor I/F P.C. board malfunction. Check operation of 4 way valve. Check operation of outdoor PMV (1, 2, 3). Check short circuit from outlet air to inlet air.
P12	_	_	Indoor unit	Indoor fan motor trouble	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 failure in fan motor. Check for failure in indoor P.C. board. Check impact of outside air treatment (OA).
P13	P13	_	I/F	Outdoor liquid backflow detection trouble	All stop	<during cooling="" operation=""> When system is in cooling operation, high pressure is detected in the unit that has been turned off. <during heating="" operation=""> When system is in heating operation, low pressure is detected to be high in unit that has been turned off.</during></during>	Check full-close operation of outdoor PMV (1, 2, 3, 4). Check for failure in Pd or Ps sensor. Check failure 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
P15	P15	01: TS condition	I/F	Gas leak detection (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 criterion="" judgment="" trouble=""> In cooling operation: 60 °C In heating operation: 40 °C</ts>	Check for insufficiency in refrigerant quantity. Check outdoor service valves (gas side, liquid side) to confirm full opening. Check PMVs (PMV1, 2, 3, 4) for clogging. Check resistance characteristics of TS1 sensor. Check for failure in 4-way valve. Check SV4 circuit for leakage
		02: TD condition	I/F	Gas leak detection (TD condition)	All stop	Protective shutdown due to sustained discharge temperature (TD1 or TD2) at or above 108 °C for at least 10 minutes is repeated four times or more.	Check for insufficiency in refrigerant quantity. Check PMVs (PMV 1, 2, 3, 4) for clogging. Check resistance characteristics of TD1 and TD2 sensors. Check indoor filter for clogging. Check piping for clogging. Check SV4 circuit (for leakage or coil installation trouble).

	Check	code					
Main	Outdoor	7-segment display	Location of	Description	System status	Check code detection	Check items (locations)
remote controller	Check code	Sub-code	detection	Description	Cystom status	condition(s)	Oncor items (iocutions)
P17	P17		I/F	Discharge temperature TD2 trouble	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, 3, 4) for clogging. Check resistance characteristics of TD2 sensor. Check for failure in 4-way valve. Check SV4 circuit for leakage. Check SV4 circuit (for wiring or installation trouble involving SV41 and SV42).
P19	P19	Detected outdoor unit No.	I/F	4-way valve reversing trouble	All stop	Abnormal refrigerating cycle data is collected during heating operation.	Check for failure in main body of 4-way valve. Check for coil failure in 4-way valve and loose connection of its connector. Check resistance characteristics of TS1 and TE1,TE2 sensors. Check output voltage characteristics of Pd and Ps pressure sensors. Check for wiring trouble involving TE1 and TL1 sensors.
P20	P20		I/F	Activation of high-pressure protection	All stop	<during cooling="" operation=""> Pd sensor detects pressure equal to or greater than 3.85 MPa. <during heating="" operation=""> Pd sensor detects pressure equal to or greater than 3.6 MPa.</during></during>	Check for failure in Pd pressure sensor. Check service valves (gas side, liquid side) to confirm full opening. Check for failure in outdoor fan. Check for failure in outdoor fan motor. Check outdoor PMV (PMV1, 2, 3, 4) for clogging. Check indoor/outdoor heat exchangers for clogging. Check for short-circuiting of outdoor suction/discharge air flows. Check for failure in outdoor P.C. board (I/F). Check for failure in indoor fan system (possible cause of air flow reduction). Check opening status of indoor PMV. Check indoor-outdoor communication line for wiring trouble. Check for troble operation of check valve in discharge pipe convergent section. Check for refrigerant overcharging.

	Check	code					
Main			Location of	Description	System status	Check code detection	Check items (locations)
remote controller	Check code	Sub-code	detection		.,	condition(s)	(**************************************
P22	P22	1*: Fan P.C. board 1 2*: Fan P.C. board 2	Fan INV. P.C. board	Outdoor fan P.C. board trouble	All stop	Protected operation of Fan inverter P.C. board	Check fan motor. Check for failure in fan P.C. board. Check connection of fan motor connector. Check power voltage of the main power supply.
P26	P26	1*: Compressor 1 side 2*: Compressor 2 side	Compressor P.C. board	IPM, Compressor shortcircuit protection trouble	All stop	Overcurrent is momentarily detected during startup of compressor.	Check connector connection and wiring on compressor P.C. board. Check for failure in compressor (layer shortcircuit). Check for failure in outdoor P.C. board ( Compressor).
P29	P29	1*: Compressor 1 side 2*: Compressor 2 side	Compressor P.C. board	Compressor position detection circuit trouble	All stop	Position detection is not going on normally.	Check wiring and connector connection. Check for compressor layer short-circuit. Check for failure in compressor P.C. board.
P31	_	_	Indoor unit	Other indoor trouble (group follower unit trouble)	Stop of corresponding unit	There is trouble in other indoor unit in group, resulting in detection of E07/L07/L03/L08.	Check indoor P.C. board.

# **Check codes Displayed on by Central Control Device**

	Check	code					
Main	Outdoor 7-segment display		Location of	Description	System status	Check code detection	Check items (locations)
remote controller	Check code	Sub-code	detection	Bescription	Cystom status	condition(s)	Check tems (recations)
E03	_	_	Indoor unit	Indoor-remote controller communication trouble (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.
C05	_		Central control device	Central control device transmission trouble	Continued operation	Central control device is unable to transmit signal.	Check for failure in central control device. Check for failure in central control communication line. Check termination resistance setting.
C06	_		Central control device	Central control device reception trouble	Continued operation	Central control device is unable to receive signal.	Check for failure in central control device. Check for failure in central control communication line. Check terminator resistor setting. Check power supply for devices at other end of central control communication line. Check failure in P.C. boards of devices at other end of central control communication line.
C12	_		General- purpose device I/F	Batch alarm for general- purpose device control interface	Continued operation	Trouble signal is input to control interface for general-purpose devices.	Check trouble input.
P30		ccording to f alarm-causing	Central control device	Group control follower unit trouble	Continued operation	Trouble 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 dis	played.)		Duplicated central control address	Continued operation	There is duplication in central control addresses.	Check address settings.

#### ▼ Points to Note When Servicing Compressor

(1) When checking the outputs of inverters, remove the wiring from all the compressors.

#### **▼** How to Check Inverter Output

- (1) Turn off the power supply.
- (2) Remove compressor leads from the compressor P.C. board. (The model with two compressor should remove the wiring for two sets (6 leads).
- (3) Turn on the power supply and start cooling or heating operation.
- (4) Check the output voltage across each pair of inverter-side. If the result is unsatisfactory according to the judgment criteria given in the table below, replace the compressor P.C. board.

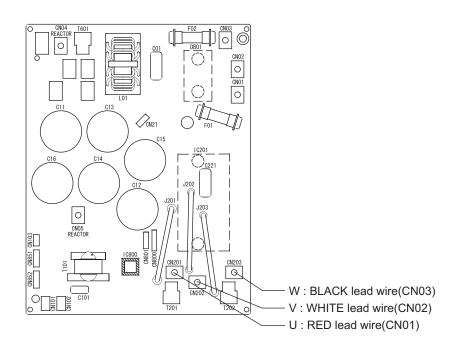
No.	Measured leads	Criterion
1	CN201 - CN202	380~580V
2	CN202 - CN203	380~580V
3	CN203 - CN201	380~580V

#### **▼** How to Check Resistance of Compressor Winding

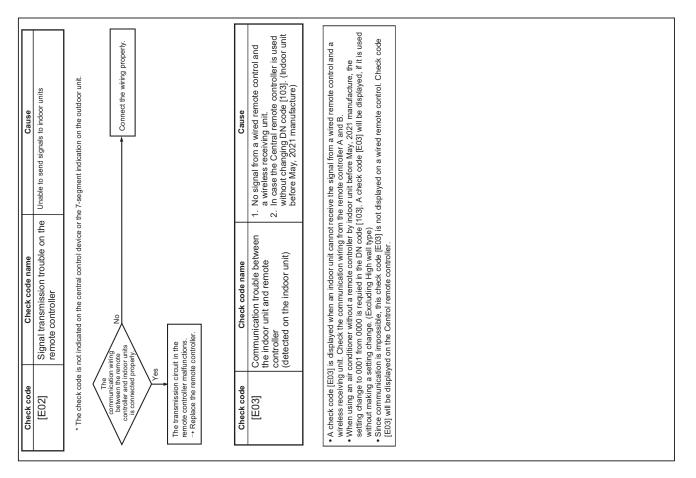
- (1) Turn off the power supply.
- (2) Remove compressor leads from the compressor P.C. board. (Be sure to remove all the leads.)
- (3) With each compressor, check the phase-to-phase winding resistances and winding-to-outdoor cabinet resistance using a multimeter.
  - Earth trouble?
    - $\rightarrow$  It is normal if the winding-to-outdoor cabinet resistance is 10M $\Omega$  or more.
  - · Inter-winding short circuit?
    - $\rightarrow$  It is normal if the phase-to-phase resistances are in the 0.1-1.0 $\Omega$  range. (Use a digital multimeter.)

