TOSHIBA

FILE No. A10-022
Revised Sep. 2011

AIR CONDITIONER (MULTI TYPE)

SERVICE MANUAL

HFC
R410A

Air to Air Heat Exchanger with DX Coil Unit

Model name:

Model with a humidifier

MMD-VNK502HEXE
MMD-VNK802HEXE
MMD-VNK1002HEXE
MMD-VNK1002HEXE2
MMD-VNK502HEXE-TR
MMD-VNK802HEXE-TR
MMD-VNK1002HEXE-TR

Model without a humidifier

MMD-VN502HEXE
MMD-VN802HEXE
MMD-VN1002HEXE
MMD-VN1002HEXE2
MMD-VN502HEXE-TR
MMD-VN802HEXE-TR
MMD-VN1002HEXE-TR

- This Service Manual describes contents of the Air to Air Heat Exchanger with DX Coil Unit. For the outdoor unit, refer to the Manual with FILE NO. A10-005, A05-004-1.

PRINTED IN JAPAN, Sep, 2011, TDOC

Contents

Original instruction

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

Some of the details provided in these instructions differ from the service manual, and the instructions provided here take precedence.

Generic Denomination: Air conditioner (Air to Air Heat Exchanger with DX Coil Unit)

Definition of Qualified Installer or Qualified Service Person

The Air to Air Heat Exchanger with DX Coil Unit must be installed, maintained, repaired and removed by a qualified installer or qualified service person. When any of these jobs is to be done, ask a qualified installer or qualified service person to do them for you.

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

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

Definition of Protective Gear

When the Air to Air Heat Exchanger with DX Coil Unit 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 and from heat
Work done at heights (50 cm or more)	Helmets for use in industry
Transportation of heavy objects	Shoes with additional protective toe cap

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

[Explanation of indications]

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

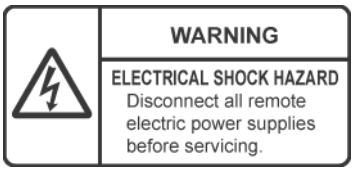
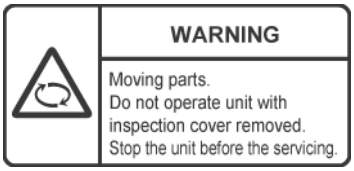
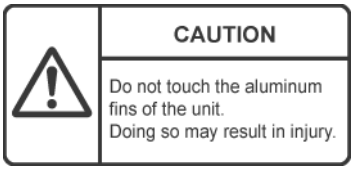
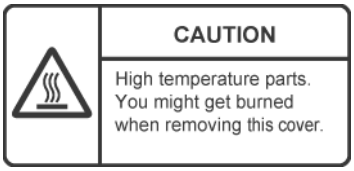
* Property damage: Enlarged damage concerned to property, furniture, and domestic animal / pet

[Explanation of illustrated marks]

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

Warning indications on the Air to Air Heat Exchanger with DX Coil Unit

[Confirmation of warning label on the main unit]
Confirm that labels are indicated on the specified positions
If removing the label during parts replace, stick it as the original.

Warning indication	Description
	**WARNING** **ELECTRICAL SHOCK HAZARD** Disconnect all remote electric power supplies before servicing.
	**WARNING** Moving parts. Do not operate unit with inspection cover removed. Stop the unit before the servicing.
	**CAUTION** Do not touch the aluminium fins of the unit. Doing so may result in injury.
	**CAUTION** High temperature parts. You might get burned when removing this cover.

1 Precautions for safety

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

⚠ WARNING

General	Before starting to repair the Air to Air Heat Exchanger with DX Coil Unit, read carefully through the Service Manual, and repair the Air to Air Heat Exchanger with DX Coil Unit by following its instructions.
	Only qualified service person (*1) is allowed to repair the Air to Air Heat Exchanger with DX Coil Unit. Repair of the Air to Air Heat Exchanger with DX Coil Unit by unqualified person may give rise to a fire, electric shocks, injury, water leaks and / or other problems.
	Only a qualified installer (*1) or qualified service person (*1) is allowed to carry out the electrical work of the Air to Air Heat Exchanger with DX Coil Unit. 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.
	Wear protective groves and safety work clothing during installation, servising and removal.
	When repairing the electrical parts or undertaking other electrical jobs, wear gloves to provide protection for electricians and from heat. Failure to wear this protective gear may result in electric burn.
	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.
	Only a qualified installer (*1) or qualified service person (*1) is allowed to undertake work at heights using a stand of 50 cm or more or to remove the electrical control cover, inspection cover or maintenance cover of the Air to Air Heat Exchanger with DX Coil 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.
	When working at heights, put a sign in place so that no-one will approach the work location, before proceeding with the work. Parts and other objects may fall from above, possibly injuring a person below.
	When executing address setting, test run, or troubleshooting through the checking window on the electrical control 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 Air to Air Heat Exchanger with DX Coil 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.
	Transport it by the truck or the forklift. Transport it by six people or more when the person transports it temporarily. The waist etc. might be hurt when not following it.
	Do not climb onto or place objects on top of the outdoor unit. You may fall or the objects may fall off of the outdoor unit and result in injury.
	When transporting the Air to Air Heat Exchanger with DX Coil Unit, wear shoes with protective toe caps, protective gloves and other protective clothing.
	When transporting the Air to Air Heat Exchanger with DX Coil Unit, do not take hold of the bands around the packing carton. You may injure yourself if the bands should break.
	Be sure that a heavy unit (10 kg or heavier) such as a compressor is carried by two persons.
	This Air to Air Heat Exchanger with DX Coil Unit has passed the pressure test as specified in IEC 60335-2-40 Annex EE.
	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.
General	Refrigerant shall be replaced by nitrogen gas when repair with gas burner is needed. Oil attached to pipes may result in fire.
	Exchange to parts specified in service manual, which meet the specification or listed in parts list of service manual. Failure to use specified parts may result in electrical shock, smoke, and / or fire.
	Inspect the Air to Air Heat Exchanger with DX Coil Unit for any falling hazard of the unit before maintenance or repair.

⚠ DANGER

Turn off breaker	Before carrying out the installation, maintenance, repair or removal work, be sure to set the circuit breaker for Air to Air Heat Exchanger with DX Coil Unit to the OFF position. Otherwise, electric shocks may result.
	Before opening the electrical control cover, inspection cover and maintenance cover of the Air to Air Heat Exchanger with DX Coil Unit, set the circuit breaker to the OFF position. Failure to set the circuit breaker to the OFF position may result in electric shocks through contact with the interior parts. Only a qualified installer (*1) or qualified service person (*1) is allowed to remove the electrical control cover or inspection cover of the Air to Air Heat Exchanger with DX Coil Unit 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, Heat Exchange element or humidifier of the Air to Air Heat Exchanger with DX Coil Unit, set the circuit breaker to OFF without fail, and place a “Work in progress” sign near the circuit breaker before proceeding with the work.
	When you have noticed that some kind of trouble (such as when an error display has appeared, there is a smell of burning, abnormal sounds are heard, the Air to Air Heat Exchanger with DX Coil Unit fails to cool or heat or water is leaking) has occurred in the Air to Air Heat Exchanger with DX Coil Unit, do not touch the Air to Air Heat Exchanger with DX Coil Unit 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 to Air Heat Exchanger with DX Coil Unit in the trouble status may cause mechanical problems to escalate or result in electric shocks or other failure.
Electric shock hazard	When you access inside of the electrical control 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.
Prohibition	Place a “Work in progress” sign near the circuit breaker while the installation, maintenance, repair or removal work is being carried out. There is a danger of electric shocks if the circuit breaker is set to ON by mistake.
	Before operating the Air to Air Heat Exchanger with DX Coil Unit after having completed the work, check that the electrical control cover, inspection cover and maintenance cover 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 control cover and inspection cover removed in order to find out exactly where the trouble lies, wear insulated heat-resistant gloves, insulated boots and insulated work overalls, and take care to avoid touching any live parts. You may receive an electric shock if you fail to heed this warning. Only qualified service person (*1) is allowed to do this kind of work.

⚠ WARNING

 Check earth wires.	After completing the repair or relocation work, check that the earth wires are connected properly.
	Be sure to connect earth wire. (Grounding work) Incomplete earthing causes an electric shock. Do not connect earth wires to gas pipes, water pipes, and lightning rods or earth wires for telephone wires.
 Prohibition of modification.	Do not modify the products. Do not also disassemble or modify the parts. It may cause a fire, electric shock or injury.
 Use specified parts.	When any of the electrical parts are to be replaced, ensure that the replacement parts satisfy the specifications given in the Service Manual (or use the parts contained on the parts list in the Service Manual). Use of any parts which do not satisfy the required specifications may give rise to electric shocks, smoking and / or a fire.
 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 control cover of one or more of the indoor units 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 water-cut method, otherwise a leak or production of fire is caused at the users' side.
 No fire	When performing repairs using a gas burner, replace the refrigerant with nitrogen gas because the oil that coats the pipes may otherwise burn. When repairing the refrigerating cycle, take the following measures. 1) Be attentive to fire around the cycle. When using a gas stove, etc., be sure to put out fire before work; otherwise the oil mixed with refrigerant gas may catch fire. 2) Do not use a welder in the closed room. When using it without ventilation, carbon monoxide poisoning may be caused. 3) Do not bring inflammables close to the refrigerant cycle, otherwise fire of the welder may catch the inflammables.

Refrigerant	The refrigerant used by this Air to Air Heat Exchanger with DX Coil Unit 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.
	For an Air to Air Heat Exchanger with DX Coil Unit which uses R410A, never use other refrigerant than R410A. For an Air to Air Heat Exchanger with DX Coil Unit which uses other refrigerant (R22, etc.), never use R410A. If different types of refrigerant are mixed, abnormal high pressure generates in the refrigerating cycle and an injury due to breakage may be caused.
	When the Air to Air Heat Exchanger with DX Coil Unit 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 to Air Heat Exchanger with DX Coil Unit 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 to Air Heat Exchanger with DX Coil Unit 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 to Air Heat Exchanger with DX Coil Unit, 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 or servicing work, check the refrigerant gas does not leak. If the refrigerant gas leaks in the room, poisonous gas generates when gas touches to fire such as fan heater, stove or cocking stove though the refrigerant gas itself is innocuous.
	Never recover the refrigerant into the outdoor unit. When the equipment is moved or repaired, be sure to recover the refrigerant with recovering device. The refrigerant cannot be recovered in the outdoor unit; otherwise a serious accident such as breakage or injury is caused.
Assembly / Wiring	After repair work, surely assemble the disassembled parts, and connect and lead the removed wires as before. Perform the work so that the electrical control cover does not catch the inner wires. If incorrect assembly or incorrect wire connection was done, a disaster such as a leak or fire is caused at user's side.
Insulator check	After the work has finished, be sure to use an insulation tester set (500 V Megger) to check the resistance is 1 MΩ or more between the charge section and the non-charge metal section (Earth position). If the resistance value is low, a disaster such as a leak or electric shock is caused at user's side.
Ventilation	When the refrigerant gas leaks during work, execute ventilation. If the refrigerant gas touches to a fire, poisonous gas generates. A case of leakage of the refrigerant and the closed room full with gas is dangerous because a shortage of oxygen occurs. Be sure to execute ventilation.
Compulsion	When the refrigerant gas leaks, find up the leaked position and repair it surely. If the leaked position cannot be found up and the repair work is interrupted, pump-down and tighten the service valve, otherwise the refrigerant gas may leak into the room. The poisonous gas generates when gas touches to fire such as fan heater, stove or cocking stove though the refrigerant gas itself is innocuous. When installing equipment which includes a large amount of charged refrigerant such as a multi air conditioner in a sub-room, it is necessary that the density does not the limit even if the refrigerant leaks. If the refrigerant leaks and exceeds the limit density, an accident of shortage of oxygen is caused.
	Tighten the flare nut with a torque wrench in the specified manner. Excessive tighten of the flare nut may cause a crack in the flare nut after a long period, which may result in refrigerant leakage.
	Nitrogen gas must be used for the airtight test.
	The charge hose must be connected in such a way that it is not slack.
	For the installation / moving / reinstallation work, follow to the Installation Manual. If an incorrect installation is done, a trouble of the refrigerating cycle, water leak, electric shock or fire is caused.

 Check after repair	Once the repair work has been completed, check for the insulation resistance. Then perform a trial run to check that the Air to Air Heat Exchanger with DX Coil Unit is running properly.
	After repair work has finished, check there is no trouble. If check is not executed, a fire, electric shock or injury may be caused. For a check, turn off the power breaker.
	After repair work (installation of electrical control cover and inspection cover) 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 electrical control cover and inspection cover.
	Be sure to fix the screws back which have been removed for installation or other purposes.
 Do not operate the unit with the valve closed.	Check the following matters before a test run after repairing piping. • Connect the pipes surely and there is no leak of refrigerant. • The valve is opened. Running the compressor under condition that the valve closes causes an abnormal high pressure resulted in damage of the parts of the compressor and etc. and moreover if there is leak of refrigerant at connecting section of pipes, the air is sucked and causes further abnormal high pressure resulted in burst or injury.
 Check after reinstallation	Only a qualified installer (*1) or qualified service person (*1) is allowed to relocate the Air to Air Heat Exchanger with DX Coil Unit. It is dangerous for the Air to Air Heat Exchanger with DX Coil Unit to be relocated by an unqualified individual since a fire, electric shocks, injury, water leakage, noise and / or vibration may result.
	Check the following items after reinstallation. 1) The earth wire is correctly connected. 2) The power cord is not caught in the product. 3) There is no inclination or unsteadiness and the installation is stable. If check is not executed, a fire, an electric shock or an injury is caused.
	When carrying out the pump-down work shut down the compressor before disconnecting the refrigerant pipe. Disconnecting the refrigerant pipe with the service valve left open and the compressor still operating will cause air, etc. to be sucked in, raising the pressure inside the refrigeration cycle to an abnormally high level, and possibly resulting in reputing, injury, etc.
 Cooling check	When the service panel of the outdoor unit is to be opened in order for the compressor or the area around this part to be repaired immediately after the Air to Air Heat Exchanger with DX Coil Unit 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 electric shock and 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 to Air Heat Exchanger with DX Coil Unit has been shut down, set the circuit breaker to the OFF position, and then wait at least 10 minutes before opening the service panel. If you fail to heed this warning, you will run the risk of burning yourself because the fan motor, reactor, inverter heat sink and other parts will be very hot to the touch. In addition, before proceeding with the repair work, wear the kind of insulated heat-resistant gloves designed to protect electricians.

Installation	Only a qualified installer (*1) or qualified service person (*1) is allowed to install the Air to Air Heat Exchanger with DX Coil Unit. If the Air to Air Heat Exchanger with DX Coil Unit is installed by an unqualified individual, a fire, electric shocks, injury, water leakage, noise and / or vibration may result.
	Before starting to install the Air to Air Heat Exchanger with DX Coil Unit, read carefully through the Installation Manual, and follow its instructions to install the Air to Air Heat Exchanger with DX Coil Unit.
	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 to Air Heat Exchanger with DX Coil Unit 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 Air to Air Heat Exchanger with DX Coil Unit at least 2.5 m above the floor level since otherwise the users may injure themselves or receive electric shocks if they poke their fingers or other objects into the Air to Air Heat Exchanger with DX Coil Unit while the it 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 agent.
	When installing a circuit breaker outdoors, install one which is designed to be used outdoors.
	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 to Air Heat Exchanger with DX Coil Unit 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 to Air Heat Exchanger with DX Coil Unit, otherwise it may cause imperfect combustion.
	If refrigerant gas has leaked during the installation work, ventilate the room immediately. If the leaked refrigentant gas comes in contact with fire, noxious gas may be genarated.

Explanations given to user

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

Relocation

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

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

2 Specifications

■ Model with a humidifier

			MMD-VNK502HEXE			MMD-VNK802HEXE			MMD-VNK1002HEXE			MMD-VNK1002HEXE2		
Type	Function		Cooling and heating dual purpose type											
	Unit configuration		Discrete type											
Voltage			220-240 V~, 50 Hz / 220 V~, 60 Hz			220-240 V~, 50 Hz / 220 V~, 60 Hz			220-240 V~, 50 Hz			220 V~, 60 Hz		
Equivalent HP			1.0			1.7			2.0			2.0		
Refrigerant			R410A											
Outdoor air thermal load handling capacity	cooling capacity	kw	4.10 (1.30)			6.56 (2.06)			8.25 (2.32)			8.25 (2.32)		
	heating capacity	kw	5.53 (2.33)			8.61 (3.61)			10.92 (4.32)			10.92 (4.32)		
Air Volume		m^3/h	500 / 500			800 / 800			950			950		
Notch			Extra high	High	Low	Extra high	High	Low	Extra high	High	Low	Extra high	High	Low
Power consumption		W	305 / 365	285 / 350	240 / 290	530 / 620	485 / 575	350 / 400	575	565	520	750	685	545
External Static Pressure		Pa	95 / 175	85 / 150	95 / 135	105 / 165	85 / 140	90 / 110	110	90	115	155	110	80
Humidification level		kg/h	3.0 / 3.0			5.0 / 5.0			6.0			6.0		
Sound pressure level		dB	36.5 / 39.0	35.5 / 37.0	33.5 / 35.5	40.0 / 42.0	39.0 / 41.0	38.0 / 39.0	42.0	41.0	39.0	42.5	41.0	39.0
Sound power level		dBA	*			*			*			*		
External dimensions	Height	mm	430			430								
	Width	mm	1140			1189								
	Depth	mm	1690			1739								
Weight		kg	91			111			112			114		

* Under 70 dBA

■ Model without a humidifier

			MMD-VN502HEXE			MMD-VN802HEXE			MMD-VN1002HEXE			MMD-VN1002HEXE2		
Type	Function		Cooling and heating dual purpose type											
	Unit configuration		Discrete type											
Voltage			220-240 V~, 50 Hz / 220 V~, 60 Hz			220-240 V~, 50 Hz / 220 V~, 60 Hz			220-240 V~, 50 Hz			220 V~, 60 Hz		
Equivalent HP			1.0			1.7			2.0			2.0		
Refrigerant			R410A											
Outdoor air thermal load handling capacity	cooling capacity	kw	4.10 (1.30)			6.56 (2.06)			8.25 (2.32)			8.25 (2.32)		
	heating capacity	kw	5.53 (2.33)			8.61 (3.61)			10.92 (4.32)			10.92 (4.32)		
Air Volume		m^3/h	500 / 500			800 / 800			950			950		
Notch			Extra high	High	Low	Extra high	High	Low	Extra high	High	Low	Extra high	High	Low
Power consumption		W	300 / 365	280 / 350	235 / 250	505 / 595	465 / 555	335 / 390	550	545	485	720	665	530
External Static Pressure		Pa	120 / 200	105 / 170	115 / 150	120 / 190	100 / 155	105 / 130	135	120	105	195	160	130
Sound pressure level		dB	37.5 / 40.0	36.5 / 38.0	34.5 / 36.5	41.0 / 43.0	40.0 / 42.0	38.0 / 37.0	43.0	42.0	40.0	43.5	42.0	40.0
Sound power level		dBA	*			*			*			*		
External dimensions	Height	mm	430			430								
	Width	mm	1140			1189								
	Depth	mm	1690			1739								
Weight		kg	84			100			101			103		

* Under 70 dBA

■ Model with a humidifier

			MMD-VNK502HEXE-TR			MMD-VNK802HEXE-TR			MMD-VNK1002HEXE-TR		
Type	Function		Cooling and heating dual purpose type								
	Unit configuration		Discrete type								
Voltage			220-240 V~, 50 Hz			220-240 V~, 50 Hz			220-240 V~, 50 Hz		
Equivalent HP			1.0			1.7			2.0		
Refrigerant			R410A								
Outdoor air thermal load handling capacity	cooling capacity	kw	4.10 (1.30)			6.56 (2.06)			8.25 (2.32)		
	heating capacity	kw	5.53 (2.33)			8.61 (3.61)			10.92 (4.32)		
Air Volume		m^3/h	500			800			950		
Notch			Extra high	High	Low	Extra high	High	Low	Extra high	High	Low
Power consumption		W	305	285	240	530	485	350	575	565	520
External Static Pressure		Pa	95	85	95	105	85	90	110	90	115
Humidification level		kg/h	3.0			5.0			6.0		
Sound pressure level		dB	36.5	35.5	33.5	40.0	39.0	38.0	42.0	41.0	39.0
Sound power level		dBA	*			*			*		
External dimensions	Height	mm	430			430					
	Width	mm	1140			1189					
	Depth	mm	1690			1739					
Weight		kg	91			111			112		

* Under 70 dBA

■ Model without a humidifier

			MMD-VN502HEXE-TR			MMD-VN802HEXE-TR			MMD-VN1002HEXE-TR		
Type	Function		Cooling and heating dual purpose type								
	Unit configuration		Discrete type								
Voltage			220-240 V~, 50 Hz			220-240 V~, 50 Hz			220-240 V~, 50 Hz		
Equivalent HP			1.0			1.7			2.0		
Refrigerant			R410A								
Outdoor air thermal load handling capacity	cooling capacity	kw	4.10 (1.30)			6.56 (2.06)			8.25 (2.32)		
	heating capacity	kw	5.53 (2.33)			8.61 (3.61)			10.92 (4.32)		
Air Volume		m^3/h	500			800			950		
Notch			Extra high	High	Low	Extra high	High	Low	Extra high	High	Low
Power consumption		W	300	280	235	505	465	335	550	545	485
External Static Pressure		Pa	120	105	115	120	100	105	135	120	105
Sound pressure level		dB	37.5	36.5	34.5	41.0	40.0	38.0	43.0	42.0	40.0
Sound power level		dBA	*			*			*		
External dimensions	Height	mm	430			430					
	Width	mm	1140			1189					
	Depth	mm	1690			1739					
Weight		kg	84			100			101		

* Under 70 dBA

Declaration of Incorporation of Partly Completed Machinery

Manufacturer: Toshiba Carrier Corporation
336 Tadehara, Fuji-shi, Shizuoka-ken 416-8521 JAPAN

Representative / TCF holder: Toshiba Carrier UK Ltd.
Porsham Close, Belliver Industrial Estate,
PLYMOUTH, Devon, PL6 7DB.
United Kingdom

Hereby declares that the machinery described below:

Generic Denomination: Air conditioner (Air to Air Heat Exchanger with DX Coil Unit)

Model / type:

MMD-VNK502HEXE	MMD-VNK502HEXE-TR
MMD-VNK802HEXE	MMD-VNK802HEXE-TR
MMD-VNK1002HEXE	MMD-VNK1002HEXE-TR
MMD-VNK1002HEXE2	
MMD-VN502HEXE	MMD-VN502HEXE-TR
MMD-VN802HEXE	MMD-VN802HEXE-TR
MMD-VN1002HEXE	MMD-VN1002HEXE-TR
MMD-VN1002HEXE2	

Commercial name: TOSHIBA Air to Air Heat Exchanger with DX Coil Unit

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

Must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of Machinery Directive.

Complies with the provisions of the following harmonized standard:

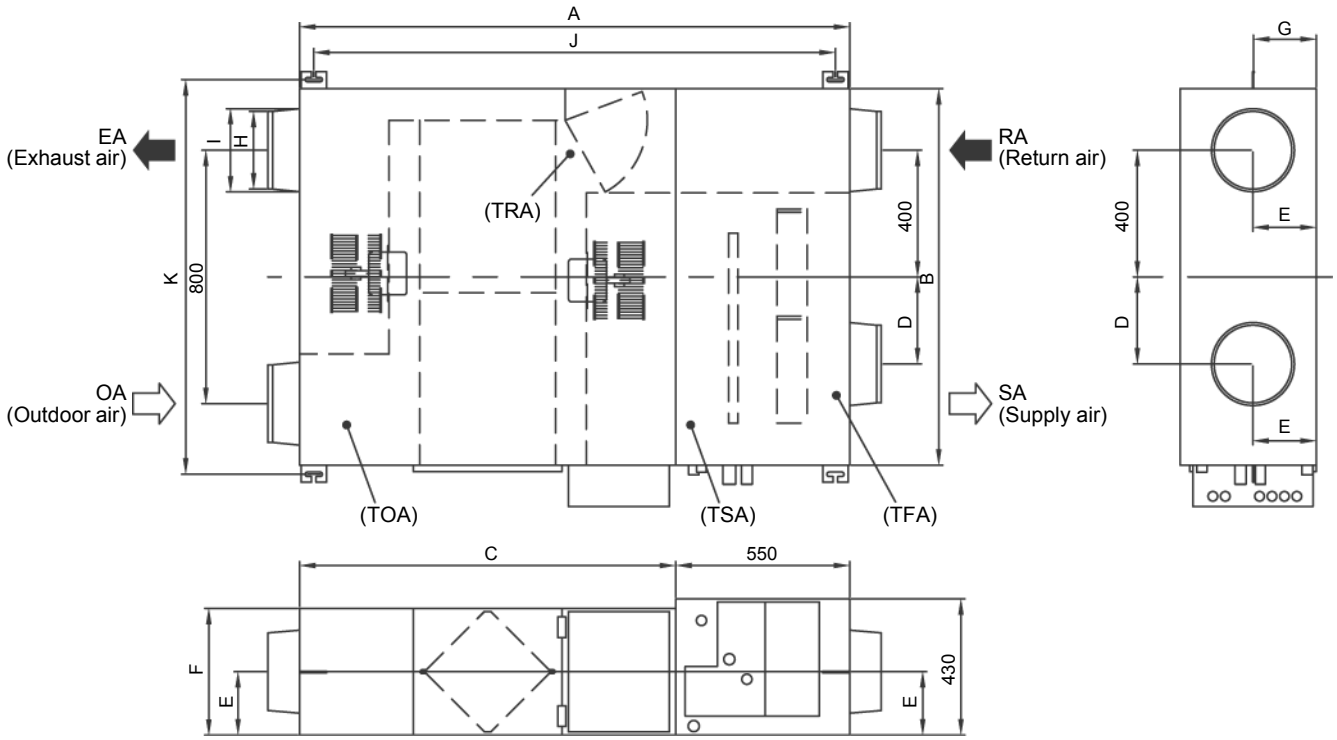
EN 378-2: 2008+A1:2009

NOTE

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

3 Construction views (external views)

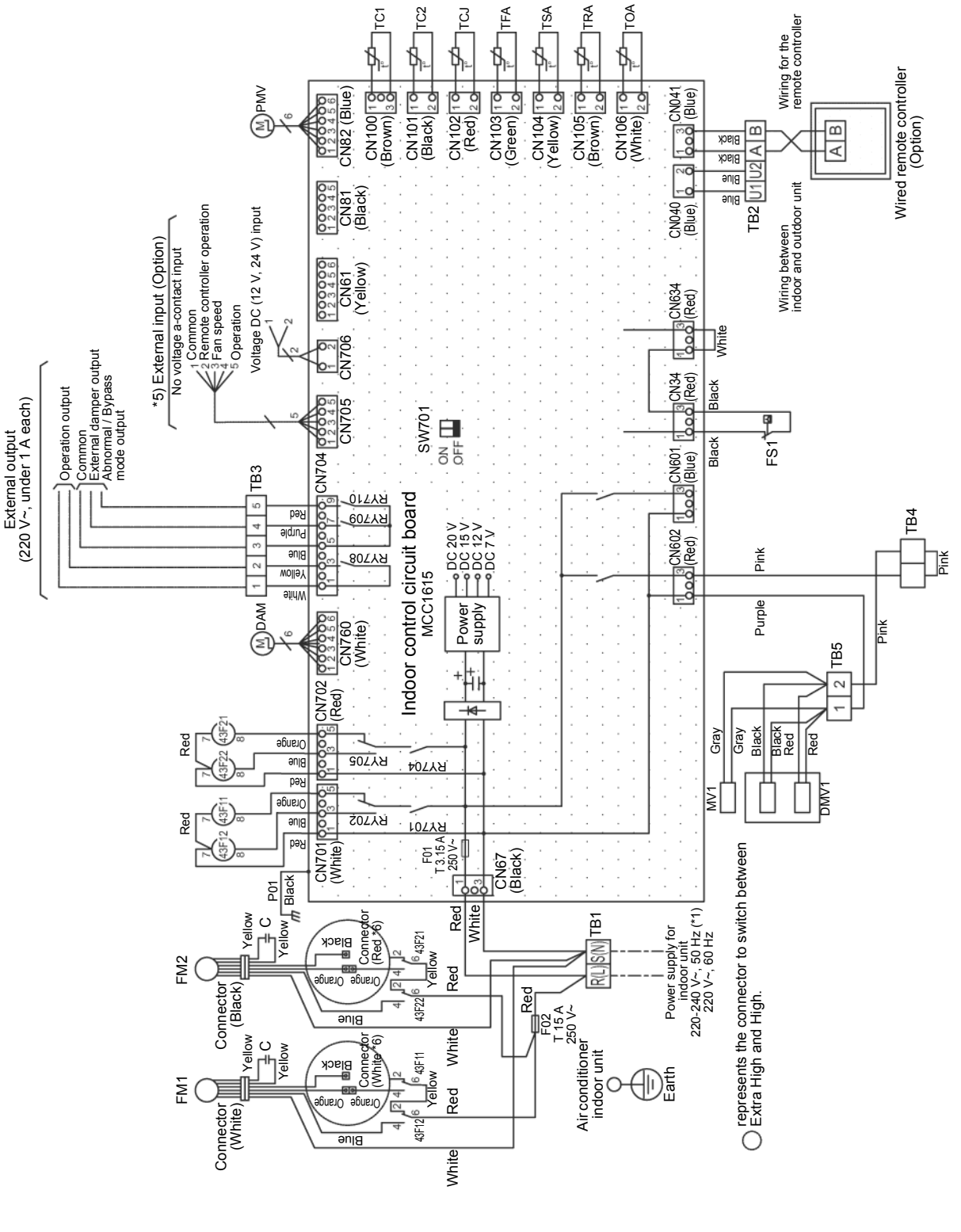
MMD-VNK502HEXE (-TR), VNK802HEXE (-TR), VNK1002HEXE (-TR), VNK1002HEXE2
MMD-VN502HEXE (-TR), VN802HEXE (-TR), VN1002HEXE (-TR), VN1002HEXE2



	A	B	C	D	E	F	G	H	I	J	K	Applicable duct Nominal diameter	Refrigerant pipe size Gas side	Refrigerant pipe size Liquid side
MMD-VNK502HEXE (-TR) MMD-VN502HEXE (-TR)	1,690	1,140	1,140	250	175	350	175	Ø195	Ø212	1,601	1,197	Ø200	Ø9.5	Ø6.4
MMD-VNK802HEXE (-TR) MMD-VN802HEXE (-TR) MMD-VNK1002HEXE (-TR) MMD-VNK1002HEXE2 MMD-VN1002HEXE (-TR) MMD-VN1002HEXE2	1,739	1,189	1,189	275	200	400	200	Ø245	Ø262	1,650	1,246	Ø250	Ø12.7	Ø6.4

4 Wiring diagram

MMD-VNK502HEXE (-TR), MMD-VNK802HEXE (-TR), MMD-VNK1002HEXE (-TR), MMD-VNK1002HEXE2



Code	Parts name
CN**	Connector
F01	Fuse (printed circuit board)
F02	Fuse (motor)
FM1	Air supplying motor
FM2	Air exhausting motor
DAM	Damper motor
TRA	TRA sensor
TOA	TOA sensor
TSA	TSA sensor

Code	Parts name
TFA	TFA sensor
TCJ, TC1, TC2	Indoor coil sensor
TB1	Terminal block (power source)
TB2	Terminal block (communication)
TB3	Terminal block (external output)
TB4	Terminal block (humidistat)
TB5	Terminal block (magnetic valve)
FS1	Float switch
MV1	Magnetic valve

Code	Parts name
DMV1	Decompression magnetic valve
PMV	Pulse modulating valve
SW701	Dip switch
43F11, 43F12	Relay for air supplying motor
43F21, 43F22	Relay for air exhausting motor
RY701, RY702	Relay for air supplying motor
RY704, RY705	Relay for air exhausting motor

(1) The dotted line represents a wire procured locally, and the dashed line represents an option sold separately.

(2) ▭ represents a terminal block, —o— represents a connection terminal, ▭ represents a connector on the printed circuit board and ▭ represents a short circuit connector.

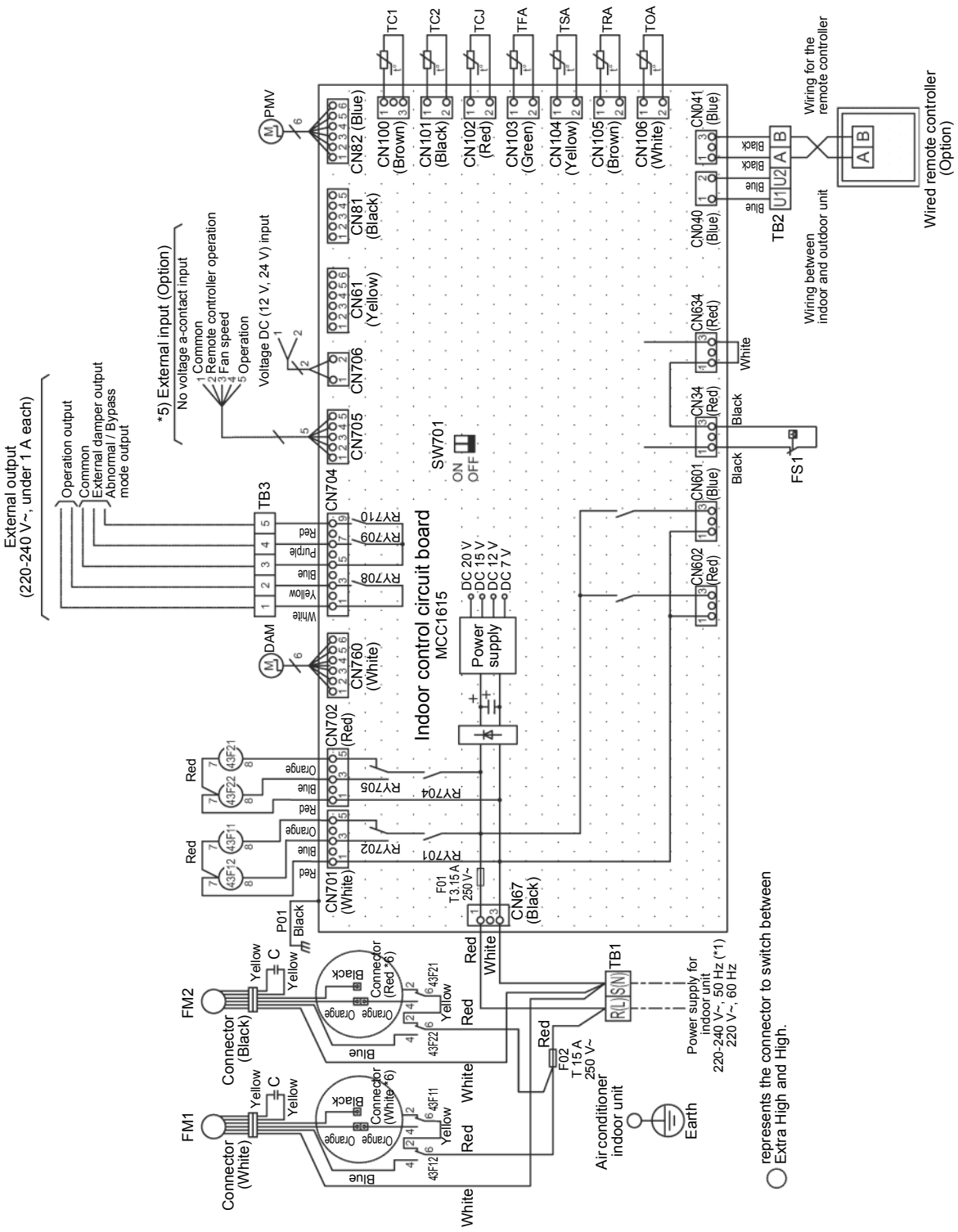
(3) ⏚ represents a protective earth.

(4) ▭ represents a printed circuit board.

(5) Using a no voltage a-contact input of the external input (option), the following operations are available.
Between 1 and 2 : Selecting the remote controller operation (Invalid / Valid)
Between 1 and 3 : Adjusting the fan speed (Low / High)
Between 1 and 5 : Operation (ON / OFF)
Use a microcurrent contact (DC 12 V, 1 mA). In addition, ON / OFF operation is possible when using a voltage of DC 12 V or 24 V.

(6) Orange wire (High) is connected as factory default. To switch to “Extra High”, connect black wire's connector instead of orange.

MMD-VN502HEXE (-TR), MMD-VN802HEXE (-TR), MMD-VN1002HEXE (-TR), MMD-VN1002HEXE2



*1 MMD-VN❋❋❋HEXE(-TR): 220–240 V~, 50 Hz

Code	Parts name
CN**	Connector
F01	Fuse (printed circuit board)
F02	Fuse (motor)
FM1	Air supplying motor
FM2	Air exhausting motor
DAM	Damper motor
TRA	TRA sensor
TOA	TOA sensor

Code	Parts name
TSA	TSA sensor
TFA	TFA sensor
TCJ, TC1, TC2	Indoor coil sensor
TB1	Terminal block (power source)
TB2	Terminal block (communication)
TB3	Terminal block (external output)
FS1	Float switch
PMV	Pulse modulating valve

Code	Parts name
SW701	Dip switch
43F11, 43F12	Relay for air supplying motor
43F21, 43F22	Relay for air exhausting motor
RY701, RY702	Relay for air supplying motor
RY704, RY705	Relay for air exhausting motor

(1) The dotted line represents a wire procured locally, and the dashed line represents an option sold separately.

(2) ▯▯ represents a terminal block, —o— represents a connection terminal, ▭ represents a connector on the printed circuit board and ▭ represents a short circuit connector.

(3) ⏚ represents a protective earth.

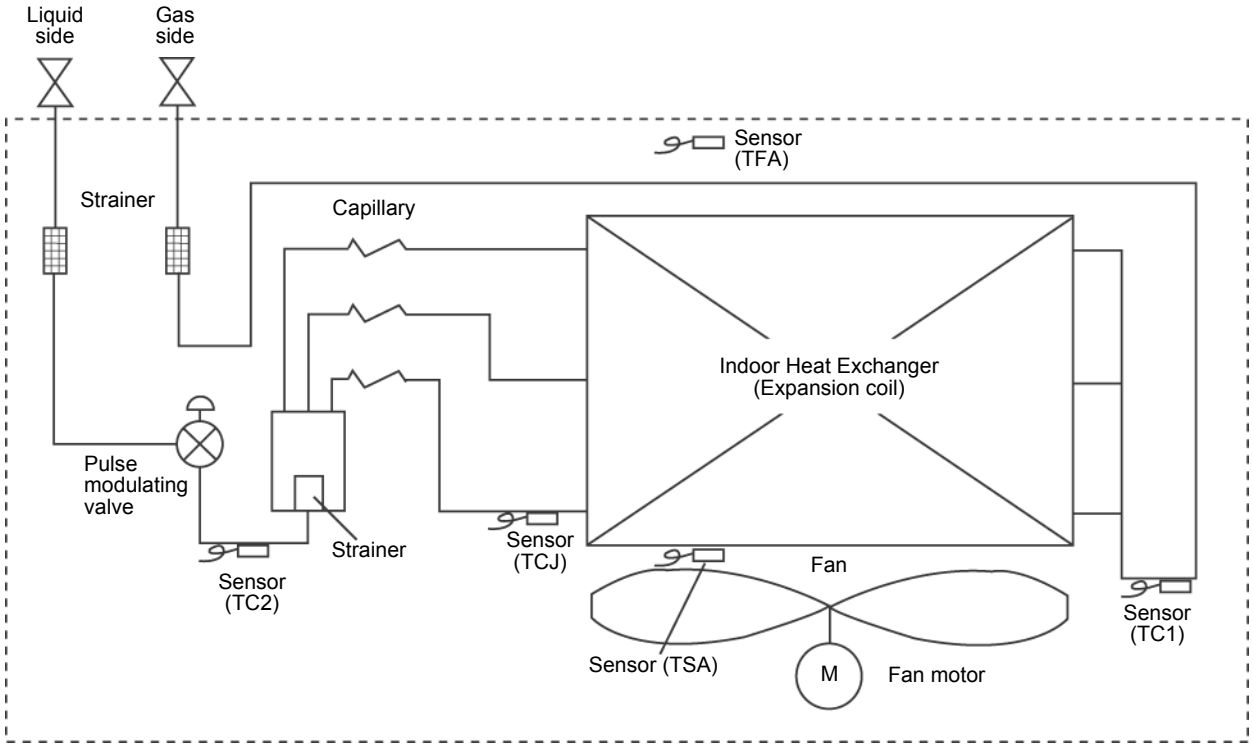
(4) ▭ represents a printed circuit board.

(5) Using a no voltage a-contact input of the external input (option), the following operations are available.
Between 1 and 2 : Selecting the remote controller operation (Invalid / Valid)
Between 1 and 3 : Adjusting the fan speed (Low / High)
Between 1 and 5 : Operation (ON / OFF)
Use a microcurrent contact (DC 12 V, 1 mA). In addition, ON / OFF operation is possible when using a voltage of DC 12 V or 24 V.

(6) Orange wire (High) is connected as factory default. To switch to “Extra High”, connect black wire's connector instead of orange.

5 Refrigerating cycle diagram

■ Indoor unit



Component		Description
Pulse modulating valve	PMV	(Connector CN82 (6P): Blue) 1.Super heat control function in cooling 2.Under cool control function in heating 3.Cool refrigerant oil collection function 4.Heat refrigerant oil collection function
Temperature sensor	1. TC1	(Connector CN100 (3P): Brown) 1.For Super heat control in cooling
	2. TC2	(Connector CN101 (2P): Black) 1.For Under cool control in heating
	3. TCJ	(Connector CN102 (2P): Red) 1.For Super heat control in cooling
	4. TFA	(Connector CN103 (2P): Green) 1.For discharge temperature detection
	5. TSA	(Connector CN104 (2P): Yellow) 1.For detecting Air Suction Temperature of direct expansion coil

6 Part rating

■ Air to Air Heat Exchanger with DX Coil Unit

Model MMD-	VNK502HEXE (-TR) VN502HEXE (-TR)	VNK802HEXE (-TR) VN802HEXE (-TR)	VNK1002HEXE (-TR) VN1002HEXE (-TR)	VNK1002HEXE2 VN1002HEXE2
Supply air fan motor	4-pole induction motor			
Exhaust air fan motor	4-pole induction motor			
Capacitor for supply air fan motor	450 V, 5 μF	450 V, 10 μF	450 V, 5 μF	450 V, 10 μF
Capacitor for exhaust air fan motor	450 V, 5 μF	450 V, 10 μF	450 V, 5 μF	450 V, 10 μF
TOA sensor	Ø6 size lead wire length: 1,400 mm vinyl tube (Blue)			
TC1 sensor	Ø4 size lead wire length: 1,200 mm non-migratory tube (Blue)			
TC2 sensor	Ø6 size lead wire length: 1,200 mm vinyl tube (Blue)			
TCJ sensor	Ø6 size lead wire length: 1,200 mm vinyl tube (Red)			
TRA sensor	Ø5 size lead wire length: 1,270 mm non-migratory tube (Black)			
TSA sensor	Ø5 size lead wire length: 818 mm vinyl tube (Black)			
TFA sensor	Ø5 size lead wire length: 2,518 mm vinyl tube (Red)			
Pulse motor	EFM-MD12TF-1			
Pulse modulating valve	EDM-B25YGTF-3	EDM-B40YGTF-3		

7 Control outline

■ Indoor unit (Air to Air Heat Exchanger with DX Coil Unit)

Control specifications

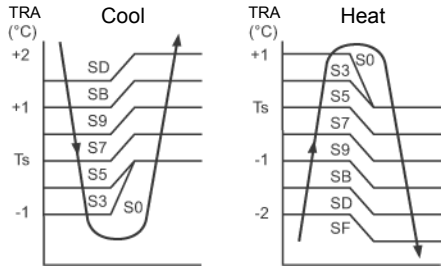
<table>
<tr><th>No.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>1</td><td>When the power is reset</td><td>1) Judge the outdoor unit
The outdoor unit is judged when the power is reset. The control is switched depending on the judgment result.
2) The check code is cleared when the power is reset during the occurrence of an error. If an abnormal state continues even after the unit is restarted by pressing the [ON / OFF] button on the remote controller, the check code is redisplayed on the remote controller.</td><td></td></tr>
<tr><td>2</td><td>Single operation</td><td>1) Pressing the [VENT.] button allows you to operate only the Air to Air Heat Exchanger with DX Coil Unit in the remote control group by setting CODE [31] Single operation of ventilation of the header unit to "1: Possible" when the Air to Air Heat Exchanger with DX Coil Unit is connected to the remote control group with the normal indoor unit set as the header unit (when in air-conditioning linkage system).
<table><tr><th>Before operation</th><th>After operation</th></tr><tr><td>Operation status</td><td>Normal indoor unit : Operation continued
Air to Air Heat Exchanger with DX Coil Unit : Stopped</td></tr><tr><td>Stoppage status</td><td>Normal indoor unit : Stopped
Air to Air Heat Exchanger with DX Coil Unit : Fan operation (*)</td></tr></table>* The operation mode is always "fan" in Air to Air Heat Exchanger with DX Coil Unit-only operation. The external input / output signals differ from those of the normal operation. When using the external signals, use the terminal of the header unit (normal indoor unit).</td><td>CODE No.
[31]</td></tr>
<tr><td>3</td><td>Operation switch</td><td>1) The operation is switched by the request from the remote controller.
<table><tr><th>By remote controller</th><th>Description</th></tr><tr><td>Stop</td><td>Stop the air conditioner running</td></tr><tr><td>Fan</td><td>Fan operation</td></tr><tr><td>Cool</td><td>Cooling</td></tr><tr><td>Dry</td><td>Drying</td></tr><tr><td>Heat</td><td>Heating</td></tr></table>* The AUTO mode cannot be selected for the Air to Air Heat Exchanger with DX Coil Unit.
2) When CODE [31] Single operation of ventilation is set to "1: Possible" in air-conditioning linkage system, the Air to Air Heat Exchanger with DX Coil Unit-only operation is "fan" and the operation mode cannot be switched.</td><td></td></tr>
<tr><td>4</td><td>Ventilation mode switch</td><td>1) The ventilation mode is switched by the request from the remote controller.
<table><tr><th>By remote controller</th><th>After operation</th></tr><tr><td>Heat exchange</td><td>Always perform heat exchange.</td></tr><tr><td>Automatic</td><td>Heat exchange or Bypass
• Automatically select the operation mode and the ventilation mode depending on TRA and TOA. For details, see 12.</td></tr></table>* The Bypass mode cannot be selected for the Air to Air Heat Exchanger with DX Coil Unit.</td><td>CODE No.
[EA]

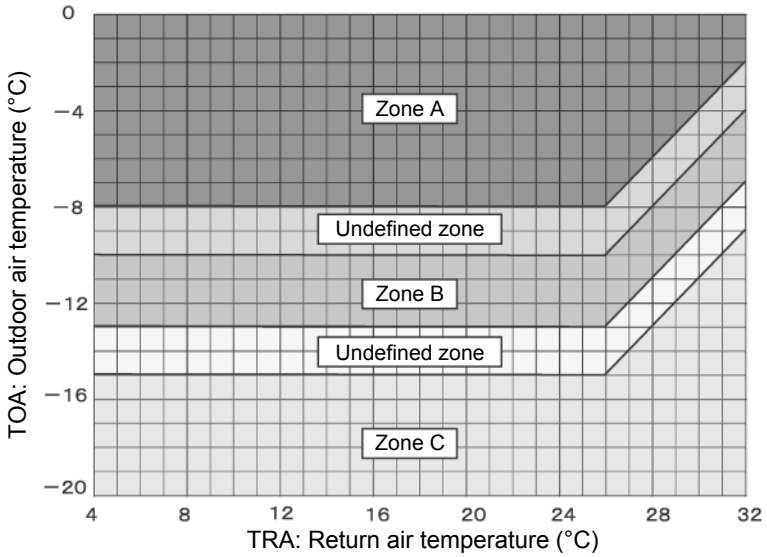
TRA: Return Air Temperature
TOA: Outdoor Air Temperature</td></tr>
</table>

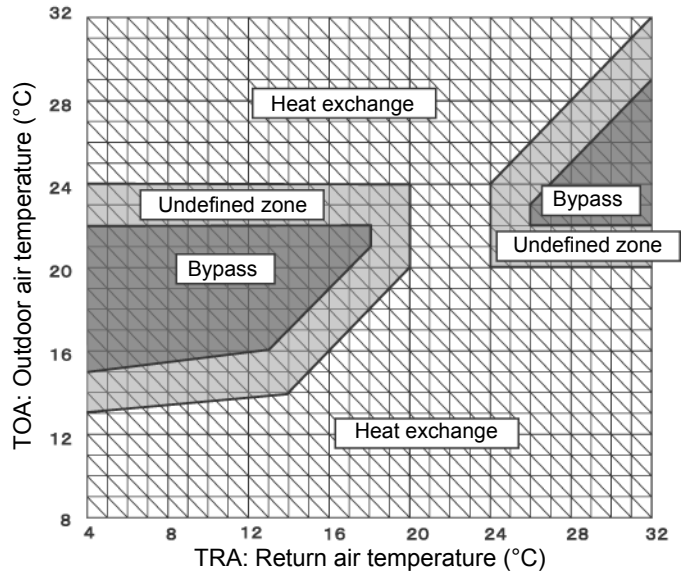
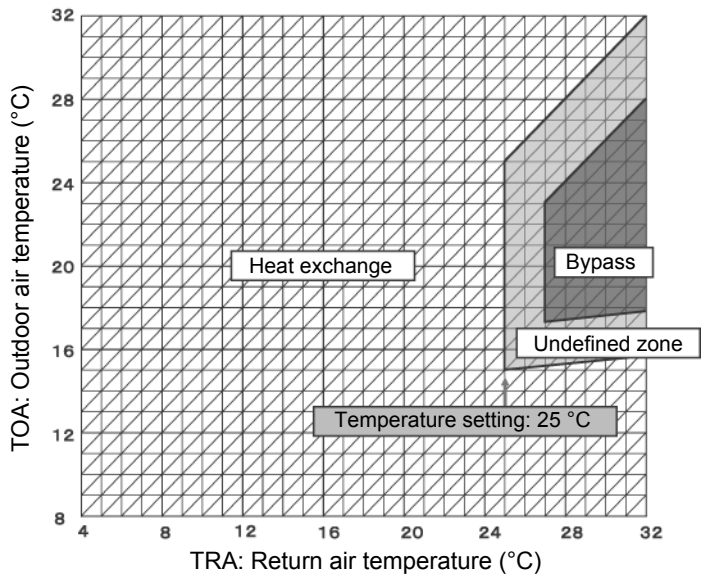
<table>
<tr><th>No.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>4</td><td>Ventilation mode switch (Continued)</td><td>2) Without remote controller, RBC-AMT32 remote controller compatible
• The ventilation mode can be switched depending on CODE (DN) [EA]
<table><tr><td>SET DATA</td><td>2</td><td>3</td></tr><tr><td>Ventilation mode</td><td>Heat exchange</td><td>Automatic</td></tr></table></td><td></td></tr>
<tr><td>5</td><td>Ventilation fan speed switch</td><td>1) The ventilation fan speed is switched by the request from the remote controller.
<table><tr><td>By remote controller</td><td>Description</td></tr><tr><td>High</td><td>Operate supply air / exhaust air in High</td></tr><tr><td>Low</td><td>Operate supply air / exhaust air in Low</td></tr><tr><td>Unbalance (*)</td><td>Operate supply air in High, exhaust air in Low
(Supply air > Exhaust air)
Operate supply air in Low, exhaust air in High
(Supply air < Exhaust air)</td></tr></table>* Unbalance needs to be set in CODE (DN) [48].
<table><tr><td>SET DATA</td><td>0</td><td>1</td><td>2</td></tr><tr><td>Unbalanced fan speed ventilation</td><td>Invalid</td><td>Valid
(Supply air > Exhaust air)</td><td>Valid
(Supply air < Exhaust air)</td></tr></table>2) Without remote controller, RBC-AMT32 remote controller compatible
• The ventilation fan speed can be changed depending on CODE (DN) [EB]
<table><tr><td>SET DATA</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Ventilation fan speed</td><td>High</td><td>Low</td><td>Unbalance</td></tr></table></td><td>CODE No.
[48][EB]</td></tr>
<tr><td>6</td><td>Room temperature control</td><td>1) Temperatures adjusted by remote controller (°C)
<table><tr><td>Cool / Dry</td><td>Heat</td></tr><tr><td>18 - 29</td><td>18 - 29</td></tr></table>2) The HEAT temperature can be adjusted depending on CODE (DN) [06].
<table><tr><td>SET DATA</td><td>0</td><td>2</td><td>4</td><td>6</td></tr><tr><td>Temperature setting correction</td><td>+0 °C</td><td>+2 °C</td><td>+4 °C</td><td>+6 °C</td></tr></table>Factory setting
<table><tr><td>SET DATA</td><td>2</td></tr><tr><td>Temperature setting correction</td><td>+2 °C</td></tr></table>3) In addition to the above, the Air to Air Heat Exchanger with DX Coil Unit adjusts the temperature of its own.
<table><tr><td></td><td>Cool / Dry</td><td>Heat</td></tr><tr><td>CODE No.</td><td>[C9]</td><td>[CA]</td></tr><tr><td>SET DATA</td><td>0 - 7</td><td>0 - 7</td></tr><tr><td>Temperature setting correction</td><td>-0 °C to -3.5 °C
(0.5 °C - interval)</td><td>+0 °C to +3.5 °C
(0.5 °C - interval)</td></tr></table>Factory setting
<table><tr><td></td><td>Cool / Dry</td><td>Heat</td></tr><tr><td>SET DATA</td><td>4</td><td>5</td></tr><tr><td>Temperature setting correction</td><td>-2.0 °C</td><td>+2.5 °C</td></tr></table>* Do not change the settings.</td><td>CODE No.
[06][C9][CA]

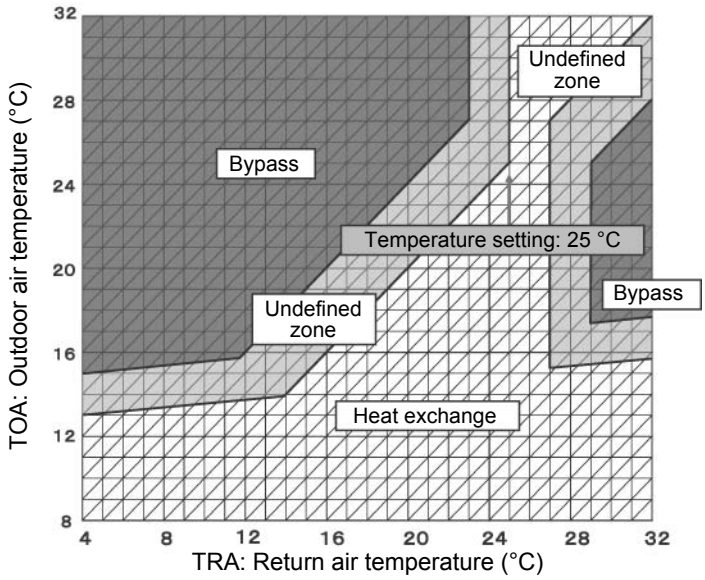
Heat suction temperature shift (Except during remote controller thermo)

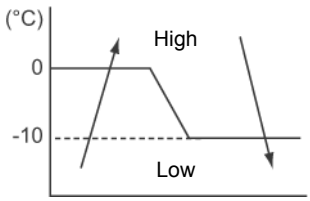
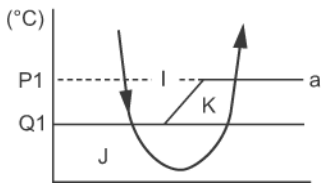
Follow the normal indoor unit setting.</td></tr>
</table>

No.	Item	Specification outline	Remarks
7	Auto capacity control	1) The outdoor unit determines the operational performance of the indoor unit according to the difference between TRA and Ts. * Ts refers to a value corrected in 6. 	Ts: Temperature setting
8	PMV control Suction temperature control	1) The Air to Air Heat Exchanger with DX Coil Unit performs PMV control using the corrected value of each sensor by operation mode. 1) Cool • Correct the indoor coil temperature (TC1) and coil suction temperature (TSA) to perform SH control. 2) Heat • Correct the indoor coil temperature (TC2, TCJ) and coil suction temperature (TSA) to perform UC control. 2) A value displayed by the monitoring function of the remote controller switch is the sensor data detected before corrected. (See "Monitoring function of wired remote controller" on page 47)	Corrected data • Air Suction Temperature of direct expansion coil (TSA) • Coil Temperature (TC1, TC2, TCJ)
9	Fan control	1) Judgment by the temperature sensors (TRA, TOA, TSA, TFA) is not performed while the fan is stopped or within 5 minutes after the operation starts. • The 5 minutes include the time while defrosting or heat refrigerant (oil) collecting is performed or after the operation is finished. 2) The fan is stopped during heat refrigerant collecting when the cooling or fan operation is selected. The fan continues running during cool refrigerant collecting when the heating operation is selected. The forced fan OFF control is given priority.	TFA: Discharge temperature
10	Forced thermo OFF	1) The thermo is turned off forcedly by the Air Suction Temperature of direct expansion coil (TSA). • Cool ... TSA < 16 °C, TSA ≧ 43 °C • Heat ... TSA < 7 °C 2) The thermo is turned off forcedly if the supply air fan needs to be stopped. • If the forced fan OFF conditions are met 3) The thermo is turned off forcedly if the Automatic mode changes to the Bypass mode.	
11	Forced fan OFF	1) Forced fan OFF judgment Judge the following conditions 1 – 3 of stoppage and release, and determine the forced fan OFF operation. Condition 1 • Stoppage: Air Suction Temperature of direct expansion coil TSA < 3 °C • Release: Air Suction Temperature of direct expansion coil TSA ≧ 5 °C Condition 2 • Stoppage: Discharge temperature TFA < 3 °C for 20 minutes during humidifying operation • Release: Air Suction Temperature of direct expansion coil TSA ≧ 5 °C Condition 3 • Stoppage: Cooling zone is Zone B or Zone C • Release: Cooling zone is Zone A	

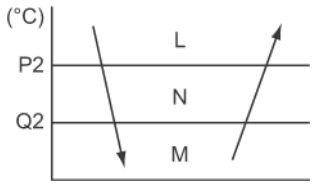
No.	Item	Specification outline	Remarks
11	Forced fan OFF (Continued)	2) During forced fan OFF, the operation is performed depending on the met condition 1 to 3. • Condition 3 is met There is a possibility of condensation on the heat exchange element. Only the exhaust fan is operated for a given time to dry the heat exchange element. <Zone B> The supply fan OFF and exhaust fan ON are continued for 10 minutes, the fan is operated for 5 minutes, and then the normal operation starts. The forced fan OFF by Zone B is invalid for 60 minutes after the normal operation starts. However, if Condition 1, 2 or 3 is met during 60 minutes, the fan is turned off forcedly. <Zone C> The supply fan OFF and exhaust fan ON are continued for 60 minutes, the fan is operated for 5 minutes, and then the forced fan OFF is continued or released depending on the temperature (TRA, TOA, TSA). • Condition 1 or 2 is met while Condition 3 is not The fan OFF is continued for 60 minutes, the fan is operated for 5 minutes, and then the forced fan OFF is continued or released depending on the temperature (TRA, TOA, TSA). 3) The cooling zone is determined as follows depending on the relation between TRA and TOA: 1) Condition of switch to Zone A • Zone B → Zone A: TOA ≧ –8 °C and TOA ≧ TRA – 34 °C 2) Condition of switch to Zone B • Zone A → Zone B: TOA ≦ –10 °C or TOA ≦ TRA – 36 °C • Zone C → Zone B: TOA ≧ –13 °C and TOA ≧ TRA – 39 °C 3) Condition of switch to Zone C • Zone B → Zone C: TOA ≦ –15 °C or TOA ≦ TRA – 41 °C * The current zone is maintained in Undefined zone. If the temperature enters the undefined zone when the operation starts, the upper zone is selected.  4) Other forced fan OFF release conditions • Operation stopped • Trial mode	

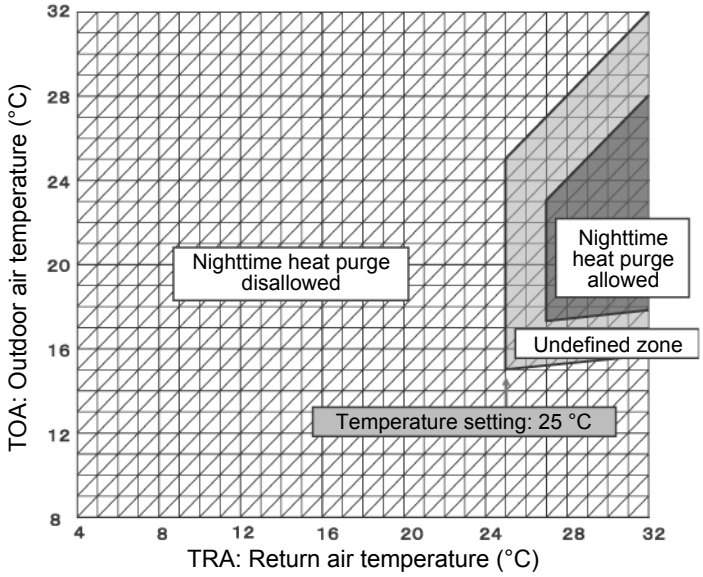
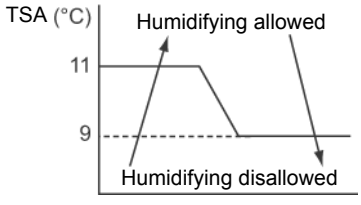
No.	Item	Specification outline	Remarks
12	Automatic mode control	1) When the ventilation mode is "Automatic", the Heat Exchange or Bypass is automatically selected depending on the operation mode and TRA, TOA, and TSA. 1) "Fan"  2) "Cool"  	

<table>
<tr><th>No.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>12</td><td>Automatic mode control (Continued)</td><td>3) "Heat"
 

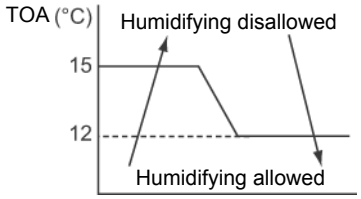
2) If the operation mode is changed, the Heat Exchange mode continues for 10 minutes.
3) If the operation mode is changed, the current mode continues for 10 minutes.
4) The thermo is turned off forcedly if the mode changes to the Bypass mode in "Cool", "Dry", or "Heat".</td><td></td></tr>
<tr><td>13</td><td>Cool air discharge protection control</td><td>1) In Heat operation, the upper limit of the ventilation fan speed is determined by lower temperature of higher temperature of TC2 sensor or TCJ sensor or temperature of TC1 sensor.
 
</td><td>"Prep" appears when in Low zone.</td></tr>
<tr><td>14</td><td>Freeze protection control (Low temperature release)</td><td>1) In Cool operation, the operation is performed depending on the temperature detected by TC1, TC2, or TCJ sensor.
• The thermo is turned off forcedly if the "J" zone is detected for 5 minutes.
• The timer count is stopped and retained when in "K" zone.
• If the "I" zone is detected, the timer is cleared and the normal operation restarts.
• If the thermo is turned off forcedly to maintain the "J" zone, only the fan is operated until it enters the "I" zone.
Recovered in the following conditions:
Recovery conditions
1) TC1 ≧ 12 °C and TC2 ≧ 12 °C and TCJ ≧ 12 °C
2) 20 minutes have passed since it stopped
 

<table>
<tr><th></th><th>TC1</th><th>TC2, TCJ</th></tr>
<tr><td>P1</td><td>10 °C (5 °C)</td><td>-10 °C</td></tr>
<tr><td>Q1</td><td>0 °C</td><td>-14 °C</td></tr>
</table>
( ) : The thermo is turned off forcedly if the temperature is lower than this value when the power is turned on.</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>14</td><td>Freeze protection control (Low temperature release) (Continued)</td><td>2) In Cool operation, the operation is performed depending on the temperature detected by TC2 or TCJ sensor.
• The thermo is turned off forcedly if the "M" zone is detected for 45 minutes.
• The timer is stopped and retained when in "N" zone.
• The timer restarts and continues counting down when it enters the "M" zone again.
• If the "L" zone is detected, the timer is cleared and the normal operation restarts.
 
<table><tr><td></td><td>TC2, TCJ</td></tr><tr><td>P2</td><td>5</td></tr><tr><td>Q2</td><td>-2.0</td></tr></table>
Recovery conditions
1) TC1 ≧ 12 °C and TC2 ≧ 12 °C and TCJ ≧ 12 °C
2) 20 minutes have passed since it stopped</td><td></td></tr>
<tr><td>15</td><td>Cooling oil (refrigerant) collecting control</td><td>The indoor unit in stoppage, thermo OFF, or "fan" operation performs the following controls when it receives the cooling oil (refrigerant) collecting signals from the outdoor unit:
1) Open the indoor unit PMV to a given extent.
2) Operate the drain pump during collecting control and for approximately one minute after the control is finished. (When separately sold drain up kit is set)</td><td>The collecting operation is usually performed every two hours.</td></tr>
<tr><td>16</td><td>Heat refrigerant (oil) collecting control</td><td>The indoor unit in stoppage, thermo OFF, or "fan" operation performs the following controls when it receives the heating refrigerant (oil) collecting signals from the outdoor unit:
1) Open the indoor unit PMV to a given extent.
2) Detect the TC2 temperature to close the PMV.
3) Count the number of collecting controls, and operate the indoor fan and drain pump for approximately one minute after the control is finished until the count reaches the specified number.</td><td>• The indoor unit in Cooling thermo OFF or "fan" operation stops the fan and displays "Prep".
• The collecting operation is usually performed every hour.</td></tr>
<tr><td>17</td><td>Nighttime heat purge</td><td>This function is valid only for the Air to Air Heat Exchanger with DX Coil Unit system linked with air conditioners (Invalid for Air to Air Heat Exchanger with DX Coil Unit system)
1) If the [ON / OFF] button is pressed during operation, the Air to Air Heat Exchanger with DX Coil Units and the air conditioners stop, and the system enters the nighttime heat purge mode (standby mode).
* The setting of nighttime heat purge (Valid / Invalid) needs to be changed with CODE No. (DN) [4C].
<table><tr><td>SET DATA</td><td>Setting</td></tr><tr><td>0</td><td>Nighttime heat purge: Invalid (default)</td></tr><tr><td>1 - 48</td><td>Enter the nighttime heat purge operation in
(the value x one hour)</td></tr></table>
2) Conditions that make the nighttime heat purge setting valid
• When the air conditioners and Air to Air Heat Exchanger with DX Coil Units are stopped
• When the operation mode before the stop of the air conditioner header unit is Drying or Cooling
• Invalid when the air conditioners are stopped in states where only the Air to Air Heat Exchanger with DX Coil Units are stopped
• Invalid when only the Air to Air Heat Exchanger with DX Coil Units are stopped
3) When the nighttime heat purge setting is valid
• The mode moves from the stop of the Air to Air Heat Exchanger with DX Coil Units to the nighttime heat purge operation mode (standby mode).
4) Nighttime heat purge operating conditions:
If time specified in CODE No. (DN) [4C] (1 to 48 hours) has passed, the temperature monitoring operation is performed for five minutes (Heat Exchange mode), and the nighttime heat purge operation starts if the following conditions are met.
• TRA ≧ TOA + 3 °C and TRA ≧ Ts + 2 °C and TOA ≧ TRA/10 + 14.5 °C and the outdoor unit operation mode is not Heating</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>17</td><td>Nighttime heat purge (Continued)</td><td>5) During nighttime heat purge operation
• The ventilation mode (fixed to Bypass mode) cannot be changed, and it is not displayed.
• The ventilation fan speed can be changed with CODE No. (DN) [47].
<table><tr><th>SET DATA</th><th>Setting</th></tr><tr><td>0</td><td>Low fixed (default)</td></tr><tr><td>1</td><td>Operate at ventilation fan speed set last time the operation was stopped</td></tr></table>6) Nighttime heat purge temporary stop condition (one-hour stop)
• Nighttime heat purge operation continues for an hour or TRA ≦ TOA or TRA ≦ TSA or TOA ≦ TRA/10 + 12.5 °C or the outdoor unit operation mode is Heating
• After the nighttime heat purge operation has stopped temporarily and one hour has passed, the temperature monitoring operation is performed. If Condition 4 is met, the nighttime heat purge operation starts.
7) Nighttime heat purge stop (termination) conditions:
• The Air to Air Heat Exchanger with DX Coil Units start operation.
• 48 hours have passed since the start of nighttime heat purge operation (start of temperature monitoring operation).
8) When nighttime heat purge operation stops, the [Nighttime heat purge] display goes out.
 
</td><td></td></tr>
<tr><td>18</td><td>Humidifying control</td><td>1) The heating operation automatically turns on the magnetic valve to perform the humidifying operation.
2) Magnetic valve ON conditions:
• The operation mode is Heating (default)
• Air Suction Temperature of direct expansion coil (TSA) > α °C
(Humidifying: α = 9, Not humidifying: α = 11)
 

• The humidifying operation cannot be restarted when the power is turned on or for 15 minutes after humidifying is stopped (default)
• (Judged by outdoor temperature (Invalid by default))</td><td>CODE No.
[08][BB][BD][BE][40]</td></tr>
</table>

<table>
<tr><th>No.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>18</td><td>Humidifying control (Continued)</td><td>
3) Humidifying setting items
1) Operation mode
Set the operation mode for humidifying depending on CODE (DN) [08].
<table>
<tr><td>SET DATA</td><td>0</td><td>1</td></tr>
<tr><td>Operation mode</td><td>Heating (default)</td><td>Heating, Fanning</td></tr>
</table>
2) Humidity judgment by outdoor temperature
Set whether to judge humidifying by outdoor air temperature TOA depending on CODE (DN) [BB]. The setting is required in order to prevent fan humidifying in summer if it is allowed.
<table>
<tr><td>SET DATA</td><td>0</td><td>1</td></tr>
<tr><td>Judgment by outdoor temperature</td><td>Invalid (default)</td><td>Valid</td></tr>
</table>
* If "1: Valid" is selected, judge Allow / Disallow for humidifying under the following conditions:


3) Continuous humidifying time
Set the drain interval for humidifying depending on CODE (DN) [BD]. The factory setting is "6: Every 6 hours".
<table>
<tr><td>SET DATA</td><td>1 - 20</td></tr>
<tr><td>Continuous humidifying time</td><td>Drain at the intervals of "Humidifying operation [SET DATA] x one hour"</td></tr>
</table>
* The shorter the interval is, the more the water is used. The longer the interval is, the shorter the humidifying life becomes. Be careful when changing the setting.
4) Delay time until humidifying restarts after drainage
Set the delay time between stoppage and restart depending on CODE (DN) [BE]. The factory setting is "15: 15 min."
<table>
<tr><td>SET DATA</td><td>15 - 30</td></tr>
<tr><td>Delay after drainage</td><td>Delay by "[SET DATA] x one minute" for humidifying restart</td></tr>
</table>
* E.g. when installing the drain up kit, if drain water remains in the drain pan after humidifying is stopped, set the delay time longer.
5) Whether there is a humidifier (Do not change the setting except for servicing)
Set whether to humidify depending on CODE (DN) [40].
<table>
<tr><td>SET DATA</td><td>0</td><td>1</td></tr>
<tr><td>Whether there is a humidifier</td><td>No humidifying</td><td>Humidifying (default)</td></tr>
</table>
</td><td></td></tr>
<tr><td>19</td><td>Drain pump control</td><td>
1) The drain pump is always operated in Cooling mode or Drying mode.
2) When the cooling or drying operation is stopped, the drain pump is not immediately stopped but continues running for other 5 minutes in order to drain water from the drain pan.
3) If the float switch works when the drain pump is running, the check code appears.
4) If the float switch works when the drain pump is not running, the thermo is turned off forcedly and the drain pump starts running. If the float switch continues running for 5 minutes, the operation is stopped and the check code appears.
5) If humidifying is stopped, the drain pump is operated for 15 minutes.
6) If the float switch works during humidifying, humidifying is stopped immediately, the check code appears, and the drain pump is operated for 30 minutes.
</td><td>(Only when the drain up kit is set)

Check code "P10"</td></tr>
</table>

No.	Item	Specification outline	Remarks
20	Short intermittent operation guarantee control	1) The operation continues for 5 minutes even if a thermo OFF condition is met. 2) The Cool / Heat switch, operation preparation, and protection control are given priority, and the thermo is turned off.	
21	Retained heat elimination	1) If the heating operation is stopped, the indoor fan is operated in "Low" for approximately 30 seconds.	
22	HA control	1) Connected to telecommunications or remote I/F. The ON / OFF operation can be performed remotely by HA signal input. 2) The ON / OFF status is output to the HA output terminal. 3) The HA input / output specifications conform to the JEMA standards. However, some air-conditioner linkage systems do not conform to the standards. Do not use the HA terminals of the Air to Air Heat Exchanger with DX Coil Unit but those of the header unit (normal indoor unit).	To use the HA terminal (CN61) for remote operations, a separately sold connector is required. In group operation, connect either header or follower of the indoor unit.
23	Filter sign display	1) Accumulate the running time of the indoor fan. When a given time (2500 H) has passed, send the filter replacement signals to the remote controller, and display it on LCD. 2) When the filter reset signals are received from the remote controller, the accumulated timer is cleared. If a given time has already passed, the calculated time is reset, and the LCD display disappears.	"Filter" lights up
24	"Prep" (Operation) "Prep" (Heat) display	<Prep (Operation)> Displayed on the remote controller 1) If the following check code appears: • The power wire open phase "P05" was detected. • The overflow "P10" was detected. • The interlock warning "L30" was detected. 2) During forced thermo OFF • The cooling / drying operation cannot be started as another indoor unit operates heating. • The cooling is given priority (outdoor I/F circuit board SW11-bit1 is set to ON), and the heating operation cannot be started as another indoor unit operates cooling / drying. 3) The above indoor units that cannot run will be in thermo OFF standby mode. 4) The system stops the indoor fan for heat refrigerant (oil) collecting operation. <Prep (Heat)> Displayed on the remote controller 1) The system stops the indoor fan when the heating operation starts or to protect cool air discharge during heating. (including defrosting during thermo OFF)	"Prep" (Operation) display "Prep" (Heat) display

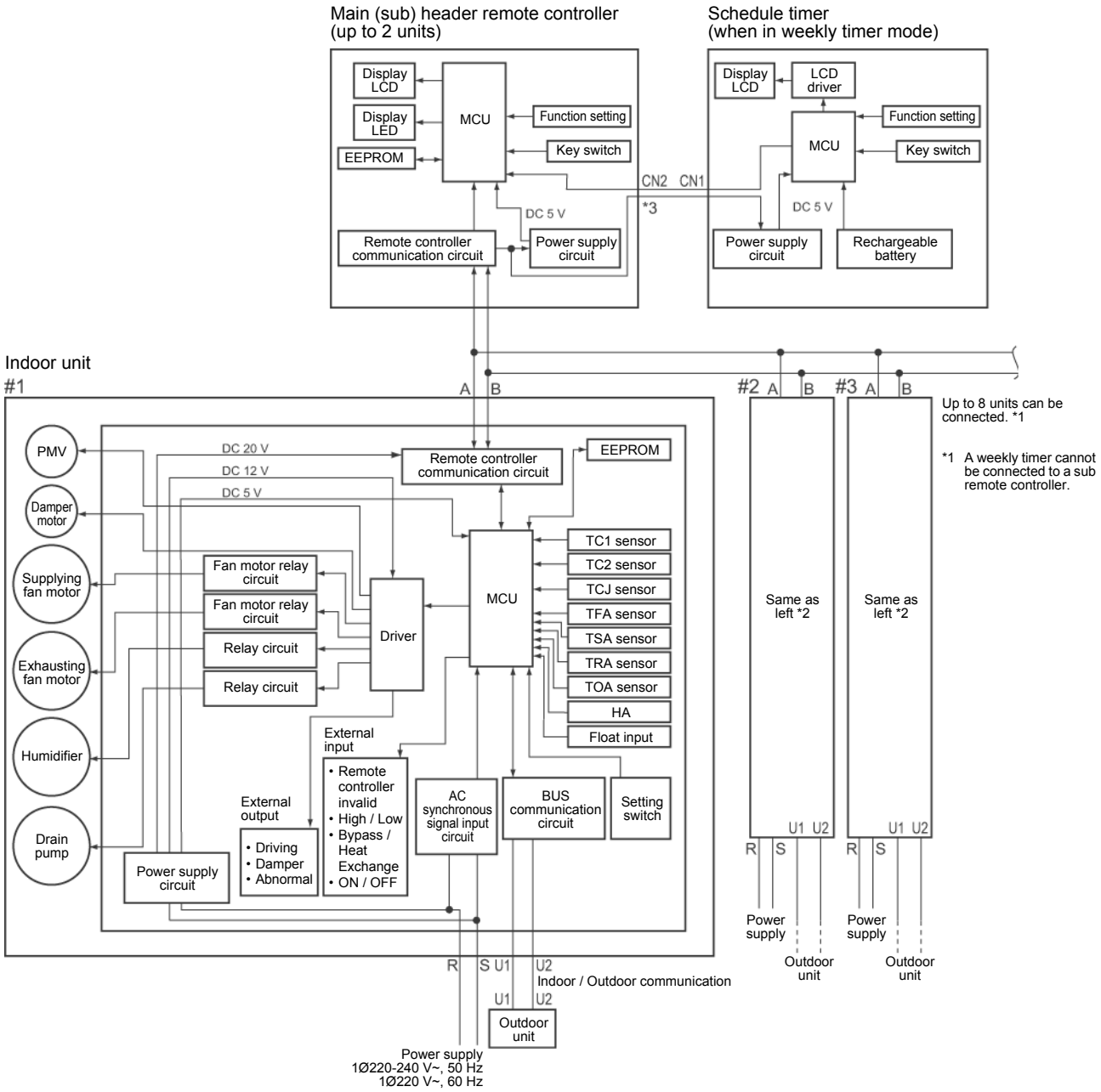
<table>
<tr><th>No.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>25</td><td>Central control mode switch</td><td>1) Depending on the central control device setting, the functions that can be operated by the indoor unit remote controller can be changed.
2) Settings
TCC-LINK central control
<table>
<tr><th rowspan="2">Operations by TCC-LINK central control</th><th colspan="7">On NRC-01</th><th rowspan="2">On NRC-01H</th></tr>
<tr><th>ON / OFF setting</th><th>Ventilation ON / OFF</th><th>Operation switch</th><th>Timer setting</th><th>Temperature setting</th><th>Ventilation mode setting</th><th>Ventilation fan speed setting</th></tr>
<tr><td>Individual</td><td>O</td><td>O</td><td>O</td><td>O</td><td>O</td><td>O</td><td>O</td><td rowspan="5">"Central control" is displayed</td></tr>
<tr><td>[Central 1]</td><td>×</td><td>O</td><td>O</td><td>×</td><td>O</td><td>O</td><td>O</td></tr>
<tr><td>[Central 2]</td><td>×</td><td>O</td><td>×</td><td>×</td><td>×</td><td>O</td><td>O</td></tr>
<tr><td>[Central 3]</td><td>O</td><td>O</td><td>×</td><td>O</td><td>×</td><td>O</td><td>O</td></tr>
<tr><td>[Central 4]</td><td>O</td><td>O</td><td>×</td><td>O</td><td>O</td><td>O</td><td>O</td></tr>
</table>
(O: Accessible ×: Inaccessible)
*The ventilation ON / OFF operation becomes valid when the single operation of ventilation CODE [31] of the remote control group header unit is set to "1: Possible" in linkage to a normal indoor unit.</td><td>• "Central control" appears (lights up) in central control mode.
• The display blinks when operations that are not allowed to be performed are to be changed by the remote controller.</td></tr>
<tr><td>26</td><td>Damper output</td><td>1) Damper output setting
• The normal setting can be changed to the nighttime heat purge setting depending on the DN setting.
• The output setting can be changed with CODE No. (DN) [5C].
<table>
<tr><td>SET DATA</td><td>0</td><td>1</td></tr>
<tr><td>Damper output</td><td>Normal (default)</td><td>Nighttime heat purge compatible</td></tr>
</table>
2) Operation output ON / OFF conditions in the normal setting
• ON when the fan is stopped forcedly
• ON when the fan is stopped in damper switch
• ON from nighttime heat purge monitoring start to end
• OFF when the operation is stopped
3) Operation output ON / OFF conditions in the nighttime heat purge setting
The same as the normal setting except for the following:
• OFF when the nighttime heat purge operation is stopped temporarily</td><td>CODE No.
[5C]</td></tr>
<tr><td>27</td><td>Power saving mode</td><td>1) Performed when the SAVE button on the remote controller is pressed.
2) The "SAVE" segment lights up on the wired remote controller display in saving operation.
3) The requirement capacity ratio is limited to the following in saving operation:
<table>
<tr><td></td><td>Cool / Dry</td><td>Heat</td></tr>
<tr><td>Upper limit</td><td>S8</td><td>SA</td></tr>
</table>
4) If the power saving operation is enabled, the settings are retained when the operation is stopped, when the mode is changed, or when the power is reset. The power saving operation will be enabled the next time the operation starts.</td><td>The power saving operation cannot be set by the remote controller of AMT31E or older.

