FILE NO. SVM-23032

TOSHIBA

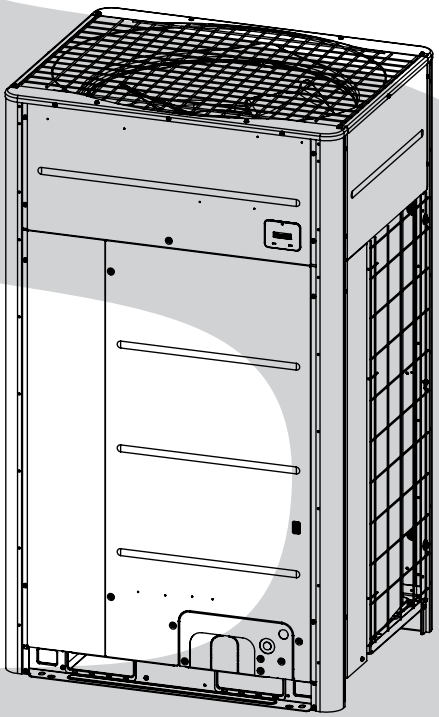
AIR CONDITIONER (MULTI TYPE)

# SERVICE MANUAL

**< Super Modular Multi System-u SMMS-u >**

**Outdoor**

**MMY-MUP0721HT9P-UL**
**MMY-MUP0961HT9P-UL**
**MMY-MUP1201HT9P-UL**
**MMY-MUP1441HT9P-UL**
**MMY-MUP1681HT9P-UL**
**MMY-MUP072H1HT9PUL**
**MMY-MUP096H1HT9PUL**
**MMY-MUP120H1HT9PUL**



# CONTENTS

**This service manual provides relevant explanations about new outdoor unit (SMMS-u).**
**Please refer to the following service manuals for each indoor units.**

| Model name | SVM File No. |
|---|---|
| <4-Way Cassette Type><br>MMU-UP***1HP-UL (Made in Thailand model) | SVM-22074 |
| <Compact 4-Way Cassette Type><br>MMU-UP***1MH-UL (Made in Japan model) | A10-2209 |
| <1-Way Cassette Type><br>MMU-UP***1YHP-UL (Made in Thailand model) | SVM-22075<br>SVM-22076 |
| <Concealed Duct Standard Type><br>MMD-UP***1BHP-UL (Made in Thailand model) | SVM-22078 |
| <Concealed Duct High Static Pressure Type><br>MMD-UP***1HP-UL (Made in Thailand model) | SVM-22079<br>SVM-23027 |
| <Slim Duct Type><br>MMD-UP***1SPH-UL (Made in Japan model) | A10-2209 |
| <Under Ceiling Type><br>MMC-UP***1HP-UL (Made in Thailand model) | SVM-22077 |
| <Floor Console Exposed type><br>MML-UP***1H-UL (Made in Japan model) | A10-2209 |
| <Floor Console Recessed type><br>MML-UP***1BH-UL (Made in Japan model) | A10-2209 |
| <Outside Air Unit Type><br>MMD-AP***1HF2UL (Made in Japan model) | A10-1603-3 |
| <High Wall Type><br>MMK-UP***1HP-UL (Made in Thailand model) | SVM-22081<br>SVM-22082<br>SVM-22083 |

# SAFETY CAUTION

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

### Generic Denomination: Air Conditioner

### Definition of Qualified Installer or Qualified Service Person

The air conditioner must be installed, maintained, repaired and removed by a qualified installer or qualified service person. When any of these jobs is to be done, ask a qualified installer or qualified service person to do them.
A qualified installer or qualified service person is an agent who has the qualifications and knowledge described in the table below.

| Agent | Qualifications and knowledge which the agent must have |
|---|---|
| Qualified installer (*1) | • The qualified installer is a person who installs, maintains, relocates and removes the air conditioners made by Toshiba Carrier Corporation. He or she has been trained to install, maintain, relocate and remove the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such operations by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to these operations.<br>• The qualified installer who is allowed to do the electrical work involved in installation, relocation and removal has the qualifications pertaining to this electrical work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to electrical work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work.<br>• The qualified installer who is allowed to do the refrigerant handling and piping work involved in installation, relocation and removal has the qualifications pertaining to this refrigerant handling and piping work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to refrigerant handling and piping work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work.<br>• The qualified installer who is allowed to work at heights has been trained in matters relating to working at heights with the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. |
| Qualified service person (*1) | • The qualified service person is a person who installs, repairs, maintains, relocates and removes the air conditioners made by Toshiba Carrier Corporation. He or she has been trained to install, repair, maintain, relocate and remove the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such operations by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to these operations.<br>• The qualified service person who is allowed to do the electrical work involved in installation, repair, relocation and removal has the qualifications pertaining to this electrical work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to electrical work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work.<br>• The qualified service person who is allowed to do the refrigerant handling and piping work involved in installation, repair, relocation and removal has the qualifications pertaining to this refrigerant handling and piping work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to refrigerant handling and piping work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work.<br>• The qualified service person who is allowed to work at heights has been trained in matters relating to working at heights with the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. |

## Definition of Protective Gear

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

| Work undertaken | Protective gear worn |
|---|---|
| All types of work | Protective gloves<br>'Safety' working clothing |
| Electrical-related work | Gloves to provide protection for electricians<br>Insulating shoes<br>Clothing to provide protection from electric shock |
| Work done at heights (19.7"(50 cm) or more) | Helmets for use in industry |
| Transportation of heavy objects | Shoes with additional protective toecap |
| Repair of outdoor unit | Gloves to provide protection for electricians |

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

### [Explanation of indications]

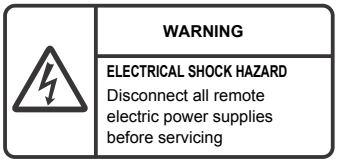
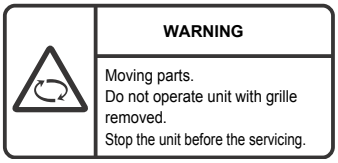
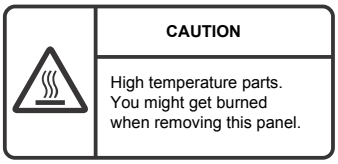
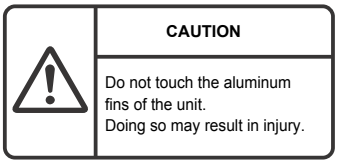
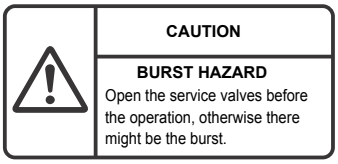
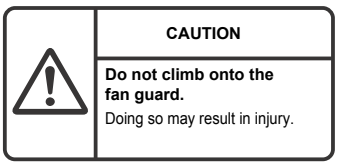
| Indication | Explanation |
|---|---|
| ⚠ DANGER | Indicates contents assumed that an imminent danger causing a death or serious injury of the repair engineers and the third parties when an incorrect work has been executed. |
| ⚠ WARNING | Indicates possibilities assumed that a danger causing a death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

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

### [Explanation of illustrated marks]

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

## ■ Warning indications on the air conditioner unit

| Warning indication | Description |
|---|---|
|  | **WARNING**<br><br>**ELECTRICAL SHOCK HAZARD**<br>Disconnect all remote electric power supplies before servicing. |
|  | **WARNING**<br><br>Moving parts.<br>Do not operate unit with grille removed.<br>Stop the unit before the servicing. |
|  | **CAUTION**<br><br>High temperature parts.<br>You might get burned when removing this panel. |
|  | **CAUTION**<br><br>Do not touch the aluminium fins of the unit.<br>Doing so may result in injury. |
|  | **CAUTION**<br><br>**BURST HAZARD**<br>Open the service valves before the operation, otherwise there might be the burst. |
|  | **CAUTION**<br><br>**Do not climb onto the fan guard.**<br>Doing so may result in injury. |

# PRECAUTIONS FOR SAFETY

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

## ⚠ DANGER

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| Turn off breaker | Before carrying out the installation, maintenance, repair or removal work, be sure to set the circuit breaker for both the indoor and outdoor units to the OFF position. Otherwise, electric shocks may result. |
| | Before opening the intake grille of the indoor unit or service panel of the outdoor unit, set the circuit breaker to the OFF position. Failure to set the circuit breaker to the OFF position may result in electric shocks through contact with the interior parts. Only a qualified installer (*1) or qualified service person (*1) is allowed to remove the intake grille of the indoor unit or service panel of the outdoor unit and do the work required. |
| | Before opening the electric box cover set the circuit breaker to the OFF position.<br>Failure to set the circuit breaker to the OFF position may result in injury through contact with the rotation parts.<br>Only a qualified installer (*1) or qualified service person (*1) is allowed to remove the electric box cover and do the work required. |
| | Before starting to repair the outdoor unit fan or fan guard, be absolutely sure to set the circuit breaker to the OFF position, and place a “Work in progress” sign on the circuit breaker. |
| | When cleaning the filter or other parts of the indoor unit, set the circuit breaker to OFF without fail, and place a “Work in progress” sign near the circuit breaker before proceeding with the work. |
| | When you have noticed that some kind of trouble (such as when a check code display has appeared, there is a smell of burning, abnormal sounds are heard, the air conditioner fails to cool or heat or water is leaking) has occurred in the air conditioner, do not touch the air conditioner yourself but set the circuit breaker to the OFF position, and contact a qualified service person. Take steps to ensure that the power will not be turned on (by marking “out of service” near the circuit breaker, for instance) until qualified service person arrives. Continuing to use the air conditioner in the trouble status may cause mechanical problems to escalate or result in electric shocks or other failure. |
| Electric shock hazard | When you access inside of the electric cover to repair electric parts, wait for about five minutes after turning off the breaker. Do not start repairing immediately. Otherwise you may get electric shock by touching terminals of high-voltage capacitors. Natural discharge of the capacitor takes about five minutes. |
| | When checking the electric parts, removing the cover of the electric parts box of indoor unit and/or service panel of outdoor unit inevitably to determine the failure, use gloves to provide protection for electricians, insulating shoes, clothing to provide protection from electric shock and insulating tools. Be careful not to touch the live part. Electric shock may result. Only “Qualified service person” is allowed to do this work. |
| Prohibition | Place a “Work in progress” sign near the circuit breaker while the installation, maintenance, repair or removal work is being carried out.<br>There is a danger of electric shocks if the circuit breaker is set to ON by mistake. |
| | When checking the electric parts, removing the cover of the electric parts box of Indoor Unit and/or front panel of outdoor unit inevitably to determine the failure, put a sign “Do not enter” around the site before the work. Failure to do this may result in third person getting electric shock. |
| | Before operating the air conditioner after having completed the work, check that the electrical parts box cover of the indoor unit and service panel of the outdoor unit are closed, and set the circuit breaker to the ON position.<br>You may receive an electric shock if the power is turned on without first conducting these checks. |
| Stay on protection | If, in the course of carrying out repairs, it becomes absolutely necessary to check out the electrical parts with the electrical parts box cover of one or more of the indoor units and the service panel of the outdoor unit removed in order to find out exactly where the trouble lies, wear insulated heat-resistant gloves, insulated boots and insulated work overalls, and take care to avoid touching any live parts.<br>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. |

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

## ⚠ WARNIG

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| General | Before starting to repair the air conditioner, read carefully through the Service Manual, and repair the air conditioner by following its instructions. |
| | Only qualified service person (*1) is allowed to repair the air conditioner.<br>Repair of the air conditioner by unqualified person may give rise to a fire, electric shocks, injury, water leaks and / or other problems. |
| | Do not use any refrigerant different from the one specified for complement or replacement.<br>Otherwise, abnormally high pressure may be generated in the refrigeration cycle, which may result in a failure or explosion of the product or an injury to your body. |
| | Only a qualified installer (*1) or qualified service person (*1) is allowed to carry out the electrical work of the air conditioner.<br>Under no circumstances must this work be done by an unqualified individual since failure to carry out the work properly may result in electric shocks and / or electrical leaks. |
| | When the air conditioner is to be transported, installed, maintained, repaired or removed, wear protective gloves and 'safety' work clothing. |
| | To connect the electrical wires, repair the electrical parts or undertake other electrical jobs, wear gloves to provide protection for electricians, insulating shoes and clothing to provide protection from electric shocks. Failure to wear this protective gear may result in electric shocks. |
| | Electrical wiring work shall be conducted according to law and regulation in the community and Installation Manual. Failure to do so may result in electrocution or short circuit. |
| | Use wiring that meets the specifications in the Installation Manual and the stipulations in the local regulations and laws. Use of wiring which does not meet the specifications may give rise to electric shocks, electrical leakage, smoking and/or a fire. |
| | Only a qualified installer (*1) or qualified service person (*1) is allowed to undertake work at heights using a stand of 50 cm or more or to remove the intake grille of the indoor unit to undertake work. |
| | When working at heights, use a ladder which complies with the ISO 14122 standard, and follow the procedure in the ladder's instructions.<br>Also wear a helmet for use in industry as protective gear to undertake the work. |
| | Before working at heights, put a sign in place so that no-one will approach the work location, before proceeding with the work. Parts and other objects may fall from above, possibly injuring a person below. While carrying out the work, wear a helmet for protection from falling objects. |
| | When executing address setting, test run, or troubleshooting through the checking window on the electric parts box, put on insulated gloves to provide protection from electric shock. Otherwise you may receive an electric shock. |
| | Do not touch the aluminum fin of the unit.<br>You may injure yourself if you do so. If the fin must be touched for some reason, first put on protective gloves and safety work clothing, and then proceed. |
| | Do not climb onto or place objects on top of the outdoor unit.<br>You may fall or the objects may fall off the outdoor unit and result in injury. |
| | Use forklift truck to carry in the air conditioner units and use winch or hoist at installation of them. |
| | When transporting the air conditioner, wear shoes with protective toecap. |
| | When transporting the air conditioner, do not take hold of the bands around the packing carton.<br>You may injure yourself if the bands break. |
| | Be sure that a heavy unit (22Ibs(10 kg) or heavier) such as a compressor is carried by four persons. |
| Check earth wires. | Before troubleshooting or repair work, check the earth wire is connected to the earth terminals of the main unit, otherwise an electric shock is caused when a leak occurs. If the earth wire is not correctly connected, contact an electric engineer for rework. |
| | After completing the repair or relocation work, check that the earth wires are connected properly. |
| | Connect earth wire. (Grounding work) Incomplete earthing causes an electric shock.<br>Do not connect earth wires to gas pipes, water pipes, and lightning rods or earth wires for telephone wires. |

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

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| Prohibition of modification. | Do not modify the products. Do not also disassemble or modify the parts.<br>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).<br>Use of any parts which do not satisfy the required specifications may give rise to electric shocks, smoking and / or a fire. |
| Do not bring a child close to the equipment. | If, in the course of carrying out repairs, it becomes absolutely necessary to check out the electrical parts with the electrical parts box cover of one or more of the indoor units and the service panel of the outdoor unit removed in order to find out exactly where the trouble lies, put a sign in place so that no-one will approach the work location before proceeding with the work. Third-party individuals may enter the work site and receive electric shocks if this warning is not heeded. |
| Insulating measures | Connect the cut-off lead wires with crimp contact, etc., put the closed end side upward and then apply a 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.<br>When repairing the refrigerating cycle, take the following measures.<br>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.<br>2) Do not use a brazing in the closed room. When using it without ventilation, carbon monoxide poisoning may be caused.<br>3) Do not bring inflammables close to the refrigerant cycle, otherwise fire of the brazing may catch the inflammables. |
| Refrigerant | The refrigerant used by this air conditioner is the R410A. |
| | Check the used refrigerant name and use tools and materials of the parts which match with it.<br>For the products which use R410A refrigerant, the refrigerant name is indicated at a position on the outdoor unit where is easy to see. To prevent miss charging, the route of the service port is changed from one of the former R22. |
| | Do not use any refrigerant different from the one specified for complement or replacement.<br>Otherwise, abnormally high pressure may be generated in the refrigeration cycle, which may result in a failure or explosion of the product or an injury to your body. |
| | For an air conditioner which uses R410A, never use other refrigerant than R410A. For an air conditioner which uses other refrigerant (R22, etc.), never use R410A.<br>If different types of refrigerant are mixed, abnormal high pressure generates in the refrigerating cycle and an injury due to breakage may be caused. |
| | When the air conditioner has been installed or relocated, follow the instructions in the Installation Manual and purge the air completely so that no gases other than the refrigerant will be mixed in the refrigerating cycle.<br>Failure to purge the air completely may cause the air conditioner to malfunction. |
| | Do not charge refrigerant additionally. If charging refrigerant additionally when refrigerant gas leaks, the refrigerant composition in the refrigerating cycle changes resulted in change of air conditioner characteristics or refrigerant over the specified standard amount is charged and an abnormal high pressure is applied to the inside of the refrigerating cycle resulted in cause of breakage or injury.<br>Therefore if the refrigerant gas leaks, recover the refrigerant in the air conditioner, execute vacuuming, and then newly recharge the specified amount of liquid refrigerant.<br>In this time, never charge the refrigerant over the specified amount. |
| | When recharging the refrigerant in the refrigerating cycle, do not mix the refrigerant or air other than R410A into the specified refrigerant. If air or others is mixed with the refrigerant, abnormal high pressure generates in the refrigerating cycle resulted in cause of injury due to breakage. |
| | After installation work, check the refrigerant gas does not leak. If the refrigerant gas leaks in the room, poisonous gas generates when gas touches to fire such as fan heater, stove or cooking stove though the refrigerant gas itself is innocuous. |
| | Never recover the refrigerant into the outdoor unit. When the equipment is moved or repaired, be sure to recover the refrigerant with recovering device.<br>The refrigerant cannot be recovered in the outdoor unit; otherwise a serious accident such as breakage or injury is caused. |

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

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

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|---|---|
| Cooling check | When the service panel of the outdoor unit is to be opened in order for the compressor or the area around this part to be repaired immediately after the air conditioner has been shut down, set the circuit breaker to the OFF position, and then wait at least 10 minutes before opening the service panel.<br>If you fail to heed this warning, you will run the risk of burning yourself because the compressor pipes and other parts will be very hot to the touch. In addition, before proceeding with the repair work, wear the kind of insulated heat-resistant gloves designed to protect electricians. |
| | Take care not to get burned by compressor pipes or other parts when checking the cooling cycle while running the unit as they get heated while running. Be sure to put on gloves providing protection for heat. |
| | When the service panel of the outdoor unit is to be opened in order for the fan motor, inverter or the areas around these parts to be repaired immediately after the air conditioner has been shut down, set the circuit breaker to the OFF position, and then wait at least 10 minutes before opening the service panel.<br>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.<br>In addition, before proceeding with the repair work, wear the kind of insulated heat-resistant gloves designed to protect electricians. |
| Installation | Only a qualified installer or service person is allowed to do installation work. Inappropriate installation may result in water leakage, electric shock or fire. |
| | Before starting to install the air conditioner, read carefully through the Installation Manual, and follow its instructions to install the air conditioner. |
| | Be sure to use the company-specified products for the separately purchased parts. Use of non-specified products may result in fire, electric shock, water leakage or other failure. Have the installation performed by a qualified installer. |
| | Do not supply power from the power terminal block equipped on the outdoor unit to another outdoor unit. Capacity overflow may occur on the terminal block and may result in fire. |
| | Do not install the air conditioner in a location that may be subject to a risk of expire to a combustible gas. If a combustible gas leaks and becomes concentrated around the unit, a fire may occur. |
| | Install the indoor unit at least 8'2"(2.5 m) above the floor level since otherwise the users may injure themselves or receive electric shocks if they poke their fingers or other objects into the indoor unit while the air conditioner is running. |
| | Install a circuit breaker that meets the specifications in the Installation Manual and the stipulations in the local regulations and laws. |
| | Install the circuit breaker where it can be easily accessed by the agent. |
| | If you install the unit in a small room, take appropriate measures to prevent the refrigerant from exceeding the limit concentration even if it leaks. Consult the dealer from whom you purchased the air conditioner when you implement the measures. Accumulation of highly concentrated refrigerant may cause an oxygen deficiency accident. |
| | Do not place any combustion appliance in a place where it is directly exposed to the wind of air conditioner, otherwise it may cause imperfect combustion. |

### Explanations given to user

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

### Relocation

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

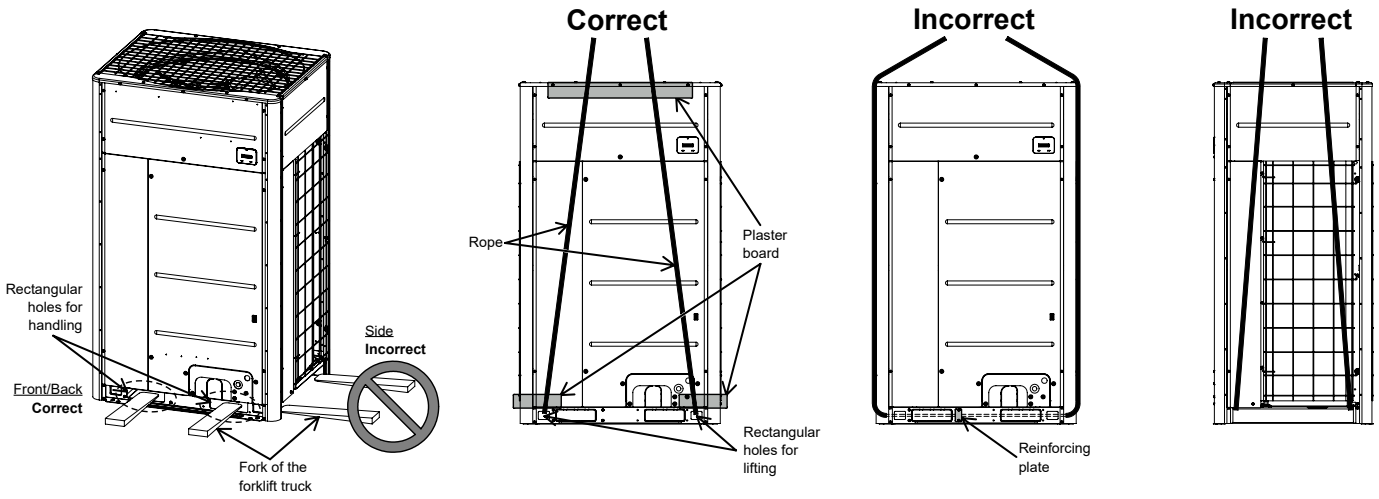
(*1) Refer to the “Definition of Qualified Installer or Qualified Service Person”

# Carrying in the outdoor unit

## ⚠ CAUTION

Handle the outdoor unit carefully, observing the following items

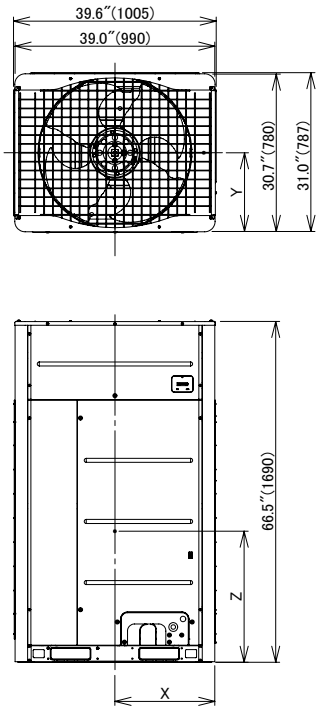
- When using a forklift truck or other machinery for loading/unloading in transportation, insert the fork of the forklift truck into the rectangular holes for handling as shown below.
- When lifting up the unit, insert a rope able to bear the unit's weight into the rectangular holes for handling, and tie the unit from 4 sides.
  (Apply padding in positions where the rope comes into contact with the outdoor unit so that no damage is caused to the outer surface of the outdoor unit.)
  (There are reinforcing plates on the side surfaces, so the rope cannot be passed through.)



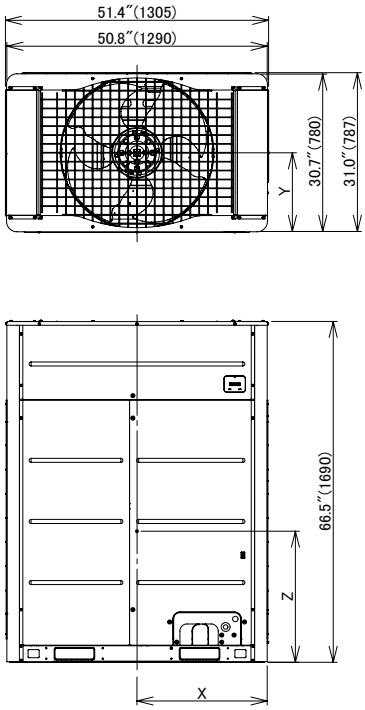
## Weight center and weight

### ◆ Weight center of an outdoor unit

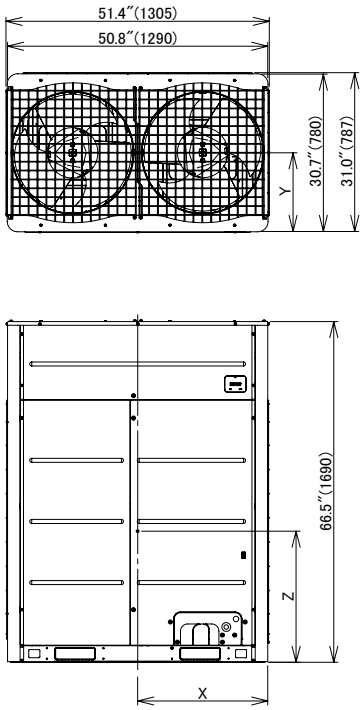
**A**




**B**




**C**



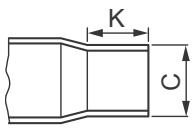
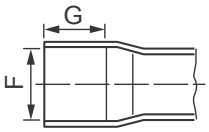

**208-230V**
**Standard**

| No. | Model type | X (in (mm)) | Y (in (mm)) | Z (in (mm)) | Weight (Lbs (Kg)) |
|---|---|---|---|---|---|
| A | MMY-MUP0721HT9P-UL | 19.7 (500) | 15.7 (400) | 26.6 (675) | 551.2 (250) |
| | MMY-MUP0961HT9P-UL | | | | |
| C | MMY-MUP1201HT9P-UL | 25.6 (650) | 14.6 (370) | 23.8 (605) | 760.6 (345) |
| | MMY-MUP1441HT9P-UL | | | | |
| | MMY-MUP1681HT9P-UL | 25.6 (650) | 14.6 (370) | 23.8 (605) | 813.5 (369) |

**High heat**

| No. | Model type | X (in (mm)) | Y (in (mm)) | Z (in (mm)) | Weight (Lbs (Kg)) |
|---|---|---|---|---|---|
| B | MMY-MUP072H1HT9PUL | 25.4 (645) | 13.8 (350) | 27.0 (685) | 632.8 (287) |
| C | MMY-MUP096H1HT9PUL | 25.6 (650) | 14.6 (370) | 23.8 (605) | 760.6 (345) |
| | MMY-MUP120H1HT9PUL | 25.6 (650) | 14.6 (370) | 23.8 (605) | 813.5 (369) |

## Coupling size of brazed pipe

| Connected section | |
|---|---|
| External size | Internal size |
|  |  |





| Standard outer dia. of connected copper pipe | | Connected section | | | | | | | | | | Min. Thickness of coupling | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | External size | | Internal size | | Min. depth of insertion | | | | Oval value | | | |
| | | Standard outer dia. (Allowable difference) | | | | | | | | | | | |
| | | C | | F | | K | | G | | | | | |
| in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm |
| 1/4 | 6.35 | 1/4"(±0.0012) | 6.35(±0.03) | 0.25" $(^{+0.001}_{6})$ | 6.45 $(^{+0.0}_{4})$ | 0.28 | 7 | 0.24 | 6 | 0.0024" or less | 0.06 or less | 0.020" | 0.50 |
| 3/8 | 9.52 | 3/8"(±0.0012) | 9.52(±0.03) | 0.38" $(^{+0.001}_{6})$ | 9.62 $(^{+0.0}_{4})$ | 0.31 | 8 | 0.28 | 7 | 0.0031" or less | 0.08 or less | 0.024" | 0.60 |
| 1/2 | 12.7 | 1/2"(±0.0012) | 12.70(±0.03) | 0.5" $(^{+0.001}_{6})$ | 12.81 $(^{+0.0}_{4})$ | 0.35 | 9 | 0.31 | 8 | 0.0039" or less | 0.10 or less | 0.028" | 0.70 |
| 5/8 | 15.88 | 5/8"(±0.0012) | 15.88(±0.03) | 0.63" $(^{+0.001}_{6})$ | 16.00 $(^{+0.0}_{4})$ | 0.35 | 9 | 0.31 | 8 | 0.0051" or less | 0.13 or less | 0.031" | 0.80 |
| 3/4 | 19.05 | 3/4"(±0.0012) | 19.05(±0.03) | 0.76" $(^{+0.001}_{2})$ | 19.19 $(^{+0.0}_{3})$ | 0.43 | 11 | 0.39 | 10 | 0.0059" or less | 0.15 or less | 0.031" | 0.80 |
| 7/8 | 22.2 | 7/8"(±0.0012) | 22.22(±0.03) | 0.88" $(^{+0.001}_{2})$ | 23.36 $(^{+0.0}_{3})$ | 0.43 | 11 | 0.39 | 10 | 0.0063" or less | 0.16 or less | 0.032" | 0.82 |
| 1-1/8 | 28.58 | 1-1/8"(±0.0012) | 28.58(±0.04) | 1.13" $(^{+0.002}_{4})$ | 28.75 $(^{+0.0}_{6})$ | 0.51 | 13 | 0.47 | 12 | 0.0079" or less | 0.20 or less | 0.039" | 1.00 |
| 1-3/8 | 34.92 | 1-3/8"(±0.0012) | 34.90(±0.04) | 1.38" $(^{+0.001}_{6})$ | 35.11 $(^{+0.0}_{4})$ | 0.55 | 14 | 0.51 | 13 | 0.0098" or less | 0.25 or less | 0.047" | 1.20 |
| 1-5/8 | 41.28 | 1-5/8"(±0.0012) | 41.28(±0.05) | 1.63" $(^{+0.003}_{1})$ | 42.28 $(^{+0.0}_{8})$ | 0.59 | 15 | 0.55 | 14 | 0.0110" or less | 0.28 or less | 0.053" | 1.35 |

## Screw size and tightening torque

| | Screw size | Tightening torque ft•lbs (N•m) |
|---|---|---|
| Power supply terminal | M6 | 1.84 to 2.2 (2.5 to 3.0) |
| Earth screw | M8 | 4.06 to 4.87 (5.5 to 6.6) |
| Communication wire terminal | M4 | 0.89 to 1.03 (1.2 to 1.4) |

# Adding refrigerant

After finishing vacuuming, exchange the vacuum pump with a refrigerant canister and start additional charging of refrigerant.

**Calculation of additional refrigerant charge amount**
Refrigerant charge amount at shipment from the factory does not include the refrigerant for pipes at the local site. For refrigerant to be charged in pipes at the local site, calculate the amount and charge it additionally.

**NOTE**

If the additional refrigerant amount indicates minus as the result of calculation, use the air conditioner without additional refrigerant.

**Table 1-1 SMMS-u**

| MMY- | MUP***1HT9P-UL | | 072 | 096 | 120 | 144 | 168 |
|---|---|---|---|---|---|---|---|
| Amount of refrigerant charged in factory | | lbs | 13.2 | | 19.8 | | |
| | | kg | 6.0 | | 9.0 | | |

**Table 1-2 SMMS-u High heat**

| MMY- | MUP***H1HT9P-UL | | 072 | 096 | 120 |
|---|---|---|---|---|---|
| Amount of refrigerant charged in factory | | lbs | 19.8 | | |
| | | kg | 9.0 | | |

When the outdoor unit is charged with refrigerant from the factory, the amount of refrigerant needed for the piping at the sites is not included. Therefore, calculate the additional amount of refrigerant and add the required amount of refrigerant to the system in field.

**Additional amount of refrigerant charge = [1] + [2] + [3] + [4]**

[1] Compensation amount of refrigerant based on outdoor unit capacity type (Table 2)
[2] Additional amount of refrigerant charge based on liquid pipe size
Real length of liquid pipe × Additional amount of refrigerant charge (Table 3)
[3] Additional amount of refrigerant charge based on liquid pipe size (Table 4)
[4] Corrected amount of refrigerant based on outdoor unit diversity (Table 5)

**Table 2 Compensation amount of refrigerant based on outdoor unit capacity type**

**Table 2-1 SMMS-u**

| Outdoor unit capacity type | Combination outdoor units | | | Compensation by outdoor unit capacity type | |
|---|---|---|---|---|---|
| | Unit 1 | Unit 2 | Unit 3 | lbs | kg |
| 072 | 072 | - | - | 2.20 | 1.00 |
| 096 | 096 | - | - | 2.64 | 1.20 |
| 120 | 120 | - | - | -1.10 | -0.50 |
| 144 | 144 | - | - | 0.33 | 0.15 |
| 168 | 168 | - | - | 6.16 | 2.80 |
| 192 | 096 | 096 | - | 5.28 | 2.40 |
| 216 | 144 | 072 | - | 2.53 | 1.15 |
| 240 | 144 | 096 | - | 2.97 | 1.35 |
| 264 | 168 | 096 | - | 8.80 | 4.00 |
| 288 | 144 | 144 | - | 0.66 | 0.30 |
| 312 | 168 | 144 | - | 6.49 | 2.95 |
| 336 | 168 | 168 | - | 12.32 | 5.60 |
| 360 | 168 | 096 | 096 | 11.44 | 5.20 |
| 384 | 144 | 144 | 096 | 3.30 | 1.50 |
| 408 | 168 | 144 | 096 | 9.13 | 4.15 |
| 432 | 168 | 168 | 096 | 14.96 | 6.80 |
| 456 | 168 | 168 | 120 | 11.22 | 5.10 |
| 480 | 168 | 168 | 144 | 12.65 | 5.75 |

**Table 2-2 SMMS-u High heat**

| Outdoor unit capacity type | Combination outdoor units | | | Compensation by outdoor unit capacity type | |
|---|---|---|---|---|---|
| | Unit 1 | Unit 2 | Unit 3 | lbs | kg |
| 072 | 072 | - | - | -2.20 | -1.00 |
| 096 | 096 | - | - | -1.65 | -0.75 |
| 120 | 120 | - | - | 3.30 | 1.50 |
| 144 | 072 | 072 | - | -4.40 | -2.00 |
| 192 | 096 | 096 | - | -3.30 | -1.50 |
| 240 | 120 | 120 | - | 6.60 | 3.00 |
| 288 | 096 | 096 | 096 | -4.95 | -2.25 |
| 360 | 120 | 120 | 120 | 9.90 | 4.50 |

**Table 3 Additonal amount of refrigerant charge based on liquid pipe size**

| Liquid pipe diameter | in | 1/4" | 3/8" | 1/2" | 5/8" | 3/4" | 7/8" |
|---|---|---|---|---|---|---|---|
| Additional amount of refrigerant | lbs/ft | 0.017 | 0.037 | 0.071 | 0.108 | 0.168 | 0.235 |
| | kg/m | 0.025 | 0.055 | 0.105 | 0.160 | 0.250 | 0.350 |

**Table 4 Additional amount of refrigerant for indoor unit**

**Table 4-1 Additional amount of refrigerant based on indoor unit capacity type**

| Indoor unit capacity type | | 007 | 009 | 012 | 015 | 018 | 021 | 024 | 027 | 030 | 036 | 042 | 048 | 054 | 072 | 096 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indoor unit capacity code | | 7.5 | 9.5 | 12 | 15.4 | 18 | 21 | 24 | 27 | 30 | 36 | 42 | 48 | 54 | 72 | 96 |
| Additional amount of | lbs | 0.44 | | | 0.88 | | | | | | 1.32 | | | | 2.20 | |
| refrigerant | kg | 0.2 | | | 0.4 | | | | | | 0.6 | | | | 1.0 | |

※ If the outside air unit type (MMD-UP***1HFPUL) is connected, The additional amount refrigerant for outside air unit type is 0 lbs

**Table 4-2 Additional amount of refrigerant for 4-Way Cassette type ( MMY-UP***1HPUL)**

| Indoor unit capacity type | | 007 | 009 | 012 | 015 | 018 | 024 | 027 | 030 | 036 | 042 | 048 | 054 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indoor unit capacity code | | 7.5 | 9.5 | 12 | 15.4 | 18 | 24 | 27 | 30 | 36 | 42 | 48 | 54 |
| Additional amount of | lbs | 0.44 | | 0.88 | | | | | | 1.32 | | | |
| refrigerant | kg | 0.2 | | 0.4 | | | | | | 0.6 | | | |

**Table 4-3 Additional amount of refrigerant for Medium Static Conceald Duct Type ( MMY-UP***1BHPUL)**

| Indoor unit capacity type | | 007 | 009 | 012 | 015 | 018 | 021 | 024 | 030 | 036 | 042 | 048 | 054 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indoor unit capacity code | | 7.5 | 9.5 | 12 | 15.4 | 18 | 21 | 24 | 30 | 36 | 42 | 48 | 54 |
| Additional amount of | lbs | 0.88 | | | | | 1.32 | | | | | | |
| refrigerant | kg | 0.4 | | | | | 0.6 | | | | | | |

**Table 4-4 Additional amount of refrigerant charge for DX Coil Interface (TCB-IFDA1GUL/ TCB-IFDD1GUL)**

| Capacity code | | 12 | 15 | 18 | 21 | 24 | 30 | 36 | 42 | 48 | 60 | 72 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| additional amount of | lbs | 0.42 | 0.6 | 0.72 | 0.82 | 0.92 | 1.19 | 1.51 | 1.71 | 1.9 | 2.5 | 3.08 |
| refrigerant | kg | 0.19 | 0.27 | 0.33 | 0.37 | 0.42 | 0.54 | 0.69 | 0.78 | 0.87 | 1.13 | 1.4 |
| Capacity code | | 96 | 120 | 144 | 168 | 192 | 216 | 240 | 264 | 288 | 336 | 384 |
| additional amount of | lbs | 3.96 | 5.46 | 6.25 | 7.04 | 7.83 | 8.82 | 9.81 | 11.78 | 12.57 | 14.15 | 15.73 |
| refrigerant | kg | 1.8 | 2.48 | 2.84 | 3.2 | 3.56 | 4.01 | 4.46 | 5.36 | 5.71 | 6.43 | 7.15 |

**Table-5 Corrected amount of refrigerant based on outdoor unit diversity**

| Diversity D (%) | Corrected amount of refrigerant | |
|---|---|---|
| | lbs | kg |
| 50%≦D<60% | -5.51 | -2.5 |
| 60%≦D<70% | -4.41 | -2.0 |
| 70%≦D<80% | -3.31 | -1.5 |
| 80%≦D<90% | -2.2 | -1.0 |
| 90%≦D<95% | -1.1 | -0.5 |
| 95%≦D | 0 | 0 |

### Charging of refrigerant

- Keeping the valve of the outdoor unit closed, be sure to charge the liquid refrigerant into the service port at the liquid side.
- If the specified amount of refrigerant cannot be charged, fully open the valves of the outdoor unit at liquid and gas sides, operate the air conditioner in COOL mode, and then charge refrigerant into service port at the gas side. In this time, choke the refrigerant slightly by operating the valve of the canister to charge liquid refrigerant.
- The liquid refrigerant may be charged suddenly, therefore be sure to charge refrigerant gradually.

# Refrigerant (R410A)

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

### 1. Safety Caution Concerned to refrigerant (R410A)

The pressure of R410A is 1.6 times higher than that of the former refrigerant (R22). Accompanied with change of refrigerant, the refrigerating oil has been also changed. Therefore, be sure that water, dust, the former refrigerant or the former refrigerating oil is not mixed into the refrigerating cycle of the air conditioner with new refrigerant during installation work or service work. If an incorrect work or incorrect service is performed, there is a possibility to cause a serious accident. Use the tools and materials exclusive to R410A to purpose a safe work.

### 2. Cautions on Installation/Service

(1) Do not mix the other refrigerant or refrigerating oil.
For the tools exclusive to R410A, shapes of all the joints including the service port differ from those of the former refrigerant in order to prevent mixture of them.

(2) As the use pressure of the refrigerant (R410A) is high, use material thickness of the pipe and tools which are specified for R410A.

(3) In the installation time, use clean pipe materials and work with great attention so that water and others do not mix in because pipes are affected by impurities such as water, oxide scales, oil, etc. Use the clean pipes.
Be sure to braze with flowing nitrogen gas. (Never use gas other than nitrogen gas.)

(4) For the earth protection, use a vacuum pump for air purge.

(5) R410A refrigerant is a zeotropic mixture type refrigerant. Therefore use liquid type to charge the refrigerant.

### 3. Pipe Materials

For the refrigerant pipes, copper pipe and joints are mainly used. It is necessary to select the most appropriate pipes to conform to the standard. Use clean material in which impurities adhere inside of pipe or joint to a minimum.

(1) Copper pipe

**<Piping>**

The pipe thickness, flare-finishing size, flare nut and others differ according to a refrigerant type.
When using a long copper pipe for R410A, it is recommended to select “Copper or copper-base pipe without seam” and one with bonded oil amount 40mg/10m or less. Also do not use crushed, deformed, discolored (especially inside) pipes. (Impurities cause clogging of expansion valves and capillary tubes.)

**<Flare nut>**

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

(2) Joint

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

## Tools

(1) Required Tools for R410A

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

1) Tools exclusive for R410A (Those which cannot be used for conventional refrigerant (R22))
2) Tools exclusive for R410A, but can be also used for conventional refrigerant (R22)
3) Tools commonly used for R410A and for conventional refrigerant (R22)

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

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

**Explanation of symbols**

△: Newly prepared (It is necessary to use it exclusively with R410A, separately from those for R22 ◎ or R407C.) : Former tool is available.

| Used tools | Usage | Proper use of tools/parts |
|---|---|---|
| Gauge manifold | Vacuuming, charging refrigerant and operation check | △ Exclusive to R410A |
| Charging hose | | △ Exclusive to R410A |
| Charging cylinder | Charging refrigerant | Unusable (Use the Refrigerant charging balance.) |
| Gas leak detector | Checking gas leak | △ Exclusive to R410A |
| Vacuum pump | Vacuum drying | Usable if a counter-flow preventive adapter is attached |
| Vacuum pump with counter flow | Vacuum drying | ◎ R22 (Existing article) |
| Flare tool | Flare processing of pipes | ◎ Usable by adjusting size |
| Bender | Bending processing of pipes | ◎ R22 (Existing article) |
| Refrigerant recovery device | Recovering refrigerant | △ Exclusive to R410A |
| Torque wrench | Tightening flare nut | △ Exclusive to Ø12.7mm and Ø15.9mm |
| Pipe cutter | Cutting pipes | ◎ R22 (Existing article) |
| Refrigerant canister | Charging refrigerant | △ Exclusive to R410A<br>Enter the refrigerate name for identification |
| Brazing machine/<br>Nitrogen gas cylinder | Brazing of pipes | ◎ R22 (Existing article) |
| Refrigerant charging balance | Charging refrigerant | ◎ R22 (Existing article) |

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

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

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

In addition to the above exclusive tools, the following equipment which serve also for R22 are necessary as the general tools.

(1) Vacuum pump
Use vacuum pump by attaching vacuum pump adapter.
(2) Torque wrench
(3) Pipe cutter
(4) Reamer
(5) Pipe bender
(6) Level vial
(7) Screwdriver (+, –)
(8) Spanner or Adjustable wrench
(9) Hole core drill
(10) Hexagon wrench (Opposite side 4mm)
(11) Tape measure
(12) Metal saw

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

(1) Clamp meter
(2) Thermometer
(3) Insulation resistance tester
(4) Electroscope

# Communication type, model names and the maximum number of connectable units

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

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

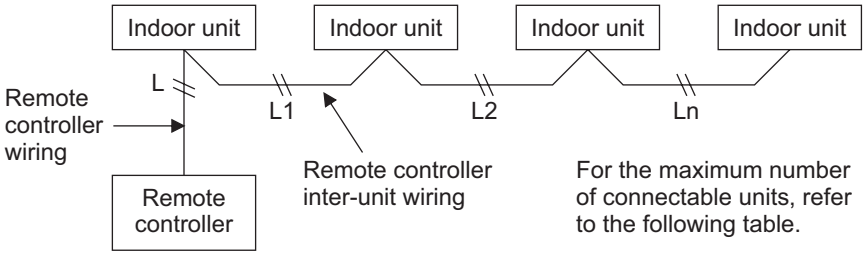
U series outdoor unit : SMMS-u (MMY-MUP∗∗∗ )
Other than U series outdoor unit : SMMS-i, SMMS-e etc. (MMY-MAP∗∗∗ )

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

(1) For wiring specifications, carry out the installation, maintenance, or repair according to the attached Installation Manual.

(2) For a communication type combination and the max. number of connectable indoor units, refer to the following table.

• Only when all outdoor unit, indoor unit and remote control are a U series, communication method is TU2C-LINK, and the maximum number of connectable units will be 16.



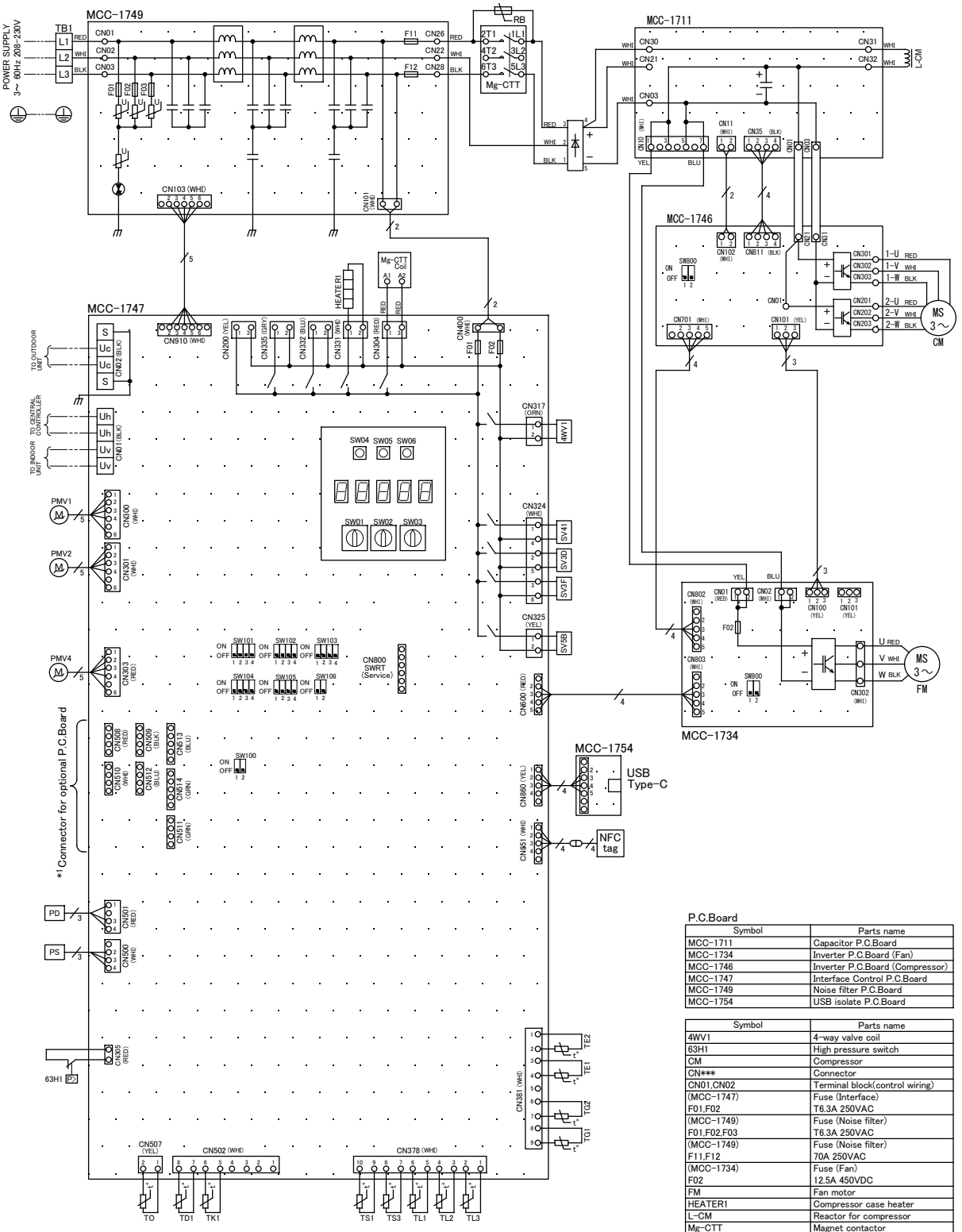

**The combination of unit type and the number of the maximum connection of a communication method**

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

* Other than U series

# 1.WIRING DIAGRAMS

## 6, 8 ton Model: MMY-MUP0721HT9P-UL, MMY-MUP0961HT9P-UL, MMY-MUP072H1HT9PUL

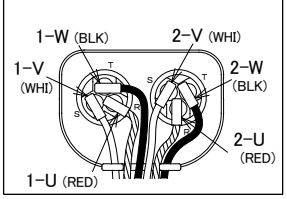



*1 The installation of the optional board is up to four pieces.

| | |
|---|---|
| ---- | Field wiring |
| ⏚ | Protective earth |
| □□ | Terminal block |
| —o— | Terminal |
| ▭ | Connector |
| ▭ | P.C.Board |

Color indication
RED:RED
WHI:WHITE
YEL:YELLOW
BLU:BLUE
BLK:BLACK
GRY:GRAY
ORN:ORANGE
GRN:GREEN

Compressor terminal

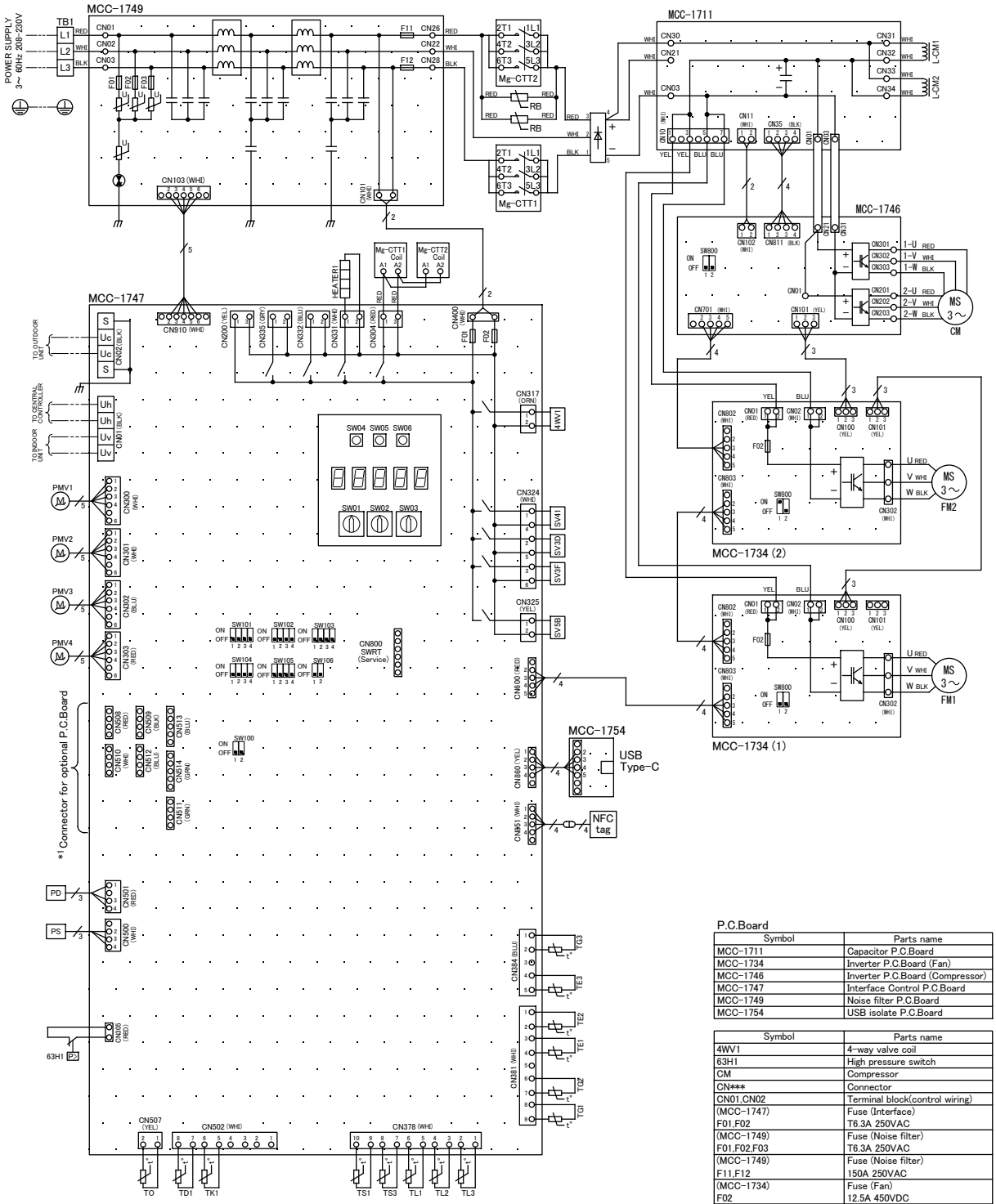



P.C.Board

| Symbol | Parts name |
|---|---|
| MCC-1711 | Capacitor P.C.Board |
| MCC-1734 | Inverter P.C.Board (Fan) |
| MCC-1746 | Inverter P.C.Board (Compressor) |
| MCC-1747 | Interface Control P.C.Board |
| MCC-1749 | Noise filter P.C.Board |
| MCC-1754 | USB isolate P.C.Board |

| Symbol | Parts name |
|---|---|
| 4WV1 | 4-way valve coil |
| 63H1 | High pressure switch |
| CM | Compressor |
| CN*** | Connector |
| CN01,CN02 | Terminal block(control wiring) |
| (MCC-1747)<br>F01,F02 | Fuse (Interface)<br>T6.3A 250VAC |
| (MCC-1749)<br>F01,F02,F03 | Fuse (Noise filter)<br>T6.3A 250VAC |
| (MCC-1749)<br>F11,F12 | Fuse (Noise filter)<br>70A 250VAC |
| (MCC-1734)<br>F02 | Fuse (Fan)<br>12.5A 450VDC |
| FM | Fan motor |
| HEATER1 | Compressor case heater |
| L-CM | Reactor for compressor |
| Mg-CTT | Magnet contactor |
| NFC | NFC tag |
| PD | Pressure sensor (High) |
| PMV1 | Pulse motor valve (Main) |
| PMV2 | Pulse motor valve (Sub) |
| PMV4 | Pulse motor valve (Sub cool) |
| PS | Pressure sensor (Low) |
| RB | Rush current protect resistor |
| SV3D,SV3F,SV41,SV5B | 2-way valve coil |
| SW01,SW02,SW03 | Rotary switch |
| SW04,SW05,SW06 | Push button switch |
| SW100,SW101,SW102,SW103<br>SW104,SW105,SW106,SW800 | Dip switch |
| TB1 | Terminal block (Power supply) |
| TD1 | Discharge temp. sensor |
| TE1,TE2 | Heat exchange temp. sensor |
| TG1,TG2 | Gas temp. sensor |
| TK1 | Oil temp. sensor |
| TL1,TL2,TL3 | Liquid temp. sensor |
| TO | Air temp. sensor |
| TS1,TS3 | Suction temp. sensor |

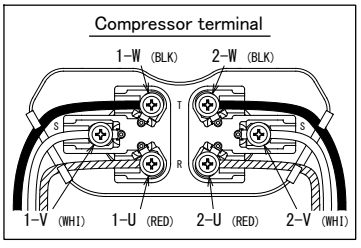
## 10, 12, 14 ton Model: MMY-MUP1201HT9P-UL, MMY-MUP1441HT9P-UL, MMY-MUP1681HT9P-UL MMY-MUP096H1HT9PUL, MMY-MUP120H1HT9PUL




*1 The installation of the optional board is up to four pieces.

| | |
|---|---|
| ----- | Field wiring |
| ⏚ | Protective earth |
| □ | Terminal block |
| —○— | Terminal |
| ▭ | Connector |
| ▭ | P.C.Board |

Color indication
RED:RED
WHI:WHITE
YEL:YELLOW
BLU:BLUE
BLK:BLACK
GRY:GRAY
ORN:ORANGE
GRN:GREEN




P.C.Board

| Symbol | Parts name |
|---|---|
| MCC-1711 | Capacitor P.C.Board |
| MCC-1734 | Inverter P.C.Board (Fan) |
| MCC-1746 | Inverter P.C.Board (Compressor) |
| MCC-1747 | Interface Control P.C.Board |
| MCC-1749 | Noise filter P.C.Board |
| MCC-1754 | USB isolate P.C.Board |

| Symbol | Parts name |
|---|---|
| 4WV1 | 4-way valve coil |
| 63H1 | High pressure switch |
| CM | Compressor |
| CN*** | Connector |
| CN01,CN02 | Terminal block(control wiring) |
| (MCC-1747) F01,F02 | Fuse (Interface) T6.3A 250VAC |
| (MCC-1749) F01,F02,F03 | Fuse (Noise filter) T6.3A 250VAC |
| (MCC-1749) F11,F12 | Fuse (Noise filter) 150A 250VAC |
| (MCC-1734) F02 | Fuse (Fan) 12.5A 450VDC |
| FM1,FM2 | Fan motor |
| HEATER1 | Compressor case heater |
| L-CM1,L-CM2 | Reactor for compressor |
| Mg-CTT1,Mg-CTT2 | Magnet contactor |
| NFC | NFC tag |
| PD | Pressure sensor (High) |
| PMV1 | Pulse motor valve (Main) |
| PMV2 | Pulse motor valve (Sub(L)) |
| PMV3 | Pulse motor valve (Sub(R)) |
| PMV4 | Pulse motor valve (Sub cool) |
| PS | Pressure sensor (Low) |
| RB | Rush current protect resistor |
| SV3D,SV3F,SV41,SV5B | 2-way valve coil |
| SW01,SW02,SW03 | Rotary switch |
| SW04,SW05,SW06 | Push button switch |
| SW100,SW101,SW102,SW103 SW104,SW105,SW106,SW800 | Dip switch |
| TB1 | Terminal block (Power supply) |
| TD1 | Discharge temp. sensor |
| TE1,TE2,TE3 | Heat exchange temp. sensor |
| TG1,TG2,TG3 | Gas temp. sensor |
| TK1 | Oil temp. sensor |
| TL1,TL2,TL3 | Liquid temp. sensor |
| TO | Air temp. sensor |
| TS1,TS3 | Suction temp. sensor |

# 2. PARTS RATING

## 2-1. Outdoor Unit (MMY-MUP***1HT9P-UL)

| No. | Part name | Model | Specifications | MMY-MUP0721HT9P-UL | MMY-MUP0961HT9P-UL | MMY-MUP1201HT9P-UL | MMY-MUP1441HT9P-UL | MMY-MUP1681HT9P-UL | MMY-MUP072H1HT9PUL | MMY-MUP096H1HT9PUL | MMY-MUP120H1HT9PUL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Compressor | LA772A3TB-20M | Output: 4.05 kW×1 | ○ | | | | | | | |
| 1 | Compressor | LA772A3TB-20M | Output: 6.24 kW×1 | | ○ | | | | | | |
| 1 | Compressor. | LA1201K4FB-10UC | Output: 8.00 kW×1 | | | ○ | | | | | |
| 1 | Compressor | LA1201K4FB-10UC | Output: 9.69 kW×1 | | | | ○ | | | | |
| 1 | Compressor | LA1201K4FB-10UC | Output: 12.1 kW×1 | | | | | ○ | | | |
| 1 | Compressor | LA772A3TB-20M | Output: 4.55 kW×1 | | | | | | ○ | | |
| 1 | Compressor | LA1201K4FB-10UC | Output: 6.30 kW×1 | | | | | | | ○ | |
| 1 | Compressor | LA1201K4FB-10UC | Output: 7.67 kW×1 | | | | | | | | ○ |
| 2 | 4-way valve coil | SHF | AC208-230V 60Hz | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 3 | 2-way valve coil | FDF | AC208-230V 60HzSV3D, SV41, SV42 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 3 | 2-way valve coil | TEV | AC208-230V 60HzSV3F, SV5B | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 4 | Pulse motor valve coil | PAM | PMV1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 4 | Pulse motor valve coil | TS1 | PMV2, 3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 4 | Pulse motor valve coil | UKV | PMV4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 5 | High-pressure SW | ACB-4UB7009W | OFF:602psi (4.15MPa) ON:464psi (3.2MPa) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 6 | Pressure sensor (For high pressure) | NSK-BH038F-U919 | 0.5 ~ 4.3V / 0 ~ 568psi (3.92MPa) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 7 | Pressure sensor (For low pressure) | NSK-BH020F-U918 | 0.5 ~ 3.5V / 0 ~ 142psi (0.98MPa) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 8 | Fan motor | ICF-340A1000-1 | DC280-340 / 1000W | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 9 | Case heater (For comp.) | — | AC240V/29W | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 10 | Fusible plug | | 163.4°F (73°C) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

## 2-1-1. Winding resistance of outdoor unit main parts

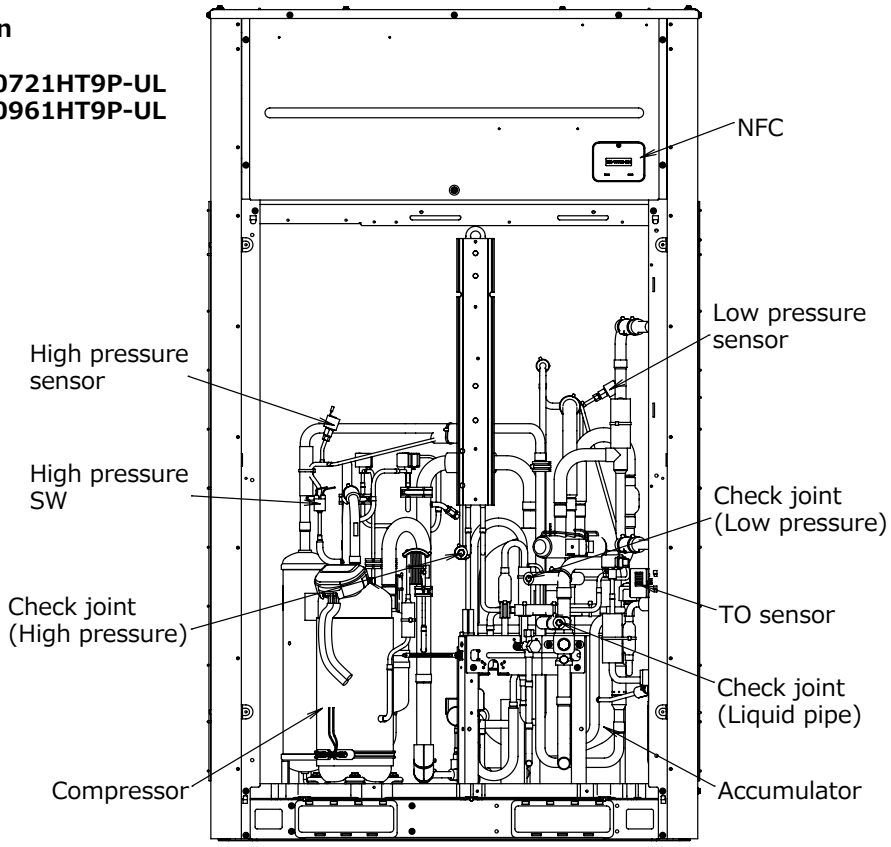
<table>
<tr><th>No.</th><th>Part name</th><th>Checking procedure</th></tr>
<tr><td>1</td><td>Compressor<br>(Model : NA772A3TB-21M)</td><td>Measure and compare each winding resistance by digital tester.<br><table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>Red – White</td><td rowspan="3">0.121 Ω ± 0.006</td></tr><tr><td>White – Black</td></tr><tr><td>Black – Red</td></tr></table>(all same resistance is ok.) 68°F(20°C)</td></tr>
<tr><td>2</td><td>Compressor<br>(Model : NA1201K4FB-10UC)</td><td>Measure and compare each winding resistance by digital tester.<br><table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>Red – White</td><td rowspan="3">0.102 Ω ± 0.005</td></tr><tr><td>White – Black</td></tr><tr><td>Black – Red</td></tr></table>(all same resistance is ok.) 68°F(20°C)</td></tr>
<tr><td>3</td><td>Fan motor<br>(Model : ICF-340A1000-1)</td><td>Measure and compare each winding resistance by digital tester.<br><table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>Red – White</td><td rowspan="3">3.33Ω ± 0.34</td></tr><tr><td>White – Black</td></tr><tr><td>Black – Red</td></tr></table>(all same resistance is ok.) 68°F(20°C)</td></tr>
<tr><td>4</td><td>PMV (Pulse Motor Valve) coil<br>(Model : PQ-M10012*)<br>(Model : UKV-A376)</td><td>Measure each winding resistance by digital tester.<br><table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>White - Red (COM)</td><td rowspan="4">46 Ω ±4</td></tr><tr><td>Yellow - Red (COM)</td></tr><tr><td>Orange - Red (COM)</td></tr><tr><td>Blue - Red (COM)</td></tr></table>68°F(20°C)</td></tr>
<tr><td>5</td><td>PMV (Pulse Motor Valve) coil<br>(Model : PAM-MD12TF*)</td><td>Measure each winding resistance by digital tester.<br><table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>White - Red (COM)</td><td rowspan="4">100 Ω ±10</td></tr><tr><td>Yellow - Red (COM)</td></tr><tr><td>Orange - Red (COM)</td></tr><tr><td>Blue - Red (COM)</td></tr></table>68°F(20°C)</td></tr>
<tr><td>6</td><td>4-way valve coil<br>(Model : SQ-A2522G*)</td><td>Measure each winding resistance by digital tester.<br><table><tr><th>Resistance value</th></tr><tr><td>2085 Ω ±10%</td></tr></table>68°F(20°C)</td></tr>
<tr><td>7</td><td>2-way valve coil<br>(Model : FQ-A0520D*)</td><td>Measure each winding resistance by digital tester.<br><table><tr><th>Resistance value</th></tr><tr><td>2085 Ω ±10%</td></tr></table>68°F(20°C)</td></tr>
<tr><td>8</td><td>2-way valve coil<br>(Model :TEV-SMOAQ2247B1)</td><td>Measure each winding resistance by digital tester.<br><table><tr><th>Resistance value</th></tr><tr><td>2163 Ω ±7%</td></tr></table>68°F(20°C)</td></tr>
</table>

## 2-2. Inverter Assembly

| No. | Part name | Model | Specifications | MMY-MUP0721HT9P-UL | MMY-MUP0961HT9P-UL | MMY-MUP1201HT9P-UL | MMY-MUP1441HT9P-UL | MMY-MUP1681HT9P-UL | MMY-MUP072H1HT9PUL | MMY-MUP096H1HT9PUL | MMY-MUP120H1HT9PUL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Power supply terminal block | HP-T3015-31-3P-L3S | AC600V/100A, 3P | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 2 | Noise Filter P.C. board (1) | MCC-1749 | — | ○ | ○ | | | | ○ | | |
| 3 | Noise Filter P.C. board (2) | MCC-1749 | — | | | ○ | ○ | ○ | | ○ | ○ |
| 4 | Line filter | — | 0.4mH / 50A | ○ | ○ | | | | ○ | | |
| 5 | Line filter | — | 0.9mH / 50A | | | ○ | ○ | ○ | | ○ | ○ |
| 6 | Interface P.C. board | MCC-1747 | — | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 7 | Inverter P.C. board for Compressor (1) | MCC-1746 | 50A | ○ | ○ | | | | ○ | | |
| 8 | Inverter P.C. board for Compressor (2) | MCC-1746 | 75A | | | ○ | ○ | ○ | | ○ | ○ |
| 9 | Capacitor P.C. board (1) | MCC-1711 | — | ○ | ○ | | | | ○ | | |
| 10 | Capacitor P.C. board (2) | MCC-1711 | — | | | ○ | ○ | ○ | | ○ | ○ |
| 11 | Inverter P.C. board for Fan | MCC-1734 | — | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 12 | FUSE | CR2L-150/UL | 150A / AC250V | | | ○ | ○ | ○ | | ○ | ○ |
| 13 | DIODE | DF60LA80 | 60A / 800V | ○ | ○ | | | | ○ | | |
| 14 | DIODE | DF100LA80 | 100A / 800V | | | ○ | ○ | ○ | | ○ | ○ |
| 15 | Magnet Contactor | FC-2SUL | — | ○ | ○ | | | | ○ | | |
| 16 | Magnet Contactor | FC-1SUL | — | | | ○ | ○ | ○ | | ○ | ○ |
| 17 | PTC Thermistor | MZ32-101RMAD01E | 13A / AC500V | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

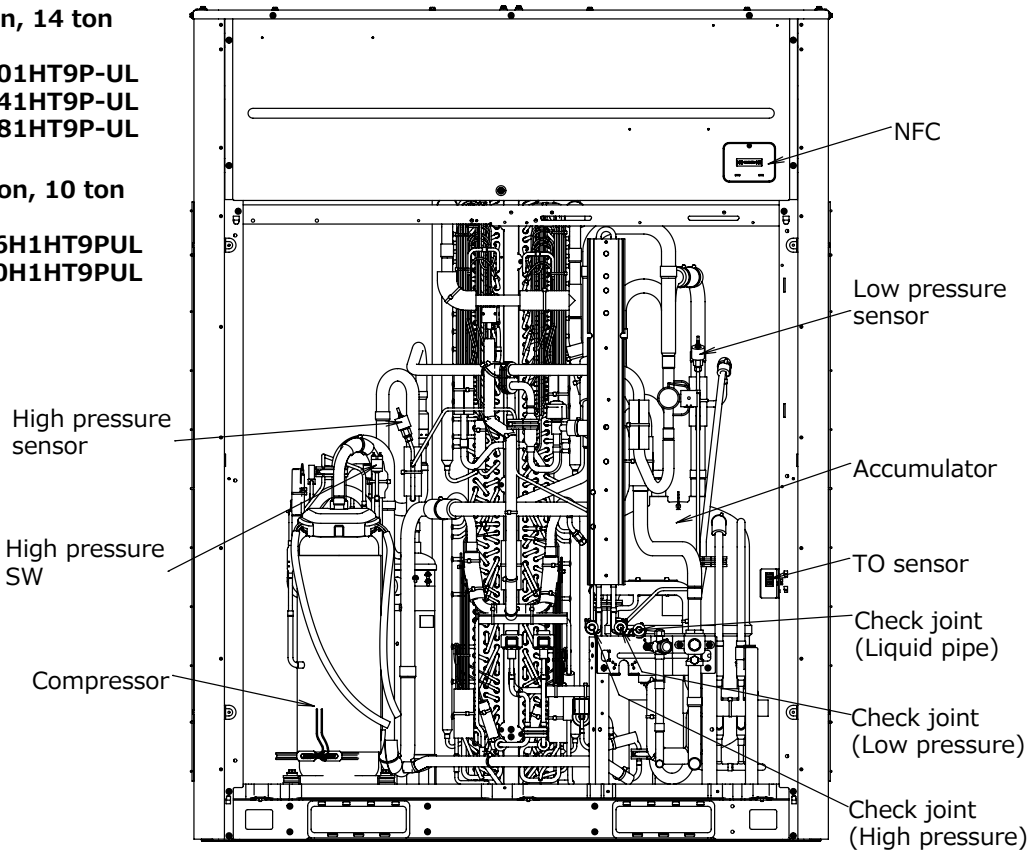
## 2-3. Parts Layout in Outdoor Unit

**6 ton, 8 ton**
**Model:**
**MMY-MUP0721HT9P-UL**
**MMY-MUP0961HT9P-UL**

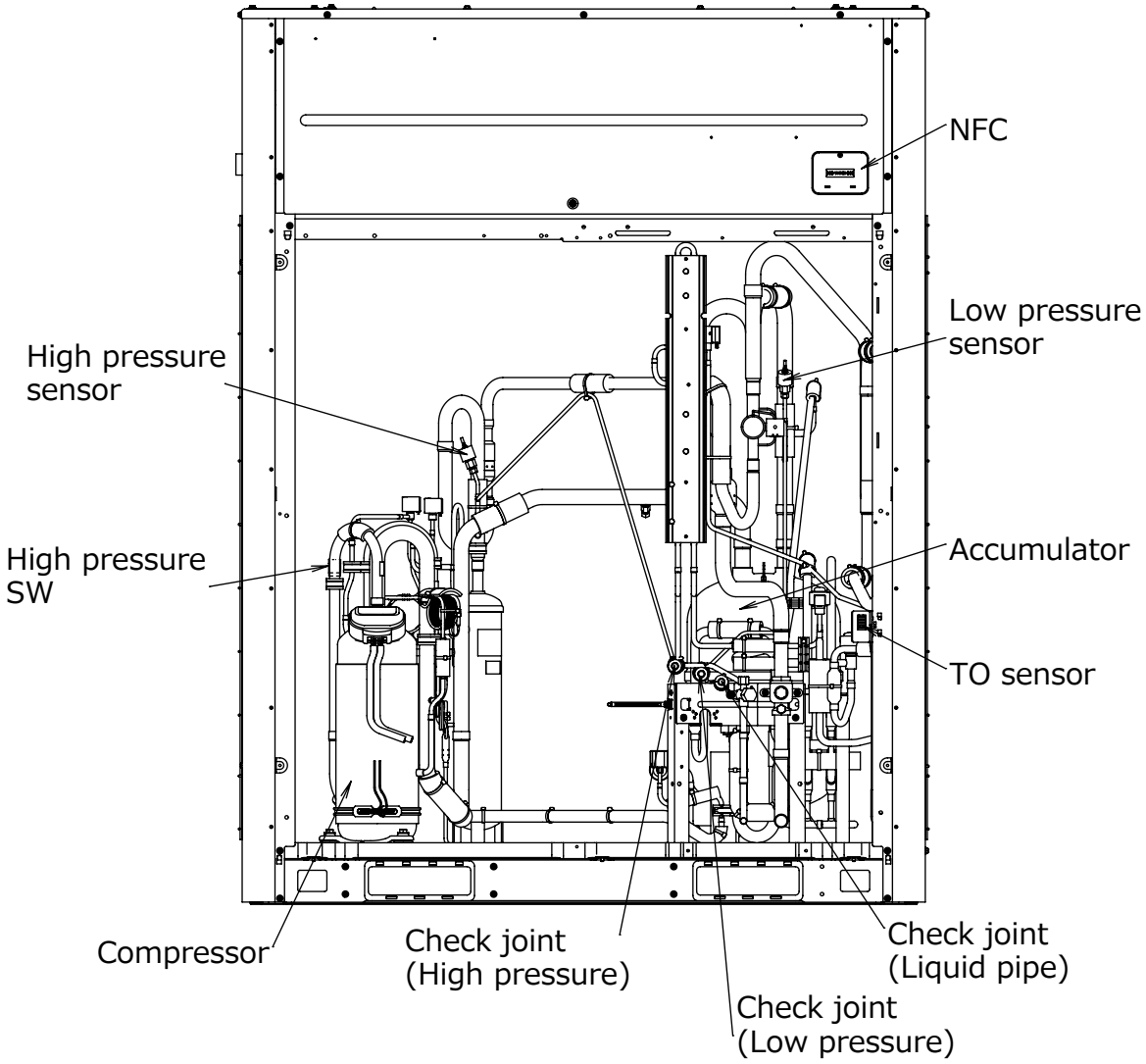



**10 ton, 12 ton, 14 ton**
**Model:**
**MMY-MUP1201HT9P-UL**
**MMY-MUP1441HT9P-UL**
**MMY-MUP1681HT9P-UL**

**High heat 8 ton, 10 ton**
**Model:**
**MMY-MUP096H1HT9PUL**
**MMY-MUP120H1HT9PUL**

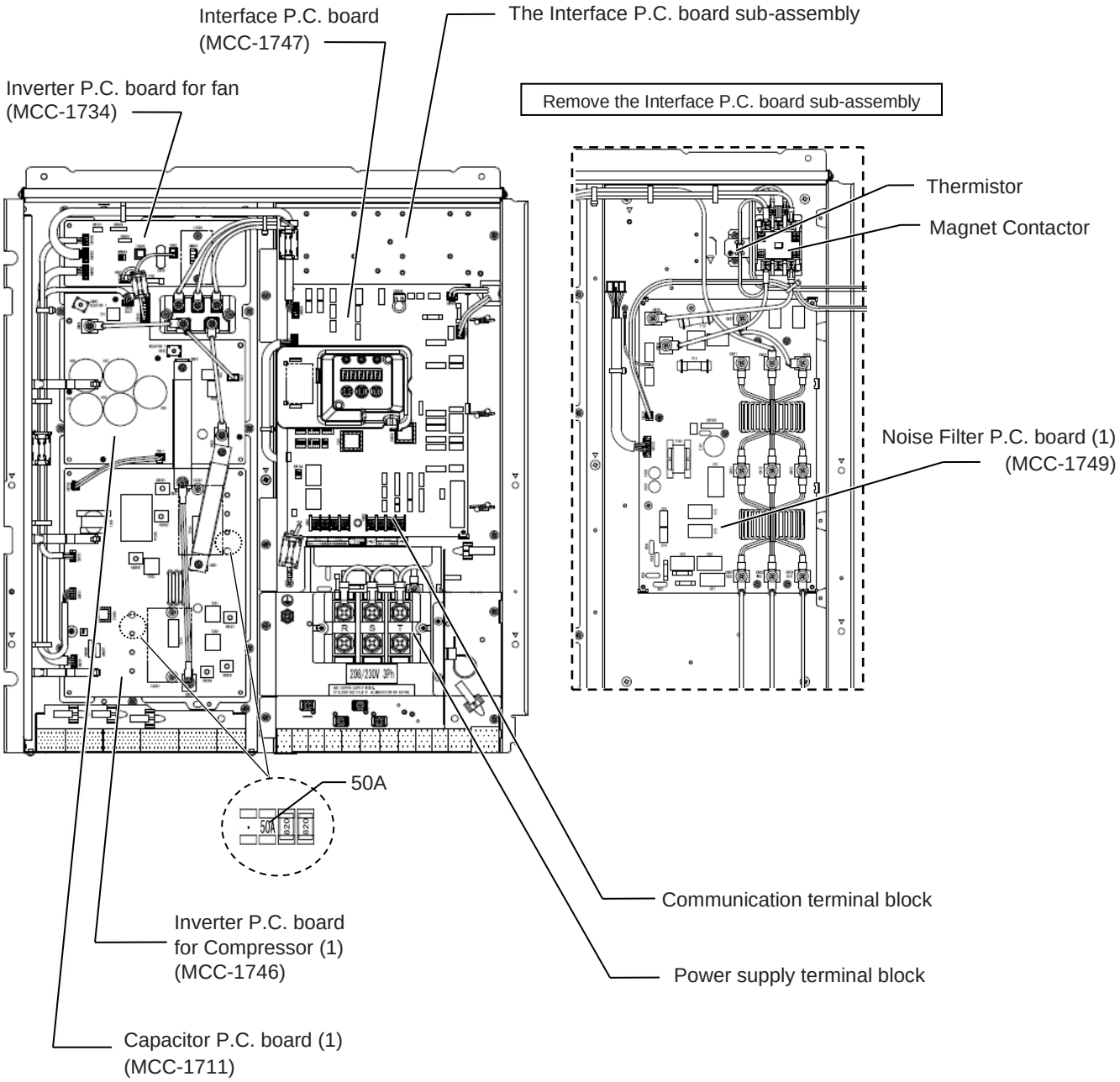


**High heat 6 ton**
**Model:**
**MMY-MUP072H1HT9PUL**

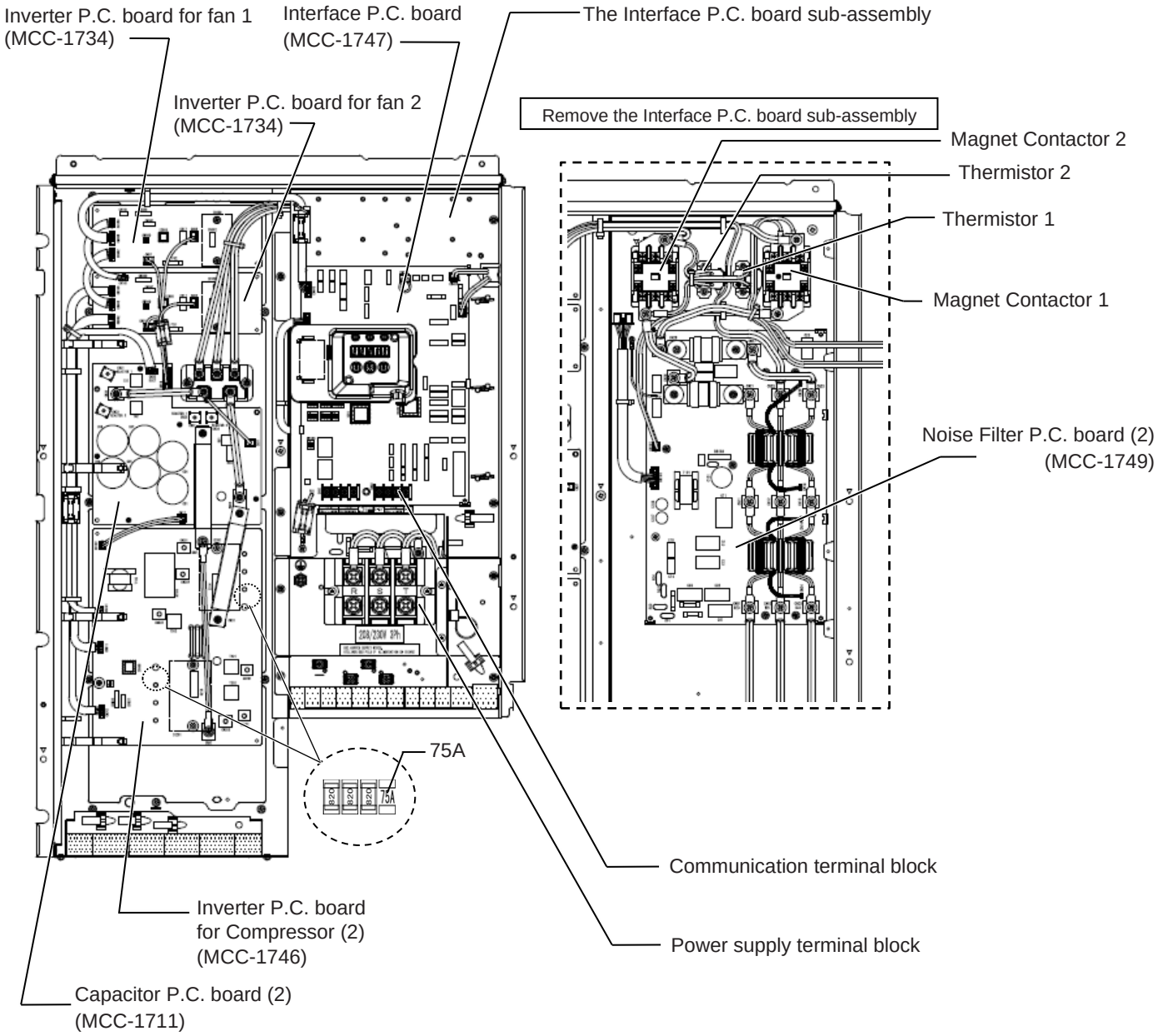


## 2-4. Parts Layout in Inverter Assembly

### 6, 8 ton, High heat 6 ton
### Model: MMY-MUP0721HT9*, MUP0961HT9*, MUP072H1HT9*

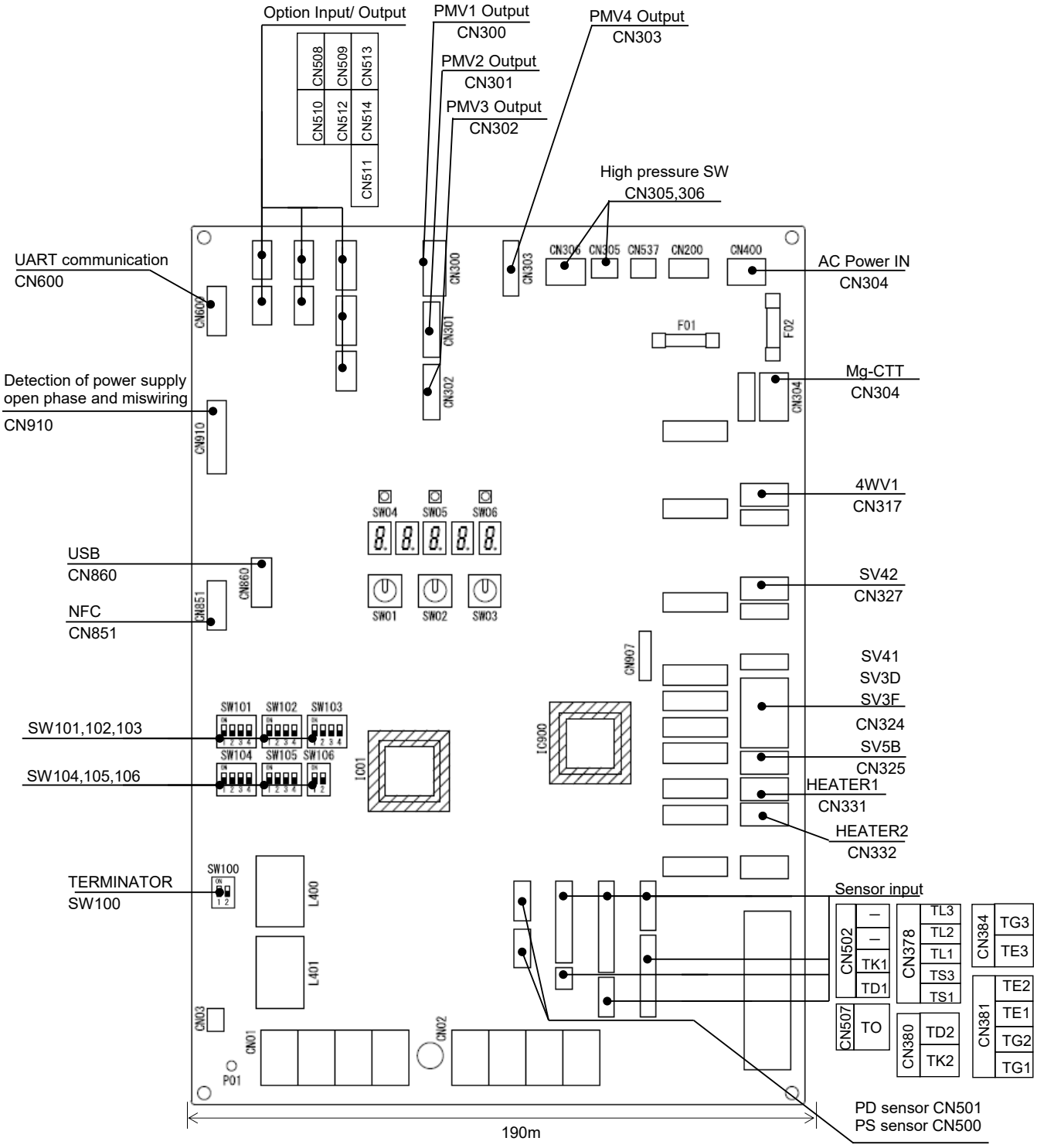


**10, 12, 14 ton, High heat 8, 10 ton**
**Model: MMY-MUP1201HT9*, MUP1441HT9*, MUP1681HT9*, MUP096H1HT9*, MUP120H1HT9***



## 2-5. Outdoor (Inverter) Print Circuit Board

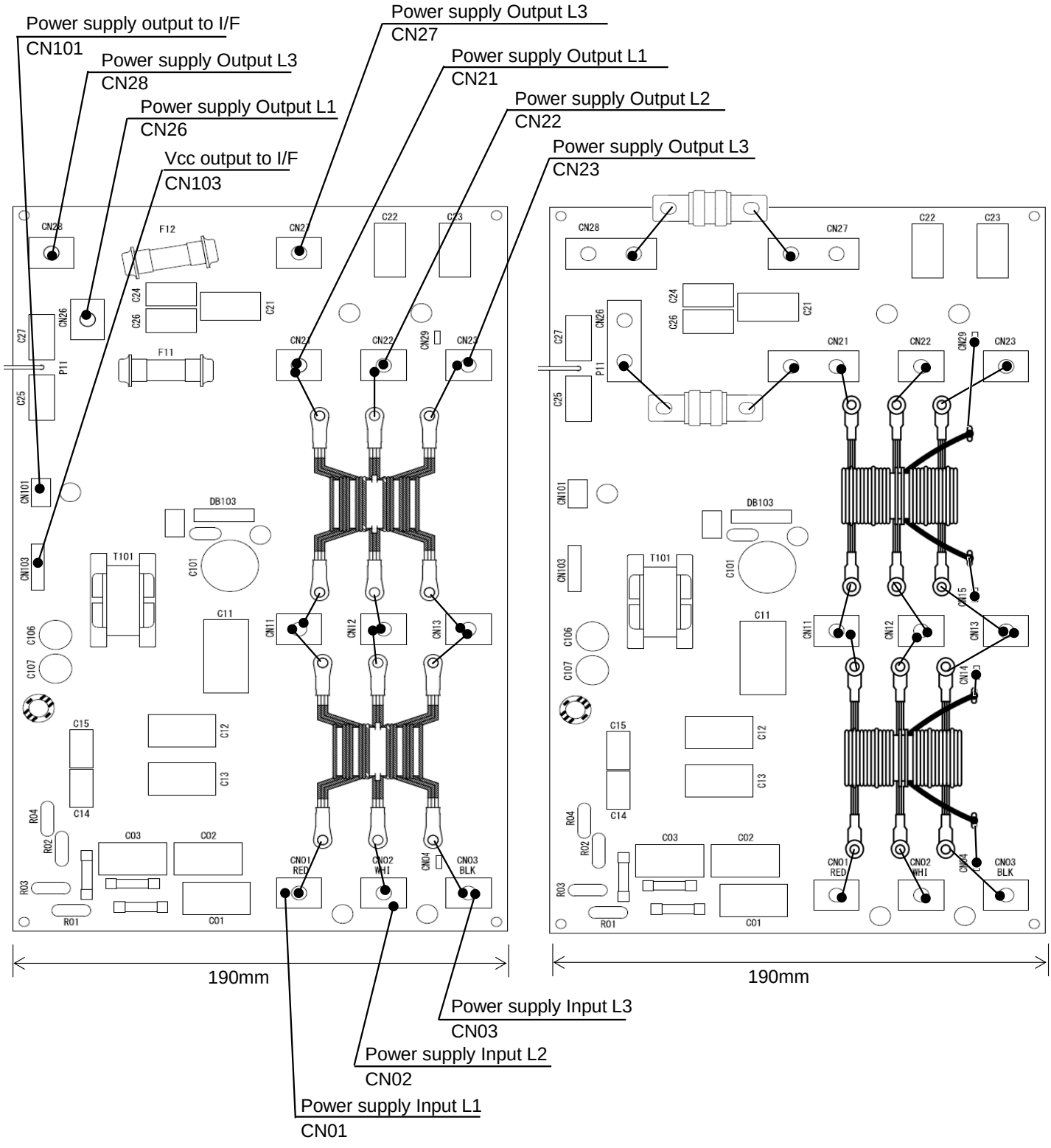
### 2-5-1. Interface P.C. board (MCC-1747)



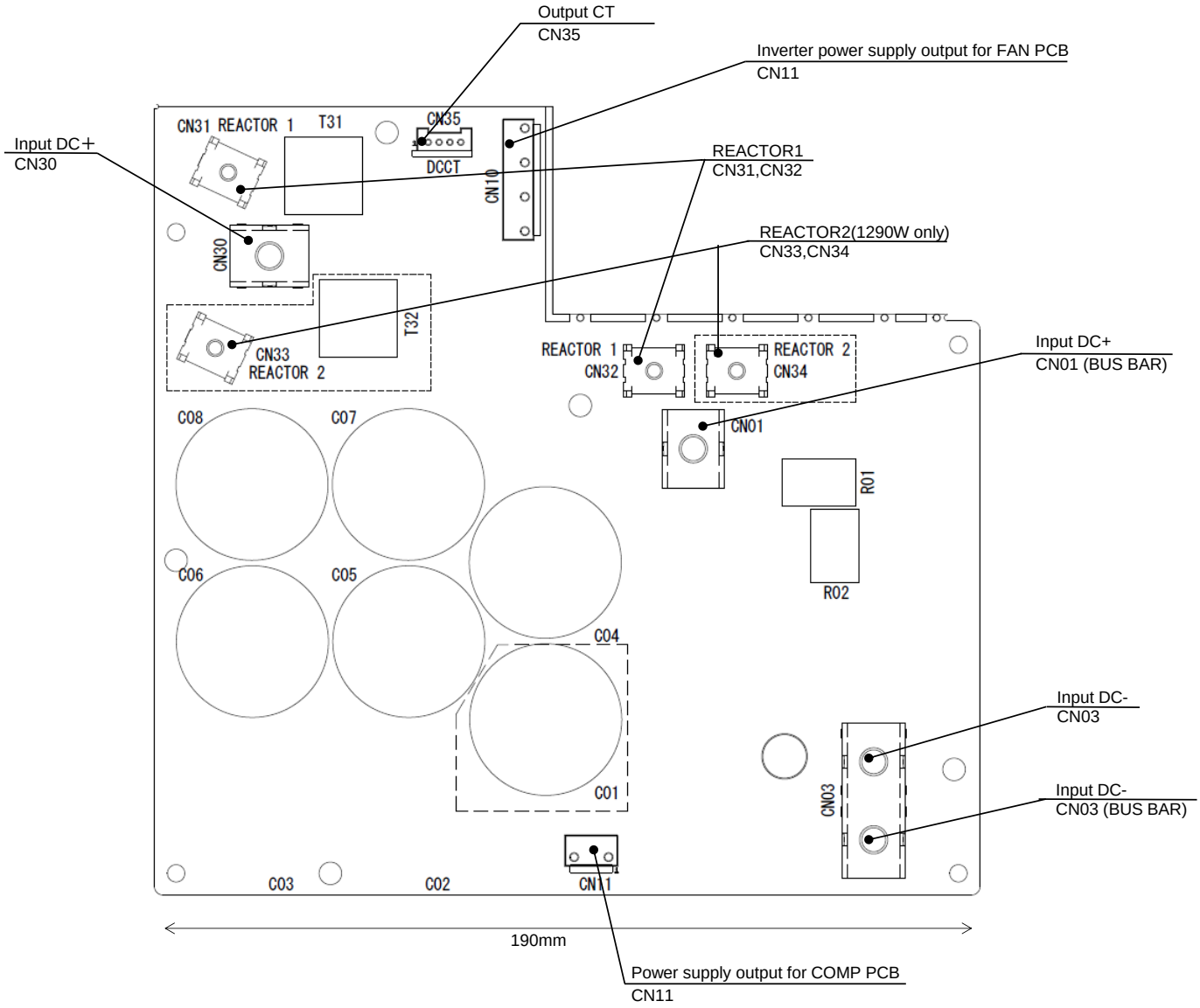
## 2-5-2. Noise Filter P.C. board (MCC-1749)

**990W 1COMP 1FAN model**
**(6, 8 ton, High heat 6 ton)**

**1290W 1COMP 2FAN model**
**(10, 12, 14 ton, High heat 8, 10 ton)**

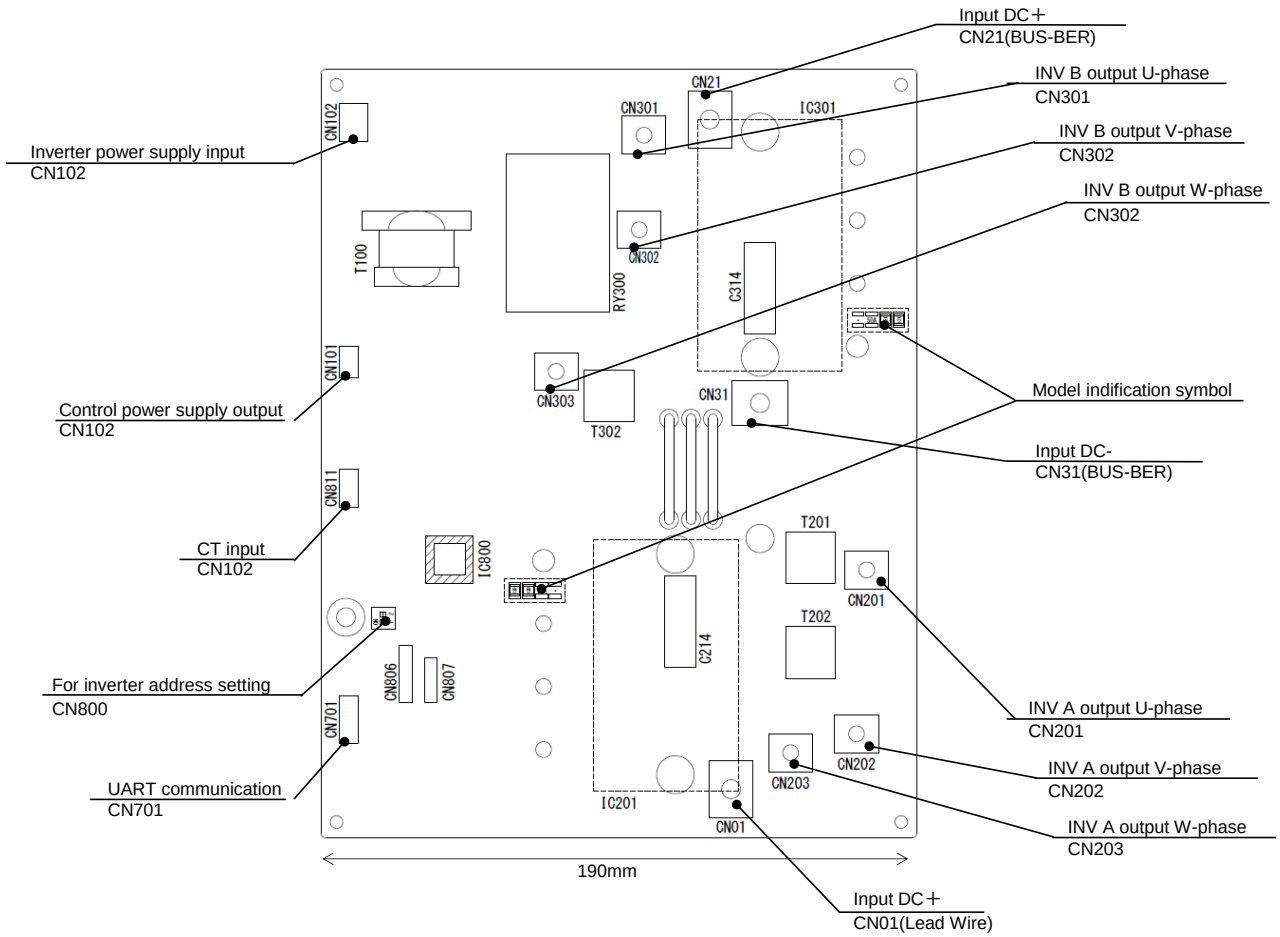


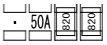
## 2-5-3. Capacitor P.C. board (MCC-1711)



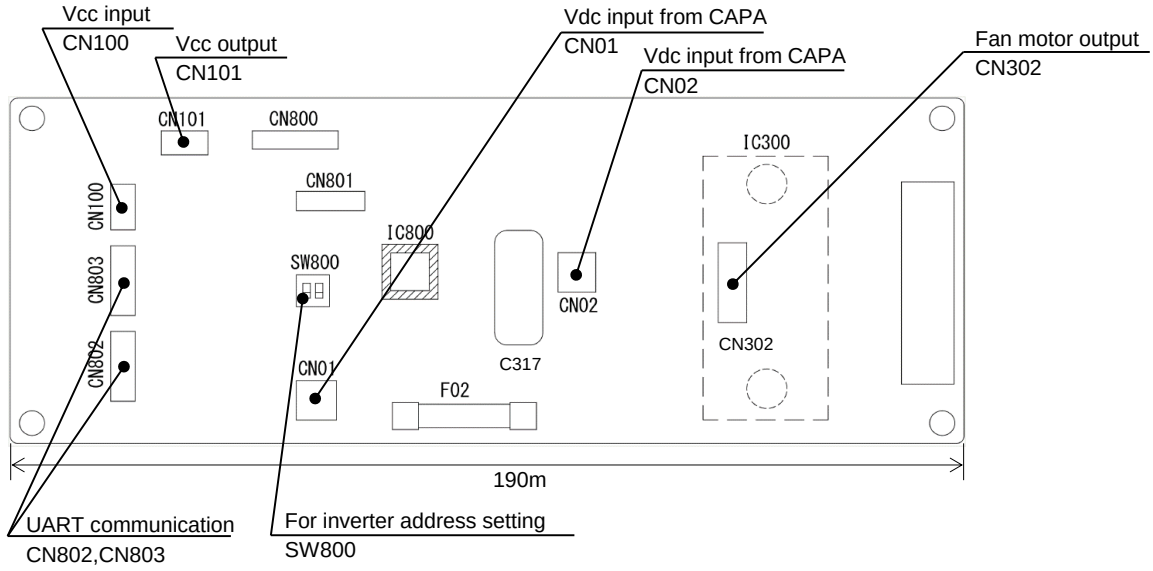

| Model | Parts No. list | | | |
|---|---|---|---|---|
| | C01 | CN32 | CN33 | T32 |
| 990W 1COMP 1FAN model<br>(6, 8 ton, High heat 6 ton) | No | No | No | No |
| 1290W 1COMP 2FAN model<br>(10, 12, 14 ton, High heat 8, 10ton) | Yes | Yes | Yes | Yes |

## 2-5-4. Inverter P.C. board for compressor (MCC-1746)

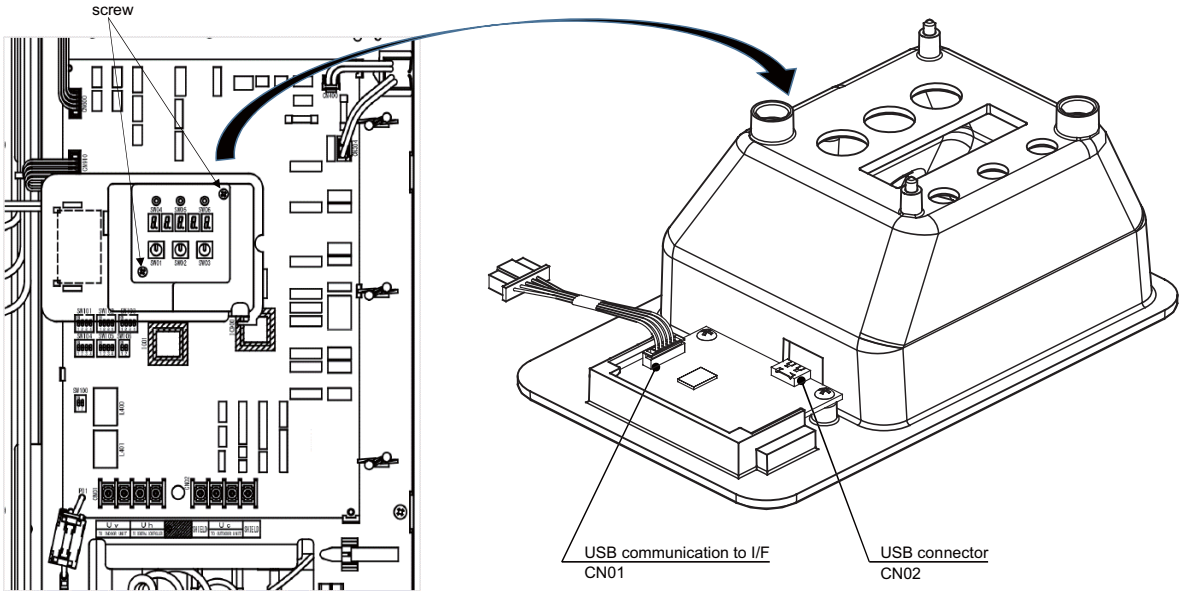



| Model | Model indification symbol |
|---|---|
| 990W 1COMP 1FAN model<br>(6, 8 ton, High heat 6 ton) | 50A  |
| 1290W 1COMP 2FAN model<br>(10, 12, 14 ton, High heat 8, 10 ton) | 75A  |

## 2-5-5. Inverter P.C. board for fan (MCC-1734)



## 2-5-6. USB isolate P.C. board (MCC-1754)

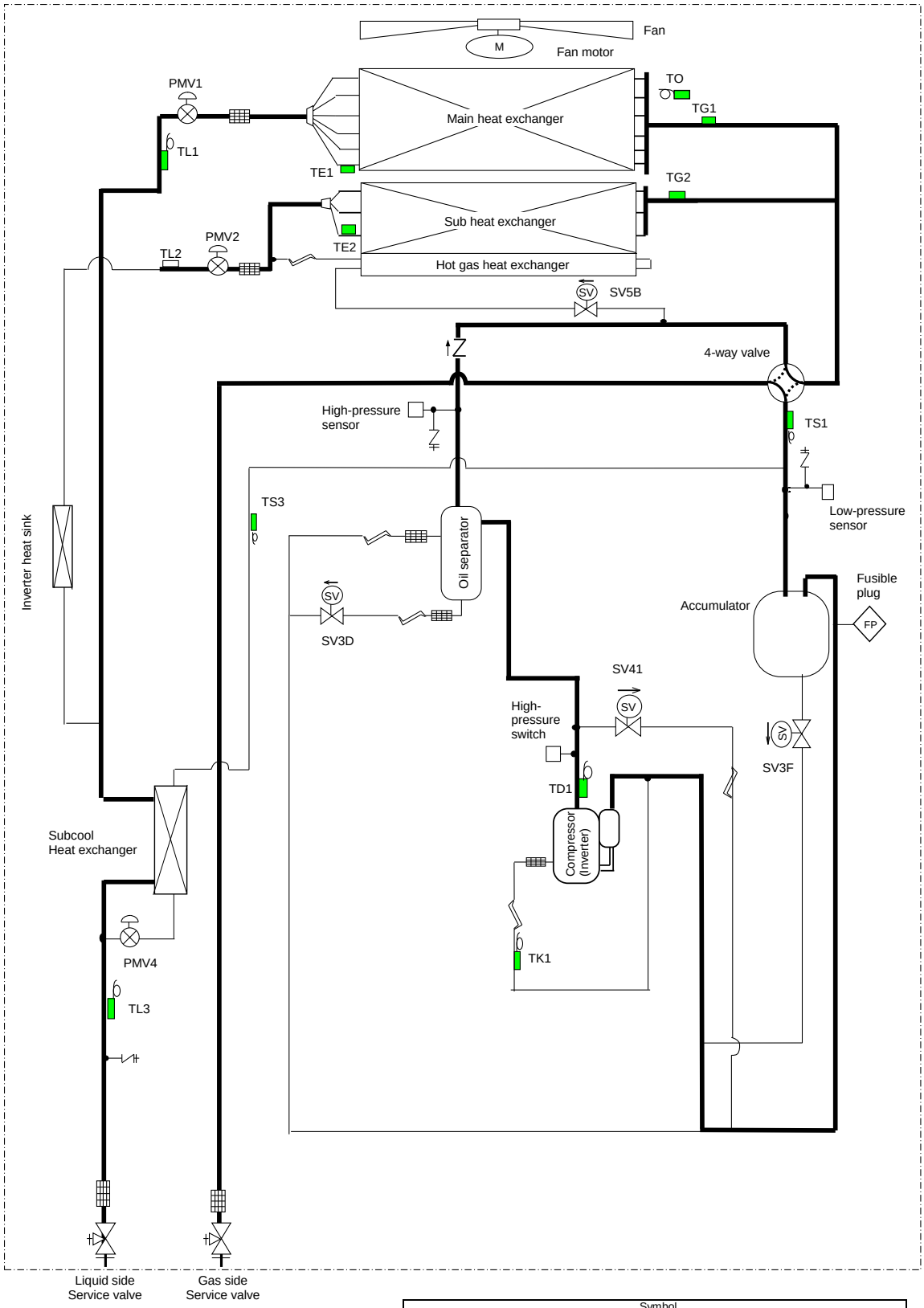


# 3. REFRIGERANT PIPING SCHEMATIC DRAWING

## Outdoor unit

### Standard 6,8ton／High heat 6ton

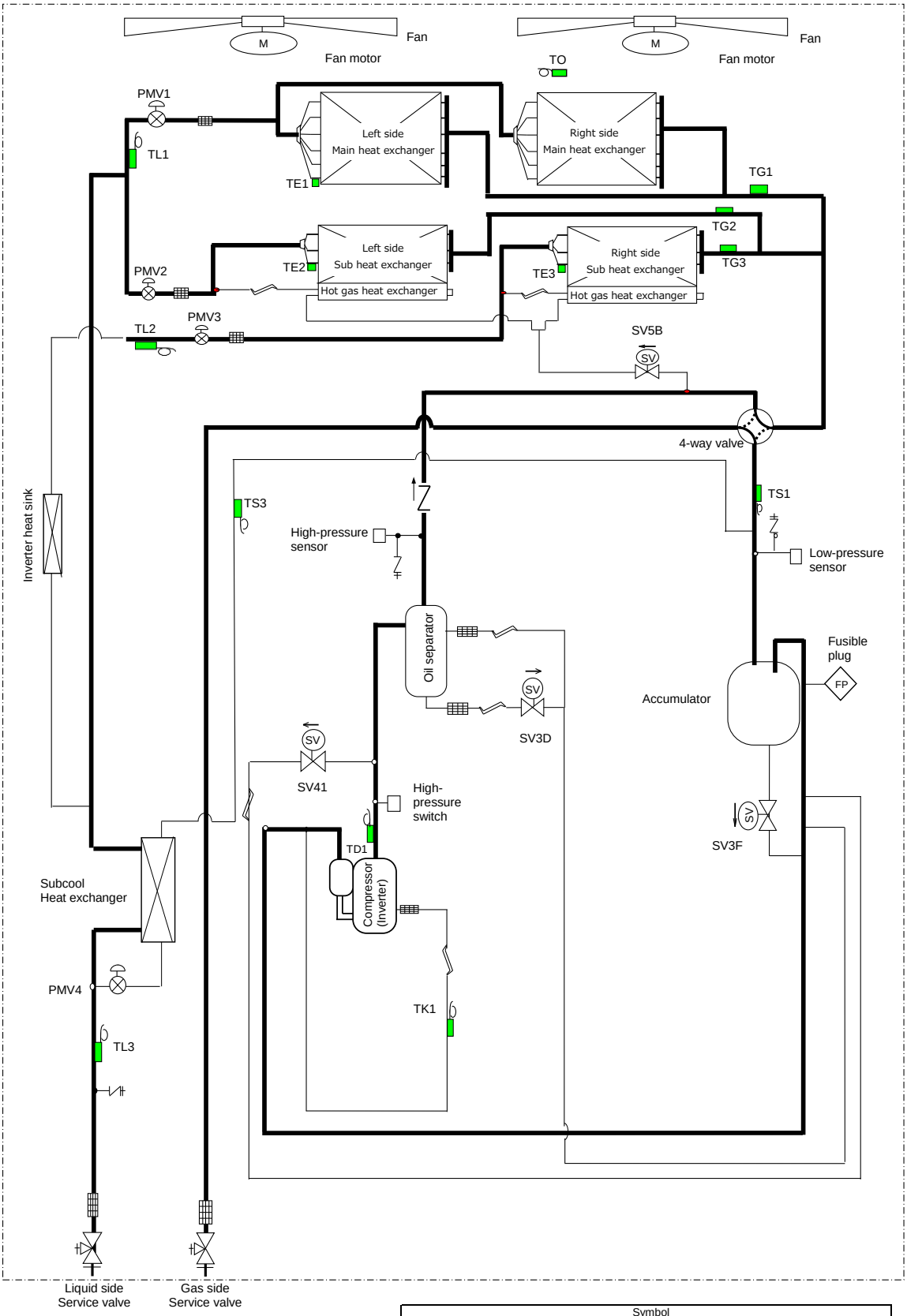
### Model: MMY-MUP0721*，MUP0961*，MUP072H1*




| Symbol | | | | | | |
|---|---|---|---|---|---|---|
| Solenoid valve | Capillary tube | Check valve | Check joint | Strainer | Temperature sensor | Distributor |

## Standard 10,12,14ton／High heat 8,10ton

## Model: MMY-MUP1201*, MUP1441*, MUP1681*, MUP096H1* , MUP120H1*

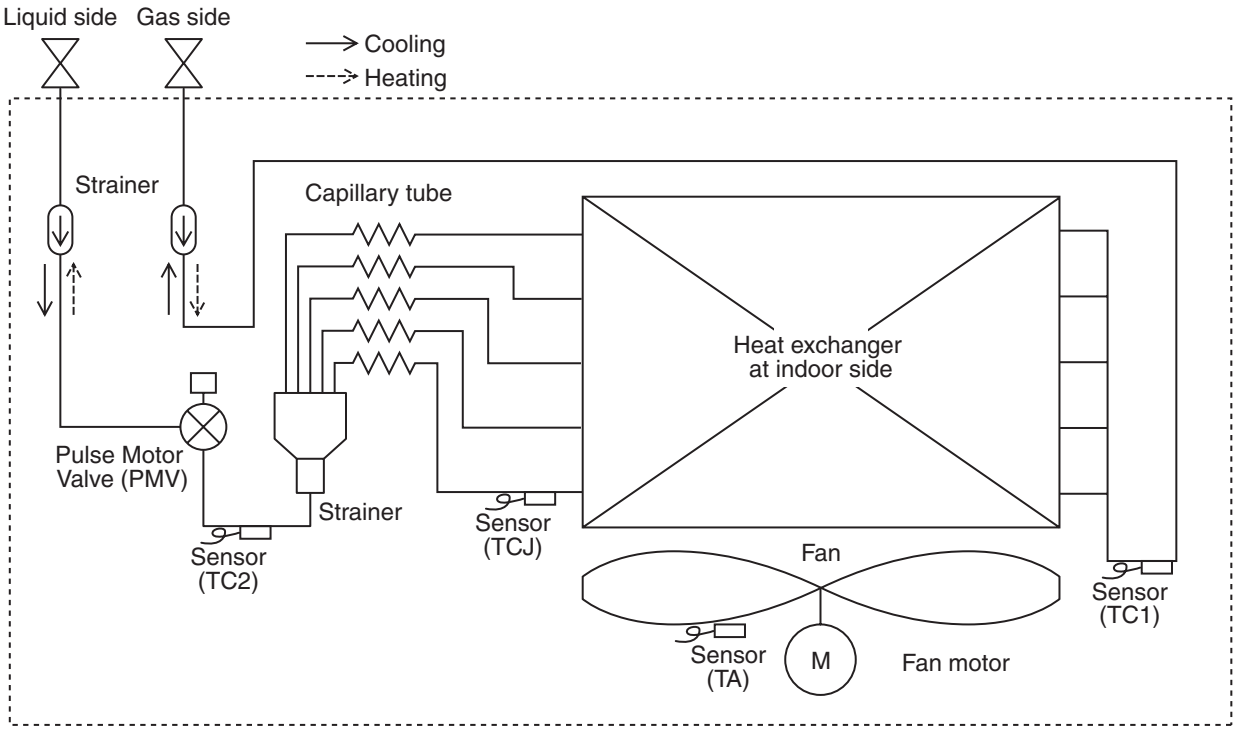



| Symbol | | | | | | |
|---|---|---|---|---|---|---|
| Solenoid valve | Capillary tube | Check valve | Check joint | Strainer | Temperature sensor | Distributor |

## Functional Part Name

| | | |
|---|---|---|
| | SV3D | (Connector CN324 : WHI)<br>1) Reserves oil in the oil separator during OFF time.<br>2) Returns oil reserved in the oil separator to the compressor during ON time. |
| | SV3F | (Connector CN324: WHI)<br>1) Supplies oil in the accumulator to the compressor<br>2) Shuts off the liquid refrigerant from the accumulator when the compressor dilution |
| | SV41<br>SV42 | (SV41 • • • Connector CN324 : WHI , SV42 • • • Connector CN327 : BLK)<br>1) High/Low pressure balance<br>Prevention of subcool oil backflow when compressor stop, start-up compensation when starting up the compressor, reducing refrigerant noise when starting up heating operation<br>2) High pressure release function<br>3) Low pressure release function<br>4) Keeps the compressor reliability when Hot Gas Bypass system (prevent dilution with oil)<br>5) Releases capacity (Refrigerant mass bypass function in minimum cooling operation) |
| | SV5B | (Connector CN325 : YEL)<br>1) Outdoor unit freeze protection during heating with hot gas bypass<br>2) High pressure release function |
| 4-Way valve | | (Connector CN317 : ORN)<br>1) Cooling/Heating change<br>2) Reverses Defrost |
| Pulse Motor Valve | PMV1 | (Connector CN300 : WHI)<br>1) Controls superheat and subcool of the main heat exchanger<br>2) Stored liquid refrigerant reduction control in low ambient cooling operation<br>(recovers stored liquid refrigerant in the main heat exchanger) |
| | PMV2<br>PMV3 | (PMV2 • • • Connector CN301 : WHI , PMV3 • • • Connector CN302 : BLU)<br>1) Controls superheat and subcool of the sub heat exchanger<br>2) Maintains discharge pressure in low ambient cooling operation |
| | PMV4 | (Connector CN303 : RED)<br>1) Controls superheat and subcool of the sub-cooling heat exchanger<br>2) Liquid bypass function for discharge temperature releases (cooling bypass function) |
| Oil Separator | | 1) Prevention for rapid decreasing oil (Decreases oil flowing to the cycle)<br>2) Reserve function of excess oil |
| Temperature Sensor | TD1<br>TD2 | (TD1 • • • Connector CN502 : WHI , TD2 • • • Connector CN380 : BLK)<br>1) Protection of compressor discharge temperature<br>2) Used for discharge temperature release |
| | TG1<br>TG2<br>TG3 | (TG1 • • • Connector CN381 : WHI , TG2 • • • Connector CN381 : WHI ,<br>TG3 • • • Connector CN384 : BLU)<br>1) Controls superheat of PMV in heating operation |
| | TE1 | (Connector CN381 : WHI)<br>1) Controls the main heat exchanger defrost in heating operation<br>2) Controls outdoor fan in heating operation |
| | TE2<br>TE3 | (TE2 • • • Connector CN381 : WHI , TE3 • • • Connector CN384 : BLU)<br>1) Controls the main heat exchanger defrost in heating operation<br>2) Controls outdoor fan in heating operation |
| | TL1 | (Connector CN378 : WHI)<br>1) Detects the main heat exchanger subcool in cooling operation<br>2) Use as main complement switching during cooling operation |
| | TL2 | (Connector CN378 : WHI)<br>1) Detects subcool of the sub-cooling heat exchanger in cooling operation<br>2) Use as main complement switching in cooling operation [3 way variable heat exchanger] |
| | TL3 | (Connector CN378 : WHI)<br>1) Controls subcool of the sub-cooling heat exchanger |
| | TS1 | (Connector CN378 : WHI)<br>1) Controls PMV superheat in heating operation |
| | TS3 | (Connector CN378 : WHI)<br>1) Controls subcool of the sub-cooling heat exchanger |
| | TO | (Connector CN507 : YEL)<br>1) Detects outside temperature |
| | TK1<br>TK2 | (TK1 • • • Connector CN502 : WHI , TK2 • • • Connector CN380 : BLK)<br>1) Judges oil level of the compressor |
| Pressure Sensor | High pressure sensor | (Connector CN501 : RED)<br>1) Detects high pressure<br>2) Controls the fan in low ambient cooling operation<br>3) Detects subcool of indoor units in heating operation |
| | Low pressure sensor | (Connector CN500 : WHI)<br>1) Detects low pressure<br>2) Controls superheat in heating operation |
| Heater | Compressor case heater | (Comp1 • • • Connector CN331 : WHI , Comp2 • • • Connector CN332 : BLU)<br>1) Prevents liquid refrigerant accumulation in the compressor |

# Indoor unit




## U series Indoor Unit Functional Part Explanation

| Functional part name | | Functional outline |
|---|---|---|
| Pulse Motor Valve | PMV | (Connector CN082 (6P): Blue)<br>1) Controls superheat in cooling operation<br>2) Controls subcool in heating operation<br>3) Recovers refrigerant oil in cooling operation<br>4) Recovers refrigerant oil in heating operation |
| Temp. Sensor | 1.TA | (Connector CN104 (2P): Yellow)<br>1) Detects indoor return air temperature |
| | 2.TC1 | (Connector CN100 (3P): Brown)<br>1) Controls PMV superheat in cooling operation |
| | 3.TC2 | (Connector CN101 (2P): Black)<br>1) Controls PMV subcool in heating operation |
| | 4.TCJ | (Connector CN102 (2P): Red)<br>1) Controls PMV superheat in cooling operation |

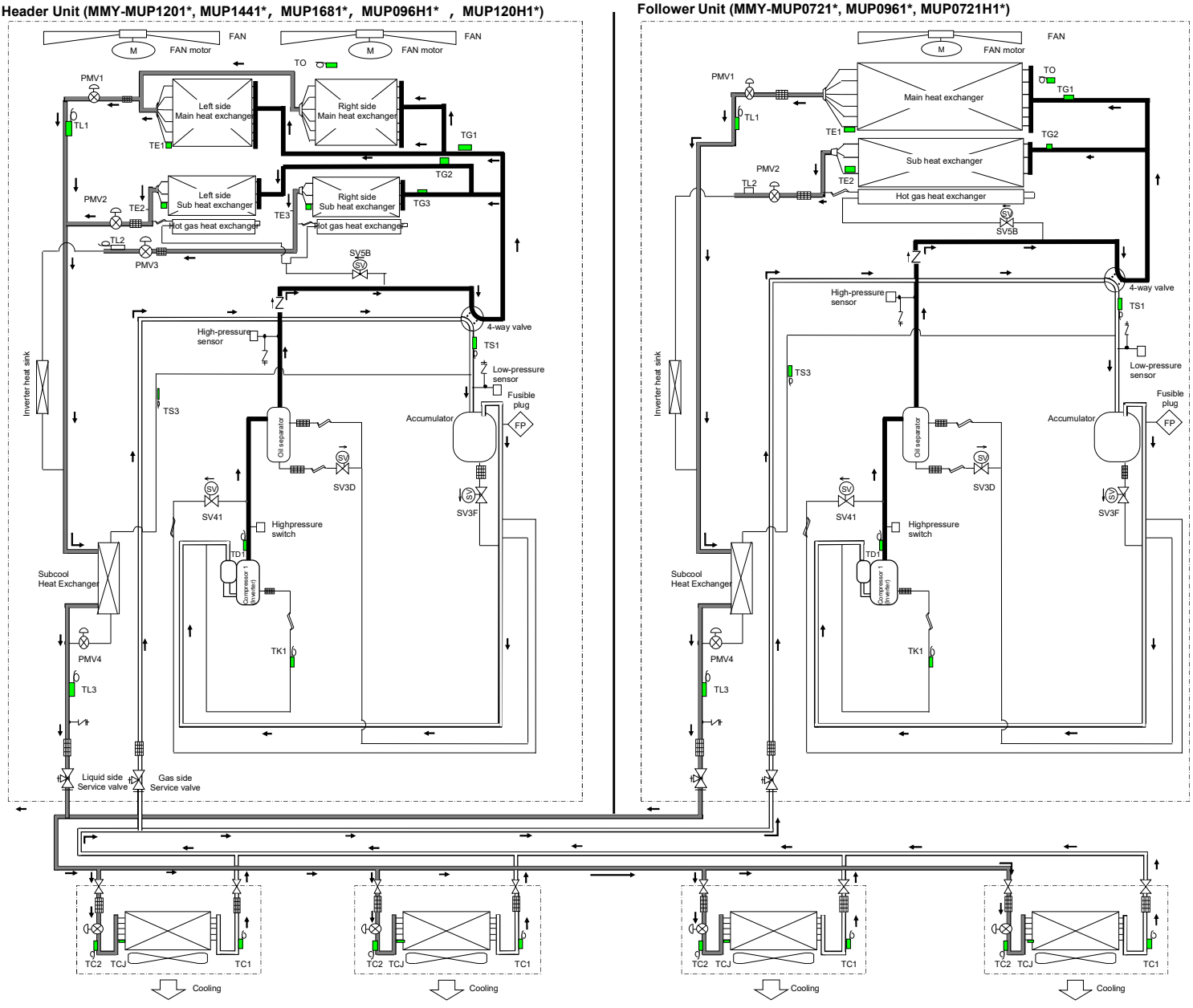
* Please refer to each indoor unit Service Manual for details of each sensor

# 4. COMBINED REFRIGERANT PIPING SYSTEM SCHEMATIC DIAGRAMS

## 4-1. Refrigerant Flow (Cooling)

**Header Unit (MMY-MUP1201*, MUP1441*, MUP1681*, MUP096H1* , MUP120H1*)**

**Follower Unit (MMY-MUP0721*, MUP0961*, MUP0721H1*)**




| Outdoor Unit | | | |
|---|---|---|---|
| 4-way valve | OFF | SV3D | Control |
| PMV1 | Control | SV3F | Control |
| PMV2 | Control | SV4(n) | Control |
| PMV3 | Control | SV5B | Control |
| PMV4 | Control | Outdoor fan | Control |

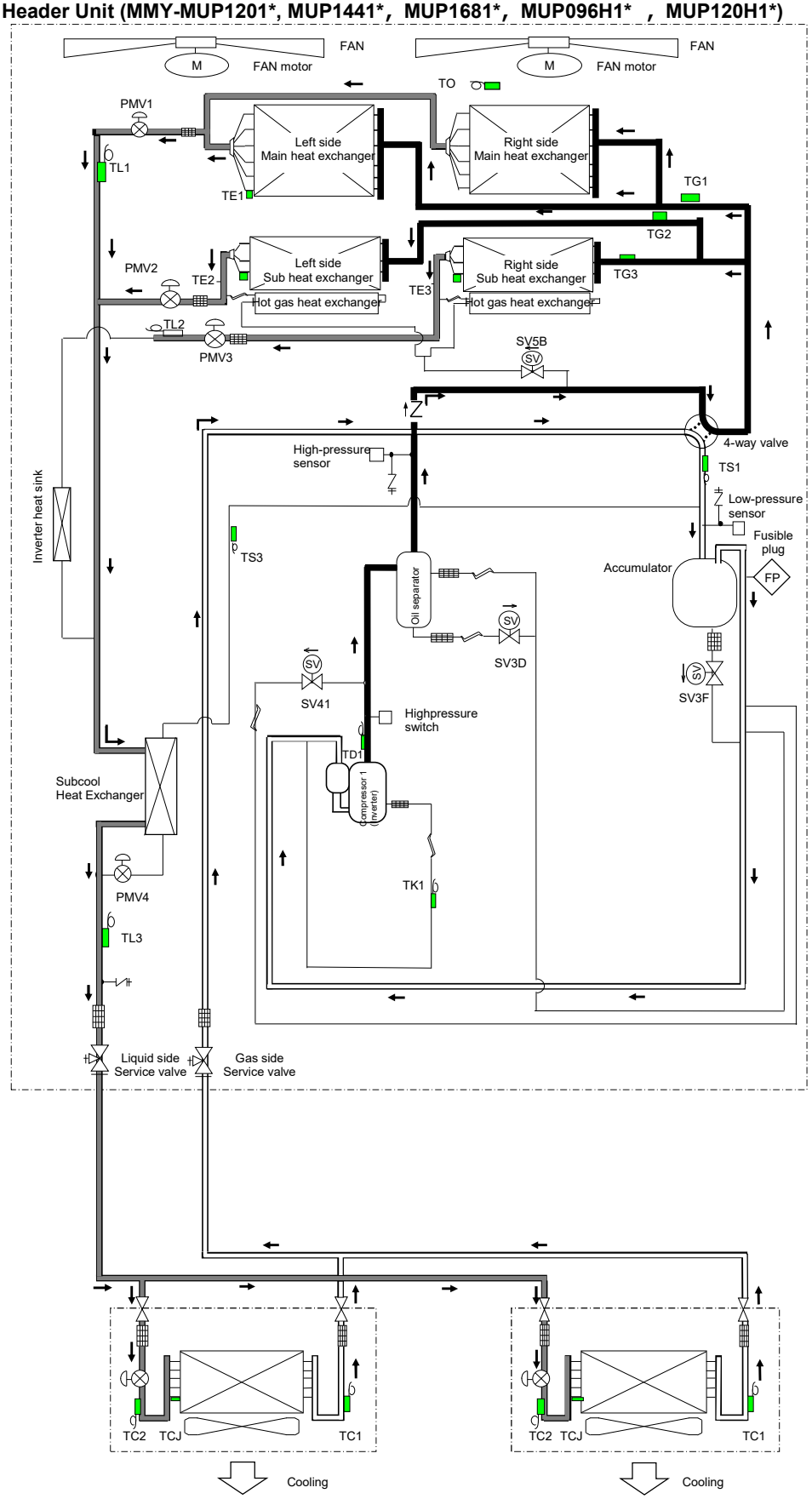
High-pressure gas refrigerant
Condensed liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Low-pressure circuit (Refrigerant recovery line)

(18 ton system described in the example of (12 ton + 6 ton)

The outdoor unit which communication line between indoor and outdoor is connected is the "Header unit".
Other outdoor units are called “Follower units”.