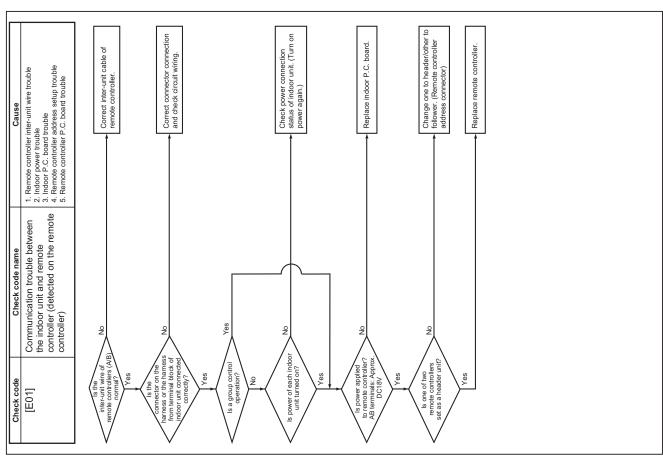
#### ▼ How to Check Outdoor Fan Motor

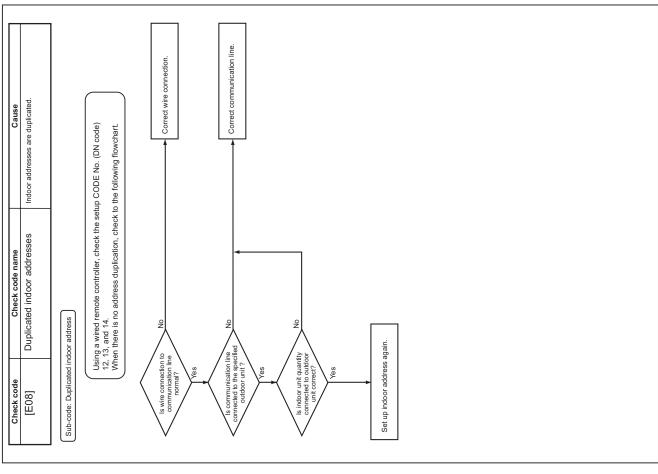
- (1) Turn off the power supply.
- (2) Remove fan motor leads from the fan P.C. board for the outdoor fan.
- (3) Rotate the fan by hand. If the fan does not turn, the fan motor is faulty (locked up). Replace the fan motor. If the fan turns, measure the phase-to-phase winding resistances using a multimeter. It is normal if the measurements are in the 8.1-9.9 range. (Use a digital multimeter.)

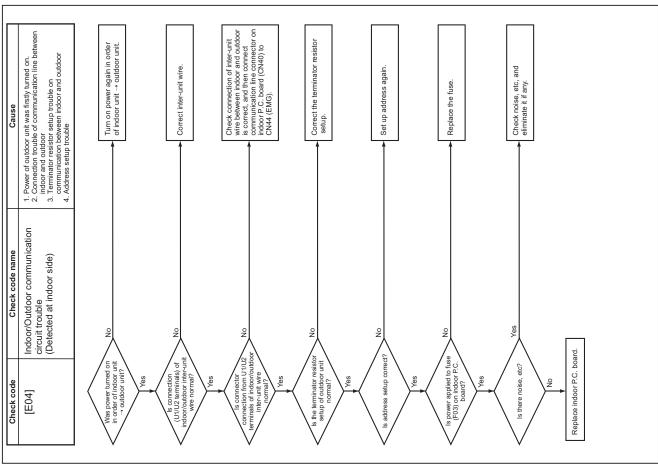


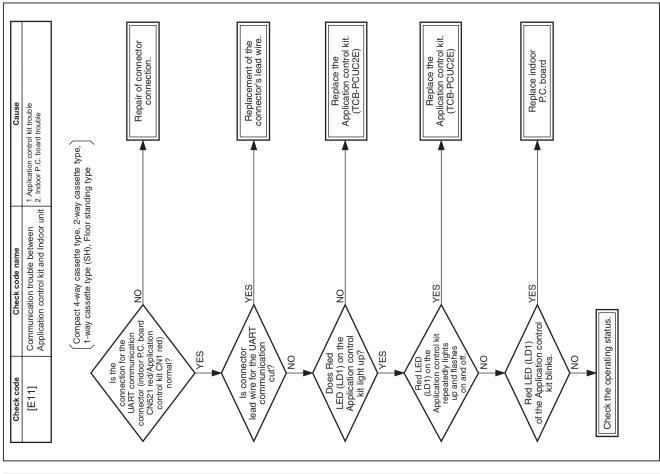
#### 10-5. Diagnostic Procedure for Each Check Code (Indoor Unit)