The estimate of the requirement capacity ratio is 75 %.</td></tr>
</table>

8 Applied control and functions (including circuit configuration)

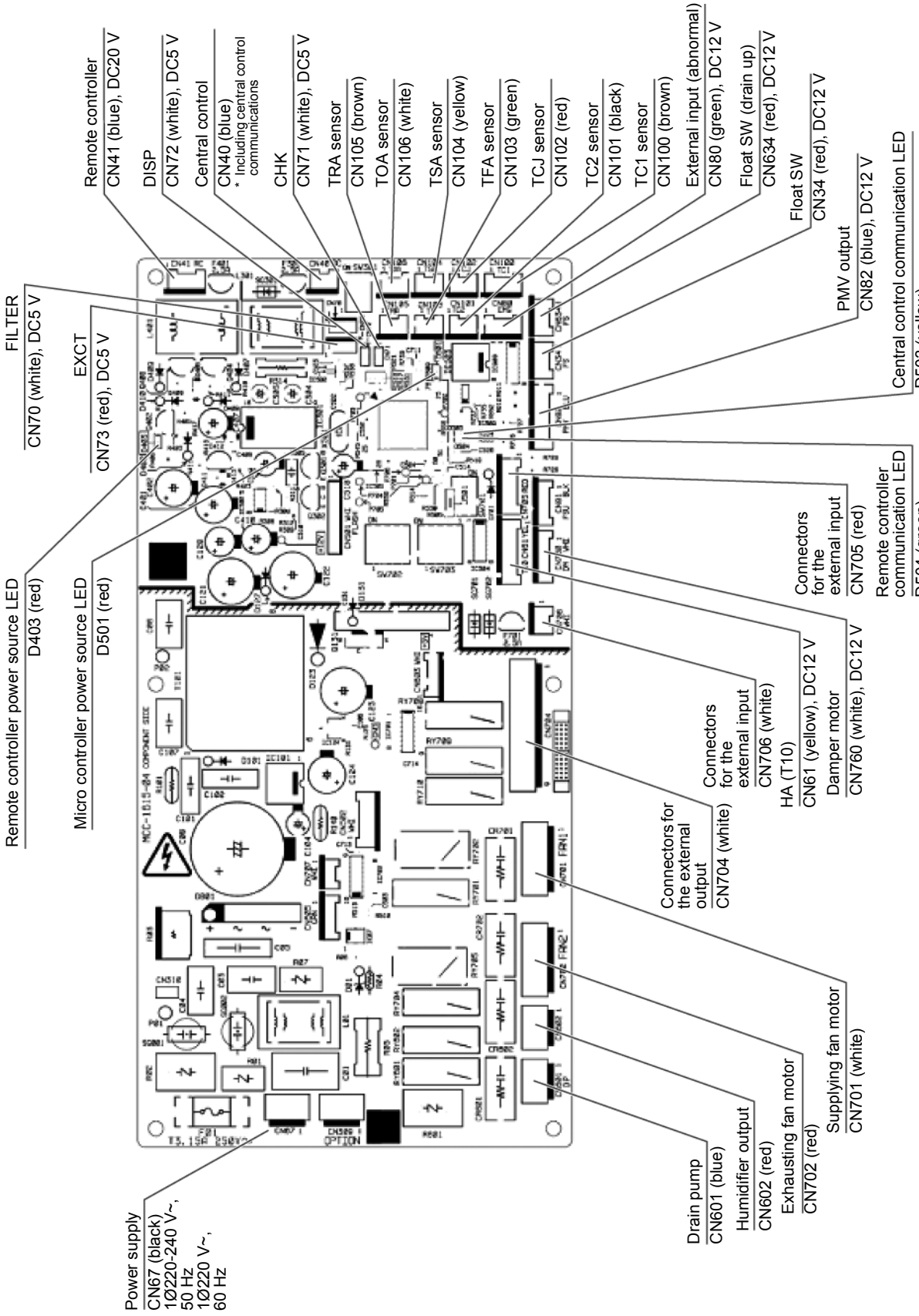
8-1. Heat exchanger controller block diagram

8-1-1. When the main (sub) remote controller is connected



8-2. Indoor printed circuit board

MMC-1615



8-3. Functions at test operation

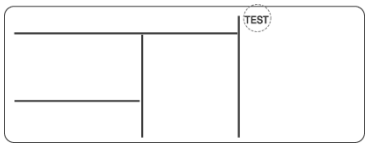
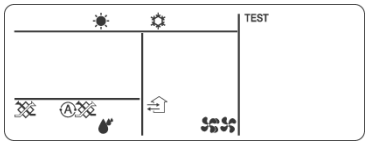
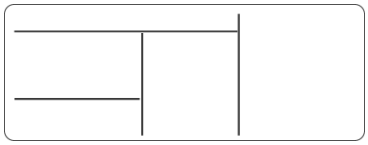
■ Checking COOL / HEAT test operation

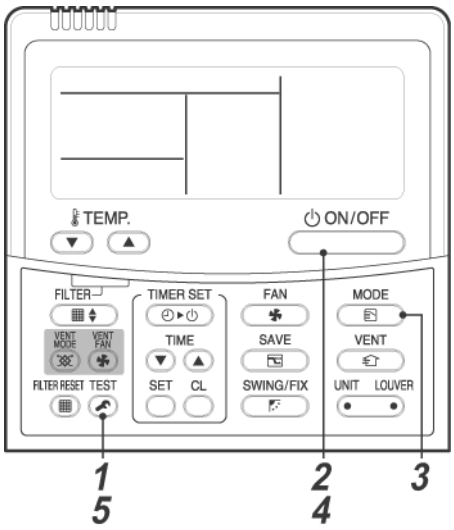
The COOL / HEAT test operation can be performed using the indoor remote controller or outdoor interface circuit board.

◆ Starting and stopping test operation

Performing test operation from the indoor remote controller

▼ Wired remote controller

Procedure	Operation
1	When the “TEST” button is pressed for 4 seconds or longer, “TEST” appears in the display section, and the unit enters the test operating mode. 
2	Press the "ON / OFF" button.
3	Press the "MODE" button to select [COOL] or [HEAT]. • The heat exchange is always performed regardless of the ventilation mode. • The temperature cannot be adjusted during test operation. • Errors are detected as usual. 
4	When the test operation has been complete, press the "ON / OFF" button to stop operation. (The display in the display section is the same as in Step ***1***.
5	Press the "TEST" button to release the test operating mode. (“TEST” disappears from the display section, and the unit returns to normal stop status.) 



Note: The test operation ends in 60 minutes and the normal operation restarts.

* To check the ventilation mode switch, follow the procedure below:

(1) Perform Steps ***1*** and ***2*** in the above "Starting and stopping test operation".

(2) Press the "MODE" button to select [FAN].

(3) Press the "VENT MODE" button to select [Heat exchange] or [Automatic].

- The heat exchange is always performed when [Heat exchange] is selected.
- The bypass is always performed when [Automatic] is selected.

(4) Perform Steps ***4*** and ***5*** in the above "Starting and stopping test operation" to release the test operating mode.

■ Indoor unit operation checking function (of the indoor unit)

This function allows you to check the operations using the indoor unit only without communicating with the remote controller or outdoor unit. This function is available even while the system is running or stopped.
However, if it is used for a long period of time, a malfunction may occur. Use this function for several minutes as an approximate guide.

[Procedure]

1 **Short circuit the CHK pin (CN71 on the indoor circuit board). The operation mode varies depending on the indoor unit status.**
Normal ... Both the float SW and fan motor are normal.
Abnormal ... The float SW or fan motor is abnormal.

2 **Only when normal, the opening can be minimum (30 pls) only for the indoor PMV if you short circuit the DISP pin (CN72 on the indoor circuit board) while the CHK pin (CN71 on the indoor circuit board) is short circuited. If you open the DISP pin, the opening will be maximum (1500 pls) again.**

[Releasing]
Open the CHK pin. While the system is running, it stops temporarily but resumes automatically in several minutes.

	CHK pin short circuit		
	Normal		Abnormal
	DISP pin opened	DISP pin short circuited	
Fan motor	High (H)	High (H)	Stop
PMV (*)	Max. opening (1500 pls)	Min. opening (30 pls)	Min. opening (30 pls)
Drain pump	ON	ON	ON
Humidifier	OFF	OFF	OFF
Communication	All ignored	All ignored	All ignored
P.C. board LED	Lights up	Lights up	Blinks

* When replacing the PMV coil, apply the maximum opening.
* For the detailed positions of CHK pin (CN71 on P.C. board) and DISP pin (CN72 on P.C. board), refer to the **Indoor Printed Circuit Board MCC-1615** on page 32.

■ Indoor unit exhibition mode (of the indoor unit)

This function can be used when you use the indoor unit and remote controller only in an exhibition, etc. The group operation is also available.

[Procedure]

1 **Short circuit the DISP pin (CN72 on the indoor circuit board). This function is not available if the CHK pin (CN71 on the indoor circuit board) is short circuited earlier.**

2 **To perform the group operation, configure the group setting in the same way as in normal.**

3 **All the sensor error judgments and communications with the outdoor unit are disabled during DISP pin short circuit. The opening of PMV is always the maximum (1500 pls).**

[Releasing]
Open the DISP pin.

8-4. Specifications of optional connectors on the Air to Air Heat Exchanger with DX Coil Unit board

Function	Connector No.	Pin No.	Specification	Note
External input No-voltage contact a	CN705	1	0 V (COM)	
		2	Remote controller prohibition input	Remote controller prohibition input (ON: Prohibited, OFF: Allowed)
		3	Ventilation fan speed change input	Ventilation fan speed change input (ON: LOW, OFF: HIGH)
		4	Use prohibition	Do not use
		5	Start / Stop input	Start / Stop input (pulse / static input changed by No. 1 of DIP SW701, OFF: Static (default), ON: Pulse)
External input DC12 V, 24 V	CN706	1	DC12 V (COM)	
		2	Start / Stop input	Start / Stop input (pulse / static input changed by No. 1 of DIP SW701, OFF: Static (default), ON: Pulse)
HA	CN61	1	Start / Stop input	Start / Stop input of HA (pulse / static input changed by No. 2 of DIP SW701, OFF: Pulse (default), ON: Static) * The setting is opposite to that of the external input.
		2	0 V (COM)	
		3	Remote controller prohibition input	Remote controller prohibition input (ON: Prohibited, OFF: Allowed)
		4	Operation output	ON during operation (answer back of HA)
		5	DC12 V (COM)	
		6	Alarm output	ON during alarm
FILTER Optional abnormal / humidifier setting	CN70	1		Switching optional abnormal input (protective action display for a device attached externally) / humidifier setting Humidifier setting by default * Use the remote controller to set optional abnormal input (DN[2A] = 0002 → 0001)
		2	0 V	
CHK Operation check	CN71	1		Check the indoor operation (Performs the indoor fan "H" and drain pump ON, not communications with the outdoor and remote controller)
		2	0 V	
DISP Exhibition mode	CN72	1		Enable communications using the indoor unit and remote controller only
		2	0 V	
EXCT Demand	CN73	1	Demand input	Indoor unit forced thermo OFF
		2	0 V	

8-5. Configuring the function settings of the indoor unit

(When configuring the settings, use the wired remote controller.)

<Procedure> Perform while the unit is stopped.

1 **Press and hold the TEST button + SET button + CL button for 4 seconds or longer.**
The first displayed UNIT No. is the header unit address in the group control.
The fan of the selected indoor unit starts running.

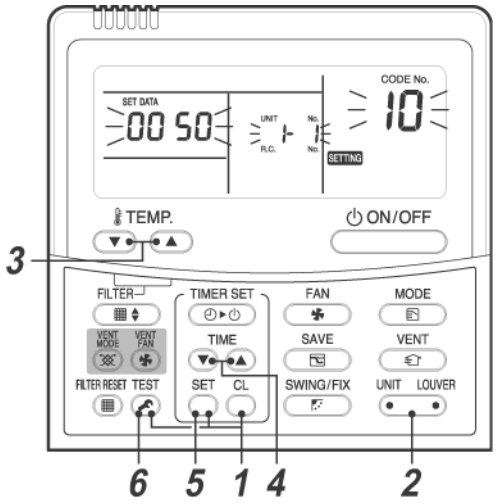
2 **Press the UNIT LOUVER button to display the indoor unit No. one by one in the group control. Only the fan of the selected indoor unit starts running.**

3 **Use the TEMP. button to select the Code (DN).**

4 **Use the TIME button to select the setting.**

5 **Press the SET button. (Confirm that the indicator lights up.)**
- To change the selected indoor unit, go back to ***2***.
- To change CODE No. (DN) to set, go back to ***3***.

6 **Press the TEST button to return to the normal stop status.**



Procedure

1 → ***2*** → ***3*** → ***4*** → ***5*** → ***6*** End

NOTE

To change the function of the indoor unit when linked with the air conditioner, confirm that the CODE NO. "10" is set to "50: Heat exchange" each time the unit is changed, in order not to mistake the Air to Air Heat Exchanger with DX Coil Unit for the normal indoor unit.

Codes (DN codes) for changing settings (Necessary for local advanced control)

DN	Item	Content	Factory setting
01	Filter sign lighting time	0000: None 0001: 150 H 0002: 2500 H 0003: 5000 H 0004: 10000 H	0002: 2500 H
02	Filter clogging	0000: Normal 0001: High degree of dirt (Half of standard time)	0000: Normal
03	Central address	0001: No. 1 – 0064: No. 64 0099: Unfixed	0099: Unfixed
04	Specific indoor unit priority	0000: No priority 0001: Priority	0000: No priority
06	Heat intake temperature shift	0000: No shift 0001: +1 °C 0002: +2 °C – 0010: +10 °C (Recommended: Up to +6)	0002: +2 °C
0F	Cold only	0000: Heat pump 0001: Cool only (No "AUTO" / "HEAT" display)	0000: Heat pump
10	Type code	0050: Air to Air Heat Exchanger with DX Coil Unit	0050: Air to Air Heat Exchanger with DX Coil Unit
11	Capacity code	0000: Unfixed 0001 - 0034	Depends on the model type
12	Line address	0001: No. 1 – 0030: No. 30 0099: Unfixed	0099: Unfixed
13	Indoor unit address	0001: No. 1 – 0064: No. 64 0099: Unfixed	0099: Unfixed
14	Group address	0000: Individual 0001: Header unit 0002: Follower unit 0099: Unfixed	0099: Unfixed
28	Auto recovery from blackout	0000: Invalid 0001: Valid	0000: Invalid
2A	Option / Abnormal input (CN70) switch	0000: Filter input 0001: Alarm input 0002: Humidifier input	0002: Humidifier input
2E	HA terminal (T10) switch	0000: Normal (HA terminal) 0001: Alarm input (Air purifying, etc.) 0002: Fire alarm input	0000: Normal (HA terminal)
32	Sensor switch	0000: Body sensor 0001: Remote controller sensor	0000: Body sensor
40	Humidifier type setting	0000: No humidifier 0001: Humidifier	Depends on the type
47	Ventilation fan speed during nighttime heat purge operation	0000: Always LOW 0001: Operate at ventilation fan speed set last time the operation was stopped	0000: Always LOW
48	Unbalanced fan speed ventilation	0000: Invalid 0001: SA > EA 0002: SA < EA	0000: Invalid
4C	Nighttime heat purge setting	0000: Invalid 0001: Start in 1 hour – 0048: Start in 48 hours	0000: Invalid
4E	Linkage with external devices	0000: ON / OFF linked 0001: ON linked 0002: OFF linked	0000: ON / OFF linked
5C	Damper output	0000: Normal 0001: Nighttime heat purge compatible	0000: Normal
60	Timer setting (Wired remote controller)	0000: Possible 0001: Not possible	0000: Possible
BB	Humidity judgment by outdoor temperature	0000: Not judged 0001: Judged	0000: Not judged
BD	Continuous humidifying time	0001: 1 hour – 0020: 20 hours	0006: 6 hours
BE	Delay after drainage	0015: 15 minutes – 0030: 30 minutes	0015: 15 minutes
C9	Air to Air intake temperature correction (Cool)	0000: No shift 0001: -0.5 °C 0002: -1.0 °C – 0007: -3.5 °C	0004: -2.0 °C
CA	Air to Air intake temperature correction (Heat)	0000: No shift 0001: 0.5 °C 0002: 1.0 °C – 0007: 3.5 °C	0005: 2.5 °C
D0	Power saving mode	0000: Invalid 0001: Valid	0001: Valid
EA	Current ventilation mode	0002: Heat exchange mode 0003: Automatic mode	0002: Heat exchange mode
EB	Current ventilation fan speed	0002: High 0003: Low 0004: Unbalanced	0002: High
ED	Operation output	0000: Normal operation only 0001: Normal + Nighttime heat purge 0002: Nighttime heat purge only 0003: Supplying fan linked 0004: Exhausting fan linked	0000: Normal operation only
EE	Abnormal signal / Bypass mode signal switch	0000: Abnormal signal output 0001: Bypass signal output	0000: Abnormal signal output

Model
Code : 10

SET DATA	Model	Model name (abbreviation)
0050	Air to Air Heat Exchanger with DX Coil Unit	MMD-VNK✻✻✻ series MMD-VN✻✻✻ series
Higher	–	

Capacity of the Air to Air Heat Exchanger with DX Coil Unit
Code : 11

SET DATA	Type
0000*	Invalid
0003	500 m^3/h type
0007	800 m^3/h type
0009	950 m^3/h type
Higher	–

* Factory setting of EEPROM stored on the PC board for service

Whether there is a humidifier
Code : 40

SET DATA	Type
0000*	No (MMD-VN✻✻✻ series)
0001	Yes (MMD-VNK✻✻✻ series)
Higher	–

* Factory setting of EEPROM stored on the PC board for service

8-6. Applied control of the indoor unit

■ Control system using the remote control interface (TCB- IFCB4E2)

[Wiring and settings]

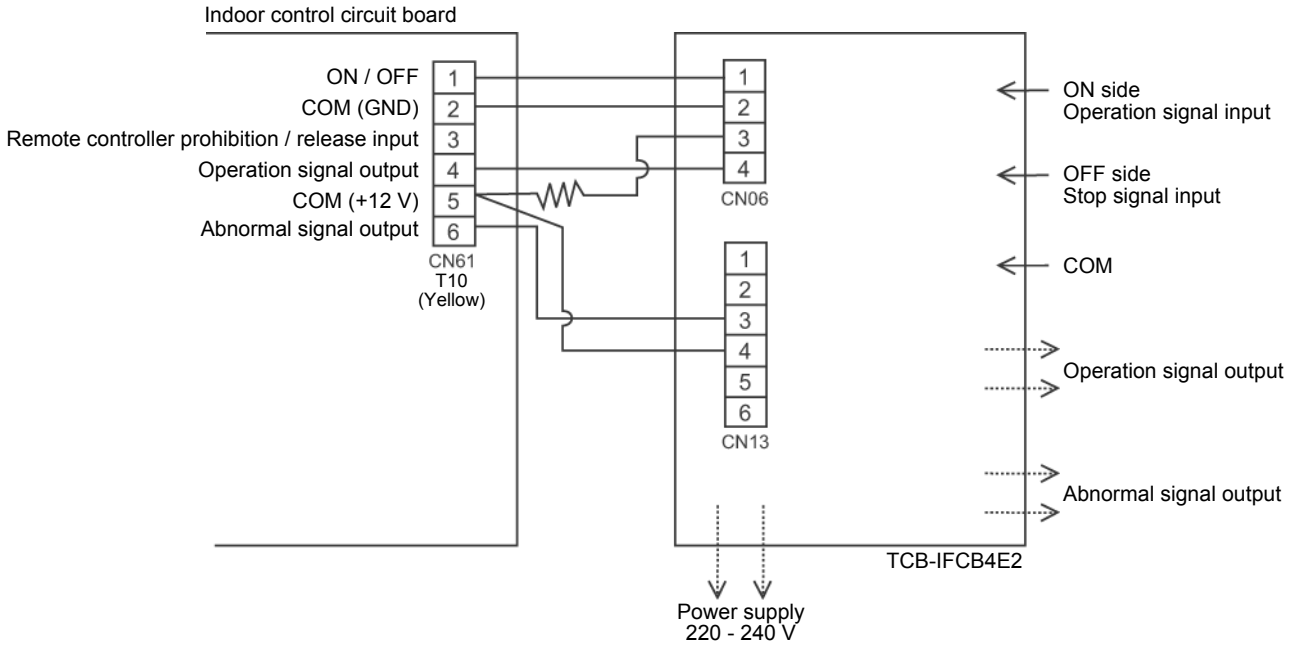
- In group control, the system works when connected to any indoor unit (control circuit) in the group. For the operation / error signals of other units, receive them from the units individually.

(1) Control items

1) ON / OFF input	Turn on / off the unit
2) Operation signal	Output during normal operation
3) Abnormal signal	Output while an alarm is active (Serial communication error or indoor / outdoor protection)

(2) Diagram of wiring using the remote control interface (TCB- IFCB4E2)

Input	IFCB4E2: Non-voltage, ON / OFF continuous signal
Output	Non-voltage contact (for operation / error display) Contact capacity: Max. AC 240 V 0.5 A



NOTE

In air-conditioning linkage system, input signals into the header unit (normal indoor unit), and receive only output signals (operation, alarm) from the Air to Air Heat Exchanger with DX Coil Unit.

■ Off control

[Function]

- Controls the indoor units individually. Connect the wires to the control circuit board of the indoor unit.
- In group control, connect the wires to the control circuit board of the indoor unit, and then set the CODE No. 2E to the connected indoor unit.
- Available when the external ON operation is not required but the OFF is required.
- Using the card switch box, card lock, etc. allows you to make sure to turn off the indoor unit.
  - Inserting the card allows the ON / OFF operation using the remote controller.
  - Removing the card stops a running indoor unit and disallows the ON / OFF operation using the remote controller.

(1) Control items

1) External contact ON: Allows the ON / OFF operation using the remote controller
(A card is inserted into the card switch box)

2) External contact OFF: Stops a running indoor unit
(Disallows the ON / OFF operation using the remote controller)
(A card is removed from the card switch box)

* If the above contact operation is not performed in the card switch box, convert it by b-contact relay.

(2) Operation

Follow the procedure below on the wired remote controller.

* Perform while the unit is stopped.

1 **Press and hold the TEST button + SET button + CL button for 4 seconds or longer.**

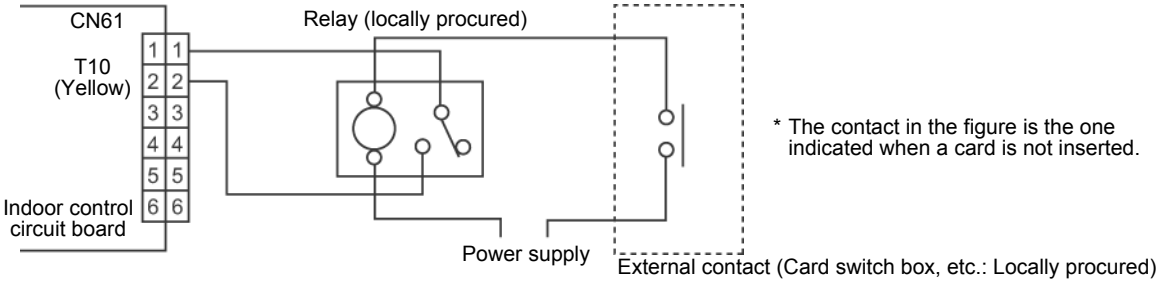
2 **Use the TEMP. button to set the Code (DN) to 2E .**

3 **Use the TIME button to set the setting to 0001 .**

4 **Press the SET button.**

5 **Press the TEST button. (Enters the normal stop status)**

(3) Wiring

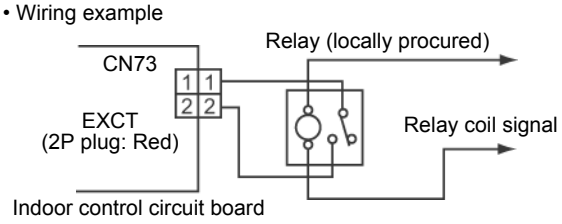


Note: The length of the wire between the indoor control circuit board and relay should be 2 m or less.

■ Demand control

When the relay is turned on, the thermo is turned off forcedly.

• Wiring example

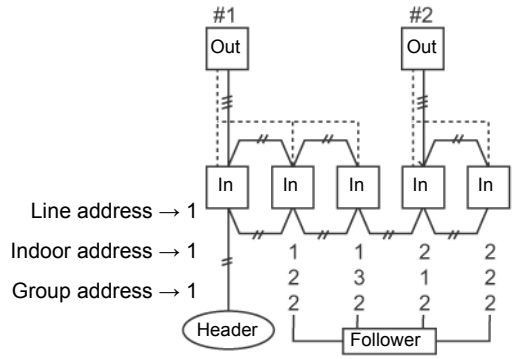


Note: The length of the wire between the indoor or outdoor control circuit board and relay should be 2 m or less.

How to set the address manually using the remote controller

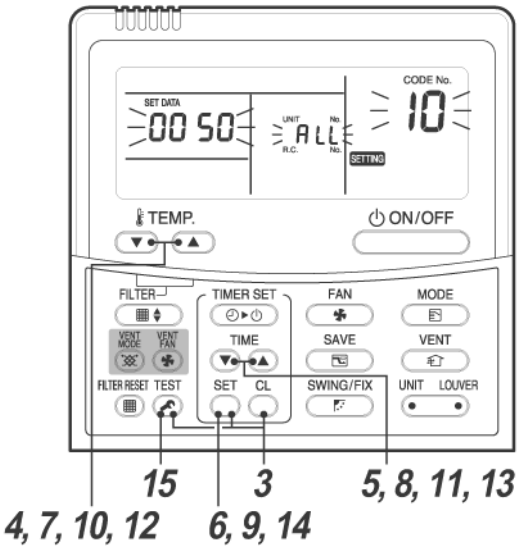
To specify the indoor unit address first when the indoor wiring has been completed and outdoor wiring has not (Manually set using the remote controller)

(Wiring example for two lines)



Release the remote controller wiring, connect the wired remote controller and then set the addresses.

Group address
Individual :0000
Header :0001
Follower :0002
For group control



Procedure

3 → 4 → 5 → 6 → 7 → 8 → 9 → 10 → 11 → 12 → 13 → 14 → 15 End

*1 Do not set the address 29 or 30 if the line address is set using the remote controller.
The address cannot be set on the outdoor unit. If it is set on the outdoor unit, the test code [E04] (Communication error) appears.

*2 If the address is set manually using the remote controller and perform central control between refrigerant lines, configure the following settings to the center units for the lines:
- Set each line address on SW13 and 14 of the center unit interface circuit board.
- Turn off SW30-2 of the center unit interface circuit board in the lines connected to the same central control, except the line with the smallest line address No. (There will be only one terminator on the indoor / outdoor central control wiring.)
- Connect the relay connector between [U1U2] and [U3U4] of the center unit for each refrigerant line.
- Then set the central address. (Refer to the Installation Manual for the central control device.)

*3 When setting the Air to Air Heat Exchanger with DX Coil Unit and normal indoor unit in the same group, do not set the Air to Air Heat Exchanger with DX Coil Unit as the header.

1 **Make a pair of the indoor unit and remote controller.**

2 **Turn on the power.**

3 **Press and hold the TEST button + SET button + CL button for 4 seconds or longer.**
The LCD starts blinking.

▼Line address

4 **Use the TEMP. button to set the Code (DN) to 12.**

5 **Use the TIME button to set the line address.**
(The address must be the same as the line address of the center unit interface circuit board in the same refrigerant line.)

6 **Press the SET button. (The display lights up if the setting is completed successfully.)**

▼Indoor address

7 **Use the TEMP. button to set the Code (DN) to 13.**

8 **Use the TIME button to set the indoor address.**

9 **Press the SET button. (The display lights up if the setting is completed successfully.)**

▼Group address

10 **Use the TEMP. button to set the Code (DN) to 14.**

11 **Use the TIME button to set Individual to 0000, Header to 0001, and Follower to 0002.**

▼Central address

12 **Use the TEMP. button to set the Code (DN) to 03.**

13 **Use the TIME button to set the central address. (0001 – 0064)**

14 **Press the SET button. (The display lights up if the setting is completed successfully.)**

15 **Press the TEST button.**
The setting is complete. ("Setting" blinks. The unit can be operated when it disappears.)

Checking the address and main unit position using the remote controller

▼Checking the indoor unit No. position

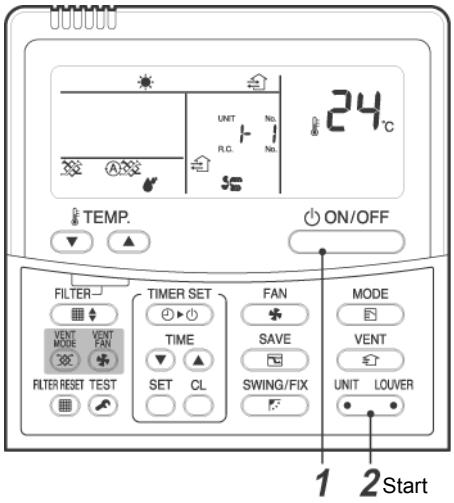
(1) When you know the indoor unit position but want to know the address

- Individual operation (a pair of wired remote controller and indoor unit) or group control

<Procedure> Perform while the unit is operating.

1 **Press the ON/OFF button when the unit is not operating.**

2 **Press the UNIT LOUVER button.**
The UNIT No. (e.g. 1-1) appears on the LCD. (Disappears in several seconds.)
The displayed UNIT No. shows the line address and indoor address. (If other indoor units are connected to the same remote controller (group control), the UNIT No. of another unit appears each time the UNIT LOUVER button is pressed.)



Procedure
1 → 2

(2) When you want to know the indoor unit position by the address

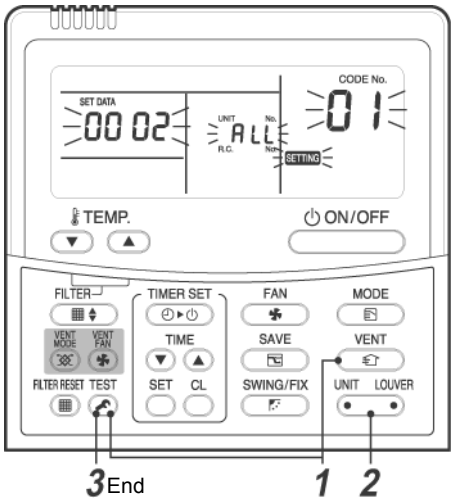
- Checking the UNIT No. in the group control

<Procedure> Perform while the unit is stopped.
The indoor unit No. appear one by one in the group control.
The fan of the indoor unit starts running.

1 **Press and hold the TEST button + VENT button for 4 seconds or longer.**
- The UNIT No. ALL appears.
- The fans of all indoor units in the group control start running.

2 **Press the UNIT LOUVER button to display the unit No. one by one in the group control.**
- The first displayed UNIT No. is the header unit address.
- Only the fan of the selected indoor unit starts running.

3 **Press the TEST button to finish. All the indoor units in the group control will be stopped.**



Procedure
1 → 2 → 3 End

• Checking all the UNIT No. using a wired remote controller

<Procedure> Perform while the unit is stopped.
You can check the indoor unit No. and position in the same refrigerant piping. Select an outdoor unit. The indoor unit No. in the same refrigerant piping appear one by one. The fan of the indoor unit starts running.

1 **Press and hold the ▼ button + TEST button for 4 seconds or longer.**
The Line 1 and CODE No. AC (Address Change) appear at first. (Select an outdoor unit.)

2 **Press UNIT LOUVER or SWING/FIX to select the line address.**

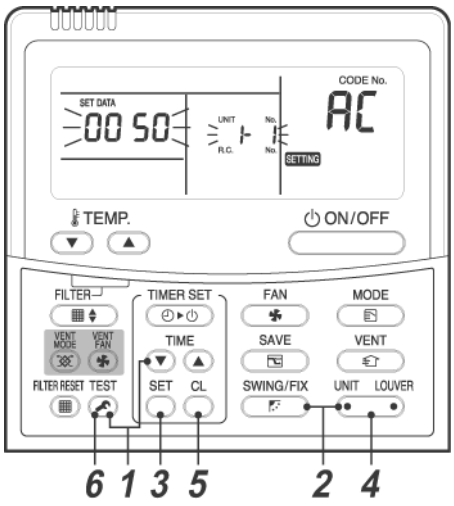
3 **Press the SET button to confirm the selected line address.**
- Displays the address of the indoor unit connected to the refrigerant pipe of the selected outdoor unit. The fan of the indoor unit starts running.

4 **Press the UNIT LOUVER button to display the indoor unit No. one by one in the same piping.**
- Only the fan of the selected indoor unit starts running.

[To select another line address]

5 **Press the CL button to return to Step *2* .**
- You can check another line address.

6 **Press the TEST button to finish.**



Procedure
1 → *2* → *3* → *4* → *5* → *6* End

Changing the indoor address using the remote controller

Changing the indoor address using the wired remote controller

- Changing the indoor address in the individual operation (a pair of wired remote controller and indoor unit) or group control
  (Available when the address has already been set)

<Procedure> Perform while the unit is stopped.

1 **Press and hold the SET button + CL button + TEST button for 4 seconds or longer.**
(The first displayed UNIT No. is the header unit address if in the group control.)

2 **Press the UNIT LOUVER button to select an indoor unit No. if in the group control.**
(The fan of the selected indoor unit starts running.)

3 **Use the TEMP. button to set CODE No. to 13.**

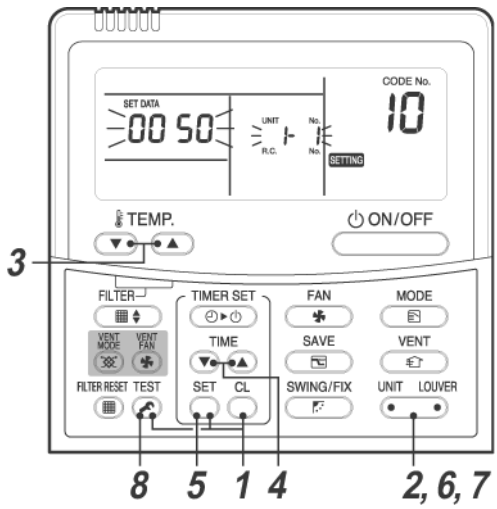
4 **Use the TIME button to change the displayed data.**

5 **Press the SET button.**

6 **Press the UNIT LOUVER button to select an indoor unit No. to change next. Repeat *4 – 6* to change the indoor unit address without duplicating it.**

7 **Press the UNIT LOUVER button to confirm the change.**

8 **Press the TEST button to finish.**



Procedure

1 → ***2*** → ***3*** → ***4*** → ***5*** → ***6*** → ***7*** → ***8*** End

- Checking all the indoor unit addresses using a wired remote controller
  (Available when the address has already been set)

<Content>
You can change the indoor unit addresses in the same refrigerant piping using a wired remote controller
- Enter the address check / change mode to change the address.

<Procedure> Perform while the unit is stopped.

1 **Press and hold the ▼ button + TEST button for 4 seconds or longer.**
The Line 1 and CODE No. AC (Address Change) appear at first.

2 **Press UNIT LOUVER or SWING/FIX to select the line address.**

3 **Press the SET button.**
- Displays the address of the indoor unit connected to the refrigerant pipe of the selected outdoor unit. The fan of the indoor unit starts running.
  The current indoor address appears in SET DATA.
  (The line address does not appear.)

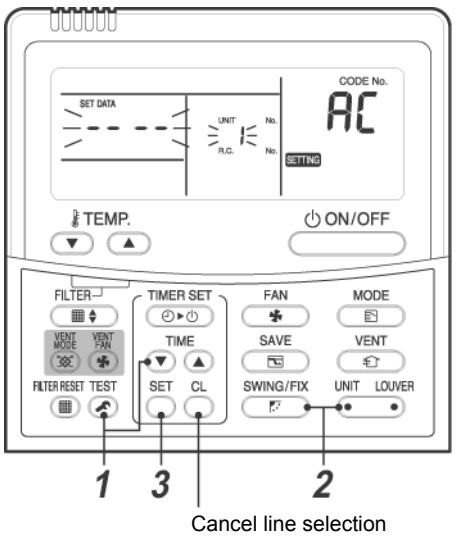
4 **Use the TIME ▼ ▲ button to change the indoor address displayed in SET DATA.**
Change it to a new address.

5 **Press the SET button to confirm.**

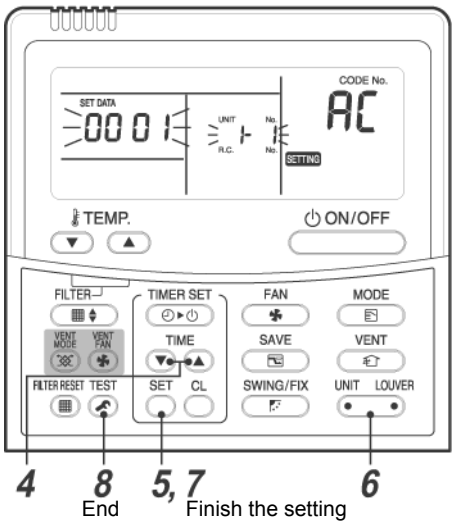
6 **Press the UNIT LOUVER button to display the indoor unit No. one by one in the same piping.**
- Only the fan of the selected indoor unit starts running.
  Repeat ***4*** – ***6*** to change all indoor unit addresses without duplicating them.

7 **Press the SET button. (All the indicators light up on the LCD.)**

8 **Press the TEST button to finish.**



If no UNIT No. appears, there is no outdoor unit in the line.
Press the CL button, and then repeat step ***2*** to select a line.



Procedure
1 → ***2*** → ***3*** → ***4*** → ***5*** → ***6*** → ***7*** → ***8*** End

Error clearing function

How to clear the error using the wired remote controller

▼Clearing an error of the outdoor unit

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

Use the service monitoring function of the remote controller.

<Procedure>

1 **Press and hold the CL button + TEST button for 4 seconds or longer to enter the service monitoring mode.**

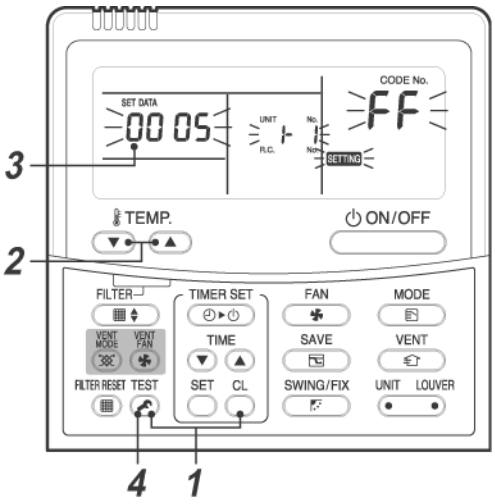
2 **Press the TEMP. button to set CODE No. to "FF".**

3 **The display in A of the following figure counts down as follows at 5-second intervals: "0005" → "0004" → "0003" → "0002" → "0001" → "0000".**

The error is cleared when "0000" appears.

*However, the display counts down from "0005" again.

4 **Press the TEST button to return the display to normal.**



Procedure

1 → ***2*** → ***3*** → ***4*** Return the display to normal.

▼Clearing an error of the indoor unit

Press the ON/OFF button on the remote controller.

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

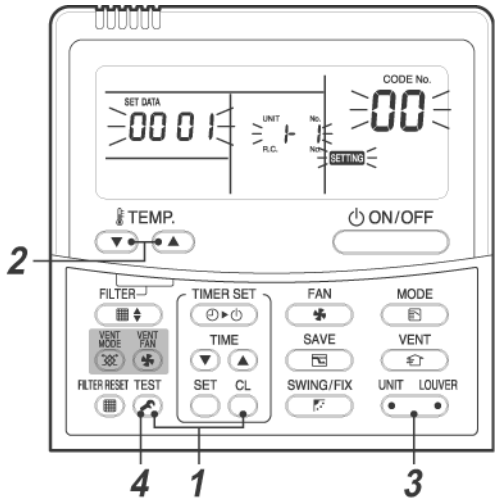
Monitoring function of wired remote controller

The following monitoring function is available if the remote controller of NRC-01HE or RBC-AMT32E is used.

Display

<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.



Procedure

1 → *2* → *3* → *4* Return the display to normal.

<Procedure>

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

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

3 **Press the UNIT LOUVER 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 **Press the TEST button to return the display to normal.**

	CODE No.	Data	Format	Unit	Remote controller display example
Indoor unit data	00	Room temperature (in control) (*1)	x 1	°C	[0024] = 24 °C
	01	Room temperature (Remote controller)	x 1	°C	
	02	Return Air Temperature (TRA)	x 1	°C	
	03	Coil Temperature (TCJ)	x 1	°C	
	04	Coil Temperature (TC2)	x 1	°C	
	05	Coil Temperature (TC1)	x 1	°C	
	06	Discharge temperature (TFA)	x 1	°C	
	08	PMV	x 1 / 10	pls	[0050] = 500 pls
	F3	Filter sign time	x 1	h	[2500] = 2500 h
	F9	Air Suction Temperature of direct expansion coil (TSA)	x 1	°C	[0024] = 24 °C
	FA	Outdoor Air Temperature (TOA)	x 1	°C	
System data	0A	Number of connected indoor units	x 1	–	[0048] = 48
	0B	Total horse power of connected indoor units	x 10	HP	[0415] = 41.5 HP
	0C	Number of connected outdoor units	x 1	–	[0004] = 4
	0D	Total horse power of outdoor units	x 10	HP	[0420] = 42 HP

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

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

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

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

LED display of circuit board

(1) D501 (Red)
- Lights up when the power is turned on (Microcomputer works)
- Blinks at 1-second intervals (0.5-second): No EEPROM, or writing error
- Blinks at 10-second intervals (5-second): During DISP mode
- Blinks at 2-second intervals (1-second): Function change being set (EEPROM)

(2) D403 (Red)
- Lights up (on hardware) when the power is supplied to the remote controller

(3) D503 (Yellow): Indoor / Outdoor central control
- Lights up for the first half 5 seconds while communicating with a central control device
- Blinks for the second half 5 seconds at 0.2-second intervals (0.1-second) while communicating with the outdoor unit

(4) D504 (Green): Remote controller communication
- The group header unit lights up for the first half 5 seconds while communicating with the remote controller
- Blinks for the second half 5 seconds at 0.2-second intervals (0.1-second) during communication between group indoor header and follower

9 Troubleshooting

9-1. Failure diagnosis

(1) Before diagnosing failure

(a) Model

All models of Modular Multi Type (SMMS-i)

All models of Air to Air Heat Exchanger with DX Coil Unit (MMD-VNK✻✻✻, MMD-VN✻✻✻)

(b) Necessary tools / measuring instruments

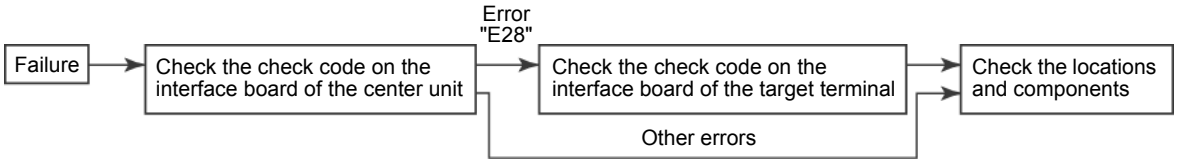
- Phillips-head driver, flat-head driver, spanner, pliers, nipper, thumbtack for reset switch, etc.
- Tester, thermometer, pressure gauge, etc.

(c) Check the following before diagnosing. (The following phenomena are not malfunctions.)

No.	Symptom	Check
1	The compressor does not run.	• During 3-minute delay (within 3 minutes after the compressor is turned off)? • Is the thermo off? • During fan or timer operation? • During initial communication of the system? • In Bypass mode?
2	The indoor fan does not run.	• Is the indoor / outdoor temperature out of range? • During forced fan OFF control?
3	The outdoor fan does not run, or the air speed changes.	• During COOL low temperature operation control? • During defrosting?
4	The indoor fan does not stop running.	During overheat elimination control when heating is stopped?
5	The ON / OFF button on the remote control does not work.	During external remote control?

(2) Procedure

If a malfunction has occurred, follow the procedure below:



NOTE

If the malfunction has been caused by the power failure other than the following check items or micro controller malfunction due to noises, the diagnosis may be wrong. If there is a noise source, shield the remote controller wires and signal wires.

9-2. How to check for errors

The remote controller (local remote controller or central control) is equipped with an LCD that displays the operation status. If an error has occurred, see the following tables to check the error of the Air to Air Heat Exchanger with DX Coil Unit using the failure diagnosis function.

The following tables show lists of the check codes indicated by each device. See the following tables for how to check depending on the location.

- To check using the indoor remote controller or TCC-LINK central controller…See “Local remote controller & TCC-LINK central controller” in the following table.
- To check from the outdoor unit...See “7-segment display of outdoor unit” in the following table.

Check code list (Indoor)

(Air to Air Heat Exchanger with DX Coil Unit)

Check code			Typical cause of error	Description
Local remote controller & TCC-LINK central controller	7-segment display of outdoor unit			
		Sub code		
E03	–	–	Indoor unit - remote controller regular communication error	No data is received from the remote controller or network adapter. (Also no central control communication)
E04	–	–	Indoor unit - outdoor unit regular communication error	No data is received from the outdoor unit.
E08	E08	Duplicate indoor unit No.	Duplicate indoor addresses	The same address was detected.
E10	–	–	Indoor MCU communication error	There is a communication error between the main and motor micro controller MCU.
E18	–	–	Header indoor unit - Follower indoor unit regular communication error	Regular communication is not possible between the header and follower indoor units.
F01	–	–	Indoor heat exchange temperature sensor (TCJ) error	Open-circuit or short-circuit of the heat exchange temperature sensor (TCJ) was detected.
F02	–	–	Indoor heat exchange temperature sensor (TC2) error	Open-circuit or short-circuit of the heat exchange temperature sensor (TC2) was detected.
F03	–	–	Indoor heat exchange temperature sensor (TC1) error	Open-circuit or short-circuit of the heat exchange temperature sensor (TC1) was detected.
F10	–	–	Air temperature sensor (TSA) error	Open-circuit or short-circuit of the air temperature sensor (TSA) was detected.
F11	–	–	Discharge temperature sensor (TFA) error	Open-circuit or short-circuit of the discharge temperature sensor (TFA) was detected.
F29	–	–	Indoor unit or other P.C. board error	EEPROM error (Another error may have been detected)
L02	–	–	Outdoor unit model mismatch error	The outdoor unit model is not supported.
L03	–	–	Duplicate indoor group header unit settings	There are multiple header units in the group.
L07	–	–	Group line in an individual indoor unit	There are one or more group-connected indoor units.
L08	L08	–	Indoor group address not set	The indoor address group has not been set. (May also be detected on the outdoor unit)
L09	–	–	Indoor capacity not set	The indoor capacity has not been set.
L20	–	–	Duplicate central control addresses	Central control addresses are duplicate.
L30	L30	Detected indoor unit No.	External error input into indoor unit (Interlock)	Stopped abnormally due to external error (CN80) input.
F17	–	–	Outdoor air temperature sensor (TOA) error	Open-circuit or short-circuit of the outdoor air temperature sensor (TOA) was detected.
F18	–	–	Return air temperature sensor (TRA) error	Open-circuit or short-circuit of the return air temperature sensor (TRA) was detected.
P01	–	–	Indoor AC fan error	The indoor AC fan error was detected. (Fan motor thermal relay)
P10	P10	Detected indoor unit No.	Indoor overflow detected	The float switch has worked.
P12	–	–	Indoor DC fan error	The indoor DC fan error (overcurrent, lock, etc.) was detected
P31	–	–	Other indoor unit errors	The group follower unit cannot run due to E03 / L03 / L07 / L08 error of the header unit.

(Local remote controller)

Check code			Typical cause of error	Description
Local remote controller	7-segment display of outdoor unit			
		Sub code		
E01	–	–	No header remote controller, Remote controller communication (reception) error	No signal can be received from the indoor unit. The header remote controller has not been set (including double remote controllers).
E02	–	–	Remote controller communication (transmission) error	No signal can be sent to the indoor unit.
E09	–	–	Duplicate header remote controllers	Two remote controllers are set as header in the double-remote controller control. (The header indoor unit stops signaling an error, and the follower indoor units continue running.)

(Central control device)

Check code			Typical cause of error	Description
TCC-LINK central controller	7-segment display of outdoor unit			
		Sub code		
C05	–	–	Central control communication (transmission) error	No central control signal can be sent. There are multiple central devices. (AI-NET)
C06	–	–	Central control communication (reception) error	No central control signal can be received.
–	–	–	Multiple network adapters	There are multiple network adapters on the remote controller communication wire. (AI-NET)
C12	–	–	Simultaneous alarms for general-purpose device control interface	An error occurred on a device connected to the general-purpose device control interface for TCC-LINK / AI-NET.
P30	–	–	Follower unit error	An error occurred on the follower unit in the group. ([∗∗∗] is displayed on the local remote controller)

Note: Even if the same error (e.g. communication error) has occurred, the check code may differ depending on the device. If the error was detected by the local remote controller or central control device, the error does not always affect the operations of the Air to Air Heat Exchanger with DX Coil Unit.

Check code list (Outdoor)

(Example: Detected on the SMMS-i standard & thermal outdoor interface)

<table>
<tr><th colspan="2">Check code</th><th rowspan="3">Local remote controller & TCC-LINK central controller</th><th rowspan="3">Typical cause of error</th><th rowspan="3">Description</th></tr>
<tr><th colspan="2">7-segment display of outdoor unit</th></tr>
<tr><th></th><th>Sub code</th></tr>
<tr><td>E06</td><td>Number of indoor units for normal reception</td><td>E06</td><td>Number of indoor units decreasing</td><td>No communication can be established any more. (The number of connected indoor units has decreased.)</td></tr>
<tr><td>E07</td><td>–</td><td>(E04)</td><td>Central communication circuit error</td><td>No signal can be sent to the indoor unit. (No communications from outdoor unit to indoor unit)</td></tr>
<tr><td>E08</td><td>Duplicate indoor unit No.</td><td>(E08)</td><td>Duplicate indoor addresses</td><td>There are multiple indoor units with the same address. (May also be detected on the indoor unit)</td></tr>
<tr><td>E12</td><td>01: Central control
02: Communications between outdoor units</td><td>E12</td><td>Automatic address start error</td><td>The automatic indoor address operation has been performed during automatic address setting of another line.
The automatic outdoor address operation has been performed during indoor automatic address setting.</td></tr>
<tr><td>E15</td><td>–</td><td>E15</td><td>No indoor unit during automatic address</td><td>No data is received from the outdoor unit during automatic address.</td></tr>
<tr><td>E16</td><td>00: Over capacity
01 ~: Number of connected units</td><td>E16</td><td>Number of connected units / Capacity exceeded</td><td>The total capacity of indoor units has been exceeded. (Over 135 % of total capacity of outdoor unit)</td></tr>
<tr><td>E19</td><td>00: No center unit
02: Multiple center units</td><td>E19</td><td>Unusual number of center outdoor units</td><td>There are no or multiple center outdoor units in a line.</td></tr>
<tr><td>E20</td><td>01: Outdoor connections of another line
02: Indoor connections of another line</td><td>E20</td><td>Connections of another line during automatic address</td><td>An indoor unit of another line has been detected during automatic address setting.</td></tr>
<tr><td>E21</td><td>00: Number of duplicate header units
02: No header unit</td><td>E21</td><td>Unusual number of thermal header units</td><td>There are no or multiple thermal header units in a line.</td></tr>
<tr><td>E22</td><td>–</td><td>E22</td><td>Number of thermal units decreasing</td><td>No communication can be established any more. (The number of connected thermal units has decreased.)</td></tr>
<tr><td>E23</td><td>–</td><td>E23</td><td>Transmission error between outdoor units</td><td>No signal can be sent to another outdoor unit.</td></tr>
<tr><td>E25</td><td>–</td><td>E25</td><td>Duplicate terminal outdoor address settings</td><td>The manually set terminal outdoor addresses are duplicate.</td></tr>
<tr><td>E26</td><td>Outdoor address with reception error</td><td>E26</td><td>Number of connected outdoor units decreasing</td><td>No communication can be established any more. (The number of connected terminal outdoor units has decreased.)</td></tr>
<tr><td>E28</td><td>Detected outdoor unit No.</td><td>E28</td><td>Terminal outdoor error</td><td>The center outdoor unit has detected an error of the terminal outdoor unit. (Details displayed for the terminal outdoor unit)</td></tr>
<tr><td>E31</td><td>
<table>
<tr><th></th><th colspan="3">A3-IPDU</th><th>Fan IPDU</th><th></th><th colspan="3">A3-IPDU</th><th>Fan IPDU</th></tr>
<tr><th></th><th>1</th><th>2</th><th>3</th><th></th><th></th><th>1</th><th>2</th><th>3</th><th></th></tr>
<tr><td>01</td><td>O</td><td></td><td></td><td></td><td>0A</td><td></td><td>O</td><td></td><td>O</td></tr>
<tr><td>02</td><td></td><td>O</td><td></td><td></td><td>0B</td><td>O</td><td>O</td><td></td><td>O</td></tr>
<tr><td>03</td><td>O</td><td>O</td><td></td><td></td><td>0C</td><td></td><td></td><td>O</td><td>O</td></tr>
<tr><td>04</td><td></td><td></td><td>O</td><td></td><td>0D</td><td>O</td><td></td><td>O</td><td>O</td></tr>
<tr><td>05</td><td>O</td><td></td><td>O</td><td></td><td>0E</td><td></td><td>O</td><td>O</td><td>O</td></tr>
<tr><td>06</td><td></td><td>O</td><td>O</td><td></td><td>0F</td><td>O</td><td>O</td><td>O</td><td>O</td></tr>
<tr><td>07</td><td>O</td><td>O</td><td>O</td><td></td><td colspan="5">O: IPDU error</td></tr>
<tr><td>08</td><td></td><td></td><td></td><td>O</td><td colspan="5"></td></tr>
<tr><td>09</td><td>O</td><td></td><td></td><td>O</td><td colspan="5"></td></tr>
</table>
</td><td>E31</td><td>IPDU communication error</td><td>There is no communication of each IPDU (PC board) in the inverter box.</td></tr>
<tr><td>F04</td><td>–</td><td>F04</td><td>Outdoor discharge temperature sensor (TD1) error</td><td>Open-circuit or short-circuit of the outdoor discharge temperature sensor (TD1) was detected.</td></tr>
<tr><td>F05</td><td>–</td><td>F05</td><td>Outdoor discharge temperature sensor (TD2) error</td><td>Open-circuit or short-circuit of the outdoor discharge temperature sensor (TD2) was detected.</td></tr>
<tr><td>F06</td><td>01: TE1
02: TE2</td><td>F06</td><td>Outdoor heat exchange temperature sensor (TE1, TE2) error</td><td>Open-circuit or short-circuit of the heat exchange temperature sensor (TE1, TE2) was detected.</td></tr>
<tr><td>F07</td><td>–</td><td>F07</td><td>Outdoor liquid temperature sensor (TL) error</td><td>Open-circuit or short-circuit of the outdoor liquid temperature sensor (TL) was detected.</td></tr>
<tr><td>F08</td><td>–</td><td>F08</td><td>Outdoor temperature sensor (TOA) error</td><td>Open-circuit or short-circuit of the outdoor temperature sensor (TOA) was detected.</td></tr>
<tr><td>F11</td><td>–</td><td>F11</td><td></td><td></td></tr>
<tr><td>F12</td><td>–</td><td>F12</td><td>Outdoor suction temperature sensor (TS1) error</td><td>Open-circuit or short-circuit of the outdoor suction temperature sensor (TS1) was detected.</td></tr>
<tr><td>F15</td><td>–</td><td>F15</td><td>Miswiring of outdoor temperature sensor (TE1, TL) error</td><td>Miswiring of the temperature sensor (TE1, TL) was detected.</td></tr>
<tr><td>F16</td><td>–</td><td>F16</td><td>Miswiring of outdoor pressure sensor (Pd, Ps) error</td><td>Miswiring of the outdoor pressure sensor (Pd, Ps) was detected.</td></tr>
</table>

<table>
<tr><th colspan="2">Check code</th><th rowspan="3">Local remote controller & TCC-LINK central controller</th><th rowspan="3">Typical cause of error</th><th rowspan="3">Description</th></tr>
<tr><th colspan="2">7-segment display of outdoor unit</th></tr>
<tr><th></th><th>Sub code</th></tr>
<tr><td>F22</td><td>–</td><td>F22</td><td>Outdoor discharge temperature sensor (TD3) error</td><td>Open-circuit or short-circuit of the outdoor discharge temperature sensor (TD3) was detected.</td></tr>
<tr><td>F23</td><td>–</td><td>F23</td><td>Low pressure (Ps) sensor error</td><td>The output voltage of the low pressure (Ps) sensor was 0.</td></tr>
<tr><td>F24</td><td>–</td><td>F24</td><td>High pressure (Pd) sensor error</td><td>The output voltage of the low pressure (Pd) sensor was 0.
An abnormal value was detected while the compressor was stopped.</td></tr>
<tr><td>F31</td><td>–</td><td>F31</td><td>Outdoor EEPROM error</td><td>Outdoor EEPROM error (The center unit is stopped by alarm. The terminal unit continues running.)</td></tr>
<tr><td>H05</td><td>–</td><td>H05</td><td>Miswiring of outdoor discharge temperature sensor (TD1)</td><td>Miswiring, misinstallation, or removal of the outdoor discharge temperature sensor (TD1) was detected.</td></tr>
<tr><td>H15</td><td>–</td><td>H15</td><td>Miswiring of outdoor discharge temperature sensor (TD2)</td><td>Miswiring, misinstallation, or removal of the outdoor discharge temperature sensor (TD2) was detected.</td></tr>
<tr><td>H25</td><td>–</td><td>H25</td><td>Miswiring of outdoor discharge temperature sensor (TD3)</td><td>Miswiring, misinstallation, or removal of the outdoor discharge temperature sensor (TD3) was detected.</td></tr>
<tr><td>H06</td><td>–</td><td>H06</td><td>Low-pressure protection activation</td><td>The protection detection was activated by low-pressure (Ps) sensor.</td></tr>
<tr><td>H07</td><td>–</td><td>H07</td><td>Lower oil level detection protection</td><td>The protection detection was activated by oil level detection temperature sensor (TK1 – 5).</td></tr>
<tr><td>H08</td><td>01: TK1 sensor error
02: TK2 sensor error
03: TK3 sensor error
04: TK4 sensor error
05: TK5 sensor error</td><td>H08</td><td>Oil level detection temperature sensor (TK1 – 5) error</td><td>Open-circuit or short-circuit of the oil level detection temperature sensor (TK1 – 5) was detected.</td></tr>
<tr><td>H16</td><td>01: TK1 oil circuit error
02: TK2 oil circuit error
03: TK3 oil circuit error
04: TK4 oil circuit error
05: TK5 oil circuit error</td><td>H16</td><td>Oil detection circuit error</td><td>The temperature change of the oil level detection temperature sensor (TK1 – 5) was not detected after the compressor started running.</td></tr>
<tr><td>L04</td><td>–</td><td>L04</td><td>Duplicate outdoor line addresses</td><td>There are duplicate settings of the line address for outdoor units of different refrigerant piping lines.</td></tr>
<tr><td rowspan="2">L06</td><td rowspan="2">Number of prior indoor units ("L05" / "L06", individually displayed)</td><td>L05</td><td>Duplicate prior indoor (Displayed for prior indoor)</td><td>There are multiple prior indoor units. (For prior indoor unit)</td></tr>
<tr><td>L06</td><td>Duplicate prior indoor (Displayed for non-prior indoor)</td><td>There are multiple prior indoor units. (For non-prior indoor unit)</td></tr>
<tr><td>L08</td><td>–</td><td>(L08)</td><td>Indoor group address not set</td><td>There is an indoor unit without the indoor group address set. (May also be detected on the indoor unit)</td></tr>
<tr><td>L10</td><td>–</td><td>L10</td><td>Outdoor capacity not set</td><td>The outdoor capacity is not set (when the service board is replaced).</td></tr>
<tr><td>L17</td><td>–</td><td>L17</td><td>Outdoor unit model mismatch error</td><td>An old model (3 series or older) of the outdoor unit has been connected.</td></tr>
<tr><td>L18</td><td>–</td><td>L18</td><td>Cool / Heat switching unit error</td><td>A cool / heat cycling error due to mispiping, etc. was detected.</td></tr>
<tr><td>L26</td><td>Number of connected thermal units</td><td>L26</td><td>Number of connected thermal units exceeded</td><td>More than 3 thermal units have been connected.</td></tr>
<tr><td>L27</td><td>Number of connected thermal units</td><td>L27</td><td>Unusual number of connected thermal units</td><td>No thermal unit is connected.
There is a mismatch of outdoor units and thermal units.</td></tr>
<tr><td>L28</td><td>–</td><td>L28</td><td>Number of connected outdoor units exceeded</td><td>More than 4 outdoor units have been connected.</td></tr>
<tr><td>L29</td><td>
<table>
<tr><th></th><th colspan="3">A3-IPDU</th><th>Fan IPDU</th><th></th><th colspan="3">A3-IPDU</th><th>Fan IPDU</th></tr>
<tr><th></th><th>1</th><th>2</th><th>3</th><th></th><th></th><th>1</th><th>2</th><th>3</th><th></th></tr>
<tr><td>01</td><td>O</td><td></td><td></td><td></td><td>0A</td><td></td><td>O</td><td></td><td>O</td></tr>
<tr><td>02</td><td></td><td>O</td><td></td><td></td><td>0B</td><td>O</td><td>O</td><td></td><td>O</td></tr>
<tr><td>03</td><td>O</td><td>O</td><td></td><td></td><td>0C</td><td></td><td></td><td>O</td><td>O</td></tr>
<tr><td>04</td><td></td><td></td><td>O</td><td></td><td>0D</td><td>O</td><td></td><td>O</td><td>O</td></tr>
<tr><td>05</td><td>O</td><td></td><td>O</td><td></td><td>0E</td><td></td><td>O</td><td>O</td><td>O</td></tr>
<tr><td>06</td><td></td><td>O</td><td>O</td><td></td><td>0F</td><td>O</td><td>O</td><td>O</td><td>O</td></tr>
<tr><td>07</td><td>O</td><td>O</td><td>O</td><td></td><td colspan="5">O: IPDU error</td></tr>
<tr><td>08</td><td></td><td></td><td></td><td>O</td><td colspan="5"></td></tr>
<tr><td>09</td><td>O</td><td></td><td></td><td>O</td><td colspan="5"></td></tr>
</table>
</td><td>L29</td><td>Unusual number of IPDU</td><td>The number of IPDU (PC board) in the inverter box is small.</td></tr>
<tr><td>L30</td><td>Detected indoor unit No.</td><td>(L30)</td><td>External error input into indoor unit (Interlock)</td><td>There is an indoor unit in a line, which has been stopped abnormally due to external error input. (May be detected on the indoor unit)</td></tr>
<tr><td>P03</td><td>–</td><td>P03</td><td>Outdoor discharge (TD1) temperature error</td><td>The extreme high temperature was detected by outdoor discharge temperature sensor (TD1).</td></tr>
</table>

Check code		Local remote controller & TCC-LINK central controller	Typical cause of error	Description
7-segment display of outdoor unit				
	Sub code			
P05	00: Open phase detected	P05	Open phase error / Blackout error	Open phase error was detected when the power is turned on. Overvoltage / Undervoltage was detected in the inverter DC voltage.
	01: Compressor 1 02: Compressor 2 03: Compressor 3		Inverter DC voltage (Vdc) error	
P07	01: Compressor 1 02: Compressor 2 03: Compressor 3	P07	Heat sink overheat error	The extreme high temperature was detected by outdoor IGBT built-in temperature sensor (TH).
P09	Detected thermal unit No.	(P09)	Thermal unit water shortage error	A water shortage error was detected in a thermal unit in a line. (May be detected on the thermal unit)
P10	Detected indoor unit No.	(P10)	Indoor overflow detected	There is an indoor unit in a line, which has been stopped abnormally due to overflow. (May be detected on the indoor unit)
P13	–	P13	Outdoor compressor liquid compression error	The operation was regarded as liquid compression judging by refrigerant cycle status.
P15	01: TS condition 02: TD condition	P15	Gas leak detection	The temperature higher than the criteria was detected by the outdoor suction temperature sensor (TS1).
P17	–	P17	Outdoor discharge (TD2) temperature error	The extreme high temperature was detected by outdoor discharge temperature sensor (TD2).
P18	–	P18	Outdoor discharge (TD3) temperature error	The extreme high temperature was detected by outdoor discharge temperature sensor (TD3).
P19	Detected outdoor unit No.	P19	Four-way valve reverse error	A refrigerant cycling error was detected during heating.
P20	–	P20	High-pressure protection activation	High-pressure (Pd) sensor detected a value over the criteria.
P24	Detected thermal unit No.	P24	Thermal unit error (Code)	The thermal unit detected an error. (The thermal remote controller displays detailed check code in addition to the unit No.)

(Example: Detected by IPDU in the SMMS-i standard outdoor unit)

Check code		Local remote controller & TCC-LINK central controller	Typical cause of error	Description
7-segment display of outdoor unit				
	Sub-code			
F13	01: Compressor 1 02: Compressor 2 03: Compressor 3	F13	Outdoor IGBT built-in temperature sensor (TH) error	Open-circuit or short-circuit of the outdoor IGBT built-in temperature sensor (TH) was detected.
H01	01: Compressor 1 02: Compressor 2 03: Compressor 3	H01	Compressor breakdown	Overcurrent of the inverter current (Idc) detection circuit was detected.
H02	01: Compressor 1 02: Compressor 2 03: Compressor 3	H02	Compressor error (Lock)	Compressor lock was detected
H03	01: Compressor 1 02: Compressor 2 03: Compressor 3	H03	Current detection circuit error	Current error was detected while the compressor was stopped.
P04	01: Compressor 1 02: Compressor 2 03: Compressor 3	P04	High-pressure SW activation	High-pressure SW was activated
P07	01: Compressor 1 02: Compressor 2 03: Compressor 3	P07	Heat sink overheat error	The extreme high temperature was detected by outdoor IGBT built-in temperature sensor (TH).
P22	0∗: IGBT circuit 1∗: Position detection circuit error 3∗: Motor lock error 4∗: Motor current detection C∗: TH sensor error D∗: TH sensor error E∗: Inverter DC voltage error (Outdoor fan) Note: 0 – F appears in "∗", above. Ignore it.	P22	Outdoor fan IPDU error	Outdoor fan IPDU error detected an error.
P26	01: Compressor 1 02: Compressor 2 03: Compressor 3	P26	G-Tr (IGBT) short circuit protection error	The short circuit protection (instant overcurrent) worked for the compressor motor drive circuit element.
P29	01: Compressor 1 02: Compressor 2 03: Compressor 3	P29	Compressor position detection circuit error	Position detection error of the compressor motor was detected.

Note: The above check codes are only examples, and differ depending on the outdoor unit combination (Cool / Heat flex, etc.). For details, refer to the service guide of the target outdoor unit.

9-3. Troubleshooting

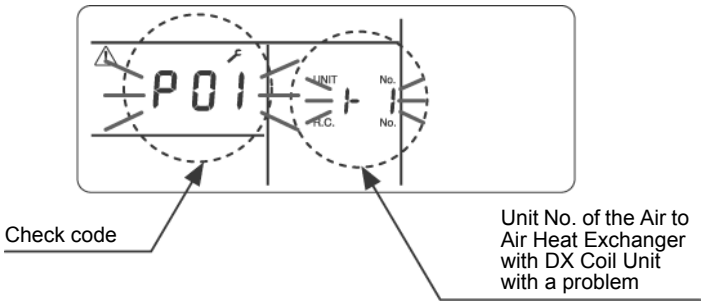
Main remote controller (NRC-01HE)

(1) Checking

When an error occurred in the Air to Air Heat Exchanger with DX Coil Unit, the check code and the unit No. of Air to Air Heat Exchanger with DX Coil Unit appear on the display part of the remote controller.

The check code is only displayed during the operation.

If the display has disappeared, follow “Checking the error history” below to check.



(2) Checking the error history

When an error occurred in the Air to Air Heat Exchanger with DX Coil Unit, the error history can be checked in the following procedure. (Up to 4 errors are stored.)

The error history can be checked even while the unit is running or stopped.

<Procedure> Perform while the unit is stopped.

1 **Press and hold the TEST button + SET button for 4 seconds or longer to enter the service check mode.**

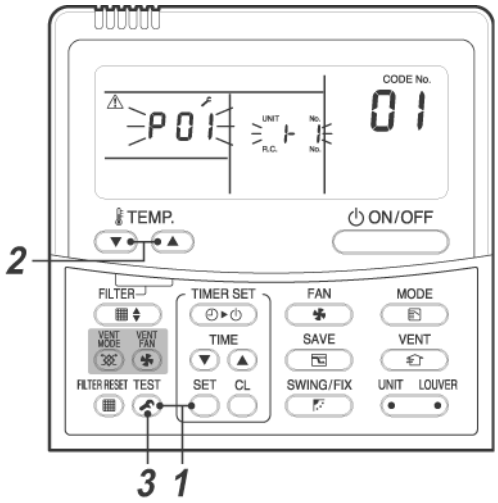
The service check lights up. The CODE No. "01" and latest alarm appear. The alarmed UNIT No. and its content appear.

2 **To monitor other error history, press the TEMP. buttons to change the error history No. (CODE No.).**

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

Note: Up to 4 errors are stored.

3 **Press the TEST button to return the display to normal.**



Procedure

1 → ***2*** → ***3*** Return the display to normal.

REQUIREMENT

Do not press the CL button as it will erase the entire error history of the indoor unit.

How to read the code display

<7-segment display>

<Actual character>

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

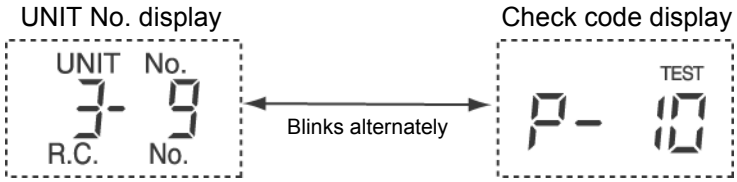
TCC-LINK central control remote controller (TCB-SC642TLE2)

(1) Checking

When an error occurred in the Air to Air Heat Exchanger with DX Coil Unit, the check code and the unit No. of Air to Air Heat Exchanger with DX Coil Unit appear on the display part of the remote controller.

The check code is only displayed during the operation.

If the display has disappeared, follow “Checking the error history” below to check.



(2) Checking the error history

When an error occurred in the Air to Air Heat Exchanger with DX Coil Unit, the error history can be checked in the following procedure. (Up to 4 errors are stored.)

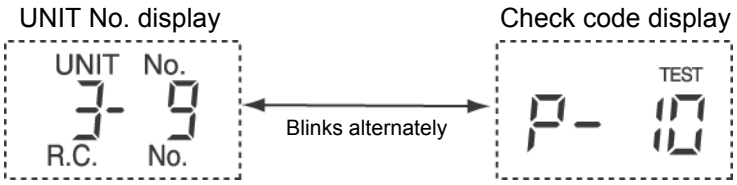
The error history can be checked even while the unit is running or stopped.

1 **Press and hold the TEST button + SET button for 4 seconds or longer.**

2 **The service check lights up, and CODE No. “01” is displayed.**

3 **If there is an error history when a group number is selected (blinking), the unit No. and the latest error history information are displayed alternately.**

*The temperature cannot be adjusted.



4 **To check other error history items, press the TEMP. button to select another check CODE No. (01 to 04).**

5 **To check error history items of other groups, press "ZONE" and "GROUP" ◁▷ to select a group No.**

Do not press the CL button as it will erase the entire error history of the selected group.

6 **To finish the service check, press the TEST button.**

9-4. Check codes displayed on the remote controller and SMMS-i outdoor unit (I/F 7-segment display) and locations to be checked

For other outdoor units, refer to the corresponding service manuals.

Check code			Location of detection	Check code name	System status	Error detection conditions	Items to check (locations)
Local remote controller	7-segment display of outdoor unit						
	Check code	Sub code					
E01	–	–	Remote controller	Indoor unit - remote controller communication error (Detected on the remote controller)	Only the target unit stopped	Communication between indoor PC board and remote controller is disrupted.	• Check remote controller inter-unit tie cable (A / B). • Check for a broken wire or bad connector contact. • Check indoor power supply. • Check the indoor PC board error. • Check remote controller address settings (when two remote controllers are in use). • Check remote controller board.
E02	–	–	Remote controller	Remote control transmission error	Only the target unit stopped	No signal can be sent from the remote controller to the indoor unit.	Check internal transmission circuit of remote controller. ... Replace the remote controller.
E03	–	–	Indoor	Indoor unit - remote controller communication error (Detected on the indoor unit)	Only the target unit stopped	No data is received from the remote controller (including wireless) or communication adapter.	Check remote controller and network adapter wiring.
E04	–	–	Indoor	Central communication circuit error (Detected on the indoor unit)	Only the target unit stopped	The indoor unit does not receive signals from the outdoor unit.	• Check the order of central power-on. • Check indoor address settings. • Check indoor / outdoor wiring. • Check outdoor terminal resistance settings [SW30 / Bit 2].
E06	E06	Number of indoor units for normal reception	I/F	Number of indoor units decreasing	All stopped	Signals are not returned for a given time from the indoor unit.	• Check indoor unit power. (Whether powered on) • Check the connection of the communication line between indoor and outdoor. • Check the connector connection for indoor PC board communications. • Check the connector connection for outdoor PC board communications. • Check the indoor PC board error. • Check the outdoor PC board (I/F) error.
–	E07	–	I/F	Central communication circuit error (Detected on the outdoor unit)	All stopped	No signal can be sent from the outdoor unit to the indoor unit for 30 seconds.	• Check outdoor terminal resistance settings [SW30 / Bit 2]. • Check the connection of the communication line between indoor and outdoor.
E08	E08	Duplicate indoor addresses	Indoor I/F	Duplicate indoor addresses	All stopped	More than one indoor unit are assigned to the same address.	• Check indoor addresses. • Check for any change made to remote controller connection (group / individual) from indoor address setting.
E09	–	–	Remote controller	Duplicate header remote controllers	Only the target unit stopped	Two remote controllers (including wireless) are set as header in the double-remote controller control. (The header indoor unit stops signaling an error, and the follower indoor units continue running.)	• Check remote controller settings. • Check remote controller board.
E10	–	–	Indoor	Indoor MCU communication error	Only the target unit stopped	No communication can be established after power-on or during communication.	Check the indoor PC board error.

Check code			Location of detection	Check code name	System status	Error detection conditions	Items to check (locations)
Local remote controller	7-segment display of outdoor unit						
	Check code	Sub code					
E12	E12	01: Central control 02: Communications between outdoor units	I/F	Automatic address start error	All stopped	• The automatic indoor address start setting has been configured during automatic address setting of another refrigerant line device. • The automatic outdoor address start setting has been configured during indoor automatic address setting.	Set the address again after disconnecting communications with another refrigerant line.
E15	E15	–	I/F	No indoor unit during automatic address	All stopped	The indoor unit cannot be detected when the automatic indoor address start setting is configured.	• Check the connection of the communication line between indoor and outdoor. • Check the indoor power line error. • Check the peripheral noise. • Check the blackout. • Check the indoor PC board error.
E16	E16	00: Over capacity 01 ~: Number of connected units	I/F	Number of connected units / Capacity exceeded	All stopped	• The total capacity of the indoor unit has exceeded 135 % of the total capacity of the outdoor unit. **Note:** If this code appears after configuring the backup setting for outdoor unit failure, configure the setting for "Over capacity" not detected". <"Over capacity" not detected> Turn on [SW09 / Bit 2] on the center outdoor I/F board. • More than 48 indoor units have been connected.	• Check capacity of indoor unit connection. • Check capacity of indoor unit horse power. • Check outdoor unit horse power setting. • Check number of connected indoor units. • Check the outdoor PC board (I/F) error.
E18	–	–	Indoor	Indoor header - follower communication error	Only the target unit stopped	Regular communication is not possible between the header and follower indoor units.	• Check remote controller wiring. • Check indoor power wiring. • Check the indoor PC board.
E19	E19	00: No center unit 02: Multiple center units	I/F	Unusual number of center outdoor units	All stopped	• There are multiple center outdoor units in a line. • There are no center outdoor units in a line.	The center outdoor unit is connected to the indoor - outdoor wiring (U1, U2). • Check the connection of the communication line between indoor and outdoor. • Check the outdoor PC board (I/F) error.
E20	E20	01: Outdoor connections of another line 02: Indoor connections of another line	I/F	Connections of another line during automatic address	All stopped	Another line device is connected when the automatic indoor address start setting is configured.	Perform the automatic address setting procedure of "Address settings" to cut the line wires.
E23	E23	–	I/F	Transmission error between outdoor units	All stopped	No signal can be sent from another outdoor unit for 30 seconds or longer.	• Check outdoor unit power. (Whether powered on) • Check wire connection between outdoor units. • Check the connector connection for outdoor PC board communications. • Check the outdoor PC board (I/F) error. • Check terminal resistance settings of communications between outdoor units.
E25	E25	–	I/F	Duplicate terminal outdoor address settings	All stopped	More than one outdoor unit are assigned to the same outdoor address manual setting.	**Note:** Do not set the outdoor address manually.
E26	E26	Outdoor address with reception error	I/F	Number of connected outdoor units decreasing	All stopped	Signals are not returned for a given time from the outdoor unit.	• While setting the outdoor backup. • Check outdoor unit power. (Whether powered on) • Check wire connection between outdoor units. • Check the connector connection for outdoor PC board communications. • Check the outdoor PC board (I/F) error.

Check code			Location of detection	Check code name	System status	Error detection conditions	Items to check (locations)
Local remote controller	7-segment display of outdoor unit						
	Check code	Sub code					
E28	E28	Detected outdoor unit No.	I/F	Terminal outdoor error	All stopped	The center outdoor unit has received an error code from the terminal outdoor unit.	• Check the check code of the terminal outdoor unit. <Useful function> If SW04 is pressed for 1 second or longer while [E28] is displayed on the 7-segment display of the center outdoor unit, the fan of the outdoor unit that has been stopped abnormally will run. If SW04 and SW05 are pressed simultaneously, the fan of the normal outdoor unit starts running. If SW05 is pressed alone, the fan stops.
E31	E31	A3-IPDU 1 2 3 / Fan IPDU 01 ○ 02 ○ 03 ○ ○ 04 ○ 05 ○ ○ 06 ○ ○ 07 ○ ○ ○ 08 ○ 09 ○ ○ 0A ○ ○ 0B ○ ○ ○ 0C ○ ○ 0D ○ ○ ○ 0E ○ ○ ○ 0F ○ ○ ○ ○ ○: IPDU error	I/F	IPDU communication error	All stopped	There is no more communication of each IPDU (PC board) in the inverter box.	• Check the connector connection for IPDU-I/F board communications. • Check the outdoor PC board (I/F, A3-IPDU, Fan IPDU) error. • Check the external noise.
F01	–	–	Indoor	Indoor TCJ sensor error	Only the target unit stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection and wiring of the TCJ sensor. • Check the TCJ sensor resistant characteristics. • Check the indoor PC board error.
F02	–	–	Indoor	Indoor TC2 sensor error	Only the target unit stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection and wiring of the TC2 sensor. • Check the TC2 sensor resistant characteristics. • Check the indoor PC board error.
F03	–	–	Indoor	Indoor TC1 sensor error	Only the target unit stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection and wiring of the TC1 sensor. • Check the TC1 sensor resistant characteristics. • Check the indoor PC board error.
F04	F04	–	I/F	TD1 sensor error	All stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection of the TD1 sensor. • Check the TD1 sensor resistant characteristics. • Check the outdoor PC board (I/F) error.
F05	F05	–	I/F	TD2 sensor error	All stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection of the TD2 sensor. • Check the TD2 sensor resistant characteristics. • Check the outdoor PC board (I/F) error.
F06	F06	01: TE1 sensor error 02: TE2 sensor error	I/F	TE1, TE2 sensor error	All stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection of the TE1, TE2 sensor. • Check the TE1, TE2 sensor resistant characteristics. • Check the outdoor PC board (I/F) error.
F07	F07	–	I/F	TL sensor error	All stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection of the TL sensor. • Check the TL sensor resistant characteristics. • Check the outdoor PC board (I/F) error.

Check code			Location of detection	Check code name	System status	Error detection conditions	Items to check (locations)
Local remote controller	7-segment display of outdoor unit						
	Check code	Sub code					
F08	F08	–	I/F	TO sensor error	All stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection of the TO sensor. • Check the TO sensor resistant characteristics. • Check the outdoor PC board (I/F) error.
F10	–	–	Indoor	Indoor TSA sensor error	Only the target unit stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection and wiring of the TSA sensor. • Check the TSA sensor resistant characteristics. • Check the indoor PC board error.
F11	–	–	Indoor	Indoor TFA sensor error	Only the target unit stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection and wiring of the TFA sensor. • Check the TFA sensor resistant characteristics. • Check the indoor PC board error.
F12	F12	–	I/F	TS1 sensor error	All stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection of the TS1 sensor. • Check the TS1 sensor resistant characteristics. • Check the outdoor PC board (I/F) error.
F13	F13	01: Compressor 1 02: Compressor 2 03: Compressor 3	IPDU	TH sensor error	All stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	IGBT built-in temperature sensor error → Replace A3-IPDU PC board.
F15	F15	–	I/F	Miswiring of outdoor temperature sensor (TE1, TL) error	All stopped	While the compressor is running in HEAT mode, the TE1 detection temperature is higher than the TL detection temperature + a given value for 3 minutes or longer.	• Check installation of the TE1 and TL sensors. • Check the TE1 and TL sensor resistant characteristics. • Check the outdoor PC board (I/F) error.
F16	F16	–	I/F	Miswiring of outdoor pressure sensor (Pd, Ps)	All stopped	The high-pressure Pd sensor and low-pressure Ps sensor are replaced. The output voltage of both sensors is 0.	• Check the connector connection of the high-pressure Pd sensor. • Check the connector connection of the low-pressure Ps sensor. • Check the pressure sensor Pd, Ps error. • Check the outdoor PC board (I/F) error. • Check the compressor compression error.
F17	F17	–	I/F	Indoor TOA sensor error	Only the target unit stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection and wiring of the TOA sensor. • Check the TOA sensor resistant characteristics. • Check the indoor PC board error.
F18	F18	–	I/F	Indoor TRA sensor error	Only the target unit stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection and wiring of the TRA sensor. • Check the TRA sensor resistant characteristics. • Check the indoor PC board error.
F22	F22	–	I/F	TD3 sensor error	All stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection of the TD3 sensor. • Check the TD3 sensor resistant characteristics. • Check the outdoor PC board (I/F) error.
F23	F23	–	I/F	Ps sensor error	All stopped	The output voltage of the Ps sensor is 0.	• Check the connector connection of the Ps and Pd sensors. • Check the connector connection of the Ps sensor. • Check the Ps sensor error. • Check the compressor compression error. • Check the four-way valve error. • Check the outdoor PC board (I/F) error. • Check the SV4 circuit error.

Check code			Location of detection	Check code name	System status	Error detection conditions	Items to check (locations)
Local remote controller	7-segment display of outdoor unit						
	Check code	Sub code					
F24	F24	–	I/F	Pd sensor error	All stopped	The output voltage of the Pd sensor is 0 (sensor open). Pd > 4.15 Mpa while the compressor is stopped	• Check the connector connection of the Pd sensor. • Check the Pd sensor error. • Check the outdoor PC board (I/F) error.
F29	–	–	Indoor	Indoor unit or other error	Only the target unit stopped	The indoor PC board does not work properly.	Check the indoor PC board error (EEPROM error).
F31	F31	–	I/F	Outdoor EEPROM error	All stopped (*1)	The outdoor PC board (I/F) does not work properly.	• Check power supply and voltage. • Check the power supply noise. • Check the outdoor PC board (I/F) error.
H01	H01	01: Compressor 1 02: Compressor 2 03: Compressor 3	IPDU	Compressor breakdown	All stopped	The inverter current detection circuit detected overcurrent and stopped operation.	• Check power supply and voltage (AC200 V ± 10 %). • Check the compressor error. • Check the cause of overload operation. • Check the outdoor PC board (A3-IPDU) error.
H02	H02	01: Compressor 1 02: Compressor 2 03: Compressor 3	IPDU	Compressor error (Lock)	All stopped	Overcurrent of the inverter compressor was detected after several seconds of activation.	• Check the compressor error. • Check power supply and voltage (AC200 V ± 10 %). • Check the compressor line wiring and open phase • Check the connector and terminal connection of the A3-IPDU board. • Check case heater conduction. (Activation error due to liquid hibernation in the compressor) • Check the outdoor PC board (A3-IPDU) error.
H03	H03	01: Compressor 1 02: Compressor 2 03: Compressor 3	IPDU	Current detection circuit error	All stopped	Overcurrent was detected while the inverter compressor is stopped.	• Check current detection circuit wiring. • Check the outdoor PC board (A3-IPDU) error.
H05	H05	–	I/F	Misconnection of outdoor discharge temperature sensor (TD1)	All stopped	The discharge temperature (TD1) does not rise while the compressor 1 is running.	• Check installation of the TD1 sensor. • Check the connector connection and wiring of the TD1 sensor. • Check the TD1 sensor resistant characteristics. • Check the outdoor PC board (I/F) error.
H06	H06	–	I/F	Low-pressure protection activation	All stopped	The low-pressure Ps is lower than 0.02 MPa.	• Open and check the service valve. (Gas, Liquid) • Check the outdoor PMV clogging (PMV1, 2). • Check the SV2 and SV4 circuit error. • Check the low-pressure Ps sensor error. • Check the indoor filter clogging. • Check the opening status of indoor PMV. • Check the refrigerant pipe clogging. • Check the outdoor fan operation (HEAT). • Check the refrigerant shortage.