## 4-2. Refrigerant Flow (Single Defrost)

**Header Unit (MMY-MUP1201*, MUP1441*, MUP1681*, MUP096H1* , MUP120H1*)**




| Outdoor Unit | | | |
|---|---|---|---|
| 4-way valve | OFF | SV3D | Control |
| PMV1 | Control | SV3F | Control |
| PMV2 | Control | SV4(n) | Control |
| PMV3 | Control | SV5B | Control |
| PMV4 | Control | Outdoor fan | Control |

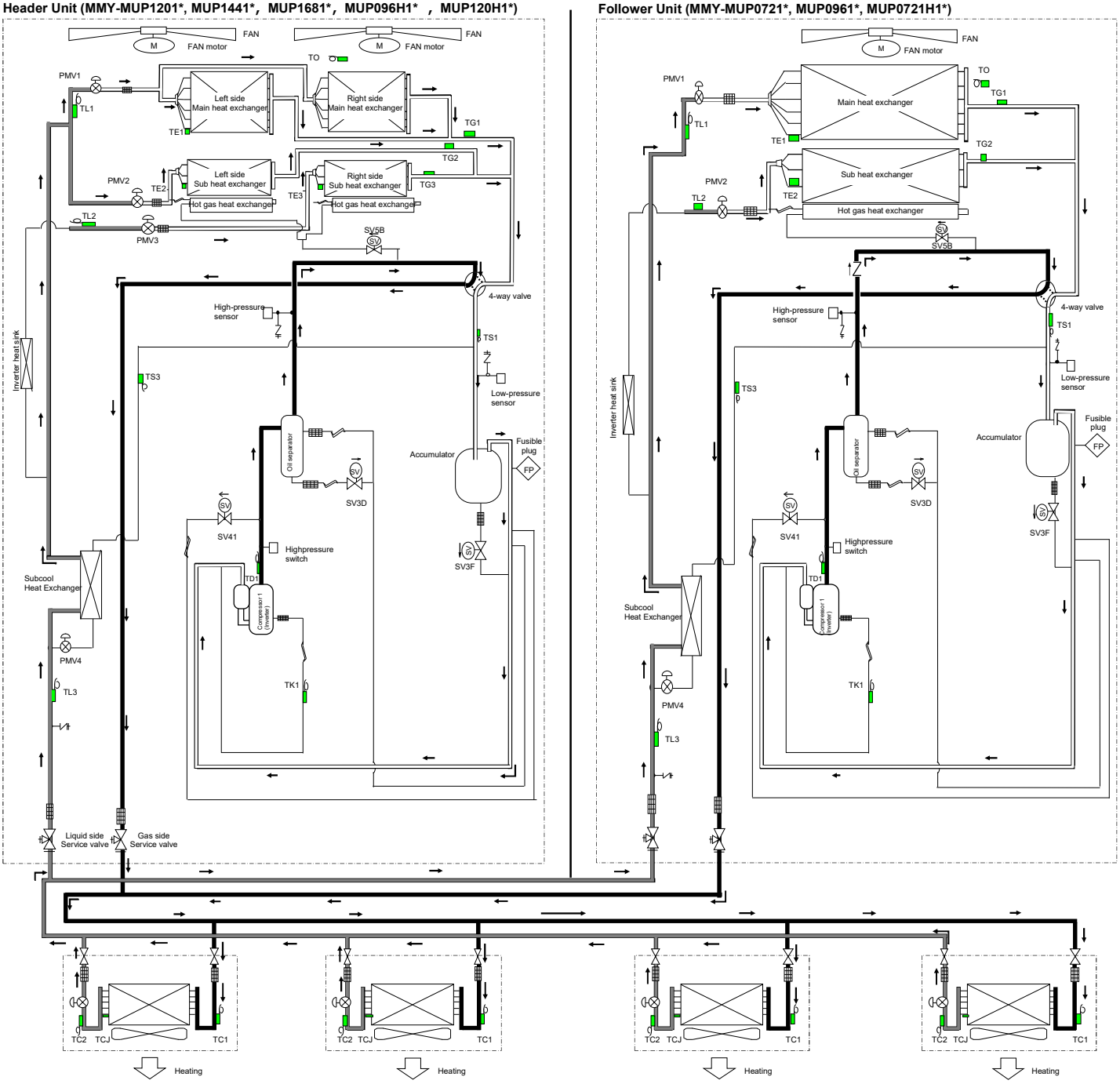
High-pressure gas refrigerant
Evaporative gas refrigerant (Low pressure)
Condensed liquid refrigerant
Low-pressure circuit (Refrigerant recovery line)

The outdoor unit which communication line between indoor and outdoor is connected is the "Header unit". Other outdoor units are called “Follower units”.

## 4-3. Refrigerant Flow (Heating)

**Header Unit (MMY-MUP1201*, MUP1441*, MUP1681*, MUP096H1* , MUP120H1*)**

**Follower Unit (MMY-MUP0721*, MUP0961*, MUP0721H1*)**



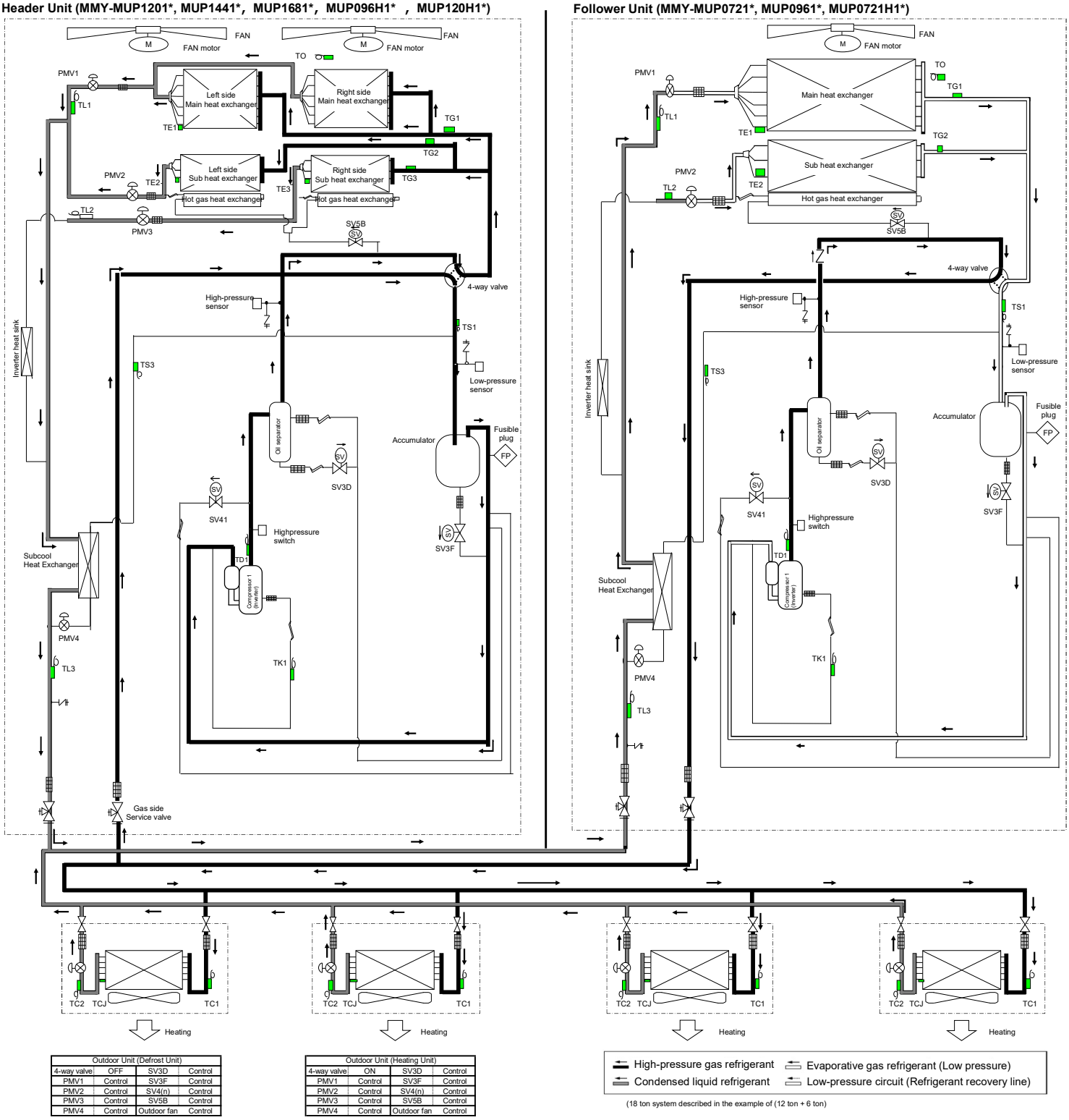

(18 ton system described in the example of (12 ton + 6 ton)

The outdoor unit which communication line between indoor and outdoor is connected is the "Header unit". Other outdoor units are called “Follower units”.

## 4-4. Refrigerant Flow (Individual Defrost)

**Header Unit (MMY-MUP1201*, MUP1441*, MUP1681*, MUP096H1* , MUP120H1*)**

**Follower Unit (MMY-MUP0721*, MUP0961*, MUP0721H1*)**




| Outdoor Unit (Defrost Unit) | | | |
|---|---|---|---|
| 4-way valve | OFF | SV3D | Control |
| PMV1 | Control | SV3F | Control |
| PMV2 | Control | SV4(n) | Control |
| PMV3 | Control | SV5B | Control |
| PMV4 | Control | Outdoor fan | Control |

| Outdoor Unit (Heating Unit) | | | |
|---|---|---|---|
| 4-way valve | ON | SV3D | Control |
| PMV1 | Control | SV3F | Control |
| PMV2 | Control | SV4(n) | Control |
| PMV3 | Control | SV5B | Control |
| PMV4 | Control | Outdoor fan | Control |

High-pressure gas refrigerant
Evaporative gas refrigerant (Low pressure)
Condensed liquid refrigerant
Low-pressure circuit (Refrigerant recovery line)

(18 ton system described in the example of (12 ton + 6 ton)

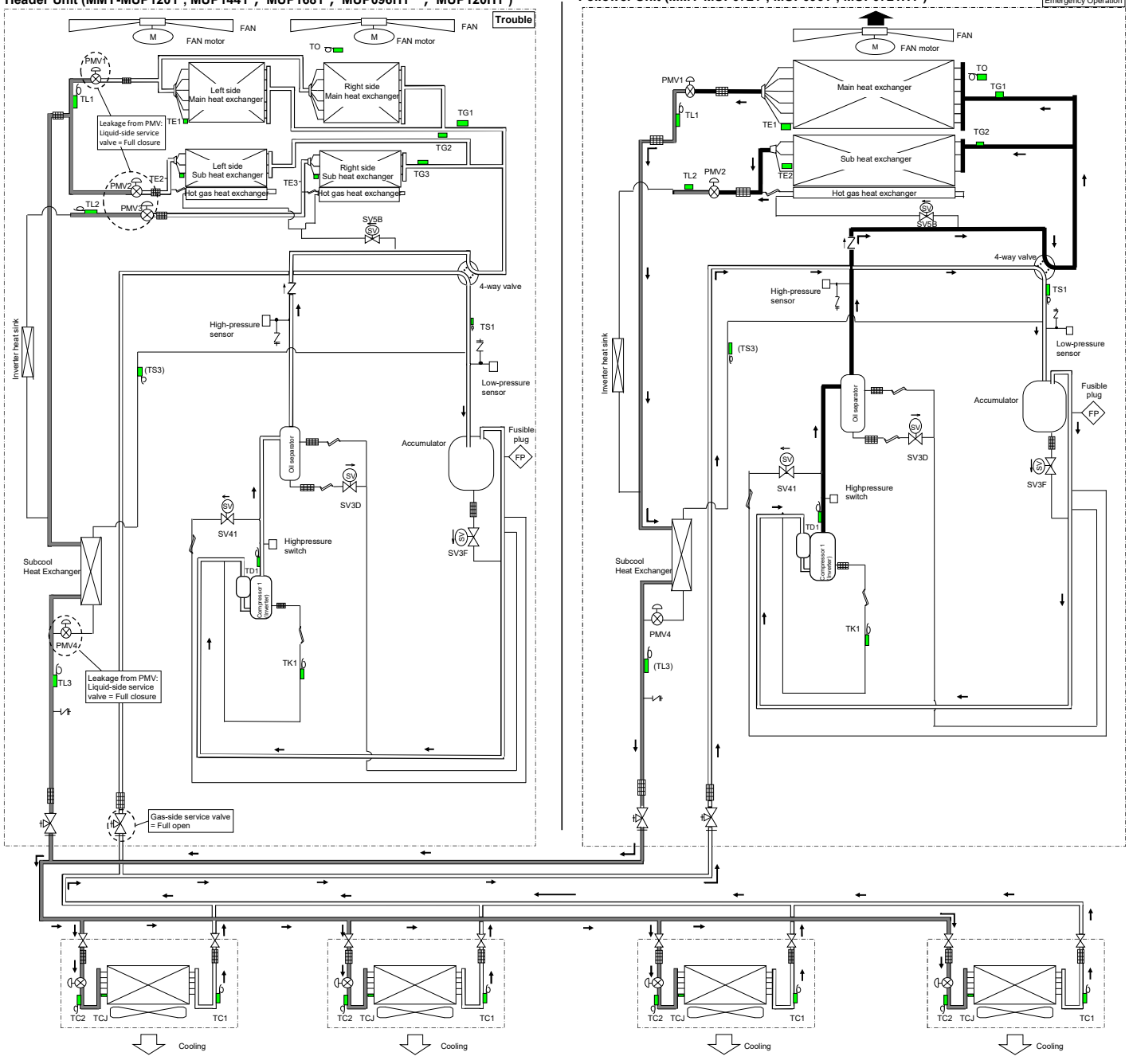
The outdoor unit which communication line between indoor and outdoor is connected is the "Header unit".
Other outdoor units are called “Follower units”.

## 4-5-1. (1) Refrigerant Flow (Automatic emergency cooling)

**Header Unit (MMY-MUP1201*, MUP1441*, MUP1681*, MUP096H1* , MUP120H1*)**

**Follower Unit (MMY-MUP0721*, MUP0961*, MUP0721H1*)**

Set Up as Temporary Header Unit during Emergency Operation




| Trouble header outdoor unit | | | |
|---|---|---|---|
| 4-way valve | OFF | SV3D | OFF |
| PMV1 | CLOSE | SV3F | OFF |
| PMV2 | CLOSE | SV4(n) | OFF |
| PMV3 | CLOSE | SV5B | OFF |
| PMV4 | CLOSE | Outdoor fan | OFF |

| Temporal header outdoor unit | | | |
|---|---|---|---|
| 4-way valve | OFF | SV3D | Control |
| PMV1 | Control | SV3F | Control |
| PMV2 | Control | SV4(n) | Control |
| PMV3 | Control | SV5B | Control |
| PMV4 | Control | Outdoor fan | Control |

High-pressure gas refrigerant
Condensed liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Low-pressure circuit (Refrigerant recovery line)

(18 ton system described in the example of (12 ton + 6 ton)

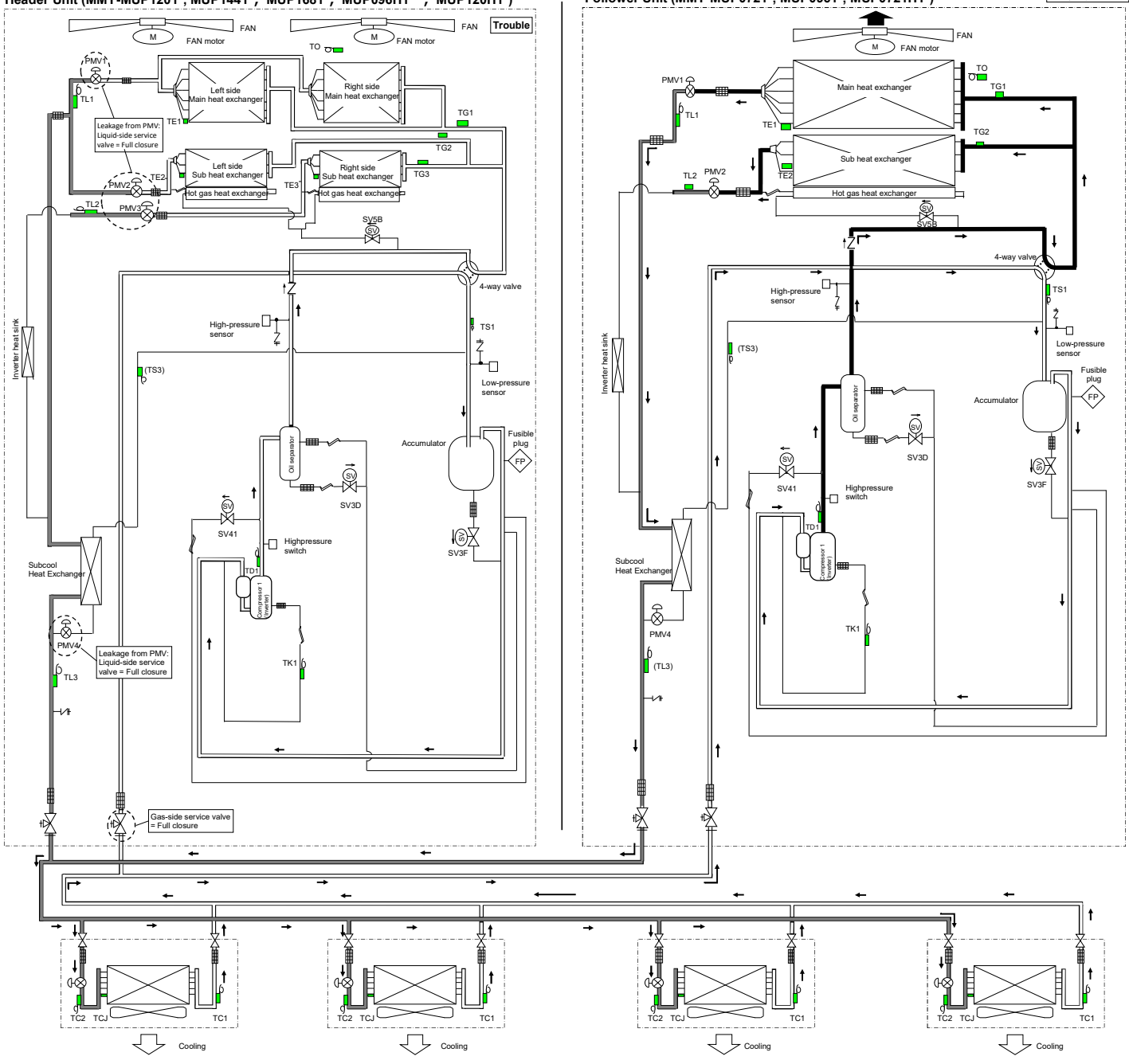
The outdoor unit which communication line between indoor and outdoor is connected is the "Header unit". Other outdoor units are called “Follower units”.

## 4-5-1. (2) Refrigerant Flow (Manual emergency cooling)

**Header Unit (MMY-MUP1201*, MUP1441*, MUP1681*, MUP096H1* , MUP120H1*)**

**Follower Unit (MMY-MUP0721*, MUP0961*, MUP0721H1*)**

Set Up as Temporary Header Unit during Emergency Operation




| Trouble header outdoor unit | | | |
|---|---|---|---|
| 4-way valve | OFF | SV3D | OFF |
| PMV1 | CLOSE | SV3F | OFF |
| PMV2 | CLOSE | SV4(n) | OFF |
| PMV3 | CLOSE | SV5B | OFF |
| PMV4 | CLOSE | Outdoor fan | OFF |

| Temporal header outdoor unit | | | |
|---|---|---|---|
| 4-way valve | OFF | SV3D | Control |
| PMV1 | Control | SV3F | Control |
| PMV2 | Control | SV4(n) | Control |
| PMV3 | Control | SV5B | Control |
| PMV4 | Control | Outdoor fan | Control |

High-pressure gas refrigerant
Condensed liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Low-pressure circuit (Refrigerant recovery line)

(18 ton system described in the example of (12 ton + 6 ton)

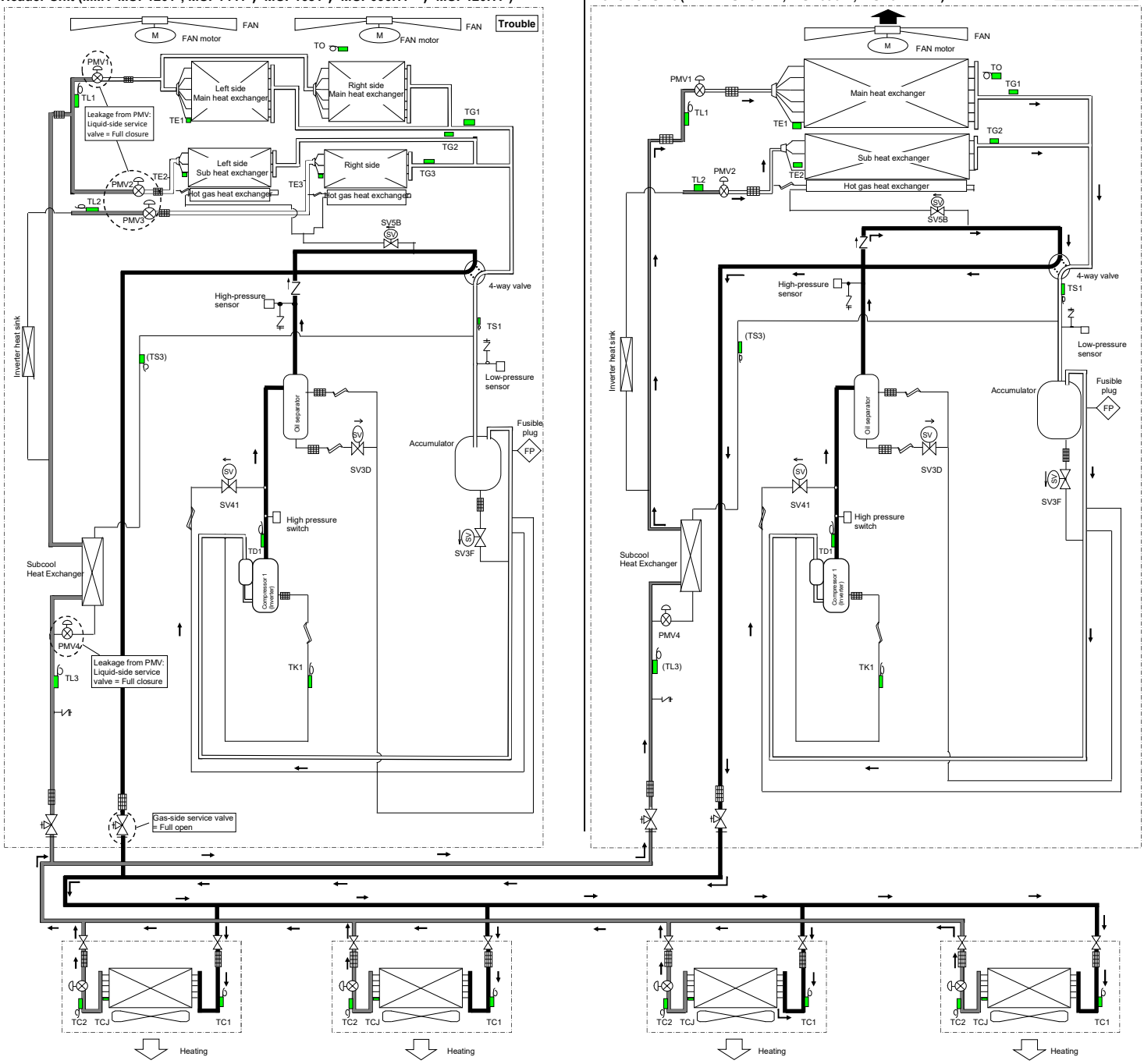
The outdoor unit which communication line between indoor and outdoor is connected is the "Header unit". Other outdoor units are called “Follower units”.

## 4-5-2. (1) Refrigerant Flow (Manual emergency heating)

**Header Unit (MMY-MUP1201*, MUP1441*, MUP1681*, MUP096H1* , MUP120H1*)**

**Follower Unit (MMY-MUP0721*, MUP0961*, MUP0721H1*)**

Set Up as Temporary Header Unit during Emergency Operation




| Trouble header outdoor unit | | | |
|---|---|---|---|
| 4-way valve | ON | SV3D | OFF |
| PMV1 | CLOSE | SV3F | OFF |
| PMV2 | CLOSE | SV4(n) | OFF |
| PMV3 | CLOSE | SV5B | OFF |
| PMV4 | CLOSE | Outdoor fan | OFF |

| Temporal header outdoor unit | | | |
|---|---|---|---|
| 4-way valve | ON | SV3D | Control |
| PMV1 | Control | SV3F | Control |
| PMV2 | Control | SV4(n) | Control |
| PMV3 | Control | SV5B | Control |
| PMV4 | Control | Outdoor fan | Control |

High-pressure gas refrigerant
Evaporative gas refrigerant (Low pressure)
Condensed liquid refrigerant
Low-pressure circuit (Refrigerant recovery line)

(18 ton system described in the example of (12 ton + 6 ton)

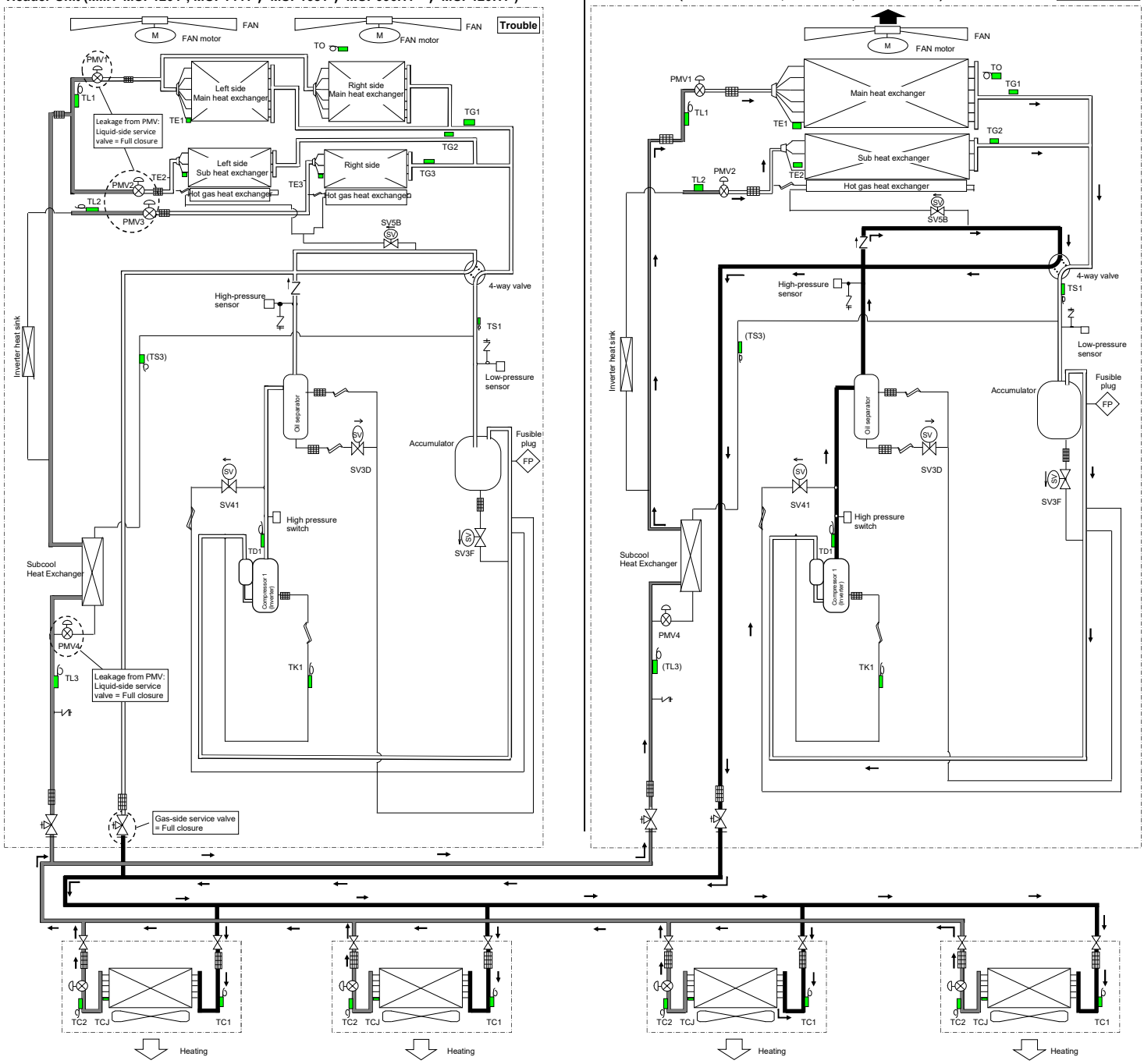
The outdoor unit which communication line between indoor and outdoor is connected is the "Header unit". Other outdoor units are called “Follower units”.

## 4-5-2. (1) Refrigerant Flow (Manual emergency heating)

**Header Unit (MMY-MUP1201*, MUP1441*, MUP1681*, MUP096H1* , MUP120H1*)**

**Follower Unit (MMY-MUP0721*, MUP0961*, MUP0721H1*)**

Set Up as Temporary Header Unit during Emergency Operation




| Trouble header outdoor unit | | | |
|---|---|---|---|
| 4-way valve | ON | SV3D | OFF |
| PMV1 | CLOSE | SV3F | OFF |
| PMV2 | CLOSE | SV4(n) | OFF |
| PMV3 | CLOSE | SV5B | OFF |
| PMV4 | CLOSE | Outdoor fan | OFF |

| Temporal header outdoor unit | | | |
|---|---|---|---|
| 4-way valve | ON | SV3D | Control |
| PMV1 | Control | SV3F | Control |
| PMV2 | Control | SV4(n) | Control |
| PMV3 | Control | SV5B | Control |
| PMV4 | Control | Outdoor fan | Control |

High-pressure gas refrigerant
Evaporative gas refrigerant (Low pressure)
Condensed liquid refrigerant
Low-pressure circuit (Refrigerant recovery line)

(18 ton system described in the example of (12 ton + 6 ton)

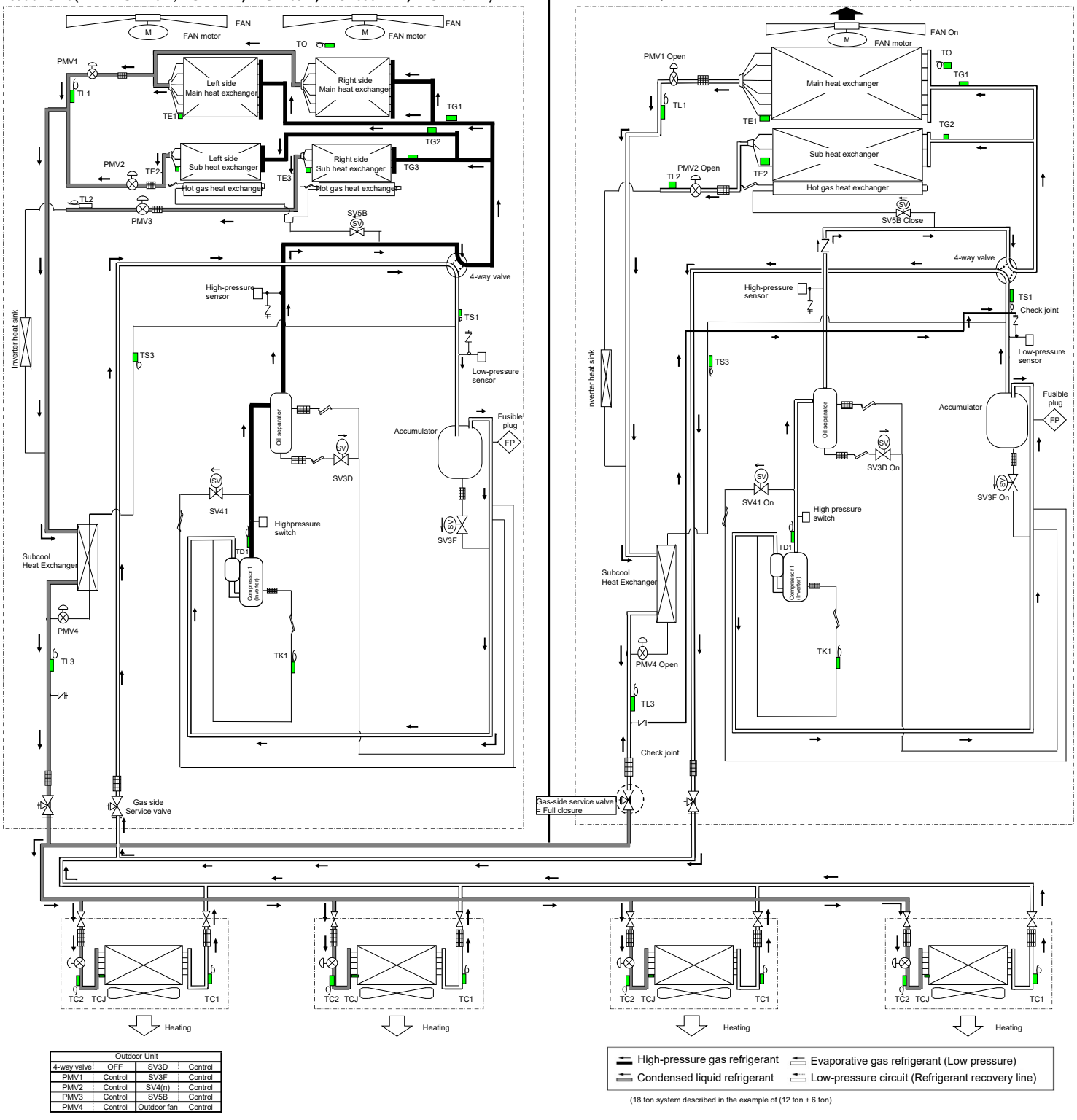
The outdoor unit which communication line between indoor and outdoor is connected is the "Header unit". Other outdoor units are called “Follower units”.

## 4-6. Refrigerant Flow (Reclaim)

**Header Unit (MMY-MUP1201*, MUP1441*, MUP1681*, MUP096H1* , MUP120H1*)**

**Follower Unit (MMY-MUP0721*, MUP0961*, MUP0721H1*)**

Trouble




| Outdoor Unit | | | |
|---|---|---|---|
| 4-way valve | OFF | SV3D | Control |
| PMV1 | Control | SV3F | Control |
| PMV2 | Control | SV4(n) | Control |
| PMV3 | Control | SV5B | Control |
| PMV4 | Control | Outdoor fan | Control |

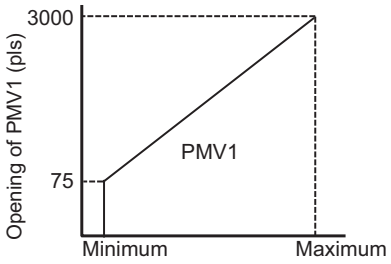
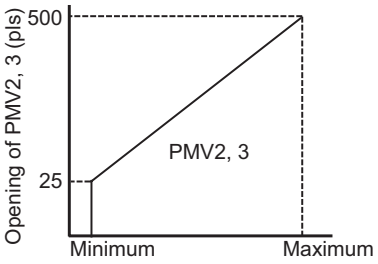
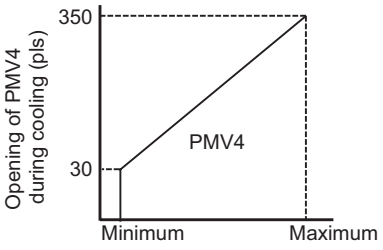
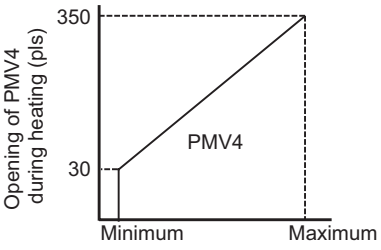
High-pressure gas refrigerant
Condensed liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Low-pressure circuit (Refrigerant recovery line)

(18 ton system described in the example of (12 ton + 6 ton)

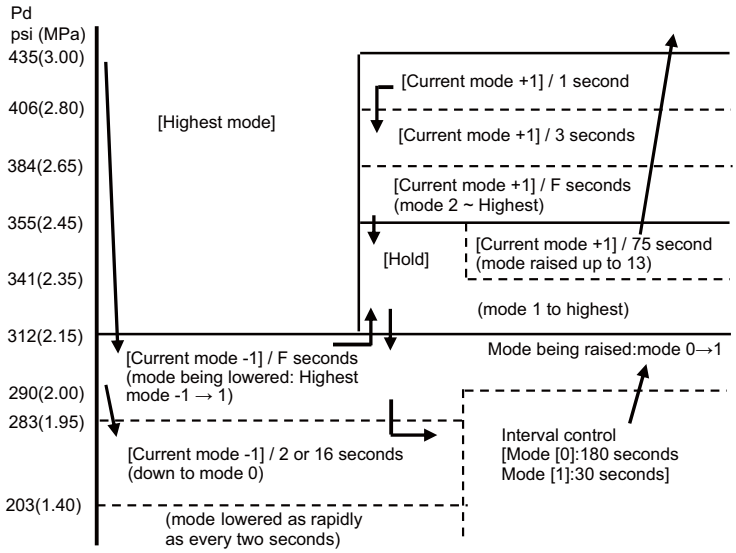
The outdoor unit which communication line between indoor and outdoor is connected is the "Header unit".
Other outdoor units are called “Follower units”.

# 5. CONTROL OUTLINE

## 5-1. Outdoor Unit

| Item | Description of operation, numerical data, and other information | Remarks |
|---|---|---|
| 1. Pulse motor valve (PMV) control | 1. PMV1, 2, 3 control (PMV 1 and 2, 3)<br>1) During air conditioner operation, the pulse count of a PMV1 (pulse motor valve 1) is controlled between 75 pls and 3000 pls, During air conditioner operation, the pulse count of a PMV2, 3 is controlled between 25 pls and 500 pls.<br>2) During cooling, the PMV opening is controlled on the basis of measurements provided by the TL temperature sensor and the Pd sensor (subcool control).<br>3) During heating, the PMV opening is controlled on the basis of measurements provided by the TS, TD and TG temperature sensor and the Ps sensor (superheat control).<br>4) PMVs are fully closed when the air conditioner is in thermostat OFF state or upon being tuned off normally or shut down due to an abnormality.<br>  <br>  <br>2. PMV 4 control<br>1) During cooling, the pulse count of a PMV 4 (pulse motor valve 4) is controlled between 30 pls and 350 pls. The PMV 4 opening is controlled on the basis of measurements provided by the TL3 temperature sensor and Pd sensor (subcool control). or TS3 temperature sensor and Ps sensor (superheat control).<br>2) During heating, the pulse count of a PMV4 is controlled between 30 pls and 350 pls. The PMV 4 operation is controlled by the pulse count of PMV opening of indoor unit and zone judgment. (Indoor refrigerant excess control)<br>3) PMVs are fully closed when the air conditioner is in thermostat OFF state, upon being turned off normally or shut down due to an abnormality.<br>  <br>  | |

| Item | Description of operation, numerical data, and other information | Remarks |
|---|---|---|
| 2. Outdoor fan control | 1. Cooling fan control<br>1) Outdoor fan speed (mode) is controlled on the basis of measurements provided by the Pd sensor.<br>2) For a specified period after the start of cooling operation, the header outdoor unit controls outdoor fan speed (mode) on the basis of measurements provided by the Pd sensor. Follower units, on the other hand, control outdoor fan speed (mode) on the basis of measurements provided by the TE1 temperature sensor. | |

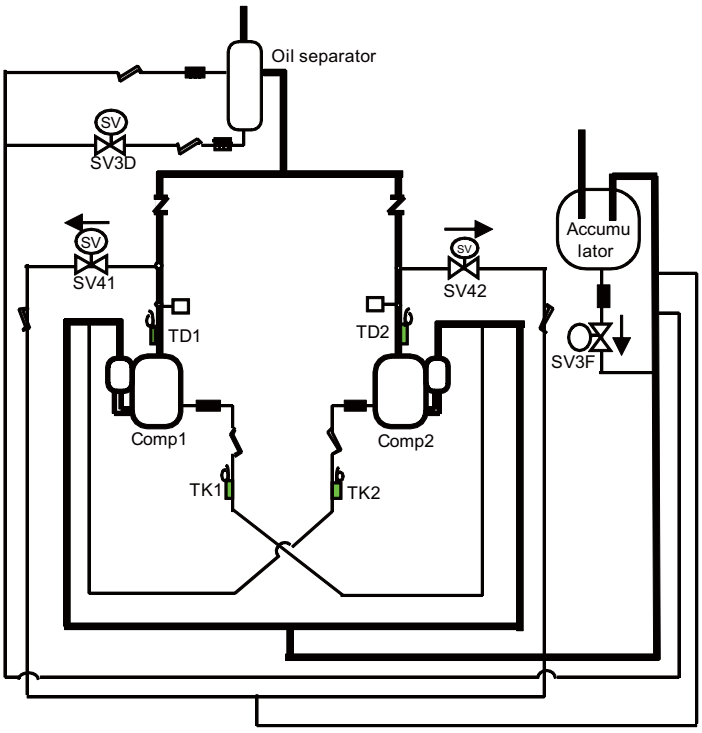



| | | |
|---|---|---|
| | * Available control modes are 0 (at rest) to 63. | • The fan speed corresponding to the highest mode varies with the capacity of the outdoor unit. |
| | 2. Heating fan control<br>1) Outdoor fan speed (mode) is controlled on the basis of the measurements provided by the TE temperature sensor.<br>2) If TE > 77 ºF(25 ºC) is continuously detected for 8 minutes, the fan maybe turned off. However, this condition is the same as normal thermostat OFF, so that fan operation will be restarted.<br>3) For a specified period after air conditioner start up and during defrosting this control is disabled.<br>4) When refrigerant is extremely short supply, this control may cause the air conditioner to be repeatedly turned on and off. | • Pd control point may change depending on conditions and operation mode<br>• TE sensor temperature is the lowest temperature by comparing TE 1, 2, 3 |

| TE1 temperature °F(°C) | |
|---|---|
| | Zone A: Lowest mode, timer count for forced compressor shutdown |
| 77(25) | Zone B: -2/15 seconds (down to lowest mode) |
| 46.4(8) | Zone C: -1/15 seconds (down to lowest mode) |
| 42.8(6) | Zone D: Hold (staying at current mode) |
| 39.2(4) | Zone E: +1/15 seconds (up to highest mode) |
| 35.6(2) | Zone F: Highest mode |

Zone A: Lowest mode, timer count for forced compressor shutdown
Zone B: -2/15 seconds (down to lowest mode)
Zone C: -1/15 seconds (down to lowest mode)
Zone D: Hold (staying at current mode)
Zone E: +1/15 seconds (up to highest mode)
Zone F: Highest mode
TE1 temperature °F(°C)

| | |
|---|---|
| 3. Upper limit shift correction control in outdoor fan mode while operating in heating mode<br>. . . This is a control that lowers the upper limit of the outdoor fan speed during heating operation when the air conditioning load is low and the number of indoor units operating is small. | • The fan speed corresponding to the highest mode varies with the capacity of the outdoor unit.<br>• Mode down is valid only when TH(x) temperature < 167°F(75°C) |
| 1) Lowers the current fan mode upper limit by -1 mode<br>2) After that, while the conditions are met, the mode will be down every 30 seconds.<br>3) The lower limit of the mode down is the fan mode "54".<br>4) When the comp is turned off, this control is canceled and it returns to the initial setting upper limit mode.<br>5) When the number of indoor driving increases, one mode will be up every 30 seconds. | • Mode up is valid only when TH(x) temperature ≥ 176°F(80°C) |

| Item | Description of operation, numerical data, and other information | Remarks |
|---|---|---|
| 3. Capacity control | 1) The compressors of the header and follower units are controlled on the basis of capacity demand issued by indoor controllers.<br>2) The two compressors featured in an outdoor unit operate on a rotational basis, so that, every time they come to stop, their order of startup changes.<br>3) When one or more follower outdoor units are connected, the system will be started next time between all the outdoor units including the header outdoor unit when the system is stopped (including thermostat-off) or the power is reset while 24 hours or more has passed on the accumulated operating time. Reverse the priority of time. | • The outdoor rotation control may be performed even when the insufficient refrigerant state is not released even if the indoor refrigerant recovery control is performed. |
| 4. Oil level detection control | 1) TK1,2 sensor detection temperature and prediction TK1, 2 sensor temperature is used to judge whether there is an appropriate amount of oil in the compressor case. This control is performed independently by the header outdoor unit and follower outdoor units.<br>2) Based on the relationship between the TK detection temperature of the compressor into and the predicted TK sensor temperature, it is judged whether the oil level in the compressor case is appropriate, and if it is insufficient, the upper limit of the compressor speed and SV3D valve operate.<br>3) If the shortage is not resolves by the operation of 2), shift to the oil recovery operation.<br>4) This control function is performed whenever at least one compressor is in operation.<br>  | • The predicted TK sensor temperature is the predicted value of the TK sensor temperature when the oil is in proper condition<br>• SV3D valve: Solenoid valve for oil return of oil separator<br>• Oil level judgment<br>① guide When predicted TK-TK < 50°F(10°C), the oil level is<br>② appropriate When predicted TK-TK ≥ 50°F(10°C), the oil level is insufficient<br>• Predicted TK1, 2 and TK1, and 2 sensor temperature It can check by "8-6. 7-Segment Display Function".<br>• The TK sensor detection temperature and the predicted TK sensor temperature can be found in the the 7-Segment Display Function (8.6.7(33)). |

| Item | Description of operation, numerical data, and other information | Remarks |
|---|---|---|
| 5. Oil recovery control | This is a control for preventing oil shortage in the compressor between the outdoor units, and oil equalization control is performed as follows during cooling operation and heating operation.<br><br>[1] During cooling operation<br>When the oil level of any compressor in the outdoor unit is determined to be insufficient due to the stagnation of refrigerating machine oil in the gas pipes and the indoor unit during cooling operation, this control recovers the oil from the indoor unit and evens oil levels between the outdoor units by increasing the compression frequency of the outdoor unit that detected drop of the oil level.<br>This control is managed by the header outdoor unit.<br><br>1) Control start condition<br>• The operating time of the compressor in which an insufficient oil level is detected exceeds 15 minutes<br>• The operating time of the compressor in which an insufficient oil level is detected exceeds 30 minutes<br>• The operating time of the compressor in which an insufficient oil level is detected exceeds 45 minutes<br>• When the operating time of the compressor in which an insufficient oil level is detected exceeds 60 minutes, it causes an abnormal stop of the compressor.<br><br>2) Control content<br>• The operating compressor is operated at the target speed, the stopped compressor is started, and the compressor is operated at the target speed.<br>• Switch control mode in the indoor unit to the cooling oil (refrigerant) recovery control mode, and open the PMV opening of the indoor unit by a certain opening.<br>• After the recovery control is performed for a predetermined time, the recovery control ends and the normal cooling operation is resumed.<br><br>[2] During heating operation<br>This control can recover the stagnated oil in the piping or indoor heat exchanger and return it to the compressor by defrosting operation when the oil level continues to decrease even if the compressor oil level has been detected and the oil return control from the oil separator has functioned.<br>• Reverse defrost control is performed every 15 minutes after an insufficient oil level is confirmed during heating operation.<br>• When the operating time of the compressor in which an insufficient oil level is detected exceeds 60 minutes, it causes an abnormal stop of the compressor. | • The shortage is confirmed when the shortage continues even if the recovery operation (SV3D valve is turned on) is performed for each outdoor unit when the shortage is detected.<br><br>* Depending on the number of indoor units when an insufficient oil level is confirmed, this control determines whether to recover the oil from only the operating indoor units or all the indoor units.<br><br>• Oil level confirmation timer operates when an insufficient oil level is detected. |
| 6. Heating refrigerant (oil) recovery control | Since the indoor unit that is stopped during heating operation closes the PMV, liquid refrigerant may accumulate in the heat exchanger, resulting in a refrigerant shortage condition. This control is to recover the liquid refrigerant to return it to the outdoor unit when a refrigerant shortage is detected.<br><br>The PMV opening of the stopped indoor unit is slightly opened to return the refrigerant to the outdoor unit, but if the insufficient refrigerant state is still not resolved, heating refrigerant recovery control is performed.<br><br>This control also recovers the refrigerant in Indoor/Outdoor unit after defrosting and the oil in the outdoor heat exchanger during heating overload operation. It is managed by the header outdoor unit.<br><br>[1] Paused heating indoor unit PMV minute opening control<br>• Control start condition<br>When all the following conditions are satisfied<br>• There are units with heating thermostat ON and other than thermostat ON (stop/thermostat OFF).<br>• When the outdoor unit determines the refrigerant shortage condition<br>• When the outdoor PMV opening exceeds the specified opening or the TD sensor temperature exceeds the specified value<br>• Control content<br>When the control starts, the PMV in the indoor unit during stop opens by a minute opening.<br><br>[2] Heating refrigerant recovery control<br>Control start condition<br>• At the start of heating operation (when Comp. is turned on from Comp. OFF)<br>• During heating operation transition after defrosting<br>• 40 minutes have passed since the refrigerant shortage state was judged after starting the PMV minute opening control in the paused heating indoor unit. | • The recovery duration varies depending on the load condition, but it usually takes around 5-10 minutes.<br><br>• The compressor's speed varies depending on the control conditions, indoor capacity, and outdoor unit. |

| Item | Description of operation, numerical data, and other information | Remarks |
|---|---|---|
| 7. Defrosting control (Reverse defrosting method) | • The reverse defrosting method is used for the outdoor unit in a single system, and the individual reverse defrosting method is used for the outdoor units in a connected system.<br>• In the individual reverse defrosting, in order to prevent the cold air from dropping during defrosting, the Gr in which the unit that satisfies the defrosting start condition exists is switched to the cooling position of the four-way valve to perform the defrosting operation while It will be the operation method to continue the heating operation.<br><br>[Defrosting start condition (single and common system common)]<br>• During the heating operation, if the TE sensor detected temperature falls below the predicted TE sensor temperature by a specified amount, or if the TE sensor detected temperature falls below the frosting temperature for 300 minutes, the defrosting operation starts. (After start-up or when switching from cooling to heating, frost judgment is performed and the defrosting operation is started according to the judgment result.)<br><br>* In the case of the coupled system, when any of the outdoor units satisfies the defrosting start condition, all the units in the group to which the unit belongs start defrosting operation, and the other Gr units continue heating operation.<br><br>① Reverse defrosting method (the outdoor unit is a single system)<br>1. Defrost control content<br>1) Stop the compressor that is running.<br>2) After a certain period of time, the four-way valve is turned off and the outdoor fan is stopped.<br>3) Turn on the compressor that is off and operate it at the target speed for defrost control.<br>2. Defrost termination condition<br>When the TE sensor temperature detection value exceeds a certain value (standard 53.0°F(12°C)) after a certain time has passed since the defrost control was started, the defrost end condition will be set and the defrost end control will be performed.<br>3. Defrost end control content<br><br>① Stop the compressor again.<br>② Turns on the four-way valve after a certain period of time.<br>③ Control the refrigerant recovery in the heating room. For control details, see "6. Heating refrigerant (oil) recovery control".<br><br>② Individual defrost method (outdoor unit is combined system)<br>1. Outdoor unit grouping method<br>The outdoor unit is divided into Gr1 and Gr2 when the power is turned on.<br><br>2. Defrost control content<br>1) If any of the units satisfy the defrosting start conditions, all the stopped outdoor units are started, the operating unit operates the compressor at the minimum speed, and after a certain period of time, only the defrosting unit has a four-way valve. To turn off the outdoor fan.<br>2) Heating Gr continues heating operation as it is<br>3) The defrosting Gr unit controls the compressor rotation speed so that the Pd and Ps detection values of each unit become the target values.<br><br>3. Defrost termination condition<br>When the TE sensor temperature detection value exceeds a certain value (standard 53.0°F(12°C)) after a certain time has passed since the defrost control was started, the defrost end condition will be set and the defrost end control will be performed.<br><br>* When the defrosting end conditions are met for all outdoor units, the defrosting end control is performed. If any unit does not meet the defrost termination conditions, the outdoor unit that satisfies the defrost termination conditions continues defrosting operation.<br><br>4. Defrost end control content<br>1) Defrosting Gr unit<br>① Operates the compressor at standby speed.<br>② After a certain period of time, the four-way valve turns on.<br>③ Shift to heating start pattern control.<br>2) Unit of heating Gr<br>① When all the outdoor units included in the defrosting Gr turn on the four-way valve, the normal heating operation is restored.<br>② The outdoor unit to be stopped stops its operation. | • TE sensor detection temperature is the lowest temperature of TE1, TE2, TE3<br>• Frosting temperature is -29.3°F(-1.5°C)<br>• After the power is turned on, for the first time, the defrosting operation is continued for 25 minutes below the frosting temperature only when the heat exchanger is frosted.<br><br>• Fan mode may be controlled during defrosting for cycle protection.<br><br>• The compressor speed during defrost control is controlled below 85.0rps.<br><br>• TE sensor detection temperature is the lowest temperature of TE1, TE2, TE3<br>• Frosting temperature is -29.3°F(-1.5°C)<br>• Fan mode may be controlled during defrosting for cycle protection.<br><br>• The compressor speed of the defrost unit during individual reverse defrost control is controlled at 60.0rps or less.<br><br>• The compressor speed during standby operation is 15.0 ~ 30.0rps. |

<table>
<tr><th>Item</th><th>Description of operation, numerical data, and other information</th><th>Remarks</th></tr>
<tr><td>8. Release valve control</td><td>
(1) SV4 gas balance control<br>
This control turns on SV4 when the compressor is stopped to balance the gas and reduce the starting load when the compressor is turned on next time. This control is performed independently by the center unit and each terminal unit.<br>
① Control condition<br>
• At power on<br>
• When the compressor is switched from ON to OFF during cooling operation or heating operation.<br>
② Control content<br>
• SV4 (x) is turned on when the power is turned on, and then turned off when ΔP (= Pd - Ps) becomes 290 or less.<br>
• SV4 (x) turns on when the compressor turns off.<br>
(Turns on when ΔP (Pd - Ps) is 435 or more, and turns off when ΔP (Pd - Ps) is 290 or less.)<br><br>
(2) SV4 high pressure release control<br>
This control is a control to suppress the high pressure rise during cooling operation and heating operation. This control is performed independently by the header unit and each follower unit.<br>
① Control condition<br>
• Compressor ON<br>
② Control content<br>
• When Pd ≥ P1, SV4 (x) is turned on.<br>
• When Pd ≤ P2, SV4 (x) is turned off.<br>
* P1 and P2 of each outdoor unit are as follows<br><br>
<table>
<tr><th rowspan="2">Pd control point</th><th rowspan="2">Heating</th><th colspan="2">Cooling</th></tr>
<tr><th>Compressor start-up priority 1</th><th>Compressor start-up priority 2 or later</th></tr>
<tr><td>P1</td><td>490psi (3.38MPa)</td><td>537psi (3.70MPa)</td><td>537psi (3.70MPa)</td></tr>
<tr><td>P2</td><td>483psi (3.33MPa)</td><td>534psi (3.68MPa)</td><td>534psi (3.68MPa)</td></tr>
</table>
<br>
③ Release condition<br>
• When the system is stopped and the thermostat is off<br><br>
(3) SV4 low pressure release control<br>
• The purpose of this control is to protect the Ps drop during compression ON.<br>
• This control is performed independently by the header unit and each follower unit.<br>
① Control condition<br>
The outdoor unit that is turned on will judge each item individually.<br><br>
② Control content<br>
• When Ps ≤ 23.2psi (0.16MPa), turn on SV4 (x).<br>
• When Ps ≥ 29.0psi (0.20MPa), SV4 (x) is turned off.<br><br>
③ Release condition<br>
• When the system is stopped and the thermostat is off
</td><td></td></tr>
</table>

<table>
<tr><th>Item</th><th>Description of operation, numerical data, and other information</th><th>Remarks</th></tr>
<tr><td>9. Capacity release control</td><td>This control is a capacity release control that is performed for the purpose of suppressing the thermostat-OFF due to freezing prevention due to excessive capacity even in Min speed [rps] during cooling small capacity operation.<br><br>① Control condition<br>Perform when all the following conditions are met.<br>• It is an outdoor unit with startup priority 1.<br>• When the compressor speed is less than A [rps] during cooling operation<br><table><tr><th>Compressor</th><th>A [rps]</th></tr><tr><td>(77cc A3)</td><td>25.0</td></tr><tr><td>(120cc K4)</td><td>20.5</td></tr></table>• When TD(X) ≤ 204.8°F(96°C)<br><br>② Control content<br>• When any of the indoor units that are thermostat-ON detects TCJ ≤ 37°F(3°C) or TC1 37°F(3°C) while any of the compressors is ON, SV4 (x) is turned ON.<br>• When any of the indoor units that are thermostat-ON detects TCJ > 45°F(7°C) or TC1 > 45°F(7°C) while any compressor is ON, SV4 (x) is turned OFF.<br><br>③ Release condition<br>• When the system is stopped and the thermostat is off<br>• When TD (X) > 216°F(102°C) is detected<br>• When the compressor speed is above A [rps]</td><td></td></tr>
<tr><td>10. High pressure release compressor shut down</td><td>This control function is aimed at automatically shutting down a compressor in an outdoor unit depending on Pd. It is individuality performed by the header unit and each follower unit.<br>1) Control details<br>• Compressors are shut down when Pd reaches or exceeds P0<br>• The Pd control point P0 is switched according to the start priority of the outdoor unit<br>• The compressor restart prevention timer (2 minutes 30 seconds) is set, and the control terminated.<br><br><table><tr><th colspan="2">Pd control point P0</th><th>Cooling</th><th>Heating</th></tr><tr><td rowspan="2">Outdoor unit priority1</td><td>compressor1</td><td>547psi(3.77MPa)</td><td>512psi(3.53MPa)</td></tr><tr><td>compressor2</td><td>540psi(3.72MPa)</td><td>506psi(3.49MPa)</td></tr><tr><td rowspan="2">Outdoor unit priority 2-5</td><td>compressor1</td><td>540psi(3.72MPa)</td><td>500psi(3.45MPa)</td></tr><tr><td>compressor2</td><td>540psi(3.72MPa)</td><td>495psi(3.41MPa)</td></tr></table></td><td></td></tr>
<tr><td>11. Case heater control</td><td>This control function is aimed at preventing the accumulation of refrigerant in those case, and is performed by all outdoor units.<br>If the power supply has not been turned on for a specified period before a post-installation test run. Compressor failure may occur.<br>Similarly, when starting compressors after a long period of no power supply, it is recommended that the power supply be turned on for a while before operation is resumed, just like a post-installation test run.<br>This control function is sometimes used alongside an electrical changing of the compressor motor windings. In this case, a changing sound may be heard, but this is normal.<br>1) Control details<br>• The heaters are turned on while the compressors are turned off.<br>• The heaters are turned off when TO sensor temperature becomes ≥ 82.4°F(28 °C) and are turned back on when TO sensor temperature becomes ≤ 77.0°F(25 °C).<br>• When the compressors are turned on, the heaters are kept on for 10 minutes.</td><td></td></tr>
</table>

| Item | Description of operation, numerical data, and other information | Remarks |
|---|---|---|
| 12. Inverter P.C.board control for compressor | (1) Current, power release value control<br>The purpose of this control is to prevent high pressure rise and overheating of electric parts by reducing the compressor speed when the maximum current and maximum power value set for each model are exceeded.<br><br>The maximum current and power value for each capacity of each model are as follows<br><br>208-230V<br>・Standard<br>ton \| Maximum current \| Maximum power<br>14 \| 54.62 \| 18.67<br>12 \| 48.99 \| 16.75<br>10 \| 48.09 \| 16.44<br>8 \| 34.80 \| 11.90<br>6 \| 34.63 \| 11.84<br><br>・High heat<br>ton \| Maximum current \| Maximum power<br>10 \| 50.56 \| 17.90<br>8 \| 49.74 \| 17.90<br>6 \| 36.88 \| 12.61<br><br>*2 For comp models, it is the maximum value per comp.<br><br>Even when the TH sensor temperature ≥ 176.0°F(80°C), the compressor speed is reduced, and when the TH sensor temperature < 163.4°F(73°C) continues, the rotation speed increase is permitted.<br><br>(2) Heat sink overheat abnormality<br>① Stop the compressor operation when the TH sensor temperature exceeds 199.4°F(93°C).<br>② When the above is stopped, the abnormal count is set to 1, and it restarts after 2 minutes and 30 seconds.<br>If you continue the operation for 10 minutes or more after restarting, the trouble count will be cleared<br>③ A trouble is confirmed with a trouble count of "4".<br><br>(3) High pressure SW control<br>① Inverter compressor stops driving the compressor when the high pressure SW is operating.<br>② When the above is stopped, the abnormal count is set to 1, and it restarts after 2 minutes and 30 seconds.<br>If you continue the operation for 10 minutes or more after restarting, the trouble count will be cleared.<br>③ The trouble count becomes "4" and the trouble is confirmed.<br>The above display is "P04". | |

| Item | Description of operation, numerical data, and other information | Remarks |
|---|---|---|
| 13. Heat sink condensation prevention control | Since the refrigerant cooling heat sink cools the device by the refrigerant temperature of the liquid pipe, if the liquid pipe temperature drops due to a gas shortage cycle, dew condensation on the device may occur.<br>Therefore, the control is for the purpose of preventing dew condensation on the element.<br><br>1) Control condition<br>• Compressor ON<br>• Do not execute this control during startup control<br>• Do not execute this control during defrosting operation<br><br>2) Control content<br>① During cooling operation, when TO-TL2 ≥ 5K is continued for 5 minutes<br>② During heating operation, at the time point when TO supplement-TL2 ≥ 5K is continued for 5 minutes<br>• The header outdoor unit will be stopped, and the system restart prevention timer will be set.<br>• For the follower outdoor units, the compressor of the unit that detected the abnormality is turned off to prevent the compressor from restarting.<br>Set the timer and send the [compressor start permission: OFF] signal outside the center room.<br>• Abnormality count is [1]. | |

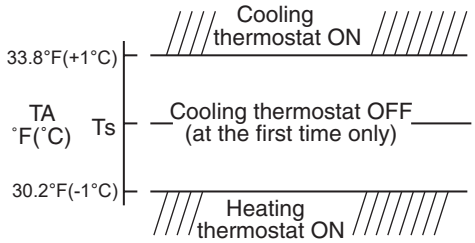
<Other points to note>

1) Cooling Operation at Low Outdoor Temperature
   ① When suction pressure (Ps) decreases, the indoor unit operation may stop due to anti-frost control based on the temperature of the TC sensor of indoor unit.
   ② When suction pressure (Ps) decreases, the compressor speed [rps] may be decreased due to cooling capacity control.
   ③ When discharge temperature (TD) is lower than 140.0°F(60°C), the compressor speed [rps] may be increased due to indoor unit command.

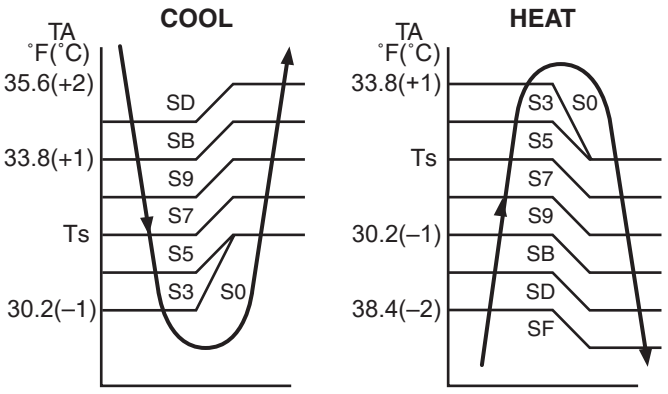
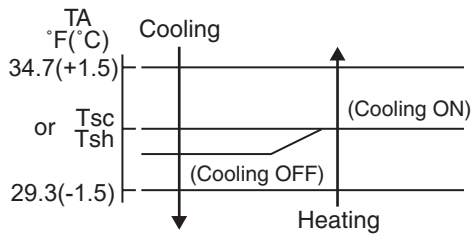
2) PMV (Pulse motor Valve)
   ① When power is turned on, the PMV will initialize and make a knocking sound. If there is no knocking sound, there is possibility of PMV malfunction. However, if the outdoor unit area has high ambient noise, there is possibility PMV knocking sound may not be heard.
   ② Do not remove PMV Coil (head part) during operation. It will affect the control valve opening.
   ③ When transporting the set, do not ever remove the PMV Coil. Valve will close and sealing the liquid refrigerant which may damage the valve.
   ④ When removing and reattaching the PMV Coil, push in the coil firmly until [Click] sound is heard, turn off the power and turn it on again.

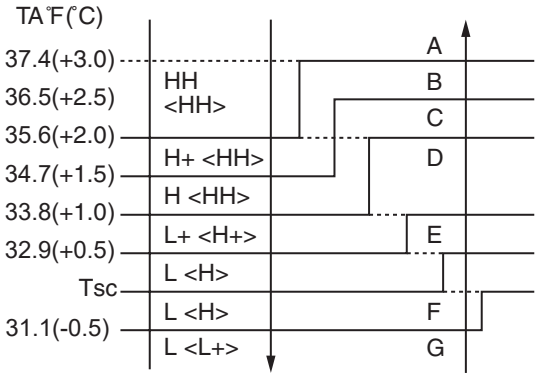
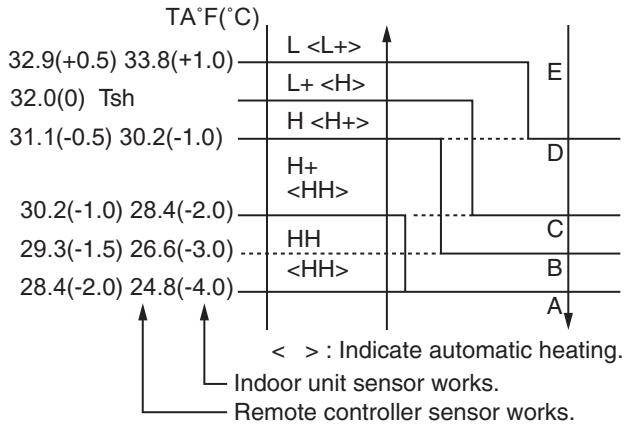
3) Fan mode during heating operation on same system line of indoor unit
   In the same system line of indoor unit, if there's one indoor unit is on the heating operation, the other indoor units cannot do Fan Mode. The indoor unit for which Fan Mode is selected will be forcibly stopped, and [ "operation standby ⏻ " ] will be displayed on the remote controller. Refrigerant will accumulate in the indoor unit that is operating in fan mode. This condition is set to prevent repeated refrigerant recovery.

## 5-2. Indoor Unit

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>1</td><td>When power supply is reset</td><td>1) Distinction of outdoor unit<br>When the power supply is reset, the outdoors are distinguished and the control is selected according to the distinguished result.<br>2) Setting of indoor fan speed and existence of air direction adjustment<br>Based on EEPROM data, select setting of the indoor fan speed and the existence of air direction adjustment.<br>3) If resetting the power supply during occurrence of a trouble, the check code is once cleared. After ON/OFF button of the remote controller was pushed and the operation was resumed, if the abnormal status continues, the check code is again displayed on the remote controller.</td><td></td></tr>
<tr><td>2</td><td>Operation mode selection</td><td>1) Based on the operation mode selecting command from the remote controller, the operation mode is selected.
<table>
<tr><th>Remote controller command</th><th>Control outline</th></tr>
<tr><td>STOP</td><td>Operation stops.</td></tr>
<tr><td>FAN</td><td>Fan operation</td></tr>
<tr><td>COOL</td><td>Cooling operation</td></tr>
<tr><td>DRY</td><td>Dry operation</td></tr>
<tr><td>HEAT</td><td>Heating operation</td></tr>
<tr><td>AUTO<br>(Heat recovery system outdoor unit type)</td><td>• TA and Ts automatically select COOL/HEAT operation mode for operation.<br>• The operation is performed as shown in the following figure according to TA value at the first time only.<br>(In the range of Ts – 1 < TA < Ts + 1, Cooling thermostat OFF (Fan) / Setup air volume operation continues.)</td></tr>
</table>


∗ Heat recover system outdoor unit type can select automatic mode.<br>While a wireless remote controller is used, the mode is notified by “Pi Pi” (two times) receiving sound and the alternate flashing of [TIMER ] and [READY ].<br>To clear the alternate flashing, change the mode on the wireless remote controller.</td><td>TA: Room temp.<br>Ts: Setup temp.</td></tr>
<tr><td>3</td><td>Room temp. control</td><td>1) Adjustment range: Remote controller setup temperature °F(°C)
<table>
<tr><th></th><th>COOL/DRY</th><th>HEAT</th><th>AUTO∗</th></tr>
<tr><td>Wired type</td><td>64(18) to 84(29)</td><td>64(18) to 84(29)</td><td>64(18) to 84(29)</td></tr>
<tr><td>Wireless type</td><td>63(17) to 86(30)</td><td>63(17) to 86(30)</td><td>63(17) to 86(30)</td></tr>
</table></td><td>∗ For Heat recovery system outdoor unit type</td></tr>
</table>

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>3</td><td>Room temp. control (Continued)</td><td>2) By setting the CODE No. 06, the setup temperature in heating operation can be compensated.<br><table><tr><th>Setup data</th><td>0</td><td>2</td><td>4</td><td>6</td></tr><tr><th>Setup temp. compensation</th><td>32˚F(+0C˚)</td><td>36˚F(+2C˚)</td><td>39˚F(+4C˚)</td><td>43˚F(+6C˚)</td></tr></table><br>The initial factory default value<br><table><tr><th>Model</th><th>Set data</th></tr><tr><td>Floor standing cabinet, Floor standing concealed, Floor standing</td><td>0</td></tr><tr><td>Other models</td><td>2</td></tr></table></td><td>Return air temperature shift of heating operation<br><br>Except while sensor of the remote controller is controlled<br>(Code No. [32], “0001”)</td></tr>
<tr><td>4</td><td>Automatic capacity control</td><td>1) Based on the difference between TA and Ts, the operation capacity is determined by the outdoor unit.<br> 
</td><td>Ts: Setup temp.<br>TA: Room temp.</td></tr>
<tr><td>5</td><td>Automatic cooling/heating control</td><td>1) The judgment of selecting COOL/HEAT is carried out as shown below. When TA exceeds Tsh by 1.5 for 10 minutes, the operation is thermostat OFF then, the heating operation (thermostat OFF) is changed to cooling operation.<br> 
<br>Description in the parentheses shows an example of cooling ON/OFF.<br><br>When TA is less than Tsh by 1.5 for 10 minutes, the operation is thermostat OFF then, the cooling operation (thermostat OFF) is changed to heating operation.<br>2) For the automatic capacity control after judgment of cooling/heating, refer to item No.4.<br>3) For temperature compensation of room temp. control in automatic heating, refer to item No.3.</td><td>* For Heat recovery system outdoor unit type<br>Tsc: Setup temp. in cooling operation<br>Tsh: Setup temp. in heating operation + temp. compensation of room temp. control</td></tr>
</table>

| No. | Item | Outline of specifications | Remarks |
|---|---|---|---|
| 6 | Air speed selection | 1) By the command from remote control, fan speed is changed. ((HH), (H+), (H), (L+), (L) or [AUTO])<br>2) When the air speed mode [AUTO] is selected, the air speed varies by the difference between TA and Ts.<br>**<COOL>**<br>  <br><br>< > : Indicate automatic cooling.<br>• Air speed mode [AUTO] in case when remote controller sensor works is equal to that in case when indoor unit sensor works.<br>• If the air speed has been changed once, it is not changed for 3 minutes. However when the air volume is changed, the air speed changes.<br>• When cooling operation has started, select a downward slope for the air speed, that is, the high position.<br>• If the temperature is just on the difference boundary, the air speed is not changed.<br>**<HEAT>**<br>  <br><br>< > : Indicate automatic heating.<br>Indoor unit sensor works.<br>Remote controller sensor works.<br>( ) : indicate the value when the remote controller sensor is worked.<br>• If the air speed has been changed once, it is not changed for 1 minute. However when the air speed changed, the air speed changes.<br>• When heating operation has started, select an upward slope for the air speed, that is, the high position.<br>• If the temperature is at the difference boundary, the air speed is not changed.<br>• If TC2 ≥ 140˚F(60˚C), the air speed increases by 1 step. | HH > H+ > H > L+ > L > UL<br>Fan speed<br>4-way cassette<br>Compact 4-way<br>2-way cassette<br>1-way cassette (SH)<br>Depends on fan speed mode selection at the remote controller. (H+) and (L+) cannot be selected.<br>For Floor Standing Concealed Type,or Floor Standing Cabinet Type,(HH), (H), (L) or [AUTO] can be selected regardless of remote controller models.<br>Code No. 32<br>0000: Indoor unit sensor (Main unit)<br>0001: Remote controller sensor<br>TC2: Temperature of indoor heat exchanger sensor |

| No. | Item | Outline of specifications | Remarks |
|---|---|---|---|
| 6 | Air speed selection (Continued): | | Setting of height ceiling mode at CODE No. [5D] or at SW501 on P.C.board. |

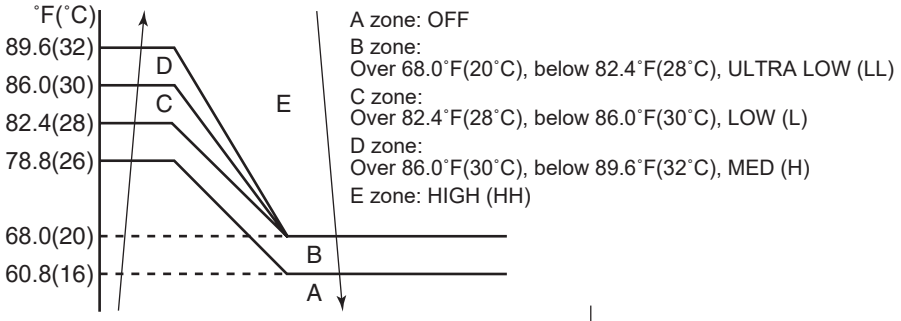
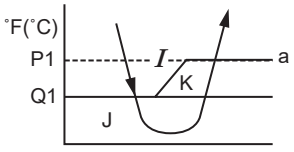
**4-way, compact 4-way (only UP015), 2-way, 1-way (SH)**
(Air speed selection of UP012 or less and UP018 for Compact 4-way are only Standard.)

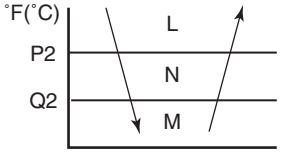
| CODE No. [5d] | Factory default | | Type 1 | | Type 3 | | Type 6 | |
|---|---|---|---|---|---|---|---|---|
| | 0000 | | 0001 | | 0003 | | 0006 | |
| SW501 (1)/(2) | OFF/OFF | | ON/OFF | | OFF/ON | | ON/ON | |
| Tap | COOL | HEAT | COOL | HEAT | COOL | HEAT | COOL | HEAT |
| F1 | | | | | HH | HH | HH | HH |
| F2 | | | HH | HH | | | | |
| F3 | | | | H+ | H+, H | H+, H | H+, H, L+, L | H+, H, L+, L |
| F4 | | | H+ | | | | | |
| F5 | | HH | | H | | | | |
| F6 | HH | | H+ | | L+ | L+ | | |
| F7 | H+ | H+ | | | L | L | | |
| F8 | | H | | L+ | | | | |
| F9 | H | | L+ | L | | | | |
| FA | | L+ | L | | | | | |
| FB | L+ | L | | | | | | |
| FC | L | | | | | | | |
| FD | LL | LL | LL | LL | LL | LL | LL | LL |

**Floor standing**

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

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

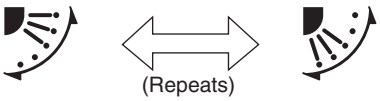
<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>7</td><td>Prevention of cold air discharge</td><td>1. In heating operation, the lowest temperature between TC1 sensor and the highest temperature between TC2 and TCJ sensor is set as the upper bound of the fan speed mode control.<br>• When B zone has been continuing for 6 minutes, the operation shifts to C zone.<br>• For the defrosting operation, the control point is set to 42.8˚F(+6˚C).<br> 
</td><td>TCJ: Temperature of indoor heat exchanger sensor<br>• In D and E zones, priority is given to remote controller air speed setup.<br>• In A zone “ ❁ ” is displayed.</td></tr>
<tr><td>8</td><td>Freeze prevention control (Low temp. release)</td><td>1. In all cooling operation, the air conditioner operates as described below based upon temp. detected by TC1, TC2 and TCJ sensors.<br>• When “J” zone is detected for 5 minutes, the thermostat is forcedly off.<br>• In “K” zone, the timer count is interrupted, and held.<br>• When “I”zone is detected, the timer is cleared and the operation returns to the normal operation.<br>• If “J” zone continues, operation of the indoor fan in LOW mode continues until it reaches the “I”zone.<br>It is reset when the following conditions are satisfied.<br>Reset conditions<br>1) TC1 ≥ 53.6˚F(12˚C) and TCJ ≥ 53.6˚F(12˚C)<br>2) 20 minutes passed after stop.<br> 

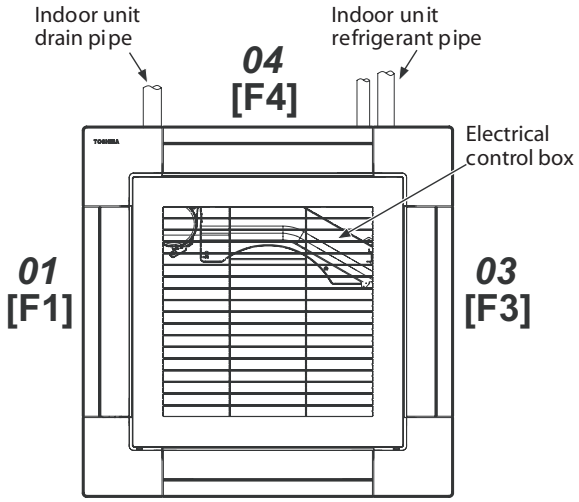
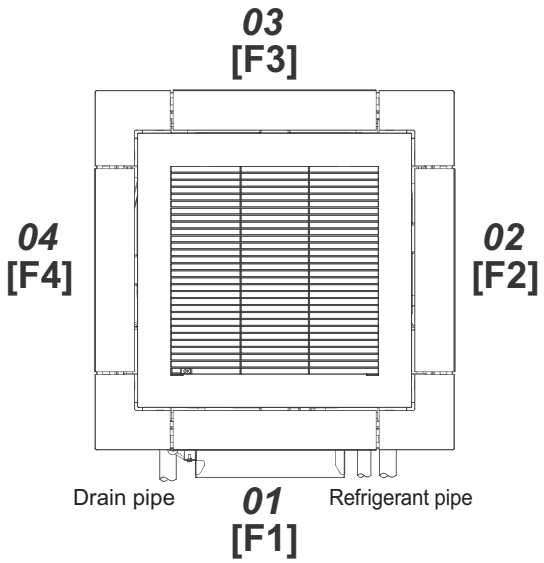
<table>
<tr><th></th><th>TC1</th><th>TC2,TCJ</th></tr>
<tr><td>P1</td><td>50.0˚F(10˚C)(41˚F(5˚C))</td><td>14.0˚F(-10˚C)</td></tr>
<tr><td>Q1</td><td>32.0˚F(0˚C)</td><td>6.8˚F(-14˚C)</td></tr>
</table>
2. In all cooling operation, the air conditioner operates as described below based upon temp. detected by TCJ sensors.<br>• When “M” zone is detected for 45 minutes, the thermostat is forcedly off.<br>• In “N” zone, the timer count is interrupted and held.<br>• When shifting to “M” zone again, the timer count restarts and continues.<br>• If “L”zone is detected, the timer is cleared and the operation returns to normal operation.<br>Reset conditions<br>1) TC1 ≥ 53.6˚F(12˚C) and TCJ ≥ 53.6˚F(12˚C)<br>2) 20 minutes passed after stop.<br> 

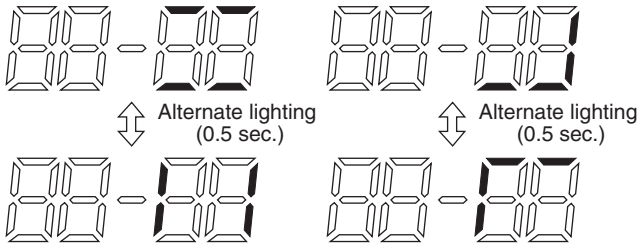
<table>
<tr><th></th><th>TCJ</th></tr>
<tr><td>P2</td><td>41˚F(5˚C)</td></tr>
<tr><td>Q2</td><td>28.4˚F(2.0˚C)</td></tr>
</table></td><td>TC1: Temperature of indoor heat exchanger sensor<br>( ) value:<br>When the power supply is turned on, the forced thermostat becomes OFF if the temperature is less than this indicated temperature.</td></tr>
</table>

| No. | Item | Outline of specifications | Remarks |
|---|---|---|---|
| 9 | Refrigerant (Oil) recovery control in cooling operation | The indoor unit which is under STOP/Thermostat-OFF status or which operates in [FAN] mode performs the following controls when it received the refrigerant oil recovery signal from the outdoor unit at the cooling operation.<br>1) Opens PMV of the indoor unit with a constant opening degree.<br>2) Operates the drain pump for approx. 1 minute during recovery control and after finish of control. Louvers may open depending on indoor unit types. | • Recovery operation normally takes place when it detect that the refrigerant is less.<br>• A model with a drain pump :<br>4-way cassette<br>Compact 4-way<br>2-way cassette<br>1-way cassette (YH) (SH) |
| 10 | Refrigerant (Oil) recovery control in heating operation | The indoor unit which is under STOP/Thermostat-OFF status or which operates in [FAN] mode performs the following controls when it received the refrigerant (Oil) recovery signal from the outdoor unit at the heating operation.<br>1) Opens PMV of the indoor unit with a constant opening degree.<br>2) Detects temperature of TC2 and then closes PMV.<br>3) Counts No. of recovery controls and operates the indoor fan and the drain pump for approx. 1 minute after finish of recovery control until the control count reaches the specified count. Louvers may open depending on indoor unit types. | • The indoor unit which is under thermostat-OFF (COOL) status or which operates in [FAN] mode stops the indoor fan and displays [READY ⊛ ].<br>• Recovery operation normally takes place when it detect that the refrigerant is less.<br>• A model with a drain pump :<br>4-way cassette<br>Compact 4-way<br>2-way cassette<br>1-way cassette (YH) (SH) |
| 11 | Compensation control for short intermittent operation | 1) For 3 minutes after start of operation, the operation is forcedly continued even if the unit enters in Thermostat-OFF condition.<br>2) However the thermostat is OFF giving prior to COOL/HEAT selection, READY ⊛ for operation and protective control. | Usually the priority is given to 5 minutes at outdoor controller side. |
| 12 | Drain pump control | 1) Drain pump operates while in cooling operation. (including DRY operation)<br>2) While the drain pump is operating, if the float switch is operated, the outdoor unit will stop operating but the drain pump will keep continuously operating. After that, the check code is issued.<br>3) When the drain pump stops operating, if the float switch is operated, the outdoor unit will stop and the drain pump will start operating. After the float switch is being operating for roughly 5 minutes, the check code will be issued. | Check Code [P10]<br>• A model with a drain pump :<br>4-way cassette<br>Compact 4-way<br>2-way cassette<br>1-way cassette (YH) (SH) |
| 13 | Elimination of retained heat | 1) When the unit stopped from [HEAT] operation, the indoor fan operates with [L] for approx. 30 seconds. | |
| 14 | HA control | 1) ON/OFF operation is available by input of HA signal from the remote site when connecting to remote controller or the remote ON/OFF interface.<br>2) The HA terminal is ON/OFF depending on HA control output.<br>3) The I/O specifications of HA is in accordance with JEMA standard. | When using HA terminal (CN61) for the remote ON/OFF, a connector sold separately is necessary.<br>In case of group operation, use the connector to connect HA terminal to either master or follower indoor unit. |

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>15</td><td>Display of filter sign [ ▦ ]<br>(Not provided to the wireless type)</td><td>1) The filter sign is displayed with LC by sending the filter-reset signal to the remote controller when the specified time (150H/2500H) elapsed as a result of integration of the operation time of the indoor fan.<br>2) The integrated timer is cleared when the filter-reset signal is received from the remote controller.<br>In this time, if the specified time elapsed, the counted time is reset and the liquid crystal display is deleted.<br><table><tr><th>Filter service life</th><th>2500H</th><th>150H</th></tr><tr><td>Type</td><td>4-way cassette type<br>Compact 4-way cassette type<br>1-way cassette type (SH, YH)<br>2-way cassette type</td><td>Floor standing type<br>Floor standing concealed type<br>Floor standing cabinet type</td></tr></table></td><td>[ ▦ FILTER] goes on.<br>The filter sign is not displayed in RBC-ASCU11*.</td></tr>
<tr><td>16</td><td>Display of<br><b>[ⓘ Operation standby]</b><br><b>[✳ Heating standby]</b></td><td><b><Operation standby></b> Displayed on the remote controller<br>1) When the following check codes are indicated<br>• Open phase of power supply wiring [P05] was detected.<br>• There is an indoor unit that detected the indoor overflow [P10].<br>• There is an indoor unit that detected the interlock alarm [L30].<br>2) During forced thermostat OFF<br>• [COOL/DRY] operation is unavailable because the other indoor unit operates with [HEAT] mode.<br>• [HEAT] operation is unavailable because COOL priority (SW11-bit1 of the Outdoor I/F P. C. board is ON) is set and the other indoor unit operates with [COOL/DRY] mode.<br>3) The above indoor units that cannot operate stay in thermostat OFF status.<br>4) The indoor fan stops because the system performs [Recovery operation for heating refrigerant (Oil)].<br><br><b><Heating standby></b> Displayed on the remote controller<br>The indoor fan stops in order to prevent discharge of cool air when heating operation started or during heating operation. (including the defrost operation during thermostat OFF)</td><td>• <ⓘ <b>Operation standby></b> display<br>No display for wireless type remote controller<br><br>• <✳ <b>Heating standby></b> display</td></tr>
<tr><td>17</td><td>Selection of central control mode</td><td>1) Selection of the contents that can be operated by the remote controller at the indoor unit side is possible according to setting at the central controller side.<br>2) Setting contents<br><table><tr><th rowspan="2">Operation from TCC-LINK central control</th><th colspan="6">Operation on remote controller</th></tr><tr><th>ON/OFF setting</th><th>Operation selection</th><th>Timer setting</th><th>Temp. setting</th><th>Air speed setting</th><th>Air direction setting</th></tr><tr><td>Individual</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td></tr><tr><td>[Central 1]</td><td>×</td><td>○</td><td>×</td><td>○</td><td>○</td><td>○</td></tr><tr><td>[Central 2]</td><td>×</td><td>×</td><td>×</td><td>×</td><td>○</td><td>○</td></tr><tr><td>[Central 3]</td><td>○</td><td>×</td><td>○</td><td>×</td><td>○</td><td>○</td></tr><tr><td>[Central 4]</td><td>○</td><td>×</td><td>○</td><td>○</td><td>○</td><td>○</td></tr></table>(○: Operation possible ×: Operation impossible)</td><td></td></tr>
</table>

| No. | Item | Outline of specifications | Remarks |
|---|---|---|---|
| 18 | Louver control | 1) Louver position setup<br>• When the louver position is changed, the position moves necessarily to downward discharge position once to return to the set position.<br>• The louver position can be set up in the following operation range.<br>**In cooling/dry operation** **In heating/fan operation**<br>  <br>• In group twin/triple operation, the louver positions can be set up collectively or individually.<br>In case that HEAT refrigerant recovery control was performed in STOP status, the louver position becomes horizontal when the operation is resumed.<br>2) Swing setup<br>4-way cassette, Compact 4-way, 2-way cassette, 1-way cassette (SH), Floor standing :<br>• [SWING] is displayed and the following display is repeated.<br>**In all operations**<br>  <br>(Repeats)<br>• In group operation, the louver positions can be set up collectively or individually.<br>1-way cassette (YH) :<br>• [SWING] is displayed and the following display is repeated.<br>**In all operations**<br>  <br>• In group operation, the louver positions can be set up collectively or individually.<br>3) When the unit stopped or the warning was output, the louver is automatically set to full closed position.<br>4) When PRE-HEAT (Heating ready) is displayed (Heating operation started or defrost operation is performed), heating thermostat is off or self-cleaning is performed, the louver is automatically set to horizontal discharge position.<br>* The louver which air direction is individually set or the locked louver closes fully when the unit stops and the louver is automatically set to horizontal discharge position when PRE-HEAT (Heating ready) is displayed, heating thermostat is off. | Subject model :<br>4-way cassette<br>Compact 4-way<br>2-way cassette<br>1-way cassette (SH) |

| No. | Item | Outline of specifications | Remarks |
|---|---|---|---|
| 18 | Louver control (Continued) | **<<Individual air direction setup>>**<br>• Pushing UNIT LOUVER Louver select button enables every discharge port to set up the air direction.<br>The louver numbers that are displayed on the display part correspond to those in the following figure.<br>• In case of no input (key operation) for approx. 5 seconds during setting of individual air direction (during displaying of louver No. on the remote controller screen), the remote controller screen returns to the normal display screen.<br>• For the air direction illustration during normal operation, the air direction of the least No. among the louvers which are block-set is displayed.<br>• While individual air direction is being set, the remote controller operation (Illustration of air direction) and operation of the real machine are linked.<br>• When selecting a case, UNIT LOUVER Louver select button is not pushed or louver No. is not displayed, the air directions of all the louvers are collectively set up.<br>  <br><br>**4-way cassette type**<br>  <br><br>**Compact 4-way cassette type** | Subject model :<br>4-way cassette<br>Compact 4-way<br>Setup from the remote controller without UNIT LOUVER button is unavailable. |

| No. | Item | Outline of specifications | Remarks |
|---|---|---|---|
| 18 | Louver control (Continued) | **<<Selection of Swing mode>>**<br>• For the Swing mode, the following three types of modes are selectable and settable by keeping Swing/Direction SWING/FIX button pushed for 4 seconds or more on the remote controller. (In the case of RBC-AMT*)<br>Swing mode can be selected by Code No.(DN) setup [F0].<br>1) Standard (4 pieces: same phase) swing<br>→ Data: [0001 (At shipment)]<br>When Swing operation is selected, four louvers align at the horizontal discharge position and then start the Swing operation at the same time.<br>2) Dual swing → Data: [0002]<br>When operation is selected, the louvers of louver No. [1] and [03] move to the horizontal discharge position, the louvers of louver No. [02] and [04] move to the downward discharge position and then start the Swing operation at the same time.<br>3) Cycle swing → Data: [0003]<br>When operation is selected, the louver No. [01] moves to the horizontal discharge position, [03] to the downward discharge position, [02] and [04] to the middle position and then start the Swing operation at the same time.<br>• In case of selecting the Swing mode, “Dual swing” or “Cycle swing”, the following numerals is displayed at the center of the remote controller screen for approx. 3 seconds when SWING/FIX button was pushed to select [SWING]. (No display for the standard swing)<br>(In the case of RBC-AMT*)<br>  <br><br>**Dual swing** **Cycle swing**<br>**<<Louver lock (Louver fix)>>**<br>• For the air direction setup for each discharge port, the louver position can be locked during the normal operation.<br>• An arbitrary air direction of an arbitrary louver can be registered and set by keeping UNIT LOUVER button pushed for 4 seconds or more on the remote controller.<br>(In the case of RBC-AMT*)<br>Louver lock can be selected by Code No.(DN) setup [F1], [F2], [F3] or [F4]. (In the case of RBC-ASCU11*)<br>• The louver lock can be set by registering the setup data to Code No.(DN) [F1] to [F4] according to the following table. | Subject model :<br>4-way cassette<br>Compact 4-way<br>Carry out setting operation during stop of the unit; otherwise the unit stops operation.<br>Carry out setting operation during stop of the unit; otherwise the unit stops operation. |

| Code No.(DN) | Objective louver No. | Setup data |
|---|---|---|
| F1 | 01 | 0000: Release (At shipment)<br>0001: Horizontal discharge position<br>~<br>0005: Downward discharge position |
| F2 | 02 | |
| F3 | 03 | |
| F4 | 04 | |

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>18</td><td>Louver control<br>(Continued)</td><td>• If there is the locked louver in the unit, [ ⊕ ] goes on the remote controller screen.<br>• While the following controls are performed, the louvers operate even if executing the louver lock.<br><table><tr><th></th><th>Control which ignores lock</th><th>Objective louver No.</th></tr><tr><td>①</td><td>Operation stop</td><td>Full-close position</td></tr><tr><td>②</td><td>When heating operation started</td><td>Horizontal discharge position</td></tr><tr><td>③</td><td>Heating thermostat OFF</td><td>Horizontal discharge position</td></tr><tr><td>④</td><td>During defrost operation</td><td>Horizontal discharge position</td></tr><tr><td>⑤</td><td>Initialize operation</td><td>Full-close position</td></tr></table>• The real louver corresponding to the louver No. displayed on the remote controller screen during setting of louver lock operates swinging.</td><td>For the setting operation, refer to [How to set louver lock] of Installation Manual.<br><br>It is position check operation and it does not link with the real louver and air direction setup (Illustration on the remote controller screen).</td></tr>
<tr><td>19</td><td>DC motor</td><td>1) When the fan starts, positioning is performed for the starter and the rotor. (Vibrate slightly)<br>2) DC motor operates according to the command from the indoor controller.<br>(Note) If the fan rotates by entry of outside air, etc while the air conditioner stopped, the indoor unit may operate as the fan motor stops.<br>(Note) If the fan lock was detected, the operation of the indoor unit stops and the check code is displayed.</td><td>Check code [P12]<br>Subject model :<br>4-way cassette<br>Compact 4-way<br>2-way cassette<br>1-way cassette (SH)(YH)<br>Floor standing</td></tr>
<tr><td>20</td><td>Power saving mode</td><td>(In the case of RBC-AMT*)<br>1. Push the SAVE button on the remote controller<br>2. The “ ” segment lights up on the wired remote controller display.<br>3. The requirement capacity ratio is limited to approximately 75 %.<br>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.<br>The power saving operation will be enabled at the next time the operation starts.<br>• The operation may differ depending on the connected outdoor unit. Refer to the Service Manual of the outdoor unit.</td><td></td></tr>
</table>

# 6. APPLIED CONTROL AND FUNCTIONS

### 6-1. Method to Set Outdoor Unit Function Code No. (O.DN )

The settings can be changed by operating the switches on the interface board.
In the TU2C-Link communication system, it can also be done by operating the wired remote controller.

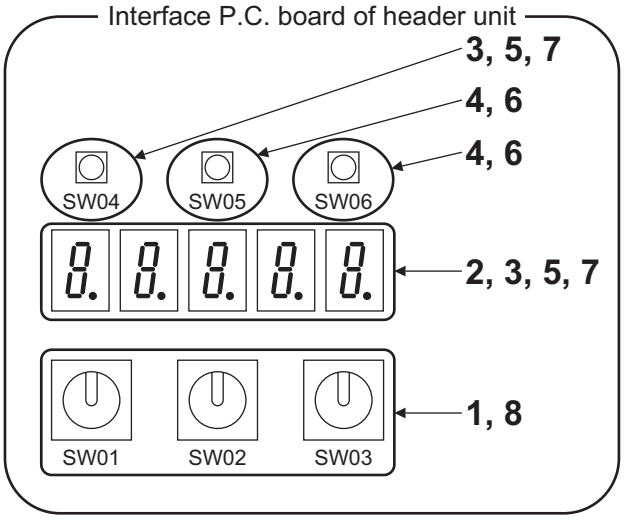
## ◆ Applicable controls setup

(settings at the site)

Basic procedure
Be sure to stop the air conditioner before making settings.
(Change the setup while the air conditioner is networking.)

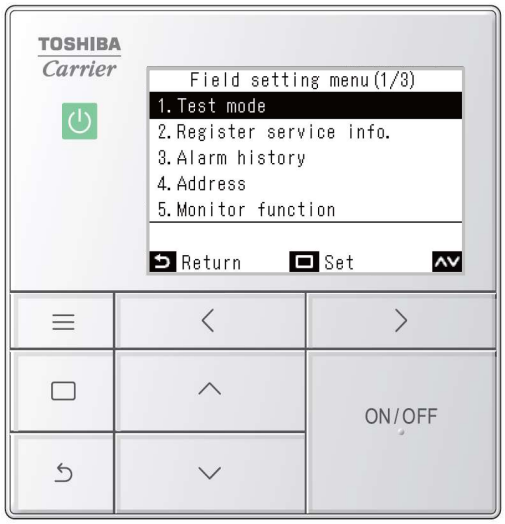
**When switching settings from the interface P.C. board of the outdoor unit**

1. Set the rotary switch of the interface P.C. board on the outdoor unit to SW01= [9], SW02= [1] and SW03= [1].
2. The 7-segment display shows “d n.S E t”.
3. When SW04 is pushed, the 7-segment display switches to “d n.0 0 1” and the outdoor unit code NO. [001] is displayed.
4. Change outdoor unit code NO. [∗∗∗] with SW05 or SW06.
   Push SW05 to advance the code. Push and hold SW05 to advance in 5 steps.
   Push SW06 to return the code. Push and hold SW05 to return in 5 steps.
5. When SW04 is pushed, the 7-segment display blinks “d.* * * *” and the setting data [∗∗∗∗] being set is displayed.
6. Change setting data [∗∗∗∗] with SW05 or SW06.
   Push SW05 to advance the data. Push SW06 to return the setting data.
7. Push and hold SW04 for more than 2 seconds.
   When the flashing stops and remain lit on the display, the setting is complete.
   (To return to the item code setting after completing the setting, or to return to the item code setting without setting, push SW04 once.)
8. Set the rotary switch on the interface P.C. board of the outdoor unit back to SW01= [1], SW02= [1], SW03= [ 1].
9. Reset the power of the outdoor unit (power off for one minute or more) .



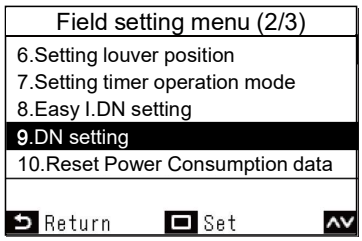
## When switching from the wired remote controller (RBC-AWSU**)

**Basic procedure**
**Be sure to stop the air conditioner before making settings.**
**(Change the setup while the air conditioner is not working.)**



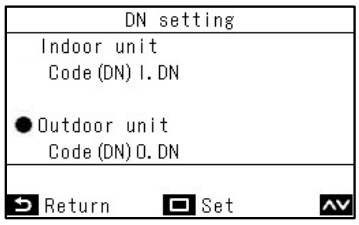

***1*** **Push the [ Menu] button to display the menu screen**

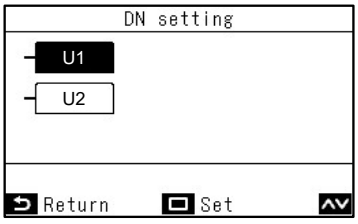
***2*** **Push and hold the [ Menu] button and the [ ] button at the same time to display the "Field setting menu".**
→Push and hold the buttons for more than 4 seconds

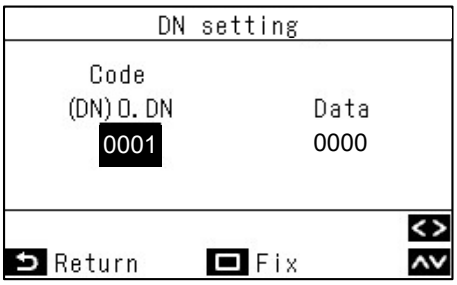


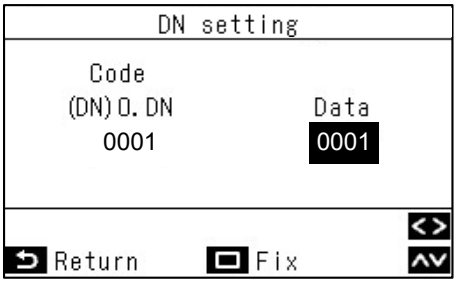

***3*** **Push the [ ] / [ ] button to select "9.DN setting" on the "Field setting menu" screen, then push the " Set" [ Set/Fix]" button.**

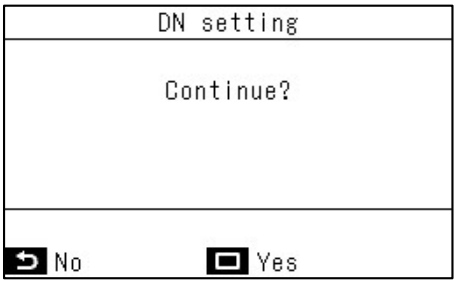
→ Push the [ ] / [ ] button to select the outdoor unit and push the " Set" [ Set / Fix] button.
→ For a connected system, select the outdoor unit.
U1: Header outdoor unit, U2~U4 : Forower outdoor unit
(The fan of the selected outdoor unit will operatre.)
→ Move the cursor to select "Code(DN)" with the [ ] button, then set "Code(DN)" with the [ ] / [ ] button.
→ Move the cursor to select "Data" with the [ ] button, then set "Data" with the [ ] / [ ] button.






***4*** **Refer to the Installation Manual supplied with the outdoor unit or service manual for details about Code(DN) and Data.**

***5*** **Push the [ Menu] button to set the other Code(DN) and Data.After "Continue?" is displayed on the screen, push the " YES" [ Set / Fix] button.**

***6*** **Push the " No " [ Return] button to finish the setting operation. " Setting" appears on the screen for a while,then the screen returns to the "Field setting menu" screen.**

→ Pushing the " No" [ Return] button displays the unit selection screen when the groupcontrol is used. Push the [ Return] button on the unit selection screen to finish the setting operation. " Setting" appears on the screen for a while, then the screen returns to the "Feild setting menu" screen.

**Outdoor Unit Function Code No. (O. DN) Table (Includes Functions Needed to Perform Applied Control on Site)**

<table>
<tr><th>DN</th><th>Item</th><th>Description</th><th>At shipment</th></tr>
<tr><td>003</td><td>Type Setting</td><td>Code range : 0000 to 0255<br>・208-230V
<table>
<tr><th>Model name</th><th>O.DN [003]</th><th>Model name</th><th>O.DN [003]</th></tr>
<tr><td>Undefined</td><td>0000</td><td>MMY-UP072H1HT9P-UL</td><td>0012</td></tr>
<tr><td>MMY-UP0721HT9P-UL</td><td>0001</td><td>MMY-UP096H1HT9P-UL</td><td>0013</td></tr>
<tr><td>MMY-UP0961HT9P-UL</td><td>0002</td><td>MMY-UP120H1HT9P-UL</td><td>0014</td></tr>
<tr><td>MMY-UP1201HT9P-UL</td><td>0003</td><td></td><td></td></tr>
<tr><td>MMY-UP1441HT9P-UL</td><td>0004</td><td></td><td></td></tr>
<tr><td>MMY-UP1681HT9P-UL</td><td>0005</td><td></td><td></td></tr>
</table>
* DN Code [003] = 0000 : Undefined</td><td>According to type</td></tr>
<tr><td>004</td><td>7-segment Display Contents Control</td><td>0000 : Outdoor unit No.<br>0001 : Start priority number</td><td>0000 : Outdoor unit No.</td></tr>
<tr><td>005</td><td>Prohibition/Permission of the NFC Setting</td><td>0000 : Until 48 hours elapsed from the outdoor unit Power ON, WTA App can start a test operation. After 48 hours, it cannot.<br>0001 : Regardless of the elapsed time, WTA cannot start test operation.<br>0002 : Regardless of the elapsed time, WTA can start test operation.</td><td>0000</td></tr>
<tr><td>007</td><td>Compressor Maintenance Period Time</td><td>0000 : 0h<br>0001 to 0063 (1000 h to 63000 h)</td><td>0000 : 0h</td></tr>
<tr><td>008</td><td>Operation Mode Selection Control</td><td>0000 : Non-selected Indoor units keep stand-by state (thermostat OFF).<br>0001 : Changing non-selected indoor units the mode selected</td><td>0000 : Non-Priority</td></tr>
<tr><td>009</td><td>Capacity / Power Demand Control</td><td>0000 : Capacity demand<br>0001 : Power demand</td><td>0000 : Capacity demand</td></tr>
<tr><td>00A</td><td>Power consumption upper limit standard value setting Heating (For power demand)_High</td><td rowspan="5">Code range<br>[0A] [0C] : 0000 to 0255 (1 kW to 255 kW)<br>[0B] [0D] : 0000 to 0099 (0.00 kW to 0.99 kW)
<table>
<tr><th colspan="2" rowspan="2">Power consumption upper limit standard value</th><th colspan="2">DN Code</th></tr>
<tr><th>Heating</th><th>[00A]</th><th>[00B]</th></tr>
<tr><th></th><th>Cooling</th><th>[00C]</th><th>[00D]</th></tr>
<tr><td colspan="2">No power demand function</td><td>0000</td><td>0000</td></tr>
<tr><td colspan="2">0.01 kW</td><td>0000</td><td>0001</td></tr>
<tr><td colspan="2">0.02 kW</td><td>0000</td><td>0002</td></tr>
<tr><td colspan="2">–</td><td>–</td><td>–</td></tr>
<tr><td colspan="2">–</td><td>–</td><td>–</td></tr>
<tr><td colspan="2">10.00 kW</td><td>0010</td><td>0000</td></tr>
<tr><td colspan="2">–</td><td>–</td><td>–</td></tr>
<tr><td colspan="2">–</td><td>–</td><td>–</td></tr>
<tr><td colspan="2">30.50 kW</td><td>0030</td><td>0050</td></tr>
<tr><td colspan="2">–</td><td>–</td><td>–</td></tr>
<tr><td colspan="2">–</td><td>–</td><td>–</td></tr>
</table></td><td>0000 : 0kW</td></tr>
<tr><td>00b</td><td>Power consumption upper limit standard value setting Heating (For power demand)_Low</td><td>0000 : 0kW</td></tr>
<tr><td>00C</td><td>Power consumption upper limit standard value setting Cooling (For power demand)_High</td><td>0000 : 0kW</td></tr>
<tr><td>00d</td><td>Power consumption upper limit standard value setting Cooling (For power demand)_Low</td><td>0000 : 0kW</td></tr>
<tr><td>00E</td><td>Setting Value during Demand Control</td><td rowspan="3">Setting Value during Demand Control for demand standard specifications can be set with DN code [00E]. Its value for expansion specifications can be set in two steps (DN codes [00F], [010]) during the normal operation and demand control (setting value DN Code [00E]).
<table>
<tr><th></th><th colspan="3">DN Code</th></tr>
<tr><th>Demand control</th><th>[00E]</th><th>[00F]</th><th>[010]</th></tr>
<tr><td>100%</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>95%</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>90%</td><td>2</td><td>2</td><td>2</td></tr>
<tr><td>85%</td><td>3</td><td>3</td><td>3</td></tr>
<tr><td>80%</td><td>4</td><td>4</td><td>4 (Factory default)</td></tr>
<tr><td>75%</td><td>5</td><td>5</td><td>5</td></tr>
<tr><td>70%</td><td>6</td><td>6</td><td>6</td></tr>
<tr><td>65%</td><td>7</td><td>7</td><td>7</td></tr>
<tr><td>60%</td><td>8</td><td>8 (Factory default)</td><td>8</td></tr>
<tr><td>55%</td><td>9</td><td>9</td><td>9</td></tr>
<tr><td>50%</td><td>10</td><td>10</td><td>10</td></tr>
<tr><td>–</td><td>11 to 14</td><td>11 to 14</td><td>11 to 14</td></tr>
<tr><td>0%</td><td>15 (Factory default)</td><td>15</td><td>15</td></tr>
</table></td><td>0015 : 0% (Forcedly stop)</td></tr>
<tr><td>00F</td><td>Setting value during Demand Control (Expansion 1)</td><td>0008 : 60%</td></tr>
<tr><td>010</td><td>Setting Value during Demand Control (Expansion 2)</td><td>0004 : 80%</td></tr>
<tr><td>012</td><td>Optional Output Setting Control 1 (CN514)</td><td>0000 : Compressor Operation Output<br>0001 : Operating Rate Output</td><td>0000 : Compressor Operation Output</td></tr>
<tr><td>018</td><td>Priority Operation Mode Setting</td><td>0000 : Priority heating<br>0001 : Priority cooling<br>0002 : Priority operation unit No.<br>0003 : Priority indoor unit</td><td>0000 : Priority heating</td></tr>
<tr><td>019</td><td>Outdoor Fan High Static Pressure Shift</td><td>0000 : Usual<br>0001 : High Static Pressure Operation</td><td>0000 : Usual</td></tr>
<tr><td>01A</td><td>Operation standby Heating standby</td><td>0000 : None<br>0001 : Standby</td><td>0000 : None</td></tr>
</table>

| DN | Item | Description | At shipment |
|---|---|---|---|
| **01d** | System cooperation defrosting settings 1 (number cooperating) | 0000 : None (vassal) 0001 : Prohibition<br>0002 : 2-system cooperation (master unit) 0003 : 3-system cooperation (master unit)<br>* set [01D] = 0002 or 0003 to outdoor unit set to master unit in outdoor DN code [01F] | 0000: None (vassal) |
| **01E** | System cooperation defrosting settings 2 (zone address) | 0000 : None 0001 to 0128: Addresses<br>0001 when not using central controller for control for system cooperation defrosting,<br>0001 to 0128 when using central controller | 0000: None |
| **01F** | System cooperation defrosting settings 3 (cooperation address) | 0000: None 0001: Master unit<br>0002 or 0003: Vassal units 2 or 3 | 0000 : None |
| **03d** | Existence of Automatic Back Up | 0000 : Provided 0001 : Not provided | 0000 : Provided |
| **03F** | Operation Control during Overflow Detection of Indoor Unit | 0000 : System abnormal stop 0001 : System continuous operation (Stop the corresponding indoor unit.) | 0000 : System abnormal stop |
| **040** | Operation Control during Outside Abnormal Input Switching control in receiving [L30][L02] from indoor) | 0000 : System continuous operation (Stop the corresponding indoor unit.) 0001 : System abnormal stop | 0000 : System continuous operation (Stop the corresponding indoor unit.) |
| **058** | Heating unit fan mode restriction during individual defrosting | 0000:Usual 0002:Heating unit fan mode restriction | 0000: Usual |
| **082** | Communication setting | 0000: TCC-Link 0003 : TU2C-Link | 0000: TCC-Link |
| **0C6** | High Heating mode setting<br>※Available only for standard model | 0000: Normal mode 0001 : High heating mode | 0000:Normal mode |

## 6-2. Applied Control of Outdoor Unit

The outdoor fan high static pressure support and priority operation mode setting (cooling / heating / number of units / or priority indoor unit) functions are available by setting relevant switches provided on the interface P.C. board of the outdoor unit.

### 6-2-1. Outdoor Fan High Static Pressure Shift

#### Setup

Change the outdoor DN code. (O.DN [19]) into "Outdoor Fan High Static Pressure operation."
This function must be enabled with every discharge duct connected outdoor unit for both of the header and follower units.

#### Purpose/characteristics

| Outdoor DN Code (O.DN) Setting Operation | Operation |
|---|---|
| O.DN [19] = 0000 | Normal operation |
| O.DN [19] = 0001 | Outdoor Fan High Static Pressure operation |

#### Specifications

Increase the speed of the propeller fan units on the outdoor fan to allow the installation of a duct with a maximum external static pressure not greater than specified in the table below. If a discharge duct with a resistance greater than 0.061 In WG (15 Pa) is to be used, enable this function. The maximum external static pressures of single units are shown below (Table 1). In the case of combined use of multiple outdoor units, set all the units to the same maximum external static pressure as the one with the lowest maximum external static pressure.

**Table 1:** Maximum External Static Pressures of Single Outdoor Units

| Model MMY-MUP | 0721* | 0961* | 1201* | 1441* | 1681* |
|---|---|---|---|---|---|
| Maximum external static pressure | 0.32 inWG(80Pa) | 0.32 inWG(80Pa) | 0.32 inWG(80Pa) | 0.32 inWG(80Pa) | 0.32 inWG(80Pa) |
| (*)Outdoor unit air flow (CFM) | 5650 | 6180 | 7770 | 8650 | 8670 |
| Model MMY-MUP | 072H1* | 096H1* | 120H1* | | |
| Maximum external static pressure | 0.32 inWG(80Pa) | 0.32 inWG(80Pa) | 0.32 inWG(80Pa) | | |
| (*)Outdoor unit air flow (CFM) | 6340 | 7770 | 7415 | | |

(*) Calculate duct resistance from outdoor unit air flow.

### 6-2-2. Priority Operation Mode Setting

**Purpose/characteristics**

This function allows switching between priority cooling and priority heating.
Four patterns of priority operation mode setting are available as shown in the table below. Select a suitable priority mode according to the needs of the customer.

**Setup**

**⚠ CAUTION**

In the case of the priority indoor unit mode, it is necessary to set up the specific indoor unit chosen for priority operation
(a single unit only).

(1) Outdoor unit setup method (header unit)

| Outdoor DN Code (O.DN) Setting | Operation |
|---|---|
| O.DN [18] = 0000 | Priority heating (factory default) |
| O.DN [18] = 0001 | Priority cooling |
| O.DN [18] = 0002 | Priority operation based on No. of units in operation (priority given to the operation mode with the largest share of units in operation) |
| O.DN [18] = 0003 | Priority indoor unit (priority given to the operation mode of the specific indoor unit set up for priority operation) |

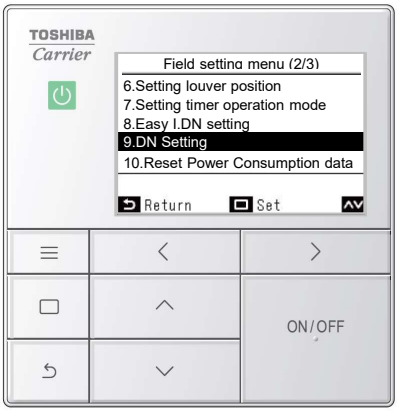
(2) Indoor unit setup method for priority indoor unit mode
The setting can be changed only when the system is at rest. (Be sure to turn off the system prior to this operation.)

# CODE No.(DN) setting

## ■ Wired remote controller (RBC-AWSU**)

Perform the advanced settings for the air conditioner.
Carry out the setting operation while the indoor unit is stopped.(Turn off the air conditioning unit before starting the setting operation.)

Display example of AWSU52*




**1** **Push the [ Menu] button to display the menu screen.**

**2** **Push and hold the [ Menu] button and the [ ] button at the same time to display the "Field setting menu".**

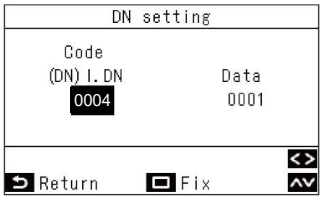
Push and hold the buttons for more than 4 seconds.

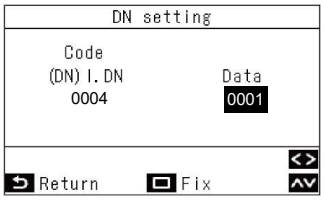
**3** **Push the [ ] / [ ] button to select "9.DN setting" on the "Field setting menu" screen,then push the " Set" [ Set / Fix] button.**

The fan and louver of the Indoor unit operate.When the group control is used,the fan and louver of the selected Indoor unit operate.

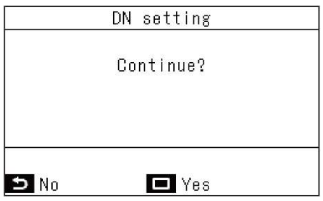
**4** **Move the cursor to select "DN code" with the " " button, then set "0004" with the [ ] / [ ] button.**

**5** **Move the cursor to select "data" with the " " button, then set "0001" with the [ ] / [ ] button.**




**6** **Push the [ Menu] button to set the other DN codes, then "Continue?" is displyaed on the screen.**




**7** **Push the " No" [ Return] button to finish the setting operation." " appears on the screen for a while, then the screen returns to the "Field setting menu" screen.**

Pushing the " No" [ Return] button displays the unit selection screen when the group control is used. Push the [ Return] button on the unit selection screen to finish the setting operaion " " appears on the screen for a

**8** **Push the [ Return] button to return.**

## 6-2-3. Applied Control of Outdoor Unit

Optional control P.C. boards provide access to a range of functions as listed below.

| No. | Function | Outdoor unit for control P.C. board Connection | Control P.C. board to be used | | | Outdoor unit interface P.C. board setting* | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | TCB-PCDM4UL | TCB-PCMO4UL | TCB-PCIN4UL | Connector No. | DIP SW No. | Bit ON | Outdoor unit DN Code (O.DN) |
| 1 | Power peak-cut Control (Standard) *Limit a maximum capacity | Header unit | ✓ | — | — | CN513 (blue) | — | — | [009]=0 (Factory default) |
| | Power peak-cut Control (Standard) *Limit a maximum power | Header unit | ✓ | — | — | CN513 (blue) | — | — | [009]=1 |
| | Power peak-cut Control (For one input function) *Limit a maximum capacity | Header unit | ✓ | — | — | CN513 (blue) | SW105 | 1 | [009]=0 (Factory default) |
| | Power peak-cut Control (For one input function) *Limit a maximum power | Header unit | ✓ | — | — | CN513 (blue) | SW105 | 1 | [009]=1 |
| 2 | Power peak-cut Control (Enhanced Function) *Limit a maximum capacity | Header unit | ✓ | — | — | CN513 (blue) | SW105 | 2 | [009]=0 (Factory default) |
| | Power peak-cut Control (Enhanced Function) *Limit a maximum power | Header unit | ✓ | — | — | CN513 (blue) | SW105 | 2 | [009]=1 |
| 3 | Snowfall Fan Control | Header unit | — | ✓ | — | CN509 (black) | — | — | — |
| 4 | External master ON/OFF Control | Header unit | — | ✓ | — | CN512 (blue) | — | — | — |
| 5 | Night operation (Sound reduction) Control | Header unit | — | ✓ | — | CN508 (red) | — | — | — |
| 6 | Operation Mode Selection Control | Header unit | — | ✓ | — | CN510 (white) | — | — | [008]=0 (Factory default) |
| | Operation Mode Selection Control (forced choice) | Header unit | — | ✓ | — | CN510 (white) | — | — | [008]=1 |
| 7 | Trouble/Operation output | Header unit | — | — | ✓ | CN511 (green) | — | — | — |
| 8 | Compressor Operation Output | Individual outdoor unit | — | — | ✓ | CN514 (green) | — | — | [012]=0 (Factory default) |
| 9 | Operating Rate Output | Header unit | — | — | ✓ | CN514 (green) | — | — | [012]=1 |

To limit a maximum power, set the outdoor unit O.DN code to [009]=1, and set the criteria value of a maximum power consumption with O.DN code [00A], [00B], [00C] and [00D]. Input the values for both cooling and heating.
Outdoor unit DN Code (O.DN) [00C], [00D]
Criteria value setting for a maximum cooling power
(e.g.) When the maximum standard value of cooling power consumption is set as 19.35 kW = 19.35kW

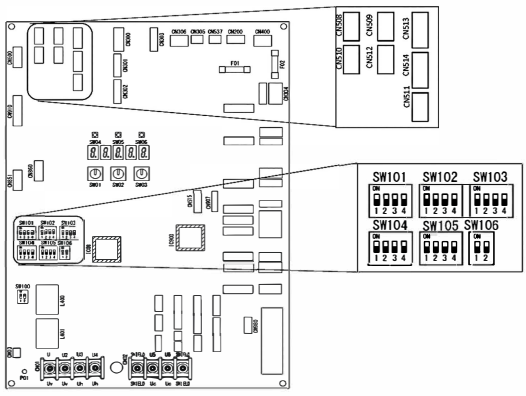
| Outdoor unit DN Code (O.DN) | [00C] | [00D] |
|---|---|---|
| Value | 19 | 35 |

Outdoor unit DN Code (O.DN) [00A], [00B]
Criteria value setting for a maximum heating power
(e.g.) When the maximum standard value of heating power consumption is set as 14.00 kW = 14.00kW

| Outdoor unit DN Code (O.DN) | [00A] | [00B] |
|---|---|---|
| Value | 14 | 00 |

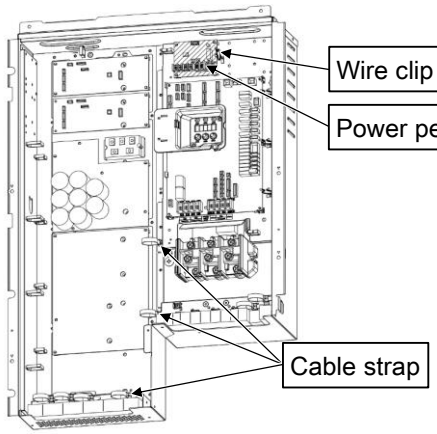
## Layout of Outdoor Unit Interface P.C. Board

***** For Applicable controls, switch the DIP SW on the P.C. board or set the outdoor unit O.DN.

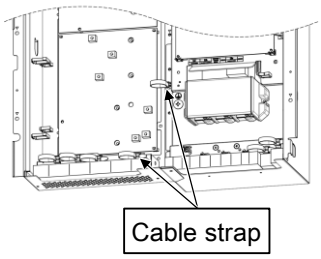


Optional application control board mounting position.