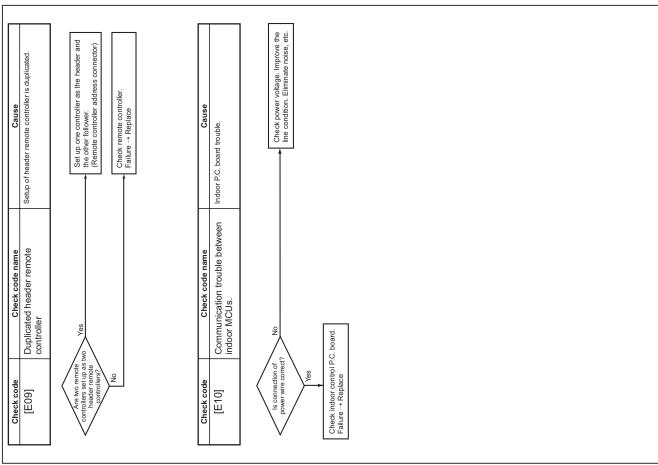


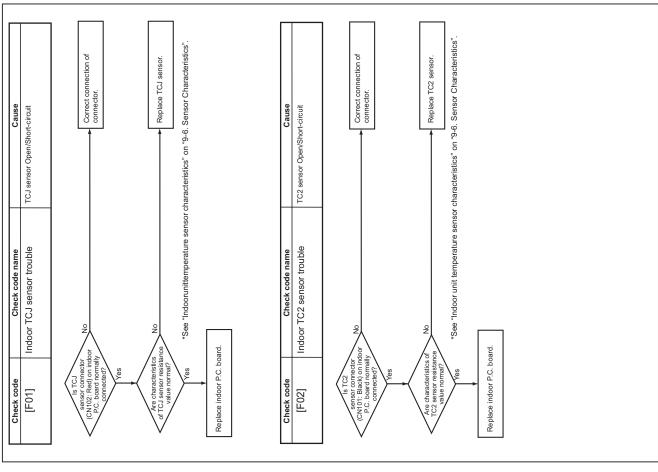


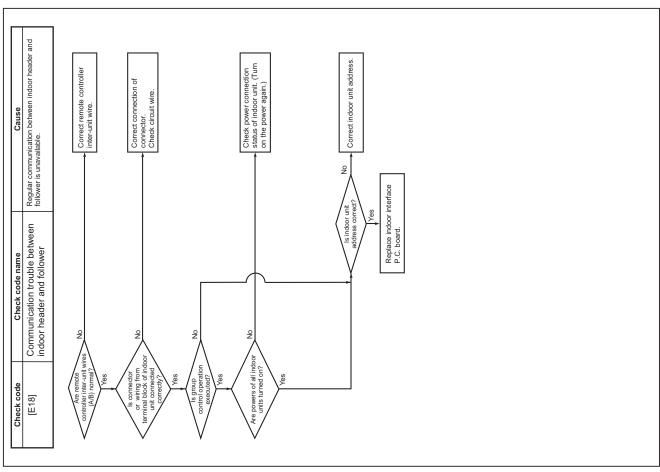


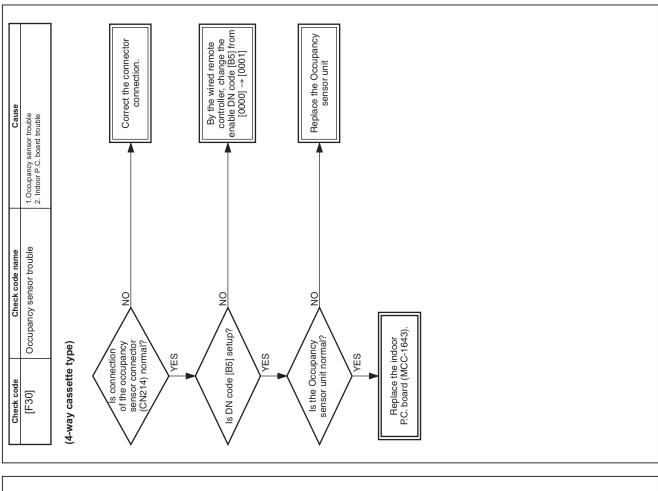


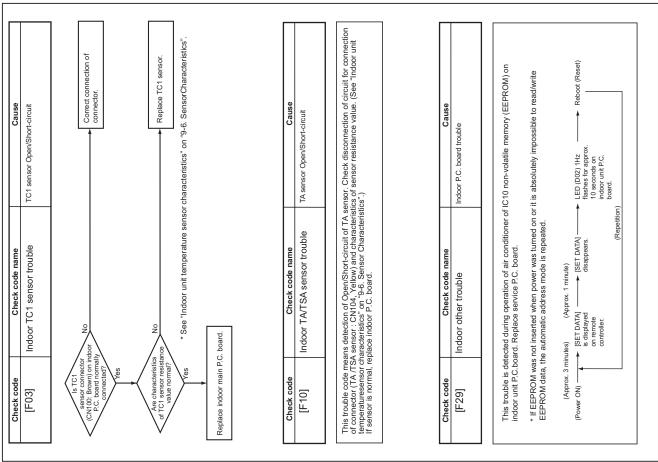


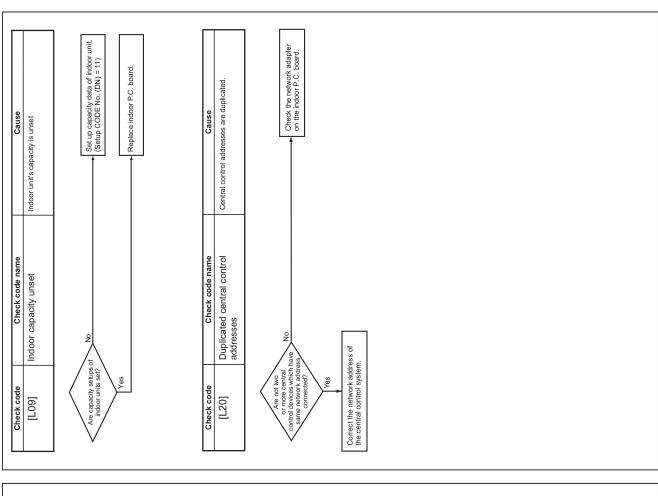


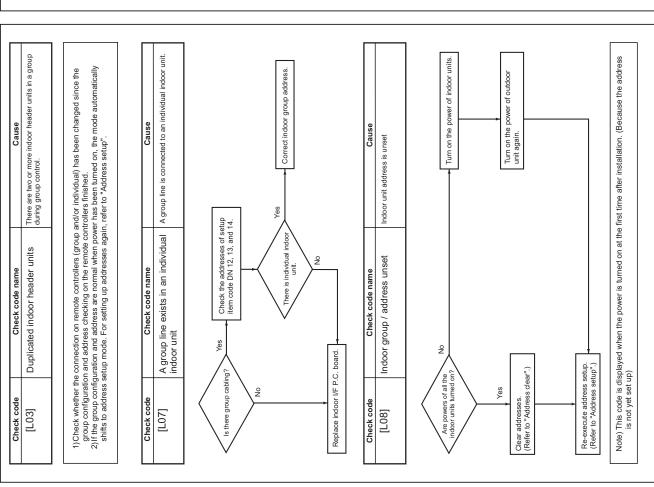


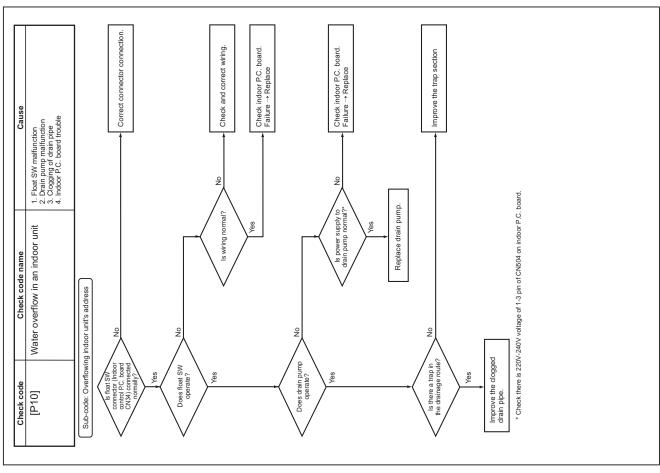


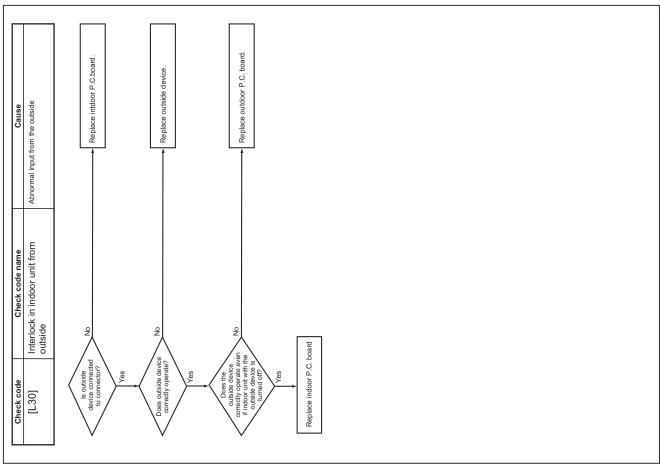


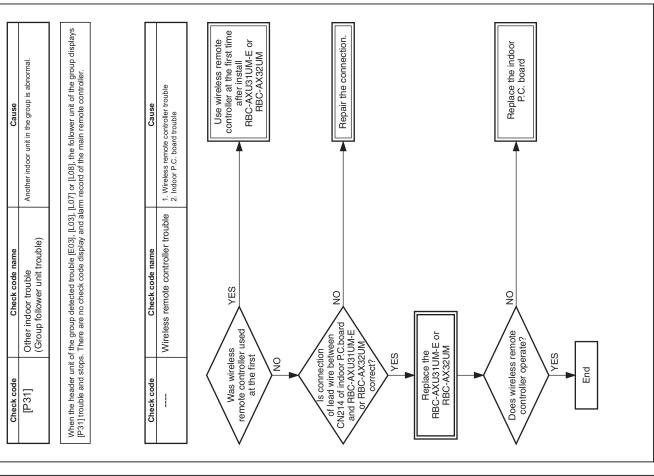


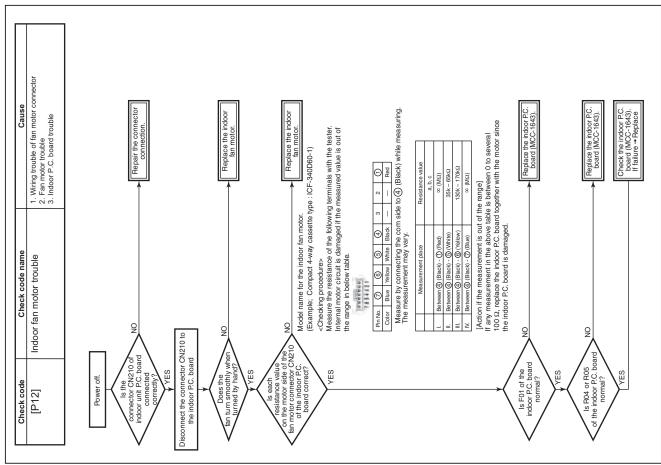








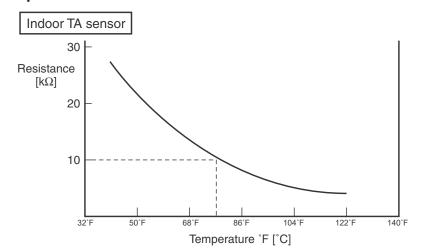




# 10-6. Sensor Characteristics

# **Indoor Unit**

# **■** Temperature sensor characteristics



Temperature [°F(°C)]	Resistance [k $\Omega$ ]
32°F(0°C)	33.9
41°F(5°C)	26.1
50°F(10°C)	20.3
59°F(15°C)	15.9
68°F(20°C)	12.6
77°F(25°C)	10.0
86°F(30°C)	8.0
95°F(35°C)	6.4
104°F(40°C)	5.2
113°F(45°C)	4.2
122°F(50°C)	3.5
131°F(55°C)	2.6
140°F(60°C)	2.4

Indoor To	C1 sensor	
200	0  -	- 20
,	0 -22'F -4'F 14'F 32'F 50'F 68'F 86'F 104'F 122'F 140'F 158'F 176'F 194'F	- 15 Resistance [kΩ] (50°F(10°C)) or below) 10
	Temperature °F [°C]	