*1 All stopped only for the center unit
The terminal unit continues running.

Check code			Location of detection	Check code name	System status	Error detection conditions	Items to check (locations)
Local remote controller	7-segment display of outdoor unit						
	Check code	Sub code					
H07	H07	–	I/F	Lower oil level detection protection	All stopped	The running compressor has detected low oil level for approximately 2 hours.	<Check for all outdoor units in the line> • Open and check the service valve of balance pipe. • Check the connection and installation of the TK1, TK2, TK3, TK4, and TK5 sensors. • Check the TK1, TK2, TK3, TK4, and TK5 sensor resistant characteristics. • Check gas and oil leakage in the same line. • Check the hibernating refrigerant in the compressor case. • Check the SV3A, SV3B, SV3C, SV3D, SV3E, and SV3F valve error. • Check the clogging of the oil separator oil return circuit. • Check the oil circuit clogging.
H08	H08	01: TK1 sensor error 02: TK2 sensor error 03: TK3 sensor error 04: TK4 sensor error 05: TK5 sensor error	I/F	Oil level detection temperature sensor error	All stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection of the TK1 sensor. • Check the TK1 sensor resistant characteristics. • Check the outdoor PC board (I/F) error.
					All stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection of the TK2 sensor. • Check the TK2 sensor resistant characteristics. • Check the outdoor PC board (I/F) error.
					All stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection of the TK3 sensor. • Check the TK3 sensor resistant characteristics. • Check the outdoor PC board (I/F) error.
					All stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection of the TK4 sensor. • Check the TK4 sensor resistant characteristics. • Check the outdoor PC board (I/F) error.
					All stopped	The sensor resistance is infinite or zero (open circuit or short circuit).	• Check the connector connection of the TK5 sensor. • Check the TK5 sensor resistant characteristics. • Check the outdoor PC board (I/F) error.
H15	H15	–	I/F	Misconnection of outdoor discharge temperature sensor (TD2)	All stopped	The discharge temperature (TD2) does not rise while the compressor 2 is running.	• Check installation of the TD2 sensor. • Check the connector connection and wiring of the TD2 sensor. • Check the TD2 sensor resistant characteristics. • Check the outdoor PC board (I/F) error.

Check code			Location of detection	Check code name	System status	Error detection conditions	Items to check (locations)
Local remote controller	7-segment display of outdoor unit						
	Check code	Sub code					
H16	H16	01: TK1 oil circuit error 02: TK2 oil circuit error 03: TK3 oil circuit error 04: TK4 oil circuit error 05: TK5 oil circuit error	I/F	Oil detection circuit error	All stopped	The temperature change of TK1 cannot be detected even after Compressor 1 starts operating.	• Check the TK1 sensor installation. • Check the TK1 sensor resistant characteristics. • Check the misconnection of TK1, TK2, TK3, TK4, or TK5. • Check the SV3E and SV3F valve error. • Check the oil circuit capillary clogging and non-return valve error. • Check the hibernating refrigerant in compressor.
						The temperature change of TK2 cannot be detected even after Compressor 2 starts operating.	• Check the TK2 sensor installation. • Check the TK2 sensor resistant characteristics. • Check the misconnection of TK1, TK2, TK3, TK4, or TK5. • Check the SV3E and SV3F valve error. • Check the oil circuit capillary clogging and non-return valve error. • Check the hibernating refrigerant in compressor.
						The temperature change of TK3 cannot be detected even after Compressor 3 starts operating.	• Check the TK3 sensor installation. • Check the TK3 sensor resistant characteristics. • Check the misconnection of TK1, TK2, TK3, TK4, or TK5. • Check the SV3E and SV3F valve error. • Check the oil circuit capillary clogging and non-return valve error. • Check the hibernating refrigerant in compressor.
						The temperature change of TK4 cannot be detected even after Compressor 4 starts operating.	• Check the TK4 sensor installation. • Check the TK4 sensor resistant characteristics. • Check the misconnection of TK1, TK2, TK3, TK4, or TK5. • Check the SV3E and SV3F valve error. • Check the oil circuit capillary clogging and non-return valve error. • Check the hibernating refrigerant in compressor.
						The temperature change of TK5 cannot be detected even after Compressor 5 starts operating, or the temperature difference from that of the other TK sensor changes only in the specified range for a given time or longer.	• Check the TK5 sensor installation. • Check the TK5 sensor resistant characteristics. • Check the misconnection of TK1, TK2, TK3, TK4, or TK5. • Check the SV3E and SV3F valve error. • Check the oil circuit capillary clogging and non-return valve error. • Check the hibernating refrigerant in compressor.
H25	H25	–	I/F	Misconnection of outdoor discharge temperature sensor (TD3)	All stopped	The discharge temperature (TD3) does not rise while the compressor 3 is running.	• Check installation of the TD3 sensor. • Check the connector connection and wiring of the TD3 sensor. • Check the TD3 sensor resistant characteristics. • Check the outdoor PC board (I/F) error.

<table>
<tr><th colspan="3">Check code</th><th rowspan="3">Location of detection</th><th rowspan="3">Check code name</th><th rowspan="3">System status</th><th rowspan="3">Error detection conditions</th><th rowspan="3">Items to check (locations)</th></tr>
<tr><th rowspan="2">Local remote controller</th><th colspan="2">7-segment display of outdoor unit</th></tr>
<tr><th>Check code</th><th>Sub code</th></tr>
<tr><td>L02</td><td>L02</td><td>–</td><td>Indoor</td><td>Outdoor unit model mismatch error</td><td>Only the target unit stopped</td><td>An error was found on the outdoor unit model.</td><td>• Check the model name of the outdoor unit.
• Check the miswiring of the communication line between indoor and outdoor.</td></tr>
<tr><td>L03</td><td>–</td><td>–</td><td>Indoor</td><td>Duplicate header indoor units</td><td>Only the target unit stopped</td><td>There are multiple header units in the group.</td><td>• Check indoor addresses.
• Check for any change made to remote controller connection (group / individual) from indoor address setting.</td></tr>
<tr><td>L04</td><td>L04</td><td>–</td><td>I/F</td><td>Duplicate outdoor line address settings</td><td>All stopped</td><td>There are duplicate settings of the line address for outdoor units of different refrigerant piping lines.</td><td>Check line addresses.</td></tr>
<tr><td>L05</td><td>–</td><td>–</td><td>I/F</td><td>Duplicate prior indoor (Displayed for prior indoor)</td><td>All stopped</td><td>More than one prior indoor unit are assigned to the same address.</td><td>Check the display of prior indoor units.</td></tr>
<tr><td>L06</td><td>L06</td><td>Number of prior indoor units</td><td>I/F</td><td>Duplicate prior indoor (Displayed for non-prior indoor)</td><td>All stopped</td><td>More than one prior indoor unit are assigned to the same address.</td><td>Check the display of prior indoor units and outdoor unit.</td></tr>
<tr><td>L07</td><td>–</td><td>–</td><td>Indoor</td><td>Group line in an individual indoor unit</td><td>Only the target unit stopped</td><td>There are one or more group-connected indoor units.</td><td>Check indoor addresses.</td></tr>
<tr><td>L08</td><td>L08</td><td>–</td><td>Indoor</td><td>Indoor group address not set</td><td>Only the target unit stopped</td><td>Address not set</td><td>Check indoor addresses.
Note:
This code appears the first time the power is turned on after installation.</td></tr>
<tr><td>L09</td><td>–</td><td>–</td><td>Indoor</td><td>Indoor capacity not set</td><td>Only the target unit stopped</td><td>The indoor capacity has not been set.</td><td>Set the indoor capacity (DN = 11).</td></tr>
<tr><td>L10</td><td>L10</td><td>–</td><td>I/F</td><td>Indoor capacity not set</td><td>All stopped</td><td>A jumper line for the model was not cut on the dedicated PC board for the PC board (I/F) service.</td><td>Check the model settings of the PC board for outdoor I/F service.</td></tr>
<tr><td>L20</td><td>–</td><td>–</td><td>AI-NET indoor</td><td>Duplicate central control addresses</td><td>All stopped</td><td>Duplicate central control addresses</td><td>• Check central control addresses.
• Check the network adapter PC board (AI-NET).</td></tr>
<tr><td>L28</td><td>L28</td><td>–</td><td>I/F</td><td>Number of connected outdoor units exceeded</td><td>All stopped</td><td>More than 4 outdoor units have been connected.</td><td>• Check the number of connected outdoor units. (Up to 4 units per system)
• Check the communication line between outdoor units.
• Check the outdoor PC board (I/F) error.</td></tr>
<tr><td>L29</td><td>L29</td><td>
<table>
<tr><th></th><th colspan="3">A3-IPDU</th><th>Fan IPDU</th></tr>
<tr><th></th><th>1</th><th>2</th><th>3</th><th></th></tr>
<tr><td>01</td><td>○</td><td></td><td></td><td></td></tr>
<tr><td>02</td><td></td><td>○</td><td></td><td></td></tr>
<tr><td>03</td><td>○</td><td>○</td><td></td><td></td></tr>
<tr><td>04</td><td></td><td></td><td>○</td><td></td></tr>
<tr><td>05</td><td>○</td><td></td><td>○</td><td></td></tr>
<tr><td>06</td><td></td><td>○</td><td>○</td><td></td></tr>
<tr><td>07</td><td>○</td><td>○</td><td>○</td><td></td></tr>
<tr><td>08</td><td></td><td></td><td></td><td>○</td></tr>
<tr><td>09</td><td>○</td><td></td><td></td><td>○</td></tr>
<tr><td>0A</td><td></td><td>○</td><td></td><td>○</td></tr>
<tr><td>0B</td><td>○</td><td>○</td><td></td><td>○</td></tr>
<tr><td>0C</td><td></td><td></td><td>○</td><td>○</td></tr>
<tr><td>0D</td><td>○</td><td></td><td>○</td><td>○</td></tr>
<tr><td>0E</td><td></td><td>○</td><td>○</td><td>○</td></tr>
<tr><td>0F</td><td>○</td><td>○</td><td>○</td><td>○</td></tr>
</table>
○: IPDU error</td><td>I/F</td><td>Unusual number of IPDU</td><td>All stopped</td><td>The number of IPDU detected at power-on is small.</td><td>• Check the model settings of the PC board for outdoor I/F service.
• Check the UART connector connection.
• Check the error of A3-IPDU, Fan IPDU, and I/F board.</td></tr>
</table>

Check code			Location of detection	Check code name	System status	Error detection conditions	Items to check (locations)
Local remote controller	7-segment display of outdoor unit						
	Check code	Sub code					
L30	L30	Detect indoor addresses	Indoor	External interlock for indoor unit	Only the target unit stopped	Signals are input into the external error input terminal (CN80) for one minute.	**If an external device is connected to the connector (CN80)** 1) Check the external device error. 2) Check the indoor PC board error. **If no external device is connected to the connector (CN80)** 1) Check the indoor PC board error.
–	L31	–	I/F	Expanded I/C error	Operation continues	PC board (I/F) component error	Check the outdoor PC board (I/F).
P01	–	–	Indoor	Indoor fan motor error	Only the target unit stopped		• Check the fan motor lock (AC fan). • Check wiring.
P03	P03	–	I/F	Discharge temperature TD1 error	All stopped	The discharge temperature (TD1) exceeded 115 °C.	• Open and check the outdoor service valve. (Gas, Liquid) • Check the outdoor PMV clogging (PMV1, 2, 4). • Check the TD1 sensor resistant characteristics. • Check the refrigerant shortage. • Check the four-way valve error. • Check the SV4 circuit. • Check the SV4 circuit. (SV41 / SV42 / SV43 miswiring)
P04	P04	01: Compressor 1 02: Compressor 2 03: Compressor 3	IPDU	High-pressure SW error	All stopped	High-pressure SW was activated	• Check the connector connection of the high-pressure SW. • Check the Pd pressure sensor error. • Open and check the service valve. (Gas, Liquid) • Check the outdoor fan error. • Check the outdoor fan motor error. • Check the outdoor PMV clogging (PMV1, 2). • Check the heat exchanger clogging. • Short circuit of the outdoor suction / discharge air • Check the SV2 circuit clogging. • Check the outdoor PC board (I/F) error. • Check indoor fan error (caused by low air volume). • Check the opening status of indoor PMV. • Check the miswiring of the communication line between indoor and outdoor. • Check the check valve error in the discharge area. • Check the gas balance SV4 valve circuit. • Check the SV5 valve circuit. • Check the refrigerant overcharging.
P05	P05	00:	I/F	Open phase detected, Phase sequence error	All stopped	• Open phase error was detected when the power is turned on. • Overvoltage / Undervoltage was detected in the inverter DC voltage.	Check the outdoor PC board (I/F) error.
		01: Compressor 1 02: Compressor 2 03: Compressor 3		Inverter DC voltage (Vdc) error (compressor)			
P07	P07	01: Compressor 1 02: Compressor 2 03: Compressor 3	IPDU I/F	Heat sink overheat error	All stopped	IGBT built-in temperature sensor (TH) was overheated.	• Check power supply and voltage. • Check the outdoor fan error. • Check the heat sink cooling duct clogging. • Check the installation error between IGBT and heat sink. (Screw clamp, contact error) • Check the A3-IPDU error. (Outdoor IGBT built-in temperature sensor (TH) error)

Check code			Location of detection	Check code name	System status	Error detection conditions	Items to check (locations)
Local remote controller	7-segment display of outdoor unit						
	Check code	Sub code					
P10	P10	Detect indoor addresses	Indoor	Indoor overflow error	All stopped	• The float switch has worked. • The float switch was broken, or the connector was disconnected.	• Check the float switch connector. • Check the drain pump operations. • Check the drain pump circuit. • Check the drain pipe clogging. • Check the indoor PC board error.
P13	P13	–	I/F	Outdoor compressor liquid compression error	All stopped	<Cooling> A high pressure value was detected in the stopped terminal unit while the system is performing the cooling operation. <Heating> The PMV 1 and 2 opening continues being 100p or lower while the system is performing the heating operation and the outdoor PMV is performing the SH control.	• Check the all-closing operations of the outdoor PMV (1, 2, 4). • Check the Pd and Ps sensor error. • Check the gas balance circuit (SV2) clogging. • Check the balance pipe clogging. • Check the SV3B circuit clogging. • Check the outdoor PC board (I/F) error. • Check the clogging of the oil separator oil return circuit capillary. • Check the check valve leakage in the discharge area.
P15	P15	01: TS condition	I/F	Gas leak detection (TS1 condition)	All stopped	Protective stop (performed when the intake temperature is over the judgment criterion for 10 minutes) is repeated 4 times or more. <TS error judgment criteria> Cool: 60 °C or higher Heat: 40 °C or higher	• Check the refrigerant shortage. • Open and check the outdoor service valve. (Gas, Liquid) • Check the outdoor PMV clogging (PMV1, 2). • Check the TS1 sensor resistant characteristics. • Check the four-way valve error. • Check the SV4 circuit.
		02: TD condition	I/F	Gas leak detection (TD condition)	All stopped	Protective stop (performed when the compressor is running in low frequency and the discharge temperature TD1, TD2, or TD3 is over 108 °C for 10 minutes) is repeated 4 times or more.	• Check the refrigerant shortage. • Check the outdoor PMV clogging (PMV1, 2). • Check the TD1, TD2, or TD3 sensor resistant characteristics. • Check the indoor filter clogging. • Check the pipe clogging. • Check the SV4 circuit (valve leak, coil misinstallation).
P17	P17	–	I/F	Discharge temperature TD2 error	All stopped	The discharge temperature (TD2) exceeded 115 °C.	• Open and check the outdoor service valve. (Gas, Liquid) • Check the outdoor PMV clogging (PMV1, 2, 4). • Check the TD2 sensor resistant characteristics. • Check the four-way valve error. • Check the SV4 circuit leakage. • Check the SV4 circuit. (SV41 / SV42 / SV43 miswiring)
P18	P18	–	I/F	Discharge temperature TD3 error	All stopped	The discharge temperature (TD3) exceeded 115 °C.	• Open and check the outdoor service valve. (Gas, Liquid) • Check the outdoor PMV clogging (PMV1, 2, 4). • Check the TD3 sensor resistant characteristics. • Check the four-way valve error. • Check the SV4 circuit leakage. • Check the SV4 circuit. (SV41 / SV42 / SV43 miswiring)
P19	P19	Detected outdoor unit No.	I/F	Four-way valve reverse error	All stopped	A refrigerant cycling error was detected during heating.	• Check the four-way valve error. • Check the four-way valve coil error and connector connection. • Check the TS1 and TE1 sensor resistant characteristics. • Check the Pd, Ps pressure sensor error output voltage characteristics. • Check the misconnection of the TE1, TL sensor.

Check code			Location of detection	Check code name	System status	Error detection conditions	Items to check (locations)
Local remote controller	7-segment display of outdoor unit						
	Check code	Sub code					
P20	P20	–	I/F	High-pressure protection activation	All stopped	The Pd sensor detected a value over 3.6 MPa.	• Check the Pd pressure sensor error. • Open and check the service valve. (Gas, Liquid) • Check the outdoor fan error. • Check the outdoor fan motor error. • Check the outdoor PMV clogging (PMV1, 2, 4). • Check the heat exchanger clogging. • Short circuit of the outdoor suction / discharge air • Check the SV2 circuit clogging. • Check the outdoor PC board (I/F) error. • Check indoor fan error (caused by low air volume). • Check the opening status of indoor PMV. • Check the miswiring of the communication line between indoor and outdoor. • Check the check valve error in the discharge area. • Check the gas balance SV4 valve circuit. • Check the SV5 valve circuit. • Check the refrigerant overcharging.
P22	P22	0∗: IGBT circuit 1∗: Position detection circuit error 3∗: Motor lock error 4∗: Motor current detection C∗: TH sensor temperature error D∗: TH sensor error E∗: Inverter DC voltage error (Outdoor fan) **Note:** 0 – F appears in "∗" above. Ignore it.	IPDU	Outdoor fan IPDU error	All stopped	(Sub code: 0∗) FAN IPDU overcurrent protection circuit Overcurrent was detected when the fan started running.	• Check the fan motor. • Check the error of IPDU board for fan.
					All stopped	(Sub code: 1∗) FAN IPDU position detection circuit Position detection is not performed properly.	• Check the fan motor. • Check the connector connection for fan motor. • Check the error of IPDU board for fan.
					All stopped	(Sub code: 3∗) External elements such as blowing and obstacles Position detection is not performed properly.	• Check the fan motor. • Check the error of IPDU board for fan.
					All stopped	(Sub code: 4∗) FAN IPDU overcurrent protection circuit Overcurrent was detected while the fan is running.	• Check the fan motor. • Check the connector connection for fan motor. • Check the error of IPDU board for fan.
					All stopped	(Sub code: C∗) The TH sensor temperature is over a given criterion while the fan is running.	• Check the fan motor. • Check the error of IPDU board for fan.
					All stopped	(Sub code: D∗) The sensor resistance is infinite or zero (open circuit or short circuit).	Check the error of IPDU board for fan.
					All stopped	(Sub code: E∗) FAN IPDU DC voltage protection The DC voltage is over or under a given criterion.	• Check power supply and voltage. • Check the error of IPDU board for fan. • Check the connector connection for fan motor.
P26	P26	01: Compressor 1 02: Compressor 2 03: Compressor 3	IPDU	G-TR short circuit protection error	All stopped	Instant overcurrent was detected when the compressor started running.	• Check the connector connection of the A3-IPDU board. • Check the compressor error and rare short circuit. • Check the outdoor PC board (A3-IPDU) error.
P29	P29	01: Compressor 1 02: Compressor 2 03: Compressor 3	IPDU	Compressor position detection circuit error	All stopped	Position detection is not performed properly.	• Check the wiring and connector connection. • Check the compressor and rare short circuit. • Check the A3-IPDU board error.

Check code			Location of detection	Check code name	System status	Error detection conditions	Items to check (locations)
Local remote controller	7-segment display of outdoor unit						
	Check code	Sub code					
P31	–	–	Indoor	Other indoor unit errors (Follower unit error)	Only the target unit stopped	Another indoor unit in the group is malfunctioning. [E07], [L07], [L03], or [L08] is detected.	Check the indoor PC board.

Errors detected by TCC-LINK central control device

Check code			Location of detection	Check code name	System status	Error detection conditions	Items to check (locations)
Central control equipment display	7-segment display of outdoor unit						
	Sub code						
C05	–		TCC-LINK line	Transmission errors of the TCC-LINK central control device	Operation continues	The central control device cannot send signals.	• Check central control device errors. • Check central control wiring errors. • Check terminal resistance setting.
C06	–			Reception errors of the TCC-LINK central control device	Operation continues	The central control device cannot receive signals.	• Check central control device errors. • Check central control wiring errors. • Check terminal resistance setting. • Check central control connection power source. • Check central control connection PC board errors.
C12	–		General-purpose device I/F	General-purpose control device control Interface simultaneous alarms	Operation continues	Error input was detected for general-purpose device control interface.	Check the error input
P30	Depends on the error content of the alarmed unit.		TCC-LINK line	Follower unit error	Operation continues	An error occurred on the group control follower unit. ([P30] appears only for the central control remote controller)	Check the code of the unit with the error.
	(L20 appears)			Duplicate central control addresses	Operation continues	Central control addresses are duplicate.	Check address settings.

Notes on the compressor service

When checking the inverter output, remove all the compressor wires.

Checking the inverter output

1 **Shut down the power.**

2 **Remove all the leads from the compressor.**

3 **Turn on the power, and then start cooling or heating.**
Be careful not to touch the fasten terminals of the compressor leads or other parts of the set box.

4 **Check the compressor lead output voltage on the inverter.**
If one of the following criteria is not met, replace the IPDU board:

No.	Position to check	Criteria
1	Between red and white	180 V – 260 V
2	Between white and black	180 V – 260 V
3	Between black and red	180 V – 260 V

* When reconnecting the compressor lead to the compressor terminal after checking the output, check if the fasten terminal is not loose. If it is, tighten it with pliers or the like and then connect it.

Checking the compressor coil resistance

1 **Shut down the power.**

2 **Remove the leads from the compressor.**

3 **Use the tester to check the coil resistance between the phases of each compressor and the outdoor box resistance.**
Does grounding occur?
→ There is no problem if it is 10 MΩ or higher.
Does a short circuit occur between the coils?
→ There is no problem if it is 0.1 Ω – 0.4 Ω. (Check with the digital tester.)

Checking the outdoor fan motor

1 **Shut down the power.**

2 **Remove the fan motor leads from the outdoor fan IPDU board. (CN703 – CN705)**

3 **Turn the fan manually. If it does not turn, a fan motor error (lock) has occurred. Replace the fan motor.**
If it turns, use the tester to check the coil resistance between the phases.
There is no problem if it is 1.14 – 1.70 Ω. (Check with the digital tester.)

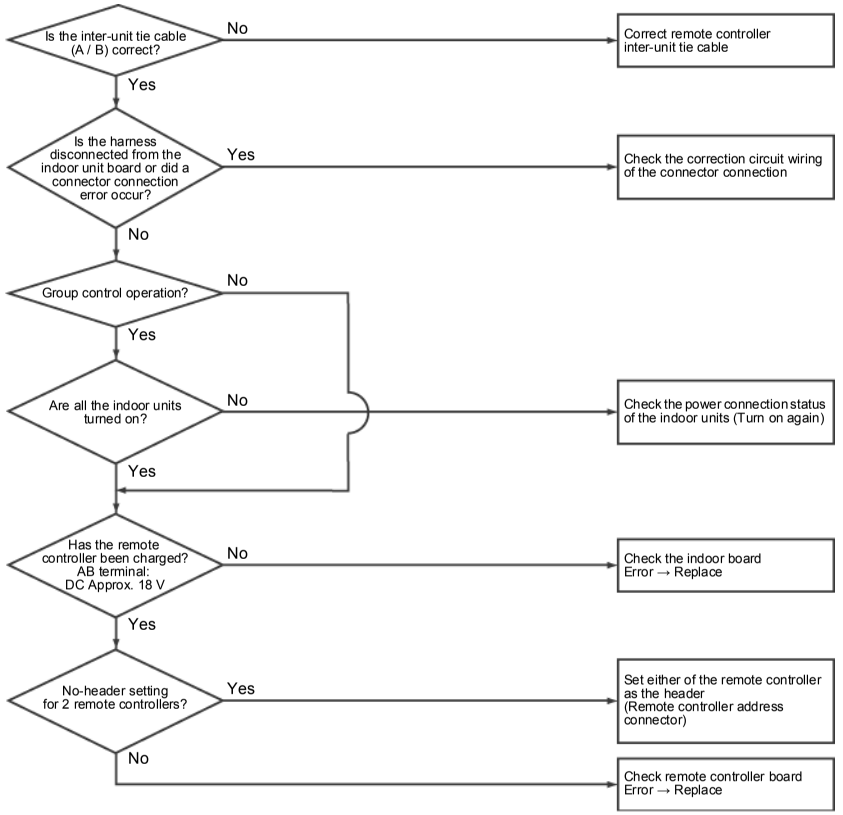
Check code	Check code name	Cause
[E02]	Remote control transmission error	No signal can be sent to the indoor unit.

* This code is not displayed on the central control device or outdoor 7-segment displayed.

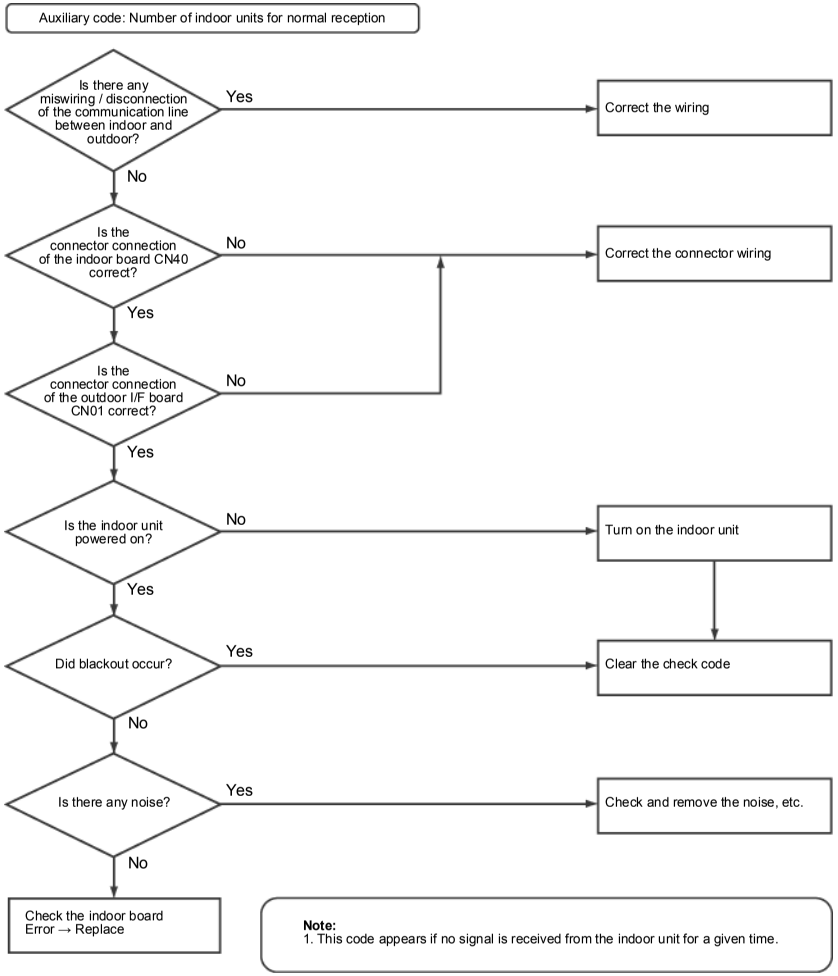
Check code	Check code name	Cause
[E03]	Indoor unit - remote controller communication error (Detected on the indoor unit)	No communications from the remote controller and network adapter wiring.

This error is detected when the indoor unit cannot receive signals from the remote controller.
Check the communication wiring of the remote controllers A / B.
This check code [E03] does not appear on the remote controller as no communication is possible.
Appears on the TCC-LINK central controller.

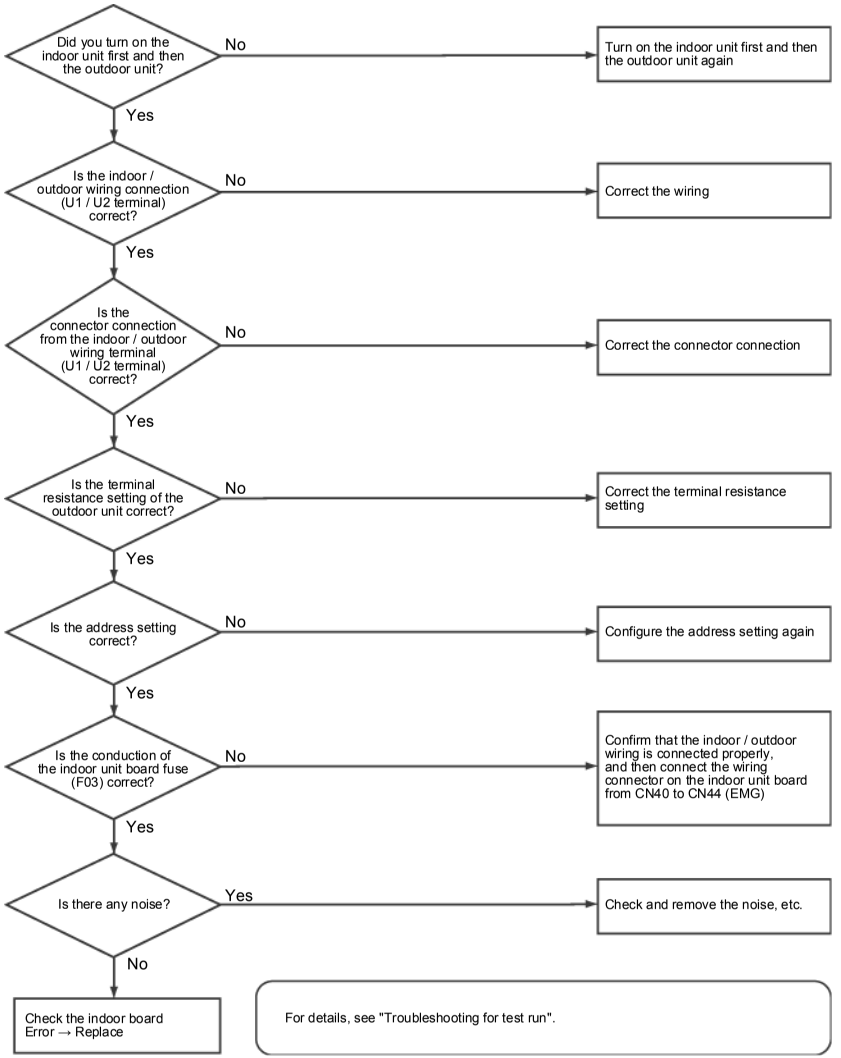
Check code	Check code name	Cause
[E01]	Indoor unit - remote controller communication error (Detected on the remote controller)	1. Remote controller inter-unit tie cable error 2. Indoor power supply error 3. Indoor PC board error 4. Remote controller address setting error 5. Remote controller board error



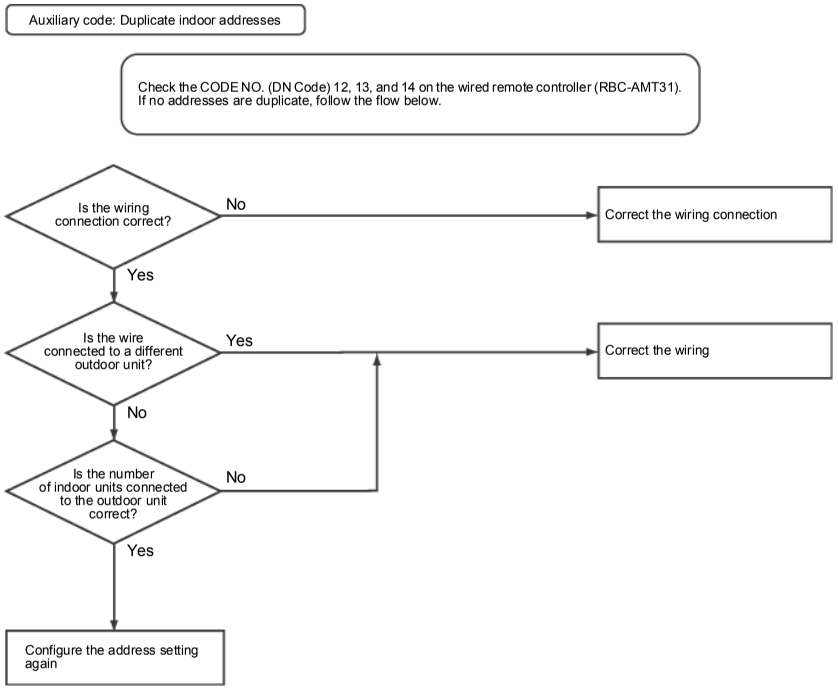
Check code	Check code name	Cause
[E06]	Number of indoor units decreasing	1. Indoor - outdoor communication wiring (U1, U2) connection error 2. Connection error of connector for indoor communications, PC board error 3. Connection error of connector for outdoor communications, I/F board error 4. Indoor unit power (Whether powered on)



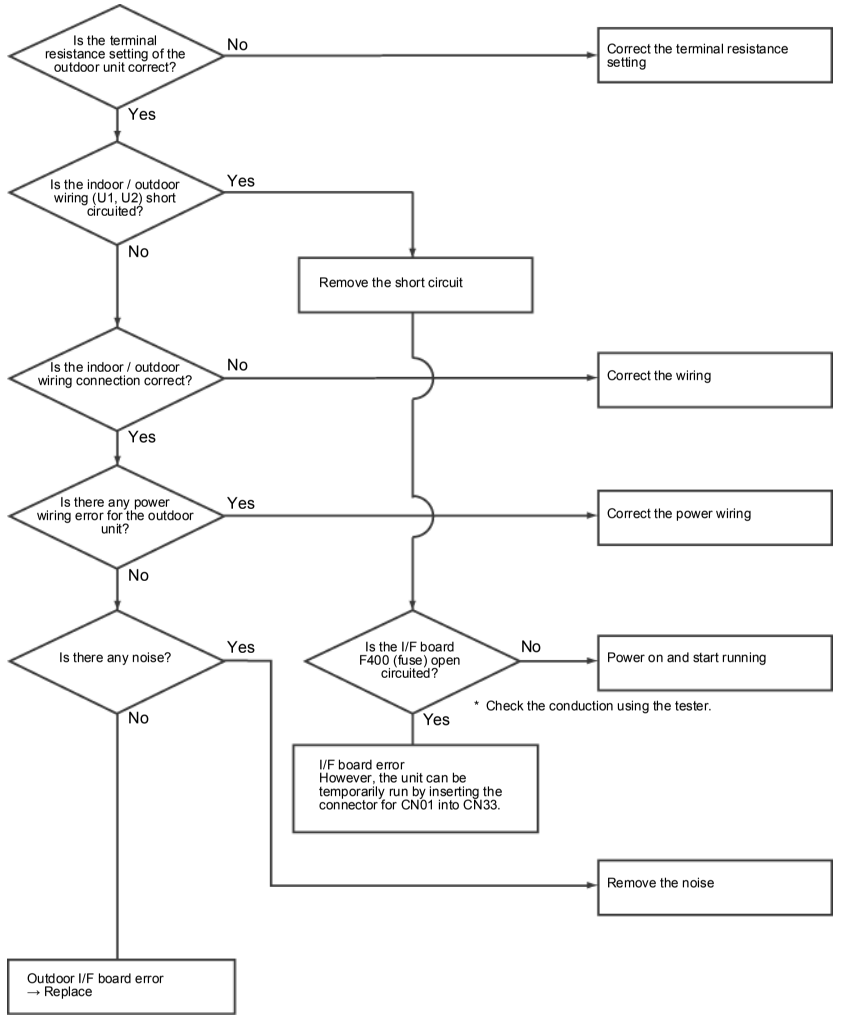
Check code	Check code name	Cause
[E04]	Central communication circuit error (Detected on the indoor unit)	1. Powered from the outdoor unit 2. Central communication wiring connection error 3. Central communication terminal resistance setting error 4. Address setting error



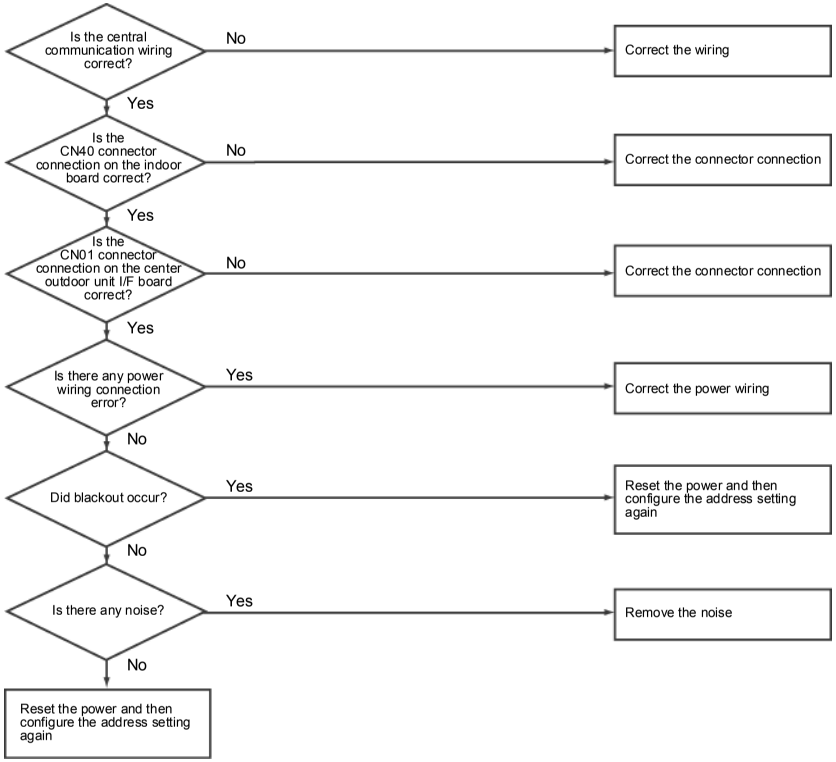
Check code	Check code name	Cause
[E08]	Duplicate indoor addresses	Duplicate indoor addresses



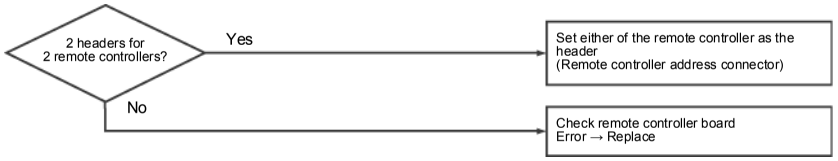
Check code	Check code name	Cause
[E07]	Central communication circuit error (Detected on the outdoor unit)	1. Central communication terminal resistance setting error 2. Central communication wiring connection error



Check code	Check code name	Cause
[E15]	No indoor unit during automatic address	1. Indoor - outdoor communication wiring connection error 2. Indoor power line error 3. Peripheral noise 4. Blackout 5. Indoor PC board error



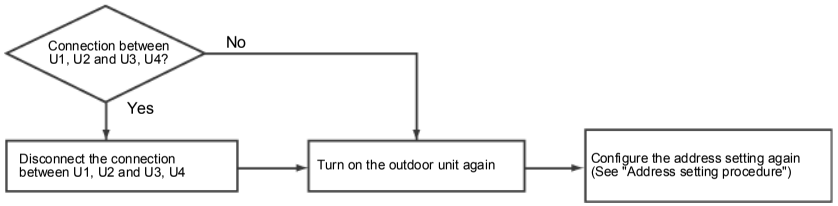
Check code	Check code name	Cause
[E09]	Duplicate header remote controllers	Duplicate header remote controllers



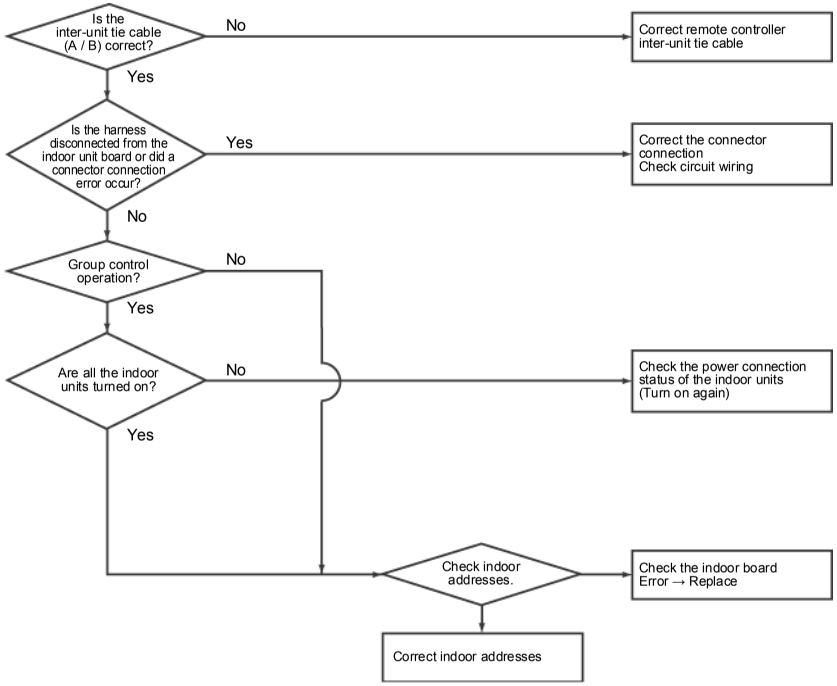
Check code	Check code name	Cause
[E10]	Indoor MCU communication error	Indoor PC board error

Check code	Check code name	Cause
[E12]	Automatic address start error	1. The automatic indoor address start setting has been configured during automatic address setting of another refrigerant line device (Auxiliary code: 01) 2. The automatic outdoor address start setting has been configured during indoor automatic address setting (Auxiliary code: 02)

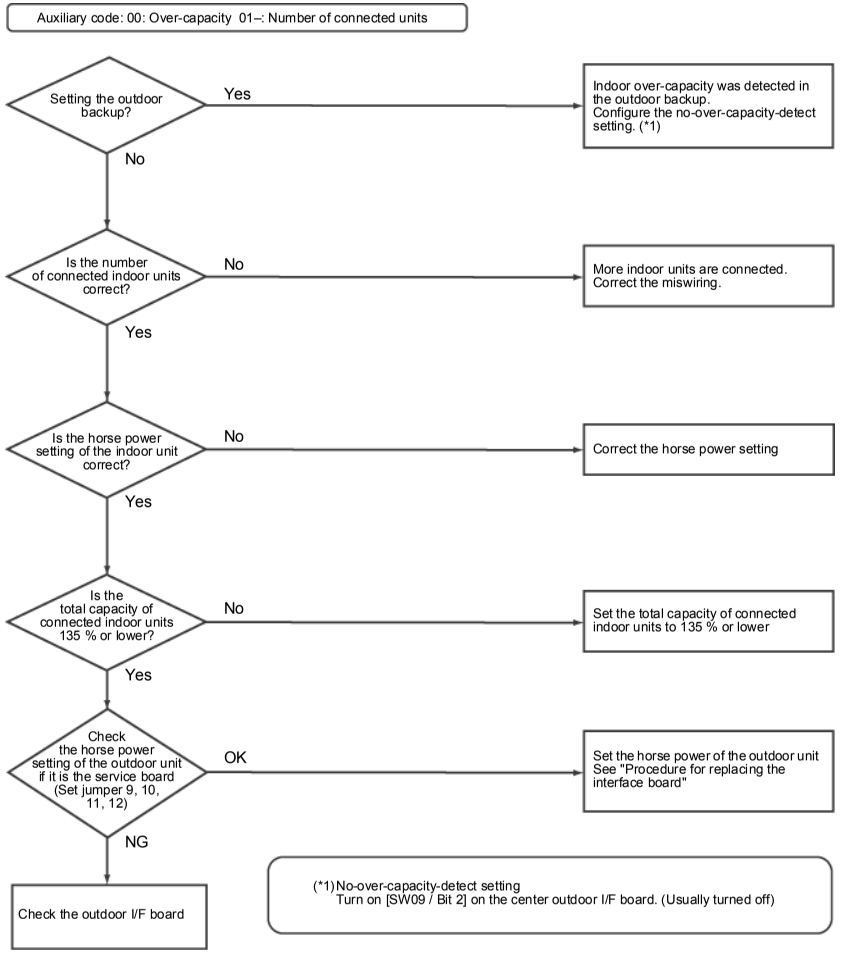
Auxiliary code: 01: Indoor / Outdoor communications 02: Communications between outdoor units



Check code	Check code name	Cause
[E18]	Indoor header - follower communication error	Regular communication is not possible between the header and follower indoor units



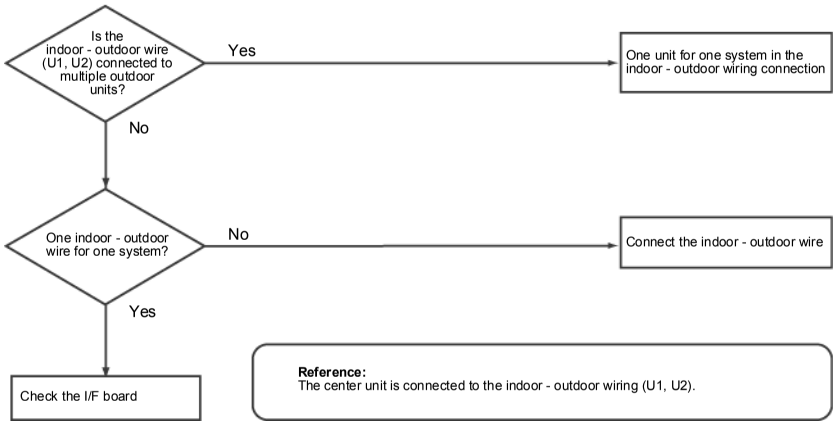
Check code	Check code name	Cause
[E16]	Number of connected units / Over-capacity	1. More than 48 indoor units have been connected. 2. Number of connected units / Capacity exceeded 3. Indoor horse power setting error



Check code	Check code name	Cause
[E23]	Transmission error between outdoor units	1. Outdoor wiring connection error 2. Connection error of connector for outdoor communications, I/F board error 3. Outdoor communication terminal resistance setting error

Check code	Check code name	Cause
[E19]	Unusual number of center outdoor units	1. Miswiring of indoor / outdoor wiring connection 2. Outdoor I/F board error

Auxiliary code: 00: No center unit 02: Two or more center units



Check code	Check code name	Cause
[E20]	Connections of another line during automatic address	Another line device is connected when the automatic indoor address start setting is configured

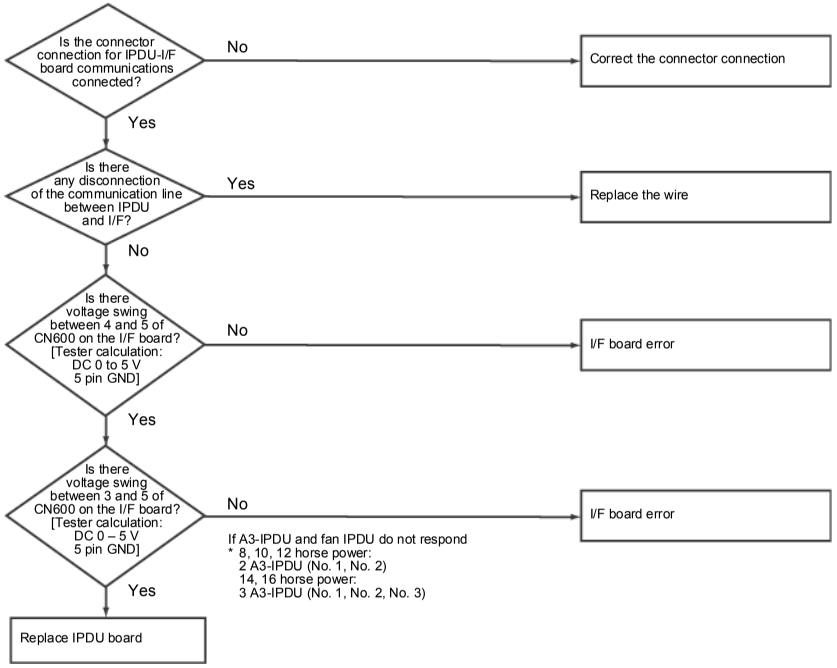
Auxiliary code: 00: Another line outdoor unit 02: Another line indoor unit

Follow the address setting procedure to cut the wire between the lines.

Check code	Check code name	Cause
[E31]	IPDU communication error	1. IPDU - I/F board communication wiring connection error 2. I/F board error 3. IPDU board error 4. External noise

Auxiliary code:

	A3-IPDU			Fan IPDU		A3-IPDU			Fan IPDU
	1	2	3			1	2	3	
01	○				0A		○		○
02		○			0B	○	○		○
03	○	○			0C			○	○
04			○		0D	○		○	○
05	○		○		0E		○	○	○
06		○	○		0F	○	○	○	○
07	○	○	○		○: IPDU error				
08				○					
09	○			○					

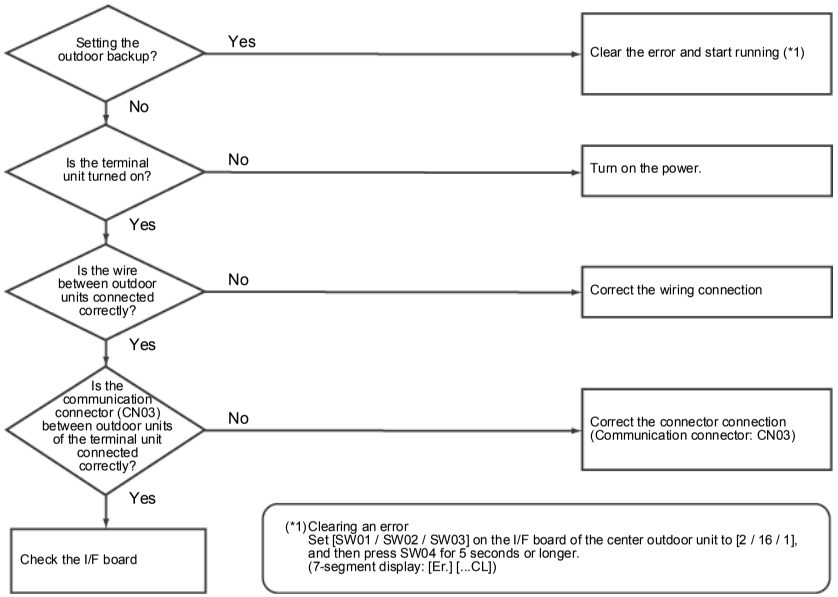


Check code	Check code name	Cause
[E25]	Duplicate terminal outdoor address settings	More than one outdoor unit are assigned to the same outdoor address manual setting

Do not set the outdoor address manually.

Check code	Check code name	Cause
[E26]	Number of connected outdoor units decreasing	1. Outdoor backup setting 2. Outdoor power supply error 3. Outdoor communication wiring connection error 4. Connection error of connector for communications 5. Outdoor I/F board error

Auxiliary code: Address of outdoor unit that cannot receive



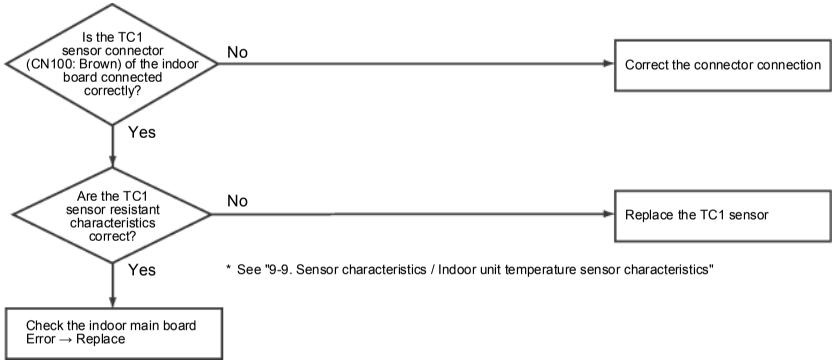
Check code	Check code name	Cause
[E28]	Terminal outdoor error	Terminal unit error

Auxiliary code: Detected outdoor unit No.

An error occurred on the terminal unit. Check the check code of the terminal unit on the 7-segment display of the terminal unit I/F board, and then follow the diagnosis procedure for each check code.

<Specifying the terminal outdoor unit where an error occurred>
If SW04 is pressed for 1 second or longer while [E28] is displayed on the 7-segment display of the center outdoor unit, the fan of the outdoor unit that has been stopped abnormally will run. If SW05 is pressed alone, the fan stops.

Check code	Check code name	Cause
[F03]	Indoor TC1 sensor error	TC1 sensor open-circuit / short-circuit



Check code	Check code name	Cause
[F04]	TD1 sensor error	TD1 sensor open-circuit / short-circuit

The TD1 sensor open-circuit / short-circuit was detected. Check the disconnection of the connector connection circuit (TD1 sensor: CN502 White), or sensor resistance value characteristics. (See "9-9. Sensor characteristics / Outdoor unit temperature sensor characteristics")
If the sensor is working properly, replace the outdoor I/F board:

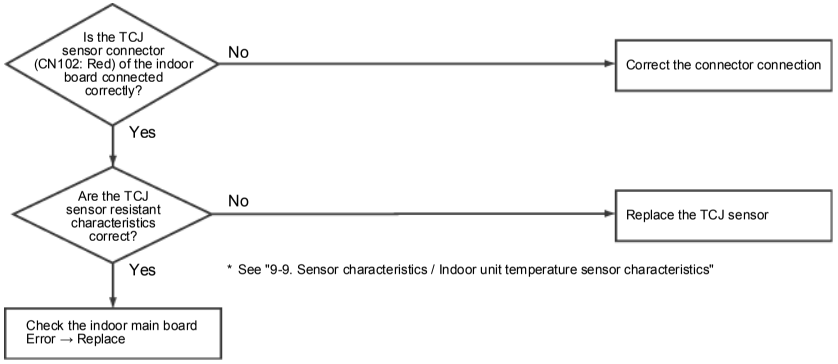
Check code	Check code name	Cause
[F05]	TD2 sensor error	TD2 sensor open-circuit / short-circuit

The TD2 sensor open-circuit / short-circuit was detected. Check the disconnection of the connector connection circuit (TD2 sensor: CN503 Pink), or sensor resistance value characteristics. (See "9-9. Sensor characteristics / Outdoor unit temperature sensor characteristics")
If the sensor is working properly, replace the outdoor I/F board:

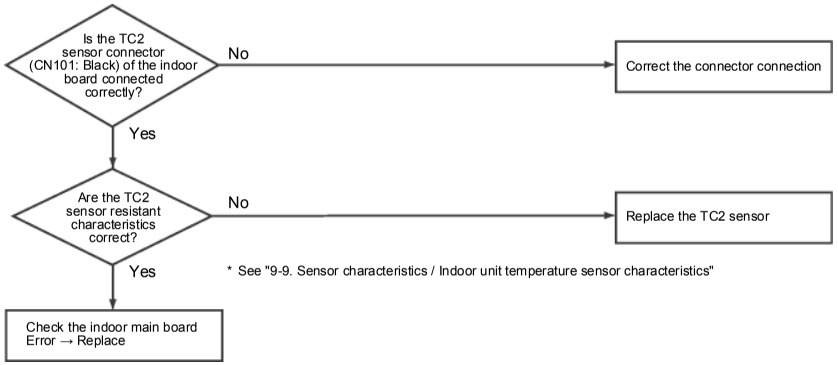
Check code	Check code name	Cause
[F06]	TE1 sensor error	TE1 sensor open-circuit / short-circuit

The TE1 sensor open-circuit / short-circuit was detected. Check the disconnection of the connector connection circuit (TE1 sensor: CN505 Green), or sensor resistance value characteristics. (See "9-9. Sensor characteristics / Outdoor unit temperature sensor characteristics")
If the sensor is working properly, replace the outdoor I/F board:

Check code	Check code name	Cause
[F01]	Indoor TCJ sensor error	TCJ sensor open-circuit / short-circuit



Check code	Check code name	Cause
[F02]	Indoor TC2 sensor error	TC2 sensor open-circuit / short-circuit

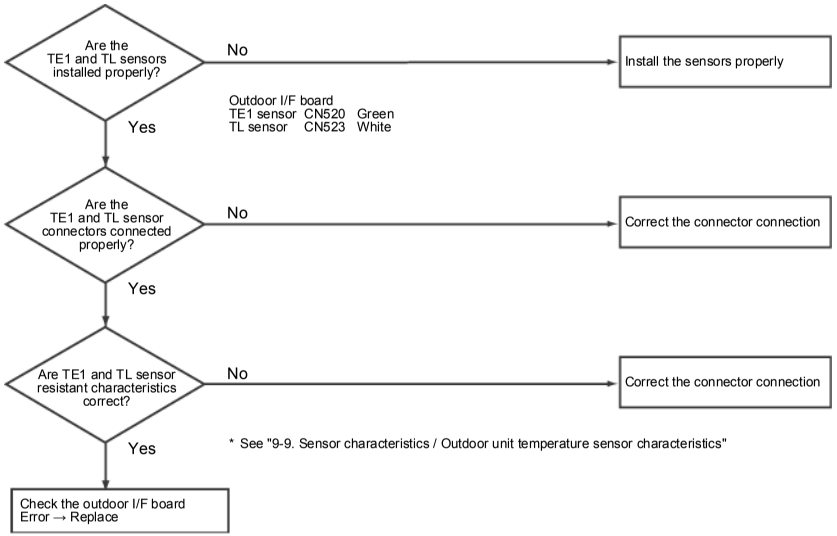


Check code	Check code name	Cause
[F13]	TH sensor error	A3-IPDU IGBT built-in temperature sensor error

Auxiliary code: 01: Compressor 1 02: Compressor 2 03: Compressor 3

IGBT built-in temperature sensor error was detected. Check the connector connection between CN06 on the IPDU board and CN600 on the I/F board. If there is no problem, replace the IPDU board.

Check code	Check code name	Cause
[F15]	Miswiring of outdoor temperature sensor (TE1, TL)	1. Misinstallation / Misconnection of the TE1 and TL sensors 2. TE1 and TL sensor resistant characteristics error 3. Outdoor PC board (I/F) error.



* See "9-9. Sensor characteristics / Outdoor unit temperature sensor characteristics"

TE1 sensor ... Temperature sensor of outdoor heat exchange path
TL sensor ... Temperature sensor of outdoor PMV 1/2 – liquid tank

Check code	Check code name	Cause
[F07]	TL sensor error	TL sensor open-circuit / short-circuit

The TL sensor open-circuit / short-circuit was detected. Check the disconnection of the connector connection circuit (TL sensor: CN523 White), or sensor resistance value characteristics. (See "9-9. Sensor characteristics / Outdoor unit temperature sensor characteristics")
If the sensor is working properly, replace the outdoor I/F board:

Check code	Check code name	Cause
[F08]	TO sensor error	TO sensor open-circuit / short-circuit

The TO sensor open-circuit / short-circuit was detected. Check the disconnection of the connector connection circuit (TO sensor: CN507 Yellow), or sensor resistance value characteristics. (See "9-9. Sensor characteristics / Outdoor unit temperature sensor characteristics")
If the sensor is working properly, replace the outdoor I/F board:

Check code	Check code name	Cause
[F10]	Indoor TSA sensor error	TSA sensor open-circuit / short-circuit

The TSA sensor open-circuit / short-circuit was detected. Check the disconnection of the connector connection circuit (TSA sensor: CN104 Yellow), or sensor resistance value characteristics. (See "9-9. Sensor characteristics / Outdoor unit temperature sensor characteristics")
If the sensor is working properly, replace the outdoor I/F board:

Check code	Check code name	Cause
[F11]	Indoor TFA sensor error	TFA sensor open-circuit / short-circuit

The TFA sensor open-circuit / short-circuit was detected. Check the disconnection of the connector connection circuit (TFA sensor: CN103 Yellow-green), or sensor resistance value characteristics. (See "9-9. Sensor characteristics / Outdoor unit temperature sensor characteristics")
If the sensor is working properly, replace the outdoor I/F board:

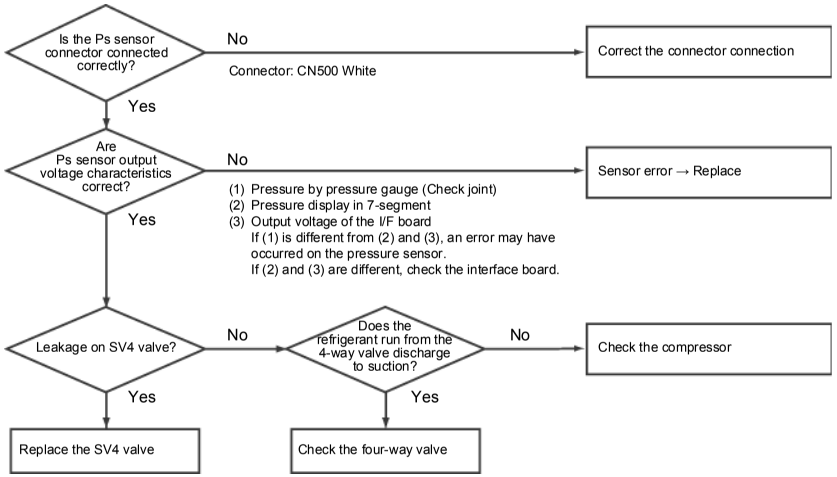
Check code	Check code name	Cause
[F12]	TS1 sensor error	TS1 sensor open-circuit / short-circuit

The TS1 sensor open-circuit / short-circuit was detected. Check the disconnection of the connector connection circuit (TS1 sensor: CN505 White), or sensor resistance value characteristics. (See "9-9. Sensor characteristics / Outdoor unit temperature sensor characteristics")
If the sensor is working properly, replace the outdoor I/F board:

Check code	Check code name	Cause
[F22]	TD3 sensor error	TD3 sensor open-circuit / short-circuit

The TD3 sensor open-circuit / short-circuit was detected. Check the disconnection of the connector connection circuit (TD3 sensor: CN504 Blue), or sensor resistance value characteristics. (See "9-9. Sensor characteristics / Outdoor unit temperature sensor characteristics")
If the sensor is working properly, replace the outdoor I/F board.

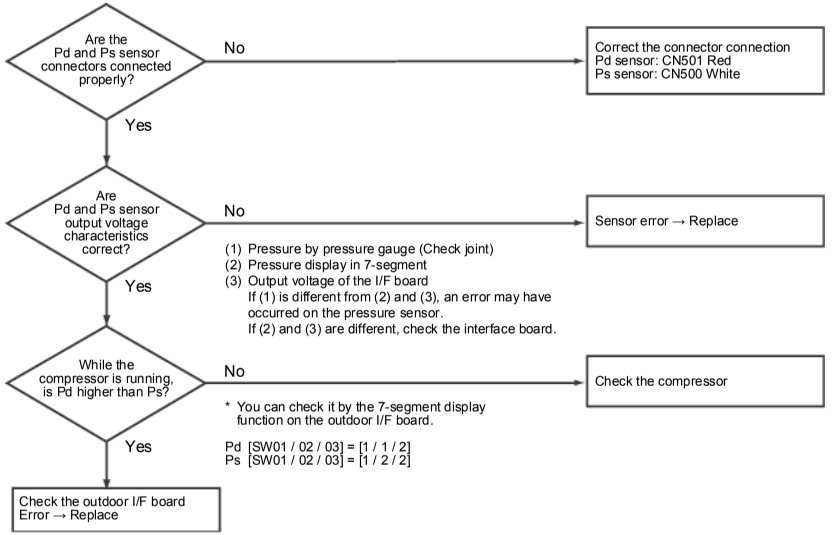
Check code	Check code name	Cause
[F23]	Ps sensor error	Output voltage error of the Ps sensor



Check code	Check code name	Cause
[F24]	Pd sensor error	Output voltage error of the Pd sensor

Output voltage error of the Pd sensor was detected. Check the disconnection of the connector connection circuit (Pd sensor: CN501 Red), or sensor output voltage.
If the sensor is working properly, replace the outdoor I/F board.

Check code	Check code name	Cause
[F16]	Miswiring of outdoor pressure sensor (Pd, Ps)	1. The high-pressure Pd sensor and low-pressure Ps sensor are replaced 2. The output voltage of both sensors is 0



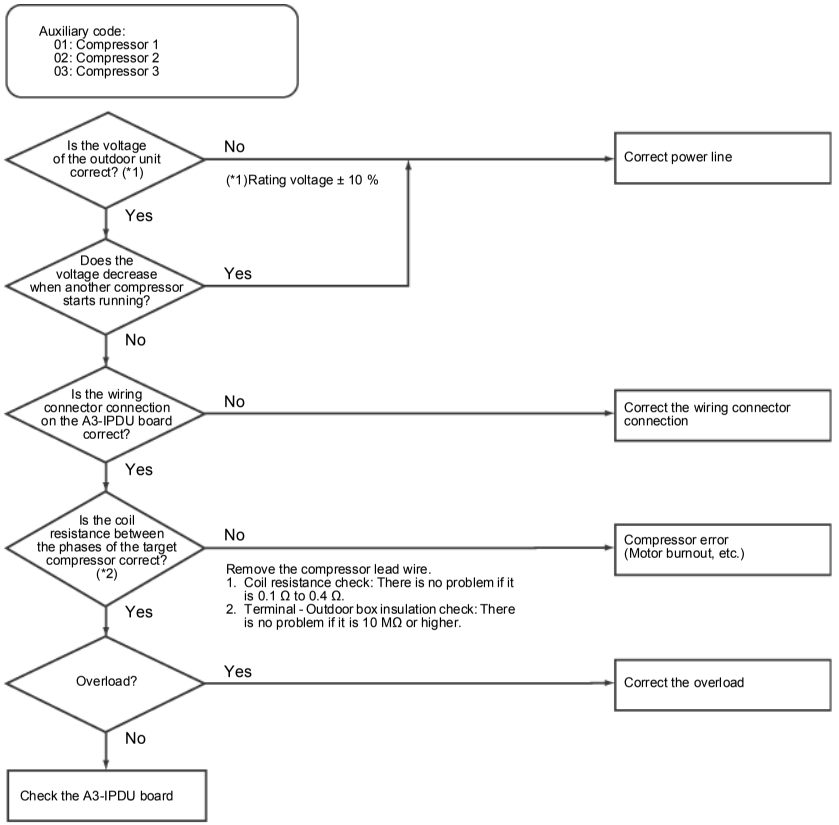
Check code	Check code name	Cause
[F17]	Indoor TOA sensor error	TOA sensor open-circuit / short-circuit

The TOA sensor open-circuit / short-circuit was detected. Check the disconnection of the connector connection circuit (TOA sensor: CN106 White), or sensor resistance value characteristics. (See "9-9. Sensor characteristics / Outdoor unit temperature sensor characteristics")
If the sensor is working properly, replace the outdoor I/F board:

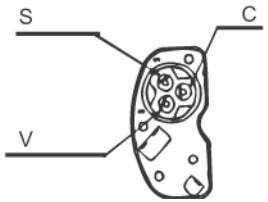
Check code	Check code name	Cause
[F18]	Indoor TRA sensor error	TRA sensor open-circuit / short-circuit

The TRA sensor open-circuit / short-circuit was detected. Check the disconnection of the connector connection circuit (TRA sensor: CN105 Brown), or sensor resistance value characteristics. (See "9-9. Sensor characteristics / Outdoor unit temperature sensor characteristics")
If the sensor is working properly, replace the outdoor I/F board:

Check code	Check code name	Cause
[H01]	Compressor breakdown Rotor stop conduction	1. Outdoor power supply error 2. Compressor circuit error 3. Compressor error 4. Overload operation 5. A3-IPDU board error



(*2) When reconnecting the compressor lead to the compressor terminal after checking the output, check if the fasten terminal is not loose.If it is, tighten it with pliers or the like and then connect it.

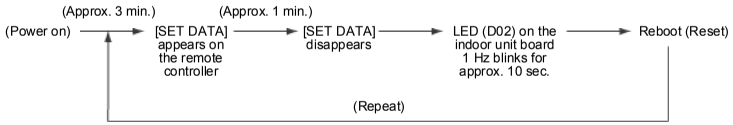


Compressor power connection part

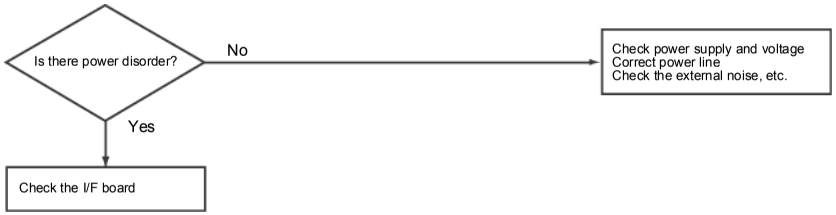
Check code	Check code name	Cause
[F29]	Indoor unit or other error	Indoor PC board error

While the air conditioner is running, an error occurred on the IC10 non-volatile memory (EEPROM) of the indoor unit board. Replace the service board.

* If EEPROM is not inserted when powered on, or if no EEPROM data can be read / written, repeat the auto address mode. [97 Error] appears on the AI-NET central control device.

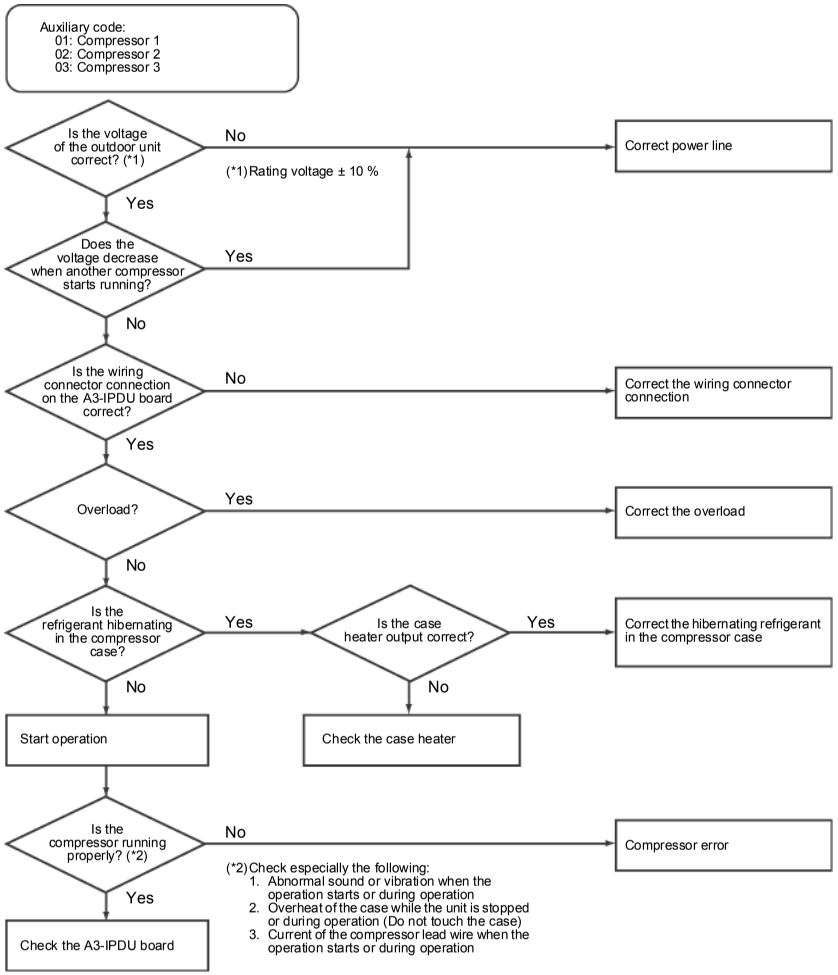


Check code	Check code name	Cause
[F31]	Outdoor EEPROM error	1. Outdoor power supply error (voltage, noise, etc.) 2. Outdoor I/F board error

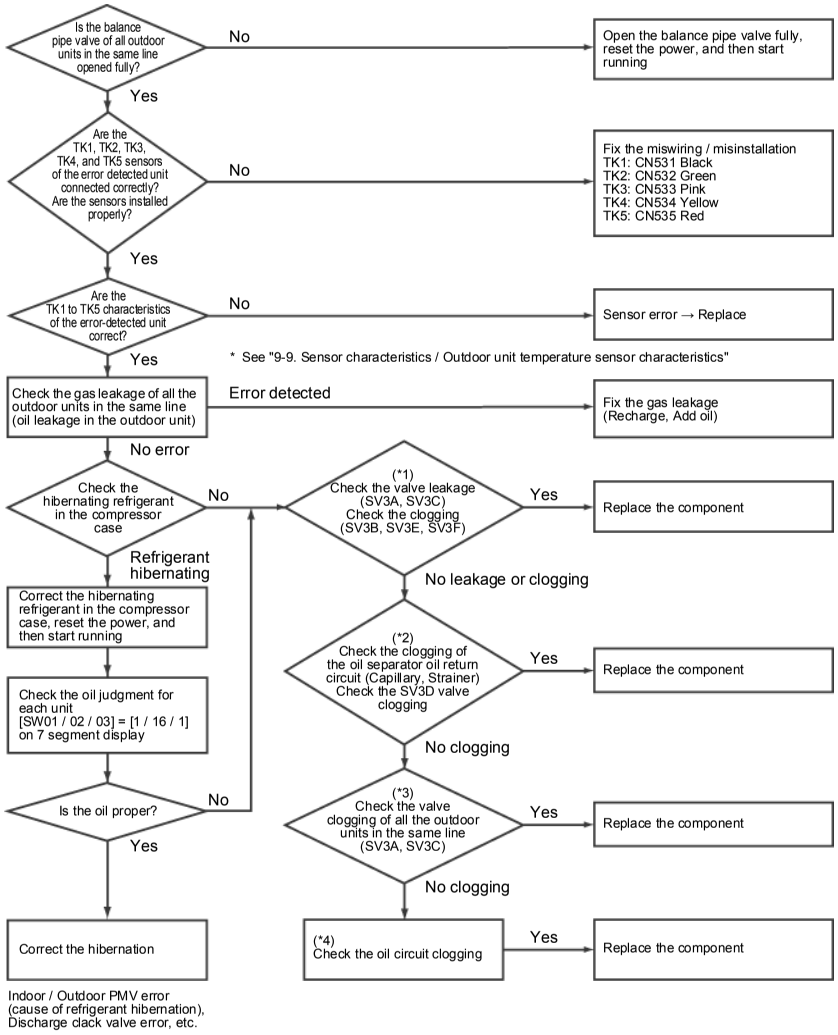


Check code	Check code name	Cause
[H03]	Current detection circuit error	1. Connector connection error of the A3-IPDU board. 2. A3-IPDU board error

Check code	Check code name	Cause
[H02]	Compressor error (Lock)	1. Outdoor unit power supply error 2. Compressor circuit error 3. Compressor error 4. Hibernating refrigerant in compressor 5. A3-IPDU board error

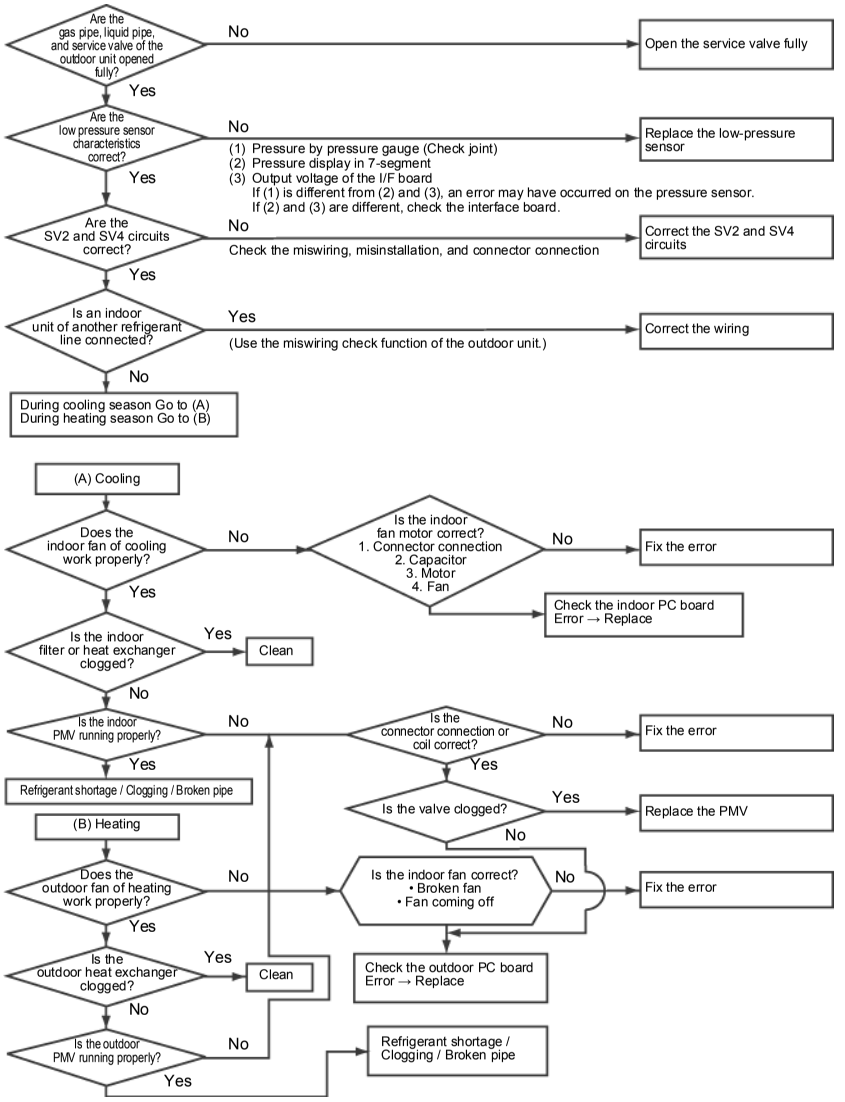


Check code	Check code name	Cause
[H07]	Lower oil level detection protection	1. Balance pipe valve closed (All outdoor units in the same line) 2. Miswiring / Misinstallation of TK1 to TK5 sensor 3. TK1 to TK5 sensor error 4. Gas and oil leakage in the same line 5. Hibernating refrigerant in compressor case 6. Error of SV3A, 3B, 3C, 3D, 3E, 3F 7. Clogging of the oil separator oil return circuit 8. Oil circuit clogging



Reference: If the refrigerant is hibernating in the compressor case, it may be judged that the oil is short. judged.

Check code	Check code name	Cause
[H06]	Low-pressure protection activation	1. Service valve closed 2. Ps sensor error 3. SV2 and SV4 circuit error. 4. Miswiring of the communication line between indoor and outdoor 5. Error of the indoor / outdoor fan or capacitor 6. Indoor / Outdoor PMV clogging 7. Heat exchanger clogging 8. Refrigerant shortage



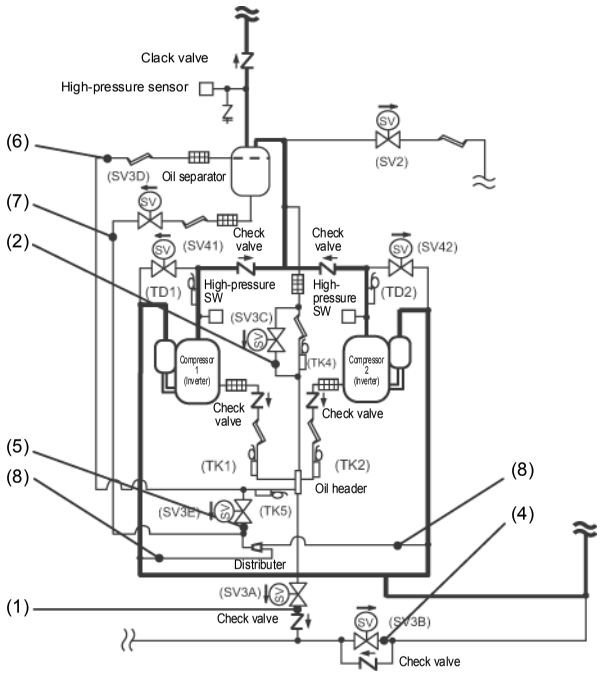
(*3)Check the valve of all the outdoor units in the same line (Performed only in the outdoor unit linkage system)

a) Check the SV3A valve clogging
- Set [SW01 / SW02 / SW03] to [2 / 1 / 3] (7-segment display [Hr][... ... ...]) while the outdoor unit is running, and then press [SW04] for 2 seconds or longer.
- Set [SW02] to [6], and turn on SV3A. (7-segment display [Hr][... 3 A])
- If the temperature on the valve secondary is low or does not change, the valve or clack valve may be clogged. –Figure (1)

b) Check the SV3C valve clogging
- Set [SW01 / SW02 / SW03] to [2 / 1 / 3] (7-segment display [Hr][... ... ...]) while the outdoor unit is running, and then press [SW04] for 2 seconds or longer.
- Set [SW02] to [8], and turn on SV3C. (7-segment display [Hr][... 3 C])
- If the temperature on the valve secondary does not change (rise), the valve or strainer may be clogged. –Figure (2)

(*4)

a) Check the oil circuit clogging
- Operate the outdoor unit. (Operate all the compressors in the unit.)
- After operating for 10 minutes or longer, confirm that the temperatures of the TK1, TK2, and TK3 sensors and oil circuit (Figure (8)) have become high.
  (Approximate guide)
  TK1, TK2, TK3 = Td1, Td2, Td3 temperature – 10 to 30 °C
  Oil circuit: Higher than suction temperature or outdoor temperature
- If the temperature is low, the clogging of capillary, strainer, or distributer, or the clack valve operation error may have occurred.
  Fix the error.