Power peak-cut control PC board(TCB-PCD4UL)

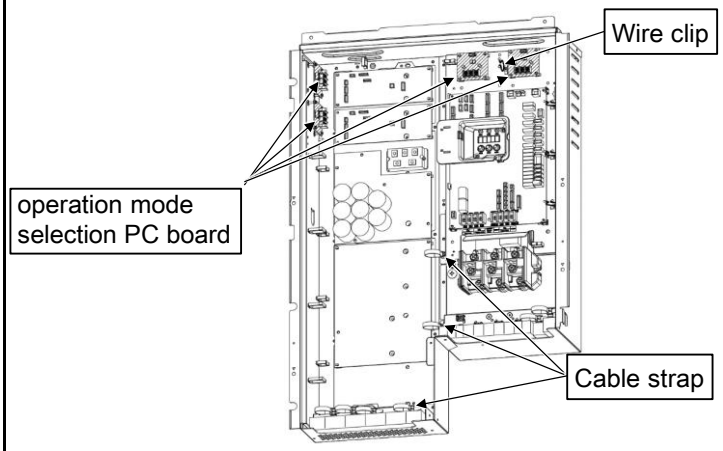



Inverter case type A
(MMY-MUP1201*, 1441*, 1681*, 096H1*, 120H1*)
Quantity of cable straps : 3

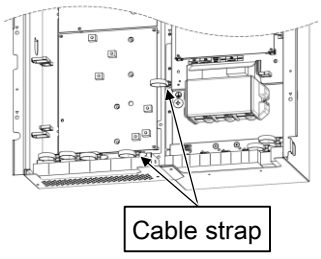



Inverter case type B
(MMY-MUP0721*, 0961*, 072H1*)
Quantity of cable straps : 2

Operation mode selection PC board(TCB-PCMO4UL)

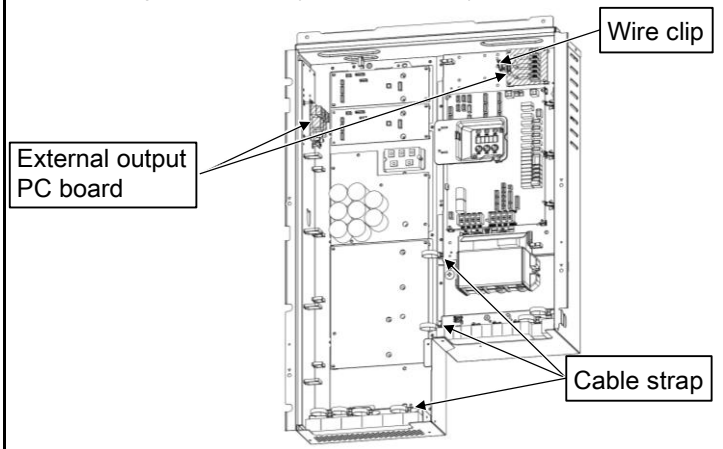



Inverter case type A
(MMY-MUP1201*, 1441*, 1681*, 096H1*, 120H1*)
Quantity of cable straps : 3

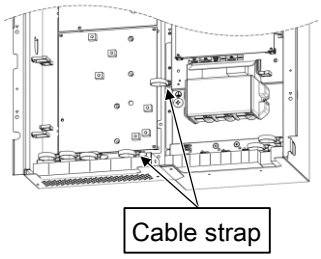



Inverter case type B
(MMY-MUP0721*, 0961*, 072H1*)
Quantity of cable straps : 2

External output PC board(TCB-PCIN4UL)



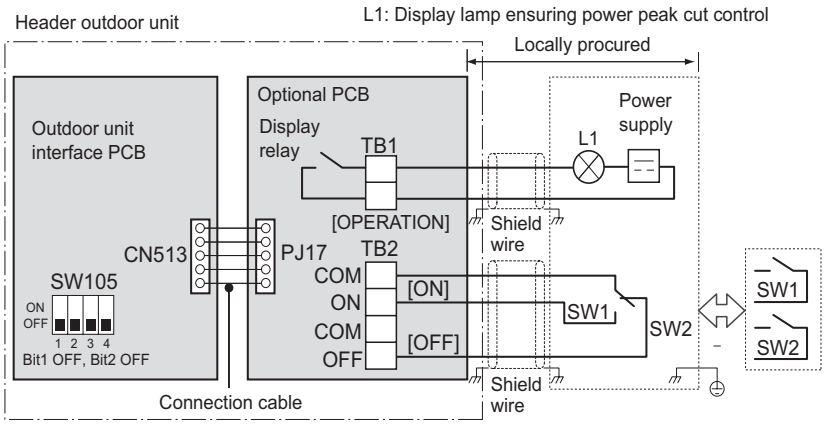

Inverter case type A
(MMY-MUP1201*, 1441*, 1681*, 096H1*, 120H1*)
Quantity of cable straps : 3




Inverter case type B
(MMY-MUP0721*, 0961*, 072H1*)
Quantity of cable straps : 2

### 6-2-3-1. Power peak-cut Control (Standard)

### (1) Four-core cable support




For SW1 and SW2, be sure to provide no-voltage contacts for each terminal.
The input signals of SW1 and SW2 may be pulse input (100 msec or more) or continuous make.

### Operation

The demand request signal from the outside restricts the maximum capability (or maximum electric power) of an outdoor unit.
L1: Power peak-cut control indication lamp SW1: Power peak-cut control ON switch (ON as long as target power peak-cut control has been reached or exceeded, normally OFF)*1
SW2: Power peak-cut control OFF switch (OFF as long as target power peak-cut control has not been reached or exceeded, normally ON)*1

*1 The inputs of SW1 and SW2 can be either pulse (100 msec or longer) or step signals.
Do not turn on SW1 and SW2 simultaneously.

* Be sure to provide a contact for each terminal.

### Power peak-cut control settings

[2-stage switching] < SW105 bit1 OFF, bit2 OFF >

Demand: power peak-cut control

| Control item | Optional P.C.board | | | Outdoor unit interface P.C.board | | | |
|---|---|---|---|---|---|---|---|
| | Input | | Display relay | SW105 | | Outdoor unit DN Code [00E] | |
| | SW1 | SW2 | (L1) | Bit1 | Bit2 | Factory default [00E] = 15 | [00E] = 0 to 10 |
| Input demand OFF signal to release the demand | OFF | ON | OFF | OFF | OFF | 100% (normal operation) | 100% (normal operation) |
| Input demand ON signal to control the demand | ON | OFF | ON | OFF | OFF | 0% (forced stop) | Approx. **X** (50% to 100%) (upper limit regulated) |

* The upper limit **X**% can be regulated with the outdoor DN Code (O.DN) [00E].

| Outdoor unit DN Code (O.DN) [00E] | X |
|---|---|
| 0 | 100% |
| 1 | 95% |
| 2 | 90% |
| 3 | 85% |
| 4 | 80% |
| 5 | 75% |
| 6 | 70% |
| 7 | 65% |
| 8 | 60% |
| 9 | 55% |
| 10 | 50% |
| 15 (factory default) | 0% (forced stop) |

**Note 1:** Specifications of display relay contact

- The terminal for display output ([Operation] terminal) must satisfy the following electrical rating.

<Electrical Rating>
220 to 240 VAC, 10 mA or more, 1 A or less
24 VAC, 10 mA or more, 1 A or less (non-conductive load)

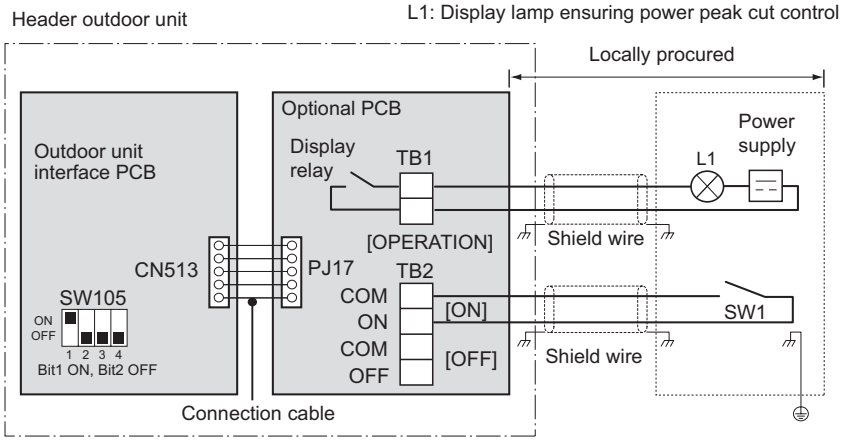
When connecting a conductive load (e.g. relay coil) to the display relay load, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

**Note 2**: COM contact specifications

- COM terminals have DC12 V output with a basic insulation. Use a switch, such as a relay or photocoupler, insulated from a controller (locally procured) for CO (Change-Over) contact or NO (normally-open) contact.
- DC12 V has a current-limiting resistor of 3.3 kΩ.
- For non-voltage contacts, use a relay with minimum applicable load of DC12V, 3mA or less.

### (2) Two-core cable support

Setting SW105 bit1 on I/F P.C.board of the header outdoor unit to ON allows ON/OFF power peak-cut control to be switched using [ON] terminal input (SW1) alone.




[2-stage switching] < SW105 bit1 ON, bit2 OFF >
Power peak-cut control turns ON when SW 1 in the wiring example is ON (continuous make).

Demand: power peak-cut control

| Control item | Optional P.C.board | | Outdoor unit interface P.C.board | | | |
|---|---|---|---|---|---|---|
| | Input | Display relay | SW105 | | Outdoor unit DN Code [00E] | |
| | SW1 | (L1) | Bit1 | Bit2 | Factory default [00E] = 15 | [00E] = 0 to 10 |
| Input demand OFF signal to release the demand | OFF | OFF | ON | OFF | 100% (normal operation) | 100% (normal operation) |
| Input demand ON signal to control the demand | ON | ON | | | 0% (forced stop) | Approx. **X** (50% to 100%) (upper limit regulated) |

* The upper limit **X**% can be regulated with the outdoor DN Code (O.DN) [00E].

| Outdoor unit DN Code (O.DN) [00E] | **X** |
|---|---|
| 0 | 100% |
| 1 | 95% |
| 2 | 90% |
| 3 | 85% |
| 4 | 80% |
| 5 | 75% |
| 6 | 70% |
| 7 | 65% |
| 8 | 60% |
| 9 | 55% |
| 10 | 50% |
| 15 (factory default) | 0% (forced stop) |

**Note 1:** Specifications of display relay contact

- The terminal for display output ([Operation] terminal) must satisfy the following electrical rating.

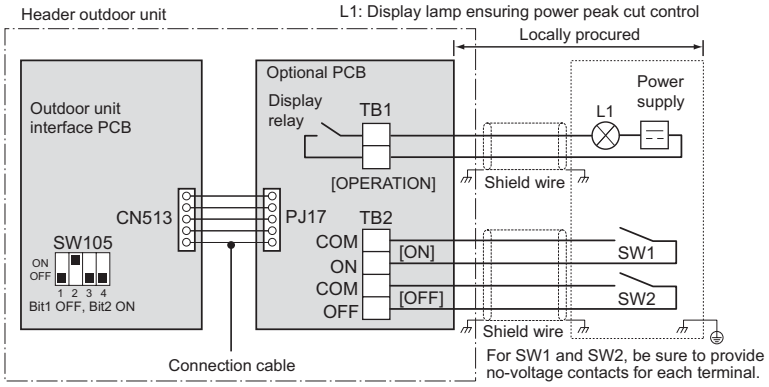
<Electrical Rating>
220 to 240 VAC, 10 mA or more, 1 A or less
24 VAC, 10 mA or more, 1 A or less (non-conductive load)

When connecting a conductive load (e.g. relay coil) to the display relay load, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

**Note 2**: COM contact specifications

- COM terminals have DC12 V output with a basic insulation. Use a switch, such as a relay or photocoupler, insulated from a controller (locally procured) for CO (Change-Over) contact or NO (normally-open) contact.
- DC12 V has a current-limiting resistor of 3.3 kΩ.
- For non-voltage contacts, use a relay with minimum applicable load of DC12V,3mA or less.

The optional P.C. board should be connected to the header outdoor unit (U1).




## 6-2-3-2. Power peak-cut Control (Extended)

### Operation

The demand request signal from the outside restricts the maximum capability (or maximum electric power) of an outdoor unit.
L1: Power peak-cut control indication lamp
SW1: Power peak-cut control ON switch*1
SW2: Power peak-cut control OFF switch*1

*1 The inputs of SW1 and SW2 can be either pulse (100 msec or longer) or step signals.

* Be sure to provide a contact for each terminal.

### Extended power peak-cut control settings

[4-stage switching] <SW105 Bit1 ON, Bit2 ON>

Demand: power peak-cut control

| Control item | Optional P.C.board | | | Outdoor unit interface P.C.board | | | |
|---|---|---|---|---|---|---|---|
| | Input | | Display relay | SW105 | | Outdoor DN Code [***] | |
| | SW1 | SW2 | (L1) | Bit1 | Bit2 | Factory default [00E] = 15, [00F] = 8, [010] = 4 | [00E] = **X**, [00F] = **Y**, [010] = **Z** |
| Input demand OFF signal to release the demand | OFF | OFF | OFF | OFF | ON | 100% (normal operation) | 100% (normal operation) |
| Input demand ON signal to control the demand | ON | OFF | ON | | | Approx. 80% (upper limit regulated) | Approx. **Z**% (50% to 100%) (upper limit regulated) |
| Input demand ON signal to control the demand | OFF | ON | ON | | | Approx. 60% (upper limit regulated) | Approx. **Y**% (50% to 100%) (upper limit regulated) |
| Input demand ON signal to control the demand | ON | ON | ON | | | 0% (forced stop) | Approx. **X**% (50% to 100%) (upper limit regulated) |

*The upper limit **X**%, **Y**%, **Z**% can be regulated with the outdoor DN Code (O.DN) [00E] [00F] [010].

| Outdoor unit DN Code (O.DN) [00E] | **X** |
|---|---|
| 0 | 100% |
| 1 | 95% |
| 2 | 90% |
| 3 | 85% |
| 4 | 80% |
| 5 | 75% |
| 6 | 70% |
| 7 | 65% |
| 8 | 60% |
| 9 | 55% |
| 10 | 50% |
| 15 (factory default) | 0% (forced stop) |

| Outdoor unit DN Code (O.DN) [00F] | **Y** |
|---|---|
| 0 | 100% |
| 1 | 95% |
| 2 | 90% |
| 3 | 85% |
| 4 | 80% |
| 5 | 75% |
| 6 | 70% |
| 7 | 65% |
| 8 (factory default) | 60% |
| 9 | 55% |
| 10 | 50% |
| 15 | 0% (forced stop) |

| Outdoor unit DN Code (O.DN) [010] | **Z** |
|---|---|
| 0 | 100% |
| 1 | 95% |
| 2 | 90% |
| 3 | 85% |
| 4 (factory default) | 80% |
| 5 | 75% |
| 6 | 70% |
| 7 | 65% |
| 8 | 60% |
| 9 | 55% |
| 10 | 50% |
| 15 | 0% (forced stop) |

**Note 1:** Specifications of display relay contact

- The terminal for display output ([Operation] terminal) must satisfy the following electrical rating.

<Electrical Rating>
220 to 240 VAC, 10 mA or more, 1 A or less
24 VAC, 10 mA or more, 1 A or less (non-conductive load)

When connecting a conductive load (e.g. relay coil) to the display relay load, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit. The optional P.C. board should be connected to the header outdoor unit (U1).

**Note 2**: COM contact specifications

- COM terminals have DC12 V output with a basic insulation. Use a switch, such as a relay or photocoupler, insulated from a controller (locally procured) for CO (Change-Over) contact or NO (normally-open) contact.
- DC12 V has a current-limiting resistor of 3.3 kΩ.
- For non-voltage contacts, use a relay with minimum applicable load of DC12V,3mA or less.

## [Power peak-cut control through electric power]

For the Power peak-cut control, the Power peak-cut control through electric power can be set by Outdoor unit DN code (O.DN) [009].

The Power peak-cut control through electric power regulates outdoor unit output so that power consumption does not exceed the upper limit value set.

(1) To change into the power peak-cut control through power, set the outdoor unit DN code to [009] = 1.
* To return to the power peak-cut control through capacity, set the outdoor unit DN code to [009] = 0.

(2) Check that the criteria value of a maximum power in cooling or heating is set to [00A] to [00D].
For the connected outdoor units system, set the criteria value of a maximum power consumption (the total of each outdoor unit power) to the header outdoor unit.

Outdoor unit DN Code (O.DN) [00C], [00D]
Criteria value setting for a maximum cooling power
(e.g.) When the maximum standard value of cooling power consumption is set as 19.35 kW = 19.35kW

| Outdoor unit DN Code (O.DN) | [00C] | [00D] |
|---|---|---|
| Value | 19 | 35 |

Outdoor unit DN Code (O.DN) [00A], [00B]
Criteria value setting for a maximum heating power
(e.g.) When the maximum standard value of heating power consumption is set as 14.00 kW = 14.00kW

| Outdoor unit DN Code (O.DN) | [00A] | [00B] |
|---|---|---|
| Value | 14 | 00 |

(3) If ON signal is input from the optional P.C. board, the power peak-cut control through electric power operates.
Input method of ON signal for power peak-cut control is the same as that for normal peak-cut control. Refer to “Standard”, “For one input function”, or “Enhanced Function”.
The power peak-cut control regulates the outdoor unit capacity so that it does not exceed the upper limit value (X%,Y%,Z% of the criteria value for a maximum power set in (2)) set by [00E] [00F] [010] of (O.DN).
e.g.) If the criteria value of maximum heating power during 80% demand control is set to 14.00kW, the upper limit control becomes 11.2kW (14.00kW×80%=11.20kW), the outdoor unit output is controlled so that the power consumption does not exceed 11.20kW.

NOTE 1: To protect a refrigerant cycle, the power peak-cut may not be operated during the defrost operation, oil recovery operation, or refrigerant recovery operation.

NOTE 2: For demand OFF, the outdoor unit may operate beyond the setting criteria value of a maximum power consumption because the power limit control does not function.

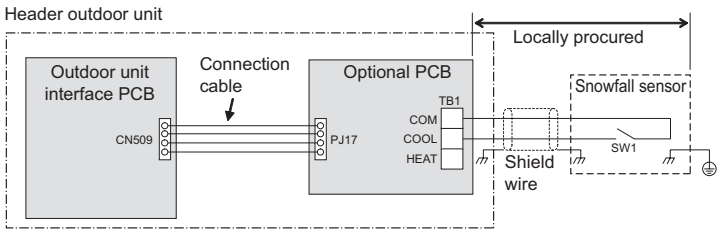
NOTE 3: Power consumption is estimated, causing approx. ±5 % difference from the actual power consumption.
To perform accurate power peak-cut control, use a demand controller and electric power meter.

NOTE 4: The power consumption of the indoor units is not included.

NOTE 5: When power consumption does not decrease or expected effects are not obtained, change the upper limit value of X%, Y%, Z% or the criteria value for a maximum power.

NOTE 6: In the case of Upper limit 100% (normal operation), the operation is without peak-cut control.
Peak-cut control is not performed with the value set to O.DN [00A] - [00D].

### 6-2-3-3. Snowfall Fan Control




SW1: Snowfall detection switch (snowfall sensor)

**Operation**

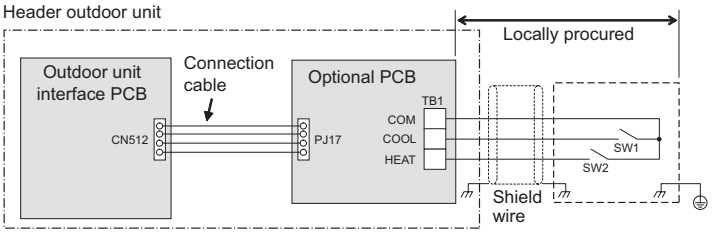
An external snowfall signal turns on the outdoor unit fan.

| Terminal | Input signal | Operation |
|---|---|---|
| COOL (SW1) | ON / OFF | Snowfall fan control (Turn on outdoor unit fan) |
| | ON / OFF | Normal operation (Cancels control) |

The input signal is recognized during its rising/falling phase.
(After reaching the top/bottom of the rising/falling edge, the signal must remain there for at least 100 ms.)
The optional P.C. board should be connected to the header outdoor unit (U1).

COM terminals have DC12 V output with a basic insulation. Use a switch, such as a relay or photocoupler, insulated from a controller (locally procured) for CO (Change-Over) contact or NO (normally-open) contact. DC12 V has a current-limiting resistor of 3.3 kΩ.
For non-voltage contacts, use a relay with minimum applicable load of DC12V,3mA or less.

### 6-2-3-4. External master ON/OFF Control




SW1: Operation input switch
SW2: Stop input switch

**Operation**

The system is started/stopped from the outdoor unit.

| Terminal | Input signal | Operation |
|---|---|---|
| COOL (SW1) | ON / OFF: 100ms, Batch-operation accepted; It does not matter whether the state is ON or OFF after 100 msec from the signal input.; Turn SW1 OFF before sending | Turns on all indoor units |
| HEAT (SW2) | ON / OFF: 100ms, Batch-stop accepted; Batch-operation; Batch-stop | Turns off all indoor units |

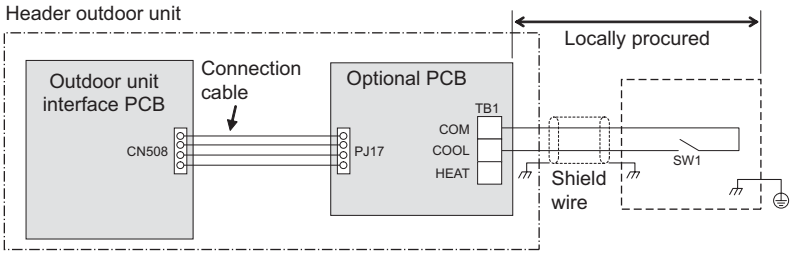
- Input signal is detected in the rising edge between OFF and ON of SW1/SW2 and the control is accepted in 100 msec from the edge.
- When COOL terminals (SW1 and SW2) are simultaneously turned ON, the control turned ON first is valid, and the control turned ON later is invalid.

## ⚠ CAUTION

(1) Do not turn on the COOL (SW1) and HEAT (SW2) terminals simultaneously.
(2) COM terminals have DC12 V output with a basic insulation. Use a switch, such as a relay or photocoupler, insulated from a controller (locally procured) for CO (Change-Over) contact or NO (normally-open) contact. DC12 V has a current-limiting resistor of 3.3 kΩ.
For non-voltage contacts, use a relay with minimum applicable load of DC12V,3mA or less.

The optional P.C. board should be connected to the header outdoor unit (U1).

### 6-2-3-5. Night operation (sound reduction) Control




SW1: Night time signal switch

## Operation

This function decreases noise at night or other times as necessary.

| Terminal | Input signal | Operation |
|---|---|---|
| COOL (SW1) | ON → OFF | Night time control |
| | ON → OFF | Normal operation |

The input signal is recognized during its rising/falling phase.
(After reaching the top/bottom of the rising/falling edge, the signal must remain there for at least 100 ms.)
The optional P.C. board should be connected to the header outdoor unit (U1).

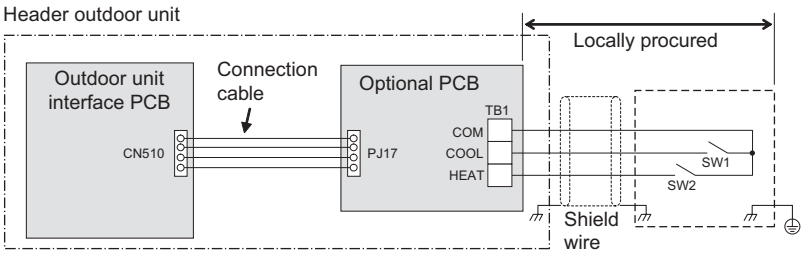
The system's capacity is reduced during low-noise operation.
The table below provides a rough guide to this capacity reduction.

| Model MMY- | Night operation sound reduction dB(A) (COOL/HEAT) | Capacity | |
|---|---|---|---|
| | | COOL | HEAT |
| MUP0721* | 50/50 | Approx. 85% | Approx. 85% |
| MUP0961* | 50/50 | Approx. 70% | Approx. 70% |
| MUP1201* | 54/53 | Approx. 85% | Approx. 80% |
| MUP1441* | 54/53 | Approx. 85% | Approx. 70% |
| MUP1681* | 54/54 | Approx. 80% | Approx. 65% |
| MUP072H1* | 50/50 | Approx. 85% | Approx. 85% |
| MUP096H1* | 54/53 | Approx. 90% | Approx. 90% |
| MUP120H1* | 54/53 | Approx. 85% | Approx. 80% |

* Position of noise measuring device: 1 m from the front face of the set and 1.5 m above ground (anechoic sound)

- COM terminals have DC12 V output with a basic insulation.
  Use a switch, such as a relay or photo coupler, insulated from a controller (locally procured) for CO (Change-Over) contact or NO (normally-open) contact.
- DC12 V has a current-limiting resistor of 3.3 kΩ.
- For non-voltage contacts, use a relay with minimum applicable load of DC12V,3mA or less.

## 6-2-3-6. Operation Mode Selection Control




SW1: Cooling mode specified input switch
SW2: Heating mode specified input switch

**NOTE**

SW1: COOL mode selection switch
SW2: HEAT mode selection switch

| Input signal | | Operation |
|---|---|---|
| COOL (SW1) | HEAT (SW2) | |
| OFF | OFF | Normal operation |
| ON | OFF | Only cooling operation allowed |
| OFF | ON | Only heating operation allowed |

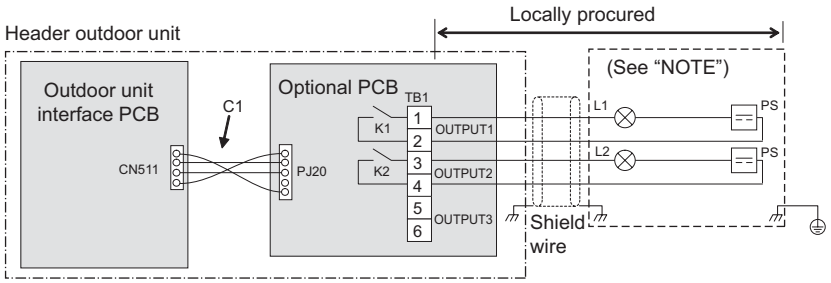
### Indoor unit operation intervention function

The statuses of indoor units operating in a mode other than the selected operation mode can be switched by setting the outdoor DN Code of the header outdoor unit.
The optional P.C. board should be connected to the header outdoor unit (U1).

<table>
<tr><th>Outdoor DN Code (O.DN)</th><th>Details of Processing</th></tr>
<tr><td>O.DN [008] = 0 (factory default)</td><td>Unallowed indoor units in a mode other than the P.C.board selection modes are not treated as priority (thermostat OFF state).
<table>
<tr><th rowspan="2">P.C. board selection mode</th><th colspan="2">Input Signal</th><th rowspan="2">Remote control</th><th rowspan="2">Operation State</th></tr>
<tr><th>COOL (SW1)</th><th>HEAT (SW2)</th></tr>
<tr><td rowspan="3">Normal</td><td rowspan="3">OFF</td><td rowspan="3">OFF</td><td>❄ or 💧</td><td rowspan="3">Follow the remote controller.</td></tr>
<tr><td>☀</td></tr>
<tr><td>🌀</td></tr>
<tr><td rowspan="3">Cooling operation only allowed</td><td rowspan="3">ON</td><td rowspan="3">OFF</td><td>❄ or 💧</td><td>Follow the remote controller (Normal cooling operation).</td></tr>
<tr><td>☀</td><td>Thermostat OFF (Air blow operation at super-slow blow rate)</td></tr>
<tr><td>🌀</td><td>Follow the remote controller (Normal air blow operation).</td></tr>
<tr><td rowspan="3">Heating operation only allowed</td><td rowspan="3">OFF</td><td rowspan="3">ON</td><td>❄ or 💧</td><td>Thermostat OFF (Air blow operation at blow rate set on remote control)</td></tr>
<tr><td>☀</td><td>Follow the remote controller (Normal heating operation).</td></tr>
<tr><td>🌀</td><td>Follow the remote controller (Normal air blow operation).</td></tr>
</table></td></tr>
<tr><td>O.DN [008]= 1</td><td>Only operation modes and air blow operation selected on the P.C.board can be selected on the remote controller.<br>When the input signal is turned ON, indoor units operated in a mode other than the P.C.board selection mode are forcibly switched to the P.C.board selection modes.
<table>
<tr><th rowspan="2">P.C. board selection mode</th><th colspan="2">Input Signal</th><th rowspan="2">Remote control</th><th rowspan="2"></th></tr>
<tr><th>COOL (SW1)</th><th>HEAT (SW2)</th></tr>
<tr><td>Normal</td><td>OFF</td><td>OFF</td><td>❄, 💧, ☀ or 🌀 can be selected.</td><td></td></tr>
<tr><td>COOL</td><td>ON</td><td>OFF</td><td>• Only ❄ , 💧 or 🌀 can be selected.<br>• Indoor units in Heat mode are forcibly switched to the Cool mode.</td><td rowspan="2">When using the remote control, (mode select control) indicator is displayed.</td></tr>
<tr><td>HEAT</td><td>OFF</td><td>ON</td><td>• Only ☀ or 🌀 can be selected.<br>• Indoor units in Cool or Dry mode are forcibly switched to the Heat mode.</td></tr>
</table></td></tr>
</table>

- COM terminals have DC12 V output with a basic insulation. Use a switch, such as a relay or photocoupler, insulated from a controller (locally procured) for CO (Change-Over) contact or NO (normally-open) contact.
- DC12 V has a current-limiting resistor of 3.3 kΩ.
- For non-voltage contacts, use a relay with minimum applicable load of DC12V,3mA or less.

## 6-2-3-7. Trouble/Operation Output




### Operation

In-operation output: An in-operation indication signal is output as long as at least one indoor unit is in operation in the line.
Trouble output: Trouble indication signal is output if trouble occurs in at least one indoor/outdoor unit in the line.

**Note 1**: Output Relay (K1, K2) Contact Specifications

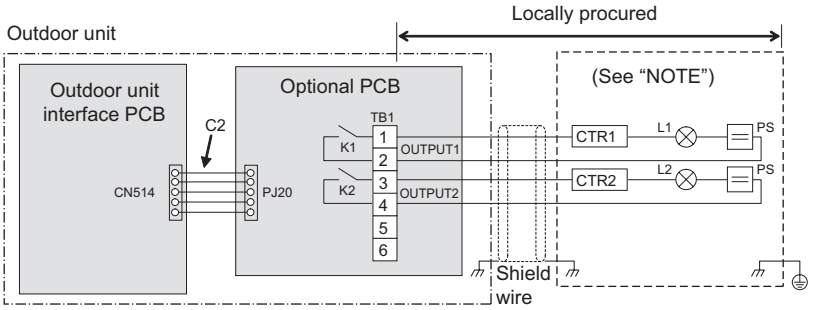
- Output terminals (OUTPUT1, 2) must satisfy the following electrical rating.
- When connecting a conductive load (e.g. relay coil) to loads K1 and K2, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

<Electrical Rating>
220-240 VAC, 10 mA or more, 1A or less
24 VAC, 10 mA or more, 1 A or less (non-conductive load)

| | |
|---|---|
| C1 | Attached connection cable 1 (4wires) |
| CN511 | Connector on interface side (green) |
| K1, K2 | Relays |
| L1 | Trouble indication Lamp |
| L2 | Operation indication Lamp |
| OUTPUT1 | Trouble output |
| OUTPUT2 | Operation output |
| PJ20 | Connector on optional P.C.board side |
| PS | Power supply unit |
| TB1 | Terminal block |

The optional P.C. board should be connected to the header outdoor unit (U1).

### 6-2-3-8. Compressor Operation Output



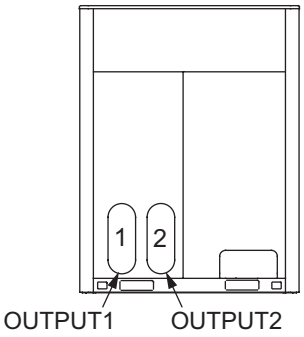

## Operation

When a compressor is in operation, a relay connected to the output terminal assigned to it is turned on (closed). When it is at rest, the relay is turned off (open).
The output terminals are named OUTPUT1 and OUTPUT2 from left to right when facing the front of the outdoor unit, as shown in the diagram.

**Note 1**: Output Relay (K1, K2) Contact Specifications

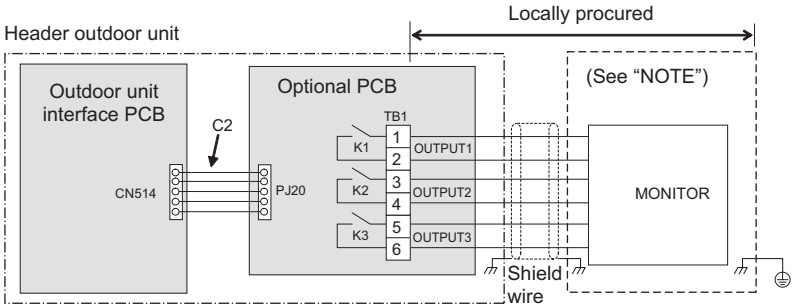
- Output terminals (OUTPUT1, 2) must satisfy the following electrical rating.
- When connecting a conductive load (e.g. relay coil) to loads K1and K2 insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

<Electrical Rating>
220-240 VAC, 10 mA or more, 1A or less
24 VAC, 10 mA or more, 1 A or less (non-conductive load)




| | |
|---|---|
| C2 | Connector cable 2 (2) |
| CN514 | Connector on interface side (green) |
| CTR1 | Elapsed operation counter 1 |
| CTR2 | Elapsed operation counter 2 |
| K1, K2 | Relays |
| L1, L2 | Operation indication LEDs |
| OUTPUT1 | Compressor 1 operation output terminal |
| OUTPUT2 | Compressor 2 operation output terminal |
| PJ20 | Connector on optional P.C.board side |
| PS | Power supply unit |
| TB1 | Terminal block |

## 6-2-3-9. Operating Rate Output




### Operation

At the output terminals, a signal is present (relay closed) or absent (relay open) in various combinations according to the system operation factor, as shown in the diagram.

The operation rate (FA) is the percentage ratio of the current output of the system to the maximum output (100%).

| Function | Outdoor DN Code [O.DN] | OUTPUT1 | OUTPUT2 | OUTPUT3 | Operation rate (FA) |
|---|---|---|---|---|---|
| System operation rate output | O.DN [012] = 1 | off | off | off | FA=0% |
| | | on | off | off | 0%<FA<20% |
| | | off | on | off | 20%≦FA<35% |
| | | on | on | off | 35%≦FA<50% |
| | | off | off | on | 50%≦FA<65% |
| | | on | off | on | 65%≦FA<80% |
| | | off | on | on | 80%≦FA<95% |
| | | on | on | on | 95%≦FA |

off = Relay open
on = Relay closed

| | |
|---|---|
| C2 | Connector cable 2 (2) |
| CN514 | Connector on interface side (green) |
| K1, K2, K3 | Relays |
| MONITOR | Monitoring device |
| OUTPUT1 | Output terminal for each function |
| OUTPUT2 | Output terminal for each function |
| OUTPUT3 | Output terminal for each function |
| PJ20 | Connector on optional P.C.board side |
| TB1 | Terminal block |

* Connect the optional P.C. board to the header outdoor unit.

**Note 1**: Output Relay (K1, K2, K3) Contact Specifications

- Output terminals (OUTPUT1, 2, 3) must satisfy the following electrical rating.
- When connecting a conductive load (e.g. relay coil) to loads K1, K2 and K3, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

<Electrical Rating>
220-240 VAC, 10 mA or more, 1A or less
24 VAC, 10 mA or more, 1 A or less (non-conductive load)

## 6-3. Notice Code

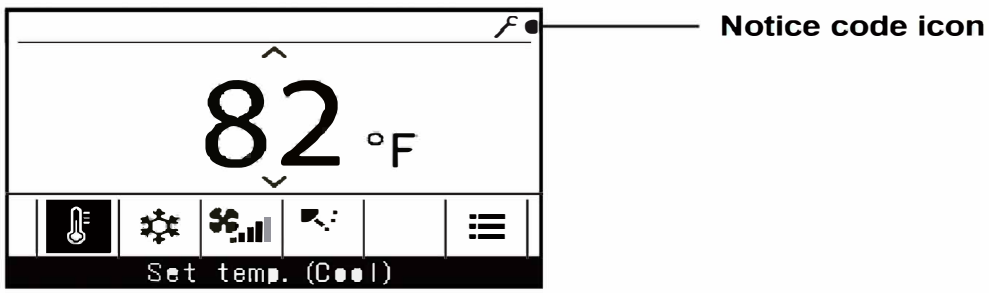
- Notice Code is a function only in TC2U-Link communication.
- When the outdoor or indoor unit detects its conditions requiring caution or maintenance, this function notices you to check your units with the spanner mark (Notice code mark) on the wired remote controller or central controller display.
- Even while the notice code mark is displayed, the air conditioner can operate normally.
- A maximum of five notice codes can be issued simultaneously in one system (line).

### 1. Notice Code Mark Display on Wired Remote Controller

Set the notice codes from remote controller so that the notice code mark is displayed on the remote controller display when the outdoor unit issues the notice codes.
Please follow the steps below to set the notice code on the unit.

(1) Set the notice codes, which will be displayed, on the Indoor unit DN Code (I. DN) “180” to “189” from the remote controller.
Enter one of the notice codes for each DN Code. You can set it on any of “180” to “189”.
A maximum 10 types of the notice codes can be set on a single indoor unit.

(2) A notice code mark will be displayed on the remote controller when any of the 10 notice codes set is received into the remote controller.
If the notice code that is not set is received, a notice code mark is not displayed.
Set the notice code that you want from the remote controller.



## 2. Notice Code Display (7-segment display) on Outdoor Interface P.C. Board

The notice codes detected or issued from the outdoor unit can be confirmed with 7-segment display on the P.C. board.
(The notice codes detected or issued from the other outdoor unit cannot be displayed.)

(1) Displaying the notice code being issued now
Setting the SW01, SW02, SW03 to 1, 1, 14 respectively displays the notice code being issued from the outdoor unit on the 7-segment display 7-segment display [n. 1. . ***] *** : Notice code
Every time SW04 is pushed for 1-second, the display changes and the second notice code or each subsequent code is displayed (up to fifth code).
[n. 1. ***] (First) to [n. 2. ***] (Second) to • • • to [n. 5. ***] (Fifth) to [n. 1. ***] (First)

(2) Displaying the notice code history
Setting the SW01, SW02, SW03 to 1, 2, 14 respectively displays the notice code history being issued from the outdoor unit on the 7-segmen 7-segment display [h. 1. ***] *** : Notice code
Every time SW04 is pushed for 1-second, the display changes and the second notice code or each subsequent code is displayed (up to tenth code history).
[h. 1. ***] (First) to [h. 2. ***] (Second) • • • to [h. A. ***] (Tenth) to [h. 1. ***] (First)

(3) Clearing the notice code history
To clear the notice code history recorded in the outdoor unit, follow the steps below.
Set the SW01, SW02, SW03 to 2, 15, 8 respectively.
7-segment display [n. c ]
When SW04 is pushed and held for 5-second, the notice code histories recorded in the outdoor unit are cleared.
7-segment display [n. c C L]

## 3. Notice Code List

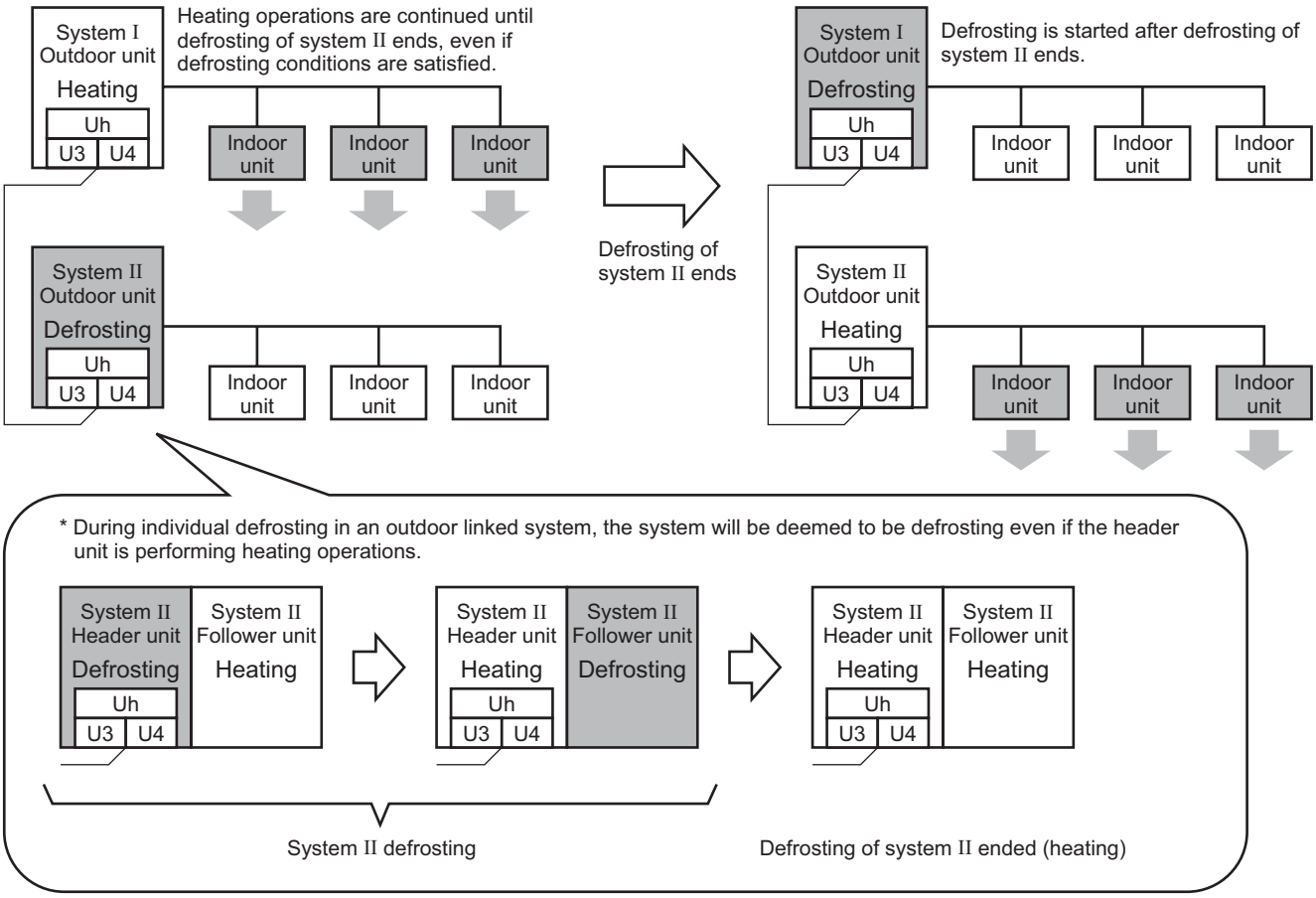
| Notice code No. | Item | Content |
|---|---|---|
| 001 | Compressor maintenance timer over | This notice code is detected or issued from the outdoor unit when the actual operation cumulative time of comp.1 or comp.2 exceeds the compressor maintenance time set.<br>The compressor maintenance time is not set at the factory. To use the notice code, set the compressor maintenance time* on O.DN"007". |
| 022 | NFC tag wiring trouble | This notice code is detected or issued from the outdoor unit when NFC tag is removed, failed, or cannot communicate with the outdoor interface P.C. board. The notice code stops when NFC tag communication recovers.<br>(Note) A notice code [022] may be issued when connecting equipment to CN800 of the outdoor interface P.C. board, but this is not a faulty connection or a failure. Issuing of the notice code [022] will stop when the equipment is removed from the CN800 and the power of the outdoor unit is turned off. Determination of NFC tag failure should be performed in a state where no equipment is connected to the CN800. |

* Setting the compressor maintenance time to detect the time exceeded
Enter the compressor maintenance time to be detected as time over into Outdoor unit DN Code (O.DN) “007”.
Input values ×1,000=Detection time
e.g. When O.DN [007]=20 is set
20 × 1,000=20,000 hours • • • The notice code “001” is detected and issued when the actual operation cumulative time of comp.1 or comp.2 will exceed 20,000 hours.

## 6-4. System Cooperation Defrosting

### ■ Overview

This is a function in which two systems or three systems of SMMS-u are communicably connected, and the timing of defrosting at each system is offset.
Installing an indoor device of a different system in the same room and performing system cooperation defrosting suppresses the room temperature from dropping while defrosting.
*When this setup is carried out, central remote controller cannot be connected.




* In this section, system addresses are indicated by Roman numerals (I, II, III…), to differentiate from system cooperation defrosting setup addresses.

## ■ Setup method

(1) Connect the header units of systems to perform system cooperation defrosting to each other by Uh (U3, U4) (Central control).

(2) SW100-bit1 (termination resistance of Uh line) of master outdoor unit is turned on.

(3) Do not set the same system addresses for each system that link defrosting.
For the system address, please refer to "7-4-3. Address Setup Procedure 2-2.Line (system) address setting", and set with "automatic address setting "or " address setting by remote controller"

(4) Set the outdoor DN code (O. DN) [01D], [01E], [01F] to the header unit in each system by the following setup method. (Setting the outdoor DN code (O. DN) to follower unit is not necessary.)

1) Decide a master unit and vassal units from header units of each of the systems, and set the master unit to [01F] = 0001, and the vassal units to [01F] = 0002 or 0003.

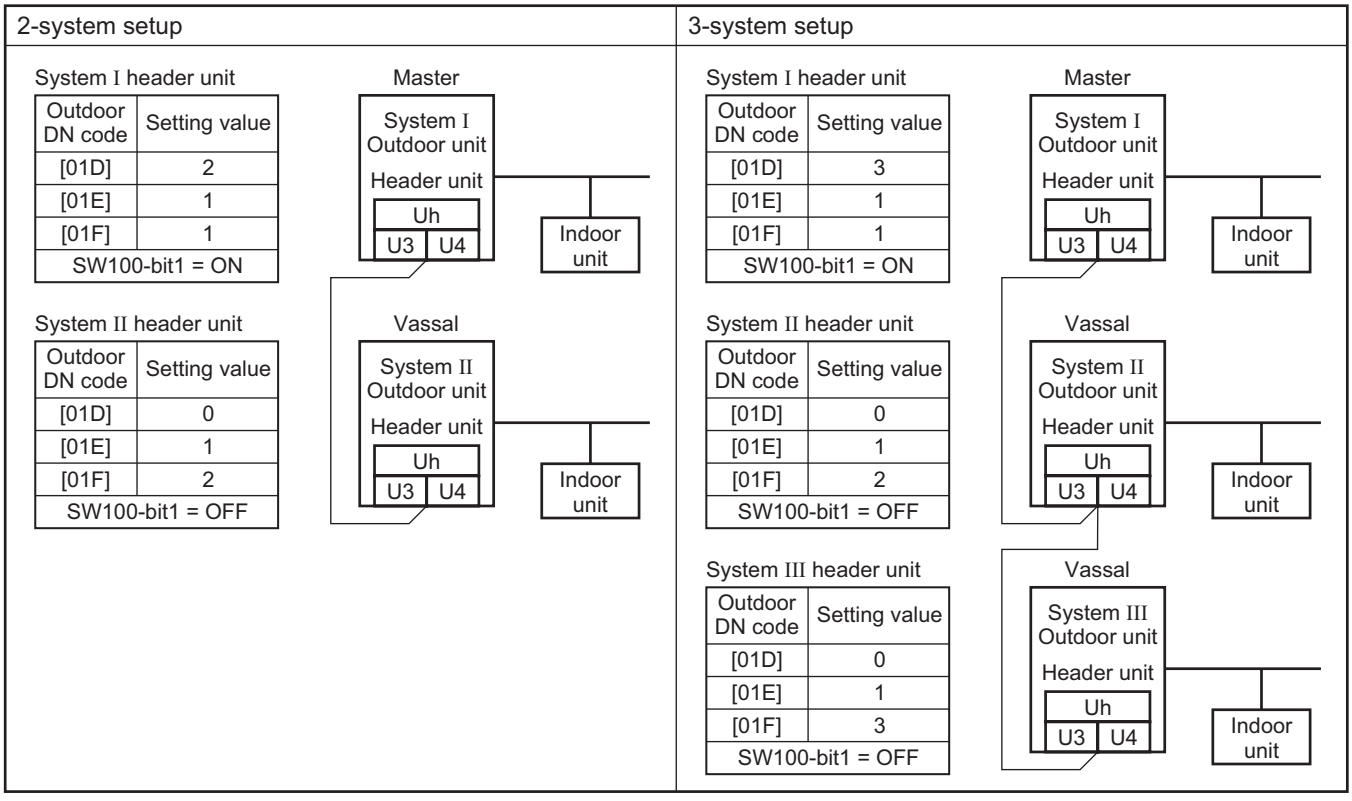
2) Set the outdoor DN code [01E] of each header unit to 0001.
When using the central controller for system cooperation defrosting control, set to 0001 through 0128 in accordance with the manual for the central controller.

3) Set the number of systems performing defrosting cooperation (0002 or 0003) in the [01D] of the outdoor unit set to be the master unit.

| Outdoor DN code | Item | Description | At shipment |
|---|---|---|---|
| 01d | System cooperation defrosting settings 1 (number cooperating) | 0000 : None (vassal) 0001 : Prohibition<br>0002 : 2-system cooperation (master unit) 0003 : 3-system cooperation (master unit)<br>* set [01D] = 0002 or 0003 to outdoor unit set to master unit in outdoor DN code [01F] | 0000: None (vassal) |
| 01E | System cooperation defrosting settings 2 (zone address) | 0000 : None 0001 to 0128: Addresses<br>0001 when not using central controller for control for system cooperation defrosting,<br>0001 to 0128 when using central controller | 0000: None |
| 01F | System cooperation defrosting settings 3 (cooperation address) | 0000: None 0001: Master unit<br>0002 or 0003: Vassal units 2 or 3 | 0000: None |

(5) Reset power supply of outdoor unit, and setup is complete.

### <Wiring and setup examples>



## ■ Operations (contents of control)

(1) Defrosting conditions for system cooperation defrosting (hereinafter referred to as “cooperation defrosting conditions”) are measured at each system, separately from normal defrosting conditions.
When multiple systems satisfy the cooperation defrosting conditions at the same time, the system that has satisfied the conditions earlier starts defrosting.

(2) When a system that has started defrosting earlier is still defrosting, other systems do not perform defrosting but continue heating operations.

(3) When defrosting of the system that started defrosting earlier ends, the system that has satisfied the cooperation defrosting conditions next starts defrosting.

(4) When only one system satisfies the cooperation defrosting conditions, that system continues heating operations, and performs defrosting at the point that normal defrosting conditions are satisfied.

(5) A system that has satisfied normal defrosting conditions starts defrosting to avoid the risk of remaining frost, even if system cooperation defrosting is being performed.

### <Operation examples of system cooperation defrosting>

**(Example 1)** 2-system cooperation defrosting
In a case where cooperation defrosting conditions are satisfied in the order of system II and system I, defrosting is performed in the order of system II and system I.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **System I** | Heating | → | Heating *1 | → | Defrosting *2 | → | Heating |
| **System II** | Heating | → | Defrosting | → | Heating | → | Heating |

*1 Continue heating without starting defrosting control while system II is defrosting
*2 Start defrosting after system II ends defrosting

**(Example 2)** 3-system cooperation defrosting
In a case where cooperation defrosting conditions are satisfied in the order of system II, system I and system III, defrosting is performed in the order satisfying conditions among the three systems.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **System I** | Heating | → | Heating *1 | → | Defrosting *2 | → | Heating | → | Heating |
| **System II** | Heating | → | Defrosting | → | Heating | → | Heating | → | Heating |
| **System III** | Heating | → | Heating *1 | → | Heating *1 | → | Defrosting *3 | → | Heating |

*1 Continue heating without starting defrosting control while system II is defrosting
*2 Start defrosting after system II ends defrosting
*3 Start defrosting after system I ends defrosting.

**(Example 3)** 2-system cooperation defrosting out of three systems
In a case where cooperation defrosting conditions are satisfied in the order of system II and system III, but system I does not satisfy conditions, system cooperation defrosting is performed by system II and system III alone.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **System I** | Heating | → | Heating | → | Heating | → | Heating |
| **System II** | Heating | → | Defrosting | → | Heating | → | Heating |
| **System III** | Heating | → | Heating *1 | → | Defrosting *2 | → | Heating |

*1 During system II defrosting, don't start defrosting control but continue heating.
*2 The system II is a defrosting start after the end of defrosting

### <Examples of not performing system cooperation defrosting>

**(Example 4)** Normal defrosting
In a case in where only system II satisfies defrosting conditions (system cooperation defrosting conditions and normal defrosting conditions), only system II performs defrosting.

| | | | | | |
|---|---|---|---|---|---|
| **System I** | Heating | → | Heating | → | Heating |
| **System II** | Heating | → | Defrosting | → | Heating |
| **System III** | Heating | → | Heating | → | Heating |

| | | | | | |
|---|---|---|---|---|---|
| **System I** | Stop | → | Stop | → | Stop |
| **System II** | Heating | → | Defrosting | → | Heating |
| **System III** | Stop | → | Stop | → | Stop |

**(Example 5)** Example of not performing system cooperation defrosting
In a case where normal defrosting conditions are satisfied due to sudden increase in frost or the like, defrosting is started to avoid the risk of remaining frost, even if other systems are performing system cooperation defrosting.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **System I** | Heating | → | Heating *1 | → | Defrosting *2 | | → | Heating |
| **System II** | Heating | → | Defrosting | | → | Heating | → | Heating |

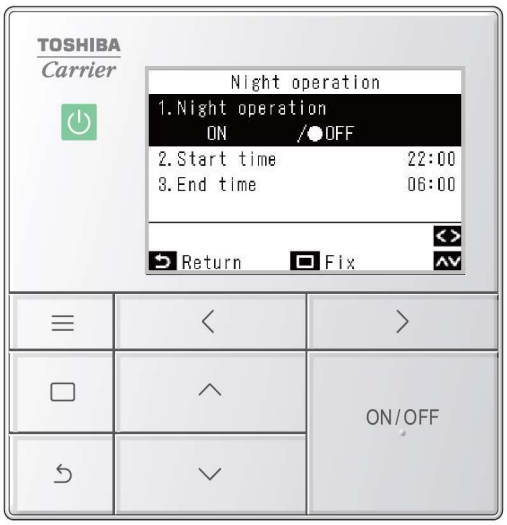
*1 State where heating operations are continuing while system II is performing cooperation defrosting
*2 If normal defrosting conditions are satisfied, defrosting is started without awaiting system II to end defrosting.

## 6-5. Night operation (Sound reduction control)

### ■ Overview

The 'Night operation' function of RBC-AWSU** remote control can be used with SMMS-u. It reduces the sound of outdoor unit putting priority on quietness during night time operation, etc., and the operation time can be set.

### ■ Setup method




**1** **Push the [ Menu] button.**

**2** **Push the [ ] / [ ] button to select "6.Night operation" on the menu screen, then push the " Set" [ Set / Fix] button.**

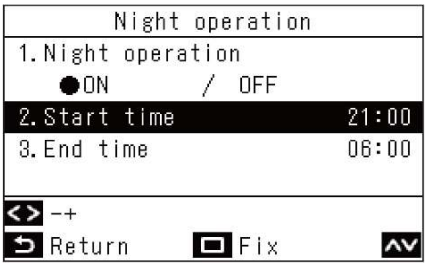
**3** **Push the [ ] / [ ] button to select "1.Night operation" on the "Night operation" screen.**

**4** **Push the [ ] / [ ] button to select to select "ON" or "OFF"**
→Select "ON" when the function is used.

**5** **Push the [ Menu] button**
→Push the [ ] / [ ] button to select "2.Start time" or "3.End time" for setting the Night operation time.

* Adjust the clock before setting the Night operation

### To set the Night operation time




**1** **Push the [ ] / [ ] button to select "2.Starat time" on the "Night operation"**

**2** **Push the [ ] / [ ] button to set the time.**

**3** **Push the [ ] / [ ] button to select "3.End time".**

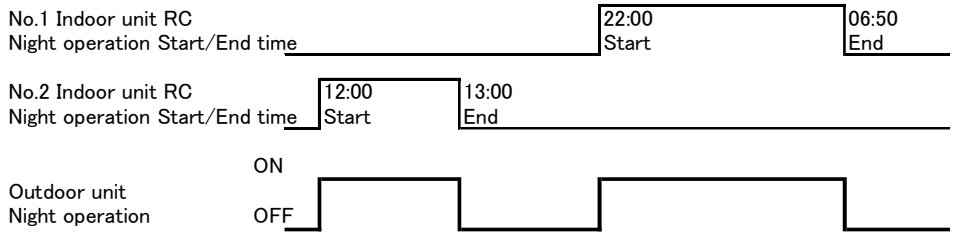
**4** **Push the [ ] / [ ] button to set the time.**

**5** **Push the [ Menu] button**
→the screen returns to the menu screen.

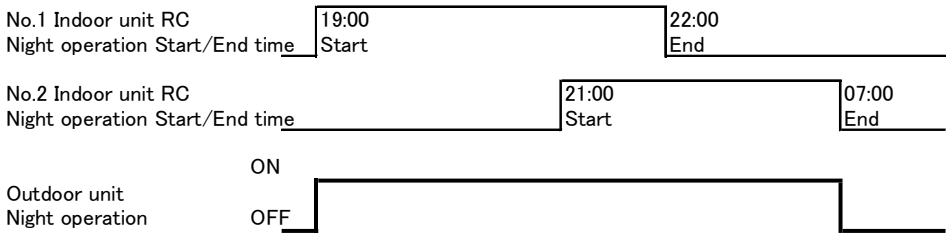
### ■ Control outline

- During the 'Outdoor unit sound reduction' control, the outdoor unit operates in the same way as in the 'Night operation Control' with optional control P.C.board. For the operation of outdoor unit during 'Night operation Control', please refer to '6-6-3-5. Night operation (sound reduction) Control'.
- Cooling / heating performance may be reduced a little because the operation priority is put on the quietness for the Night operation.
- " $^{z}z_{z}$ " appears on the detailed display when the Night operation is activated.
- The Night operation cannot be set on the Follower remote controller in the two remote controller system. " ⃠ No function" is displayed on the screen.
- The 24-hour operation of Night operation is performed when the end time is the same as the start time.
- After setting, the 'Night operation Control' operates according to the start time and the end time, even when the remote control is off.

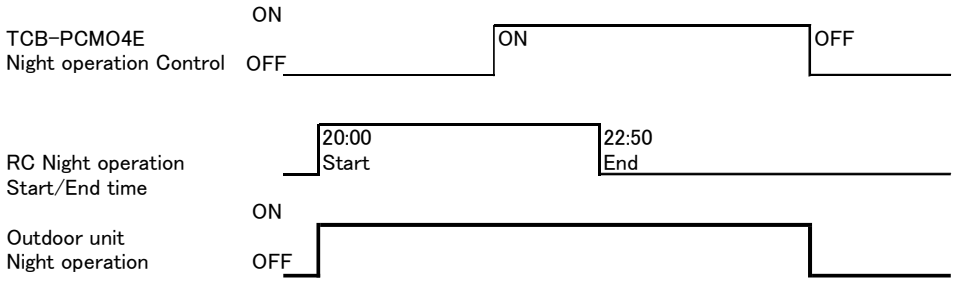
・ The 'Night operation can be set by a number of remote controls. It operates according to the start time and the end time set by each remote controls.




・ If the 'Night operation' time set by a number of remote controls overlaps, it starts at the start time set by any one of the remote controls, and ends when all remote controls reach the end time.



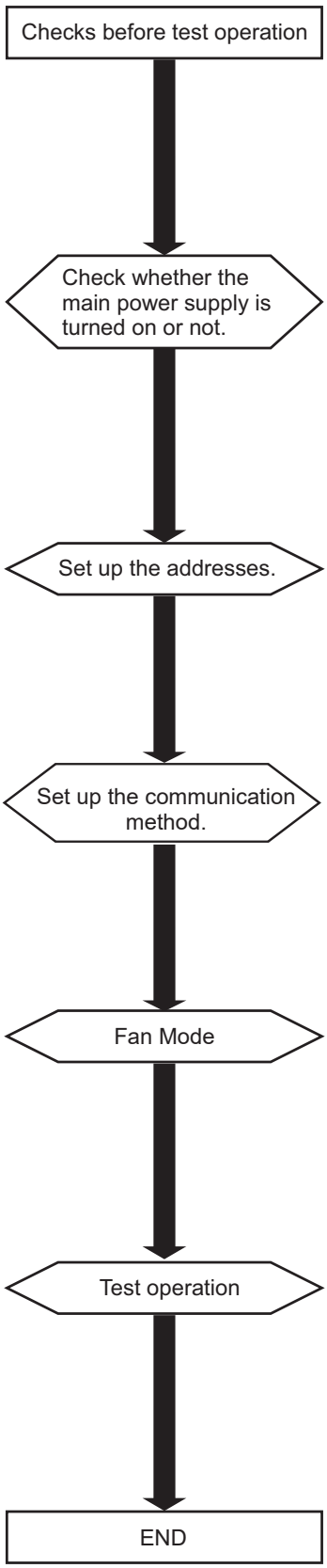

・ The 'Night operation' with remote controls, and the 'Night Operation Control' with optional control P.C.board (TCB-PCMO4E) connected to the outdoor unit, can be used together. The outdoor unit operates in 'Night Operation' when either control is effective.



# 7. TEST OPERATION

## 7-1. Procedure and Summary of Test Operation

A test operation is carried out with the following procedure. When problems or a trouble occurs at any step, remove the causes of the problem or trouble referring to “8 TROUBLESHOOTING.”




Check basic items, mainly the installation work.
Be sure to enter the check results in checklist 1 and 2.

This check is done after the power has been turned on.
Check that the refrigerant circuit system is turned on normally.

Start the address setup in the outdoor/indoor units.
Note: Operation does not start simply by powering-on.

A communication method is set up.
Note: Do not perform this setup before an indoor unit address setup.

Carry out Fan mode. Check whether there is air blowing out of indoor unit.

Carry out a test operation. Check air blowing and cooling/heating operation in the indoor unit.

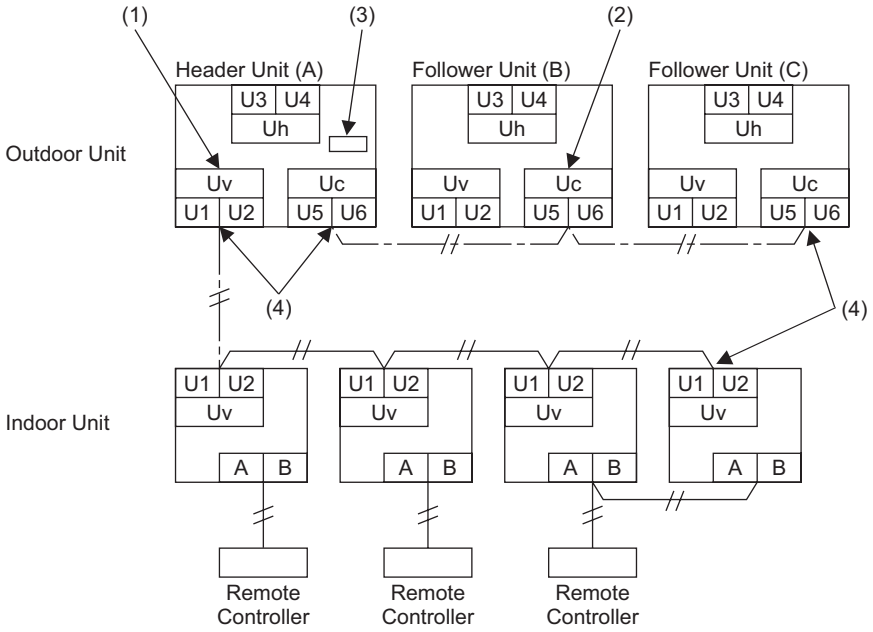
## 7-2. Check Items before Test Operation (before powering-on)

Prior to the test operation, check the following items to verify there are no problems with the installation work.

### Main check items for electric wiring

The communication system differs from previous period model air conditioners.
Check wiring points again carefully.

(1) In the case that a central control system is not connected:

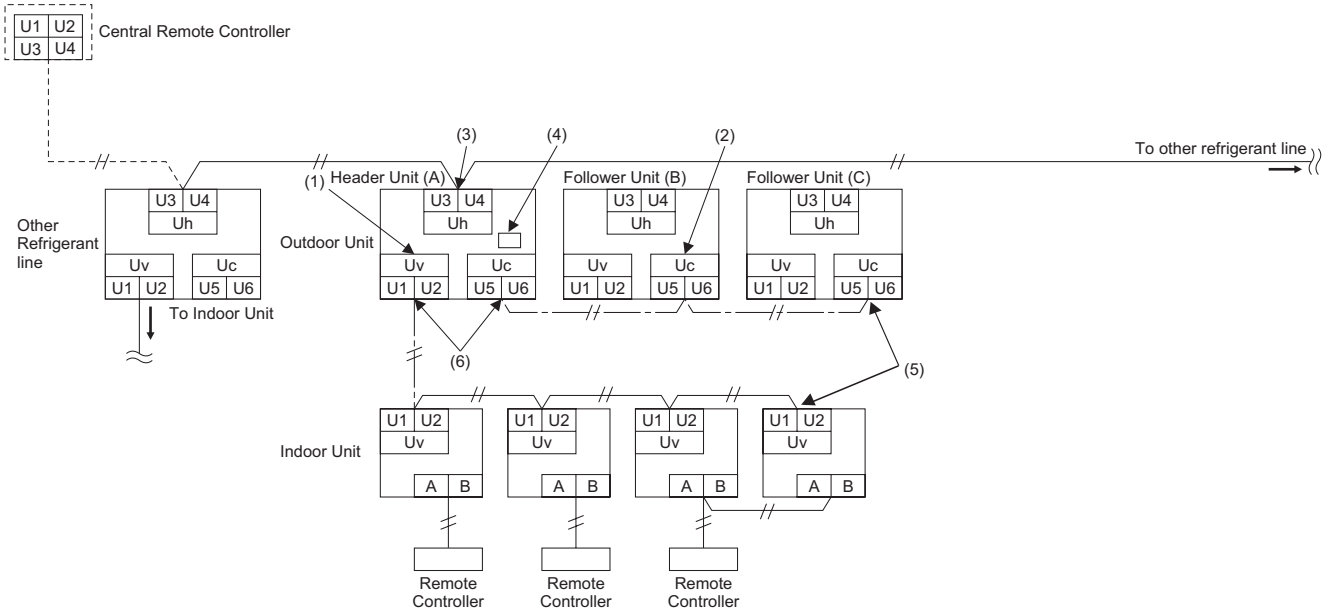



| Main check items | Check |
|---|---|
| (1) Are the indoor and outdoor communication lines of the header unit connected to the U1/U2 (Uv) terminals? | |
| (2) Is the communication line between outdoor units connected to the U5/U6 (Uc) terminal? | |
| (3) Is the header unit setting (SW101-bit 1) turned on?<br>Is the terminator resistor (SW100-bit 2) on the interface PC board of the header unit turned on? | |
| (4) Is the end terminal of the shield wire earthed? | |

**NOTE**

The figure above does not show all the electric wires.
For details, refer to the installation manuals for the outdoor unit, indoor unit, remote controller, or optional devices.

(2) In the case that a central control system is connected (before address setup)




| Main check items | Check |
|---|---|
| (1) Are the indoor and outdoor communication lines of the header unit connected to the U1/U2 (Uv) terminals? | |
| (2) Is the communication line between outdoor units connected to the U5/U6 (Uc) terminal? | |
| (3) Is the communication line of the central control system connected to the header unit U3/U4 (Uh) terminals of each refrigerant line?<br>(The communication line of the central control system may be connected to the communication lines of the indoor/outdoor communication lines.) | |
| (4) Is the header unit setting (SW101-bit 1) turned on?<br>Is the terminator resistor (SW100-bit 2 (termination resistance of Uv line)) on the interface PC board of the header unit turned on?<br>* Does the smallest header unit of a system address turn on SW100-bit 1 (termination resistance of Uh line)? Does the header unit of other refrigerant systems turn off SW100-bit 1?<br>(See “7-4-3. Address Setup Procedure” ) | |
| (5) Is the end terminal of the shield wire earthed? | |
| (6) Is the end terminal of the shield wire earthed at the header unit side? | |
| (7) When the refrigerant line and the central control system of the DI-SDI series are connected:<br>→ Are Network adapter (TCB-PCNT30TLE2) correctly connected?<br>→ When the DI-SDI series operates with group, twin, or triple operation, are the adapters connected to the header unit of the indoor unit? | |

## NOTE

The figure above does not show all the electric wires.
For details, refer to the installation manuals for the outdoor unit, indoor unit, remote controller, or optional devices.

## Check list 1

• Using Checklist 1, check that there are no problems with the installation work.

| | | | | |
|---|---|---|---|---|
| Is the capacity of the circuit breaker (Earth leakage breaker) appropriate? | Outdoor total capacity ☐ A | Header unit (A) ☐ A<br>Follower unit (B) ☐ A<br>Follower unit (C) ☐ A | | Indoor unit ☐ A |
| Is the gauge of the power cable correct? | | Header unit (A) ☐ $mm^2$<br>Follower unit (B) ☐ $mm^2$<br>Follower unit (C) ☐ $mm^2$ | | Indoor unit ☐ |
| Is the control communication line correct? | | Indoor-outdoor connection terminals (U1, U2) ☐<br>Outdoor-outdoor connection terminals (U5, U6) ☐<br>Central control system connection terminals (U3, U4) ☐ | | |
| Is the power of indoor units supplied collectively? | | | | |
| Is it grounded to earth? | | | | |
| Is the resistance sufficient? (10 MΩ or higher) | | ☐ MΩ or higher | | |
| Is the main power voltage sufficient? (within 460V ±10%) | | ☐ V | | |
| Is the diameter of connecting pipe correct? | | | | |
| Is the branch kit correct? | | | | |
| Is the water drain of the indoor unit arranged so that it flows without accumulation? | | | | |
| Is the heat insulation of pipes sufficient? (connecting pipes, branch kit) | | | | |
| Is there no short circuit of discharge air in the indoor/outdoor units? | | | | |
| After an airtightness test of the pipes, are vacuuming and adding of refrigerant executed? | | | | |
| Are the valves of all the outdoor units fully opened? | | | | |

| | Gas side | Liquid side |
|---|---|---|
| Header unit (A) | ☐ | ☐ |
| Follower unit (B) | ☐ | ☐ |
| Follower unit (C) | ☐ | ☐ |

• Check the additional amount of refrigerant.

**Checklist 2**

Calculate total additional amount refrigerant from the compensation amount of refrigerant according to total outdoor unit capacity (A), the additional amount of refrigerant by the pipe diameter on the liquid side and the pipe length (B),the compensation amount of refrigerant according to indoor unit capacity (C), and the total compensation amount of refrigerant according to the system diversity (D)

Additional amount of refrigerant = Compensation amount of refrigerant according to total outdoor unit capacity (A) + Actual liquid pipe length × Additional amount of refrigerant per 1 ft of liquid pipe (B) + Compensation amount of refrigerant according to indoor unit capacity (C) + Compensation amount of refrigerant according to the system diversity (D)

First, refer to following table below, calculate the the compensation amount of refrigerant according to total outdoor unit capacity (A)

**<Compensation amount of refrigerant according to total outdoor unit capacity (A)>**

**Standard**

| Outdoor unit capacity type | Combination outdoor units | | | Compensation by outdoor unit capacity type | |
|---|---|---|---|---|---|
| | Unit 1 | Unit 2 | Unit 3 | lbs | kg |
| 072 | 072 | - | - | 2.20 | 1.00 |
| 096 | 096 | - | - | 2.64 | 1.20 |
| 120 | 120 | - | - | -1.10 | -0.50 |
| 144 | 144 | - | - | 0.33 | 0.15 |
| 168 | 168 | - | - | 6.16 | 2.80 |
| 192 | 096 | 096 | - | 5.28 | 2.40 |
| 216 | 144 | 072 | - | 2.53 | 1.15 |
| 240 | 144 | 096 | - | 2.97 | 1.35 |
| 264 | 168 | 096 | - | 8.80 | 4.00 |
| 288 | 144 | 144 | - | 0.66 | 0.30 |
| 312 | 168 | 144 | - | 6.49 | 2.95 |
| 336 | 168 | 168 | - | 12.32 | 5.60 |
| 360 | 168 | 096 | 096 | 11.44 | 5.20 |
| 384 | 144 | 144 | 096 | 3.30 | 1.50 |
| 408 | 168 | 144 | 096 | 9.13 | 4.15 |
| 432 | 168 | 168 | 096 | 14.96 | 6.80 |
| 456 | 168 | 168 | 120 | 11.22 | 5.10 |
| 480 | 168 | 168 | 144 | 12.65 | 5.75 |

**High heat**

| Outdoor unit capacity type | Combination outdoor units | | | Compensation by outdoor unit capacity type | |
|---|---|---|---|---|---|
| | Unit 1 | Unit 2 | Unit 3 | lbs | kg |
| 072 | 072 | - | - | -2.20 | -1.00 |
| 096 | 096 | - | - | -1.65 | -0.75 |
| 120 | 120 | - | - | 3.30 | 1.50 |
| 144 | 072 | 072 | - | -4.40 | -2.00 |
| 192 | 096 | 096 | - | -3.30 | -1.50 |
| 240 | 120 | 120 | - | 6.60 | 3.00 |
| 288 | 096 | 096 | 096 | -4.95 | -2.25 |
| 360 | 120 | 120 | 120 | 9.90 | 4.50 |

Next, enter the total length for each liquid pipe diameter in the following table, and then calculate the additional amount of refrigerant by pipe length.

### <Additional amount of refrigerant by pipe length (B)>

| Pipe diameter on the liquid side | Standard amount of refrigerant lbs/ft | Total pipe length on each liquid side ft | Additional amount of refrigerant pipe diameter on each liquid side lbs |
|---|---|---|---|
| 1/4" | 0.017 × | = | lbs |
| 3/8" | 0.037 × | = | lbs |
| 1/2" | 0.071 × | = | lbs |
| 5/8" | 0.108 × | = | lbs |
| 3/4" | 0.168 × | = | lbs |
| 7/8" | 0.235 × | = | lbs |

Then refer to following table below, calculate corrective amount of refrigerant according to indoor unit capacity (C).

<Corrective amount of refrigerant according to indoor unit capacity>
<According to indoor unit capacity(Not include "4-Way Cassette type","Medium Static Conceald Duct Type" and "DX coil interface") >

| Indoor unit capacity type | Capacity code | Corrective amount of refrigerant lbs | Number of connected indoor units Number | Corrective amount of refrigerant on each indoor unit capacity lbs |
|---|---|---|---|---|
| 007 | 7.5 | 0.44 | | = bs |
| 009 | 9.5 | | | = bs |
| 012 | 12 | | | = bs |
| 015 | 15.4 | 0.88 | | = bs |
| 018 | 18 | | | = bs |
| 021 | 21 | | | = bs |
| 024 | 24 | | | = bs |
| 027 | 27 | | | = bs |
| 030 | 30 | | | = bs |
| 036 | 36 | 1.32 | | = bs |
| 042 | 42 | | | = bs |
| 048 | 48 | | | = bs |
| 054 | 54 | | | = bs |
| 072 | 72 | 2.20 | | = bs |
| 096 | 96 | | | = bs |

※ If the outside air unit type (MMD-UP***1HFPUL) is connected, The additional amount refrigerant for outside air unit type is 0 lbs.

<According to indoor unit capacity for 4-Way Cassette type>
MMY-UP***1HPUL

| Indoor unit capacity type | Capacity code | Corrective amount of refrigerant lbs | Number of connected indoor units Number | Corrective amount of refrigerant on each indoor unit capacity lbs | |
|---|---|---|---|---|---|
| 007 | 7.5 | 0.44 | | = | lbs |
| 009 | 9.5 | | | = | lbs |
| 012 | 12 | 0.88 | | = | lbs |
| 015 | 15.4 | | | = | lbs |
| 018 | 18 | | | = | lbs |
| 024 | 24 | | | = | lbs |
| 027 | 27 | | | = | lbs |
| 030 | 30 | | | = | lbs |
| 036 | 36 | 1.32 | | = | lbs |
| 042 | 42 | | | = | lbs |
| 048 | 48 | | | = | lbs |
| 054 | 54 | | | = | lbs |

<According to indoor unit capacity for Medium Static Conceald Duct Type>
MMY-UP***1BHPUL

| Indoor unit capacity type | Capacity code | Corrective amount of refrigerant lbs | Number of connected indoor units Number | Corrective amount of refrigerant on each indoor unit capacity lbs | |
|---|---|---|---|---|---|
| 007 | 7.5 | 0.88 | | = | lbs |
| 009 | 9.5 | | | = | lbs |
| 012 | 12 | | | = | lbs |
| 015 | 15.4 | | | = | lbs |
| 018 | 18 | | | = | lbs |
| 021 | 21 | 1.32 | | = | lbs |
| 024 | 24 | | | = | lbs |
| 030 | 30 | | | = | lbs |
| 036 | 36 | | | = | lbs |
| 042 | 42 | | | = | lbs |
| 048 | 48 | | | = | lbs |
| 054 | 54 | | | = | lbs |

<According to indoor unit capacity for DX coil interface>
TCB-IFDA1GUL/ TCB-IFDD1GUL

| Indoor unit capacity type | Capacity code | Corrective amount of refrigerant lbs | Number of connected indoor units Number | Corrective amount of refrigerant on each indoor unit capacity lbs | |
|---|---|---|---|---|---|
| 012 | 12 | 0.42 | | = | lbs |
| 015 | 15 | 0.6 | | = | lbs |
| 018 | 18 | 0.72 | | = | lbs |
| 021 | 21 | 0.82 | | = | lbs |
| 024 | 24 | 0.92 | | = | lbs |
| 030 | 30 | 1.19 | | = | lbs |
| 036 | 36 | 1.51 | | = | lbs |
| 042 | 42 | 1.71 | | = | lbs |
| 048 | 48 | 1.9 | | = | lbs |
| 060 | 60 | 2.5 | | = | lbs |
| 072 | 72 | 3.08 | | = | lbs |
| 096 | 96 | 3.96 | | = | lbs |
| 120 | 120 | 5.46 | | = | lbs |
| 144 | 144 | 6.25 | | = | lbs |
| 168 | 168 | 7.04 | | = | lbs |
| 192 | 192 | 7.83 | | = | lbs |
| 216 | 216 | 8.82 | | = | lbs |
| 240 | 240 | 9.81 | | = | lbs |
| 264 | 264 | 11.78 | | = | lbs |
| 288 | 288 | 12.57 | | = | lbs |
| 336 | 336 | 14.15 | | = | lbs |
| 384 | 384 | 15.73 | | = | lbs |

Next, refer to the following table below, calculate the corrective amount of refrigerant according to system diversity (D)

## Corrective amount of refrigerant varies according to the system diversity (D)

| Diversity D(%) | Corrective amount of refrigerant (lbs) |
|---|---|
| 50% ≤ D < 60% | -5.51 |
| 60% ≤ D < 70% | -4.41 |
| 70% ≤ D < 80% | -3.31 |
| 80% ≤ D < 90% | -2.2 |
| 90% ≤ D < 95% | -1.1 |
| 95% ≤ D | 0 |

Lastly, add the corrective amount of refrigerant according to system diversity (D), the corrective amount of refrigerant according to indoor unit capacity (C) and the additional amount of refrigerant by the pipe diameter on liquid side and the pipe length (B) to the compensation amount of refrigerant according to total outdoor unit capacity (A)

This is the final additional amount of refrigerant.

If a minus sign is indicated as the result, the additional amount of refrigerant is zero (0) lbs, do not reduce the refrigerant.

| | |
|---|---|
| Compensation amount of refrigerant according to total outdoor unit capacity (A) | lbs |
| Additional amount of refrigerant by pipe length (B) | lbs |
| Corrective amount of refrigerant according to indoor unit capacity (C) | lbs |
| Corrective amount of refrigerant according to system diversity (D) | lbs |
| **Total additional amount of refrigerant** | lbs |

## 7-3. Check at Main Power-on

After turning on the main power of the indoor units and outdoor unit in the refrigerant line to conduct a test operation, check the following items in each outdoor and indoor unit.
(After turning on the main power, be sure to check in order: indoor unit outdoor unit.)

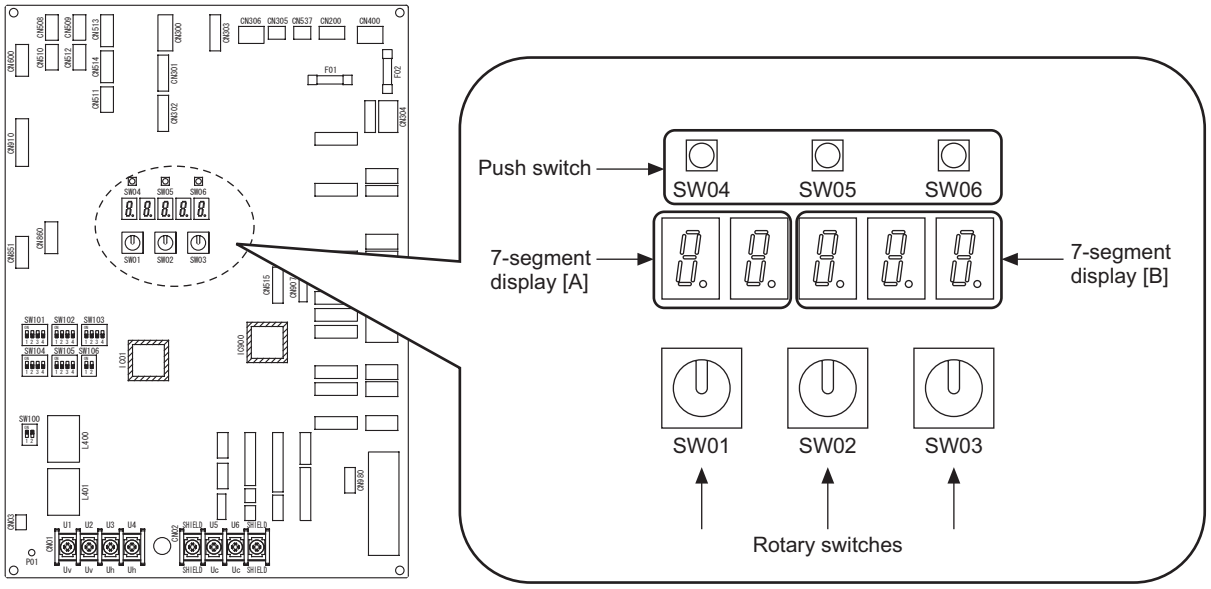
### <Check on the outdoor unit>

(1) Check that all the rotary switches, SW01, SW02, and SW03, on the interface PC board of the header unit are set to "1."

(2) If another check code is displayed on the 7-segment display [B], remove the cause of the problem referring to Section, "8. TROUBLESHOOTING".

(3) Check that "L08" is displayed on the 7-segment display [B] on the interface PC board of the header unit. (L08: Indoor address not set up)
(If the address setup operation has already been completed during servicing, etc., the above check code is not displayed, and only "U1" is displayed on the 7-segment display [A].)

**Interface P.C. board**



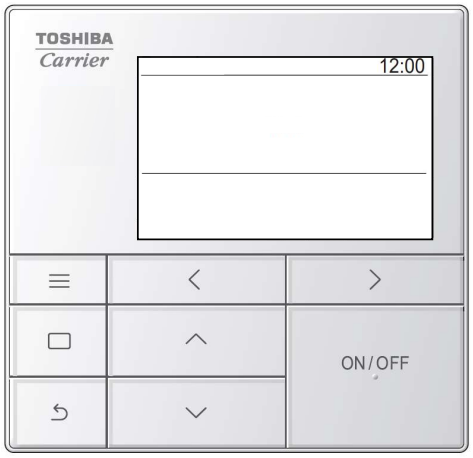
**<Check on the indoor unit>**

(1) Display check on the remote controller (in the case of a wired remote controller)
Check that a frame, as shown in the following figure at left, is displayed on the LC display section of the remote controller.

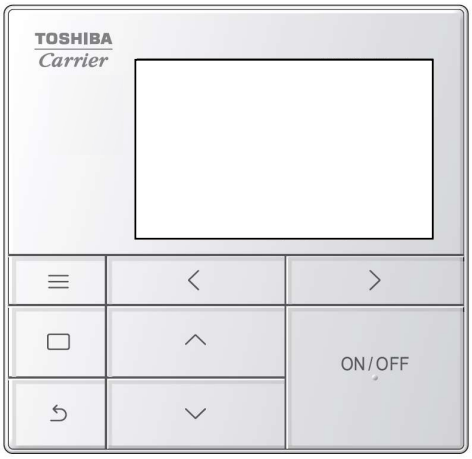
**<RBC-AWSU**>**

✓

**Correct**




**Incorrect**




If no frame is displayed, as shown in the above figure at right, the remote controller does not have a normal supply of power; check the following items.

- Check the power supply of the indoor unit.
- Check the cabling between the indoor unit and the remote controller.
- Check whether there is a cutoff of wire around the indoor control PC board or not, and check for connection failures of the connectors.
- Check for failure of the transformer for the indoor electrical control box.
- Check for failure of the indoor control PC board.

## 7-4. Address Setup

This product requires address setup before operation.
Follow this procedure for address setup.

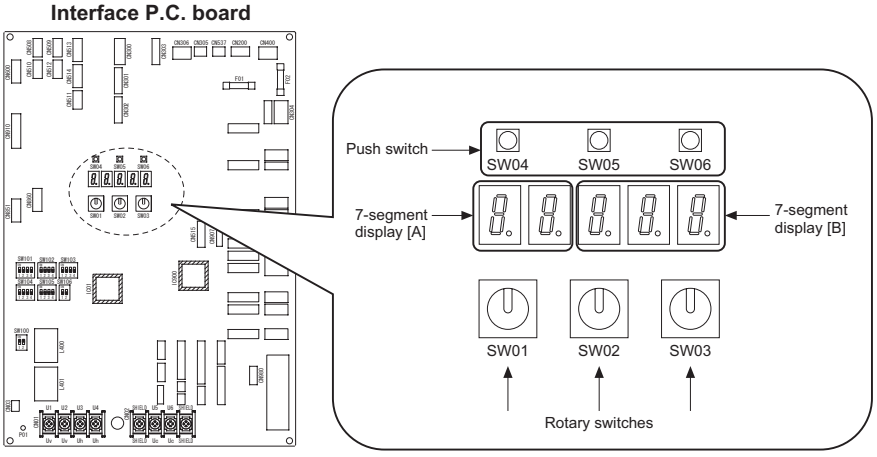
### 7-4-1. Precautions

(1) Address setup is not performed simply by turning on the power supply.
(2) For indoor units, address setup can be done either by manual address setup or by automatic address setup: Automatic address setup: Setup from SW06 on the interface P.C. board of the header unit Manual address setup: Setup from the wired remote controller. (For details, refer to "7-4-3. Address Setup Procedure.")
(3) Automatic setup usually takes about 5 minutes per line. In some cases, however, it may take up to 10 minutes.
(4) It is unnecessary to operate the air conditioner to achieve address setup.

### 7-4-2. Address Setup and Check Procedure

<table>
<tr><th>Procedure</th><th>Item</th><th>Operation and check contents</th></tr>
<tr><td>1</td><td>Header outdoor unit setting</td><td>Turn on DIP switch 1 of SW101 on the header outdoor unit interface P.C.boards.<br>And, turn on DIP switch 2 of SW100.</td></tr>
<tr><td>2</td><td>Indoor unit power-on</td><td>Turn on the power of the indoor unit for the refrigerant line for which the address is to be set up.</td></tr>
<tr><td>3</td><td>Outdoor unit power-on</td><td>Turn on the power of all the outdoor units for the refrigerant line for which the address is to be set up.</td></tr>
<tr><td>4</td><td>7-segment display check</td><td>Check that "L08" is displayed on the 7-segment display [B] on the interface PC board of the header unit in the system where the address is to be set up.</td></tr>
<tr><td>5</td><td>Address setup start</td><td>Confirm the items in "7-4-3. Address Setup Procedure," and then set up the address according to the operation procedure.<br>(Be careful to note that the setup operation may differ in group control and central control systems.)<br>Note:<br>The address cannot be set up if switches are not operated.</td></tr>
<tr><td>6</td><td>Display check after setup</td><td>• After address setup, "U1" " " is displayed on the 7-segment display.<br>• For follower outdoor units, "U2" to "U5" are displayed on the 7-segment display [A].<br>• If a check code is displayed on the 7-segment display [B], remove the cause of the problem referring to "8 TROUBLESHOOTING."</td></tr>
<tr><td>7</td><td>Communication setting start</td><td>Confirm the items in "7-4-3. Address Setup Procedure," and then set up the communication according to the operation procedure.<br>Note:<br>The address cannot be set up if switches are not operated.</td></tr>
<tr><td>8</td><td>Display check after communication setup</td><td>• After communication setup, "c.c." "Fin" is displayed on the 7-segment display.<br>• If a unit that has already been set for communication is connected, it cannot be set correctly.<br>In this case, clear the communication settings and set again.</td></tr>
<tr><td>9</td><td>System information check after setup</td><td>Using the 7-segment display function, check the system information of the scheduled system.<br>(This check is executed on the interface PC board of the header unit.)
<table>
<tr><th></th><th colspan="3">Rotary switch setup</th><th colspan="2">7-segment display</th></tr>
<tr><th></th><th>SW01</th><th>SW02</th><th>SW03</th><th>[A]</th><th>[B]</th></tr>
<tr><td>System capacity</td><td>1</td><td>2</td><td>3</td><td colspan="2">[Number of capacity]</td></tr>
<tr><td>Number of connected outdoor units</td><td>1</td><td>3</td><td>3</td><td colspan="2">[Number of units]</td></tr>
<tr><td>Number of connected indoor units</td><td>1</td><td>4</td><td>3</td><td colspan="2">[Number of connected units]</td></tr>
<tr><td>Communication Type</td><td>2</td><td>16</td><td>2</td><td colspan="2">[Type]<br>Type : 0=TCC-Link, 1=TU2C-Link</td></tr>
</table>
After the above checks, return rotary switches SW01, SW02, and SW03 to 1/1/1.</td></tr>
</table>

**Interface P.C. board**



## 7-4-3. Address Setup Procedure

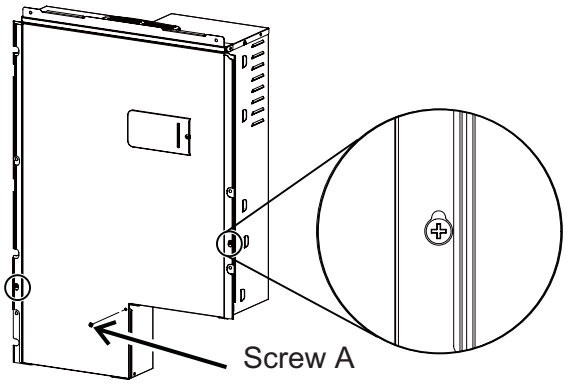
Before setting the address, it is necessary to set the DIP-SW on the header outdoor unit interface P.C. board.

**1. Follow the steps below to open the electrical control box cover**

(1) Loosen the screws on the left and right side of the electrical control box cover.

(2) Remove the screw A for MMY-MUP1201,MUP1441,MUP1681,MUP096H1, and MUP120H1.
(There is no screw A for MMY-MUP0721, MUP0961 and MUP072H1)

(3) Hold the lower side of the electrical control box cover to draw it toward you while lifting it up, and remove the electrical control box cover.



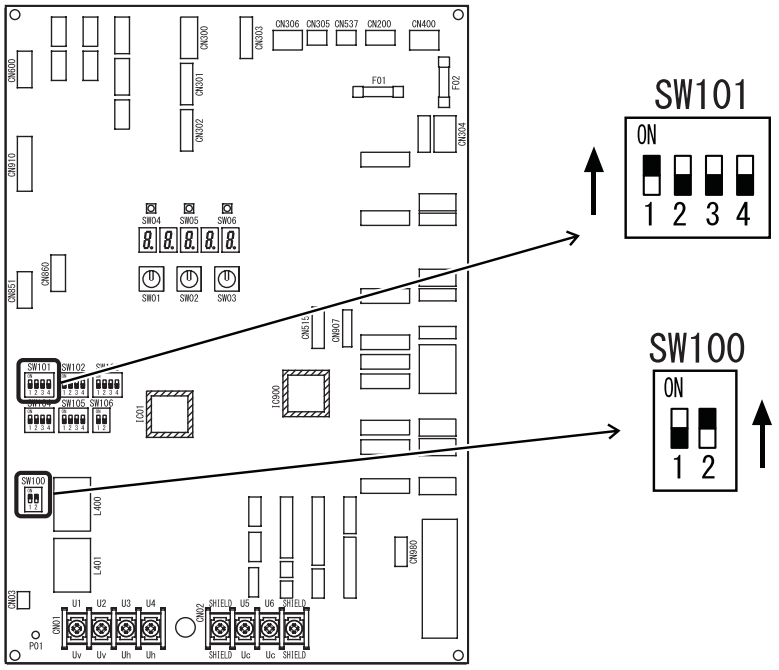

**2. Follow the steps below to set the DIP switch on the header outdoor unit interface P.C. board.**

**2-1. Header outdoor unit setting**

Turn on DIP switch 1 of SW101 on the header outdoor unit interface P.C. boards*.
And, turn on DIP switch 2 of SW100. (Termination resistance of Uv line)

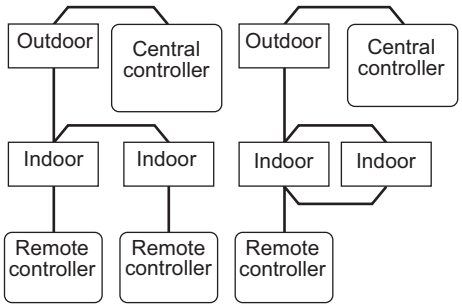
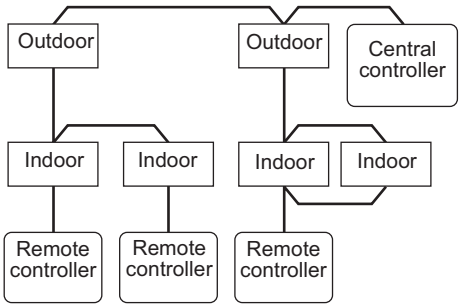
* Header outdoor unit setting is required also of an outdoor independent system.

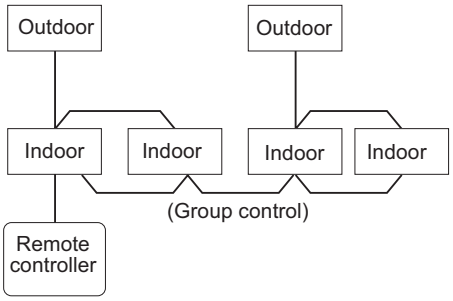
**Interface P.C. board on the header outdoor unit**



### 2-2.Line (system) address setting

For the central control among two or more refrigerant lines or group control among two or more refrigerant lines, set the line (system) address.

| (Example) | Controlling a single refrigerant line centrally | Controlling 2 or more refrigerant lines centrally |
|---|---|---|
| System wiring diagram |  |  |
| Line (system) address setting | No | Set the address |

| (Example) | Controlling 2 or more refrigerant lines as a group (*) |
|---|---|
| System wiring diagram |  |
| Line (system) address setting | Set the address |

* Only if each refrigerant line has the same communication type (either TU2C-Link or TCC-Link), the group control among multiple refrigerant lines is available. If one refrigerant line has TU2C-Link and another refrigerant line has TCC-Link in the system, the group control among multiple refrigerant lines is unavailable.

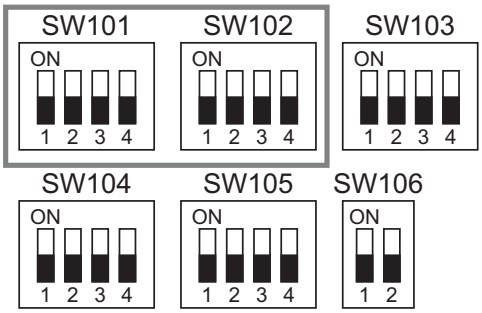
**(1) Set a line (system) address for each system using SW 101 and 102 on the interface P.C. board on the header outdoor unit of each system.**
**(Factory default: Address 1)**

**NOTE**

Be sure to set a unique address on each system. Do not use a same address as another system (refrigerant line) or a "Digital Inverter" side.

**Interface P.C. board on the header outdoor unit**

Line address switches on the outdoor interface PC board (O : switch on, × : switch off)




| Line (system) address | SW101 | | | | SW102 | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 1 | | × | × | × | × | × | × | × |
| 2 | | × | × | × | × | × | × | O |
| 3 | | × | × | × | × | × | O | × |
| 4 | | × | × | × | × | × | O | O |
| 5 | | × | × | × | × | O | × | × |
| 6 | | × | × | × | × | O | × | O |
| 7 | | × | × | × | × | O | O | × |
| 8 | | × | × | × | × | O | O | O |
| 9 | | × | × | × | O | × | × | × |
| 10 | | × | × | × | O | × | × | O |
| 11 | | × | × | × | O | × | O | × |
| 12 | | × | × | × | O | × | O | O |
| 13 | | × | × | × | O | O | × | × |
| 14 | | × | × | × | O | O | × | O |

| Line (system) address | SW101 | | | | SW102 | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 15 | | × | × | × | O | O | O | × |
| 16 | | × | × | × | O | O | O | O |
| 17 | | × | × | O | × | × | × | × |
| 18 | | × | × | O | × | × | × | O |
| 19 | | × | × | O | × | × | O | × |
| 20 | | × | × | O | × | × | O | O |
| 21 | | × | × | O | × | O | × | × |
| 22 | | × | × | O | × | O | × | O |
| 23 | | × | × | O | × | O | O | × |
| 24 | | × | × | O | × | O | O | O |
| 25 | | × | × | O | O | × | × | × |
| 26 | | × | × | O | O | × | × | O |
| 27 | | × | × | O | O | × | O | × |
| 28 | | × | × | O | O | × | O | O |

Note: if you set it to something other than the table, the system address will be 28.

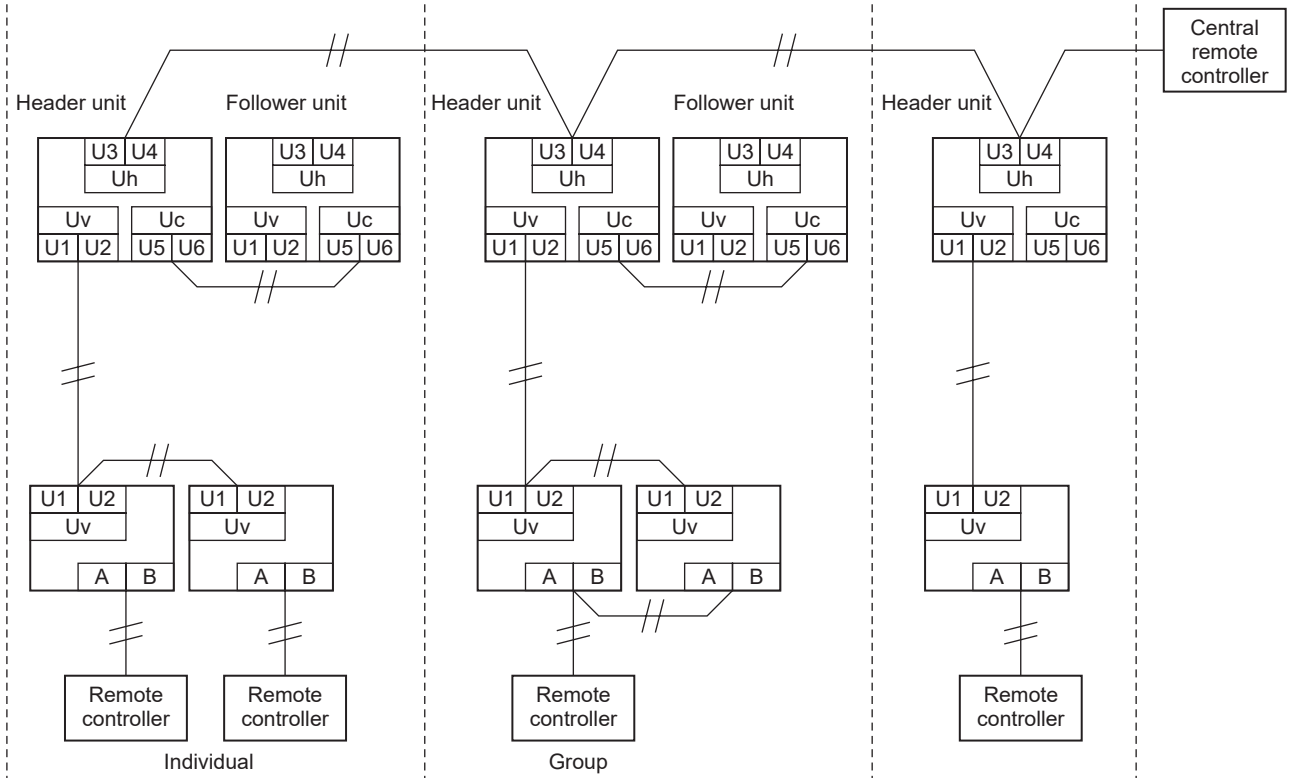
: SW101 Bit 1 is for header outdoor unit setting, so it is not used for system address setting.

**(2) After completing address setting of all systems, turn ON DIP switch 1 of SW100 on the header outdoor unit interface P.C. board of the lowest system address number.**

**Switch setting (setting example when controlling 2 or more refrigerant lines centrally)**
**Outdoor units (setting manually)**

*The items in bold font must be set manually.

| Outdoor unit's interface P.C. board | Header unit | Follower unit | Header unit | Follower unit | Header unit | Factory default |
|---|---|---|---|---|---|---|
| SW101 Bit1 (Header unit setting) | **ON** | (No setting required) | **ON** | (No setting required) | **ON** | OFF |
| SW101 Bit2-4, SW102 Bit1-4 (Line (system) address) | (ALL OFF) | (No setting required) | **2** | (No setting required) | **3** | (ALL OFF) |
| SW100 Bit1 (Terminator of central control line (Uh)) | **ON** | (No setting required) | (No setting required) | (No setting required) | (No setting required) | OFF |
| SW100 Bit2 (Terminator of indoor and outdoor communication line(Uv)) | **ON** | (No setting required) | **ON** | (No setting required) | **ON** | OFF |




| Indoor units (automatic/ manual setting) | | | | | | Factory default |
|---|---|---|---|---|---|---|
| Line (system) address | 1 | 1 | 2 | 2 | 3 | Un |
| Indoor unit address | 1 | 2 | 1 | 2 | 1 | Un |
| Group address | 0 | 0 | 1 | 2 | 0 | Un |

**3. Attach the electrical control box cover.**

## 4. Address setup

### ■ Automatic address setup

Only if the address of all indoor units in the same system is not set, the following address will be set automatically.

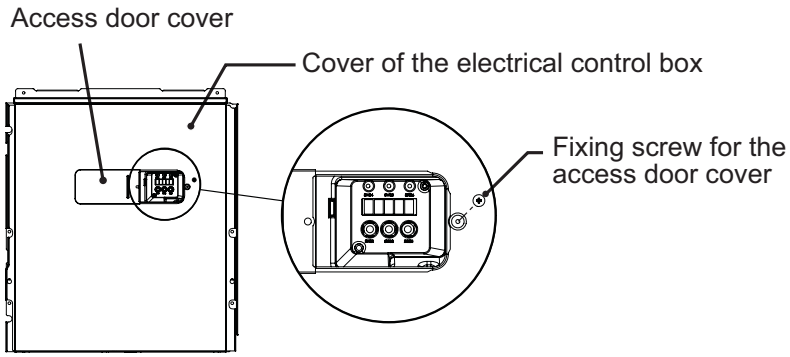
- Refrigerant line (system) address (Indoor unit code[12]) ... The line address of the indoor units are automatically set to the same number as the line address set in both SW101 and 102 of the outdoor Header unit I/F board.
- Indoor address (Indoor unit code[13]) Indoor address automatically set in order from one.
- Group address (Indoor unit code[14]) The group addresses (individual = 0, header = 1, follower = 2) are automatically set for the indoor units group connected by remote controller.

Open the access door cover and follow the steps below to set the address.

**REQUIREMENT**

- High voltage parts exist in the electrical control box.
  If you set addresses on an outdoor unit, operate the unit through the access door as shown in the illustration below to avoid electric shock. Do not remove the cover of electrical control box.

* After finishing operations, close the access door cover and fix it with the screw.




***1*** **Turn on indoor units first, and then turn on outdoor units.**

***2*** **About 1 minute after turning the power on, confirm that the 7-segment display on the interface P.C. board of the header outdoor unit indicates U. 1. Err (U. 1. flash) and L08 alternately at 1 second intervals.**

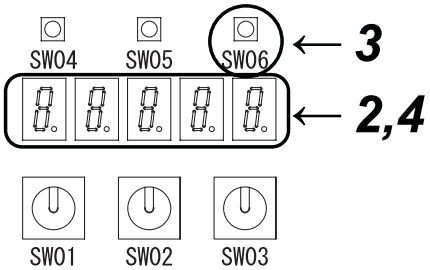
***3*** **Push SW06 for more than 1 second to start the automatic address setting.**
(It may take up to 10 minutes (normally about 5 minutes) to complete one line's setting.)

***4*** **The 7-segment display indicates Auto 1 → Auto 2 → Auto 3 .**
**The setting is complete when the display changes to U. 1. - - - (U. 1. flash) or U. 1. - - - (U. 1. light) .**

***5*** **Repeat steps *2* to *4* for other refrigerant lines.**

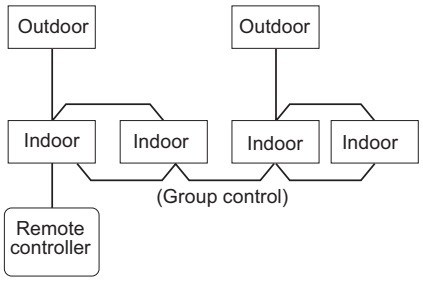
***6*** **Set the central control address.**
(For the setting of the central control address, refer to the installation manuals of the central control devices.)

**Interface P.C. board on the header outdoor unit**



## REQUIREMENT

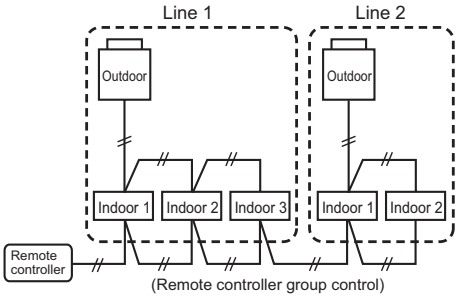
- When 2 or more refrigerant lines are controlled as a group, be sure to turn on all the indoor units in the group before setting addresses.
- If you set the unit addresses of each line separately, each line's header indoor unit is set separately. In that case, the Code No. "L03" (Indoor header unit overlap) is indicated as running starts. Change the group address to make one unit the header unit using wired remote controller.

| (Example) | Controlling 2 or more refrigerant lines as a group |
|---|---|
| **System wiring diagram** |  |

## ■ Manual address setup from the remote controller

With indoor wiring work completed and outdoor wiring work not done—in cases where indoor unit addresses are decided in advance from the wired remote controller, or in cases where addresses are change after address setup.

(Wiring example for 2 refrigerant lines)

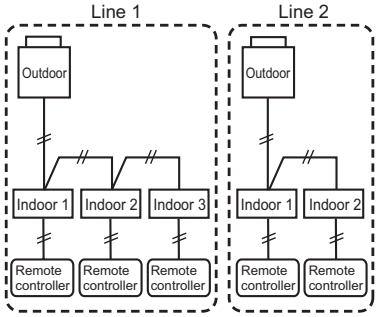



(Remote controller group control)

| | | | | | |
|---|---|---|---|---|---|
| Line address | 1 | 1 | 1 | 2 | 2 |
| Indoor address | 1 | 2 | 3 | 1 | 2 |
| Group address | 1 Header | 2 Follower | 2 Follower | 2 Follower | 2 Follower |

In the above example, where remote controllers are not yet wired, set the address manually after individually connecting the wired remote controller.

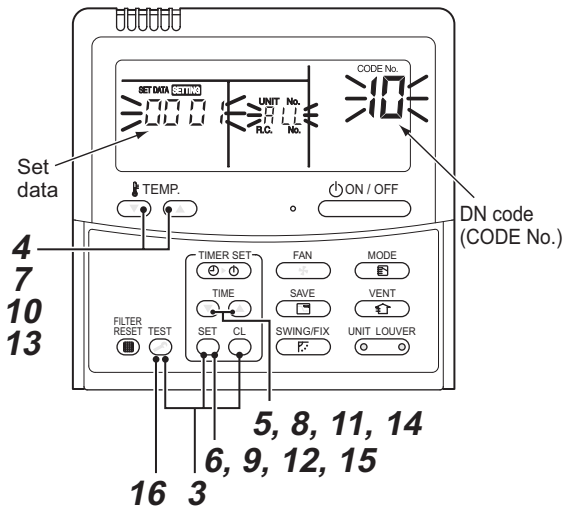
(Wiring during manual address setup)




After address setup, return to the original wiring over remote controllers.

Group address

Individual: 0000
Header unit: 0001
Follower unit: 0002
} In cases of remote controller group control




**<RBC-AMT*>**

**1** **Arrange one indoor unit and one remote controller set to 1 by 1.**

**2** **Turn on the power.**

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

LCD begins blinking.

**▼ (Refrigerant line address)**

**4** **Using the TEMP. buttons, set the DN code to 12.**

**5** **Using the TIME buttons, set up the line address (match it with the line address on the interface P.C. board of the header unit on the same refrigerant line).**

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

**▼ (Indoor address)**

**7** **Using the TEMP. buttons, set the DN code to 13.**

**8** **Using the TIME buttons, set up the indoor address. (TU2C-LINK : 0001~0128 TCC-LINK : 0001~0064)**

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

**▼ (Group address)**

**10** **Using the TEMP. buttons, set the DN code to 14.**

**11** **Using the TIME buttons, set Individual = 0000, Header unit = 0001, Follower unit = 0002.**

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

**▼ (Central control address)**

**13** **Using the TEMP. buttons, set DN code to 03.**

**14** **Using the TIME buttons, set up the central control address. (TU2C-LINK : 0001~0128 TCC-LINK : 0001~0064)**

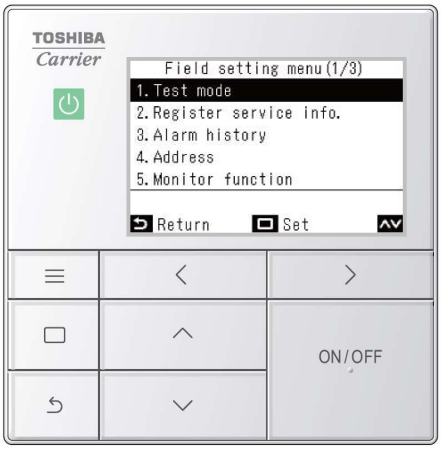
**15** **Push SET button. (OK when display goes on).**

**16** **Push the TEST button.**

Setup is finished (“Setting up” blinks; when “Setting up” goes off, operation is possible).

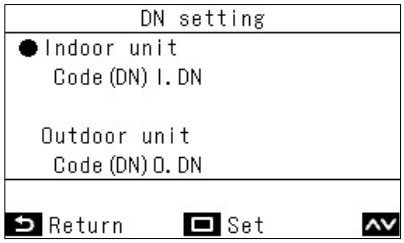
**17** **Return to the original wiring over remote controllers.**

## <RBC-AWSU**>




**1** **Push the [ Menu] button to display the menu screen**

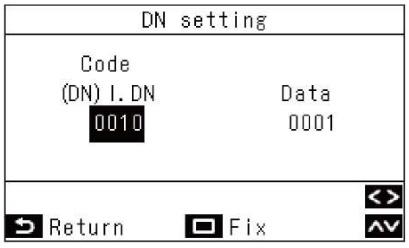
**2** **Push and hold the [ Menu] button and the [ ] button at the same time to display the "Field setting menu".**
→Push and hold the buttons for more than 4 seconds




**3** **Push the [ ] / [ ] button to select "9.DN setting" on the "Field setting menu" screen, then push the " Set" [ Set / Fix] button.**

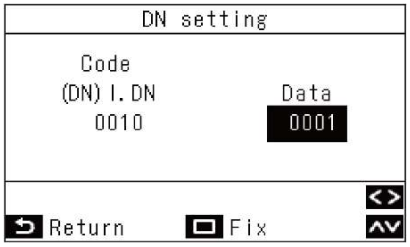
**4** **Push the [ ] / [ ] button to select the indoor unit and push the " Set" [ Set / Fix] button.**

→The fan and louver of the indoor unit operate. When the group control is used, the fan and louver of the selected indoor unit operate.
→Move the cursor to select "Code(DN)" with the " " button, then set "Code(DN)" with the [ ] / [ ] button.
→Move the cursor to select "Data" with the " " button, then set "Data" with the [ ] / [ ] button.

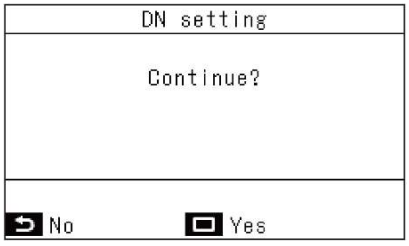



**▼ (Refrigerant line address)**

**5** **Push the [ ] / [ ] button to select Code No. Change Code No. to 12 with [ ] / [ ] setting buttoon.**




**6** **Push the [ ] / [ ] button to select the Date. Set the system address with [ ] / [ ] setting buttoon.**
**(Match the address with the address on the interface P.C.board of the header outdoor unit in the same refrigerant line.)**




**7** **Push the " Fix"[ Set / Fix] button to set the other Code(DN) and Data. After "Continue?" is displayed on the screen, push the " Yes"[ Set / Fix] buttoon.**

▼ **(Indoor address)**

***8*** **Push the [ < ] / [ > ] button to select Code No.**
**Change Code No. to 13 with [ ∧ ] / [ ∨ ] button.**

***9*** **Push the [ < ] / [ > ] button to select Data.**

Select the indoor unit address with [ ∧ ] / [ ∨ ] button.

(TU2C-LINK : 0001~0128
TCC-LINK : 0001~0064)

***10*** **Push the " Fix " [ Set / Fix] button to set the Data.**

After "Continue?" is displayed on the screen, push the " Yes " [ Set / Fix] button.

▼ **(Group address)**

***11*** **Push the [ < ] / [ > ] button to select Code No.**
**Change Code No. to 14 with [ ∧ ] / [ ∨ ] button.**

***12*** **Push the [ < ] / [ > ] button to select Data.**

Select the group address with [ ∧ ] / [ ∨ ] button.

***13*** **Push the " Fix " [ Set / Fix] button to set the Data.**

After "Continue?" is displayed on the screen, push the " Yes " [ Set / Fix] button.

▼ **(Central control address)**

***14*** **Push the [ < ] / [ > ] button to select Code No.**
**Change Code No. to 03 with [ ∧ ] / [ ∨ ] button.**

***15*** **Push the [ < ] / [ > ] button to select Data.**

Select the indoor unit address with [ ∧ ] / [ ∨ ] button.

(TU2C-LINK : 0001~0128
TCC-LINK : 0001~0064)

***16*** **Push the " Fix " [ Set / Fix ] button to set the Data.**

After "Continue?" is displayed on the screen, push the " No " [ Return] button.

***17*** **The display changes to "DN setting" , push the " Return" button to finish the settinge operation.**

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

## NOTE

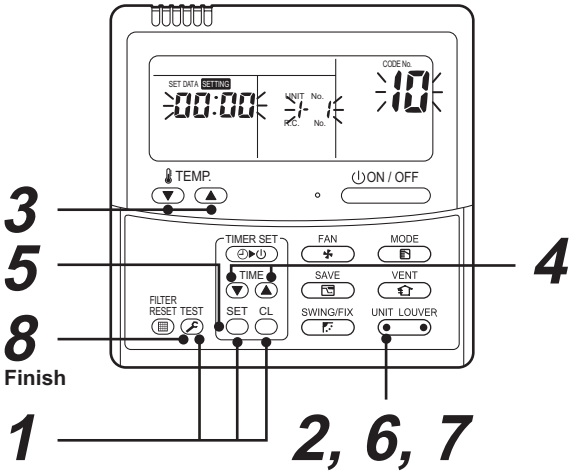
(1) The Code No. [E04] (Indoor / outdoor communication trouble) will appear if line (system) addresses are mistakenly set.
(2) When manual address setup has been done from a remote controller, and central control over refrigerant lines is to be done, setup the header unit of each line as follows:
- Using SW101 and SW102 on the interface PC board of the header unit of each line, setup the line address for each line.
- Turn ON DIP switch 1 of SW100 on the header outdoor unit interface P.C.board of the lowest system address number.
- After that, set up the central control address. (For central control address setup, refer to the installation manual of the central control devices.)

## ■ Changing the indoor unit address using a remote controller

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

**<RBC-AMT*>**

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




**(Execute it while the units are stopped.)**

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

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

***3*** **Push the TEMP. ▼ / ▲ buttons repeatedly to select 13 for CODE No..**

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

***5*** **Push the SET button.**

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

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

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

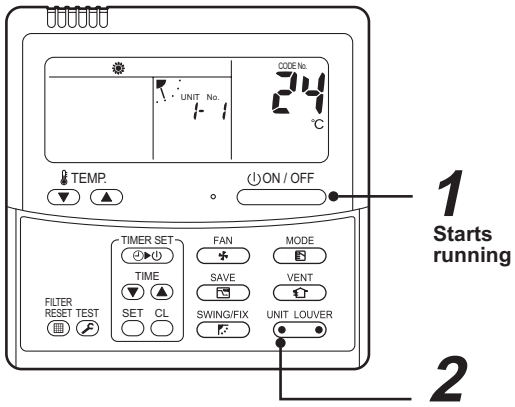
## ■ Confirming the indoor unit addresses and the position of an indoor unit using the remote controller

### ◆ Confirming the numbers and positions of indoor units

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

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

**<RBC-AMT*>**




**(Execute it while the units are running.)**

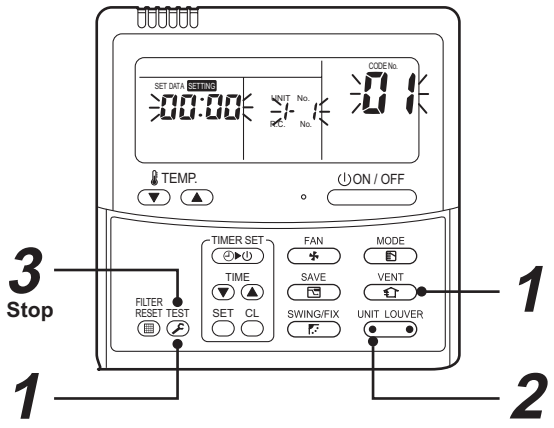
**1 Push the ON / OFF button if the units stop.**

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

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

**To find an indoor unit's position from its address**

**▼ When checking unit numbers controlled as a group**




**(Execute it while the units are stopped.)**

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

***1*** **Push and hold the VENT and TEST buttons at the same time for more than 4 seconds.**

- ALL appears on UNIT No. on the LCD display.
- The fans and louvers of all the indoor units in the group are activated.

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

- The first-indicated unit number is the address of the header unit.
- Only the fan and louvers of the indicated indoor unit are activated.

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

All the indoor units in the group stop.

## ■ Using wired remote controller (RBC-AMT* etc.), all the indoor units addresses in the same system are changed.

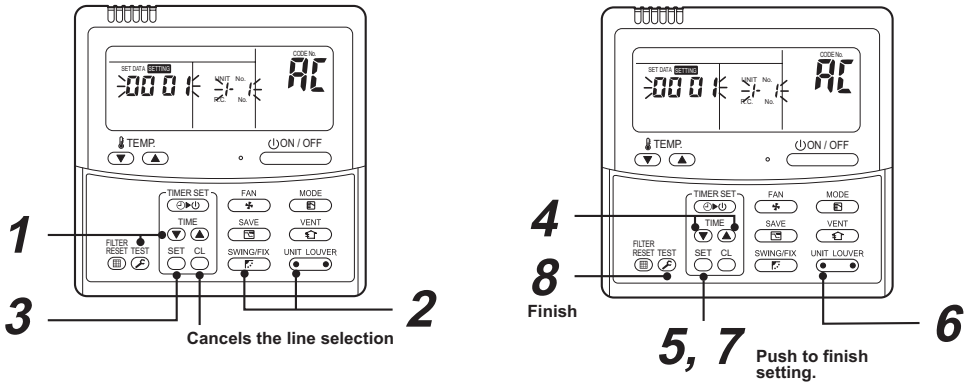
**(The method is available when the addresses have already been set automatically.)**

The method is available when the addresses have already been set. The indoor address of other refrigerant systems cannot be changed.