Temperature [°F(°C)]	Resistance [ $k\Omega$ ]
-4°F(-20°C)	99.9
-5°F(-15°C)	74.1
-14°F(-10°C)	55.6
-23°F(-5°C)	42.2
32°F(0°C)	32.8
41°F(5°C)	25.4
50°F(10°C)	19.8
59°F(15°C)	15.6
68°F(20°C)	12.4
77°F(25°C)	10.0
86°F(30°C)	8.1
95°F(35°C)	6.5
104°F(40°C)	5.3
113°F(45°C)	4.4
122°F(50°C)	3.6
131°F(55°C)	3.0
140°F(60°C)	2.5
149°F(65°C)	2.1
158°F(70°C)	1.8
167°F(75°C)	1.5
176°F(80°C)	1.3
185°F(85°C)	1.1
194°F(90°C)	1.0
203°F(95°C)	0.8
212°F(100°C)	0.7

Indoor TC2 and TCJ sensors	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	15 Resistance [kΩ] (50°F(10°C)) or below) 10
0	2°F
Temperature °F [°C]	

Temperature [*F(*C)] Resistance [kΩ] -4*F(-20*C) 115.2 -5*F(-15*C) 84.2 -14*F(-10*C) 62.3 -23*F(-5*C) 46.6 32*F(0*C) 35.2 41*F(5*C) 26.9 50*F(10*C) 20.7 59*F(15*C) 16.1 68*F(20*C) 12.6 77*F(25*C) 10.0 86*F(30*C) 8.0 95*F(30*C) 8.0 95*F(35*C) 6.4 104*F(40*C) 5.2 113*F(45*C) 4.2 122*F(50*C) 3.5 131*F(55*C) 2.8 140*F(60*C) 2.4 149*F(65*C) 2.0 158*F(70*C) 1.6 167*F(75*C) 1.4		
-5°F(-15°C) 84.2  -14°F(-10°C) 62.3  -23°F(-5°C) 46.6  32°F(0°C) 35.2  41°F(5°C) 26.9  50°F(10°C) 20.7  59°F(15°C) 16.1  68°F(20°C) 12.6  77°F(25°C) 10.0  86°F(30°C) 8.0  95°F(35°C) 6.4  104°F(40°C) 5.2  113°F(45°C) 4.2  122°F(50°C) 3.5  131°F(55°C) 2.8  140°F(60°C) 2.4  149°F(65°C) 2.0  158°F(70°C) 1.6  167°F(75°C) 1.4	Temperature [°F(°C)]	Resistance [k $\Omega$ ]
-14°F(-10°C) 62.3  -23°F(-5°C) 46.6  32°F(0°C) 35.2  41°F(5°C) 26.9  50°F(10°C) 20.7  59°F(15°C) 16.1  68°F(20°C) 12.6  77°F(25°C) 10.0  86°F(30°C) 8.0  95°F(35°C) 6.4  104°F(40°C) 5.2  113°F(45°C) 4.2  122°F(50°C) 3.5  131°F(55°C) 2.8  140°F(60°C) 2.4  149°F(65°C) 2.0  158°F(70°C) 1.6	-4°F(-20°C)	115.2
-23°F(-5°C) 46.6 32°F(0°C) 35.2 41°F(5°C) 26.9 50°F(10°C) 20.7 59°F(15°C) 16.1 68°F(20°C) 12.6 77°F(25°C) 10.0 86°F(30°C) 8.0 95°F(35°C) 6.4 104°F(40°C) 5.2 113°F(45°C) 4.2 122°F(50°C) 3.5 131°F(55°C) 2.8 140°F(60°C) 2.4 149°F(65°C) 2.0 158°F(70°C) 1.6	-5°F(-15°C)	84.2
32°F(0°C) 35.2  41°F(5°C) 26.9  50°F(10°C) 20.7  59°F(15°C) 16.1  68°F(20°C) 12.6  77°F(25°C) 10.0  86°F(30°C) 8.0  95°F(35°C) 6.4  104°F(40°C) 5.2  113°F(45°C) 4.2  122°F(50°C) 3.5  131°F(55°C) 2.8  140°F(60°C) 2.4  149°F(65°C) 2.0  158°F(70°C) 1.6  167°F(75°C) 1.4	-14°F(-10°C)	62.3
41°F(5°C) 26.9  50°F(10°C) 20.7  59°F(15°C) 16.1  68°F(20°C) 12.6  77°F(25°C) 10.0  86°F(30°C) 8.0  95°F(35°C) 6.4  104°F(40°C) 5.2  113°F(45°C) 4.2  122°F(50°C) 3.5  131°F(55°C) 2.8  140°F(60°C) 2.4  149°F(65°C) 1.6  167°F(75°C) 1.4	-23°F(-5°C)	46.6
50°F(10°C) 20.7  59°F(15°C) 16.1  68°F(20°C) 12.6  77°F(25°C) 10.0  86°F(30°C) 8.0  95°F(35°C) 6.4  104°F(40°C) 5.2  113°F(45°C) 4.2  122°F(50°C) 3.5  131°F(55°C) 2.8  140°F(60°C) 2.4  149°F(65°C) 1.6  167°F(75°C) 1.4	32°F(0°C)	35.2
59°F(15°C)       16.1         68°F(20°C)       12.6         77°F(25°C)       10.0         86°F(30°C)       8.0         95°F(35°C)       6.4         104°F(40°C)       5.2         113°F(45°C)       4.2         122°F(50°C)       3.5         131°F(55°C)       2.8         140°F(60°C)       2.4         149°F(65°C)       2.0         158°F(70°C)       1.6         167°F(75°C)       1.4	41°F(5°C)	26.9
68°F(20°C) 12.6 77°F(25°C) 10.0 86°F(30°C) 8.0 95°F(35°C) 6.4 104°F(40°C) 5.2 113°F(45°C) 4.2 122°F(50°C) 3.5 131°F(55°C) 2.8 140°F(60°C) 2.4 149°F(65°C) 1.6 167°F(75°C) 1.4	50°F(10°C)	20.7
77°F(25°C) 10.0 86°F(30°C) 8.0 95°F(35°C) 6.4 104°F(40°C) 5.2 113°F(45°C) 4.2 122°F(50°C) 3.5 131°F(55°C) 2.8 140°F(60°C) 2.4 149°F(65°C) 2.0 158°F(70°C) 1.6	59°F(15°C)	16.1
86°F(30°C) 8.0 95°F(35°C) 6.4 104°F(40°C) 5.2 113°F(45°C) 4.2 122°F(50°C) 3.5 131°F(55°C) 2.8 140°F(60°C) 2.4 149°F(65°C) 1.6 167°F(75°C) 1.4	68°F(20°C)	12.6
95°F(35°C) 6.4  104°F(40°C) 5.2  113°F(45°C) 4.2  122°F(50°C) 3.5  131°F(55°C) 2.8  140°F(60°C) 2.4  149°F(65°C) 2.0  158°F(70°C) 1.6  167°F(75°C) 1.4	77°F(25°C)	10.0
104°F(40°C) 5.2 113°F(45°C) 4.2 122°F(50°C) 3.5 131°F(55°C) 2.8 140°F(60°C) 2.4 149°F(65°C) 2.0 158°F(70°C) 1.6 167°F(75°C) 1.4	( /	8.0
113°F(45°C) 4.2 122°F(50°C) 3.5 131°F(55°C) 2.8 140°F(60°C) 2.4 149°F(65°C) 2.0 158°F(70°C) 1.6 167°F(75°C) 1.4	95°F(35°C)	6.4
122°F(50°C) 3.5 131°F(55°C) 2.8 140°F(60°C) 2.4 149°F(65°C) 2.0 158°F(70°C) 1.6 167°F(75°C) 1.4	104°F(40°C)	5.2
131°F(55°C) 2.8 140°F(60°C) 2.4 149°F(65°C) 2.0 158°F(70°C) 1.6 167°F(75°C) 1.4	113°F(45°C)	4.2
140°F(60°C) 2.4 149°F(65°C) 2.0 158°F(70°C) 1.6 167°F(75°C) 1.4	122°F(50°C)	3.5
149°F(65°C) 2.0 158°F(70°C) 1.6 167°F(75°C) 1.4	131°F(55°C)	2.8
158°F(70°C) 1.6 167°F(75°C) 1.4	140°F(60°C)	2.4
167°F(75°C) 1.4	149°F(65°C)	2.0
	158°F(70°C)	1.6
176°F(80°C) 1.2	167°F(75°C)	1.4
	176°F(80°C)	1.2

#### 11. REPLACEMENT OF SERVICE P.C. BOARD

#### **Indoor Unit**



#### <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]

Û

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 trouble and the setting data cannot be read out.

EEPROM data read out [2]



Writing the setting data to EEPROM, such as 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

(Stop the operation of the unit.)