The following leakage and clogging check may not work properly if the outdoor temperature is low and the refrigerant is hibernating.
In this case, set the operating time until the check longer.
(Approximate guide: Discharge temperature TD1, TD2, and TD3 60 °C or higher)

(*1)Check the valve leakage and clogging

a) Check the SV3A valve leakage (Performed only in the outdoor unit linkage system)
- Turn off the power, remove the SV3A valve connector, turn on the power and then start the test run.
- While the outdoor unit is running, check the temperature change on the SV3A valve secondary.–Figure (1)
  → If the temperature becomes high, the SV3A valve leakage has occurred. Replace the SV3A valve.

b) Check the SV3C valve leakage
- urn off the power, remove the SV3C valve connector, turn on the power and then start the test run.
- After several-minute operation, check the temperature on the SV3C valve secondary.–Figure (2)
  → If the temperature becomes high (equivalent to discharge temperature TD), the SV3C valve leakage has occurred. Replace the SV3C valve.
  (Even if the SV3C valve leakage has not occurred, the temperature on the SV3C valve secondary rises during operation. (Lower than discharge temperature TD))

c) Check the SV3F valve leakage
- Turn off the power, remove the SV3F valve connector, turn on the power and then start the test run.
- After several-minute operation, check the temperature on the SV3F valve secondary.–Figure (3)
  → If the temperature becomes high, the SV3F valve leakage has occurred. Replace the SV3F valve.

d) Check the SV3B valve clogging (Performed only in the outdoor unit linkage system)
- Set [SW01 / SW02 / SW03] to [2 / 1 / 3] (7-segment display [Hr][... ... ...]) while the outdoor unit is running, and then press [SW04] for 2 seconds or longer.
- Set [SW02] to [10], and turn on SV3A, SV3B, and SV3C. (7-segment display [Hr][... 3 –])
- While the outdoor unit is running, check the temperature change on the SV3B valve secondary.–Figure (4)
  → If the temperature does not become high (equivalent to outdoor temperature), the SV3B valve is clogged. Replace the SV3B valve.

e) Check the SV3E valve clogging
Reset the power
↓
Confirm that the SV3E valve is turned on / off (sound / coil surface temperature rising) by the "valve forced open / close function" of the outdoor unit.
↓
Start the cooling or heating test run.
↓
After several minutes of the compressor operation, check the pipe temperature on the SV3E valve exit. If the temperature does not change or is equivalent to the outdoor temperature, the SV3E may be clogged. –Figure (5)
(Reference)
If the SV3E valve is clogged, all the TK1, TK2, TK3, TK4 and TK5 temperatures do not change any more.

f) Check the SV3F valve clogging
- Set [SW01 / SW02 / SW03] to [2 / 1 / 3] (7-segment display [Hr][... ... ...]) while the outdoor unit is running, and then press [SW04] for 2 seconds or longer.
- Set [SW02] to [8], and turn on SV3C, SV3E, and SV3F. (7-segment display [Hr][... 3 C])
- While the outdoor unit is running, check the temperature change on the SV3F valve secondary.–Figure (3)
  → If the temperature does not become high (equivalent to outdoor temperature), the SV3F valve is clogged. Replace the SV3F valve.

(*2)Check the clogging of the oil separator oil return circuit and SV3D.

a) Oil return circuit
- While the outdoor unit is running, check the temperature on the oil return circuit (Capillary secondary).–Figure (6)
  → If the temperature is low (equivalent to outdoor temperature), the strainer or capillary of the oil return circuit is clogged. Replace the clogged component.

b) Check the SV3D valve clogging
- Set [SW01 / SW02 / SW03] to [2 / 1 / 3] (7-segment display [Hr][... ... ...]) while the outdoor unit is running, and then press [SW04] for 2 seconds or longer.
- Set [SW02] to [9], and turn on the SV3D valve (7-segment display [Hr][... 3 d])
- If the temperature on the valve secondary is low or does not change, the valve, capillary, or strainer is clogged. –Figure (7)
  Replace the clogged component.

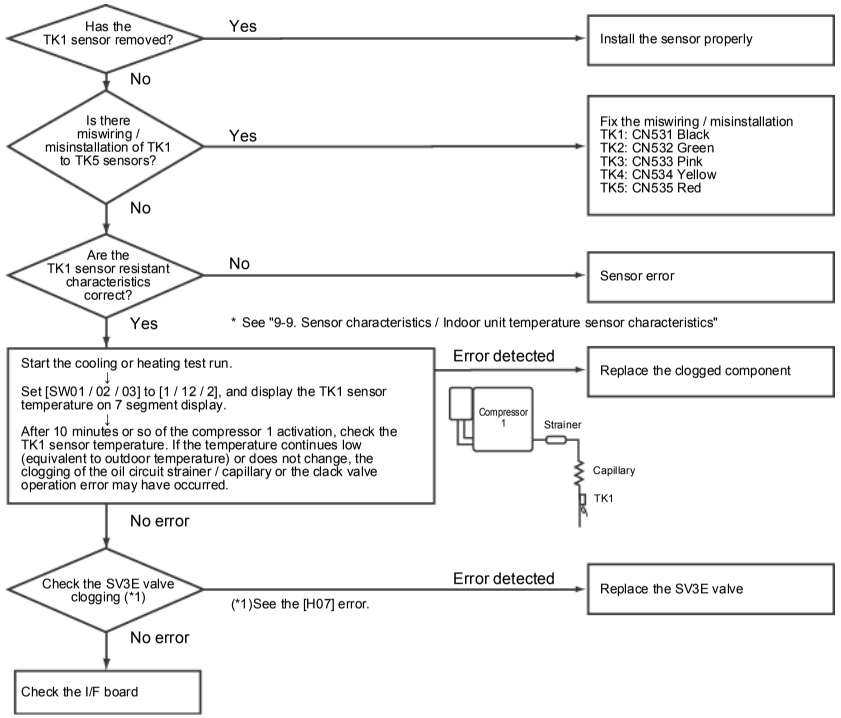
Check code	Check code name	Cause
[H08]	Oil level detection temperature sensor error	TK1 to TK5 sensor open-circuit / short-circuit

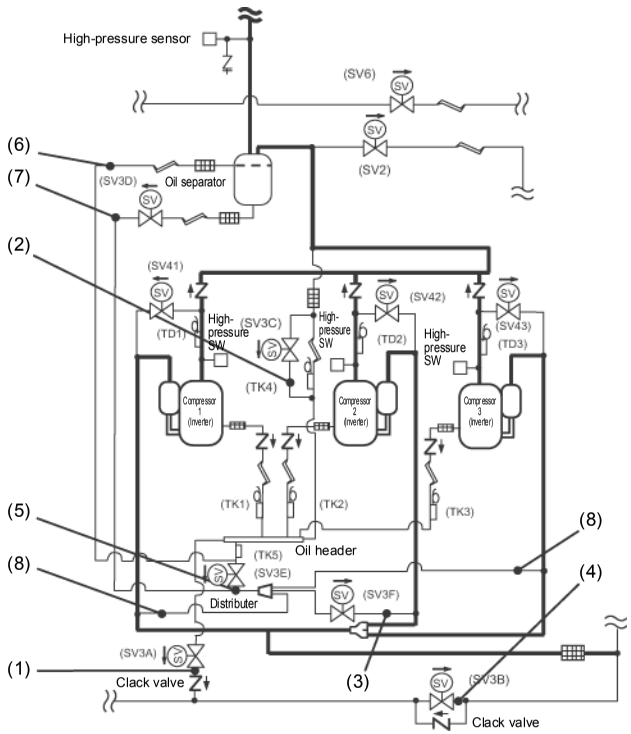
Auxiliary code:
01: TK1 sensor error 02: TK2 sensor error 03: TK3 sensor error
04: TK4 sensor error 05: TK5 sensor error

Oil level detection temperature sensor error was detected. Check the disconnection of the connector connection circuit and circuit, or sensor resistance value.
If the sensor is working properly, replace the outdoor I/F board.

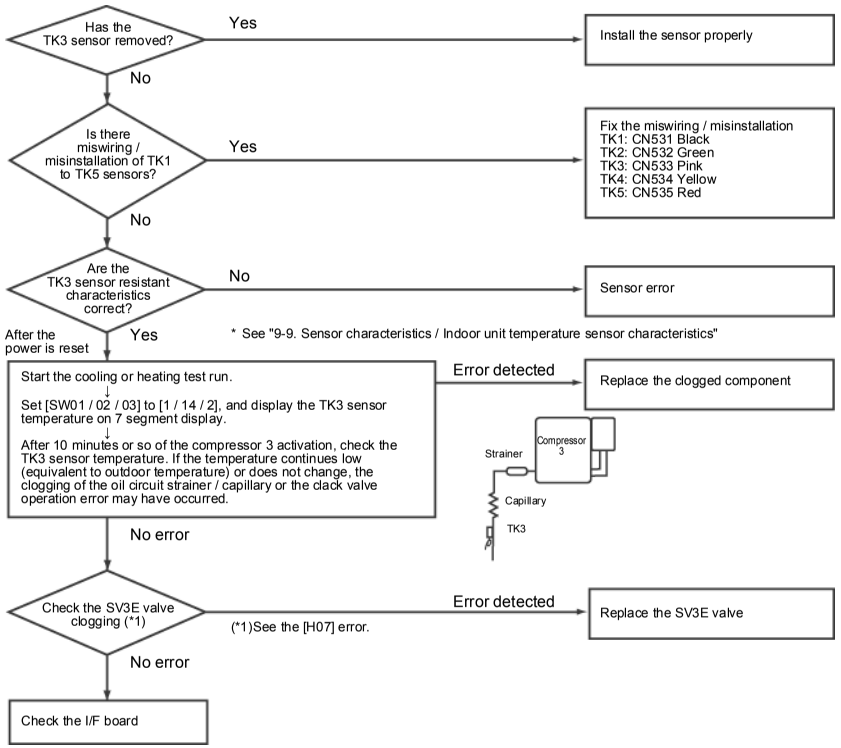
Circuit	Connector
TK1	CN531 (Black)
TK2	CN532 (Green)
TK3	CN533 (Pink)
TK4	CN534 (Yellow)
TK5	CN535 (Red)

Check code	Check code name	Cause
[H16]	Oil detection circuit error TK1 temperature detection circuit error (Auxiliary code: 01)	1. TK1 sensor removed, miswiring, resistant characteristics error 2. Oil circuit error (clack valve / capillary / strainer clogging) 3. Hibernating refrigerant in compressor case

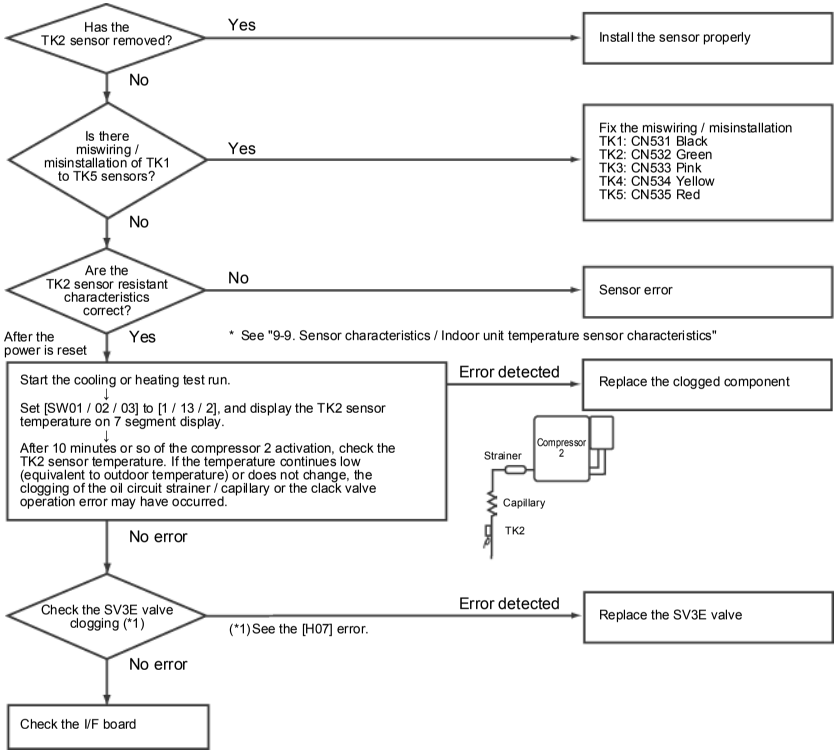




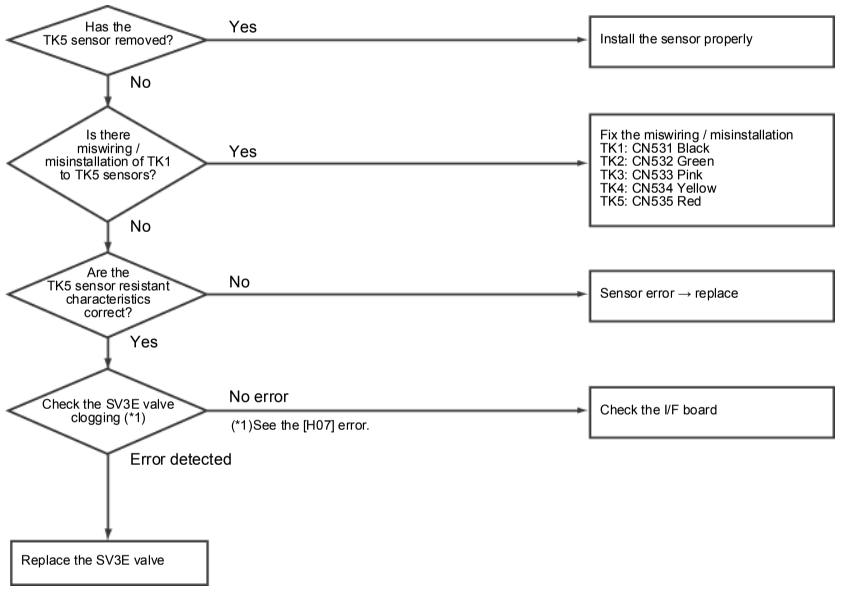
Check code	Check code name	Cause
[H16]	Oil detection circuit error TK3 temperature detection circuit error (Auxiliary code: 03)	1. TK3 sensor removed, miswiring, resistant characteristics error 2. Oil circuit error (clack valve / capillary / strainer clogging) 3. Hibernating refrigerant in compressor case



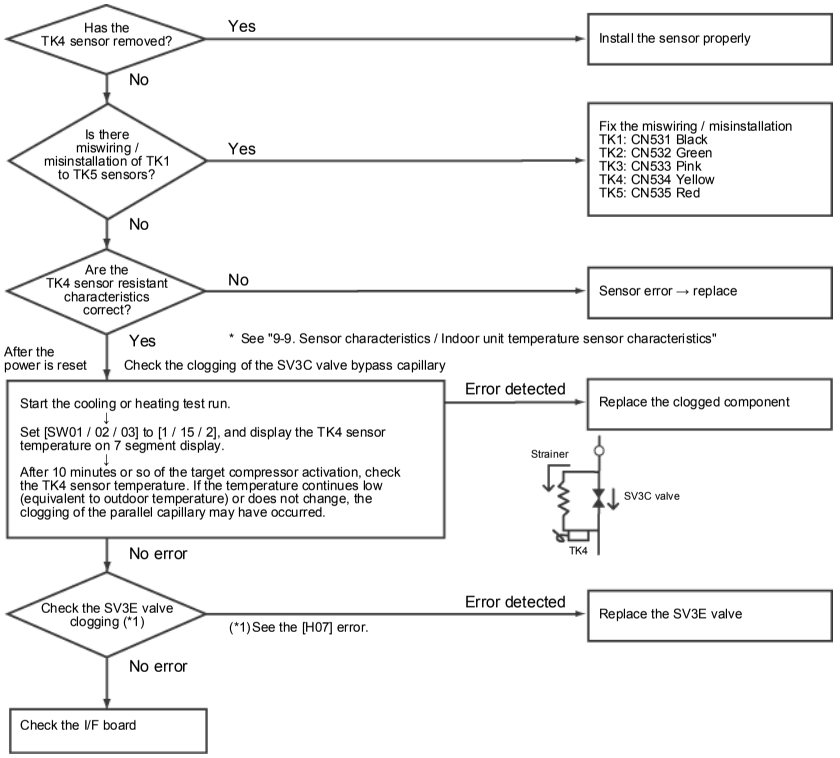
Check code	Check code name	Cause
[H16]	Oil detection circuit error TK2 temperature detection circuit error (Auxiliary code: 02)	1. TK2 sensor removed, miswiring, resistant characteristics error 2. Oil circuit error (clack valve / capillary / strainer clogging) 3. Hibernating refrigerant in compressor case



Check code	Check code name	Cause
[H16]	TK5 temperature detection circuit error (Auxiliary code: 05)	1. TK5 sensor removed, miswiring, resistant characteristics error 2. Check the SV3E valve clogging or operation error 3. Oil circuit error (capillary / strainer clogging) 4. Hibernating refrigerant in compressor case



Check code	Check code name	Cause
[H16]	TK4 temperature detection circuit error (Auxiliary code: 04)	1. TK4 sensor removed, miswiring, resistant characteristics error 2. SC3C valve circuit error (capillary / strainer clogging) 3. Hibernating refrigerant in compressor case

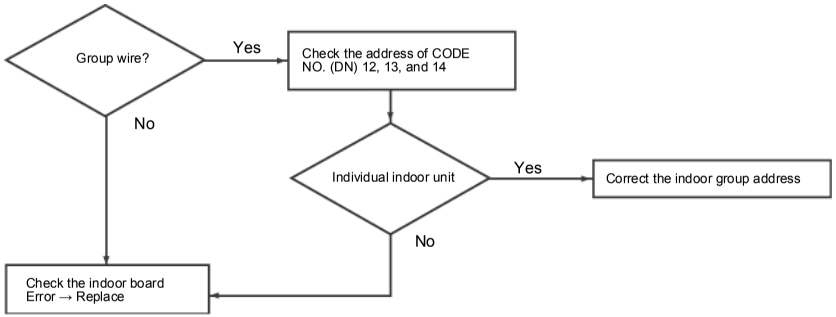


Check code	Check code name	Cause
[L06]	Duplicate prior indoor (Displayed on non-prior indoor and outdoor)	Duplicate prior indoor unit settings

Auxiliary code: Number of prior indoor units

This check code appears on the non-specified indoor unit and outdoor unit when the prior indoor unit settings are duplicate.
• Only one indoor unit can be set as the prior. Change the setting.

Check code	Check code name	Cause
[L07]	Group line in an individual indoor unit	There are one or more group-connected indoor units



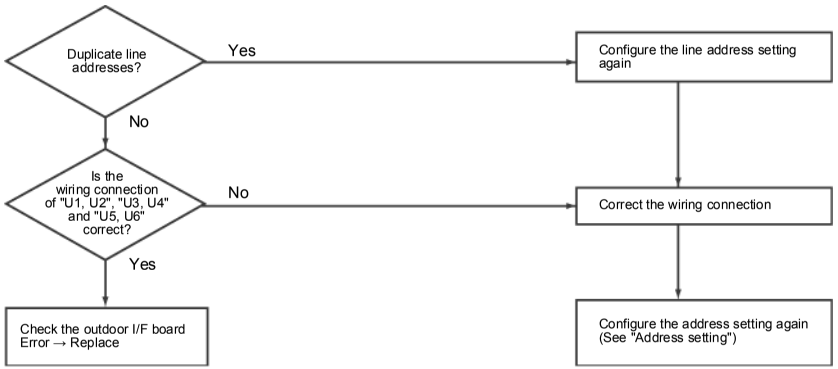
Check code	Check code name	Cause
[L02]	Outdoor unit model mismatch error	An error was found on the outdoor unit model.

The Air to Air Heat Exchanger with DX Coil Unit cannot be connected to an outdoor unit of 3 SMMS series or older. Connect it to SMMS-i (SMMS4 series).
1. Check the model name of the outdoor unit.
2. Check if the indoor unit is connected to the outdoor unit in the correct line.

Check code	Check code name	Cause
[L03]	Duplicate header indoor units	During group control, when there are multiple indoor header units

1. After the remote controller is connected (group configuration, address check), check if the remote controller connection is changed (group / individual).
2. If the group configuration and address are correct when the power is turned on, the address setting mode automatically activates.
   See (Setting the address again) → "Address setting".

Check code	Check code name	Cause
[L04]	Duplicate outdoor line address settings	Duplicate outdoor line addresses



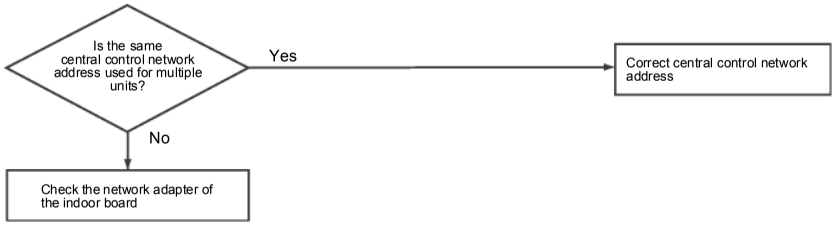
Check code	Check code name	Cause
[L05]	Duplicate prior indoor (Displayed on prior indoor)	Duplicate prior indoor unit settings

This check code appears on the specified indoor unit when the prior indoor unit settings are duplicate.
• Only one indoor unit can be set as the prior. Change the setting.

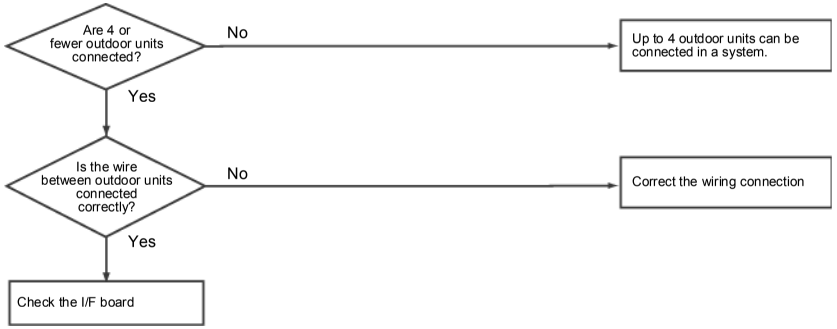
Check code	Check code name	Cause
[L17]	Outdoor unit model mismatch error	SMMS-i (SMMS 4 series) is connected to an outdoor unit of 3 series or older

SMMS-i (SMMS 4 series) cannot be connected to an outdoor unit of 3 SMMS series or older.
Use an outdoor unit combination of SMMS-i only.

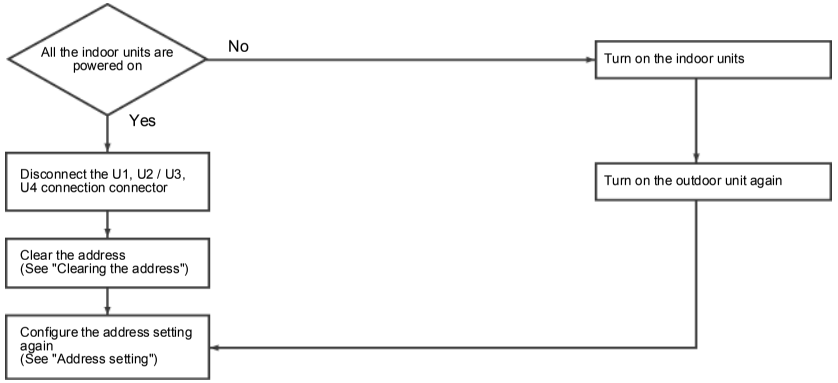
Check code	Check code name	Cause
[L20]	Duplicate central control addresses	Duplicate central control addresses



Check code	Check code name	Cause
[L28]	Number of connected outdoor units exceeded	1. Number of connected thermal units exceeded 2. Outdoor communication wiring connection error 3. Outdoor I/F board error

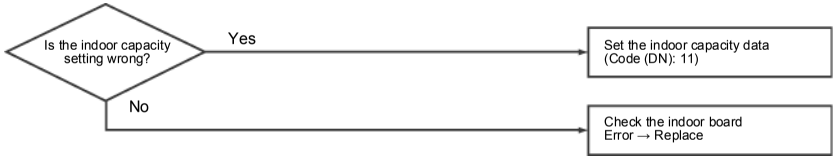


Check code	Check code name	Cause
[L08]	Indoor group address not set	Indoor address not set



Note:
This code appears the first time the power is turned on after installation. (Address not set)

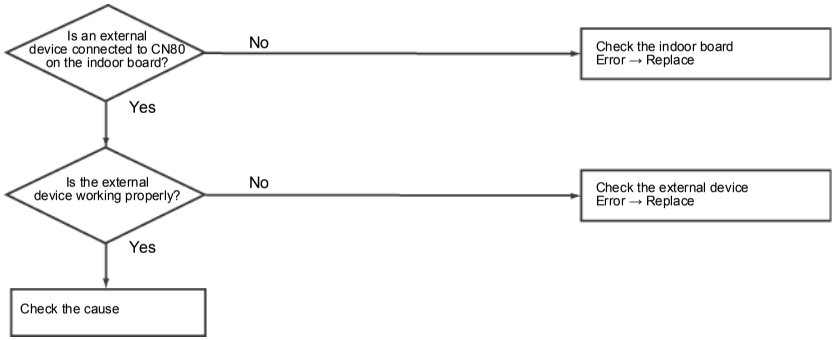
Check code	Check code name	Cause
[L09]	Indoor capacity not set	Indoor capacity not set



Check code	Check code name	Cause
[L10]	Outdoor capacity not set	The model change jumper setting for the model was not configured for the outdoor I/F board service

The board assembly for the outdoor I/F service is common across the series. The model change setting needs to differ from that of the malfunctioning PC board. See the interface replacement manual to configure the model setting.

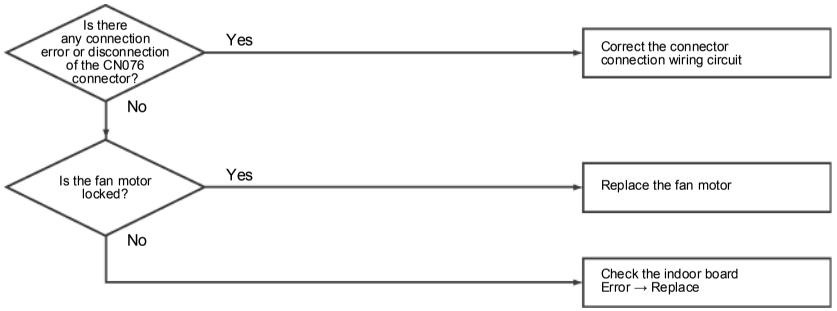
Check code	Check code name	Cause
[L30]	External interlock for indoor unit	External input (abnormal)



Check code	Check code name	Cause
[L31]	Other IPDU errors	1. Outdoor power supply error 2. Outdoor I/F board error

Check code	Check code name	Cause
[P01]	Indoor fan motor error	1. Wiring error 2. Fan motor check

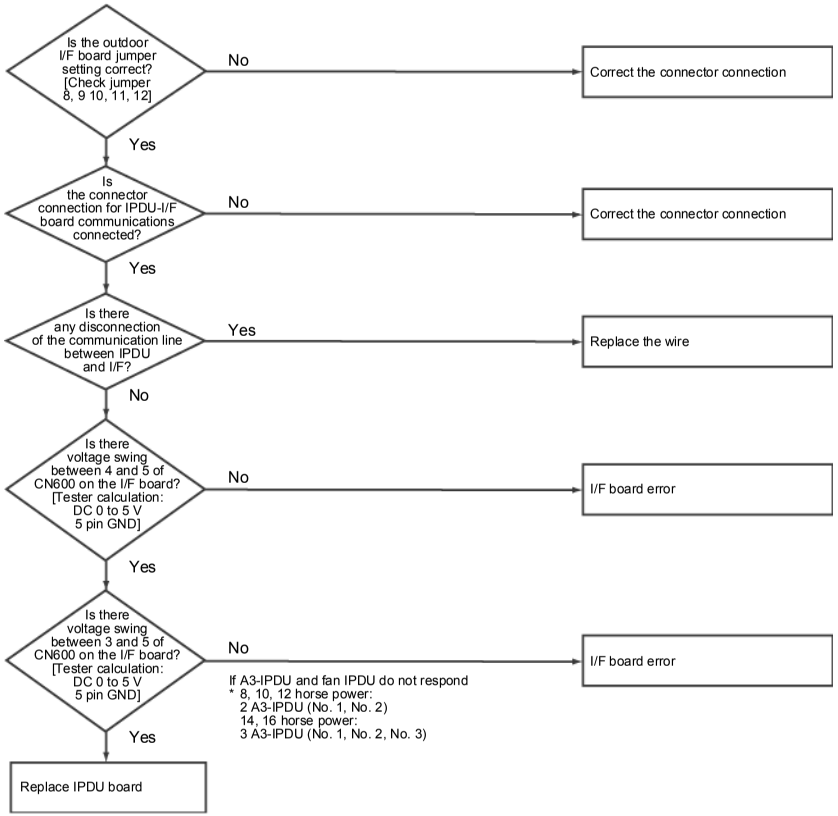
* Only AC fan motor-equipped models



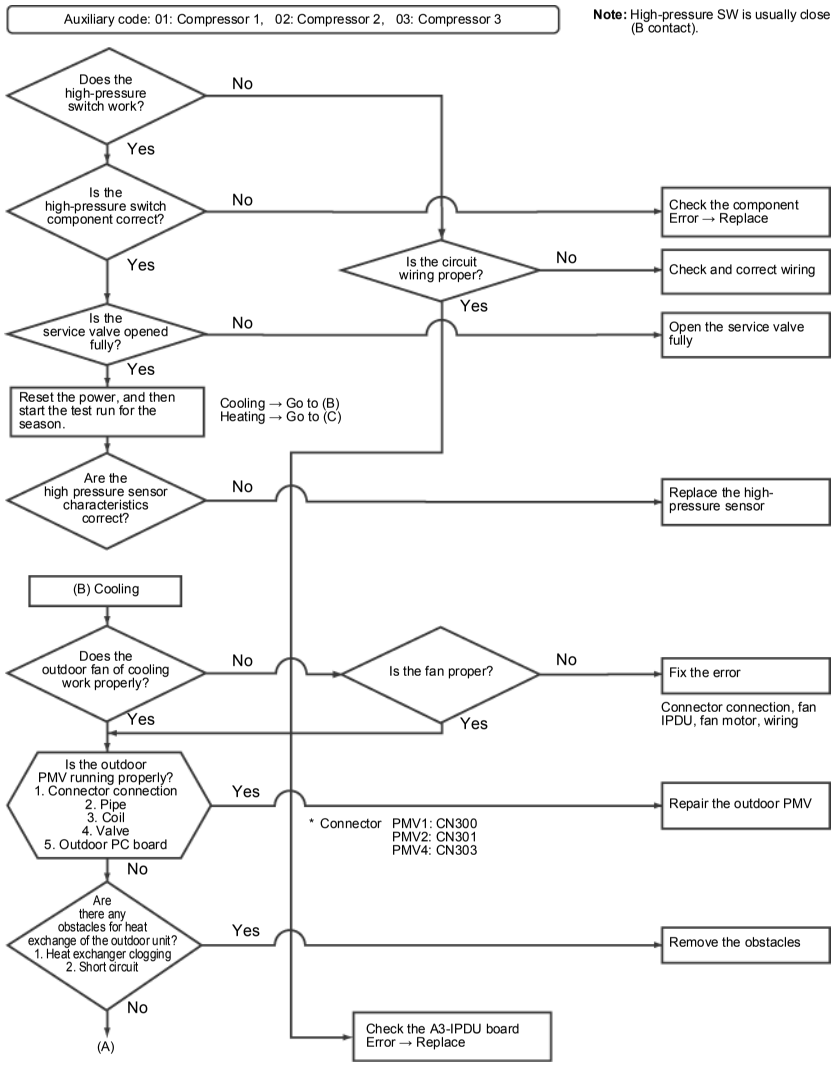
Check code	Check code name	Cause
[L29]	Unusual number of IPDU	1. Wrong model setting for I/F board service 2. Communication error of A3-IPDU, Fan IPDU, and I/F 3. Error of A3-IPDU, Fan IPDU, and I/F board

Auxiliary code:

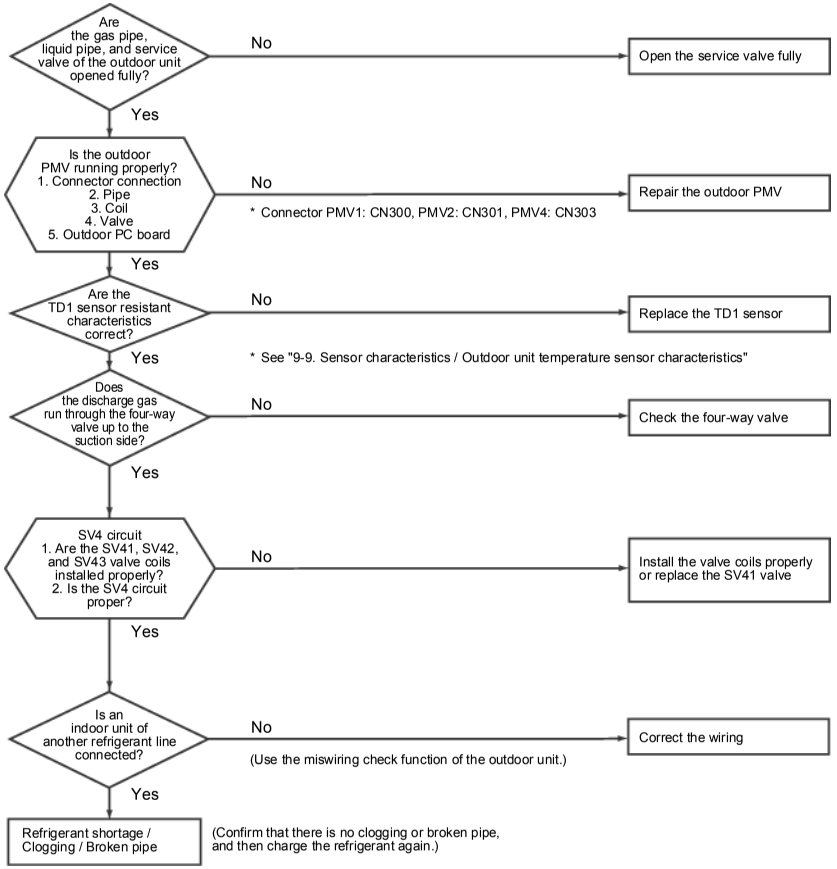
	A3-IPDU			Fan IPDU		A3-IPDU			Fan IPDU
	1	2	3			1	2	3	
01	○				0A		○		○
02		○			0B	○	○		○
03	○	○			0C			○	○
04			○		0D	○		○	○
05	○		○		0E		○	○	○
06		○	○		0F	○	○	○	○
07	○	○	○		○: IPDU error				
08				○					
09	○			○					



Check code	Check code name	Cause
[P04]	High-pressure SW error	1. High-pressure SW error 2. Service valve closed 3. Pd sensor error 4. Indoor / Outdoor fan error 5. Indoor / Outdoor PMV clogging 6. Heat exchanger clogging, short circuit 7. SV2 circuit error 8. SV4 circuit error 9. SV5 circuit error 10. Discharge check valve error 11. Refrigerant overcharging



Check code	Check code name	Cause
[P03]	Discharge temperature TD1 error	1. Outdoor service valve closed 2. Outdoor PMV error 3. TD sensor error 4. Refrigerant shortage / Pipe clogging 5. Four-way valve error 6. SV4 circuit leakage / misinstallation



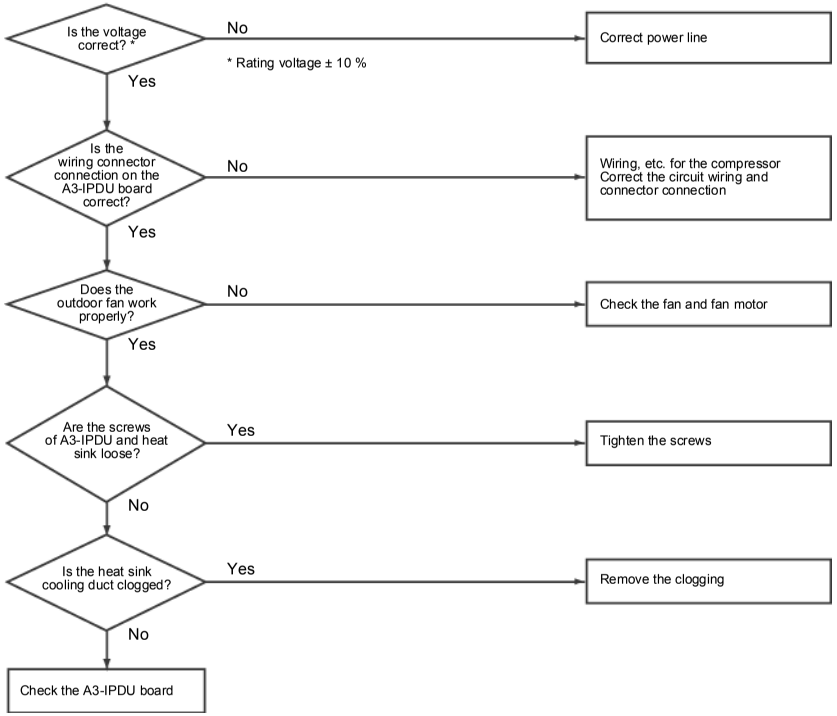
Check code	Check code name	Cause
[P05]	Open phase detected, Blackout detected Inverter DC voltage error (compressor)	The power supply to the outdoor unit is open phased or stopped

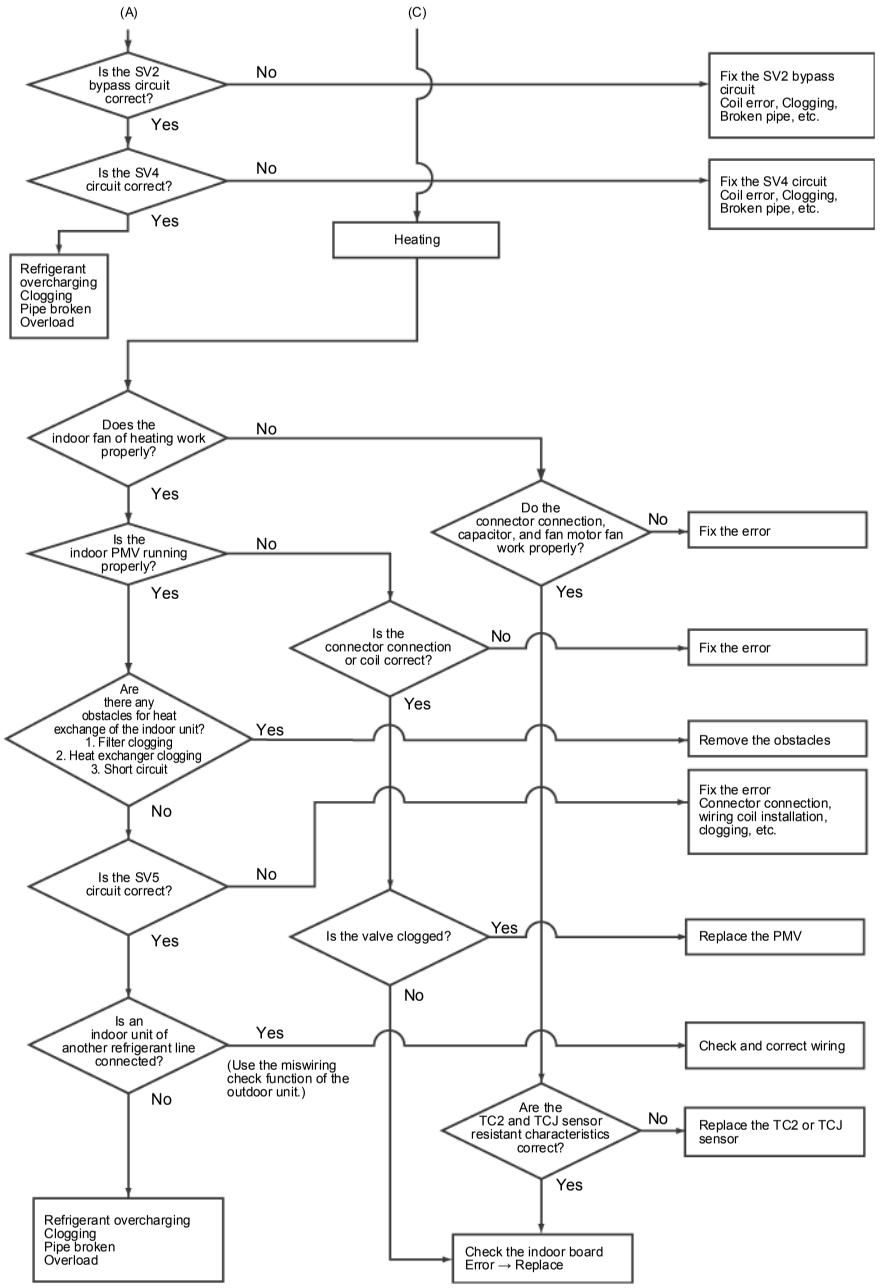
Auxiliary code: 00: Open phase detected, Blackout detected 01: Compressor 1 Inverter DC voltage error
02: Compressor 2 Inverter DC voltage error 03: Compressor 3 Inverter DC voltage error

- Check the open phase of the outdoor unit power supply wiring.
- Check the error of the outdoor I/F board.
- Check if the terminal is tightened firmly, etc.

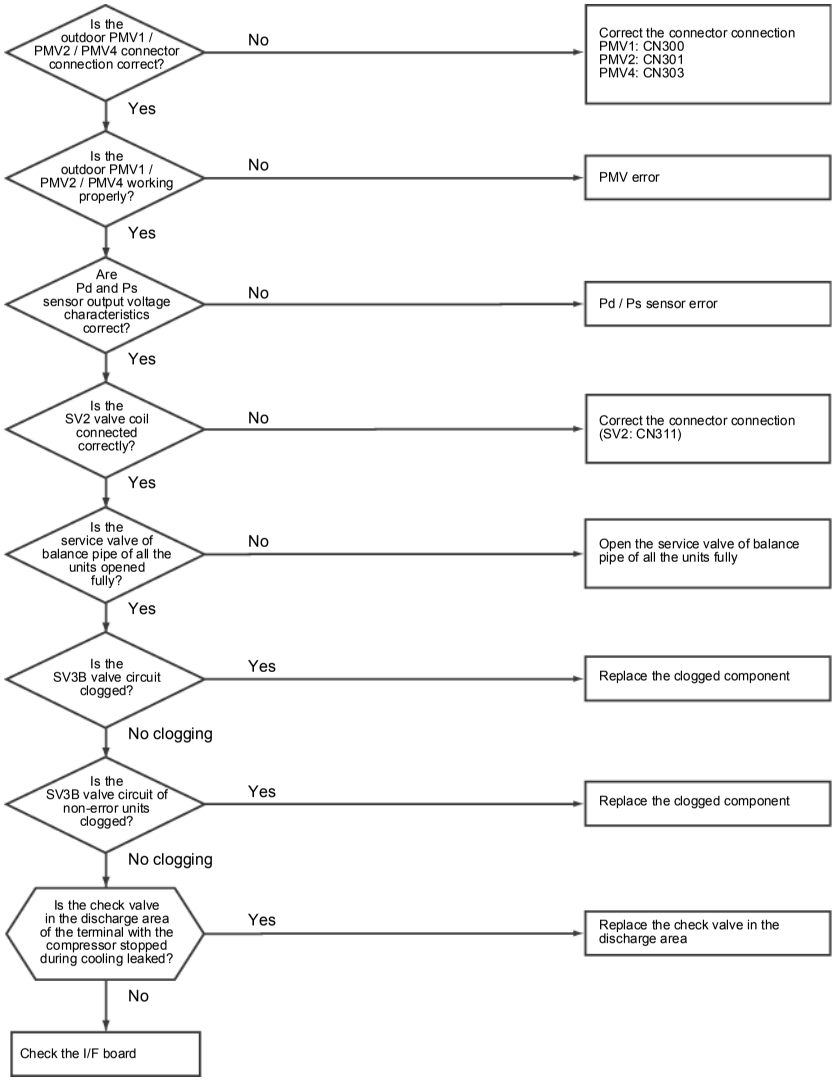
Check code	Check code name	Cause
[P07]	Heat sink overheat error	1. Power supply voltage error 2. Outdoor fan error 3. Heat sink installation error 4. Heat sink cooling duct clogging 5. A3-IPDU board error

Auxiliary code:
01: Compressor 1
02: Compressor 2
03: Compressor 3

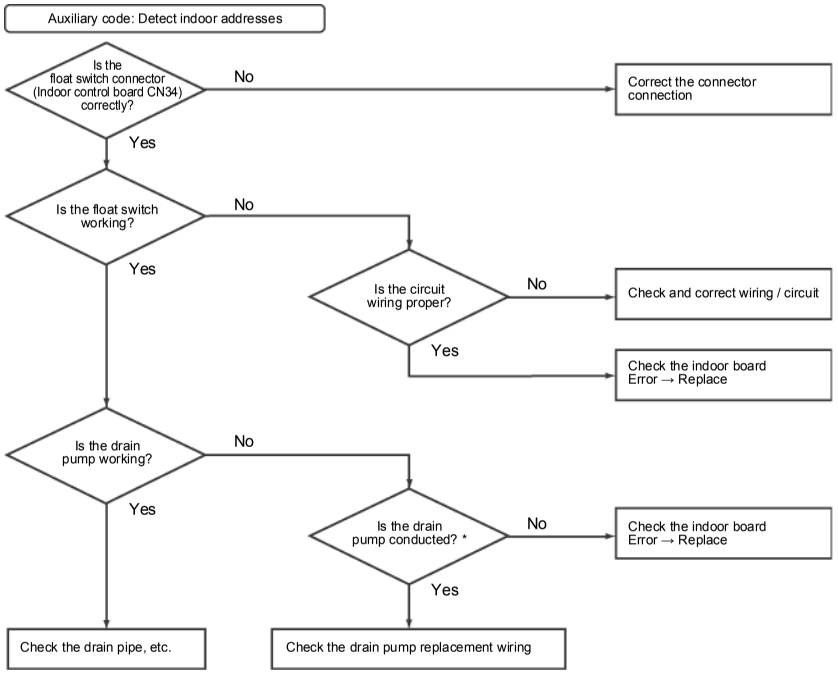




Check code	Check code name	Cause
[P13]	Outdoor compressor liquid compression error	1. PMV1 / PMV2 / PMV4 error 2. Pd / Ps sensor error 3. SV2 valve circuit clogging 4. Balance pipe / SV3B valve circuit clogging 5. Check valve leakage in the discharge area 6. Outdoor I/F board error

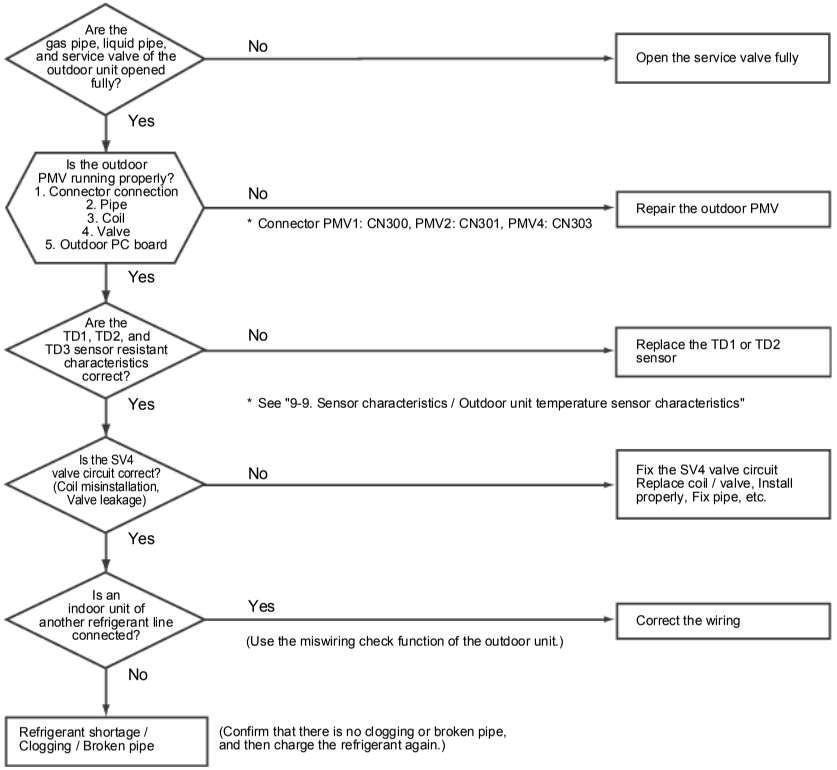


Check code	Check code name	Cause
[P10]	Indoor overflow error	1. Float switch error 2. Drain pump error 3. Drain clogging 4. Indoor PC board error

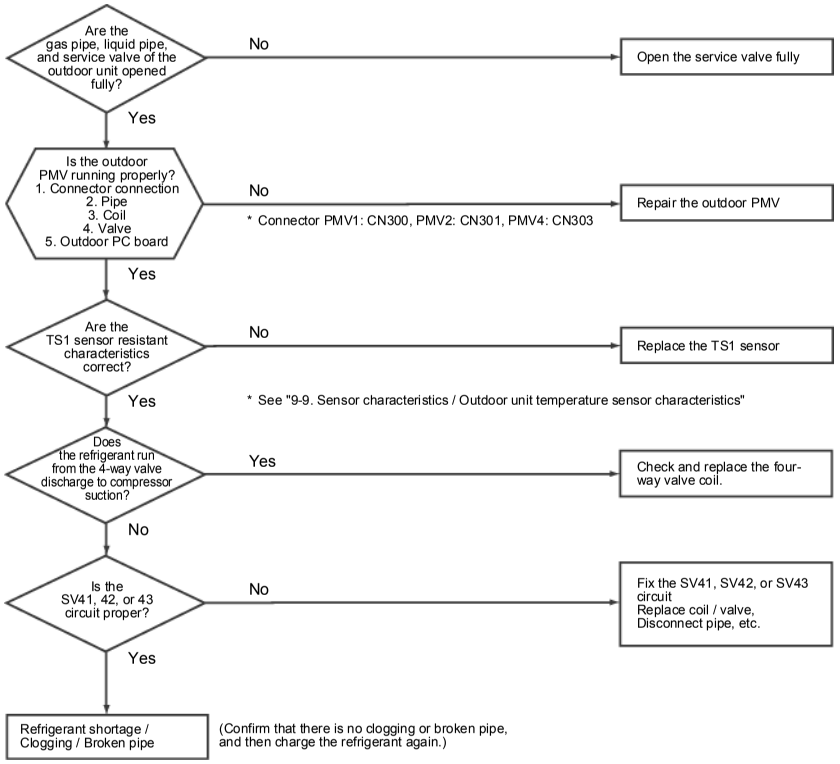


* Make sure that the voltage is 220-240 V for 1 - 3 pin of CN601 on the indoor board.

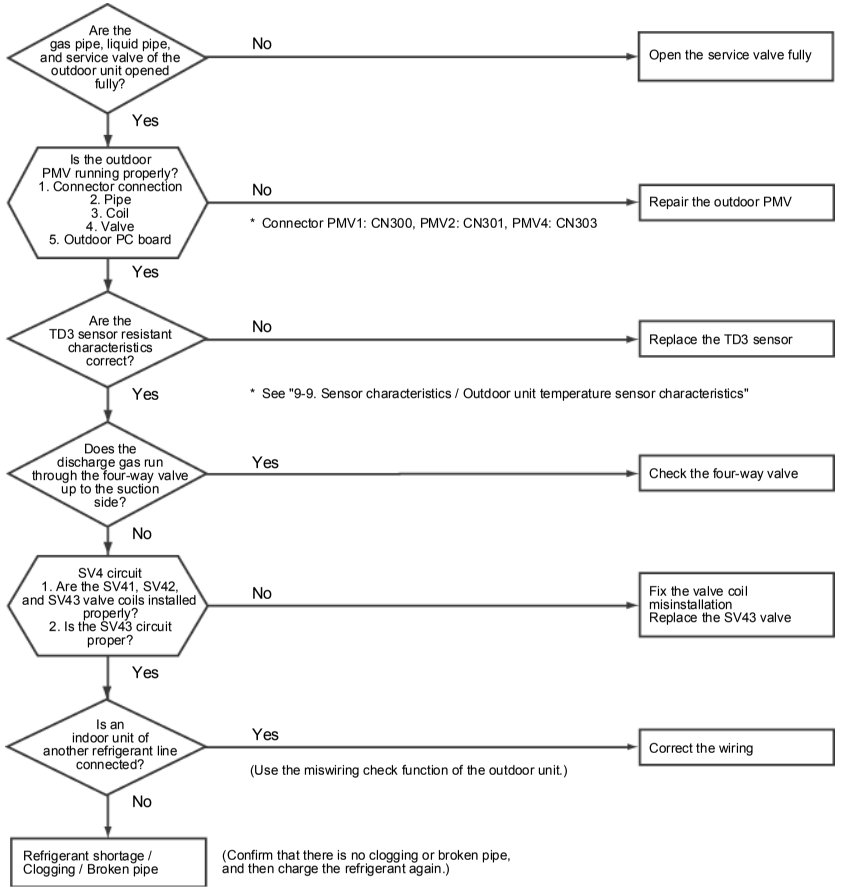
Check code	Check code name	Cause
[P15]	Gas leak detection TD condition (Auxiliary code: 02)	1. Outdoor service valve closed 2. Outdoor PMV 3. TD sensor error 4. SV4 circuit error 5. Refrigerant shortage / Pipe clogging



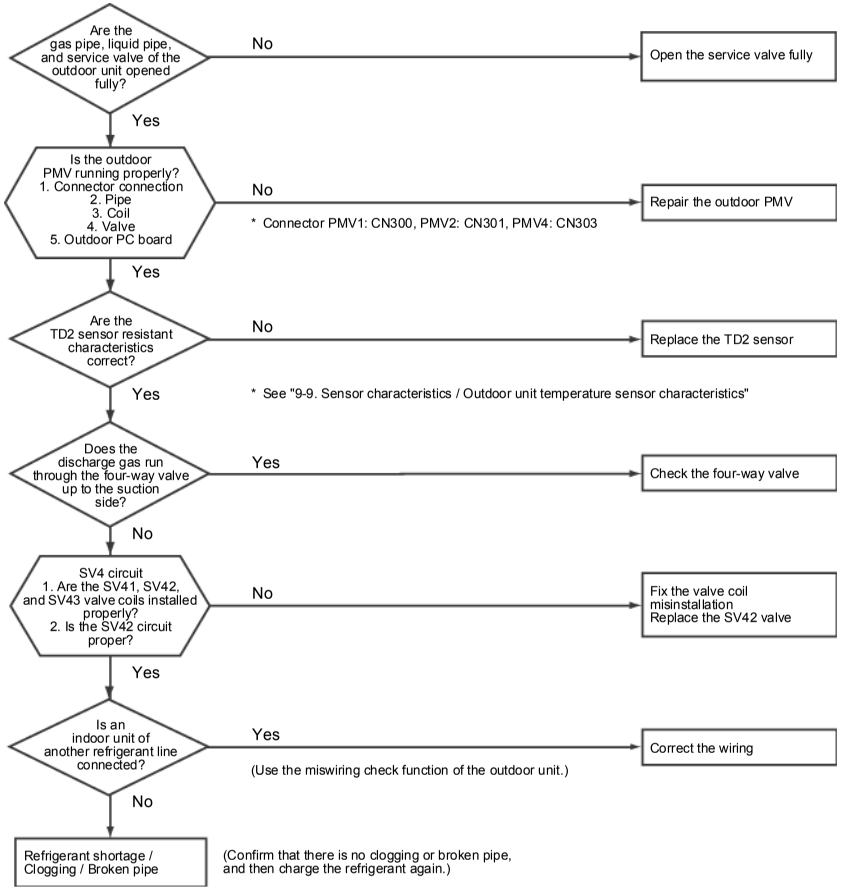
Check code	Check code name	Cause
[P15]	Gas leak detection TS condition (Auxiliary code: 01)	1. Outdoor service valve closed 2. Outdoor PMV error 3. TS1 sensor error 4. Refrigerant shortage / Pipe clogging 5. Four-way valve error 6. SV4 circuit error



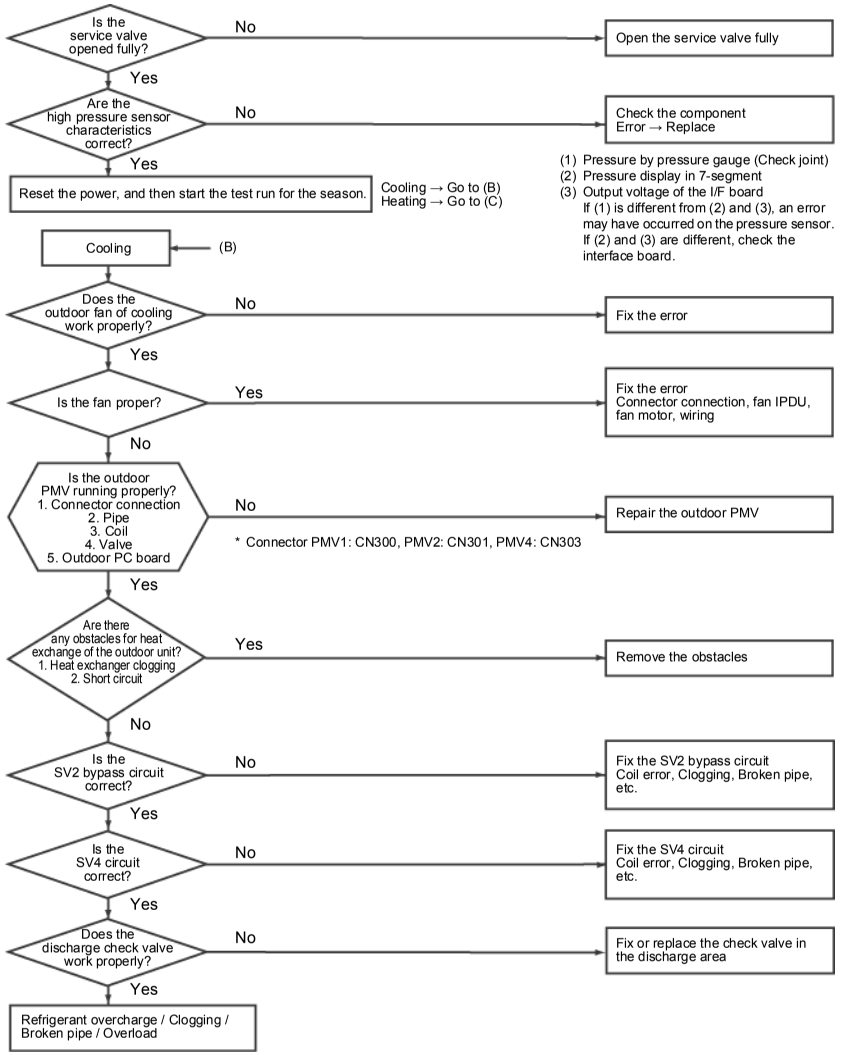
Check code	Check code name	Cause
[P18]	Discharge temperature TD3 error	1. Outdoor service valve closed 2. Outdoor PMV error 3. TD sensor error 4. Refrigerant shortage / Pipe clogging 5. Four-way valve error 6. SV4 circuit leakage / misinstallation



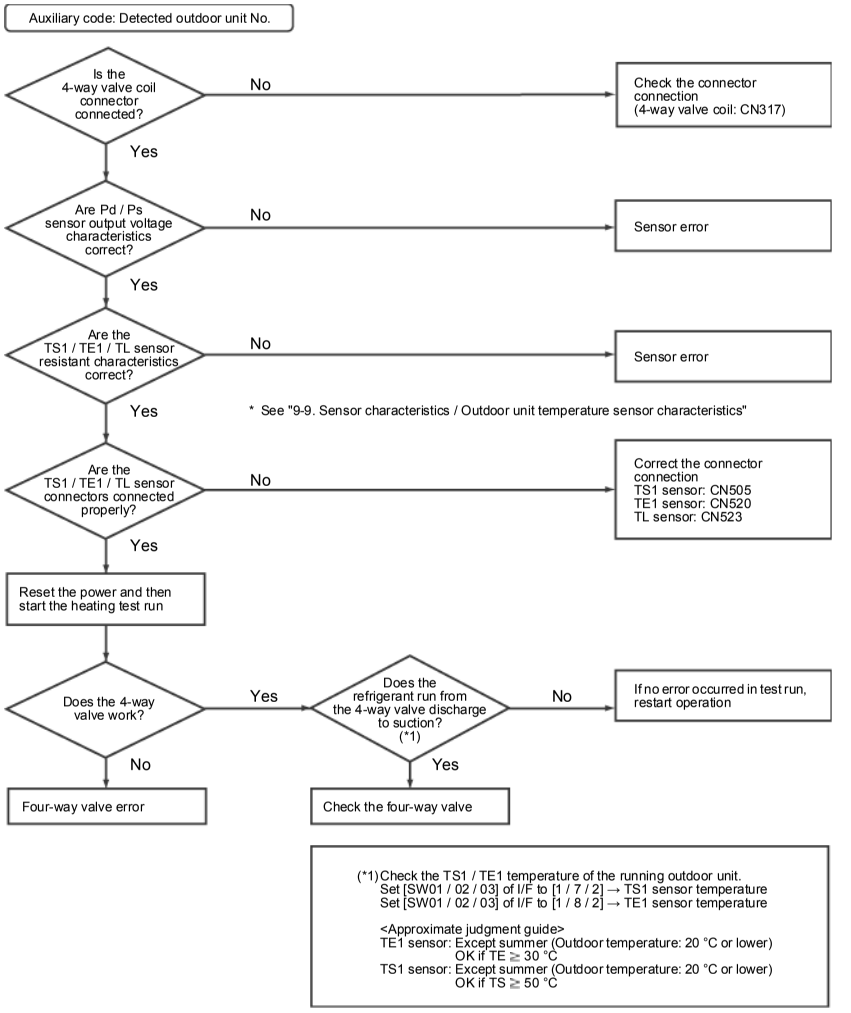
Check code	Check code name	Cause
[P17]	Discharge temperature TD2 error	1. Outdoor service valve closed 2. Outdoor PMV error 3. TD sensor error 4. Refrigerant shortage / Pipe clogging 5. Four-way valve error 6. SV4 circuit leakage / misinstallation



Check code	Check code name	Cause
[P20]	High-pressure protection activation	1. Pd sensor error 2. Service valve closed 3. Indoor / Outdoor fan error 4. Indoor / Outdoor PMV clogging 5. Heat exchanger clogging 6. SV2 circuit error 7. SV4 circuit error 8. SV5 circuit error 9. Outdoor I/F board error 10. Discharge check valve error 11. Refrigerant overcharging

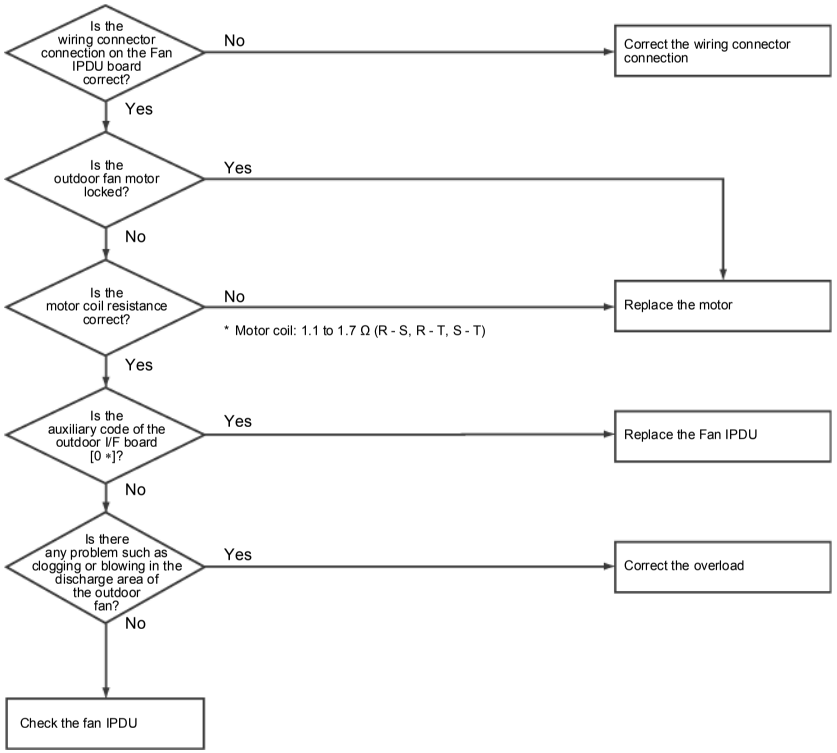


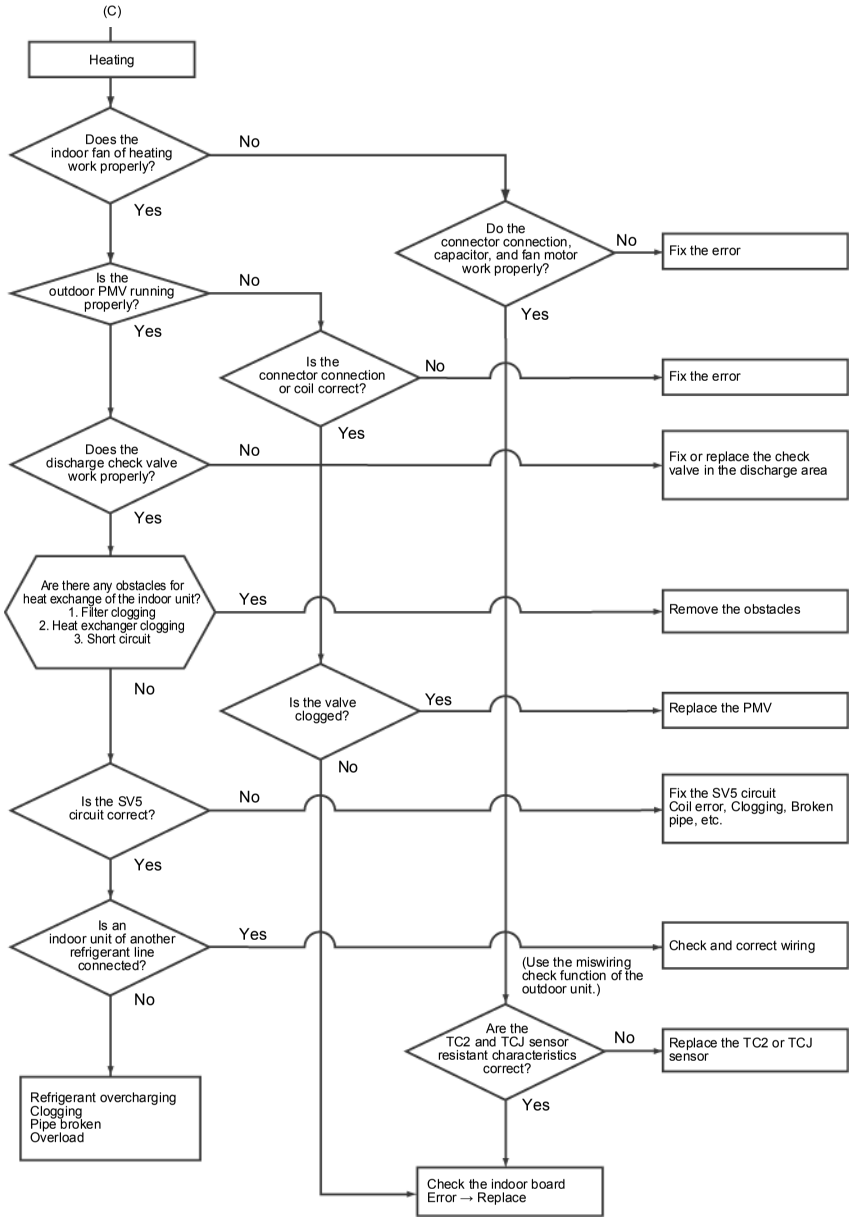
Check code	Check code name	Cause
[P19]	Four-way valve reverse error	1. Four-way valve error 2. TS1 / TE1 sensor error 3. Pd / Ps sensor error 4. Misconnection of the TE and TL sensors



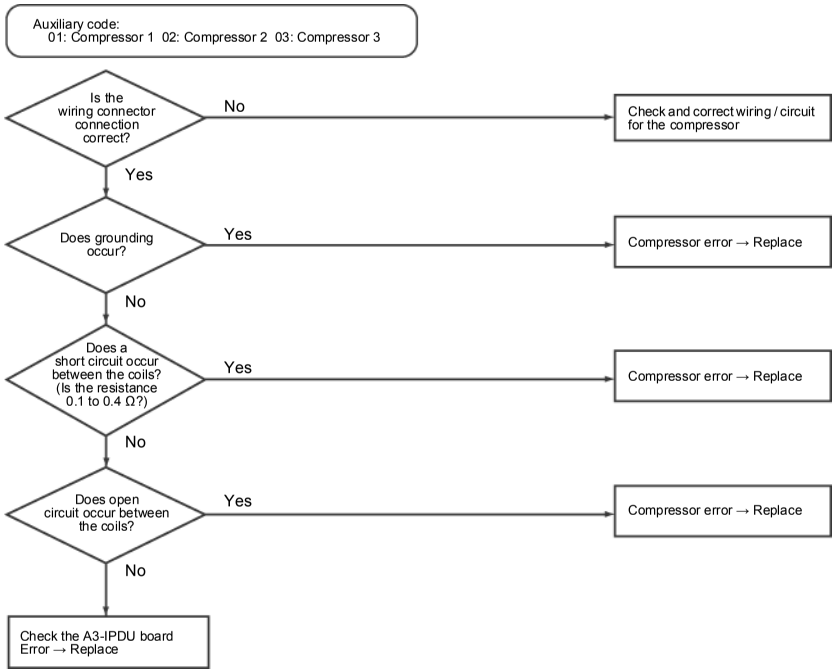
Check code	Check code name	Cause
[P22]	Outdoor fan IPDU error	1. Fan lock 2. Fan IPDU board error 3. Overload 4. External factors such as blast

Auxiliary code:
0∗: IGBT short-circuit
1∗: Position detection circuit error
3∗: Motor lock error
4∗: Motor current error detection
C∗: TH sensor temperature error
D∗: TH sensor error
E∗: Fan Vdc error
Note: 0 to F appears in "∗" above. Ignore it.





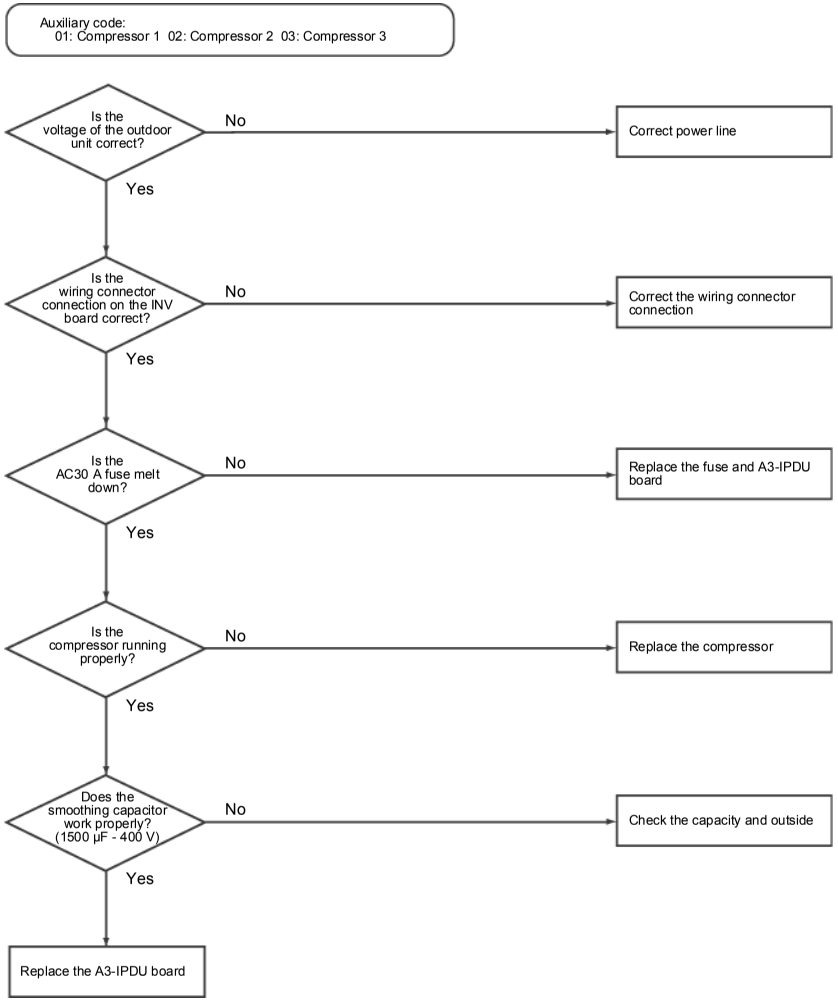
Check code	Check code name	Cause
[P29]	Compressor position detection circuit error	1. Wiring / Connector connection error 2. Compressor error 3. A3-IPDU board error



Check code	Check code name	Cause
[P31]	Other indoor unit errors (Follower unit error)	Another indoor unit in the group is malfunctioning

The [E03][L03][L07][L08] error detected on the header unit in the group leads to the [P31] error on the follower, and the unit stops. The check code does not appear on the remote controller, or is not recorded in the alarm history.

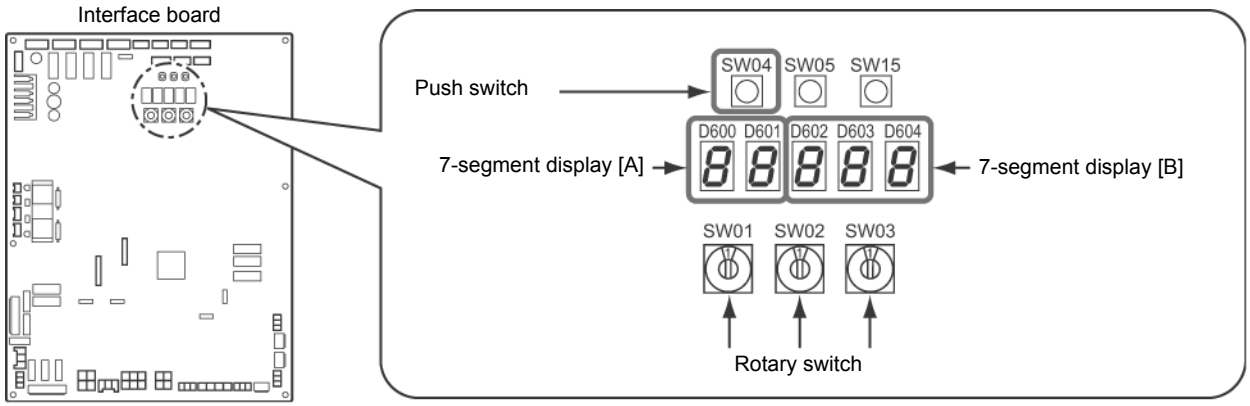
Check code	Check code name	Cause
[P26]	G-Tr short circuit protection error	1. Outdoor power supply error 2. A3-IPDU error / Wiring connection error 3. Compressor error 4. A3-IPDU board error



9-6. 7-segment display function

■ Outdoor unit 7-segment display (Interface board)

The 7-segment display is equipped on the interface control board for checking the operation status.
The display is changed by the combination of the setting numbers of the rotary switch on the board.



◆ Procedure for checking when an abnormal stop has occurred

If the system stopped due to an outdoor unit error, follow the procedure below:

1 **Open the outdoor unit panel and the inspection window of the electrical control box to check the 7-segment display.**

The check code is displayed on the right side of the 7-segment display.

[U1][∗∗∗] ([∗∗∗]: Check code)

* Switch setting for checking the check code: Set [SW01 / SW02 / SW03] to [1 / 1 / 1].
If there is also an auxiliary code, the check code [∗∗∗] appears for 3 seconds and the auxiliary code for 1 second, alternately.

2 **Check the check code, and then follow the diagnosis procedure for each check code.**

3 **If the 7-segment display is [U1][E28], an error has occurred on the terminal unit.**

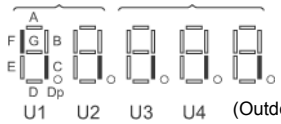
Press the push switch [SW04] on the center unit for several seconds.

The outdoor fan of the outdoor unit where the error occurred starts running.

Open the outdoor unit panel to check the 7-segment display.

4 **Follow the diagnosis procedure for each check code.**

(1)System data display (Displayed only on the center outdoor unit)

SW01	SW02	SW03	Description				
1	1	3	Empty			A	B
	2		System capacity	A	[…8] to [48]: 8 to 48 Horse power		
				B	[HP]		
	3		Number of outdoor units	A	[…1] to […4]: 1 to 4		
				B	[…P]		
	4		Number of connected indoor units / Number of cooling-thermo-active units	A	[…0] to […48]: 0 to 48 (connected)		
				B	[C…0] to [C48]: 0 to 48 (cooling-thermo-active)		
	5		Number of connected indoor units / Number of heating-thermo-active units	A	[…0] to […48]: 0 to 48 (connected)		
				B	[H…0] to [H48]: 0 to 48 (heating-thermo-active)		
	6		Compressor order correction	A	Displays data in hexadecimal		
				B			
	7		Release control	A	Normally: [r…], In release control: [r.1]		
				B	–		
	8		Oil control	Normally: [oiL-0]			
				Oiling: [oiL-1]			
	9		Oiling request	A	Displays in segment LED light-up pattern		
				B	Display A Display B  F part lighting up: Center, oiling request C part lighting up: Terminal, oiling request (Outdoor unit No.)		
	10		Refrigerant oil collection	A	Transmitting cooling refrigerant oil collection signal: [C1], Normally: [C…]		
				B	Transmitting heating refrigerant oil collection signal: [H1], Normally: [H…]		
	11		Automatic address	A	[Ad]		
				B	During automatic address: […FF], Normally: [… … …]		
	12		Demand operation	A	[dU]		
				B	Normally: [… … …], 50 to 90 %: [_50 to _90] Controlled by BUS line input: [E50 to E90]		
	13		Optional control (Board input)	Displays the optional control status		A	B
				Select operation mode: Priority given to heating (Normally)		h.∗.	∗.∗.∗.
					Priority given to cooling	c.∗.	∗.∗.∗.
					Only heating	H.∗.	∗.∗.∗.
					Only cooling	C.∗.	∗.∗.∗.
					Priority given to number of running indoor units	n.∗.	∗.∗.∗.
					Priority given to specific indoor unit	U.∗.	∗.∗.∗.
				Simultaneous ON / OFF: Normally		∗…..	∗.∗.∗.
					Starting	∗.1.	∗.∗.∗.
					Stopping	∗.0.	∗.∗.∗.
				Nighttime low-sound operation: Normally		∗.∗.	….∗.∗.
					Starting	∗.∗.	1.∗.∗.
				Fan operation for snowing: Normally		∗.∗.	∗…..∗.
					Starting	∗.∗.	∗.1.∗.
	14		Optional control (BUS line input)	Same as above			
	15		Empty				
	16		–	A	–		
				B	–		

(2)Outdoor unit data display (Displayed on each outdoor unit)

SW01	SW02	SW03	Description				
1	1	1	Error data	A	Displays outdoor unit No.: [U1] to [U4]		
				B	Displays the check code (Only the latest one). Displays [– – –] when there is no check code. If there is an auxiliary code, the check code [∗ ∗ ∗] appears for 3 seconds and the auxiliary code [– ∗ ∗] for 1 second, alternately.		
			<SW04> Push function: Fan runs only for the unit with error. 7-segment A: [E.1] <SW04 + SW05> Push function: Fan runs only for the unit without error. 7-segment A: [E.0] <SW05> Push function: Fan operation interrupted.				
	2		–	A	–		
				B	–		
	3		Operation mode	A	Stop: [… …] Normal cooling: […C], Normal heating: […H], Normal defrosting: […J]		
				B	–		
	4		Horse power of outdoor unit	A	8 Horse power: […8], 10 Horse power: [10], 12 Horse power: [12], 14 Horse power: [14], 16 Horse power: [16]		
				B	[…HP]		
	5		Compressor operation order	* Data of each compressor appears every 2 seconds in order. If Compressor 3 does not exist, [– –.– – –] appears.			
			Normally: Displays the rotation count of compressor in decimal 7-segment display (A / B): [C1.∗ ∗.∗] ⇒ [C2.∗ ∗.∗] ⇒ [C3.∗ ∗.∗] ⇒ …				
			<SW04> Push SW function: Changes to the operation current value display (decimal) 7-segment display (A / B): [i1.∗ ∗.∗] ⇒ [i2.∗ ∗.∗] ⇒ [i3.∗ ∗.∗] ⇒ … (Returns to normal display by <SW05> push)				
	6		Outdoor fan mode	A	[FP]		
				B	Mode 0 to 63: […0] to [63]		
	7		Compressor / Backup	A	[C.b.]		
				B	Displays the compressor backup setting status Normally: [… … …] Compressor 1 backed up: [1 … …] Compressor 2 backed up: [… 1 …] Compressor 3 backed up: [… … 1]		
	8		–	A	–		
				B	–		
	9		Control valve output data	Displays the electric valve control output status		A	B
				4-way valve: ON / 4-way valve 2: OFF		H. 1	… … …
				4-way valve: OFF / 4-way valve 2: ON		H. 0	… … …
	10			SV2: ON / SV5: OFF / SV6: OFF		2. …	1 0 0
				SV2: OFF / SV5: ON / SV6: ON		2. …	0 1 0
				SV2: OFF / SV5: OFF / SV6: ON		2. …	0 0 1
	11			SV3A: ON / SV3B: OFF / SV3C: OFF / SV3D: OFF		3. 1	0 0 0
				SV3A: OFF / SV3B: ON / SV3C: OFF / SV3D: OFF		3. 0	1 0 0
				SV3A: OFF / SV3B: OFF / SV3C: ON / SV3D: OFF		3. 0	0 1 0
				SV3A: OFF / SV3B: OFF / SV3C: OFF / SV3D: ON		3. 0	0 0 1
	12			SV41: ON / SV42: OFF / SV43: OFF		4. …	1 0 0
				SV41: OFF / SV42: ON / SV43: OFF		4. …	0 1 0
				SV41: OFF / SV42: OFF / SV43: ON		4. …	0 0 1
	13			SV3F: OFF		A. …	… … 0
				SV3F: ON		A. …	… … 1
	14		PMV1 / PMV2	Displays the total opening data (decimal)		∗ ∗	∗ ∗. P
	15		PMV4	Displays the opening data (decimal)		… ∗	∗ ∗. P
	16		Oil judgment status				
			Normally	A	[o L.]		
				B	Initial display: [… … …], Oil judgment result display: [#.∗.$] [#]: Judgment result of Compressor 1, [∗]: Judgment result of Compressor 2, [$]: Judgment result of Compressor 3 (0: Appropriate, 1/2: Short)		
			<SW04> Push SW function: Displays the judgment result of each compressor				
			* Returns to normal display by <SW05> push	A	[L d.]		
				B	Compressor 1 shortage being confirmed: [L … …] Compressor 2 shortage being confirmed: [… L …] Compressor 3 shortage being confirmed: [… … L]		

(3)Outdoor cycle data display (Displayed on each outdoor unit)

SW01	SW02	SW03	Description				
1	1	2	Pd pressure data	Displays the Pd pressure data (MPaG) in decimal (MPaG: Approx. 1/10 of kg/cm^{2}G)		A	B
						P d.	∗. ∗ ∗
	2		Ps pressure data	Displays the Ps pressure data (MPaG) in decimal		P S.	∗. ∗ ∗
	3		PL pressure converted data	Displays the PL pressure converted value (MPaG) in decimal		P L.	∗. ∗ ∗
	4		TD1 sensor data	Displays the temperature sensor data (°C) in decimal • The symbol appears for 1 second and the data for 3 seconds, alternately. • If the data is minus, [– ∗] [∗ ∗ ∗] appears.	Symbol	t d	1 … …
					Data	∗	∗ ∗. ∗
	5		TD2 sensor data		Symbol	t d	2 … …
					Data	∗	∗ ∗. ∗
	6		TD3 sensor data		Symbol	t d	3 … …
					Data	∗	∗ ∗. ∗
	7		TS sensor data		Symbol	t S	… … …
					Data	∗	∗ ∗. ∗
	8		TE1 sensor data		Symbol	t E	… … …
					Data	∗	∗ ∗. ∗
	9		TE2 sensor data		Symbol	t E	2 … …
					Data	∗	∗ ∗. ∗
	10		TL sensor data		Symbol	t L	… … …
					Data	∗	∗ ∗. ∗
	11		TO sensor data		Symbol	t o	… … …
					Data	∗	∗ ∗. ∗
	12		TK1 sensor data		Symbol	F 1	… … …
					Data	∗	∗ ∗. ∗
	13		TK2 sensor data		Symbol	F 2	… … …
					Data	∗	∗ ∗. ∗
	14		TK3 sensor data		Symbol	F 3	… … …
					Data	∗	∗ ∗. ∗
	15		TK4 sensor data		Symbol	F 4	… … …
					Data	∗	∗ ∗. ∗
	16		TK5 sensor data		Symbol	F 5	… … …
					Data	∗	∗ ∗. ∗

(4)Outdoor cycle data display (Displayed on the center unit)

* Used to display the terminal unit information on the 7-segment display of the center unit.