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

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

**(Execute it while the units are stopped.)**




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

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

***3*** **Push the SET button.**

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

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

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

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

Repeat steps ***4*** to ***6*** to change the indoor unit addresses so as to make each of them unique.

***7*** **Push the SET button.**

(All the segments on the LCD display light up.)

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

## Procedure to setup address 65 to 128 from the remote controller

Under TCC-Link settings (factory shipping settings), setting addresses from 65 and above are not available from the remote controller. Setting the indoor address or the zone address to 65 to 128 must be done under TU2C-Link settings, which can be performed by the procedures shown below.

* Be sure that all of the outdoor units, indoor units, and the remote controller in the same system support TU2C-Link.
  TU2C-Link communication is not available if any of these do not support TU2C-Link.

### Method 1 (Changing the address after automatic address setup)

Follow the procedures below if the power supply and communication line wiring work has been completed.

1) Turn the power for every outdoor unit and indoor unit on.
2) Perform "Automatic address setup" from the header outdoor unit.
   The system address, indoor address, and the group address will be set for every indoor unit in the system automatically.
3) Perform "Communication setting" from the header outdoor unit.
   TU2C-Link will be set if all the outdoor units, indoor units, and the remote controller support TU2C-Link.
   (Outdoor DN code (O.DN) [082]=0003, indoor DN code (I.DN) [FC]=0003)
   For the units in the farthest rooms, the indoor termination resistance will automatically be set to on.
   (Indoor DN code (I.DN) [1FC]=0001 (ON))
4) Change the indoor address (or the group address) to any address within 1 to 128 according to the method to change the indoor address using the remote controller.

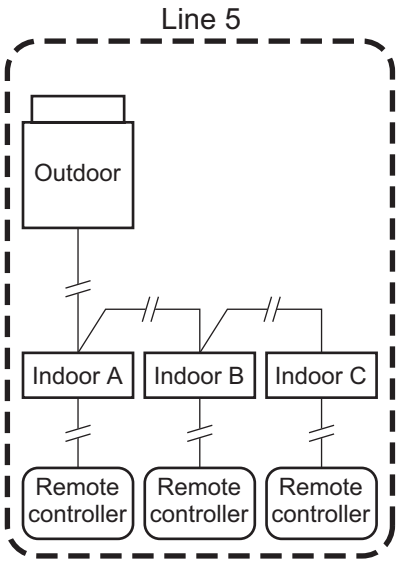
   * If there are more than 65 indoor units connected:

     Addresses above 65 will automatically be set by automatic address setup even if TCC-Link settings are implemented.

     While the TCC-Link settings are set, indoor units which are assigned with the addresses 65 to 128 will not work, until setting the TU2C-Link settings by performing communication settings after the automatic address setup, which will render the indoor units 65 through 128 available.

   * The check code [E16] or [L08] will show up if operation is attempted while the TCC-Link setting is implemented and the indoor units with the indoor address 65 to 128 are connected.

### <Example> When the indoor address of line 5 is set to 126-128




2) After the automatic address setting

| | | Indoor A | Indoor B | Indoor C |
|---|---|---|---|---|
| Line (system) address | I.DN [12] | **0005** | **0005** | **0005** |
| Indoor address | I.DN [13] | **0001** | **0002** | **0003** |
| Group address | I.DN [14] | **0001** | **0002** | **0002** |
| Communication setting | I.DN [FC] | 0000 | 0000 | 0000 |
| Indoor termination | I.DN [1FC] | 0000 | 0000 | 0000 |

3) After the automatic communication settings

| | | | | |
|---|---|---|---|---|
| Line (system) address | I.DN [12] | 0005 | 0005 | 0005 |
| Indoor address | I.DN [13] | 0001 | 0002 | 0003 |
| Group address | I.DN [14] | 0001 | 0002 | 0002 |
| Communication setting | I.DN [FC] | **0003** | **0003** | **0003** |
| Indoor termination | I.DN [1FC] | 0000 | 0000 | **0001** |

4) After changing the indoor address with the remote control.

| | | | | |
|---|---|---|---|---|
| Line (system) address | I.DN [12] | 0005 | 0005 | 0005 |
| Indoor address | I.DN [13] | **0126** | **0127** | **0128** |
| Group address | I.DN [14] | 0001 | 0002 | 0002 |
| Communication setting | I.DN [FC] | 0003 | 0003 | 0003 |
| Indoor termination | I.DN [1FC] | 0000 | 0000 | 0001 |

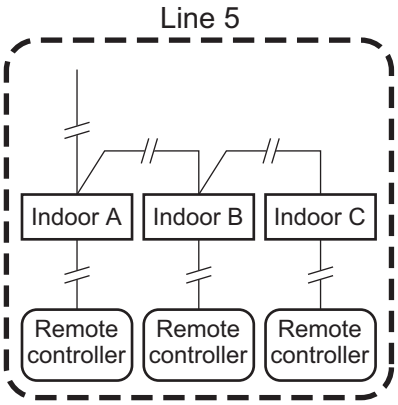
### Method 2 (Setting the address manually from the remote controller)

Follow the procedure below if setting the indoor unit address manually from the remote controller is desired due to the indoor address not being set (factory default) and automatic address setting not being possible for reasons such as the outdoor unit installation not being installed.

**<RBC-AWSU52*>**

1) Arrange one indoor unit and one remote controller set to 1 by 1.
   Turn on the power.
2) After confirming that "SETTING" is blinking on the remote controller, turn the screen to the "Field setting menu" by pushing the "MENU" and " ∨ " together for 4 seconds or longer.
   Select the "9. DN setting" using the " ∧ " and " ∨ " button and push the "Set" button.
   Select the "Indoor unit" using the " ∧ " and " ∨ " button and push the "Set" button.
3) Set the Indoor Unit Function Code (I.DN) to [14], and the Data to [0000] (Individual).
   • Set the group address to (individual).
4) Set the Indoor Unit Function Code (I.DN) to [FC], and the Data to [0003](Individual).
   • Set the system to TU2C-Link communication.
5) Push the "MENU" button and complete the settings for the time being.
6) After the remote controller reboots, turn the screen to the "Field setting menu" by pushing the "MENU" and " ∨ " together for 4 seconds or longer.
7) Bring up the "DN setting" screen by following the same procedure as in 2) above, and change to the Function Code (DN) I.DN setting screen of “Indoor unit”.
8) Set the Line address by setting the Indoor Unit Function Code (I.DN) to [12].
9) Set the indoor unit address by setting the Indoor Unit Function Code (I.DN) to [13].
10) When connecting to the remote controller group control,
    Set the DN code to [14], Data [0001] (header) for the header indoor unit, and the DN code to [14], Data [0002] (follower) for the follower indoor unit.
11) If necessary, set the zone address to the Indoor Unit Function Code (I.DN) to [03].

Example) When setting the Indoor address to 126 to 128 in Line 5 is desired




Before making settings ( At shipment )

| | | Indoor A | Indoor B | Indoor C |
|---|---|---|---|---|
| Line (system) address | I.DN [12] | 00Un | 00Un | 00Un |
| Indoor unit address | I.DN [13] | 00Un | 00Un | 00Un |
| Group address | I.DN [14] | 00Un | 00Un | 00Un |
| Communication setting | I.DN [FC] | 0000 | 0000 | 0000 |
| Indoor termination | I.DN [1FC] | 0000 | 0000 | 0000 |

After setting 3) and 4)

| | | | | |
|---|---|---|---|---|
| Line (system) address | I.DN [12] | 00Un | 00Un | 00Un |
| Indoor unit address | I.DN [13] | 00Un | 00Un | 00Un |
| Group address | I.DN [14] | **0000** | **0000** | **0000** |
| Communication setting | I.DN [FC] | **0003** | **0003** | **0003** |
| Indoor termination | I.DN [1FC] | 0000 | 0000 | 0000 |

After setting 8),9) and 10) (11))

| | | | | |
|---|---|---|---|---|
| Line (system) address | I.DN [12] | **0005** | **0005** | **0005** |
| Indoor unit address | I.DN [13] | **0126** | **0127** | **0128** |
| Group address | I.DN [14] | **0001** | **0002** | **0002** |
| Communication setting | I.DN [FC] | 0003 | 0003 | 0003 |
| Indoor termination | I.DN [1FC] | 0000 | 0000 | 0000 |

### <Setting the indoor terminal resistance manually (if the farthest room is known)>

12) Set the Indoor Unit Function Code I.DN [1FC] to "0001" (indoor terminal resistance ON).
13) After installing the outdoor unit, set the Outdoor Unit Function Code O.DN [82] to "0003" (TU2C-Link) for the header outdoor unit and the follower outdoor unit.
14) Reset the outdoor / indoor unit power supply to complete the setting.

### <Setting the indoor terminal resistance automatically (if the farthest room is unknown)>

The indoor terminal resistance settings will be available after installing the outdoor unit and performing the communication method settings from the header outdoor unit, thus the farthest room will be detected automatically, and indoor terminal resistance can be set.
Make sure that this is done after 11), **since the communication method settings has to be performed after changing back to TCC-LINK settings**.

15) Clear the communication method from the header outdoor unit after installing the outdoor unit.
All the communication method settings for the indoor and outdoor unit in the same system will be set to TCC-LINK.
(The indoor addresses will not be changed at this time.)
16) Perform the communication method settings from the header outdoor unit. If all of the outdoor unit, the indoor units, and the remote controller in the same system supports TU2C-LINK, they will be set to TU2C-LINK settings, and the indoor terminal resistance settings will turn on automatically.
17) Reset the outdoor / indoor unit power supply to complete the setting.

**<When the farthest indoor unit is known and the indoor terminating resistor is set manually>**

12) After setting the indoor terminating resistor

| | | | | |
|---|---|---|---|---|
| Line (system) address | I.DN [12] | 0005 | 0005 | 0005 |
| Indoor unit address | I.DN [13] | 0126 | 0127 | 0128 |
| Group address | I.DN [14] | 0001 | 0002 | 0002 |
| Communication setting | I.DN [FC] | 0003 | 0003 | 0003 |
| Indoor termination | I.DN [1FC] | 0000 | 0000 | **0001** |

**<If you do not know the farthest indoor unit and use automatic communication settings>**

15) After resetting communication settings

| | | | | |
|---|---|---|---|---|
| Line (system) address | I.DN [12] | 0005 | 0005 | 0005 |
| Indoor unit address | I.DN [13] | 0126 | 0127 | 0128 |
| Group address | I.DN [14] | 0001 | 0002 | 0002 |
| Communication setting | I.DN [FC] | **0000** | **0000** | **0000** |
| Indoor termination | I.DN [1FC] | 0000 | 0000 | 0000 |

16) After automatic communication setting

| | | | | |
|---|---|---|---|---|
| Line (system) address | I.DN [12] | 0005 | 0005 | 0005 |
| Indoor unit address | I.DN [13] | 0126 | 0127 | 0128 |
| Group address | I.DN [14] | 0001 | 0002 | 0002 |
| Communication setting | I.DN [FC] | **0003** | **0003** | **0003** |
| Indoor termination | I.DN [1FC] | 0000 | 0000 | **0001** |

## ■ Resetting the address (Resetting to the factory default (address undecided))

### Method 1

Clearing each address separately using a wired remote controller.
Set the system address, indoor unit address and group address to “00Un” using a wired remote controller. (For the setting procedure, refer to the address setting procedures using the wired remote controller on the previous pages.)
* Address not set will be either "00Un" or "0099", depending on the type of the remote controller.

Central control address (I.DN [03]) • Indoor unit address (I.DN [13])

| Remote controller | Communication Type | Unfixed | Display order |
|---|---|---|---|
| U series | TU2C-LINK | 00Un | • • • ⇔0128⇔00Un⇔0001⇔ • • • |
| | TCC-LINK | 00Un | • • • ⇔0064⇔00Un⇔0001⇔ • • • |
| Other than U series | TCC-LINK | 0099 | • • • ⇔0064⇔0099⇔0001⇔ • • • |

Line address (I.DN [12])

| Remote controller | Communication Type | Unfixed | Display order |
|---|---|---|---|
| U series | TU2C-LINK | 00Un | • • • ⇔0128⇔00Un⇔0001⇔ • • • |
| | TCC-LINK | 00Un | • • • ⇔0030⇔00Un⇔0001⇔ • • • |
| Other than U series | TCC-LINK | 0099 | • • • ⇔0030⇔0099⇔0001⇔ • • • |

Group address (I.DN [14])

| Remote controller | Communication Type | Unfixed | Display order |
|---|---|---|---|
| U series | TU2C-LINK | 00Un | • • • ⇔0002⇔00Un⇔0000⇔ • • • |
| | TCC-LINK | | |
| Other than U series | TCC-LINK | 0099 | • • • ⇔0002⇔0099⇔0000⇔ • • • |

### Method 2

Clearing all the indoor unit addresses on a refrigerate line at once from the outdoor unit.

***1*** **Turn off the refrigerant line to reset to the factory default.**

***2*** **Turn on the indoor and outdoor units of the refrigerant line for which you want to initialize the addresses. About one minute after turning on the power, confirm that the 7-segment display on the header outdoor unit indicates “U.1. - - -” and operate the interface P.C. board on the header outdoor unit of the refrigerant line as follows.**

| SW01 | SW02 | SW03 | SW04 | Clearable addresses |
|---|---|---|---|---|
| 2 | 1 | 2 | Confirm that the 7-segment display indicates “A.d.buS” and turn SW04 ON for more than five seconds. | System/indoor unit/group address |
| 2 | 2 | 2 | Confirm that the 7-segment display indicates “A.d.nEt” and turn SW04 ON for more than five seconds. | Central control address |

***3*** **Confirm that the 7-segment display indicates “A.d. c.L.” and set SW01, SW02 and SW03 to 1, 1, 1 respectively.**

***4*** **After finished clearing the address successfully, “U.1.Err” and “L08 “ appear alternatively at 1 second intervals on the 7-segment display.**

***5*** **Set the addresses again after finishing the clearance.**

### Communication setting

If all outdoor units, indoor units, remote controllers are U series models, you can change to TU2C-LINK communication by following the steps below. (The factory default setting is TCC-LINK communication)

## ⚠ CAUTION

- Be sure to complete the address setting before communication setting.
- It may takes about 1 to 3 minutes to address one refrigerant line.
- Settings on the outdoor unit are required for communication setting.
  (Communication setting is not started simply by turning on the power.)
- If a unit that has already been set for communication is connected, it cannot be set correctly.
  In this case, clear the communication settings and set again.
- The indoor unit DN code (FC) and outdoor unit DN code (82) are automatically set for the set communication.
  In the case of the TU2C-LINK system, the terminating resistance (indoor unit DN code (1FC)) of the indoor unit that maximizes the wiring length from the outdoor unit is automatically set.

### ■ Communication setting (Auto setting)

1. Turn on indoor units first, and then turn on outdoor units.
2. Set the rotary switches on the interface P.C. board of the header outdoor unit SW01 to [2], SW02 to [16] and SW03 to [2].
3. The 7-segment display switches between “c.c. b P S” and “c.c. 0 “ at 1-second intervals.
4. Push and hold SW04 for more than 5 seconds.
5. The 7-segment display flashes “c.c.i n”.
6. The 7-segment display switches between “c.c. i n” and “c.c. ＊＊＊“ at 1-second intervals.
   Check the number of connected indoor units [＊＊＊].
   If the number of indoor units is right, move on to 7.

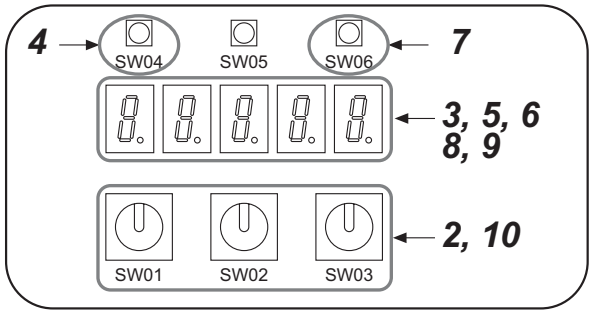
   ( When the number of the connected indoor units differs from the number of indoor units displayed on the 7-segment display, clear the communication type setting to eliminate the cause.
   To clear the communication type setting, push and hold the SW05 for 5 seconds or more.
   The 7-segment display flashes “c.c.r S t” .
   After a while, the 7-segment display switches between “c. c. b p s” and “c.c. 0”
   Set the rotary switch back to SW01 to [1], SW02 to [1], SW03 to [1]. )

7. Push and hold SW06 for more than 5 seconds.
8. The 7-segment display flashes “c.c.b p s”.
   After that, the setting is complete when the 7-segment display changes to “c.c F i n”.
   (If the 7-segment display changes to “c.c. E r r “, try again.)
9. After a while, the 7-segment display switches between “c.c. b p s “ and “c.c. 1 “ (or “ c.c. o “) at 1-second intervals.
10. Set the rotary switch on the interface P.C. board of the header outdoor unit back to SW01=[1], SW02=[1], SW03=[1].

| Communication Type | 7-segment display | | Outdoor unit DN code No.(O.DN) | Indoor unit DN code No.(I.DN) | | |
|---|---|---|---|---|---|---|
| | | | [082] (Communication setting) | [FC] (Communication setting) | [1FC] (Indoor termination resistance setup) | |
| TU2C-Link (U series and future models) | [A] [c.c.] [c.c.] | [B] [b P S] [ 1 ] | 0003 | 0003 | The farthest indoor unit (*1) 0001 | Indoor units other than the left column 0000 |
| TCC-Link (Other than U series) | [A] [c.c.] [c.c.] | [B] [b P S] [ 1 ] | 0000 | 0000 | 0000 | |

*1 : Only the indoor unit that has the longest wiring length from the outdoor unit.
The indoor address of the indoor unit with the terminator turned on is confirm the items in "7-7-11. Monitor Function of Remote Controller Switch".

**Interface P.C. board on the header outdoor unit**

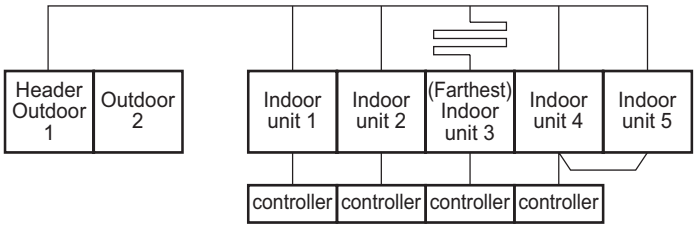


## ■ Procedure to set up the communication method manually

The communication method and the terminal resistance settings can be changed by setting the outdoor DN code (O.DN) and the Indoor Unit Function Code (I.DN).
(See also 6-4. Method to set Outdoor Unit Function Code No. (O.DN) for operation method.)

### <Procedure to set the TU2C-Link communication setting>

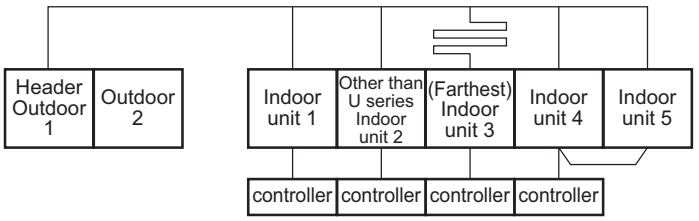
1) Set the Outdoor Unit Function Code (O.DN) [082] of all outdoor units to "0003".
2) Set the Indoor Unit Function Code (I.DN) [FC] of all indoor units to "0003".
3) Set the Indoor Unit Function Code (I.DN) [1FC] of the farthest indoor unit to "0001" (set the indoor terminating resistor to ON).
   * If which indoor unit is the unit in the farthest room is unknown, perform the communication method automatic setup.




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| O.DN[82] Communication setting | 3 | 3 | 3 | 3 | 3 | 3 | 3 | I.DN[FC] Communication setting |
| | | | 0 | 0 | 1 | 0 | 0 | I.DN[1FC] Indoor termination resistance setup |
| Line (system) address (DIP SW) | 7 | – | 7 | 7 | 7 | 7 | 7 | I.DN[12] Line (system) address |
| | | | 1 | 2 | 3 | 4 | 5 | I.DN[13] Indoor unit address |
| | | | 0 | 0 | 0 | 1 (Header) | 2 (Follower) | I.DN[14] Group address |

### <Procedure to set the TCC-Link communication setting>

1) Set the Outdoor Unit Function Code (O.DN) [082] of all outdoor units to "0000".
2) Set the Indoor Unit Function Code (I.DN) [FC] of all indoor units to "0000".
3) Set the Indoor Unit Function Code (I.DN) [1FC] of the farthest indoor unit to "0001" (set the indoor terminating resistor to OFF).



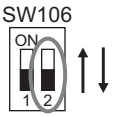

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| O.DN[82] Communication setting | 0 | 0 | 0 | – | 0 | 0 | 0 | I.DN[FC] Communication setting |
| | | | 0 | – | 0 | 0 | 0 | I.DN[1FC] Indoor termination resistance setup |
| Line (system) address (DIP SW) | 7 | – | 7 | 7 | 7 | 7 | 7 | I.DN[12] Line (system) address |
| | | | 1 | 2 | 3 | 4 | 5 | I.DN[13] Indoor unit address |
| | | | 0 | 0 | 0 | 1 (Header) | 2 (Follower) | I.DN[14] Group address |

* The indoor DN code (I.DN) cannot be set regarding [FC] and [1FC] for the indoor units which are not the U Series; the communication method will be TCC-Link.

## ■ Procedure to clear the communication method (restoring the factory default [TCC-Link communication settings])

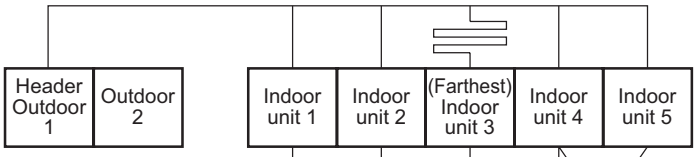
- This is a function in which the communication method setting for all the outdoor units and indoor units (every outdoor unit connected to the Uc line and every indoor unit connected to the Uv line) will reset to the TCC-Link communication settings. Also, the indoor terminal resistance settings for every indoor unit will be set back to OFF.
- The addresses for the indoor units (indoor address, line address, group address, and the zone address) will not be cleared.
- This function is also effective with unaddressed indoor units if connected to the Uv line.
- This function will not be available if there are no indoor units that can communicate with the outdoor unit. There must be at least one indoor unit that can communicate with the outdoor unit (in which the communication method is matched with the outdoor unit and its address is already set) to use this function. This function is available even if the communication method settings for the indoor unit and outdoor unit in the same system of TCC-Link and TU2C-Link coexist. The settings for the header outdoor unit to be operated can be either TCC-Link communication settings or TU2C-Link communication settings.

### [Operation method]




1. Turn off indoor units first, and then turn off outdoor units.
2. Turn on DIP switch 2 of SW106 on the header outdoor unit interface P.C.boards.
3. Turn on the outdoor unit first, then turn on the indoor unit after about 20 seconds.
   (Turn on the header unit, and then 20 seconds or more later, turn on the follower units and indoor units.
   If the follower units cannot be turned on after the header unit has been turned on, turn on both of them simultaneously. )
4. The 7-segment display indication " - r S t. - ". Check all the units have turned on more than app 1 minute. Turn off all the indoor and outdoor units.
5. Turn off DIP switch 2 of SW106 on the header outdoor unit interface P.C.board.

### <Example> Communication method clear operation in a system with mixed communication settings




Before communication method clear procedure

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| O.DN[82] Communication setting | 0 | 3 | 3 | 3 | 3 | 0 | 3 | I.DN[FC] Communication setting |
| | | | 0 | 0 | 1 | 0 | 0 | I.DN[1FC] Indoor termination resistance setup |
| Line (system) address (DIP SW) | 7 | – | 7 | Un | Un | 7 | 7 | I.DN[12] Line (system) address |
| | | | 1 | Un | 3 | 4 | 5 | I.DN[13] Indoor unit address |
| | | | 0 | Un | Un | 1 (Header) | 2 (Follower) | I.DN[14] Group address |

After communication method clear procedure

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| O.DN[82] Communication setting | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I.DN[FC] Communication setting |
| | | | 0 | 0 | 0 | 0 | 0 | I.DN[1FC] Indoor termination resistance setup |
| Line (system) address (DIP SW) | 7 | – | 7 | Un | Un | 7 | 7 | I.DN[12] Line (system) address |
| | | | 1 | Un | 3 | 4 | 5 | I.DN[13] Indoor unit address |
| | | | 0 | Un | Un | 1 (Header) | 2 (Follower) | I.DN[14] Group address |

## ■ In the case of an increase in address-undefined indoor units (extension, etc.)

To set up the indoor address of a unit with an address that is undefined due to the extension of indoor units or replacement of PC board, etc., follow the methods below.

### 1. Clear the communication setting

#### Setup procedure

(1) Turn off indoor unit first, and then turn off outdoor units.

(2) Turn on DIP switch 2 of SW106 on the header outdoor unit interface P.C. board.

(3) Turn on the outdoor unit first, then turn on the indoor unit after about 20 second.
(Turn on the header unit, and then 20 seconds or more later, turn on the follower units and indoor units. If the follower units cannot be turned on after the header unit has been turned on, turn on both of them simultaneously. )

(4) The 7-segment display indication " - r S t. - ". Check all the units have turned on more than approx. 1 minute. Turn off all the indoor and outdoor units.

(5) Turn off DIP switch 2 of SW106 on the header outdoor unit interface P.C. board.

### 2. Address setting

#### Method 1

Set up an address individually from a wired remote controller.
(Line address, Indoor address, Group address, Central address)
For the setup method, refer to "Manual address setup from the remote controller." above.

#### Method 2

Set up an address from the outdoor unit.

* Leave the addresses of the units for which addresses have already been set up as they are. Set up an address only for the unit where the address is undefined.
Addresses are allocated from lower numbers.

#### Setup procedure

(1) Turn on the indoor/outdoor power for the refrigerant line for which an address is to be set up.
After approximately 1 minute, check that "U.1. - - -" is displayed on the 7-segment display.

(2) Execute the following operation on the interface PC board of the header unit.

| SW01 | SW02 | SW03 | SW04 |
|---|---|---|---|
| 2 | 14 | 2 | After checking that "In.At" is displayed on the 7-segment display, push SW04 for 5 seconds or more. |

"AUTO1" → "AUTO2" → "AUTO3" → ... → "AUTO9" ... is counted and displayed on the 7-segment display.

(3) When "U.1. - - -" is displayed on the 7-segment display, the setup operation finished.
Turn off the indoor/outdoor power.

### 3. Communication setting (Auto setting)

### Setup procedure

(1) Turn on indoor units first, and then turn on outdoor units.

(2) Set the rotary switch of the interface P.C. board on the header outdoor unit to SW01=[2], SW02=[16] and SW03=[2].

(3) The 7-segment display switches between “c.c. b p s” and “c.c. 0 “ at 1-second intervals.

(4) Push and hold SW04 for more than 5 seconds.

(5) The 7-segment display flashes “c.c.i n”.

(6) The 7-segment display switches between “c.c. i n” and “c.c. *** “ at 1-second intervals.
Check the number of connected indoor units [***].
(When the number of the connected indoor units differs from the number of indoor units displayed on the 7-segment display, clear the communication type setting to eliminate the cause.
To clear the communication type setting, push and hold the SW05 for 5 seconds or more.
The 7-segment display flashes “c.c.r S t”.
After a while, the 7-segment display switches between “c.c. b p s “ and “c.c. 0 “.
Set the rotary switch back to SW01 to [1], SW02 to [1], SW03 to [1].)

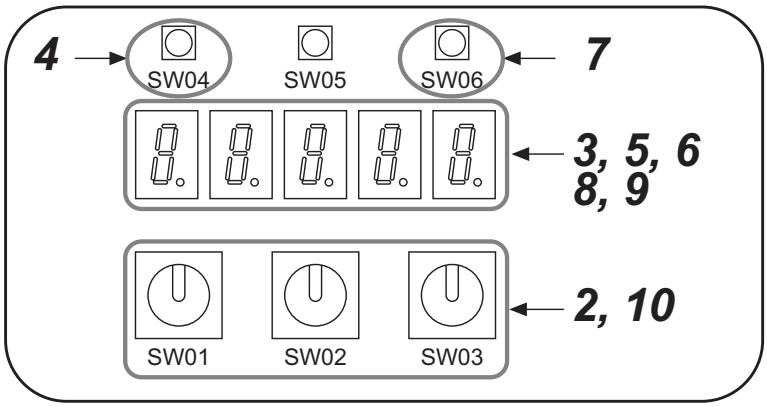
(7) Push and hold SW06 for more than 5 seconds.

(8) The 7-segment display flashes “c.c.b p s”.
After that, the setting is complete when the 7-segment display changes to “c.c F i n”.
(If the 7-segment display changes to “c.c. E r r “, try again.)

(9) After a while, the 7-segment display switches between “c.c. b p s “ and “c.c. 1 “ (or “ c.c. o “) at 1-second intervals.

(10) Set the rotary switch on the interface P.C. board of the header outdoor unit back to SW01=[1], SW02=[1], SW03=[1].

**Interface P.C. board on the header outdoor unit**



## Procedures for adding an indoor unit with communication method and address already set

In cases of adding a new indoor unit with the TU2C-Link setup or address setup already completed due to relocation etc., perform the setup 1) to 3) below.

1) Communication method
   - Set the communication method of the indoor unit and the already existing system to the same settings.

   Method 1 The communication method and indoor terminating resistance can be set automatically after performing "Clear communication method", by setting the address to the added indoor unit, and then performing "Automatic setting of communication method".

   Method 2 Change the indoor DN code (I.DN) [FC] of the additional indoor unit to match the communication method of the existing system.
   If the indoor unit to be added is in the farthest room, turn the indoor terminal resistance on, and turn the indoor terminal resistance off for the other (already existing) indoor units.

2) Indoor terminal resistance
   - If setting to TCC-Link communication method, turn the indoor terminal resistance OFF for every indoor unit in the same system.
     The indoor terminal resistance for every indoor unit can be turned off at once by performing the communication method clear from the header outdoor unit.
   - If setting to TU2C-Link communication method, turn the indoor terminal resistance for one of the indoor units in the farthest room ON.
     If which indoor unit is the unit in the farthest room is unknown, check the address for the indoor unit that the indoor termination resistance has been automatically set by performing "communication method automatic setup" after performing "communication method setup".

3) Address setup
   - Change the system address to match the already-existing system.
   - Make sure not to set duplicate indoor addresses.

   Method 1 Perform the method "In case of adding an unaddressed indoor unit (due to expansion etc.)" after setting the communication method of the indoor unit to be added to that of the already-existing system, and clearing the address.

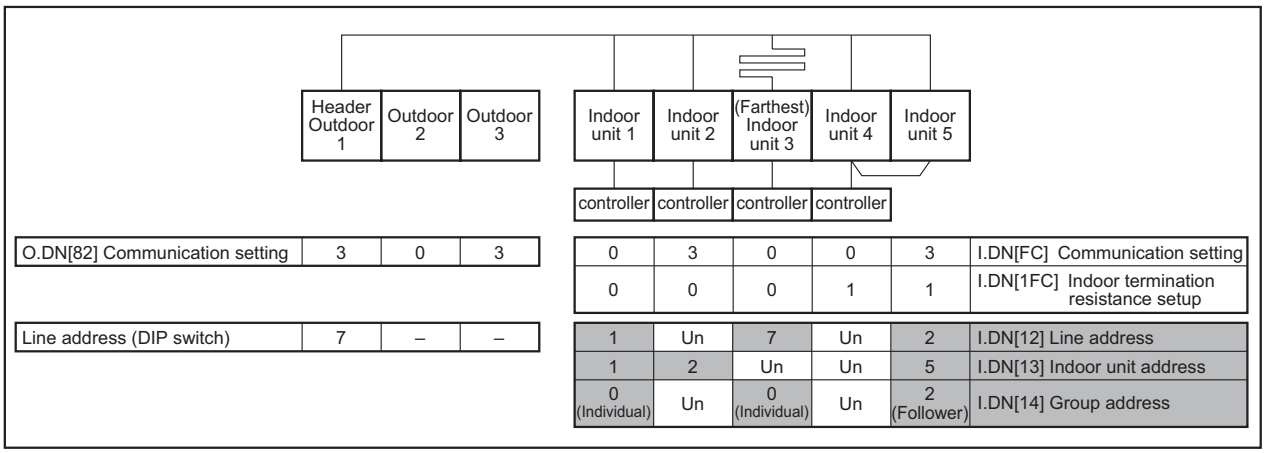
   Method 2 Change the communication method setting and the address for the indoor unit to be added manually from the indoor DN code (I.DN).

* The following functions are available under both TU2C-Link communication and TCC-Link communication. Note however, that the address clear and automatic address settings will not function as intended if these functions were to be performed under mixed communication methods.
  - Clear all indoor addresses, system address, and group addresses at once… Set the rotary switch SW01/SW02/SW03 on header outdoor unit to [2/1/2], and push SW04 for five seconds or longer.
  - Clear all zone addresses at once … Set the rotary switch SW01/SW02/SW03 on header outdoor unit to [2/2/2], and push SW04 for five seconds or longer.
  - Automatic address setting … Push SW06 on header outdoor unit when all indoor units have no indoor address set, and a "L08" error is occurring.
  - Automatic address setting for unaddressed indoor units … Set the rotary switch SW01/SW02/SW03 on header outdoor unit to [2/14/2], and push the SW04 five seconds or longer.

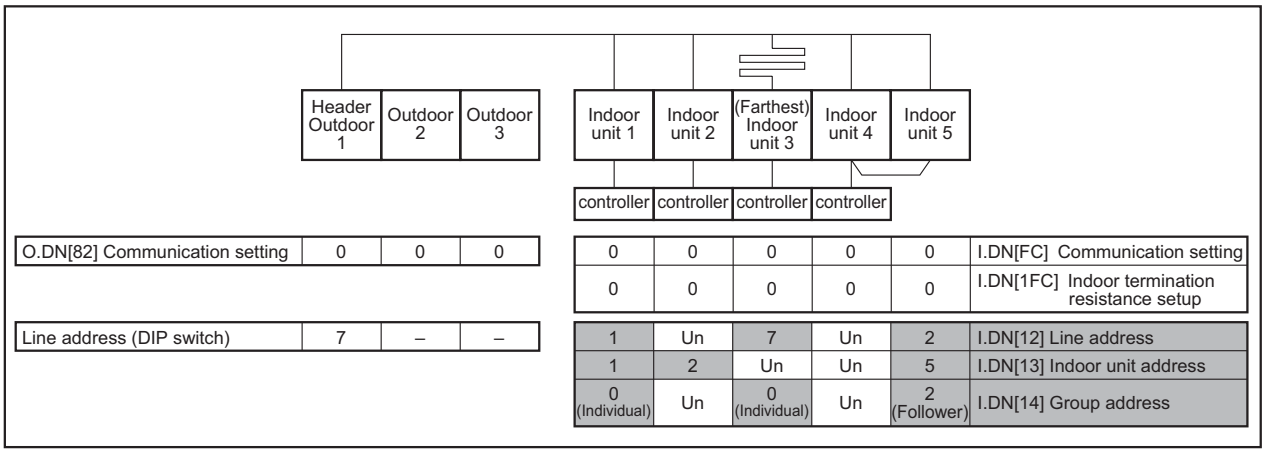
## (Reference) Method to clear when communication method settings, address set / unset are coexisting

- If units with different communication method settings or units with set / unset addresses are coexisting, It can be changed back to the factory default settings by performing "Clear communication method" – "Clear all addresses (line, indoor, and group addresses) at once".
  Redo the address settings and communication method setting after this.

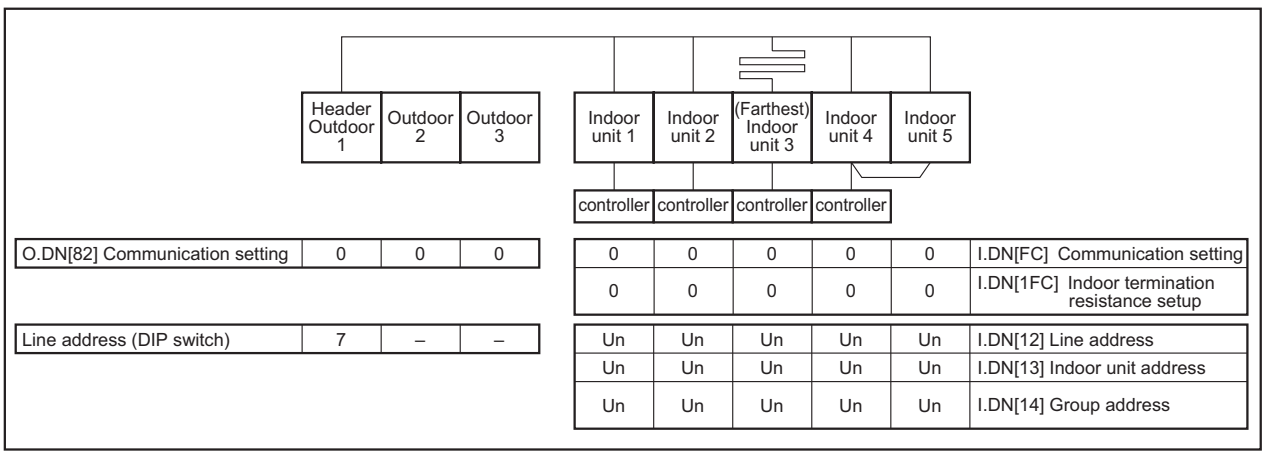
* Make sure that the communication method clearing is performed in advance.
If the addresses are batch-cleared before clearing the communication method, the communication method cannot be cleared since there will be no indoor units that can communicate with the outdoor unit.




Communication clearing method
- Communication settings for outdoor units and indoor units will automatically change from 3 to 0, and the indoor terminal resistance setting will automatically change from 1 to 0




Batch-clearing of addresses (Line, indoor, and group addresses)

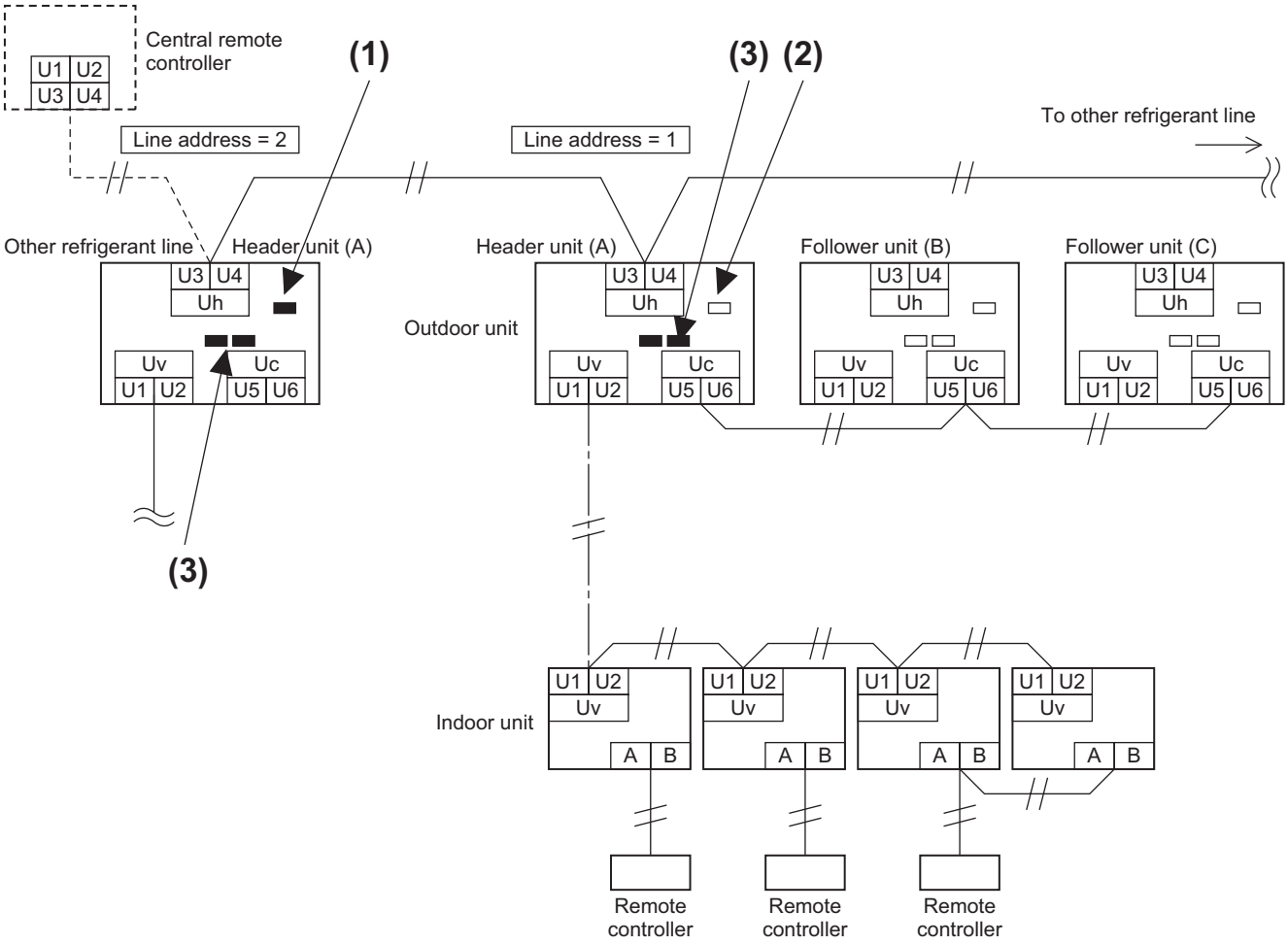


## (Reference) Operations for communication method automatic setup / communication method clear, automatic address setting / address batch clear (When the outdoor unit, indoor unit, and the remote controller are all U series)

[Communication method settings] ... See the section on automatic settings for communication method.
[Clear communication method] ... See the section on how to clear the communication method.
[Automatic address setting] ... Push SW06 on header outdoor unit when all indoor units have no indoor address set, and an "L08" trouble is occurring.
[Batch clear all indoor addresses, line address, and group addresses] ... Set the rotary switch SW01/SW02/SW03 on header outdoor unit to [2/1/2], and push the SW04 for five seconds or longer.

### 7-4-4. Check after Address Setup when Central Control System Is Connected

When the central control system is connected, check that the following setup has finished after address setup.




| | Main check items | Check |
|---|---|---|
| Terminator resistor | (1) Is the terminator resistor (SW100-bit1) of the header unit with the smallest line address number in the central control turned on? (Setup is unnecessary for follower units. (Factory default : OFF)) | |
| | (2) Is the terminator resistor (SW100-bit1) of the header units, except for the line with the smallest central control line address, turned off? (Setup is unnecessary for follower units. (Factory default : OFF)) | |
| Line address | (3) Are addresses in the line address (SW101,SW102) not duplicated in each refrigerant line? | |

**NOTE**

The figure above does not show all the electric wires.
For details, refer to the installation manuals for the outdoor unit, indoor unit, remote controller, or optional devices.

## 7-5. Troubleshooting in Test Operation

If there are phenomena such as the output of a check code or the remote controller is not accepted when poweredon after wiring work or during address setup operation, the following causes are considered.

### 7-5-1. A Check Code is Displayed on the Remote Controller

| Check the code displayed on the indoor remote controller | Header unit 7-segment display | Cause | Countermeasures |
|---|---|---|---|
| E04 | | When outdoor power is off | Check that the header outdoor unit power is on |
| | L08 | Address setup trouble<br>• Only line addresses of the connected indoor units are undefined.<br>• The outdoor line address and the line addresses of all the indoor units do not match.<br>• The indoor addresses are duplicated. (Units except those displaying E04 are duplicated.)<br>• A header unit is not set up in group control (except groups displaying E04). | Set up the address again. |
| | E08 ⇔ -XXX Alternate blinking | Duplication of indoor addresses (address number in the subcode of the check code are duplicated). | Set up the address again. |
| | E07 | When the terminator resistor (SW100 bit2) in the communication line between indoor and outdoor units (Uv) on the outdoor unit has not been turned on or two or more terminator resistors have been turned on (After address setup, when terminator resistor setup is changed after powering-on)<br>  <br>SW100 | Check SW100 bit 1 or bit 2 of the header unit.<br>No connection between multiple refrigerant lines:<br>Turn off SW100 bit 1 and turn on bit 2.<br>Connection between multiple refrigerant lines:<br>Turn on SW100 bit 1 of only the connected header unit for one line.<br>Turn on SW100 bit2 of all the header units.<br>*Factory default : SW100 bit 1 is off, bit 2 is off. |
| | | Transmission circuit trouble at the interface side (P.C. board failure) | Replace the interface PC board. |
| | E06 | After address setup, communication from all the indoor units is interrupted under the condition that a normal operation can be performed. | Check and correct disconnection of the indoor/outdoor communication line (the communication line between the header unit and the leading indoor unit).<br>Check for the influence of communication noise.<br>In TU2C-LINK communication system, if the termination resistance is not set in any of the indoor units. |
| E16 | E16.XX | Exceeded the number or capacity of connected indoor units | Adjust the number or capacity of connected indoor units. |
| E23 | E23 | • The setting of terminator resistor is incorrect.<br>• Communication with outdoor unit from another refrigerant line cannot be performed when power is turned on (Uh(U3/U4) communication line). | • Check the connection of Uh (U3/U4) communication line.<br>• Check whether there is defect or not on outdoor unit interface P.C.board.<br>• Check the setting of terminator resistor. |
| E25 | E25 | Duplication of outdoor addresses (only when an outdoor address was manually set up) | Do not use manual setup for outdoor addresses. |
| E26 | E26 ⇔ -XX Alternate blinking | Number of connected outdoor units has decreased.<br>• When installing an outdoor backup<br>• The power of a follower unit is not turned on. | Correction of the cause of trouble occurrence<br>• If it occurs when installing a backup, clear the trouble after setup finishes.<br>• If the power of a follower unit is not turned on, turn on the power. |
| L04 | L04 | Duplication of outdoor line addresses<br>• Line address setup trouble (occurred after connection between U1/U2 and U3/U4 connectors) | Modify the line address setup of the header unit between lines. (Set up SW13 and SW14 on the interface PC board.) |
| L05(*) | L06 | Duplication of indoor units with priority | Set up priority only for one indoor unit. |
| L06(*) | None | There are two or more indoor units set up with priority. | Among indoor units indicating “L05,” set one unit with priority. |
| L08 | L08 | Address setup trouble<br>• Only indoor addresses of all the connected indoor units are undefined. | Set up the addresses again.<br>Modify the setup. |

* “L05”: Displayed on the indoor unit set up with priority
“L06”: Displayed on the indoor units except the one set up with priority

## 7-5-2. No Remote Controller Response with Check Code

**(Operation from the indoor remote controller is not accepted, and a check code is displayed on the 7-segment display of the interface PC board of the header unit)**

| Indoor remote controller status | Header unit 7-segment display | Cause | Countermeasures |
|---|---|---|---|
| No response | L08 | Line addresses and indoor addresses of all the connected indoor units are not set. | Set up addresses. |
| | | There is no header unit of group control. | Set up a group address. |
| | E19 ⇔ -00 Alternate blinking | Indoor unit power is not turned on. | Turn on the power again. (In the order: indoor → outdoor) |
| | | Indoor/outdoor communication line is not correctly connected to the U1/U2 terminal of the header unit ( Fig. 1). (Indoor/ outdoor cannot communicate before address setup.) | Correct wiring |
| | | When the terminator resistor (SW100 bit2) in the communication line between indoor and outdoor units (Uv) on the outdoor unit has not been turned on or two or more terminator resistors have been turned on (After address setup, when terminator resistor setup is changed after powering-on)   SW100 | Check SW100 bit 1 or bit 2 of the header unit. No connection between multiple refrigerant lines: Turn off SW100 bit 1 and turn on bit 2. Connection between multiple refrigerant lines: Turn on SW100 bit 1 of only the connected header unit for one line. Turn on SW100 bit2 of all the header units. * Factory default : SW100 bit 1 is off, bit 2 is off. |
| | E19 ⇔ -02 Alternate blinking | When connecting an indoor/outdoor communication line between outdoor units under the condition of a connected communication line between outdoor units ( Fig. 2). | Correct wiring |
| | | SW08 setup trouble | Turn all SW08 switches to “off.” |
| | E20 ⇔ -01 Alternate blinking | Address setup is performed with connecting an indoor/ outdoor communication line between outdoor units ( Fig. 3). | Correct wiring |
| | | Address setup is performed under the condition of connecting multiple refrigerant lines ( Fig. 3). | Correct wiring |

## 7-5-3. No Remote Controller Response without Check Code

**(There is no display of a check code on the 7-segment display on the interface PC board of the header unit, although there is indoor unit that is not accepting operation from the indoor remote controller)**

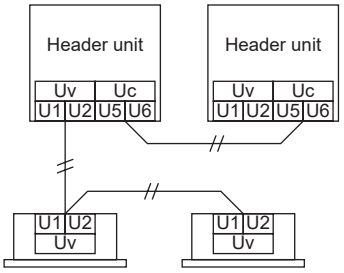
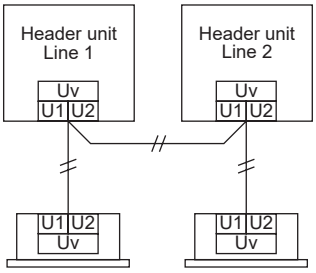
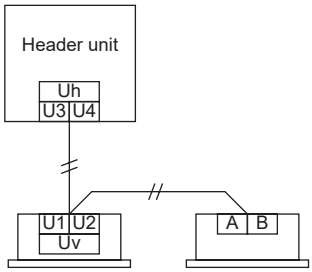
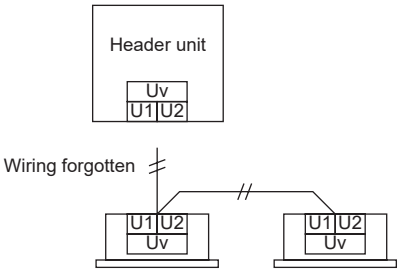
| Indoor remote controller status | Header unit 7-segment display | Cause | Countermeasures |
|---|---|---|---|
| No response | None | The communication line is not connected between indoor and outdoor (the unit that does not respond to the indoor remote controller). | Improve the wiring. |
| | | Line address and indoor address are not set (the unit that does not respond to the indoor remote controller). | Set up the address. |
| | | The power of the header unit of the group is not turned on in indoor group control (the unit that does not respond to the indoor remote controller). | Turn on the power. |
| | | Group address is set to the follower unit for individual control (the unit that does not respond to the indoor remote controller). | Set the group address to “0” in the case of individual control. |
| No display on the indoor remote controller (no line is output.) | None | The power is not turned on (the unit that is not displayed on the indoor remote controller). | Turn on the power. |
| | | The indoor remote controller is not connected with a wire (the unit that is not displayed on the indoor remote controller). | Improve the wiring. |
| | | Miswiring of the indoor remote controller (the unit that is not displayed on the indoor remote controller) | Improve the wiring. |
| | | Indoor remote controller communication circuit trouble (the unit that is not displayed on the indoor remote controller) If 220 V is incorrectly applied to the indoor remote controller terminal, the remote controller communication circuit fails. | Remove the quick connect terminal connected to indoor remote controller terminals A/B, and check the voltage. If voltage is not applied (normally 15 to 18 V), replace the PC board. |

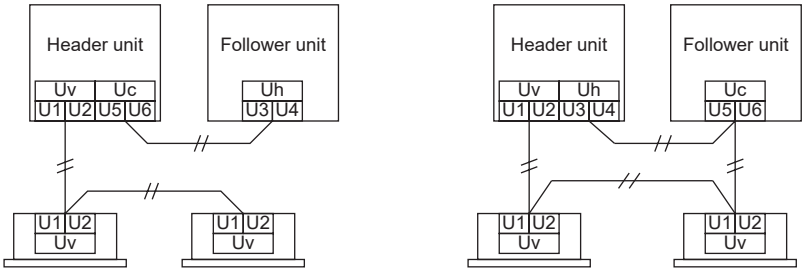
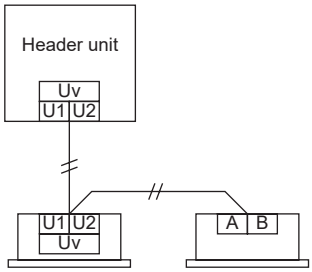
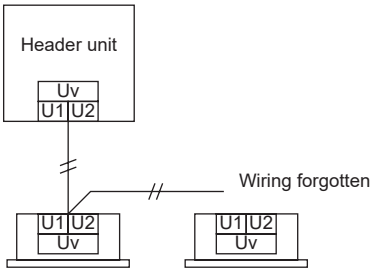
## 7-5-4. Connected Indoor/Outdoor Unit Quantity Check

**(In checking the number of connected outdoor units and connected indoor units after address setup, a lower number of connected units is displayed (There are outdoor/ indoor units that do not operate in a test operation))**

| Status | Cause | Counter measures |
|---|---|---|
| The number of connected outdoor units is few. | Miswiring of communication lines between outdoor units or an unconnected wire ( Fig. 4). (Address setup operation finished without recognizing a miswired follower unit.) | After improvement of wiring, set up the addresses again and check the number of connected outdoor units. |
| The number of connected indoor units is few. | Miswiring of communication lines between indoor units or an unconnected wire ( Fig. 5). (Address setup operation finished without recognizing a miswired indoor unit.) | After modification of wiring, set up the addresses again and check the number of connected indoor units. |
| The number of indoor units connected to a group is few in groupoperation from an indoor remote controller. | The indoor remote controller is not connected with wire. Miswiring of the indoor remote controller | Using the main indoor remote controller connected to a group, start a test operation, specify the unit that is not operating (the unit not connected to the group), and then check the wiring. |
| | Indoor remote controller communication circuit trouble If 220 V is incorrectly applied to the remote controller terminal, the remote controller communication circuit fails. | Using the main indoor remote controller connected to a group, start a test operation and then specify the unit that is not operating (the unit not connected to the group). Remove the quick connect terminal connected to remote controller terminals A/B, and check the voltage. If voltage is not applied (normally 15 to18 V), replace the PC board. |

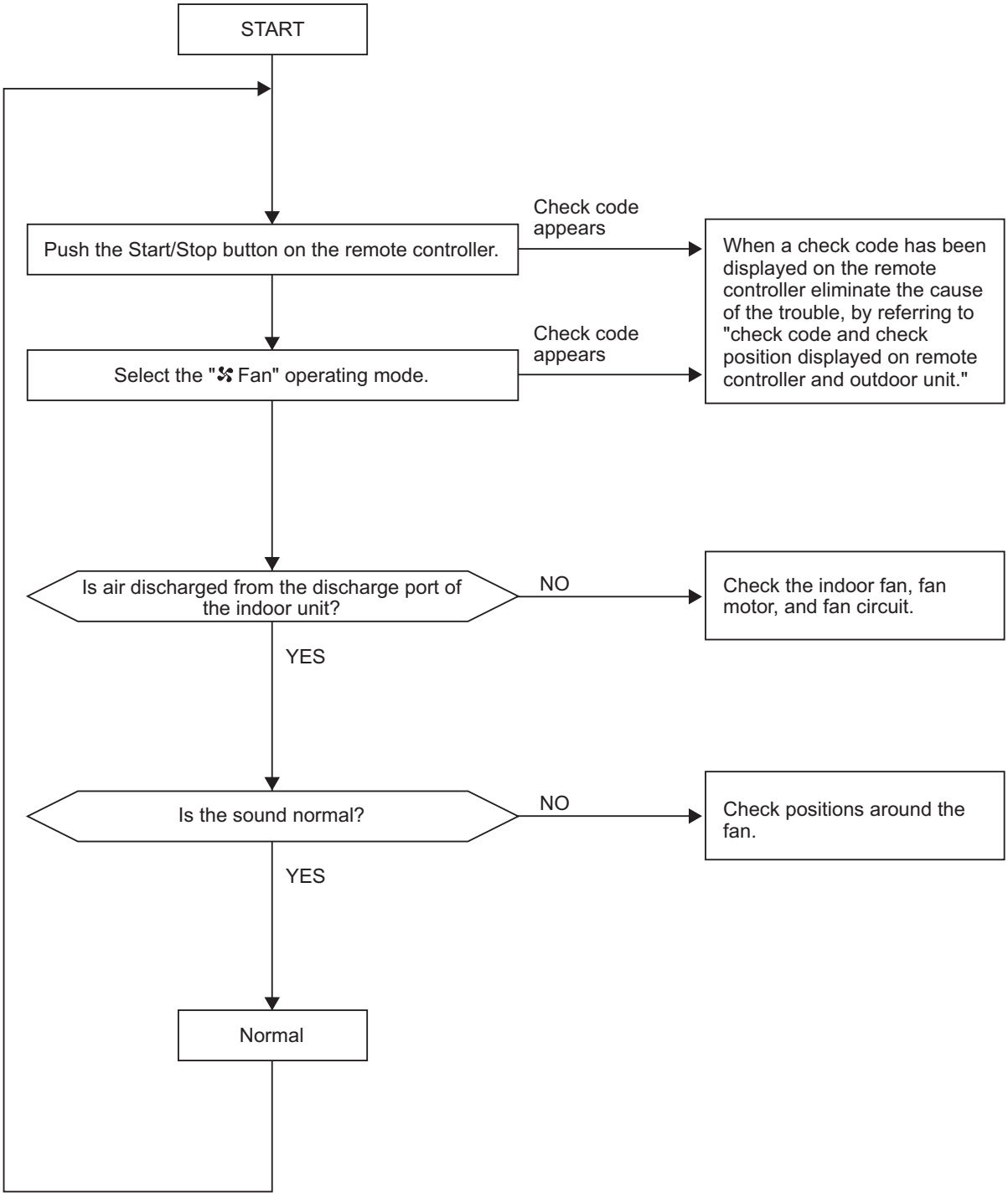
## Miswiring example

| Figure | Remote controller status | Header unit 7-segment display | Miswiring example |
|---|---|---|---|
| Fig 1 | No response | E19, 02 |  • Follower unit is incorrectly set to header unit.  • Indoor/outdoor communication line is miswired to header unit of other system. |
| Fig 2 | E04 | L08 |  • Indoor/outdoor communication line is miswired to Uh (U3/U4).  • Indoor/outdoor communication line is not connected. |

| Figure | Status | Miswiring example |
|---|---|---|
| Fig 3 | The number of connected outdoor units is few. |  • Outdoor communication line is miswired to Uh (U3/U4). |
| Fig 4 | The number of connected indoor units is few. |  • Indoor/outdoor communication line is miswired to remote controller terminal (A/B).  • There is an indoor unit not connected to the indoor/outdoor communication line. |

## 7-6. Test Operation (test run) Check

### 7-6-1. Fan Check




Check every indoor unit in turn.

### 7-6-2. Cooling/Heating Test Operation Check

The cooling/heating test operation check can be performed on both the indoor remote controller and the outdoor header unit interface PC board.

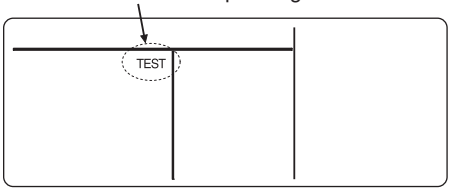
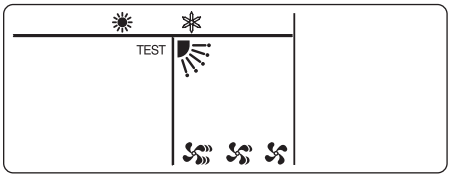
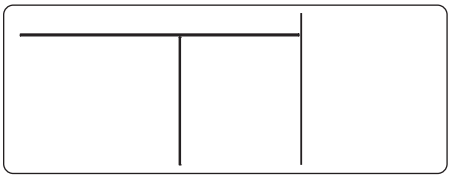
**(1) Test operation start/stop operation**

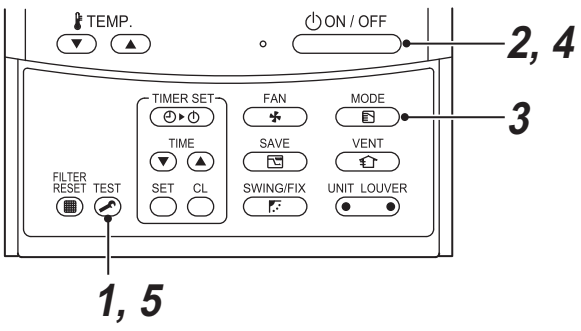
Test operation from the indoor remote controller

- Wired remote controller: Refer to the items below in “Test operation” of the wired remote controller.
- Wireless remote controller: Refer to the items below in “Test operation” of the wireless remote controller.

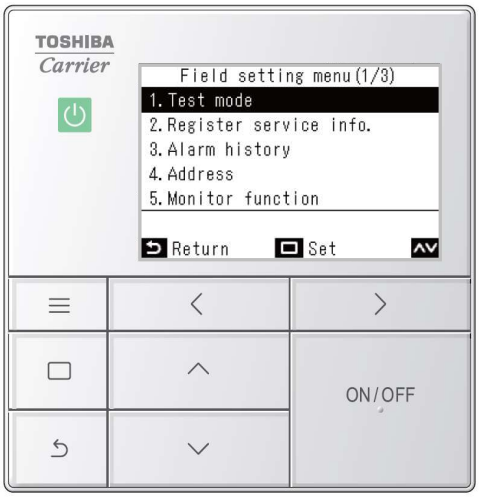
**▼ Wired remote controller**

**<RBC-AMT*>**

| Procedure | Operation content |
|---|---|
| *1* | When the Test button is pushed for 4 seconds or more, “TEST” is displayed in the display section, and the unit enters test operating mode.<br>  |
| *2* | Push the ⏻ON / OFF button. |
| *3* | Using the Select Mode button, select the “❄ COOL” or “☀ HEAT” operating mode.<br>• Do not use an operating mode other than “❄ COOL” or “☀ HEAT”.<br>• Temperature adjustment is unavailable during test operation.<br>• Trouble is detected as usual.<br>  |
| *4* | When the test operation has finished, push the ⏻ON / OFF button to stop the operation.<br>(The same display as in procedure 1 appears in the display section.) |
| *5* | Push the Test button to clear the test operating mode. (“TEST” disappears from the display section, and the status returns to the normal stopped status.)<br>  |

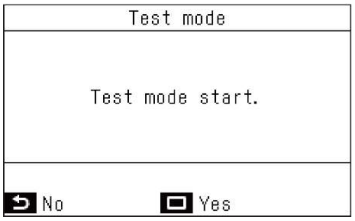


## <RBC-AWSU**>




**1** **Push the [ Menu] button to display the menu screen**

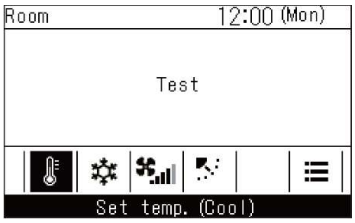
**2** **Push and hold the [ Menu] button and the [ ] button at the same time to display the "Field setting menu".**
→Push and hold the buttons for more than 4 seconds




**3** **Push the [ ] / [ ] button to select "1. Test mode" on the "Field setting menu" screen. then push the " Set" [ Set / Fix] button.**

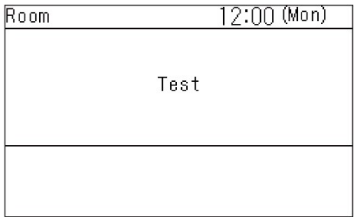
→ Pushing the " Yes" [ Set / Fix] button sets the test mode and the screen returns to the "Field setting menu" screen.
Push [ Return] twice, the screen (2) appears.

*(1)*




**4** **Push the [ ON/OFF ON / OFF ] button to star the test mode.The screen *(1)* shown in the leftappears.**
**(The screen *(2)* appears when the operatin is stopped.)**
→ Perform the test mode in the "Cool" or "Heat" mode
Temperature setting cannot be adjusted during the test mode.
Check codes are displayed as usual.

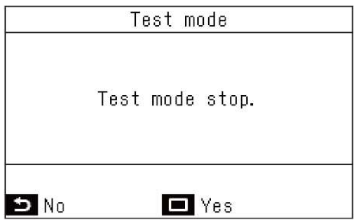
*(2)*




**5** **When the test mode is finished, push the [ ] / [ ] button to select "1.Test mode" on the "Field setting menu" screen,then push the " Set" [ Set / Fix] button. The screen (3) appears.**

→ Pushing the " Yes" [ Set / Fix] button stops the test mode screen and continues the normal operation.

*(3)*




**NOTE**

The test mode stops after 60 minutes and the screen returns to the normal / detailed display.

▼ **Wireless remote controller**

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

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

***3***

| Cooling test run | Heating test run |
|---|---|
| Set the temperature to 62.6°F(17°C) with the temp. setup buttons. | Set the temperature to 86°F(30°C) with the temp. setup buttons. |

***4***

| Cooling test run | Heating test run |
|---|---|
| After confirming a signal receiving sound "beep" immediately set the temperature to 64.4°F(18°C) with the temp. setup buttons. | After confirming a signal receiving sound "beep" immediately set the temperature to 84.2°F(29°C) with the temp. setup buttons. |

***5***

| Cooling test run | Heating test run |
|---|---|
| After confirming a signal receiving sound "beep" immediately set the temperature to 62.6°F(17°C) with the temp. setup buttons. | After confirming a signal receiving sound "beep" immediately set the temperature to 86°F(30°C) with the temp. setup buttons. |

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

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

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

**Cooling test run:**

ON/OFF → 62.6°F(17°C) → 64.4°F(18°C) → 62.6°F(17°C) → 64.4°F(18°C) → 62.6°F(17°C) → 64.4°F(18°C) → 62.6°F(17°C) → (test run) → ON/OFF

**Heating test run:**

ON/OFF → 86°F(30°C) → 84.2°F(29°C) → 86°F(30°C) → 84.2°F(29°C) → 86°F(30°C) → 84.2°F(29°C) → 86°F(30°C) → (test run) → ON/OFF

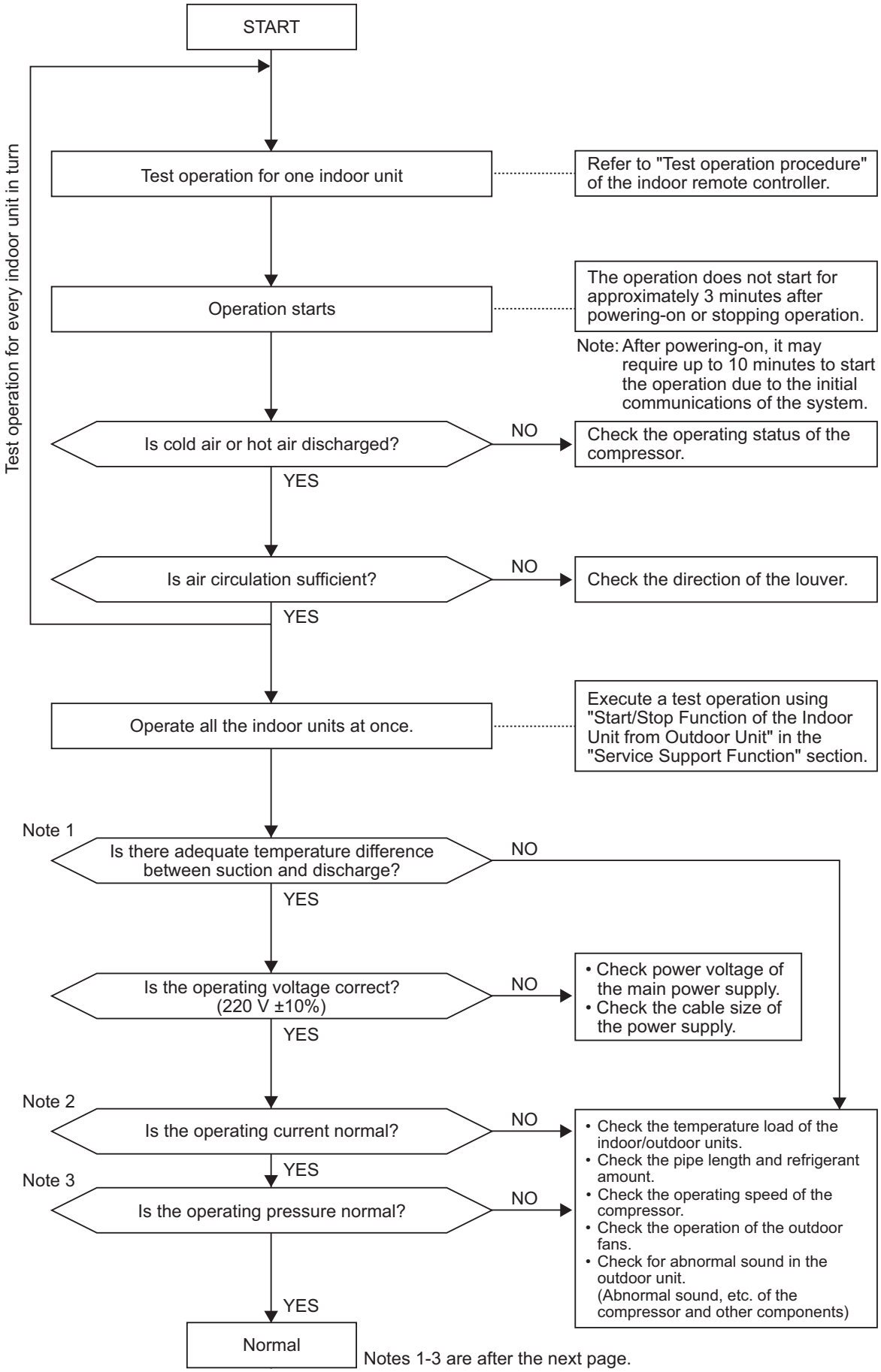
Test operation from the outdoor unit

- Refer to "7-7-2. Function to Start/Stop (ON/OFF) Indoor Unit from Outdoor Unit" in "7-7. Service Support Function."

## ⚠ CAUTION

- The test run is a forced run that ignores the set temperature. Be sure to stop the test run after work, paying attention to the room temperature.
- After 60 minutes, the test run will be completed to protect the equipment, and the normal operation will be started according to the set temperature.

**(2) Test operation**




Notes 1-3 are after the next page.

## Note 1: Criteria for the difference between suction and discharge temperatures

**(1) Cooling operation**

After operating for a minimum of 30 minutes in “COOL” mode, if the T dry bulb temperature difference between suction and discharge air of the indoor unit is 46.4°F(8°C) or more, it is normal.

**(2) Heating operation**

After operating for a minimum of 30 minutes in “HEAT” mode, if the T dry bulb temperature difference between suction and discharge air of the indoor unit is 59°F(15°C) or more, it is normal.

* If demand from the indoor unit on the outdoor unit is low because the difference between the temperature set by the remote controller and the temperature of the room is small, then the T temperature difference is small.
* Consider that T temperature difference may diminish in cases of a system in which the connected indoor unit capacity exceeds the outdoor unit capacity, the pipe length is long, or a large difference exists among outdoor units.

## Note 2: Criteria for operating power current

The table below shows the maximum current for each outdoor unit. Under standard conditions, operating current is about 80% of the value shown in the table below.

| Model | MMY-MUP | 0721* | 0961* | 1201* | 1441* | 1681* |
|---|---|---|---|---|---|---|
| Current value | (A) | 34.63 | 34.8 | 48.09 | 48.99 | 54.62 |
| Model | MMY-MUP | 072H1* | 096H1* | 120H1* | | |
| Current value | (A) | 36.88 | 49.74 | 50.56 | | |

## Note 3: Criteria for cycle status

**(1) These data are based on operating a 4-way Air Discharge Cassette type air conditioner of 100% connection with standard piping length.**

Data may vary depending on temperature conditions, installed pipe length, and room shape combinations, or indoor unit connection capacity.

For pressure criteria in different temperature conditions, refer to (2).

| Outdoor Unit MMY-MUP | Operating Mode | Pressure (Psi) | | Pipe Surface Temperature (° F) | | | | | Compressor Rotation (rps) | | Indoor Fan | Air Temperature (DB/WB) (° F) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Discharge | Suction | Indoor Heat Exchanger | Outdoor Heat Exchanger | Liquid Temperature | Compressor 1 | Compressor 2 | | Outdoor | Indoor |
| | | Pd | Ps | TD1 | TS1 | TC2 | TE1 | TL3 | Cmp.1 | Cmp.2 | | TO | TA |
| 0721* | Cooling | 391 | 145 | 166 | 64 | 55 | 103 | 75 | 44 | - | High | 95/- | 80/67 |
| | Heating | 310 | 102 | 143 | 37 | 80 | 33 | 73 | 50 | - | High | 47/43 | 70/- |
| 0961* | Cooling | 430 | 142 | 178 | 62 | 55 | 104 | 79 | 58 | - | High | 95/- | 80/67 |
| | Heating | 307 | 96 | 146 | 34 | 82 | 32 | 77 | 67 | - | High | 47/43 | 70/- |
| 1201* | Cooling | 419 | 131 | 181 | 63 | 55 | 108 | 85 | 54 | - | High | 95/- | 80/67 |
| | Heating | 321 | 94 | 153 | 34 | 80 | 32 | 64 | 58 | - | High | 47/43 | 70/- |
| 1441* | Cooling | 443 | 142 | 183 | 66 | 57 | 108 | 89 | 60 | - | High | 95/- | 80/67 |
| | Heating | 310 | 91 | 150 | 31 | 81 | 32 | 69 | 69 | - | High | 47/43 | 70/- |
| 1681* | Cooling | 440 | 139 | 186 | 63 | 57 | 108 | 87 | 66 | - | High | 95/- | 80/67 |
| | Heating | 330 | 91 | 160 | 32 | 84 | 33 | 77 | 77 | - | High | 47/43 | 70/- |
| 072H1* | Cooling | 383 | 146 | 166 | 65 | 55 | 101 | 77 | 44 | - | High | 95/- | 80/67 |
| | Heating | 310 | 105 | 143 | 37 | 80 | 34 | 75 | 49 | - | High | 47/43 | 70/- |
| 096H1* | Cooling | 393 | 140 | 167 | 65 | 56 | 104 | 89 | 43 | - | High | 95/- | 80/67 |
| | Heating | 305 | 101 | 142 | 37 | 82 | 33 | 74 | 45 | - | High | 47/43 | 70/- |
| 120H1* | Cooling | 402 | 131 | 178 | 61 | 56 | 103 | 84 | 54 | - | High | 95/- | 80/67 |
| | Heating | 319 | 96 | 150 | 34 | 83 | 32 | 76 | 58 | - | High | 47/43 | 70/- |

* This compressor is driven with a 6-pole motor. The value of the compressor frequency (rps) measured with a clamp meter at the compressor lead line is three times the rotation count (rps) of the compressor.
* Each compressor may have a different frequency as a measure against resonance.
* The temperature of the indoor heat exchanger (TC) indicates TCJ sensor temperature when cooling, and TC2 sensor temperature when heating, respectively.

**(2) Criteria for operating pressure**

| Operating Mode | Pressure psi (MPa) | | Temperature ° F(° C) | |
|---|---|---|---|---|
| | Pd | PS | Indoor | Outdoor |
| Cooling | 290.1 ~ 478.6 (2.0 ~ 3.3) | 72.5 ~ 130.5 (0.5 ~ 0.9) | 64.4 ~ 89.6 (18 ~ 32) | 77 ~ 95 (25 ~ 35) |
| Heating | 362.6 ~ 478.6 (2.5 ~ 3.3) | 72.5 ~ 101.5 (0.5 ~ 0.7) | 59 ~ 89.6 (15 ~ 32) | 41 ~ 95 (5 ~ 35) |

* Criteria after 14 minutes or more has passed since operating started

## 7-7. Service Support Function

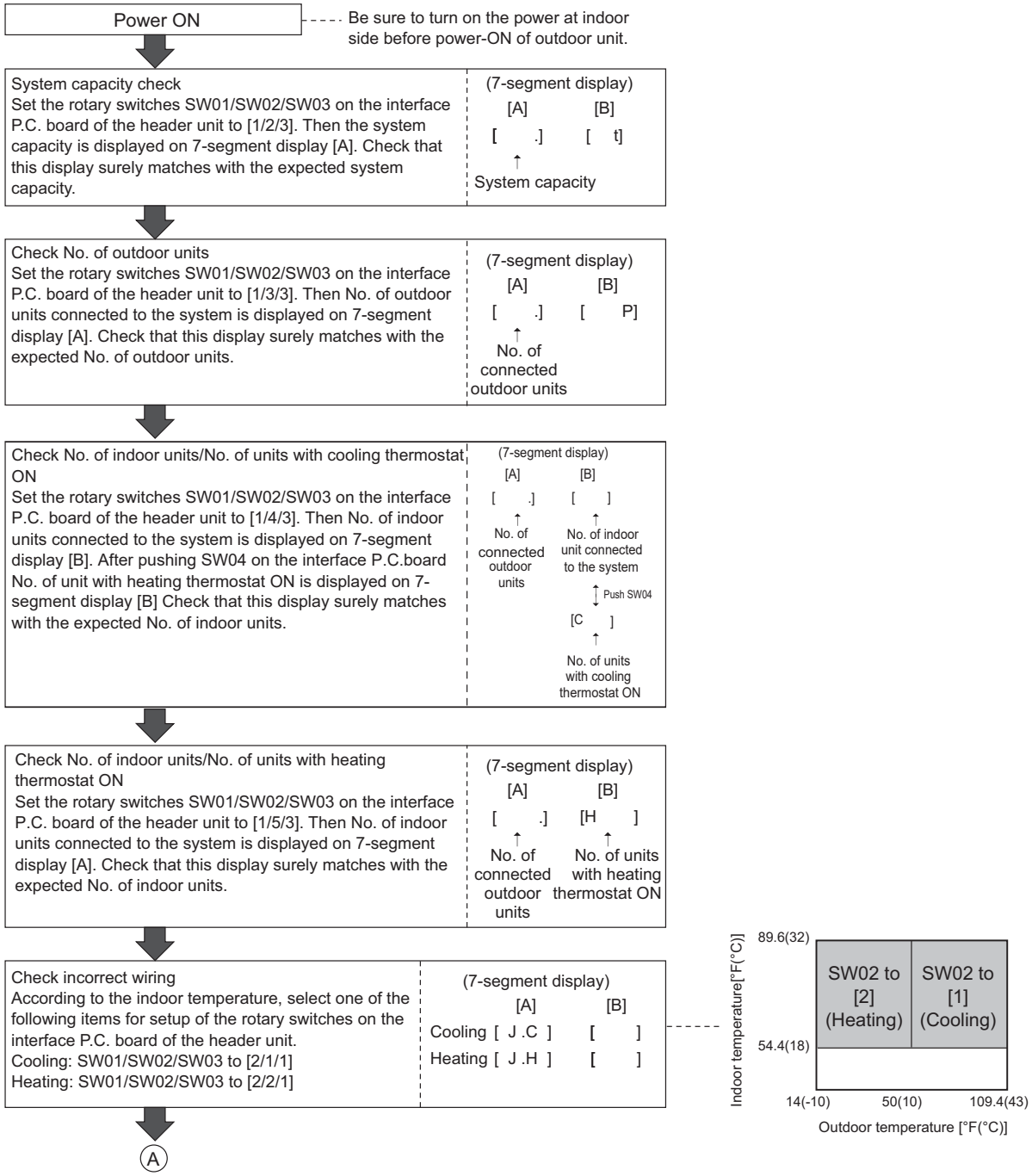
### 7-7-1. Check Function for Connecting of Refrigerant and Control Lines

This function is provided to check misconnection of the refrigerant pipes and the control transmission line (Wiring over lines) between indoor unit and outdoor unit by using the switch on the interface P.C. board of the header unit.
However, be sure to check the following items prior to executing this check function.

***1*** **This check function does not work when a group operation by remote controller is performed and it is used over outdoor units.**

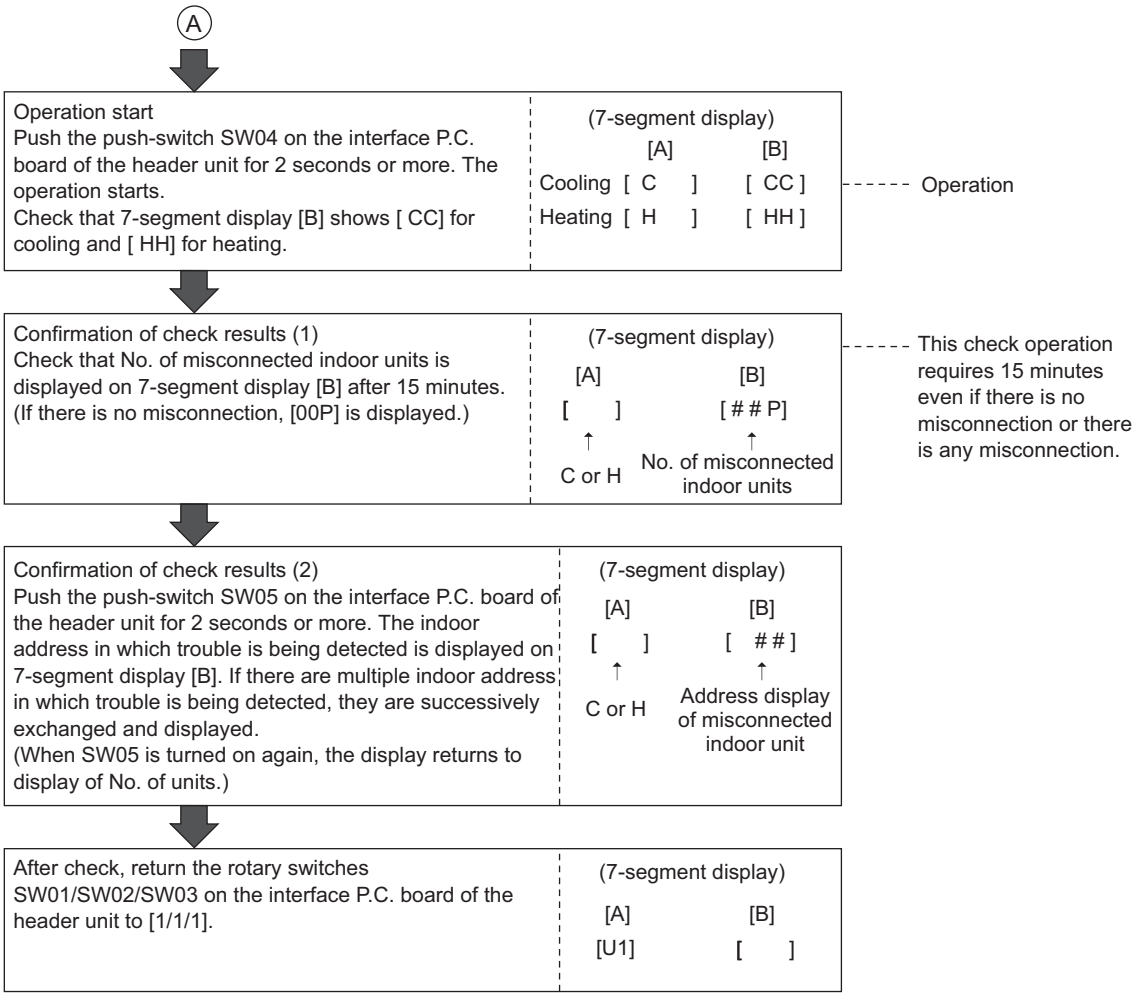
***2*** **When using this check system, be sure to check for each 1 line in the unit of outdoor unit. If checking the multiple lines at the same time, misjudgment may be caused.**

(Check procedure)

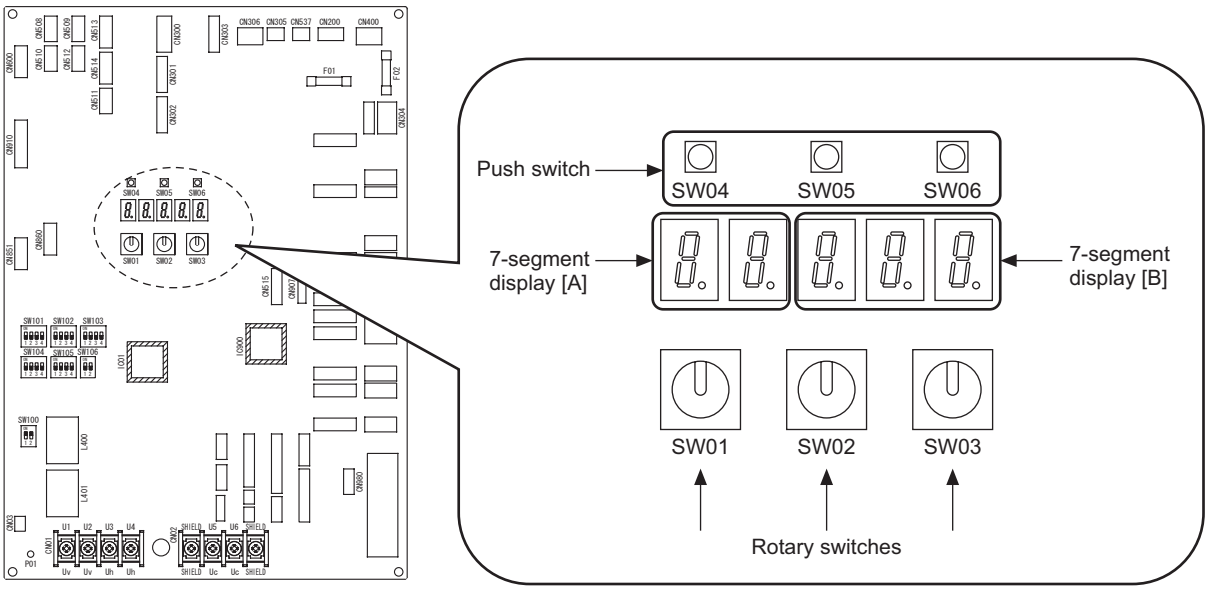


**On rotations of outdoor fans**

Outdoor fans may rotate slowly to control pressure when cooling with low outer air temperature or heating with excessive load. For control content, also refer to items in Section 5, “Control Outline: Outdoor Unit, Outdoor Fan Control.”




**Interface P.C. board**



### 7-7-2. Function to Start/Stop (ON/OFF) Indoor Unit from Outdoor Unit

The following functions of the indoor unit can start or stop by the switches on the interface P.C. board of the header unit.

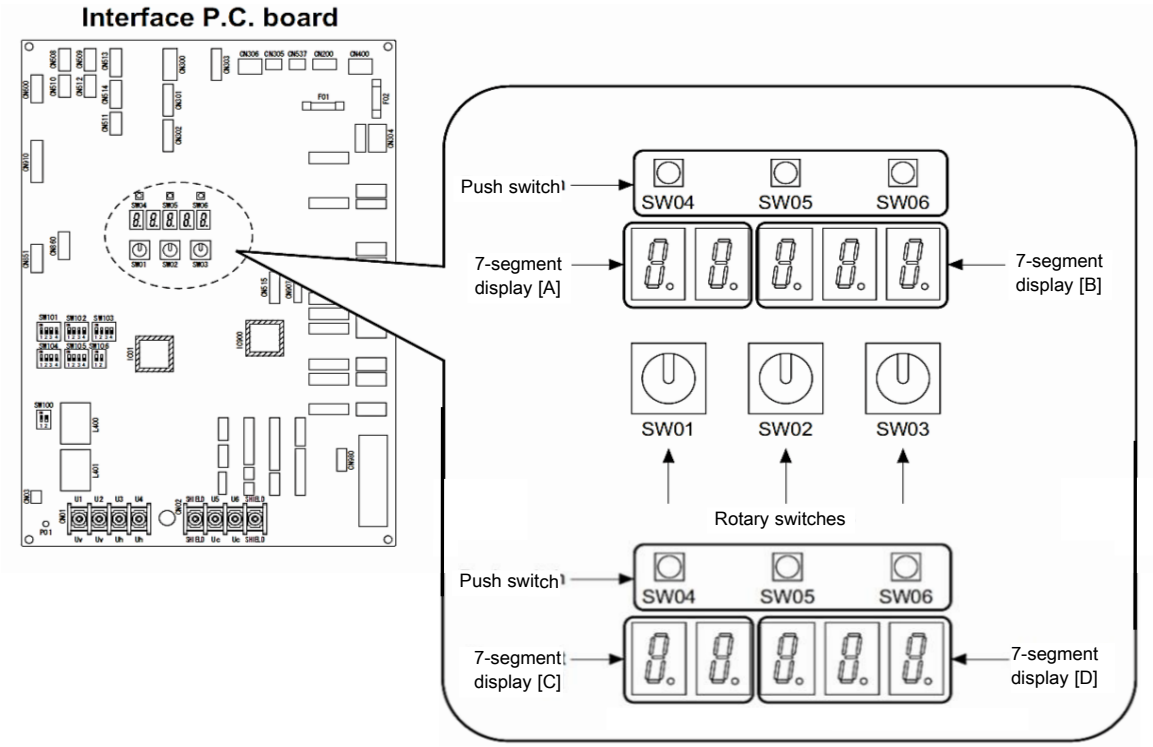
| No | Function | Outline | Setup/Release | 7-segment display |
|---|---|---|---|---|
| 1 | Cooling test operation | Changes the mode of all the connected indoor units collectively to cooling test operation.<br>Note)<br>Control operation same as usual test operation from remote control is performed. | [Setup]<br>Set SW01/SW02/SW03 to [2/5/1], and push SW04 for 2 seconds or more.[Release]<br>Return SW01/SW02/SW03 to [1/1/1]. | Section A [C. ] Section B [ – C] |
| 2 | Heating test operation | Changes the mode of all the connected indoor units collectively to heating test operation.<br>Note)<br>Control operation same as usual test operation from remote control is performed. | [Setup]<br>Set SW01/SW02/SW03 to [2/6/1], and push SW04 for 2 seconds or more. [Release]<br>Return SW01/SW02/SW03 to [1/1/1]. | Section A [H. ] Section B [ – H] |
| 3 | Fan test operation | Changes operation mode of all the connected indoor units collectively to test operation mode.<br>Note) Control operation same as usual test operation from remote control is performed. | [Setup]<br>Set SW01/SW02/SW03 to [2/9/1], and push SW04 for 2 seconds or more.<br>[Release]<br>Return SW01/SW02/SW03 to [1/1/1]. | Section A [F. ] Section B [ – F] |
| 4 | Batch start | Starts all the connected indoor units collectively.<br>Note)<br>The contents follow to the setup of remote controller. | [Setup]<br>Set SW01/SW02/SW03 to [2/7/1], and push SW04 for 2 seconds or more.[Release]<br>Return SW01/SW02/SW03 to [1]. | Section A [C.H] Section B [ 11]<br>[ 00] is displayed on Section B for 5 seconds. |
| | Batch stop | Stops all the connected indoor units collectively. | [Setup]<br>Set SW01/SW02/SW03 to [2/7/1], and push SW05 for 2 seconds or more.[Release]<br>Return SW01/SW02/SW03 to [1]. | Section A [C.H] Section B [ 00]<br>[ 00] is displayed on Section B for 5 seconds. |
| 5 | Individual start | Starts the specified indoor unit.<br>Notes)<br>• The contents follow to the setup of remote controller.<br>• The other indoor units keep the status as they are. | [Setup]<br>Set SW01 to [16], set SW02 and SW03 to address No. (1 to 128) to be started, and push SW04 for 2 seconds or more.<br>[Release]<br>Return SW01/SW02/SW03 to [1/1/1]. | Section C [ ] Section D [ ]<br>Section C: Displays the corresponding indoor address.<br>Section D: Displays [ 11] for 5 seconds from operation-ON. |
| | Individual stop | Stops the specified indoor unit.<br>Note)<br>The other indoor units keep the status as they are. | [Setup]<br>Set SW01 to [16], set SW02 and SW03 to address No. (1 to 128) to be stopped, and push SW05 for 2 seconds or more.<br>[Release]<br>Return SW01/SW02/SW03 to [1/1/1]. | Section C [ ] Section D [ ]<br>Section C: Displays the corresponding indoor address.<br>Section D: Displays [ 00] for 5 seconds from operation-OFF. |
| | Individual test operation | Operates the specified indoor unit.<br>Note)<br>The other indoor units keep the status as they are. | [Setup]<br>Set SW01 to [16], set SW02 and SW03 to address No. to be operated, and pudh SW04 for 10 seconds or more.<br>[Release]<br>Return SW01/SW02/SW03 to [1/1/1]. | Section C [ ] Section D [ ]<br>Section C: Displays the corresponding indoor address.<br>Section D: Displays [ FF] for 5 seconds from test operation-ON. |

**NOTE 1)** This start/stop function only sends the signals from the outdoor unit to the indoor unit, such as start, stop, operation mode, etc. It does not resend the signals even if the indoor unit does not follow the sent signals.

**NOTE 2)** The above controls are not used during abnormal stop.

**NOTE 3)** If the signal receiving unit of the Compact 4-way Cassette type has never received a signal from the wireless remote controller, the indoor unit cannot be started or stopped (ON/OFF) from the outdoor unit. In the case above, follow the steps below.

1) Point the wireless remote controller at the receiving unit on the indoor unit and push the START/ STOP button on the wireless remote controller.
2) Confirm that the receiving unit sounds “Pi” and the operation lamp (green) on the receiving unit lights up, and then start/stop (ON/OFF) the indoor unit from the outdoor unit.



**(1) Cooling test operation function**

This function is provided to change collectively the mode of all the indoor units connected to the same system for the cooling test operation mode, by using switches on the interface board of the header unit.

<Operation procedure>

Power ON ----- Be sure to turn on power at the indoor side before power-ON of outdoor unit.

[1] Set SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/5/1]. ([C. ] is displayed on 7-segment display [A].)

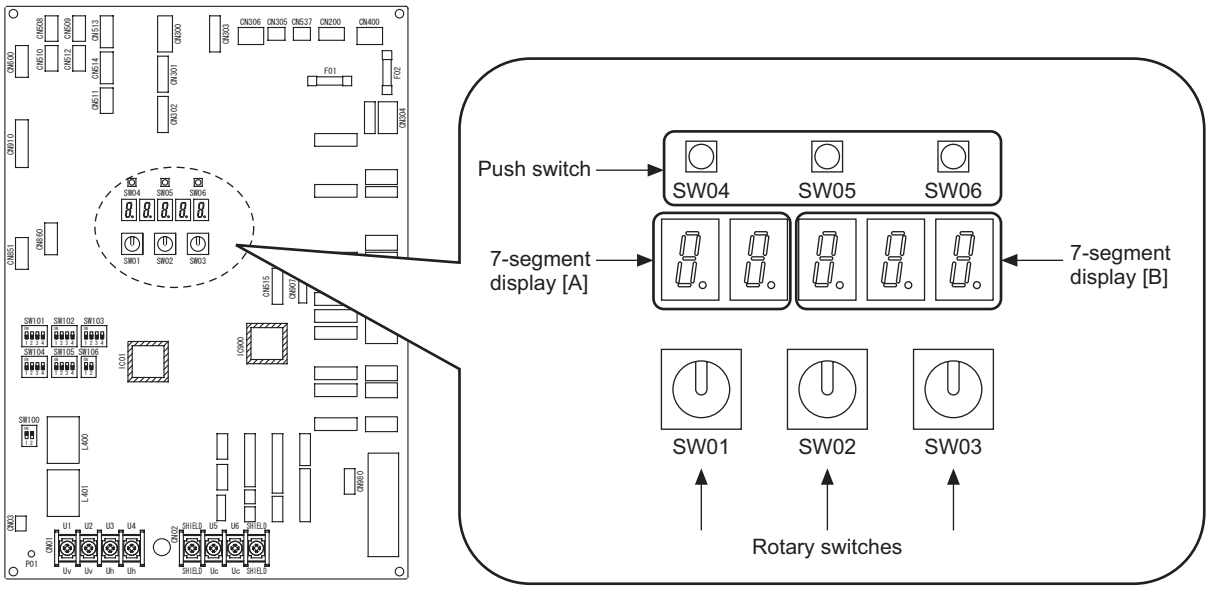
[2] Push SW04 on the same board for 2 seconds or more. ---------- Start

[3] [Test run] is displayed on the remote controller of the indoor unit to be operated.
Check that [ – C] is displayed on 7-segment display [B] on the interface P.C. board of the header unit.

[A] [B]
[C. ] [ – C] ---------- Operation check

[4] Return SW01/SW02/SW03 on the interface P.C. board of the header unit to [1/1/1],
or push the push-switch SW05 for 2 seconds or more. ---------- Stop/End

**Interface P.C. board**



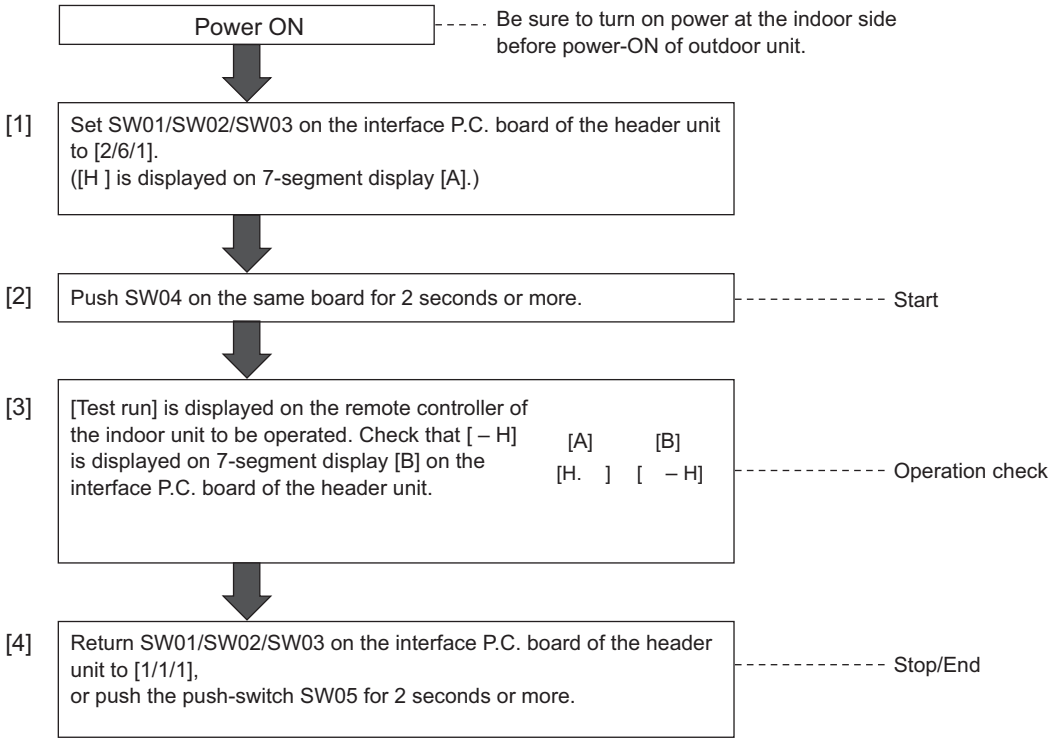

**NOTE)** The test operation returns to the normal operation after 60 minutes.

- The test run is a forced run that ignores the set temperature. Be sure to stop the test run after work, paying attention to the room temperature.
- After 60 minutes, the test run will be completed to protect the equipment, and the normal operation will be started according to the set temperature.
  However, if there is no remote controller (using a Central controller), please manually stop the test run after 60 minutes because there are some type of indoor unit that will continue operating test run even after 60 minutes.

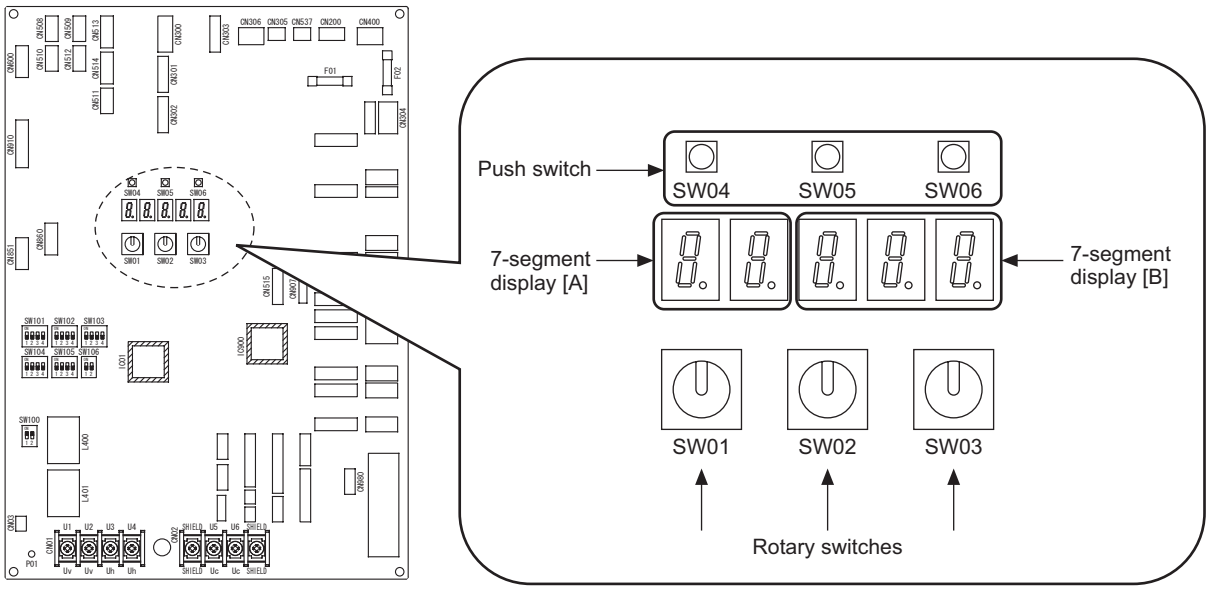
**(2) Heating test operation function**

This function is provided to change collectively the mode of all the indoor units connected to the same system for the heating test operation mode, by using switches on the interface board of the header unit.

<Operation procedure>




**Interface P.C. board**



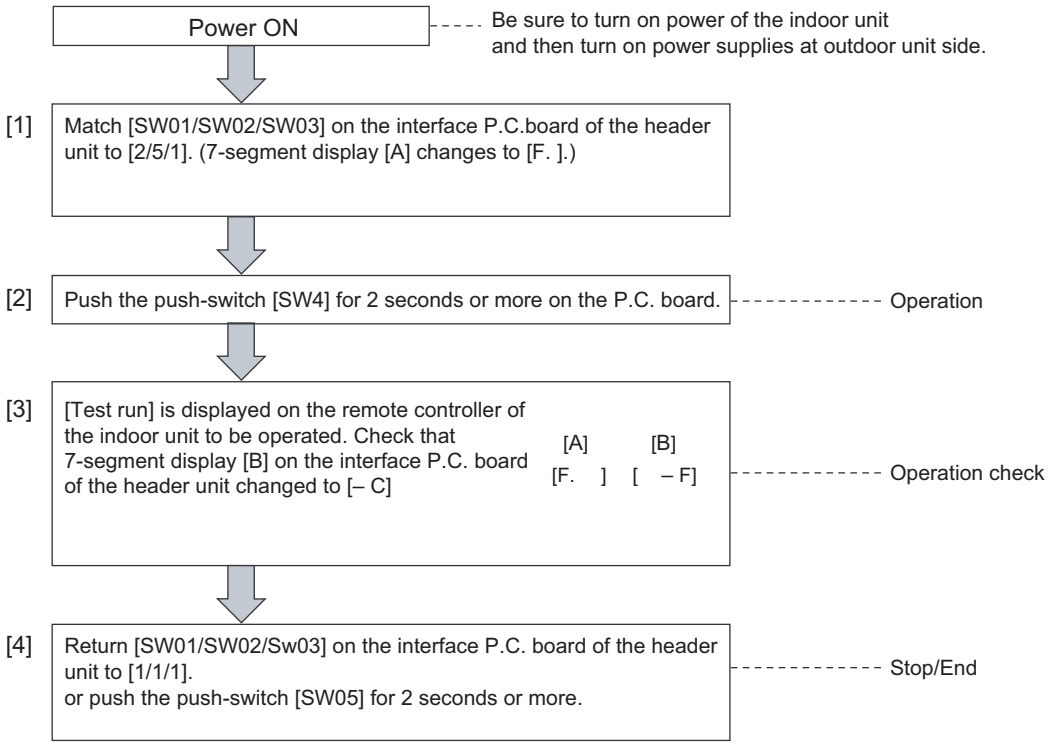

**NOTE)** The test operation returns to the normal operation after 60 minutes.

- The test run is a forced run that ignores the set temperature. Be sure to stop the test run after work, paying attention to the room temperature.
- After 60 minutes, the test run will be completed to protect the equipment, and the normal operation will be started according to the set temperature.
  However, if there is no remote controller (using a Central controller), please manually stop the test run after 60 minutes because there are some type of indoor unit that will continue operating test run even after 60 minutes.

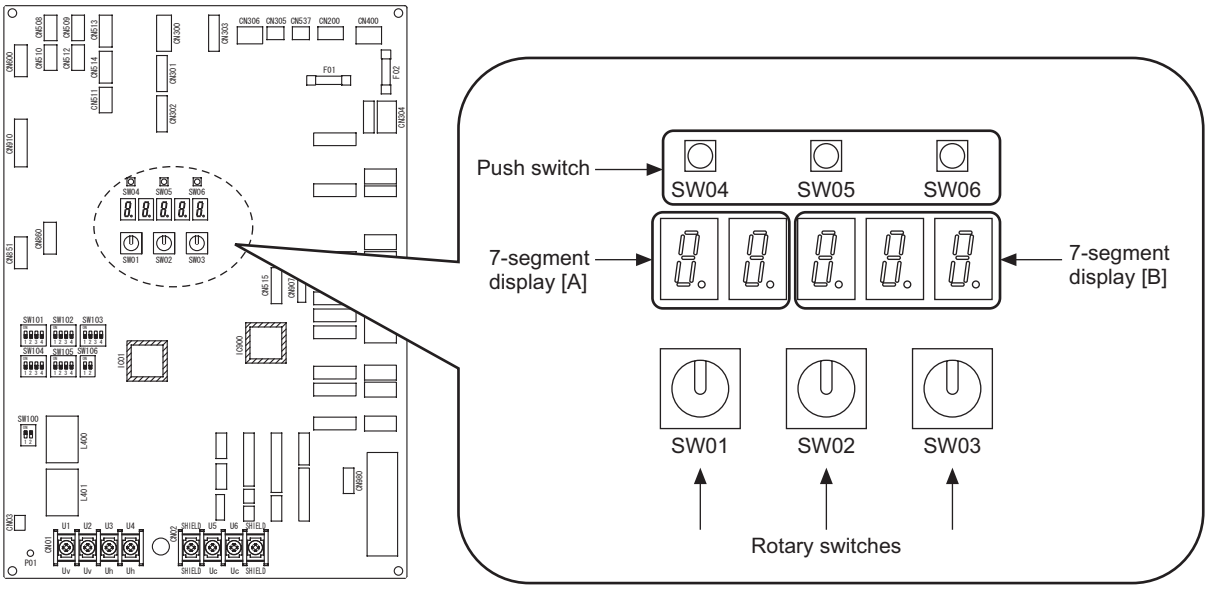
**(3) Fan test operation function**

This function is provided to change collectively the mode of all the indoor units connected to the same system for the fan test operation mode by using switches on the interface P.C. board of the header unit.

<Operation procedure>




**Interface P.C. board**




**NOTE)**

- The test run is a forced run that ignores the set temperature. Be sure to stop the test run after work, paying attention to the room temperature.
- After 60 minutes, the test run will be completed to protect the equipment, and the normal operation will be started according to the set temperature.
  However, if there is no remote controller (using a Central controller), please manually stop the test run after 60 minutes because there are some type of indoor unit that will continue operating test run even after 60 minutes.

**(4) Batch start/stop (ON/OFF) function**

This function is provided to start/stop collectively all the indoor units connected to the same system by using switches on the interface board of the header unit.

<Operation procedure>

Power ON

Be sure to turn on power at the indoor side before power-ON of outdoor unit.

If a check code is already displayed with SW01/SW02/SW03 being [1/1/1], return the status to normal one according to troubleshooting and then execute a test operation.

[1] Set up the operation mode of the remote controller.
(If it is not set up, the operation continues with the current mode.)
(FAN/COOL/HEAT)

The unit which is not given with priority by heating priority control, cooling priority control, and selection of cooling or heating mode is not operated.
In this case, "operation ready" or "operation mode controlled" is displayed on the remote controller.

[2] Set SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/7/1].
([C.H ] is displayed on 7-segment display [A].)

[3] Push SW04 on the same board for 2 seconds or more. — Start

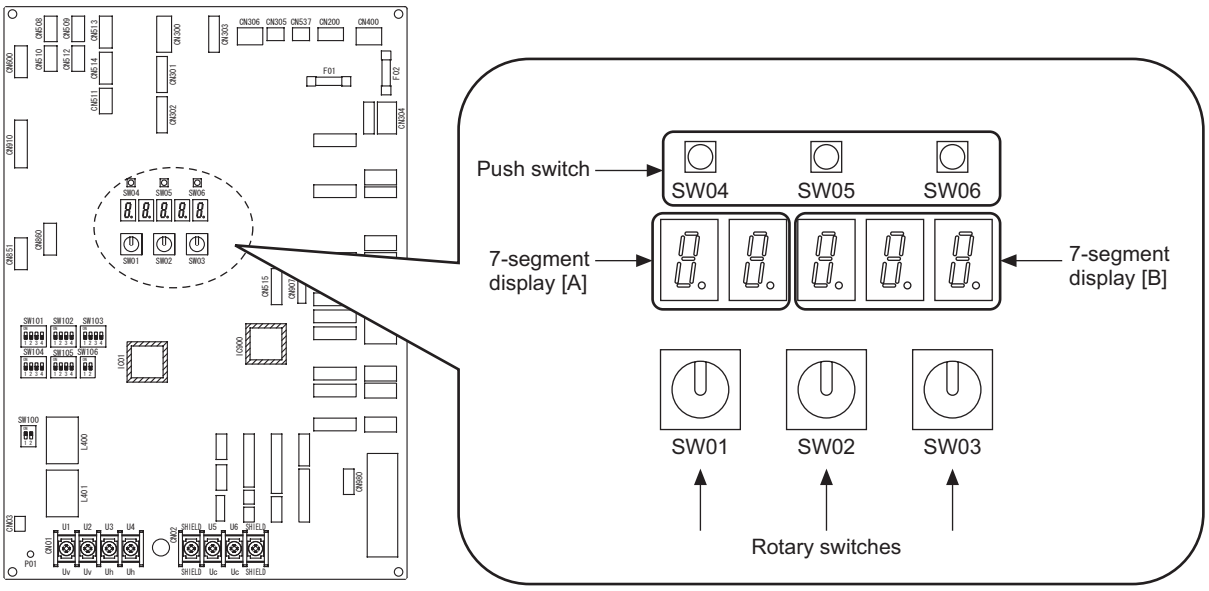
[4] The indoor unit to be started operates. — Operation check

If the discharge temperature does not change though COOL or HEAT has been set up from the remote controller, misconnection is considered.

[5] Push the push-switch SW05 on the interface P.C. board of the header unit for 2 seconds or more. — Stop

[6] After test operation, return the rotary switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [1/1/1]. — End

**Interface P.C. board**



**(5) Individual start/stop (ON/OFF) individual test operation function**

This function is provided to start/stop (ON/OFF) individually each indoor unit connected to the same system by using switches on the interface board of the header unit.

Set SW01 [16] and set SW02, SW03 to indoor address No. (1 to 128) to be started (Refer to the following table*) - only the setup indoor unit starts operation.

(In the rotary switches of the indoor unit which operates in a group by the remote controller, the follower unit cannot be individually started or stopped. In this case, [ - - ] is displayed on 7-segment display [D] on the interface P.C. board of the header unit.)

<Operation procedure>

Power ON

Be sure to turn on power at the indoor side before power-ON of outdoor unit.

If a check code is already displayed with SW01/SW02/SW03 being [1/1/1], return the status to normal one according to troubleshooting and then execute a test operation.

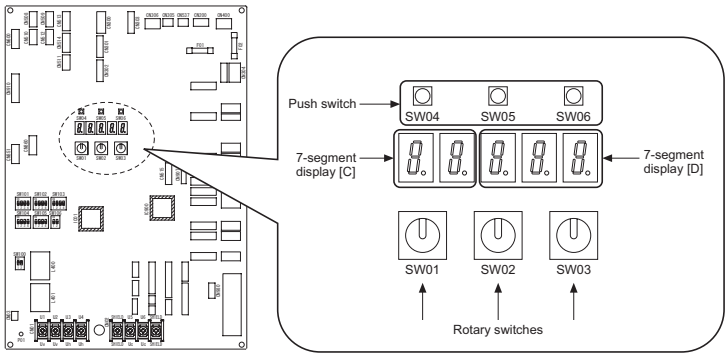
Set up the operation mode of the remote controller. (If it is not set up, the operation continues with the current mode.)

The unit which is not given with priority by heating priority control, cooling priority control, and selection of cooling or heating mode is not operated. In this case, "operation ready" or "operation mode controlled" is displayed on the remote controller.

Match the rotary switches on the interface P.C. board of the header unit to the following table*.

(7-segment display)
[C] [ ] ↑ Address display of corresponding indoor unit
[D] [ ] ↑ [ 00] is displayed for 5 seconds after operation-ON.

Interface P.C. board




Push the push-switch SW04 on the same board for 2 seconds or more.
(If pushed continuously for 10 seconds or more, the operation changes to the individual test operation.)

(7-segment display)
[C] [ ] ↑ Address display of corresponding indoor unit
[D] [ ] ↑ [ 11] is displayed for 5 seconds after operation-ON. (For individual test operation, [ FF] is displayed.)

Start

The indoor unit to be started operates.

Operation check

If the discharge temperature does not change though COOL or HEAT has been set up from the remote controller, misconnection is considered.

Push the push-switch SW05 on the interface P.C. board of the header unit for 2 seconds or more.

(7-segment display)
[C] [ ] ↑ Address display of corresponding indoor unit
[D] [ ] ↑ [ 00] is displayed for 5 seconds after operation-ON.

After test operation, return the display select switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [1/1/1].

End

*

| SW01 | SW02 | SW03 | Indoor unit address | |
|---|---|---|---|---|
| 16 | 1 to 16 | 1 | 1 to 16 | Set number of SW02 |
| 16 | 1 to 16 | 2 | 17 to 32 | Set number of SW02 + 16 |
| 16 | 1 to 16 | 3 | 33 to 48 | Set number of SW02 + 32 |
| 16 | 1 to 16 | 4 | 49 to 64 | Set number of SW02 + 48 |
| 16 | 1 to 16 | 5 | 65 to 80 | Set number of SW02 + 64 |
| 16 | 1 to 16 | 6 | 81 to 96 | Set number of SW02 + 80 |
| 16 | 1 to 16 | 7 | 97 to 112 | Set number of SW02 + 96 |
| 16 | 1 to 16 | 8 | 113 to 128 | Set number of SW02 + 112 |

**NOTE)** The individual test operation returns to the normal operation after 60 minutes.

- The test run is a forced run that ignores the set temperature. Be sure to stop the test run after work, paying attention to the room temperature.
- After 60 minutes, the test run will be completed to protect the equipment, and the normal operation will be started according to the set temperature.
  However, if there is no remote controller (using a central controller), please manually stop the test run after 60 minutes because there are some type of indoor unit that will continue operating test run even after 60 minutes.

### 7-7-3. Check Code Clearing Function

### (1)Clearing from the main remote controller

**<RBC-AMT*>**

**▼ Check code clearing in outdoor unit**

Check code of the outdoor unit currently detected is cleared by the unit of one refrigerant circuit system to which the indoor units operated by the remote controller is connected. (Check code of the indoor unit is not cleared.)
For clearing check codes, the service monitor function of the remote controller is used.

**<Method>**

***1*** **Change the mode to service monitor mode by pushing CL + TEST buttons simultaneously for 4 seconds or more.**

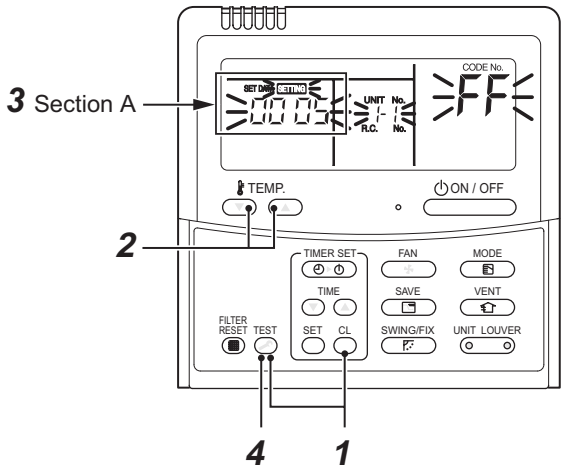
***2*** **Using TEMP. buttons, set CODE No. to "FF".**

***3*** **The display in Section A in the following figure is counted with interval of 5 seconds as "0005" → "0004" → "0003" → "0002" → "0001" → "0000".**

When the count arrives "0000", the check code is cleared.

* However, counting from "0005" is repeated on the display.

***4*** **When TEST button is pushed, the status returns to the normal status.**

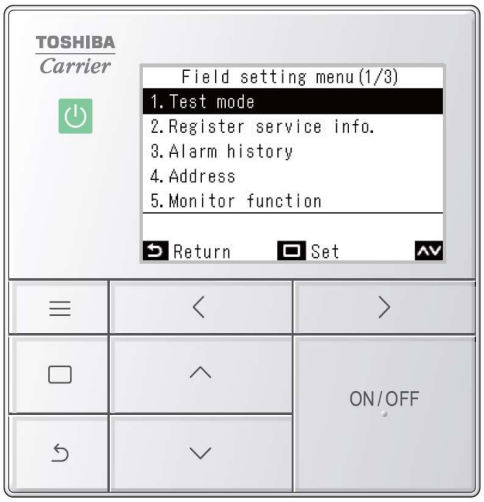



**▼ Check code clearing in indoor unit**

Check code in the indoor unit is cleared by ON / OFF button on the remote controller.
(Only check code of the indoor unit connected with operating remote controller is cleared.)

## <RBC-AWSU**>

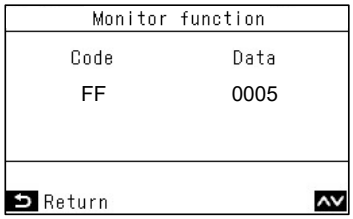
▼ Clearing a check code of the outdoor unit
There is no such function in the remote controller.




**1** **Push the [ Menu] button to display the menu screen**

**2** **Push and hold the [ Menu] button and the [ ] button at the same time to display the "Field setting menu".**
→Push and hold the buttons for more than 4 seconds

**3** **Push the [ ] / [ ] button to select "4.Monitor function" on the "Field setting menu" screen, then push the " Set" [ Set / Fix]button.**




**4** **Push the [ ] / [ ] button set Code No. to "FF"**

**5** **The Data is counted with interval of 5 seconds as**

**"0005" → "0004" → "0003" → "0002" → "0001" → "0000"**
**When the count arrives "0000" , the outdoor unit check code is cleared.**

**6** **Push the " Return" [ Return] button to return to the "Field setting menu" screen.**

### (2) Clearing check code by using switches on the interface board of the header unit

Using the switches on the interface P.C. board of the header unit, this function is to clear the currently detected check code for each refrigerant circuit system without resetting the power supply.

Check codes in both outdoor and indoor units are once cleared, and check code detection is performed again.

[1] Set the rotary switches on the interface P.C. board of the header unit as follows.
Set SW01/SW02/SW03 to [2/16/1]

7-segment display
[A] [B]
[ E r ] [ ]

↓

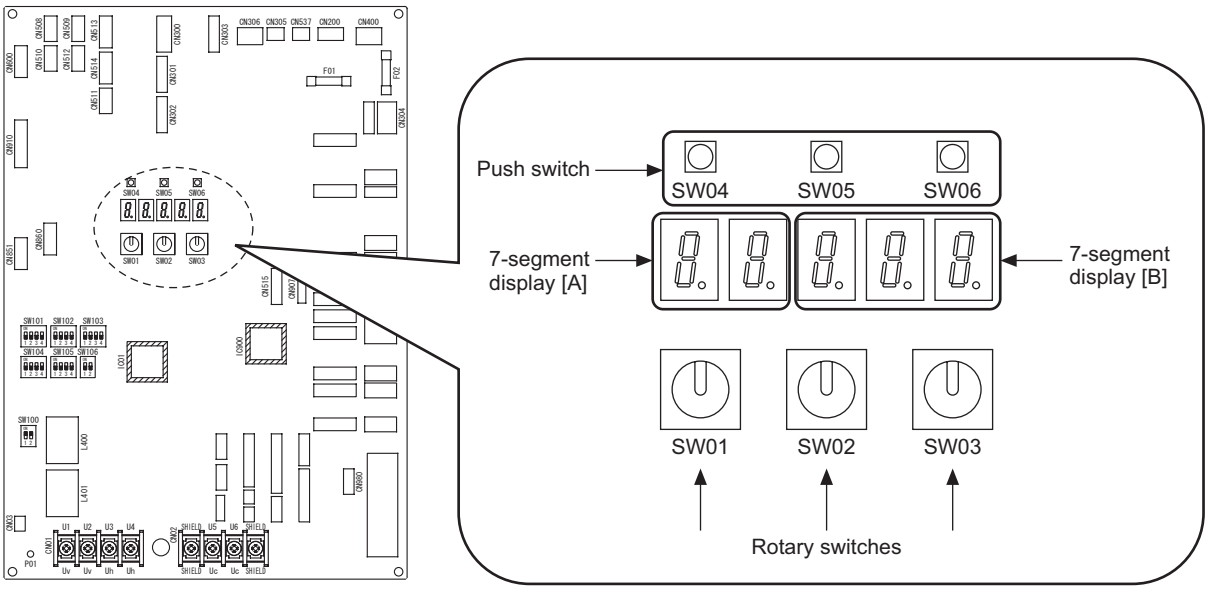
[2] Push the push-switch SW04 on the same board for 5 seconds or more.

↓

[3] [ C L] is displayed in 7-segment display [B] on the board (for 5 seconds), and check code is completely cleared.

7-segment display
[A] [B]
[ E r ] [ C L ]

**Interface P.C. board**




### (3) Clearing check code by resetting power

This function is provided to clear check code in a system by resetting the power of all the outdoor and the indoor units. As same as the clearing method by the interface P.C. board, check codes of both the outdoor and the indoor units are once cleared, and check code detection is performed again.

**<Method>**

(1) Be sure to reset power of both the outdoor and the indoor units.