#### <RBC-AMT\*\*\*>

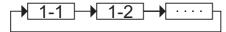
#### [1] Setting data read out from EEPROM

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

- **Step 1** Push  $\stackrel{\sim}{\Box}$ ,  $\stackrel{\sim}{\Box}$  and  $\stackrel{\gg}{\varnothing}$  button on the remote controller simultaneously for more than 4 seconds.
  - \*When the group operation control is performed, the unit No. displayed for the first time is the header unit No.
    - At this time, the CODE No. (DN) shows " ". Also, the fan of the indoor unit selected starts its operation and the swing operation also starts if it has the louvers.
- Step 2 Every time when the (left side button) button is pushed, the indoor unit No. under the group control is displayed in order. Specify the indoor unit No. to be replaced.
  - Change e the CODE No. (DN) to □ → □ I 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 " T to " FE". The CODE No. (DN) may skip.

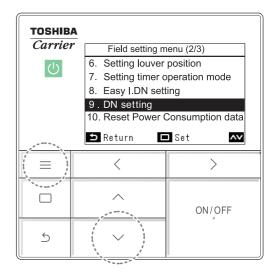
#### <RBC-AWSU52-UL>

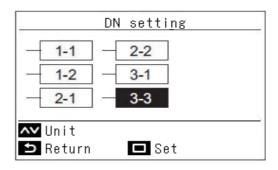
- 1 Push the [ MENU] button to display the menu screen.
- Push and hold the [ MENU] button and the [ ] button at the same time to display the "Field setting menu".
  - Push and hold the buttons for more than 4 seconds.
- Push the [ ]/[ ] button to select "7. DN setting" on the "Field setting menu" screen, then push the [ Set/Fix ] button.
  - When the group control is used, all the indoor units connected into the system are displayed on the screen.
- **4** Push the to select indoor unit in which you want to read out setting data in the EEPROM.
  - The selected unit changes as follows each time the button is pushed:



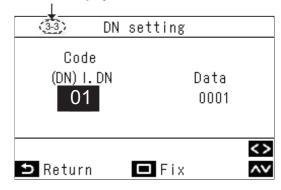
- **5** Push the" [ Set/Fix]" button.
  - · The setting display for the selected unit is displayed.
  - The fan and louver of the indoor unit operate.
- Push the [ ] / [ ] to set "DN code" to [0001], then write down the setting data to be displayed.
  (Filter sign lighting time)
- 7 Repeat the operation of 1 to 6, then write down the setting data like Table 1. Setting data (CODE No. table (example)).
  - \* The Code No.(DN) are ranged in order of No., which may be sometimes skipped.
- After writing down all the setting data, push the "[ Set/Fix ]"
  - · The setting display for the selected unit is displayed.
  - When the group control is used, the fan and louver of the selected indoor unit operate.
- 9 Push the [■■ MENU] button to set the other "Code(DN)" and "Data". After "Continue?" is displayed on the screen, push the [ Return ] button to finish the setting operation. " 

  Setting" appears on the screen for a while, then the screen returns to the "Field setting menu" screen.





Address is displayed here.



#### **CODE No. required at least**

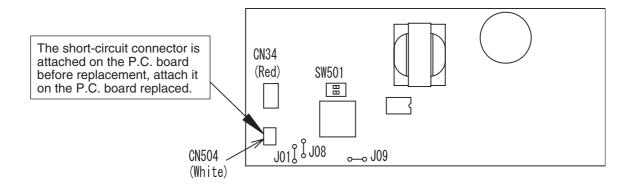
DN	Contents
0010	Type
0011	Indoor unit capacity
0012	System address
0013	Indoor unit address
0014	Group address

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

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

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

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



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

- a) Single operation (Indoor unit is used as standalone.) Turn on the indoor unit.
  - 1. After completion of the auto-address setting mode (required time: approx. 5 min.), proceed to [3]. (System address = 1, Indoor unit address = 1, Group address = 0 (standalone) are automatically set.)
  - 2. Interrupt the auto-address setting mode, and proceed to [3].
- b) Group operation (including twin triple and double twin system)

  Turn on the indoor unit(s) with its P.C. board replaced to the P.C. board for indoor unit servicing, according to either methods 1 or 2 shown below.
  - 1. Turn on only the indoor unit with its P.C. board replaced. (Be sure to confirm the remote controller is surely connected. If not, the operation [3] cannot be performed.)

    Perform either methods 1 or 2 described in item a) above.
  - 2. Turn on the multiple indoor units including the indoor unit with its P.C. board replaced.
    - · Twin or triple or double twin 1 system only
    - All group connections

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

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

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

# [3] Writing the setting data to EEPROM

(Stop the operation of the unit.)

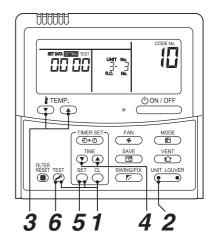
#### <RBC-AMT\*\*\*>

- **Step 1** Push , △ and ② 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 " ". Also, the fan of the indoor unit selected starts its operation and the swing operation starts if it has the louvers.
  - (The unit No. " FLL" is displayed if the auto-address setting mode is interrupted in [2] step 2 a))
- Step 2 Every time when of 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

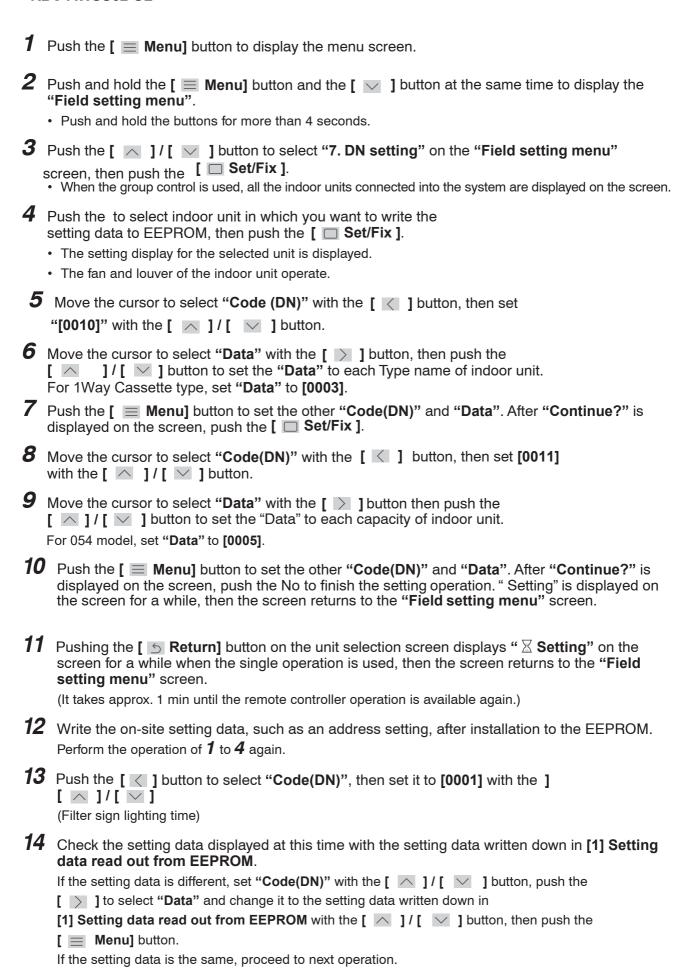
Specify the indoor unit No. with its P.C. board replaced to the P.C. board for indoor unit servicing. (You cannot perform this operation if "ALL" is displayed.)

- 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 \$\overline{U}\$ . (without change)
  - 2. Select the type by pushing 🔻 / 📤 buttons for the timer setting. (For example, 1-way Cassette Type is set to "0003". Refer to table 2)
  - 3. Push <sup>™</sup> button. (The operation completes if the setting data is displayed.)
  - 4. Change the CODE No. (DN) to " !!" by pushing / buttons for the temperature setting.
  - 5. Select the capacity by pushing 🔻 / 📤 buttons for the timer (For example, UP012 Type is set to "0005". Refer to table 3)
  - 6. Push <sup>™</sup> button. (The setting completes if the setting data are displayed.)



- 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 " !" 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 T / D buttons for the timer setting to the data put down in [1]. The operation completes if the setting data is displayed.
  - 2. If the data is the same, proceed to next step.
- Step 7 Change the CODE No. (DN) by pushing / buttons for the temperature setting. As described above, check the setting data and modify to the data put down in [1].
- **Step 8** Repeat the steps 6 and 7.
- **Step 9** After the setting completes, push button to return to the normal stop status. (It takes approx. 1 min until the remote controller operation is available again.)
  - \*The CODE No. (DN) are ranged from " I ! " to " FE ". The CODE No. (DN) is not limited to be
  - Even after modifying the data wrongly and pushing 🖔 button, it is possible to return to the data before modification by pushing 5 button if the CODE No. (DN) is not changed.