SW01	SW02	SW03	Description		
3	1	1 to 3	Error data	A	[U.∗] ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U4)
				B	Displays the check code (Only the latest one) When there is no check codee: [– – –]
	2		–	A	–
				B	–
	3		Horse power of outdoor unit	A	[U.∗] ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U4)
				B	8 Horse power: [… … 8], 10 Horse power: [… 1 0], 12 Horse power: [… 1 2] 14 Horse power: [… 1 4], 16 Horse power: [… 1 6]
	4		Compressor operation order	A	[U.∗] ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U4)
				B	Displays the ON status of Compressor (x). ∗ Displays " – " if Compressor (x) is not connected. → B Compressor 1: ON → 1 0 0 Compressor 2: ON → 0 1 0 Compressor 3: ON → 0 0 1
	5		Fan mode	A	[U.∗] ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U4)
				B	When stopped: [F … 0], Mode 63: [F 6 3]
	6		Release signal	A	[U.∗] ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U4)
				B	Normally: [r … …], When release signal is received: [r … 1]
	7		Oil judgment	A	[U.∗] ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U4)
				B	Normally: [… … …], When short: [… … L]
	8		Current of compressor 1 operation	A	[U.∗] ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U4)
				B	[∗∗.∗] ∗: Displays the operation current value in decimal
	9		Current of compressor 2 operation	A	[U.∗] ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U4)
				B	[∗∗.∗] ∗: Displays the operation current value in decimal
	10		Current of compressor 3 operation	A	[U.∗] ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U4)
				B	[∗∗.∗] ∗: Displays the operation current value in decimal
	11		Fan operation current	A	[U.∗] ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U4)
				B	[∗∗.∗] ∗: Displays the operation current value in decimal

Note: The terminal unit is set by SW03 switch.

SW03	7-segment display A
1	U2
2	U3
3	U4

(5) Outdoor unit data display (Displayed only on the center outdoor unit)

SW01	SW02	SW03	Description		
4	1 to 16	1 to 4	Indoor BUS communication reception status	B	When received: [… … 1], When not received: [… … …]
5			Indoor check code	B	When there is no check code: [– – –]
6			Indoor horse power	B	0.2, 0.5, 0.8, …1, 1.2, 1.7, …2, 2.5, …3, 3.2, …4, …5, …6, …8, 1 0, 1 6, 2 0
7			Indoor request order (S code, operation mode)	B	[#. … ∗] #: Replaced with operation mode Cooling: [C. … ∗], Heating: [H. … ∗] Fan: [F. … ∗], Stop: [S. … ∗] ∗: Replaced with S code [#. … 0] to [#. … F]
8			Indoor PMV data	B	Displays data in decimal
9			Indoor TSA sensor data	B	Displays data in decimal
11		1 to 4	Indoor TCJ sensor data	B	Displays data in decimal
12			Indoor TC1 sensor data	B	Displays data in decimal
13			Indoor TC2 sensor data	B	Displays data in decimal

Note: The indoor address is set by SW02 and SW03 switch, and displayed in 7-segment display A.

SW03	SW02	Indoor address	7-segment display A
1	1 to 16	SW02 setting No.	[01] to [16]
2	1 to 16	SW02 setting No. + 16	[17] to [32]
3	1 to 16	SW02 setting No. + 32	[33] to [48]
4	1 to 16	SW02 setting No. + 48	[49] to [64]

* Up to 48 indoor units can be connected to the same refrigerant piping line.

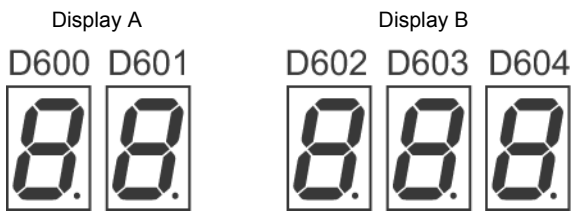
(6) Outdoor EEPROM writing error code display (Displayed only on the center unit)

* Displays the latest error code written on EEPROM of each outdoor unit.
(Used to check the error code after the power is reset.)

Set SW01 – SW03 as follows and press SW04 for 5 seconds or longer to display the error code:

SW01	SW02	SW03	Description	7-segment display	
				A	B
1	1	16	Latest error code of center unit (U1)	E. 1.	***
	2		Latest error code of terminal unit 1 (U2)	E. 2.	***
	3		Latest error code of terminal unit 2 (U3)	E. 3.	***
	4		Latest error code of terminal unit 3 (U4)	E. 4.	***

• 7-segment display



Set [SW01 / SW02 / SW03] to [1 / 1 / 16] and press SW04 for 5 seconds or longer to display the latest error code of the center unit (U1).

If SW02 is changed later, the latest error code of the center unit (U2 – U4).

9-7. Oil judgment display

You can check the current oil judgment results of the compressor using the switch setting of the outdoor unit interface board.
Follow the procedure below.

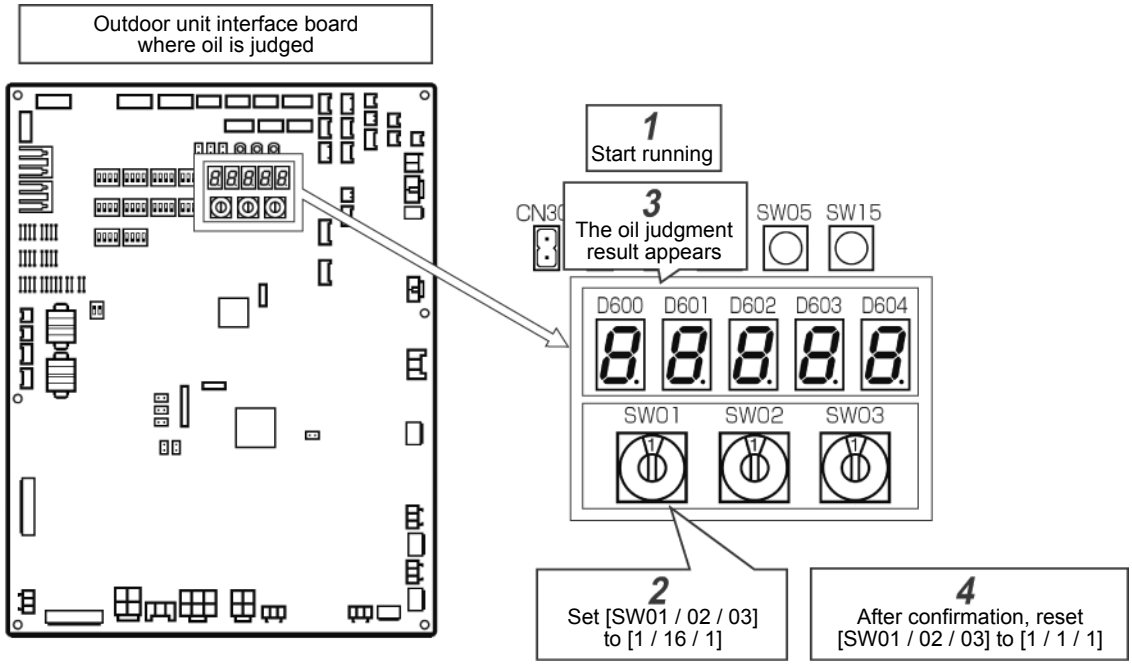
(1) Procedure

1 **Start running.**

2 **Configure the switch setting of the interface board for the target outdoor unit as follows:**
Set [SW01 / 02 / 03] to [1 / 16 / 1].

3 **The oil judgment results appear on the 7-segment display.**
7-segment display: [oL.] [#.∗.$]
3 digits on the right show the results. The oil judgment results of the compressors 1, 2, and 3 are displayed. (Example: # ∗ $ = #: Compressor 1 result, ∗: Compressor 2 result, $: Compressor 3 result, See the following table for the result details)

4 **After confirmation, reset [SW01 / 02 / 03] to [1 / 1 / 1].**



(2) Oil judgment results

7-segment display	Judgment result	Content
O	Appropriate	The oil amount in the compressor is appropriate.
1 2	Short	The oil amount in the compressor is not sufficient. (Both 1 and 2 indicate shortage.) If this status continues, the system stops for protection.

Display example

7-segment display
[oL] [0 0 0] Oil amount in compressor 1, 2, and 3: Appropriate
[oL] [0 0 0] Oil amount in compressor 1, 2, and 3: Short
[oL] [0 0 0] Oil amount in compressor 2: Short, Oil amount in compressor 1 and 3: Appropriate

- Judgment results of compressor 3
- Judgment results of compressor 2
- Judgment results of compressor 1

9-8. Leakage / Clogging of the refrigerant cycle circuit

List of check codes displayed when a leakage / clogging error has occurred on the outdoor cycle component / oil circuit component

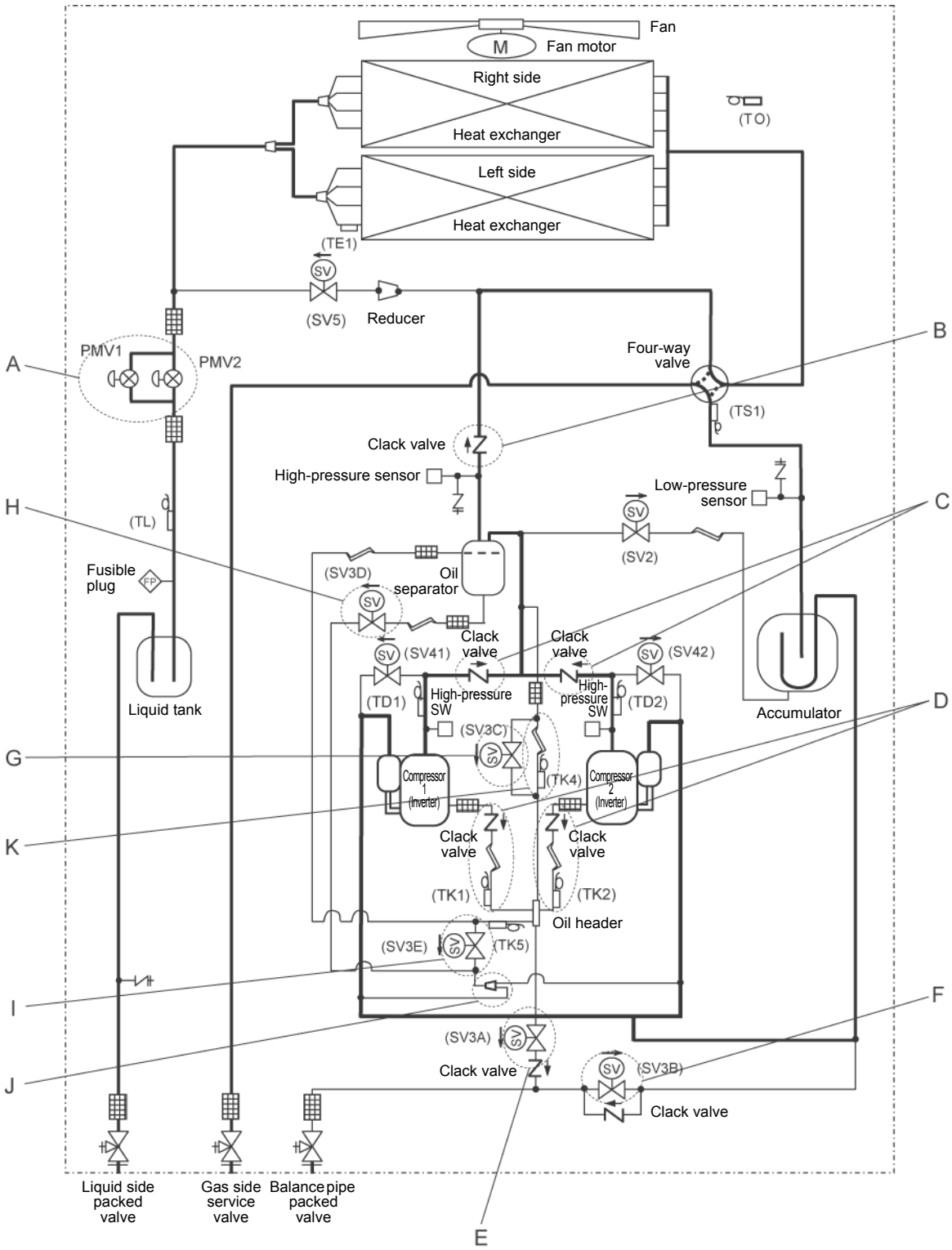
<Clogging>

Component	Error location (See next page)	Unit where the error occurred	Detected check code		Phenomenon
Outdoor PMV 1, 2	A	Own unit	High-pressure protection activation Low-pressure protection activation Discharge temperature error (TD1) Discharge temperature error (TD2)	P20 H06 P03 P17	High-pressure rising Low-pressure lowering Discharge temperature rising (compressor 1) Discharge temperature rising (compressor 2)
Check valve in the discharge area	B	Own unit	High-pressure protection error High-pressure SW error	P20 P04-XX	Abnormal high-pressure rising
Discharge pipe check valve	C	Own unit	High-pressure SW error	P04-XX	Abnormal high-pressure rising
Oil circuit check valve Capillary Strainer	D	Own unit	Oil detection circuit error Lower oil level detection protection	H16-XX H07	Oil circuit error or shortage judged
SV3A valve	E	Another connected unit	Lower oil level detection protection	H07	Oil shortage
SV3B valve	F	Own unit	Lower oil level detection protection	H07	Oil shortage
SV3C valve	G	Another connected unit	Lower oil level detection protection	H07	Oil shortage
SV3D valve SV3D valve circuit Capillary Strainer	H	Own unit	Lower oil level detection protection	H07	Oil shortage
SV3E valve	I	Own unit	Oil detection circuit error Lower oil level detection protection	H16-05 H07	Oil circuit error Shortage judged Oil shortage
Oil return distributer	J	Own unit	Lower oil level detection protection	H07	Oil shortage
SV3C bypass capillary	K	Own unit	Oil detection circuit error	H16-04	Oil circuit error

<Leakage>

Component	Error location (See next page)	Unit where the error occurred	Detected check code		Phenomenon
Outdoor PMV 1, 2	A	Own unit	Outdoor compressor liquid compression error Lower oil level detection protection	P13 H07	Refrigerant hibernating
		Another connected unit	Discharge temperature error (TD1) Discharge temperature error (TD2)	P03 P17	Discharge temperature rising (compressor 1) Discharge temperature rising (compressor 2)
Check valve in the discharge area	B	Own unit	Lower oil level detection protection Compressor breakdown Compressor error (Lock)	H07 H01-XX H02-XX	Refrigerant hibernating
Discharge pipe check valve	C	Own unit	Lower oil level detection protection Compressor breakdown Compressor error (Lock)	H07 H01-XX H02-XX	Refrigerant hibernating
Oil circuit check valve	D	Own unit	Lower oil level detection protection	H07	Too much oil (Leaked side) Oil shortage (Normal side)
SV3A valve	E	Own unit	Lower oil level detection protection	H07	Oil shortage
SV3C valve	G	Own unit	Lower oil level detection protection	H07	Shortage judged

Note: “XX” indicates an auxiliary code.


Fan
M
Fan motor
Right side
Heat exchanger
Left side
Heat exchanger
(TO)
(TE1)
SV
(SV5)
Reducer
PMV1
PMV2
A
B
Four-way valve
(TS1)
Clack valve
High-pressure sensor
Low-pressure sensor
C
H
(TL)
(SV2)
Fusible plug
FP
(SV3D)
Oil separator
Clack valve
Clack valve
(SV41)
(SV42)
(TD1)
High-pressure SW
High-pressure SW
(TD2)
Liquid tank
Accumulator
D
(SV3C)
G
Compressor 1 (Inverter)
(TK4)
Compressor 2 (Inverter)
K
Clack valve
Clack valve
(TK1)
(TK2)
Oil header
(SV3E)
(TK5)
I
F
(SV3A)
Clack valve
(SV3B)
J
Clack valve
Liquid side packed valve
Gas side service valve
Balance pipe packed valve
E

List of check codes displayed when a leakage / clogging error has occurred on the outdoor cycle component / oil circuit component

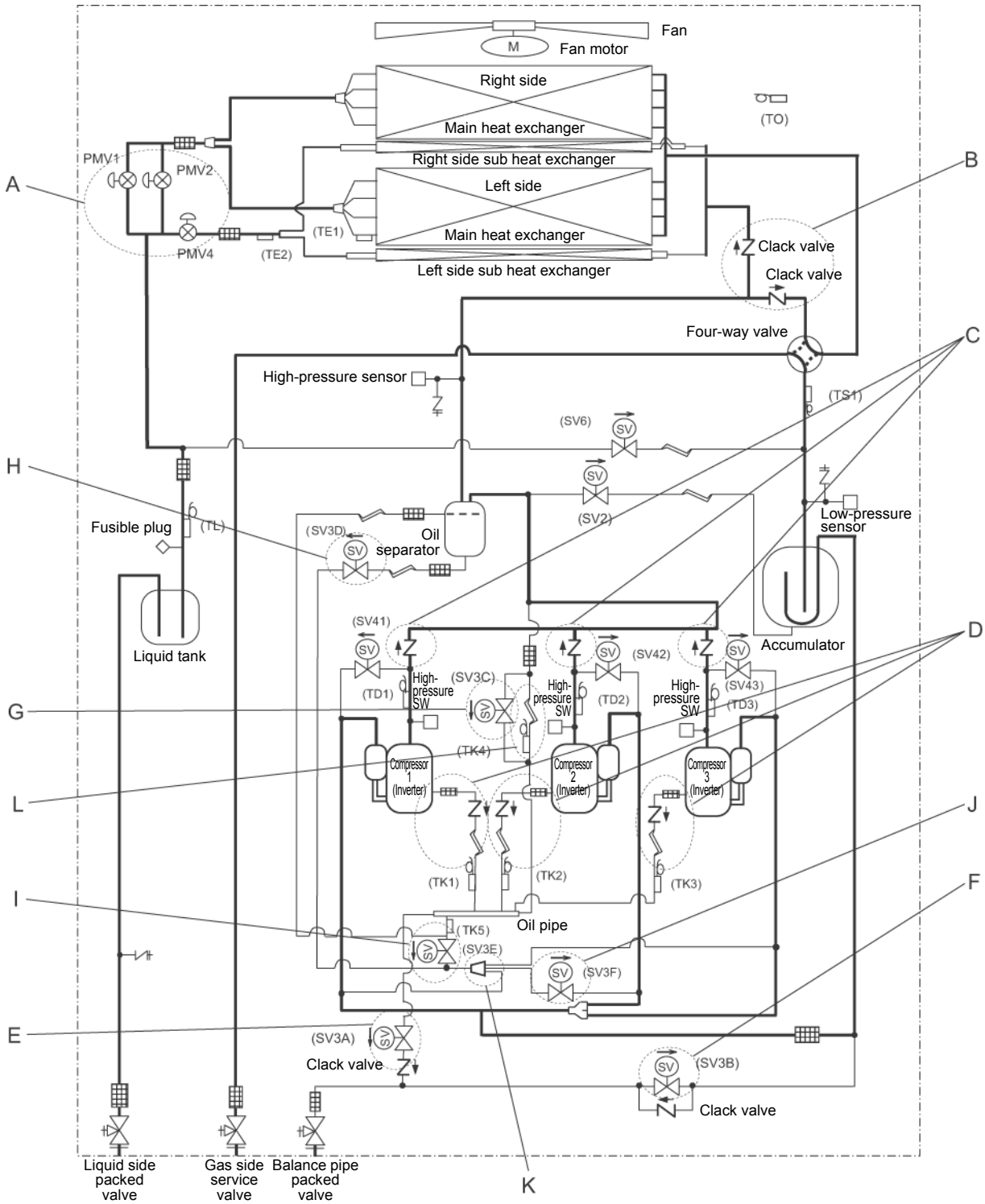
<Clogging>

Component	Error location (See next page)	Unit where the error occurred	Detected check code		Phenomenon
Outdoor PMV 1, 2, 4	A	Own unit	High-pressure protection activation Low-pressure protection activation Discharge temperature error (TD1) Discharge temperature error (TD2) Discharge temperature error (TD3)	P20 H06 P03 P17 P18	High-pressure rising Low-pressure lowering Discharge temperature rising (compressor 1) Discharge temperature rising (compressor 2) Discharge temperature rising (compressor 3)
Check valve in the discharge area	B	Own unit	High-pressure protection error High-pressure SW error	P20 P04-XX	Abnormal high-pressure rising
Discharge pipe check valve	C	Own unit	High-pressure SW error	P04-XX	Abnormal high-pressure rising
Oil circuit check valve Capillary Strainer	D	Own unit	Oil detection circuit error Lower oil level detection protection	H16-XX H07	Oil circuit error or shortage judged
SV3A valve	E	Another connected unit	Lower oil level detection protection	H07	Oil shortage
SV3B valve	F	Own unit	Lower oil level detection protection	H07	Oil shortage
SV3C valve	G	Another connected unit	Lower oil level detection protection	H07	Oil shortage
SV3D valve SV3D valve circuit Capillary Strainer	H	Own unit	Lower oil level detection protection	H07	Oil shortage
SV3E valve	I	Own unit	Oil detection circuit error Lower oil level detection protection	H16-05 H07	Oil circuit error Shortage judged Oil shortage
SV3F valve	J	Own unit	Lower oil level detection protection	H07	Oil shortage
Oil return distributer	K	Own unit	Lower oil level detection protection	H07	Oil shortage
SV3C bypass capillary	L	Own unit	Oil detection circuit error	H16-04	Oil circuit error

<Leakage>

Component	Error location (See next page)	Unit where the error occurred	Detected check code		Phenomenon
Outdoor PMV 1, 2	A	Own unit	Outdoor compressor liquid compression error Lower oil level detection protection	P13 H07	Refrigerant hibernating
		Another connected unit	Discharge temperature error (TD1) Discharge temperature error (TD2) Discharge temperature error (TD3)	P03 P17 P18	Discharge temperature rising (compressor 1) Discharge temperature rising (compressor 2) Discharge temperature rising (compressor 3)
Check valve in the discharge area	B	Own unit	Lower oil level detection protection Compressor breakdown Compressor error (Lock)	H07 H01-XX H02-XX	Refrigerant hibernating
Discharge pipe check valve	C	Own unit	Lower oil level detection protection Compressor breakdown Compressor error (Lock)	H07 H01-XX H02-XX	Refrigerant hibernating
Oil circuit check valve	D	Own unit	Lower oil level detection protection	H07	Too much oil (Leaked side) Oil shortage (Normal side)
SV3A valve	E	Own unit	Lower oil level detection protection	H07	Oil shortage
SV3C valve	G	Own unit	Lower oil level detection protection	H07	Shortage judged

Note: “XX” indicates an auxiliary code.

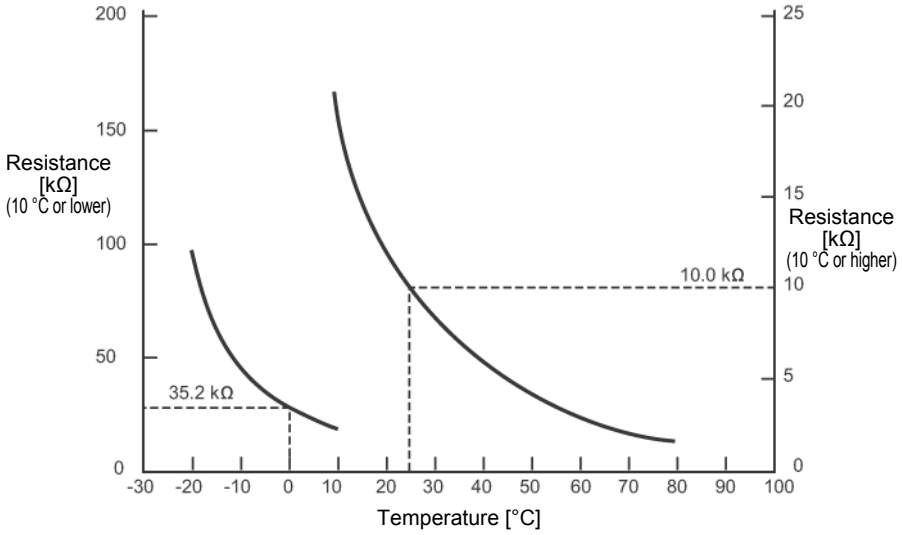

Fan
M
Fan motor
Right side
Main heat exchanger
Right side sub heat exchanger
Left side
Main heat exchanger
Left side sub heat exchanger
(TO)
PMV1
PMV2
PMV4
(TE1)
(TE2)
Clack valve
Clack valve
Four-way valve
High-pressure sensor
(TS1)
(SV6)
(SV2)
Low-pressure sensor
Fusible plug
(TL)
(SV3D)
Oil separator
Liquid tank
Accumulator
(SV41)
(SV42)
(SV43)
High-pressure SW
(TD1)
(TD2)
(TD3)
(SV3C)
(TK4)
Compressor 1 (Inverter)
Compressor 2 (Inverter)
Compressor 3 (Inverter)
(TK1)
(TK2)
(TK3)
Oil pipe
(TK5)
(SV3E)
(SV3F)
(SV3A)
Clack valve
(SV3B)
Clack valve
Liquid side packed valve
Gas side service valve
Balance pipe packed valve
A
B
C
D
E
F
G
H
I
J
K
L

9-9. Sensor characteristics

(Outdoor unit)

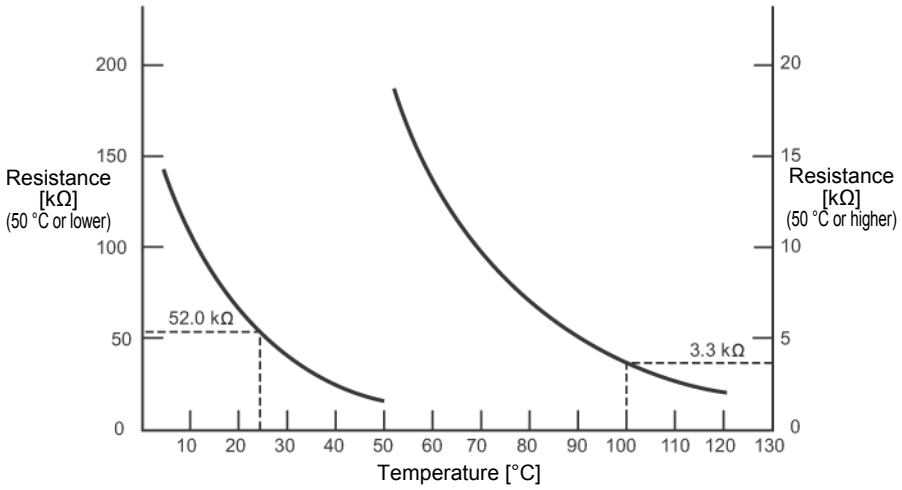
▼Temperature sensor characteristics

Outdoor TS1, TE1, TE2, TL, TO sensor



Temperature [°C]	Resistance [kΩ]
-20	114.8
-15	83.9
-10	62.1
-5	46.5
0	35.2
5	26.9
10	20.7
15	16.1
20	12.7
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.9
60	2.4
65	2.0
70	1.7
75	1.4
80	1.2

Outdoor TD1, TD2, TD3, TK1, TK2, TK3, TK4, TK5 sensor



Temperature [°C]	Resistance [kΩ]
0	181.5
5	138.5
10	107.2
15	83.6
20	65.7
25	52.0
30	41.5
35	33.4
40	27.1
45	22.1
50	18.1
55	14.9
60	12.4
65	10.4
70	8.7
75	7.3
80	6.2
85	5.3
90	4.5
95	3.9
100	3.3
105	2.9
110	2.5
115	2.2
120	1.9

(Outdoor unit)

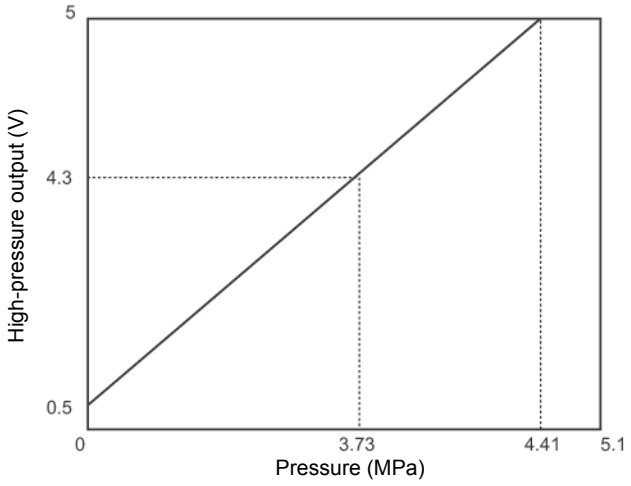
▼Pressure sensor characteristics

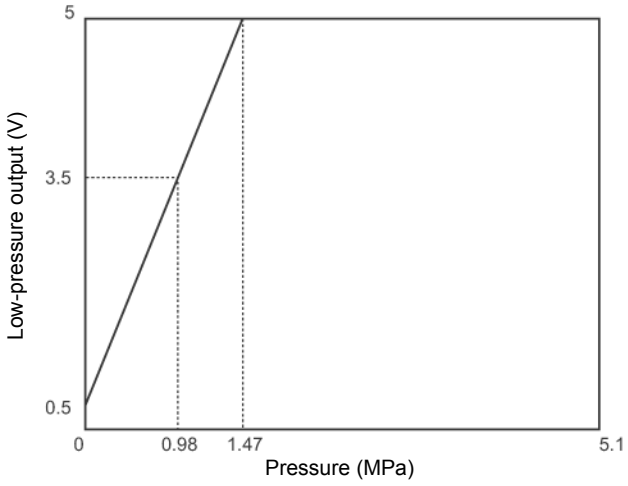
• Input / Output combination table

Pin No.	High-pressure (Pd)		Low-pressure (Ps)	
	Input / Output name	Lead color	Input / Output name	Lead color
1	OUTPUT	White	—	—
2	—	—	OUTPUT	White
3	GND	Black	GND	Black
4	+5 V	Red	+5 V	Red

• Output voltage – Pressure

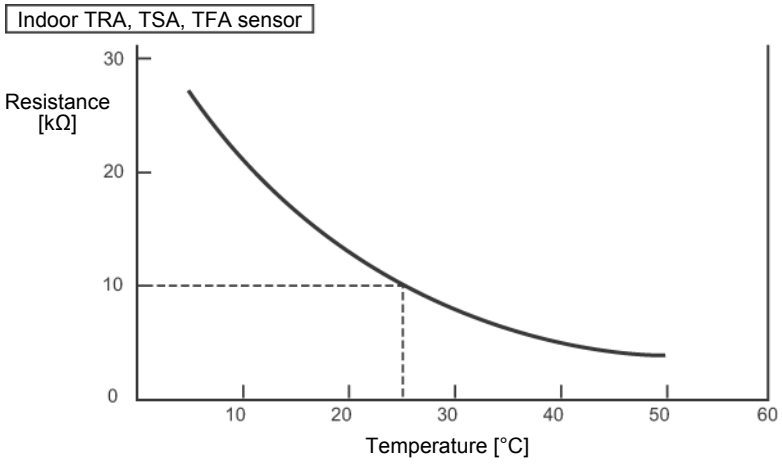
High-pressure (Pd)	Low-pressure (Ps)
0.5 to 4.3 V 0 to 3.73 MPa	0.5 to 3.5 V 0 to 0.98 MPa





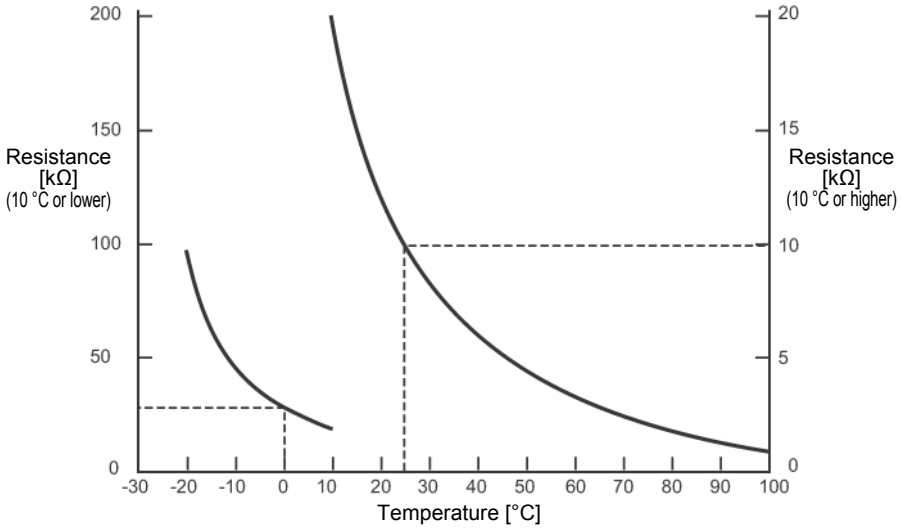
(Indoor unit)

▼Temperature sensor characteristics



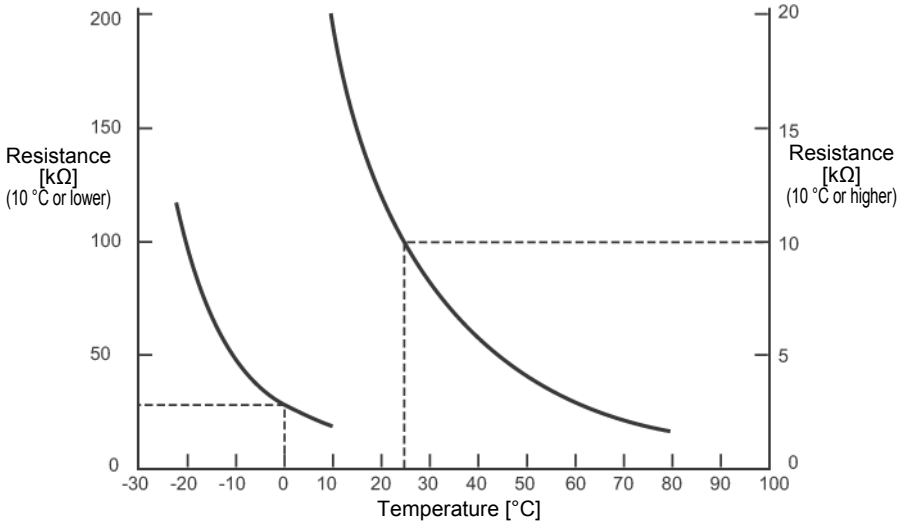
Temperature [°C]	Resistance [kΩ]
0	33.9
5	26.1
10	20.3
15	15.9
20	12.6
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.8
60	2.4

Indoor TC1 sensor



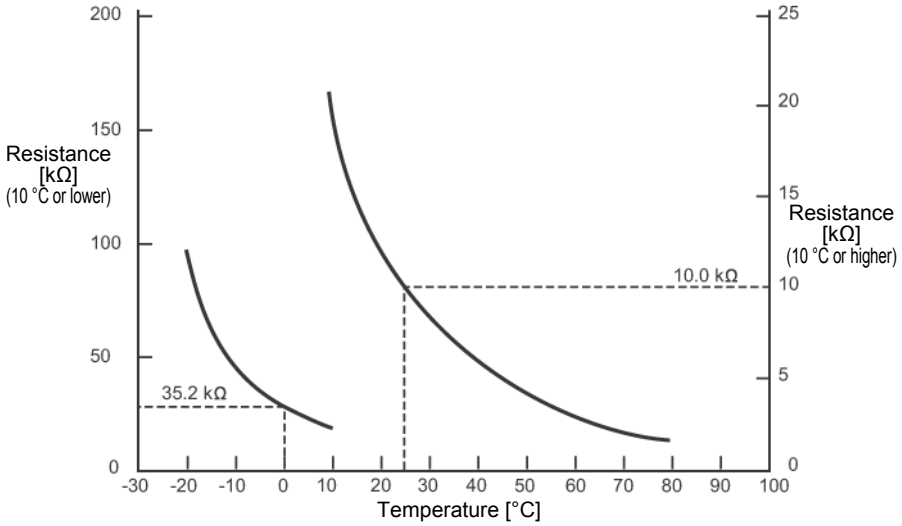
Temperature [°C]	Resistance [kΩ]
-20	99.9
-15	74.1
-10	55.6
-5	42.2
0	32.8
5	25.4
10	19.8
15	15.6
20	14.2
25	10.0
30	8.1
35	6.5
40	5.3
45	4.4
50	3.6
55	3.0
60	2.5
65	2.1
70	1.8
75	1.5
80	1.3
85	1.1
90	1.0
95	0.8
100	0.7

Indoor TC2, TCJ sensor



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

Indoor TOA sensor



Temperature [°C]	Resistance [kΩ]
-20	114.8
-15	83.9
-10	62.1
-5	46.5
0	35.2
5	26.9
10	20.7
15	16.1
20	12.7
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.9
60	2.4
65	2.0
70	1.7
75	1.4
80	1.2

9-10. Pressure sensor output check

(Outdoor unit)

▼Pd sensor characteristics
0 to 4.41 MPa (0.5 to 5 V output / 0 to 4.41 MPa)
Indoor unit main board CN501: 2 – 3 pin voltage check (3 pin tester "–")

VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)
0.00	0.00	0.0	1.00	0.49	5.0	1.99	1.46	14.9	2.99	2.44	24.9	3.98	3.42	34.8
0.02	0.00	0.0	1.02	0.51	5.2	2.01	1.48	15.1	3.01	2.46	25.1	4.00	3.44	35.0
0.04	0.00	0.0	1.04	0.53	5.4	2.03	1.50	15.3	3.03	2.48	25.3	4.02	3.45	35.2
0.06	0.00	0.0	1.06	0.54	5.5	2.05	1.52	15.5	3.05	2.50	25.5	4.04	3.48	35.4
0.08	0.00	0.0	1.07	0.56	5.7	2.07	1.54	15.7	3.07	2.52	25.7	4.06	3.49	35.6
0.10	0.00	0.0	1.09	0.58	5.9	2.09	1.56	15.9	3.09	2.54	25.9	4.08	3.51	35.8
0.12	0.00	0.0	1.11	0.60	6.1	2.11	1.58	16.1	3.11	2.56	26.1	4.10	3.53	36.0
0.14	0.00	0.0	1.13	0.62	6.3	2.13	1.60	16.3	3.13	2.57	26.3	4.12	3.55	36.2
0.16	0.00	0.0	1.15	0.64	6.5	2.15	1.62	16.5	3.15	2.59	26.4	4.14	3.57	36.4
0.18	0.00	0.0	1.17	0.66	6.7	2.17	1.64	16.7	3.16	2.61	26.6	4.16	3.59	36.6
0.20	0.00	0.0	1.19	0.68	6.9	2.19	1.66	16.9	3.18	2.63	26.8	4.18	3.61	36.8
0.22	0.00	0.0	1.21	0.70	7.1	2.21	1.67	17.1	3.20	2.65	27.0	4.20	3.63	37.0
0.23	0.00	0.0	1.23	0.72	7.3	2.23	1.69	17.3	3.22	2.67	27.2	4.22	3.65	37.2
0.25	0.00	0.0	1.25	0.74	7.5	2.25	1.71	17.5	3.24	2.69	27.4	4.24	3.67	37.4
0.27	0.00	0.0	1.27	0.76	7.7	2.27	1.73	17.7	3.26	2.71	27.6	4.26	3.69	37.6
0.29	0.00	0.0	1.29	0.77	7.9	2.29	1.75	17.9	3.28	2.73	27.8	4.28	3.70	37.8
0.31	0.00	0.0	1.31	0.79	8.1	2.31	1.77	18.0	3.30	2.75	28.0	4.30	3.72	38.0
0.33	0.00	0.0	1.33	0.81	8.3	2.32	1.79	18.2	3.32	2.77	28.2	4.32	3.74	38.2
0.35	0.00	0.0	1.35	0.83	8.5	2.34	1.81	18.4	3.34	2.79	28.4	4.34	3.76	38.4
0.37	0.00	0.0	1.37	0.85	8.7	2.36	1.83	18.6	3.36	2.80	28.6	4.36	3.78	38.6
0.39	0.00	0.0	1.39	0.87	8.9	2.38	1.85	18.8	3.38	2.82	28.8	4.38	3.80	38.8
0.41	0.00	0.0	1.41	0.89	9.1	2.40	1.87	19.0	3.40	2.84	29.0	4.40	3.82	38.9
0.43	0.00	0.0	1.43	0.91	9.3	2.42	1.89	19.2	3.42	2.86	29.2	4.41	3.84	39.1
0.45	0.00	0.0	1.45	0.93	9.5	2.44	1.90	19.4	3.44	2.88	29.4	4.43	3.86	39.3
0.47	0.00	0.0	1.47	0.95	9.6	2.46	1.92	19.6	3.46	2.90	29.6	4.45	3.88	39.5
0.49	0.00	0.0	1.48	0.97	9.8	2.48	1.94	19.8	3.48	2.92	29.8	4.47	3.90	39.7
0.51	0.01	0.1	1.50	0.99	10.0	2.50	1.96	20.0	3.50	2.94	30.0	4.49	3.92	39.9
0.53	0.03	0.3	1.52	1.00	10.2	2.52	1.98	20.2	3.52	2.96	30.2	4.51	3.93	40.1
0.55	0.05	0.5	1.54	1.02	10.4	2.54	2.00	20.4	3.54	2.98	30.4	4.53	3.95	40.3
0.57	0.07	0.7	1.56	1.04	10.6	2.56	2.02	20.6	3.56	3.00	30.5	4.55	3.97	40.5
0.59	0.08	0.9	1.58	1.06	10.8	2.58	2.04	20.8	3.57	3.02	30.7	4.57	3.99	40.7
0.61	0.10	1.1	1.60	1.08	11.0	2.60	2.06	21.0	3.59	3.03	30.9	4.59	4.01	40.9
0.63	0.12	1.3	1.62	1.10	11.2	2.62	2.08	21.2	3.61	3.05	31.1	4.61	4.03	41.1
0.65	0.14	1.4	1.64	1.12	11.4	2.64	2.10	21.4	3.63	3.07	31.3	4.63	4.05	41.3
0.66	0.16	1.6	1.66	1.14	11.6	2.66	2.12	21.6	3.65	3.09	31.5	4.65	4.07	41.5
0.68	0.18	1.8	1.68	1.16	11.8	2.68	2.13	21.8	3.67	3.11	31.7	4.67	4.09	41.7
0.70	0.20	2.0	1.70	1.18	12.0	2.70	2.15	22.0	3.69	3.13	31.9	4.69	4.11	41.9
0.72	0.22	2.2	1.72	1.20	12.2	2.72	2.17	22.2	3.71	3.15	32.1	4.71	4.13	42.1
0.74	0.24	2.4	1.74	1.21	12.4	2.73	2.19	22.3	3.73	3.17	32.3	4.73	4.15	42.3
0.76	0.26	2.6	1.76	1.23	12.6	2.75	2.21	22.5	3.75	3.19	32.5	4.75	4.16	42.5
0.78	0.28	2.8	1.78	1.25	12.8	2.77	2.23	22.7	3.77	3.21	32.7	4.77	4.18	42.7
0.80	0.30	3.0	1.80	1.27	13.0	2.79	2.25	22.9	3.79	3.23	32.9	4.79	4.20	42.9
0.82	0.31	3.2	1.82	1.29	13.2	2.81	2.27	23.1	3.81	3.25	33.1	4.81	4.22	43.0
0.84	0.33	3.4	1.84	1.31	13.4	2.83	2.29	23.3	3.83	3.26	33.3	4.82	4.24	43.2
0.86	0.35	3.6	1.86	1.33	13.6	2.85	2.31	23.5	3.85	3.28	33.5	4.84	4.26	43.4
0.88	0.37	3.8	1.88	1.35	13.8	2.87	2.33	23.7	3.89	3.30	33.7	4.86	4.28	43.6
0.90	0.39	4.0	1.90	1.37	13.9	2.89	2.35	23.9	3.89	3.32	33.9	4.88	4.30	43.8
0.92	0.41	4.2	1.91	1.39	14.1	2.91	2.36	24.1	3.91	3.34	34.1	4.90	4.32	44.0
0.94	0.43	4.4	1.93	1.41	14.3	2.93	2.38	24.3	3.93	3.36	34.3	4.92	4.34	44.2
0.96	0.45	4.6	1.95	1.43	14.5	2.95	2.40	24.5	3.95	3.38	34.5	4.94	4.36	44.4
0.98	0.47	4.8	1.97	1.44	14.7	2.97	2.42	24.7	3.97	3.40	34.7	4.96	4.38	44.6
												4.98	4.39	44.8

(Outdoor unit)

▼ Ps sensor characteristics

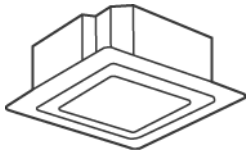
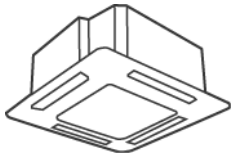
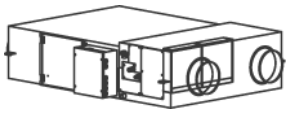
0 to 1.47 MPa (0.5 to 5 V output / 0 to 1.47 MPa)

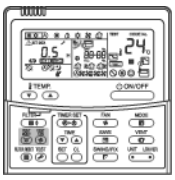
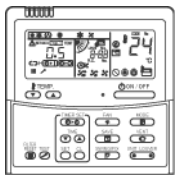
Indoor unit main board CN500: 2 – 3 pin voltage check (3 pin tester "–")

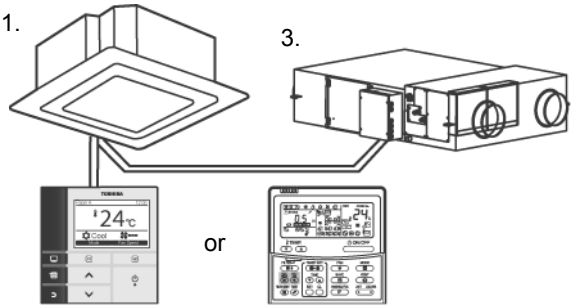
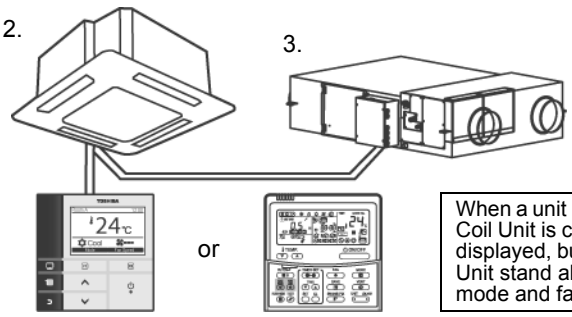
VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)
0.00	0.00	0.0	1.00	0.16	1.7	1.99	0.49	5.0	2.99	0.81	8.3	3.98	1.14	11.6
0.02	0.00	0.0	1.02	0.17	1.7	2.01	0.49	5.0	3.01	0.82	8.4	4.00	1.15	11.7
0.04	0.00	0.0	1.04	0.18	1.8	2.03	0.50	5.1	3.03	0.83	8.4	4.02	1.15	11.7
0.06	0.00	0.0	1.06	0.18	1.8	2.05	0.51	5.2	3.05	0.83	8.5	4.04	1.16	11.8
0.08	0.00	0.0	1.07	0.19	1.9	2.07	0.51	5.2	3.07	0.84	8.6	4.06	1.17	11.9
0.10	0.00	0.0	1.09	0.19	2.0	2.09	0.52	5.3	3.09	0.85	8.6	4.08	1.17	11.9
0.12	0.00	0.0	1.11	0.20	2.0	2.11	0.53	5.4	3.11	0.85	8.7	4.10	1.18	12.0
0.14	0.00	0.0	1.13	0.21	2.1	2.13	0.53	5.4	3.13	0.86	8.8	4.12	1.18	12.1
0.16	0.00	0.0	1.15	0.21	2.2	2.15	0.54	5.5	3.15	0.86	8.8	4.14	1.19	12.1
0.18	0.00	0.0	1.17	0.22	2.2	2.17	0.55	5.6	3.16	0.87	8.9	4.16	1.20	12.2
0.20	0.00	0.0	1.19	0.23	2.3	2.19	0.55	5.6	3.18	0.88	8.9	4.18	1.20	12.3
0.22	0.00	0.0	1.21	0.23	2.4	2.21	0.56	5.7	3.20	0.88	9.0	4.20	1.21	12.3
0.23	0.00	0.0	1.23	0.24	2.4	2.23	0.56	5.8	3.22	0.89	9.1	4.22	1.22	12.4
0.25	0.00	0.0	1.25	0.25	2.5	2.25	0.57	5.8	3.24	0.90	9.1	4.24	1.22	12.5
0.27	0.00	0.0	1.27	0.25	2.6	2.27	0.58	5.9	3.26	0.90	9.2	4.26	1.23	12.5
0.29	0.00	0.0	1.29	0.26	2.6	2.29	0.58	6.0	3.28	0.91	9.3	4.28	1.24	12.6
0.31	0.00	0.0	1.31	0.26	2.7	2.31	0.59	6.0	3.30	0.92	9.3	4.30	1.24	12.7
0.33	0.00	0.0	1.33	0.27	2.8	2.32	0.60	6.1	3.32	0.92	9.4	4.32	1.25	12.7
0.35	0.00	0.0	1.35	0.28	2.8	2.34	0.60	6.1	3.34	0.93	9.5	4.34	1.25	12.8
0.37	0.00	0.0	1.37	0.28	2.9	2.36	0.61	6.2	3.36	0.94	9.5	4.36	1.26	12.9
0.39	0.00	0.0	1.39	0.29	3.0	2.38	0.62	6.3	3.38	0.94	9.6	4.38	1.27	12.9
0.41	0.00	0.0	1.41	0.30	3.0	2.40	0.62	6.3	3.40	0.95	9.7	4.40	1.27	13.0
0.43	0.00	0.0	1.43	0.30	3.1	2.42	0.63	6.4	3.42	0.95	9.7	4.41	1.28	13.0
0.45	0.00	0.0	1.45	0.31	3.2	2.44	0.64	6.5	3.44	0.96	9.8	4.43	1.29	13.1
0.47	0.00	0.0	1.47	0.32	3.2	2.46	0.64	6.5	3.46	0.97	9.9	4.45	1.29	13.2
0.49	0.00	0.0	1.48	0.32	3.3	2.48	0.65	6.6	3.48	0.97	9.9	4.47	1.30	13.2
0.51	0.00	0.0	1.50	0.33	3.3	2.50	0.65	6.7	3.50	0.98	10.0	4.49	1.31	13.3
0.53	0.01	0.1	1.52	0.34	3.4	2.52	0.66	6.7	3.52	0.99	10.1	4.51	1.31	13.4
0.55	0.02	0.2	1.54	0.34	3.5	2.54	0.67	6.8	3.54	0.99	10.1	4.53	1.32	13.4
0.57	0.02	0.2	1.56	0.35	3.5	2.56	0.67	6.9	3.56	1.00	10.2	4.55	1.32	13.5
0.59	0.03	0.3	1.58	0.35	3.6	2.58	0.68	6.9	3.57	1.01	10.2	4.57	1.33	13.6
0.61	0.03	0.4	1.60	0.36	3.7	2.60	0.69	7.0	3.59	1.01	10.3	4.59	1.34	13.6
0.63	0.04	0.4	1.62	0.37	3.7	2.62	0.69	7.1	3.61	1.02	10.4	4.61	1.34	13.7
0.65	0.05	0.5	1.64	0.37	3.8	2.64	0.70	7.1	3.63	1.02	10.4	4.63	1.35	13.8
0.66	0.05	0.5	1.66	0.38	3.9	2.66	0.71	7.2	3.65	1.03	10.5	4.65	1.36	13.8
0.68	0.06	0.6	1.68	0.39	3.9	2.68	0.71	7.3	3.67	1.04	10.6	4.67	1.36	13.9
0.70	0.07	0.7	1.70	0.39	4.0	2.70	0.72	7.3	3.69	1.04	10.6	4.69	1.37	14.0
0.72	0.07	0.7	1.72	0.40	4.1	2.72	0.72	7.4	3.71	1.05	10.7	4.71	1.38	14.0
0.74	0.08	0.8	1.74	0.41	4.1	2.73	0.73	7.4	3.73	1.06	10.8	4.73	1.38	14.1
0.76	0.09	0.9	1.76	0.41	4.2	2.75	0.74	7.5	3.75	1.06	10.8	4.75	1.39	14.2
0.78	0.09	0.9	1.78	0.42	4.3	2.77	0.74	7.6	3.77	1.07	10.9	4.77	1.39	14.2
0.80	0.10	1.0	1.80	0.42	4.3	2.79	0.75	7.6	3.79	1.08	11.0	4.79	1.40	14.3
0.82	0.11	1.1	1.82	0.43	4.4	2.81	0.76	7.7	3.81	1.08	11.0	4.81	1.41	14.3
0.84	0.11	1.1	1.84	0.44	4.5	2.83	0.76	7.8	3.83	1.09	11.1	4.82	1.41	14.4
0.86	0.12	1.2	1.86	0.44	4.5	2.85	0.77	7.8	3.85	1.09	11.2	4.84	1.42	14.5
0.88	0.12	1.3	1.88	0.45	4.6	2.87	0.78	7.9	3.89	1.10	11.2	4.86	1.43	14.5
0.90	0.13	1.3	1.90	0.46	4.6	2.89	0.78	8.0	3.89	1.11	11.3	4.88	1.43	14.6
0.92	0.14	1.4	1.91	0.46	4.7	2.91	0.79	8.0	3.91	1.11	11.4	4.90	1.44	14.7
0.94	0.14	1.5	1.93	0.47	4.8	2.93	0.79	8.1	3.93	1.12	11.4	4.92	1.45	14.7
0.96	0.15	1.5	1.95	0.48	4.8	2.95	0.80	8.2	3.95	1.13	11.5	4.94	1.45	14.8
0.98	0.16	1.6	1.97	0.48	4.9	2.97	0.81	8.2	3.97	1.13	11.5	4.96	1.46	14.9
												4.98	1.47	14.9

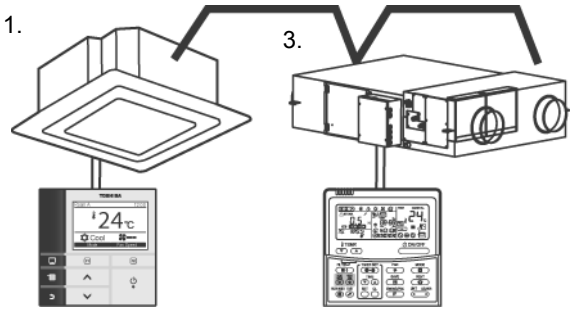
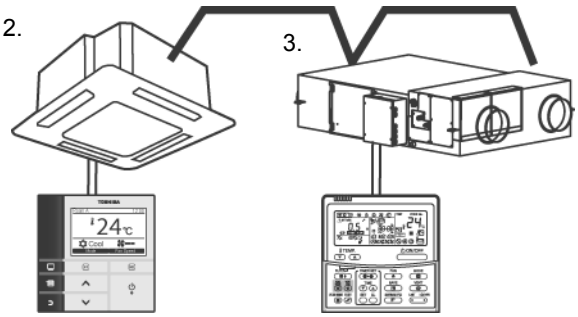
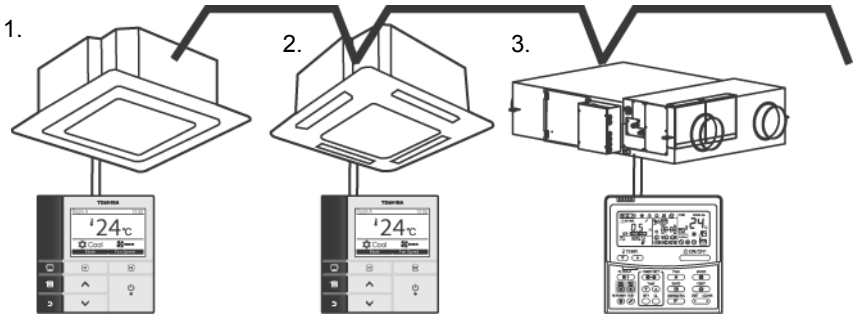
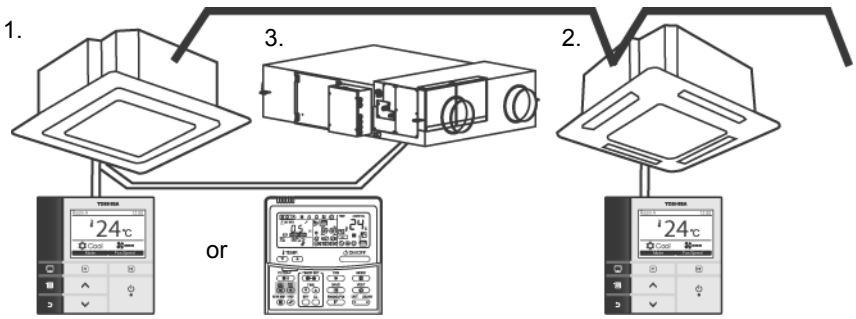
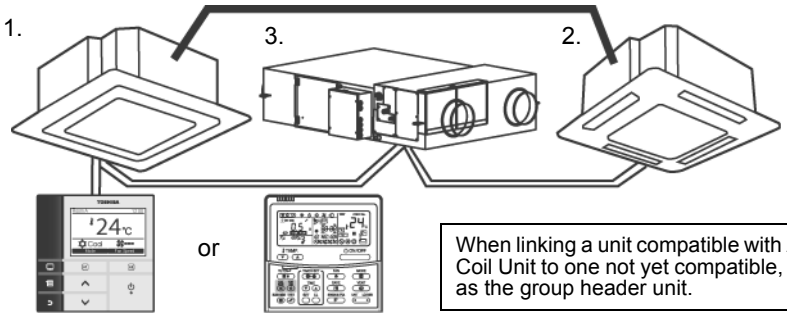
10 Air to Air Heat Exchanger with DX Coil Unit and air-conditioning system

Examples of connections available when installing an Air to Air Heat Exchanger with DX Coil Unit (MMD-VNK✻✻✻, MMD-VN✻✻✻)

Classified by specifications			
			Remote controller line
1.Indoor unit compatible with Air to Air Heat Exchanger with DX Coil Unit	2.Indoor unit not yet compatible with Air to Air Heat Exchanger with DX Coil Unit	3.Air to Air Heat Exchanger with DX Coil Unit	* Adapter omitted TCC-LINK line

Remote controller		
		
NRC-01HE	RBC-AMS51E-EN RBC-AMS51E-ES	RBC-AMT32E

Pattern 1	  Possible
Pattern 2	  Possible When a unit not yet compatible with Air to Air Heat Exchanger with DX Coil Unit is connected, the ventilation mode and fan speed cannot be displayed, but the linkage and Air to Air Heat Exchanger with DX Coil Unit stand alone operations are possible. Changing the ventilation mode and fan speed is also possible depending on the DN setting.

Pattern 3	 Possible
Pattern 4	 Possible
Pattern 5	 Possible
Pattern 6	 Possible
Pattern 7	 Possible When linking a unit compatible with Air to Air Heat Exchanger with DX Coil Unit to one not yet compatible, you need to set a compatible unit as the group header unit.

List of Indoor Units (SMMS Series) Compatible with the Air to Air Heat Exchanger with DX Coil Unit

"O" in the tables indicates an indoor unit compatible with the Air to Air Heat Exchanger with DX Coil Unit.

* For the 4-way air discharge type, products produced in September 2010 or later are compatible.

"–" in the tables indicates an indoor unit not yet compatible with the Air to Air Heat Exchanger with DX Coil Unit.

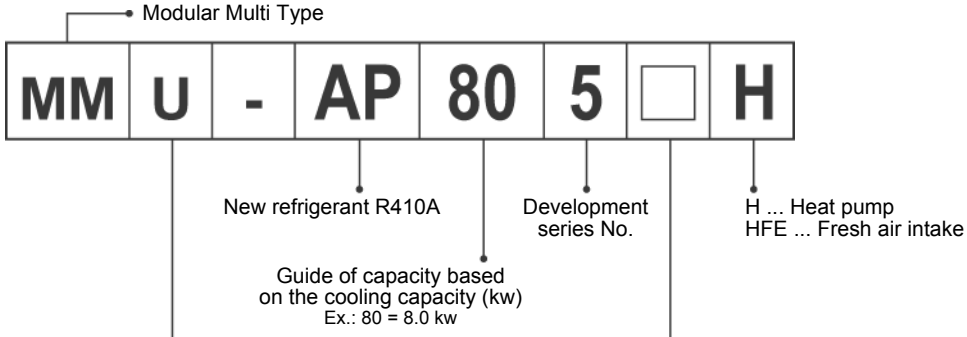
* The linkage operation is possible, but changing the ventilation mode and fan speed is not possible. (Will be possible if the DN setting is changed)

If "O" is shown but the development number is older than that indicated in the tables, the indoor unit is not yet compatible with the Air to Air Heat Exchanger with DX Coil Unit.

* The linkage operation is possible, but changing the ventilation mode and fan speed is not possible. (Will be possible if the DN setting is changed)

Indoor unit type	Cassette type			Duct type		Ceiling type	High wall type
	4-way air discharge type	2-way air discharge type	1-way air discharge type	Built-in type	Duct type		
Development No. (Series No.)	5	4	4	4	4	4	4
Compatibility	O	O	O	O	O	O	O

Indoor unit type	Floor type					Ceiling type for kitchen	Fresh air intake type
	Cabinet type	Concealed type	Console type	Large discharge type	Large duct type		
Development No. (Series No.)	5	4	4	3	3	4	3
Compatibility	O	O	O	–	–	O	–

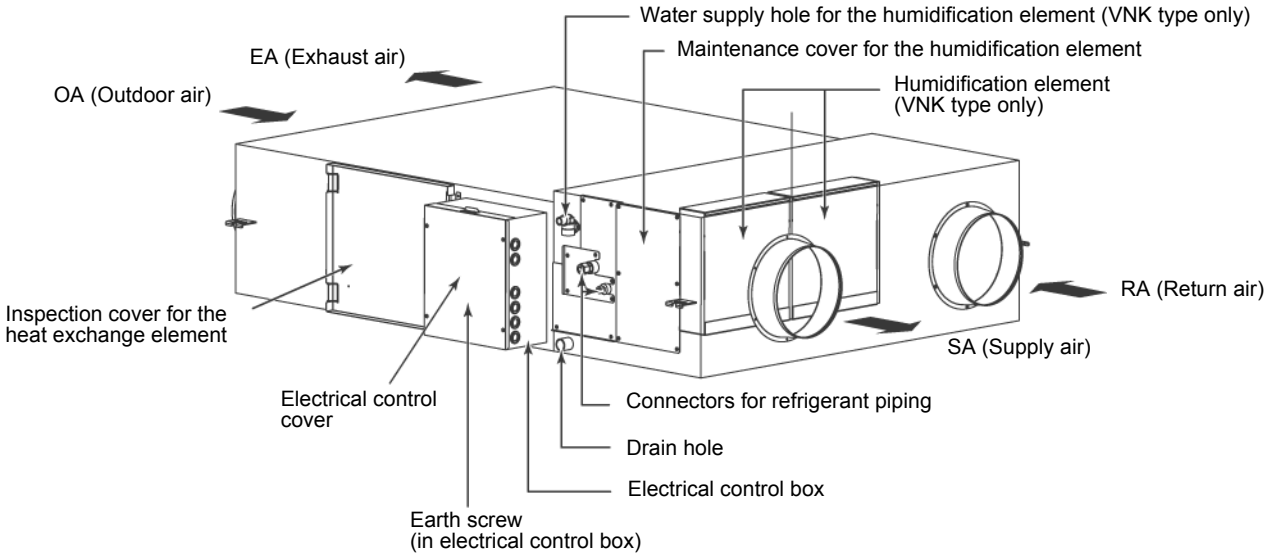


Type	Note on type
U ..... Cassette type	None....4-way air discharge type W.....2-way air discharge type S.....1-way air discharge type Y.....Small sized 1-way air discharge type
D ..... Duct type	None....High static pressure type B.....Built-in type
C ..... Ceiling type	None....Ceiling type P.....For kitchen
K ..... High wall type	
L..... Floor type	None....Console type B.....Concealed type
F..... Floor standing type	

11 Owner's Manual (Excerpt)

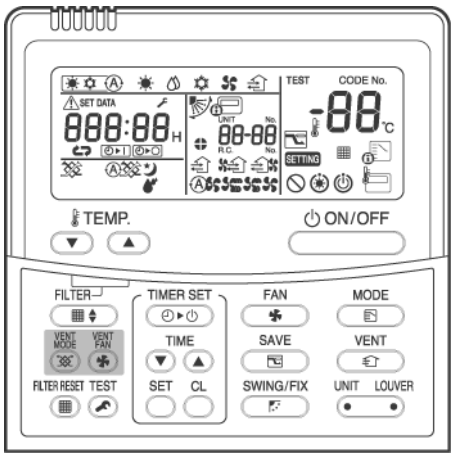
2 Part Names

■ Air to Air Heat Exchanger with DX Coil Unit



■ Separately sold parts

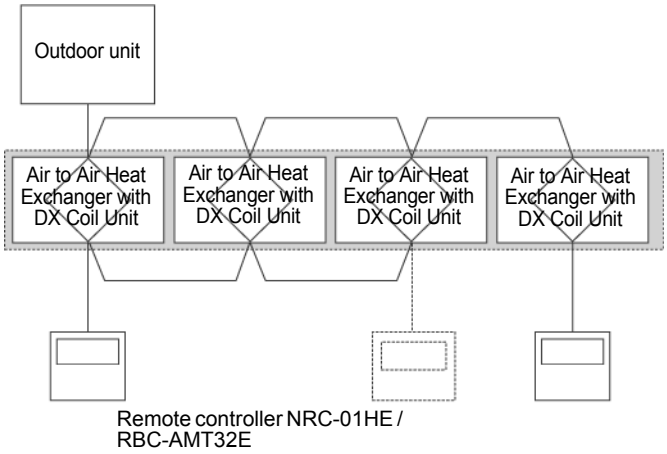
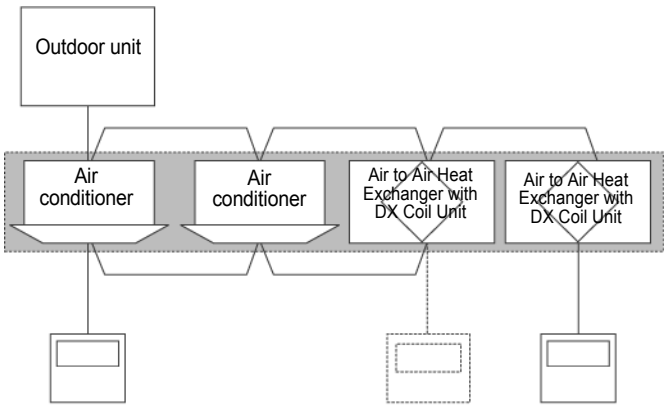
Remote controller for the Air to Air Heat Exchanger with DX Coil Unit
(NRC-01HE)

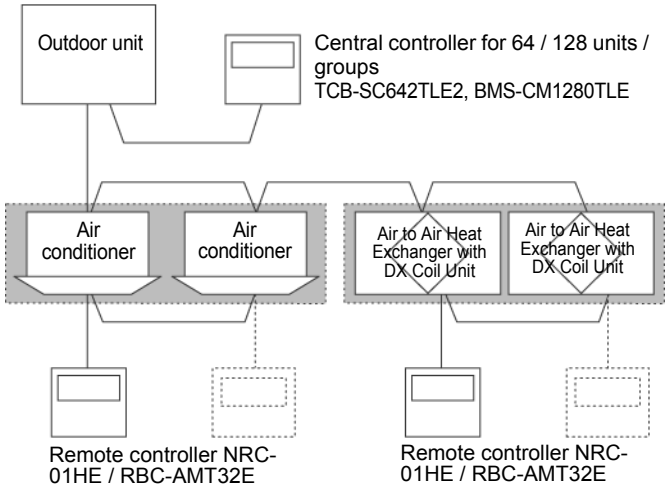
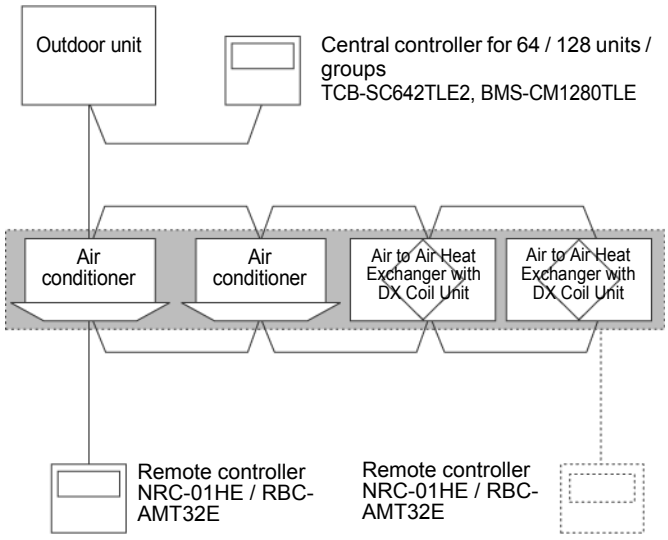


3 System Configuration

The control method of this product differs depending on the system configuration. Operate it following the methods explained in the system configuration examples below.

- For the actual system configuration, ask your dealer or the installer of the product for information.
- Refer also to the installation manuals and owner's manuals of the remote controllers.
- If a central remote controller is used, refer also to its installation manual and owner's Manual.

System example	Operation	Note
A. Air to Air Heat Exchanger with DX Coil Unit system 	The remote controller can be used to ON/OFF running the Air to Air Heat Exchanger with DX Coil Unit. **Remote controller for the Air to Air Heat Exchanger with DX Coil Unit (NRC-01HE)** The remote controller can be used to select the operation mode, start and stop the unit, control the ventilation FAN speed, select the ventilation mode, and adjust the temperature. **Main remote controller (RBC-AMT32E)** • The remote controller can be used to select the operation mode, start and stop the unit, and adjust the temperature. • The remote controller cannot be used to change the ventilation FAN speed or select ventilation mode.	If two remote controllers are used, the latter operation overrides the former and their indications always reflect the result of the latter operation.
B. Air to Air Heat Exchanger with DX Coil Unit system linked with air conditioners 	The remote controller can be used to ON/OFF running the Air to Air Heat Exchanger with DX Coil Unit. **Remote controller for the Air to Air Heat Exchanger with DX Coil Unit (NRC-01HE)** The remote controller can be used to select the operation mode, start and stop the unit, control the ventilation FAN speed, select the ventilation mode, and adjust the temperature. **Main remote controller (RBC-AMT32E)** • The remote controller can be used to select the operation mode, start and stop the unit, and adjust the temperature. • The remote controller cannot be used to change the ventilation FAN speed or select the ventilation mode. * The remote controller (NRC-01HE) can be used to start and stop only the Air to Air Heat Exchanger with DX Coil Unit. For this operation, it is necessary to change the settings. Consult the dealer for details.	If two remote controllers are used, the latter operation overrides the former and their indications always reflect the result of the latter operation.

System example	Operation	Note
C. Central control system (When controlling the Air conditioner and the Air to Air Heat Exchanger with DX Coil Unit separately) 	The central controller can be used to ON/OFF the whole system and separately ON/OFF groups of Air conditioners and the Air to Air Heat Exchanger with DX Coil Units. The central controller cannot be used to control the ventilation FAN speed or select the ventilation mode of the Air to Air Heat Exchanger with DX Coil Unit. * Use NRC-01HE or RBC-AMT32E to control only the group of the Air to Air Heat Exchanger with DX Coil Unit. You cannot control the ventilation FAN speed or select the ventilation mode when using RBC-AMT32E.	If two control devices are used; the central controller and the remote controllers for the Air to Air Heat Exchanger with DX Coil Unit and Air conditioner, the latter operation overrides the former regardless of which device is used.
D. Central control system (When controlling the Air conditioner and the Air to Air Heat Exchanger with DX Coil Unit together) 	The central controller can be used to ON/OFF the whole system. The central controller cannot be used to control the ventilation FAN speed or select the ventilation mode of the Air to Air Heat Exchanger with DX Coil Unit. The remote controller (NRC-01HE) can be used to control the ventilation FAN speed and select the ventilation mode of the Air to Air Heat Exchanger with DX Coil Unit. The remote controller (RBC-AMT32E) cannot be used to control the ventilation FAN speed or select the ventilation mode of the Air to Air Heat Exchanger with DX Coil Unit. * The remote controller (NRC-01HE) can be used to start and stop only the Air to Air Heat Exchanger with DX Coil Unit. For this operation, it is necessary to change the settings. Consult the dealer for details.	

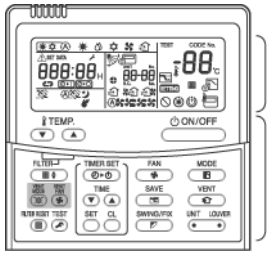
* When the Air to Air Heat Exchanger with DX Coil Unit system linked with indoor air conditioners is used, set the Air to Air Heat Exchanger with DX Coil Unit as "Follower", referring to "Setting the address manually using the remote controller" in the Installation Manual of the outdoor unit.

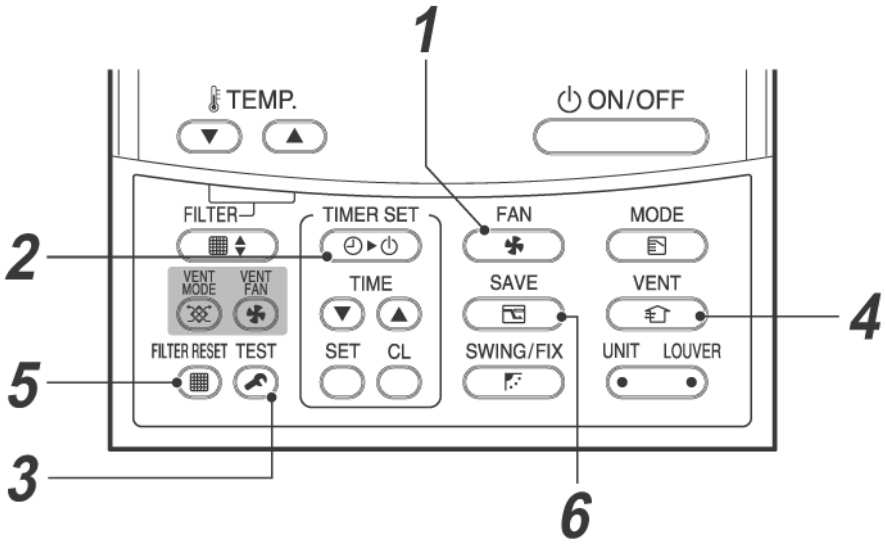
4 Part Names and Functions of the Remote Controller

■ Remote controller for the Air to Air Heat Exchanger with DX Coil Unit (NRC-01HE)

◆ Operation section

- One of these remote controllers can be used to control both indoor air conditioner units and Air to Air Heat Exchanger with DX Coil Units (up to 8 units in total).
- After setting the operation conditions, you can use the units by just pressing the ON/OFF button.
- Functions concerning controlling the Air to Air Heat Exchanger with DX Coil Unit are explained here. For controlling an air conditioner, refer to the owner's manuals supplied with the remote controller and the air conditioner.





1 FAN **button (Fan speed select button) (*1)**

2 TIMER SET **button (Timer set button)**
Used for timer setting

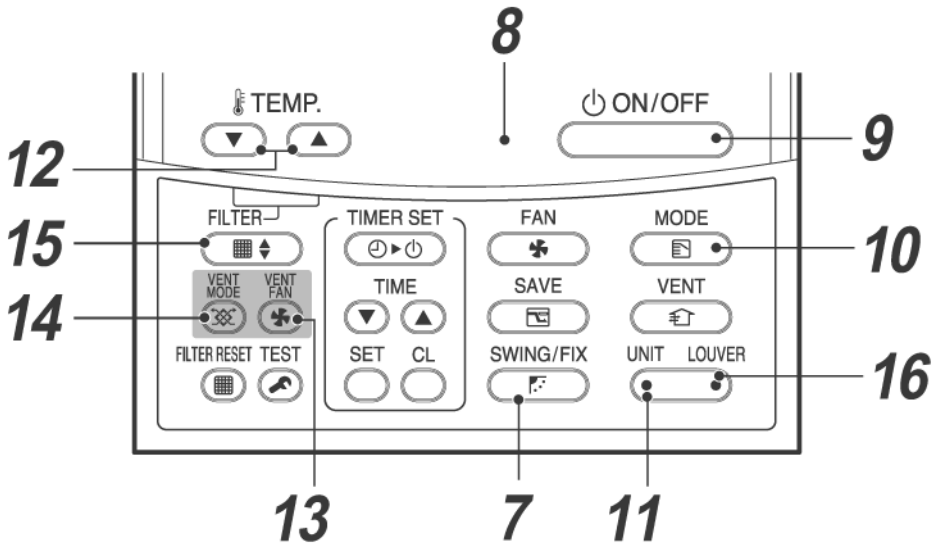
3 TEST **button (Test button)**
Used for service.
Do not use this button in everyday operations.

4 VENT **button (*1) (Ventilation button)**
This button is used when the Air to Air Heat Exchanger with DX Coil Unit is in a system linked with air conditioners. Push the VENT button to turn on/off the Air to Air Heat Exchanger with DX Coil Unit. Turning on/off the air conditioner also turn on/off the Air to Air Heat Exchanger with DX Coil Unit.

* No Air to Air Heat Exchanger with DX Coil Unit is connected or separate operation of the Air to Air Heat Exchanger with DX Coil Unit is not set, if "⃠" appears on the remote controller display after pushing the VENT button.

5 FILTER RESET **button (Filter reset button)**
Resets "▦ FILTER" indication after cleaning.

6 SAVE **button (Power save operation)**
Use to initiate power saving mode.



7 SWING/FIX **button (Swing / Louver direction button) (*1)**

8 **Operation lamp**
Lights up during operation.
Blinks when an error occurs or the protective device activates.

9 ON/OFF **button**
Turns on the unit when pressed, and turns it off when pressed again.

10 MODE **button (Operation mode select button)**
Selects desired operation mode.

11 UNIT LOUVER **button (Unit select button)**
Used for selecting a unit while changing settings if the remote controllers two or more units.

12 TEMP. **button (Temperature set button)**
Adjusts the set temperature.
Select the desired set point by pushing TEMP. ▼ or TEMP. ▲

13 VENT FAN **button (Ventilation fan speed button)**
Used to select the ventilation fan speed

14 VENT MODE **button (Ventilation mode button)**
Used to select a ventilation mode.

15 FILTER **button (Filter elevating button) (*1)**

16 UNIT LOUVER **button (Louver select button) (*1)**

OPTION:

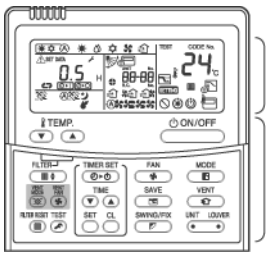
Remote controller sensor
Normally the temperature sensor of the indoor unit senses the temperature. The temperature around the remote controller can also be sensed. For details, contact your dealer.
* Do not use the function when the air conditioner is controlled in a group.

(*1):
This function is not available for Air to Air Heat Exchanger with DX Coil Unit.
"⃠" will be displayed for few seconds when the unit is running in a system equipped with only the Air to Air Heat Exchanger with DX Coil Unit.

◆ Display section

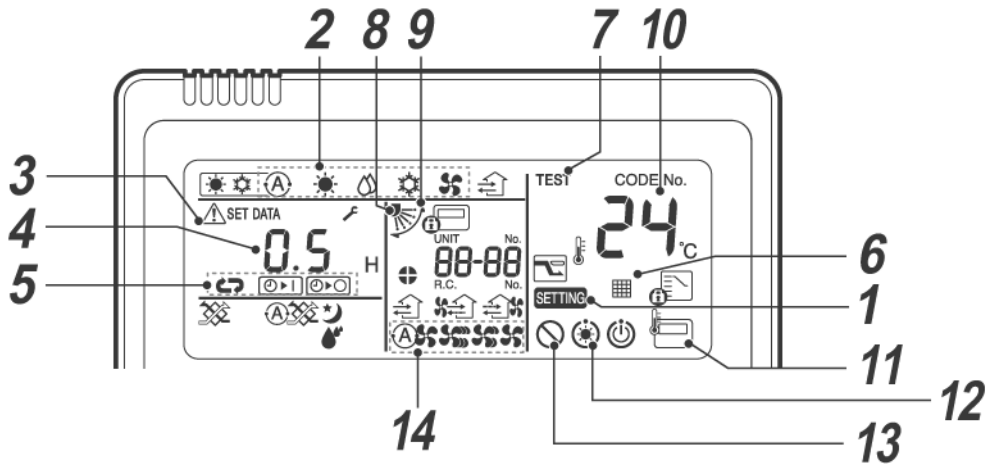
All indicators are displayed on the display example below for explanation. In reality, only the selected options will be displayed. Indications concerning controlling the Air to Air Heat Exchanger with DX Coil Unit are explained here. For indications concerning an air conditioner, refer to the owner's manuals supplied with the remote controller and the air conditioner.

- SETTING blinks on the display of the remote controller when the power switch is turned on for the first time.
  The initial settings progress while SETTING is blinking. Start to use the remote controller after SETTING has disappeared.



NOTE

The LCD may temporarily be blurred due to static electricity.



1 SETTING indicator
Displayed when setting the timer or other functions.

2 Operation mode indicator
Indicates the operation mode selected.

3 Error indicator
Displayed when the protective device activates or an error occurs.

4 Time indicator
Indicates time concerning the timer.
(Indicates a error code when an error occurs.)

5 Timer mode indicator
Each time you press the TIMER SET button, the indication changes as follows: , , , and no timer indication.

6 Filter indicator
Reminder to clean the air filter.

7 Test run indicator
Displayed during a test run.

8 Louver position display (*1)

9 Swing indicator (*1)

10 Set temperature display
The selected set temperature is displayed.

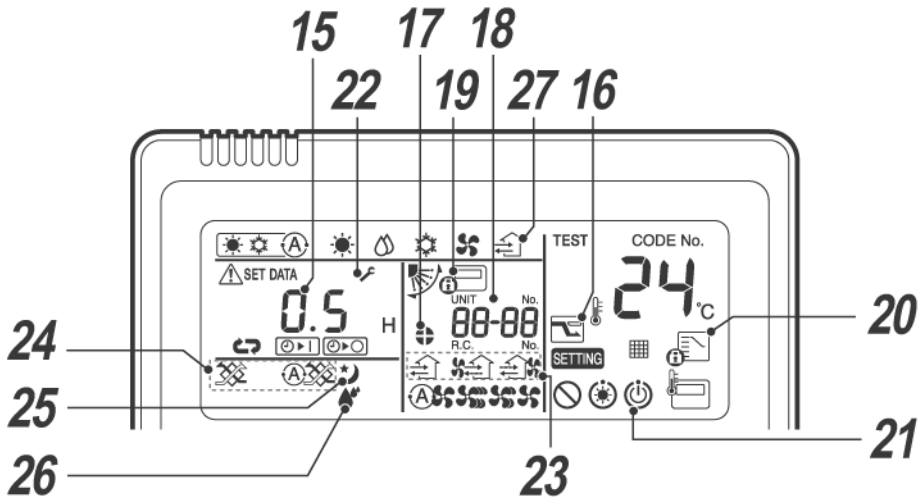
11 Remote controller sensor indicator
Displayed when the remote controller sensor is used.