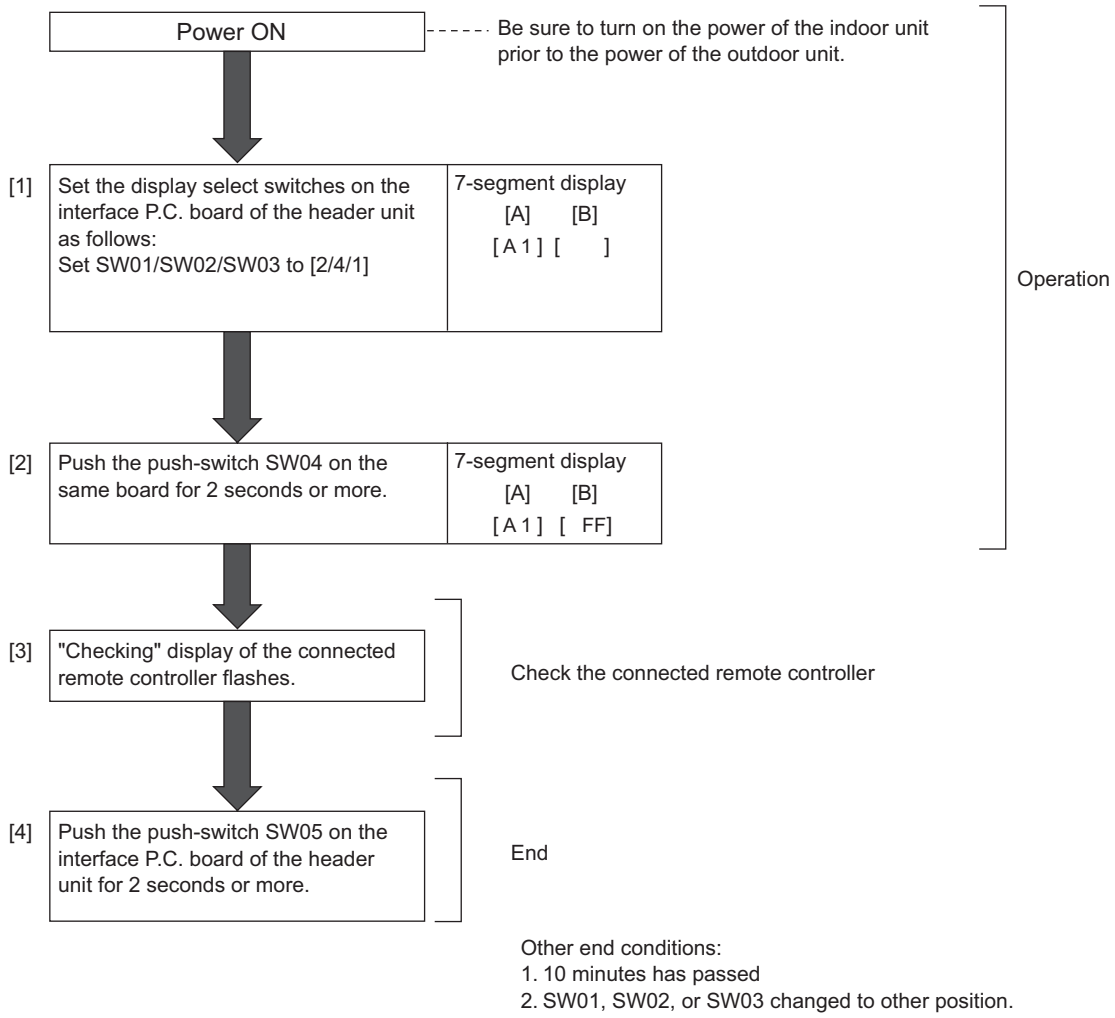
(2) Turn on the power of the indoor unit prior to the power of the outdoor unit.
(If the power is turned on in reverse order, a check code [E19] (No. of header unit trouble) is output.)

**NOTE)** After power reset, it requires usually 3 minutes to power-on due to the initial communication of the system. In some cases, it requires max. 10 minutes.

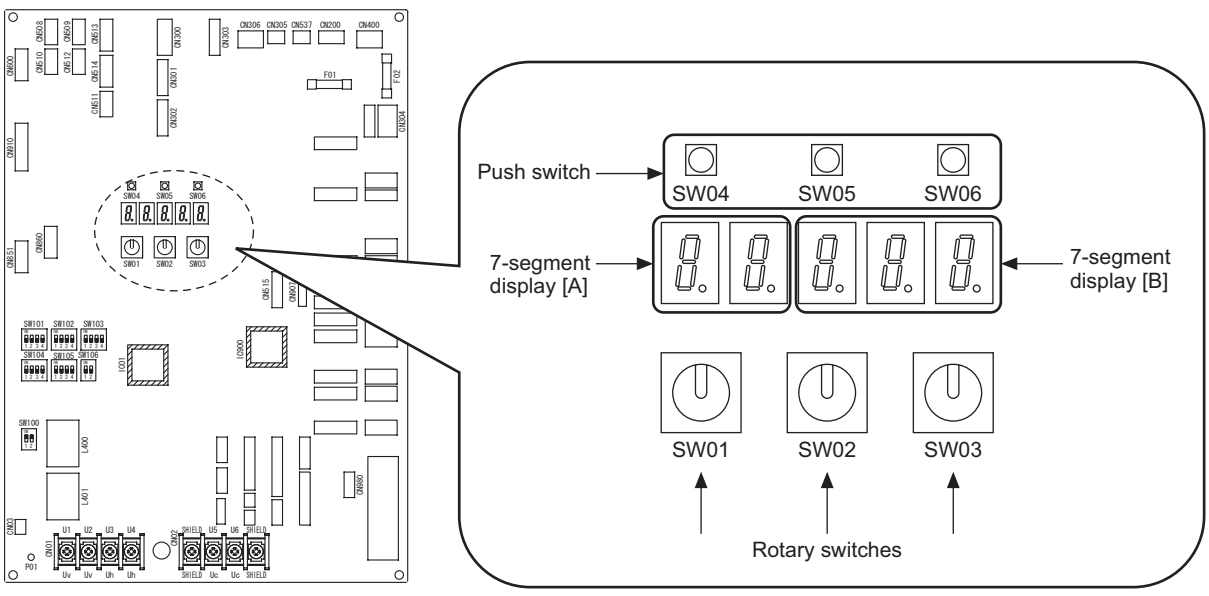
### 7-7-4. Remote Controller Distinction Function

This function is provided to distinguish the remote controller connected to the indoor unit from the outdoor unit for a refrigerant circuit system by using switches on the interface P.C. board of the header unit.

<Distinction procedure>




**Interface P.C. board**



### 7-7-5. Pulse Motor Valve (PMV) Forced Open/Close Function in Indoor Unit

This function is provided to open or close forcedly PMV for 2 minutes in all the indoor units by the switch operation on the interface P.C. board of the header unit.
This function is also used to open PMV fully when turning off the power and executing an operation.

**<Operation>**

**[Open fully]**
Set the switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/3/1], and push SW04 for 2 seconds or more.
(Display appears on 7-segment display for 2 minutes as follows.) [P ] [ FF]

**[Close fully]**
Set the switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/3/1], and push SW05 for 2 seconds or more.
(Display appears on 7-segment display for one minute as follows.) [P ] [ 00]

**[Clear]**
After 2 minutes (1 minutes for “Close fully”) after setting up, the opening automatically returns to the normal opening.

### 7-7-6. Pulse Motor Valve (PMV) Forced Open/Close Function and Solenoid valve Forced ON Function in Outdoor Unit

The solenoid valves provided to outdoor units can be forced ON (open) by switching operations at the interface P.C. board of the outdoor unit.
Also, the pulse motor valves (PMV1, PMV2, PMV3, PMV4) of the outdoor unit can be forced to full-open, half open, and full-closed for two minutes.
Use this function to check for valve or PMV malfunctioning, clogging, and so forth.

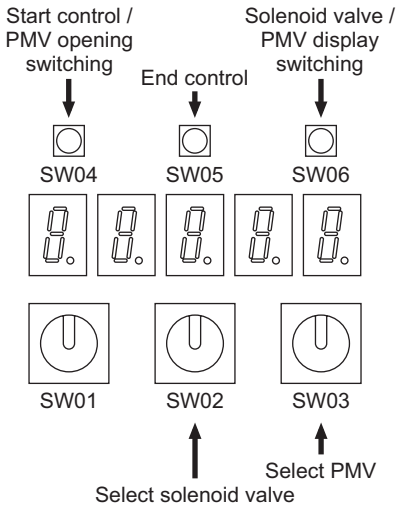
#### [Control start method]

(1) Set the rotary switches [SW01/SW02/SW03] on the interface P.C. board of the outdoor unit to [2/1/3]. When [H.r] is displayed, push the push-switch [SW04] for one second or longer, which changes the display to [H. r – – –], and this control is started.

#### [Method to switch solenoid valve/PMV display]

(1) Solenoid valve display is made immediately after starting control. The 7-segment display is [H. r – – –].
(2) Pushing the push-switsh [SW06] switches the display to [P. ∗ ], which is PMV display.
Each time the push-switch [SW06] is pushed, the display changes between solenoid valve display and pulse motor valve (PMV) display.

[H. r – – –] Solenoid valve display ⟷ long push SW06 for 1 second ⟷ [P. ∗ ∗ ∗ ∗] PMV display




(3) Follow the method below for solenoid valve and PMV operations.
* Take care, as operations of each of the solenoid valve and PMV are enabled, regardless of which is displayed.

#### [Method of operating solenoid valve (forced ON)

(1) Set the rotary switch [SW02] to 2, and five seconds later SV41 will come ON. [H.r 41] will be displayed in the 7-segment display in the solenoid valve display screen.
(2) Any desired solenoid valve can be forced ON by changing the setting No. of the rotary switch [SW02]. The following table shows the forced-ON/normal control patterns for each solenoid valve.

| Rotary switch | | | 7-segment display (solenoid valve display) | Operation patterns of solenoid valve/heater (✓: Forced ON, - : normal control) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SW01 | SW02 | SW03 | | SV41 | SV42 | SV3D | SV3F | SV5B | Compressor 1, 2 case heater |
| 2 | 1 | # Used in PMV operations | [H.r - - -] | - | - | - | - | - | ✓ |
| | 2 | | [H.r 4 1] | ✓ | - | - | - | - | ✓ |
| | 3 | | [H.r 4 2] | - | ✓ | - | - | - | ✓ |
| | 4 | | [H.r 3D] | - | - | ✓ | - | - | ✓ |
| | 5 | | [H.r 3 F] | - | - | - | ✓ | - | ✓ |
| | 6 | | [H.r 3 -] | - | - | ✓ | ✓ | - | ✓ |
| | 7 | | [H.r 5 B] | - | - | - | - | ✓ | ✓ |
| | 8 ~ 15 | | [H.r - - -] | - | - | - | - | - | ✓ |
| | 16 | | [H.r ALL] | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

## [Method of operating pulse motor valve (PMV) (forced open/close)]

(1) Use the rotary switch [SW03] to select the PMV to operate.
When [P#. ] is displayed in the PMV display, PMV# is operating according to normal control.
(#: selected PMV No.)

(2) Pushing the push-switch [SW04] for one second sets the selected PMV# to full-open.
The PMV display will be [P# . F o ].
Each time the push-switch [SW04] is pushed again for one second, the opening changes in the order of full open [P# . F o ] → half-open [P# . C o ] → full-closed [P# . F c ] → normal cont [P# . ] → full-open [P# . F o] → ... , and so on.

(3) The PMV opening returns to normal control after two minutes elapses from changing the opening.

(Operation method example) Operation of PMV 1

| Rotary switch | | | Push switch | 7-segment display (pulse motor valve (PMV) display) | Opening | |
|---|---|---|---|---|---|---|
| SW01 | SW02 | SW03 | SW04 (Change PMV opening) | | | |
| 2 | * Used in solenoid valve selection | 3 | Long push 1 second / Long push 1 second / Long push 1 second / Long push 1 second | [P1. ] | PMV1 Normal control | 2 minutes elapsed / 2 minutes elapsed / 2 minutes elapsed |
| | | | | [P1.F o ] | PMV1 Full-open | |
| | | | | [P1.C o ] | PMV1 Half-open | |
| | | | | [P1.F c ] | PMV1 Full-closed | |

(4) To operate a different PMV, select with the rotary switch [SW03], and operate the opening with the push switch [SW04].
Even when [SW03] is switched, the PMV opening operated immediately before remains effective, so up to four PMV openings can be operated in parallel.

| Rotary switch | | | Push switch | 7-segment display (pulse motor valve (PMV) display) | Opening |
|---|---|---|---|---|---|
| SW01 | SW02 | SW03 | SW04 | | |
| 2 | * Used in solenoid valve selection | 3 | Long push 1 second to change opening | [P1. ] | PMV1 Normal control |
| | | | | [P1.F o ] | PMV1 Full-open |
| | | | | [P1.C o ] | PMV1 Half-open |
| | | | | [P1.F c ] | PMV1 Full-closed |
| | | 4 | Long push 1 second to change opening | [P2. ] | PMV2 Normal control |
| | | | | [P2.F o ] | PMV2 Full-open |
| | | | | [P2.C o ] | PMV2 Half-open |
| | | | | [P2.F c ] | PMV2 Full-closed |
| | | 5 | Long push 1 second to change opening | [P3. ] | PMV3 Normal control |
| | | | | [P3.F o ] | PMV3 Full-open |
| | | | | [P3.C o ] | PMV3 Half-open |
| | | | | [P3.F c ] | PMV3 Full-closed |
| | | 6 | Long push 1 second to change opening | [P4. ] | PMV4 Normal control |
| | | | | [P4.F o ] | PMV4 Full-open |
| | | | | [P4.C o ] | PMV4 Half-open |
| | | | | [P4.F c ] | PMV4 Full-closed |

## [Cancelation method]

To cancel (end) control of this function, perform one of the following methods. The solenoid valve and pulse motor valve (PMV) will return to normal control.

- Push the push-switch [SW05] for one second or longer.
- Set the rotary switch [SW01] to other than [2].

### 7-7-7. Fan Operation Check in Outdoor Unit

This function is provided to check the fan operation of the outdoor unit by using switches on the interface P.C. board in the outdoor unit. The fan speed can be controlled by setting of the switches. Use this function to check the operation or abnormal sound in the fan system. And, use this function while the system is stopped.

**NOTE)** Do not use this function during operation of the compressor. It may damage the compressor.
Two fans move synchronously in two fan model (MMY-MUP1201* to 1681*, MMY-MUP096H1* and 120H1*).

### [Operation]

(1) Set the switches SW01/SW02/SW03 on the interface P.C. board of the outdoor unit to [2/1/4].
(2) When [F. d] is displayed in 7-segment display [A], keep pushing the switch SW04 for 2 seconds or more.
(3) When [ 63 ] is displayed in 7-segment display [B], the fan starts operation. (Max. mode operation)
(4) After that, by changing the setup number of the switches SW02 and SW03, 7-segment display [B] and the fan mode are changed.
(Mode output pattern of the fan is as follows.)

| SW02 | SW03 | 7-segment display [B] | Fan mode |
|---|---|---|---|
| 1 | 4 | [ 63 ] | 63 |
| 2 | | [ 62 ] | 62 |
| 3 | | [ 61 ] | 61 |
| 4 | | [ 60 ] | 60 |
| 5 | | [ 59 ] | 59 |
| 6 | | [ 58 ] | 58 |
| 7 | | [ 57 ] | 57 |
| 8 | | [ 56 ] | 56 |
| 9 | | [ 55 ] | 55 |
| 10 | | [ 54 ] | 54 |
| 11 | | [ 53 ] | 53 |
| 12 | | [ 52 ] | 52 |
| 13 | | [ 51 ] | 51 |
| 14 | | [ 50 ] | 50 |
| 15 | | [ 49 ] | 49 |
| 16 | | [ 48 ] | 48 |
| 1 | 5 | [ 47 ] | 47 |
| 2 | | [ 46 ] | 46 |
| 3 | | [ 45 ] | 45 |
| 4 | | [ 44 ] | 44 |
| 5 | | [ 43 ] | 43 |
| 6 | | [ 42 ] | 42 |
| 7 | | [ 41 ] | 41 |
| 8 | | [ 40 ] | 40 |
| 9 | | [ 39 ] | 39 |
| 10 | | [ 38 ] | 38 |
| 11 | | [ 37 ] | 37 |
| 12 | | [ 36 ] | 36 |
| 13 | | [ 35 ] | 35 |
| 14 | | [ 34 ] | 34 |
| 15 | | [ 33 ] | 33 |
| 16 | | [ 32 ] | 32 |

| SW02 | SW03 | 7-segment display [B] | Fan mode |
|---|---|---|---|
| 1 | 6 | [ 31 ] | 31 |
| 2 | | [ 30 ] | 30 |
| 3 | | [ 29 ] | 29 |
| 4 | | [ 28 ] | 28 |
| 5 | | [ 27 ] | 27 |
| 6 | | [ 26 ] | 26 |
| 7 | | [ 25 ] | 25 |
| 8 | | [ 24 ] | 24 |
| 9 | | [ 23 ] | 23 |
| 10 | | [ 22 ] | 22 |
| 11 | | [ 21 ] | 21 |
| 12 | | [ 20 ] | 20 |
| 13 | | [ 19 ] | 19 |
| 14 | | [ 18 ] | 18 |
| 15 | | [ 17 ] | 17 |
| 16 | | [ 16 ] | 16 |
| 1 | 7 | [ 15 ] | 15 |
| 2 | | [ 14 ] | 14 |
| 3 | | [ 13 ] | 13 |
| 4 | | [ 12 ] | 12 |
| 5 | | [ 11 ] | 11 |
| 6 | | [ 10 ] | 10 |
| 7 | | [ 9 ] | 9 |
| 8 | | [ 8 ] | 8 |
| 9 | | [ 7 ] | 7 |
| 10 | | [ 6 ] | 6 |
| 11 | | [ 5 ] | 5 |
| 12 | | [ 4 ] | 4 |
| 13 | | [ 3 ] | 3 |
| 14 | | [ 2 ] | 2 |
| 15 | | [ 1 ] | 1 |
| 16 | | [ 0 ] | 0 |

### [Clear]

This function is cleared by one of the following operations.
(1) When SW01 setting number was changed to other number.
(2) Push-switch SW05 was pushed for 2 seconds or more.

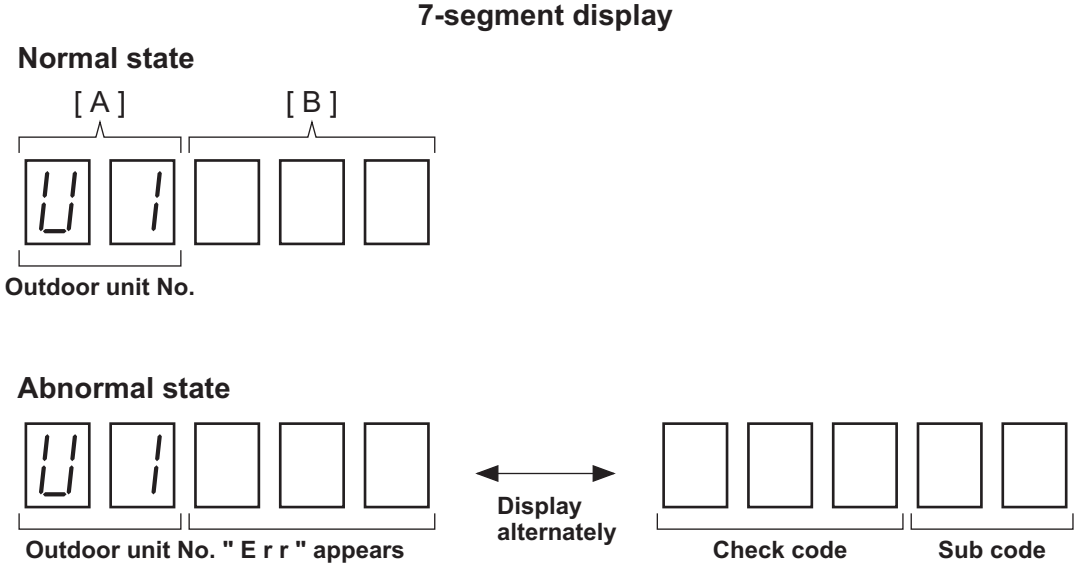
## 7-7-8. Abnormal Outdoor Unit Discrimination Method By Fan Operating Function

This function is provided to forcedly operate the fan of the outdoor unit in which a check code occurred or the fan of the normal outdoor unit by the switch operation on the interface P.C. board in the header unit.
To specify which one of the follower units connected to the system had problem, use this function for the system stop due to a follower unit problem (Check code [E28]).

### [Operation]

#### <In case to operate the fan in the failed outdoor unit only>

(1) Check that the switches SW01/SW02/SW03 on the interface P.C. board in the header unit are set to [1/1/1].




(2) Push the push-switch SW04 for 2 seconds or more.
(3) [E 1] is displayed on 7-segment display [A].
(4) The fan of the outdoor unit in which problem occurred starts operation within approx. 10 seconds after [E 1] was displayed.

#### <In case to operate the fans in all the normal outdoor units>

(1) Check that the switches SW01/SW02/SW03 on the interface P.C. board in the header unit are set to [1/1/1].
(2) Push the push-switches SW04 and SW05 at the same time for 2 seconds or more.
(3) [E 0] is displayed on 7-segment display [A].
(4) The fans of all the normal outdoor units start operation with the Max. fan speed within approx. 10 seconds after [E 0] was displayed.

### [Release]

Push the push-switch SW05 on the interface P.C. board in the header unit for 2 seconds or more.
The outdoor fan which was operated stops.
* Check that [U. 1] is displayed on 7-segment display [A], and then finish the work.

### 7-7-9. Manual Adjustment Function of Outside Temperature (TO) Sensor

This function is provided to fix TO sensor value manually by the switch operation on the interface P.C. board in the outdoor unit. When the unit stops abnormally due to TO sensor failure, etc, an emergent operation is available by setting up the value manually to position near the current outside temperature.

### [Operation]

(1) Set the rotary switches on the interface P.C. board to numbers as follows:
- SW01/SW02/SW03 to [2/1/15]
- 7-segment display: [ t o ]

(2) Keep pushing the push-switch SW04 on the interface P.C. board for 1 second or more. The mode changes to the TO sensor value fix manual mode.

(3) Pushing the push-switch SW04 increases the setting temperature and pushing the SW05 decreases the setting temperature. Set the temperature to any values.

### [Clear]

Return SW01/SW02/SW03 on the interface P.C. board in the outdoor unit to [1/1/1].

**NOTE)** If operated with TO sensor fixed by this function, the system control operation of the air conditioner may not be based on the specification of the product. Therefore an emergent operation should be restricted to a day or so.
When the outside temperature is 113°F(45°C) or more, set to 113°F(45°C) (SW02=”9")

### <Service support function list>

| SW01 | SW02 | SW03 | 7-segment display [A] | Function contents |
|---|---|---|---|---|
| 2 | 1 | 1 | [J . C] | Refrigerant circuit and control communication line check function (Cooling operation) |
| | 2 | | [J . H] | Refrigerant circuit and control communication line check function (Heating operation) |
| | 3 | | [P . ] | Indoor PMV forced full open function |
| | 4 | | [A . 1] | Indoor remote controller discriminating function |
| | 5 | | [C . ] | Cooling test operation function |
| | 6 | | [H . ] | Heating test operation function |
| | 7 | | [C . H] | Indoor collective start/stop (ON/OFF) function |
| | 9 | | [F . ] | Fan test operation function |
| | 11 | | [r . d] | Outdoor refrigerant recovery operation function (Reclaim function) |
| | 16 | | [E . r] | Check code clear function |

| | | | | |
|---|---|---|---|---|
| 2 | 1~16 | 3 | [H . r] | Solenoid valve forced open/close function |
| 2 | 1~16 | 4~7 | [F . d] | Fan forced operation function |
| 2 | 1~16 | 15 | [t . o] | Outside temperature sensor manual adjustment function |

| | | | | | |
|---|---|---|---|---|---|
| 16 | 1 to 16 | 1 | [01] to [16] | Indoor No. 1 to 16 | Set number of SW02 |
| | | 2 | [17] to [32] | Indoor No. 17 to 32 | Set number of SW02 + 16 |
| | | 3 | [33] to [48] | Indoor No. 33 to 48 | Set number of SW02 + 32 |
| | | 4 | [49] to [64] | Indoor No. 49 to 64 | Set number of SW02 + 48 |
| | | 5 | [65] to [80] | Indoor No. 65 to 80 | Set number of SW02 + 64 |
| | | 6 | [81] to [96] | Indoor No. 81 to 96 | Set number of SW02 + 80 |
| | | 7 | [97] to [112] | Indoor No. 97 to 112 | Set number of SW02 + 96 |
| | | 8 | [113] to [128] | Indoor No. 113 to 128 | Set number of SW02 + 112 |

| SW01 | SW02 | SW03 | 7-segment display [A/B] | Function contents |
|---|---|---|---|---|
| 1 | 1 | 1 | [U 1] [ E28 ] | Follower unit check code / Corresponding unit fan operation function |

### 7-7-10. Refrigerant leakage detection

The refrigerant leakage can be confirmed by using the switches on Interface P.C.board of the outdoor unit.

If there is a leak, the location must be found in order to recover the refrigerant.

After that, implement appropriate countermeasure and refill the refrigerant to its standard volume.

Refrigerant leaks can be detected by comparing the Actual opening of PMV with the Calculated opening of PMV* during the operation.

* Calculated opening of PMV: calculated from the initial value(C.i/H.i), the pressure sensor value (C.i/H.i), the compressor's , and the opening of PMV. The initial values are automatically saved when the specified conditions are met.
  (A leak can be detected only when C.i/H.i = 1)

## [Operation]

(1) Confirming the refrigerant leakage
  Set SW01 to 03 as shown in the following table to confirm whether the leaks are being detected.
  (It also can be confirmed by remote control monitor function. Refer to 7-7-11. Monitor function of remote controller switch.)

(2) Clearing the initial value
  If the system is changed (e.g. indoor units are increased/replaced, outdoor units are moved, or refrigerant is refilled/increased) it is necessary to clear the initial value that had been saved.
  Make sure that the compressor has stopped, and then push and hold SW04 for at least 5 seconds.

| SW01 | SW02 | SW03 | Display detail | | |
|---|---|---|---|---|---|
| 2 | 13 | 14 | Refrigerant leakage detection | A | [ L. d ] |
| | | | | B | Normal: [… … 0]<br>Possibility of leakage: [… … 1]<br>Clear the data: […C.L] (Only Display for 5 seconds) |

(3) Checking the record of the initial value
  Set SW01 to 03 as shown in the following table to confirm the record of the initial value.

| SW01 | SW02 | SW03 | Display detail | | |
|---|---|---|---|---|---|
| 2 | 14 | 14 | Cooling initial value | A | [ C. i ] |
| | | | | B | Incomplete: [… … 0]<br>Completed: [… … 1] |
| 2 | 15 | 14 | Heating initial value | A | [ H. i ] |
| | | | | B | Incomplete: [… … 0]<br>Completed: [… … 1] |

## [Clear]

Return SW01/SW02/SW03 on the Interface P.C.board in the outdoor unit to [1/1/1] .

## NOTE)

(a) During the operation, the slow leaks can be detected.
  However, if the air-conditioner cannot cooling down / cannot warming up / make an unusual stop, the slow leaks might not be detectable. The fast leaks always cannot be detected.

(b) Poor refrigerant circulation may be detected as a refrigerant leaks.
  (e.g. plugged strainers / capillaries, malfunction / clogging of the PMV / 2-way valve / 4-way valve)

(c) Due to the outside temperature, the initial value may not be recorded, or it may be impossible to determine the leakage.

(d) The initial value cannot be saved until the accumulated operating time has reached at least 20 hours.

(e) The initial value cannot be saved if the indoor unit's operating ratio is low.

(f) If the following indoor units are connected, leakage determination is not possible.
  • Air to air heat exchanger with DX coil unit

### 7-7-11. Monitor Function of Remote Controller Switch

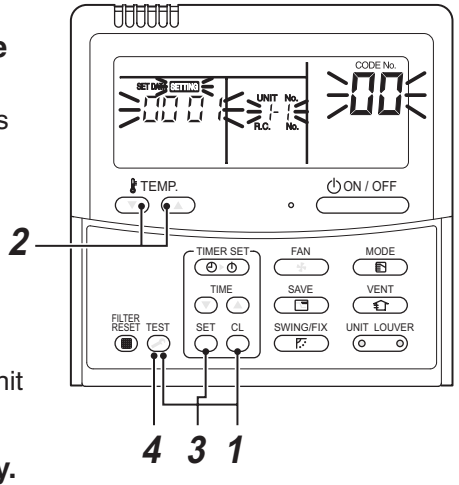
**Switching to the service monitor mode**

**<Content>**

The sensor temperature or operation status of the remote controller, indoor unit, or the outdoor unit can be known by switching to the service monitor mode from the remote controller.

**[Procedure]**

**<RBC-AMT*>**




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

The service monitor goes on, and temperature of the CODE No. 00 is firstly displayed.

***2*** **Push the temperature setup TEMP. buttons to select the CODE No. to be monitored.**

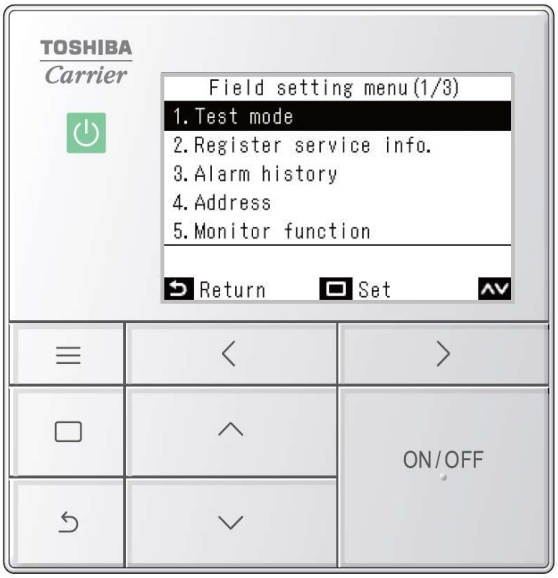
For displayed codes, refer to the table next page.

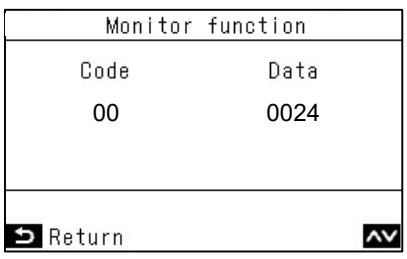
***3*** **Push SET button to determine the item to be monitored.**

Then monitor the sensor temperature or operation status of indoor unit and the outdoor unit in the corresponding refrigerant line.

***4*** **Pushing TEST button returns the display to the normal display.**

## <RBC-AWSU**>




***1*** **Push the [ Menu] button to display the menu screen**

***2*** **Push and hold the [ Menu] button and the [ ] button at the same time to display the "Field setting menu".**

→Push and hold the buttons for more than 4 seconds

***3*** **Push the [ ] / [ ] button to select "4.Monitor function" on the "Field setting menu" screen, then push the " Set" [ Set / Fix] button.**

→ Push the [ ] / [ ] button to select the code to check data.

***4*** **Refer to the installation Manual supplied with the indoor unit or outdoor unit or service manual for details about the check**

***5*** **Push the " Return" [ Return] button to return to the "Field setting menu" screen.**

| | Code No. | Data name | Display format | Unit | Remote controller display example |
|---|---|---|---|---|---|
| Indoor unit data *2 | 00 | Room temperature (Use to control) | X1 | °C | |
| | 01 | Room temperature (Remote controller) | X1 | °C | [0027]=27°C |
| | 02 | Indoor suction air temperature (TA) | X1 | °F | [0080]=80°F |
| | 03 | Indoor coil temperature (TCJ) | X1 | °F | |
| | 04 | Indoor coil temperature (TC2) | X1 | °F | |
| | 05 | Indoor coil temperature (TC1) | X1 | °F | |
| | 06 | Indoor discharge air temperature (TF) *1 | X1 | °F | |
| | 07 | Indoor fan motor number of revolutions | X1 | rpm | [1000]=1000rpm |
| | 08 | Indoor PMV opening | X1/10 | pls | [0150]=1500pls |
| | F3 | Filter sign time | X1 | h | [2500]=2500h |
| | F9 | Suction exchanger (TSA) *1<br>temperature of air to air heat | X1 | °F | [0080]=80°F |
| | FA | Outside air temperature (TOA) *1 | X1 | °F | |
| System data | 0A | No. of connected indoor units | X1 | units | [0048]=48 units |
| | 0B | Total capacity of connected indoor units | X10 | ton | [0215]=21.5ton |
| | 0C | No. of connected outdoor units | X1 | units | [0003]=3 units |
| | 0D | Total refrigeration tons of outdoor units | X10 | ton | [0160]=16ton |

| | Code No. | | | | | Data name | Display format | Unit | Remote controller display example |
|---|---|---|---|---|---|---|---|---|---|
| | U1 | U2 | U3 | U4 | U5 | | | | |
| Outdoor unit individual data 1 *3 | 10 | 20 | 30 | 40 | 50 | High-pressure sensor detection pressure(Pd) | X10 | psi | [4350]=435psi |
| | 11 | 21 | 31 | 41 | 51 | Low-pressure sensor detection pressure (Ps) | X10 | psi | |
| | 12 | 22 | 32 | 42 | 52 | Compressor 1 discharge temperature (TD1) | X1 | °F | |
| | 13 | 23 | 33 | 43 | 53 | Compressor 2 discharge temperature (TD2) | X1 | °F | |
| | 14 | 24 | 34 | 44 | 54 | Suction temperature (TS1) | X1 | °F | |
| | 15 | 25 | 35 | 45 | 55 | Suction temperature (TS3) | X1 | °F | |
| | 16 | 26 | 36 | 46 | 56 | Outdoor heat exchanger temperature (TE1) | X1 | °F | |
| | 17 | 27 | 37 | 47 | 57 | Outdoor sub-heat exchanger temperature (TE2) | X1 | °F | |
| | 18 | 28 | 38 | 48 | 58 | Outdoor sub-heat exchanger temperature (TE3) | X1 | °F | [0080]=80°F |
| | 19 | 29 | 39 | 49 | 59 | Outside ambient temperature (TO) | X1 | °F | |
| | 1A | 2A | 3A | 4A | 5A | Temperature at liquid side (TL1) | X1 | °F | |
| | 1B | 2B | 3B | 4B | 5B | Suction temperature (TS2) | X1 | °F | |
| | 1C | 2C | 3C | 4C | 5C | Suction temperature (TS3) | X1 | °F | |
| | 1D | 2D | 3D | 4D | 5D | Outdoor coil temperature (TG1) | X1 | °F | |
| | 1E | 2E | 3E | 4E | 5E | Outdoor coil temperature (TG2) | X1 | °F | |
| | 1F | 2F | 3F | 4F | 5F | Outdoor coil temperature (TG3) | X1 | °F | |

| | Code No. | | | | | Data name | Display format | Unit | Remote controller display example |
|---|---|---|---|---|---|---|---|---|---|
| | U1 | U2 | U3 | U4 | U5 | | | | |
| Outdoor unit individual data 2 *4 | 60 | 70 | 80 | 90 | A0 | Compressor oil temperature 1 (TK1) | X1 | °F | [0080]=80°F |
| | 61 | 71 | 81 | 91 | A1 | Compressor oil temperature 2 (TK2) | X1 | °F | |
| | 62 | 72 | 82 | 92 | A2 | PMV 1 opening | X1 | pls | |
| | 63 | 73 | 83 | 93 | A3 | PMV 2 opening | X1 | pls | [0500]=500pls |
| | 64 | 74 | 84 | 94 | A4 | PMV 3 opening | X1 | pls | |
| | 65 | 75 | 85 | 95 | A5 | PMV 4 opening | X1 | pls | |
| | 66 | 76 | 86 | 96 | A6 | Compressor 1 current (I1) | X10 | A | [0135]=13.5A |
| | 67 | 77 | 87 | 97 | A7 | Compressor 2 current (I2) | X10 | A | |
| | 68 | 78 | 88 | 98 | A8 | Compressor 1 revolutions | X10 | rps | [0642]=64.2rps |
| | 69 | 79 | 89 | 99 | A9 | Compressor 2 revolutions | X10 | rps | |
| | 6A | 7A | 8A | 9A | AA | Outdoor fan mode | X1 | mode | [0058]=58 mode |
| | 6B | 7B | 8B | 9B | AB | Inverter of Compressor 1 heat sink temperature (TH1) | X1 | °F | |
| | 6C | 7C | 8C | 9C | AC | Inverter of Compressor 2 heat sink temperature (TH2) | X1 | °F | [0080]=80°F |
| | 6D | 7D | 8D | 9D | AD | Inverter of outdoor fan 1 heat sink temperature (TH Fan1) | X1 | °F | |
| | 6E | 7E | 8E | 9E | AE | Inverter of outdoor fan 2 heat sink temperature (TH Fan2) | X1 | °F | |
| | 6F | 7F | 8F | 9F | AF | Outdoor unit refrigeration tons | X10 | ton | [0080]=8ton |

| | Code No. | Data name | Display format | Unit | Remote controller display example |
|---|---|---|---|---|---|
| Outdoor unit individual data 3 *5 | B0 | Heating/cooling recovery control | 0 : Normal<br>1 : Recovery controlled | | [0010]=Heating recovery control<br>[0001]=Cooling recovery control |
| | B5 | Instantaneous electric power | X1/10 | W | [0090]=900W |
| | B6 | Integrated electric power consumption | X1/100 | Wh | [0090]=9000Wh |
| | B8 | Termination resistance setting indoor unit address display | 9999 : No setting<br>1～ : Setting address | | [9999]=Case where no terminating resistance is set to any of the indoor units<br>[0048]=Termination resistance setting Indoor unit address 48 |
| | B9 | Communications protocol | 0 : TCC-LINK<br>1 : TU2C-LINK | | [0000]=TCC-LINK<br>[0001]=TU2C-LINK |
| | BA | Uv line communication speed | 0 : 9600 bps<br>1 : 19200 bps | | [0000]=9600bps<br>[0001]=19200bps |
| | BB | Demand control | 0 : Normally<br>1 : Demand control | | [0000]=Normally<br>[0001]=Demand control |

*1 Only a part of indoor unit types is installed with the discharge air temperature sensor. This temperature is not displayed for other types.
*2 When the units are connected to a group, data of the header indoor unit only can be displayed.
*3 The first digit of code No. indicates the outdoor unit number.
*4 The upper digit of code No. -5 indicates the outdoor unit number.
1＊, 6＊ ... U1 outdoor unit (Header unit)
2＊, 7＊ ... U2 outdoor unit (Follower unit 1)
3＊, 8＊ ... U3 outdoor unit (Follower unit 2)
4＊, 9＊ ... U4 outdoor unit (Follower unit 3)
5＊, A＊ ... U5 outdoor unit (Follower unit 4)
*5 Only the Code No. "B＊" of U1 outdoor unit (Header unit) is displayed.

## 7-8. Wave Tool Advance for SMMS-u Series

### 7-8-1. Before the Use of Wave Tool Advance

Wave Tool Advance (WTA) is an application for the Android OS or iOS smartphone.
You can use this application to check system capacity, to make a test operation, to get a test operation result, and to make a simple report.

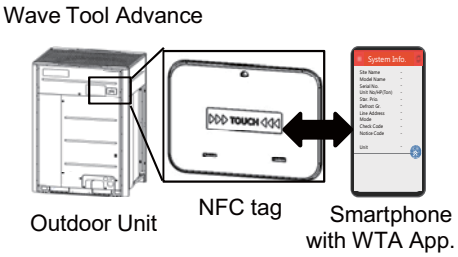
Please move to the following URL(or QR Code), and confirm
**"Objective product list"** and "**Smartphone model & OS Version**".
After confirmation, download/install the Wave Tool Advance Application (WTA App.) and USER GUIDE.
Be sure to read the USER GUIDE before the use of this application.

<Wave Tool Advance Support URL>
https://www.toshiba-carrier.co.jp/global/appli/smms_wave_tool_advance/index.htm

**※Notice**
WTA App. is not supported SMMS-e series. Please use the "SMMS Wave Tool" when using the SMMS-e series.
You can download and install "SMMS Wave Tool" from the following URL.
<SMMS Wave Tool Support URL>
https://www.toshiba-carrier.co.jp/global/appli/smms_wave_tool/index.htm

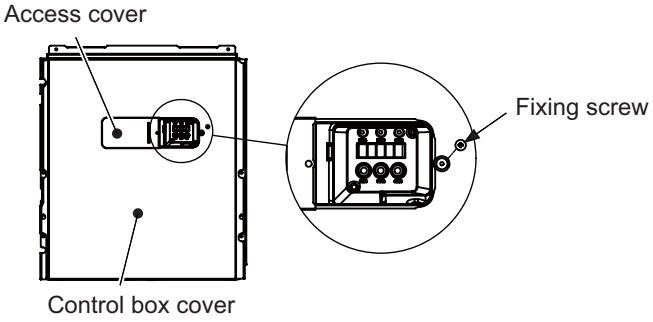
### 7-8-2. About Wave Tool Advance

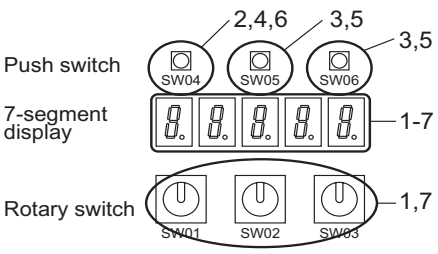
- This application is the NFC(Near Field Communication) function of smartphone.
- When it is used, make sure that the NFC antenna on the smartphone is aligned with the “TOUCH “mark on the NFC tag.
- Refer to the USER GUIDE of the Wave Tool Advance for the details.




### 7-8-3. Valid/Prohibition/Permission setting for Test operation from WTA App.

- WTA App Test operation function enables setting within 48 hours elapsed from outdoor unit power ON. If Power ON time is over 48 hours, it can not use WTA App test operation. (Other WTA App function can be used.)
- You should decide whether to make use of this test operation function at its own responsibility and also be sure to confirm notices in the Operating Manual before performing the test operation.
- If you want to prohibit the test operation from WTA App, perform the following steps.
  * High voltage parts exist in the electrical control box. If you set switch setting, set it from the access door cover of the electrical control box cover to avoid electric shock.
    After finishing steps, slide the access cover to the position before and fix it with the screw.
- Refer to following table for setting change of the test operation function to be effective after 48hours.




### ■ Relationship with Power ON time and Test operation function.

| | Status | 7-segment display at O.DN Code No.05 |
|---|---|---|
| Validness | Until 48 hours elapsed from the outdoor unit power ON, WTA App can start a test operation. After 48 hours, it cannot. | d.␣␣␣0 |
| Prohibition | Regardless of the elapsed time, WTA App cannot start a test operation. | d.␣␣␣1 |
| Permission | Regardless of the elapsed time, WTA App can start a test operation. | d.␣␣␣2 |

## ■ For example; How to prohibit Test operation from WTA (If you need)

| Steps | Items | Rotary switch | | | Push SW | | | 7-segment display |
|---|---|---|---|---|---|---|---|---|
| | | SW01 | SW02 | SW03 | SW04 | SW05 | SW06 | |
| 1 | Change rotary switch position for Outdoor DN code setting | 9 | 1 | 1 | - | - | - | dn.SEt |
| 2 | Push SW04 for activate DN code | 9 | 1 | 1 | Push | - | - | dn.001 |
| 3 | Change DN code Number to "dn.005" with SW05 or SW06 | 9 | 1 | 1 | - | Push | Push | dn.005 |
| 4 | Change data value display with SW04<br>*"d.␣␣␣0" shows validness of TEST operation by WTA App., (Because PWR ON within 48h). | 9 | 1 | 1 | Push | - | - | d.␣␣␣0 |
| 5 | Change value to "d.␣␣␣1" with SW05 or SW06<br>*"d.␣␣␣1" shows prohibition of TEST operation by WTA App., | 9 | 1 | 1 | - | Push | Push | d.␣␣␣1 |
| 6 | Push SW04 more than 2sec.<br>7-seg display will change from flashing to lighting. | 9 | 1 | 1 | Push more than 2 sec | - | - | Flashing--><br>d.␣␣␣1<br>Lighting |
| 7 | Return to default Rotary switch position. | 1 | 1 | 1 | - | - | - | U * --- |
| 8 | Turn ON/OFF outdoor unit main power supplies. Keep turn off time 60 seconds or more. | | | | | | | |

* Do it again if the 7-segment display is different from the above.
* The functions other than the test operation of this Application can work normally even if the test operation function are prohibited.

### 7-8-4. Confirmation for NFC tag Communication

When you cannot read out the information of the NFC tag with your smartphone, preform the following step.

| Step | Rotary switch | | | Push switch | | | 7-segment display | Check result |
|---|---|---|---|---|---|---|---|---|
| | SW01 | SW02 | SW03 | SW04 | SW05 | SW06 | | |
| 1 | 2 | 16 | 14 | — | — | — | nFc. | Normal |
| | | | | | | | nFc.Er | NFC tag wiring trouble<br>Check NFC tag wiring |
| 2 | 1 | 1 | 1 | | | | U * --- | (Return to Rotary switch) |

If above check is no problem, refer to User Guide of Wave Tool Advance.

# 8. TROUBLESHOOTING

## 8-1. Overview

(1) Before engaging in troubleshooting

(a) Applicable models
Super Modular Multi System (SMMS-u) models.
(Indoor units: MM∗-U(A)P∗∗∗, Outdoor units: MMY-MUP∗∗∗∗HT∗∗)

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

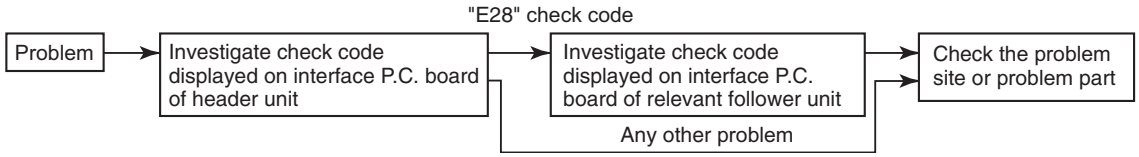
(c) Things to check prior to troubleshooting (behaviors listed below are normal)

| NO. | Behavior | Possible cause |
|---|---|---|
| 1 | A compressor would not start | • The air conditioner is being controlled by the 3-minute protective function.<br>• It is in standby status though the room temperature has reached the setup temperature.<br>• It is being operated in timer mode or fan mode.<br>• It is being in initial communication. |
| 2 | An indoor fan would not start | • The air conditioner is being controlled by the cool air discharge preventive function in "heating"? |
| 3 | An outdoor fan would not start or would change speed for no reason | • The air conditioner is being operated in "cooling" under the low outside air temperature.<br>• It is being operated in defrost operation. |
| 4 | An indoor fan would not stop | • The air conditioner is being controlled by function of residual heat elimination being performed as part of the air conditioner shutdown process after heating operation. |
| 5 | The air conditioner would not respond to a start/stop command from a remote controller | • The air conditioner is being operated under external or remote control. |

## ⚠ CAUTION

The cooling performance may be declining considerably when total operating capacity of cooling indoor units is less than 36 in total capacity WHILE AMBIENT TEMPERATURE IS BELOW 32°F(0°C).

(2) Troubleshooting procedure
When a problem occurs, proceed with troubleshooting in accordance with the procedure shown below.




**NOTE**

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

## 8-2. Troubleshooting method

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

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

- When investigating a problem on the basis of a display provided on the indoor remote controller or central remote controller See the “Remote control or main remote controller display” section of the list.
- When investigating a problem on the basis of a display provided on an outdoor unit - See the “Outdoor 7-segment display” section of the list.
- When investigating a problem on the basis of a wireless remote controller-controlled indoor unit - See the “Light sensor indicator light block” section of the list.

### List of Check Codes (Indoor Unit)

(Check code detected by indoor unit)

○ : Lighting, ◎ : Flashing, ● : Goes off
ALT.: Flashing is alternately when there are two flashing LED
SIM: Simultaneous flashing when there are two flashing LED

| Check code | | | Display of receiving unit | | | | Typical problem site | Description of Check code |
|---|---|---|---|---|---|---|---|---|
| Central control or main remote controller display | Outdoor 7-segment display | | Indicator light block | | | | | |
| | | Sub-code | Operation | Timer | Ready | Flash | | |
| E03 | — | — | ◎ | ● | ● | | Indoor-remote controller periodic communication trouble | Communication from remote controller or network adaptor has been lost (so has central control communication). |
| E04 | — | — | ● | ● | ◎ | | Indoor-outdoor periodic communication trouble | Signals are not being received from outdoor unit. |
| E08 | E08 | Duplicated indoor address | ◎ | ● | ● | | Duplicated indoor address | Indoor unit detects address identical to its own. |
| E10 | — | — | ◎ | ● | ● | | Indoor inter-MCU communication trouble | MCU communication between main controller and motor microcontroller is failure. |
| E11 | — | — | ◎ | ● | ● | | Communication check code between Application control kit and indoor unit | Communication check code between Application control kit and indoor unit P.C. board. |
| E18 | — | — | ◎ | ● | ● | | Trouble in periodic communication between indoor header and follower unit | Periodic communication between indoor header and follower units cannot be maintained. |
| F01 | — | — | ◎ | ◎ | ● | ALT | Indoor heat exchanger temperature sensor (TCJ) trouble | Heat exchanger temperature sensor (TCJ) has been open/short-circuited. |
| F02 | — | — | ◎ | ◎ | ● | ALT | Indoor heat exchanger temperature sensor (TC2) trouble | Heat exchanger temperature sensor (TC2) has been open/short-circuited. |
| F03 | — | — | ◎ | ◎ | ● | ALT | Indoor heat exchanger temperature sensor (TC1) trouble | Heat exchanger temperature sensor (TC1) has been open/short-circuited. |
| F10 | — | — | ◎ | ◎ | ● | ALT | Room air temperature sensor (TA/TSA) trouble | Room air temperature sensor (TA) has been open/short-circuited. |
| F11 | — | — | ◎ | ◎ | ● | ALT | Discharge air temperature sensor (TF/TFA) trouble | Discharge air temperature sensor (TF) has been open/short-circuited. |
| F29 | — | — | ◎ | ◎ | ● | SIM | P.C. board or other indoor trouble | Open/Short-circuit of indoor air suction temperature sensor (TRA) was detected. |
| L03 | — | — | ◎ | ● | ◎ | SIM | Duplicated indoor group header unit | There is more than one header unit in group. |
| L07 | — | — | ◎ | ● | ◎ | SIM | Connection of group control cable to stand-alone indoor unit | There is at least one stand-alone indoor unit to which group control cable is connected. |
| L08 | L08 | — | ◎ | ● | ◎ | SIM | Indoor group address not set | Address setting has not been performed for one or more indoor units (also detected at outdoor unit end). |
| L09 | — | — | ◎ | ● | ◎ | SIM | Indoor capacity not set | Capacity setting has not been performed for indoor unit. |
| L20 | — | — | ◎ | ○ | ◎ | SIM | Duplicated central control address | There is duplication in central control address setting. |
| L30 | L30 | Detected indoor unit No. | ◎ | ○ | ◎ | SIM | Indoor external trouble input (interlock) | Unit shutdown has been caused by external trouble input (CN80). |
| P01 | — | — | ● | ◎ | ◎ | ALT | Indoor AC fan trouble | Indoor AC fan trouble is detected (activation of fan motor thermal relay). |
| P10 | P10 | Detected indoor unit No. | ● | ◎ | ◎ | ALT | Indoor overflow trouble | Float switch has been activated. |
| P12 | — | — | ● | ◎ | ◎ | ALT | Indoor DC fan trouble | Indoor DC fan trouble (e.g. overcurrent or lock-up) is detected. |
| P31 | — | — | ◎ | ● | ◎ | ALT | Other indoor unit trouble | Follower unit cannot be operated due to header unit alarm (E03/L03/L07/L08). |

(Check code detected by remote controller)

| Check code | | | Display of receiving unit | | | | Typical fault site | Description of Check code |
|---|---|---|---|---|---|---|---|---|
| Remote control | Outdoor 7-segment display | | Indicator light block | | | | | |
| | | Sub-code | Operation | Timer | Ready | Flash | | |
| E01 | – | – | ◎ | ● | ● | | No master remote control, failure remote control communication (reception) | Signals cannot be received from indoor unit; master remote controller has not been set (including two remote controller control). |
| E02 | – | – | ◎ | ● | ● | | Failure remote control communication (transmission) | Signals cannot be transmitted to indoor unit. |
| E09 | – | – | ◎ | ● | ● | | Duplicated master remote control | Both remote controllers have been set as master remote controller in two remote controller control (alarm and shutdown for header unit and continued operation for follower unit) |

(Check code detected by central control device)

| Check code | | | Display of receiving unit | | | | Typical fault site | Description of Check code |
|---|---|---|---|---|---|---|---|---|
| Central control | Outdoor 7-segment display | | Indicator light block | | | | | |
| | | Sub-code | Operation | Timer | Ready | Flash | | |
| C05 | – | – | No indication (when main remote control also in use) | | | | Failure central control communication (transmission) | Central control device is unable to transmit signal due to duplication of central control device |
| C06 | – | – | | | | | Failure central control communication (reception) | Central control device is unable to receive signal. |
| C12 | – | – | – | | | | Bracket alarm for general-purpose device control interface | Device connected to general-purpose device control interface is failure. |
| P30 | – | – | As per alarm unit (see above) | | | | Group control follower unit trouble | Group follower unit is troubled (unit No. and above detail [ ＊＊＊ ] displayed on main remote controller) |
| S01 | – | – | – | | | | Failure central control communication (reception) | Central control device is unable to receive signal. |

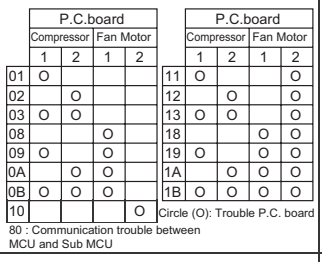
**Note:** The same trouble, e.g. a communication trouble, may result in the display of different check codes depending on the device that detects it.
Moreover, check codes detected by the main remote controller/central control device do not necessarily have a direct impact on air conditioner operation.

## List of Check Codes (Outdoor Unit)

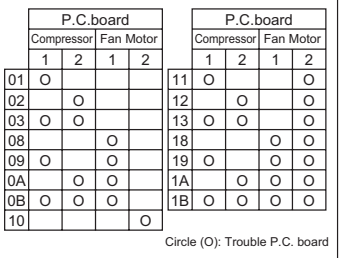
(Check code detected by outdoor interface - typical examples)

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

○ : Lighting, ◎ : Flashing, ● : Goes off
ALT.: Flashing is alternately when there are two flashing LED
SIM: Simultaneous flashing when there are two flashing LED

| Check code | | | Display of receiving unit | | | | Typical problem site | Description of Check code |
|---|---|---|---|---|---|---|---|---|
| Outdoor 7-segment display | | Central control or main remote controller display | Indicator light block | | | | | |
| | Sub-code | | Operation ⏻ | Timer 🕘 | Ready | Flash | | |
| E06 | Number of indoor units from which signal is received normally | E06 | ● | ● | ◎ | | Signal lack of indoor unit | • Indoor unit initially communicating normally fails to return signal (reduction in number of indoor units connected).<br>• In TU2C-LINK communication system, if the termination resistance is not set in any of the indoor units<br>• The number of indoor units connected is decreasing. (detected when power is turned on) |
| E07 | – | (E04) | ● | ● | ◎ | | Indoor-outdoor communication circuit trouble | Signal cannot be transmitted to indoor units (→ indoor units left without communication from outdoor unit). |
| E08 | Duplicated indoor address | (E08) | ◎ | ● | ● | | Duplicated indoor address | More than one indoor unit are assigned same address (also detected at indoor unit end). |
| E12 | 01: Indoor-outdoor communication<br>02: Outdoor-outdoor communication | E12 | ◎ | ● | ● | | Automatic address starting trouble | • Indoor automatic address setting is started while automatic address setting for equipment in other refrigerant line is in progress.<br>• Outdoor automatic address setting is started while automatic address setting for indoor units is in progress. |
| E15 | – | E15 | ● | ● | ◎ | | Indoor unit not found during automatic address setting | Indoor unit fails to communicate while automatic address setting for indoor units is in progress. |
| E16 | 00: Capacity over<br>01: Number of units connected | E16 | ● | ● | ◎ | | Too many indoor units connected/capacity over | Combined capacity of indoor units is too large. The maximum combined of indoor units shown in the specification table. |
| E19 | 00: No header unit<br>02: Two or more header units | E19 | ● | ● | ◎ | | Trouble in number of outdoor header units | There is no or more than one outdoor header unit in one refrigerant line. |
| E20 | 01: Connection of outdoor unit from other refrigerant line<br>02: Connection of indoor unit from other refrigerant line | E20 | ● | ● | ◎ | | Connection to other refrigerant line found during automatic address setting | Indoor unit from other refrigerant line is detected while indoor automatic address setting is in progress. |
| E23 | – | E23 | ● | ● | ◎ | | Outdoor-outdoor communication transmission trouble | Signal cannot be transmitted to other outdoor units. |
| E25 | – | E25 | ● | ● | ◎ | | Duplicated follower outdoor address | There is duplication in outdoor addresses set manually. |
| E26 | Address of outdoor unit from which signal is not received normally | E26 | ● | ● | ◎ | | Signal lack of outdoor unit | Follower outdoor unit initially communicating normally fails to do so (reduction in number of follower outdoor units connected). |
| E28 | Detected outdoor unit No. | E28 | ● | ● | ◎ | | Outdoor follower unit trouble | Outdoor header unit detects trouble relating to follower outdoor unit (detail displayed on follower outdoor unit). |
| E31 |  | E31 | ● | ● | ◎ | | P.C. board communication trouble<br><br>Sub MCU communication trouble | There is no communication between P.C. boards in inverter box. |
| F04 | – | F04 | ◎ | ◎ | ○ | ALT | Outdoor discharge temperature sensor (TD1) trouble | Outdoor discharge temperature sensor (TD1) has been open/short-circuited. |
| F05 | – | F05 | ◎ | ◎ | ○ | ALT | Outdoor discharge temperature sensor (TD2) trouble | Outdoor discharge temperature sensor (TD2) has been open/short-circuited. |
| F06 | 01: TE1 sensor<br>02: TE2 sensor<br>03: TE3 sensor | F06 | ◎ | ◎ | ○ | ALT | Outdoor heat exchanger liquid side temperature sensor (TE1, TE2, TE3) trouble | Outdoor heat exchanger liquid side temperature sensors (TE1, TE2, TE3) have been open/short-circuited. |
| F07 | 01: TL1 sensor<br>02: TL2 sensor<br>03: TL3 sensor | F07 | ◎ | ◎ | ○ | ALT | Outdoor liquid temperature sensor (TL1,TL2,TL3) trouble | Outdoor liquid temperature sensor (TL1,TL2,TL3) has been open/short-circuited. |
| F08 | – | F08 | ◎ | ◎ | ○ | ALT | Outdoor outside air temperature sensor (TO) trouble | Outdoor air temperature sensor (TO) has been open/short-circuited. |
| F09 | 01: TG1 sensor<br>02: TG2 sensor<br>03: TG3 sensor | F09 | ◎ | ◎ | ○ | ALT | Outdoor heat exchanger gas side temperature sensor (TG1, TG2, TG3) trouble | Outdoor heat exchanger gas side temperature sensors (TG1, TG2, TG3) have been open/short-circuited. |

| Check code | | | Display of receiving unit | | | | Typical problem site | Description of Check code |
|---|---|---|---|---|---|---|---|---|
| Outdoor 7-segment display | | Central control or main remote controller display | Indicator light block | | | | | |
| | Sub-code | | Operation | Timer | Ready | Flash | | |
| F12 | 01: TS1 sensor<br>03: TS3 sensor<br>04: TS3 sensor disconnect | F12 | ◎ | ◎ | ○ | ALT | • Outdoor suction temperature sensor (TS1,TS3) trouble<br>• When TS3 detects an unusual temperature during compressor operation and PMV4 operation in cooling mode | • Outdoor suction temperature sensor (TS1,TS3) has been open/short-circuited.<br>• When the disconnect of outdoor temperature sensor (TS3) is detected. |
| F15 | – | F15 | ◎ | ◎ | ○ | ALT | Outdoor temperature sensor (TE1,TL1) wiring trouble | Wiring trouble in outdoor temperature sensors (TE1,TL1) has been detected. |
| F16 | – | F16 | ◎ | ◎ | ○ | ALT | Outdoor pressure sensor (Pd, Ps) wiring trouble | Wiring trouble in outdoor pressure sensors (Pd, Ps) has been detected. |
| F23 | – | F23 | ◎ | ◎ | ○ | ALT | Low pressure sensor (Ps) trouble | Output voltage of low pressure sensor (Ps) is zero. |
| F24 | – | F24 | ◎ | ◎ | ○ | ALT | High pressure sensor (Pd) trouble | Output voltage of high pressure sensor (Pd) is zero or provides abnormal readings when compressors have been turned off. |
| F31 | – | F31 | ◎ | ◎ | ○ | SIM | Outdoor EEPROM trouble | Outdoor EEPROM is failure (alarm and shutdown for header unit and continued operation for follower unit) |
| H05 | – | H05 | ● | ◎ | ● | | Outdoor discharge temperature sensor (TD1) wiring trouble | Wiring/installation trouble or detachment of outdoor discharge temperature sensor (TD1) has been detected. |
| H06 | – | H06 | ● | ◎ | ● | | Activation of low-pressure protection | Low pressure (Ps) sensor detects abnormally low operating pressure. |
| H07 | – | H07 | ● | ◎ | ● | | Low oil level protection | Temperature sensor for oil level detection (TK1,TK2) detects abnormally low oil level. |
| H08 | 01: TK1 sensor trouble<br>02: TK2 sensor trouble | H08 | ● | ◎ | ● | | Trouble in temperature sensor for oil level detection (TK1,TK2) | Temperature sensor for oil level detection (TK1,TK2) has been open/short-circuited. |
| H15 | – | H15 | ● | ◎ | ● | | Outdoor discharge temperature sensor (TD2) wiring trouble | Wiring/installation trouble or detachment of outdoor discharge temperature sensor (TD2) has been detected. |
| H16 | 01: TK1 oil circuit trouble<br>02: TK2 oil circuit trouble | H16 | ● | ◎ | ● | | Oil level detection circuit trouble | No temperature change is detected by temperature sensor for oil level detection (TK1,TK2) despite compressor having been started. |
| L04 | – | L04 | ◎ | ○ | ◎ | SIM | Duplicated outdoor refrigerant line address | Identical refrigerant line address has been assigned to outdoor units belonging to different refrigerant piping systems. |
| L06 | Number of priority indoor units (check code L05 or L06 depending on individual unit) | L05 | ◎ | ● | ◎ | SIM | Duplicated priority indoor unit (as displayed on priority indoor unit) | More than one indoor unit have been set up as priority indoor unit. |
| | | L06 | ◎ | ● | ◎ | SIM | Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit) | More than one indoor unit have been set up as priority indoor unit. |
| L08 | – | (L08) | ◎ | ● | ◎ | SIM | Indoor group address not set | Address setting have not been performed for one or more indoor units (also detected at indoor end). |
| L10 | – | L10 | ◎ | ○ | ◎ | SIM | Outdoor capacity not set | Outdoor unit capacity has not been set (after P.C. board replacement). |
| L17 | – | L17 | ◎ | ○ | ◎ | SIM | Outdoor model incompatibility trouble | Outdoor unit that cannot be connected is connected. |
| L23 | 02: Switch setting trouble of outdoor unit | L23 | ◎ | ○ | ◎ | SIM | SW setting trouble | Switch setting trouble of outdoor units when HWM (Hot water module) is connected. |
| L28 | – | L28 | ◎ | ○ | ◎ | SIM | Too many outdoor units connected | More than six outdoor units have been connected. |

| Check code | | | Display of receiving unit | | | | | |
|---|---|---|---|---|---|---|---|---|
| Outdoor 7-segment display | | Central control or main remote controller display | Indicator light block | | | | Typical problem site | Description of Check code |
| | Sub-code | | Operation ⏻ | Timer 🕘 | Ready ❁ | Flash | | |
| L29 |  <br>Circle (O): Trouble P.C. board | L29 | ◎ | ○ | ◎ | SIM | Trouble in number of P.C. boards | There are insufficient number of P.C. board in inverter box. |
| | 00 | L29 | ◎ | ○ | ◎ | SIM | The number of P.C. board trouble | When there is much number of an inverter P.C. board to model setting of an interface P.C. board. |
| L30 | Detected indoor unit No. | (L30) | ◎ | ○ | ◎ | SIM | Indoor external trouble input (interlock) | Indoor unit has been shut down for external trouble input in one refrigerant line (detected by indoor unit). |
| P03 | – | P03 | ◎ | ● | ◎ | ALT | Outdoor discharge (TD1) temperature trouble | Outdoor discharge temperature sensor (TD1) has detected abnormally high temperature. |
| P04 | 01: Compressor 1<br>02: Compressor 2 | P04 | ◎ | ● | ◎ | ALT | Activation of high-pressure SW | High-pressure SW is activated. |
| P05 | 00: Power detection trouble<br>01: Open phase | P05 | ◎ | ● | ◎ | ALT | Power detection trouble /Open phase detection | Open phase is detected when power is turned on. |
| P07 | 00 : Compressor 1 or 2 heat sink trouble<br>01 : Compressor 1 heat sink trouble<br>02 : Compressor 2 heat sink trouble | P07 | ◎ | ● | ◎ | ALT | Heat sink overheating trouble | Temperature sensor built into IPM (TH) detects overheating. |
| | 04: Heat sink dewing | | | | | | Heat sink dewing trouble | Outdoor liquid temperature sensor (TL2) has detected abnormally low temperature. |
| P10 | Indoor unit No. detected | (P10) | ● | ◎ | ◎ | ALT | Indoor unit overflow | Indoor unit has been shutdown in one refrigerant line due to detection of overflow (detected by indoor unit). |
| P11 | – | P11 | ● | ◎ | ◎ | ALT | Outdoor heat exchanger freeze trouble | Remaining frost on outdoor heat exchanger has been detected repeatedly. |
| P13 | – | P13 | ● | ◎ | ◎ | ALT | Outdoor liquid backflow detection trouble | State of refrigerant cycle circuit indicates liquid backflow operation. |
| P14 | 01: Outdoor unit valve is close | P14 | ● | ◎ | ◎ | ALT | Another refrigerant cycle protection | Outdoor unit valve is forget to open during test run. |
| P15 | 01: TS condition<br>02: TD condition | P15 | ◎ | ● | ◎ | ALT | Gas leak detection | Outdoor suction temperature sensor (TS1) detects sustained and repeated high temperatures that exceed standard value. |
| P17 | – | P17 | ◎ | ● | ◎ | ALT | Outdoor discharge (TD2) temperature trouble | Outdoor discharge temperature sensor (TD2) detects abnormally high temperature. |
| P19 | Outdoor unit No. detected | P19 | ◎ | ● | ◎ | ALT | 4-way valve reversing trouble | Abnormality in refrigerating cycle is detected during heating operation. |
| P20 | – | P20 | ◎ | ● | ◎ | ALT | Activation of high-pressure protection | High pressure (Pd) sensor detects high pressure that exceeds standard value. |

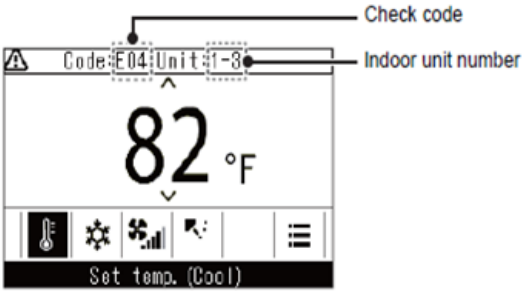
(Check code detected by Inverter of Compressor featuring in outdoor unit - typical examples)

| Check code | | Central control or main remote controller display | Display of receiving unit | | | | Typical problem site | Description of Check code |
|---|---|---|---|---|---|---|---|---|
| Outdoor 7-segment display | | | Indicator light block | | | | | |
| | Sub-code | | Operation | Timer | Ready | Flash | | |
| F13 | 1∗: Compressor 1<br>2∗: Compressor 2 | F13 | ◎ | ◎ | ○ | ALT | Trouble in temperature sensor built into indoor IPM (TH) | Temperature sensor built into indoor IPM (TH) has been open/short-circuited. |
| H01 | 1∗: Compressor 1<br>2∗: Compressor 2 | H01 | ● | ◎ | ● | | Compressor breakdown | Inverter current (Idc) detection circuit detects overcurrent. |
| H02 | 1∗: Compressor 1<br>2∗: Compressor 2 | H02 | ● | ◎ | ● | | Compressor trouble (lockup) | Compressor lockup is detected |
| H03 | 1∗: Compressor 1<br>2∗: Compressor 2 | H03 | ● | ◎ | ● | | Current detection circuit trouble | Abnormal current is detected while inverter compressor is turned off. |
| H17 | 1∗: Compressor 1<br>2∗: Compressor 2 | H17 | ● | ◎ | ● | | Compressor trouble (Step out) | Compressor is in step-out condition. |
| H28 | 1∗: Compressor 1<br>2∗: Compressor 2 | H28 | ● | ◎ | ● | | Compressor motor winding trouble | Compressor motor winding is layer shorted. |
| P05 | 1∗: Compressor 1 side<br>2∗: Compressor 2 side | P05 | ◎ | ● | ◎ | ALT | Compressor Vdc trouble | Inverter DC voltage is too high (overvoltage) or too low (undervoltage). |
| P07 | 1∗: Compressor 1 side<br>2∗: Compressor 2 side | P07 | ◎ | ● | ◎ | ALT | Heat sink overheat trouble | Temperature sensor built into IPM (TH) detects overheating. |
| P22 | 1∗: Fan P.C. board 1<br>2∗: Fan P.C. board 2 | P22 | ◎ | ● | ◎ | ALT | Outdoor fan P.C. board trouble | Outdoor fan P.C. board detects trouble. |
| P25 | 1∗: Compressor 1<br>2∗: Compressor 2 | P25 | ◎ | ● | ◎ | ALT | Compressor P.C.board trouble | IPM for compressor is broken. (short-circuit etc.) |
| P26 | 1∗: Compressor 1<br>2∗: Compressor 2 | P26 | ◎ | ● | ◎ | ALT | Compressor start up trouble | Open phase or IPM overcurrent for compressor is detected. |
| P29 | 1∗: Compressor 1<br>2∗: Compressor 2 | P29 | ◎ | ● | ◎ | ALT | Compressor position detection circuit trouble | Compressor motor position detection trouble is detected. |

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

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

### ■ Confirm and check




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

* The check code is only displayed during the operation.

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


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

Push [ Menu] to display "Model information".

### ■ Contact information for repairs

You can look for contact information for repairs.


***1*** **In the “Information” screen, push [ ] and [ ] to select “Service information”, and then push [ Set/Fix]**

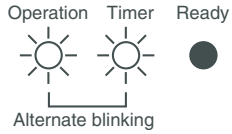
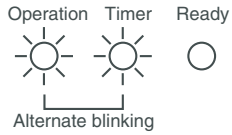
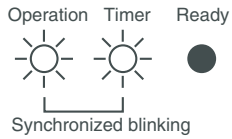
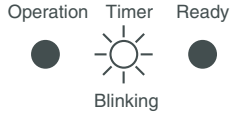
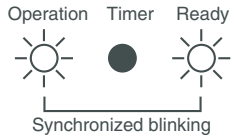
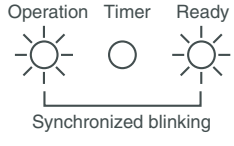
## Using indoor unit indicators (receiving unit light block) (wireless type)

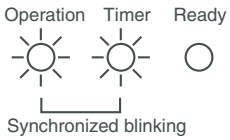
To identify the check code, check the 7-segment display on the header unit. To check for check codes not displayed on the 7-segment display, consult the “List of Check Codes (Indoor Unit)” in “8-2. Troubleshooting method”.

● : Goes off ○ : Lighting ☼ : Blinking (0.5 seconds)

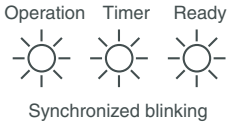
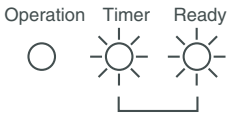
| Light block | Check code | Cause of trouble | | |
|---|---|---|---|---|
| Operation ● Timer ● Ready ● All lights out | – | Power turned off or trouble in wiring between receiving and indoor units | | |
| Operation ● Timer ● Ready ☼ Blinking | E01 | Trouble reception | Receiving unit | Trouble or poor contact in wiring between receiving unit and indoor units |
| | E02 | Trouble transmission | | |
| | E03 | Loss of communication | | |
| | E08 | Duplicated indoor unit No. (address) | | Setting trouble |
| | E09 | Duplicated master remote controller | | |
| | E10 | Communication trouble between indoor unit MCU | | |
| | E11 | Communication trouble between Application control kit and indoor unit P.C. board | | |
| | E12 | Automatic address starting trouble | | |
| | E18 | Trouble or poor contact in wiring between indoor units, indoor power turned off | | |
| Operation ● Timer ● Ready ☼ Blinking | E04 | Trouble or poor contact in wiring between indoor and outdoor units (loss of indoor-outdoor communication) | | |
| | E06 | Trouble reception in indoor-outdoor communication (dropping out of indoor unit) | | |
| | E07 | Trouble transmission in indoor-outdoor communication | | |
| | E15 | Indoor unit not found during automatic address setting | | |
| | E16 | Too many indoor units connected / overloading | | |
| | E19 | Trouble in number of outdoor header units | | |
| | E20 | Detection of refrigerant piping communication trouble during automatic address setting | | |
| | E23 | Trouble transmission in outdoor-outdoor communication | | |
| | E25 | Duplicated follower outdoor address | | |
| | E26 | Trouble reception in outdoor-outdoor communication, dropping out of outdoor unit | | |
| | E28 | Outdoor follower unit trouble | | |
| | E31 | P.C. board communication trouble | | |
| Operation ● Timer ☼ Ready ☼ Alternate blinking | P01 | Indoor AC fan trouble | | |
| | P10 | Indoor overflow trouble | | |
| | P11 | Outdoor heat exchanger freezing trouble | | |
| | P12 | Indoor DC fan trouble | | |
| | P13 | Outdoor liquid backflow detection trouble | | |
| | P14 | Outdoor unit valve is closed | | |
| Operation ☼ Timer ● Ready ☼ Alternate blinking | P03 | Outdoor discharge (TD1) temperature trouble | | |
| | P04 | Activation of outdoor high-pressure SW | | |
| | P05 | Open phase / power failure<br>Inverter DC voltage (Vdc) trouble<br>MG-CTT trouble | | |
| | P07 | Outdoor heat sink overheating trouble - Poor cooling of electrical component (IGBT) of outdoor unit | | |
| | P15 | Gas leak detection - insufficient refrigerant charging | | |
| | P17 | Outdoor discharge (TD2) temperature trouble | | |
| | P18 | Outdoor discharge (TD3) temperature trouble | | |
| | P19 | Outdoor 4-way valve reversing trouble | | |
| | P20 | Activation of high-pressure protection | | |
| | P22 | Outdoor fan P.C. board trouble | | |
| | P25 | Compressor P.C. board trouble | | |
| | P26 | Compressor trouble / Wire connection trouble<br>Compressor leads trouble<br>Compressor P.C.board trouble | | |
| | P29 | Compressor position detection circuit trouble | | |
| | P31 | Shutdown of other indoor unit in group due to trouble (group follower unit trouble) | | |

MG-CTT: Magnet contactor

| Light block | Check code | Cause of trouble | |
|---|---|---|---|
|  | F01 | Heat exchanger temperature sensor (TCJ) trouble | Indoor unit temperature sensor trouble |
| | F02 | Heat exchanger temperature sensor (TC2) trouble | |
| | F03 | Heat exchanger temperature sensor (TC1) trouble | |
| | F10 | Ambient temperature sensor (TA/TSA) trouble | |
| | F11 | Discharge temperature sensor (TF) trouble | |
|  | F04 | Discharge temperature sensor (TD1) trouble | Outdoor unit temperature sensor trouble |
| | F05 | Discharge temperature sensor (TD2) trouble | |
| | F06 | Heat exchanger temperature sensor (TE1, TE2, TE3) trouble | |
| | F07 | Liquid temperature sensor (TL1, TL2, TL3) trouble | |
| | F08 | Outside air temperature sensor (TO) trouble | |
| | F09 | Heat exchanger gas side temperature sensor (TG1, TG2, TG3) trouble | |
| | F12 | Suction temperature sensor (TS1, TS3) trouble | |
| | F13 | Heat sink sensor (TH) trouble | |
| | F15 | Wiring trouble in heat exchanger sensor (TE1) and liquid temperature sensor (TL)<br>Outdoor unit temperature sensor wiring / installation trouble | |
| | F16 | Wiring trouble in outdoor high pressure sensor (Pd) and low pressure sensor (Ps)<br>Outdoor pressure sensor wiring trouble | |
| | F23 | Low pressure sensor (Ps) trouble | Outdoor unit pressure sensor trouble |
| | F24 | High pressure sensor (Pd) trouble | |
|  | F29 | Trouble in indoor EEPROM | |
|  | H01 | Compressor breakdown | Outdoor unit compressor related trouble |
| | H02 | Compressor lockup | |
| | H03 | Current detection circuit trouble | |
| | H05 | Wiring / installation trouble or detachment of outdoor discharge temperature sensor (TD1) | |
| | H06 | Abnormal drop in low-pressure sensor (Ps) reading | Protective shutdown of outdoor unit |
| | H07 | Abnormal drop in oil level | |
| | H08 | Trouble in temperature sensor for oil level detection circuit (TK1, TK2) | |
| | H15 | Wiring / installation trouble or detachment of outdoor discharge temperature sensor (TD2) | |
| | H16 | Oil level detection circuit trouble - Trouble in outdoor unit TK1, TK2 circuit | |
| | H17 | Compressor trouble (Step-out) | |
| | H28 | Compressor motor winding trouble | |
|  | L02 | Outdoor unit model mismatched trouble | |
| | L03 | Duplicated indoor group header unit | |
| | L05 | Duplicated priority indoor unit (as displayed on priority indoor unit) | |
| | L06 | Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit) | |
| | L07 | Connection of group control cable to stand-alone indoor unit | |
| | L08 | Indoor group address not set | |
| | L09 | Indoor capacity not set | |
|  | L04 | Duplicated outdoor refrigerant line address | |
| | L10 | Outdoor capacity not set | |
| | L17 | Outdoor model incompatibility trouble | |
| | L20 | Duplicated central control address | |
| | L23 | SW setting trouble | |
| | L28 | Too many outdoor units connected | |
| | L29 | Trouble in number of P.C. boards | |
| | L30 | Indoor external interlock trouble | |

| Light block | Check code | Cause of trouble |
|---|---|---|
|  | F30 | Occupancy sensor trouble |
| | F31 | Outdoor EEPROM trouble |

## Other (indications not involving check code)

| Light block | Check code | Cause of trouble |
|---|---|---|
|  | – | Test run in progress |
|  | – | Setting incompatibility<br>(automatic cooling / heating setting for model incapable of it and heating setting for cooling-only model) |

## 8-4. Check Codes list

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

| Check code | | | Location of detection | Description | System status | Check code detection condition(s) | Check items (locations) |
|---|---|---|---|---|---|---|---|
| Controller | Outdoor 7-segment display | | | | | | |
| | Check code | Sub-code | | | | | |
| C05 | — | | Central control device | Central control device transmission trouble | Continued operation | Central control device is unable to transmit signal. | • Check for failure in central control device.<br>• Check for failure in central control communication line.<br>• Check termination resistance setting. |
| C06 | — | | Central control device | Central control device reception trouble | Continued operation | Central control device is unable to receive signal. | • Check for failure in central control device.<br>• Check for failure in central control communication line.<br>• Check terminator resistor setting.<br>• Check power supply for devices at other end of central control communication line.<br>• Check failure in P.C. boards of devices at other end of central control communication line. |
| C12 | — | | General-purpose device I/F | Batch alarm for general-purpose device control interface | Continued operation | Trouble signal is input to control interface for general-purpose devices. | • Check trouble input. |
| E01 | — | — | Remote controller | Indoor-remote controller communication trouble (detected at remote controller end) | Stop of corresponding unit | Communication between indoor P.C. board and remote controller is disrupted. | • Check remote controller inter-unit tie cable (A/B).<br>• Check for broken wire or connector bad contact.<br>• Check indoor power supply.<br>• Check for failure in indoor P.C. board.<br>• Check remote controller address settings (when two remote controllers are in use).<br>• Check remote controller P.C. board. |
| E02 | — | — | Remote controller | Remote controller transmission trouble | Stop of corresponding unit | Signal cannot be transmitted from remote controller to indoor unit. | • Check internal transmission circuit of remote controller.<br>--- Replace remote controller as necessary. |
| E03 | — | — | Indoor unit | Indoor-remote controller communication trouble (detected at indoor end) | Stop of corresponding unit | There is no communication from remote controller (including wireless) or network adaptor. | • Check remote controller and network adaptor wiring. |
| E04 | — | — | Indoor unit | Indoor-outdoor communication circuit trouble (detected at indoor end) | Stop of corresponding unit | Indoor unit is not receiving signal from outdoor unit. | • Check order in which power was turned on for indoor and outdoor units.<br>• Check indoor address setting.<br>• Check indoor-outdoor tie cable.<br>• Check outdoor terminator resistor setting (SW100, Bit 2). |

| Check code | | | Location of detection | Description | System status | Check code detection condition(s) | Check items (locations) |
|---|---|---|---|---|---|---|---|
| Controller | Outdoor 7-segment display | | | | | | |
| | Check code | Sub-code | | | | | |
| E04 | E06 | No. of indoor units from which signal is received normally | I/F | Dropping out of indoor unit | All stop | **Condition 1**<br>All indoor unit initially communicating normally fails to return signal for specified length of time.<br>**Condition 2**<br>Outdoor I / F board SW103, Bit4 : OFF (Factory default) | • Check power supply to indoor unit. (Is power turned on?)<br>• Check connection of indoor-outdoor communication cable.<br>• Check connection of communication connectors on indoor P.C. board.<br>• Check connection of communication connectors on outdoor P.C. board.<br>• Check for failure in indoor P.C. board.<br>• Check for failure in outdoor P.C. board (I/F). |
| | — | — | Indoor unit | Indoor-outdoor communication circuit trouble | Only specified indoor units stop | **Condition 1**<br>Indoor unit initially communicating normally fails to return signal for specified length of time. | • Check power supply to indoor unit. (Is power turned on?)<br>• Check indoor-outdoor power-on sequence.<br>• Check indoor address setting<br>• Check wiring of Indoor-outdoor communication wires<br>• Check outdoor terminator resistor setting (SW100, Bit 2). |
| E04/E06 | E06 | No. of indoor units from which signal is received normally | Indoor unit | Indoor-outdoor communication circuit trouble (E04) | All stop | One indoor unit or more initially communicating normally fails to return signal for specified length of time. (detected when power is turned on) | • Check power supply to indoor unit. (Is power turned on?)<br>• Check indoor-outdoor power-on sequence.<br>• Check indoor address setting<br>• Check wiring of Indoor-outdoor communication wires<br>• Check outdoor terminator resistor setting (SW100, Bit 2). |
| | | | I/F | Dropping out of indoor unit (E06) | | Display on main remote controller.<br>Indoor units unavailable for indoor / outdoor communication. :E04<br>Indoor units available for indoor / outdoor communication. : E06<br>Communication system, if the termination resistance is not set in any of the indoor units. | • Check power supply to indoor unit. (Is power turned on?)<br>• Check connection of indoor-outdoor communication cable.<br>• Check connection of communication connectors on indoor P.C. board.<br>• Check connection of communication connectors on outdoor P.C. board.<br>• Check for failure in indoor P.C. board.<br>• Check for failure in outdoor P.C. board (I/F). |
| — | E07 | — | I/F | Indoor-outdoor communication circuit trouble (detected at outdoor end) | All stop | Signal cannot be transmitted from outdoor to indoor units for 30 seconds continuously. | • Check outdoor terminator resistor setting (SW100, Bit 2).<br>• Check connection of indoor-outdoor communication circuit. |
| E08 | E08 | Duplicated indoor address | Indoor unit I/F | Duplicated indoor address | All stop | More than one indoor unit are assigned same address. | • Check indoor addresses.<br>• Check for any change made to remote controller connection (group/ individual) since indoor address setting. |

| Check code | | | Location of detection | Description | System status | Check code detection condition(s) | Check items (locations) |
|---|---|---|---|---|---|---|---|
| Controller | Outdoor 7-segment display | | | | | | |
| | Check code | Sub-code | | | | | |
| E09 | — | — | Remote controller | Duplicated master remote controller | Stop of corresponding unit | In two remote controller configuration (including wireless), both controllers are set up as master. (Header indoor unit is shut down with alarm, while follower indoor units continue operating.) | • Check remote controller settings.<br>• Check remote controller P.C. boards. |
| E10 | — | — | Indoor unit | Indoor inter-MCU communication trouble | Stop of corresponding unit | Communication cannot be established/maintained upon turning on of power or during communication. | • Check for failure in indoor P.C. board |
| E12 | E12 | 01: Indoor-outdoor communication<br>02: Outdoor-outdoor communication | I/F | Automatic address starting trouble | All stop | • Indoor automatic address setting is started while automatic address setting for equipment in other refrigerant line is in progress.<br>• Outdoor automatic address setting is started while automatic address setting for indoor units is in progress. | • Check whether the outdoor unit of other systems or the indoor unit is connected to Uv (U1/U2) line or Uc (U5/U6) line.<br>• Perform automatic address setting again after disconnecting communication cable to that refrigerant line. |
| E15 | E15 | — | I/F | Indoor unit not found during automatic address setting | All stop | Indoor unit cannot be detected after indoor automatic address setting is started. | • Check connection of indoor-outdoor communication line.<br>• Check for trouble in indoor power supply system.<br>• Check for noise from other devices.<br>• Check for power failure.<br>• Check for failure in indoor P.C. board. |
| E16 | E16 | 00: Capacity over<br>01-: No. of units connected | I/F | Too many indoor units connected | All stop | • Combined capacity of indoor units is too large.<br>**Note:**<br>**If this code comes up after backup setting for outdoor unit failure is performed, perform "No capacity over detected" setting.**<br><"No capacity over detected" setting method><br>Turn on SW103 / Bit 3 on I/F P.C. board of outdoor header unit.<br>For Cooling Only model, this check code is not displayed even if it exceeds the combined capacity of indoor units.<br>• More than 128 indoor units are connected. | • Check capacities of indoor units connected.<br>• Check total capacity of indoor units.<br>• Check capacity settings of outdoor units.<br>• Check No. of indoor units connected.<br>• Check for failure in outdoor P.C. board (I/F). |
| E18 | — | — | Indoor unit | Trouble in communication between indoor header and follower units | Stop of corresponding unit | Periodic communication between indoor header and follower units cannot be maintained. | • Check remote controller wiring.<br>• Check indoor power supply wiring.<br>• Check P.C. boards of indoor units. |
| E19 | E19 | 00: No header unit<br>02: Two or more header units | I/F | Trouble in number of outdoor header units | All stop | • There are more than one outdoor header units in one line.<br>• There is no outdoor header unit in one line. | The outdoor unit which turned on SW101 and the bit 1 of the interface P.C. board is set to Header unit.<br>• Check SW101 bit 1 of follower outdoor unit.<br>• Check connection of indoor-outdoor communication line.<br>• Check for failure in outdoor P.C. board (I/F). |
| E20 | E20 | 01: Connection of outdoor unit from other line<br>02: Connection of indoor unit from other line | I/F | Connection to other line found during automatic address setting | All stop | Equipment from other line is found to have been connected when indoor automatic address setting is in progress. | Check whether the outdoor unit of other systems or the indoor unit is connected to Uv (U1/U2) line or Uc (U5/U6) line. |

<table>
<tr><th colspan="3">Check code</th><th rowspan="2">Location of detection</th><th rowspan="2">Description</th><th rowspan="2">System status</th><th rowspan="2">Check code detection condition(s)</th><th rowspan="2">Check items (locations)</th></tr>
<tr><th rowspan="2">Controller</th><th colspan="2">Outdoor 7-segment display</th></tr>
<tr><th>Check code</th><th>Sub-code</th></tr>
<tr><td>E23</td><td>E23</td><td>—</td><td>I/F</td><td>Outdooroutdoor communication transmission trouble</td><td>All stop</td><td>Signal cannot be transmitted to other outdoor units for at least 30 seconds continuously.</td><td>• Check power supply to outdoor units. (Is power turned on?)<br>• Check connection of tie cables between outdoor units for bad contact or broken wire.<br>• Check communication connectors on outdoor P.C. boards.<br>• Check for failure in outdoor P.C. board (I/F).<br>• Check termination resistance setting for communication between outdoor units.</td></tr>
<tr><td>E25</td><td>E25</td><td>—</td><td>I/F</td><td>Duplicated follower outdoor address</td><td>All stop</td><td>There is duplication in outdoor addresses set manually.</td><td>Note:<br>Do not set outdoor addresses manually.</td></tr>
<tr><td>E26</td><td>E26</td><td>Address of outdoor unit from which signal is not received normally</td><td>I/F</td><td>Signal lack of outdoor unit</td><td>All stop</td><td>Outdoor unit initially communicating normally fails to return signal for specified length of time.</td><td>• Backup setting is being used for outdoor units.<br>• Check power supply to outdoor unit. (Is power turned on?)<br>• Check connection of tie cables between outdoor units for bad contact or broken wire.<br>• Check communication connectors on outdoor P.C. boards.<br>• Check for failure in outdoor P.C. board (I/F).</td></tr>
<tr><td>The check code which occurred follower outdoor unit is displayed</td><td>E28</td><td>Detected outdoor unit No.</td><td>I/F</td><td>Outdoor follower unit trouble</td><td>All stop</td><td>Outdoor header unit receives trouble code from outdoor follower unit.</td><td>• Check check code displayed on outdoor follower unit.<br><Convenient functions><br>If SW04 is pushed and held for at least 1 second while [E28] is displayed on the 7-segment display of outdoor header unit, the fan of the outdoor unit that has been shut down due to an trouble comes on.<br>If SW04 and SW05 are pushed simultaneously, the fans of normal outdoor units come on.<br>To stop the fan or fans, push SW05 on its own.</td></tr>
<tr><td rowspan="2">E31</td><td rowspan="2">E31</td><td>
<table>
<tr><th></th><th colspan="4">P.C.board</th></tr>
<tr><th></th><th colspan="2">Compressor</th><th colspan="2">Fan Motor</th></tr>
<tr><th></th><th>1</th><th>2</th><th>1</th><th>2</th></tr>
<tr><td>01</td><td>O</td><td></td><td></td><td></td></tr>
<tr><td>02</td><td></td><td>O</td><td></td><td></td></tr>
<tr><td>03</td><td>O</td><td>O</td><td></td><td></td></tr>
<tr><td>08</td><td></td><td></td><td>O</td><td></td></tr>
<tr><td>09</td><td>O</td><td></td><td>O</td><td></td></tr>
<tr><td>0A</td><td></td><td>O</td><td>O</td><td></td></tr>
<tr><td>0B</td><td>O</td><td>O</td><td>O</td><td></td></tr>
<tr><td>10</td><td></td><td></td><td></td><td>O</td></tr>
<tr><td>11</td><td>O</td><td></td><td></td><td>O</td></tr>
<tr><td>12</td><td></td><td>O</td><td></td><td>O</td></tr>
<tr><td>13</td><td>O</td><td>O</td><td></td><td>O</td></tr>
<tr><td>18</td><td></td><td></td><td>O</td><td>O</td></tr>
<tr><td>19</td><td>O</td><td></td><td>O</td><td>O</td></tr>
<tr><td>1A</td><td></td><td>O</td><td>O</td><td>O</td></tr>
<tr><td>1B</td><td>O</td><td>O</td><td>O</td><td>O</td></tr>
</table>
Circle (O): Trouble P.C. board</td><td>I/F</td><td>P.C. board communication trouble</td><td>All stop</td><td>Communication is disrupted between P.C. board in inverter box.</td><td>• Check wiring and connectors involved in communication between P.C. board I/F P.C. board for bad contact or broken wire.<br>• Check for failure in outdoor P.C. board (I/F, comp. P.C. board or Fan P.C. board).<br>• Check for external noise.</td></tr>
<tr><td>80</td><td></td><td>Communication trouble between MCU and Sub MCU</td><td>All stop</td><td>Communication between MCU and Sub MCU stopped.</td><td>• Operation of power supply reset (OFF for 60 seconds or more)<br>• Outdoor I/F PC board trouble check</td></tr>
</table>

| Check code | | | Location of detection | Description | System status | Check code detection condition(s) | Check items (locations) |
|---|---|---|---|---|---|---|---|
| Controller | Outdoor 7-segment display | | | | | | |
| | Check code | Sub-code | | | | | |
| F01 | — | — | Indoor unit | Indoor TCJ sensor trouble | Stop of corresponding unit | Sensor resistance is infinity or zero (open/short circuit). | • Check connection of TCJ sensor connector and wiring.<br>• Check resistance characteristics of TCJ sensor.<br>• Check for failure in indoor P.C. board. |
| F02 | — | — | Indoor unit | Indoor TC2 sensor trouble | Stop of corresponding unit | Sensor resistance is infinity or zero (open/short circuit). | • Check connection of TC2 sensor connector and wiring.<br>• Check resistance characteristics of TC2 sensor.<br>• Check for failure in indoor P.C. board. |
| F03 | — | — | Indoor unit | Indoor TC1 sensor trouble | Stop of corresponding unit | Sensor resistance is infinity or zero (open/short circuit). | • Check connection of TC1 sensor connector and wiring.<br>• Check resistance characteristics of TC1 sensor.<br>• Check for failure in indoor P.C. board. |
| F04 | F04 | — | I/F | TD1 sensor trouble | All stop | Sensor resistance is infinity or zero (open/short circuit). | • Check connection of TD1 sensor connector.<br>• Check resistance characteristics of TD1 sensor.<br>• Check for failure in outdoor P.C. board (I/F). |
| F05 | F05 | — | I/F | TD2 sensor trouble | All stop | Sensor resistance is infinity or zero (open/short circuit). | • Check connection of TD2 sensor connector.<br>• Check resistance characteristics of TD2 sensor.<br>• Check for failure in outdoor P.C. board (I/F). |
| F06 | F06 | 01: TE1 sensor trouble<br>02: TE2 sensor trouble<br>03: TE3 sensor trouble | I/F | TE1/TE2/TE3 sensor trouble | All stop | Sensor resistance is infinity or zero (open/short circuit). | • Check connection of TE1/TE2/TE3 sensor connectors.<br>• Check resistance characteristics of TE1/TE2/TE3 sensors.<br>• Check for failure in outdoor P.C. board (I/F). |
| F07 | F07 | 01: TL1 sensor trouble<br>02: TL2 sensor trouble<br>03: TL3 sensor trouble | I/F | TL1/TL2/TL3 sensor trouble | All stop | Sensor resistance is infinity or zero (open/short circuit). | • Check connection of TL1/TL2/TL3 sensor connector.<br>• Check resistance characteristics of TL1/TL2/TL3 sensor.<br>• Check for failure in outdoor P.C. board (I/F). |
| F08 | F08 | — | I/F | TO sensor trouble | All stop | Sensor resistance is infinity or zero (open/short circuit). | • Check connection of TO sensor connector.<br>• Check resistance characteristics of TO sensor.<br>• Check for failure in outdoor P.C. board (I/F). |
| F09 | F09 | 01: TG1 sensor trouble<br>02: TG2 sensor trouble<br>03: TG3 sensor trouble | I/F | TG1/TG2/TG3 sensor trouble | All stop | Sensor resistance is infinity or zero (open/short circuit). | • Check connection of TG1/TG2/TG3 sensor connectors.<br>• Check resistance characteristics of TG1/TG2/TG3 sensors.<br>• Check for failure in outdoor P.C. board (I/F). |
| F10 | — | — | Indoor unit | Indoor TA sensor trouble | Stop of corresponding unit | Sensor resistance is infinity or zero (open/short circuit). | • Check connection of TA sensor connector and wiring.<br>• Check resistance characteristics of TA sensor.<br>• Check for failure in indoor P.C. board. |

| Check code | | | Location of detection | Description | System status | Check code detection condition(s) | Check items (locations) |
|---|---|---|---|---|---|---|---|
| Controller | Outdoor 7-segment display | | | | | | |
| | Check code | Sub-code | | | | | |
| F11 | — | — | Indoor unit | Indoor TF sensor trouble | Stop of corresponding unit | Sensor resistance is infinity or zero (open/short circuit). | • Check connection of TF sensor connector and wiring.<br>• Check resistance characteristics of TF sensor.<br>• Check for failure in indoor P.C. board. |
| F12 | F12 | 01: TS1 sensor trouble<br>03: TS3 sensor trouble<br>04: TS3 sensor disconnect | I/F | TS1/TS3 sensor trouble | All stop | • Sensor resistance is infinity or zero (open/short circuit).<br>• When TS3 detects an unusual temperature during compressor operation and PMV4 operation in cooling mode. | • Check connection of TS1/TS3 sensor connector<br>• Check resistance characteristics of TS1/TS3 sensor.<br>• The attachment check of TS3 sensor.<br>• Check for failure in indoor P.C. board. |
| F13 | F13 | 1∗: Compressor 1 side<br>2∗: Compressor 2 side | Compressor P.C. board | TH sensor trouble | All stop | Sensor resistance is infinity or zero (open/short circuit). | • Failure in IPM built-in temperature sensor<br>→ Replace Compressor P.C. board. |
| F15 | F15 | — | I/F | Outdoor temperature sensor wiring trouble (TE1, TL1) | All stop | During compressor operation in HEAT mode, TL1 continuously provides temperature reading higher than indicated by TL1 by at least specified margin for 3 minutes or more. | • Check installation of TE1 and TL1 sensors.<br>• Check resistance characteristics of TE1 and TL1 sensors.<br>• Check for outdoor P.C. board (I/F) trouble |
| F16 | F16 | — | I/F | Outdoor pressure sensor wiring trouble (Pd, Ps) | All stop | Readings of high-pressure Pd sensor and low-pressure Ps sensor are switched.<br>Output voltages of both sensors are zero. | • Check connection of high-pressure Pd sensor connector.<br>• Check connection of low-pressure Ps sensor connector.<br>• Check for failure in pressure sensors Pd and Ps.<br>• Check for trouble in outdoor P.C. board (I/F).<br>• Check for compressor poor compression. |
| F23 | F23 | — | I/F | Ps sensor trouble | All stop | Output voltage of Ps sensor is zero. | • Check for connection trouble involving Ps sensor and Pd sensor connectors.<br>• Check connection of Ps sensor connector.<br>• Check for failure in Ps sensor.<br>• Check for compressor poor compression.<br>• Check for failure in 4-way valve.<br>• Check for failure in outdoor P.C. board (I/F).<br>• Check for failure in SV4 circuit. |
| F24 | F24 | — | I/F | Pd sensor trouble | All stop | Output voltage of Pd sensor is zero (sensor open-circuited).<br>Pd > 4.15MPa despite compressor having been turned off. | • Check connection of Pd sensor connector.<br>• Check for failure in Pd sensor.<br>• Check for failure in outdoor P.C. board (I/F). |
| F29 | — | — | Indoor unit | Other indoor trouble | Stop of corresponding unit | Indoor P.C. board does not operate normally. | • Check for failure in indoor P.C. board (failure EEPROM) |
| F31 | F31 | — | I/F | Outdoor EEPROM trouble | All stop *1 | Outdoor P.C. board (I/F) does not operate normally. | • Check power supply voltage.<br>• Check power supply noise.<br>• Check for failure in outdoor P.C. board (I/F). |

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

| Check code | | | Location of detection | Description | System status | Check code detection condition(s) | Check items (locations) |
|---|---|---|---|---|---|---|---|
| Controller | Outdoor 7-segment display | | | | | | |
| | Check code | Sub-code | | | | | |
| H01 | H01 | 1∗: Compressor 1 side<br>2∗: Compressor 2 side | Compressor P.C. board | Compressor breakdown | All stop | Inverter current detection circuit detects overcurrent and shuts system down. | • Check power supply voltage. (208-230V ± 10%).<br>• Check for failure in compressor.<br>• Check for possible cause of abnormal overloading.<br>• Check for failure in outdoor P.C. board (Compressor). |
| H02 | H02 | 1∗: Compressor 1 side<br>2∗: Compressor 2 side | Compressor P.C. board | Compressor trouble (lockup)<br>MG-CTT trouble | All stop | Overcurrent is detected several seconds after startup of inverter compressor. | • Check for failure in compressor.<br>• Check compressor system wiring, particularly for open phase.<br>• Check connection of connectors/terminals on compressor P.C. board.<br>• Check conductivity of case heater.<br>(Check for refrigerant problem inside compressor.) |
| H03 | H03 | 1∗: Compressor 1 side<br>2∗: Compressor 2 side | Compressor P.C. board | Current detection circuit trouble | All stop | Current flow of at least specified magnitude is detected despite inverter compressor having been shut turned off. | • Check current detection circuit wiring.<br>• Check failure in outdoor P.C. board (Compressor). |
| H05 | H05 | — | I/F | TD1 sensor miswiring (incomplete insertion) | All stop | Discharge temperature of compressor 1 (TD1) does not increase despite compressor being in operation. | • Check installation of TD1 sensor.<br>• Check connection of TD1 sensor connector and wiring.<br>• Check resistance characteristics of TD1 sensor.<br>• Check for failure in outdoor P.C. board (I/F). |
| H06 | H06 | — | I/F | Activation of low-pressure protection | All stop | Low-pressure Ps sensor detects operating pressure lower than 0.02MPa. | • Check service valves to confirm full opening (both gas and liquid sides).<br>• Check outdoor PMVs for clogging (PMV1, 2, 3).<br>• Check for failure in SV4 circuits.<br>• Check for failure in low-pressure Ps sensor.<br>• Check indoor filter for clogging.<br>• Check valve opening status of indoor PMV.<br>• Check refrigerant piping for clogging.<br>• Check operation of outdoor fan (during heating).<br>• Check for insufficiency in refrigerant quantity. |
| H07 | H07 | — | I/F | Low oil level protection | All stop | Operating compressor detects continuous state of low oil level for about 2 hours. | <All outdoor units in corresponding line to be checked><br>• Check connection and installation of TK1 and TK2 sensors.<br>• Check resistance characteristics of TK1 and TK2 sensors.<br>• Check for gas or oil leak in same line.<br>• Check for refrigerant problem inside compressor casing.<br>• Check SV3D, SV3F valves for failure.<br>• Check oil return circuit of oil separator for clogging.<br>• Check oil equalizing circuit for clogging. |

| Check code | | | Location of detection | Description | System status | Check code detection condition(s) | Check items (locations) |
|---|---|---|---|---|---|---|---|
| Controller | Outdoor 7-segment display | | | | | | |
| | Check code | Sub-code | | | | | |
| H08 | H08 | 01: TK1 sensor trouble<br>02: TK2 sensor trouble | I/F | Trouble in temperature sensor for oil level detection | All stop | Sensor resistance is infinity or zero (open/short circuit). | • Check connection of TK1 sensor connector.<br>• Check resistance characteristics of TK1 sensor.<br>• Check for failure in outdoor P.C. board (I/F). |
| | | | | | All stop | Sensor resistance is infinity or zero (open/short circuit). | • Check connection of TK2 sensor connector.<br>• Check resistance characteristics of TK2 sensor.<br>• Check for failure in outdoor P.C. board (I/F). |
| H15 | H15 | — | I/F | TD2 sensor miswiring (incomplete insertion) | All stop | Discharge temperature of (TD2) does not increase despite compressor 2 being in operation. | • Check installation of TD2 sensor.<br>• Check connection of TD2 sensor connector and wiring.<br>• Check resistance characteristics of TD2 sensor.<br>• Check for failure in outdoor P.C. board (I/F). |
| H16 | H16 | 01: TK1 oil circuit trouble<br>02: TK2 oil circuit trouble | I/F | Oil level detection circuit trouble | All stop | No temperature change is detected by TK1 despite compressor 1 having been started. | • Check for disconnection of TK1 sensor.<br>• Check resistance characteristics of TK1 sensor.<br>• Check for connection trouble involving TK1 and TK2 sensors<br>• Check for clogging in oil equalizing circuit capillary.<br>• Check for refrigerant entrapment inside compressor. |
| | | | | | | No temperature change is detected by TK2 despite compressor 2 having been started. | • Check for disconnection of TK2 sensor.<br>• Check resistance characteristics of TK2 sensor.<br>• Check for connection trouble involving TK1 and TK2 sensors<br>• Check SV3F valve malfunction.<br>• Check for clogging in oil equalizing circuit capillary.<br>• Check for refrigerant entrapment inside compressor. |
| H17 | H17 | 1∗: Compressor 1 side<br>2∗: Compressor 2 side | Compressor P.C. board | Compressor trouble (Step-out) | All stop | Compressor is in step-out condition. | • Check power supply voltage.(208-230V ± 10%).<br>• Check for failure in compressor.<br>• Check for possible cause of abnormal overloading.<br>• Check for failure in outdoor P.C. board (compressor). |
| H28 | H28 | 1∗: Compressor 1 side<br>2∗: Compressor 2 side | Compressor P.C. board | Compressor motor winding trouble | All stop | Abnormal compressor current is detected | • Check for failure in compressor.<br>• Check connection of connectors/terminals on compressor and compressor P.C.board<br>• Check winding resistance between phases of compressor. |
| L02 | L02 | Detected indoor unit address | Indoor unit | Outdoor units model disagreement trouble | Stop of corresponding unit | In case of different outdoor unit (Not corresponded to Air to Air Heat Exchanger type) | • Check outdoor unit model. (Check whether the outdoor unit corresponds to Air to Air Heat Exchanger type or not.) |
| L03 | — | — | Indoor unit | Duplicated indoor header unit | Stop of corresponding unit | There are more than one header units in group. | • Check indoor addresses.<br>• Check for any change made to remote controller connection (group/ individual) since indoor address setting. |
| L04 | L04 | — | I/F | Duplicated outdoor line address | All stop | There is duplication in line address setting for outdoor units belonging to different refrigerant piping systems. | • Check line addresses. |

| Check code | | | Location of detection | Description | System status | Check code detection condition(s) | Check items (locations) |
|---|---|---|---|---|---|---|---|
| Controller | Outdoor 7-segment display | | | | | | |
| | Check code | Sub-code | | | | | |
| L05 | — | — | I/F | Duplicated priority indoor unit (as displayed on priority indoor unit) | All stop | More than one indoor units have been set up as priority indoor unit. | • Check display on priority indoor unit. |
| L06 | L06 | No. of priority indoor units | I/F | Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit) | All stop | More than one indoor units have been set up as priority indoor unit. | • Check displays on priority indoor unit and outdoor unit. |
| L07 | — | — | Indoor unit | Connection of group control cable to standalone indoor unit | Stop of corresponding unit | There is at least one standalone indoor unit to which group control cable is connected. | • Check indoor addresses. |
| L08 | L08 | — | Indoor unit | Indoor group / addresses not set | Stop of corresponding unit | Address setting has not been performed for indoor units. | • Check indoor addresses.<br>**Note:**<br>**This code is displayed when power is turned on for the first time after installation.** |
| L09 | — | — | Indoor unit | Indoor capacity not set | Stop of corresponding unit | Capacity setting has not been performed for indoor unit. | Set indoor capacity. (DN = 11) |
| L10 | L10 | — | I/F | Outdoor capacity not set | All stop | Initial setting of I/F P.C. board has not been implemented. | • Check model setting of P.C. board for servicing outdoor I/F P.C. board. |
| L17 | L17 | — | I/F | Outdoor model incompatibility trouble | All stop | Outdoor unit that cannot be connected is connected. | • Check the model name of the outdoor unit. |
| L20 | — | — | Network adaptor Indoor unit | Duplicated central control address | All stop | There is duplication in central control address setting. | • Check central control addresses. |
| L23 | — | — | I/F | SW setting trouble | All stop | Outdoor P.C. board (I/F) does not operate normally. | • Check switch setting of outdoor P.C. board (I/F). |
| L28 | L28 | — | I/F | Too many outdoor units connected | All stop | There are more than 5 outdoor units. | • Check No. of outdoor units connected (Only up to 5 units per system allowed).<br>• Check communication lines between outdoor units.<br>• Check for failure in outdoor P.C. board (I/F). |
| L29 | L29 | P.C.board / Compressor / Fan Motor / 1 / 2 / 1 / 2<br>01 O<br>02 O<br>03 O O<br>08 O<br>09 O O<br>0A O O<br>0B O O O<br>10 O<br>11 O O<br>12 O O<br>13 O O O<br>18 O O<br>19 O O O<br>1A O O O<br>1B O O O O<br>Circle (O): Trouble P.C. board | I/F | Trouble in No. of P.C. board | All stop | Insufficient number of P.C. board are detected when power is turned on. | • Check model setting of P.C. board for servicing outdoor I/F P.C. board.<br>• Check connection of UART communication connector.<br>• Check compressor P.C. board, fan P.C. board, and I/F P.C. board for failure. |
| | | 00 | I/F | The number of inverter P.C. boards is abnormal. | All stop | When there is much number of an inverter P.C. board to model setting of an interface P.C. board. | • Check I/F P.C. board exchange has been correctly performed as a procedure.<br>• Check for failure in I/F P.C. board.<br>• Check for inverter P.C. board for compressors and inverter P.C. board for fan |

| Check code | | | Location of detection | Description | System status | Check code detection condition(s) | Check items (locations) |
|---|---|---|---|---|---|---|---|
| Controller | Outdoor 7-segment display | | | | | | |
| | Check code | Sub-code | | | | | |
| L30 | L30 | Detected indoor address | Indoor unit | Indoor external interlock (External abnormal input) | Stop of corresponding unit | • Indoor unit has been shut down due to external abnormal input signal. | **When external device is connected:**<br>1) Check for trouble in external device.<br>2) Check for trouble in indoor P.C. board.<br>**When external device is not connected:**<br>1) Check for trouble in indoor P.C. board. |
| — | L31 | — | I/F | Extended IC trouble | Continued operation | There is part failure in P.C. board (I/F). | Check outdoor P.C. board (I/F). |
| P01 | — | — | Indoor unit | Indoor fan motor trouble | Stop of corresponding unit | | • Check the lock of fan motor (AC fan).<br>• Check wiring. |
| P03 | P03 | — | I/F | Discharge temperature TD1 trouble | All stop | Discharge temperature (TD1) exceeds 239˚F(115˚C). | • Check outdoor service valves (gas side, liquid side) to confirm full opening.<br>• Check outdoor PMVs (PMV1, 2, 3, 4) for clogging.<br>• Check resistance characteristics of TD1 sensor.<br>• Check for insufficiency in refrigerant quantity.<br>• Check for failure in 4-way valve.<br>• Check for leakage of SV4 circuit.<br>• Check SV4 circuit (wiring or installation trouble in SV41 or SV42). |
| P04 | P04 | 01: Compressor 1 side<br>02: Compressor 2 side | I/F | Activation of high-pressure SW | All stop | High-pressure SW is activated. | • Check connection of high-pressure SW connector.<br>• Check for failure in Pd pressure sensor.<br>• Check outdoor service valves (gas side, liquid side) to confirm full opening.<br>• Check for failure in outdoor fan.<br>• Check for failure in outdoor fan motor.<br>• Check outdoor PMVs (PMV1, 2, 3) for clogging.<br>• Check indoor/outdoor heat exchangers for clogging.<br>• Check for short-circuiting of outdoor suction/discharge air flows.<br>• Check for failure in outdoor P.C. board (I/F).<br>• Check for trouble in indoor fan system (possible cause of air flow reduction).<br>• Check opening status of indoor PMV.<br>• Check indoor-outdoor communication line for wiring trouble.<br>• Check for failure operation of check valve in discharge pipe convergent section.<br>• Check gas balancing SV4 valve circuit.<br>• Check for refrigerant overcharging. |
| P05 | P05 | 00: Power detection trouble<br>01: Open phase | I/F | Power detection trouble / Open phase detection | All stop | • Open phase is detected when power is turned on. | • Check for failure in outdoor P.C. board (I/F).<br>• Check wiring of outdoor power supply.<br>• Check power supply voltage. |
| | | 1∗: Compressor 1 side<br>2∗: Compressor 2 side | Compressor P.C. board | Compressor Vdc trouble | All stop | • Inverter DC voltage is too high (over voltage) or too low (under voltage). | |

| Check code | | | Location of detection | Description | System status | Check code detection condition(s) | Check items (locations) |
|---|---|---|---|---|---|---|---|
| Controller | Outdoor 7-segment display | | | | | | |
| | Check code | Sub-code | | | | | |
| P07 | P07 | 1∗: Compressor 1 side<br>2∗: Compressor 2 side | Compressor P.C. board | Heat sink overheating trouble | All stop | Temperature sensor built into IPM (TH) is overheated. | • Check outdoor fan system trouble.<br>• Check IPM and heat sink for thermal performance for failure installation. (e.g. mounting screws and thermal conductivity)<br>• Check for failure in Compressor P.C. board. (failure IPM built-in temperature sensor (TH)) |
| | | 01: Compressor 1 heat sink trouble<br>02: Compressor 2 heat sink trouble<br>04: Heat sink dewing | I/F | Heat sink overheating trouble<br>Heat sink dewing trouble | All stop | Condensation detection on heat sink has occurred four times or more in operation.<br>Temperature sensor built into IPM (TH) is overheated. | • Check outdoor fan system trouble.<br>• Check IPM and heat sink for thermal performance for troubled installation. (e. g. mounting screws and thermal conductivity)<br>• Check for failure in compressor P.C. board. (failure IPM built-in temperature sensor (TH))<br>• Check shortage of refrigerant.<br>• Check outdoor service valves.<br>• Check connection of TL2 sensor.<br>• Check resistance characteristics of TL2 sensor.<br>• Check resistance characteristics of TO sensor.<br>• Check malfunctions of Pd and Ps sensors.<br>• Check outdoor I/F P.C. board malfunction.<br>• Check PMV2 and PMV3.<br>• Check refrigerant stagnation. |
| P10 | P10 | Detected indoor address | Indoor unit | Indoor overflow trouble | All stop | • Float switch operates.<br>• Float switch circuit is open-circuited or disconnected at connector. | • Check float switch connector.<br>• Check operation of drain pump.<br>• Check drain pump circuit.<br>• Check drain pipe for clogging.<br>• Check for failure in indoor P.C. board. |
| P11 | — | — | I/F | Outdoor heat exchanger freeze trouble | All stop | • Outdoor heat exchanger remaining frost detection has occurred eight times or more due to abnormal frost formation in heating operation. | • Check shortage of refrigerant.<br>• Check connection of TE1, TE2 and TE3 sensors.<br>• Check resistance characteristics of TE1, TE2, and TE3 sensors.<br>• Check disconnection of TS1 sensor.<br>• Check resistance characteristics of TS1 sensor.<br>• Check outdoor I/F P.C. board malfunction.<br>• Check operation of 4 way valve.<br>• Check operation of outdoor PMV (1, 2, 3).<br>• Check short circuit from outlet air to inlet air. |
| P12 | — | — | Indoor unit | Indoor fan motor trouble | Stop of corresponding unit | • Motor speed measurements continuously deviate from target value.<br>• Overcurrent protection is activated. | • Check connection of fan connector and wiring.<br>• Check for failure in fan motor.<br>• Check for failure in indoor P.C. board.<br>• Check impact of outside air treatment (OA). |

| Check code | | | Location of detection | Description | System status | Check code detection condition(s) | Check items (locations) |
|---|---|---|---|---|---|---|---|
| Controller | Outdoor 7-segment display | | | | | | |
| | Check code | Sub-code | | | | | |
| P13 | P13 | — | I/F | Outdoor liquid backflow detection trouble | All stop | <During cooling operation><br>When system is in cooling operation, high pressure is detected in the unit that has been turned off.<br><br><During heating operation><br>When system is in heating operation, low pressure is detected to be high in unit that has been turned off. | • Check full-close operation of outdoor PMV (1, 2, 3, 4).<br>• Check for failure in Pd or Ps sensor.<br>• Check failure in outdoor P.C. board (I/F).<br>• Check capillary of oil separator oil return circuit for clogging.<br>• Check for leakage of check valve in discharge pipe |
| P14 | P14 | 01: Outdoor unit valve is closed | I/F | Another refrigerant cycle protection | All stop | Outdoor unit valve is forgotten to open during test run. | • Check service valves to confirm full opening. (both gas and liquid sides)<br>• Check connection indoor-outdoor unit communication cable.<br>• Check indoor unit sensor and PMV.<br>• Check for broken or clogging at refrigerant piping. |
| P15 | P15 | 01: TS condition | I/F | Gas leak detection (TS1 condition) | All stop | Protective shutdown due to sustained suction temperature at or above judgment criterion for at least 10 minutes is repeated four times or more.<br><TS trouble judgment criterion><br>In cooling operation:<br>140˚F(60˚C)<br>In heating operation:<br>104˚F(40˚C) | • Check for insufficiency in refrigerant quantity.<br>• Check outdoor service valves (gas side, liquid side) to confirm full opening.<br>• Check PMVs (PMV1, 2, 3, 4) for clogging.<br>• Check resistance characteristics of TS1 sensor.<br>• Check for failure in 4-way valve.<br>• Check SV4 circuit for leakage |
| | | 02: TD condition | I/F | Gas leak detection (TD condition) | All stop | Protective shutdown due to sustained discharge temperature (TD1 or TD2) at or above 226.4˚F(108˚C) for at least 10 minutes is repeated four times or more. | • Check for insufficiency in refrigerant quantity.<br>• Check PMVs (PMV 1, 2, 3, 4) for clogging.<br>• Check resistance characteristics of TD1 and TD2 sensors.<br>• Check indoor filter for clogging.<br>• Check piping for clogging.<br>• Check SV4 circuit (for leakage or coil installation trouble). |
| P17 | P17 | — | I/F | Discharge temperature TD2 trouble | All stop | Discharge temperature (TD2) exceeds 239˚F(115˚C) | • Check outdoor service valves (gas side, liquid side) to confirm full opening.<br>• Check outdoor PMVs (PMV1, 2, 3, 4) for clogging.<br>• Check resistance characteristics of TD2 sensor.<br>• Check for failure in 4-way valve.<br>• Check SV4 circuit for leakage.<br>• Check SV4 circuit (for wiring or installation trouble involving SV41 and SV42). |
| P19 | P19 | Detected outdoor unit No. | I/F | 4-way valve reversing trouble | All stop | Abnormal refrigerating cycle data is collected during heating operation. | • Check for failure in main body of 4-way valve.<br>• Check for coil failure in 4-way valve and loose connection of its connector.<br>• Check resistance characteristics of TS1 and TE1,TE2,TE3 sensors.<br>• Check output voltage characteristics of Pd and Ps pressure sensors.<br>• Check for wiring trouble involving TE1 and TL1 sensors. |

| Check code | | | Location of detection | Description | System status | Check code detection condition(s) | Check items (locations) |
|---|---|---|---|---|---|---|---|
| Controller | Outdoor 7-segment display | | | | | | |
| | Check code | Sub-code | | | | | |
| P20 | P20 | — | I/F | Activation of high-pressure protection | All stop | <During cooling operation><br>Pd sensor detects pressure equal to or greater than 3.85 MPa.<br><During heating operation><br>Pd sensor detects pressure equal to or greater than 3.6 MPa. | • Check for failure in Pd pressure sensor.<br>• Check service valves (gas side, liquid side) to confirm full opening.<br>• Check for failure in outdoor fan.<br>• Check for failure in outdoor fan motor.<br>• Check outdoor PMV (PMV1, 2, 3, 4) for clogging.<br>• Check indoor/outdoor heat exchangers for clogging.<br>• Check for short-circuiting of outdoor suction/ discharge air flows.<br>• Check for failure in outdoor P.C. board (I/F).<br>• Check for failure in indoor fan system (possible cause of air flow reduction).<br>• Check opening status of indoor PMV.<br>• Check indoor-outdoor communication line for wiring trouble.<br>• Check for troble operation of check valve in discharge pipe convergent section.<br>• Check gas balancing SV4 valve circuit.<br>• Check for refrigerant overcharging. |
| P22 | P22 | 1∗: Fan P.C. board 1<br>2∗: Fan P.C. board 2 | Fan INV. P.C. board | Outdoor fan P.C. board trouble | All stop | Protected operation of Fan inverter P.C. board | • Check fan motor.<br>• Check for failure in fan P.C. board.<br>• Check connection of fan motor connector.<br>• Check power voltage of the main power supply. |
| P25 | P25 | 1∗: Compressor 1 side<br>2∗: Compressor 2 side | Compressor P.C. board | Compressor P.C.board trouble | All stop | IPM short-circuit is detected | • Check connector connection and wiring on compressor P.C.board.<br>• Check for failure in compressor P.C.board. |
| P26 | P26 | 1∗: Compressor 1 side<br>2∗: Compressor 2 side | Compressor P.C. board | Compressor Start up trouble | All stop | Open phase or IPM overcurrent for compressor is detected. | • Check for failure in compressor.<br>• Check connection of connectors/terminals on compressor and compressor P.C.board.<br>• Check winding resistance between phases of compressor.<br>• Check for failure in compressor P.C.board. |
| P29 | P29 | 1∗: Compressor 1 side<br>2∗: Compressor 2 side | Compressor P.C. board | Compressor position detection circuit trouble | All stop | Position detection is not going on normally. | • Check wiring and connector connection.<br>• Check for compressor layer short-circuit.<br>• Check for failure in compressor P.C. board. |
| P30 | Differs according to nature of alarm-causing trouble | | Central control device | Group control follower unit trouble | Continued operation | Trouble occurs in follower unit under group control. ([P30] is displayed on central control remote controller.) | • Check check code of unit that has generated alarm. |
| | (L20 displayed.) | | | Duplicated central control address | Continued operation | There is duplication in central control addresses. | • Check address settings. |
| P31 | — | — | Indoor unit | Other indoor trouble (group follower unit trouble) | Stop of corresponding unit | There is trouble in other indoor unit in group, resulting in detection of E07/L07/L03/L08. | • Check indoor P.C. board. |
| S01 | — | — | Central control device | Central control device reception trouble | Continued operation | Central control device is unable to receive signal. | • Check for failure in central control device.<br>• Check for failure in central control communication line.<br>• Check terminator resistor setting.<br>• Check power supply for devices at other end of central control communication line.<br>• Check failure in P.C. boards of devices at other end of central control communication line. |

## ▼Points to Note When Servicing Compressor

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

## ▼How to Check Inverter Output

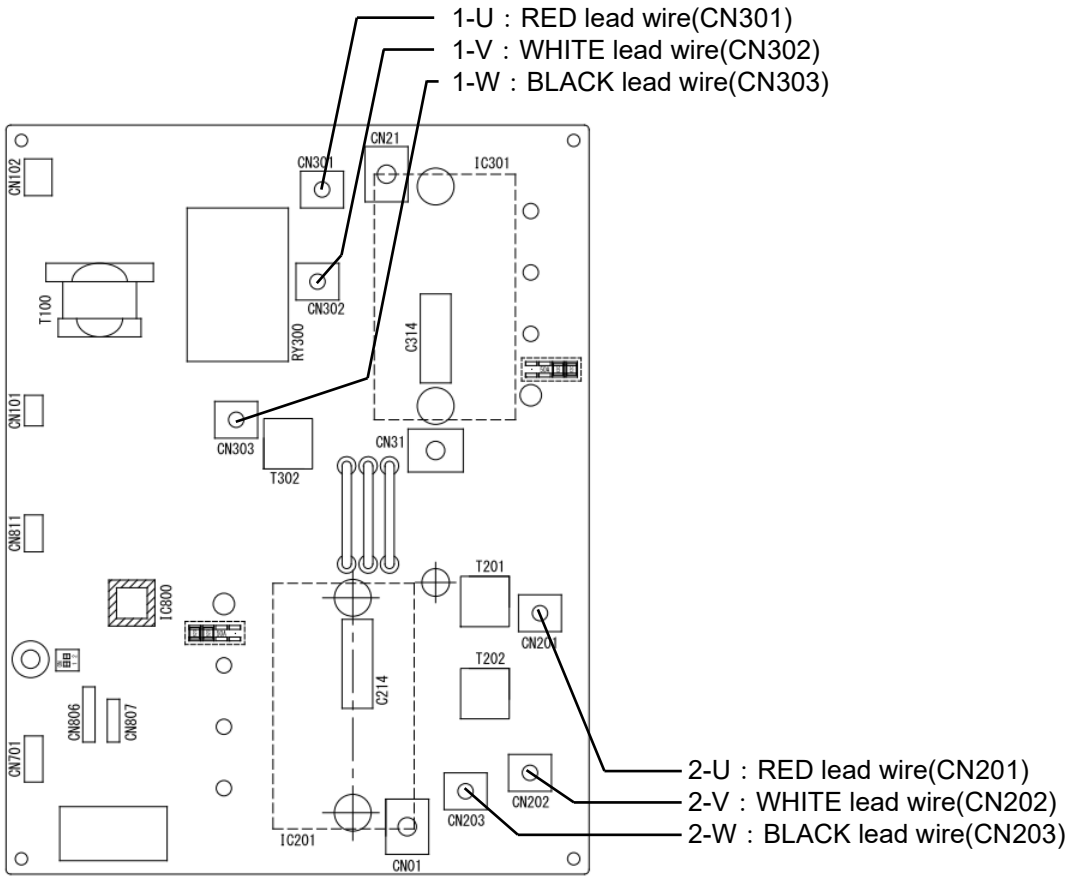
(1) Turn off the power supply.