#### <RBC-AWSU52-UL>



- 15 Change "Code (DN)" to [0002] with the [ \_ ] / [ \_ ] button. (Filter pollution level)
- Perform the operation of 14. Check the other "Code (DN)" also, change "Data" into the setting data written down in [1] Setting data read out from EEPROM if the setting data is different.
- 17 After writing down all the data, push the [ 5 Return] button.

At the time, " $\boxtimes$  Setting" is displayed on the screen for a while when the single operation is used, then the screen returns to the "Field setting menu" screen.

Pushing the [  $\bigcirc$  Return] button on the unit selection screen again displays " $\boxtimes$  Setting" on the screen for a while when the group control is used, then the screen returns to the "Field setting menu" screen.

(It takes approx. 1 min until the remote controller operation is available again.)

\* The Code No.(DN) are ranged in order of No., which may be sometimes skipped.

Even after changing the data wrongly and pushing the [ Menu] button, it is possible to return to the data before change by pushing the [ Return] 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.

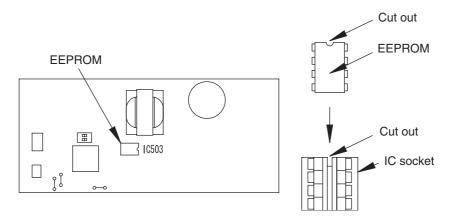


Table 1.Setting data(CODE No. table(example))

DN	Item	Setting data	Factory-set value
01	Filter display delay timer	_	0002 : 2500H
02	Dirty state of filter		0000 : Standard
03	Central control address		00Un/0099 : Unfixed
04	Specific indoor unit priority		0000 : No priority
06	Heating suction temperature shift		0002 : +3.6°F(+2°C)
0D	Automatic mode		0001 : No automatic
0F	Cooling only		0000 : Heat pump
10	Туре		Depending on model type
11	Indoor unit capacity		According to capacity type
12	Line address		00Un/0099 : Unfixed
13	Indoor unit address		00Un/0099 : Unfixed
14	Group address		00Un/0099 : Unfixed
19	Flap type (Wind direction adjustment)		Depending on Type
1E	Temperature range of cooling/heating		0003 : 3 deg (Ts±1.5)
	automatic SW control point		, , , , , , , , , , , , , , , , , , ,
28	Automatic restart of power failure	0001 : Enable	0000 : None
2A	Selection of option / Trouble input		0002 : None
	(TCB-PCUC2E: CN3)		****
2B	Themo output SW		0000 : Thermo ON
2E	HA terminal (CN61) select		0000 : Usual (HA terminal)
31	Ventilating fan control		0000 : Unavailable
32	Sensor SW		0000 : Body sensor
33	Temperature unit select	0001 : Fahrenheit (°F)	0000 : Centigrade (°C)
5D	External static pressure		0000 : Default setting
60	Timer setting (wired remote controller)		0000 : Available
7A	Change unit 0.9°F(0.5°C) or 1.8°F(1°C) on remote	0001: 0.9°F(0.5°C)	0000 : 1.8°F(1°C)
D0	Remote controller operation save function		0001 : Enable
E0	Region	0001 : North America	0000 : Domestic
F6	Presence of Application control kit (TCB-PCUC2E)		0000 : None
FC	Communication protocol		0000 : TCC-LINK
FE	FS unit adress		00Un/0099 : Unfixed
191	Ventilation output / Secondary heating output	0001 : Secondary heating output	0000 : Ventilation output
1Fb	Remote controller operation	, , , , , ,	0000 : Operation possible
1FC	Indoor Unit terminating resistance		0000 : OFF

Table 2. Type: CODE No.10

Setting data Type		Type name abb.
0001 *1	4-way Air Discharge Cassette Type	MMU-UP****HP-UL
0003	1 Way Cassette Type	MMU-UP***YHP-UL

<sup>\*1</sup> EEPROM initial value on the P.C. board for indoor unit servicing.

# \*2 ▲ CAUTION

< Model name

MMU-UP\*\*\*\*YHP-UL, (\*\*\*: 007 ~ 012) >

For the above model. Set the CODE no. to

**"E0"** the setting data "0000" (initial) to "0001"

"28" the setting data "0000" (initial) to "0001"

"33" the setting data "0000" (initial) to "0001"

"7A" the setting data "0000" (initial) to "0001"

"191" the setting data "0000" (initial) to "0001"

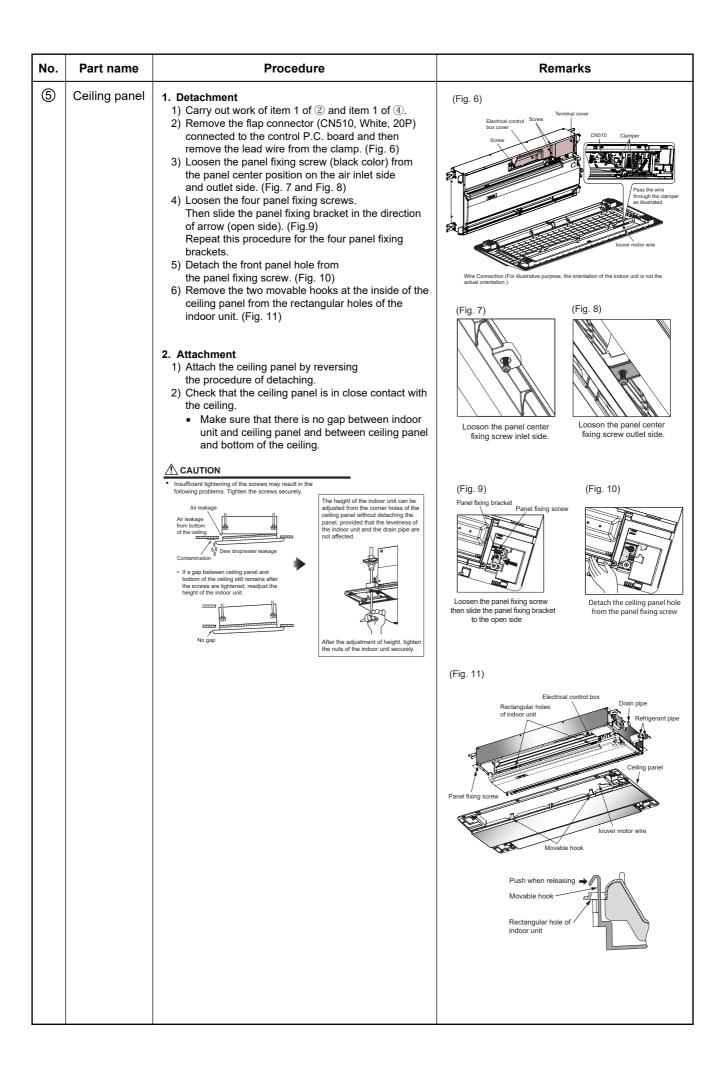
Table 3. Indoor unit capacity: CODE No.11

Setup data	Model
0000*1	Invalid
0001	007 type
0003	009 type
0005	012 type

# 12. DETACHMENTS

No.	Part name	Procedure	Remarks
1	Air inlet grille	CAUTION  Be sure to put on the gloves and long-sleeved shirt at disassembling work; otherwise an injury will be caused by a part, etc.	
		1. Detachment 1) Stop operation of the air conditioner and then turn off switch of the breaker. 2) Loosen the screw on hook lock grille both side. 3) Slide the hook lock grille on air inlet grille in the direction of arrow 1. (Fig. 1) 4) Push the center hook of air inlet grille in the direction of arrow 2. and open the grille. (Fig. 1) 5) Release the safety strap hook from the air inlet grille.	(Fig. 1)  Loosen screw  Hook lock grille  Air inlet grille
		Do not remove the safety strap screw on the ceiling panel side.  6) Remove the hinges on the air inlet grille from the ceiling panel by pull until the end to right or left side and push off hinges and then pull to opposite side air inlet grille will be release. (Fig. 2)	(Fig. 2)
		2. Attachment  1) Attach the air inlet grille by reversing the procedure of its removal.  2) Be sure to attach the safety strap to air inlet grille.	Safety strap hook Air inlet grille hook hole
2	Electric parts cover	1. Detachment 1) Carry out work of item 1 of ① 2) Remove the fixing screws of the terminal cover	(Fig. 3)
		and take off.  3) Remove the fixing screw of the electric parts cover, and detach the electric parts cover by slide.(The electric parts cover is clamped onto the hinge.) (Fig. 3)  2. Attachment  1) Attach the electric parts cover by slide.  2) Tighten the fixing screw for fix electric parts cover.  3) Attach the terminal cover and tighten the fixing	Terminal cover Fixing screw
		CAUTION  Make sure insert the terminal cover on the top of hanger.	Fixing screw  Terminal cover