12 Pre-heat indicator
Displayed when the heating mode is energized or defrost cycle is initiated.
While this indication is displayed, the indoor fan stops or operate in fan mode.

13 No function indicator
Displayed when the function requested is not available on that model.

14 Fan speed indicator (*1)
Indicates the selected fan speed:

(Auto)
(High)
(Medium)
(Low)



15 Louver Number display. (*1)

16 Power saving mode display
Displayed during capacity saving mode.

17 Louver lock indicator (*1)

18 UNIT No. indicator
The number of the Air to Air Heat Exchanger with DX Coil Unit selected using the UNIT button or that of the unit in which an error has occurred.

19 Central control indicator
Displayed when a central control device such as a central controller is also used. If the central control device prohibits the use of local remote controllers, blinks when any of the ON/OFF, MODE or TEMP. buttons are pressed and the operation is rejected.
The items controllable with the remote differ depending on the mode of central control. Refer to the owner's manual of the central control device you are using for more information

20 Operation mode controlled indicator
Displayed when MODE button is pushed while operation mode is fixed to cool or heat by the air conditioner administrator.

21 Operation ready display (*1)
This display appears on some models.

22 Service display
Displayed while the protective device works or a trouble occurs.

23 Ventilation fan speed indicator
Indicates the ventilation fan's speed. , , or is indicated.
When the remote is used to control air conditioners together with the Air to Air Heat Exchanger with DX Coil Unit as a group, VENT FAN indicator appears (blinks) only when the button is pressed.

(High)		
(Low)		
(SA > EA)	(*2)	* Displayed when the setting is activated.
(SA < EA)	(*2)	

24 Ventilation mode indicator
Indicates the selected ventilation mode. or is indicated.

(Automatic mode)	
(Heat exchange mode)	

25 Nighttime heat purge indicator
Displayed during the nighttime heat purge operation. (*2)

26 Humidification indicator (VNK type only)
Displayed during humidifying.

27 Ventilation indicator
If the remote is used to control the Air to Air Heat Exchanger with DX Coil Unit in a system linked with air conditioners, and separate operation of the unit is set to available, the indicator is displayed while the unit is running.
* The indicator is not displayed when the unit is running in a system equipped with only the Air to Air Heat Exchanger with DX Coil Unit.

(*1):
Not displayed. These functions are not available for Air to Air Heat Exchanger with DX Coil Unit.

(*2):
Displayed when these operation modes are activated.

5 How to Use

■ When using the remote controller for the Air to Air Heat Exchanger with DX Coil Unit (NRC-01HE)

When you use the Air to Air Heat Exchanger with DX Coil Unit for the first time or change the settings, operate the remote following the procedure below.
From the next time, the unit starts running following the operation conditions you set by just pressing the ON / OFF button.

◆ Preparation

Turning on the circuit breaker

When turned on, the separation lines appear and SETTING blinks on the display of the remote controller.

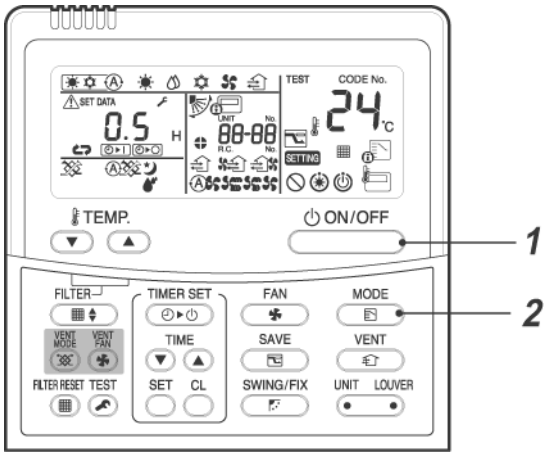
* The remote controller will not work for about 1 minute after turning on the power. This is not a malfunction.

* To use a Air to Air Heat Exchanger with DX Coil Unit system linked with air conditioners, turn on the circuit breaker for the air conditioners too.

REQUIREMENT

- Keep the circuit breaker turned on during use.
- For the Air to Air Heat Exchanger with DX Coil Unit system linked with air conditioners, when the system is used after a long period of disuse, turn on the circuit breaker of the unit and air conditioners 12 hours or more before starting operation.

■ Operations

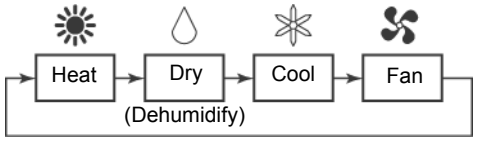


1 Push the ON / OFF buttons to start operation.
The operation lamp lights up.

REQUIREMENT

When the Air to Air Heat Exchanger with DX Coil Unit is in a system linked with air conditioners, they start running at the same time.

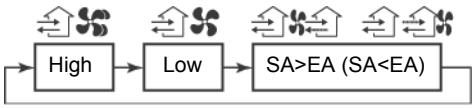
2 Push the "MODE" button to select a operation mode.
Each time the button is pushed, the operation mode and its icon change in the following order:



3 Push the ON / OFF buttons to stop operation.
The operation lamp turns off.

■ Changing ventilation fan speed

1 Push the VENT FAN button to select the ventilation fan speed.
Each time the button is pushed, the speed and indication changes as follows.



* The indications and are displayed only when the air volume imbalance setting is activated.

REQUIREMENT

As factory default, the air volume imbalance setting is deactivated only [High] and [Low] are available for selection. Consult your dealer to activate the setting.

About air volume imbalance ([SA>EA] / [SA<EA])

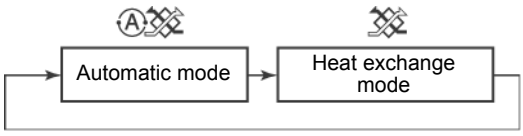
For normal ventilation (High or Low):
The volumes of the indoor air supply and outdoor air exhaustion are set to the same level.
For volume ventilation imbalance:

- When [SA>EA] is selected: the volume of the indoor air supply is larger than that of the outdoor air exhaustion.
  (Inflow of humidity and smells from the toilet and kitchen is reduced.)
- When [SA<EA] is selected: the volume of the outdoor air exhaustion is larger than that of the indoor air supply.
  (Outflow of smells and floating bacteria into a corridor or other places is reduced.

* Consult your dealer if the setting of the air volume imbalance seems incorrect.

■ Changing ventilation mode

1 Push the button to select a ventilation mode.
Each time the button is pushed, the ventilation mode and indication change as follows:



About ventilation modes

The unit has two ventilation modes.

- **Automatic mode**
  The heat exchange mode and the bypass mode* are automatically switched between according to the operation mode (cooling, heating, dry, ventilation), setting temperature, or information from the indoor / outdoor thermo sensor of the Air to Air Heat Exchanger with DX Coil Unit.
- **Heat exchange mode**
  Exchanging heat between the outdoor and indoor air and making the temperature and humidity of the outdoor air closer to those of the indoor air before supplying it.

* **Bypass mode (unavailable)**
Outdoor air is taken into a room as it is. This mode is mainly used in spring and summer.

⚠ CAUTION

If the outdoor temperature falls to 15 °C or below in [Automatic mode] the system will automatically start to run in [Heat exchange mode] regardless of the mode setting to prevent condensation in the Air to Air Heat Exchanger with DX Coil Unit.
* The indication of the ventilation mode setting does not change.

■ Changing the set temperature

1 Push the "TEMP. ▼ ▲" buttons.
Push ▲ to increase the temperature, and ▼ to decrease the temperature. (The set temperature cannot be changed in the fan mode.)

■ About the separate operation of the Air to Air Heat Exchanger with DX Coil Unit in a system linked with air conditioners

* The procedure below is not effective in a system equipped with the Air to Air Heat Exchanger with DX Coil Unit only.

1 Push the VENT button while the system is running.
Only the Air to Air Heat Exchanger with DX Coil Unit stops and the indicator turns off.

2 Push the VENT button while the system is stopped.
The indicator lights up and the Air to Air Heat Exchanger with DX Coil Unit starts running separately.

NOTE

- Normally, the Air to Air Heat Exchanger with DX Coil Unit ON/OFF as the air conditioner is ON/OFF when it is in a system linked with air conditioners.
- If "⃠" is displayed when the VENT button is pushed, change certain settings is necessary to operate the unit separately. Consult your dealer to change the settings.

About nighttime heat purge operation

- **Nighttime heat purge is a function to reduce the room air conditioning load in the morning in summer by exhausting the air indoor which has become warm while the air conditioner is stopped in the night automatically in the Bypass mode.**
- **The nighttime heat purge operation functions if night purge is activated and the last operation mode of the air conditioner before stopping is , or in an Air to Air Heat Exchanger with DX Coil Unit system linked with air conditioners.**

  If the ON / OFF button is pushed while the system is running, the operation lamp turns off, appears on the display, and the nighttime heat purge operation turns on-standby.

  After the operation becomes on-standby, the unit automatically starts ventilation in [Low] ventilation fan speed and [Bypass mode] when the conditions to start the nighttime heat purge operation below are fulfilled.

  The nighttime heat purge operation is paused for one hour if any of the conditions to pause the operation are detected.

  If the conditions to start the nighttime heat purge operation are fulfilled one hour after the pause, the operation will start again. If not, the operation will remain paused for one more hour.

  This cycle is repeated until the conditions to stop (end) the nighttime heat purge operation below are fulfilled.

The conditions to start the nighttime heat purge operation

The unit compares temperatures indoor and outdoor using the monitoring operation (for about 5 minutes) and will start the nighttime heat purge operation if the following conditions are fulfilled.

1. A certain amount of time has passed between the nighttime heat purge operation becoming on-standby and the monitoring operation starting. (The time is set between 1- 48 hours in 1 hour steps.)
2. The indoor temperature is 3 °C or more higher than the outdoor temperature and the indoor temperature is 2 °C or more higher than the temperature set for the operation.

The conditions to pause the nighttime heat purge operation (the operation pauses for one hour.)

1. The indoor temperature is the same or lower than the outdoor temperature, the indoor temperature is the same or lower than the temperature set for the operation, or one hour has passed since the nighttime heat purge operation started.

The conditions to stop (end) the nighttime heat purge operation

The nighttime heat purge operation ends and the indicator disappears if any of the following conditions are fulfilled.

1. The air conditioner or Air to Air Heat Exchanger with DX Coil Unit is started.
2. 48 hours has passed since the monitoring operation started.

NOTE

- The setting of the nighttime heat purge operation is "OFF" As factory default.
  Consult your dealer to change the setting to "ON" or the setting of the time until the monitoring operation starts.
- The settings of VENT FAN or VENT MODE cannot be changed during the nighttime heat purge operation. Their indicators are not displayed.
- The indicator stays lit while the operation is on-standby or paused.
- The nighttime heat purge operation cannot be activated if 24-hour ventilation is activated.

⚠ CAUTION

The nighttime heat purge operation is not executed if the outdoor temperature becomes about 15 °C or less to prevent condensation in the Air to Air Heat Exchanger with DX Coil Unit, but the indicator is still lit.

About humidifying (VNK type only)

Humidifying is available during heating.

REQUIREMENT

- When the humidifying season is over, perform the drying operation for the humidifier.
  Even during humidifying season, perform the drying operation if the unit is not used for a long period of time (over a couple of weeks).
  The drying operation must be performed in ventilation mode for over 24 hours.
  Failure to perform the drying operation may cause residual water to rot down and emit an unpleasant odor.
- It is required to replace the humidifying element if it emits such an odor.
- During humidifying season, when running only this unit while all the other air-conditioners in the room are stopped, change the heating mode to the ventilation mode, and stop the humidifying operation. Continuing the humidifying operation may increase the temperature and create condensation.

To use the Air to Air Heat Exchanger with DX Coil Unit effectively, observe the following conditions.

Cooling operation	Outdoor temperature range	-5 °C to +43 °C
	Room temperature range	+21 °C to +32 °C
	Room humidity	80 % or less
	If the Air to Air Heat Exchanger with DX Coil Unit continues running for a long time with the room humidity over 80 %, water droplets may fall from the unit or may be emitted from the air discharge.	
Heating operation	Outdoor temperature range	-15 °C to +21 °C
	Room temperature	+28 °C or less

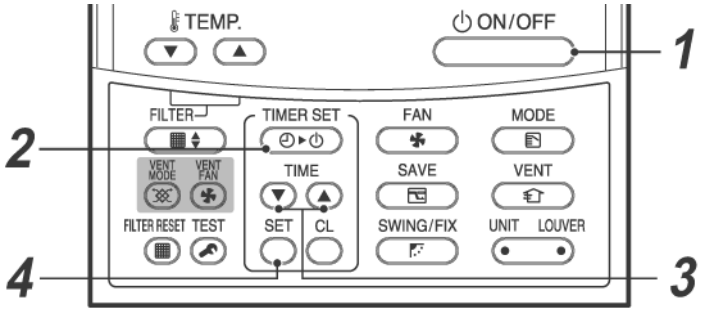
* If the Air to Air Heat Exchanger with DX Coil Unit is continuously operated beyond the conditions above, the protective device will be activated and force the unit to stop.

6 Timer Operation

Select a timer type from the following three: (Max. 168 hours)

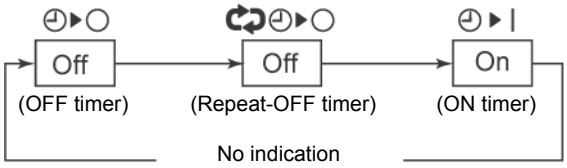
OFF timer	: Stops running after a specified period.
Repeat-OFF timer	: Stops running after a specified period every time you use the unit.
On timer	: Starts running after a specified period.

■ Setting the timer



1 **Push the ON/OFF button to start operation.**
The operation lamp lights up.

2 **Push the TIMER SET button.**
Each time the button is pushed, the timer mode and indication change in the following order:



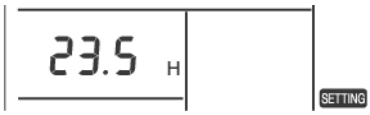
SETTING and the time indication blink.

3 **Push the TIME buttons to set the period of time until the timer actions.**

- The time setting increases in 0.5-hour (30 minute) increments each time you push ▲. The setting increases in 1-hour increments if it is over 1 day (24 hours). The maximum is 7 days (168 hours).
  On the remote controller, settings between 0.5 hours and 23.5 hours (*1) are displayed as is. For settings over 24 hours (*2), the days and hours are displayed.
- The time setting decreases in 0.5-hour (30 minute) decrements (0.5 hours to 23.5 hours) or 1-hour decrements (24 hours to 168 hours) each time you push ▼.

Example of indication on the remote controller

- **23.5 hours (*1)**



- **34 hours (*2)**

1d indicates 1 day (24 hours).
10h indicates 10 hours. (Total: 34 hours)

4 **Push the SET button.**

- SETTING disappears, the time indication is displayed, and ⏲▸| or ⏲▸○ flashes. (When using the ON timer, all indications other than the time indication and ⏲▸| turn off.)

■ Cancelling the timer

1 **Push the CL button.**
The timer indicator disappears.

NOTE

- When using the Repeat-OFF timer, pressing the ON/OFF button after the unit has been stopped by the timer starts it running again, and the unit will stop again after the specified period.
- The nighttime heat purge operation is activated, the unit is running the activated operation while the unit stops following the timer setting.

7 Installation

■ Location

- Do not install the unit in places where the outside temperature falls below 5 °C.
- Avoid installing near machines emitting high frequency waves.
- Not suitable for chemical plants such as liquefied carbon dioxide refrigerant plants.
- A failure may occur in certain locations such as the following:
  - Areas with large amount of oil droplets (including machine oil) or vapors
  - Salty areas near oceans, etc.
  - Hot springs emitting sulfidizing gas, etc.
  - Heavily acidic or alkaline places.

  Special maintenance or parts are required for use in the above places. For details, contact the dealer where you purchased the product.
- Leave an enough space around the air intake and outlet of the outdoor unit so that the ventilation is not restricted.
- Avoid places where strong wind may blow against the air intake and discharge of the outdoor unit.
- Attach a snow stand, snow hood, etc. to the outdoor unit for use in snowfall areas. For details, contact the dealer where you purchased the product.
- Make sure drain water from the outdoor unit is emitted into places with good drainage.
- Confirm that the filters for the heat transfer element and the medium efficiency particulate air filter are attached. If they are not attached, the heat transfer element or the heat exchanger will become clogged with dust, deteriorating the performance and possibly causing water leakage.
- Keep a distance of at least 1 m between the Air to Air Heat Exchanger with DX Coil Unit / remote controller and a TV or radio. Failure to observe this precaution may cause visual disturbance or noise.
- Leave a distance of at least 1.5 m between the air discharge and a fire alarm. If this precaution is not observed, the alarm may not work properly or detect fire in case of fire.

■ Be careful of operation sounds

- Locate the unit in a place secure enough so that the sounds and vibrations do not increase.
- If something is placed near the air discharge of the outdoor unit, noise may increase.
- Do not disturb your neighbors with cool / warm air or noise coming from the air discharge of the outdoor unit.

8 Air Conditioner Operations and Performance

■ Check before operation

- Turn on the power switch at least 12 hours before starting operation.
- Connect the earth wire securely.
- Attach the air filter to the indoor unit.

■ Defrosting during heating

If frost falls on the outdoor unit during heating, defrosting is automatically performed (for approximately 2 - 10 minutes) to increase the heating effect.

■ 3-minute protection

The outdoor unit will not operate for approximately 3 minutes after the air conditioner has been immediately restarted after stopping, or the power switch has been turned on. This is to protect the system.

■ Power failure

- In the case of a power failure, all operations stop.
- To resume operations, push the ON/OFF button.

■ Fan rotation of a stopped indoor unit

While other indoor units operate, the fans on indoor units in stand-by mode rotate for several minutes approximately once per one hour to protect the machines.

■ Protective device (High pressure switch)

The high pressure switch stops the Air to Air Heat Exchanger with DX Coil Unit automatically when excessive load is applied to the Air to Air Heat Exchanger with DX Coil Unit.
If the protective device activates, the unit's running stops and the operation lamp blinks.
When the protective device activates, the indicator and the check code are displayed on the remote controller.

The protective device may activate in the following cases:

During cooling
- When the air intake or air discharge of the outdoor unit is blocked.
- When strong wind blows continuously against the air discharge of the outdoor unit.

During heating (for heat-pump model only)
- When dust or dirt is excessively adhered to the air filter of the indoor unit.
- When the air discharge of the indoor unit is blocked.

NOTE

When the protective device activates, turn off the power switch, remove the cause, and then restart running.

■ Cooling / heating operations

Each unit can be controlled individually. However, indoor units connected to the same outdoor unit cannot perform cooling and heating simultaneously.
When you attempt simultaneous operation, indoor units performing cooling are stopped, and the running preparation indicator is displayed on the remote controller.
An indoor unit performing heating continues running.
When you attempt an operation without the configured settings, the running preparation indicator is displayed on the remote controller and operation stops.
If operation is fixed to cooling or heating by the Air to Air Heat Exchanger with DX Coil Unit administrator, only the configured settings apply to the operation.

■ Heat exchange element

A smell may be emitted from the heat transfer element during the initial stages of use. This is neither a malfunction nor harmful.

9 Maintenance

■ Maintenance of the filter, heat exchange element, and humidifier

⚠ WARNING

Cleaning the filter, heat exchange element, humidifier element and other parts involves dangerous work in high places. Ask a qualified installer or service person to do it.
Do not attempt it by yourself.

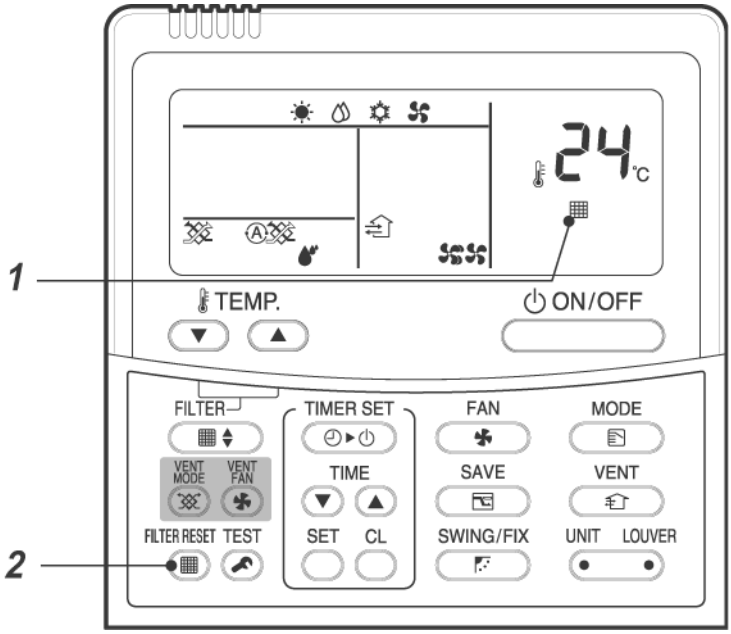
⚠ CAUTION

Do not push buttons with wet hands.
Doing so may result in electric shock.

◆ Filter maintenance

1 **Clean the filter if "▦" is indicated on the remote controller.**

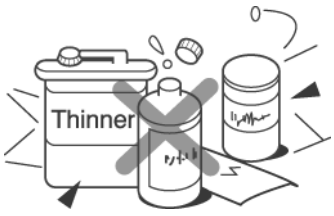
2 **Push the "FILTER RESET" button after cleaning the filter. The "FILTER RESET" indicator disappears.**



⚠ CAUTION

Cleaning remote controller

- Use a dry cloth to wipe the remote controller.
- Do not use a damp cloth on the remote controller.
- Do not use a chemically-treated duster for wiping or leave such materials on the unit for long.
  It may damage or fade the surface of the unit.
- Do not use benzine, thinner, polishing powder, or similar solvents for cleaning.
  These may cause the plastic surface to crack or deform.



■ Maintenance of the humidifier element

The replacement cycle of the humidifier element varies greatly depending on the conditions of use. Refer to the cycles below as general replacement cycles. (They are not the terms of guarantee.)

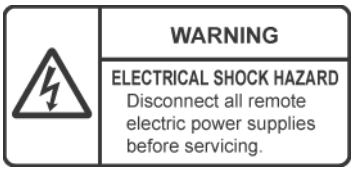
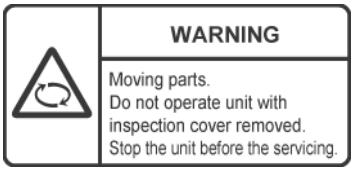
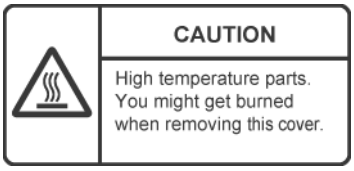
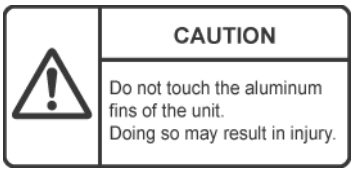
When the water hardness is 25 mg/L	Every 5 years
When the water hardness is 50 mg/L	Every 3 years
When the water hardness is 100 mg/L	Every 2 years

- The humidifying performance deteriorates gradually as impurities in tap water are accumulated in the humidifying element.
- In general, replace the humidifying element when the humidifying performance of the element has deteriorated by 20 to 40 % compared with that of a new one.
- Estimated operating hours: 10 hours per day X 20 days per month X 5 months per year = 1000 hours per year
- The amount of impurities accumulated in the humidifying element is largely dependent on the water quality (water hardness, the variety or amount of impurities, the pH of the water, water temperature, etc.) or conditions of use.

12 Installation Manual (Excerpt)

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

■ Warning indications on the air conditioner unit

Warning indication	Description
	**WARNING** **ELECTRICAL SHOCK HAZARD** Disconnect all remote electric power supplies before servicing.
	**WARNING** Moving parts. Do not operate unit with inspection cover removed. Stop the unit before the servicing.
	**CAUTION** High temperature parts. You might get burned when removing this cover.
	**CAUTION** Do not touch the aluminium fins of the unit. Doing so may result in injury.

1 Precautions for Safety

⚠ WARNING

General

- Before starting to install the Air to Air Heat Exchanger with DX Coil Unit, read carefully through the Installation Manual, and follow its instructions to install the Air to Air Heat Exchanger with DX Coil Unit.
- Install the Air to Air Heat Exchanger with DX Coil Unit at least 2.5 m above the floor level since otherwise the users may injure themselves or receive electric shocks if they poke their fingers or other objects into the Air to Air Heat Exchanger with DX Coil Unit while it is running.
- Before opening the electrical control cover, inspection cover or maintenance cover of the Air to Air Heat Exchanger with DX Coil Unit, set the circuit breaker to the OFF position. Failure to set the circuit breaker to the OFF position may result in electric shocks through contact with the interior parts.
- Only a qualified installer (*1) or qualified service person (*1) is allowed to undertake work at heights using a stand of 50 cm or more or to remove the electrical control cover, inspection cover or maintenance cover of the Air to Air Heat Exchanger with DX Coil 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.
- Only a qualified installer (*1) or qualified service person (*1) is allowed to carry out the electrical work of Air to Air Heat Exchanger with DX Coil Unit.
- 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.
- 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 / short circuit.
- When repairing the electrical parts or undertaking other electrical jobs, wear gloves to provide protection for electricians and from heat. Failure to wear this protective gear may result in burn.
- Before carrying out the installation, maintenance, repair or removal work be sure to set the circuit breaker for the Air to Air Heat Exchamger Unit to the OFF position. Otherwise, electric shocks may result.
- 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 cleaning the filter, heat exchange element or humidifier of the Air to Air Heat Exchanger with DX Coil 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.
- Before opening the electrical control cover, inspection cover and maintenance cover of the Air to Air Heat Exchanger with DX Coil Unit, set the circuit breaker to the OFF position.
- Failure to set the circuit breaker to the OFF position may result in electric shocks through contact with the interior parts. Only a qualified installer (*1) or qualified service person (*1) is allowed to remove the electrical control cover, inspection cover and maintenance cover of the Air to Air Heat Exchanger with DX Coil Unit and do the work required.
- Only a qualified installer (*1) or qualified service person (*1) is allowed to undertake work at heights using a stand of 50 cm or more or to remove the electrical control box cover, inspection cover or maintenance cover of the Air to Air Heat Exchanger with DX Coil 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.
- When cleaning the filter, heat exchange element or humidifier of the Air to Air Heat Exchanger with DX Coil 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.
- Do not install the Air to Air Heat Exchanger with DX Coil Unit 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.
- Do not place any combustion appliance in a place where it is directly exposed to the wind of Air to Air Heat Exchange with DX Coil unit, otherwise it may cause imperfect combustion.
- 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 be generated.
- After the installation or servicing work, check the refrigerant gas does not leak.
- If 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.
- Inspect the Air to Air Heat Exchanger with DX Coil Unit for any falling hazard of the unit before maintenance or repair.
- Do not modify the products. Do not also disassemble or modify the parts. It may cause a fire, electric or injury.

Selection of installation location

- Install the Air to Air Heat Exchanger with DX Coil Unit securely in a location where the base can sustain the weight adequately. If the strength is insufficient, the unit may fall down resulting in human injury.
- Do not install the unit in places 1) with high temperature 2) where the unit is subject to direct fire 3) where much oil smoke is generated. Otherwise, a fire may result.

- Do not install the unit in a machinery factory or a chemical plant, where a toxic gas containing acid, alkali, an organic solvent, or paint, or a gas containing a corrosive substance is generated. Gas poisoning or a fire may result.
- Do not install in a location where flammable gas may leaks are possible. If the gas leak and accumulate around the unit, it may ignite and cause a fire.
- Install the unit so that the air discharge is located at least 1.5 m from the nearest fire alarm. Otherwise, when a fire occurs, the fire alarm may be late to detect it, or may not detect it at all.

Installation

- Transport it by the truck or the forklift. Transport it by six people or more when the person transports it temporarily. The waist etc. might be hurt when not following it.
- When transporting the Air to Air Heat Exchanger with DX Coil Unit, wear shoes with additional protective toe caps, protective gloves, and other protective clothing.
- When transporting the Air to Air Heat Exchanger with DX Coil Unit, do not take hold of the bands around the packing carton. You may injure yourself if the bands should break.
- When the Air to Air Heat Exchanger with DX Coil Unit is to be suspended, the designated hanging bolts (M12) and nuts (M12) must be used
- Install the Air to Air Heat Exchanger with DX Coil Unit at enough strong place to withstand the weight of the unit. If the strength is not enough, the unit may fall down resulting in injury
- Follow the instructions in the Installation Manual to install the Air to Air Heat Exchanger with DX Coil Unit. Failure to follow these instructions may cause the product to fall down or topple over or give rise to noise, vibration, water leakage, etc.
- Wear protective gloves and safety work clothing during installation, servicing and removal.
- Do not touch the aluminum fin of the Air to Air Heat Exchanger with DX Coil Unit or outdoor unit. You may injure yourself if you do so. If the fin must be touched for some reason, first put on protective gloves and safety work clothing, and then proceed.
- Tighten the flare nut with a torque wrench in the specified manner. Excessive tighten of the flare nut may cause a crack in the flare nut after a long period, which may result in refrigerant leakage.
- When working at heights, put a sign in place so that no-one will approach the work location, before proceeding with the work. Parts and other objects may fall from above, possibly injuring a person below.
- Before starting to install the Air to Air Heat Exchanger with DX Coil Unit, read carefully through the Installation Manual, and follow its instructions to install the Air to Air Heat Exchanger with DX Coil Unit.
- Only a qualified installer (*1) or qualified service person (*1) is allowed to install the Air to Air Heat Exchanger with DX Coil Unit. If the Air to Air Heat Exchanger with DX Coil Unit is installed by an unqualified individual, a fire, electric shocks, injury, water leakage, noise and / or vibration may result.
- Upon completion of the installation work, check for the insulation resistance. Then conduct a test run to check that the Air to Air Heat Exchanger with DX Coil Unit is operating properly.
- After the work has finished, be sure to use an insulation tester set (500 V Megger) to check the resistance is 1 MΩ or more between the charge section and the non-charge metal section (Earth section). If the resistance value is low, a disaster such as a leak or electric shock is caused at user's side.
- Before starting to install the Air to Air Heat Exchanger with DX Coil Unit, read carefully through the Installation Manual, and follow its instructions to install the Air to Air Heat Exchanger with DX Coil Unit.
- Follow the instructions in the Installation Manual to install the Air to Air Heat Exchanger with DX Coil Unit. Failure to follow these instructions may cause the product to fall down or topple over or give rise to noise, vibration, water leakage, etc.
- Before operating the Air to Air Heat Exchanger with DX Coil Unit after having completed the work, check that the electrical control cover, inspection cover and maintenance cover 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.
- Install the unit in the prescribed manner for protection against strong wind and earthquake. Incorrect installation may result in the unit falling down, or other accidents.
- Attach an anti bird net or the like to the outside air intake. Remove any foreign object such as a nest; otherwise, an oxygen shortage may occur in the room.
- Leave ample space between the outside air intake and the outlet for combustion gas. Otherwise, an oxygen shortage may occur in the room.
- When metallic ducts pass through a wooden construction covered with a metal lath, wire lath, or metal plate, install the ducts so that they are not electrically in contact with the metal parts of wooden construction. If a short circuit occurs, a fire may result.
- Use the supplied or specified parts for installation. Otherwise, the unit falling down, water leakage, an electric shock, or a fire may result.
- Perform anti-freezing work if the installation place is subject to freezing. Otherwise, the solenoid valve or pipes are damaged and water leakage may result.
- Do not install the unit in a place where the outside temperature (especially around the unit or the air grill) falls below 0 °C. Otherwise, water in the pipes, in the humidifying element, or in the solenoid valve freezes and a breakdown or water leakage may result.
- If the ducts pass through a fire protection zone, use a noncombustible duct and install a fire damper. The flame may spread when a fire occurs.

- Install the ducts to the outside inclined downward so that rainwater does not enter the ducts. Otherwise, water will enter the room and household goods will become wet.
- Insulate the ducts from heat using a heat insulator to prevent condensation. Otherwise, furniture may be damaged.
- If it is hot and humid in the ceiling cavity, install a ventilator. Otherwise, a fire or a short circuit may result.
- Install drain pipes to drain water securely referring to the Installation Manual. In addition, insulate the pipes from heat to prevent condensation. Inappropriate piping results in water leaking into the room and the ceiling, floor or furniture may be damaged.

Explanations given to user

- After the installation work, Follow the Owner's manual to explain to the customer how to use and maintain the unit.
- Do not place any combustion appliance in a place where it is directly exposed to the wind of Air to Air Heat Exchanger with DX Coil Unit, otherwise it may cause imperfect combustion.
- For safety, turn off the unit if you do not use it for a long time. A fire or an electric shock may result due to insulation degradation.

Relocation

- Only a qualified installer (*1) or qualified service person (*1) is allowed to relocate the Air to Air Heat Exchanger with DX Coil Unit. It is dangerous for the Air to Air Heat Exchanger with DX Coil Unit to be relocated by an unqualified individual since a fire, electric shocks, injury, water leakage, noise and / or vibration may result.
- For the refrigerant recovery work (collection of refrigerant from the pipe to the compressor), stop the compressor before disconnecting the refrigerant pipe. If the refrigerant pipe is disconnected while the compressor is working with the valve open, the compressor sucks air and the refrigeration cycle is overpressurized, which may cause a burst or injury.

Refrigerant piping

- Install the refrigerant pipe securely during the installation work before operating the compressor. If the compressor is operated with the valve open and without refrigerant pipe, the compressor sucks air and the refrigeration cycles is over pressurized, which may cause a injury.
- Do not use any refrigerant different from the one specified for complement or replacement. Otherwise, abnormally high pressure may be generated in the refrigeration cycle, which may result in a failure or explosion of the product or an injury to your body.
- Only a qualified installer (*1) or qualified service person (*1) is allowed to do installation work. If installation is carried out by an unqualified individual, a fire, electric shocks, injury, water leakage, noise and / or vibration may result.

Electrical wiring

- 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.
- Be sure to connect earth wire. (Grounding work)
- Incomplete earthing cause an electric shock.
- Do not connect earth wires to gas pipes, water pipes, lightning rods or earth wires for telephone wires
- After completing the repair or relocation work, check that the earth wires are connected properly.
- 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.
- When installing the circuit breaker outdoors, install one which is designed to be used outdoors.
- When you have noticed that some kind of trouble (such as when an error display has appeared, there is a smell of burning, abnormal sounds are heard, the Air to Air Heat Exchanger with DX Coil Unit falls to cool or heat, or water is leaking) has occurred in the Air to Air Heat Exchanger with DX Coil Unit, do not touch the Air to Air Heat Exchanger with DX Coil Unit yourself but set the circuit breaker to the OFF position, and contact a qualified service person (*1). 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 to Air Heat Exchanger with DX Coil Unit in the trouble status may cause mechanical problems to escalate or result in electric shocks, etc.
- Upon completion of the installation work, tell the user where the circuit breaker is located. If the user does not know where the circuit breaker is, he or she will not be able to turn it off in the event that trouble has occurred in the Air to Air Heat Exchanger with DX Coil Unit.
- Use the rated voltage. Otherwise, a fire or an electric shock may result.
- Connect power cords or connection wires securely so that the power supply cover is attached properly. Otherwise, a fire or an electric shock may result.
- Do not install the unit or the switch in a humid place such as a bathroom. Otherwise, a fire or an electric shock may result.

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

⚠ CAUTION

New Refrigerant Air to Air Heat Exchanger with DX Coil Unit Installation

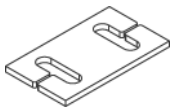
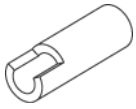
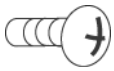
- THIS Air to Air Heat Exchanger with DX Coil Unit ADOPTS THE NEW HFC REFRIGERANT (R410A) WHICH DOES NOT DESTROY OZONE LAYER.
- The characteristics of R410A refrigerant are; easy to absorb water, oxidizing membrane or oil, and its pressure is approx. 1.6 times higher than that of refrigerant R22. Accompanied with the new refrigerant, refrigerating oil has also been changed. Therefore, during installation work, be sure that water, dust, former refrigerant, or refrigerating oil does not enter the refrigerating cycle.
- To prevent charging an incorrect refrigerant and refrigerating oil, the sizes of connecting sections of charging port of the main unit and installation tools are changed from those for the conventional refrigerant.
- Accordingly the exclusive tools are required for the new refrigerant (R410A).
- For connecting pipes, use new and clean piping designed for R410A, and please care so that water or dust does not enter.

To Disconnect the Appliance from Main Power Supply.

- Means for disconnection having a contact separation in all poles at least 3 mm must be incorporated in the fixed wiring in accordance with the wiring rules.

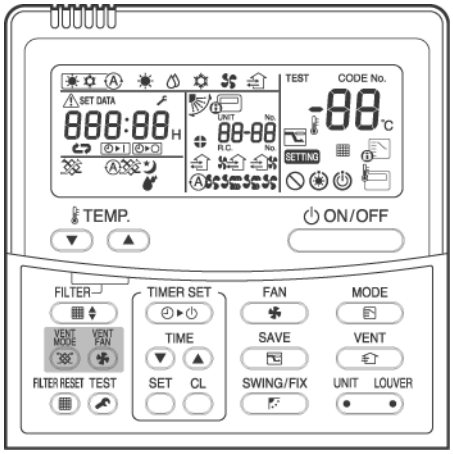
The installation fuse (All Types Can Be Used) must be used for the power supply line of this Air to Air Heat Exchanger with DX Coil Unit.

2 Accessory Parts

Name	Quantity	Shape	Usage
Installation manual	1	This manual	(Be sure to hand it to the customers.)
CD-ROM (Owner's manual, Installation manual)	1	—	(For other languages that do not appear in this manual, please refer to the enclosed CD-ROM.)
Owner's manual	1	—	(Be sure to hand it to the customers.)
Insulation (VNK type only)	1		For strainers
Insulation	4		For insulation of hanging brackets
Insulation (VNK type only)	1		For water supply pipes
Duct connectors	4		Connector with ducts
Screws	24		For duct connectors
Banding band	4		For anchoring the insulated pipes
Heat insulator	2		For heat insulation of pipe connecting section

■ Separately sold parts

The remote controller (NRC-01HE) is sold separately. For the installation of these products, follow the installation manual supplied with it.



3 Restrictions on System Construction

■ System combinations available

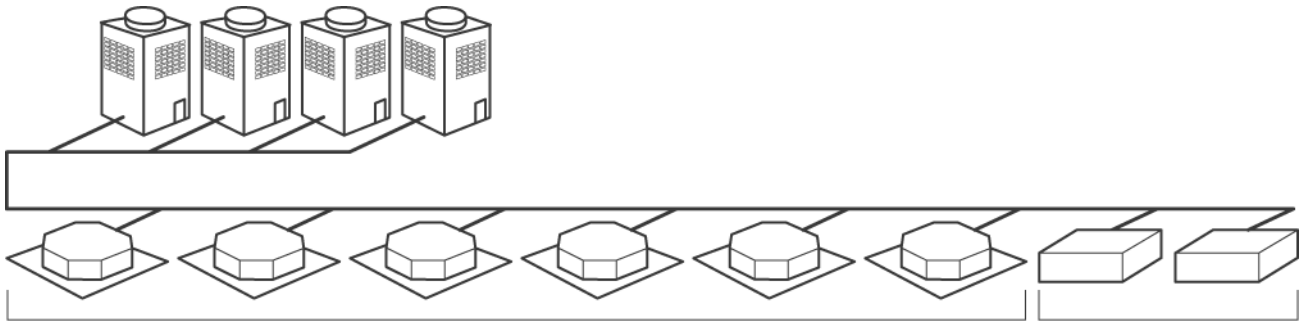
The Air to Air Heat Exchanger with DX Coil Unit can be connected to a Super Module Multi system -i.

■ Range of combination

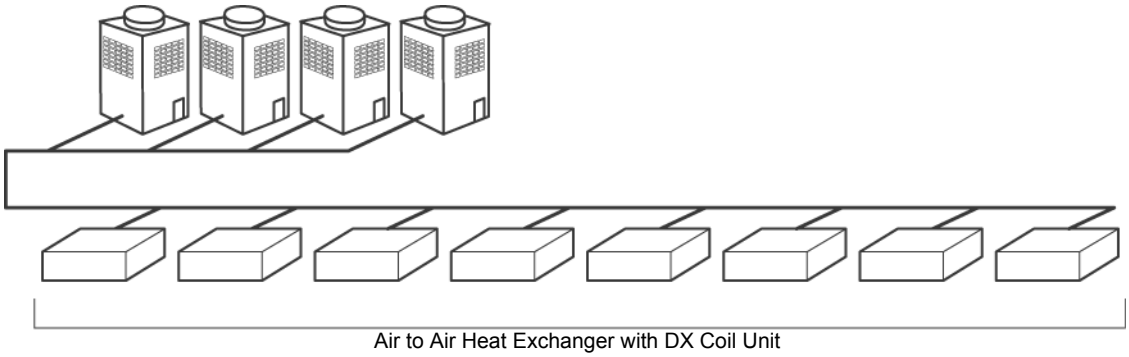
1. The Air to Air Heat Exchanger with DX Coil Unit can be connected with either one of the following multi systems:
   - System with Air to Air Heat Exchanger with DX Coil Unit and air conditioner indoor units
   - Air to Air Heat Exchanger with DX Coil Unit system
2. The overall capacity (HP) of air conditioner indoor units and Air to Air Heat Exchanger with DX Coil Unit should be 80 to 135 % of that of outdoor units.
3. When calculating the connection capacity of the indoor unit, use the following horse power:

Model name	MMD-	VNK502HEXE VN502HEXE	VNK802HEXE VN802HEXE	VNK1002HEXE(2) VN1002HEXE(2)
HP		1.0	1.7	2.0

System with Air to Air Heat Exchanger with DX Coil Unit and air conditioner indoor units



Air to Air Heat Exchanger with DX Coil Unit system



The Air to Air Heat Exchanger with DX Coil Unit and the concealed duct type fresh air intake unit cannot be used together in the same system.

4 Selection of Installation Place

⚠ CAUTION

- **Do not install the Air to Air Heat Exchanger with DX Coil Unit in a location subject to a risk of exposure to a combustible gas.**
  If a combustible gas leaks and stays around the unit, a fire may occur.
- **Install the unit so that the air discharge is located at least 1.5 m from the nearest fire alarm.**
  Otherwise, when a fire occurs, the fire alarm may be late to detect it, or may not detect it at all.

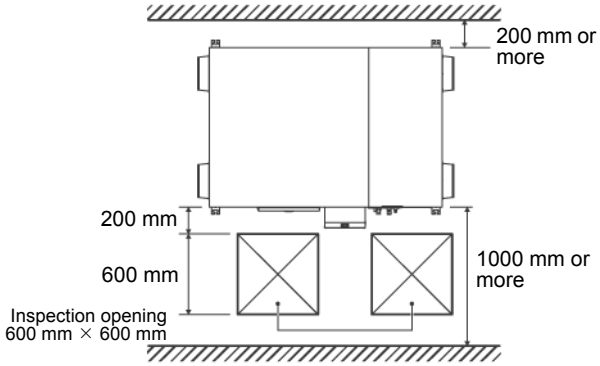
Install the indoor unit in a place where cool / warm air circulates evenly.

Avoid installing in the following places.

- Places where the outside temperature falls below 5 °C. (If the temperature around the unit falls below 5 °C, water in humidifier freezes and the water will leak. (VNK type only)
- Places where air pipes are installed in the ceiling cavity.
- Place exposed to air with high salt content (seaside area)
- Place exposed to large quantities of sulfide gas (hot spring).
  (Should the unit be used in these places, special protective measures are needed.)
- A restaurant kitchen where a lot of oil is used or place near machines in a factory (Oil adhering to the heat exchanger and resin part (turbo fan) in the indoor unit may reduce the performance, generate mist or dew drop, or deform or damage resin parts.)
- Places where obstacles disturbing the air current such as a ventilation hole or lighting apparatus are near the unit. (The performance of the unit may be deteriorated or the unit may not work due to disturbance of the air current.)
- Do not use the air conditioner for special purposes such as preserving food, precision instruments, or art objects, or where breeding animals or growing plants are kept. (This may degrade the quality of preserved materials.)
- Place where any of high-frequency appliances (including inverter devices, private power generators, medical equipment, and communication equipment) and inverter-type fluorescent light is installed.
  (A malfunction of the air conditioner, abnormal control, or problems due to noise to such appliances / equipment may occur.)
- Places where there is something that must not become wet. When the humidity reaches 80 % or more, or when the draining pipe is clogged, water droplets may fall from the unit.
- Place near a door or window exposed to humid outside air (Dew dropping may form.).
- Place where special spray is used frequently.
- Places such as outdoors or under the eaves (where rain may fall directly on the unit).
- Do not use the unit in chemical plants with a cooling system which uses liquid carbon dioxide, etc.

■ Installation space

Leave ample space for installation or servicing.



REQUIREMENT

- Before installing indoor units, attach any accessories (drain-up kit, etc.: separately purchased) to them. In addition, make inspection opening on both sides of each unit.
- The size of inspection opening should be 600 mm × 600 mm.

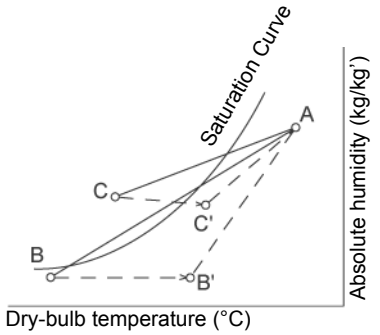
■ Installation in high-humidity places

- **Do not use the unit in a kitchen or bathroom.**

If the unit is used in a place where much oil smoke is generated or a place with high humidity, the filter or the heat exchanging element will become clogged and the unit will not work.

- **Be careful of dewing and frosting.**
  - In cold regions, the surface of the unit or the duct connector may be affected by condensation or frosting depending on the outdoor air conditions or temperature / humidity of the ceiling cavity even though the conditions for use are observed. In this case, add a heat insulator.
  - Water droplets may fall if the unit is operated in wet conditions.
    In particular, high humidity may occur even during non-rainy season if the unit is installed in the following locations:
    1. Ceiling of a tile roof
    2. Ceiling of a slate roof

    In this case, attach thermal insulators (glass wool, etc.) on the unit's surface.
    Take care so that you can remove the side board (service panel) easily even when insulators are attached.
    Also insulate the duct and its connectors sufficiently.
  - Do not install the unit in a place where there is something that must not become wet. Depending on the temperature or humidity of outdoor air and the installation place, water droplets may fall from the unit.
  - As shown in the figure to the below, suppose a high temp absorbing air condition A and a low temp absorbing air condition B are plotted on the air line figure, then a high temp air A is heat-exchanged by the unit and goes out of the saturation curve as shown by Point C. In this case, the unit will be dewed or frosted. To avoid this, heating a low temp air B up to B' is required so as to get C' below the saturation curve, before using the unit.



- **Do not install the unit near a water heater.**

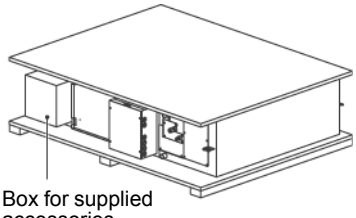
5 Installation of Indoor Unit

⚠ WARNING

- **Install the air conditioner at enough strong place to withstand the weight of the unit.**
  If the strength is not enough, the unit may fall down resulting in injury.
- **To provide against strong wind or an earthquake, install the unit appropriately.**
  Inappropriate installation may result in the unit falling down and causing an accident.

NOTE

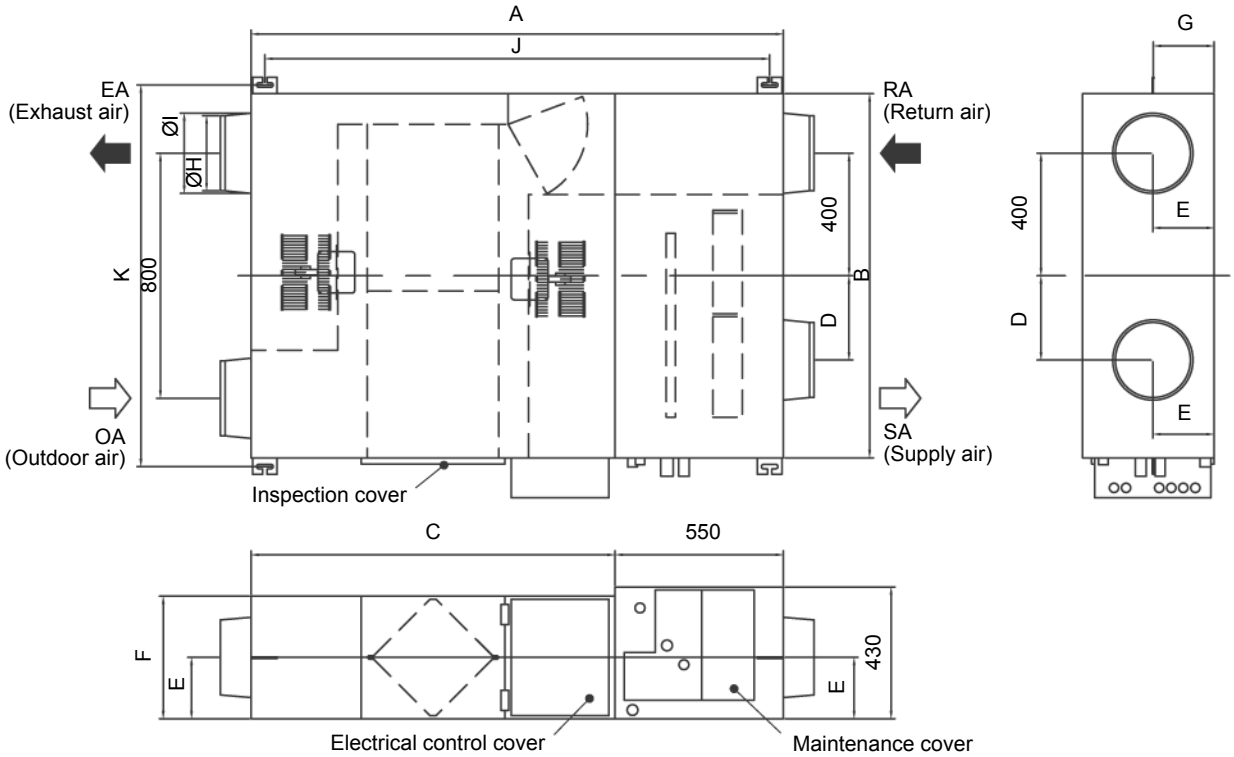
Strictly comply with the following rules to prevent damage of the indoor units and human injury.



- Do not put a heavy article on the indoor unit. (Even units are packaged)
- Carry in the indoor unit as it is packaged if possible. If carrying in the indoor unit unpacked by necessity, be sure to use buffering cloth, etc. to not damage the unit.
- To move the indoor unit, hold the hooking metals (4 positions) only.
  Do not apply force to the other parts (refrigerant pipe, drain pan, foamed parts, or resin parts, etc.).
  Before you handle hanging brackets, put on thick gloves for protection.
- Supplied accessories are placed near the electrical control box. Do not dispose of the accessories with the packaging. (See the figure on the right.)
- When a vibration-proof hanging bracket is attached to a hanging bolt, confirm that the unit does not vibrate more through using the vibration-proof hanging bracket.

- Use a forklift to carry the unit. As it is packed in a cardboard box, do not drag or push it.
- Suction duct length must be longer than 850 mm.
- Helmet must be worn to protect your head from falling objects.
  Especially, when you work under an inspection opening, helmet must be worn to protect your head from falling objects from the opening.

■ External dimensions

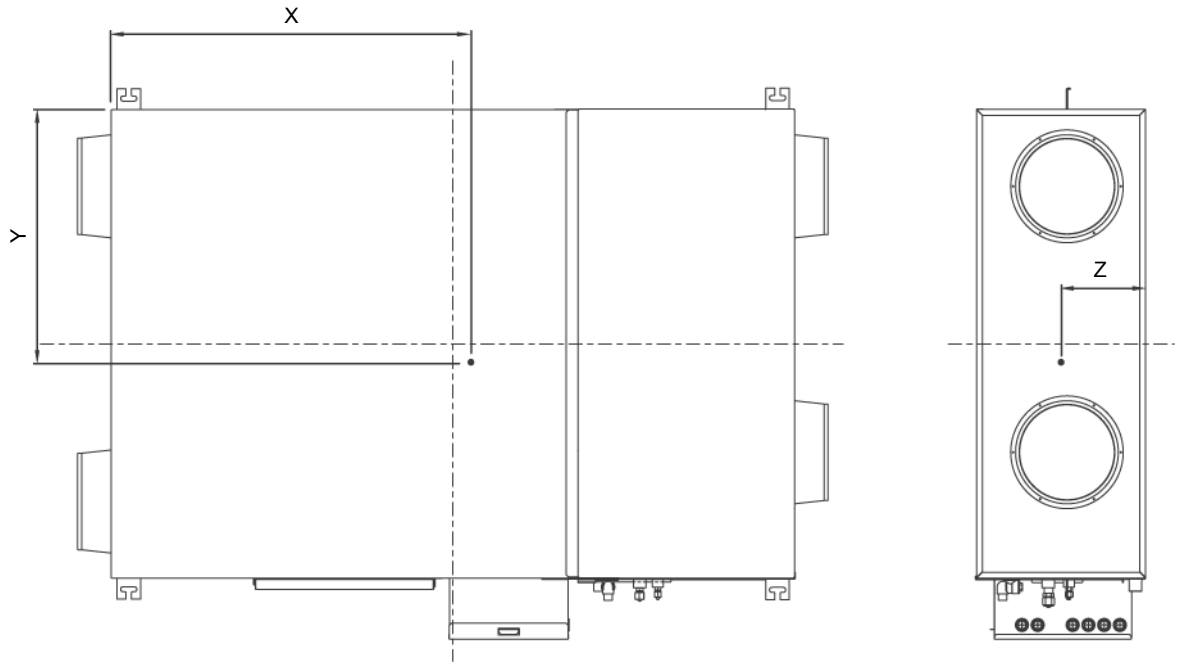


Unit: mm

Model No.	A	B	C	D	E	F
MMD-VNK502HEXE, VN502HEXE	1,690	1140	1140	250	175	350
MMD-VNK802HEXE, VN802HEXE	1,739	1189	1189	275	200	400
MMD-VNK1002HEXE, VN1002HEXE	1,739	1189	1189	275	200	400
MMD-VNK1002HEXE2, VN1002HEXE2	1,739	1189	1189	275	200	400

Model No.	G	H	I	J	K	Duct diameter	Diameter of refrigerant piping at the gas side (L)	Diameter of refrigerant piping at the liquid side (M)
MMD-VNK502HEXE, VN502HEXE	175	Ø195	Ø212	1601	1197	Ø200	Ø9.5	Ø6.4
MMD-VNK802HEXE, VN802HEXE	200	Ø245	Ø262	1650	1246	Ø250	Ø12.7	Ø6.4
MMD-VNK1002HEXE, VN1002HEXE	200	Ø245	Ø262	1650	1246	Ø250	Ø12.7	Ø6.4
MMD-VNK1002HEXE2, VN1002HEXE2	200	Ø245	Ø262	1650	1246	Ø250	Ø12.7	Ø6.4

Center of gravity

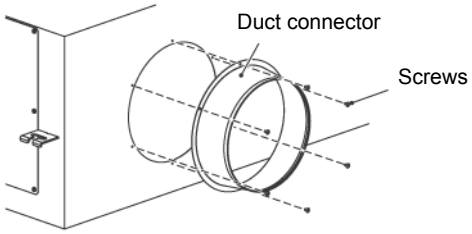


Model No.	X	Y	Z	Weight
MMD-VNK502HEXE	902	643	174	91
MMD-VNK802HEXE	901	667	199	111
MMD-VNK1002HEXE	900	667	199	112
MMD-VNK1002HEXE2	894	666	199	114
MMD-VN502HEXE	870	642	174	84
MMD-VN802HEXE	856	663	198	100
MMD-VN1002HEXE	853	663	198	101
MMD-VN1002HEXE2	858	662	198	103

■ Installing the indoor unit

Attaching the duct connector

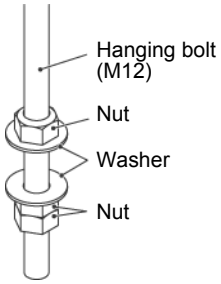
Attach 4 duct connectors to the unit using the six screws supplied for each connector.



Attaching the washers and nuts

1 **Procure the hanging bolts, nuts, and washers locally.**

2 **Attach the washers and nuts to the hanging bolt (M12) as shown in the figure on the right.**



Fixing the unit

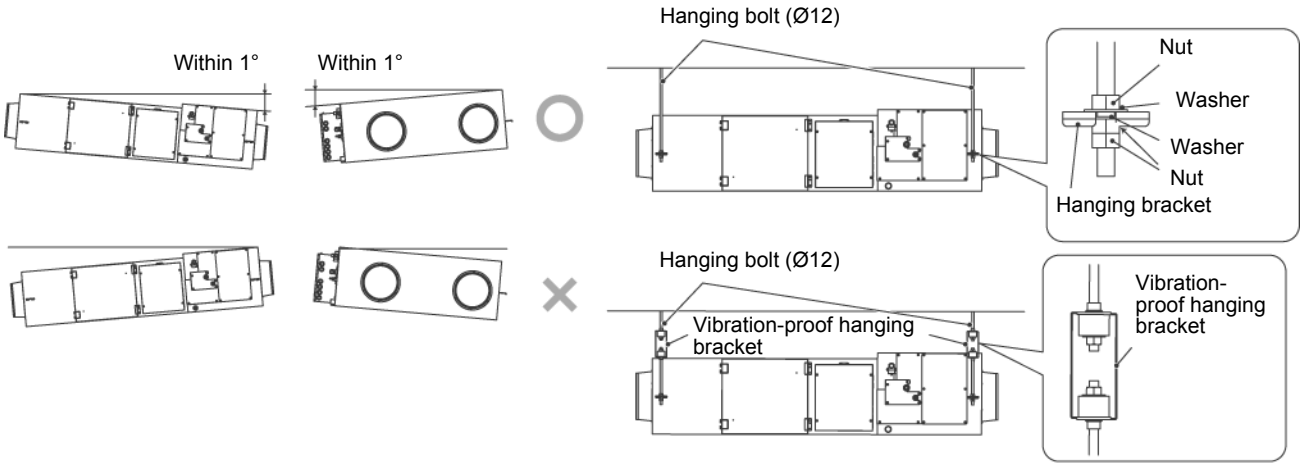
1 **Fit the hanging bracket on the hanging bolt, then adjust the position of the unit so that it is level.**

2 **Tighten the bolts securely using a double nut to prevent the bolts from becoming loose.**

- If the bolts are not tightened securely, the unit will vibrate and an accident may occur.
- Tighten the bolts so that they can bear the weight of the unit.

3 **Confirm that the unit is installed level.**

- Confirm that the unit is installed level or is inclined within 1 °(downward) against the drain outlet using a spirit level.
- Do not set the unit inclined (upward) against the drain outlet; otherwise, water will leak from the unit.



⚠ CAUTION

To preventing vibration, use vibration proof hanging brackets (procured locally).

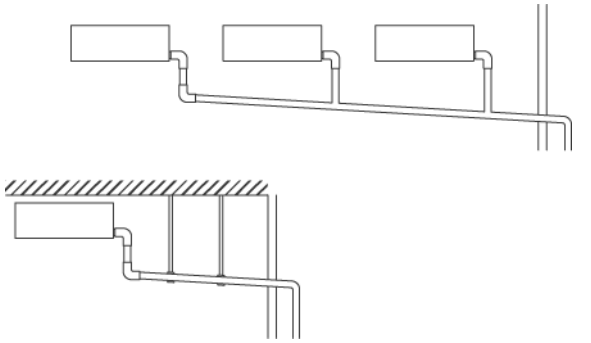
6 Drain Piping Work

⚠ CAUTION

Install drain pipes to drain water securely referring to the Installation Manual. In addition, insulate the pipes from heat to prevent condensation.
(Inappropriate piping results in water leaking into the room and furniture may be damaged.)

REQUIREMENT

- Install drain pipes to prevent water from leaking.
- Set the drain pipe with downward slope (1/100 or more), and do not make swelling or trap on the piping. It may cause an abnormal sound.
- For length of the traversing drain pipe, restrict to 20 m or less.
  In case of a long pipe, provide support brackets with interval of 1.5 - 2 m in order to prevent waving.
- Set the collective piping as shown in the below figure.
- Do not apply force to the connecting part of the drain pipe.
- Perform heat insulation of the drain pipes of the indoor unit.
- Perform heat insulation of the connecting part with the indoor unit.
  An incomplete heat insulation causes dew dropping.
- If the installation place is subject to freezing, perform anti-freezing work.



■ Piping / heat insulating material

Procure the following materials for piping and heat insulating locally.

Piping	Hard vinyl chloride pipe VP25 (Outer dia. : Ø32 mm)
	Elbow for VP25
Heat insulator	Foam polyethylene: Thickness 10 mm or more

■ Connecting drain pipe

- Connect the elbow for vinyl chloride pipe VP25 downward to the drain outlet.
- Position the tip of the drain pipe so that water can be drained, and open the other end.

NOTE

- Connect hard vinyl chloride pipes securely using an adhesive for vinyl chloride to avoid water leakage.
- It takes some time until the adhesive is dried and hardened (refer to the manual of the adhesive). Do not apply stress to the joint with the drain pipe during this time period.

■ Drain-up

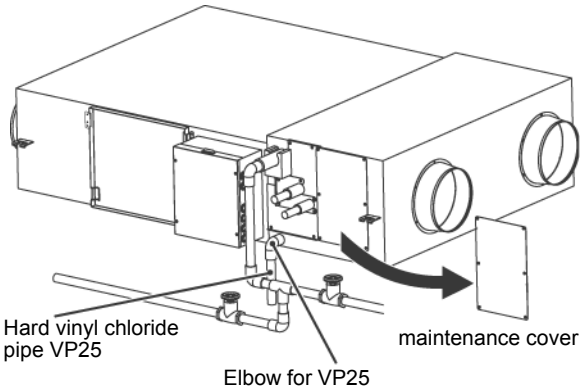
For the installation instruction of a drain-pump kit (sold separately), refer to the Installation Manual supplied with the drain-pump kit.

■ Check the draining

In the test run, check that water drain is properly performed and water does not leak from the connecting part of the pipes.

REQUIREMENT

- Check draining also when installed in heating period.
- Using a pitcher or hose, pour water (1500 - 2000 cc) into the discharge port before installation of the maintenance cover.



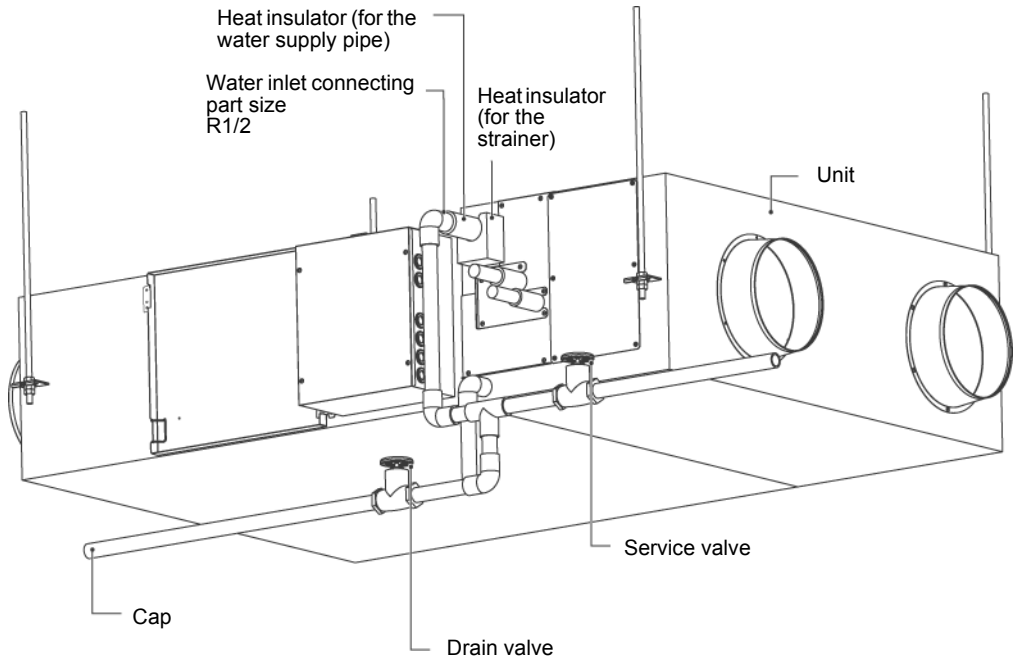
7 Water Supply Piping for a Humidifier (VNK type only)

⚠ CAUTION

Install the water supply pipes after washing the inside of them with water.
Install a drain valve on the water supply pipe, then drain the water until the drained water runs clear.
Do not to allow cutting fluid or detergent to enter the pipes.
The water quality of the humidifiers supply water should meet public waterworks standards, and have a hardness less than 100 mg/ℓ. If the supply water does not meet these standards, use a deionizer.

NOTE

- If the installation place is subject to freezing, perform anti-freezing work.
- Do not connect the water supply pipe directly to the public water pipe. Use a cistern tank (procured locally).
- Use water which meets the following conditions:
  - Water pressure: 2×10^4 Pa to 49×10^4 Pa
  - Water temperature: 5 °C to 40 °C
- Attach a service valve or drain valve (procured locally) near the water intake.
  While the humidifier is not in operation, the water inside the pipes and cistern tank does not flow and becomes stagnant.
  If the stagnant water is used for water supply in the initial stages of using the humidifier (heater), a smell may come out or bacteria may multiply.
  If you do not use the humidifier for a long time, drain off water from the pipes and from the cistern tank.
  Before the season for using the humidifier (heater) arrives, open the drain / water supply valves to exchange the water inside the pipes.
- Close the water supply valve when the season for using the humidifier (heater) has passed.
- Prevent corrosive gas, salt, or oil mist from entering the air.
- Clean the strainer for water supply when the season for using the humidifier (heater) arrives.
- Fix the water supply pipes so that excessive force is not applied to them.
- Arrange the pipes so that they do not obstruct opening the maintenance cover for the heat transfer element / humidification element or removing the humidification element.
- Do not allow cutting fluid from being mixed with the supplying water as it causes the humidifying unit or drain pan to deteriorate. If cutting fluid sticks to it, wash it immediately in a sufficient amount of water.
- Use 2 wrenches, to connect a pipe to a single union pipe joint or to remove it from the single union pipe joint.
- Drain off water from the cistern tank when the humidifier is not used.



8 Installation of Ducts

⚠ CAUTION

Insulate the ducts to prevent condensation.
Inappropriate installation results in water leaking into the room and furniture may be damaged.
Suction duct length must be longer than 850 mm.

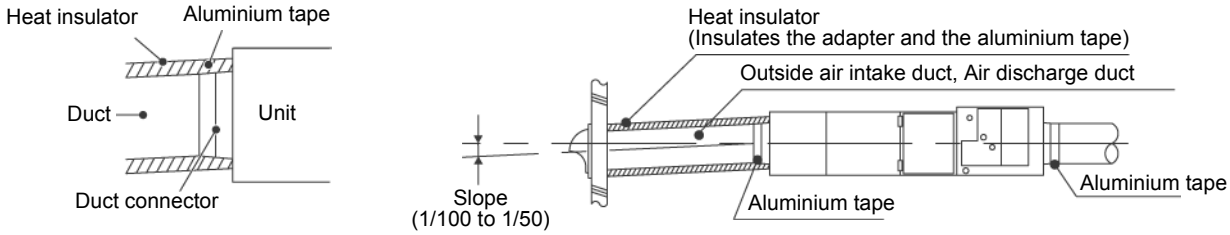
■ Installing ducts

1 Insert the duct into the duct connector, then fix the duct using aluminum tape to prevent air from leaking.

2 Hang the duct from the ceiling so that excessive force is not applied to the unit.

3 Leave sufficient space between the room air discharge and the room air intake.

4 Install 2 ducts to the outside inclined downward between 1/100 and 1/50 so that water does not enter the ducts.



5 Insulate 2 ducts to the outside and the SA (supply air) using a heat insulator to prevent condensation.
(Material of insulator: glass wool, 25 mm thick)

NOTE

- Refrain from the following duct installation works.

1) Excessive bending 2) Multi-times bending 3) Making the connecting duct smaller 4) Bending near the exhaust air duct

- When metallic ducts pass through a wooden construction covered with a metal lath, wire lath, or metal plate, install the ducts so that they are not electrically in contact with the metal parts of wooden construction.
- Keep the temperature in the ceiling cavity at 5 °C or more; otherwise, freezing and water leakage may occur due to the built-in humidifier. (VNK type only)
- Even while the unit is not in operation, outside air may enter the room due to a pressure difference between the outside air and inside air, or outside wind. Using an electric damper is recommended.
- Install a ventilator in the ceiling cavity when it is hot and the humidity is high.
- When the outdoor hood for the air intake is located near a window and small insects gather around the light, they may get through the pipes and enter the room. Before installation, consider countermeasures such as setting up a filter box (Locally procured).
- Arrange the pipes so that supply air and exhaust air are not mixed.
- When a vent cap or a round hood for an outdoor hood is used, do not attach the hood to a place where rain may fall directly. In this case, using a rectangle hood is recommended.
- Stuff the cracks in the pipe penetration part with a noncombustible material such as mortar.

9 Refrigerant Piping and Vacuuming

⚠ WARNING

- **Ventilate the room if a refrigerant gas is leaking during the installation work.**
  If the leaking refrigerant gas comes in contact with fire, a toxic gas is generated.
- **After installation, confirm that no refrigerant gas is leaking.**
  If the leaking refrigerant gas comes in contact with fire from a fan heater, a stove, or a gas range, a toxic gas is generated.

NOTE

When the refrigerant pipe is long, provide support brackets at intervals of 2.5 - 3 m to clamp the refrigerant pipe. Otherwise, abnormal sound may be generated.
Use the flare nut attached with the indoor unit or R410A flare nut.

■ Permissible piping length and height difference

They vary depending on the outdoor unit.
For details, refer to the Installation Manual attached to the outdoor unit.

■ About the pipe material and size

Pipe material	Seamless phosphorous-deoxidized copper pipe			
Model name	MMD-	VNK502HEXE VN502HEXE	VNK802HEXE VN802HEXE	VNK1002HEXE(2) VN1002HEXE(2)
Pipe size (mm)	Gas side	Ø9.5	Ø12.7	Ø12.7
	Liquid side	Ø6.4	Ø6.4	Ø6.4

■ Refrigerant piping at the liquid / gas side

Flaring

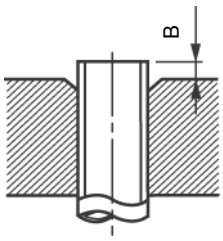
1 **Cut the pipe with a pipe cutter.**
Remove burrs completely.
Remaining burrs may cause gas leakage.

2 **Insert a flare nut into the pipe, and flare the pipe.**
As the flaring sizes of R410A differ from those of refrigerant R22, the flare tools newly manufactured for R410A are recommended.
However, the conventional tools can be used by adjusting projection margin of the copper pipe.

Projection margin in flaring: B (Unit: mm)

Rigid (Clutch type)

Outer dia. of copper pipe	R410A tool used	Conventional tool used
6.4, 9.5	0 to 0.5	1.0 to 1.5
12.7		

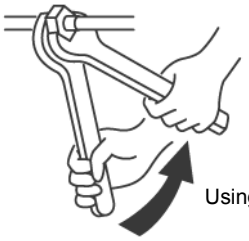


Flaring dia. meter size: A (Unit: mm)

Outer dia. of copper pipe	A $^{+0}_{-0.4}$
	R410A
6.4	9.1
9.5	13.2
12.7	16.6

* In case of flaring for R410A with the conventional flare tool, pull it out approx. 0.5 mm more than that for R22 to adjust to the specified flare size.
The copper pipe gauge is useful for adjusting projection margin size.

- The pressure of gas in the unit is the same as the atmospheric pressure. Therefore, no air leaking sound comes out when the flare nut is loosened. This is not anything unusual.
- Use 2 wrenches to perform piping of indoor units.


Using 2 wrenches

- Refer to the table below for tightening torque.

Outer diameter of connecting pipe (mm)	Tightening torque (N•m)
Ø6.4	14 to 18 (1.4 to 1.8 kgf•m)
Ø9.5	33 to 42 (3.3 to 4.2 kgf•m)
Ø12.7	50 to 62 (5.0 to 6.2 kgf•m)

- **Tightening torque of flare pipe connections**
Pressure of R410A is higher than that of R22.
(Approx. 1.6 times) Therefore, using a torque wrench, tighten the flare pipe connecting sections which connect the indoor and outdoor units of the specified tightening torque.
Incorrect connections may cause not only a gas leak, but also a trouble of the refrigeration cycle.

REQUIREMENT

Tightening with an excessive torque may crack the nut depending on installation conditions.
Tighten the nut within the specified tightening torque.

■ Leak check test and vacuuming

Refer to the Installation Manual of the outdoor unit for leak check test, vacuuming, adding a refrigerant, or checking gas leakage.

REQUIREMENT

Do not turn on the indoor unit before leak check test and vacuuming are finished; otherwise, the electric expansion valve is closed fully and vacuuming from the liquid or gas side is not performed properly. If the indoor unit should be turned on, perform vacuuming from both the liquid side and the gas side.

■ Opening the valve fully

Open the valves of the designated outdoor unit fully.

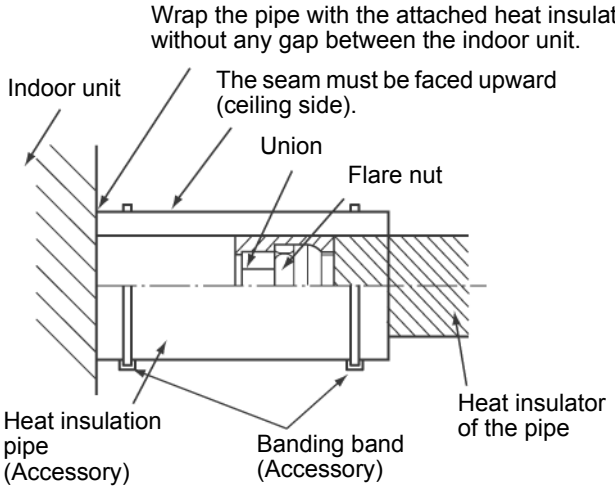
■ Heat insulation

Apply heat insulation for the pipes separately at liquid side and gas side.

- For the heat insulation to the pipes at gas side, be sure to use the material with heat-resisting temperature 248 °F (120 °C) or higher.
- Using the attached heat insulation material, apply the thermal insulation to the pipe connecting section of the indoor unit securely without gap.

REQUIREMENT

- Apply the heat insulation to the pipe connecting section of the indoor unit securely up to the root without exposure of the pipe. (The pipe exposed to the outside causes water leak.)
- Wrap heat insulator with its slits facing up (ceiling side).



10 Electric Wiring

⚠ WARNING

- **Use predefined wires and connect them certainly.**
  Keep the connecting terminals free from external force.
  Improper wire connection or clamping may result in exotherm, fire or malfunction.
- **Connect earth wire. (grounding work)**
  Incomplete grounding cause an electric shock.
  Do not connect ground wires to gas pipes, water pipes, lightning rods or ground wires for telephone wires.
- **The electric work must satisfy all local, national and international regulations.**
  Use an exclusive power supply circuit for the unit at the rated voltage.
  Capacity shortage of power circuit or incomplete installation may cause an electric shock or a fire.

⚠ CAUTION

Be sure to install an earth leakage breaker.
If an earth leakage breaker is not installed, an electric shock may be caused.

REQUIREMENT

- Perform electrical wiring according to local regulations of each region.
- Perform electrical wiring of the outdoor unit according to the Installation Manual of the outdoor unit.
- Do not connect 220–240 V power to the communication terminal blocks (Ⓤ1, Ⓤ2, Ⓐ, Ⓑ) for control wiring. (Otherwise, the system will fail.)
- Perform electrical wiring so that wires do not come in contact with hot parts of the pipes; otherwise, heat from the pipes melts the covering of wires and an accident may result.
- After connecting wires to the terminal blocks, provide a trap and fix wires with the cord clamp.
- Arrange the transition wiring and the refrigerant piping so that they are in the same group.
- Do not turn on the indoor unit before vacuuming of refrigerant piping is finished.

■ Power specifications

Wiring and remote controller wire should be locally procured.
See the table below for the power specifications. If the capacity is too small, the unit will suffer from overheating or burnout.
Refer to the Installation Manual of the outdoor unit for the power capacity or electric wire specifications of the outdoor unit.

Item / Model name MMD-		Power supply for Air to Air Heat Exchanger with DX Coil Unit (*1)		
		Power supply		Wiring for the power supply
Air to Air Heat Exchanger with DX Coil Unit	VNK502HEXE VN502HEXE VNK802HEXE VN802HEXE	1-phase 50 Hz 220-240 V 1-phase 60 Hz 220 V	Current rating (Fuse rating) of circuit breaker (switch) for indoor units should be selected by the accumulated total current values of the indoor units.	cable 3-core 2.5 mm^2 , in conformity with Design 60245 IEC66
	VNK1002HEXE VN1002HEXE	1-phase 50 Hz 220-240 V		
	VNK1002HEXE2 VN1002HEXE2	1-phase 60 Hz 220 V		

(*1)
- For the power supply of the indoor unit, prepare the exclusive power supply separated from that of the outdoor unit.

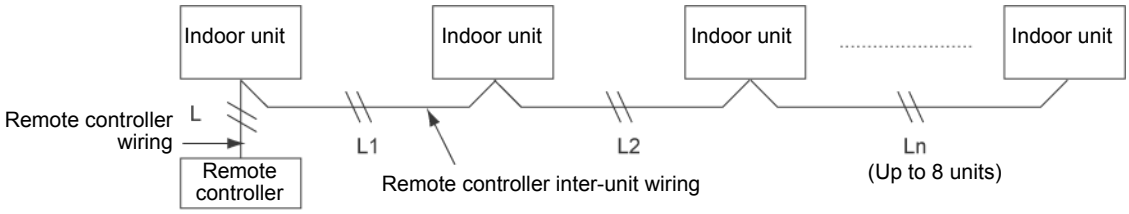
Item / Model name MMD-		Communication line	
		Indoor / Outdoor inter-unit wiring (*2) (2 cables) Central control line wiring (*3) (2 cables)	**Remote controller wiring (*4)**
Air to Air Heat Exchanger with DX Coil Unit	VNK502HEXE VN502HEXE VNK802HEXE VN802HEXE	(Up to 1000 m) 2-core, non-polarity shield wire: 1.25 mm^2 (Up to 2000 m) 2-core, non-polarity shield wire: 2.00 mm^2	2-core, non-polarity: 0.5 to 2.0 mm^2
	VNK1002HEXE VN1002HEXE		
	VNK1002HEXE2 VN1002HEXE2		

(*2) (*3)
- 2-core with non-polarity wires are used for the Indoor / Outdoor inter-unit wiring and Central controller wiring.
- To prevent noise trouble, use 2-core shield wire.
- The length of the communication line means the total length of the inter-unit wire length between indoor and outdoor units added with the central control system wire length.

(*4)
- 2-core with non-polarity wire is used for wiring of the remote controller wiring and group remote controllers wiring.

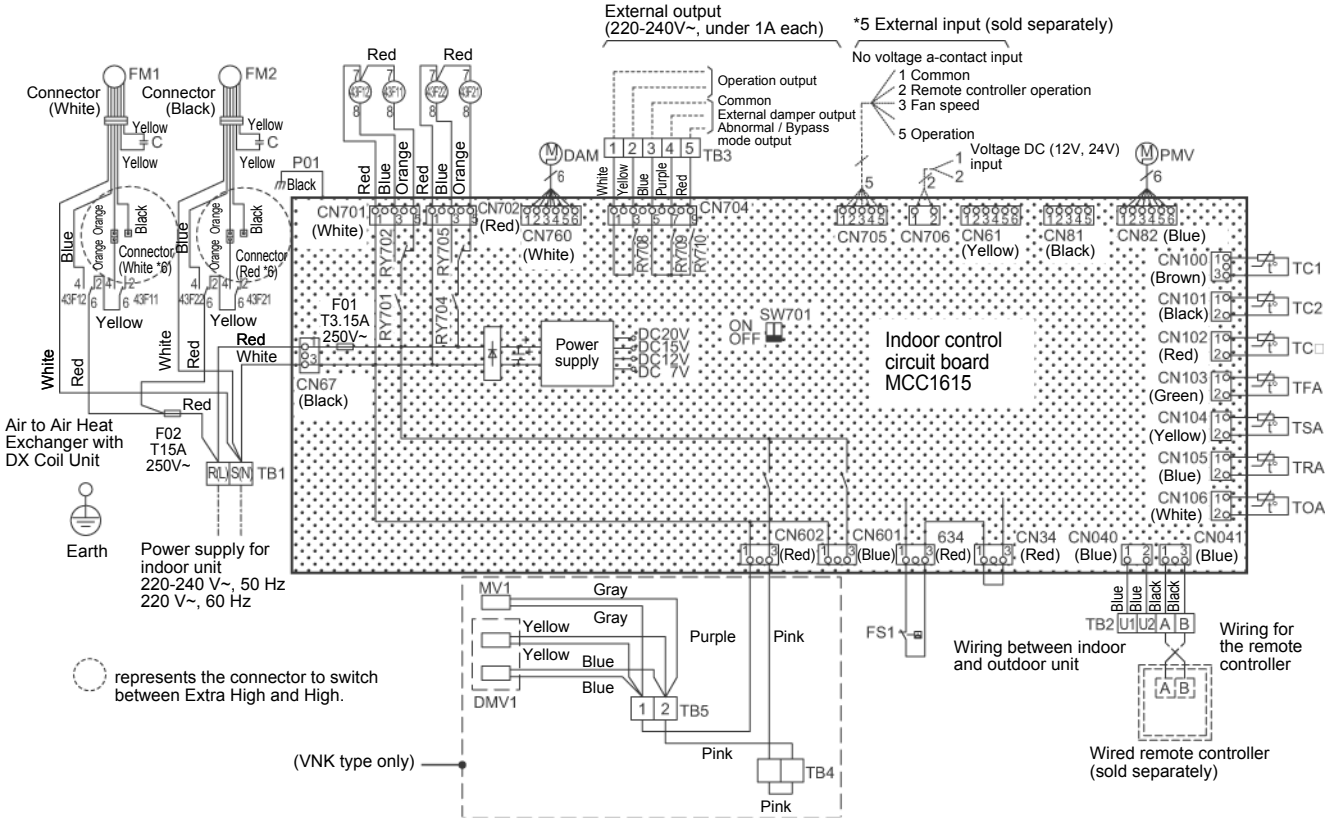
Remote controller wiring, remote controller inter-unit wiring	2-core, non-polarity: 0.5 mm^2 to 2.0 mm^2

Total wire length of remote controller wiring and remote controller inter-unit wiring = L + L1 + L2 + ··· Ln	For wired type only	Up to 500 mm
	When wireless type is included	Up to 400 mm
Total wire length of remote controller inter-unit wiring = L1 + L2 + ··· Ln		Up to 200 mm



On the outside of the unit, do not allow the wire for the remote controller (communication wire) and the wire for AC220-240 V to come into contact or put them together in one electrical conduit; otherwise, the control system may have trouble due to noise.