(2) Remove compressor leads from the compressor P.C. board.

(3) Turn on the power supply and start cooling or heating operation.

(4) Check the output voltage across each pair of inverter-side. If the result is unsatisfactory according to the judgment criteria given in the table below, replace the compressor P.C. board.

| No. | Measured point | Criterion |
|---|---|---|
| 1 | CN201 – CN202 | 160V – 280V |
| 2 | CN202 – CN203 | 160V – 280V |
| 3 | CN203 – CN201 | 160V – 280V |
| 4 | CN301 – CN302 | 160V – 280V |
| 5 | CN302 – CN303 | 160V – 280V |
| 6 | CN303 – CN301 | 160V – 280V |

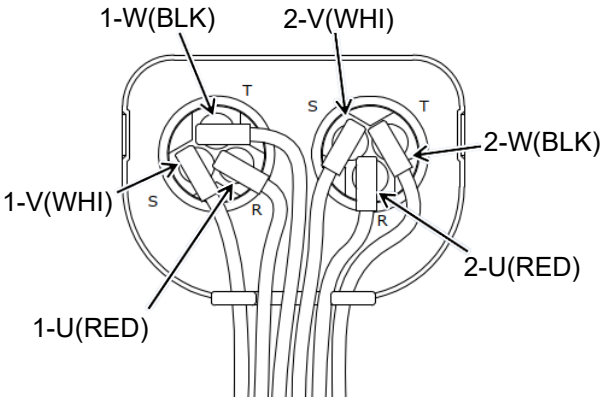


## ▼How to Check Resistance of Compressor Winding

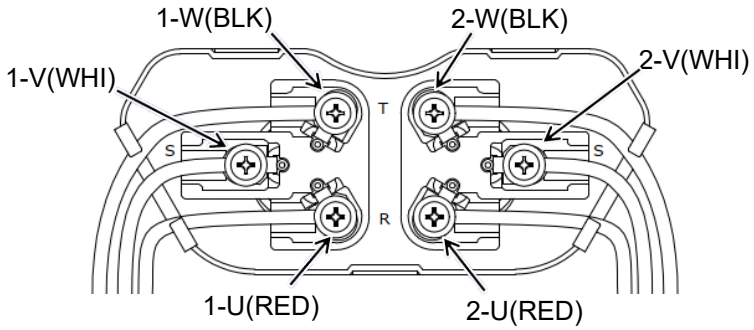
(1) Turn off the power supply.
(2) Remove compressor leads from the compressor P.C. board. (Be sure to remove all the leads.)
(3) With each compressor, check the phase-to-phase winding resistances and winding-to-outdoor cabinet resistance using a multimeter.
・Earth trouble?
→ It is normal if the winding-to-outdoor cabinet resistance is 10MΩ or more.
・Inter-winding short circuit?
→ Normal resistance between terminal to terminal (T-T, S-S, R-R) is below. (Use a mΩ multimeter)
NA772A3TB-21M：0.12Ω ± 5%
NA1201K4FB-10UC：0.10Ω ± 5%

Compressor side terminal position

＜NA772A3TB-21M＞




＜NA1201K4FB-10UC＞

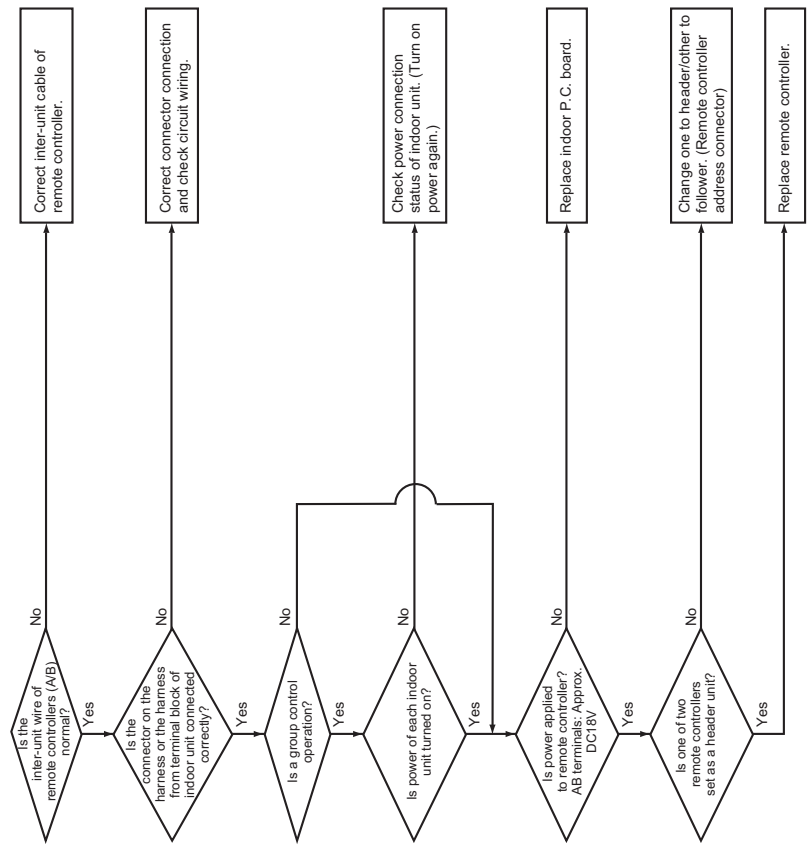



## ▼How to Check Resistance of Fan motor

(1) Turn off the power supply.
(2) Remove fan motor leads from the fan P.C. board for the outdoor fan.
(3) Rotate the fan by hand. If the fan does not turn, the fan motor is troubled (locked up). Replace the fan motor. If the fan turns, measure the phase-to-phase winding resistances using a multimeter. It is normal if the measurements are in the 3.0-3.7Ω range. (Use a digital multimeter.)

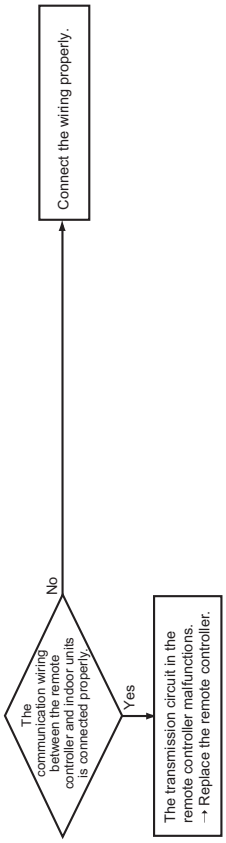
## 8-5. Diagnosis procedure for each check code

| Check code | Check code name | Cause |
|---|---|---|
| [E01] | Communication trouble between the indoor unit and remote controller (detected on the remote controller) | 1. Remote controller inter-unit wire trouble<br>2. Indoor power trouble<br>3. Indoor P.C. board trouble<br>4. Remote controller address setup trouble<br>5. Remote controller P.C. board trouble |




| Check code | Check code name | Cause |
|---|---|---|
| [E02] | Signal transmission trouble on the remote controller | Unable to send signals to indoor units |

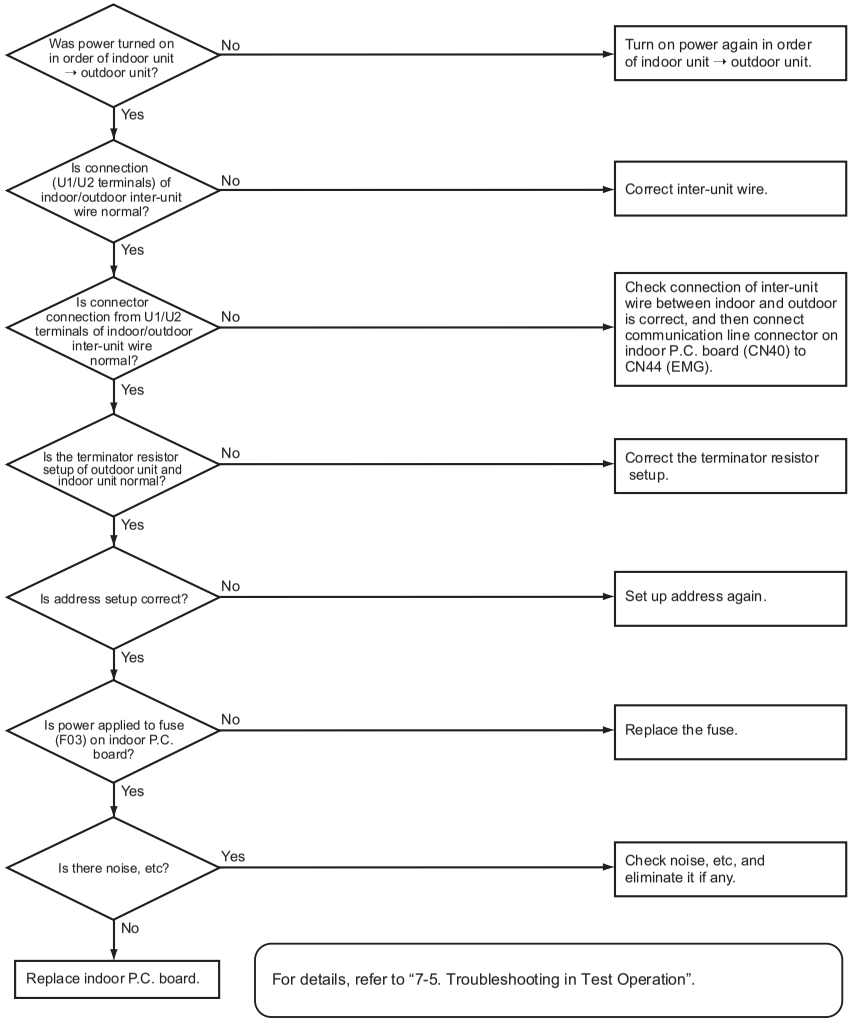
* The check code is not indicated on the central control device or the 7-segment indication on the outdoor unit.




| Check code | Check code name | Cause |
|---|---|---|
| [E03] | Communication trouble between the indoor unit and remote controller (detected on the indoor unit) | No communication from the remote controller/communication adapter |

The trouble is detected when the indoor unit cannot receive the signal from the wired remote controller.
Check the communication wiring from the remote controller A and B.
The check code [E03] is not indicated on the remote controller as its communication is down.
However, the code is indicated on the central controller.

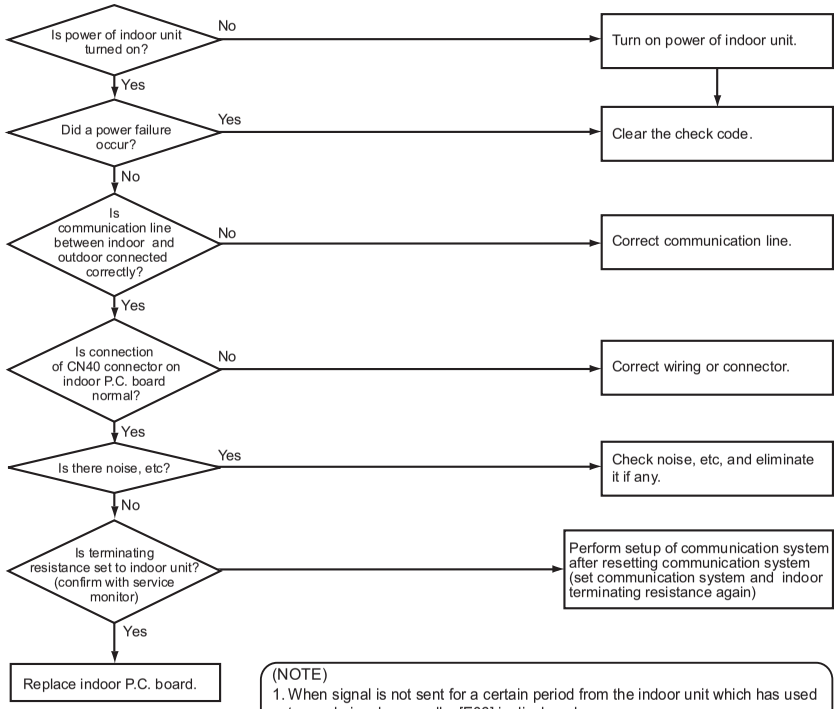
| Check code | Check code name | Cause |
|---|---|---|
| [E04] | Indoor/Outdoor communication circuit trouble (Detected at indoor side) | 1. Power of outdoor unit was firstly turned on.<br>2. Connection trouble of communication line between indoor and outdoor<br>3. Terminator resistor setup trouble on communication between indoor and outdoor<br>4. Address setup trouble |




For details, refer to “7-5. Troubleshooting in Test Operation”.

| Check code | Check code name | Cause |
|---|---|---|
| [E06] | Decreased number of indoor units | 1. Communication lines Uv (U1, U2) connection trouble between indoor and outdoor<br>2. Communication connector's connection trouble on indoor unit, trouble on P.C. board<br>3. Communication connector's connection trouble on outdoor unit, trouble on I/F board<br>4. Power supply of indoor unit (Is power turned on?)<br>5. Communication trouble with indoor unit with terminating resistance set |

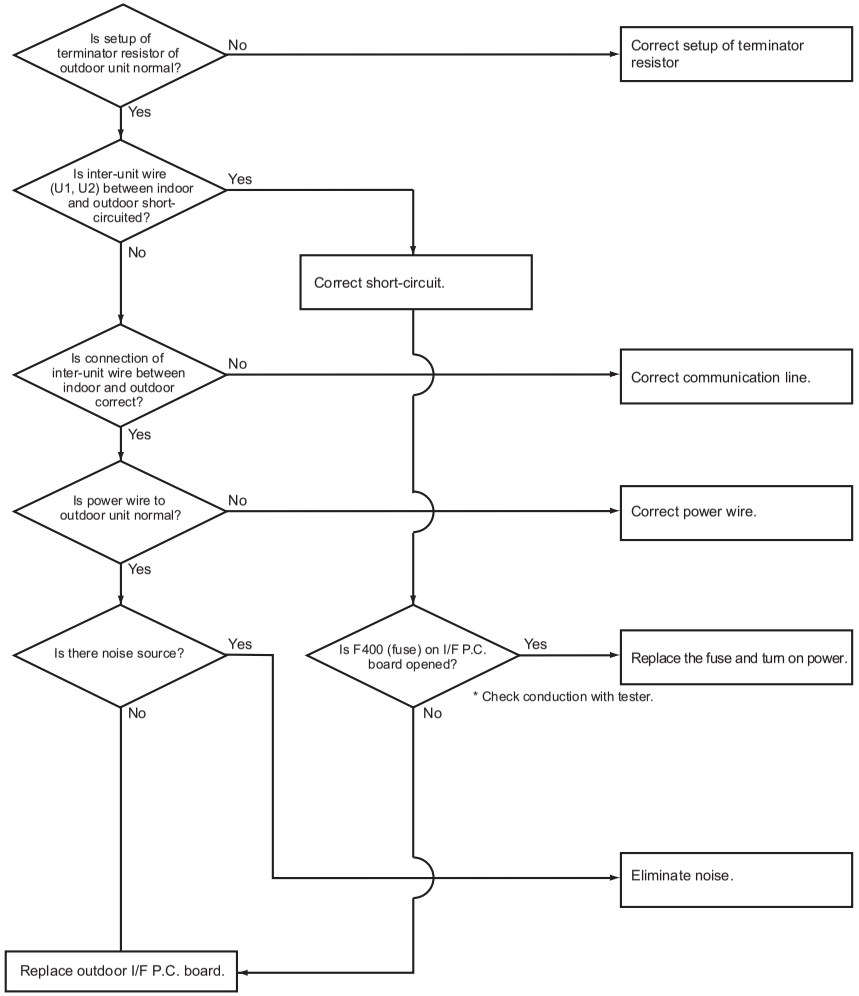
Sub-code: No. of indoor units which received signals normally




(NOTE)
1. When signal is not sent for a certain period from the indoor unit which has used to send signals normally, [E06] is displayed.
2. Address of indoor unit with terminating resistance set in system can be confirmed on service monitor of remote controller [B8]. [9999] is displayed in a case where no terminating resistance is set to any of the indoor units. See "7-7-11. Monitor Function of Remote Controller Switch" for confirmation method.

• If "E06" appears on check code display or 7-segment display when the number of IDUs (Indoor units) connected in the system has been reduced (In case of IDUs powering off, or removing or transporting the unit), confirm whether all IDUs are powered. If all the indoor units are powered, confirm the number of HWM units recorded on the I/F P.C.board. If the number of HWM units currently connected is lower than that of recorded HVM units, "E06" appears on the display. If the number of IDUs connected has been reduced, set rotary SW to 1-15-15 and push SW04 on I/F P.C.board 5 second or more and clear the number of IDUs recorded.
Finally, confirm that the number of IDUs recorded on I/F P.C.board is equal to that of IDUs currently connected. To confirm the number of IDUs recorded on the I/F P.C.board, refer to "8-6.7-Segment Display Function".

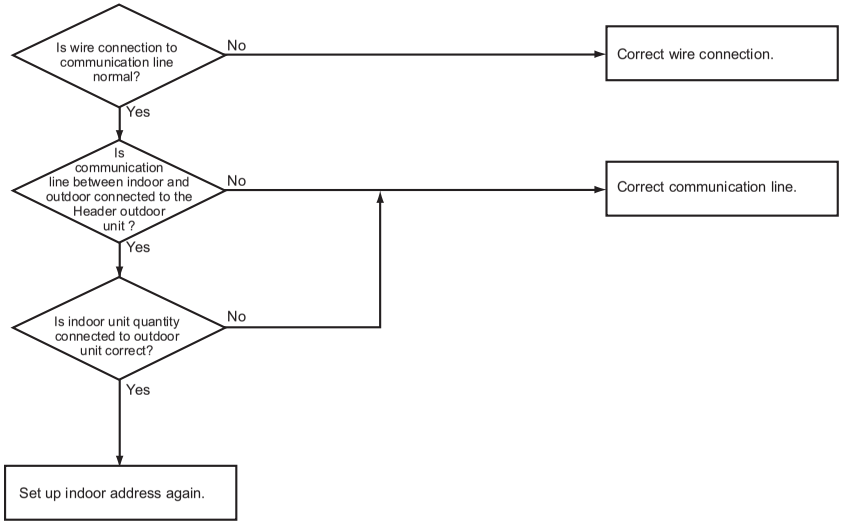
| Check code | Check code name | Cause |
|---|---|---|
| [E07] | Indoor/Outdoor communication circuit trouble (Detected at outdoor side) | 1. Indoor/outdoor communication terminator resistor setup trouble<br>2. Indoor/outdoor communication connection trouble |



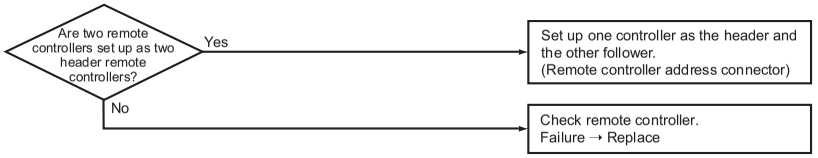

| Check code | Check code name | Cause |
|---|---|---|
| [E08] | Duplicated indoor addresses | Indoor addresses are duplicated. |

Sub-code: Duplicated indoor address

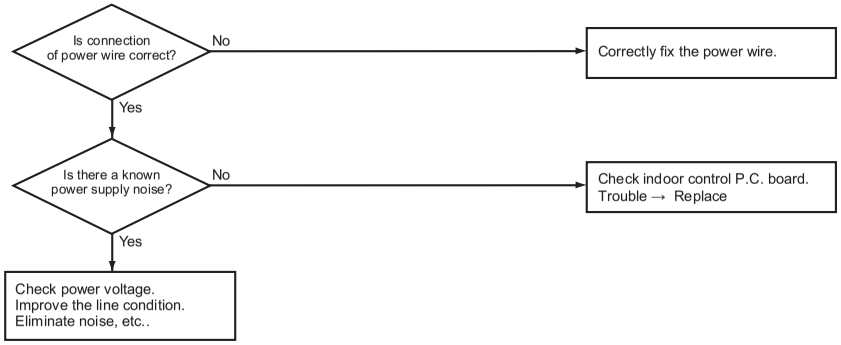
Using a wired remote controller check the setup CODE No. (DN code) 12, 13, and 14.
When there is no address duplication, check to the following flowchart.



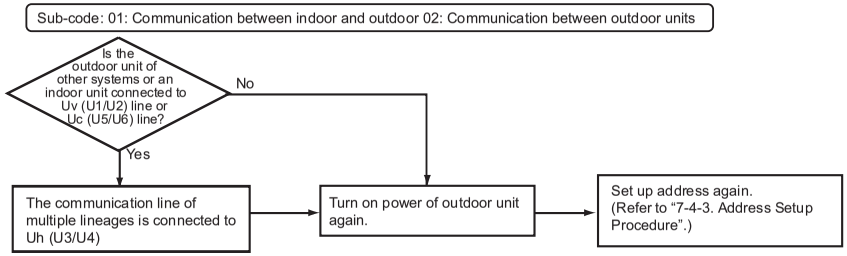
| Check code | Check code name | Cause |
|---|---|---|
| [E09] | Duplicated header remote controller | Setup of header remote controller is duplicated. |



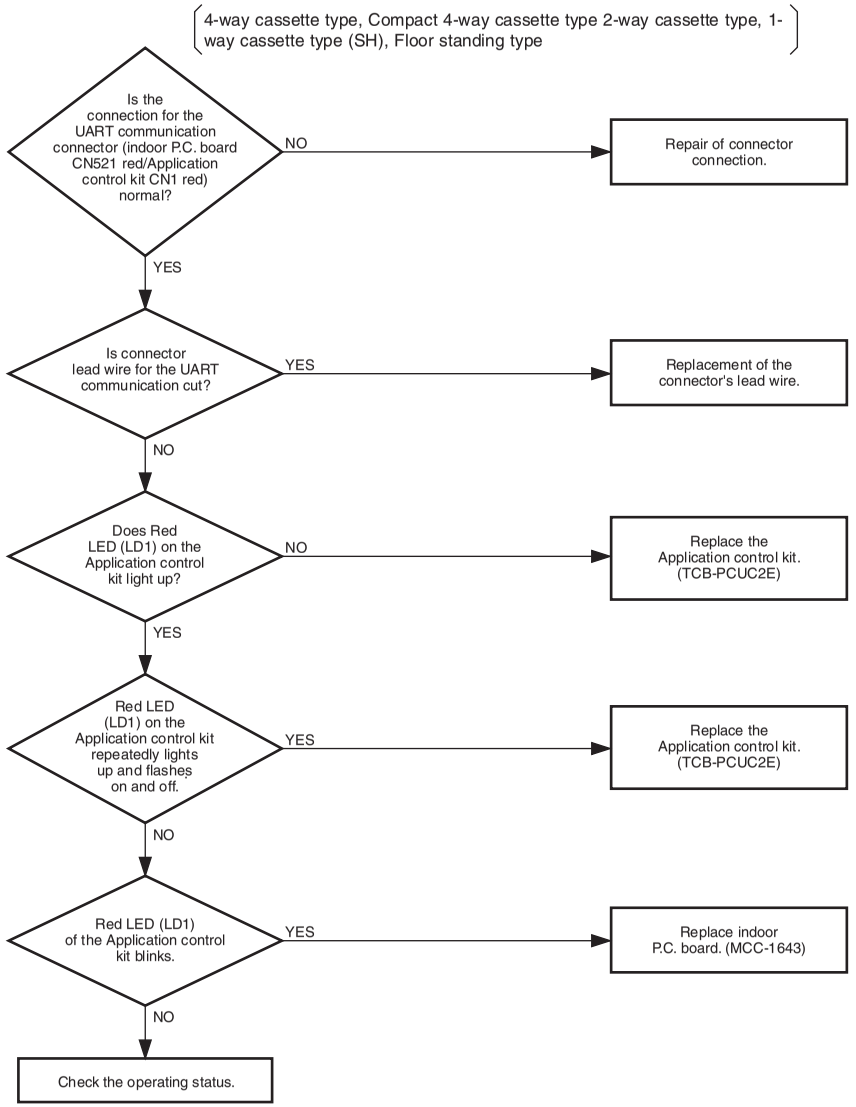

| Check code | Check code name | Cause |
|---|---|---|
| [E10] | Communication trouble between indoor MCUs. | Indoor P.C. board trouble. |




| Check code | Check code name | Cause |
|---|---|---|
| [E12] | Automatic address start trouble | 1. Starting automatic addressing of indoor units during automatic addressing in another refrigerant line. (Sub-code: 01)<br>2. Starting automatic addressing of outdoor units during automatic addressing of indoor units (Sub-code: 02) |

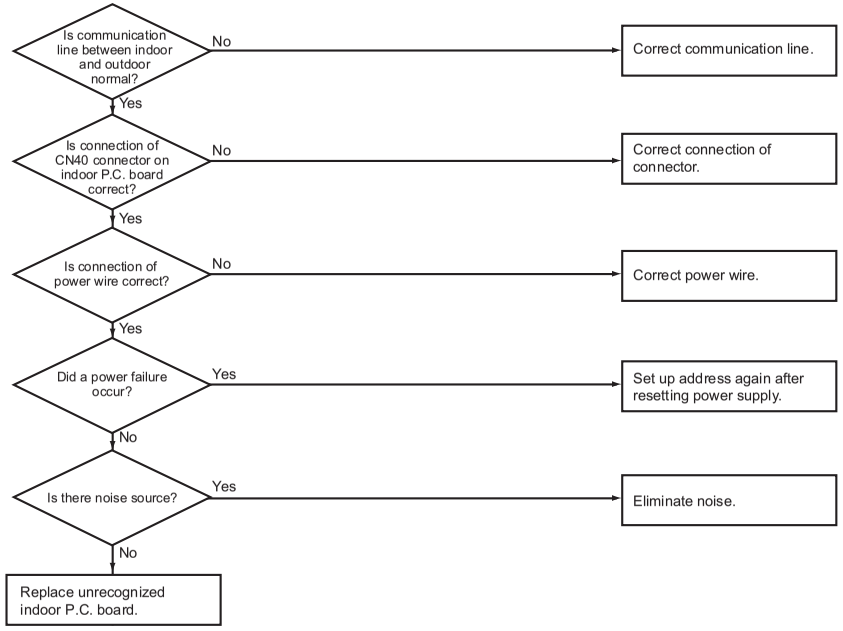



| Check code | Check code name | Cause |
|---|---|---|
| [E11] | Communication trouble between Application control kit and Indoor unit | 1.Application control kit trouble<br>2. Indoor P.C. board trouble |



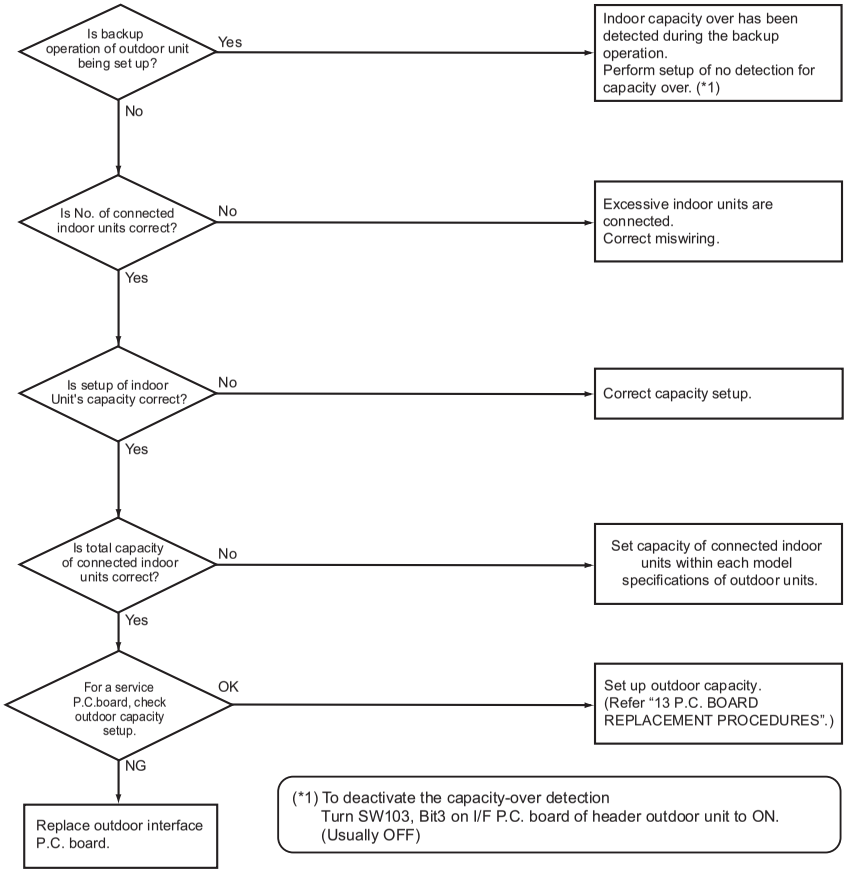
| Check code | Check code name | Cause |
|---|---|---|
| [E15] | No corresponding indoor unit during automatic address | 1. Communication line connection trouble between indoor and outdoor<br>2. Indoor power system trouble<br>3. Noise trouble from surrounding devices<br>4. Power failure<br>5. Indoor P.C. board trouble |

When a trouble occurs even if indoor unit addresses were set after power had been reset, check the following flowchart.



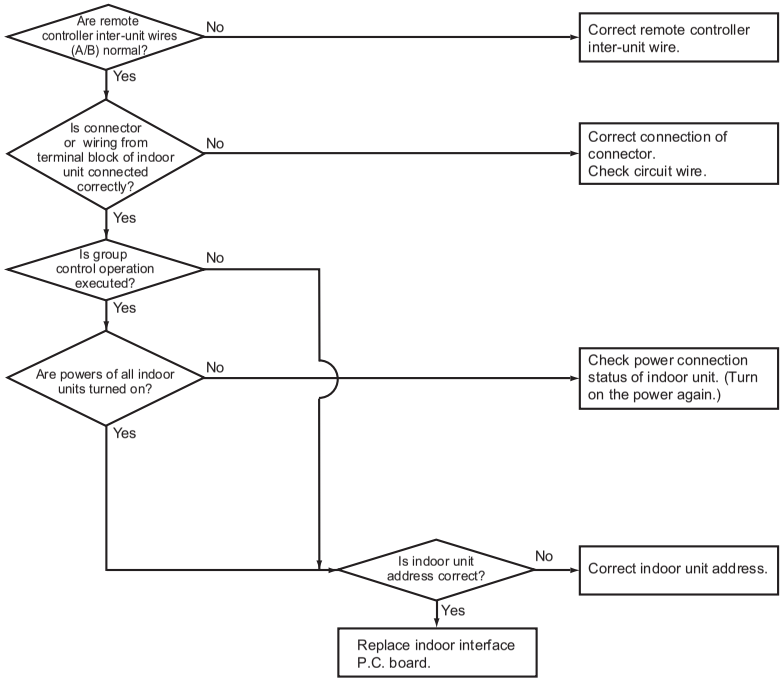

| Check code | Check code name | Cause |
|---|---|---|
| [E16] | Number/capacity of connected indoor units beyond the limit | 1. There are more than 128 connected indoor units.<br>2. Capacity over of total connected indoor units.<br>3. Incorrect setup of indoor units' horse power |

Sub-code: 00 : Capacity over, 01-: number of connected units



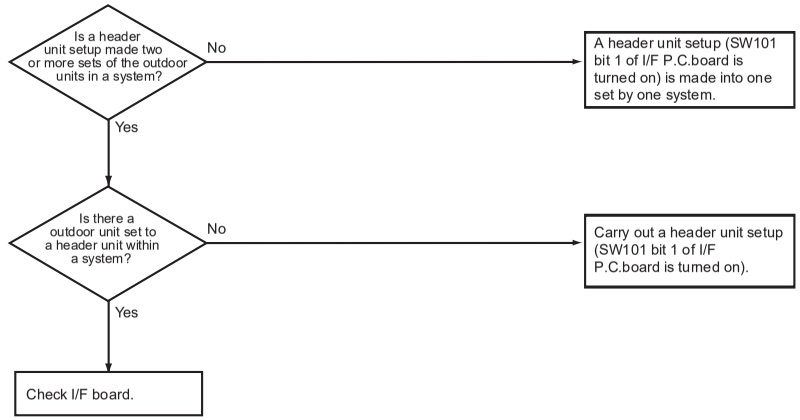

(*1) To deactivate the capacity-over detection
Turn SW103, Bit3 on I/F P.C. board of header outdoor unit to ON.
(Usually OFF)

| Check code | Check code name | Cause |
|---|---|---|
| [E18] | Communication trouble between indoor header and follower | Regular communication between indoor header and follower is unavailable. |




| Check code | Check code name | Cause |
|---|---|---|
| [E19] | Header outdoor unit quantity trouble | 1. Misconnection of inter-unit wire between indoor and outdoor<br>2. Outdoor I/F P.C. board trouble |

Sub-code: 00: No header unit 02: Two or more header units

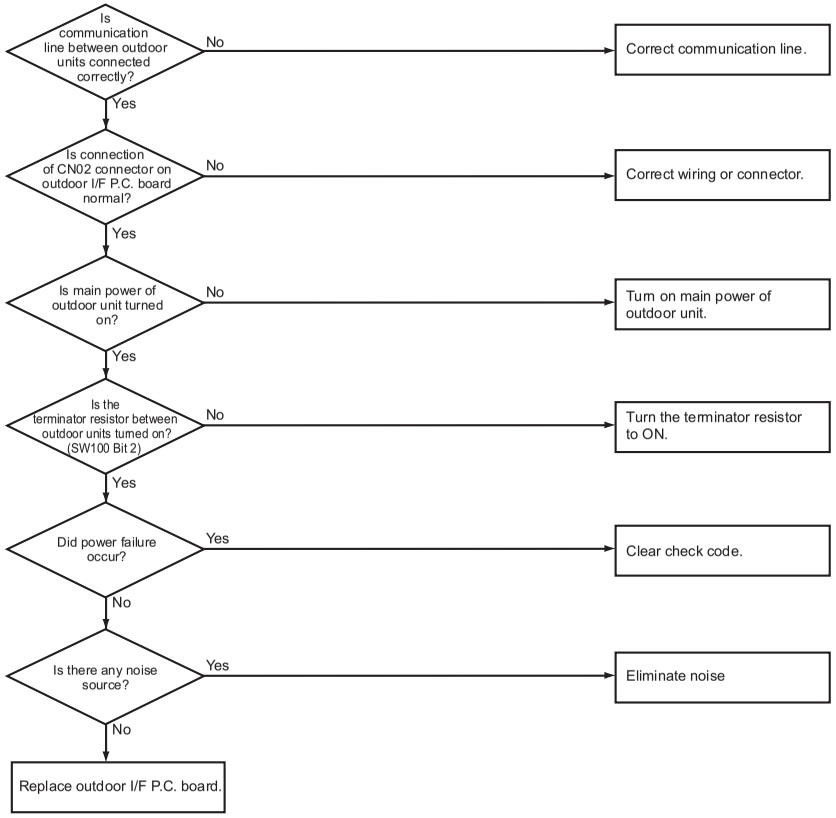



| Check code | Check code name | Cause |
|---|---|---|
| [E20] | Unit connected to other line during automatic address | When starting automatic indoor address, a device in another line is connected. |

Sub-code: 01: Connection of an outdoor unit in another line 02: Connection of an indoor unit in another line

Separate the connection between the lines following the address setup method.

| Check code | Check code name | Cause |
|---|---|---|
| [E23] | Communication signal sending trouble between outdoor units | 1. Inter-unit wire connection trouble between outdoor units<br>2. Communication connector connection trouble between outdoor units, I/F P.C. board trouble<br>3. End terminal resistance setup trouble between outdoor units |

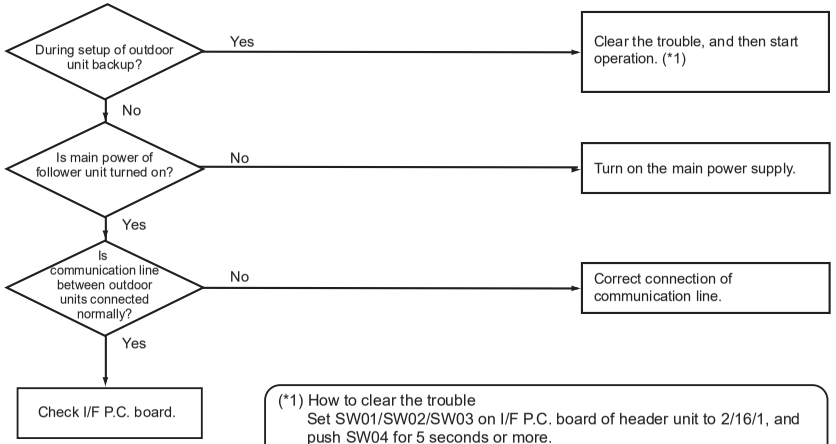



| Check code | Check code name | Cause |
|---|---|---|
| [E25] | Duplicated follower outdoor address setup | Addresses are duplicated by manual setup of outdoor address |

Do not set up outdoor addresses manually.

| Check code | Check code name | Cause |
|---|---|---|
| [E26] | Decrease of connected outdoor units | 1. Outdoor unit backup setup<br>2. Outdoor power trouble<br>3. Communication line connection trouble between outdoor units<br>4. Communication connector connection trouble<br>5. Outdoor I/F P.C. board trouble |

Sub-code: Address of the outdoor unit receiving signal abnormally




(*1) How to clear the trouble
Set SW01/SW02/SW03 on I/F P.C. board of header unit to 2/16/1, and push SW04 for 5 seconds or more.
(7-segment display: [Er.] [CL])

| Check code | Check code name | Cause |
|---|---|---|
| [E28] | Follower outdoor unit trouble | Trouble has occurred on a follower outdoor unit. |

Sub-code: Detected outdoor unit No.

A trouble occurred on a follower unit. See the check code on the 7-segment display on I/F P.C. board of the follower unit, and then check it according to diagnose procedure for the check code.
(How to specify the follower outdoor unit in which trouble occurred)
Push SW04 for 1 second or more under condition that [E28] is displayed on the 7-segment display of the header unit.
The fan of the outdoor unit which stopped due to occurrence of trouble starts rotating. Push SW05 to stop the fan.

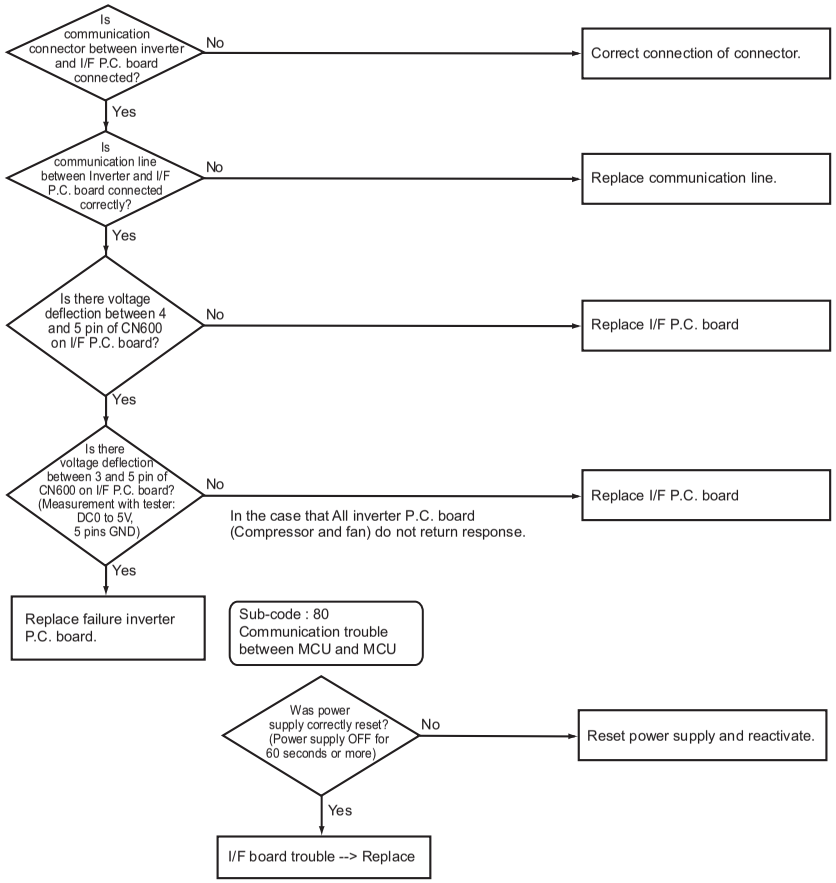
| Check code | Check code name | Cause |
|---|---|---|
| [E31] | P.C. boards communication trouble | 1. Connection trouble of communication line between inverter and I/F P.C. board<br>2. I/F P.C. board trouble<br>3. Inverter P.C. board trouble<br>4. External noise |

Sub-code

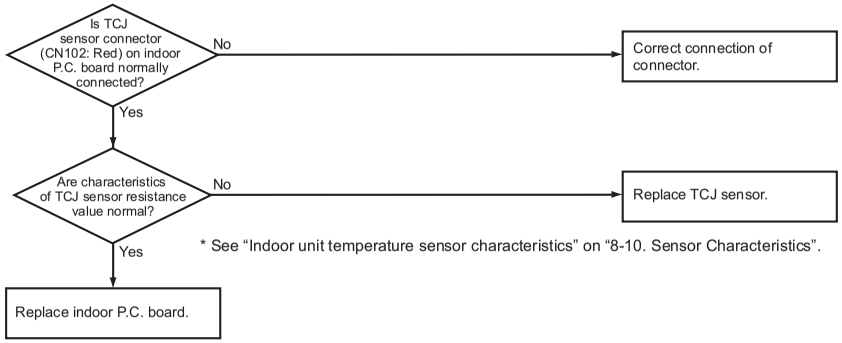
| | P.C.board | | | |
|---|---|---|---|---|
| | Compressor | | Fan Motor | |
| | 1 | 2 | 1 | 2 |
| 01 | O | | | |
| 02 | | O | | |
| 03 | O | O | | |
| 08 | | | O | |
| 09 | O | | O | |
| 0A | | O | O | |
| 0B | O | O | O | |
| 10 | | | | O |

| | P.C.board | | | |
|---|---|---|---|---|
| | Compressor | | Fan Motor | |
| | 1 | 2 | 1 | 2 |
| 11 | O | | | O |
| 12 | | O | | O |
| 13 | O | O | | O |
| 18 | | | O | O |
| 19 | O | | O | O |
| 1A | | O | O | O |
| 1B | O | O | O | O |

Circle (O): Trouble P.C. boards

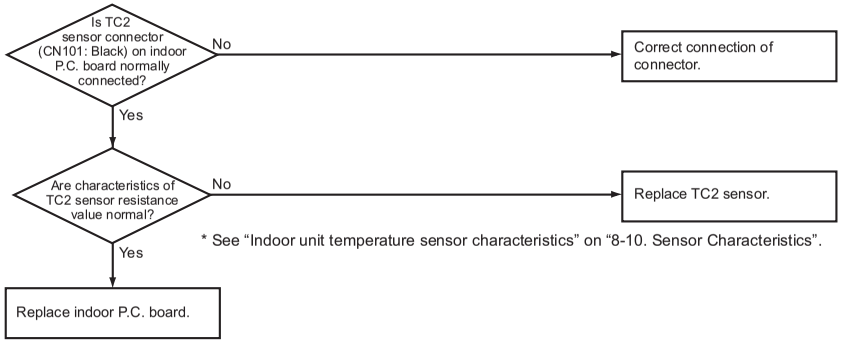



| Check code | Check code name | Cause |
|---|---|---|
| [F01] | Indoor TCJ sensor trouble | TCJ sensor Open/Short-circuit |



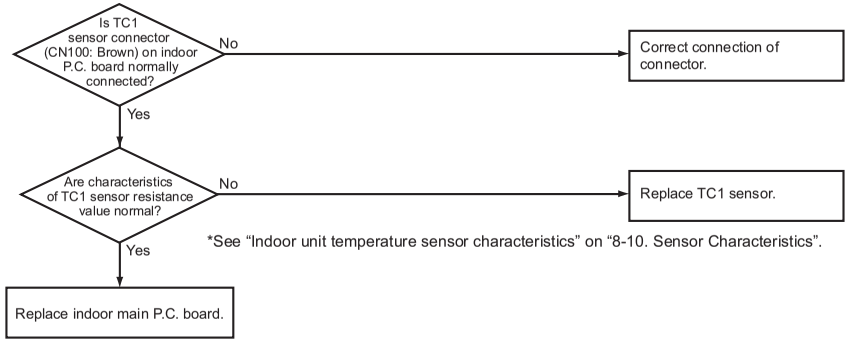

* See “Indoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.

| Check code | Check code name | Cause |
|---|---|---|
| [F02] | Indoor TC2 sensor trouble | TC2 sensor Open/Short-circuit |




* See “Indoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.

| Check code | Check code name | Cause |
|---|---|---|
| [F03] | Indoor TC1 sensor trouble | TC1 sensor Open/Short-circuit |




*See “Indoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.

| Check code | Check code name | Cause |
|---|---|---|
| [F04] | TD1 sensor trouble | TD1 sensor Open/Short-circuit |

This check code means detection of Open/Short-circuit of TD1 sensor.Check disconnection of circuit for connection of connector (TD1 sensor: CN502, White) and characteristics of sensor resistance value. (See “Outdoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.)
If sensor is normal, replace outdoor I/F P.C. board.

| Check code | Check code name | Cause |
|---|---|---|
| [F05] | TD2 sensor trouble | TD2 sensor Open/Short-circuit |

This check code means detection of Open/Short-circuit of TD2 sensor.Check disconnection of circuit for connection of connector (TD2 sensor: CN380, Black) and characteristics of sensor resistance value. (See “Outdoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.)
If sensor is normal, replace outdoor I/F P.C. board.

| Check code | Check code name | Cause |
|---|---|---|
| [F06] | TE1,TE2,TE3 sensor trouble | TE1,TE2,TE3 sensor Open/Short-circuit |

This check code means detection of Open/Shor-circuit of TE1, TE2 or TE3 sensor. Check disconnection of circuit for connection of connector (TE1 sensor: CN381, White, TE2 sensor : CN381, White, TE3 sensor : CN384, Blue) and characteristics of sensor resistance
value. (See “Outdoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.)
If sensor is normal, replace outdoor I/F P.C. board.

| Check code | Check code name | Cause |
|---|---|---|
| [F07] | TL1,TL2,TL3 sensor trouble | TL1,TL2,TL3 sensor Open/Short-circuit |

Sub-code: 01:TL1, 02;TL2, 03;TL3

This check code means detection of Open/Short-circuit of TL1,TL2,TL3 sensor. Check disconnection of circuit for connection of connector (TL1, 2, 3 : CN378 White) and characteristics of sensor resistance value.
(See“Outdoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.)
If sensor is normal, replace outdoor I/F P.C. board.

| Check code | Check code name | Cause |
|---|---|---|
| [F08] | TO sensor trouble | TO sensor Open/Short-circuit |

This check code means detection of Open/Short-circuit of TO sensor. Check disconnection of circuit for connection of connector (TO sensor: CN507,Yellow) and characteristics of sensor resistance value. (See “Outdoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.)
If sensor is normal, replace outdoor I/F P.C. board.

| Check code | Check code name | Cause |
|---|---|---|
| [F09] | TG1, TG2, TG3 sensor trouble | TG1, TG2, TG3 sensor Open/Short-circuit |

Sub-code: 01: TG1, 02: TG2, 03:TG3

This check code means detection of Open/Short-circuit of TG1, TG2, TG3 sensor. Check disconnection of circuit for connection of connector (TG1, TG2 sensor : CN381, White, TG3 sensor: CN384, Blue) and characteristics of sensor resistance value.
(See "Outdoor unit temperature sensor characteristics" on "8-10. Sensor Characteristics".)
If sensor is normal, replace outdoor I/F P.C. board.

| Check code | Check code name | Cause |
|---|---|---|
| [F10] | Indoor TA/TSA sensor trouble | TA sensor Open/Short-circuit |

This check code means detection of Open/Short-circuit of TA sensor. Check disconnection of circuit for connection of connector (TA /TSA sensor : CN104, Yellow) and characteristics of sensor resistance value. (See “Indoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.)
If sensor is normal, replace indoor P.C. board.

| Check code | Check code name | Cause |
|---|---|---|
| [F12] | TS1,TS3 sensor trouble | 1. TS1,TS3 sensor open/Short-circuit<br>2. 04:TS3 sensor disconnect |

Sub-code: 01:TS1, 03:TS3, 04:TS3 sensor disconnect

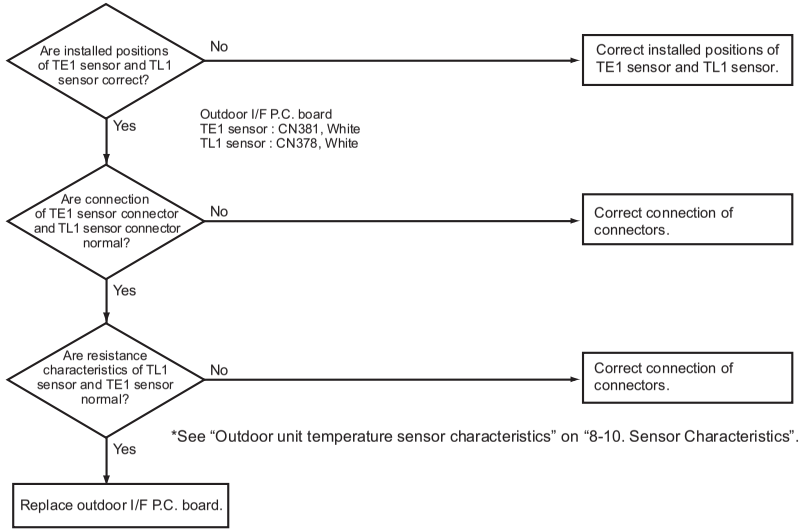
This is detection of open/short-circuit and disconnection of TS3 sensor. Check installation of TS3, disconnection of circuit for connection of connector (TS1, TS3 sensor: CN378 White) and resistance characteristics of sensor.
(See "Outdoor unit temperature sensor characteristics" on "8-10. Sensor Characteristics".)
If sensor is normal, replace outdoor I/F P.C.board.

| Check code | Check code name | Cause |
|---|---|---|
| [F13] | TH sensor trouble | IPM built-in sensor trouble in compressor P.C. board |

Sub-code: 1*: Compressor 1, 2*: Compressor 2

This check code means IPM built-in temperature sensor trouble.
Replace compressor P.C. board.

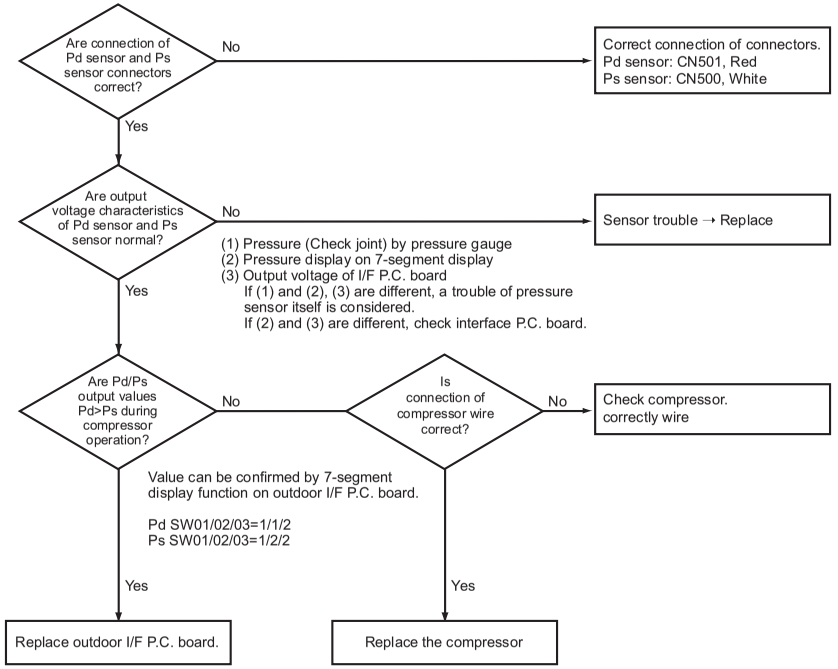
| Check code | Check code name | Cause |
|---|---|---|
| [F15] | Outdoor temp sensor miswiring (TE1, TL1) | 1. Misinstallation and misconnection of TE1 sensor and TL1 sensor<br>2. Resistance characteristics trouble of TE1 sensor and TL1 sensor<br>3. Outdoor P.C. board (I/F) trouble |



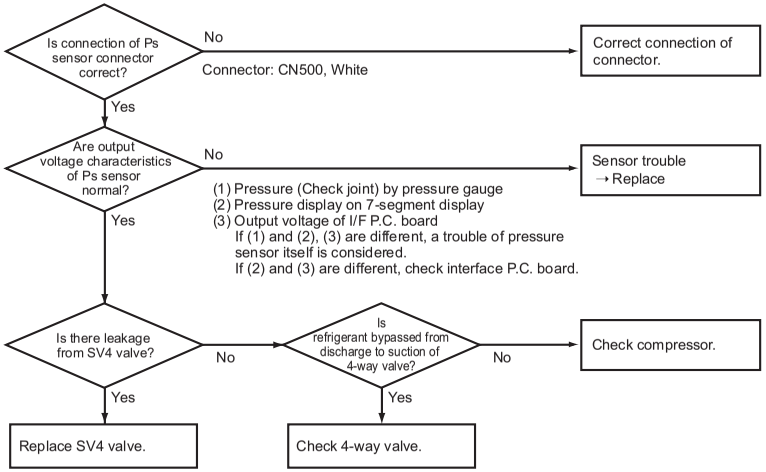

*See “Outdoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.

TE1 sensor: Outdoor heat exchanger temp sensor
TL1 sensor: Sensor between PMV1 and subcool heat exchanger

| Check code | Check code name | Cause |
|---|---|---|
| [F16] | Outdoor pressure sensor miswiring (Pd, Ps) | 1. High-pressure Pd sensor and low pressure sensor Ps are exchanged.<br>2. Output voltage of each sensor is zero. |



| Check code | Check code name | Cause |
|---|---|---|
| [F23] | Ps sensor trouble | 1. Output voltage trouble of Ps sensor<br>2. SV4, 4-way valve trouble |



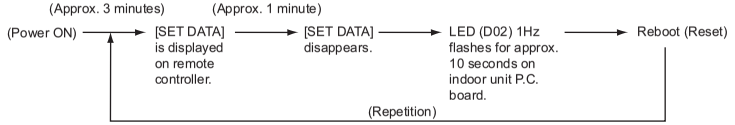

| Check code | Check code name | Cause |
|---|---|---|
| [F24] | Pd sensor trouble | Output voltage trouble of Pd sensor |

It is output voltage trouble of Pd sensor. Check disconnection of connection of connector (Pd sensor: CN501, red) circuit and output voltage of sensor.
If the sensor is normal, replace outdoor I/F P.C. board.

| Check code | Check code name | Cause |
|---|---|---|
| [F29] | Indoor other trouble | Indoor P.C. board trouble |

This trouble is detected during operation of air conditioner of IC10 non-volatile memory (EEPROM) on indoor unit P.C.board. Replace service P.C. board.

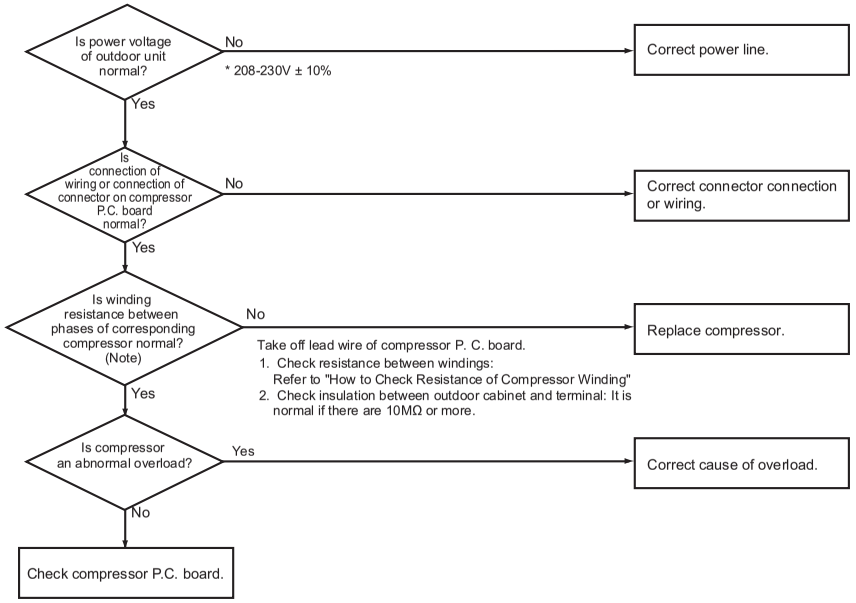
* If EEPROM was not inserted when power was turned on or it is absolutely impossible to read/write EEPROM data, the automatic address mode is repeated.




| Check code | Check code name | Cause |
|---|---|---|
| [F31] | Outdoor EEPROM trouble | 1. Outdoor unit power trouble (Voltage, noise, etc.)<br>2. Outdoor I/F P.C. board trouble |

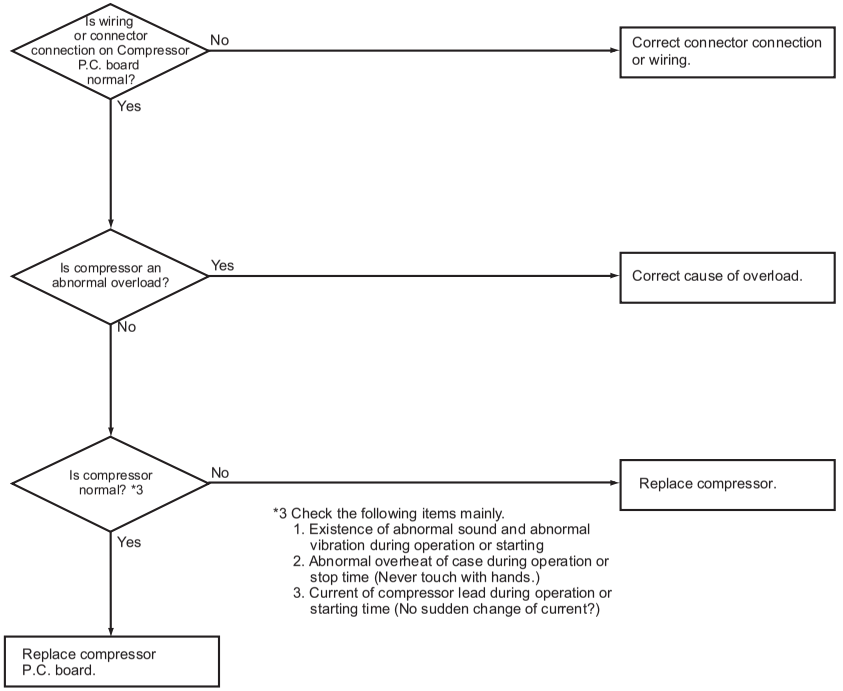
| Check code | Check code name | Cause |
|---|---|---|
| [H01]<br><br>[H17] | Compressor breakdown Rotor-stop power distribution has occurred.<br>Judged that the synchronization could not be taken. | 1. Outdoor unit power line trouble<br>2. Compressor circuit system trouble<br>3. Compressor trouble<br>4. Abnormal overload in operation<br>5. Compressor P.C. board trouble |

Sub-code:
1∗: Compressor 1,
2∗: Compressor 2




| Check code | Check code name | Cause |
|---|---|---|
| [H02] | Compressor trouble (Lock) | 1. Compressor circuit system trouble<br>2. Compressor trouble<br>3. Compressor P.C. board trouble |

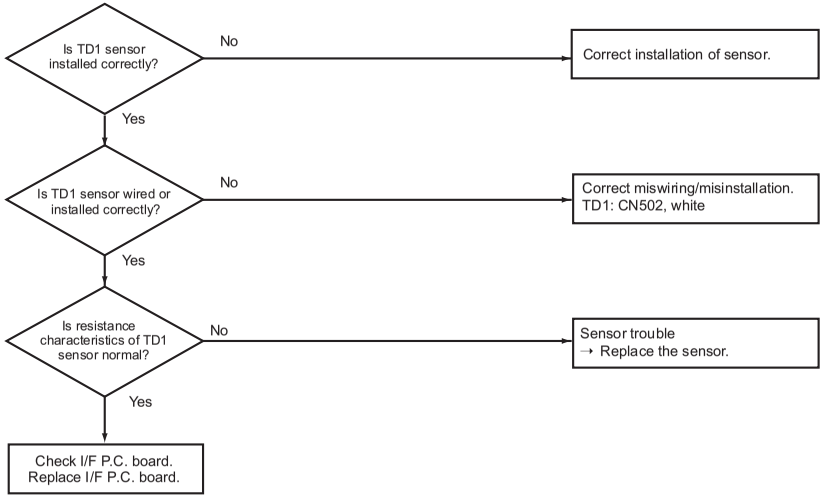
Sub-code:
1∗: Compressor 1,
2∗: Compressor 2



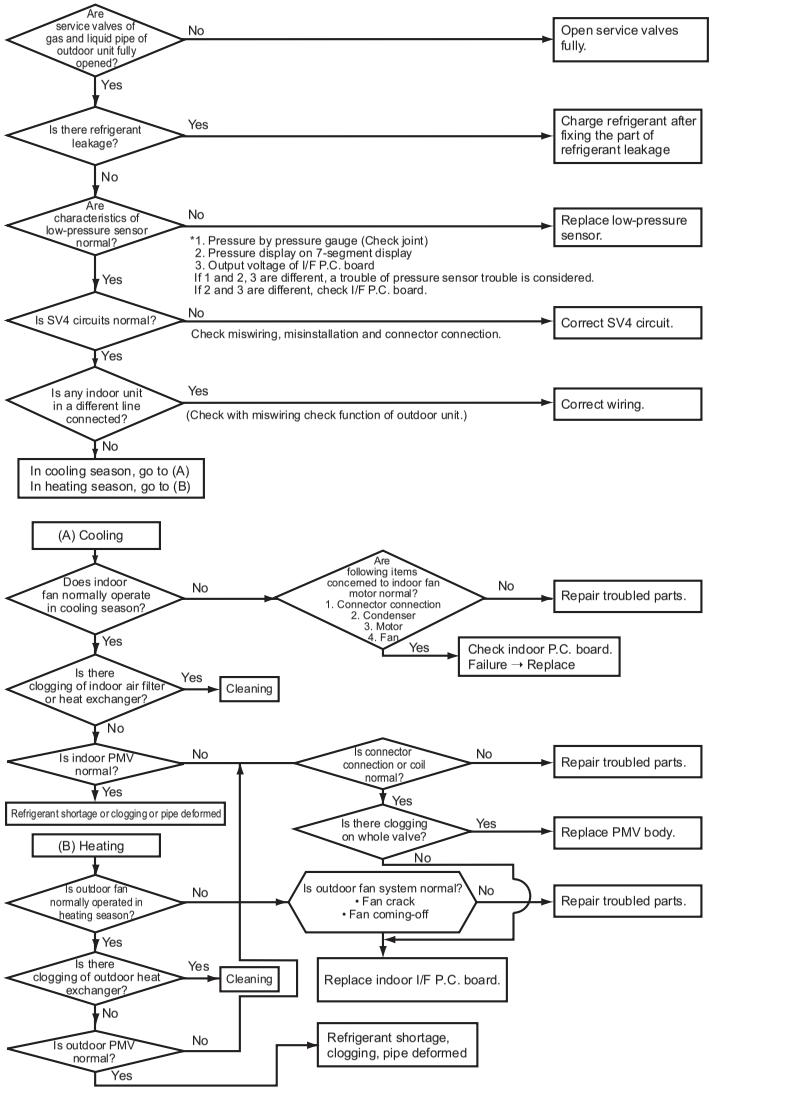
| Check code | Check code name | Cause |
|---|---|---|
| [H03] | Current detective circuit system trouble | 1. Wiring or connector connection trouble on compressor P.C. board<br>2. compressor P.C. board trouble |

Sub-code:
1∗: Compressor 1,
2∗: Compressor 2

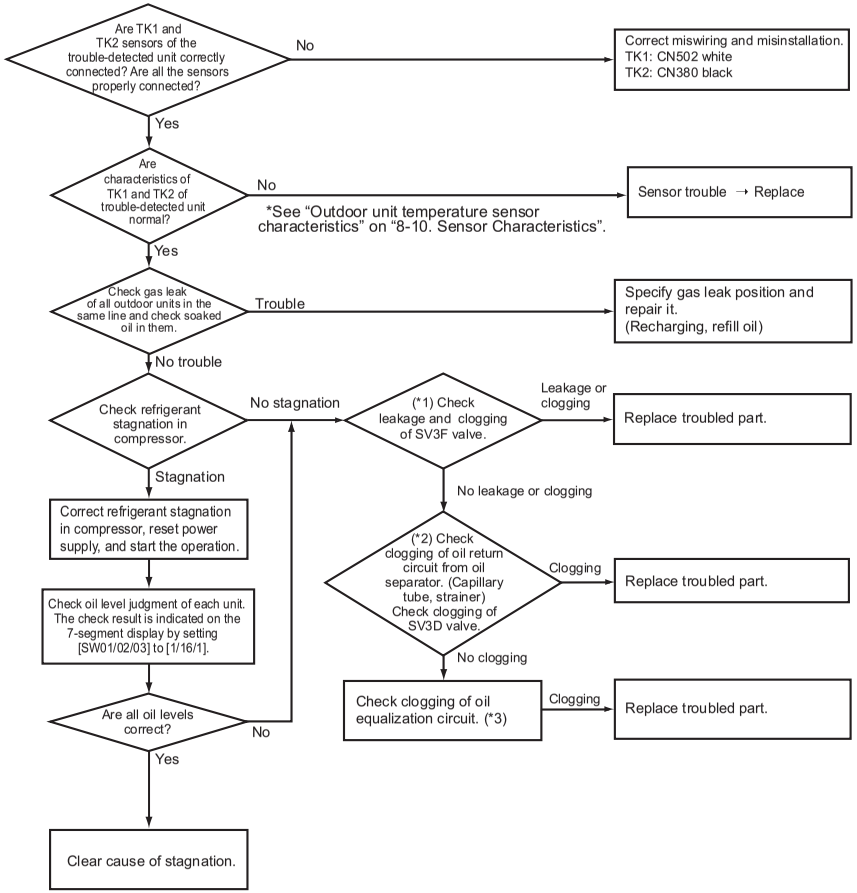

| Check code | Check code name | Cause |
|---|---|---|
| [H05] | Outdoor discharge temperature sensor (TD1) misconnection | 1. Coming-off of TD1 sensor<br>2.Misinstallation of TD1 sensor, miswiring, characteristics trouble of resistance value |




| Check code | Check code name | Cause |
|---|---|---|
| [H06] | Low-pressure protective operation | 1. Service valve close<br>2. Ps sensor trouble<br>3. SV4 circuit trouble<br>4. Miswiring of communication between indoor and outdoor<br>5. Indoor/outdoor fan and condenser trouble<br>6. Indoor/outdoor PMV clogging<br>7. Indoor/outdoor heat exchanger clogging<br>8. Refrigerant shortage |



| Check code | Check code name | Cause |
|---|---|---|
| [H07] | Oil level down detection protection | 1. Miswiring or misinstallation of TK1 and TK2 sensor.<br>2. TK1 and TK2 sensor trouble<br>3. Gas leak or oil leak in a line<br>4. Refrigerant stagnation of compressor case<br>5. SV3D valve trouble<br>6. Clogging of oil return circuit from oil separator<br>7. Clogging of oil-equation circuit system |




Indoor/outdoor PMV trouble (Cause of refrigerant stagnation), discharge check valve trouble, etc.

(Reference) When refrigerant stagnates in compressor shell, the oil level shortage may be

In some cases, it may be difficult to check the leakage of clogging in the following condition of refrigerant stagnation in low ambient temperature condition.
In this case, take a longer operating time prior to check.
(Criterion: Discharge temperature of TD1 and TD2 are 140°F(60°C) or higher)

## (*1) Checking leakage and clogging on SV3F valve

### a) Leakage check

- Turn off the power supply, take off connector of SV3F valve, and then start a test operation after power ON.
- After operation for several minutes, check temperature at secondary side of SV3F valve.((1) in the figure)
  → If temperature is low, leakage occurs in the SV3F valve.
  Replace SV3F valve.

### b) Clogging check

- While outdoor unit is operating, set up SW01/02/03=[2] [1] [3] (7-segment display [Hr] [... ... ...]), and push SW04 for 2 seconds or more.
- Set up Sw02=[8], and turn on SV3F valve. (7-segment display [Hr] [... 3C])
- While outdoor units are operating, check temperature change at secondary side side of SV3F valve. ((1) in the figure.)
  → If temperature does not drop (equivalent to outside air temperature), it is a clogging of SV3F valve.
  Replace SV3F valve.

## (*2) Checking the oil return circuit from oil separator and clogging in SV3D valve

### a) Oil return circuit

- While outdoor unit is operating, check temperature (secondary side of capillary) on oil return circuit. ((2) in the figure.)
  → If temperature is low equivalent to suction temperature), a clogging of strainer of oil return circuit or capillary is considered. Replace the clogged part.

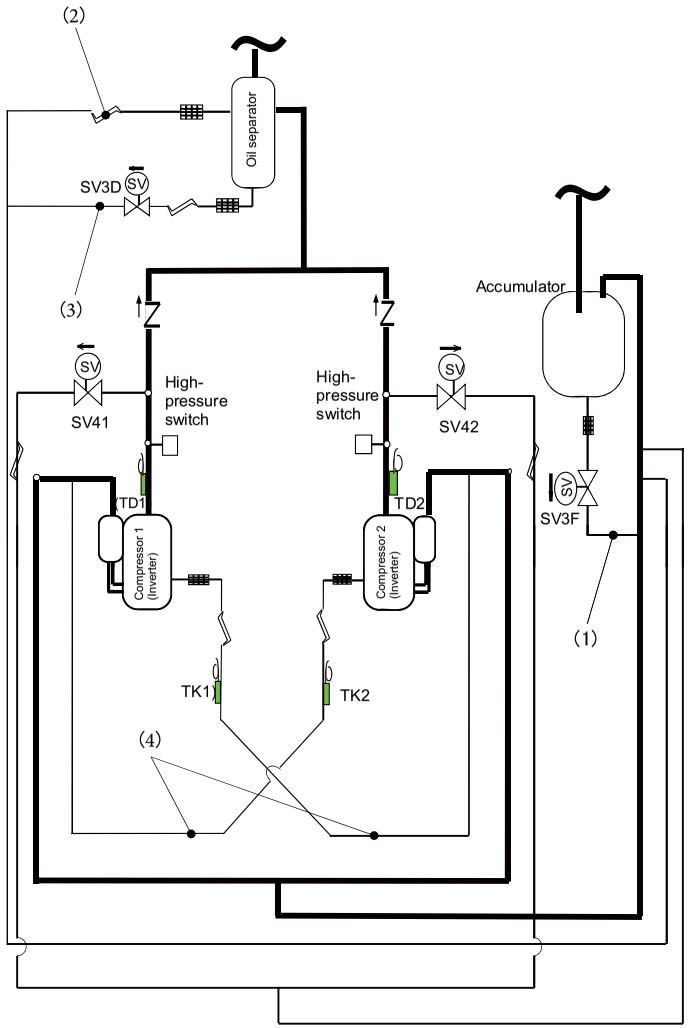
### b) Clogging check for SV3D valve

- While outdoor unit is operated, set up SW01/02/03 = [2] [1] [3] (7-segment display [Hr] [... ... ...]), and push SW04 for 1 seconds or more.
- Set up SW02 = [4], and turn on SV3D valve. (7-segment display [Hr] [... 3 d])
- If temperature is low at secondary side of the valve or it does not change, clogging of valve, capillary, or strainer is considered. ((3) in the figure.) Replace the clogged part.

## (*3) Checking the oil equalization circuit

### a) Clogging check for oil-equalization circuit

- Drive the outdoor unit. (Drive all compressors in the unit.)
- After driving for 10 minutes or more, check whether temperature of TK1, TK2 sensors and temperature of oil-equalization circuit capillary ((4) in the figure) has increased.
  (Criterion)
  TK1, TK2=Td1, Td2 temperature - Approx. 10 to 86°F(30°C)
  Oil-equalization capillary tubes should be higher sufficiently than outside air temperature and suction temperature.
- If temperature is low, clogging of capillary or strainer is considered. Repair the failure parts.



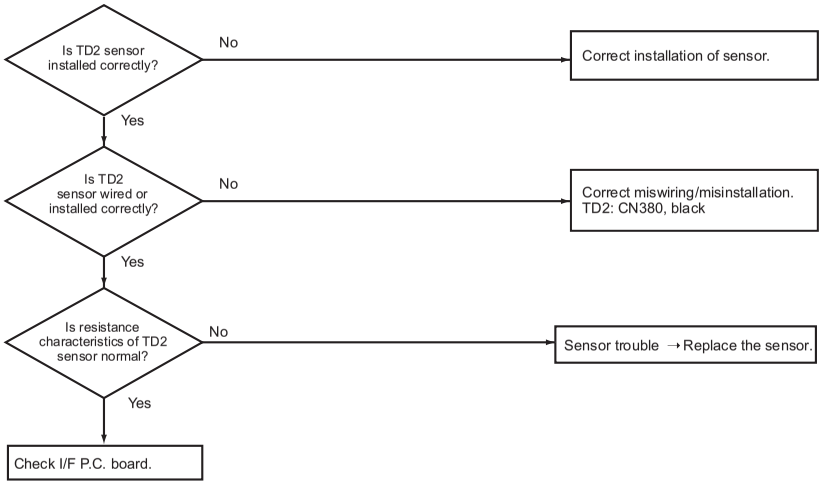
| Check code | Check code name | Cause |
|---|---|---|
| [H08] | Oil level detective temperature sensor trouble | TK1 and TK2 sensor<br>Open/Short-circuit |

Sub-code:
01: TK1 sensor trouble 02: TK2 sensor trouble

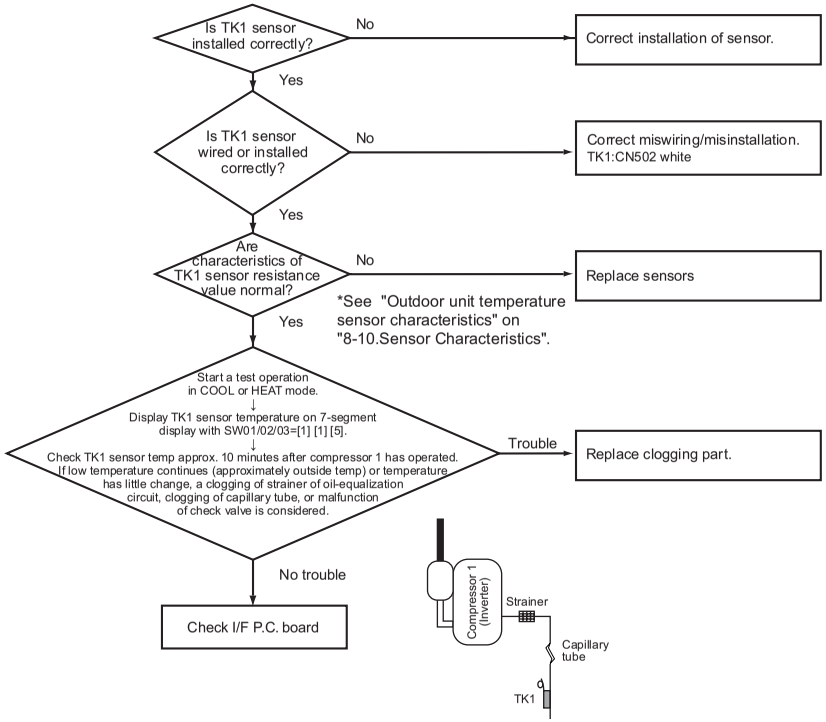
The detected trouble is an oil level detective temperature sensor trouble. Check disconnection of the wiring and resistance value of the sensor.
If the sensors are normal, replace the outdoor I/F P.C. board.

| Circuit | Connector |
|---|---|
| TK1 | CN502 white |
| TK2 | CN380 black |

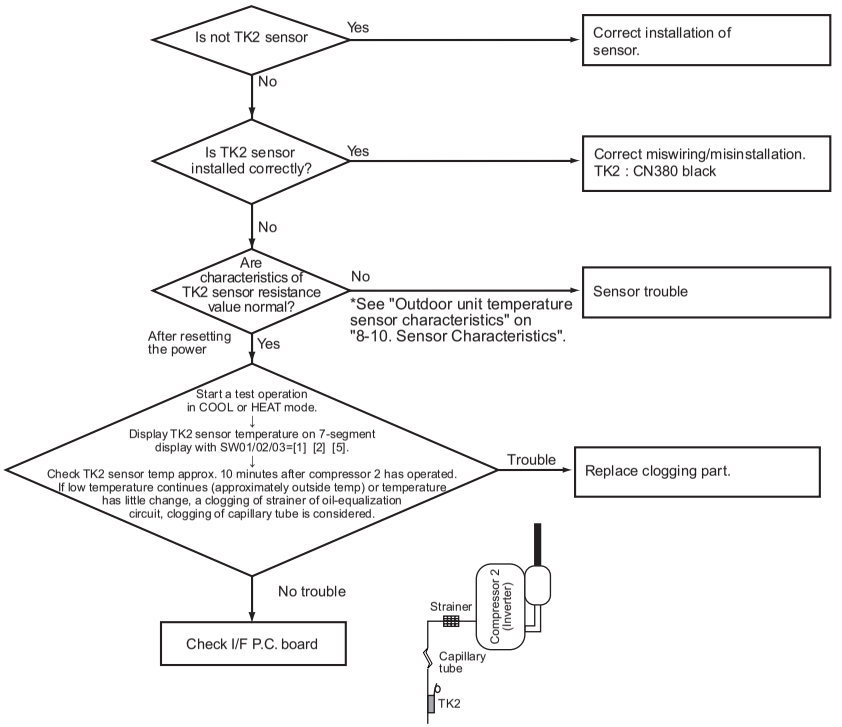
| Check code | Check code name | Cause |
|---|---|---|
| [H15] | Outdoor discharge temperature sensor (TD2) misconnection | 1. Coming-off of TD2 sensor<br>2. Misinstallation of TD2 sensor, miswiring, characteristics trouble of resistance value |



| Check code | Check code name | Cause |
|---|---|---|
| [H16] | Oil level detection circuit trouble TK1 temperature detective circuit trouble (Sub-code: 01) | 1. Coming-off of TK1 sensor, miswiring, characteristics trouble of resistance value<br>2. Oil-equalization circuit trouble (Check valve, capillary clogging, strainer clogging)<br>3. Refrigerant stagnation in the compressor shell |




| Check code | Check code name | Cause |
|---|---|---|
| [H16] | Oil level detection circuit trouble TK2 temperature detective circuit trouble (Sub-code: 02) | 1. Coming-off of TK2 sensor, miswiring, characteristics trouble of resistance value<br>2. Oil-equalization circuit trouble (Check valve, capillary clogging, strainer clogging)<br>3. Refrigerant stagnation in the compressor shell |

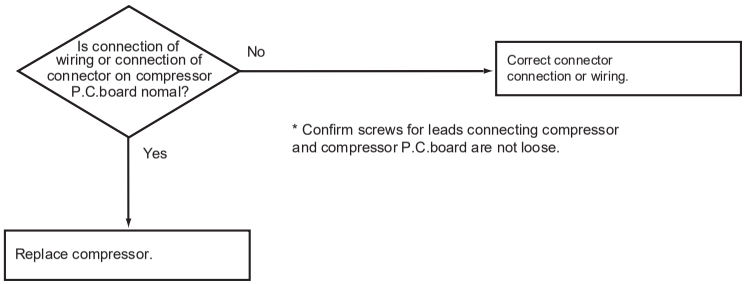



| Check code | Check code name | Cause |
|---|---|---|
| [H17] | Compressor trouble (step-out etc.) | The clause of [H01] is referred to. |

Refer to the clause of [H01] for a diagnostic procedure.

| Check code | Check code name | Cause |
|---|---|---|
| [H28] | Compressor motor winding trouble. | 1. Compressor trouble. |

Sub-code:
1* : Compressor 1, 2* : Compressor 2



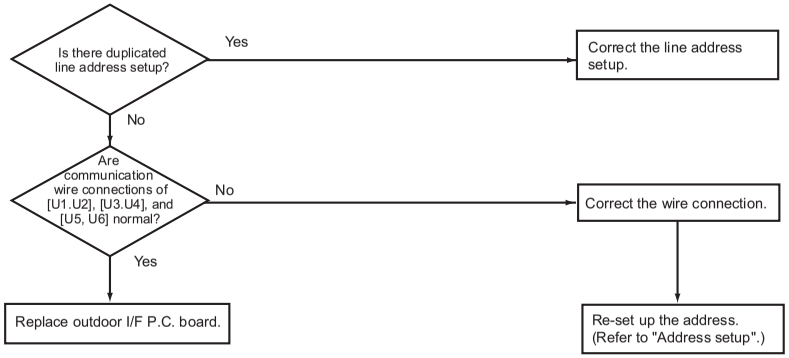

* Confirm screws for leads connecting compressor and compressor P.C.board are not loose.

| Check code | Check code name | Cause |
|---|---|---|
| [L02] | Indoor / outdoor model mismatch | When the indoor unit that does not correspond is connected with the outdoor unit |

| Check code | Check code name | Cause |
|---|---|---|
| [L03] | Duplicated indoor header units | There are two or more indoor header units in a group during group control. |

1) Check whether the connection on remote controllers (group and/or individual) has been changed since the group configuration and address checking on the remote controllers finished.
2) If the group configuration and address are normal when power has been turned on, the mode automatically shifts to address setup mode. For setting up addresses again, refer to "Address setup".

| Check code | Check code name | Cause |
|---|---|---|
| [L04] | Duplicated setup of outdoor line address | Outdoor line addresses are duplicated. |




| Check code | Check code name | Cause |
|---|---|---|
| [L05] | Duplicated indoor units with priority (Displayed on indoor unit with priority) | Two or more prior indoor units exist. |

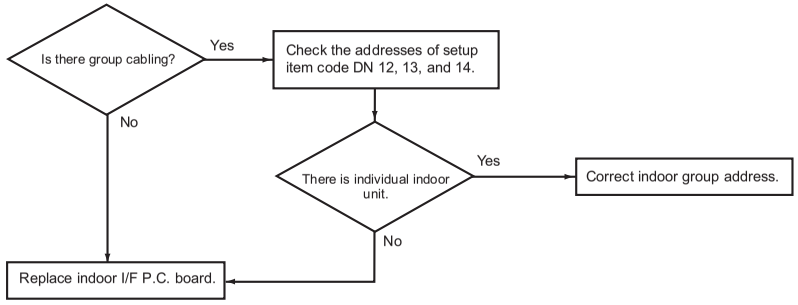
This check code is displayed on the indoor unit set as a prior one when two or more prior indoor units are detected.
• Priority setup with two or more units is not available. As only one indoor unit with priority is valid, change the setup.

| Check code | Check code name | Cause |
|---|---|---|
| [L06] | Duplicated indoor units with priority (Displayed on the indoor units other than ones with priority and on the outdoor unit) | Two or more indoor units with priority are duplicated. |

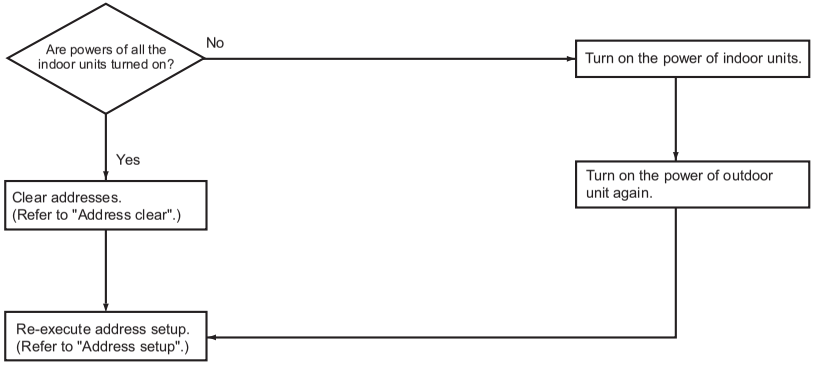
Sub-code: amount of indoor units with priority

When priority is given to two or more indoor units, this check code is displayed on indoor units other than the units set as prior ones and the outdoor unit.
• As only one indoor unit with priority is valid, change the setup.
Change the setup so that only one indoor unit has priority.

| Check code | Check code name | Cause |
|---|---|---|
| [L07] | A group line exists in an individual indoor unit | A group line is connected to an individual indoor unit. |

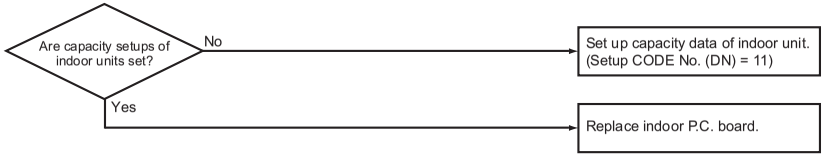


| Check code | Check code name | Cause |
|---|---|---|
| [L08] | Indoor group / address unset | Indoor unit address is unset |




Note) This code is displayed when the power is turned on at the first time after installation. (Because the address is not yet set up)

| Check code | Check code name | Cause |
|---|---|---|
| [L09] | Indoor capacity unset | Indoor unit's capacity is unset |




| Check code | Check code name | Cause |
|---|---|---|
| [L10] | Outdoor capacity unset | Outdoor unit capacity has not been set up by outdoor unit DN code after replacing with service I/F P.C. board. |

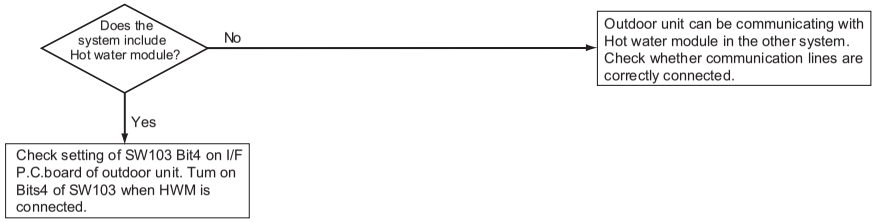
This code is displayed when you have not set up the model after replacing the I/F P.C. board. Please set up a mode according to "13-1-3. Interface P.C. Board (MCC-1747) Replacement Procedure".

| Check code | Check code name | Cause |
|---|---|---|
| [L17] | Incompatible combination of outdoor units | A SMMS-u series outdoor unit is connected with an older series outdoor unit. |

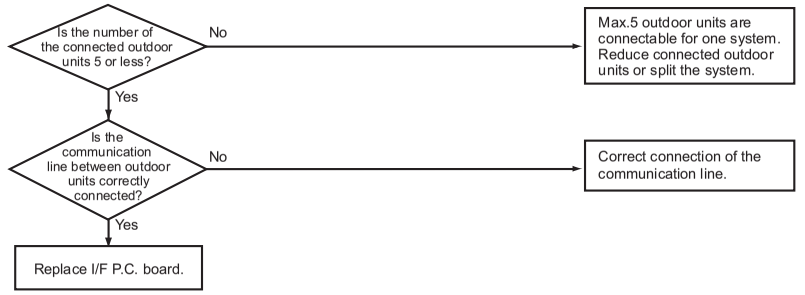
A SMMS-u series outdoor unit cannot be connected with an older series outdoor unit. Use it with another SMMS-u unit.

| Check code | Check code name | Cause |
|---|---|---|
| [L20] | Duplicated central control addresses | Central control addresses are duplicated. |


| Check code | Check code name | Cause |
|---|---|---|
| [L23]-02 | Switch setting trouble of outdoor unit | Switch setting trouble of outdoor unit when HWM is connected. |




| Check code | Check code name | Cause |
|---|---|---|
| [L28] | Quantity over of connected outdoor units | 1. Quantity over of connected outdoor units.<br>2. Connection trouble of communication line between outdoor units<br>3. Outdoor I/F P.C. board trouble |



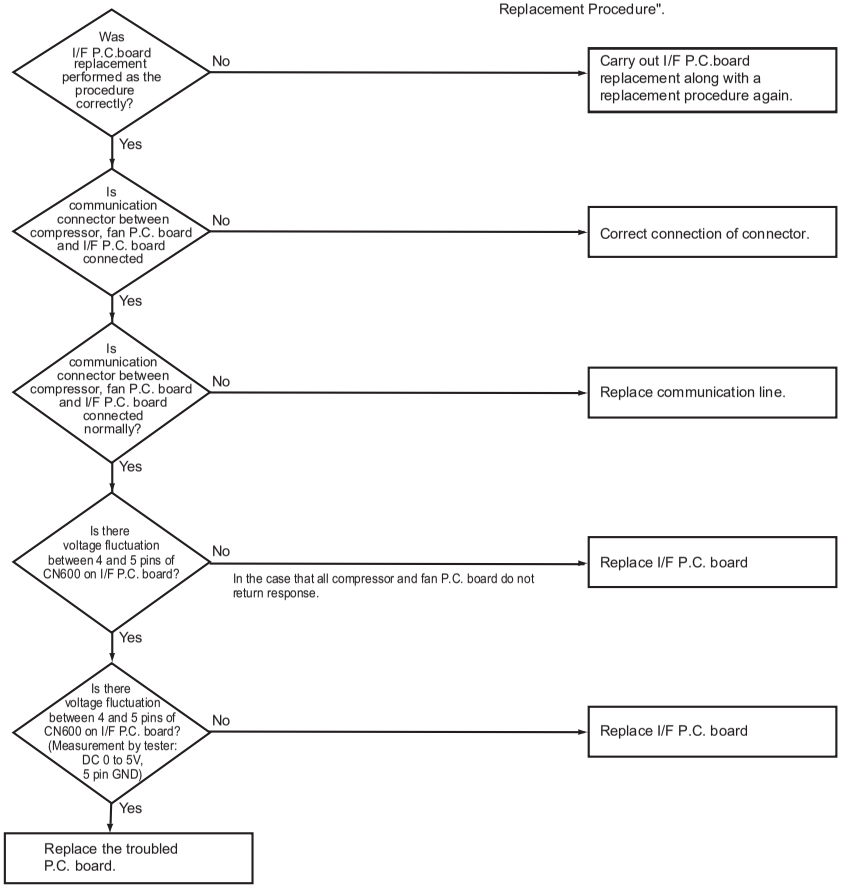
| Check code | Check code name | Cause |
|---|---|---|
| [L29] | Inverter P.C. board quantity trouble | 1. Incorrect model setup in service for I/F P.C. board<br>2. Communication trouble between compressor, fan P.C. board and I/F<br>3. Compressor, fan P.C. board, I/F P.C. board trouble |

Sub-code

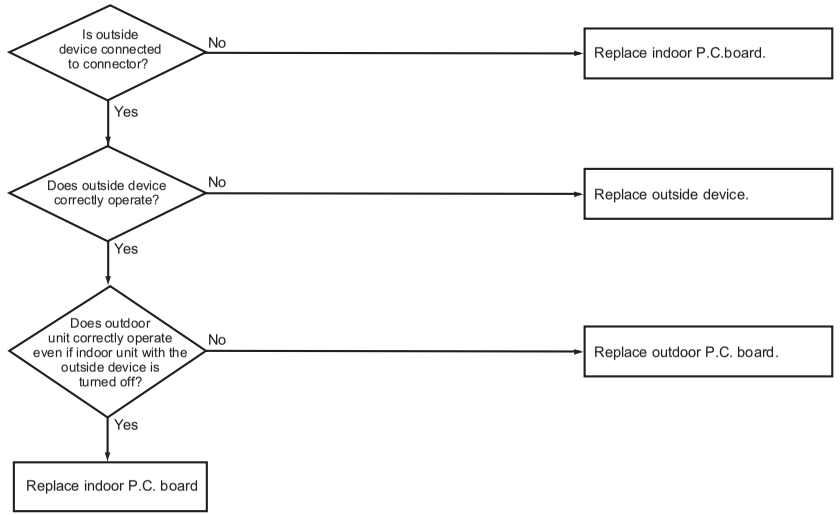
| | P.C.board | | | | | P.C.board | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Compressor | | Fan Motor | | | Compressor | | Fan Motor | |
| | 1 | 2 | 1 | 2 | | 1 | 2 | 1 | 2 |
| 01 | O | | | | 11 | O | | | O |
| 02 | | O | | | 12 | | O | | O |
| 03 | O | O | | | 13 | O | O | | O |
| 08 | | | O | | 18 | | | O | O |
| 09 | O | | O | | 19 | O | | O | O |
| 0A | | O | O | | 1A | | O | O | O |
| 0B | O | O | O | | 1B | O | O | O | O |
| 10 | | | | O | | | | | |

Circle (O): Trouble P.C. board

Please set the model according to "13-1-3. Interface P.C. Board (MCC-1747) Replacement Procedure".



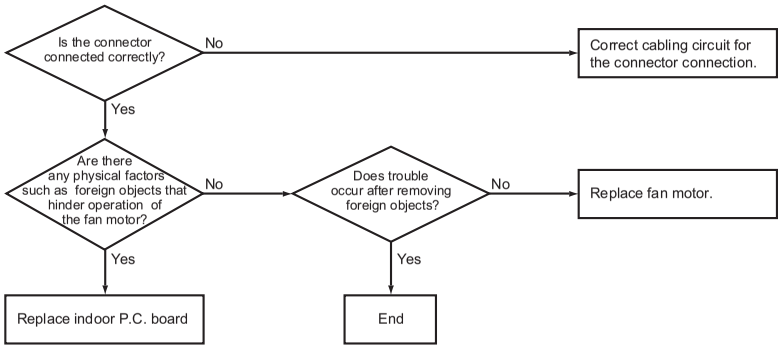

| Check code | Check code name | Cause |
|---|---|---|
| [L30] | Interlock in indoor unit from outside | Abnormal input from the outside |




| Check code | Check code name | Cause |
|---|---|---|
| [L31] | Other IPDU troubles | 1. Outdoor unit power trouble<br>2. Outdoor I/F P.C. board trouble |

| Check code | Check code name | Cause |
|---|---|---|
| [P01] | Indoor fan motor trouble | 1. Wiring trouble<br>2. Check fan motor. |

* For the models equipped with AC fan motor only

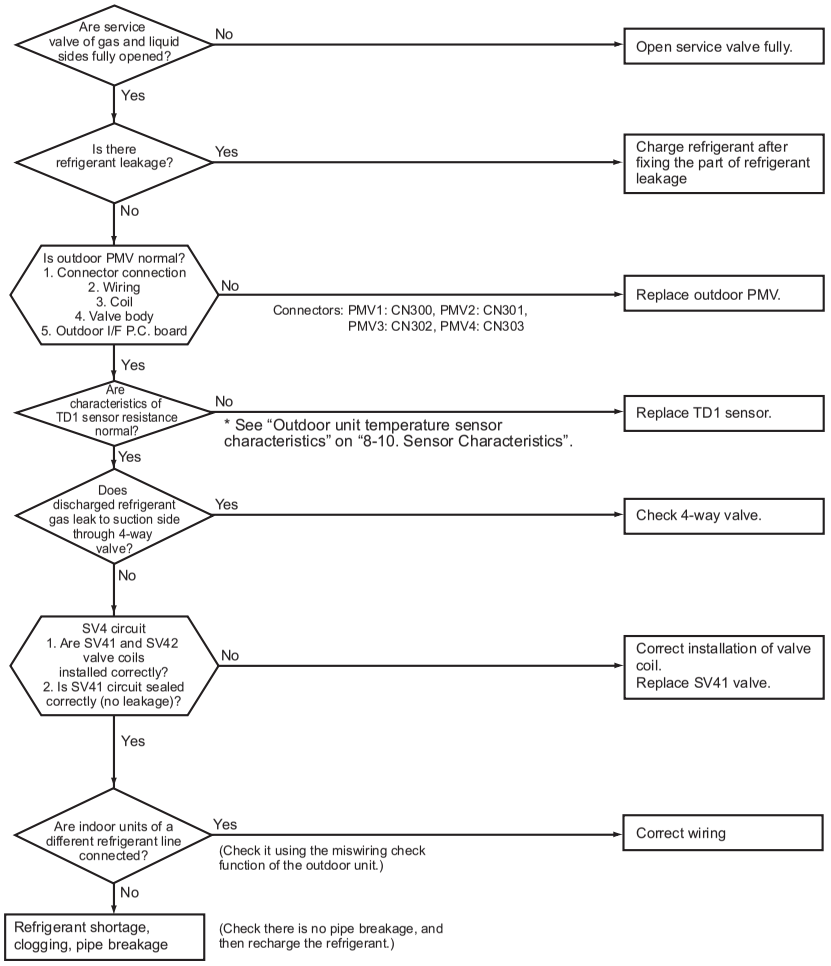



| Check code | Check code name | Cause |
|---|---|---|
| [P05] | Phase trouble detected, power failure detected, abnormal inverter DC voltage (on compressor) | Phase trouble or power failure of the power supply to the outdoor unit |

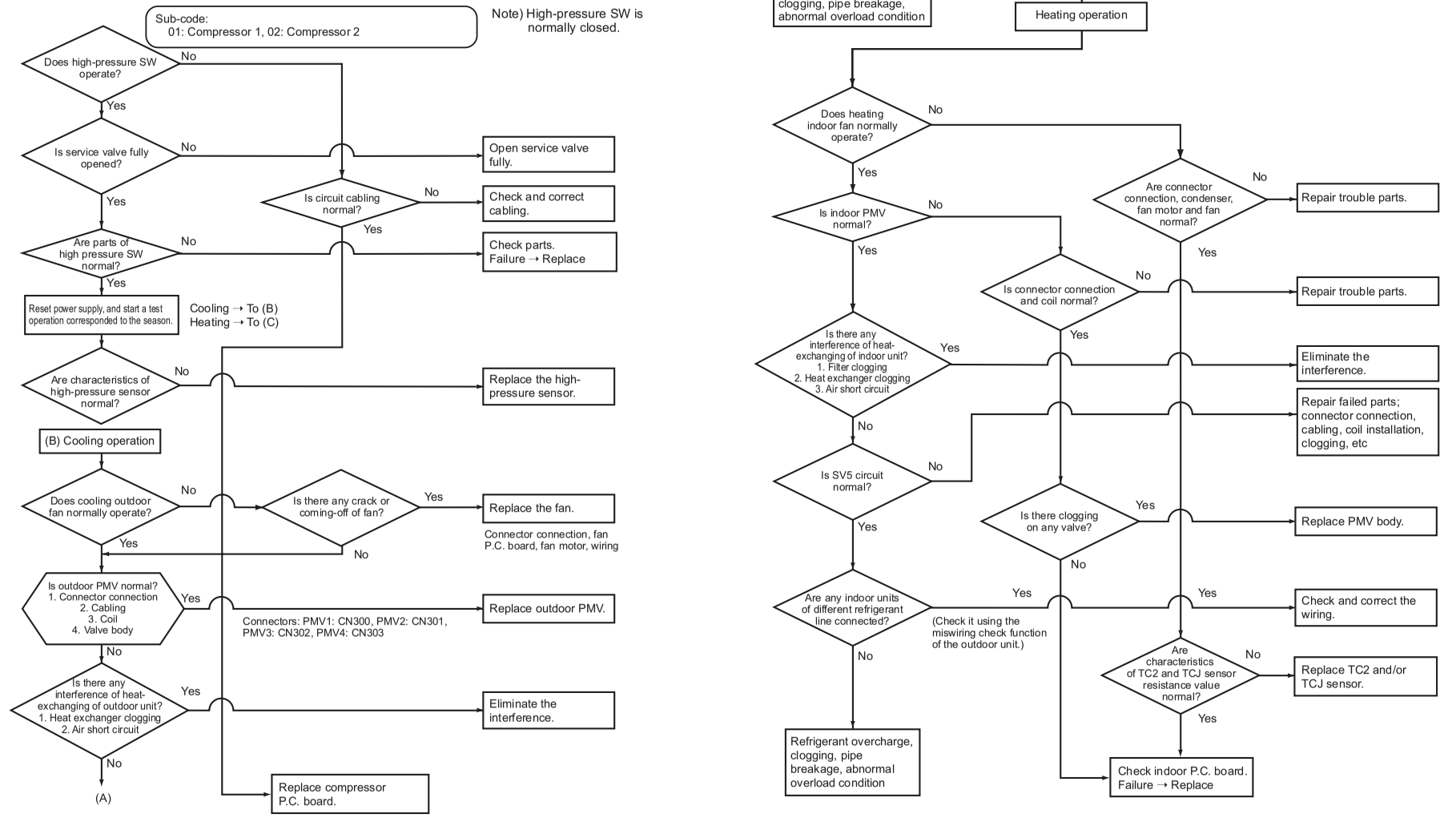
| Sub-code: | 00: Power detection trouble<br>01: Open phase<br>---<br>1∗: Compressor 1 side<br>2∗: Compressor 2 side |
|---|---|

- Check the phase of the power line to the outdoor unit.
- Check trouble of outdoor I/F P.C. board.
- Check there are no loosened connectors, etc.
- Check connection wiring of MG-CTT.
- Check operation of MG-CTT.

| Check code | Check code name | Cause |
|---|---|---|
| [P03] | Discharge temp TD1 trouble | 1. Service valve of outdoor unit closed<br>2. Outdoor PMV trouble<br>3. TD sensor trouble<br>4. Refrigerant shortage, clogging of refrigerant piping<br>5. 4-way valve trouble<br>6. SV4 circuit leakage, misinstallation |

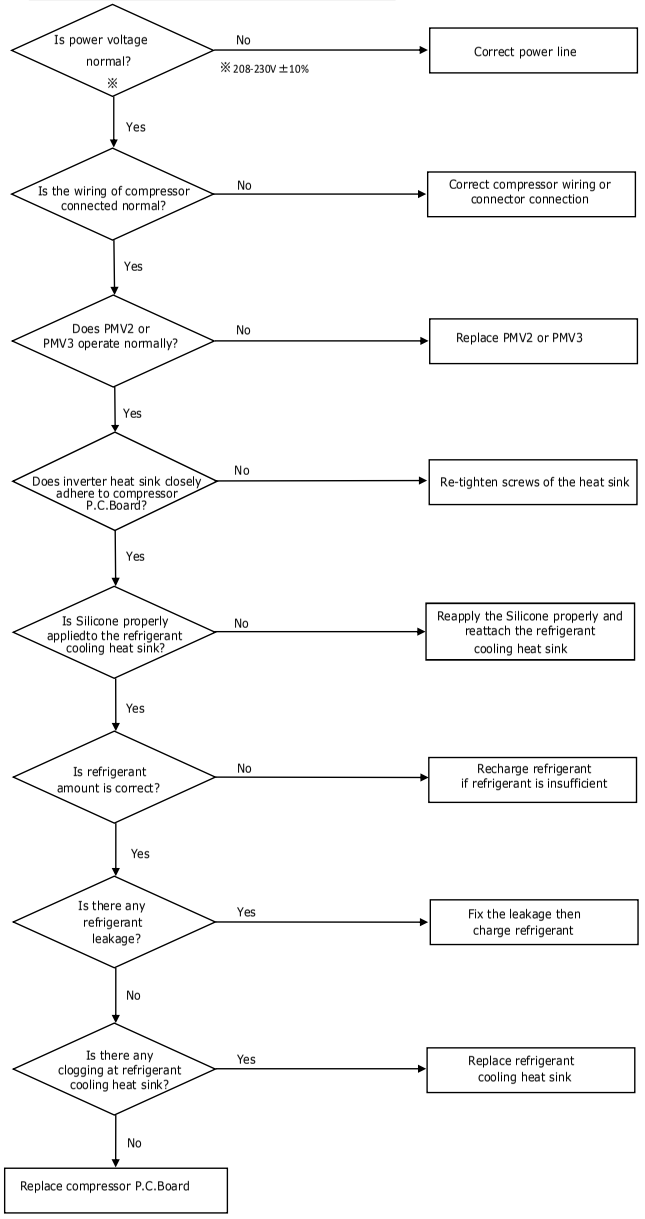


| Check code | Check code name | Cause |
|---|---|---|
| [P04] | Trouble concerning high-pressure SW | 1. High-pressure SW trouble<br>2. Service valve closed<br>3. Pd sensor trouble<br>4. Indoor/outdoor fan trouble<br>5. Indoor/outdoor PMV choke<br>6. Indoor/outdoor heat exchanger clogging, air short circuit<br>7. SV4 circuit trouble<br>8. Discharge line check valve malfunction<br>9. Refrigerant overcharge |



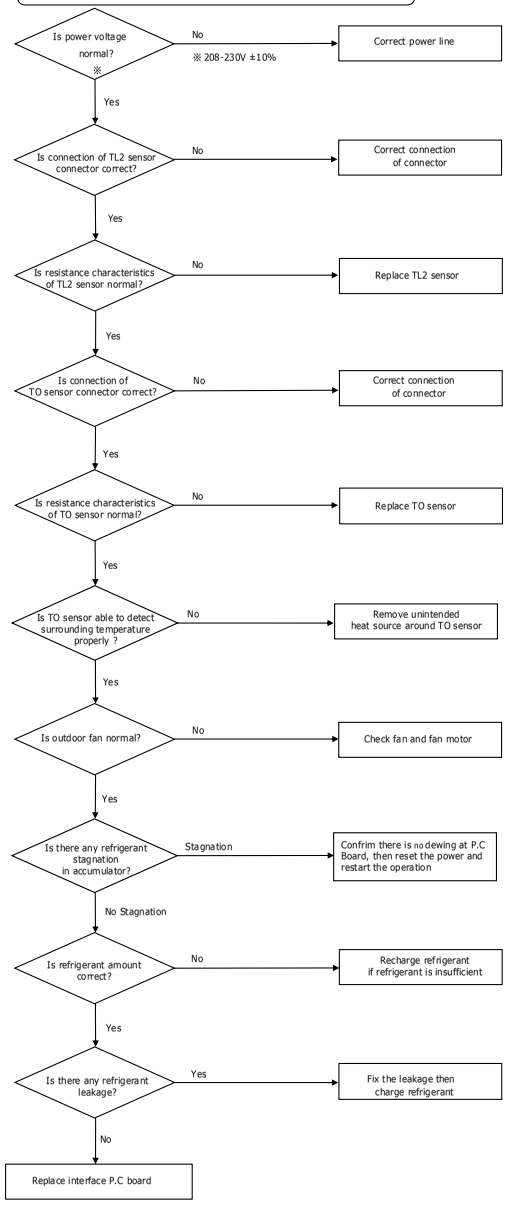
| Check code | Check code name | Cause |
|---|---|---|
| [P07-1*, 2*] | Heat sink overheat trouble | 1. Power voltage trouble<br>2. Heat sink installation trouble<br>3. Clogging at PMV2, 3<br>4. Compressor P.C.Board trouble |

Sub-code:
00:Compressor temperature sensor trouble
1* : Compressor 1 TH sensor trouble
2* : Compressor 2 TH sensor trouble



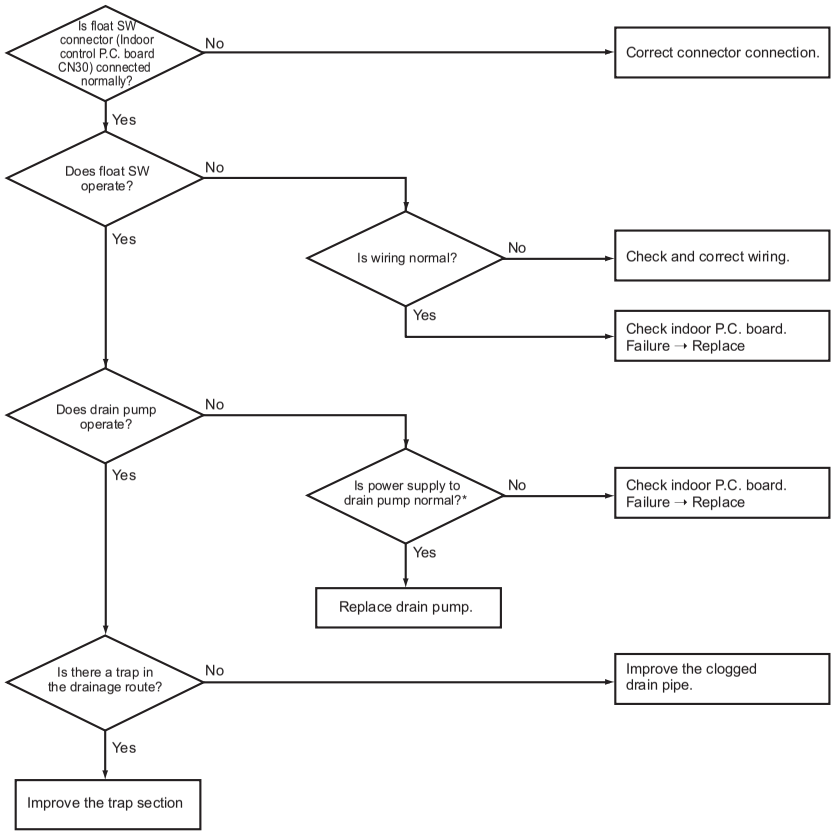

| Check code | Check code name | Cause |
|---|---|---|
| [P07-04] | Heat sink dewing trouble | 1. Power voltage trouble<br>2. Refrigerant stagnation in accumulator<br>3. Refrigerant leakage<br>4. Outdoor fan system trouble<br>5. TL2 sensor trouble<br>6. TO sensor trouble<br>7. Interface P.C.Board trouble |

Sub-code:
04:Heat sink dewing trouble



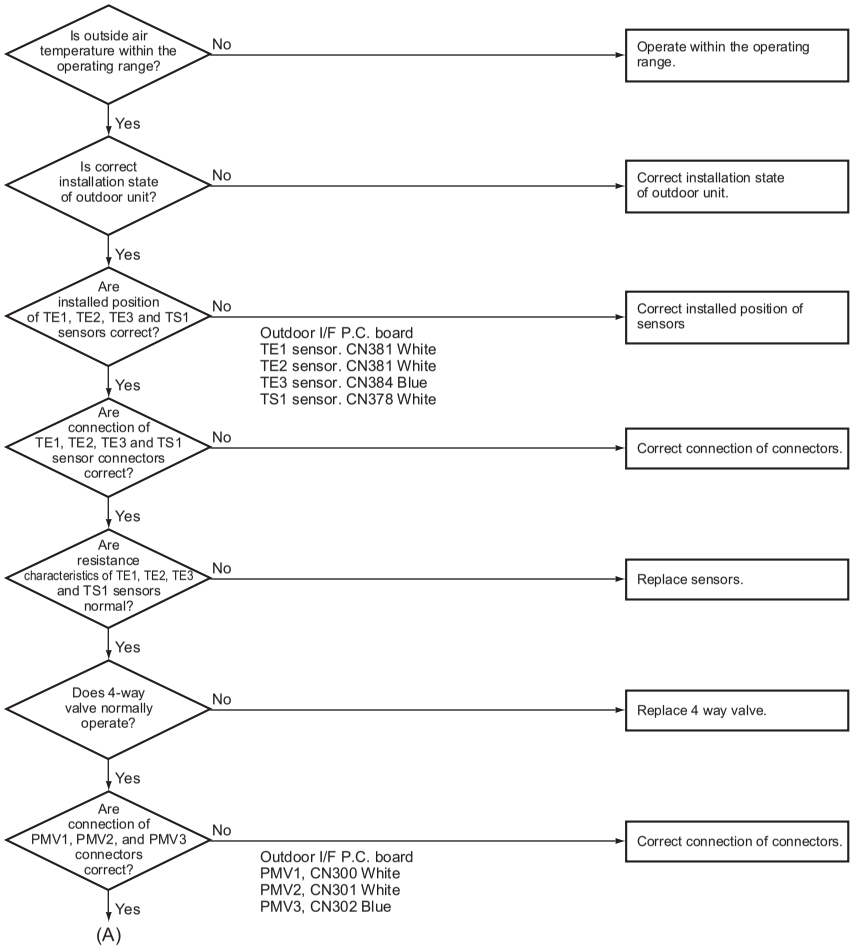
| Check code | Check code name | Cause |
|---|---|---|
| [P10] | Water overflow in an indoor unit | 1. Float SW malfunction<br>2. Drain pump malfunction<br>3. Clogging of drain pipe<br>4. Indoor P.C. board trouble |

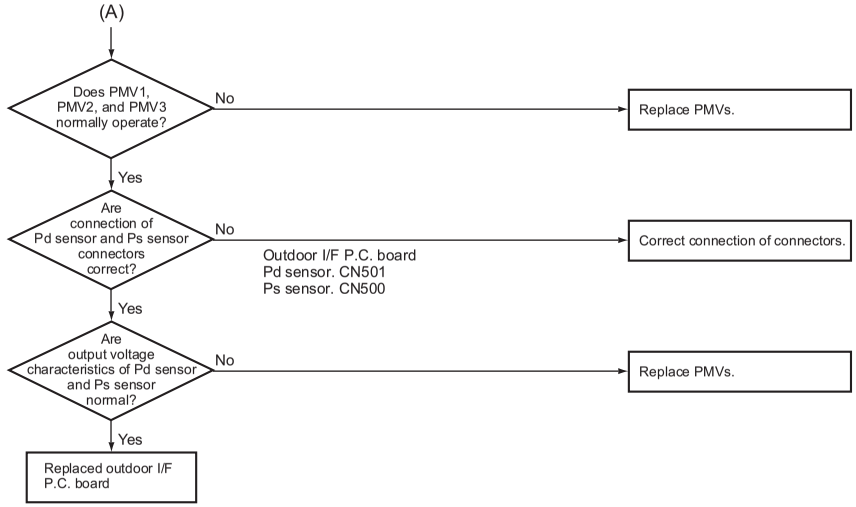
Sub-code: Overflowing indoor unit's address




* Check there is 220V voltage of 1-3 pin of CN504 on indoor P.C. board.