No.	Part name	Procedure	Remarks
3	Control P.C.board	1. Detachment 1) Carry out work of item 1 of ① and item 1 of ②.  2) Remove connectors which are connected from the control P.C. board to the other parts and then remove wiring from the clamp.  CN510: Louver motor (20P, White)  CN34: Float switch (3P, Red)  CN504: Drain pump (2P, White)  CN100: TC1 sensor (3P, Brown)  CN101: TC2 sensor (2P, Black)  CN102: TCJ sensor (2P, Red)  CN210: Fan motor (7P, White)  CN82: PMV (6P, Blue)   Note:  Unlock the lock of the housing part and then remove the connector.  3) Unlock the locks of the card edge spacer (4 positions) and then remove the control P.C. board.  4) Attachment 1) Fix the control P.C. board to the card edge spacer. (4 positions) 2) Connect the connector removed in item 1 as before and then fix the wiring with the clamp. 3) Following to work of item 2 of ② and 2 of ① mount the electric parts box cover and the air inlet grille as before.	Card edge spacer
4	Adjust corner cap	1. Detachment 1) Pull the edge of the adjust corner cap in the direction of arrow, adjust corner cap will be release from ceiling panel. (Fig. 4)  2. Attachment 1) Hook the strap of the adjust corner cap securely to the pin. 2) Insert the two claws A of the adjust corner cap into the rectangular holes of the ceiling panel in the direction of arrow. (Fig. 5) 3) Push the adjust corner cap so that the two claws B on the back of the cap are fitted.  CAUTION  Press the two claws B of the adjust corner cap firmly as far as they will go, and then check that the adjust corner cap is closely attached. Failure to do so may result in water leakage.	(Fig. 4)  Pull  Adjust corner cap  Ceiling panel  Claws A  Strap  Claws A  Adjust corner cap



Drain pan			
	1. Detachment 1) Carry out work of item 1 of ⑤. 2) Remove the cap drain and then drain the water accumulated in the drain pan. (Fig. 12)  * When taking off the cap drain, be sure to prepare a bucket, etc. for spilled water. 3) Loosen the fixing screw (Ø5/32"(4mm) x 0.4"(10mm) 6 pcs.) and then remove the drain pan. (Fig. 13)  2. Attachment 1) Tighten the fixing screw to the drain pan with the cabinet. 2) Firmly insert cap drain to drain pan.	(Fig. 13)  Drain pan  Drain pan	
Drain pump	1. Detachment 1) Carry out work of item 1 of ⑥. 2) Remove the drain pump connector (CN504, White, 2P) connected to the control P.C. board and then remove the lead wire from the clamp. 3) Remove the band hose from the drain hose in the direction of arrow. (Fig. 14) 4) Remove the drain hose from drain pump in the direction of arrow. (Fig. 15) 5) Loosen the fixing screw (Ø5/32"(4mm) x 0.4"(10mm) 3 pcs.) and then remove the drain pump from the pump fixture. (Fig. 16)	(Fig. 14)  Band hose  (Fig. 15)  Drain hose	
	2. Attachment  1) Tighten the fixing screw to the the drain pump with the pump fixture.  2) Insert the drain hose to the drain pump.  Note: Insert the drain hose up to the end of the drain pump connecting part, apply band to the white mark position of the hose.  3) Connect the drain pump connector (CN504, White, 2P) to the control P.C. board and then fix it as before with the clamp.	(Fig. 16)  Pump fixture  Fixing screws	
_	Drain pump	prepare a bucket, etc. for spilled water.  3) Loosen the fixing screw (Ø5/32"(4mm) x 0.4"(10mm) 6 pcs.) and then remove the drain pan. (Fig. 13)  2. Attachment  1) Tighten the fixing screw to the drain pan with the cabinet.  2) Firmly insert cap drain to drain pan.  2) Remove the drain pump connector (CN504, White, 2P) connected to the control P.C. board and then remove the lead wire from the clamp.  3) Remove the band hose from the drain hose in the direction of arrow. (Fig. 14)  4) Remove the drain hose from drain pump in the direction of arrow. (Fig. 15)  5) Loosen the fixing screw (Ø5/32"(4mm) x 0.4"(10mm) 3 pcs.) and then remove the drain pump from the pump fixture. (Fig. 16)  2. Attachment  1) Tighten the fixing screw to the the drain pump with the pump fixture. (Fig. 16)  Note:  Insert the drain hose up to the end of the drain pump connecting part, apply band to the white mark position of the hose.  3) Connect the drain pump connector (CN504, White, 2P) to the control P.C. board and then	

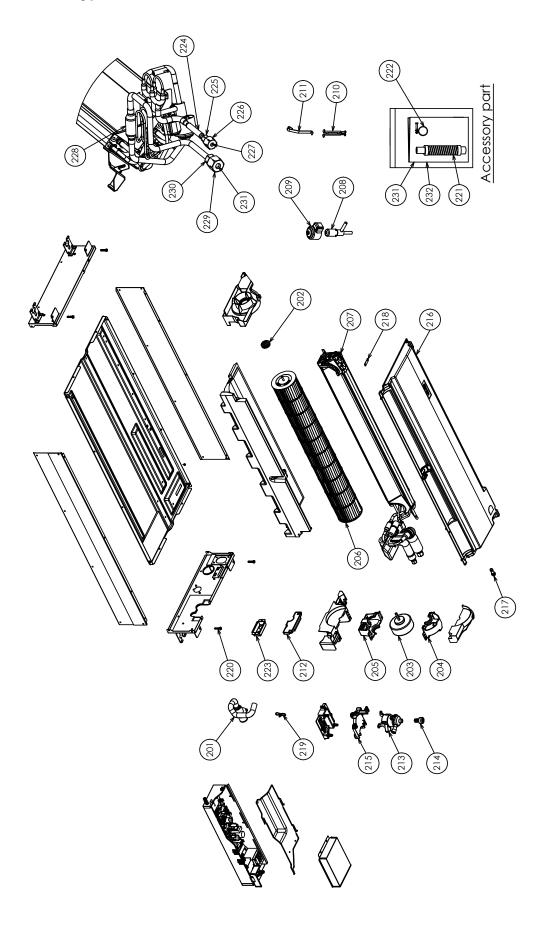
No.	Part name	Procedure	Remarks
8	Float switch	1. Detachment 1) Carry out work of item 1 of ⑥. 2) Remove the float switch connector (CN34, Red, 3P) connected to the control P.C. board and then remove the lead wire from the clamp. 3) Loosen the nut fixing float switch then float switch will be release. (Fig. 17)  2. Attachment 1) Tighten the nut fixing float switch to the float switch with the pump fixture. 2) Connect the float switch connector (CN34, Red, 3P) to the control P.C. board and then fix it as before with the clamp.	(Fig. 17)  Nut fixing float switch  Float switch
9	PMV coil	1. Detachment 1) Carry out work of item 1 of ⑥. 2) Remove the PMV coil connector (CN82, Blue, 6P) connected to the control P.C. board and then remove the lead wire from the clamp. 3) Turn the PMV coil slightly follow the direction of arrow (Fig. 18), and then remove the PMV coil follow the direction of arrow (Fig. 19)  2. Attachment 1) Attach the PMV coil as original.  Note:  • Check the direction of the PMV coil. • Check the claw holes in the PMV coil. are securely placed into four clows on the PMV body. • Check position of the lock part on the binding band and the lead wire.  2) Connect the PMV coil connector (CN82, Blue, 6P) to the control P.C. board and then fix it as before with the clamp.  Attach the PMV coil to the PMV body so that the PMV coil profusion part points to the PMV body inlet  Fit the claw holes on the PMV coil into four claws on the PMV body.  Binding band.  Lead wire  (Caution when fixing the lead wire with the binding band.  1. Do not apply tension to the drawing part on the coil ilead wire.  Ensure that the PMV pipe does not be part on the lead wire.  Ensure that the PMV pipe does not	(Fig. 18)  PMV coil  PMV coil
		come to contact with the protective tube.  Ensure that the lock part on the binding band comes to the position in the figure.	
(1)	Cover pipe	1. Detachment 1) Carry out work of item 1 of ⑥. 2) Loosen the fixing screw (Ø5/32"(4mm) x 0.4"(10mm) 2 pcs.) and then remove the cover pipe. (Fig. 20)  2. Attachment 1) Tighten the fixing screw to the cover pipe for fix with the side cabinet.	(Fig. 20)  Cover pipe  Fixing screw