■ Connection diagram



Code	Parts name
CN***	Connector
F01	Fuse (Printed circuit board)
F02	Fuse (Motor)
FM1	Air supplying motor
FM2	Air exhausting motor
DAM	Damper motor
TRA	TRA sensor
TOA	TOA sensor
TSA	TSA sensor

Code	Parts name
TFA	TFA sensor
TCJ, TC1, TC2	Indoor coil sensor
TB1	Terminal block (power source)
TB2	Terminal block (communication)
TB3	Terminal block (external output)
TB4 *1	Terminal block (Humidistat)
TB5 *1	Terminal block (Magnetic valve)
FS1	Float switch
MV1 *1	Magnetic Valve

Code	Parts name
DMV1 *1	Decompression magnetic valve
PMV	Pluse modulating valve
SW701	DIP switch
43F11, 43F12	Relay for air supplying motor
43F21, 43F22	Relay for air exhausting motor
RY701, RY702	Relay for air supplying motor
RY704, RY705	Relay for exhausting motor

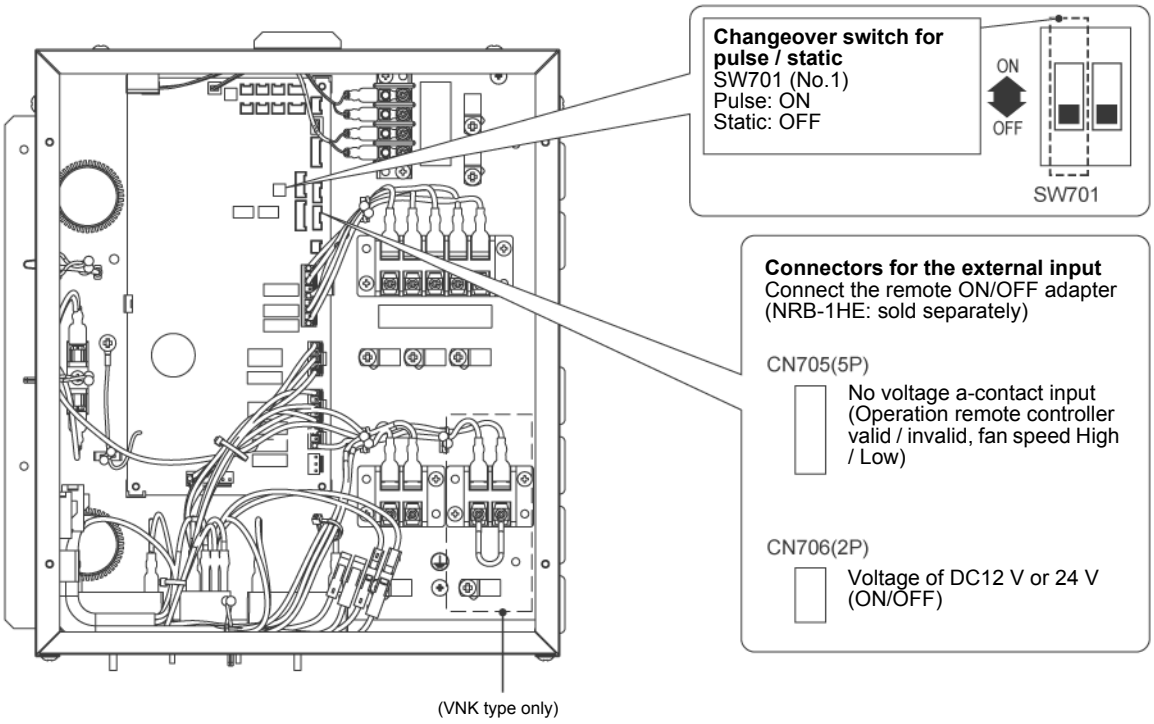
*1: VNK type only

1. The dotted line represents a wire procured locally, and the dashed line represents an option sold separately.
2. ▭ represents a terminal block, —○— represents a connection terminal, ▭ represents a connector on the printed circuit board and ▭ represents a short circuit connector.
3. ⏚ represents a protective earth.
4. ▭ represents a printed circuit board.
5. Using a no voltage a-contact input of the external input (sold separately), the following operations are available:
   Between 1 and 2: Selecting the remote controller operation (Invalid / Valid)
   Between 1 and 3: Adjusting the fan speed (Low / High)
   Between 1 and 5: Operation (ON/OFF)
   Use a microcurrent contact (DC12 V, 1 mA). In addition, ON/OFF operation is possible when using a voltage of DC12 V or 24 V.
6. Orange wire (High) is connected as factory default. To switch to “Extra High”, connect black wire’s connector instead of orange.
7. The unit cannot run when the temperature of the outdoor air is below -15 °C.

■ Switches and connectors on the circuit board

Remove the 4 screws to detach the cover.

* Refer to “Advanced System” for how to set the switch.



■ Wiring connection

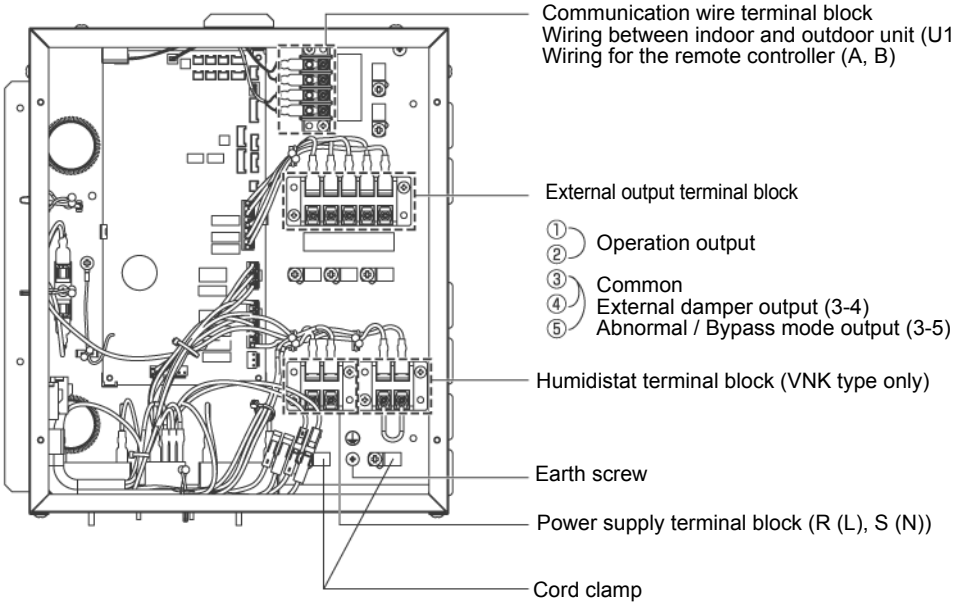
NOTE

- When performing transition wiring for the remote controllers, polarity is not needed to be considered when connecting wires to the terminal A and B on the indoor unit terminal block.
- Leave an extra length of 100 mm for each wiring so that servicing can be performed more easily.
- Low voltage circuit is applied for the remote controller.

Perform wiring so that each wire corresponds with the proper terminal number; otherwise, an electrical fault may occur.

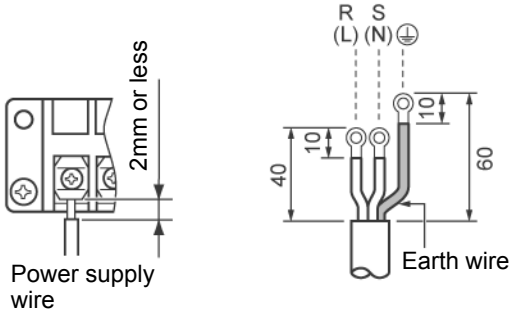
Wiring in the electrical control box of the indoor unit

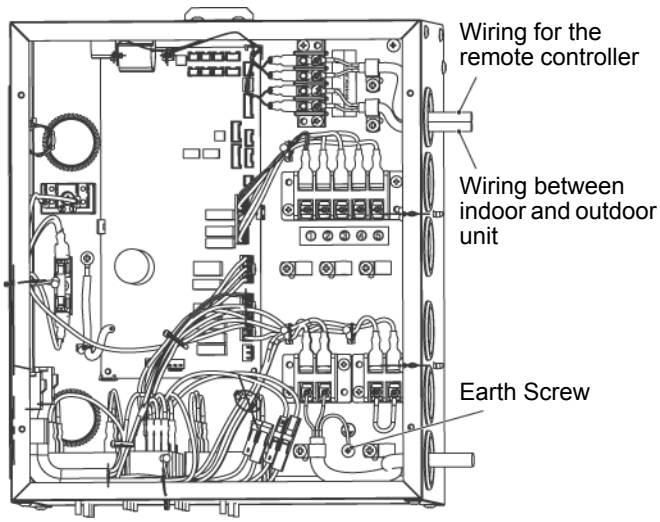
Fix the wires using a cord clamp. Do not stretch them tight for wiring.



■ Wiring the indoor unit

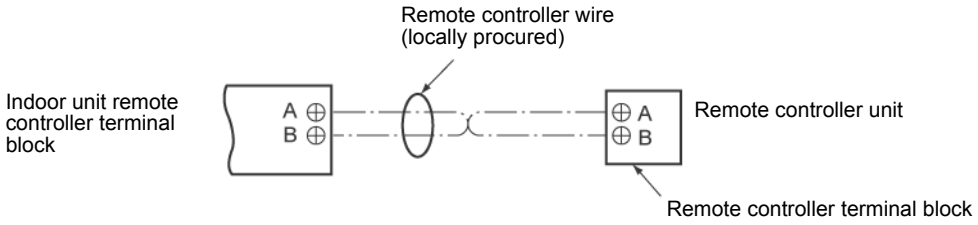
Connect the wire matching the terminal numbers.
Incorrect connection causes a trouble.





■ Remote controller wiring

Wiring diagram



* Use a 0.5 mm^2 to 2 mm^2 wire.

■ Address setting

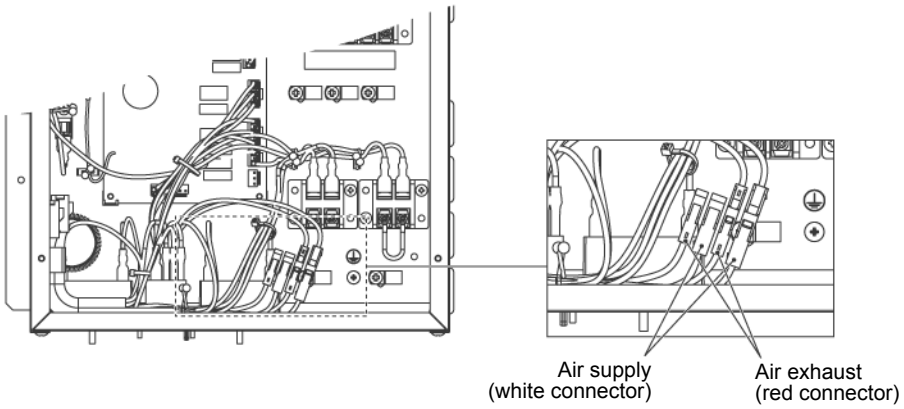
Refer to the Installation Manual of the outdoor unit for address setting.

* When the Air to Air Heat Exchanger with DX Coil Unit system linked with indoor air conditioners is used, set the Air to Air Heat Exchanger with DX Coil Unit as “Follower”, referring to “Setting the address manually using the remote controller” in the Installation Manual of the outdoor unit.

■ Switching between Extra High and High

When switching to Extra High, connect the black lead wire (Extra High) to the connector.

* The Orange lead wire (High) is connected as factory default.
* Connect the black lead wire both to the air supplying motor (white connector) and the air exhausting motor (red connector).
* Refer to “Connection diagram” for the connection method.

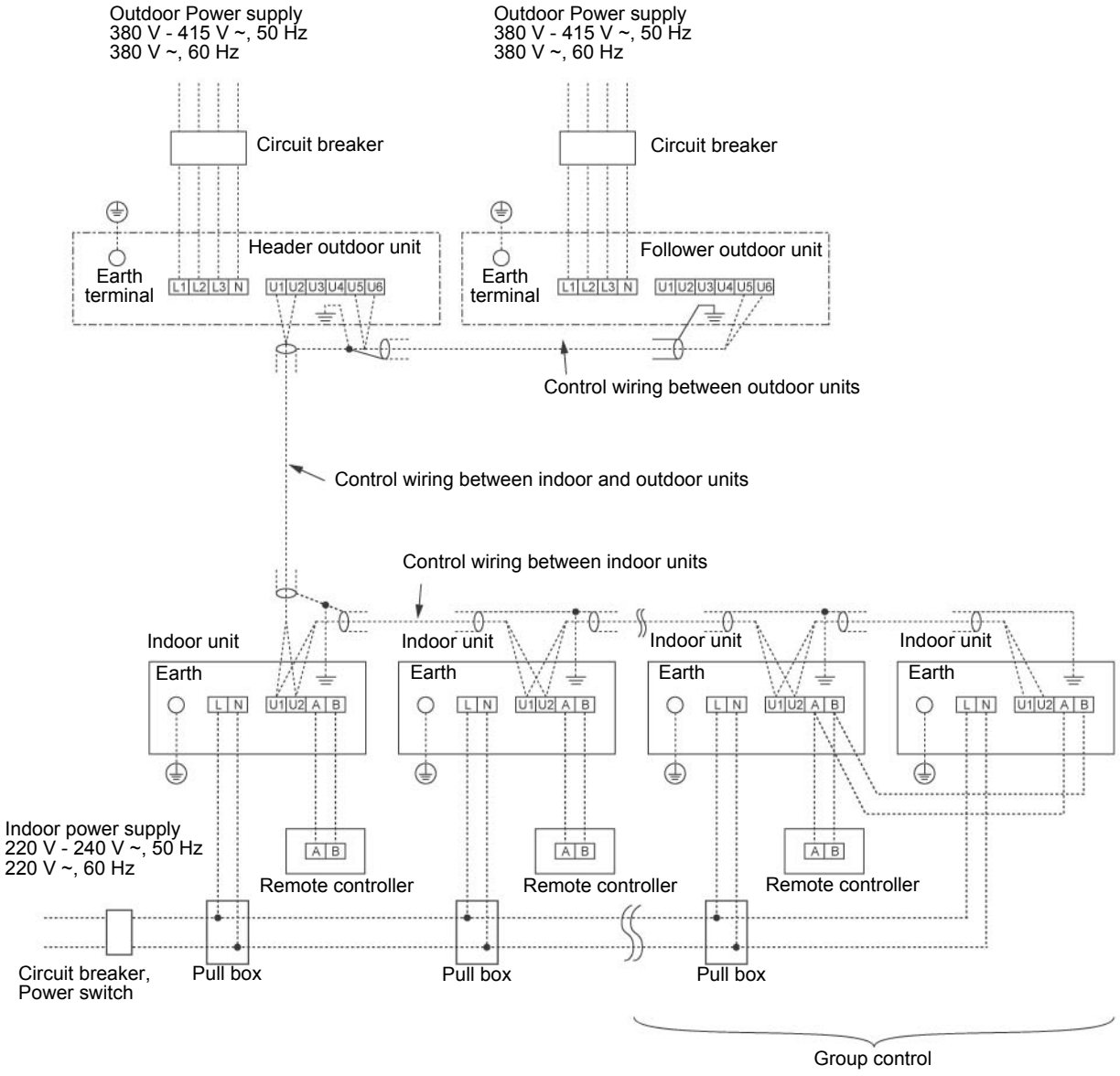


■ Wiring between indoor and outdoor units

NOTE

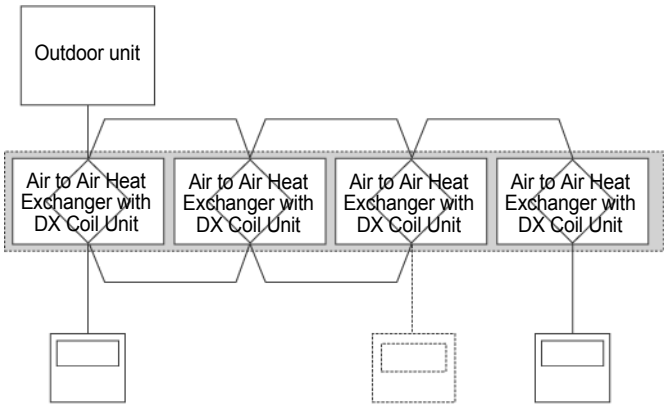
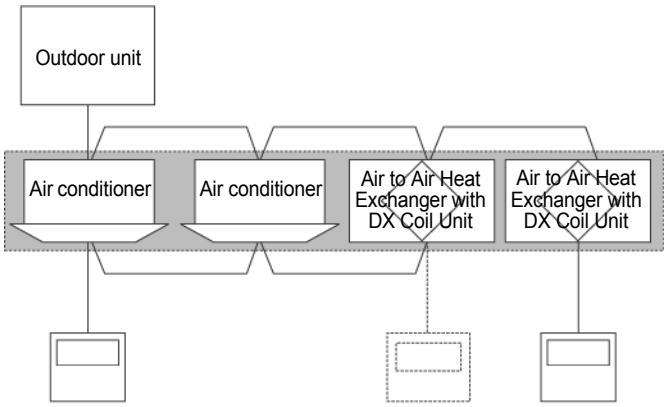
An outdoor unit connected with control wiring between indoor and outdoor units wire becomes automatically the header unit.

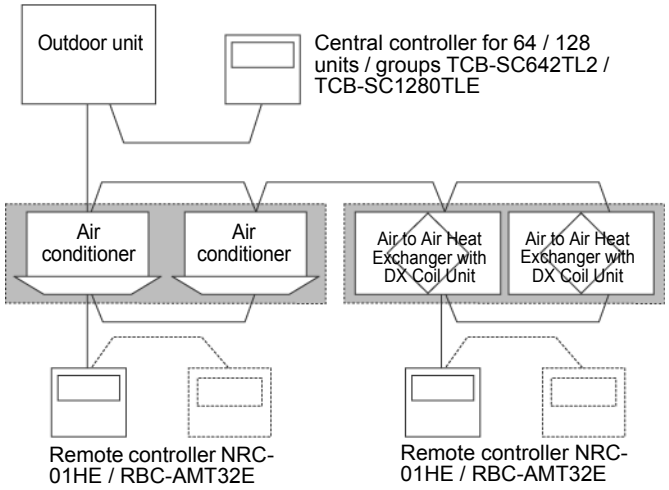
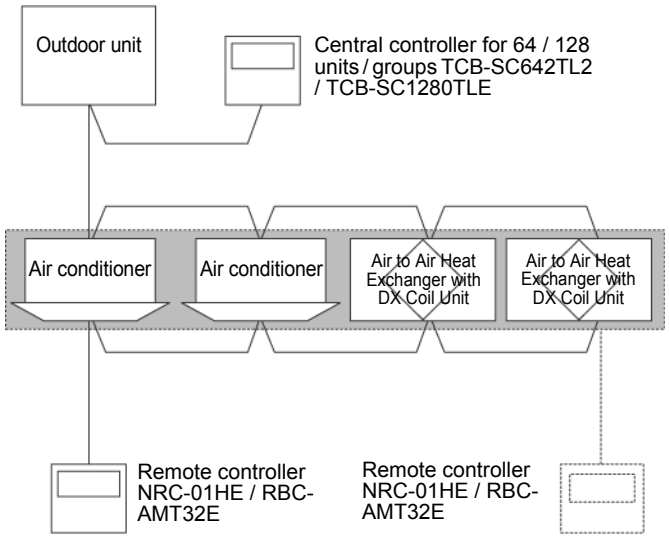
Wiring example



11 System Configuration

Settings and electric wiring differ depending on the system configuration. Perform electric wring according to the system examples shown in the table below.

System example	Operation
A. Air to Air Heat Exchanger with DX Coil Unit system  Remote controller NRC-01HE / RBC-AMT32E	You can use the remote controller to ON/OFF running the Air to Air Heat Exchanger with DX Coil Unit. **Remote controller for the Air to Air Heat Exchanger with DX Coil Unit (NRC-01HE)** You can select the operation mode, start and stop the unit, control the ventilation FAN speed, select the ventilation mode, and adjust the temperature. **Main remote controller (RBC-AMT32E)** • You can select the operation mode, start and stop the unit, and adjust the temperature. • You cannot change the ventilation FAN speed or ventilation mode. **If two remote controllers are used, the latter operation overrides the former and their indications always reflect the result of the latter operation.**
B. Air to Air Heat Exchanger with DX Coil Unit system linked with air conditioners  Remote controller NRC-01HE / RBC-AMT32E	You can use the remote controller to ON/OFF running Air conditioners and Air to Air Heat Exchanger with DX Coil Unit. **Remote controller for the Air to Air Heat Exchanger with DX Coil Unit (NRC-01HE)** You can select the operation mode, start and stop the unit, control the ventilation FAN speed, select the ventilation mode, and adjust the temperature. **Main remote controller (RBC-AMT32E)** • You can select the operation mode, start and stop the unit, and adjust the temperature. • You cannot change the ventilation FAN speed or ventilation mode. **If two remote controllers are used, the latter operation overrides the former and their indications always reflect the result of the latter operation.** * You can start and stop only the Air to Air Heat Exchanger with DX Coil Unit in the system using NRC-01HE. For this operation, it is necessary to change the settings. * Setting modifications are required for separate control. Refer to “13. Advanced Control” on page 169. * When the Air to Air Heat Exchanger with DX Coil Unit system linked with indoor air conditioners is used, set the Air to Air Heat Exchanger with DX Coil Unit as “Follower”, referring to “Setting the address manually using the remote controller” in the Installation Manual of the outdoor unit.

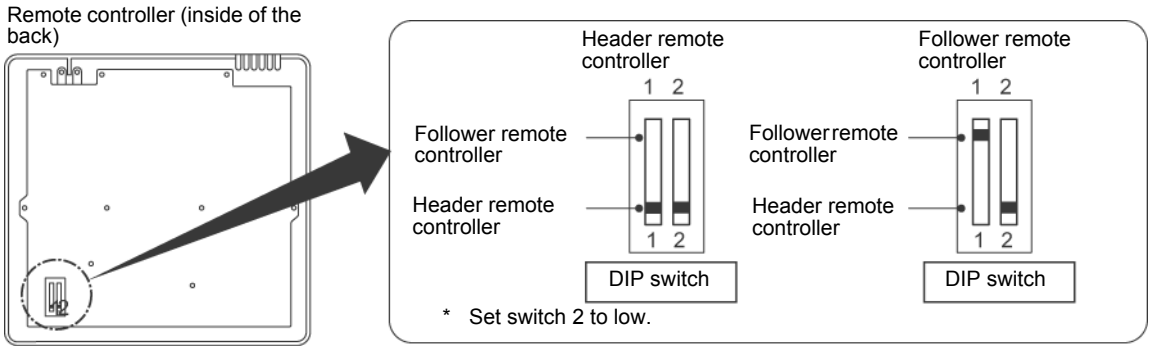
System example	Operation
C. Central control system (When controlling groups of air conditioners and the Air to Air Heat Exchanger with DX Coil Unit separately) 	**The Central controller can be used to ON/OFF the whole system and separately ON/OFF groups of air conditioners and the Air to Air Heat Exchanger with DX Coil Unit.** **The Central controller cannot be used to control the ventilation FAN speed or select the ventilation mode of the Air to Air Heat Exchanger with DX Coil Unit.** **If two remote controllers are used, the latter operation overrides the former and their indications always reflect the result of the latter operation.** * Use NRC-01HE or RBC-AMT32E to control only the group of the Air to Air Heat Exchanger with DX Coil Unit. You cannot control the ventilation FAN speed or select the ventilation mode when using RBC-AMT32E.
D. Central control system (When controlling the Air to Air Heat Exchanger with DX Coil Unit system linked with air conditioners) 	**The Central controller can be used to ON/OFF the whole system.** **The compliant manager cannot be used to control the ventilation FAN speed or select the ventilation mode of the Air to Air Heat Exchanger with DX Coil Unit.** **You can control the ventilation FAN speed and select the ventilation mode of the Air to Air Heat Exchanger with DX Coil Unit using NRC-01HE.** **You cannot control the ventilation FAN speed or select the ventilation mode of the Air to Air Heat Exchanger with DX Coil Unit using RBC-AMT32E.** **If two remote controllers are used, the latter operation overrides the former and their indications always reflect the result of the latter operation.** * You can start and stop only the Air to Air Heat Exchanger with DX Coil Unit in the system using NRC-01HE. For this operation, it is necessary to change the settings. * Setting modifications are required for separate control. Refer to “13. Advanced Control” on page 169. * When the Air to Air Heat Exchanger with DX Coil Unit system linked with indoor air conditioners is used, set the Air to Air Heat Exchanger with DX Coil Unit as “Follower”, referring to “Setting the address manually using the remote controller” in the Installation Manual of the outdoor unit.

* The Air to Air Heat Exchanger and the Air to Air Heat Exchanger with DX Coil Unit cannot be used together in the same system.

■ Installing two remote controllers for the Air to Air Heat Exchanger with DX Coil Unit

For details on how to install the remote controller for the Air to Air Heat Exchanger with DX Coil Unit, refer to the Installation Manual accessory with the remote controller.

You can control one or multiple Air to Air Heat Exchanger with DX Coil Unit(s) using two remote controllers. (Up to two remote controllers can be installed.)



How to install

When you want to use two remote controllers, follow the procedure below.

1. Set one remote controller as the header (factory default).
2. Set the other remote controller as the follower using the DIP switch. After that, the remote controller works as the follower.

12 Advanced System

⚠ WARNING

- 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.
- When carrying out electric connection, use the wire specified in the Installation Manual and connect and fix the wire securely to prevent them applying external force to the terminals. Improper connection of fixing may result in fire.
- 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.

REQUIREMENT

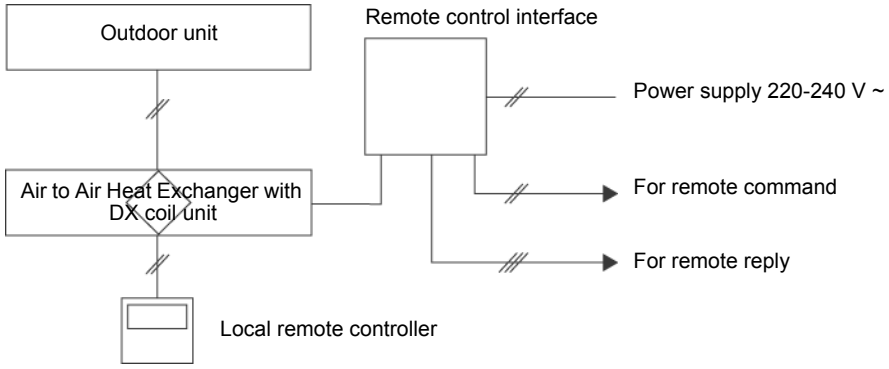
For the connecting procedure and electric wiring of External Input (sold separately), refer to the Installation Manual of Remote ON / OFF Adapter NRB-IHE.

1 Connecting to external devices by using remote control interface.

- Air to Air Heat Exchanger with DX coil unit receives ON-OFF signal from external devices such as central remote control. (Command) Air to Air Heat Exchanger with DX coil unit concurrently sends operating status signal (operating display, error display). (Reply)

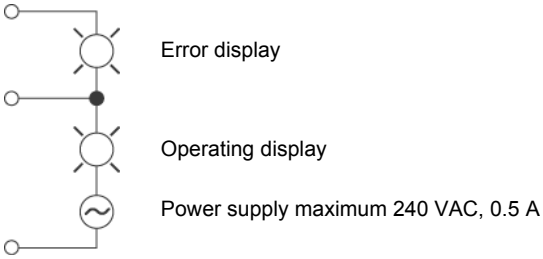
1) Connecting diagram

TCB-IFCB-4E2

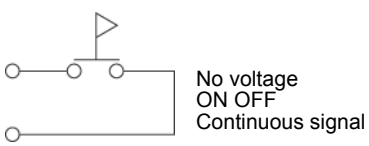


2) Operating status display for remote control

TCB-IFCB-4E2



3) Correspondence to ON-OFF signal from remote control



4) Control priority type can be selected between remote priority control and last command priority control

2 Switching the remote controller between invalid / valid or low / high from an external device (separately sold External Input)

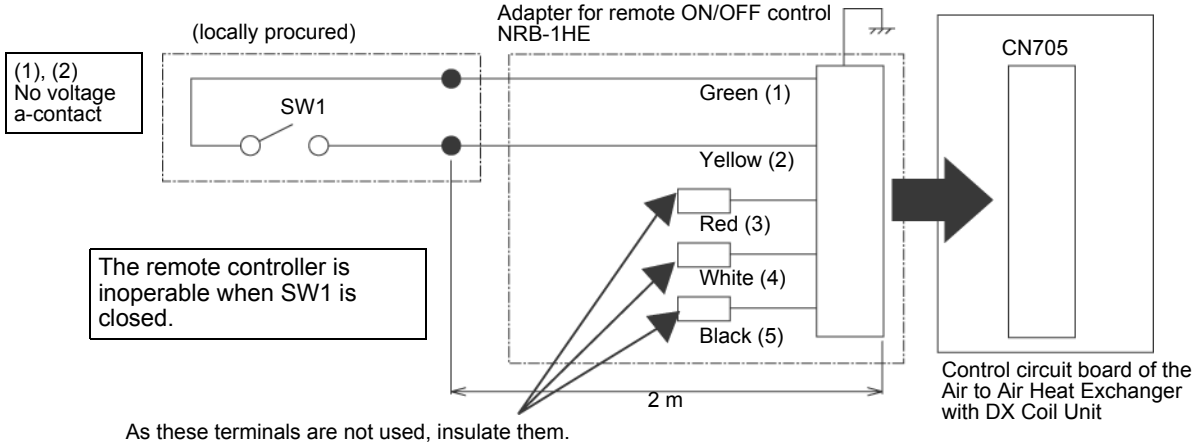
* Perform connection with one of the units in the group.
* Static signal only

Insert the remote ON/OFF adapter NRB-1HE (sold separately) into connector CN705.

- Transmission wire used to extend must be locally procured: Non-polarity, shielded wire (H05 VVC4V5-K or 60227 IEC 74) 0.5 mm^2
  Maximum length: 50 m

If a polar contact such as a photocoupler is used with a no voltage a-contact, connect the positive pole to terminal (2), (3) or (4) and the negative pole to terminal (1).	Specification of the external contact: Contact for microcurrent DC12 V 1 mA

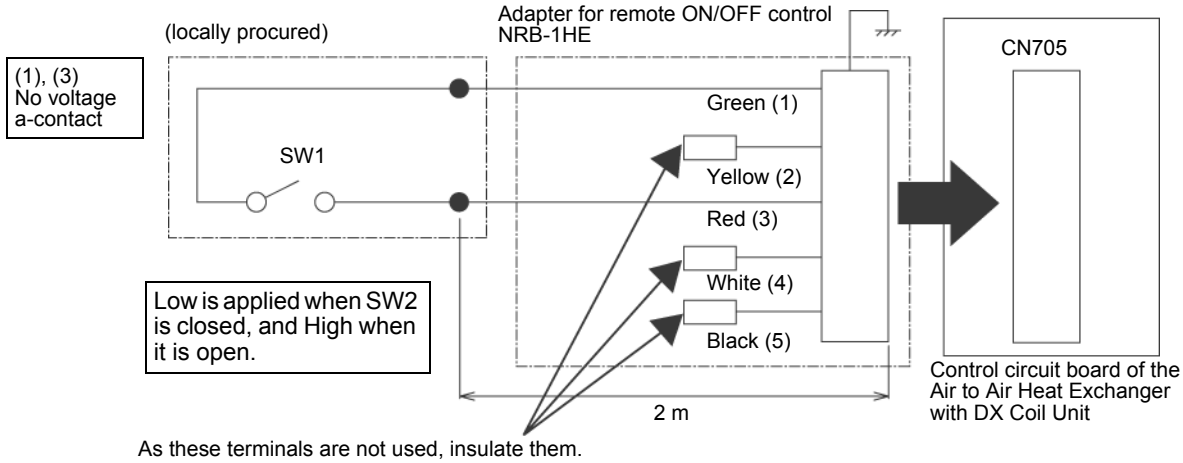
1) When switching the remote controller between invalid / valid from an external device



SW1 [Remote controller Invalid: ON, Valid: OFF]

- For NRC-01HE (remote controller for the Air to Air Heat Exchanger with DX Coil Unit), when one of the buttons below is pressed, blinks and the operation is invalid.
  * [ON/OFF] button
  * [VENT] button
  * [VENT MODE] button
  * [VENT FAN] button
- For RBC-AMT32E (remote controller for the air conditioner), pressing the [ON/OFF] button has no effect.
- When the remote controller is inoperable, nighttime heat purge operation are not available.
- If a command is sent to one of the units in the group, the invalid / valid setting of the remote controller in the group can be switched.

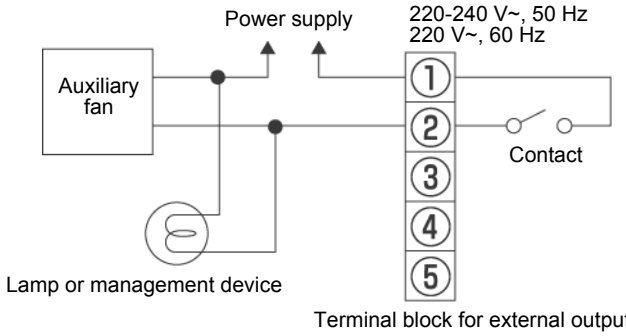
2) When switching between low / high from an external device



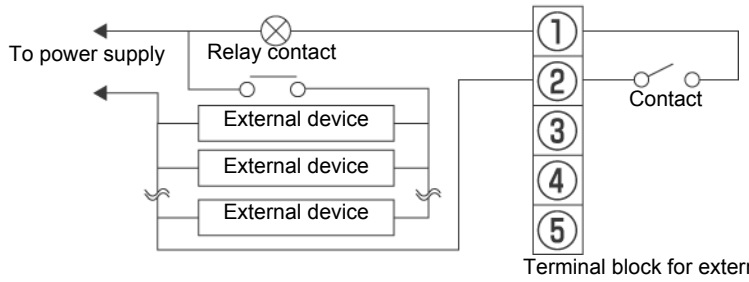
SW2 [Low: ON, High: OFF]

- For NRC-01HE (remote controller for the Air to Air Heat Exchanger with DX Coil Unit), the message on the display is changed. However, when the air conditioner operates Air to Air Heat Exchanger with DX Coil Unit system linked with air conditioners, ventilation fan speed (Low / High) is changed though the ventilation amount is not shown on the display.
- If a command is sent to one of the units in the group, all the Air to Air Heat Exchanger with DX Coil Units in the group operate together.
- The latter operation of the remote controller or the external device overrides the former.

3 Connecting an auxiliary fan or monitoring operation output (External Output)



If external devices is used working at a higher voltage and current than the rated values, install a relay according to the diagram below.
Rated relay: 220-240 VAC



Connect to the terminal block for external output (1 and 2) in the electrical control box

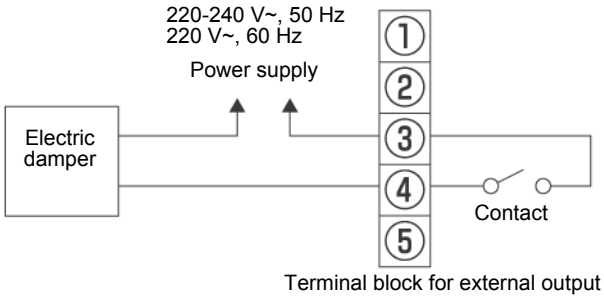
Connection wire (locally procured): 2-core wire (H07 RN-F or 60245 IEC 66) 1.0 mm² to 2.5 mm²

Rated contact	
Maximum: 240 VAC, 1 A	24 VDC, 1 A
Minimum: 220 VAC, 100 mA	5 VDC, 100 mA

Contact is on during normal operation as factory default.

- Contact is off during nighttime heat purge operation or while fan operation is off to protect the unit.
- The operation output settings can be changed. Refer to “Setting for changing the operation output” on page 175.

4 Connecting an electric damper (electric shutter) (External Output)



If external output is used working at a higher voltage and current than the rated values, install a relay according to the diagram above (diagram for connecting an auxiliary fan).
Rated relay: 220-240 VAC

Connect to the terminal block for external output (3 and 4) in the electrical control box

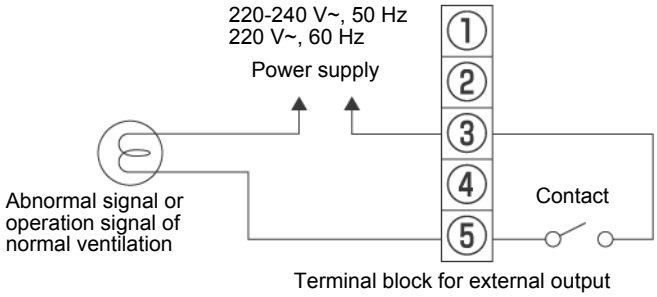
Connection wire (locally procured): 2-core wire (H07 RN-F or 60245 IEC 66) 1.0 mm² to 2.5 mm²

Rated contact (3 to 5: Total value with abnormal signal output)	
Maximum: 240 VAC, 1 A	24 VDC, 1 A
Minimum: 220 VAC, 100 mA	5 VDC, 100 mA

The electric damper (electric shutter) works during normal operation, and nighttime heat purge operation.

- The electric damper (electric shutter) also works in the following circumstances:
  * While the operation is paused during nighttime heat purge operation
  * While operating in cold mode (Temperature is below −10 °C.)
- The electric damper (electric shutter) does not work in the following circumstances:
  * While the operation is stopped
  * Before the monitoring operation of nighttime heat purge operation starts

5 Monitoring an abnormal signal or the operation signal of bypass mode (External Output)



Connect to the terminal block for external output (3 and 5) in the electrical control box

Connection wire (locally procured): 2-core wire (H07 RN-F or 60245 IEC 66) 1.0 mm² to 2.5 mm²

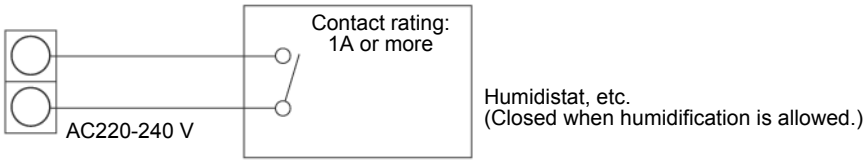
Rated contact (3 and 4: Total value with output of the electric damper)	
Maximum: 240 VAC, 1 A	24 VDC, 1 A
Minimum: 220 VAC, 100 mA	5 VDC, 100 mA

It is possible to monitor an abnormal signal or the operation signal of bypass mode from the Air to Air Heat Exchanger with DX Coil Unit.

Detection of an abnormal signal is possible, as factory default.

- To change settings so that the operation signal of bypass mode can be detected, refer to “Abnormal signal / bypass mode signal output setting” on page 176.

6 Connecting a humidistat, etc. (VNK type only)



Remove the short wires fixed on the terminal block TB4 with screws. (You need not use these wires.)

Connect a humidistat, etc. to the terminal block using the screws.

13 Advanced Control

REQUIREMENT

When using the Air to Air Heat Exchanger with DX Coil Unit for the first time, it will take some moments after the power has been turned on before the remote controller becomes available for operations: This is normal and is not indicative of trouble.

- Concerning the automatic addresses (The automatic addresses are set up by performing operations on the outdoor interface circuit board.)
  While the automatic addresses are being set up, no remote controller operations can be performed. Setup takes up to 10 minutes (usually about 5 minutes).
- When the power is turned on after automatic address setup
  It takes up to 10 minutes (usually about 3 minutes) for the outdoor unit to start operating after the power has been turned on.

Before the Air to Air Heat Exchanger with DX Coil Unit was shipped from the factory, all units are set to [STANDARD] (factory setting). If necessary, change the indoor unit settings.
The settings are changed by operating the wired remote controller.

* The settings cannot be changed using only a wireless remote controller, simple remote controller or group control remote controller by itself so install a wired remote controller separately as well.

■ Changing the advanced control settings

Basic procedure for changing the settings

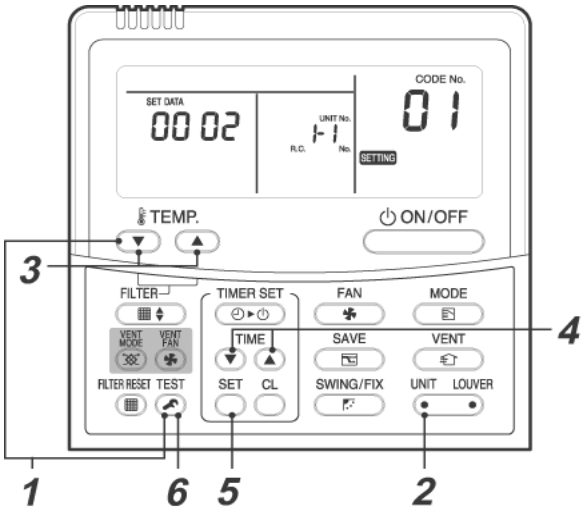
Change settings while the power is turned off. (Be sure to stop operation.)

⚠ CAUTION

Do not change any setting codes other than those in this manual; otherwise, the unit may not work or some problems may occur.

Changing the settings of the Air to Air Heat Exchanger with DX Coil Unit (For NRC-01HE)

* For RBC-AMT32E, you can change settings using the same procedure as NRC-01HE. (Display position is different from that of NRC-01HE.)

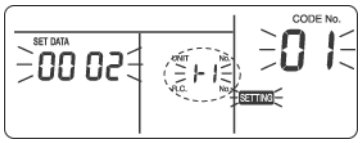


1 **Push TEST button and temp. setup ▼ button simultaneously for at least 4 seconds.**

After a while, the display flashes as shown in the figure.

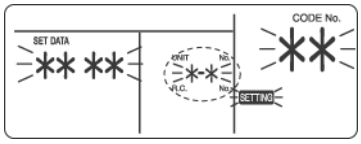
Confirm that the CODE No. is [01].

- If the CODE No. is not [01], push TEST button to erase the display content, and repeat the procedure from the beginning.
  (No operation of the remote controller is accepted for a while after TEST button is pushed.)
  (While Air to Air Heat Exchanger with DX Coil Unit are operated under the group control, “ALL” is displayed first. When UNIT LOUVER is pushed, the indoor unit number displayed following “ALL” is the header unit.)



(* Display content varies with the indoor unit model.)

2 **Every time you press the UNIT LOUVER button, the unit numbers of the indoor units or the Air to Air Heat Exchanger with DX Coil Units in the group are displayed successively. Select the Air to Air Heat Exchanger with DX Coil Unit to change settings. When the unit is selected, the fan starts running to indicate which unit you have selected.**



3 **Using TEMP. setup ▼ / ▲ buttons, specify CODE No. [✱✱].**

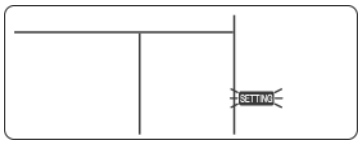
4 **Using TIMER time ▼ / ▲ buttons, select SET DATA [✳✳✳✳].**

5 **Push SET button. When the display changes from flashing to lit, the setup is completed.**

- To change settings of another indoor unit, repeat from Procedure ***2***.
- To change other settings of the selected indoor unit, repeat from Procedure ***3***.
  Use SET button to clear the settings.
  To make settings after SET button was pushed, repeat from Procedure ***2***.

6 **When settings have been completed, push TEST button to determine the settings.**

When TEST button is pushed, “SETTING” flashes and then the display content disappears and the air conditioner enters the normal stop mode.
(While “SETTING” is flashing, no operation of the remote controller is accepted.)



Codes (DN codes) for changing settings

Codes in the table below are necessary for local advanced control.

Code	Description	SET DATA and description	Factory default	Note
01	Lighting-up hours of the Filter Sign	0000: None 0001: 150 H 0002: 2500 H 0003: 5000 H 0004: 10000 H	0002: 2500 H	Adjusting this setting is necessary for the header unit.
06	Detect temperature shift value when heating	0000: No shift 0001 – 0006: [SET DATA value] × 1 °C shift	0002: 2 °C shift	
31	Single operation of the fan	0000: Invalid 0001: Valid ON/OFF operation for the Air to Air Heat Exchanger with DX Coil Unit only	0000: Invalid	Adjusting this setting is necessary for the header unit. (System equipped with the Air to Air Heat Exchanger with DX Coil Unit and air conditioners)
32	Remote controller sensor	0000: Do not use 0001: Use	0000: Do not use	
48	Unbalanced ventilation Fan speed	0000: Normal 0001: SA (High) > EA (Low) active 0002: SA (Low) < EA (High) active * “High” may be “Extra High”.	0000: Normal	Adjusting this setting is necessary for all the Air to Air Heat Exchanger with DX Coil Units in the group.
4C	Nighttime heat purge	0000: Invalid 0001-0048: Start after [Setting value] x 1 hour(s) * Setting for the time before the nighttime heat purge operation starts	0000: Nighttime heat purge OFF	Adjusting this setting is necessary for all the Air to Air Heat Exchanger with DX Coil Units in the group. (System equipped with the Air to Air Heat Exchanger with DX Coil Unit and air conditioners)
4E	Setting of the linked operation with external devices	0000: ON/OFF linked 0001: ON linked 0002: OFF linked * Specifies whether the ON/OFF operation of the Air to Air Heat Exchanger with DX Coil Unit is linked with the external device operation	0000: ON/OFF linked	Adjusting this setting is necessary for a Air to Air Heat Exchanger with DX Coil Unit to which an adapter for remote ON/OFF control (sold separately) is connected.
EA	Changing the ventilation mode	0002: Heat Exchange mode 0003: Automatic mode * Compatible with systems without a remote controller and RBC-AMT32E	0003: Automatic mode	*1
EB	Changing the ventilation Fan speed	0002: High 0003: Low 0004: Unbalanced * “High” may be “Extra High”. * Compatible with systems without a remote controller and RBC-AMT32E	0002: High	*1
ED	Changing the operation output	0000: ON during normal operation 0001: ON during normal operation or nighttime heat purge operation 0002: ON during nighttime heat purge operation 0003: ON when SA fan is running 0004: ON when EA fan is running	0000: ON during normal operation	Adjusting this setting is necessary for a Air to Air Heat Exchanger with DX Coil Unit which transfers the operation output.
EE	Changing the abnormal signal / Bypass mode signal output	0000: ON when an abnormal signal is detected 0001: ON when the Bypass mode signal is detected	0000: ON when an abnormal signal is detected	Adjusting this setting is necessary for a Air to Air Heat Exchanger with DX Coil Unit which transfers the operation output.

* Adjusting this setting is necessary for the header unit when using a system equipped with the Air to Air Heat Exchanger with DX Coil Unit only, and the Air to Air Heat Exchanger with DX Coil Unit with the smallest indoor unit address number when using a system equipped with the Air to Air Heat Exchanger with DX Coil Unit and air conditioners.

■ Group control

In a group control, a remote controller can control up to maximum 8 units.

- For wiring procedure and wiring method of the individual line (Identical refrigerant line) system, refer to “Electric Wiring” in this Manual.
- Wiring between indoor units in a group is performed in the following procedure.
  Connect the indoor units by connecting the remote controller inter-unit wires from the remote controller terminal blocks (A/B) of the indoor unit connected with a remote controller to the remote controller terminal blocks (A/B) of the other indoor unit. (Non-polarity)
- For address setup, refer to the Installation Manual attached to the outdoor unit.

■ Changing the time before the Filter Sign lights up

The time before the Filter Sign lights up can be changed according to the installation conditions.

* Adjust this setting for the header unit.
  - Select [01] in step 3 on page 169.
  - Select a value from the table on the below in step 4 on page 170 according to the preferred time before the Filter Sign lights up.

Code	SET DATA	0000	0001	0002	0003	0004
01	Time before the Filter Sign lights up	None	150H	2500H (Factory default)	5000H	10000H

■ For better heating performance

When it is hard to become hot due to the location of the indoor unit, room structure, etc., you can raise the detect temperature for heating. It is recommended that you use a circulator or the like to circulate warm air around the ceiling.

- Select [06] for CODE NO. in Step 3.
- Select CODE NO. from the following table in Step 4:

Code	SET DATA	0000	0001	0002	0003	0004	0005	0006
06	Detect temperature Shift value	None	+ 1 °C	+ 2 °C (default)	+ 3 °C	+ 4 °C	+ 5 °C	+ 6 °C

* In addition to the above detect temperature shift value, the own detect temperature shift value (Heat: 2.5 °C, Cool: -2.0 °C) is set for the Air to Air Heat Exchanger with DX Coil Unit in order to intake enough outdoor air. This setting does not need to be changed, but if you want to change the setting, contact our Customer Support Center.

■ Setting the single operation of the Air to Air Heat Exchanger with DX Coil Unit (Setting for the header air conditioner)

Single operation of the Air to Air Heat Exchanger with DX Coil Unit is possible when operation of the Air to Air Heat Exchanger with DX Coil Unit is linked with that of the air conditioners.
Use the button of the wired remote controller.

* While the Air to Air Heat Exchanger with DX Coil Unit is in operation, VENT is displayed on the remote controller.
* Adjust this setting for the header air conditioner in the group when using a system equipped with the Air to Air Heat Exchanger with DX Coil Unit and air conditioners.
* This setting is invalid when using a system equipped with the Air to Air Heat Exchanger with DX Coil Unit(s) only.
  - Select [31] in step 3 on page 169.
  - Select [0001] in step 4 on page 170.

Code	SET DATA	0000	0001
31	Single operation of the fan	Invalid (Factory default)	Valid

REQUIREMENT

Do not change this setting when the operation is linked by a signal from an external device or remotely controlled on and off (page 164) by using Remote ON/OFF Adapter NRB-1HE (sold separately).

■ Remote controller sensor

Usually the temperature sensor of the indoor unit senses the temperature. Configure this setting in order to sense the temperature around the remote controller.

- Select [32] for CODE NO. in Step 3.
- Select CODE NO. from the following table in Step 4:

If the remote controller sensor blinks, an error has occurred on the remote controller sensor.
Set [0000]: Do not use for the remote controller sensor, or replace the remote controller.

Code	SET DATA	0000	0001
32	Remote controller sensor	Do not use (default)	Use

■ Setting of the unbalanced ventilation Fan speed

SA / EA unbalanced operation of the Air to Air Heat Exchanger with DX Coil Unit is possible.
Use the button of the remote controller.

* Adjust this setting for all the Air to Air Heat Exchanger with DX Coil Units when group operation is applied.
* Though RBC-AMT32E cannot be used, this setting can still be changed. For details, refer to “Ventilation Fan speed setting” on page 175.
  - Select [48] in step 3 on page 170.
  - Select [0001: SA (High) > EA (Low) active] or [0002: SA (Low) < EA (High) active] in step 4 on page 170.

Code	SET DATA	0000	0001	0002
48	Unbalanced ventilation Fan speed	Invalid (Factory default)	SA (High) > EA (Low) active	SA (Low) < EA (High) active

■ Nighttime heat purge setting

Nighttime heat purge exhausts hot air in the room by bypass mode and reduces the cooling load in the morning. Monitoring operation starts after [Setting value] x 1 hour(s). (1 to 48 hours)

* Adjust this setting for all the Air to Air Heat Exchanger with DX Coil Units in the group. (Only when the Air to Air Heat Exchanger with DX Coil Unit(s) operates link with air conditioners)
* This setting is invalid for a system equipped with the Air to Air Heat Exchanger with DX Coil Unit only.
  - Select [4C] in step 3 on page 169.
  - Select a value from the table on the below in step 4 on page 170 according to the preferred time.

Code	SET DATA	0000	0001 to 0048
4C	Nighttime heat purge	0000: Invalid (Factory default)	Start after [Setting value] x 1 hour(s)

■ Setting for linked operation with external devices

Specifies the operation of the Air to Air Heat Exchanger with DX Coil Unit linked with the on/off operation of external devices

* For group operation, adjust this setting for the Air to Air Heat Exchanger with DX Coil Unit to which the remote ON/OFF adapter (NRB-1HE: sold separately) is connected.
  - Select [4E] in step 3 on page 169.
  - Select a value from the table on the below in step 4 on page 170.

Code	SET DATA	0000	0001	0002
4E	Linked operation with external devices	ON/OFF linked (Factory default)	ON linked	OFF linked

0000: The Air to Air Heat Exchanger with DX Coil Unit starts / stops together with the starting / stopping of an external device. (The latter operation of the remote controller or the switch of the external device overrides the former.)
0001: The Air to Air Heat Exchanger with DX Coil Unit starts together with the starting of an external device. Use the remote controller to stop operation.
0002: The Air to Air Heat Exchanger with DX Coil Unit stops together with the stopping of an external device. Use the remote controller to start operation.

■ Ventilation mode setting

The setting of the ventilation mode can be changed when using the remote controller for air conditioners (RBC-AMT32E).

* Adjusting this setting is necessary for the header unit when using a system equipped with the Air to Air Heat Exchanger with DX Coil Unit only (RBC-AMT32E can not be used.), and for the Air to Air Heat Exchanger with DX Coil Unit with the smallest address number when using a system equipped with the Air to Air Heat Exchanger with DX Coil Unit and air conditioners.
* When the remote controller NRC-01HE is installed, this setting is invalid. (The remote controller can be used for operation.)
  - Select [EA] in step 3 on page 169.
  - Select a value from the table on the below in step 4 on page 170.

Code	SET DATA	0001	0002
EA	Changing the ventilation mode	Heat Exchange mode	Automatic mode (Factory default)

■ Ventilation Fan speed setting

The setting of the ventilation Fan speed can be changed when using the remote controller for air conditioners (RBC-AMT32E, RBC-AMS41E) or using the system without the remote controller.

* Adjusting this setting is necessary for the header unit when using a system equipped with the Air to Air Heat Exchanger with DX Coil Unit only (RBC-AMT32E can not be used.), and for the Air to Air Heat Exchanger with DX Coil Unit with the smallest address number when using a system equipped with the Air to Air Heat Exchanger with DX Coil Unit and air conditioners.
* When the remote controller NRC-01HE is installed, this setting is invalid. (The remote controller can be used for operation.)
  - Select [EB] in step 3 on page 169.
  - Select a value from the table on the below in step 4 on page 170.

Code	SET DATA	0002	0003	0004
EB	Changing the ventilation amount	High (Factory default)	Low	Unbalanced

* When [0004] is selected, adjust setting of the unbalanced ventilation Fan speed (Code: 48).

■ Setting for changing the operation output

Terminals 1 and 2 for external devices can be used to connect an auxiliary fan or to use the operation output for operating external devices connected to the terminal. It can be specified when the operation output is used.

* Apply this setting for the Air to Air Heat Exchanger with DX Coil Unit to which an external device is connected.
  - Select [ED] in step 3.
  - Select a value from the table below in step 4.

Code	SET DATA	0000	0001	0002	0003	0004
ED	Changing the operation output	ON during normal operation (Factory default)	ON during normal operation or nighttime heat purge operation	ON during nighttime heat purge operation	ON when SA fan is running	ON when EA fan is running

0000: Contact is on only during normal operation.
  * Contact is off during nighttime heat purge operation.
  * Contact is off during cold mode (while the temperature is below -10 °C)

0001: Contact is on during normal operation and nighttime heat purge operation.
  * Contact is off when nighttime heat purge operation is on standby. (paused before the monitoring operation of nighttime heat purge operation starts)
  * Contact is off during cold mode (while the temperature is below -10 °C)

0002: Contact is on during nighttime heat purge operation.
  * Contact is off during normal operation or when nighttime heat purge operation is on standby. (paused before the monitoring operation of nighttime heat purge operation starts)
  * Contact is off during cold mode (while the temperature is below -10 °C)

0003: Contact is on only when SA fan is running.

0004: Contact is on only when EA fan is running.

* Contact is off during switching the damper (Heat exchange mode / Bypass mode) regardless of the selected value.

■ Abnormal signal / bypass mode signal output setting

Terminals 3 to 5 for external output can be used to detect an abnormal signal / bypass mode signal output. Output signal to be detected can be selected.

* Adjust this setting for the Air to Air Heat Exchanger with DX Coil Unit to which an external output is connected.
* When [0000] is selected, signal transfer is on if one of the units in the group has trouble.
  - Select [EE] in step 3 on page 169.
  - Select a value from the table on the below in step 4 on page 170.

Code	SET DATA	0000	0001
EE	Changing the abnormal signal / bypass mode signal output	ON when an abnormal signal is detected (Factory default)	ON when the bypass mode signal is detected

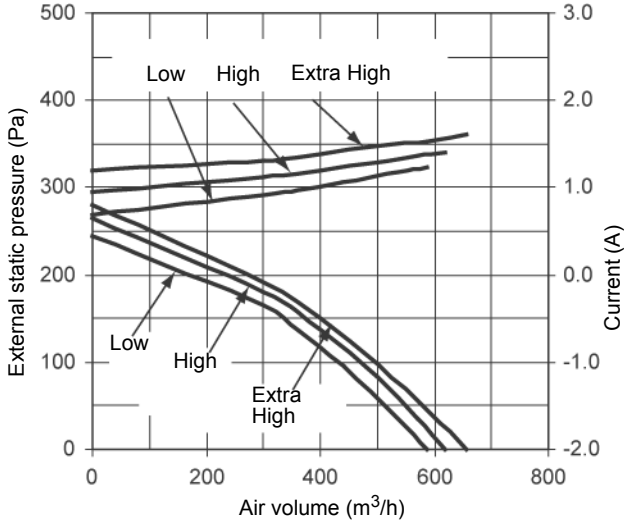
0000: Signal transfer is on when an abnormal signal output is detected.
0001: Signal transfer is on when the bypass mode signal output is detected.
* Signal transfer is on during nighttime heat purge operation.
* Signal transfer is off when the nighttime heat purge operation is on standby. (paused before the monitoring operation of the nighttime heat purge operation starts)

14 Fan Characteristics

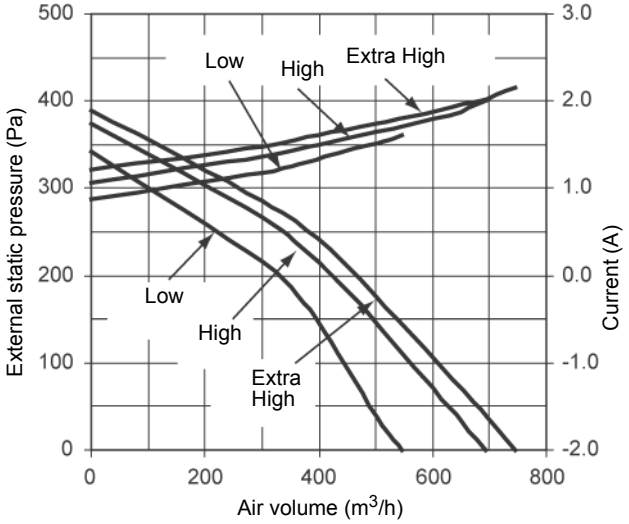
◆ MMD-VNK502HEXE

Standard air volume: 500 m³/h, Lower limit air volume: 330 m³/h, Upper limit air volume: 600m³/h

50 Hz 230 V



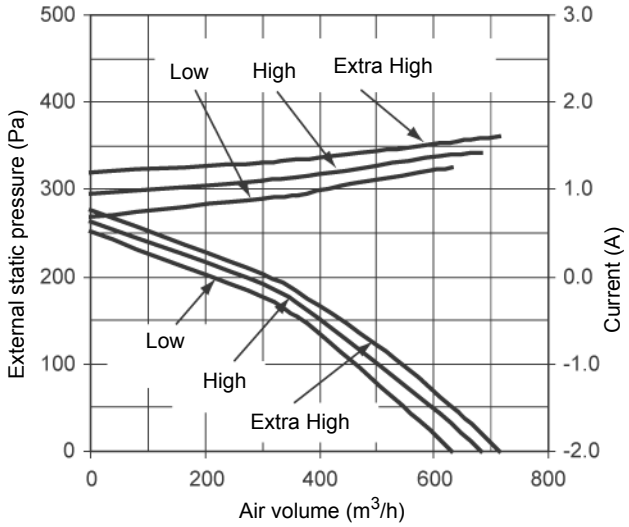
60 Hz 220 V



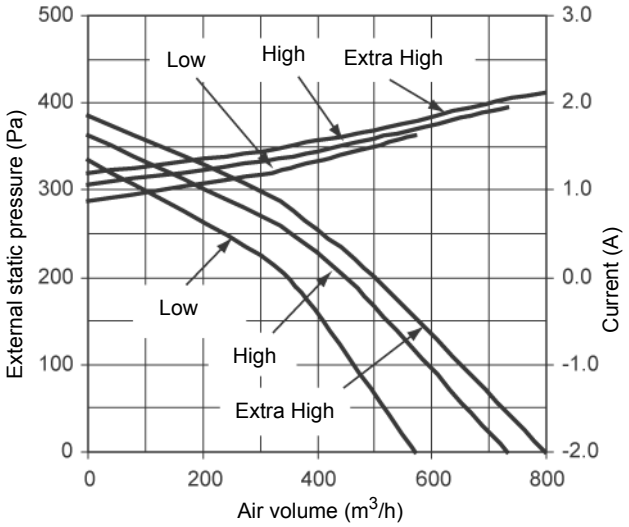
◆ MMD-VN502HEXE

Standard air volume: 500 m³/h, Lower limit air volume: 330 m³/h, Upper limit air volume: 600 m³/h

50 Hz 230 V



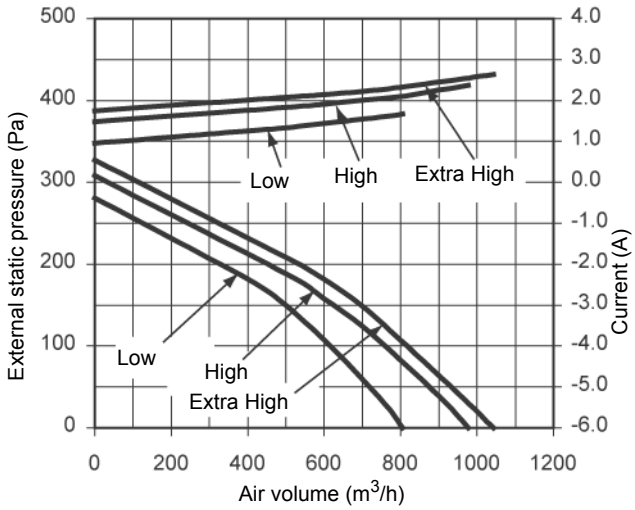
60 Hz 220 V



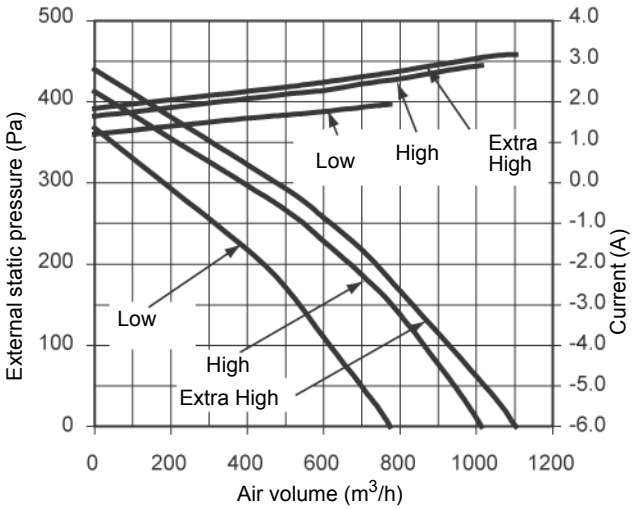
◆ MMD-VNK802HEXE

Standard air volume: 800 m³/h, Lower limit air volume: 480 m³/h, Upper limit air volume: 960 m³/h

50 Hz 230 V



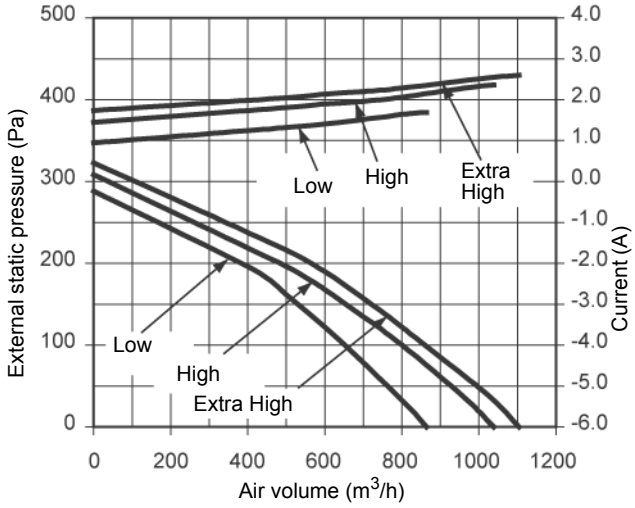
60 Hz 220 V



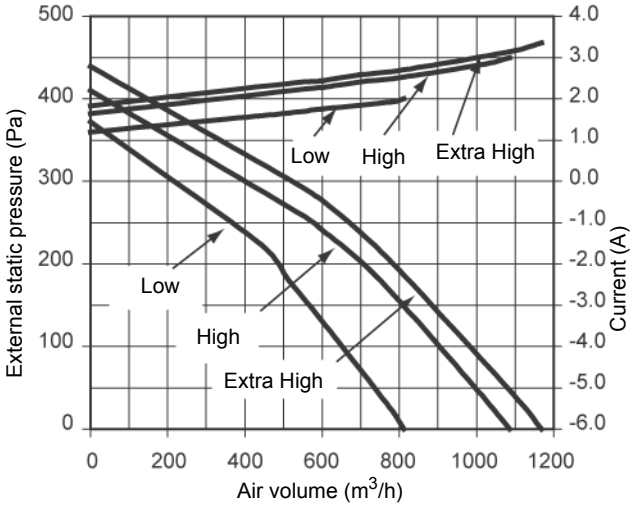
◆ MMD-VN802HEXE

Standard air volume: 800 m³/h, Lower limit air volume: 480 m³/h, Upper limit air volume: 960 m³/h

50 Hz 230 V



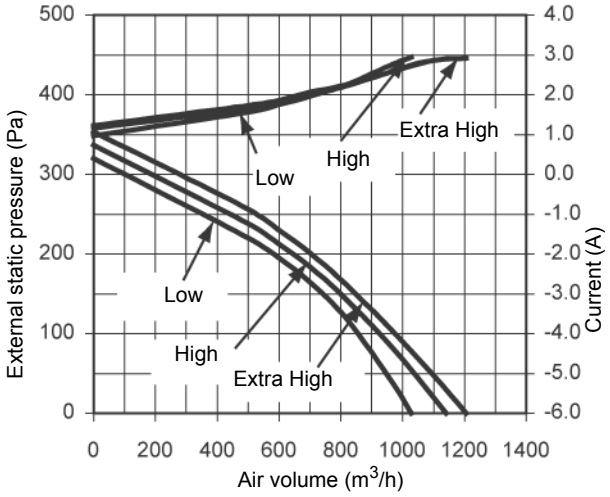
60 Hz 220 V



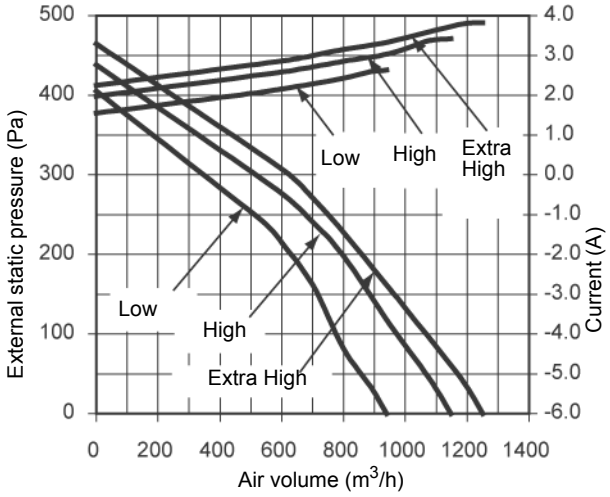
◆ MMD-VNK1002HEXE

Standard air volume: 950 m³/h, Lower limit air volume: 640 m³/h, Upper limit air volume: 1140 m³/h

50 Hz 230 V



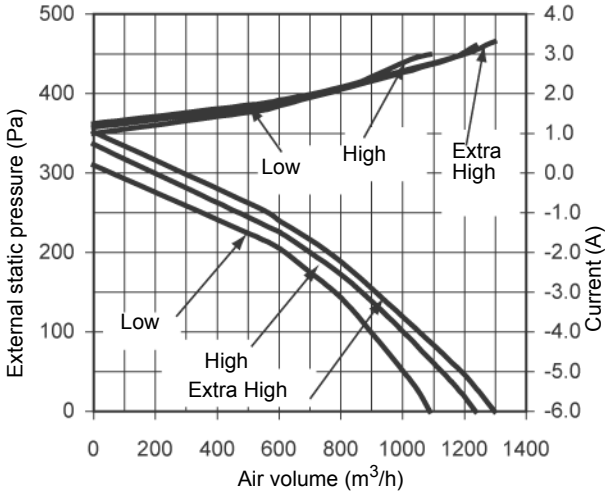
60 Hz 220 V



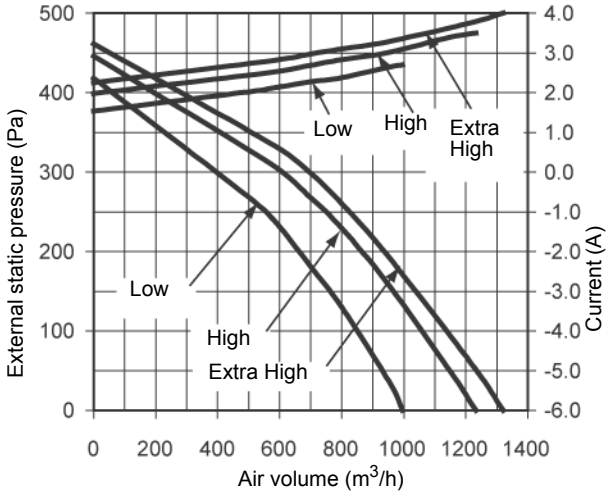
◆ MMD-VN1002HEXE

Standard air volume: 950 m³/h, Lower limit air volume: 640 m³/h, Upper limit air volume: 1140 m³/h

50 Hz 230 V



60 Hz 220 V



REQUIREMENT

Use the unit between the minimum and maximum range of ventilation.

15 Test Run

■ Before test run

- Before turning on the power supply, carry out the following procedure.
  1. Using 500 V-megger, check that resistance of 1 MΩ or more exists between the terminal block of the power supply and the earth (earthing).
     If resistance of less than 1 MΩ is detected, do not run the unit.
  2. Check all valve of the outdoor unit being opened fully.
- To protect the compressor at activation time, leave power-ON for 12 hours or more be for operating.
- Do not press the electromagnetic contactor to forcibly perform a test run. (This is very dangerous because the protective device does not work.)
- Before starting a test run, set addresses following the Installation Manual supplied with the outdoor unit.

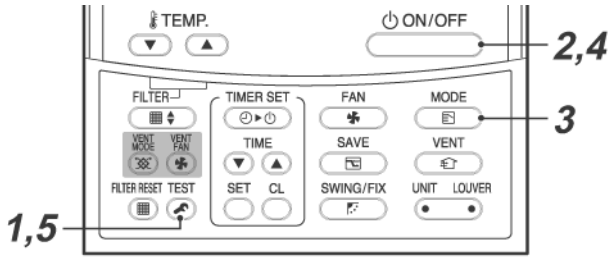
■ How to execute a test run

For the procedure of the operation, refer to the attached Owner's Manual. A forced test run can be executed in the following procedure even if the operation stops by thermo.-OFF. In order to prevent a continuous operation, the forced test run is released after 60 minutes have passed and returns to the usual operation.

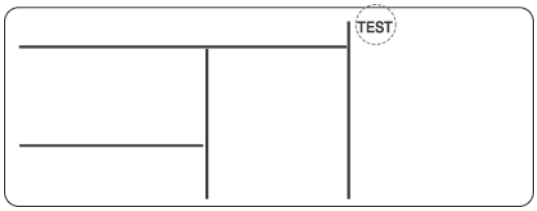
⚠ CAUTION

Do not use the forced test run for cases other than the test run because it applies an excessive load to the devices.

Wired remote controller (NRC-01HE)

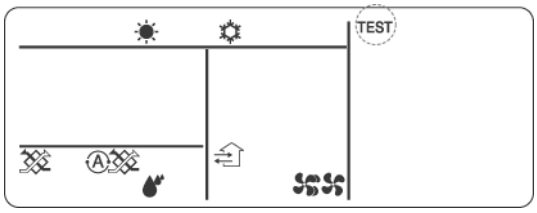


1 When the TEST button is pressed and held for at least 4 seconds, "TEST" appears on the display, and the test run mode is established.
(While the test run is underway, "TEST" remains on the display.)

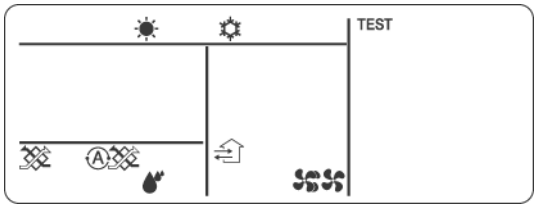


2 Push ON/OFF button.

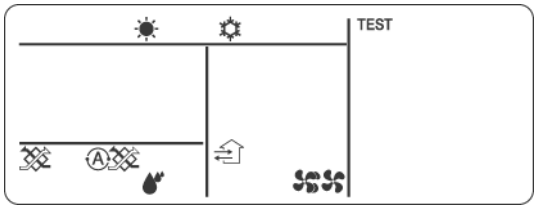
3 Using MODE button, select the operation mode, [☼ COOL] or [☀ HEAT].
- The temperature controlling function does not work during test run.
- The detection of error is performed as usual.



4 Use the [VENT FAN VENT FAN] button to select "High" or "Low".

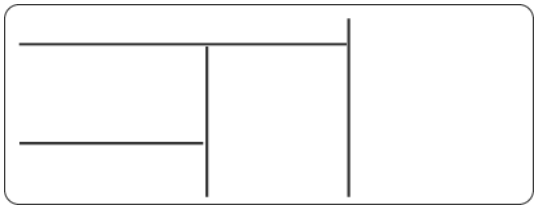


5 **Use the [VENT MODE] button to select "Auto ventilation" or "Total heat exchanging ventilation".**



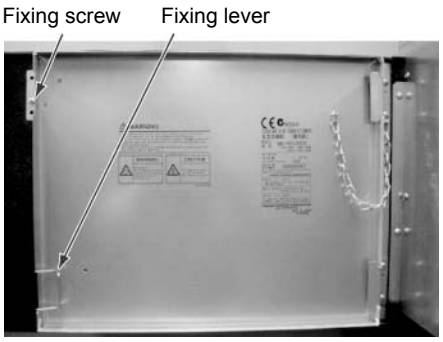
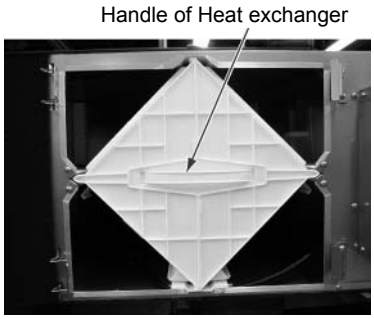
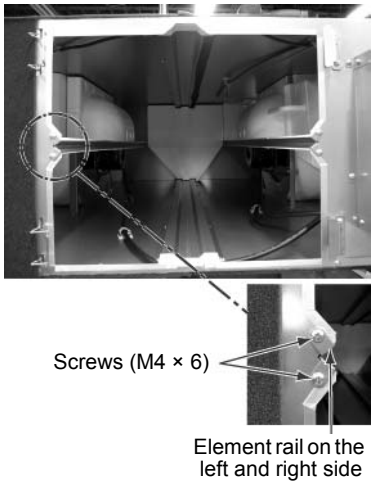
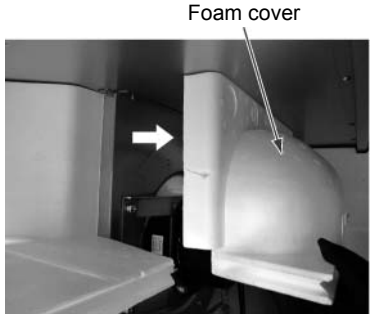
6 **After the test run, push ON / OFF button to stop a test run.**
(Display part is same as procedure 1.)

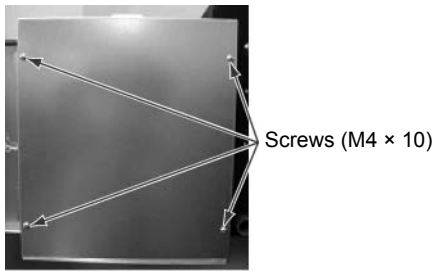
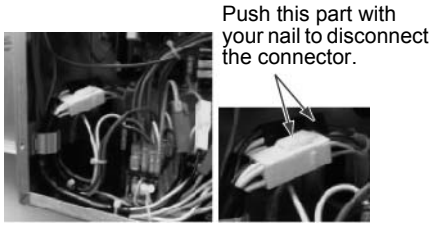
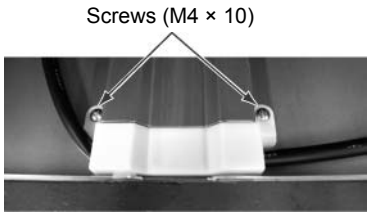
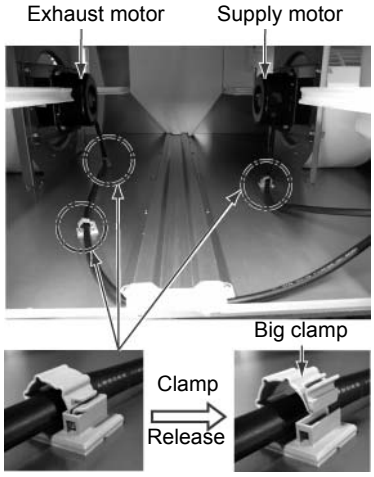
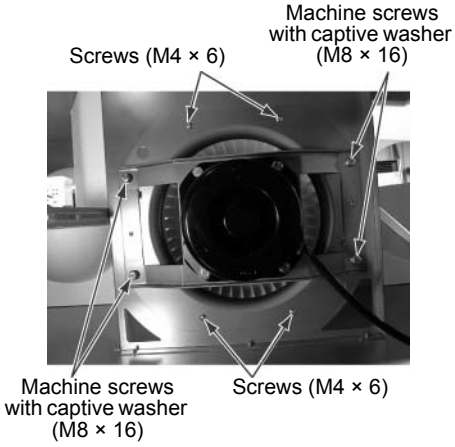
7 **Push TEST check button to cancel the test run mode.**
([TEST] disappears on the display and the status returns to a normal.)

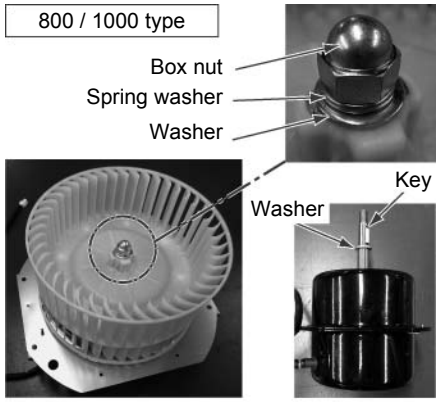
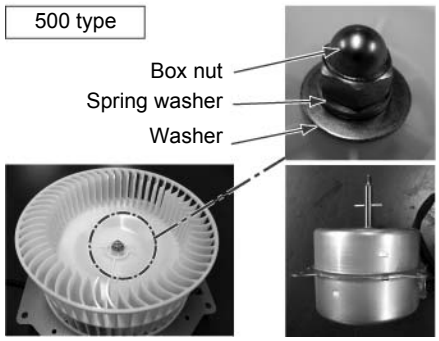
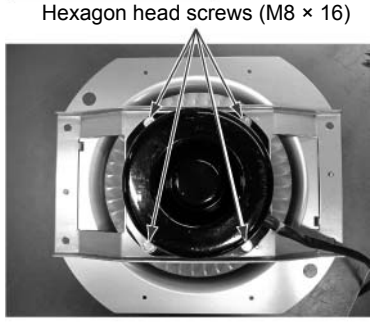
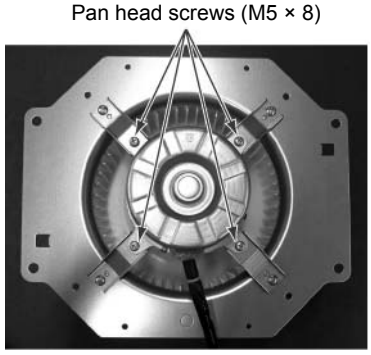


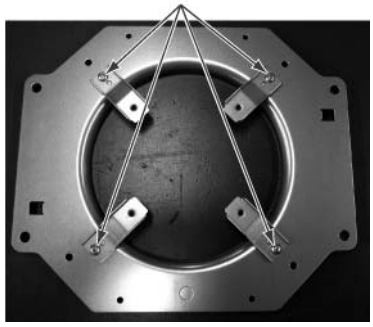
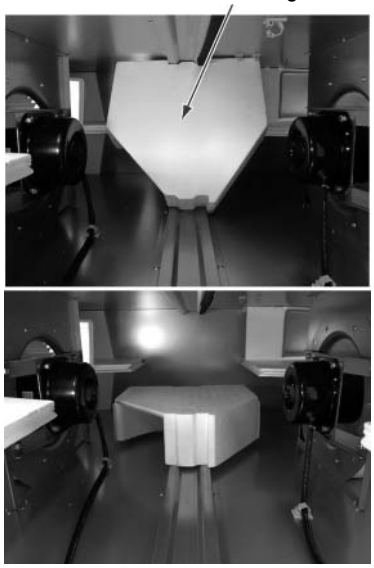
- If the test run is performed when the indoor / outdoor temperature is low, the run may be stopped for device protection. In this case, use another air conditioner or the like to raise the temperature to 20 °C or higher, and then perform the heating operation.