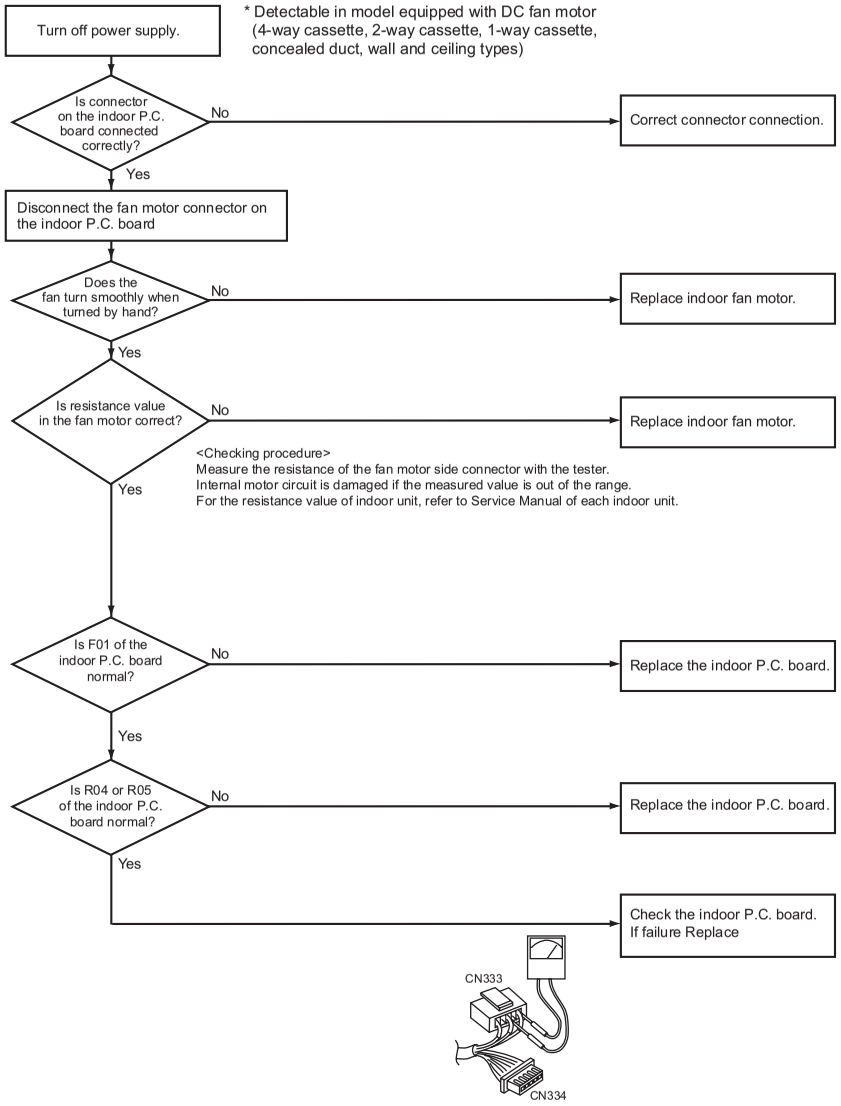
| Check code | Check code name | Cause |
|---|---|---|
| [P11] | Outdoor heat exchanger freeze trouble | 1. Refrigerant shortage<br>2. TE1, TE2, TE3 sensor trouble<br>3. Pd, Ps sensor trouble<br>4. TS1 sensor trouble<br>5. 4-way valve trouble<br>6. PMV1 / PMV2 / PMV3 trouble<br>7. Outdoor I/F P.C. board trouble<br>8. Short circuit from outlet air to inlet air |



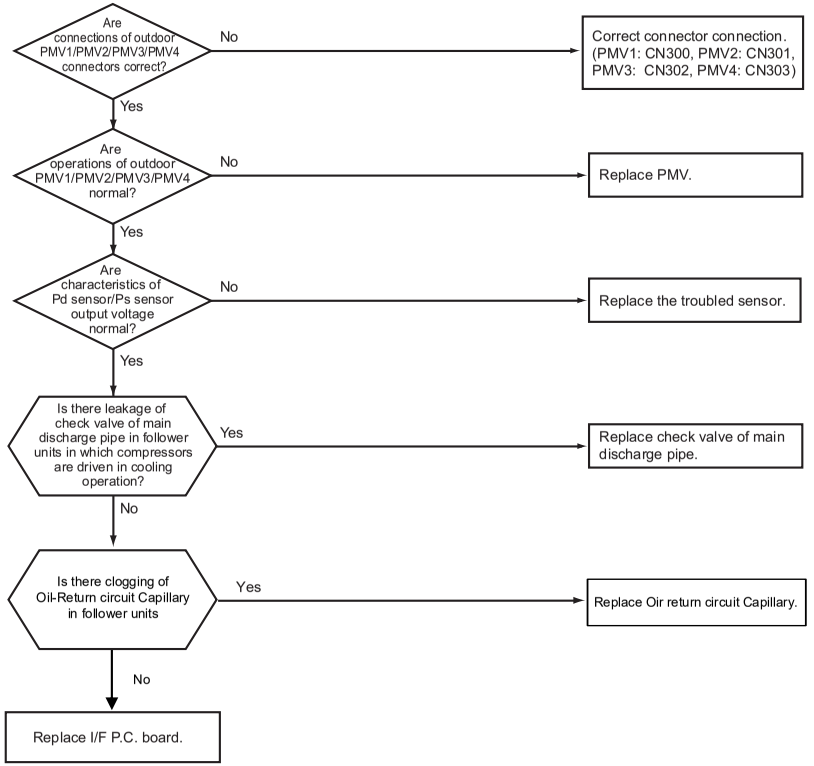



| Check code | Check code name | Cause |
|---|---|---|
| [P12] | Indoor fan motor trouble | 1. Wiring trouble of fan motor connector<br>2. Fan motor trouble<br>3. Indoor P.C. board trouble |

* Detectable in model equipped with DC fan motor (4-way cassette, 2-way cassette, 1-way cassette, concealed duct, wall and ceiling types)

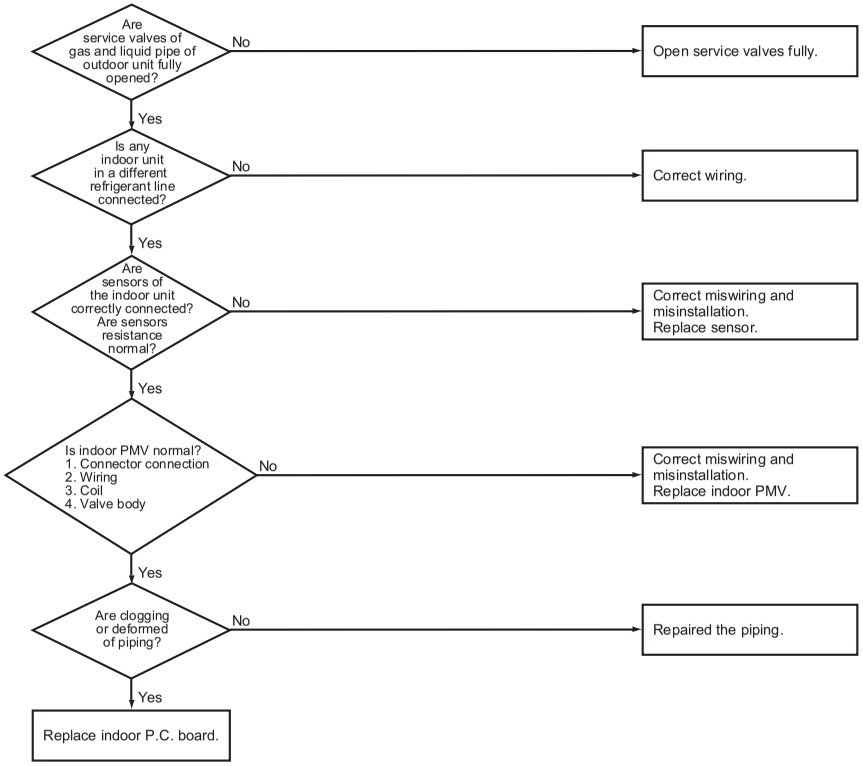



| Check code | Check code name | Cause |
|---|---|---|
| [P13] | Outdoor liquid back detection trouble | 1.PMV1/PMV3/PMV4 trouble<br>2. Pd sensor, Ps sensor trouble<br>3. Leakage at a check valve on a main discharge pipe<br>4. Outdoor I/F P.C. board trouble |

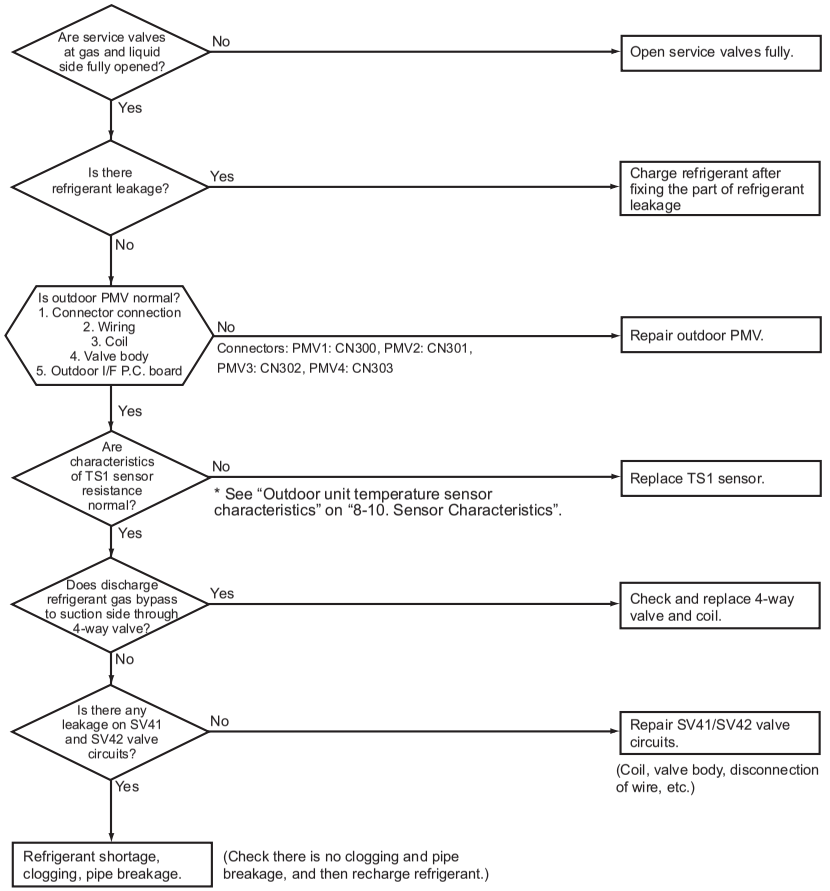


| Check code | Check code name | Cause |
|---|---|---|
| [P14] | Another refrigerant cycle protection | 1. Service valve closed<br>2. Indoor/outdoor communication wire miswiring<br>3. Indoor sensor or PMV trouble<br>4. Clogging or deformed of piping |

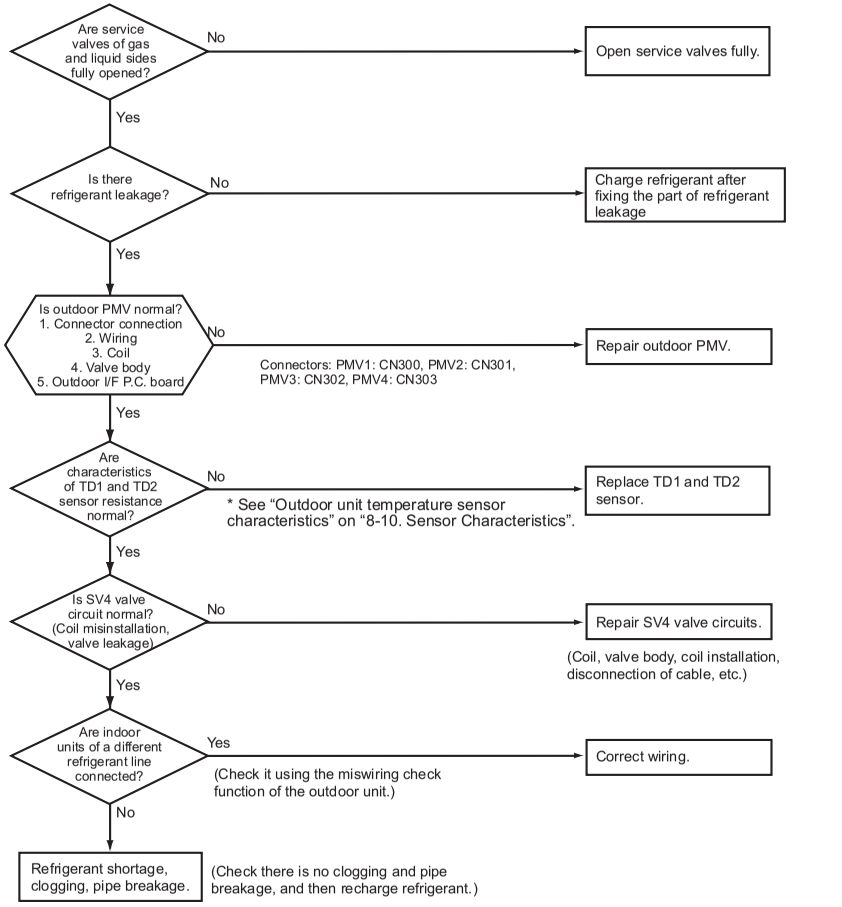
Sub-code 01: Outdoor unit valve is closed



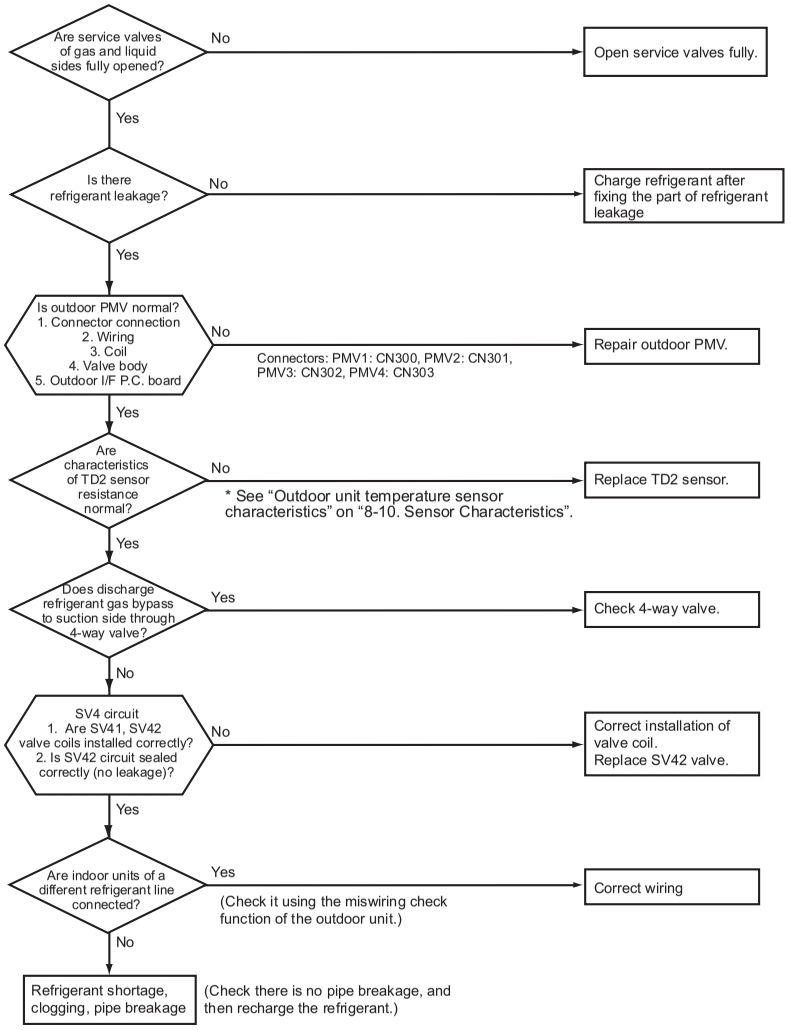
| Check code | Check code name | Cause |
|---|---|---|
| [P15] | Gas leak detection<br>TS condition (Sub-code: 01) | 1. Outdoor unit service valve closed<br>2. Outdoor PMV trouble<br>3. TS1 sensor trouble<br>4. Refrigerant shortage, clogging refrigerant circuit<br>5. 4-way valve trouble<br>6. SV4 circuit trouble |



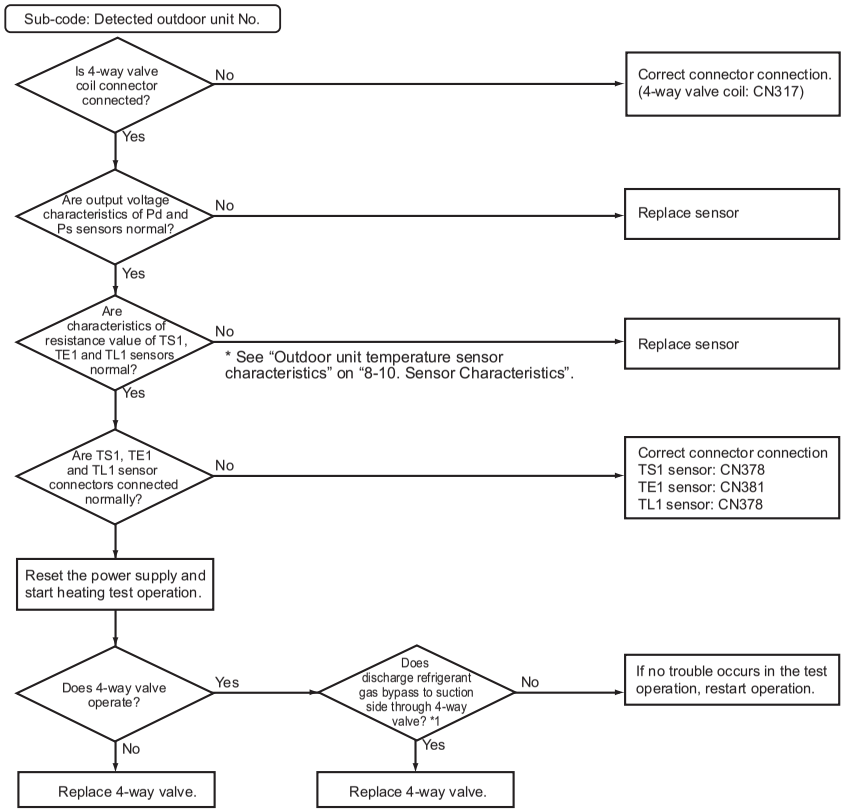

| Check code | Check code name | Cause |
|---|---|---|
| [P15] | Gas leak detection<br>TD condition (Sub-code: 02) | 1. Outdoor unit service valve closed<br>2. Outdoor PMV trouble<br>3. TD sensor trouble<br>4. SV4 circuit trouble<br>5. Refrigerant shortage, clogging refrigerant circuit |



| Check code | Check code name | Cause |
|---|---|---|
| [P17] | Discharge temp TD2 trouble | 1. Outdoor unit service valve closed<br>2. Outdoor PMV trouble<br>3. TD2 sensor trouble<br>4. Refrigerant shortage, clogging of refrigerant circuit<br>5. 4-way valve trouble<br>6. SV4 circuit leakage, misinstallation |

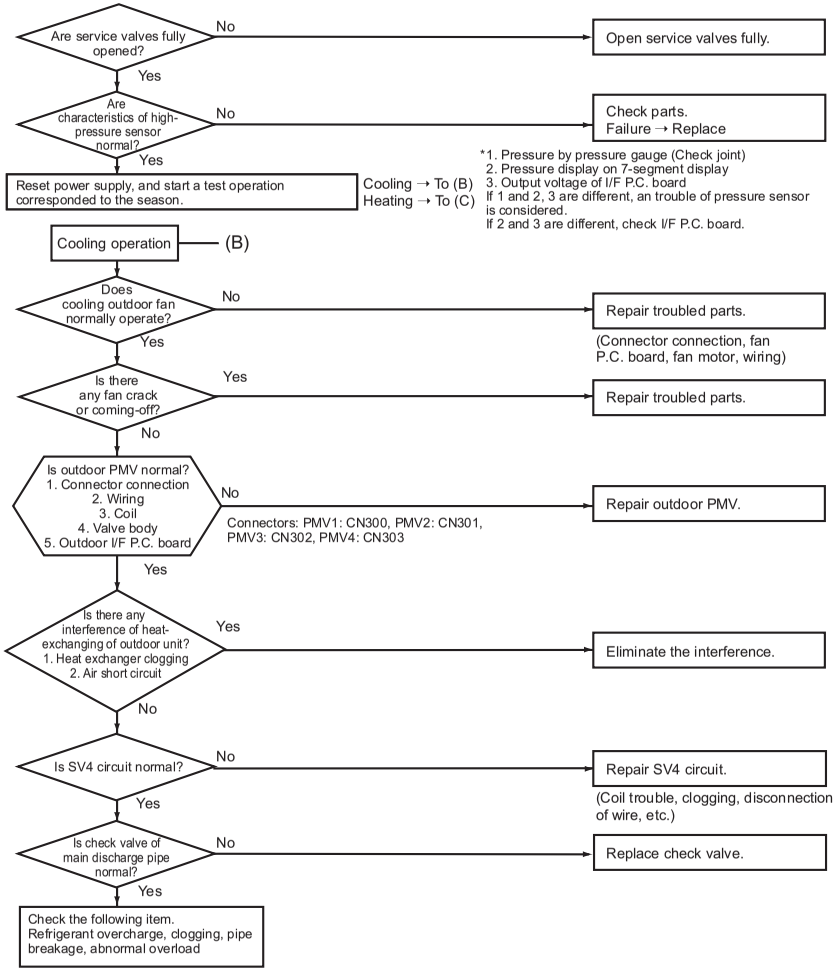


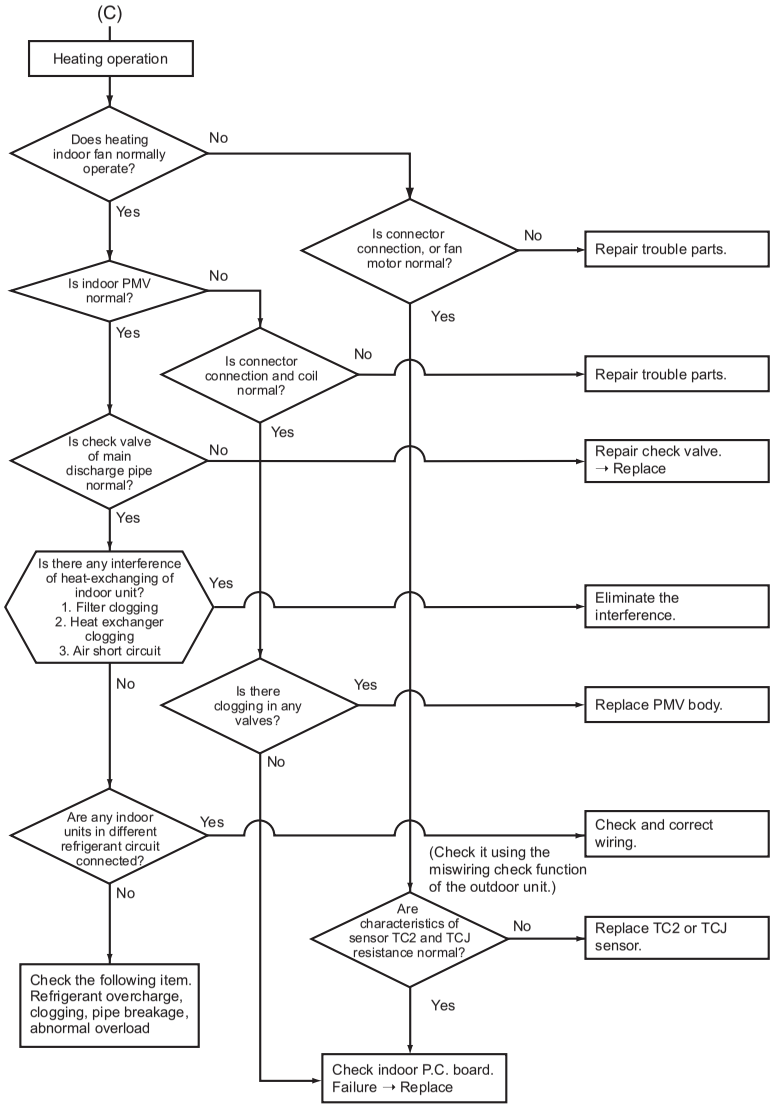

| Check code | Check code name | Cause |
|---|---|---|
| [P19] | 4-way valve reverse trouble | 1. 4-way valve trouble<br>2. TS1 sensor/TE1 sensor trouble<br>3. Pd sensor/Ps sensor trouble<br>4. TE1 sensor/TL1 sensor misconnection |




*1 Check TS1 and TE1 temperature of the outdoor unit which is running.
(I/F) SW01=[1], SW02=[7], SW03=[2] → TS sensor temperature
SW01=[1], SW02=[10], SW03=[2]→ TE sensor temperature
<Judgment criteria>
TE1 sensor: Normal if TE1 is 86°F(30°C) or less in the seasons except summer (Outside temp 68°F(20°C) or lower)
TS1 sensor: Normal if TS is 122°F(50°C) or less in the seasons except summer (Outside temp 68°F(20°C) or lower)

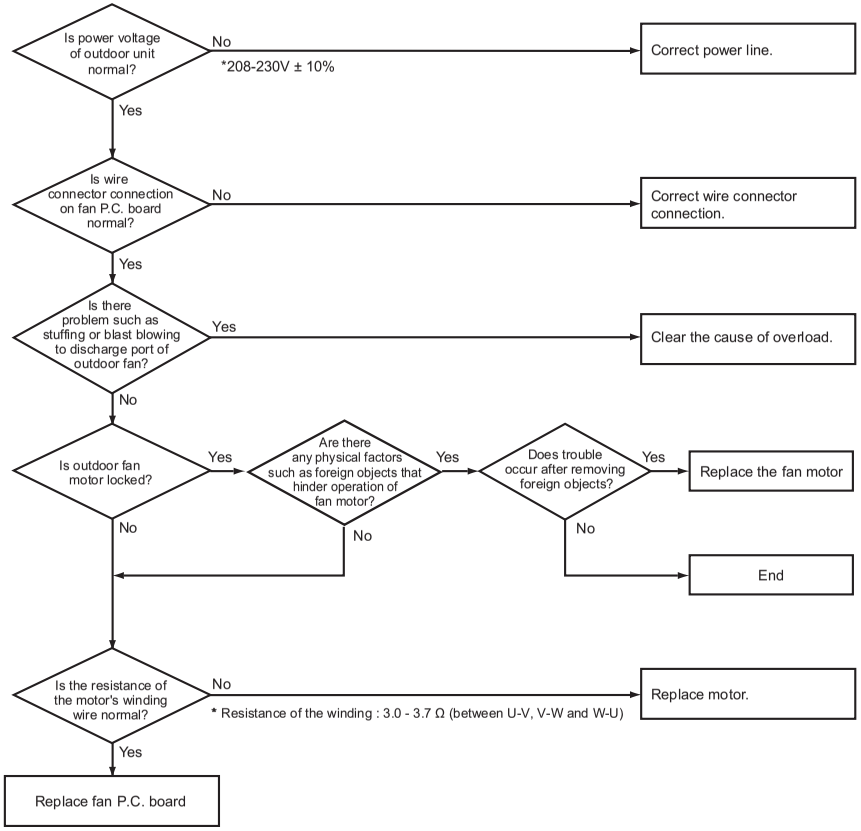
| Check code | Check code name | Cause |
|---|---|---|
| [P20] | High-pressure protective operation | 1. Pd sensor trouble<br>2. Service valve closed.<br>3. Indoor/outdoor fan trouble<br>4. Indoor/outdoor PMV clogging<br>5. Indoor/outdoor heat exchanger clogging<br>6. SV4 circuit trouble<br>7. Outdoor I/F P.C. board trouble<br>8. Operation trouble of check valve of main discharge pipe<br>9. Refrigerant overcharge |



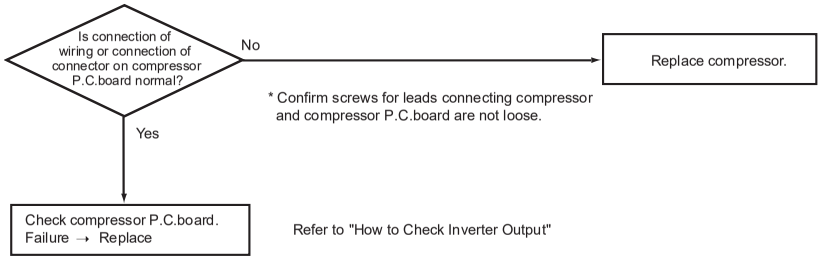
| Check code | Check code name | Cause |
|---|---|---|
| [P22] | Outdoor fan motor trouble | 1. Fan motor lock<br>2. Fan P.C. board trouble<br>3. Overload<br>4. External cause such as blast |

Sub-code:
*1: Fan 1, *2: Fan 2



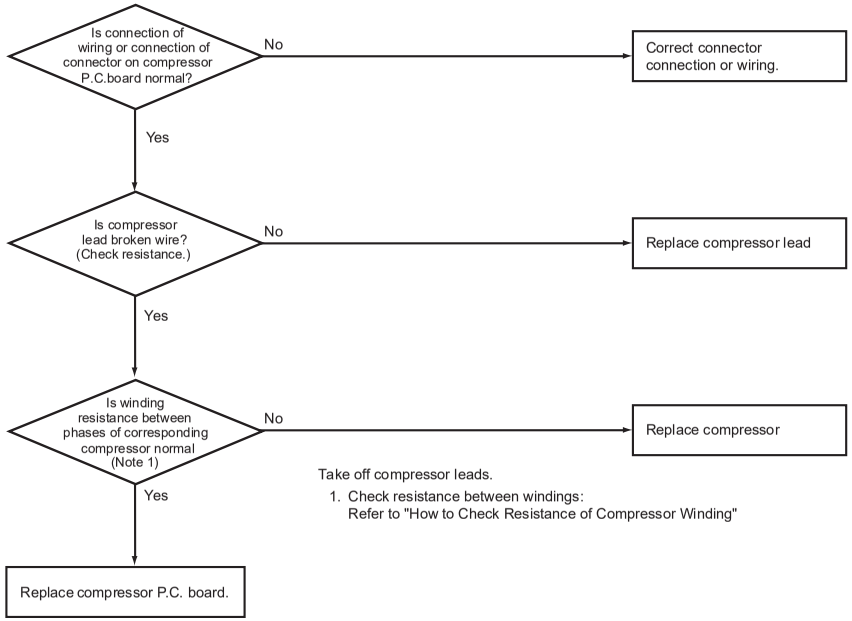

| Check code | Check code name | Cause |
|---|---|---|
| [P25] | Compressor inverter P.C.board trouble | 1. Compressor P.C.board trouble. |

Sub-code:
1*: Compressor 1, 2*: Compressor 2



| Check code | Check code name | Cause |
|---|---|---|
| [P26] | Compressor start up trouble. | 1. Compressor trouble / Wire connection trouble.<br>2. Compressor leads trouble.<br>3. Compressor P.C.board trouble. |

Sub-code:
1∗: Compressor 1, 2∗: Compressor 2

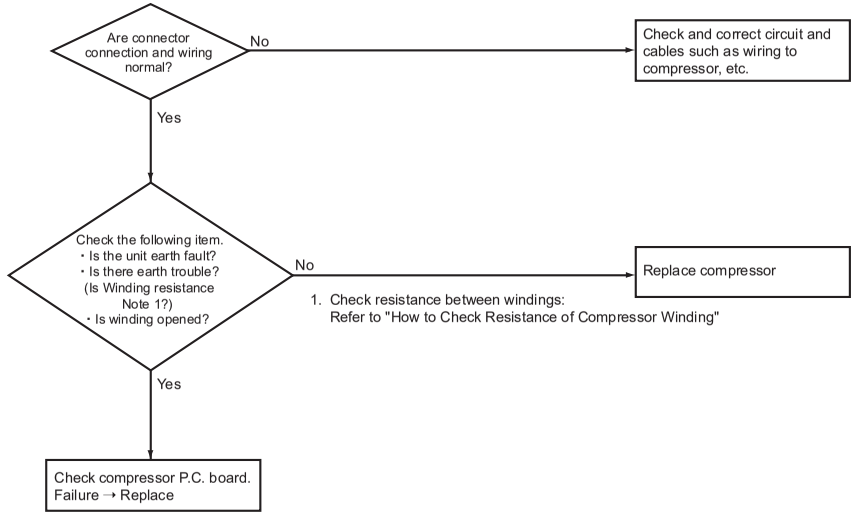



Take off compressor leads.

1. Check resistance between windings:
   Refer to "How to Check Resistance of Compressor Winding"

| Check code | Check code name | Cause |
|---|---|---|
| [P29] | Compressor position detective circuit trouble | 1. Wire/connector connection trouble<br>2. Compressor trouble<br>3. Compressor P.C. board trouble |

Sub-code:
1∗: Compressor 1, 2∗: Compressor 2




1. Check resistance between windings:
   Refer to "How to Check Resistance of Compressor Winding"

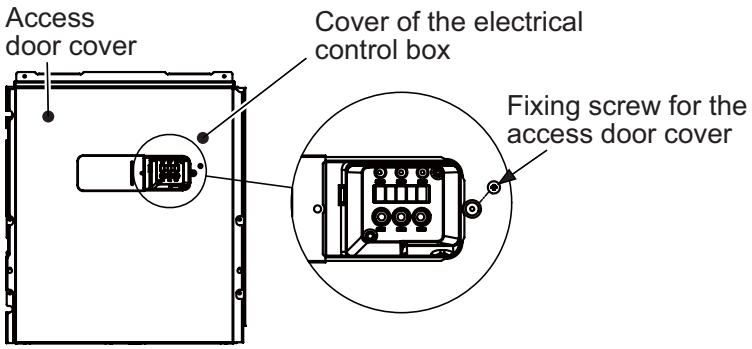
| Check code | Check code name | Cause |
|---|---|---|
| [P31] | Other indoor trouble (Group follower unit trouble) | Another indoor unit in the group is abnormal. |

When the header unit of the group detected trouble [E03], [L03], [L07] or [L08], the follower unit of the group displays [P31] trouble and stops. There are no check code display and alarm record of the main remote controller.

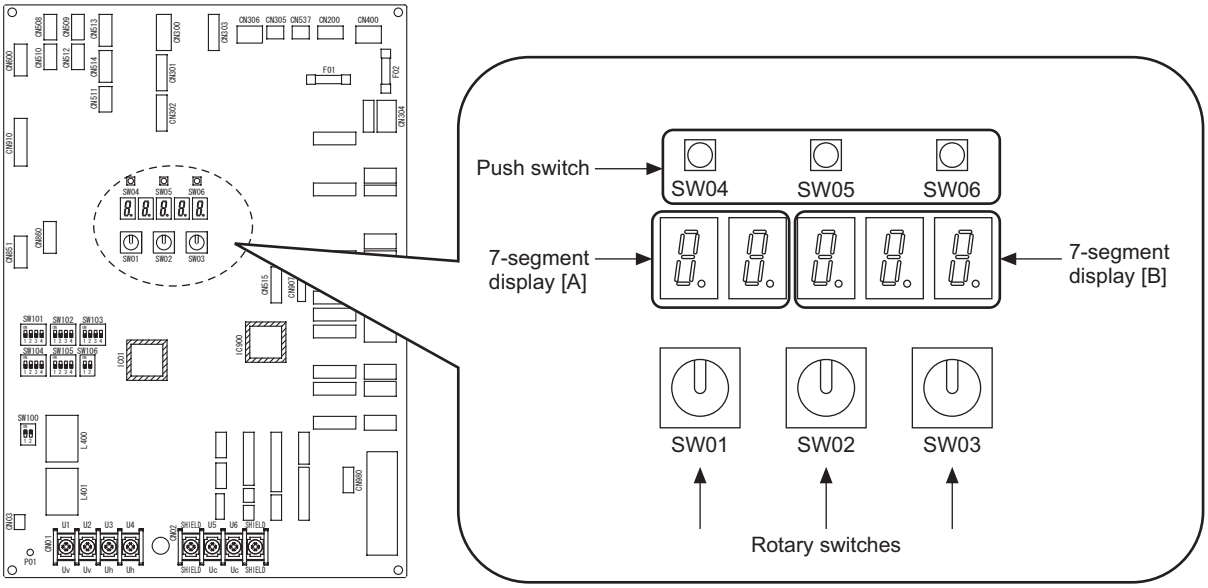
## 8-6. 7-Segment Display Function

### 7-segment display on outdoor unit (interface P.C. board)

The interface control P.C. board features a 7-segment LED display designed to check operational status. Display items can be changed by changing the combination of the number settings of rotary switches provided on the P.C. board (SW01, SW02 and SW03).




**Interface P.C. board**



## Checking Procedure to Be Followed in Event of Abnormal Shutdown

If the system is shut down due to a trouble in the outdoor unit, perform checks in the following steps:

### *1* Open the panel of the outdoor unit and inspection window of the electric parts box, and check the 7-segment display.

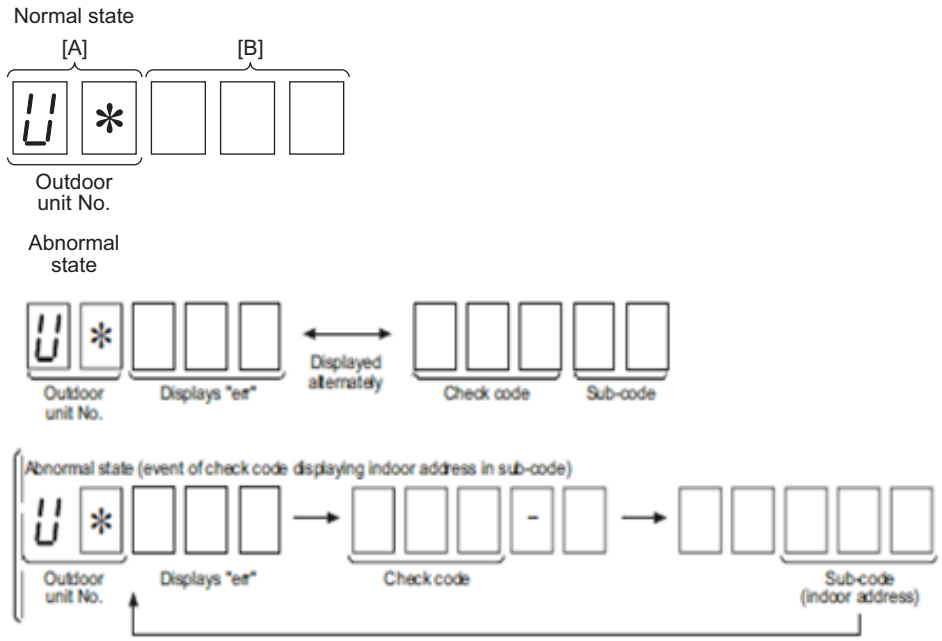
The check code is displayed in the 7-segment display.

**Checking Procedure to be Followed in Event of Abnormal Shutdown**

In the event of a system shutdown due to an abnormal state at the outdoor unit, perform checks in the following steps.

1. Open the panel of the outdoor unit and inspection window of the electric parts box, and check the 7-segment display.

The check code is displayed in the 7-segment display.
* Switch settings when confirming check code: set [SW01/ SW02/ SW03] to [1/1/1].




2. Confirm the check code, and perform checking following the diagnostic procedure for that check code.
3. In the event of the 7-segment display of the header unit being check code [E28. ∗ ∗], there is an abnormality occurring at a follower unit. Push the push-switch SW04 of the header unit for several seconds. The outdoor fan will run only in the outdoor unit where the trouble has occurred, so open the panel of the unit where the fan is running, and confirm the check code of the 7-segment display.
4. Perform checking following the diagnostic procedure for that check code.

* To check the check code, set the rotary switches SW01/SW02/SW03 to [1/1/1].

### *2* Check the check code and follow the applicable diagnostic procedure.

### *3* If the 7-segment display shows [E28␣␣], there is a trouble in a follower unit.

Push the push-switch SW04 on the header unit and hold for several seconds.
As the fan of the outdoor unit in which the trouble has occurred comes on, open the panel of the unit, and check the check code shown on the 7-segment display.

### *4* Perform checks in accordance with the diagnostic procedure applicable to the check code.

## (1) Display of System Information (Displayed on Header Outdoor Unit Only)

| SW01 | SW02 | SW03 | | Display detail | | | |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 3 | – | – | | | |
| | 2 | | System capacity | A | […6.0t]~[40.0t]: 6 to 40 ton | | |
| | | | | B | | | |
| | 3 | | No. of outdoor units | A | […1]~[…3]: 1 to 3 | | |
| | | | | B | […P] | | |
| | 4 | | No. of indoor units connected / No. of units with cooling thermostat ON | (1) [... ... ... 0 ] ~ [ ... ... 74 ] : 0 ~ 74 (Number of connected units)<br>(2) [ H ... ... 0 ] ~ [ H ... 74 ] : 0 ~ 74 (Number of cooling thermostat ON)<br>*Switch the display of (1) and (2) with SW04 | | |
| | 5 | | No. of indoor units connected / No. of units with heating thermostat ON | (1) [ ... ... ... 0 ] ~ [ ... ... 74 ] : 0 ~ 74 (Number of connected units)<br>(2) [ H ... ... 0 ] ~ [ H ... 74] : 0 ~ 74 (Number of cooling thermostat ON)<br>*Switch the display of (1) and (2) with SW04 | | |
| | 6 | | Amount of compressor command correction | A | Value displayed in hexadecimal format | | |
| | | | | B | | | |
| | 7 | | Release control | A | Normal: [r. …], During release control: [r.1] | | |
| | | | | B | – | | |
| | 8 | | Oil equalization control | Normal: [oiL-0] | | | |
| | | | | During oil equalization control: [oiL-1] | | | |
| | 9 | | – | | – | | |
| | 10 | | Refrigerant/oil recovery operation | A | Oil recovery in cooling: [C1], Normal: [C …] | | |
| | | | | B | Refrigerant recovery in heating: [H1], Normal: [H …] | | |
| | 11 | | Automatic addressing | A | [Ad] | | |
| | | | | B | During automatic addressing: [… FF], Normal: [… … …] | | |
| | 12 | | Power peak-cut | A | [dU] | | |
| | | | | | Normal: [… … …], During 50-90% capacity operation: [_50-_90]<br>While control is based on BUS line input: [E50-E90] | | |
| | 13 | | Optional control (P.C. board input) | Displays optional control status | | A | B |
| | | | | Operation mode selection: During priority heating (normal) | | h.*. | *.*.*. |
| | | | | | Priority cooling | c.*. | *.*.*. |
| | | | | | Heating only | H.*. | *.*.*. |
| | | | | | Cooling only | C.* | *.*.*. |
| | | | | | Priority given to No. of indoor units in operation | n.*. | *.*.*. |
| | | | | | Priority given to specific indoor unit | U.*. | *.*.*. |
| | | | | External master ON/OFF: Normal | | *..... | *.*.*. |
| | | | | | Start input | *.1. | *.*.*. |
| | | | | | Stop input | *.0. | *.*.*. |
| | | | | Night operation: Normal | | *.*. | ....*.*. |
| | | | | | Start input | *.*. | 1.*.*. |
| | | | | Snowfall operation: Normal | | *.*. | *.....*. |
| | | | | | Start input | *.*. | *.1.*. |
| | 14 | | Optional control (BUS line input) | Same as above | | | |
| | 15 | | – | – | | | |
| | 16 | | – | – | | | |

## (2) Display of Outdoor Unit Information (Displayed on Each Outdoor Unit)

| SW01 | SW02 | SW03 | Display detail | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | Check code data | A | Outdoor unit No.: [U1] to [U5] | | | |
| | | | | B | If there is no check code, [U. ∗. − − −] is displayed.<br>If there is check code, [U. ∗. err] ⇔ [OOO]. [ △△ ]<br>([OOO] : Check code, [ △△ ] : Sub-code) . . .<br>(The display switches alternately)<br>(∗: Outdoor unit No.) | | | |
| | | | <SW04> push SW function: Fan operation at outdoor unit with trouble. 7-segment display section A: [E.1]<br><SW04 + SW05> push SW function: Fan operation at outdoor unit without trouble. 7-segment display section A: [E.0]<br><SW05> push SW function: Fan operation function check mode is cancelled. | | | | | |
| | 2 | | – | A | – | | | |
| | | | | B | – | | | |
| | 3 | | Operation mode | A | Stop [… …]<br>Normal cooling: [… C], Normal heating: [… H], Normal defrosting: [… J] | | | |
| | | | | B | – | | | |
| | 4 | | Outdoor unit ton capacity | A<br>B | 6 ton: [ ] [ ] [ 6. ] [ 0 ] [ t ] 8 ton: [ ] [ ] [ 8. ] [ 0 ] [ t ]<br>10 ton: [ ] [ 1 ] [ 0. ] [ 0 ] [ t ] 12 ton: [ ] [ 1 ] [ 2. ] [ 0 ] [ t ]<br>14 ton: [ ] [ 1 ] [ 4. ] [ 0 ] [ t ] | | | |
| | 5 | | Compressor operation command*Operation data of each compressor is displayed in turn in 2 second intervals. | | | | | |
| | | | Normal: Compressor speed (rps) is displayed in decimal format.<br>7-segment display (A/B): [C1. ... ... ... ] ⇒ [ ... ∗ ∗ ∗, ∗ ] ⇒ [C2. ... ... ... ] ⇒ [ ... ∗ ∗ ∗, ∗ ] | | | | | |
| | | | <SW04> push SW function: Switches to display of operating current (decimal value).<br>7-segment display (A/B): [i1 . ... ... ... ] ⇒ [...****] ⇒ [i2. ... ... ...] ⇒ [...****]<br>Pushing of <SW05> restores normal display. | | | | | |
| | 6 | | Outdoor fan mode | A | [FP] | | | |
| | | | | B | Mode 0 to 63: [… 0] to [63] | | | |
| | 7 | | Compressor backup | A | [C.b.] | | | |
| | | | | B | Displays compressor backup setting status<br>Normal: [… … …]<br>Compressor No. 1 backup: [1 … …]<br>Compressor No. 2 backup: [… 1 …] | | | |
| | 8 | | – | A | – | | | |
| | | | | B | – | | | |
| | 9 | | Control valve output data | Displays control output status of solenoid valve | | | A | B |
| | | | | 4-way valve: ON | | | H. 1 | ... ... ... |
| | | | | 4-way valve: OFF | | | H. 0 | ... ... ... |
| | 10 | | | — | | | — | — |
| | 11 | | | SV3D: ON / SV3F: OFF | | | 3. ... | 1 0 ... |
| | | | | SV3D: OFF / SV3F: ON | | | 3. ... | 0 1 ... |
| | 12 | | | SV41: ON / SV42: OFF | | | 4. ... | 1 0 ... |
| | | | | SV41: OFF / SV42: ON | | | 4. ... | 0 1 ... |
| | 13 | | | — | | | — | — |
| | 14 | | PMV1//PMV2PMV3 opening | Displays opening data in decimal format.<br>"Switch display of PMV1, PMV2, and PMV3 by pushing <SW04>" | | PMV1 | ∗ ∗ | ∗ ∗ .P |
| | | | | | | PMV2 | ... ∗ | ∗ ∗ .P |
| | | | | | | PMV3 | ... ∗ | ∗ ∗ .P |
| | 15 | | PMV4 opening | Displays opening data in decimal format. | | PMV4 | … ∗ | ∗ ∗. P |
| | 16 | | Oil level judgment status | | | | | |
| | | | Normal | A | [o L.] | | | |
| | | | | B | Initial display: [… … …], Oil level judgment result: [#.∗.$]<br>Displayed letters #, ∗ and $ represent judgment results for compressor Nos. 1 and 2, respectively (“0” for normal and “1” or “2” for low level). | | | |
| | | | <SW04> push SW function: Displays low level confirmed judgment result of each compressor. | | | | | |
| | | | *Pushing of <SW05> restores normal display. | A | [L d.] | | | |
| | | | | B | Compressor No. 1 low level being confirmed: [L … …]<br>Compressor No. 2 low level being confirmed: [… L …] | | | |
| | | | <SW15> push SW function : for 2 seconds, change display to low level judgement timer | | | | | |
| | | | *Pushing of <SW05> restores normal display | A | [ T …, ] | | | |
| | | | | B | Low level judgment timer : [120] (i.e. : 120 minutes) | | | |

## (3) Display of Outdoor Cycle Data (Displayed at Each Outdoor Unit)

| SW01 | SW02 | SW03 | Display detail | | | A | B |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 2 | Pd pressure data | Pd pressure (psi) is displayed in decimal format. (psi: Approx. 14 times magnitude of kg/cm$^2$G) | | P d. | ∗. ∗ ∗ |
| | 2 | | Ps pressure data | Ps pressure (psi) is displayed in decimal format. | | P s. | ∗. ∗ ∗ |
| | 3 | | PL pressure conversion data | Converted PL pressure (psi) is displayed in decimal format. | | P L. | ∗. ∗ ∗ |
| | 4 | | TD1 sensor data | Temperature sensor reading (°F) is displayed in decimal format. • Letter symbol and data are displayed alternately, for 1 second and display for 3 seconds, respectively. • Data is displayed in [ ∗ ]. • Data with negative value is displayed as [– ∗]. | Letter symbol | t d | 1 ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 5 | | TD2 sensor data | | Letter symbol | t d | 2 ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 7 | | TS1 sensor data | | Letter symbol | t S | 1 ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 9 | | TS3 sensor data | | Letter symbol | t S | 3 ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 10 | | TE1 sensor data | | Letter symbol | t E | 1 ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 11 | | TE2 sensor data | | Letter symbol | t E | 2 ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 12 | | TE3 sensor data | | Letter symbol | t E | 3 ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 13 | | TL1 sensor data | | Letter symbol | t L | 1 ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 14 | | TL2 sensor data | | Letter symbol | t L | 2 ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 15 | | TL3 sensor data | | Letter symbol | t L | 3 ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 16 | | TO sensor data | | Letter symbol | t o | ... ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |

| SW01 | SW02 | SW03 | Display detail | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 5 | TK1 sensor data | Temperature sensor reading (°F) is displayed in decimal format. | Letter symbol | F 1 | ... ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 2 | | TK2 sensor data | | Letter symbol | F 2 | ... ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 6 | | TG1 sensor data | | Letter symbol | t G | 1 ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 7 | | TG2 sensor data | | Letter symbol | t G | 2 ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 8 | | TG3 sensor data | | Letter symbol | tG | 3 ... ... |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 9 | | Predicted TK1 (TK1_Pre data) | | Letter symbol | F1 | PrE |
| | | | | | Data | ∗ | ∗. ∗ ∗ |
| | 10 | | Predicted TK2 (TK2_Pre data) | | Letter symbol | F2 | PrE |
| | | | | | Data | ∗ | ∗. ∗ ∗ |

### (4) Display of Outdoor Cycle Data (Displayed at Header Unit)

***** This method is used when displaying follower unit information on the 7-segment display of the header unit.

| SW01 | SW02 | SW03 | Display detail | | |
|---|---|---|---|---|---|
| 3 | 1 | 1~4 | Trouble data | A | [U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5) |
| | | | | B | Check code is displayed (latest one only).<br>If there is no check code: [– – –]. |
| | 2 | | — | A | — |
| | | | | B | — |
| | 3 | | Outdoor unit ton capacity | A | [U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5) |
| | | | | B | 6 ton : [… 6.0], 8 ton : [… 8.0], 10 ton : [… 10.0],<br>12 ton : [12.0], 14 ton : [14.0], 16 ton: [16.0] |
| | 4 | | Compressor operation command | A | [U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5) |
| | | | | B | Indicates which compressor is ON.<br>∗ Any unconnected compressors is represented by "–".<br>When compressor No. 1 is ON<br>When compressor No. 2 is ON |
| | | | | | B<br>1 0<br>0 1 |
| | 5 | | Fan operation mode | A | [U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5) |
| | | | | B | At rest: [F … 0], In mode 63: [F 6 3] |
| | 6 | | Release signal | A | [U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5) |
| | | | | B | Normal: [r … …], Upon receiving release signal: [r … 1] |
| | 7 | | Oil level judgment | A | [U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5) |
| | | | | B | Normal: [… … …], Low level: [… … L] |
| | 8 | | Compressor 1 operating current | A | [U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5) |
| | | | | B | [∗∗.∗], ∗∗.∗ is value of operating current in decimal format. |
| | 9 | | Compressor 2 operating current | A | [U.∗], ∗SW03 setting No. + 1 (Outdoor unit No. U2 to U5) |
| | | | | B | [∗∗.∗], ∗∗.∗ is value of operating current in decimal format. |

**Note:** Follower unit is selected by setting SW03.

| SW03 | 7-segment display section A |
|---|---|
| 1 | U2 |
| 2 | U3 |
| 3 | U4 |
| 4 | U5 |

### (5) Display of Indoor Unit Information (Displayed on Header Unit Only)

| SW01 | SW02 | SW03 | Display detail | | |
|---|---|---|---|---|---|
| 4 | 1~16 | 1~8 | Indoor check code | B | No check code : [- - -] |
| | | | Indoor BUS communication signal receiving status | B | Upon receiving signal : [... ... 1], Other times : [..... ...] |
| 5 | | | Indoor ton capacity | B | ... 0.6, ...0.8, ...1.0, ...1.2, ... 1.5, ... 1.7, ... 2.0, ... 2.2, ... 2.5, ...3.0, ...4.0, ...4.5, ... 6.0, ... 8.0, ... 12.0, 14.0, 16.0 |
| | | | Indoor request command (S code, operation mode) | B | [#.... *]<br># represents mode :<br>COOL : [C. ... *], HEAT : [H … F]<br>FAN : [F. ... *], OFF : [S … *]<br>* represents S code : [#. … 0] to [#. … F] |
| 6 | | | Indoor PMV opening data | B | Displayed in decimal format |
| 7 | | | Indoor temperature sensor data1 | B | Switch temperature display of TA, TCJ, TC1 and TC2 with SW06 |
| 8 | | | Indoor temperature sensor data2 | B | Switch temperature display of TF, TA2 and TA3 with SW06 |
| 9 | 1 | 1 | Outdoor DN code setting | | Outdoor DN code setting |

**Note:** Indoor address No. is selected by setting SW02 and SW03 and displayed on 7-segment display, section A.

| SW02 | SW03 | Indoor address | 7-segment display section A |
|---|---|---|---|
| 1 ~ 16 | 1 | SW02 setting number | [01] ~ [16] |
| 1 ~ 16 | 2 | SW02 setting number +16 | [17] ~ [32] |
| 1 ~ 16 | 3 | SW02 setting number +32 | [33] ~ [48] |
| 1 ~ 16 | 4 | SW02 setting number +48 | [49] ~ [64] |
| 1 ~ 16 | 5 | SW02 setting number +64 | [65] ~ [80] |
| 1 ~ 16 | 6 | SW02 setting number +80 | [81] ~ [96] |
| 1 ~ 16 | 7 | SW02 setting number +96 | [97] ~ [112] |
| 1 ~ 16 | 8 | SW02 setting number +112 | [113] ~ [128] |

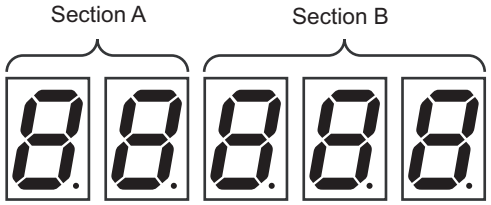
### (6) Display of Outdoor EEPROM Writing Check Code (Displayed on Header Unit Only)

* The latest check code written in the EEPROM of each outdoor unit is displayed.
  (This function is used to check the trouble code after the resetting of the power supply.)

To display the check code, push SW04 and hold for at least 5 seconds after setting SW01 to 03 as shown in the table below.

| SW01 | SW02 | SW03 | Indoor address | 7-segment display section A | |
|---|---|---|---|---|---|
| 1 | 1 | 16 | Latest check code of header unit (U1) | E. 1. | *** |
| | 2 | | Latest check code of follower unit No. 1 (U2) | E. 2. | *** |
| | 3 | | Latest check code of follower unit No. 2 (U3) | E. 3. | *** |
| | 4 | | Latest check code of follower unit No. 3 (U4) | E. 4. | *** |
| | 5 | | Latest check code of follower unit No. 4 (U5) | E. 5. | *** |

• 7-Segment Display




Set SW01/SW02/SW03 to [1/1/16] and push SW04 and hold for at least 5 seconds. The latest check code of the header unit (U1) will be displayed.

If the setting of SW02 is changed, the latest check code of a follow unit (U2-U5) will be displayed.

## 8-7. Oil Level Judgment Display

The current compressor oil level judgment results can be accessed by setting the switches provided on the interface P.C. board of an outdoor unit.

Perform the checks in accordance with the procedure described below.

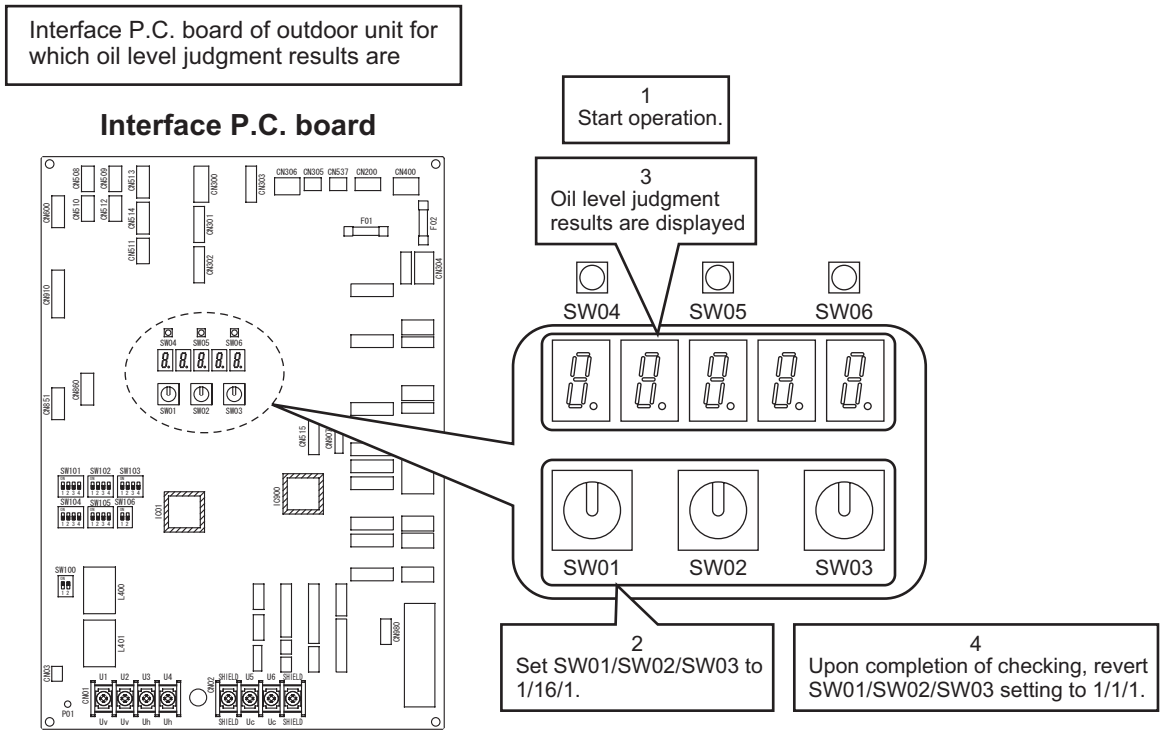
### *1* Operation Procedure

(1) Start the operation.

(2) Set the switches provided on the interface P.C. board of the outdoor unit for which oil level judgment results are required as follows: SW01/SW02/SW03 = 1/16/1

(3) The oil level judgment result will be displayed on the 7-segment display. 7-segment display: [oL] [# * ...]
The letters #, and * are digits that represent judgment results for compressor Nos. 1 and 2, respectively.
(See the table below for the interpretation of the judgment results.)

(4) When checking is completed, revert the SW01/SW02/SW03 setting to [1/1/1].




### *2* Oil Level Judgment Results

| Displayed digit | Judgment result | Description |
|---|---|---|
| 0 | Normal | The amount of oil in the compressor is sufficient. |
| 1<br>2 | Low level | The amount of oil in the compressor is insufficient. (Both “1” and “2” stand for insufficiency.)<br>If this result persists, the system will turn itself off in a protective shutdown. |

### Display example

7-segment display [ oL ] [ 0 0 ... ] Oil level is normal for compressors 1 and 2.
[ oL ] [ 2 2 ... ] Oil level is low for compressors 1 and 2.
[ oL ] [ 0 2 ... ] Oil level is low for compressor 2 and normal for compressors 1.

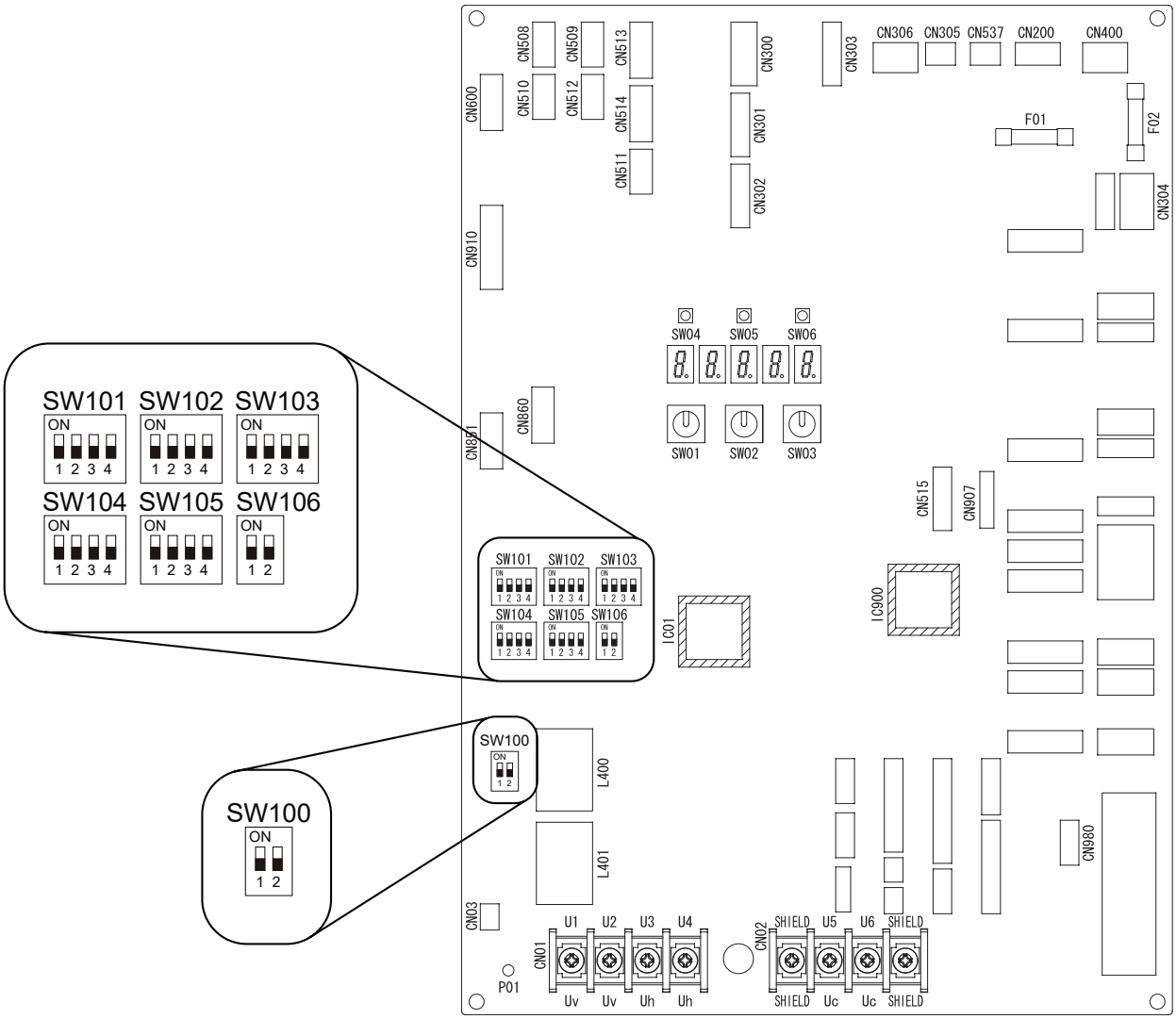
Judgment result for compressor 2
Judgment result for compressor 1

## 8-8. SMMS-u Outdoor Interface P.C. Board Function Setting Change Table

### 1. Switch/Function Setting Change

| SW No. | | Change contents | | |
|---|---|---|---|---|
| SW100 | DIP SW 2 bit | bit1 | Uh communication termination resistance for central control | OFF: No termination resistance ON: With termination resistance |
| | | bit2 | Uv communication termination resistance between indoor and outdoor units | OFF: No termination resistance ON: With termination resistance |
| SW101 | DIP SW 4 bit | bit1 | Setup of header outdoor unit | OFF: Follower outdoor unit ON: Header outdoor unit |
| | | bit2 | Line address setup | * Used by combining with SW102 (4 bit) |
| | | bit3 | | |
| | | bit4 | | |
| SW102 | DIP SW 4 bit | bit1 | Line address setup | * Used by combining with SW101 (3 bit) |
| | | bit2 | | |
| | | bit3 | | |
| | | bit4 | | |
| SW103 | DIP SW 4 bit | bit1 | Compressor 1 backup | OFF: Normal ON: Compressor 1 Backup when compressor 1 was in trouble |
| | | bit2 | Compressor 2 backup | OFF: Normal ON: Compressor 2 Backup when compressor 2 was in trouble |
| | | | | * All bit1 and 2 are ON : Setup of outdoor unit backup |
| | | ■ In case of header outdoor unit | | |
| | | Bit3 | Trouble judgment for over-capacity of indoor unit connection | OFF: Trouble judgement (Normal)<br>ON: None (When outdoor unit backup set) |
| | | bit4 | Trouble judgment for No. of connected indoor units | OFF: None ON: Trouble judgement |
| SW104 | DIP SW 4 bit | bit1 | | |
| | | bit2 | | |
| | | bit3 | | |
| | | bit4 | | |
| SW105 | DIP SW 4 bit | bit1 | Corresponds to 2-core wire | OFF: Normal (3-core wire <Successive MAKE signal> or 4-core wire <Pulse signal>)<br>ON: 2-core wire <Successive MAKE signal : Use only ON input terminal> |
| | | bit2 | Demand control (Expansion change) | OFF: Normal demand (1 type) ON: Intermediate demand (3 types) |
| | | bit3 | | |
| | | bit4 | | |
| SW106 | DIP SW 4 bit | bit1 | Change of EEPROM data backup function | OFF: Normal ON: No data backup |
| | | bit2 | Communication setup reset | OFF: Normal ON: Reset of communication setup and communication termination resistance between indoor units |

**Interface Board Switches and jumper wire positions to be used in the Function setup switching table**



## 8-9. Leakage/Clogging of Refrigerating Cycle Circuit

### List of Check Codes Generated upon Occurrence of Leakage/Clogging in Outdoor Cycle or Oil Circuit Part (MMY-MUP0721*, MUP0961*, MUP072H1*)

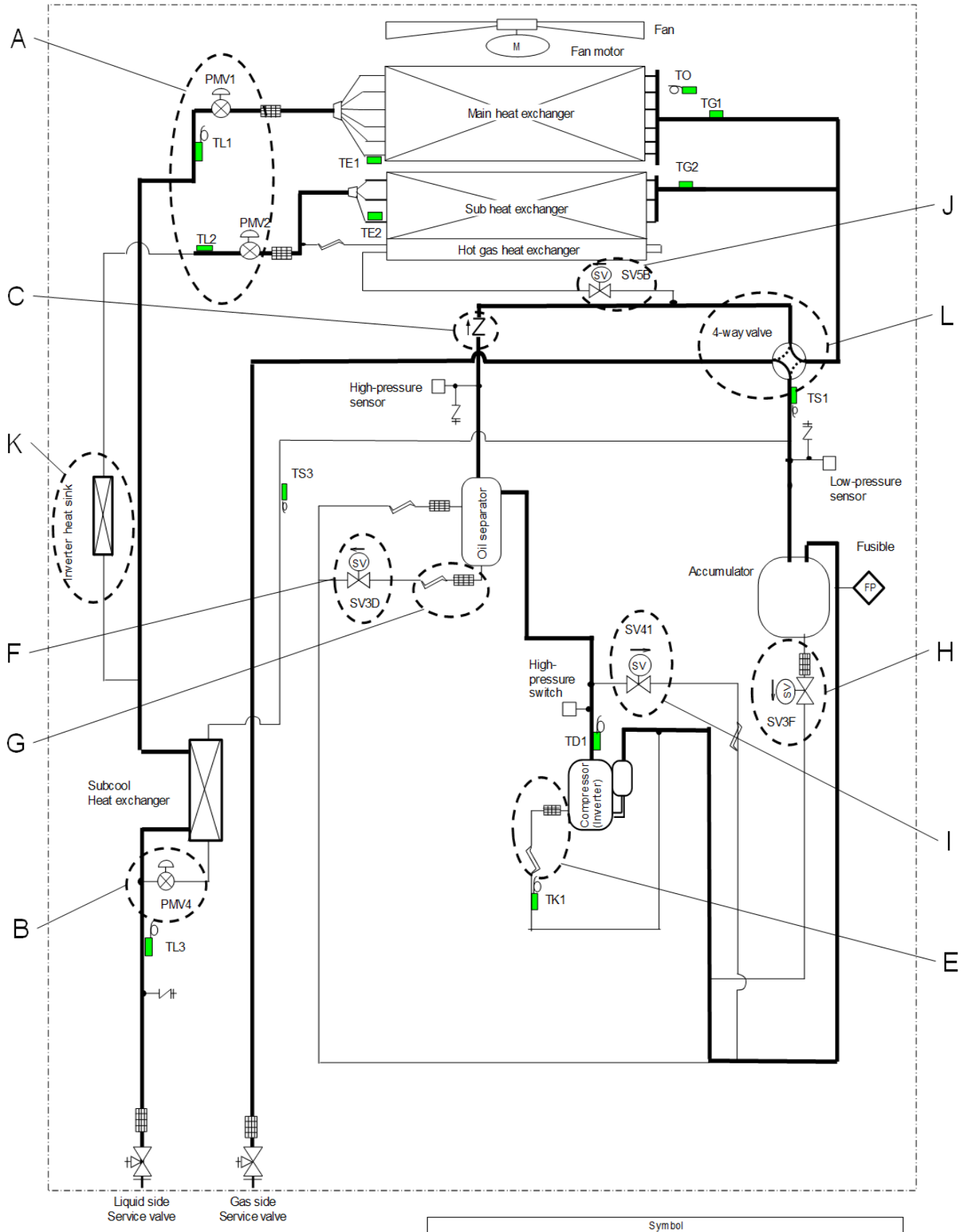
### Clogging

| Part | Location of Problem (Refer to next page) | Unit generating check code | Detected problem and check code | | Symptom |
|---|---|---|---|---|---|
| Outdoor PMV1, 2 | A | Corresponding unit | Activation of high-pressure protection<br>Activation of low-pressure protection<br>Discharge temp. trouble (TD1) | P20<br>H06<br>P03 | Rise of pressure<br>Fall of pressure<br>Rise of discharge temp. (Compressor 1) |
| Outdoor PMV4 | B | Corresponding unit | Discharge temp. trouble (TD1) | P03 | Rise of discharge temp. (Compressor 1) |
| Check valve in discharge pipe convergent section | C | Corresponding unit | High-pressure protection trouble<br>High-pressure SW system trouble | P20<br>P04-01 | Abnormal rise of pressure |
| Oil-equalization circuit Capillary or Strainer | E | Corresponding unit | Oil level detection circuit trouble<br>Oil level low detection and protection | H16-01<br>H07 | Oil circuit trouble or<br>Oil level low |
| SV3D valve | F | Corresponding unit | Oil level low detection and protection | H07 | Oil level low |
| SV3D valve circuit Capillary or Strainer | G | Corresponding unit | Oil level low detection and protection | H07 | Oil level low |
| SV3F valve or SV3F valve circuit Strainer | H | Corresponding unit | Oil level low detection and protection | H07 | Oil level low |
| SV41 valve | I | Corresponding unit | High-pressure protection trouble | P20 | Rise of pressure |
| SV5B valve | J | Corresponding unit | High-pressure protection trouble<br>Outdoor heat exchanger freeze trouble | P20<br>P11 | Rise of pressure<br>Decreased defrost performance |
| Inverter heat sink | K | Corresponding unit | Heat sink overheating trouble | P07-01 | Rise of IPM (TH) temp. (Compressor 1) |

### Leakage

| Part | Location of Problem (Refer to next page) | Unit generating check code | Detected problem and check code | | Symptom |
|---|---|---|---|---|---|
| Outdoor PMV1, 2 | A | Corresponding unit | Outdoor liquid backflow trouble<br>Oil level low detection and protection | P13<br>H07 | Refrigerant entrapment |
| | | Other connected unit | Discharge temp. trouble (TD1) | P03 | Rise of discharge temp. (Compressor 1) |
| Outdoor PMV4 | B | Corresponding unit | Outdoor liquid backflow trouble<br>Oil level low detection and protection | P13<br>H07 | Oil level low |
| Check valve in discharge pipe convergent section | C | Corresponding unit | Oil level low detection and protection<br>Compressor breakdown<br>Compressor trouble (lockup) | H07<br>H01-01<br>H02-01 | Refrigerant entrapment |
| SV41 valve | I | Corresponding unit | Discharge temp. trouble (TD1) | P03 | Rise of discharge temp. (Compressor 1) |
| 4-way valve | L | Corresponding unit | 4-way valve reversing trouble<br>Gas leak detection | P19<br>P15 | Incorrect internal position of 4-way valve |

## Outdoor Unit (Standard 6,8ton / High heat 6ton)
## Model: MMY-MUP0721*, MUP0961*, MUP072H1*




| Symbol | | | | | | |
|---|---|---|---|---|---|---|
| Solenoid valve | Capillary tube | Check valve | Check joint | Strainer | Temperature sensor | Distributor |

## List of Check Codes Generated upon Occurrence of Leakage/Clogging in Outdoor Cycle or Oil Circuit Part (MMY-MUP1201*, MUP1441*, MUP096H1*, MUP120H1*)

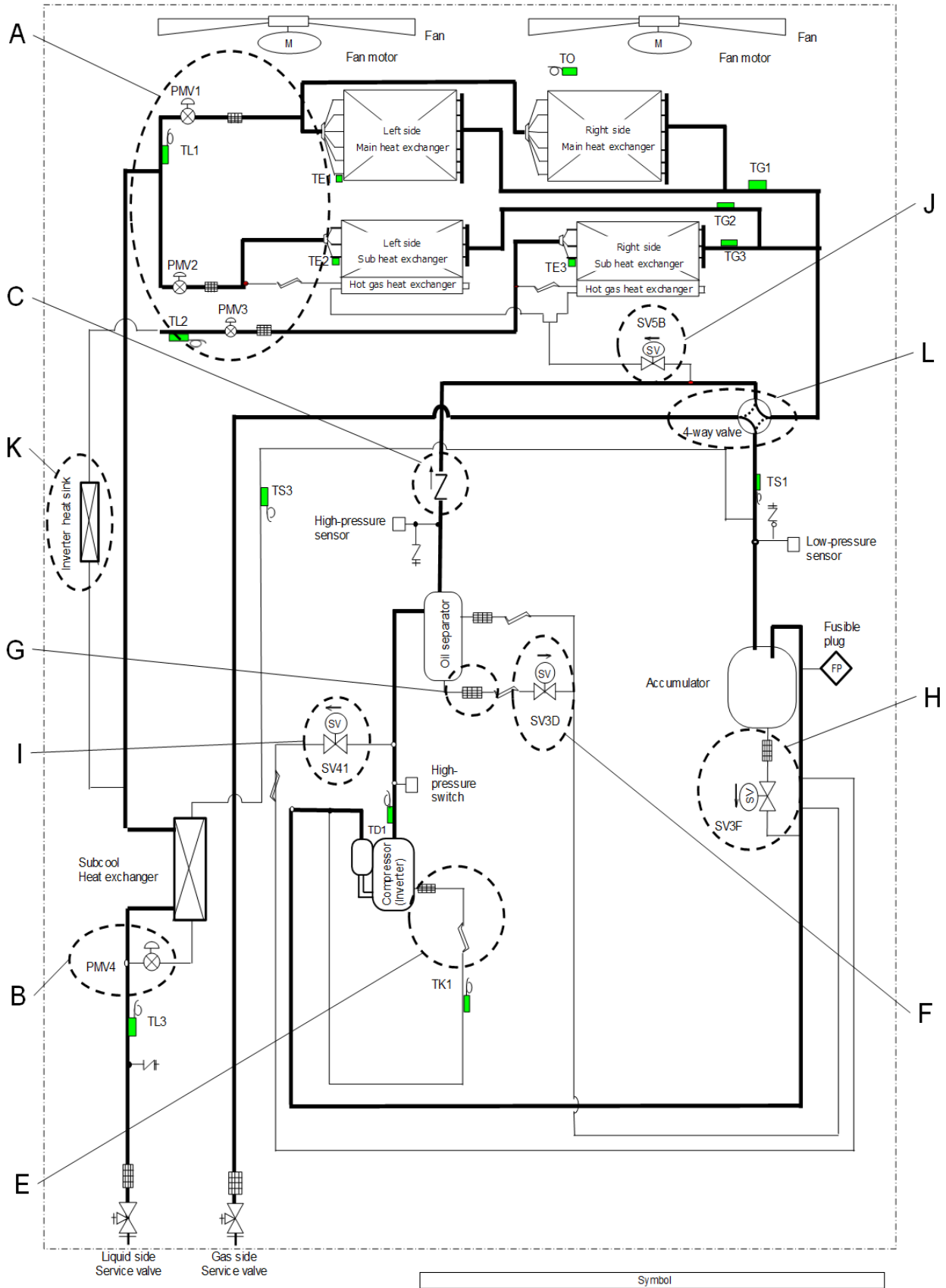
### Clogging

| Part | Location of Problem (Refer to next page) | Unit generating check code | Detected problem and check code | | Symptom |
|---|---|---|---|---|---|
| Outdoor PMV1, 2, 3 | A | Corresponding unit | Activation of high-pressure protection<br>Activation of low-pressure protection<br>Discharge temp. trouble (TD1) | P20<br>H06<br>P03 | Rise of pressure<br>Fall of pressure<br>Rise of discharge temp. (Compressor 1) |
| Outdoor PMV4 | B | Corresponding unit | Discharge temp. trouble (TD1) | P03 | Rise of discharge temp. (Compressor 1) |
| Check valve in discharge pipe convergent section | C | Corresponding unit | High-pressure protection trouble<br>High-pressure SW system trouble | P20<br>P04-01 | Abnormal rise of pressure |
| Oil-equalization circuit Capillary or Strainer | E | Corresponding unit | Oil level detection circuit trouble<br>Oil level low detection and protection | H16-01<br>H07 | Oil circuit trouble or Oil level low |
| SV3D valve | F | Corresponding unit | Oil level low detection and protection | H07 | Oil level low |
| SV3D valve circuit Capillary or Strainer | G | Corresponding unit | Oil level low detection and protection | H07 | Oil level low |
| SV3F valve or SV3F valve circuit Strainer | H | Corresponding unit | Oil level low detection and protection | H07 | Oil level low |
| SV41 valve | I | Corresponding unit | High-pressure protection trouble | P20 | Rise of pressure |
| SV5B valve | J | Corresponding unit | High-pressure protection trouble<br>Outdoor heat exchanger freeze trouble | P20<br>P11 | Rise of pressure<br>Decreased defrost performance |
| Inverter heat sink | K | Corresponding unit | Heat sink overheating trouble | P07-01 | Rise of IPM (TH) temp. (Compressor 1) |

### Leakage

| Part | Location of Problem (Refer to next page) | Unit generating check code | Detected problem and check code | | Symptom |
|---|---|---|---|---|---|
| Outdoor PMV1, 2 | A | Corresponding unit | Outdoor liquid backflow trouble<br>Oil level low detection and protection | P13<br>H07 | Refrigerant entrapment |
| | | Other connected unit | Discharge temp. trouble (TD1) | P03 | Rise of discharge temp. (Compressor 1) |
| Outdoor PMV4 | B | Corresponding unit | Outdoor liquid backflow trouble<br>Oil level low detection and protection | P13<br>H07 | Oil level low |
| Check valve in discharge pipe convergent section | C | Corresponding unit | Oil level low detection and protection<br>Compressor breakdown<br>Compressor trouble (lockup) | H07<br>H01-01<br>H02-01 | Refrigerant entrapment |
| SV41 valve | I | Corresponding unit | Discharge temp. trouble (TD1) | P03 | Rise of discharge temp. (Compressor 1) |
| 4-way valve | L | Corresponding unit | 4-way valve reversing trouble<br>Gas leak detection | P19<br>P15 | Incorrect internal position of 4-way valve |

## Outdoor Unit (Standard 10,12,14ton / High heat 8,10ton)
## Model: MMY-MUP1201*, MUP1441*, MUP1681*, MUP096H1*, MUP120H1*



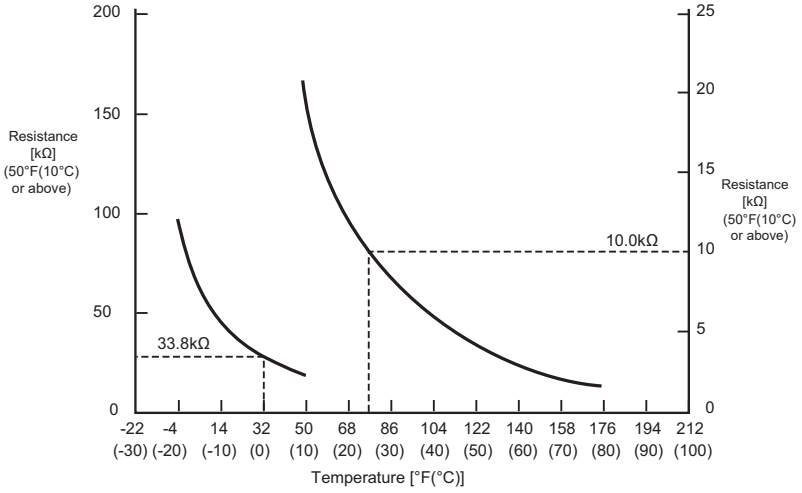

| Symbol | | | | | | |
|---|---|---|---|---|---|---|
| Solenoid valve | Capillary tube | Check valve | Check joint | Strainer | Temperature sensor | Distributor |

# 8-10. Sensor Characteristics

## Outdoor Unit

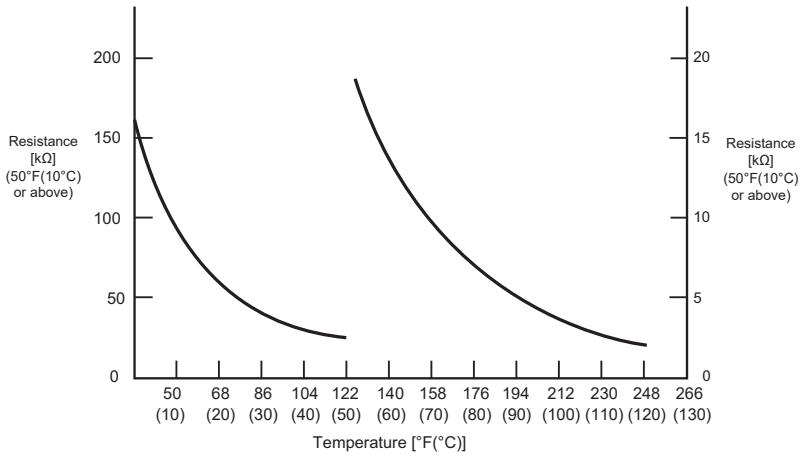
### ▼ Temperature sensor characteristics

Outdoor TS1, TS3, TE1, TE2, TE3, TL1, TL2, TL3 and TO sensors



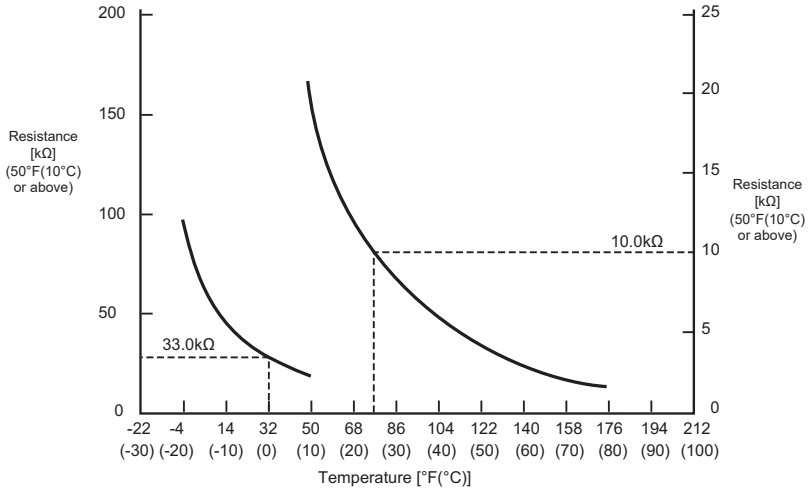

| Temperature [°F(°C)] | Resistance [kΩ] |
|---|---|
| -4(-20) | 101.7 |
| 5(-15) | 76.3 |
| 14(-10) | 57.7 |
| 23(-5) | 44.0 |
| 32(0) | 33.8 |
| 41(5) | 26.1 |
| 50(10) | 20.4 |
| 59(15) | 16.0 |
| 68(20) | 13.0 |
| 77(25) | 10.0 |
| 86(30) | 8.0 |
| 95(35) | 6.4 |
| 104(40) | 5.2 |
| 113(45) | 4.2 |
| 122(50) | 3.5 |
| 131(55) | 2.8 |
| 140(60) | 2.3 |
| 149(65) | 1.9 |
| 158(70) | 1.6 |
| 167(75) | 1.4 |
| 176(80) | 1.1 |

Outdoor TD1, TD2, TK1 and TK2 sensors




| Temperature [°F(°C)] | Resistance [kΩ] |
|---|---|
| 32(0) | 162.2 |
| 41(5) | 125.8 |
| 50(10) | 98.3 |
| 59(15) | 77.5 |
| 68(20) | 61.5 |
| 77(25) | 49.1 |
| 86(30) | 39.5 |
| 95(35) | 32.0 |
| 104(40) | 26.1 |
| 113(45) | 21.4 |
| 122(50) | 17.6 |
| 131(55) | 14.6 |
| 140(60) | 12.1 |
| 149(65) | 10.2 |
| 158(70) | 8.5 |
| 167(75) | 7.2 |
| 176(80) | 6.1 |
| 185(85) | 5.2 |
| 194(90) | 4.5 |
| 203(95) | 3.8 |
| 212(100) | 3.3 |
| 221(105) | 2.9 |
| 230(110) | 2.5 |
| 239(115) | 2.2 |
| 248(120) | 1.9 |

Outdoor TG1, TG2 and TG3 sensors




| Temperature [°F(°C)] | Resistance [kΩ] |
|---|---|
| -4(-20) | 98.9 |
| 5(-15) | 74.1 |
| 14(-10) | 56.1 |
| 23(-5) | 42.8 |
| 32(0) | 33.0 |
| 41(5) | 25.6 |
| 50(10) | 20.0 |
| 59(15) | 15.8 |
| 68(20) | 12.5 |
| 77(25) | 10.0 |
| 86(30) | 8.0 |
| 95(35) | 6.5 |
| 104(40) | 5.3 |
| 113(45) | 4.4 |
| 122(50) | 3.6 |
| 131(55) | 3.0 |
| 140(60) | 2.5 |
| 149(65) | 2.1 |
| 158(70) | 1.7 |
| 167(75) | 1.5 |
| 176(80) | 1.3 |

## Outdoor Unit

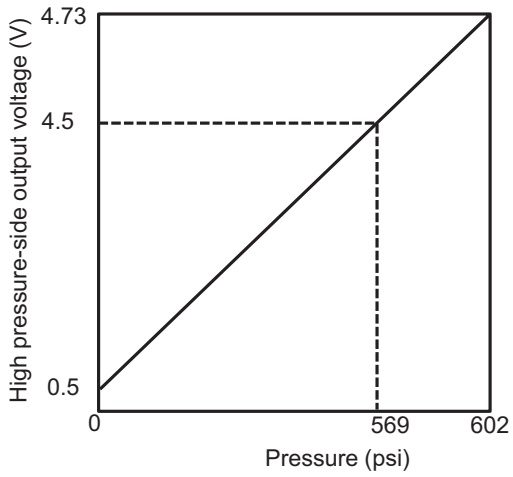
### ▼ Pressure sensor characteristics

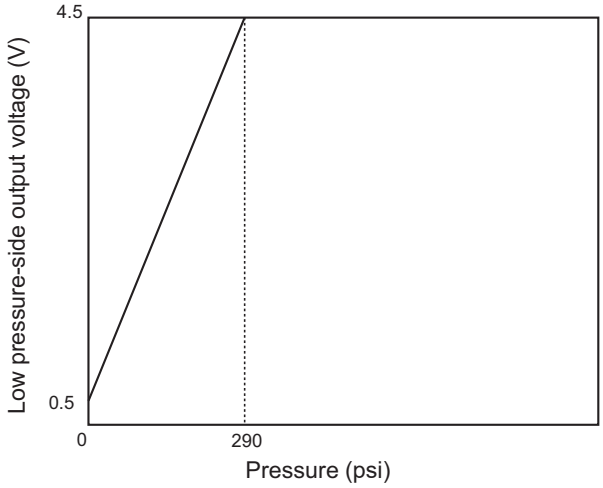
• Input/output wiring summary

| Pin No. | High pressure side (PD) | | Low pressure side (PS) | |
|---|---|---|---|---|
| | Input/output name | Lead wire color | Input/output name | Lead wire color |
| 1 | OUTPUT | White | — | — |
| 2 | — | — | OUTPUT | White |
| 3 | GND | Black | GND | Black |
| 4 | +5V | Red | +5V | Red |

• Output voltage vs. pressure

| High pressure side (PD) | Low pressure side (PS) |
|---|---|
| 0.5~4.5V<br>0~569 psi | 0.5~4.5V<br>0~290 psi |

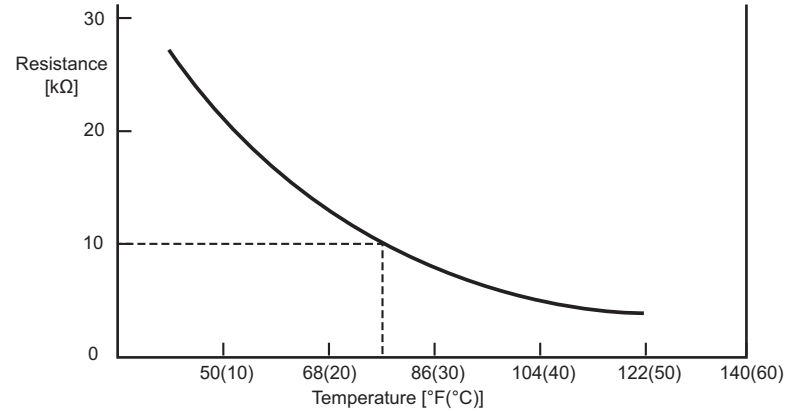



## Indoor Unit

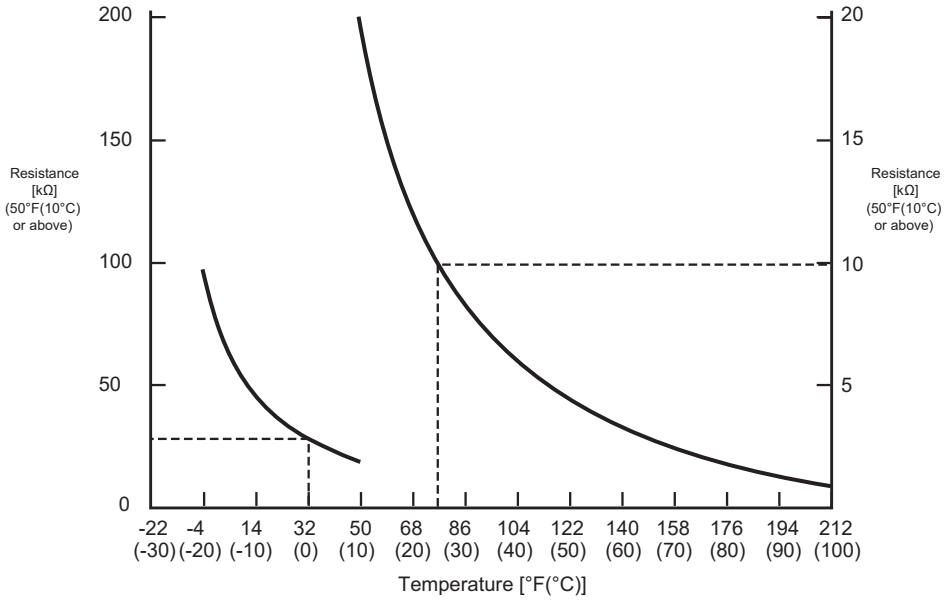
### ▼ Temperature sensor characteristics

Indoor TA(TSA), TRA,TF(TFA) sensor



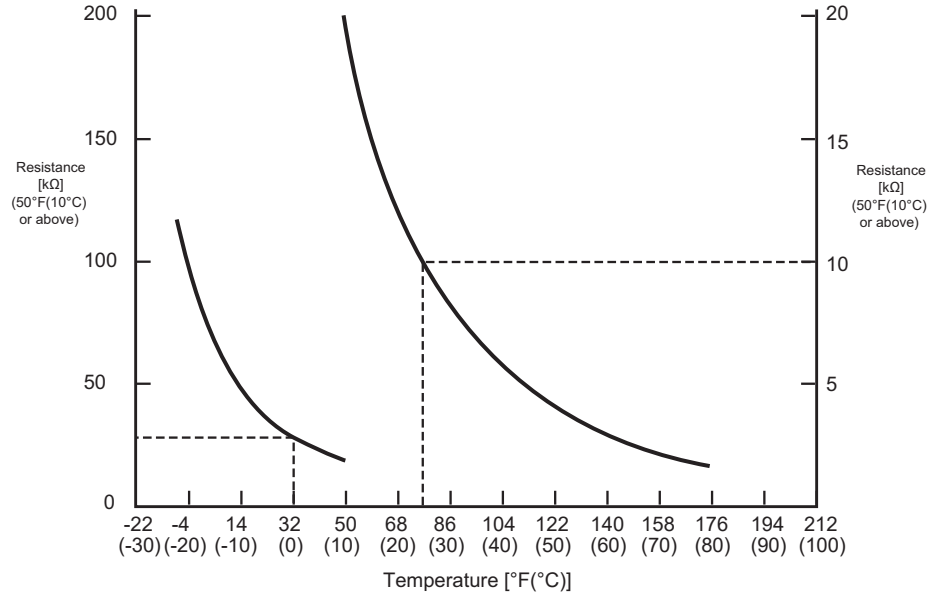

| Temperature [°F(°C)] | Resistance [kΩ] |
|---|---|
| 32(0) | 33.8 |
| 41(5) | 26.1 |
| 50(10) | 20.4 |
| 59(15) | 16.0 |
| 68(20) | 12.6 |
| 77(25) | 10.0 |
| 86(30) | 8.0 |
| 95(35) | 6.4 |
| 104(40) | 5.2 |
| 113(45) | 4.2 |
| 122(50) | 3.5 |
| 131(55) | 2.8 |
| 140(60) | 2.3 |

Indoor TC1 sensor




| Temperature [°F(°C)] | Resistance [kΩ] |
|---|---|
| -4(-20) | 98.3 |
| 5(-15) | 73.7 |
| 14(-10) | 55.8 |
| 23(-5) | 42.6 |
| 32(0) | 32.8 |
| 41(5) | 25.5 |
| 50(10) | 20.0 |
| 59(15) | 15.7 |
| 68(20) | 12.5 |
| 77(25) | 10.0 |
| 86(30) | 8.1 |
| 95(35) | 6.5 |
| 104(40) | 5.3 |
| 113(45) | 4.4 |
| 122(50) | 3.6 |
| 131(55) | 3.0 |
| 140(60) | 2.5 |
| 149(65) | 2.1 |
| 158(70) | 1.7 |
| 167(75) | 1.5 |
| 176(80) | 1.2 |
| 185(85) | 1.1 |
| 194(90) | 0.9 |
| 203(95) | 0.8 |
| 212(100) | 0.7 |

Indoor TC2 and TCJ, TOA sensor




| Temperature [°F(°C)] | Resistance [kΩ] |
|---|---|
| -4(-20) | 102.9 |
| 5(-15) | 76.6 |
| 14(-10) | 57.7 |
| 23(-5) | 44.0 |
| 32(0) | 38.8 |
| 41(5) | 26.1 |
| 50(10) | 20.4 |
| 59(15) | 16.0 |
| 68(20) | 12.6 |
| 77(25) | 10.0 |
| 86(30) | 8.0 |
| 95(35) | 6.4 |
| 104(40) | 5.2 |
| 113(45) | 4.2 |
| 122(50) | 3.5 |
| 131(55) | 2.8 |
| 140(60) | 2.3 |
| 149(65) | 1.9 |
| 158(70) | 1.6 |
| 167(75) | 1.4 |
| 176(80) | 1.2 |

## 8-11. Pressure Sensor Output Check

### Outdoor Unit

### ▼ Pd sensor characteristics

0 to 602 psi (0.5 to 4.73 V output for 0 to 602 psi)

Voltage readings across pins 2 and 3 of CN501 on indoor unit main P.C. board (with negative-side probe of multimeter placed on pin 3)

| VOLT | PD | |
|---|---|---|
| (V) | (MPa) | (psi) |
| 0.00 | 0.00 | 0 |
| 0.02 | 0.00 | 0 |
| 0.04 | 0.00 | 0 |
| 0.06 | 0.00 | 0 |
| 0.08 | 0.00 | 0 |
| 0.10 | 0.00 | 0 |
| 0.12 | 0.00 | 0 |
| 0.14 | 0.00 | 0 |
| 0.16 | 0.00 | 0 |
| 0.18 | 0.00 | 0 |
| 0.20 | 0.00 | 0 |
| 0.22 | 0.00 | 0 |
| 0.23 | 0.00 | 0 |
| 0.25 | 0.00 | 0 |
| 0.27 | 0.00 | 0 |
| 0.29 | 0.00 | 0 |
| 0.31 | 0.00 | 0 |
| 0.33 | 0.00 | 0 |
| 0.35 | 0.00 | 0 |
| 0.37 | 0.00 | 0 |
| 0.39 | 0.00 | 0 |
| 0.41 | 0.00 | 0 |
| 0.43 | 0.00 | 0 |
| 0.45 | 0.00 | 0 |
| 0.47 | 0.00 | 0 |
| 0.49 | 0.00 | 0 |
| 0.51 | 0.01 | 1 |
| 0.53 | 0.03 | 4 |
| 0.55 | 0.05 | 7 |
| 0.57 | 0.07 | 10 |
| 0.59 | 0.08 | 12 |
| 0.61 | 0.10 | 15 |
| 0.63 | 0.12 | 17 |
| 0.65 | 0.14 | 20 |
| 0.66 | 0.16 | 23 |
| 0.68 | 0.18 | 26 |
| 0.70 | 0.20 | 29 |
| 0.72 | 0.22 | 32 |
| 0.74 | 0.24 | 35 |
| 0.76 | 0.26 | 38 |
| 0.78 | 0.28 | 41 |
| 0.80 | 0.30 | 44 |
| 0.82 | 0.31 | 45 |
| 0.84 | 0.33 | 48 |
| 0.86 | 0.35 | 51 |
| 0.88 | 0.37 | 54 |
| 0.90 | 0.39 | 57 |
| 0.92 | 0.41 | 59 |
| 0.94 | 0.43 | 62 |
| 0.96 | 0.45 | 65 |
| 0.98 | 0.47 | 68 |

| VOLT | PD | |
|---|---|---|
| (V) | (MPa) | (psi) |
| 1.00 | 0.49 | 71 |
| 1.02 | 0.51 | 74 |
| 1.04 | 0.53 | 77 |
| 1.06 | 0.54 | 78 |
| 1.07 | 0.56 | 81 |
| 1.09 | 0.58 | 84 |
| 1.11 | 0.60 | 87 |
| 1.13 | 0.62 | 90 |
| 1.15 | 0.64 | 93 |
| 1.17 | 0.66 | 96 |
| 1.19 | 0.68 | 99 |
| 1.21 | 0.70 | 102 |
| 1.23 | 0.72 | 104 |
| 1.25 | 0.74 | 107 |
| 1.27 | 0.76 | 110 |
| 1.29 | 0.77 | 112 |
| 1.31 | 0.79 | 115 |
| 1.33 | 0.81 | 117 |
| 1.35 | 0.83 | 120 |
| 1.37 | 0.85 | 123 |
| 1.39 | 0.87 | 126 |
| 1.41 | 0.89 | 129 |
| 1.43 | 0.91 | 132 |
| 1.45 | 0.93 | 135 |
| 1.47 | 0.95 | 138 |
| 1.48 | 0.97 | 141 |
| 1.50 | 0.99 | 144 |
| 1.52 | 1.00 | 145 |
| 1.54 | 1.02 | 148 |
| 1.56 | 1.04 | 151 |
| 1.58 | 1.06 | 154 |
| 1.60 | 1.08 | 157 |
| 1.62 | 1.10 | 160 |
| 1.64 | 1.12 | 162 |
| 1.66 | 1.14 | 165 |
| 1.68 | 1.16 | 168 |
| 1.70 | 1.18 | 171 |
| 1.72 | 1.20 | 174 |
| 1.74 | 1.21 | 175 |
| 1.76 | 1.23 | 178 |
| 1.78 | 1.25 | 181 |
| 1.80 | 1.27 | 184 |
| 1.82 | 1.29 | 187 |
| 1.84 | 1.31 | 190 |
| 1.86 | 1.33 | 193 |
| 1.88 | 1.35 | 196 |
| 1.90 | 1.37 | 199 |
| 1.91 | 1.39 | 202 |
| 1.93 | 1.41 | 204 |
| 1.95 | 1.43 | 207 |
| 1.97 | 1.44 | 209 |

| VOLT | PD | |
|---|---|---|
| (V) | (MPa) | (psi) |
| 1.99 | 1.46 | 212 |
| 2.01 | 1.48 | 215 |
| 2.03 | 1.50 | 218 |
| 2.05 | 1.52 | 220 |
| 2.07 | 1.54 | 223 |
| 2.09 | 1.56 | 226 |
| 2.11 | 1.58 | 229 |
| 2.13 | 1.60 | 232 |
| 2.15 | 1.62 | 235 |
| 2.17 | 1.64 | 238 |
| 2.19 | 1.66 | 241 |
| 2.21 | 1.67 | 242 |
| 2.23 | 1.69 | 245 |
| 2.25 | 1.71 | 248 |
| 2.27 | 1.73 | 251 |
| 2.29 | 1.75 | 254 |
| 2.31 | 1.77 | 257 |
| 2.32 | 1.79 | 260 |
| 2.34 | 1.81 | 262 |
| 2.36 | 1.83 | 265 |
| 2.38 | 1.85 | 268 |
| 2.40 | 1.87 | 271 |
| 2.42 | 1.89 | 274 |
| 2.44 | 1.90 | 276 |
| 2.46 | 1.92 | 278 |
| 2.48 | 1.94 | 281 |
| 2.50 | 1.96 | 284 |
| 2.52 | 1.98 | 287 |
| 2.54 | 2.00 | 290 |
| 2.56 | 2.02 | 293 |
| 2.58 | 2.04 | 296 |
| 2.60 | 2.06 | 299 |
| 2.62 | 2.08 | 302 |
| 2.64 | 2.10 | 305 |
| 2.66 | 2.12 | 307 |
| 2.68 | 2.13 | 309 |
| 2.70 | 2.15 | 312 |
| 2.72 | 2.17 | 315 |
| 2.73 | 2.19 | 318 |
| 2.75 | 2.21 | 320 |
| 2.77 | 2.23 | 323 |
| 2.79 | 2.25 | 326 |
| 2.81 | 2.27 | 329 |
| 2.83 | 2.29 | 332 |
| 2.85 | 2.31 | 335 |
| 2.87 | 2.33 | 338 |
| 2.89 | 2.35 | 341 |
| 2.91 | 2.36 | 342 |
| 2.93 | 2.38 | 345 |
| 2.95 | 2.40 | 348 |
| 2.97 | 2.42 | 351 |

| VOLT | PD | |
|---|---|---|
| (V) | (MPa) | (psi) |
| 2.99 | 2.44 | 354 |
| 3.01 | 2.46 | 357 |
| 3.03 | 2.48 | 360 |
| 3.05 | 2.50 | 363 |
| 3.07 | 2.52 | 365 |
| 3.09 | 2.54 | 368 |
| 3.11 | 2.56 | 371 |
| 3.13 | 2.57 | 373 |
| 3.15 | 2.59 | 376 |
| 3.16 | 2.61 | 378 |
| 3.18 | 2.63 | 381 |
| 3.20 | 2.65 | 384 |
| 3.22 | 2.67 | 387 |
| 3.24 | 2.69 | 390 |
| 3.26 | 2.71 | 393 |
| 3.28 | 2.73 | 396 |
| 3.30 | 2.75 | 399 |
| 3.32 | 2.77 | 402 |
| 3.34 | 2.79 | 405 |
| 3.36 | 2.80 | 406 |
| 3.38 | 2.82 | 409 |
| 3.40 | 2.84 | 412 |
| 3.42 | 2.86 | 415 |
| 3.44 | 2.88 | 418 |
| 3.46 | 2.90 | 421 |
| 3.48 | 2.92 | 423 |
| 3.50 | 2.94 | 426 |
| 3.52 | 2.96 | 429 |
| 3.54 | 2.98 | 432 |
| 3.56 | 3.00 | 435 |
| 3.57 | 3.02 | 438 |
| 3.59 | 3.03 | 439 |
| 3.61 | 3.05 | 442 |
| 3.63 | 3.07 | 445 |
| 3.65 | 3.09 | 448 |
| 3.67 | 3.11 | 451 |
| 3.69 | 3.13 | 454 |
| 3.71 | 3.15 | 457 |
| 3.73 | 3.17 | 460 |
| 3.75 | 3.19 | 463 |
| 3.77 | 3.21 | 465 |
| 3.79 | 3.23 | 468 |
| 3.81 | 3.25 | 471 |
| 3.83 | 3.26 | 473 |
| 3.85 | 3.28 | 476 |
| 3.89 | 3.30 | 479 |
| 3.89 | 3.32 | 481 |
| 3.91 | 3.34 | 484 |
| 3.93 | 3.36 | 487 |
| 3.95 | 3.38 | 490 |
| 3.97 | 3.40 | 493 |

| VOLT | PD | |
|---|---|---|
| (V) | (MPa) | (psi) |
| 3.98 | 3.42 | 496 |
| 4.00 | 3.44 | 499 |
| 4.02 | 3.45 | 500 |
| 4.04 | 3.48 | 505 |
| 4.06 | 3.49 | 506 |
| 4.08 | 3.51 | 509 |
| 4.10 | 3.53 | 512 |
| 4.12 | 3.55 | 515 |
| 4.14 | 3.57 | 518 |
| 4.16 | 3.59 | 521 |
| 4.18 | 3.61 | 523 |
| 4.20 | 3.63 | 526 |
| 4.22 | 3.65 | 529 |
| 4.24 | 3.67 | 532 |
| 4.26 | 3.69 | 535 |
| 4.28 | 3.70 | 537 |
| 4.30 | 3.72 | 539 |
| 4.32 | 3.74 | 542 |
| 4.34 | 3.76 | 545 |
| 4.36 | 3.78 | 548 |
| 4.38 | 3.80 | 551 |
| 4.40 | 3.82 | 554 |
| 4.41 | 3.84 | 557 |
| 4.43 | 3.86 | 560 |
| 4.45 | 3.88 | 563 |
| 4.47 | 3.90 | 566 |
| 4.49 | 3.92 | 568 |
| 4.51 | 3.93 | 570 |
| 4.53 | 3.95 | 573 |
| 4.55 | 3.97 | 576 |
| 4.57 | 3.99 | 579 |
| 4.59 | 4.01 | 581 |
| 4.61 | 4.03 | 584 |
| 4.63 | 4.05 | 587 |
| 4.65 | 4.07 | 590 |
| 4.67 | 4.09 | 593 |
| 4.69 | 4.11 | 596 |
| 4.71 | 4.13 | 599 |
| 4.73 | 4.15 | 602 |

## Outdoor Unit

### ▼ PS sensor characteristics

0 to 325 psi (0.5 to 5V output for 0 to 325 psi)
Voltage readings across pins 2 and 3 of CN500 on indoor unit main P.C. board (with negative-side probe of multimeter placed on pin 3)

| VOLT | PS (MPa) | PS (psi) | VOLT | PS (MPa) | PS (psi) | VOLT | PS (MPa) | PS (psi) | VOLT | PS (MPa) | PS (psi) | VOLT | PS (MPa) | PS (psi) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.01 | 0 | 0 | 1 | 0.25 | 36 | 2 | 0.75 | 109 | 3 | 1.25 | 181 | 4 | 1.75 | 254 |
| 0.03 | 0 | 0 | 1.02 | 0.26 | 38 | 2.02 | 0.76 | 110 | 3.02 | 1.26 | 183 | 4.01 | 1.76 | 255 |
| 0.05 | 0 | 0 | 1.04 | 0.27 | 39 | 2.04 | 0.77 | 112 | 3.04 | 1.27 | 184 | 4.03 | 1.77 | 257 |
| 0.07 | 0 | 0 | 1.06 | 0.28 | 41 | 2.06 | 0.78 | 113 | 3.05 | 1.28 | 186 | 4.05 | 1.78 | 258 |
| 0.09 | 0 | 0 | 1.08 | 0.29 | 42 | 2.08 | 0.79 | 115 | 3.07 | 1.29 | 187 | 4.07 | 1.79 | 260 |
| 0.11 | 0 | 0 | 1.1 | 0.3 | 44 | 2.1 | 0.8 | 116 | 3.09 | 1.3 | 189 | 4.09 | 1.8 | 261 |
| 0.13 | 0 | 0 | 1.12 | 0.31 | 45 | 2.12 | 0.81 | 117 | 3.11 | 1.31 | 190 | 4.11 | 1.81 | 262 |
| 0.14 | 0 | 0 | 1.14 | 0.32 | 46 | 2.14 | 0.82 | 119 | 3.13 | 1.32 | 191 | 4.13 | 1.82 | 264 |
| 0.16 | 0 | 0 | 1.16 | 0.33 | 48 | 2.16 | 0.83 | 120 | 3.15 | 1.33 | 193 | 4.15 | 1.82 | 264 |
| 0.18 | 0 | 0 | 1.18 | 0.34 | 49 | 2.18 | 0.84 | 122 | 3.17 | 1.34 | 194 | 4.17 | 1.83 | 265 |
| 0.2 | 0 | 0 | 1.2 | 0.35 | 51 | 2.2 | 0.85 | 123 | 3.19 | 1.35 | 196 | 4.19 | 1.84 | 267 |
| 0.22 | 0 | 0 | 1.22 | 0.36 | 52 | 2.21 | 0.86 | 125 | 3.21 | 1.36 | 197 | 4.21 | 1.85 | 268 |
| 0.24 | 0 | 0 | 1.24 | 0.37 | 54 | 2.23 | 0.87 | 126 | 3.23 | 1.37 | 199 | 4.23 | 1.86 | 270 |
| 0.26 | 0 | 0 | 1.26 | 0.38 | 55 | 2.25 | 0.88 | 128 | 3.25 | 1.38 | 200 | 4.25 | 1.87 | 271 |
| 0.28 | 0 | 0 | 1.28 | 0.39 | 57 | 2.27 | 0.89 | 129 | 3.27 | 1.39 | 202 | 4.27 | 1.88 | 273 |
| 0.3 | 0 | 0 | 1.3 | 0.4 | 58 | 2.29 | 0.9 | 131 | 3.29 | 1.4 | 203 | 4.29 | 1.89 | 274 |
| 0.32 | 0 | 0 | 1.32 | 0.41 | 59 | 2.31 | 0.91 | 132 | 3.31 | 1.41 | 204 | 4.3 | 1.9 | 276 |
| 0.34 | 0 | 0 | 1.34 | 0.42 | 61 | 2.33 | 0.92 | 133 | 3.33 | 1.42 | 206 | 4.32 | 1.91 | 277 |
| 0.36 | 0 | 0 | 1.36 | 0.43 | 62 | 2.35 | 0.93 | 135 | 3.35 | 1.42 | 206 | 4.34 | 1.92 | 278 |
| 0.38 | 0 | 0 | 1.38 | 0.44 | 64 | 2.37 | 0.94 | 136 | 3.37 | 1.43 | 207 | 4.36 | 1.93 | 280 |
| 0.4 | 0 | 0 | 1.39 | 0.45 | 65 | 2.39 | 0.95 | 138 | 3.39 | 1.44 | 209 | 4.38 | 1.94 | 281 |
| 0.42 | 0 | 0 | 1.41 | 0.46 | 67 | 2.41 | 0.96 | 139 | 3.41 | 1.45 | 210 | 4.4 | 1.95 | 283 |
| 0.44 | 0 | 0 | 1.43 | 0.47 | 68 | 2.43 | 0.97 | 141 | 3.43 | 1.46 | 212 | 4.42 | 1.96 | 284 |
| 0.46 | 0 | 0 | 1.45 | 0.48 | 70 | 2.45 | 0.98 | 142 | 3.45 | 1.47 | 213 | 4.44 | 1.97 | 286 |
| 0.48 | 0 | 0 | 1.47 | 0.49 | 71 | 2.47 | 0.99 | 144 | 3.46 | 1.48 | 215 | 4.46 | 1.98 | 287 |
| 0.5 | 0 | 0 | 1.49 | 0.5 | 73 | 2.49 | 1 | 145 | 3.48 | 1.49 | 216 | 4.48 | 1.99 | 289 |
| 0.52 | 0.01 | 1 | 1.51 | 0.51 | 74 | 2.51 | 1.01 | 146 | 3.5 | 1.5 | 218 | 4.5 | 2 | 290 |
| 0.54 | 0.02 | 3 | 1.53 | 0.52 | 75 | 2.53 | 1.02 | 148 | 3.52 | 1.51 | 219 | 4.52 | 2.01 | 291 |
| 0.55 | 0.03 | 4 | 1.55 | 0.53 | 77 | 2.55 | 1.02 | 148 | 3.54 | 1.52 | 220 | 4.54 | 2.02 | 293 |
| 0.57 | 0.04 | 6 | 1.57 | 0.54 | 78 | 2.57 | 1.03 | 149 | 3.56 | 1.53 | 222 | 4.56 | 2.03 | 294 |
| 0.59 | 0.05 | 7 | 1.59 | 0.55 | 80 | 2.59 | 1.04 | 151 | 3.58 | 1.54 | 223 | 4.58 | 2.04 | 296 |
| 0.61 | 0.06 | 9 | 1.61 | 0.56 | 81 | 2.61 | 1.05 | 152 | 3.6 | 1.55 | 225 | 4.6 | 2.05 | 297 |
| 0.63 | 0.07 | 10 | 1.63 | 0.57 | 83 | 2.63 | 1.06 | 154 | 3.62 | 1.56 | 226 | 4.62 | 2.06 | 299 |
| 0.65 | 0.08 | 12 | 1.65 | 0.58 | 84 | 2.64 | 1.07 | 155 | 3.64 | 1.57 | 228 | 4.64 | 2.07 | 300 |
| 0.67 | 0.09 | 13 | 1.67 | 0.59 | 86 | 2.66 | 1.08 | 157 | 3.66 | 1.58 | 229 | 4.66 | 2.08 | 302 |
| 0.69 | 0.1 | 15 | 1.69 | 0.6 | 87 | 2.68 | 1.09 | 158 | 3.68 | 1.59 | 231 | 4.68 | 2.09 | 303 |
| 0.71 | 0.11 | 16 | 1.71 | 0.61 | 88 | 2.7 | 1.1 | 160 | 3.7 | 1.6 | 232 | 4.7 | 2.1 | 305 |
| 0.73 | 0.12 | 17 | 1.73 | 0.62 | 90 | 2.72 | 1.11 | 161 | 3.72 | 1.61 | 233 | 4.71 | 2.11 | 306 |
| 0.75 | 0.13 | 19 | 1.75 | 0.62 | 90 | 2.74 | 1.12 | 162 | 3.74 | 1.62 | 235 | 4.73 | 2.12 | 307 |
| 0.77 | 0.14 | 20 | 1.77 | 0.63 | 91 | 2.76 | 1.13 | 164 | 3.76 | 1.63 | 236 | 4.75 | 2.13 | 309 |
| 0.79 | 0.15 | 22 | 1.79 | 0.64 | 93 | 2.78 | 1.14 | 165 | 3.78 | 1.64 | 238 | 4.77 | 2.14 | 310 |
| 0.81 | 0.16 | 23 | 1.8 | 0.65 | 94 | 2.8 | 1.15 | 167 | 3.8 | 1.65 | 239 | 4.79 | 2.15 | 312 |
| 0.83 | 0.17 | 25 | 1.82 | 0.66 | 96 | 2.82 | 1.16 | 168 | 3.82 | 1.66 | 241 | 4.81 | 2.16 | 313 |
| 0.85 | 0.18 | 26 | 1.84 | 0.67 | 97 | 2.84 | 1.17 | 170 | 3.84 | 1.67 | 242 | 4.83 | 2.17 | 315 |
| 0.87 | 0.19 | 28 | 1.86 | 0.68 | 99 | 2.86 | 1.18 | 171 | 3.86 | 1.68 | 244 | 4.85 | 2.18 | 316 |
| 0.89 | 0.2 | 29 | 1.88 | 0.69 | 100 | 2.88 | 1.19 | 173 | 3.88 | 1.69 | 245 | 4.87 | 2.19 | 318 |
| 0.91 | 0.21 | 30 | 1.9 | 0.7 | 102 | 2.9 | 1.2 | 174 | 3.89 | 1.7 | 247 | 4.89 | 2.2 | 319 |
| 0.93 | 0.22 | 32 | 1.92 | 0.71 | 103 | 2.92 | 1.21 | 175 | 3.91 | 1.71 | 248 | 4.91 | 2.21 | 320 |
| 0.95 | 0.22 | 32 | 1.94 | 0.72 | 104 | 2.94 | 1.22 | 177 | 3.93 | 1.72 | 249 | 4.93 | 2.22 | 322 |
| 0.96 | 0.23 | 33 | 1.96 | 0.73 | 106 | 2.96 | 1.23 | 178 | 3.95 | 1.73 | 251 | 4.95 | 2.22 | 322 |
| 0.98 | 0.24 | 35 | 1.98 | 0.74 | 107 | 2.98 | 1.24 | 180 | 3.97 | 1.74 | 252 | 4.97 | 2.23 | 323 |
| | | | | | | | | | | | | 4.99 | 2.24 | 325 |

# 9. BACKUP OPERATION (EMERGENCY OPERATION)

This product offers backup modes of operation to tide over certain emergency situations. If a trouble occurs in one of the compressors, it is possible to operate the system on an emergency basis by operating only the remaining compressor, (compressor backup operation).

If one of the outdoor units fails in a combined outdoor unit system, the system can be operated on an emergency basis by keeping only the remaining outdoor unit(s), (outdoor unit backup operation).

Perform backup operation setting in accordance with the procedure described below.

## 9-1. Note for Backup Operation

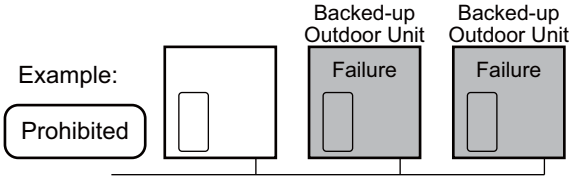
The method of backup operation differs according to the contents of trouble as shown in the table below.

| Contents of trouble | Method of backup operation | Setting procedure |
|---|---|---|
| One of the compressors in the same unit fails (see Note 1) | Compressor backup (see Note 2) | Go to 9-2. |
| All the compressors in the same unit fail | Outdoor unit backup or cooling-season outdoor unit backup (see Notes 1, 3, 4 and 5) | Go to 9-3. or 9-4. |
| A trouble occurs in a compressor motor coil (e.g. a layer short-circuit) | | |
| A trouble occurs in a refrigerating cycle part, fan or related part, or electrical part | | |
| A trouble occurs in a temperature sensor or pressure sensor | | |

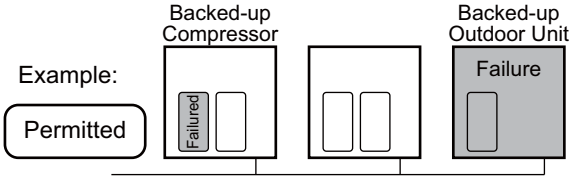
**Note 1:** If the compressor has failed due to a trouble in its motor coil (e.g. a layer short-circuit), do not perform compressor backup operation because of severe oil degradation. It could damage other outdoor units.

**Note 2:** Keep the number of backed-up outdoor units under compressor backup operation to one in the system (single refrigerant line).

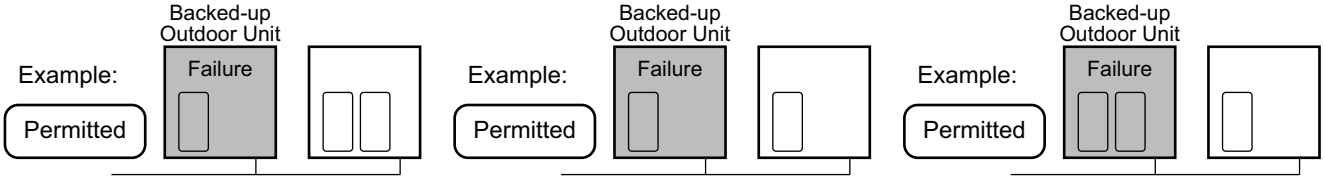
**Note 3 :** Keep the total backup outdoor units lower or equal than 50% of the outdoor units in one system refrigerant line.




**Note 4 :** Count the outdoor unit that is having backup compressor operation as one operable outdoor unit. The backup operation is still possible to do as long as the total backup outdoor units lower or equal than 50% of total outdoor units.




**Note 5 :** It is possible to do backup operation even the system is connected with different chassis size and different weight of outdoor units.



## 9-2. Compressor Backup Operation Setting

### <Outline>

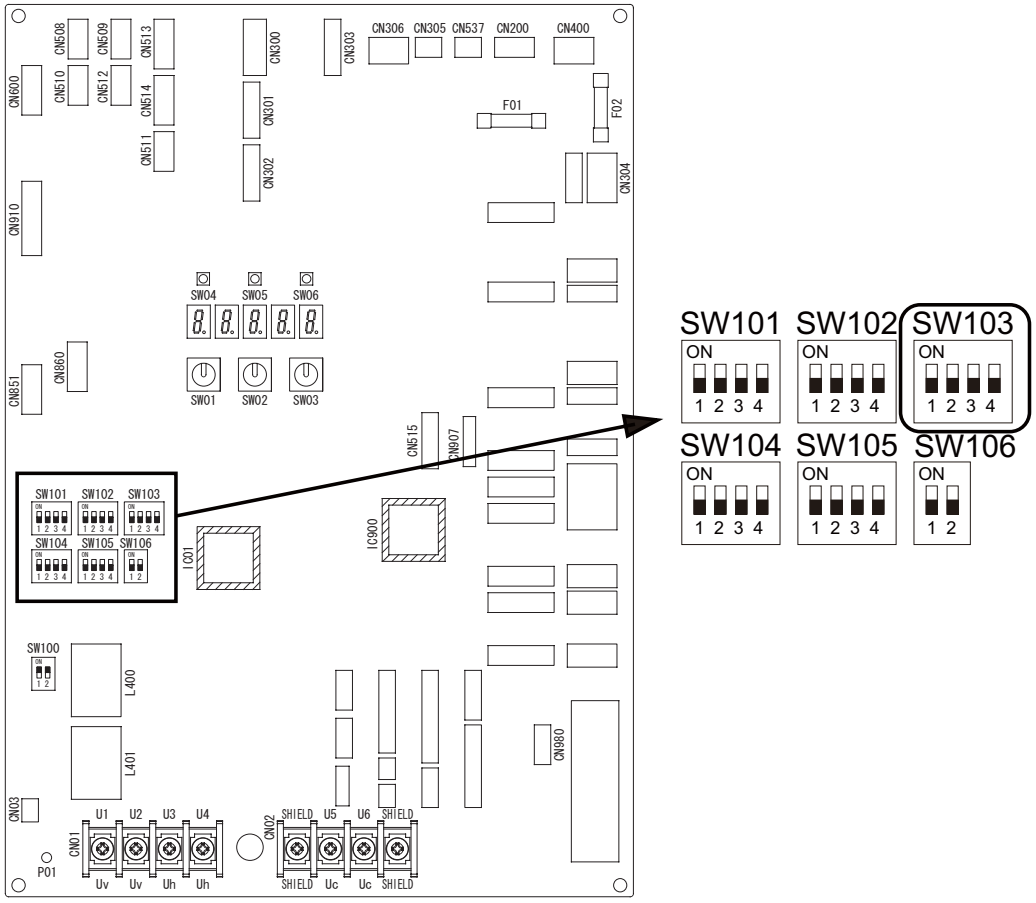
If a failure occurs to one of the compressors installed in outdoor unit, follow the procedure described below to back up the failured compressor by using the remaining, normal compressor.

**Note:** The backup operation of compressor cannot be done for
MMY-MUP0721*, MMY-MUP0961*, MMY-MUP1201*, MMY-MUP1441*, MMY-MUP168*
MMY-MUP072H1*, MMY-MUP096H1*, MMY-MUP120H1*
because only one compressor is installed in these models.

### <Work Procedure>

(1) Turn off the power supply to all the outdoor units connected to the system.

(2) Set the DIP switches of SW103, provided on the interface P.C. board of the outdoor unit with the failure compressor, as shown in the table below.




| | SW103 | | | |
|---|---|---|---|---|
| | **Bit 1** | **Bit 2** | **Bit 3** | **Bit 4** |
| Factory default setting | OFF | OFF | OFF | OFF |
| When compressor No.1 (front left) is failured | ON | OFF | OFF | OFF |
| When compressor No.2 (front right) is failured | OFF | ON | OFF | OFF |

(3) Turn on the power supply to all the units connected to the system.
This is the end of compressor backup operation setting.

## 9-3. Outdoor Unit Backup Operation Setting

**<Outline>**

This product allows outdoor unit backup operation setting to be performed either at the header unit or a follower unit. If any of the failure modes specified below occurs to one of the outdoor units in a multi-outdoor unit system, proceed with outdoor unit backup operation.

- A compressor failure (e.g. a layer short-circuit or a compressor failure in which no compressor is available to back up the failured compressor)
- A failure of a pressure sensor (Pd or Ps) or a temperature sensor (TD1, TD2, TS1, TS3, TE1, TE2, TE3, TG1, TG2, TG3, TK1, TK2, TL1, TL2 or TL3)

**Note:** Keep the number of backed-up outdoor units to one in the system (single refrigerant line).

### 9-3-1. Follower outdoor unit backup operation setting (failure of follower outdoor unit)

**<Work procedure>**

(1) Turn off the power supply to all the indoor and outdoor units connected to the system.

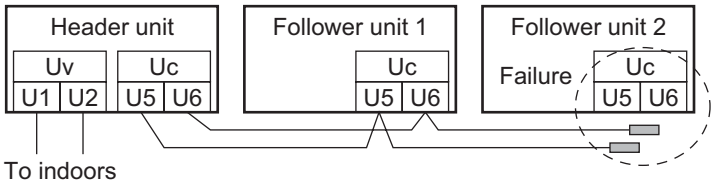
**[Setup of failed follower outdoor unit]**

(2) Fully close the gas pipe service valve of the failed outdoor unit.

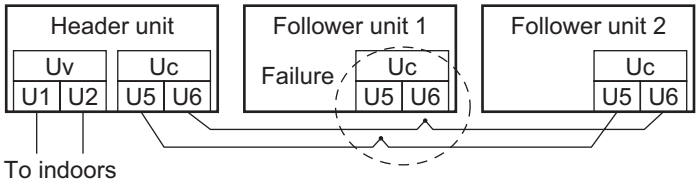
(3) Leave the service valve of the liquid pipe fully open (to prevent refrigerant stagnation in the unit). However, if there is a leakage from an outdoor PMV (unable to close), fully close the liquid pipe service valve.

(4) <In case of failure in compressor, electrical part, P.C. board>
From this point on, keep the power supply to the failed unit off.
<Case of refrigerating cycle parts failing (pressure sensor, temperature sensor, refrigerating cycle parts, fan system part)>

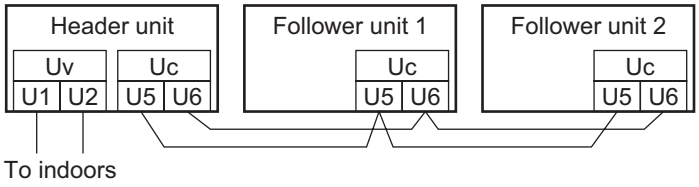
- In a case where the outdoor unit that is a terminal connection fails, disconnect the communication line to the outdoor unit from terminal [Uc(U5/U6)], and cover each of the lines U5 and U6 with insulating tape.

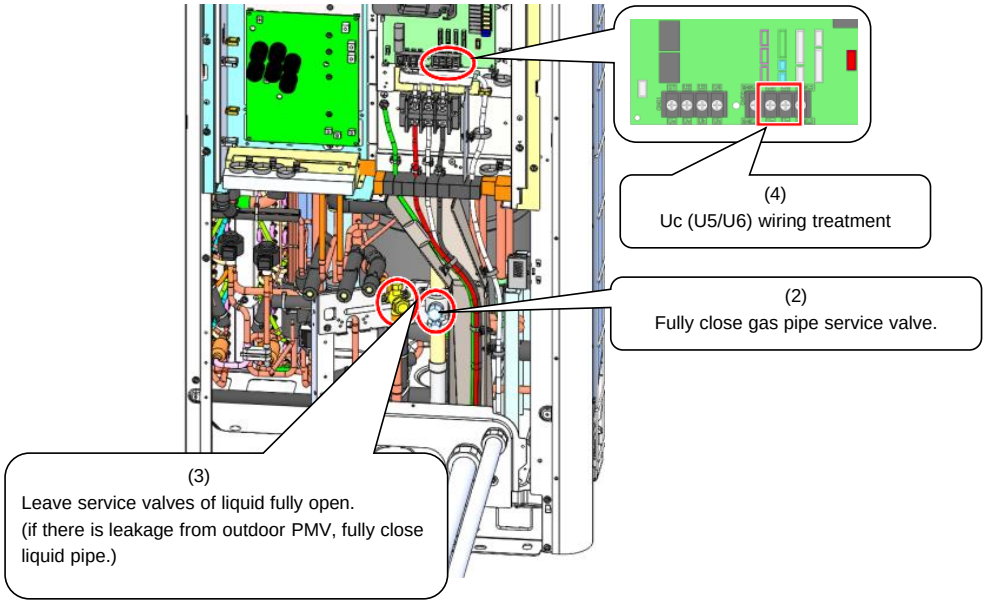



- In a case where an intermediate-connection outdoor unit fails, disconnect the communication line between both adjacent outdoor units from terminal [Uc(U5/U6)], and connect the communication lines.




(Reference) Normal wiring

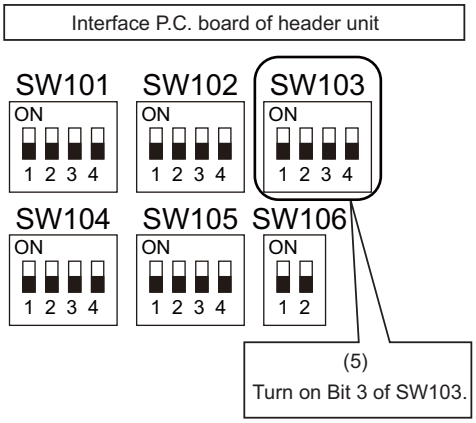





Setup of failed follower outdoor unit

**[Setup of header unit]**

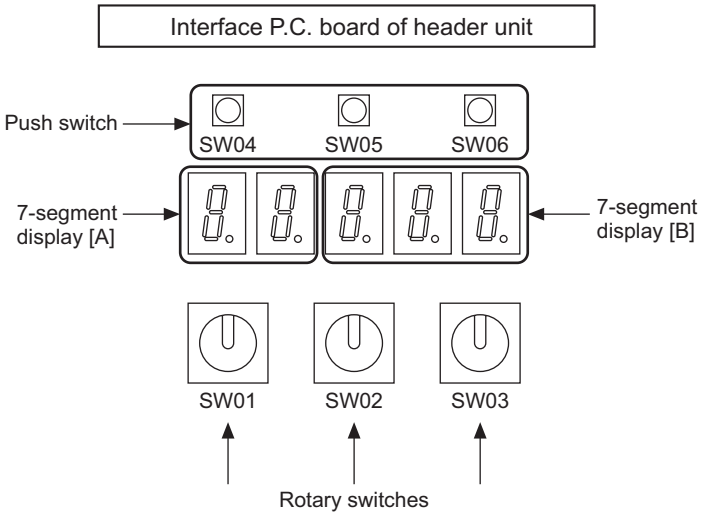
(5) Turn on Bit3 of SW103 on the interface P.C. board of the header unit.
(Setting to prevent connected indoor units capacity over failure (E16))



(6) Turn on the power supply to all the units connected to the system other than the failed follower unit.
Determine what to do with the power supply to the failed follower unit in the following manner.
<In case of failure in compressor, electrical part, P.C. board>
Leave the power supply off.
<In case of failure in refrigerating circuit or related part (pressure sensor, temperature sensor, refrigerating cycle part, or fan system part)>
Turn on the power supply to protect the compressor (by turning on the case heater).
(When the power supply to the unit is turned on, [E19] (failure in the number of outdoor header units) will be displayed on the 7-segment display. However, this will not cause any problems.)