No.	Part name	Procedure	Remarks
No.	Part name Fan motor and cross flow fan	Procedure  1. Detachment 1) Carry out work of item 1 of ⑥ and item 1 of ⑥.  2) Remove the fan motor connector (CN210, White, 7P) connected to the control P.C. board and then remove the lead wire from the clamp.  3) Loosen the fixing screw (Ø5/32"(4mm) x 0.4"(10mm) 2 pcs.) of heat exchanger. (Fig. 21)  4) Loosen the fixing screw (Ø5/32"(4mm) x 0.4"(10mm) 2 pcs.) of cover motor and then remove the cover motor. (Fig. 22)  5) Loosen the set screw of the cross flow fan by hexagonal wrench. (Fig. 23)  6) Loosen the fixing screw (Ø5/32"(4mm) x 0.4"(10mm) 2 pcs.) of fan motor band and then remove the fan motor and the cross flow fan.(Fig. 24)  2. Attachment 1) Check the type name of the fan motor. 2) Keep connector position and arrange the fan motor wire following (Fig. 25)  For ICF-340-30-6A  (Fig. 25)	(Fig. 21) Heat exchanger
		3) Install the fan motor and the cross flow fan into the original position and then tighten the fixing screw to the fan motor band. 4) Keep distance between main unit and cross flow fan as (Fig. 26) and then tighten set screw to the original position.	Cover motor  Fixing screw  (Fig. 23)  Hexagonal wrench
		(Fig. 26)  Main unit  O.2"(5 mm)  Cross flow fan  Set screw  5) Tighten the fixing screw to the cover motor. 6) Tighten the fixing screw to the heat exchanger. 7) Connect the fan motor connector (CN210, White, 7P) to the control P.C. board and then fix it as before with the clamp.	(Fig. 24)

No.	Part name	Procedure	Remarks
<b>②</b>	Bearing	1. Detachment 1) Carry out work of item 1 of ①. 2) Push the bearing to inside hole of base bearing follow direction of arrow (Fig. 27) 3) Pull the bearing follow direction of arrow (Fig. 28)	(Fig. 27)  Bearing  Base bearing
		2. Attachment 1) Mounting bearing to the original position.	(Fig. 28)  Bearing  Base bearing
(3)	Heat exchanger	<ol> <li>Detachment         <ol> <li>Recover the refrigerant gas.</li> <li>Remove the refrigerant pipe at indoor unit side.</li> <li>Carry out work of item 1 of 6 and item 1 of 6.</li> </ol> </li> <li>Remove the heat exchanger sensor (CN100 : TC1 sensor, Brown, 3P) (CN101 : TC2 sensor, Black, 2P) and (CN102 : TCJ sensor, Red, 2P) connected to the control P.C. board and then remove the lead wire from the clamp.</li> <li>Loosen the earth screw and then remove the earth lead wire from the heat exchanger.</li> <li>Loosen the fixing screw (Ø5/32"(4mm) x 0.4"(10mm) 4 pcs.) and then remove the heat exchanger. (Fig. 29)</li> </ol> <li>Attachment         <ol> <li>Tighten the fixing screw to the heat exchanger.</li> <li>Mount the earth lead wire with the earth screw to the heat exchanger.</li> </ol> </li> <li>Connect the heat exchanger sensor (TC1, TC2 and TCJ) to the control P.C. board and then fix it as before with the clamp.</li>	(Fig. 29)  Heat exchanger  Earth screw

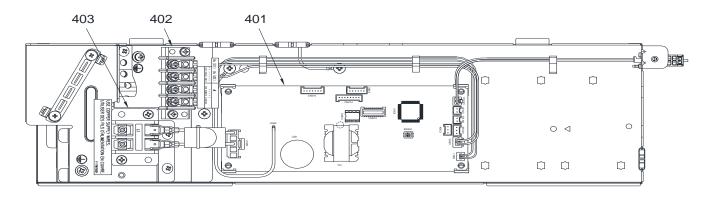
# 13. EXPLODED VIEWS AND PARTS LIST

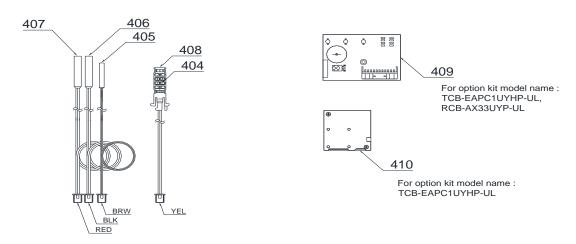
# Indoor Unit 1-way cassette type



Location	Part No.	Description	М	Model name MMU-UP***YHP-UL		
No.	rait No.	Description	0071	0091	0121	
201	43T70327	DRAIN HOSE ASSY	1	1	1	
202	43T22312	BEARING ASSY, MOLD	1	1	1	
203	43T21515	MOTOR-FAN	1	1	1	
204	43T39428	MOTOR BAND DOWN	1	1	1	
205	43T39429	MOTOR BAND UP	1	1	1	
206	43T20362	CROSS FLOW FAN ASSY	1	1	1	
207	43T44718	REFRIGERATION CYCLE ASSY	1	1	1	
208	43T46516	BODY, PMV	1	1	1	
209	43T46515	COIL, PMV	1	1	1	
210	43T19321	FIX-P-SENSOR	1	1	1	
211	43T19333	HOLDER, SENSOR	2	2	2	
212	43T49389	PIPE COVER ASSY	1	1	1	
213	43T77303	PUMP ASSY	1	1	1	
214	43T51316	FLOAT SWITCH ASSY	1	1	1	
215	43T07325	PUMP FIXTURE	1	1	1	
216	43T72365	DRAIN PAN ASSY	1	1	1	
217	43T79322	DRAIN CAP	1	1	1	
218	43T07326	SCREW PLATE	1	1	1	
219	43T83307	BAND, HOSE	1	1	1	
220	43T97315	SCREW, FIX PANEL	4	4	4	
221	43T70326	HOSE, DRAIN	1	1	1	
222	43T83311	BAND, HOSE	1	1	1	
223	43T62407	CONDUIT MOUNT	1	1	1	
224	43T47422	P-STRAINER	1	1	1	
225	43T46388	SOCKET	1	1	1	
226	43T97311	NUT, FLARE, 1/4 IN	1	1	1	
227	43T47331	BONNET, 6.35 DIA	1	1	1	
228	43T47386	STRAINER	1	1	1	
229	43T82318	SOCKET	1	1	1	
230	43T97312	NUT, FLARE, 3/8 IN	1	1	1	
231	43T47332	BONNET, 9.52 DIA	1	1	1	
232	43T85899	INSTR-INST	1	1	1	

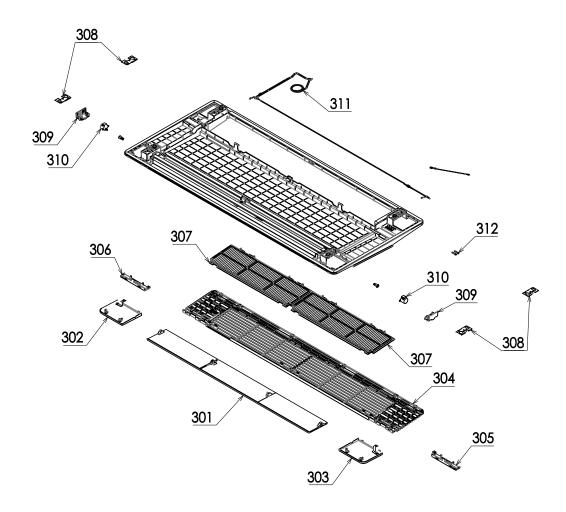
#### **Electric Parts**





Location	Dord No.	Description	Model name MMU-UP****YHP-UL		
No.	Part No.	Description	0071	0091	0121
401	43TN9868	PC BOARD ASSY(MCC-1643)	1	1	1
402	43T60362	TERMINAL	1	1	1
403	43T60078	TERMIMAL BLOCK	1	1	1
404	43T50389	TA-SENSOR	1	1	1
405	43T50477	TC-SENSOR (TC1)	1	1	1
406	43T50387	TC-SENSOR (TC2)	1	1	1
407	43T50386	TCJ SENSOR (RED)	1	1	1
408	43T50351	HOLDER-TA	1	1	1
409	43T6W912	PC BOARD ASSY (WP-503)	1	1	1
410	43T50408	DUST SENSOR	1	1	1

# RBC-UY32P-UL



Location No.	Part No.	Description	RBC-UY32P-UL
301	43T22378	HORIZONTAL LOUVER ASSY	1
302	43T01334	PANEL COVER ASSY	1
303	43T01335	PANEL COVER ASSY	1
304	43T09593	GRILLE ASSY	1
305	43T19381	GRILLE HOOK RIGHT	1
306	43T19382	GRILLE HOOK LEFT	1
307	43T80364	AIR FILTER	2
308	43T07327	PANEL FIXED PLATE	4
309	43T07328	LOUVER MOTOR COVER	2
310	43T21478	MOTOR; STEPPING	2
311	43T60550	LEAD-MOTOR	1
312	43T97331	SCREW FIX PANEL	2

# Toshiba Carrier (Thailand) Co., Ltd. 144/9 MOO 5, BANGKADI INDUSTRIAL PARK, TIVANON ROAD, TAMBOL BANGKADI, AMPHUR MUANG, PATHUMTHANI 12000, THAILAND.