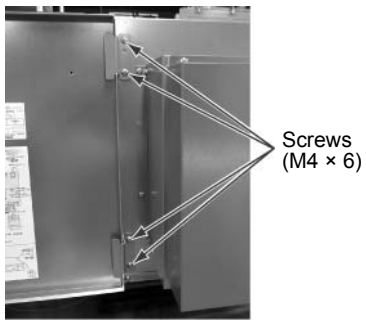
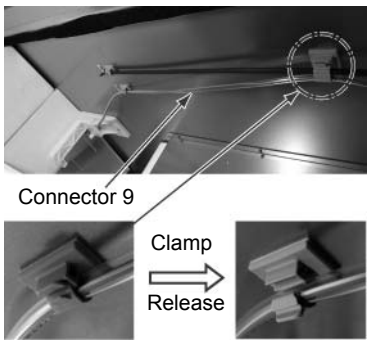
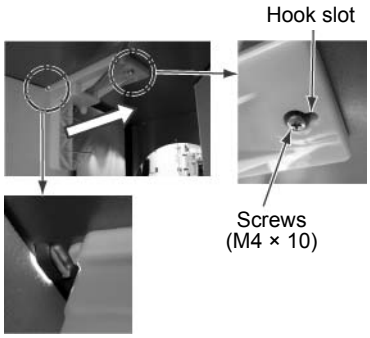
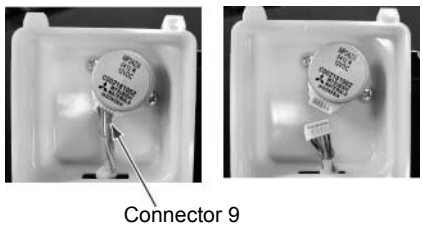
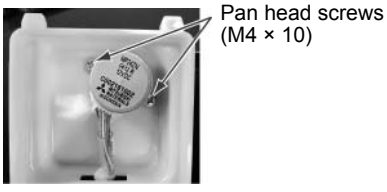
13 Exchanging and assembling the main components

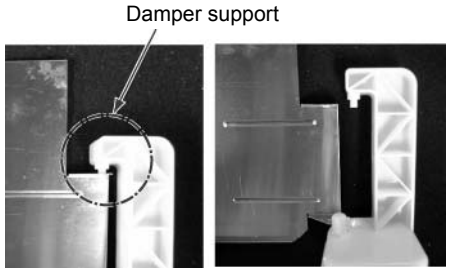
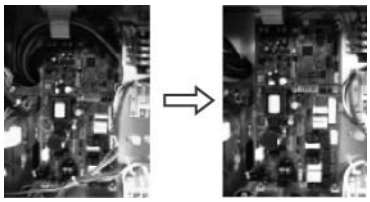
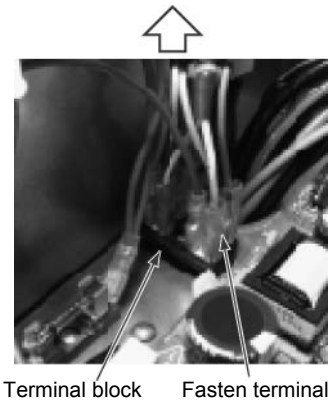
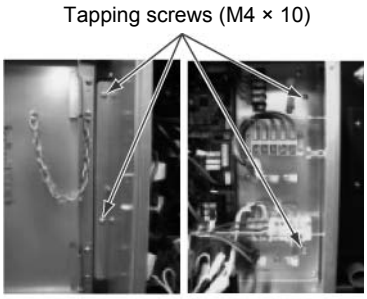
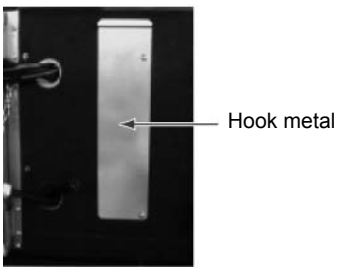
No.	Component	Procedure	Note
1	Inspection cover 1.	1.Remove the fixing cover, loosen the fixing screw, and then remove the inspection cover.	
2	Heat exchange element 1., 2.	2.Hold the handle of the heat exchange element, and then pull it out. **Note:** A single heat exchange element weighs 2 - 4 kg (there are two elements). Be careful not to drop it.	
3	Element rail 1. to 3.	3.Remove the two screws (M4 × 6) that fix the element rail to pull the rail out.	
4	Foam cover 1. to 4.	4.Slide the foam cover to the center of the product to pull it out.	

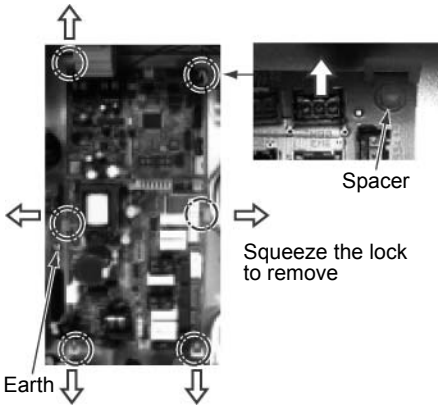
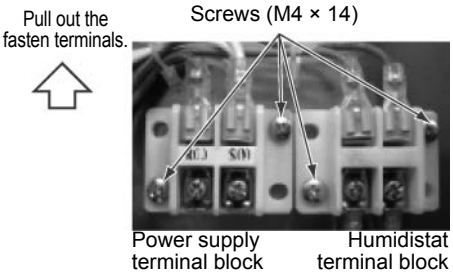
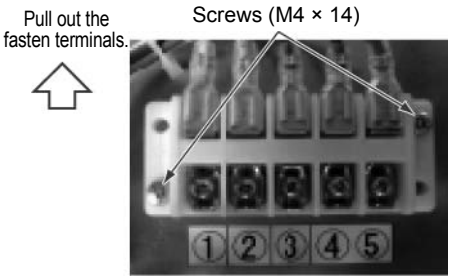
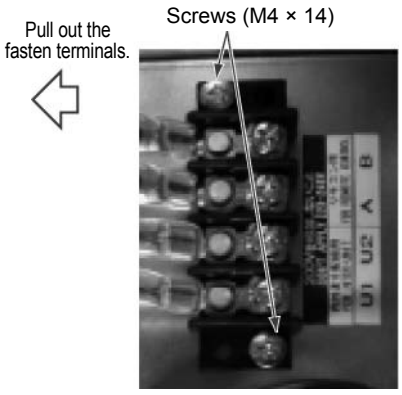
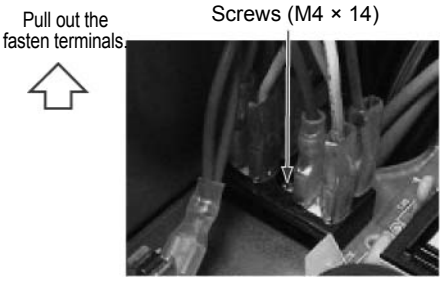
No.	Component	Procedure	Note
5	Electrical control cover 5.	5.Remove the four screws (M4 × 10) that fix the electrical control cover, and then remove the cover.	
6	Removing motor wire 5., 6.	6.Open the electrical control cover, and disconnect the two connectors (black, white) connected to the connectors of motor.	
7	Cover 1., 2., 7.	7.Remove the two screws (M4 × 10) that fix the cover, and then remove the cover.	
8	Fan 1. to 4., 6. to 10.	8.Release the big clamp that fixes the cords of the supply motor and exhaust motor.	
		9.Remove the eight screws that fix the motor holder, hold the holder, and then slide it to the center of the product to remove it.	

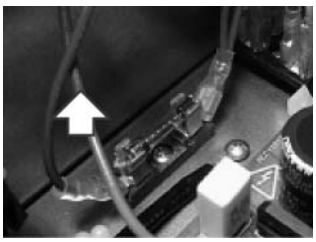
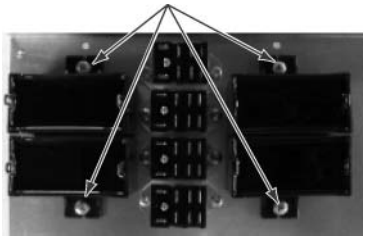
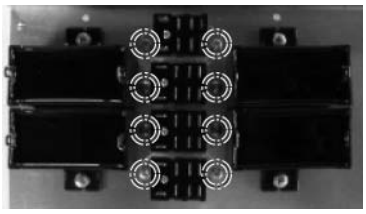
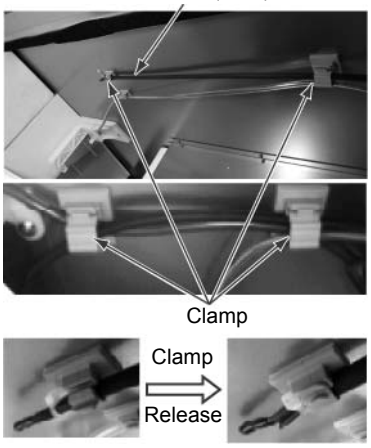
No.	Component	Procedure	Note
8	Fan (Continued) 1. to 4., 6. to 10.	10. Remove the box nut, spring washer, and washer that fix the fan, and then remove the fan. **Note:** Do not lose the key and washer left in the motor shaft. (800 / 1000 type)	800 / 1000 type  500 type 
9	Supply motor 1. to 6., 8. to 11.	11. Remove the screws that fix the supply motor, and then remove the motor.	800 / 1000 type Hexagon head screws (M8 × 16)  500 type Pan head screws (M5 × 8) 
	Exhaust motor 1. to 10., 12.	12. Remove the screws that fix the exhaust motor, and then remove the motor.	

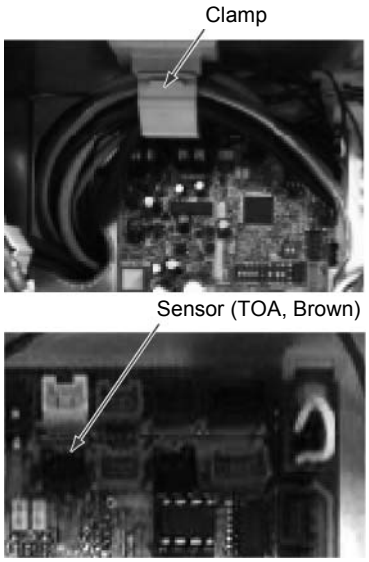
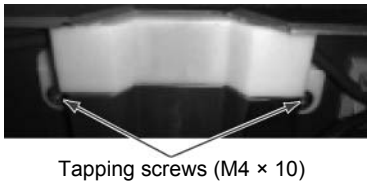
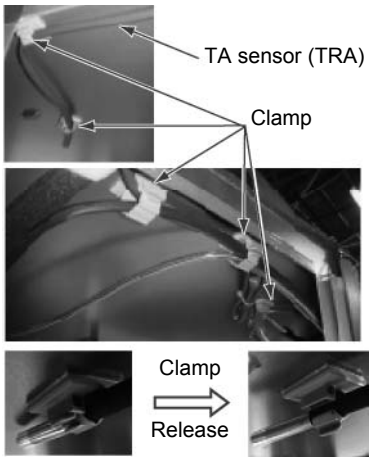
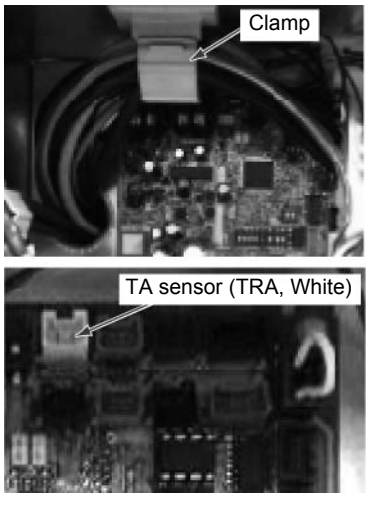
No.	Component	Procedure	Note
10	Motor holder Bell mouth 1. to 6., 8. to 11., 13.	13. Remove the four screws (M4 × 6) that fix the motor holder and bell mouth, then pull the holder out.	500 type Screws (M4 × 6) 
11	Exhaust casing 1. to 4., 14.	14. Pull the exhaust casing to the former location of the foam cover, pull the bottom toward you, and then turn it horizontally to pull it out.	Exhaust casing 
12	Coupling 15., 16.	15. Remove the screws (M4 × 6) that fix the coupling, and then remove the coupling. There is one on the inspection cover, and one on the Lid holder.	Screws (M4 × 6) 
13	Chain 15., 16.	16. Separate the chain from the coupling.	Coupling Chain 

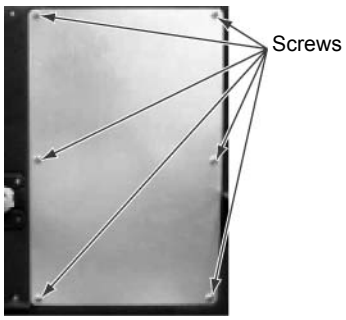
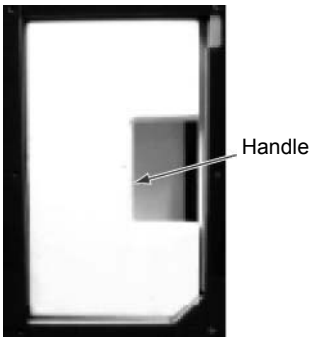
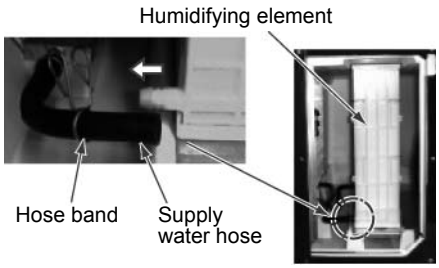
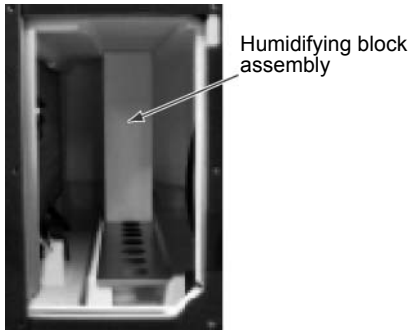
No.	Component	Procedure	Note
14	Lid holder 15., 17.	17. Remove the two screws (M4×6) that fix the lid holder, then remove the holder. Two screws per location (there are two locations).	
15	Fixing lever 1., 18.	18. Widen the fixing lever to remove it from the gutter.	
16	Damper motor holder 1., 2., 19., 20.	19. Release the small clamp and big clamp that fix the connector 9, and then remove the connector.	
		20. Loosen the screw that fixes the damper motor holder, and then slide ittoward you to remove it. **Note:** The screw hole of the damper motor holder is a hook slot, and you can remove the damper motor holder without removing the screw completely.	
17	Louver motor 1., 2., 19. to 22.	21. Remove the connector 9 from the louver motor.	
		22. Remove the two screws that fix the louver motor, then remove it.	

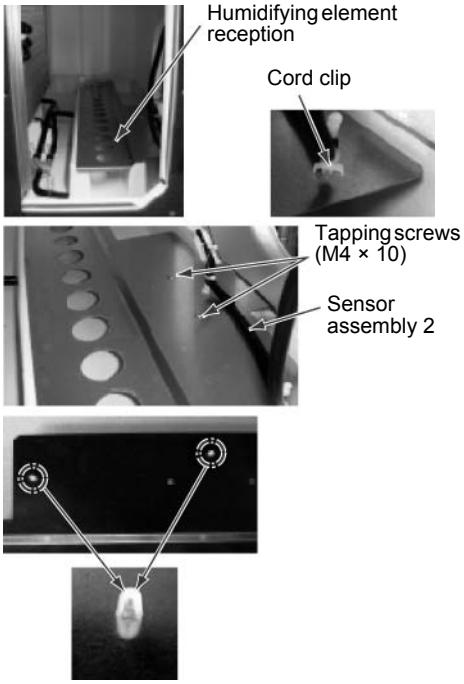
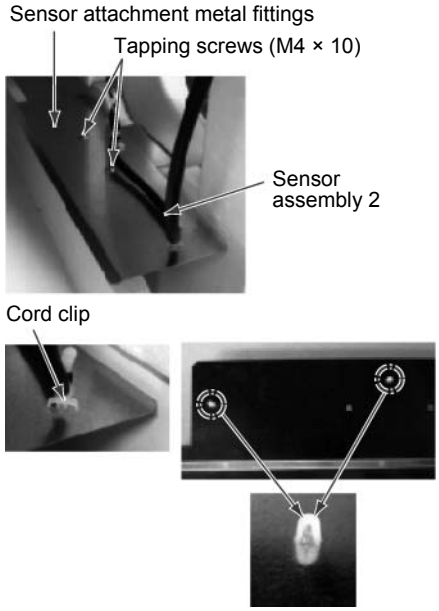
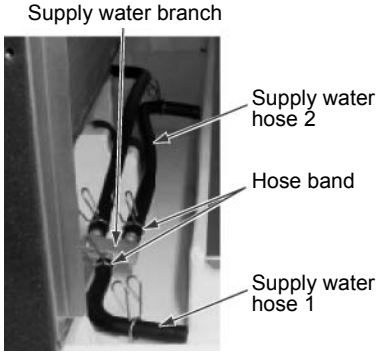
No.	Component	Procedure	Note
18	Damper 1., 2., 19. to 23.	23. Remove the damper from the damper motor holder. Remove the louver motor, and then remove the damper from the damper support.	
19	Electrical control base 5., 24. to 26.	24. Disconnect all the connectors from the PC board.	
		25. Pull out the six fasten terminals coming from the cord bush to the PC board.	
		26. Thread all the connectors through the cord bushes. Remove the four truss head tapping screws (M4 × 10), and pull up the electrical control base to remove it from the hook.	 

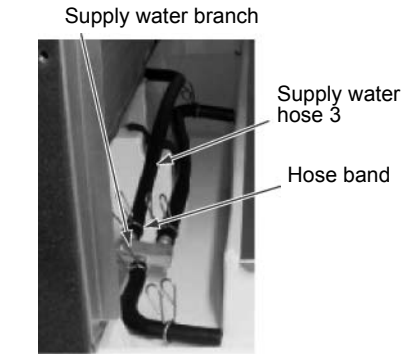
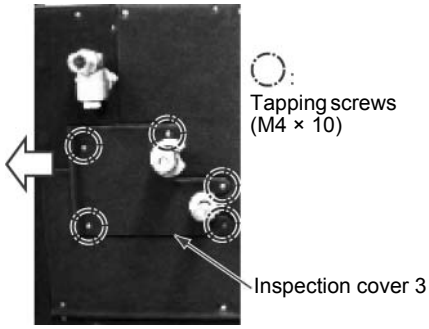
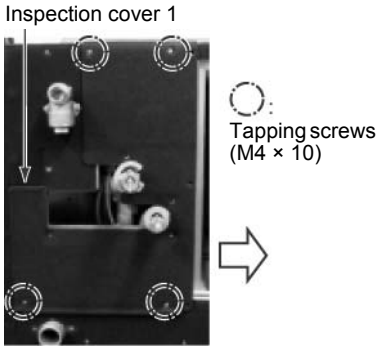
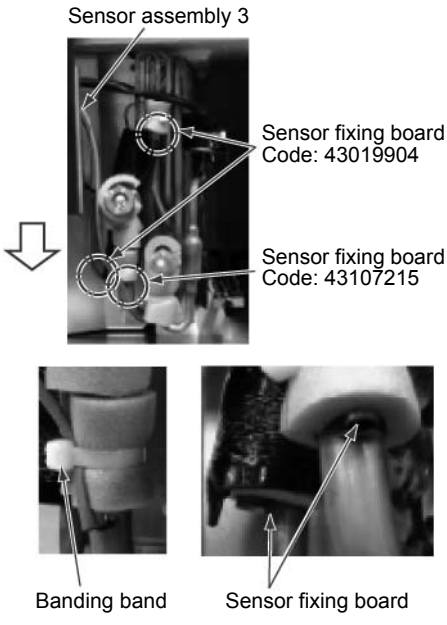
No.	Component	Procedure	Note
20	PC board 5., 24., 27.	27. Remove the earth screws, and then remove the six spacers from the PC board.	
21	Power supply terminal block Humidistat terminal block 5., 28.	28. Remove the fasten terminals. Remove the screws that fix the power supply terminal block and humidistat terminal block (two screws respectively), and then remove the blocks. **Note:** Humidistat terminal block is VNK type only.	
22	External terminal block 5., 29.	29. Remove the fasten terminals. Remove the two screws that fix the external terminal block, and then remove the external terminal block.	
23	Communication wire terminal block 5., 30.	30. Remove the fasten terminals. Remove the two screws that fix the communication wire terminal block, and then remove the communication wire terminal block.	
24	Humidifying unit terminal block 5., 25., 31. <VNK type only>	31. Remove the fasten terminals. Remove the screw that fixes the humidifying unit terminal block, then remove it.	

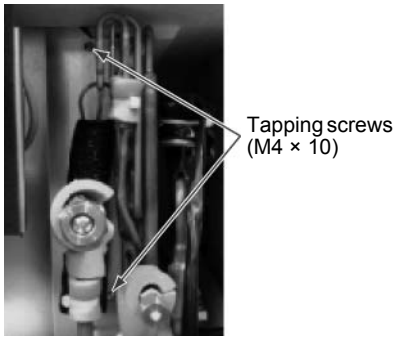
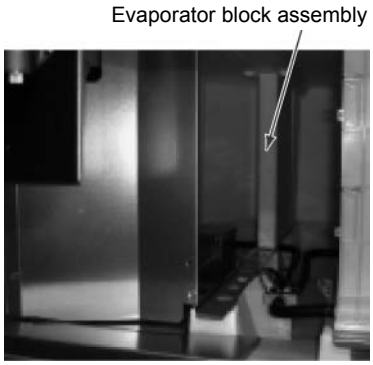
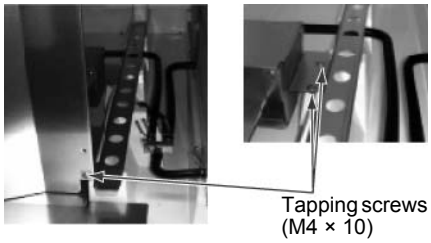
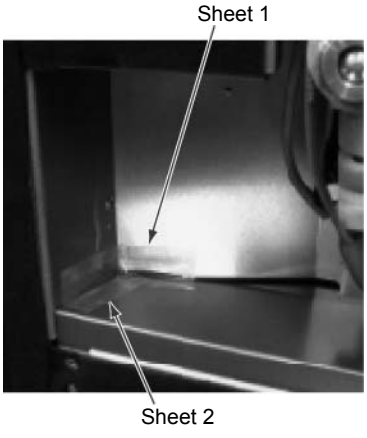
No.	Component	Procedure	Note
25	Fuse 5., 32.	32. Pull out the fuse upward.	
26	Capacitor 5., 24., 27., 33.	33. Remove the fasten terminals. Remove the screws that fix the capacitors, and then remove them. **Note:** Number of capacitors is different depending on the model.	Screws (M4 × 14) 
27	Relay 5., 24., 27., 34.	34. Remove the fasten terminals. Remove the screws that fix the relays (two screws respectively), and then remove the relays.	Screws (M3 × 8) (8 positions) 
28	Sensor (TOA) 1., 2., 5., 35., 36.	35. Unlock the four clamps that fix the sensor (TOA), and then remove the sensor (TOA).	Sensor (TOA)  Clamp Clamp Release

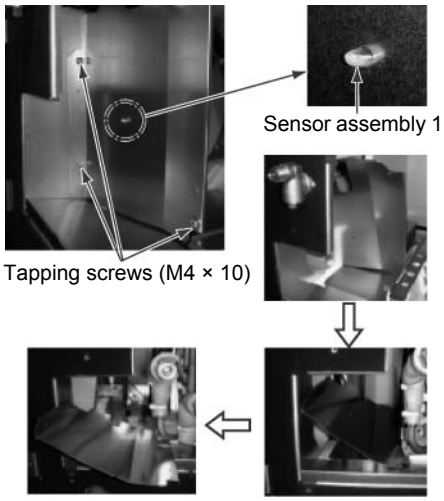
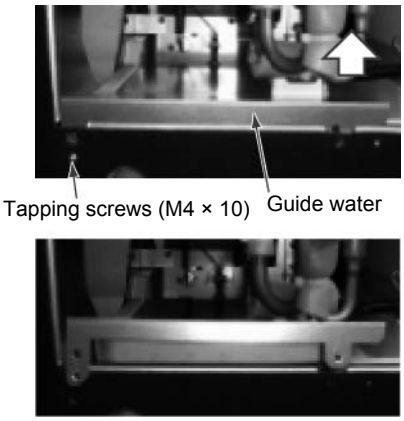
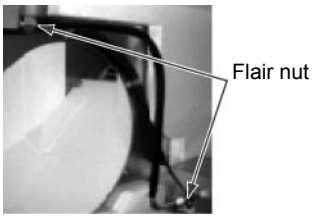
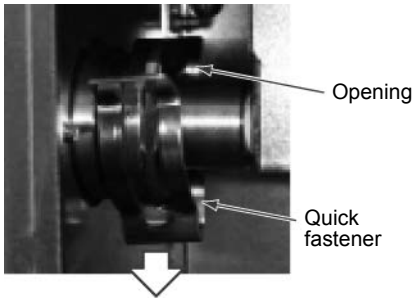
No.	Component	Procedure	Note
28	Sensor (TOA) (Continued) 1., 2., 5., 35., 36.	36. Disconnect the sensor (TOA) connectors from the PC board and clamp.	
29	TA sensor (TRA) 1., 2., 5. 37. to 39.	37. Remove the two screws (M4 × 10) that fix the cover, and then remove the cover.	
		38. Unlock the five clamps that fix the TA sensor (TRA), and then remove the sensor.	
		39. Disconnect the TA sensor (TRA) connectors from the PC board and clamps.	

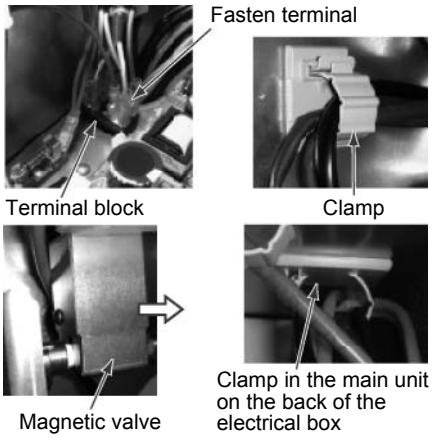
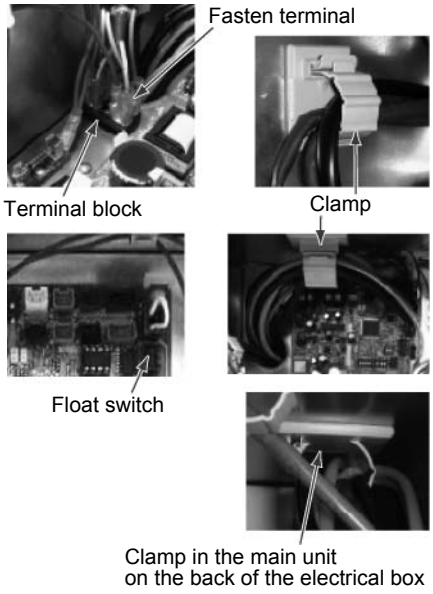
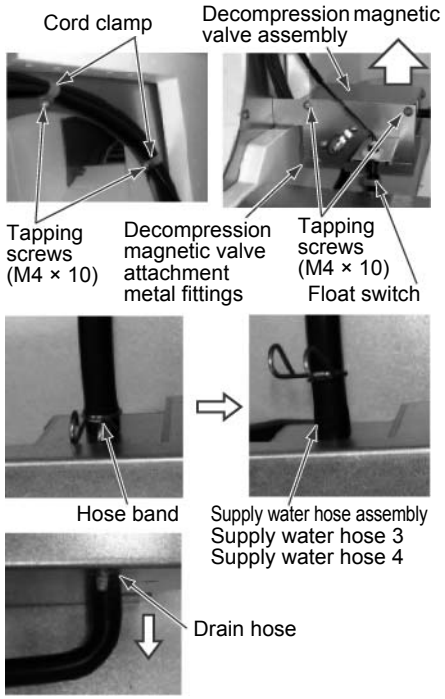
No.	Component	Procedure	Note
30	Inspection cover 2 40.	40. Loosen the six screws and then remove the inspection cover 2. * The inspection cover and screws are a set.	
31	Spacer 40., 41. <VNK type only>	41. Hold the handle of the spacer, and then pull it toward you.	
32	Humidifying element 40. to 42. <VNK type only>	42. Slide the hose band to remove the supply water hose. Pull out the humidifying element toward you. (1 element for VNK500 type) (2 elements for VNK800 / 1000 types)	
33	Humidifying block assembly 40. to 43. <VNK500 type only>	43. Pull out the humidifying block assembly toward you.	

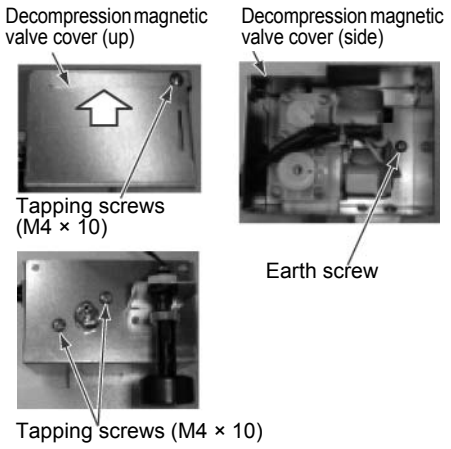
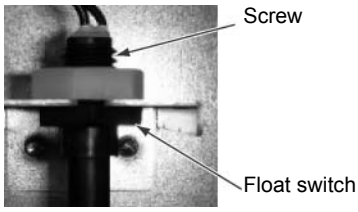
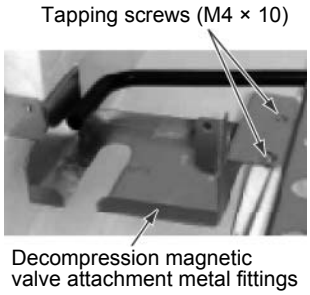
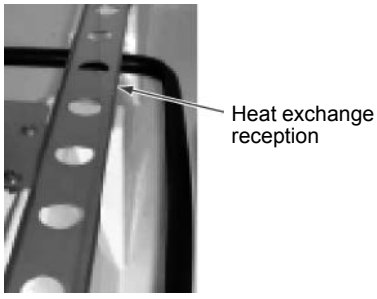
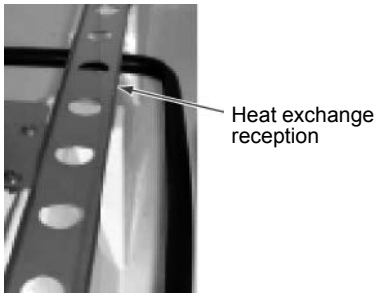
No.	Component	Procedure	Note
34	Humidifying element reception 40. to 44. <VNK type only>	44. Turn the cord clip to remove the sensor assembly 2. Remove the two tapping screws (M4 × 10) that fix the humidifying element reception, and lift it up then pull it toward you. Use pliers or the like to pinch the back of the sensor assembly 2 and cord clip, and then remove them.	
35	Sensor attachment metal fittings 40., 45. <VNK type only>	45. Turn the cord clip to remove the sensor assembly 2. Remove the two tapping screws (M4 × 10) that fix the sensor attachment metal fittings, and lift them up then pull them toward you. Use pliers or the like to pinch the back of the sensor assembly 2 and cord clip, and then remove them.	
36	Supply water hose 1, 2 40. to 42., 46. <VNK type only>	46. Slide the hose band to remove the supply water hoses 1 and 2.	

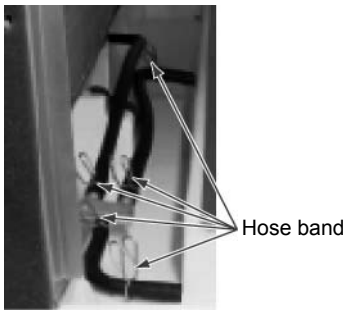
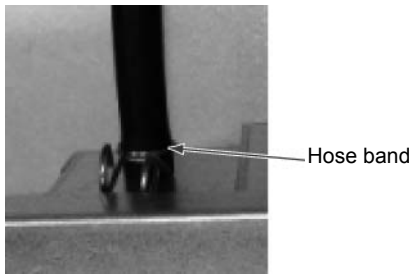
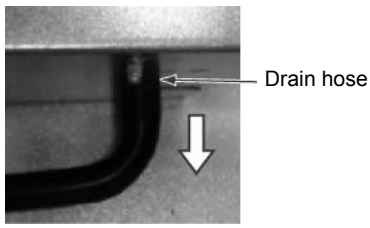
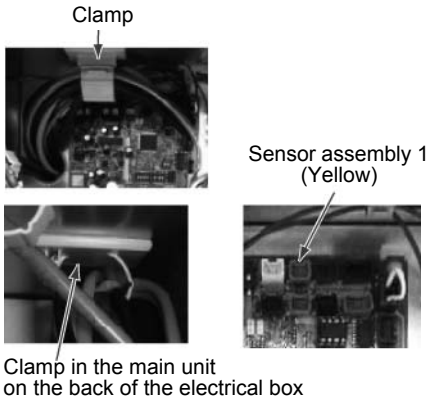
No.	Component	Procedure	Note
37	Supply water branch 40. to 42., 46., 47. <VNK type only>	47. Slide the hose band to remove the supply water hose.	
38	Inspection cover 3 48.	48. Remove the five truss head tapping screws (M4 × 10) that fix the inspection cover 3, and slide the cover to the left to remove the cover.	
39	Inspection cover 1 40., 41., 48., 49.	49. Remove the four truss head tapping screws (M4 × 10) that fix the inspection cover 1, and slide the cover to the right to remove the cover.	
40	Sensor fixing board 40., 41., 48. to 50.	50. Use a nipper or the like to cut the banding band (3 positions) that fix the sensor assembly 3, and then pull down the three sensors of the sensor assembly 3. Pull down the sensor fixing boards (two of Code 43019904, one of Code 43107215).	

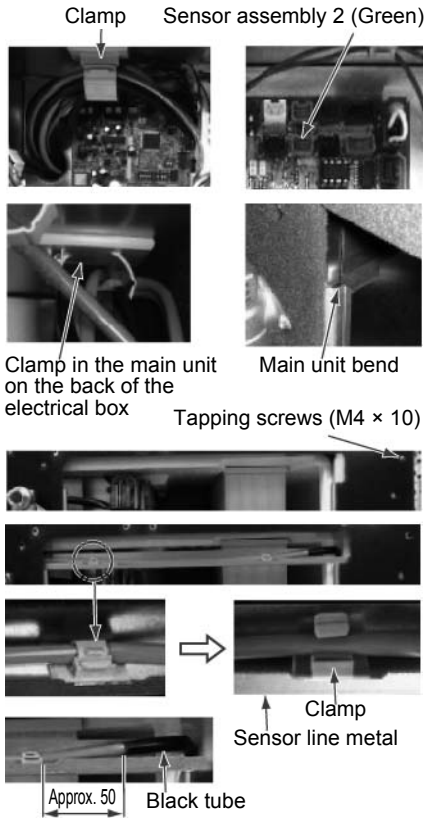
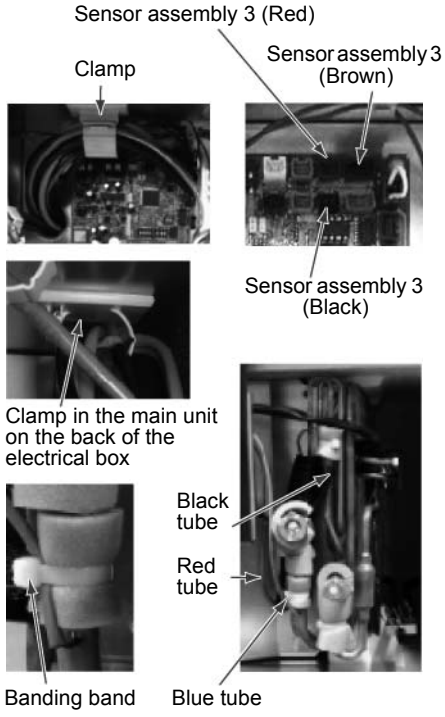
No.	Component	Procedure	Note
41	Evaporator assembly 40., 41., 48. to 51.	51. Remove the two truss head tapping screws (M4 × 10) that fix the evaporator assembly, and pull the evaporator assembly toward you.	
42	Evaporator block assembly 40., 41., 48. to 52. <VNK type only>	52. Pull out the evaporator block assembly toward you.	
43	Heat exchange reception 40., 41., 48. to 53.	53. Remove the three truss head tapping screws (M4 × 10) that fix the heat exchange reception, and pull the heat exchange reception toward you.	
44	Sheet set 40., 41., 48., 49., 54.	54. Peel off the sheets 1 and 2. * When attaching the sheets, peel off the double-sided tape from the sheets, attach Sheet 1 first, and then align the corner of Sheet 2 to that of Sheet 1.	

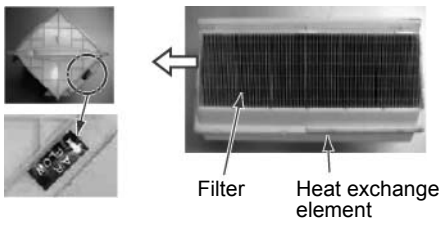
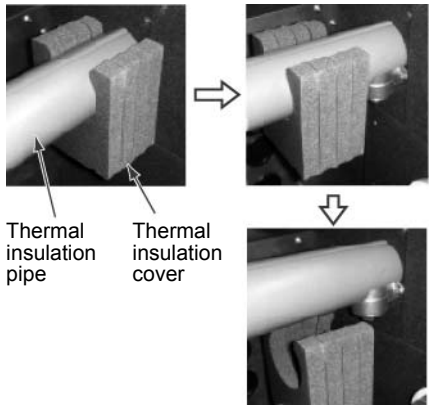
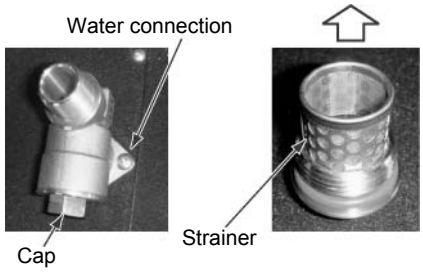
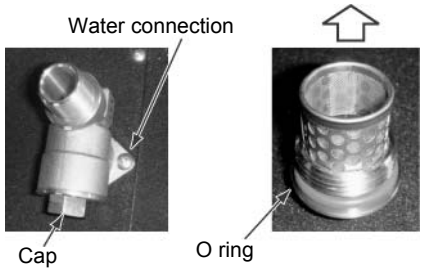
No.	Component	Procedure	Note
45	Separation board 40., 41., 48., 49., 54., 55.	55. Use pliers or the like to push inward the sensor assembly 1 fixed on the separation board. Remove the three truss head tapping screws (M4 × 10) that fix the separation board. Push the lower part of the separation board deep to pull it toward you.	
46	Guide water 40., 41., 48., 49., 54. to 56.	56. Remove the truss head tapping screw (M4 × 10) that fixes the guide water. Pull the guide water up and then toward you.	
47	Supply water pipe assembly 40., 41., 48., 49., 54., 55., 57. <VNK type only>	57. Use a spanner (17) to loosen the flare nut that fixes the supply water pipe assembly to remove the assembly.	
48	Quick fastener 40., 41., 48., 49., 58. <VNK type only>	58. Pull down the quick fastener in the direction against the opening to remove the quick fastener.	

No.	Component	Procedure	Note
49	Magnetic valve assembly 1., 2., 5., 40., 41., 48., 49., 54., 55., 57. to 59. <VNK type only>	59. Pull out the two fasten terminals coming from the cord bush to the PC board (Lower protective tube: Black). Remove the magnetic valve cord from the electrical box clamp and from the clamp in the main unit on the back of the electrical box. Pull out the magnetic valve deep in the main unit.	
50	Decompression magnetic valve assembly 1., 2., 5., 40., 41., 48., 49., 54., 55., 57. 60., 61. <VNK type only>	60. Pull out the four fasten terminals coming from the cord bush to the PC board (Upper protective tube: Black, Red). Remove the float switch connector from the PC board. Remove the decompression magnetic valve assembly cord from the electrical box clamp and from the clamp in the main unit on the back of the electrical box.	
		61. Remove the cord clamp (two truss head tapping screws (M4 × 10)) that fixes the decompression magnetic valve assembly cord. Remove the two truss head tapping screws (M4 × 10) that fix the decompression magnetic valve assembly, and pull up the decompression magnetic valve assembly to remove it from the metal fittings. Slide the hose band of the supply water hose assembly, supply water hose 3 (800 / 1000 type), or supply water hose 4 (500 type) in deep of the decompression magnetic valve assembly to remove the hose. Pull out the decompression magnetic valve assembly toward you to remove the drain hose. * After replacement, confirm that the drain hose does not come into contact with the float switch of the decompression magnetic valve assembly.	

No.	Component	Procedure	Note
51	Decompression magnetic valve 40., 41., 48., 49., 54., 55., 57., 60. to 62. <VNK type only>	62. Remove the two truss head tapping screws (M4 × 10) on the side of the decompression magnetic valve assembly, and remove the decompression magnetic valve covers (up and side). Remove the two truss head tapping screws (M4 × 10) and earth screw (one truss head tapping screw (M4 × 10)) that fix the decompression magnetic valve.	
52	Float switch 40., 41., 48., 49., 54., 55., 57., 61., 63. <VNK type only>	63. Use a spanner (17) to remove the float switch from the decompression magnetic valve assembly. * After replacement, put the paint for plastic on the screws.	
53	Decompression magnetic valve attachment metal fittings 40., 41., 48., 49., 54., 55., 57., 60., 61., 64. <VNK type only>	64. Remove the two truss head tapping screws (M4 × 10) that fix the decompression magnetic valve attachment metal fittings, and remove the metal fittings.	
54	Supply water hose assembly Supply water hose 4 40. to 42., 44., 48., 49., 54., 55., 57., 60., 61., 65. <VNK type only>	65. Thread the supply water hose assembly and supply water hose 4 under the heat exchange reception to remove it.	
55	Supply water hose 3 40. to 42., 46. to 49., 55., 57., 61., 66. <VNK type only>	66. Thread the supply water hose 3 under the heat exchange reception to remove it.	

No.	Component	Procedure	Note
56	Hose band (Supply water branch side) 40. to 42., 46., 47., 67. <VNK type only>	67. Remove the hose band.	
57	Hose band (Decompression magnetic valve assembly side) 40., 41., 48., 49., 54., 55., 57., 61., 68. <VNK type only>	68. Remove the hose band.	
58	Drain hose 40., 41., 48., 49., 54., 55., 57., 61., 69. <VNK type only>	69. Remove the drain hose. * After replacement, confirm that the drain hose does not come into contact with the float switch of the decompression magnetic valve assembly.	
59	Sensor assembly 1 1., 2., 5., 40., 41., 48., 49., 54., 55., 70.	70. Remove the sensor assembly 1 connector coming from the cord bush to the PC board. Remove the sensor assembly 1 cord from the electrical box clamp and from the clamp in the main unit on the back of the electrical box.	

No.	Component	Procedure	Note
60	Sensor assembly 2 1., 2., 5., 40. to 45., 48., 49., 71.	71. Remove the sensor assembly 2 connector coming from the cord bush to the PC board. Remove the sensor assembly 2 cord from the electrical box clamp and from the clamp in the main unit on the back of the electrical box. Remove the two truss head tapping screws (M4 × 10), and hook the sensor line metal fittings onto the main unit bends (left and right). Remove the clamp of the sensor line metal fittings (2 positions), and then remove the sensor assembly 2. * When attaching, keep a distance of approximately 50 mm between the black tube and clamp.	
61	Sensor assembly 3 1., 2., 5., 40., 41., 48., 49., 72.	72. Remove the sensor assembly 3 connector coming from the cord bush to the PC board. Remove the sensor assembly 3 cord from the electrical box clamp and from the clamp in the main unit on the back of the electrical box. Use a nipper or the like to remove the banding band (3 positions) that fix the sensor assembly 3 from the evaporator assembly, and then pull down the sensor assembly 3 to remove it. * When attaching, match up the colors of the PC board connector and sensor assembly 3 connector.	

No.	Component	Procedure	Note
62	Filter 1., 2., 73.	73. Slide the filter horizontally to remove it from the heat exchange element. * When attaching, be careful of the label direction of the filter side.	
63	Thermal insulation cover 74. <VNK type only>	74. Slide the thermal insulation cover along the thermal insulation pipe, and then pull it down to remove it.	
64	Strainer 74., 75. <VNK type only>	75. Remove the cap of the water connection, and then the strainer.	
65	O ring 74., 76. <VNK type only>	76. Remove the O ring from the cap.	

14 How to replace the PC board for service on the Air to Air Heat Exchanger with DX Coil Unit

<Model>
MMD-VN(K)✻✻✻HEXE series

431-6V-456
(MCC-1615)

Note on replacing the PC board for service on the Air to Air Heat Exchanger with DX Coil Unit

Before replacing the PC board on the Air to Air Heat Exchanger with DX Coil Unit, non-volatile memory (hereinafter referred to as EEPROM (IC503)) on it stores the important data such as the model code, the capacity code (factory default), the group address, and the nighttime heat purge settings set automatically or manually (when installing the unit). Follow the procedure below to replace the PC board for service on the Air to Air Heat Exchanger with DX Coil Unit. After replacing the board, confirm the settings of the Air to Air Heat Exchanger with DX Coil Unit unit No. and the header / follower configuration in the group. In addition, perform a test run.

<Replacement procedure>

▼ Case 1

When you can turn on the Air to Air Heat Exchanger with DX Coil Unit and can read the setting data from the wired remote controller before you replace the board

Read the EEPROM data. ***1 (See page 202)**
↓
Replace the PC board for service and turn the power on. ***2 (See page 202)**
↓
Write the read EEPROM data. ***3 (See page 203)**
↓
Reset the power supply. (for all the Air to Air Heat Exchanger with DX Coil Units (including the indoor units) connected to the remote controller while performing group operation)

▼ Case 2

When you can neither turn on the Air to Air Heat Exchanger with DX Coil Unit nor operate the wired remote controller due to a problem with the feeder circuit (when there is a problem with the circuit board) before you replace the board

Replace the EEPROM (IC503). (For details, see "<EEPROM arrangement figure>" on page 203.)
Remove the EEPROM on the PC board, and then attach the EEPROM for service.
↓
Replace the PC board for service and turn the power on. ***2 (See page 202)**
↓
Read the EEPROM data. ***1 (See page 202)**
If the data cannot be read, go to **Case 3**.
↓
Replace the EEPROM (IC503). (For details, see "<EEPROM arrangement figure>" on page 203.)
Replace the EEPROM again. (Attach the EEPROM as before on the PC board for service.)
↓
Replace the PC board for service and turn the power on. ***2 (See page 202)**
↓
Write the read EEPROM data. ***3 (See page 203)**
↓
Reset the power supply. (for all the Air to Air Heat Exchanger with DX Coil Units (including the indoor units) connected to the remote controller while performing group operation)

▼ Case 3

When you cannot read the setting data due to a problem with the EEPROM before you replace the board

Replace the PC board for service and turn the power on. ***2 (See page 202)**
↓
Write the settings such as nighttime heat purge setting into the EEPROM based on client information. ***3 (See page 203)**
↓
Reset the power supply. (for all the Air to Air Heat Exchanger with DX Coil Units (including the indoor units) connected to the remote controller while performing group operation)

*1 Reading the settings from the EEPROM

(Read both the setting data adjusted locally and the factory default setting data.)

(1) Press and hold the TEST + SET + CL buttons for 4 seconds or longer. ***1*** **(this number indicates the one in "<Remote controller> NRC-01HE" on page 3)**

- While performing group operation control with the air conditioners, the unit No. displayed first represents the header Indoor unit. The Code (DN) 10 is displayed. In addition, the fans of the selected indoor unit and the Air to Air Heat Exchanger with DX Coil Unit start running, and the louver of the indoor unit starts swinging.

(2) Press the left part of the UNIT LOUVER button to display the indoor unit No. and the Air to Air Heat Exchanger with DX Coil Unit No. one by one in the group control. ***2***

Specify the UNIT No. of the Air to Air Heat Exchanger with DX Coil Unit to replace.

- The fan of the selected Air to Air Heat Exchanger with DX Coil Unit starts running.

(3) Press the TEMP. buttons to move up / down through the Codes (DN). ***3***

(4) Change the Code (DN) from 10 to 01. (Set the filter sign lighting time)
Write down the displayed data.

(5) Use the TEMP. buttons to change the Code (DN).
Write down the displayed data.

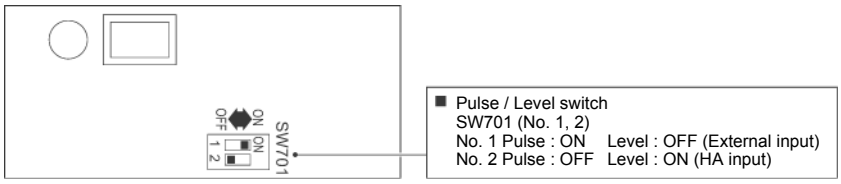
(6) Repeat Step 5 and write down the setting data described in the table on page 4 (example).

- The CODE (DN) is 01 – FF. Some Codes (DN) may be skipped.

(7) When you have finished writing down all the data, press the TEST button to return to the normal stop status. ***6***
(It takes approximately one minute until you can operate the remote controller.)

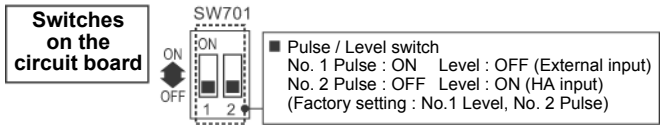
Required Codes

DN	Content
10	Type
11	Unit capacity
12	Line address
13	Indoor unit address
14	Group address



*2 Replacing the PC board for service

(1) Replace the PC board with the one for service.
Apply the settings of the changeover switch (SW701) as before to the PC board for service. (See the right)



(2) You need to make a pair of the indoor unit and remote controller.
Depending on the system configuration, turn on the power of the indoor unit in either of the following:

A) Single (individual) operation
Turn on the indoor unit, and then proceed to ***3**.

B) Group operation

•If only the replaced indoor unit can be turned on
Turn on the replaced indoor unit only, and then proceed to ***3**.

•If indoor units cannot be turned on individually (Case 1)

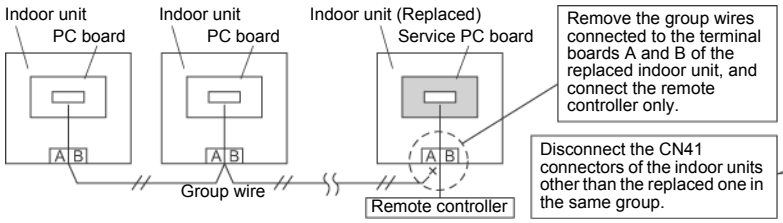
1. Temporarily remove the group wires connected to the terminal boards A and B of the replaced indoor unit.
2. Connect only the remote controller wire to the removed terminal board, turn on the indoor unit, and then proceed to ***3**.

*If the above procedure is not possible, follow the Case 2 procedure below:

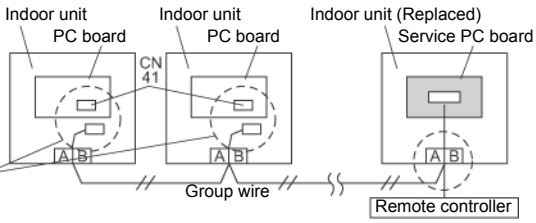
•If indoor units cannot be turned on individually (Case 2)

1. Disconnect all the CN41 connectors of the indoor units other than the replaced one in the same group.
2. Turn on the indoor unit, and then proceed to ***3**.

(Case 1)



(Case 2)



* After the ***3** procedure is complete, restore the group wires or CN41 connectors removed temporarily.

***3 Writing the settings into the EEPROM**

(The EEPROM settings on the PC board for service are the factory settings.)

(1) Press and hold the TEST + SET + CL buttons for 4 seconds or longer. ***1*** **(this number indicates the one in "<Remote controller> NRC-01HE")**

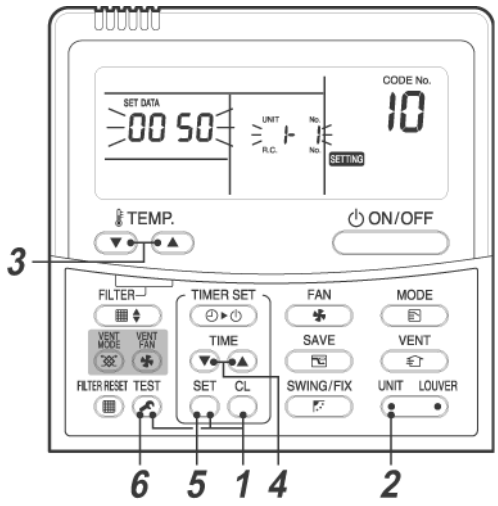
- The UNIT No. ALL appears.
  The Code (DN) 10 is displayed. The fan of the Air to Air Heat Exchanger with DX Coil Unit starts running.

(2) Press the TEMP. buttons to move up / down through the Codes (DN). ***3***

(3) Select the model and capacity of the Air to Air Heat Exchanger with DX Coil Unit.
(Changing the model and capacity writes the factory settings into EEPROM.)

1. Change the Code (DN) to 10. (As is)
2. Use the TIME button to select the model. ***4***
   (Select 0050 for the Air to Air Heat Exchanger with DX Coil Unit. See the table on page 4.)
3. Press the SET button.
   (Confirm that the indicator lights up.) ***5***
4. Use the TEMP. button to set the Code (DN) to 11.
5. Use the TIME button to select the capacity.
   (Ex. Select 0003 for 500 m^3/h type.
   See the table on page 4.)
6. Press the SET button. (Confirm that the indicator lights up.)
7. Press the TEST button to return to the normal stop status. ***6***
   (It takes approximately one minute until you can operate the remote controller.)

<Remote controller> NRC-01HE



(4) Write the setup data locally specified into the EEPROM.
Repeat Step (1).

(5) Use the TEMP. button to set the Code (DN) to 01.
(Set the filter sign lighting time)

(6) Compare the setup data with the notes (page 4) and client information.

1. If the data is different from that of the notes and client information, use the TIME button to enter data on the notes, and then press the SET button. (Confirm that the indicator lights up.)
2. If the data is the same, go to the next step.

(7) Use the TEMP. button to change the Code (DN).
Compare the setup data as in Step (6). Change the setup data according to the notes recorded before replacing the PC board.

(8) Repeat Steps (6) and (7).

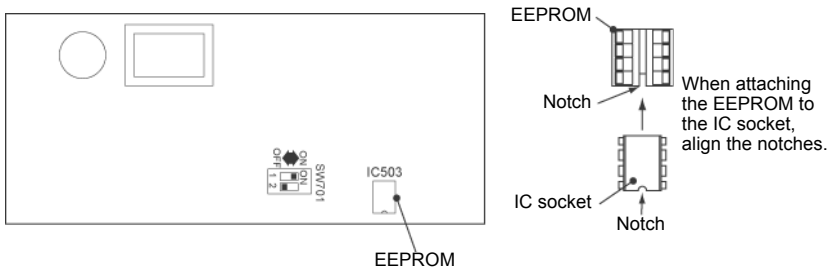
(9) When you have finished setting the data, press the TEST button to return to the normal stop status. ***6***
(It takes approximately one minute until you can operate the remote controller.)

- The CODE (DN) is 01 – FF. Some Codes (DN) may be skipped. Even if you change the setting data by mistake and press the SET button, you can recover the setting data by pressing the CL button (only before changing the code (DN)).

<EEPROM arrangement figure>

The EEPROM (IC503) is attached to the IC socket. Use tweezers to remove the EEPROM. When you attach it to the IC socket, align the direction as shown in the figure on the right.

- When you replace the EEPROM, be careful not to bend the IC wires.



Notes on the setting items (Code list : Example)

DN	Item	Memo	Factory setting
01	Filter sign lighting time		0002 : 2500 H
02	Filter clogging		0000 : Normal
03	Central address		0099 : Unfixed
04	Specific indoor unit priority		0000 : No priority
06	Heat intake temperature shift		0002 : +2 °C
0F	Cold only		0000 : Heat pump
10	Model code		0050 : Air to Air Heat Exchanger with DX Coil Unit (Ceiling-embedded duct)
11	Capacity code		0000 : Invalid (*1)
12	Line address		0099 : Unfixed
13	Indoor unit address		0099 : Unfixed
14	Group address		0099 : Unfixed
28	Auto recovery from blackout		0000 : None
2A	Option / Abnormal input (CN70) switch		0002 : Humidifier input
2E	HA terminal (T10) switch		0000 : Normal (HA terminal)
32	Sensor switch		0000 : Body sensor
40	Humidifier type setting		0000 : No humidifier
47	Ventilation fan speed during nighttime heat purge operation		0000 : Low fixed
48	Unbalanced fan speed ventilation		0000 : Invalid
4C	Nighttime heat purge setting		0000 : Invalid
4E	Linkage with external devices		0000 : ON / OFF linked
5C	Damper output		0000 : Normal
60	Timer setting (wired remote controller)		0000 : Possible
BB	Humidity judgment by outdoor temperature		0000 : Not judged
BD	Continuous humidifying time		0006 : 6 hours
BE	Delay after drainage		0015 : 15 minutes
C9	Air to Air intake temperature correction (Cool)		0004 : –2.0 °C
CA	Air to Air intake temperature correction (Heat)		0005 : 2.5 °C
D0	Power saving mode		0001 : Valid
EA	Current ventilation mode		0002 : Automatic mode
EB	Current ventilation fan speed		0002 : High
ED	Operation output		0000 : Normal operation only
EE	Abnormal signal / Bypass mode signal switch		0000 : Abnormal signal output

*1 On the PC board for service, the capacity in Code "11" is set to "0000 : Invalid".
When replacing the PC board, change the value to that of the target indoor unit.

Model

Code : 10

SET DATA	Model	Model name (abbreviation)
0050	Air to Air Heat Exchanger with DX Coil Unit (Ceiling-embedded duct)	MMD-VN(K)✻✻✻HEXE

Capacity of the Air to Air Heat Exchanger with DX Coil Unit

Code : 11

SET DATA	Type
0000*	Invalid
0003	500 m^3/h type
0007	800 m^3/h type
0009	950 m^3/h type

* Factory setting of EEPROM stored on the PC board for service

Whether there is a humidifier

Code : 40

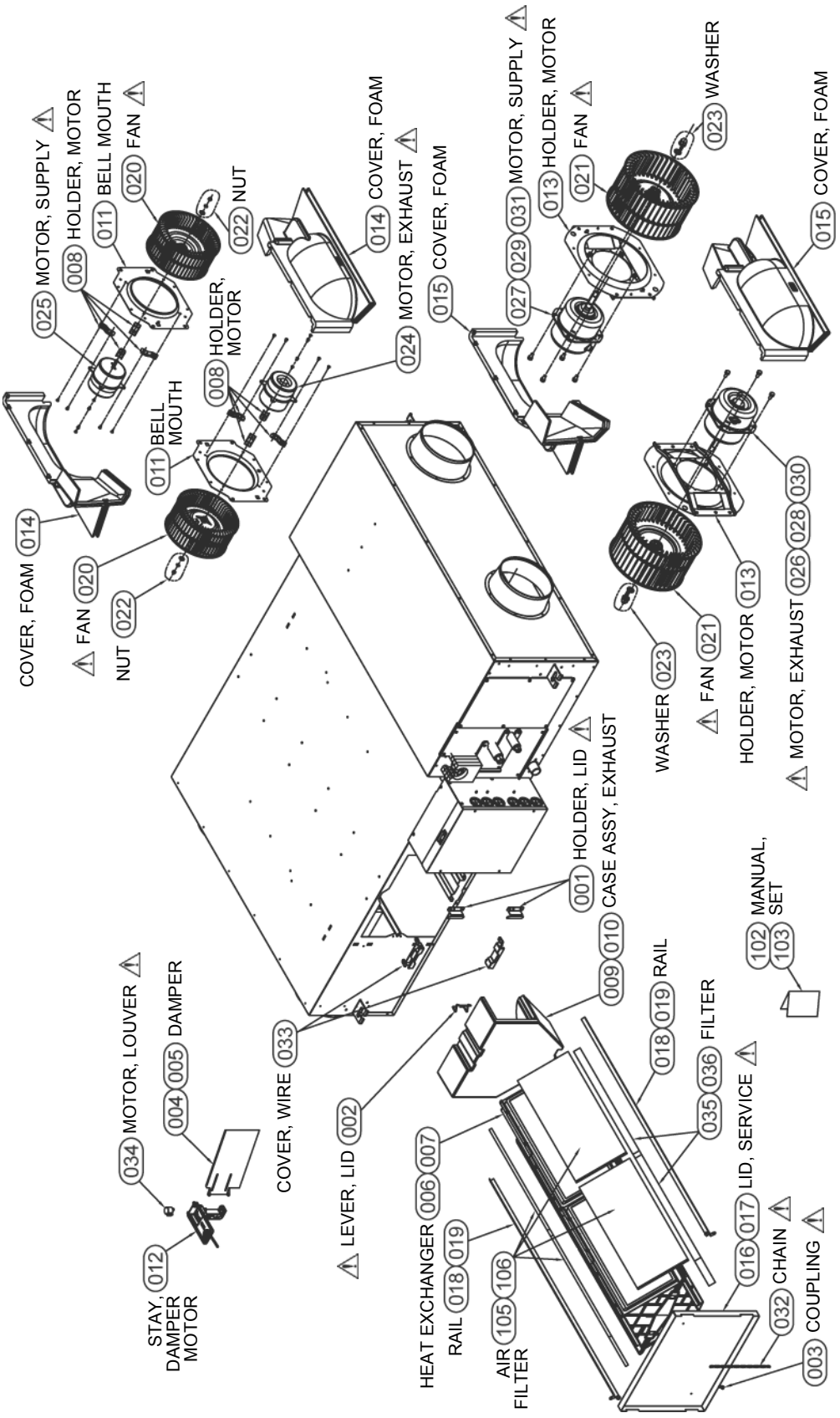
SET DATA	Type
0000*	No (MMD-VN✻✻✻HEXE)
0001	Yes (MMD-VNK✻✻✻HEXE)

* Factory setting of EEPROM stored on the PC board for service

15 Exploded views and parts list

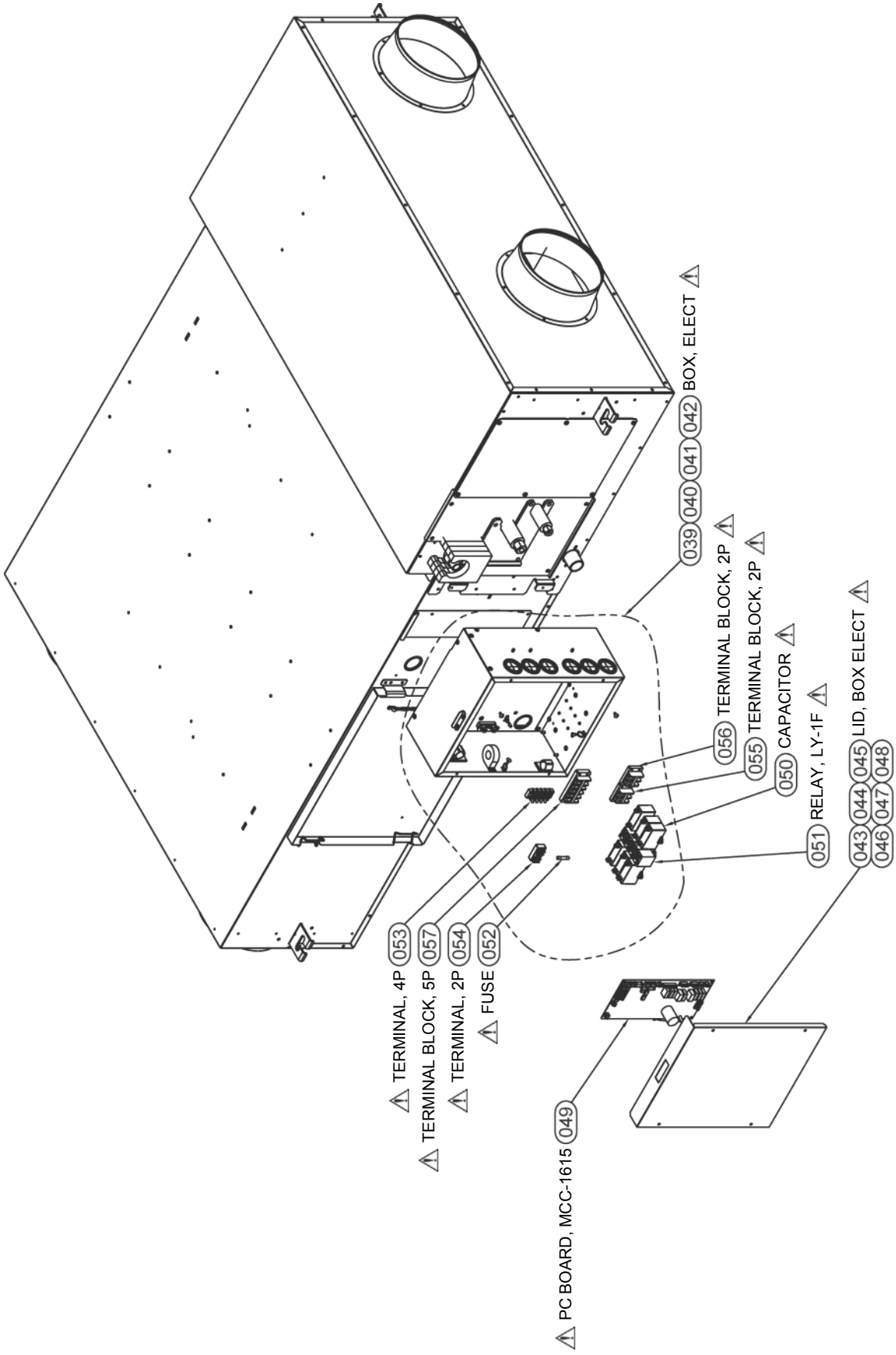
Heat exchanger side

MMD-VNK502HEXE, 802HEXE, 1002HEXE, 1002HEXE2, 502HEXE-TR, 802HEXE-TR, 1002HEXE-TR
MMD-VN502HEXE, 802HEXE, 1002HEXE, 1002HEXE2, 502HEXE-TR, 802HEXE-TR, 1002HEXE-TR



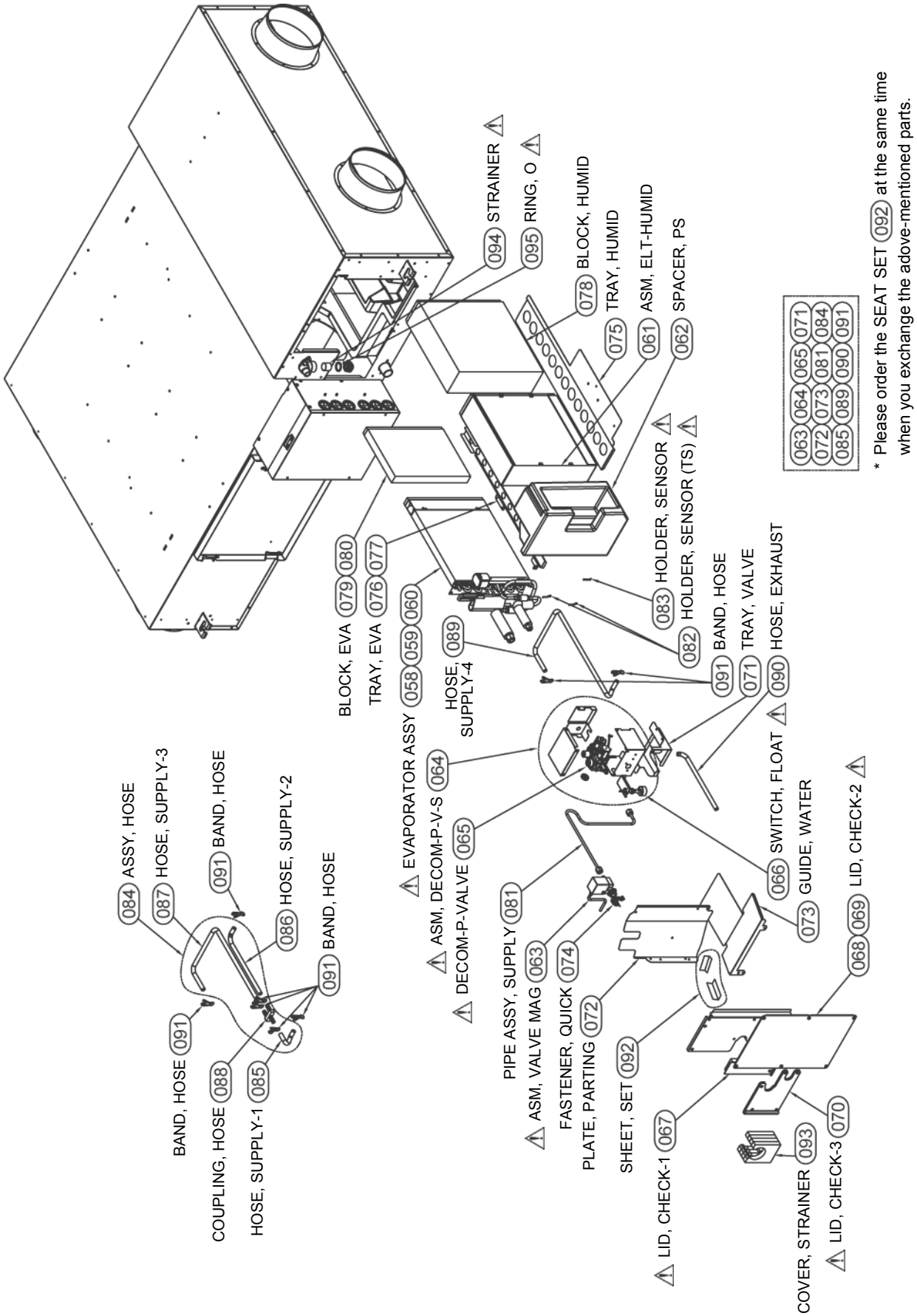
Box elect

MMD-VNK502HEXE, 802HEXE, 1002HEXE, 1002HEXE2, 502HEXE-TR, 802HEXE-TR, 1002HEXE-TR
MMD-VN502HEXE, 802HEXE, 1002HEXE, 1002HEXE2, 502HEXE-TR, 802HEXE-TR, 1002HEXE-TR



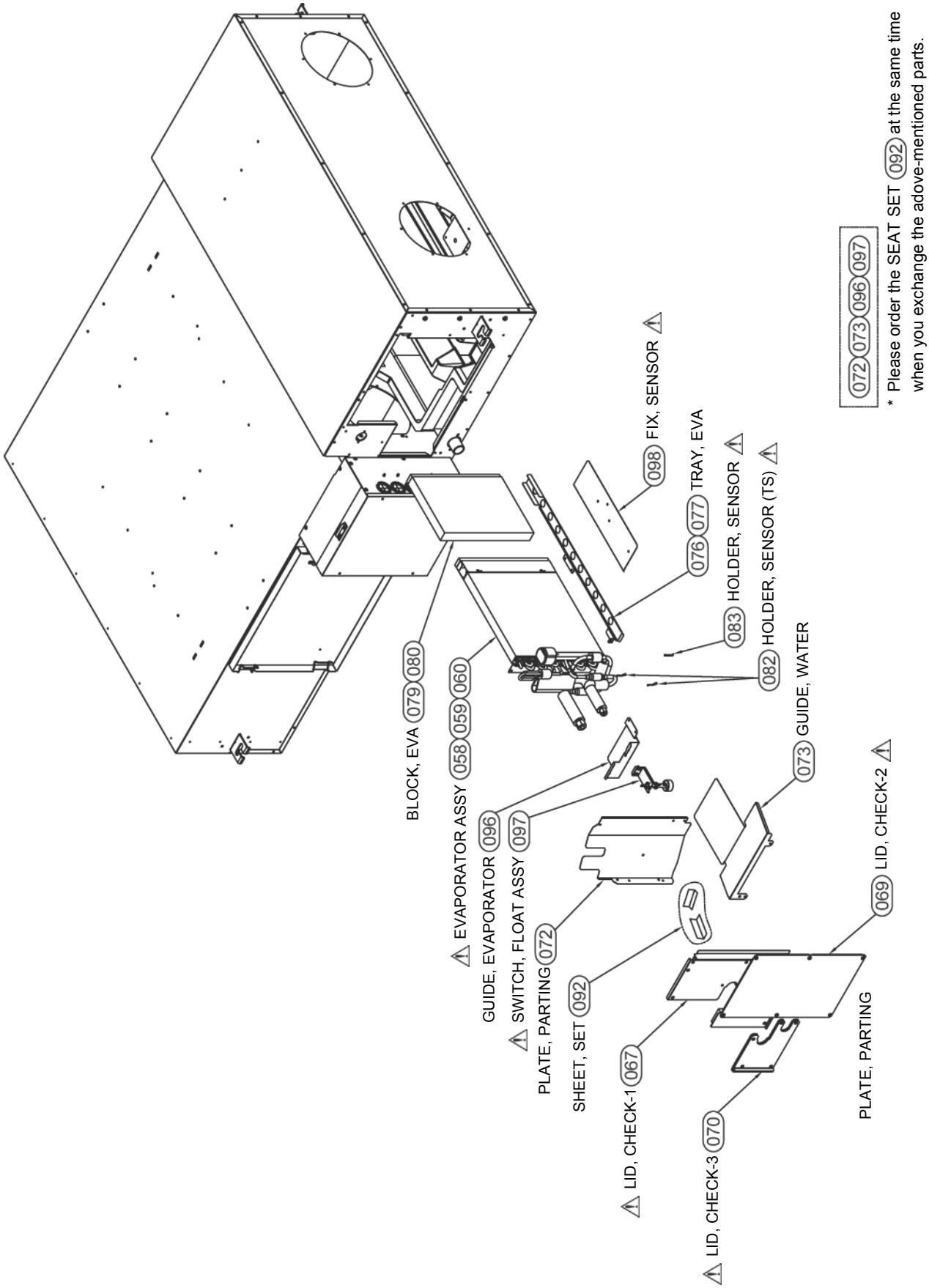
Air conditioner side (VNK type)

MMD-VNK502HEXE, 802HEXE, 1002HEXE, 1002HEXE2, 502HEXE-TR, 802HEXE-TR, 1002HEXE-TR



Air conditioner side (VN type)

MMD-VN502HEXE, 802HEXE, 1002HEXE, 1002HEXE2, 502HEXE-TR, 802HEXE-TR, 1002HEXE-TR



Parts list

Component No.	Component	Component code	Outline	Number of use												
				MMD-VNK502HEXE	MMD-VNK802HEXE	MMD-VNK1002HEXE	MMD-VNK1002HEXE2	MMD-VNK502HEXE-TR	MMD-VNK802HEXE-TR	MMD-VNK1002HEXE-TR	MMD-VN502HEXE	MMD-VN802HEXE	MMD-VN1002HEXE	MMD-VN1002HEXE2	MMD-VN502HEXE-TR	MMD-VN802HEXE-TR	MMD-VN1002HEXE-TR
001	HOLDER, LID	41112642		2	2	2	2	2	2	2	2	2	2	2	2	2	2
002	LEVER, LID	41112643		1	1	1	1	1	1	1	1	1	1	1	1	1	1
003	COUPLING	41112644		2	2	2	2	2	2	2	2	2	2	2	2	2	2
004	DAMPER	41118647		1				1			1				1		
005	DAMPER	41118648			1	1	1		1	1		1	1	1		1	1
006	HEAT EXCHANGER	41119475		2				2			2				2		
007	HEAT EXCHANGER	41119476			2	2	2		2	2		2	2	2		2	2
008	HOLDER, MOTOR	4111A534		8				8			8				8		
009	CASE ASSY, EXHAUST	4111A570		1				1			1				1		
010	CASE ASSY, EXHAUST	4111A571			1	1	1		1	1		1	1	1		1	1
011	BELL MOUTH	4111A572		2				2			2				2		
012	STAY, DAMPER MOTOR	4111A573		1	1	1	1	1	1	1	1	1	1	1	1	1	1
013	HOLDER, MOTOR	41118615			2	2	2		2	2		2	2	2		2	2
014	COVER, FOAM	4111A575		1				1			1				1		
015	COVER, FOAM	4111A576			1	1	1		1	1		1	1	1		1	1
016	LID, SERVICE	4310A031		1				1			1				1		
017	LID, SERVICE	4310A032			1	1	1		1	1		1	1	1		1	1
018	RAIL	4111A581		2				2			2				2		
019	RAIL	4111A582			2	2	2		2	2		2	2	2		2	2
020	FAN	41120592		2				2			2				2		
021	FAN	41120537			2	2	2		2	2		2	2	2		2	2
022	NUT	41129230		1				1			1				1		
023	WASHER	41129222			1	1	1		1	1		1	1	1		1	1
024	MOTOR, EXHAUST	4312C082		1				1			1				1		
025	MOTOR, SUPPLY	4312C083		1				1			1				1		
026	MOTOR, EXHAUST	4312C084			1				1			1				1	
027	MOTOR, SUPPLY	4312C085			1				1			1				1	
028	MOTOR, EXHAUST	4312C086				1				1			1				1
029	MOTOR, SUPPLY	4312C087				1				1			1				1
030	MOTOR, EXHAUST	4312C088					1							1			
031	MOTOR, SUPPLY	4312C089					1							1			
032	CHAIN	41169332		1	1	1	1	1	1	1	1	1	1	1	1	1	1
033	COVER, WIRE	41179579		2	2	2	2	2	2	2	2	2	2	2	2	2	2
034	MOTOR, LOUVER	4302C063		1	1	1	1	1	1	1	1	1	1	1	1	1	1
035	FILTER	43180344		2				2			2				2		
036	FILTER	43180345			2	2	2		2	2		2	2	2		2	2
037	SENSOR	41179580		1	1	1	1	1	1	1	1	1	1	1	1	1	1
038	SENSOR, TA	41179583		1	1	1	1	1	1	1	1	1	1	1	1	1	1
039	BOX, ELECT	43161040		1		1		1		1							
040	BOX, ELECT	43161041			1		1		1								
041	BOX, ELECT	43161042									1		1		1		1
042	BOX, ELECT	43161043										1		1		1	
043	LID, BOX ELECT	43162064		1	1												
044	LID, BOX ELECT	43162065									1	1					
045	LID, BOX ELECT	43162066				1		1	1	1							

Component No.	Component	Component code	Outline	Number of use													
				MMD-VNK502HEXE	MMD-VNK802HEXE	MMD-VNK1002HEXE	MMD-VNK1002HEXE2	MMD-VNK502HEXE-TR	MMD-VNK802HEXE-TR	MMD-VNK1002HEXE-TR	MMD-VN502HEXE	MMD-VN802HEXE	MMD-VN1002HEXE	MMD-VN1002HEXE2	MMD-VN502HEXE-TR	MMD-VN802HEXE-TR	MMD-VN1002HEXE-TR
046	LID, BOX ELECT	43162067											1		1	1	1
047	LID, BOX ELECT	43162068					1										
048	LID, BOX ELECT	43162069												1			
049	PC BOARD, MCC-1615	4316V456		1	1	1	1	1	1	1	1	1	1	1	1	1	1
050	CAPACITOR	41171309		2	4	2	4	2	4	2	2	4	2	4	2	4	2
051	RELAY, LY-1F	43154156		4	4	4	4	4	4	4	4	4	4	4	4	4	4
052	FUSE	43060678	AC250 V, 15 A	1	1	1	1	1	1	1	1	1	1	1	1	1	1
053	TERMINAL, 4P	43160561		1	1	1	1	1	1	1	1	1	1	1	1	1	1
054	TERMINAL, 2P	43160467		1	1	1	1	1	1	1							
055	TERMINAL BLOCK, 2P	41177893		1	1	1	1	1	1	1	1	1	1	1	1	1	1
056	TERMINAL BLOCK, 2P	43160572		1	1	1	1	1	1	1							
057	TERMINAL BLOCK, 5P	43160569		1	1	1	1	1	1	1	1	1	1	1	1	1	1
058	EVAPORATOR ASSY	4314J450		1				1			1				1		
059	EVAPORATOR ASSY	4314J451			1				1			1				1	
060	EVAPORATOR ASSY	4314J452				1	1			1			1	1			1
061	ASM, ELT-HUMID	43179157		1	2	2	2	1	2	2							
062	SPACER, PS	43104201		1	1	1	1	1	1	1							
063	ASM, VALVE MAG	43171077		1	1	1	1	1	1	1							
064	ASM, DECOM-P-V-S	43171079		1	1	1	1	1	1	1							
065	DECOM-P-VALVE	43171075		1	1	1	1	1	1	1							
066	SWITCH, FLOAT	43151296		1	1	1	1	1	1	1							
067	LID, CHECK -1	4310A012		1	1	1	1	1	1	1	1	1	1	1	1	1	1
068	LID, CHECK -2	4310A027		1	1	1	1	1	1	1							
069	LID, CHECK -2	4310A028									1	1	1	1	1	1	1
070	LID, CHECK -3	4310A013		1	1	1	1	1	1	1	1	1	1	1	1	1	1
071	TRAY, VALVE	43179156		1	1	1	1	1	1	1							
072	PLATE, PARTING	43104203		1	1	1	1	1	1	1	1	1	1	1	1	1	1
073	GUIDE, WATER	43104202		1	1	1	1	1	1	1	1	1	1	1	1	1	1
074	FASTENER, QUICK	37519776		1	1	1	1	1	1	1							
075	TRAY, HUMID	43119510		1	1	1	1	1	1	1							
076	TRAY, EVA	43119508		1	1			1	1		1	1			1	1	
077	TRAY, EVA	43119509				1	1			1			1	1			1
078	BLOCK, HUMID	43104205		1				1									
079	BLOCK, EVA	43104206		1				1			1				1		
080	BLOCK, EVA	43104207			1				1			1				1	
081	PIPE ASSY, SUPPLY	43170258		1	1	1	1	1	1	1							
082	HOLDER, SENSOR (TS)	43019904		2	2	2	2	2	2	2	2	2	2	2	2	2	2
083	HOLDER, SENSOR	43107215		1	1	1	1	1	1	1	1	1	1	1	1	1	1
084	ASSY, HOSE	43170264			1	1	1		1	1							
085	HOSE, SUPPLY -1	43170259			1	1	1		1	1							
086	HOSE, SUPPLY -2	43170260			1	1	1		1	1							
087	HOSE, SUPPLY -3	43170261			1	1	1		1	1							
088	COUPLING, HOSE	43171078			1	1	1		1	1							
089	HOSE, SUPPLY-4	43170262		1				1									
090	HOSE, EXHAUST	43170263		1	1	1	1	1	1	1							
091	BAND, HOSE	43179158		2	6	6	6	2	6	6							

Component No.	Component	Component code	Outline	Number of use												
				MMD-VNK502HEXE	MMD-VNK802HEXE	MMD-VNK1002HEXE	MMD-VNK1002HEXE2	MMD-VNK502HEXE-TR	MMD-VNK802HEXE-TR	MMD-VNK1002HEXE-TR	MMD-VN502HEXE	MMD-VN802HEXE	MMD-VN1002HEXE	MMD-VN1002HEXE2	MMD-VN502HEXE-TR	MMD-VN802HEXE-TR	MMD-VN1002HEXE-TR
092	SHEET SET	43195227		1	1	1	1	1	1	1	1	1	1	1	1	1	1
093	COVER, STRAINER	43111353		1	1	1	1	1	1	1							
094	STRAINER	43170265		1	1	1	1	1	1	1							
095	RING, O	43195226		1	1	1	1	1	1	1							
096	GUIDE, EVAPORATOR	43119511									1	1	1	1	1	1	1
097	SWITCH, FLOAT ASSY	43151310									1	1	1	1	1	1	1
098	FIX, SENSOR	43119512									1	1	1	1	1	1	1
099	SENSOR ASSY -1	43150347		1	1	1	1	1	1	1	1	1	1	1	1	1	1
100	SENSOR ASSY -2	43150348		1	1	1	1	1	1	1	1	1	1	1	1	1	1
101	SENSOR ASSY -3	43150349		1	1	1	1	1	1	1	1	1	1	1	1	1	1
102	MANUAL, SET	431S8229		1	1	1	1				1	1	1	1			
103	MANUAL, SET	431S8231						1	1	1					1	1	1
105	AIR FILTER	4111J127		4				4			4				4		
106	AIR FILTER	4111J128			4	4	4		4	4		4	4	4		4	4

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