(7) Perform settings needed to gain permission for backup operation from the header unit (failure clearance).
1) Set SW01/02/03 on the interface P.C. board to 1/1/1 and confirm that [U1] [E26] (dropping out of an outdoor unit) is displayed on the 7-segment display.
2) Set SW01/02/03 on the interface P.C. board to 2/16/1. Upon confirming that [Er] [… … …] is displayed on the 7-segment display, push SW04 and hold for 5 seconds or more.
3) [Er] [… CL] (failure clearance completed) will be displayed on the 7-segment display.
4) Set SW01/02/03 back to 1/1/1. (The display should change to [U1] [– – –].)

(7)
Set SW01/02/03 to 1/1/1
[U1] [E26] will be displayed.
↓
Set SW01/02/03 to [2/16/1].
[Er] [… … …] will be displayed.
↓
Push SW04 and hold for 5 seconds or more
[Er] [… CL] will be displayed.
↓
Set SW01/02/03 back to 1/1/1.
[U1] [– – –] will be displayed.




This is the end of follower outdoor unit backup operation setting. Check the operation.

### 9-3-2. Header outdoor unit backup operation setting (failure of header outdoor unit)

**<Work procedure>**

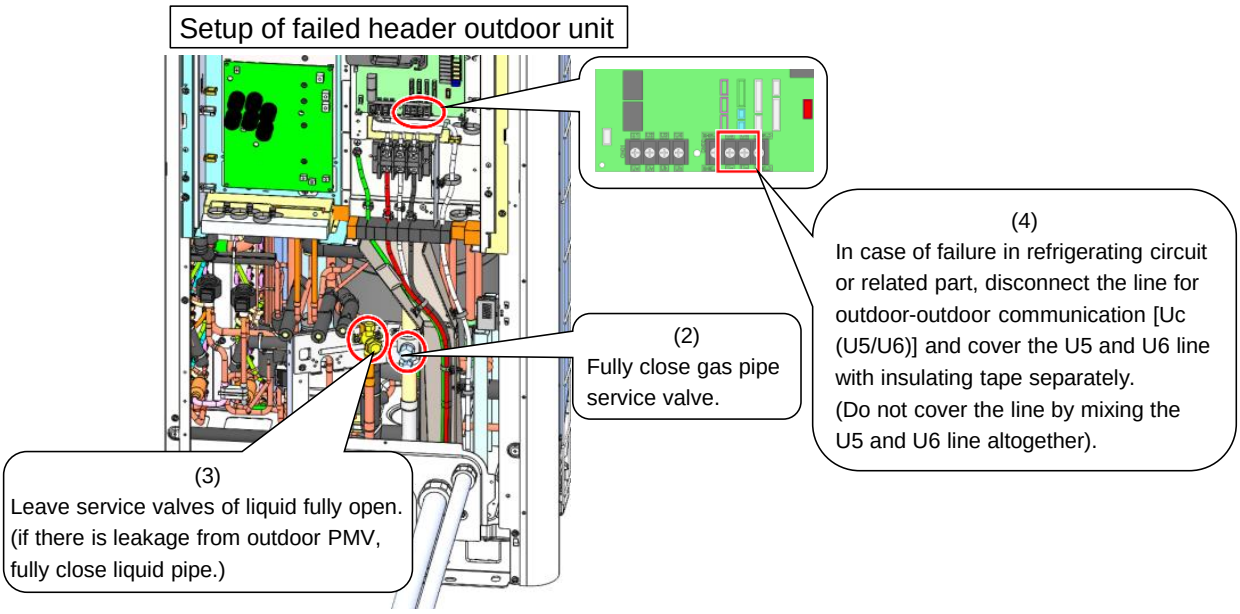
(1) Turn off the power supply to all the units connected to the system at the source.

**[Setup of failed header outdoor unit]**

(2) Fully close the gas pipe service valve of the failed outdoor unit.

(3) Leave the service valves of the liquid pipes fully open (to prevent refrigerant stagnation in the failed).

(4) <In case of failure in compressor, electrical part, P.C. board>
From this point on, keep the power supply to the failed unit off.
<In case of failure in refrigerating circuit or related part (pressure sensor, temperature sensor, refrigerating cycle part, or fan system part)>
Disconnect the line for outdoor-outdoor communication [Uc (U5/U6)] and cover the U5 and U6 line with insulating tape separately. (Do not cover the line by mixing the U5 and U6 line altogether).




**[Selection of new header unit]**

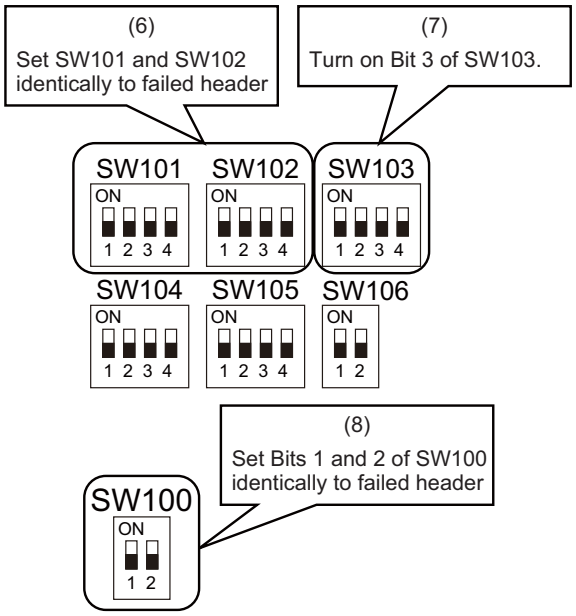
(5) Select a new header unit from the follower units on the basis of the following criteria:
- If only one follower unit is connected, select it as the header unit.
- If two follower units are connected, select the follower unit that is nearest to the failed header unit.

[Setup of new header unit]

(6) Set SW101 and SW102 on the interface P.C. board same as the setting of failed header unit (refrigerant line address setting).

(7) Turn on Bit3 of SW103 on the interface P.C. board. (Setting to prevent connected indoor unit capacity over failure. (E16))

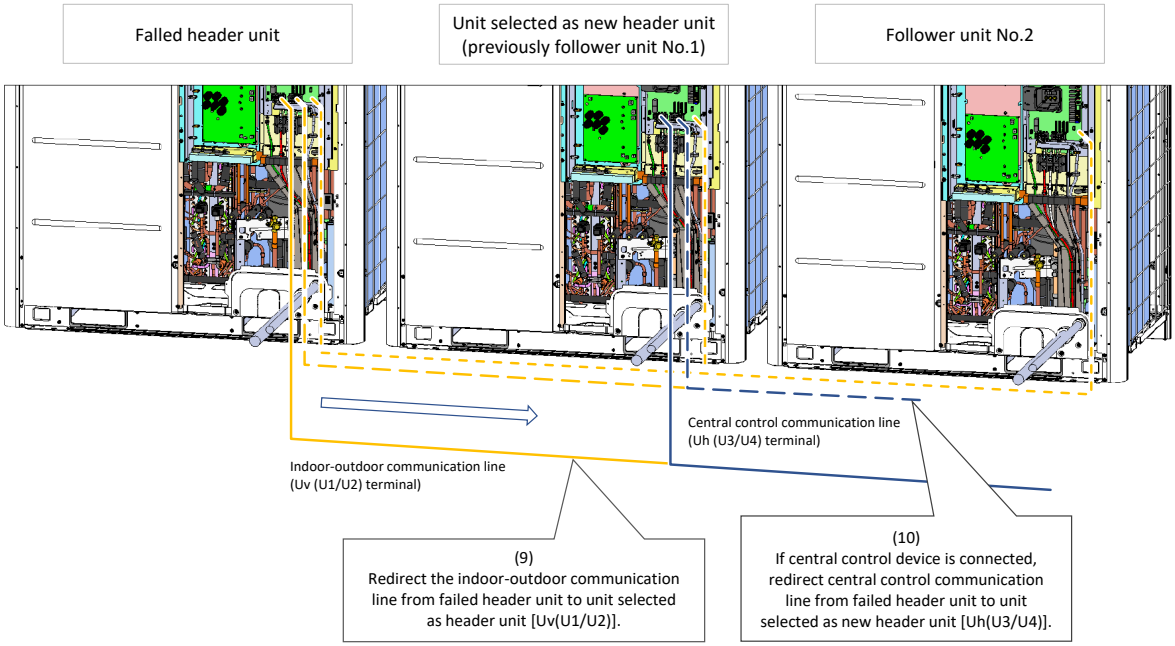
(8) Set Bits 1 and 2 of SW100 on the interface P.C. board same as that of the failed header unit (terminator resistance setting).




**[Wiring changes to communication line]**

(9) Redirect the indoor-outdoor communication line connected to the failed header unit [Uv (U1/U2)] to the unit selected as the header unit [Uv (U1/U2)].

(10) If a central control device is connected, connect the central control communication line [Uh (U3/U4)] to the communication line terminal of the unit selected as the new header unit [Uh (U3/U4)], and connect up the tie connector between the [Uv (U1/U2)] and [Uh (U3/U4)] terminals.




(11) Turn on the power supply to all the units connected to the system other than the failed unit.
Determine what to do with the power supply to the failed unit in the following manner.
<In case of failure in compressor, electrical part, P.C. board>
Leave the power supply off.
<In case of failure in refrigerating circuit or related part (pressure sensor, temperature sensor, refrigerating cycle part, or fan system part)>
Turn on the power supply to protect the compressor (by turning on the case heater).
(When the power supply to the unit is turned on, [E19] (failure in the number of outdoor header units) will be displayed on the 7-segment display. However, this will not cause any problems.)

This is the end of header outdoor unit backup operation setting. Check the operation.

## 9-4. Cooling-Season Outdoor Unit Backup Operation Setting

**<Outline>**

Limited to summer and other situations where there is no need for heating operation, this function makes it possible to get backup operation up and running quickly without going through the normal setup procedure, regardless of which type of outdoor unit has failed, the header unit or a follower unit.

In this backup operation, the system behaves in exactly the same way as described in the “Outdoor Unit Backup

Operation Setting” section, except that it cannot perform heating operation.

**Note 1:** When the system is set up for this function, heating operation is not available. ("HEATING STANDBY" displayed on the remote controller.)

**Note 2:** If the unit failure has been caused by a failure in the interface P.C. board or electric circuit, this function is not available. In that case, follow the procedure specified in the “Outdoor Unit Backup Operation Setting” section.

**<Work procedure>**

(1) Turn off the power supply to all the units connected to the system.

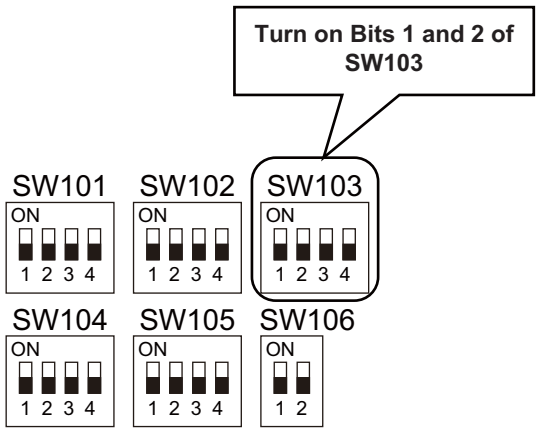
**[Setup of failed outdoor unit]**

Regardless of whether the failed outdoor unit is the header unit or a follower unit, there is no difference in the setup procedure.

(2) Turn on Bits 1 and 2 of SW103 provided on the interface P.C. board.

(3) If there is a leakage from an outdoor PMV (unable to close), fully close the liquid pipe service valve.

(4) Turn on the power supply to all the units connected to the system.
If the failure involves poor insulation of a compressor motor, remove the compressor leads before the power is turned on.




This is the end of cooling-season outdoor unit backup operation setting.

## 9-5. Outdoor Unit Automatic Backup Operation Outline (available only for TU2C-LINK)

### Outline

In case of the outdoor unit failure, this product supports automatic backup operation for both header and follower units. In system with connection of two or more outdoor units, if the automatic backup operation setting is ON and the following check codes occur, the automatic backup operation function allows continuous operation.

| | |
|---|---|
| Check Code：F** | F04,F05,F06,F07,F08,F09,F12,F15,F16,F23,F24,F31 |
| Check Code：H** | H03,H08,H16 |
| Check Code：P** | P03,P04,P05,P07,P11,P17,P18,P20,P22,P26,P29 |

If the following check codes occur, automatic backup operation function cannot be carried on and trouble/ abnormality is confirmed. In this case, do [Outdoor Unit Backup Setting] as described before.

| | |
|---|---|
| Check Code：E** | Indoor-outdoor unit communication signal trouble |
| Check Code：L** | Setting trouble |
| Check Code：H** | H01,H02,H06,H07 |
| Check Code：P** | P10,P13,P15,P19 |

If the check codes above occur, please refer to check code diagnosis procedure.

### Outdoor Unit Automatic Backup Setting

To turn ON the automatic backup operation setting, change the outdoor unit check code 3D to 0.
(The factory setting is ON, to disable the automatic backup operation setting, change the outdoor unit DN code 3D to 1)

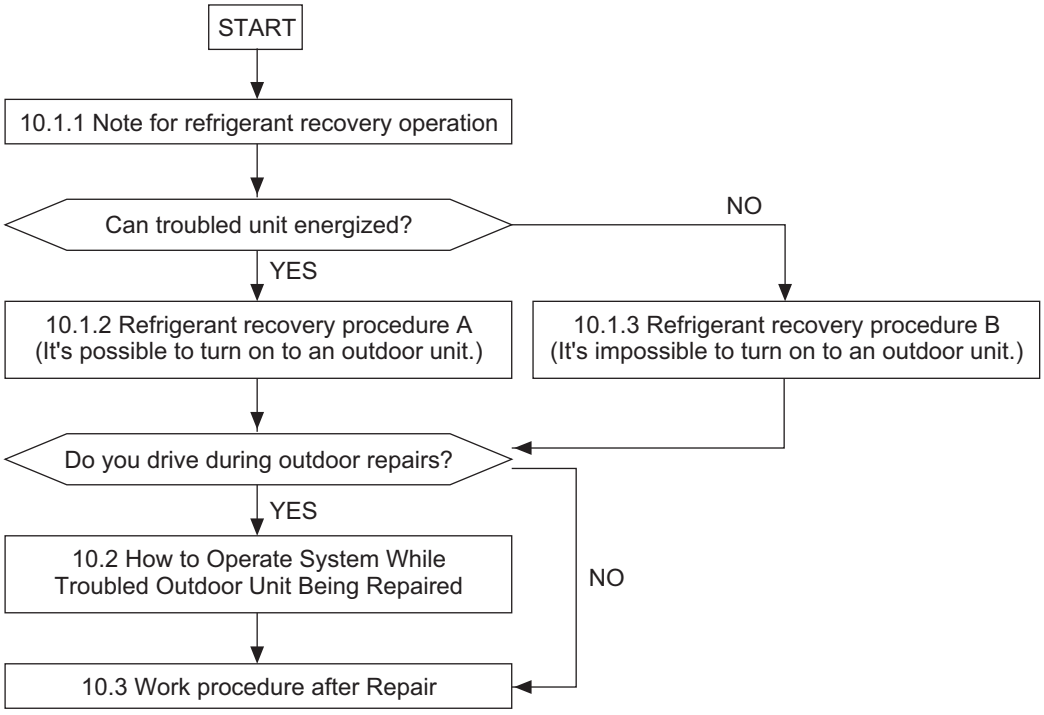
### Check Code (----) Display during Outdoor Unit Automatic Backup Operation

If the outdoor unit is on the automatic backup operation, check code(----)will be displayed on the remote controller. The check code(----)will be also displayed on the outdoor unit targeted for backup operation, please contact a service center immediately to repair the failure outdoor unit.

# 10. OUTDOOR UNIT REFRIGERANT RECOVERY METHOD

## 10-1. Refrigerant Recovery from Troubled Outdoor Unit (Reclaim)

This product supports refrigerant reclaim, a function which allows refrigerant to be recovered from an outdoor unit in need of repair using a normal outdoor unit in a system featuring multiple outdoor units.




### 10-1-1. Note for refrigerant recovery operation

When performing reclaim operation, take note of the following matters:

**Note 1:** The reclaim refrigerant recovery rate changes with outside temperature and other factors. After reclaim is completed, recover any residual gas using a refrigerant recovery device, etc., and be sure to measure the amount of recovered refrigerant. (The refrigerant recovery rate can be improved by heating the accumulator of the outdoor unit to be repaired during reclaim operation.)

**Note 2:** If reclaim has been performed, the system cannot be operated until the troubled outdoor unit is repaired.
(Continued operation would be impossible due to a refrigerant overcharge.)

**Note 3:** If outdoor PMV 1 happens to be unable to open or PMVs 2 and 3 happen to be unable to open, the refrigerant in the heat exchangers cannot be recovered. In that case, recover any residual gas in the heat exchangers using a tube piercing valve or some other tool. After a reclaim operation, do not perform any brazing until the residual gas in the heat exchangers is recovered.

### 10-1-2. Refrigerant recovery procedure A (Case that the troubled outdoor unit turn on)

#### <Work procedure>

Turn on the power supply to the system at the source, but leave the system switched off.
If the trouble involves poor insulation of a compressor motor, remove the motor leads before the power is turned on.

#### [Setup of failed outdoor unit]

(1) Connect the check joint of liquid pipe and the low pressure-side check joint using a charge hose, and purge the hose of air (to recover refrigerant from the liquid tank and heat exchangers).

(2) Fully close the liquid pipe service valve of the troubled outdoor unit.
(Leave the service valves of the gas pipe fully open.)

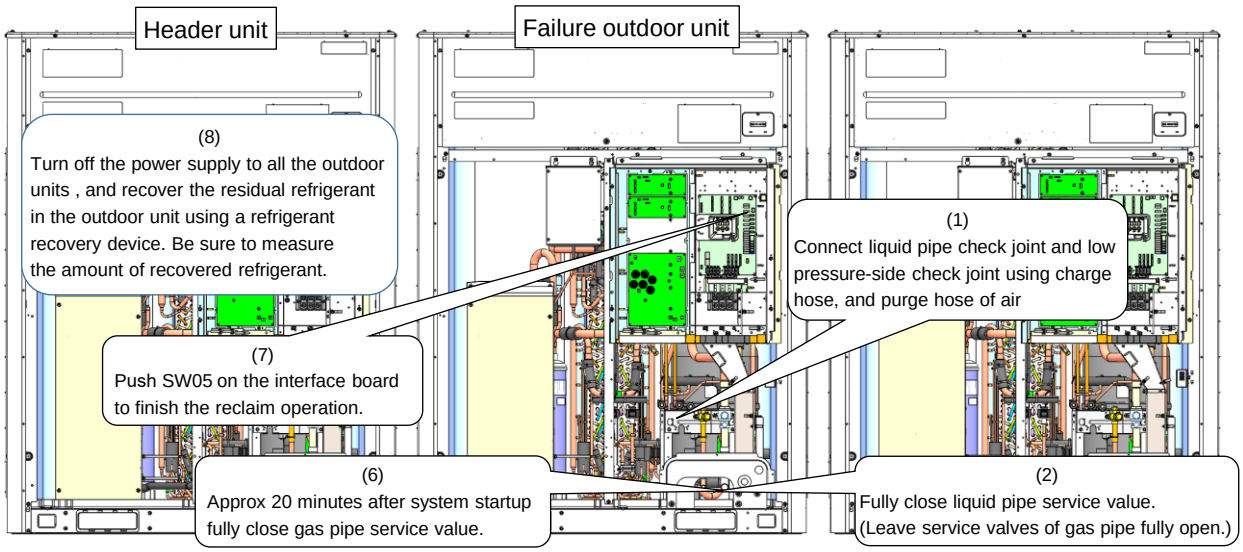
(3) Set SW01/02/03 on the interface P.C. board of the failed outdoor unit to 2/11/1. After [rd] [… … …] is displayed on the 7-segment display, push SW04 and hold for 5 seconds or more.

(4) [rd] [… FF] will be displayed on the 7-segment display, and reclaim operation will start.
* To put the operation on hold midway, turn off the power supply to all the outdoor units, or push SW05 on the interface P.C. board.

(5) Approx. 20 minutes after the system starts up , fully close the gas pipe service value of the troubled outdoor unit.

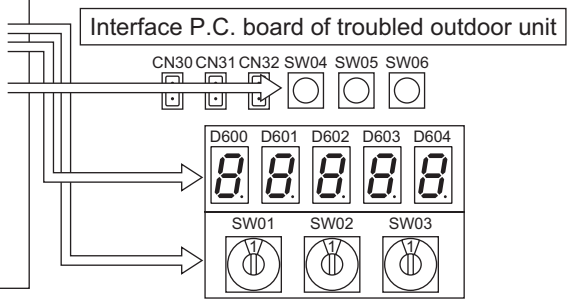
(6) Push SW05 on the interface board to finish the reclaim operation.

(7) Turn off the power supply to all the outdoor units , and recover the residual refrigerant in the outdoor unit using a refrigerant re device. Be sure to measure the amount of recovered refrigerant. (This is necessary to determine how much additional refrigerant will be needed after the completion of the repair.)




(4) Set SW01/02/03 to 2/11/1.
[rd] [... ... ...] is displayed.
↓
Push SW04 and hold for 5 seconds or more.
(5) [rd] [ FF] is displayed (reclaim operation starts).
Behavior during reclaim operation.

| Outdoor unit | Behavior |
|---|---|
| Troubled outdoor unit | Compressors: Turned off<br>Outdoor fan: On<br>PMV1, PMV2 ,PMV3 and PMV4: Open |
| Every other outdoor unit | Operates in test cooling operation mode |




This is the end of the refrigerant recovery operation.
Set SW01/02/03 of the troubled outdoor unit and the outdoor unit for pressure adjustment back to 1/1/1.

### 10-1-3. Refrigerant recovery procedure B (Case that the troubled outdoor unit does not turn on)

## <Outline>

If outdoor unit backup operation setting is performed, use an alternative refrigerant recovery procedure as described below, provided that the power cannot be turned on for the troubled outdoor unit. (Refrigerant will be recovered from the failed outdoor unit using the test cooling operation function.)

**Note:** If the power cannot be turned on the troubled outdoor unit, the solenoid valves and PMVs of the unit cannot be turned on, so that it reduces the amount of recovered refrigerant compared to a standard reclaim operation. Recover the residual gas in the unit using a refrigerant recovery device, and be sure to measure the amount of recovered refrigerant.

## <Work procedure>

### [Setup of troubled outdoor unit]

(1) Connect the liquid pipe check joint and the low pressure-side check joint using a gauge manifold, and purge the manifold of air (to recover refrigerant from the heat exchangers).

(2) Fully close the liquid pipe packed valve of the troubled outdoor unit.
(Leave the service valve of the gas pipe fully open.)

### [Setup of unit selected as header unit (hereafter "header outdoor unit")]

(3) Set SW01/02/03 on the interface P.C. board of the header outdoor unit to 2/5/1. After [C. ] [… … …] is displayed on the 7-segment display, push SW04 and hold for 5 seconds or more.

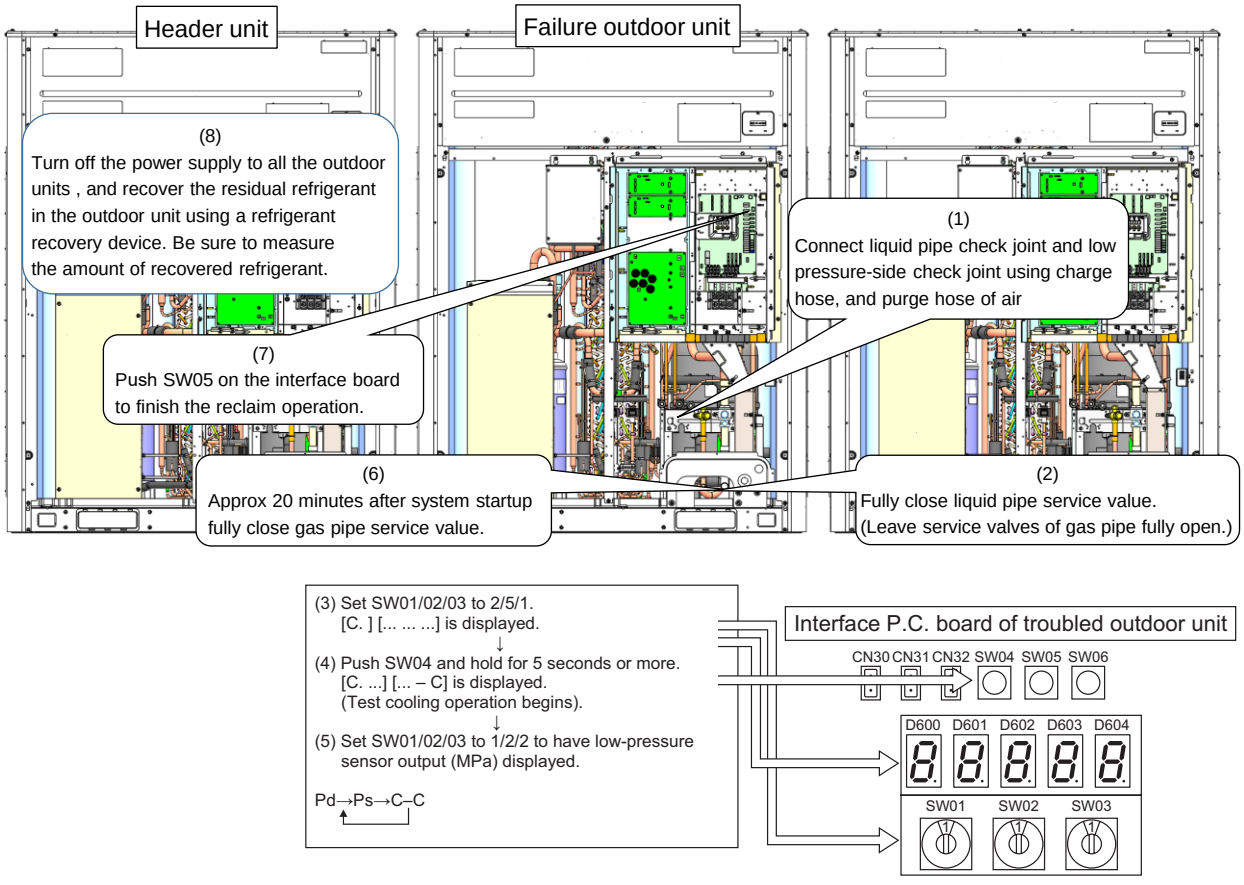
(4) After [C. …] [… – C] is displayed on the 7-segment display, the system starts operating in the test cooling operation mode.

(5) Set SW01/02/03 on the interface P.C. board of the header outdoor unit to 1/2/2 to have the low-pressure sensor\ output (MPa) displayed on the 7-segment display.

(6) Approx. 20 minutes after the system starts on , fully close the gas pipe service value of the failed outdoor unit.

(7) Push SW05 on the interface board to finish the reclaim operation.

(8) Turn off the power supply to all the outdoor units , and recover the residual refrigerant in the outdoor unit using a refrigerant recovery device. Be sure to measure the amount of recovered refrigerant.
(This is necessary to determine how much additional refrigerant will be needed after the completion of the repair.)




This is the end of the refrigerant recovery operation.
Set SW01/02/03 of the troubled outdoor unit and the outdoor unit for pressure adjustment back to 1/1/1.

## 10-2. How to Operate System While Troubled Outdoor Unit Being Repaired

### <Outline>

After refrigerant is recovered from the troubled outdoor unit through a reclaim operation, the overall amount of refrigerant held by the system becomes excessive, and this makes it impossible to operate the remaining outdoor units even though they are not troubled. However, operation is still possible if the system-wide amount of refrigerant is adjusted in accordance with the procedure described below.

### <Work procedure>

(1) Follow the steps specified in “10-1. Refrigerant Recovery from Troubled Outdoor Unit (Reclaim)”.

(2) Adjust the amount of refrigerant held by the system by removing some of it using a refrigerant recovery device, etc.
Determine the amount of refrigerant to be removed according to the capacity of the failed outdoor unit. (See the table below.)

**Example:** If you are under repairing of a 14ton (capacity type 168) outdoor unit in 40ton (capacity type 480) system (combination of outdoor unit: 14ton + 14ton + 12ton):
Amount of refrigerant to be removed from this system = 6.16 lbs

(3) Set up the outdoor unit from which refrigerant has been recovered in the manner described in “9-3. Outdoor Unit Backup Operation Setting”.
This completes the procedure.

**Standard**

| Outdoor unit capacity type | Combination outdoor units | | | Compensation by outdoor unit capacity type | |
|---|---|---|---|---|---|
| | Unit 1 | Unit 2 | Unit 3 | lbs | kg |
| 072 | 072 | - | - | 2.20 | 1.00 |
| 096 | 096 | - | - | 2.64 | 1.20 |
| 120 | 120 | - | - | -1.10 | -0.50 |
| 144 | 144 | - | - | 0.33 | 0.15 |
| 168 | 168 | - | - | 6.16 | 2.80 |
| 192 | 096 | 096 | - | 5.28 | 2.40 |
| 216 | 144 | 072 | - | 2.53 | 1.15 |
| 240 | 144 | 096 | - | 2.97 | 1.35 |
| 264 | 168 | 096 | - | 8.80 | 4.00 |
| 288 | 144 | 144 | - | 0.66 | 0.30 |
| 312 | 168 | 144 | - | 6.49 | 2.95 |
| 336 | 168 | 168 | - | 12.32 | 5.60 |
| 360 | 168 | 096 | 096 | 11.44 | 5.20 |
| 384 | 144 | 144 | 096 | 3.30 | 1.50 |
| 408 | 168 | 144 | 096 | 9.13 | 4.15 |
| 432 | 168 | 168 | 096 | 14.96 | 6.80 |
| 456 | 168 | 168 | 120 | 11.22 | 5.10 |
| 480 | 168 | 168 | 144 | 12.65 | 5.75 |

**High heat**

| Outdoor unit capacity type | Combination outdoor units | | | Compensation by outdoor unit capacity type | |
|---|---|---|---|---|---|
| | Unit 1 | Unit 2 | Unit 3 | lbs | kg |
| 072 | 072 | - | - | -2.20 | -1.00 |
| 096 | 096 | - | - | -1.65 | -0.75 |
| 120 | 120 | - | - | 3.30 | 1.50 |
| 144 | 072 | 072 | - | -4.40 | -2.00 |
| 192 | 096 | 096 | - | -3.30 | -1.50 |
| 240 | 120 | 120 | - | 6.60 | 3.00 |
| 288 | 096 | 096 | 096 | -4.95 | -2.25 |
| 360 | 120 | 120 | 120 | 9.90 | 4.50 |

## 10-3. Work procedure after Repair

When vacuuming in the repaired outdoor unit, follow the procedure described below.

### <Work procedure>

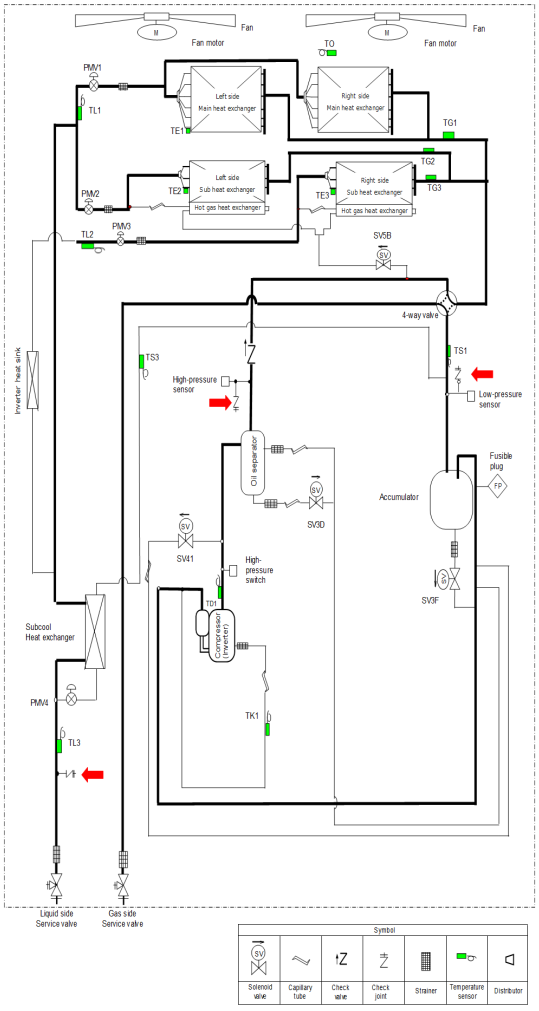
(1) Follow the procedure below to fully open PMV 1, 2, 3, and 4 and turn off the outdoor unit within 2 minutes after the operation is completed.
**Note)** The PMV fully open operation by the following operation will return to fully closed after 2 minutes.

1. Set [SW01/SW02/SW03] on the interface board to [2/1/3], and after [H.r] […… is displayed on the 7-segment display, push [SW04] and hold for 5 seconds or more.
2. Push [SW06] and hold for 5 seconds or longer, and [P.1] [F o...] Is displayed on the 7-segment display. (PMV1 fully open)
3. Set [SW01/SW02/SW03] on the interface board to [2/1/4], and after [P.2] […… is displayed on the 7-segment display, push [SW04] and hold for 5 seconds or longer, and [P.2][Fo...] Is displayed on the 7-segment display. (PMV2 fully open)
4. 3. Similarly, set [SW01/SW02/SW03] to [2/1/5], set [SW01/SW02/SW03] to [2/1/6], push [SW04] and hold for 5 seconds or more, and each have 7 segments.
[P.3][Fo...] (PMV3 fully open), [P.4][Fo...] (PMV4 fully open) are displayed on the display.
**Note)** 7-segment display and operation method: [P.x] [* * ...]
    - The initial state is normal control, and […… is displayed in *.
    - When push SW4 is pushed for 5 seconds, it fully opens for 2 minutes, and [F o...] is displayed in *.
    - Pushing again for 5 seconds displays an intermediate opening for 2 minutes, and [C o...] is displayed in *.
    - Pushing it again for 5 seconds closes it completely for 2 minutes and displays [Fc...] in *.
    - Push again for 5 seconds to return to normal control.

(2) Return [SW01/SW02/SW03] on the interface board to [1/1/1].

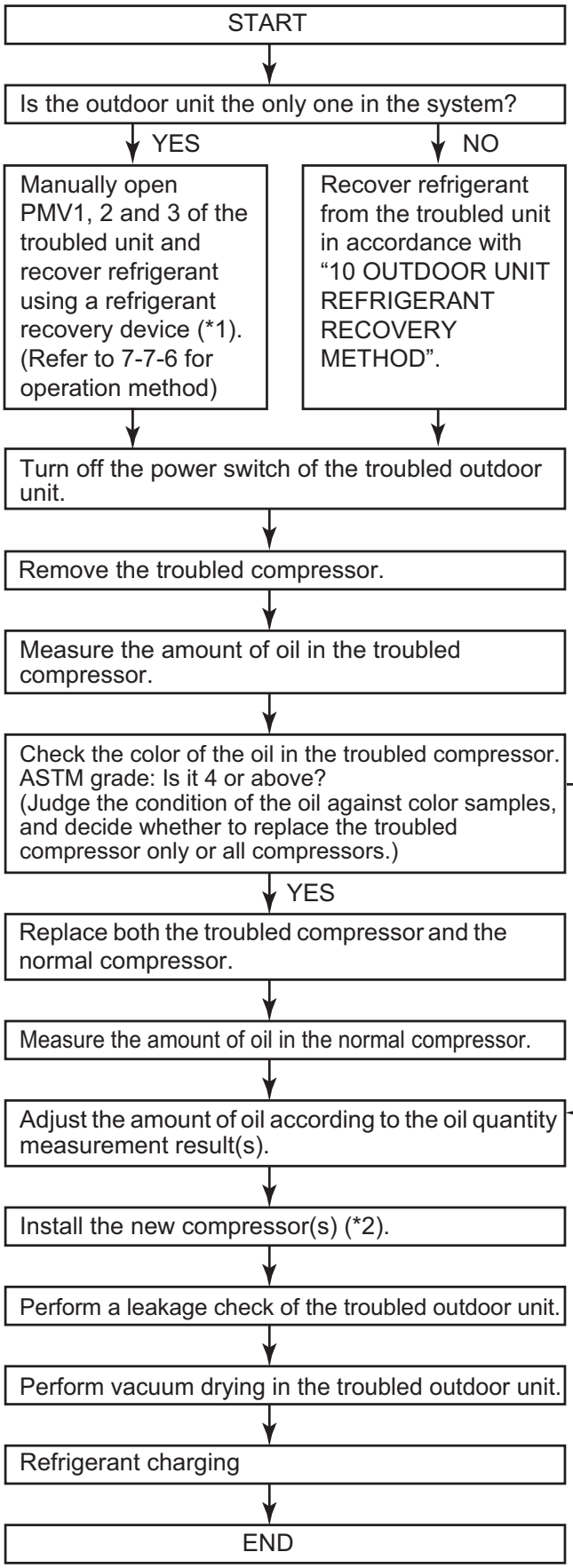
(3) Be sure to perform vacuuming in from the three check joints shown in the diagram below (liquid pipe, discharge pipe and suction pipe).

**Standard 10,12,14ton/High heat 8,10 ton**
**Model: MMY-MUP1201*, MUP1441*, MUP1681*, MUP096H1*, MUP1201H1***



# 11. REPLACING COMPRESSORS

## 11-1. Compressor Replacement Procedure (Outline)




### ⚠ WARNING

In situations such as indoor unit relocation and repairs, it is not possible to recover all the refrigerant held by the system in the outdoor units.
It could cause a serious accident, such as blow out or injury.
Be sure to perform refrigerant recovery using a refrigerant recovery device.

### ⚠ WARNING

When detaching a pipe by heating with a burner at brazed joint, take care as any oil left in the piping may burn in a momentary flash of fire when the brazed filler metal melts.

*1 The full-opening of PMV 1, 2, 3 via rotary switch is automatically undone after 2 minutes, causing the valves to fully close.
To maintain fully open state, turn off the power switch of the outdoor unit within 2 minutes

*2 The SMMS-u and the SMMS-i and SMMS-e use different types of compressors. Be sure to check the service part code.

This flowchart only shows the standard compressor replacement procedure. Since the situation can differ site by site, perform the task in accordance with the following judgment criteria:

1. The compressors that are used as service parts are filled with oil as listed below (per 1 compressor):

| | |
|---|---|
| Standard 6,8,16 ton<br>High heat 6 ton | 0.502 gal |
| Standard 10,12,14 ton<br>High heat 8,10 ton | 0.793 gal |

2. The oil volume that was filled in the outdoor unit is listed as below:

| | |
|---|---|
| Standard 6,8 ton<br>High heat 6 ton | 0.898 gal |
| Standard 10,12,14 ton<br>High heat 8,10 ton | 1.321 gal |
| Standard 16 ton | 1.532 gal |

3. The removed compressors normally filled with oil as listed below (per 1 compressor):

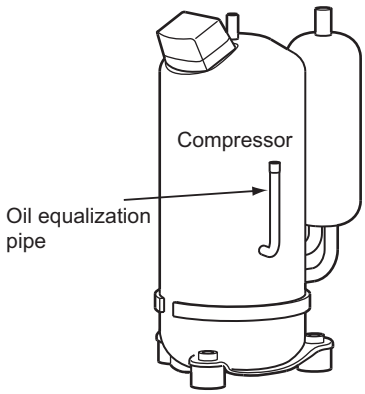
| | |
|---|---|
| Standard 6,8,16 ton<br>High heat 6 ton | 0.211 ~ 0.370 gal |
| Standard 10,12,14 ton<br>High heat 8,10 ton | 0.528 ~ 0.687 gal |

Oil separator's oil volume is normally around 0~1000 cc.

## 11-2. Replacement of Compressors

**<Checking color of oil in troubled compressor>**

- Lay the troubled compressor down, draw a small amount of oil via the oil equalization pipe, and check its color against color samples.
- Determine the number of compressors to be replaced according to the color checking result.
  ASTM grade: Below 4 → Replace the troubled compressor only.
  ASTM grade: 4 or above → Replace both the troubled compressor and the normal compressor(s).




## ⚠ WARNING

When detaching a pipe by heating with a burner at brazed joint, take care as any oil left in the piping may burn in a momentary flash of fire when the brazing filler metal melts.

**Model: MMY-MUP0721*,0961*,072H1***

**For Standard 6,8 ton, High heat 6 ton**

**[When replacing troubled compressor only]**

**<Measuring amount of oil in troubled compressor>**

Put the troubled compressor above the scale to measure the amount of oil.

Amount of oil in troubled compressor: A [gal] = (Weight of compressor as it was dismantled (lbs) - 57.3lbs) x 0.1249

(Specific volume of oil: 0.1249 [gal/lbs])

* The weight of the compressor without oil inside is 57.3lbs

**<Adjusting amount of oil in new compressor> (0.502 gal at shipment)**

- Perform the adjustment on the basis of how much oil the troubled compressor contained, A [gal], by following the steps below.

### *1* Amount of oil in troubled compressor A [gal]: 0 ≤ A < 0.264

(1) Adjust the amount of oil in the new compressor to 0.264 gal
(Lay the new compressor down and draw 0.211 [gal] of oil via the oil-equalization pipe.)

**Notes:**

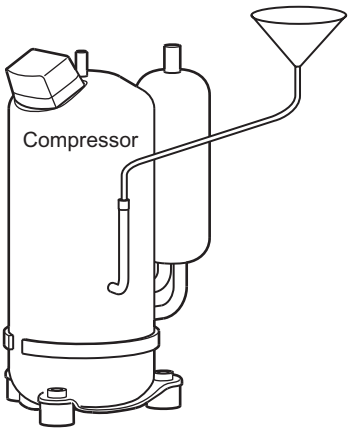
- Do not draw more than 0.211 [gal] of oil as it may cause damage to the compressor.
- If the troubled compressor contained 0.132gal or less, there may have been a problem with the oil equalization circuit, etc. Perform checks in accordance with “11-3. Check Procedure to Search Cause of Compressor Oil Shortage”.

### *2* Amount of oil in troubled compressor A [gal]: 0.264 ≤ A < 0.502

(1) Adjust the amount of oil in the new compressor to A gal.
(Lay the new compressor down and draw (0.502 - A) [gal] of oil via the oil equalization pipe.)

### *3* Amount of oil in troubled compressor A [gal]: 0.502 ≤ A

(1) Adjust the amount of oil in the new compressor to A gal.
(Insert a hose into the discharge pipe or oil equalization pipe of the new compressor and inject (A-0.502) [gal] of oil using a funnel, etc.)



**Model: MMY-MUP1201*,1441*,1681*,096H1*,120H1***
**For Standard 10,12,14 ton, High heat 8,10 ton**
**[When replacing troubled compressor only]**
**<Measuring amount of oil in troubled compressor>**

Put the troubled compressor above the scale to measure the amount of oil.

Amount of oil in troubled compressor: A [gal] = (Weight of compressor as it was dismantled (lbs) - 93.9lbs) x 0.1249
(Specific volume of oil: 0.1249 [gal/lbs])

* The weight of the compressor without oil inside is 93.9lbs.

**<Adjusting amount of oil in new compressor> (0.793gal at shipment)**

- Perform the adjustment on the basis of how much oil the troubled compressor contained, A [cc], by following the steps below.

### *1* Amount of oil in troubled compressor A [gal]: 0 ≤ A < 0.660

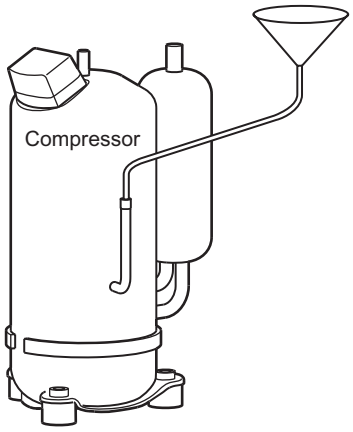
(1) Adjust the amount of oil in the new compressor to 0.660 gal
(Lay the new compressor down and draw 0.211 [gal] of oil via the oil-equalization pipe.)

**Notes:**

- Do not draw more than 0.211 gal of oil as it may cause damage to the compressor.
- If the troubled compressor contained 0.211 gal or less, there may have been a problem with the oil equalization circuit, etc. Perform checks in accordance with “11-3. Check Procedure to Search Cause of Compressor Oil Shortage”.

### *2* Amount of oil in troubled compressor A [gal]: 0.660 ≤ A < 0.793

(1) Adjust the amount of oil in the new compressor to A gal.
(Lay the new compressor down and draw (0.793 - A) [gal] of oil via the oil equalization pipe.)




### *3* Amount of oil in troubled compressor A [gal]: 0.793 ≤ A

(1) Adjust the amount of oil in the new compressor to A gal.
(Insert a hose into the discharge pipe or oil equalization pipe of the new compressor and inject (A-0.793) [gal] of oil using a funnel, etc.

**<Installing compressor>**

• Install a compressor by following the dismantling procedure in reverse.

**Notes:**

• The tightening torque of the screws, used to fix the compressor's lead wires, is 1.84 ft*lbs.
• The tightening torque of the hexagonal bolts, used to mount the compressor, is 14.46 ft*lbs.
• If oil has been drawn from the accumulator, repair the cut pipe through pinching and brazing.

**<Vacuum-pumping>**

(Single outdoor unit system)

• Before performing vacuum-pumping, fully open PMV1, 2 and 3. If they are closed, the heat exchangers of the outdoor unit cannot be vacuum-pumped.
• Connect a vacuum pump consecutively to the check joints placed in the liquid and discharge pipes and on the high-pressure side of the suction pipe, and turn it on.
• Operate the vacuum drying until the vacuum gauge indicates 0.0193317 psi.

**<Method to fully open PMV manually>**

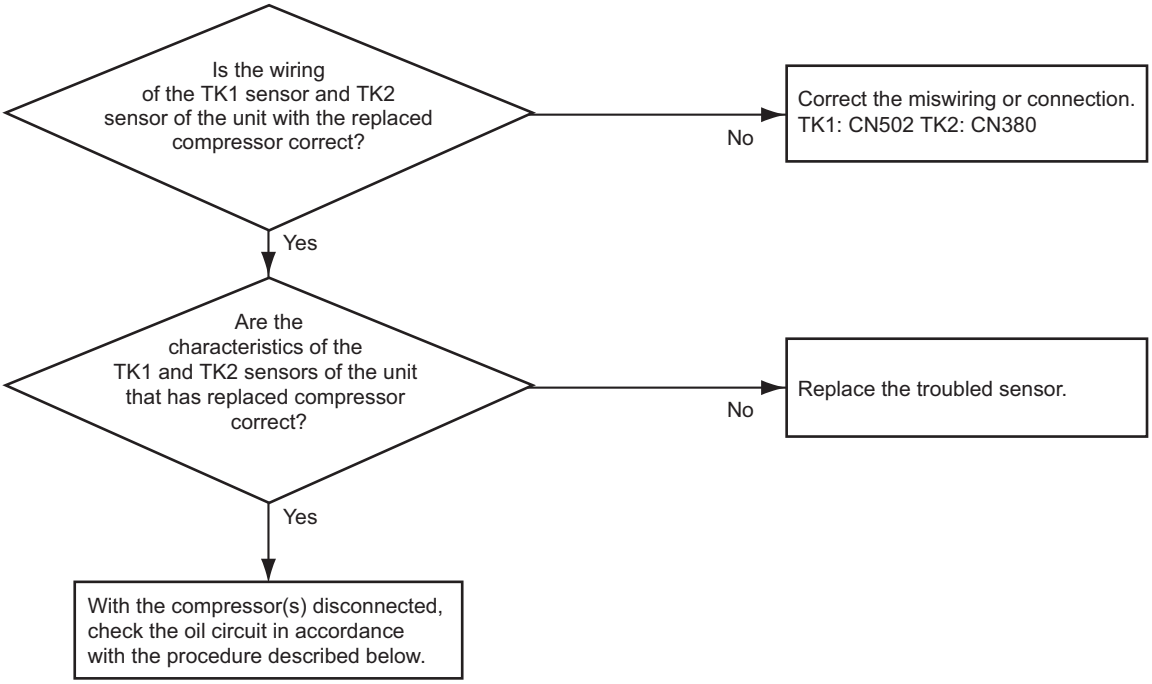
(1) Turn on the power switch of the outdoor unit.
(2) Fully open the PMV1.
(3) Fully open the PMV2.
(4) Fully open the PMV3
(5) Turn off the power switch of the outdoor unit

* Please refer to chapter 7-7-6 to fully open the PMV1, 2, and 3.
* Step (4) is not needed for Model: MMY-MUP0721*0961* and 072H1*

**<Refrigerant charging>**

• Inject the same amount of refrigerant as the recovered residual refrigerant via the charging port of the liquid-side service valve.

## 11-3. Check Procedure to Search Cause of Compressor Oil Shortage

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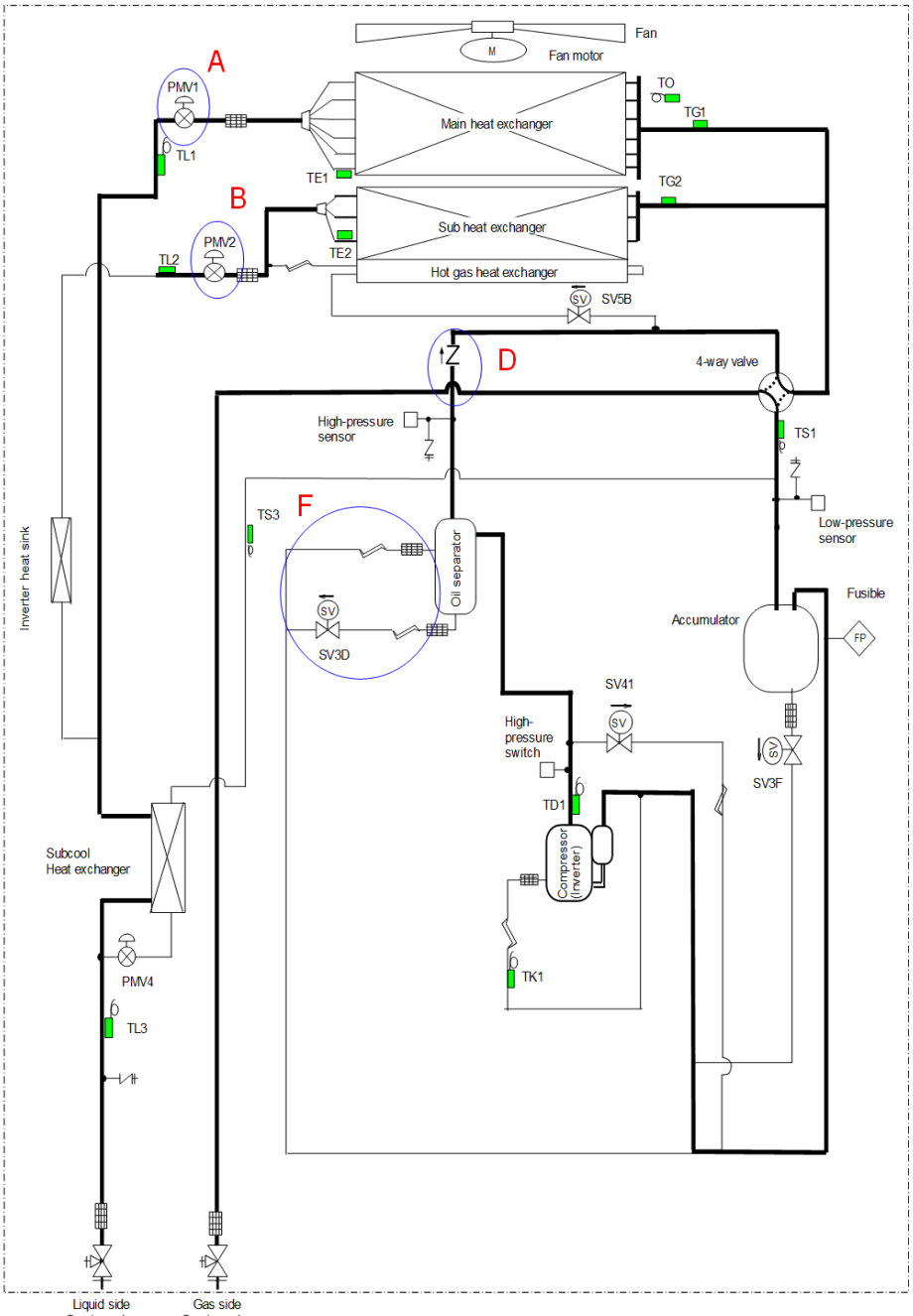
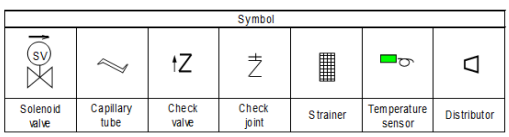
## <MMY-MUP0721*,0961* and 072H1*>

Check items and procedures to follow when checking oil circuit with compressor(s) disconnected

| Check item | Location | Procedure |
|---|---|---|
| Leakage of outdoor PMV<br>Leakage of check valve in discharge pipe convergent section | A, B, D | 1) With PMV 1, 2 and 4 fully closed, apply pressure to the check joint of liquid pipe with nitrogen, and check the pressure at the check joint of discharge pipe.<br>If the pressure at the check joint of discharge pipe increases, there is a leak from PMV1 (A) or PMV2 (B) and check valve of discharge pipe (D). Replace the troubled parts.<br>2) If the pressure does not increase, fully open outdoor PMV 1, 2 and check the pressure at the check joint of discharge pipe again.<br>If the pressure increases, there is a leak from the check valve of discharge pipe (D). Replace the part. |
| Clogging of SV3D valve<br>Clogging of oil-return capillary<br>Clogging of oil-return distributor | F | 3) With pressure applied to the check joint of discharge pipe with nitrogen, manually open the SV3D valve. If gas does not escape from the suction pipe section of the disconnected compressor, the SV3D valve, oil-return capillary or oil-return distributor is clogged. Replace the part. |

**Outdoor Unit**
**Standard 6,8 ton / High heat 6 ton**
**Model: MMY-MUP0721*, MUP0961*, MUP072H1***



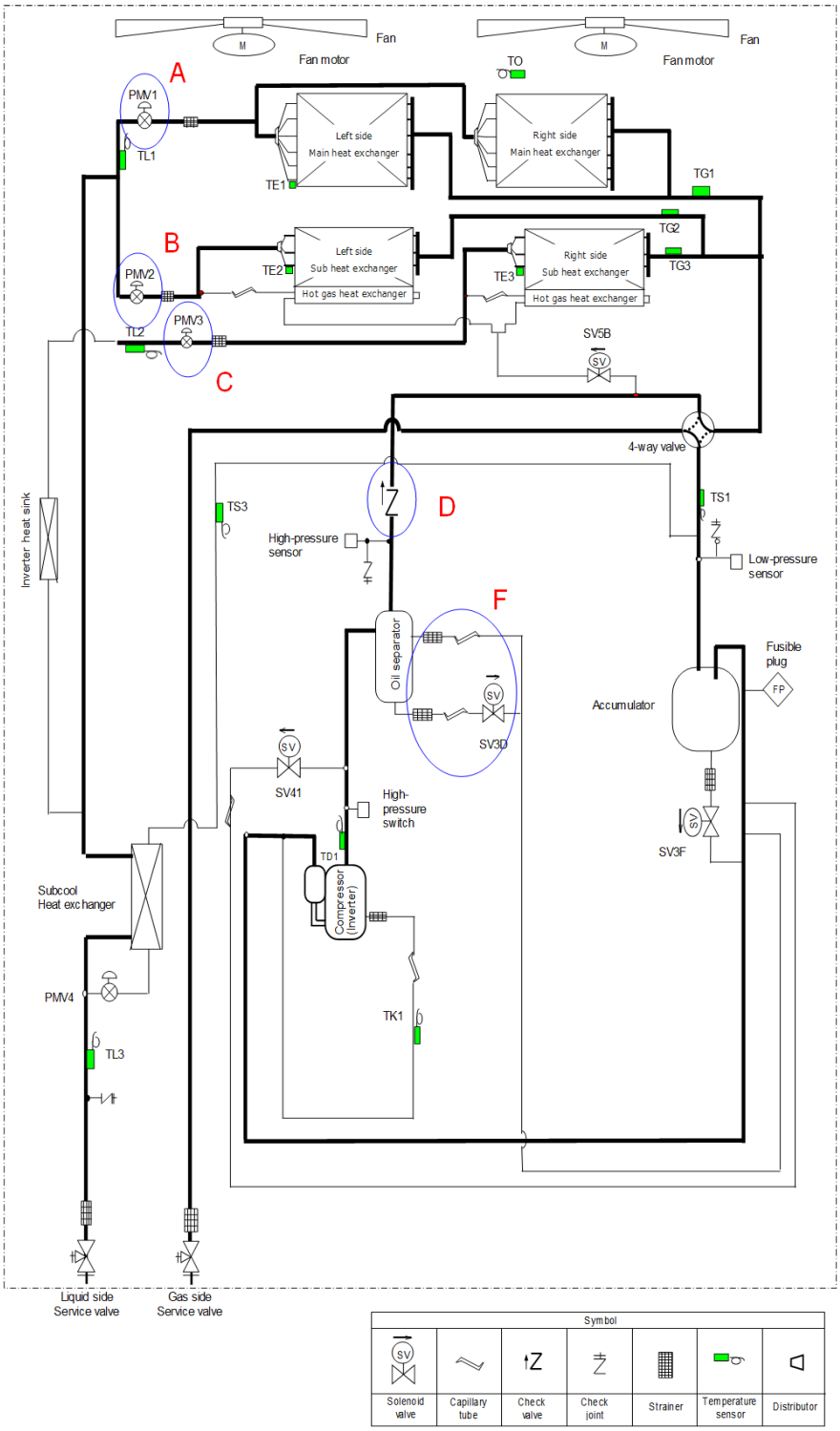



## <MMY-MUP1201*,1441*,1681*,096H1*,120H1*>

Check items and procedures to follow when checking oil circuit with compressor(s) disconnected

| Check item | Location | Procedure |
|---|---|---|
| Leakage of outdoor PMV<br>Leakage of check valve in discharge pipe convergent section | A,B<br>C.D | 1) With PMV 1, 2, 3 and 4 fully closed, apply pressure to the check joint of liquid pipe with nitrogen, and check the pressure at the check joint of discharge pipe.<br>If the pressure at the check joint of discharge pipe increases, there is a leak from PMV1 (A), 2 (B) or 3 (C) and check valve of dischage pipe (D). Replace the troubled parts.<br>2) If the pressure does not increase, fully open outdoor PMV1 and 2 and check the pressure at the check joint of discharge pipe again.<br>If the pressure increases, there is a leak from the check valve of discharge pipe (D). Replace the part. |
| Clogging of SV3D valve<br>Clogging of oil-return capillary<br>Clogging of oil-return distributor | F | 3) With pressure applied to the check joint of discharge pipe with nitrogen, manually open the SV3D valve. If gas does not escape from the suction pipe section of the disconnected compressor, the SV3D valve, oil-return capillary or oil-return distributor is clogged. Replace the part. |

**Standard 10,12,14 ton / High heat 8,10 ton**
**Model: MMY-MUP1201*, MUP1441*, MUP1681*, MUP096H1*, MUP120H1***



# 12. OUTDOOR UNIT PARTS REPLACEMENT METHODS

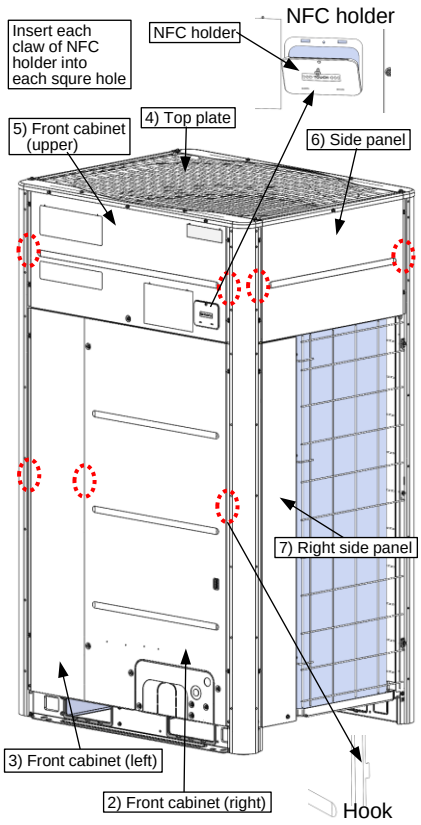
<table>
<tr><th>No.</th><th>Part</th><th>Work procedure</th><th>Remarks</th></tr>
<tr><td>1</td><td>Cabinet</td><td>

**⚠WARNING**

Wear a pair of gloves.
Otherwise, you will risk an injury involving a replacement part or some other object.

**1. Detachment**

1) Stop the air conditioner operation, and turn off the circuit breaker.
2) Remove the front cabinet (right).
(M5 × 0.4" (10mm), 6 pcs)
3) Remove the front cabinet (left).
(M5 × 0.4" (10mm), 4 pcs)
4) Remove the top plate.
(M5 × 0.4" (10mm), 8 pcs) Front: 3 pcs, Back:3 pcs, Left and Right: 1 pcs each
5) Remove the front cabinet (upper)
(M5 × 0.4" (10mm) 5 pcs)
* Remove the NFC holder first (M4 x 0.4"(10mm), 1 pcs)
• Remove the back side cabinet (upper).
(M5 × 0.4" (10mm), 5 pcs)
6) Remove the side panel (right and left).
Each (M5 × 0.4" (10mm), 4 pcs)
7) Remove the right side panel. (Only 990W cabinet)
(M5 × 0.4" (10mm), 5 pcs)
* Each cabinet has the hooks.
Lift the cabinet to remove the hooks.

</td><td> 
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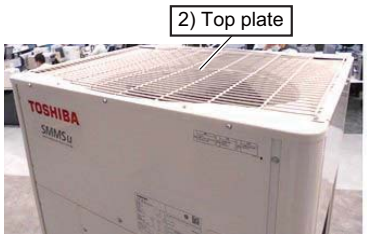
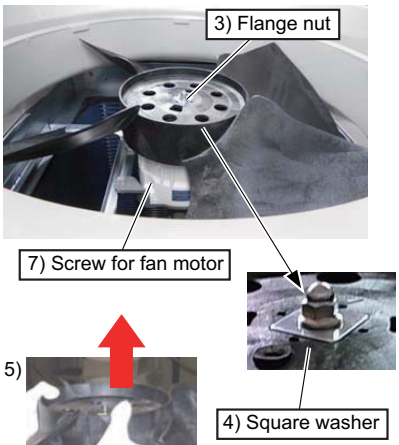
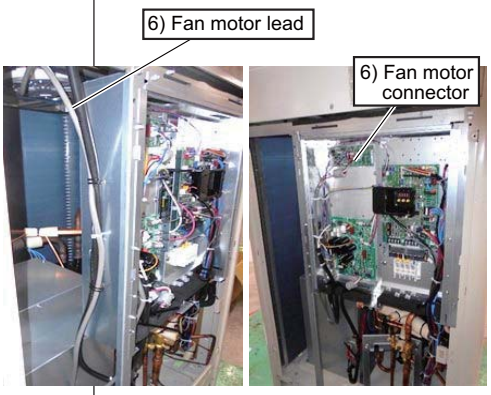
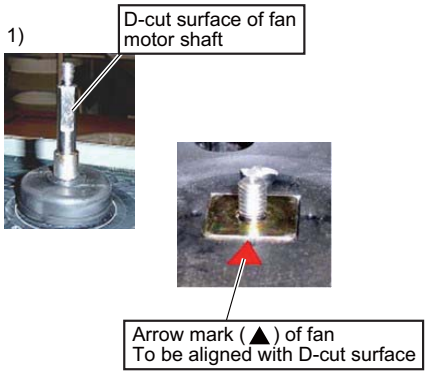
<tr><td></td><td></td><td>

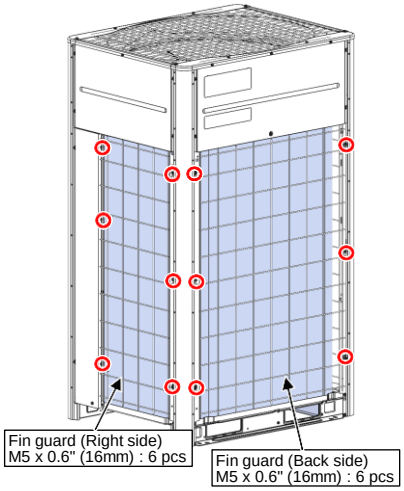
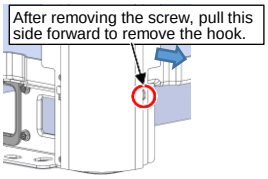
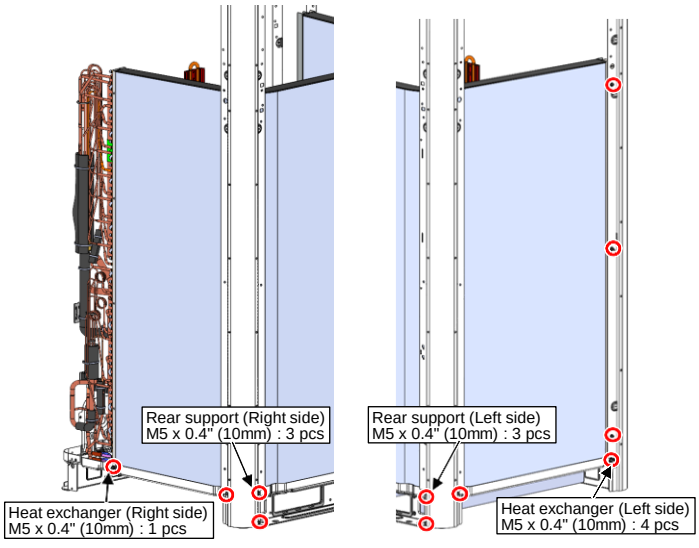
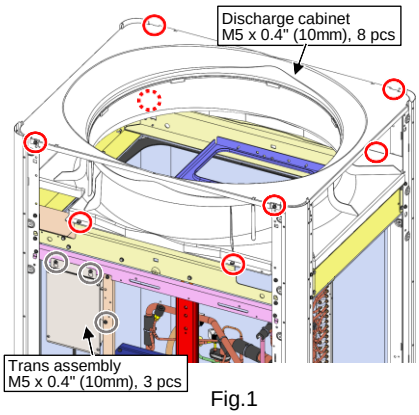
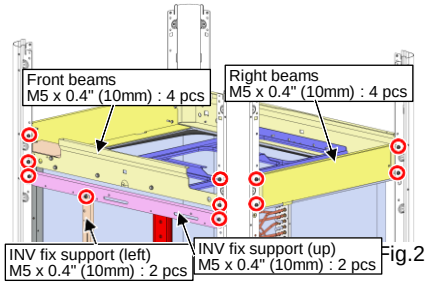
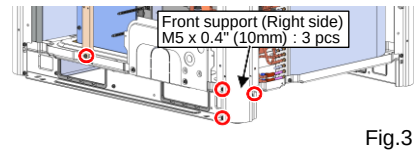
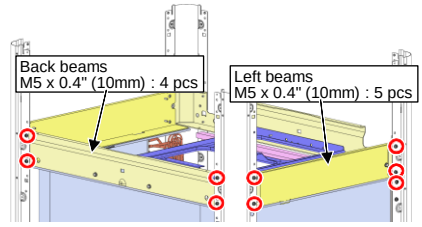
**2. Attachment**

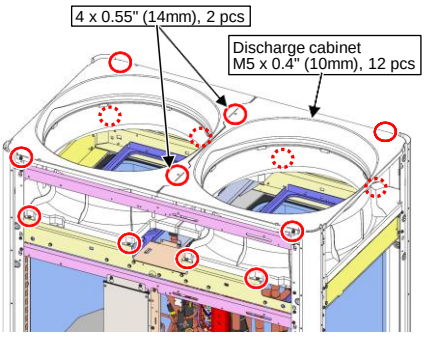
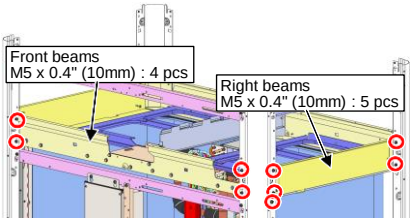
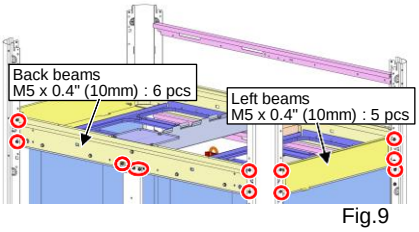
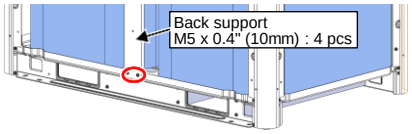
Carry out installation by following reverse procedure in the detachment 1) to 7).

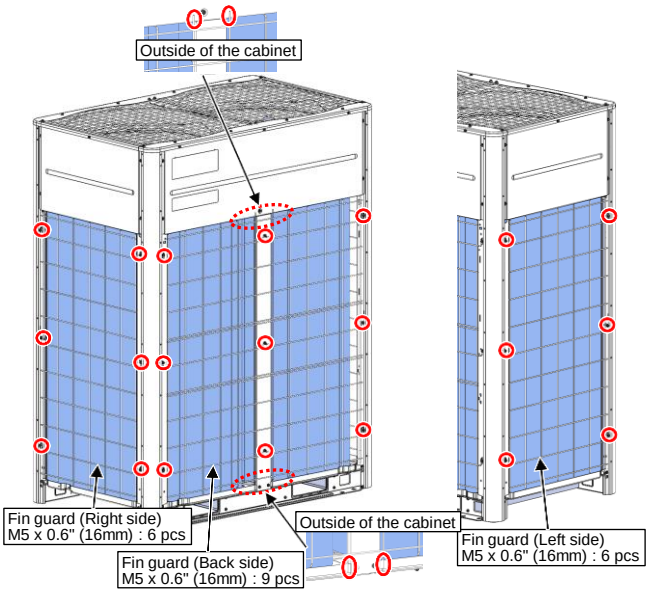
Hang the hooks into the slit on the metal frame to securely attach each cabinet.

</td><td></td></tr>
</table>

| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 2 | Propeller fan and Fan motor | **⚠ WARNING**<br>Wear a pair of gloves.<br>Otherwise, you will risk an injury involving a replacement part or some other object.<br><br>**1. Detachment**<br>1) Stop the air conditioner operation, and turn off the circuit breaker.<br>2) Remove the screws for the top plate. (M5 × 0.4" (10mm) 10, 8 pcs: Front, 3 pcs. Back, 3 pcs. Left and Right, 1 pcs each.)<br>3) Remove the flange nut securing the fan motor and propeller fan. (To loosen the nut, turn it clockwise.)<br>4) Remove the square washer.<br>5) Remove the propeller fan.<br><br>**⚠ CAUTION**<br>Lift it straight up.<br>Do not forcibly pull it, or it may get stuck.<br><br>6) Disconnect the connectors for the fan motor leads from the Fan IPDU, and remove the fan motor leads. (Remove the wire clamp and binding band.)<br>7) Remove the fan motor. (M6 × 0.8" (20mm), 4 pcs ) |  <br>  <br>  |
| | | **2. CAUTION for replacement or attachment**<br>1) Insert the propeller fan while aligning the D-cut surface of the fan motor shaft with the arrow mark ( ▲ ) on the fan. (If the propeller fan is tightly mounted on the shaft without securing alignment between the D-cut surface and the arrow mark ( ▲ ), it may cause the fan to melt and fall off due to friction heat.)<br>2) Be sure to put the square washer in place. (Otherwise, unusual noises and vibrations may result.)<br>3) Tighten the flange nut at a torque of 10.8 ft•lbs (14.7 N•m.)<br>(To tighten the flange nut, turn it counterclockwise.)<br>[When attaching two fan motors for 10-16 ton]<br>Be sure to attach them to the original positions.<br>Fan motor 1: Attach it to the left side.<br>Connect the fan motor connector to the upper fan P.C. board.<br>Fan motor 2: Attach it to the right side.<br>Connect the fan motor connector to the lower fan P.C. board. |  |

| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 3 | Heat exchanger | **⚠ WARNING**<br>Wear a pair of gloves.<br>Otherwise, you will risk an injury involving a replacement part or some other object.<br><br>**< 6ton, 8ton >**<br>**1. Detachment**<br>1) Remove No. 1 Cabinet, No.2 propeller fan/fan motor, No. 4 Inverter assembly (Waterproof cover assembly) and No. 5 Reactor .<br>2) Remove the discharge cabinet, the two rear supports, front support (right side), trans assembly, INV fix support (up), INV fix support (left) and the motor base and the four beams together.<br><br>**(Fig.1 to 6)**<br>Discharge cabinet : M5 x 0.4"(10mm), 8 pcs<br>Motor base and Beams : M5 x 0.4"(10mm), 17 pcs<br>Trans assembly : M5 x 0.4"(10mm), 17 pcs<br>INV fix support (up) : M5 x 0.4"(10mm), 17 pcs<br>INV fix support (left) : M5 x 0.4"(10mm), 17 pcs<br>Rear supports : M5 x 0.4"(10mm), 6 pcs<br>Front supports (right side) : M5 x 0.4"(10mm), 6 pcs<br>Heat exchanger : M5 x 0.4"(10mm), 5 pcs<br>**< Remove Fin guard >**<br>  <br>**< Remove Support>**<br>  <br>  <br>Fig.5 Fig.6 |  <br>Fig.1<br>  <br>Fig.2<br>  <br>Fig.3<br>  <br>Fig.4 |

| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 3 | Heat exchanger | **⚠ WARNING**<br>Wear a pair of gloves.<br>Otherwise, you will risk an injury involving a replacement part or some other object.<br>**< 10ton, 12ton, 14ton, 16ton ><br>< High heat 8ton, 10ton ><br>1. Detachment**<br>1) Remove No. 1 Cabinet, No.2 propeller fan/fan motor, No. 4 Inverter assembly (Waterproof cover assembly) and No. 5 Reactor .<br>2) Remove the discharge cabinet, the two rear supports, and the motor base and the four beams together.<br>**(Fig.7 to 13)**<br>Discharge cabinet : M5 × 0.4"(10mm), 12 pcs<br>4 x 0.55"(14mm), 2 pcs<br>Motor base and Beams : M5 x 0.4"(10mm), 17 pcs<br>Rear supports : M5 x 0.4"(10mm), 6 pcs<br>Back support : M5 x 0.4"(10mm), 4 pcs<br>Heat exchanger shield plate : M5 x 0.4"(10mm), 2 pcs<br>Heat exchanger connecting plate : M5 x 0.4"(10mm), 2 pcs<br>4 x 0.4"(10mm), 6 pcs<br>Heat exchanger : M5 x 0.4"(10mm), 4 pcs x 2<br>**< Remove Fin guard >** |  <br>Fig.7<br>  <br>Fig.8<br>  <br>Fig.9<br>  <br>Fig.10 |



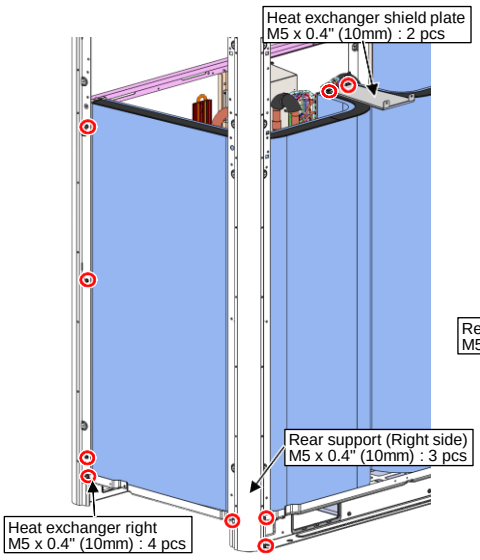



Fig.11

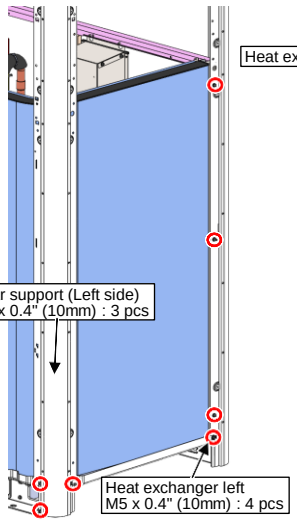


Fig.12

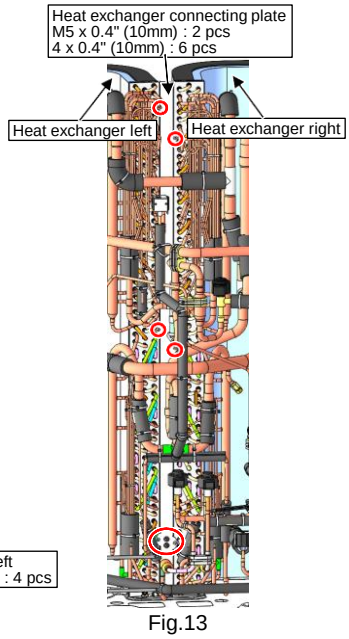
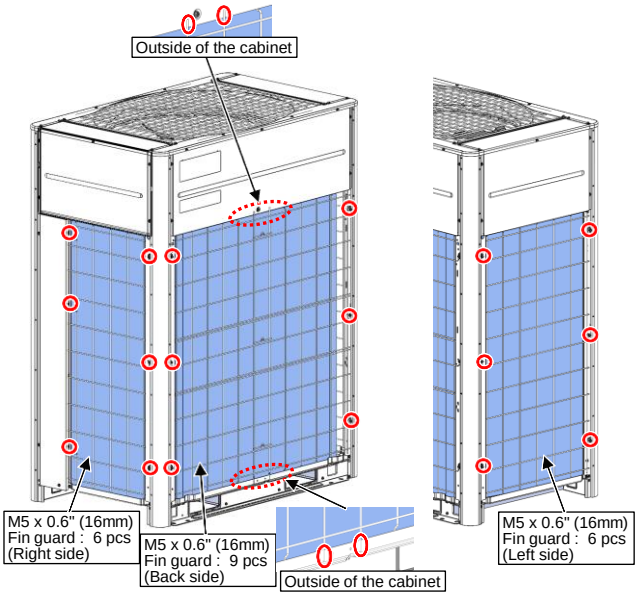
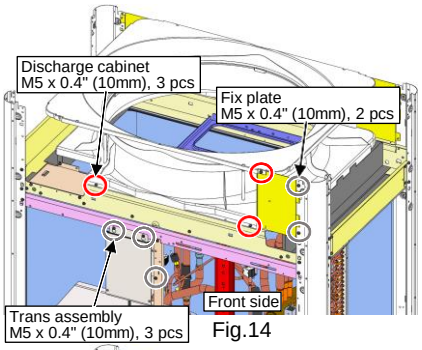
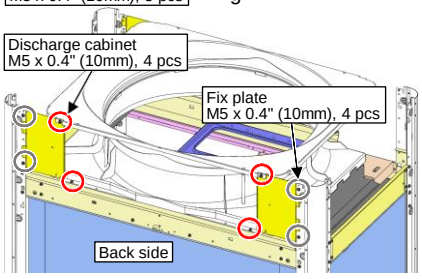
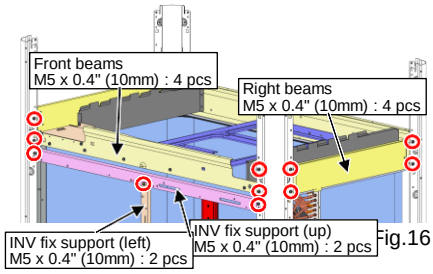
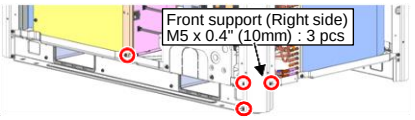
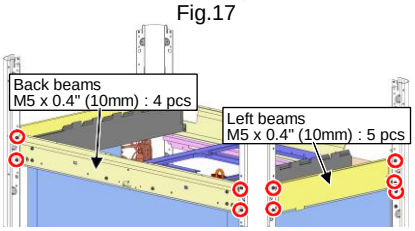


Fig.13

| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 3 | Heat exchanger | ⚠ **WARNING**<br>Wear a pair of gloves.<br>Otherwise, you will risk an injury involving a replacement part or some other object.<br><br>**< High heat 6ton >**<br>**1. Detachment**<br>1) Remove No. 1 Cabinet, No.2 propeller fan/fan motor, No. 4 Inverter assembly (Waterproof cover assembly) and No. 5 Reactor .<br>2) Remove the discharge cabinet, Fix plate, the two rear supports, front support (right side), trans assembly, INV fix support (up), INV fix support (left) and the motor base and the four beams together.<br><br>**(Fig.14 to 20)**<br>Discharge cabinet : M5 × 0.4"(10mm), 7 pcs<br>Fix plate : M5 × 0.4"(10mm), 6 pcs<br>Motor base and Beams : M5 x 0.4"(10mm), 17 pcs<br>Trans box : M5 x 0.4"(10mm), 17 pcs<br>INV fix support (up) : M5 x 0.4"(10mm), 17 pcs<br>INV fix support (left) : M5 x 0.4"(10mm), 17 pcs<br>Rear supports : M5 x 0.4"(10mm), 6 pcs<br>Front supports (right side) : M5 x 0.4"(10mm), 6 pcs<br>Heat exchanger : M5 x 0.4"(10mm), 5 pcs<br><br>**< Remove Fin guard >**<br>  <br> |  <br><br>Fig.14<br>  <br><br>Fig.15<br>  <br><br>Fig.16<br>  <br><br>Fig.17<br>  <br><br>Fig.18 |

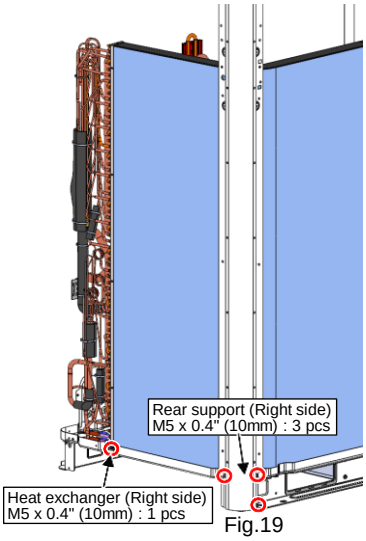


Fig.19

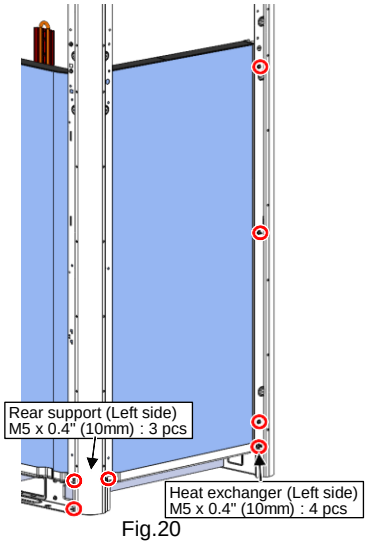


Fig.20

| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 3 | Heat exchanger | 3) Cut the pipes at the heat exchanger (Fig.21, Fig.22, Fig.23). | |

**< 6ton, 8ton >**

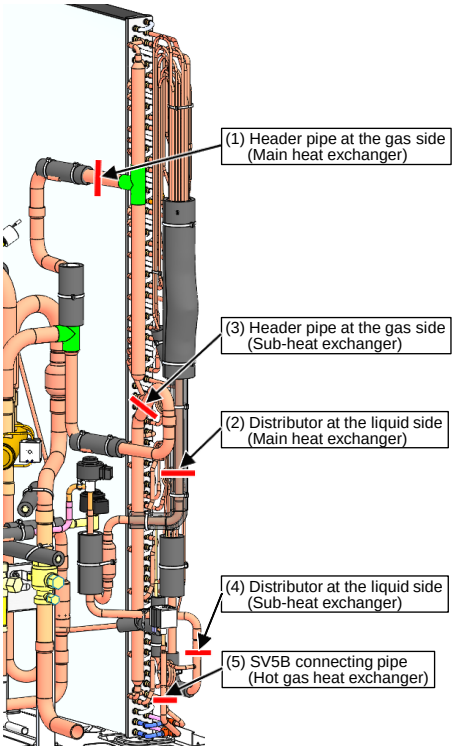



Fig.21

**< 10ton, 12ton, 14ton, 16ton >**
**< High heat 8ton, 10ton >**

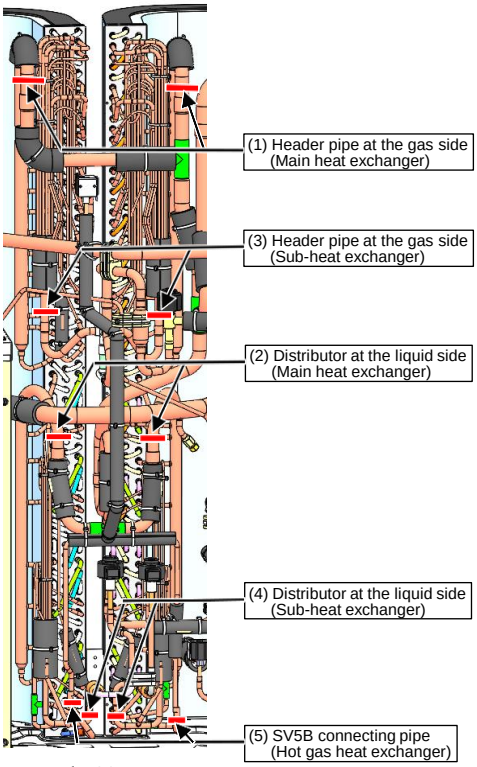



Fig.22

**< High heat 6ton >**

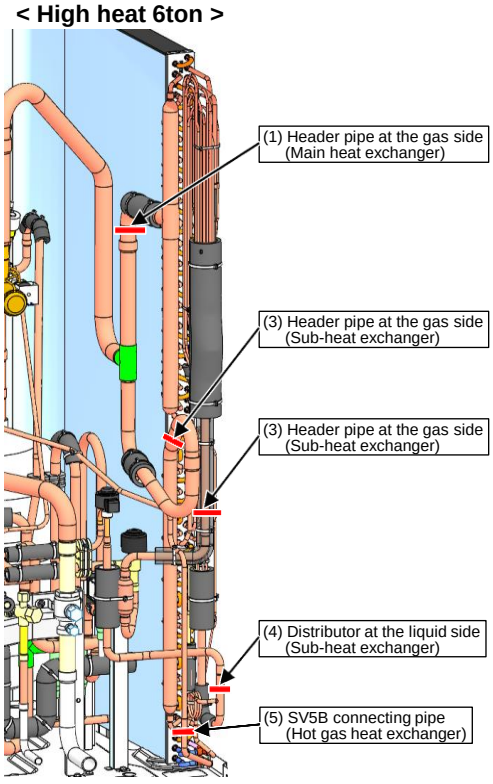
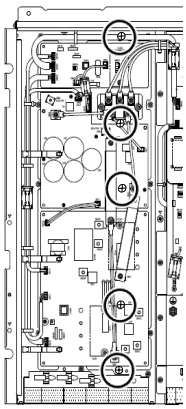
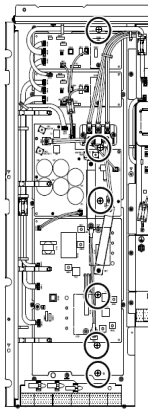
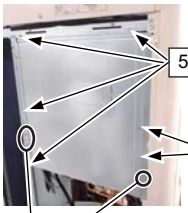
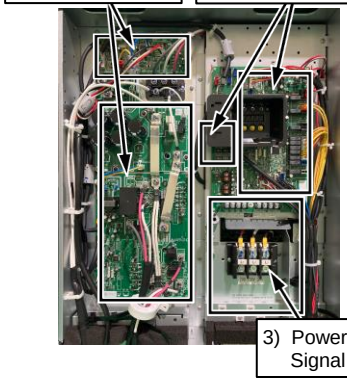
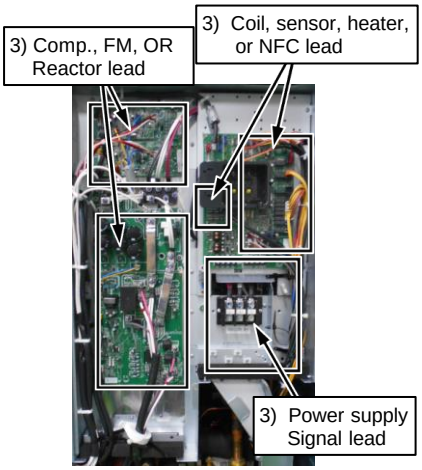


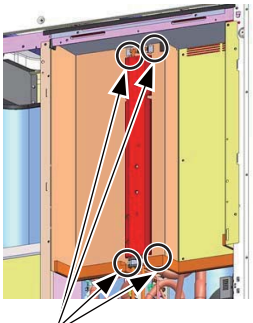

Fig.23

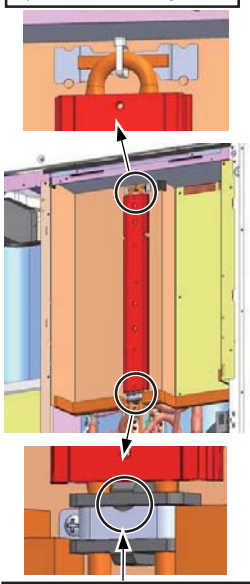
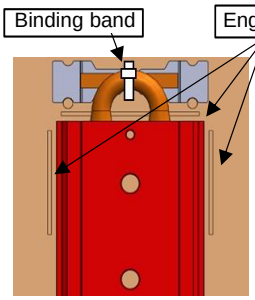
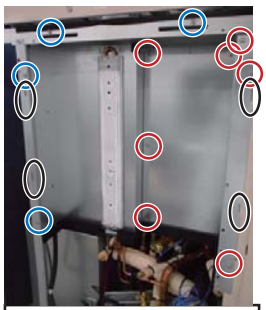
4) Remove the heat exchanger while draw it upward or atrear side.

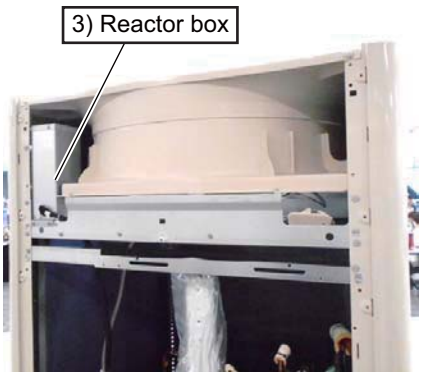
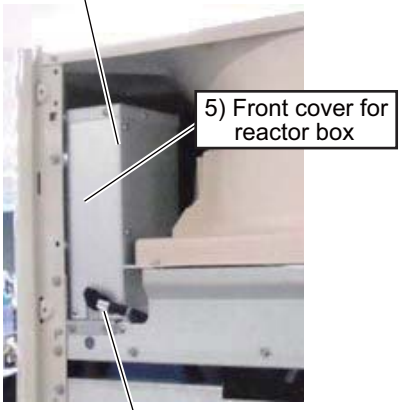
**2. Attachment**

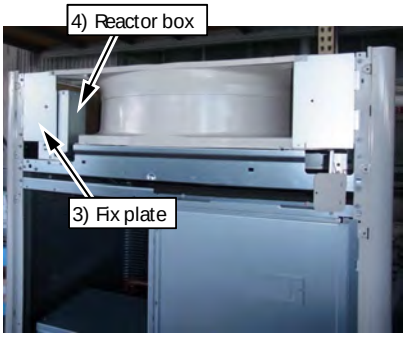
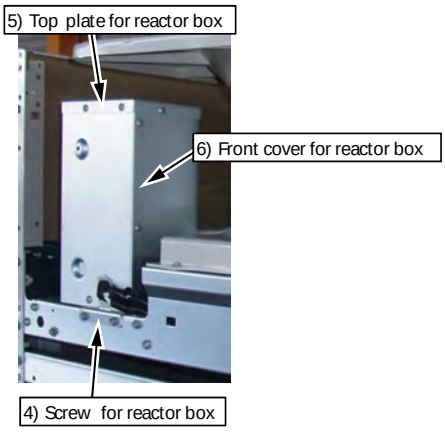
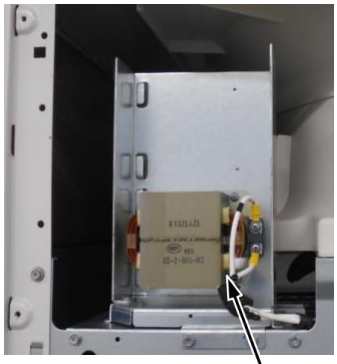
Carry out installation by following reverse procedure in the detachment 1) to 4).
*Mount temperature sensors, pipe covers, coils, etc. in their original positions.

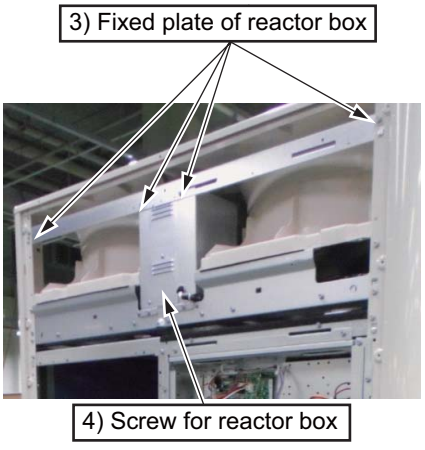
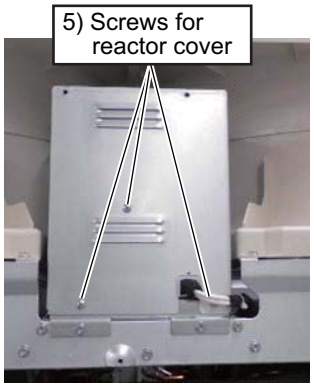
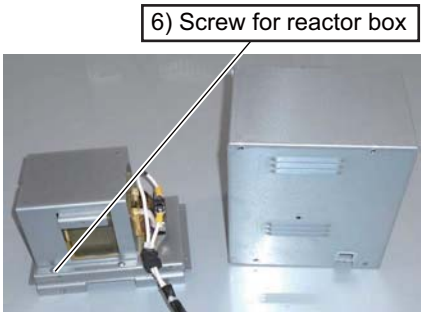
| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 4 | Inverter assembly | **⚠ WARNING**<br>Wear a pair of gloves.<br>Otherwise, you will risk an injury involving a replacement part or some other object.<br><br>**1. Detachment**<br>1) Stop the air conditioner operation, and turn off the circuit breaker.<br>2) Remove the inverter cover.<br>(M4 × 0.4" (10mm), 2 pcs.)<br>3) Remove the connectors and clamp, and remove each wire.<br>4) Remove the fixing screws for the heat sink.<br>(6 to 14 ton : M4 × 0.6" (16mm), 5 pcs<br>16 ton : M4 × 0.6" (16mm), 6 pcs)<br>Tighten the screws removed to the hole next to upper and lower slotted hole to remove the heat sink<br>5) Remove the fixing screws for the box.<br>(M5 × 0.4" (10mm), 4 pcs for right and left, 2 pcs for top)<br>6) Lift up the box lightly to disengage the fixing hook at the right-lower part.<br>(The lower part of the box comes out toward you.)<br>7) Hold the top board with both hands to disengage the top hook.<br><br>  <br>[6,8ton]<br>[High heat 6 ton]<br>4) Fixing screws for the heat sink (5 pcs)<br><br>  <br>[10-14 ton]<br>[High heat 8,10 ton]<br>4) Fixing screws for the heat sink (6 pcs) |  <br><br>  <br>Fixing part : Screw slot hole (Tentative structure)<br>* Loosen the screw without removing it.<br><br>2) Screw for inverter cover<br><br>  <br><br><br>  <br> |

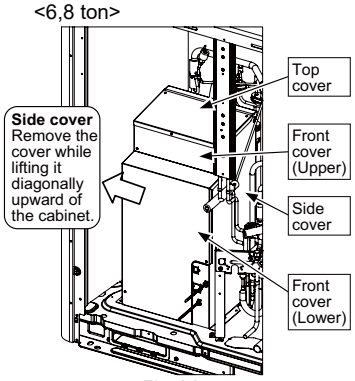
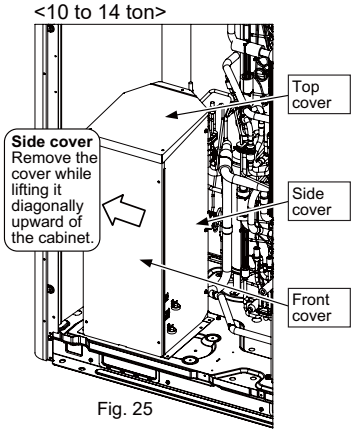
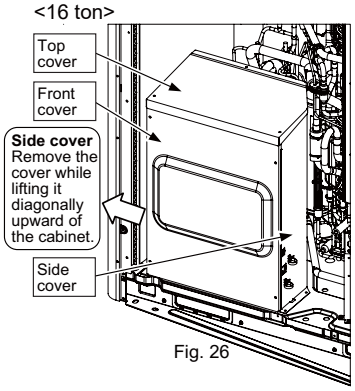
| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 4 | Inverter assembly (continued) | **2. Attachment**<br>1) Carry out installation by following reverse procedure in the detachment 1) to 7).<br><br>**NOTE 1**<br>Apply thickly the heat sink grease to the refrigerant cooling heat sink and install the inverter box.<br>Return the wires to the original state.<br>(Application amount : 3.9 to 7.9 mil (100 to 200 $\mu$m)<br>Heat dissipation grease (Part No. : 43167044)<br><br>**NOTE 2**<br>If the refrigerant cooling heat sink is twisted significantly, adjust it so that it is parallel to the contact surface with the refrigerant cooling heat sink of the box; otherwise, poor contact may cause operation stop.<br><br>Tightening torque of each fixing screws.<br><br>Fix the following screws with the specified tightening torque.<br><br>Power supply terminal block : 1.8 to 2.2 ft•lbs (2.5 to 3.0 N•m)<br>Earth terminal block : 4.0 to 4.9 ft•lbs (5.5 to 6.6 N•m)<br>Signal terminal block : 0.9 to 1.0 ft•lbs (1.2 to 1.4 N•m)<br>INV P.C.board Comp. fixing : 1.4 to 1.5 ft•lbs (1.9 to 2.1 N•m)<br>INV P.C.board Reactor fixing : 1.4 to 1.5 ft•lbs (1.9 to 2.1 N•m)<br>Refrigerant cooling heat sink fixed screw : 1.0 to 1.1 ft•lbs (1.4 to 1.5 N•m) | 5) Fixing screws for the box (6 pcs). (Equal to 6-16 ton)<br>  <br>5) ixing screws for the wire guard (2 pcs) (Equal to 6-16 ton)<br><br>6) Disengage the fixing hook at the lower right. (Equal to 6-16 ton)<br>  <br>7) Lift the inverter assembly lightly to disengage the upper hook (2 pcs), and remove the inverter assembly. (Equal to 6-16 ton)<br><br>  <br>(NOTE1)<br>Apply the the heat sink grease to the refrigerant cooling heat sink and install the inverter box.<br><br>  <br>(NOTE 2)<br>Adjust the refrigerant cooling heat sink so that it is parallel to the heat sink on the box.<br>Follow the size below for the space between the waterproof cover and the refrigerant cooling heat sink<br>Top space : 0.16" (4mm) to 0.24" (6mm),<br>Bottom space : 0.16" (4mm) to 0.24" (6mm) |

| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 4 | Waterproof cover assembly | **1. Detachment**<br>1) Stop the air conditioner operation, and turn off the circuit breaker.<br>2) Remove the inverter assembly. (Refer to the detachment for No.4 inverter assembly.)<br>3) Remove the binding band at the upper of the refrigerant cooling heat sink and the fixing rubber at the lower.<br>4) Loosen the clamp at the left side of the waterproof cover (6-14 ton : 2 pcs, 16 ton : 3 pcs) to remove the fan motor and reactor.<br>5) Remove the screws fixing right side of the cover and remove the two hooks hanged on the pillar. (M5 × 0.4" (10mm), 7 pcs)<br>6) Remove the screws fixing left side of the cover and two hooks hanged on the pillar, and remove the cover from the right side of the heat sink while turning the cover clockwise. (6 to 14 ton : M5 × 0.4" (10mm), 4 pcs 16 ton : M5 × 0.4" (10mm), 5 pcs)<br>**NOTE**<br>Remove the refrigerant cooling heat sink with care not to bend it.<br><br>**2. Attachment**<br>1) Carry out installation by following reverse procedure in the detachment 1) to 5).<br>**NOTE**<br>If the refrigerant cooling heat sink is twisted significantly, adjust it so that it is parallel to the contact surface with the refrigerant cooling heat sink of the box; otherwise, poor contact may cause operation stop.<br>1) Carry out installation by following reverse procedure in the detachment 1) to 7).<br>**NOTE**<br>Align the refrigerant cooling heat sink with the rib at the upper-center of the fixing rubber to install the fixing rubber for the heat sink. | 3) Cut the binding band<br>  <br>Align the heat sink with the rib at the upper-center of the fixing rubber to install the fixing rubber.<br>  <br><br>Fix the refrigerant cooling heat sink positioned along engraving of waterproof cover.<br>3) Remove the screws (M4) and the clamp, and remove the fixing rubber.<br>  <br>4) Remove the fan motor and reactor lead from the clamp. (6-14 ton : 2 pcs 16 ton : 3 pcs)<br>  <br>Fixing the right waterproof cover<br>5) Fixing screw (Red) (6 to 16 ton : 7 pcs)<br>Hooking claw (Black : right 2 pcs)<br>Fixing the left waterproof cover<br>5) Fixing screw (Blue) (6 to 14 ton : 4 pcs, 16 ton : 5 pcs)<br>Hooking claw (Black : left 2 pcs)<br>  <br>6) Remove the left waterproof cover from the right side of the heat sink, while turning the cover clockwise. |

| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 5 | Reactor assembly (**6,8 ton**) | **⚠ WARNING**<br>Wear a pair of gloves.<br>Otherwise, you will risk an injury involving a replacement part or some other object.<br><br>**1. Detachment**<br>1) Stop the air conditioner operation, and turn off the circuit breaker.<br>2) Following to works 1) to 5) in 1 of No.1 Cabinet, remove the cabinets.<br>3) Remove the screws for the reactor box. (M5 × 0.4" (10mm), 2 pcs)<br>4) Remove the top plate for reactor box. (M4 × 0.3" (8mm), 3pcs)<br>5) Remove the front cover for reactor box. (M4 × 0.3"(8mm), 4pcs, Hook at the left)<br>6) Remove the reactor. (M4 × 0.3" (8mm), 2pcs, Hook at the left) |  <br>  <br>  |
| | | **2. Attachment**<br>Carry out installation by following reverse procedure in the detachment 1) to 7).<br>Hook the hooks on each cabinet securely into the square holes in the supports. | |

| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 5 | Reactor assembly (**High heat** 6 ton) | **⚠ WARNING**<br>Wear a pair of gloves.<br>Otherwise, you will risk an injury involving a replacement part or some other object.<br><br>**1. Detachment**<br>1) Stop the air conditioner operation, and turn off the circuit breaker.<br>2) Following to works 1) to 5) in 1 of No.1 Cabinet, remove the cabinets.<br>3) Remove the fix plate. (M5 × 0.4" (10mm), 4 pcs)<br>4) Remove the screws for the reactor box. (M5 × 0.4" (10mm), 4 pcs)<br>5) Remove the top plate for reactor box. (M4 × 0.3" (8mm), 3 pcs)<br>6) Remove the front cover for reactor box. (M4 × 0.3" (8mm), 4 pcs)<br>7) Remove the reactor. (M4 × 0.3" (8mm), 2 pcs), Hook at the left) |  <br>  <br>  |
| | | **2. Attachment**<br>Carry out installation by following reverse procedure in the detachment 1) to 7).<br>Hook the hooks on each cabinet securely into the square holes in the supports. | |

| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 5 | Reactor assembly (**10-16 ton**) | ⚠ **WARNING**<br>Wear a pair of gloves.<br>Otherwise, you will risk an injury involving a replacement part or some other object.<br><br>**1. Detachment**<br>1) Stop the air conditioner operation, and turn off the circuit breaker.<br>2) Following to works 1) to 5) in 1 of No.1 Cabinet, remove the cabinets.<br>3) Remove the screws for the fixed plate of reactor box. (M5 × 0.4" (10mm), 4 pcs)<br>4) Remove the screws for the reactor box, and draw the reactor box toward you. (M5 × 0.4" (10mm), 2 pcs, Rear side is hooked)<br>5) Remove the reactor cover. (M4 × 0.3" (8mm), 6 pcs)<br>6) Remove the reactor. (M4 × 0.3" (8mm), 4 pcs) |  <br>  <br>  |
| | | **2. Attachment**<br>Carry out installation by following reverse procedure in the detachment 1) to 6).<br>Hook the hooks on each cabinet securely into the square holes in the supports.<br><br>[When attaching two reactors for 16 ton]<br>Be sure to wire the round type terminal leads to the specified reactors.<br>Reactor 1: Wire the round type terminal lead without the black tape to the reactor 1.<br>Reactor 2: Wire the round type terminal lead with the black tape to the reactor 2. | |

| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 6 | Compressor | **⚠ WARNING**<br>Wear a pair of gloves.<br>Otherwise, you will risk an injury involving a replacement part or some other object.<br><br>**1. Detachment**<br>1) Carry out work of No. 1 Cabinet and remove the compressor cover and soundproof materials.<br>**⚠ WARNING**<br>Be careful of burns.<br>The compressor cover is very hot immediately after outdoor unit stops.<br><br><6,8 ton (Fig.24)><br>• Remove the cover in order of top, front (upper), front (lower), and side.<br>• Screws for the compressor covers : M5 × 0.4" (10mm), 8 pcs * Screws for the base plate and the comp. cover : M5 × 0.4" (10mm), 4 pcs<br><br><10 to 14 ton (Fig.25)><br>• Remove the cover in order of top, front (upper), front (lower), and side.<br>• Screws for the compressor covers : M5 × 0.4" (10mm), 7 pcs<br>* Screws for the base plate and the comp. cover : M5 × 0.4" (10mm), 5 pcs<br><16 ton(Fig.26)><br>• Remove the cover in order of top, front (upper), front (lower), and side.<br>• Screws for the compressor covers : M5 × 0.4" (10mm), 7 pcs<br>* Screws for the base plate and the comp. cover : M5 × 0.4" (10mm), 4 pcs<br>* Use the ratchet tools with its length adjusted to detach<br><br>2) Disconnect the compressor lead, case heater, temperature sensor (TD, TK), pipe cover, and pipe fixing rubber, or move them away from parts to be brazed to prevent them from being fired while brazing.<br><br>3) Remove the pipes connected to the compressor in the order of oil equalizer pipe, discharge pipe, suction pipe*.<br>* If the suction pipe cannot be removed through brazing, cut it at the position shown in the figure, and use the repair parts below to install the pipe.<br><br>4) Remove the compressor bolts and anti-vibration take the compressor out of the unit. | <6,8 ton><br>  <br><br>Fig. 24<br><br><10 to 14 ton><br>  <br><br>Fig. 25<br><br><16 ton><br>  <br><br>Fig. 26 |

<6,8 ton>

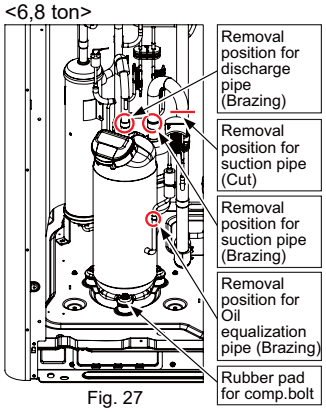



Fig. 27

<10 to 14 ton>

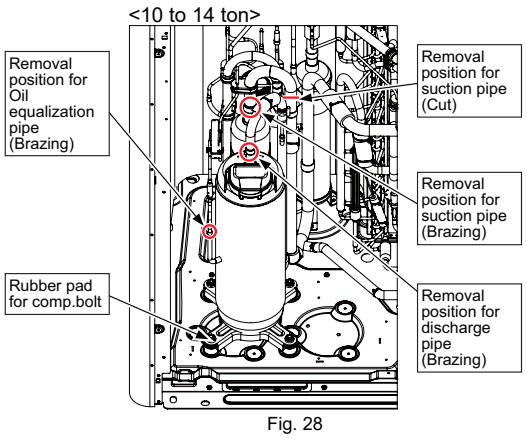



Fig. 28

<16 ton>

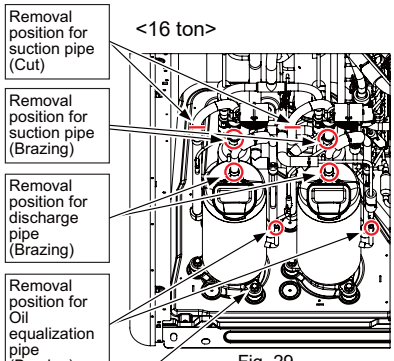
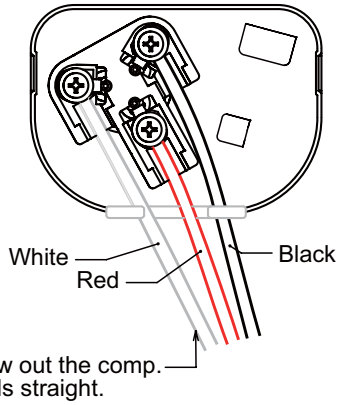



Fig. 29

| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 6 | Compressor (continued) | **2. Attachment**<br>1) Carry out installation by following reverse procedure in the detachment 1) to 4).<br>2) Install the compressor and braze the pipes, and then install each wire around the compressor. (Comp.lead, Case heater, Temperature sensor (TD, TK)) Exchange a comp. leads together as replacing a compressors.<br>* The right fig. 1 shows caution when the comp. leads are installed.<br>• Incorporate the terminal block into the compressor.<br>• Bend each terminal at 90°while holding the terminal block so that it does not tilt.<br>• To prevent the screws from being slanted, place the comp.leads in the specified position as shown in the figure, and then tighten the screw according to the following steps.<br>(1) Temporary tightening the screws by your hand.<br>(2) Tighten the screws securely with an electric screwdriver.<br>(3) Tighten them with the specified torque using a torque wrench driver. (1.8 ft•lbs (2.5N•m))<br>* Do not screw the screws slantingly. Otherwise, the comp.leads may burn.<br>• Insert the comp.leads into the sealing material, and attach the terminal cover so that they do not pinch with the terminal cover, and then draw out the comp.leads straightly.<br>• Do not apply excessive stress to the comp.leads.<br>• Do not put the protective tubes in the terminal cover.<br>• Note that the leads do not touch the comp. shell.<br>3) Wrap the soundproof material*1 around the compressor and install the compressor cover *2.(Fig. 30 to 32)<br>*1 Wrap the soundproof material around the compressor so that its bottom is put on the legs of the compressor.<br>*2 Install the commpressor cover so that pipes or wires around the comp. do not deform or are caught with the cover. |  <br>[When attaching two compressors for 16 ton]<br>Be sure to wire the comp. lead to the specified compressors.<br>Compressor 1: Wire the longer lead to the left compressor.<br>Compressor 2: Wire the shorter lead to the right compressor. |

<6, 8 ton>

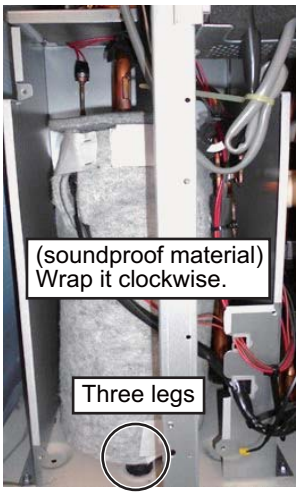



Fig. 30

<10 to 14 ton>

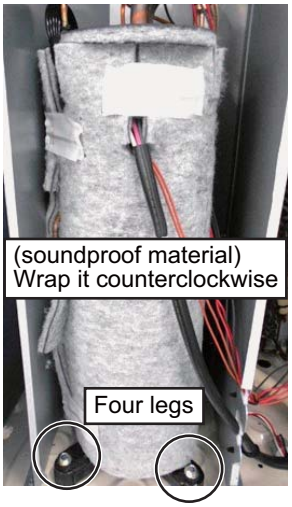



Fig. 31

<16 ton>

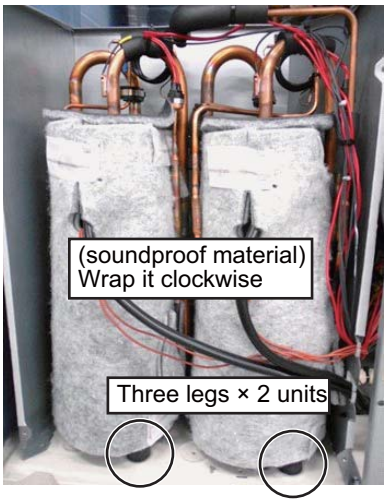
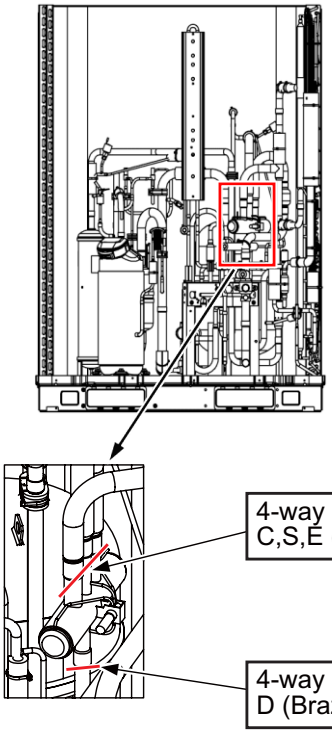
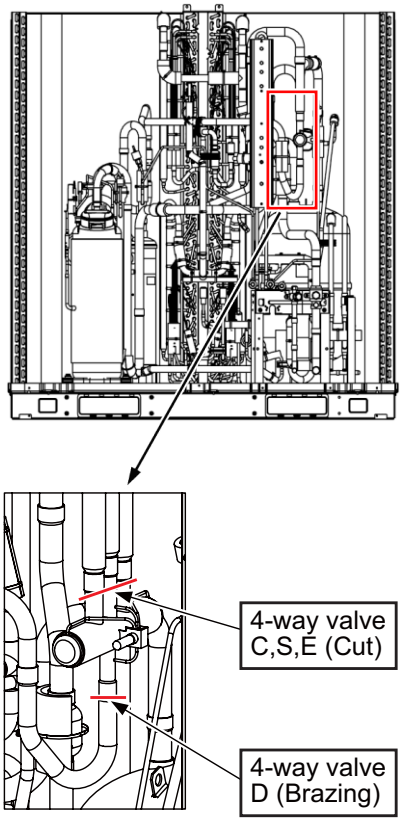
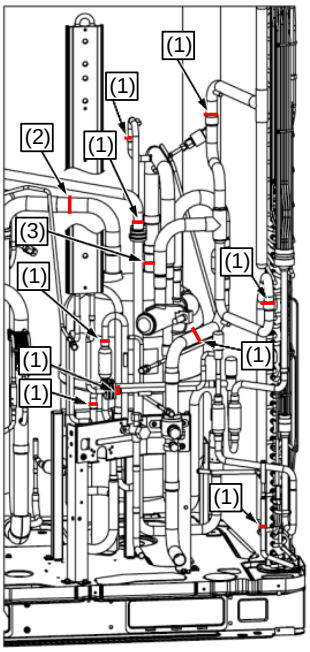
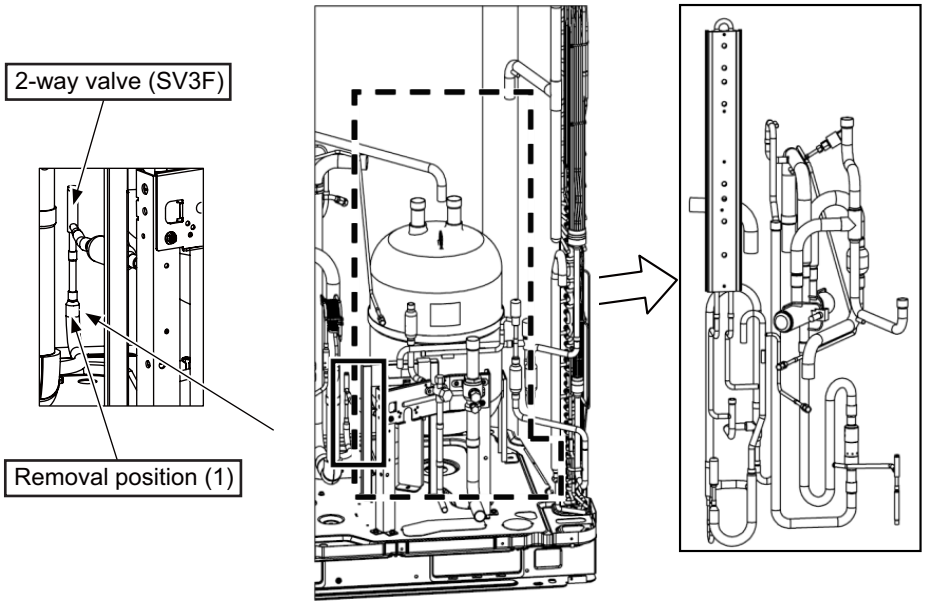
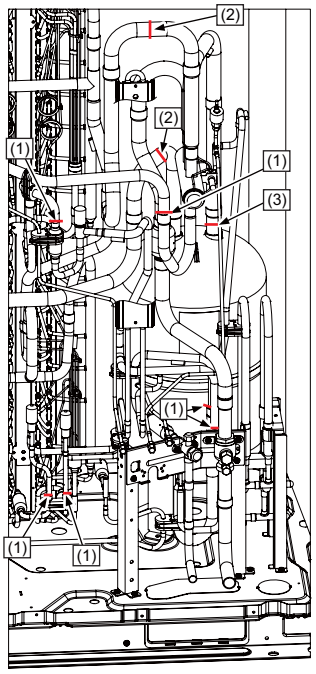
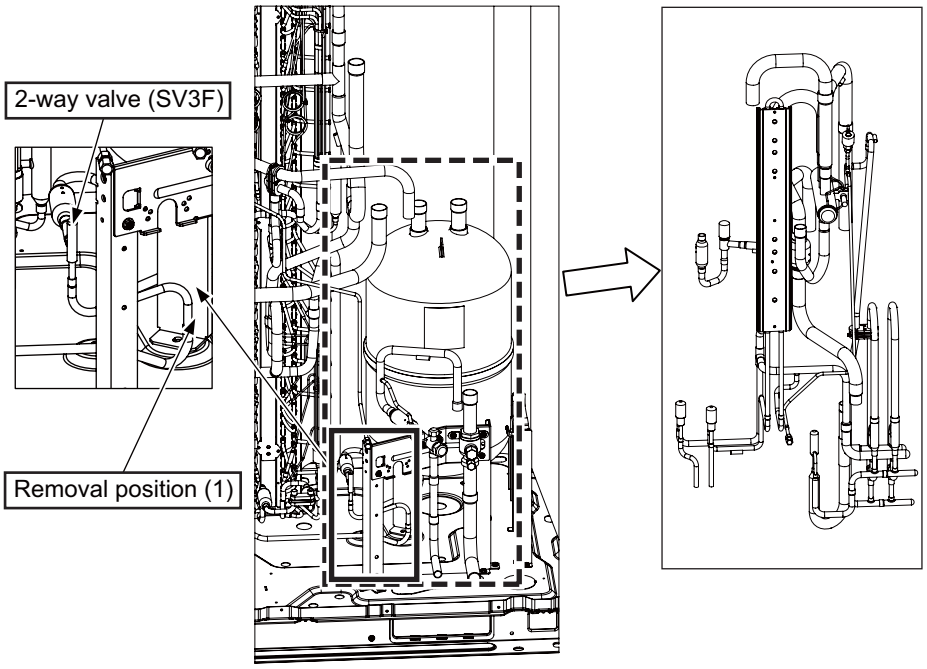



Fig. 32

| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 7 | 4-way valve - detachment/ attachment | ⚠ **WARNING**<br>Wear a pair of gloves.<br>Otherwise, you will risk an injury involving a replacement part or some other object.<br><br>**1. Detachment**<br>1) Carry out work of No. 1 Cabinet and disconnect wires around 4-way valve or move them away from parts to be brazed to prevent them from being fired while brazing.<br>2) Cut the C, S, or E pipes on the top of the four-way valve, and disconnect the D pipes on the bottom with brazing, and then remove the four-way valve.<br><br>**2. Attachment**<br>Carry out installation by following reverse procedure in the detachment 1) to 2). | <6, 8ton><br>  <br><br><br><10 t0 16 ton> (Work procedure is the same as that of 6,8 ton)<br>  <br> |

| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 8-1 | Accumulator - detachment/ attachment <6,8 ton> | ⚠ **WARNING**<br>Wear a pair of gloves.<br>Otherwise, you will risk an injury involving a replacement part or some other object.<br><br>**1. Detachment**<br>1) Carry out work of No. 1 Cabinet.<br>2) Disconnect the wires, pipe fixing rubber, or pipe cover, or move them away from parts to be brazed to prevent them from being fired while brazing.<br>3) Disconnect the pipe joints (1) with the burner, cut the pipes (Service parts*) (2) and (3) with the pipe cutter, to remove the accumulator as shown in the figure below.<br>* Use the pipes in service parts for installation.<br>4) Disconnect the pipe joint at the outlet side of the 2-way valve (SV3F) with the burner to take out the accumulator and the 2-way valve.<br>Removing the inlet side joint of the 2-way valve (SV3F) may cause oil leak.<br>5) Remove the oils in the tank so that they do not remain in the 2-way valve, and disconnect the pipe joint at the inlet side of the 2-way valve (SV3F) with the burner.<br>6) Braze the 2-way valve piping to new accumulator to install the accumulator into the outdoor unit.<br><br>**2. Attachment**<br>Carry out installation by following reverse procedure in the detachment 1) to 4). |  <br><br>**Space after the pipes are removed at 3)**<br>**Pipes to be removed at 3)**<br>  <br> |

| No. | Part | Work procedure | Remarks |
|---|---|---|---|
| 8-2 | Accumulator - detachment/ attachment <10 to 16 ton> | **1. Detachment**<br>1) Carry out work of No. 1 Cabinet.<br>2) Disconnect the wires, pipe fixing rubber, or pipe cover, or move them away from parts to be brazed to prevent them from being fired while brazing.<br>3) Disconnect the pipe joints (1) with the burner, cut the pipes (Service parts*) (2) and (3) with the pipe cutter, to remove the accumulator as shown in the figure below.<br>* Use the pipes in service parts for installation.<br>* Accesarry specifications of the discharge pipe differ at 10 to 14 ton and 16 ton<br>Check the service part table.<br>4) Disconnect the pipe joint at the outlet side of the 2-way valve (SV3F) with the burner to take out the accumulator and the 2-way valve.<br>Removing the inlet side joint of the 2-way valve (SV3F) may cause oil leak.<br>5) Remove the oils in the tank so that they do not remain in the 2-way valve, and disconnect the pipe joint at the inlet side of the 2-way valve (SV3F) with the burner.<br>6) Braze the 2-way valve piping to a new accumulator to install the accumulator into the outdoor unit.<br>  <br><br>**Space after the pipes are removed at 3)**<br>**Pipes to be removed at 3)**<br>  <br><br>**2. Attachment**<br>Carry out installation by following reverse procedure in the detachment 1) to 4). | |

# 13. P.C. BOARD REPLACEMENT PROCEDURES

## 13-1. Replacement of outdoor P.C. board & Inverter Parts

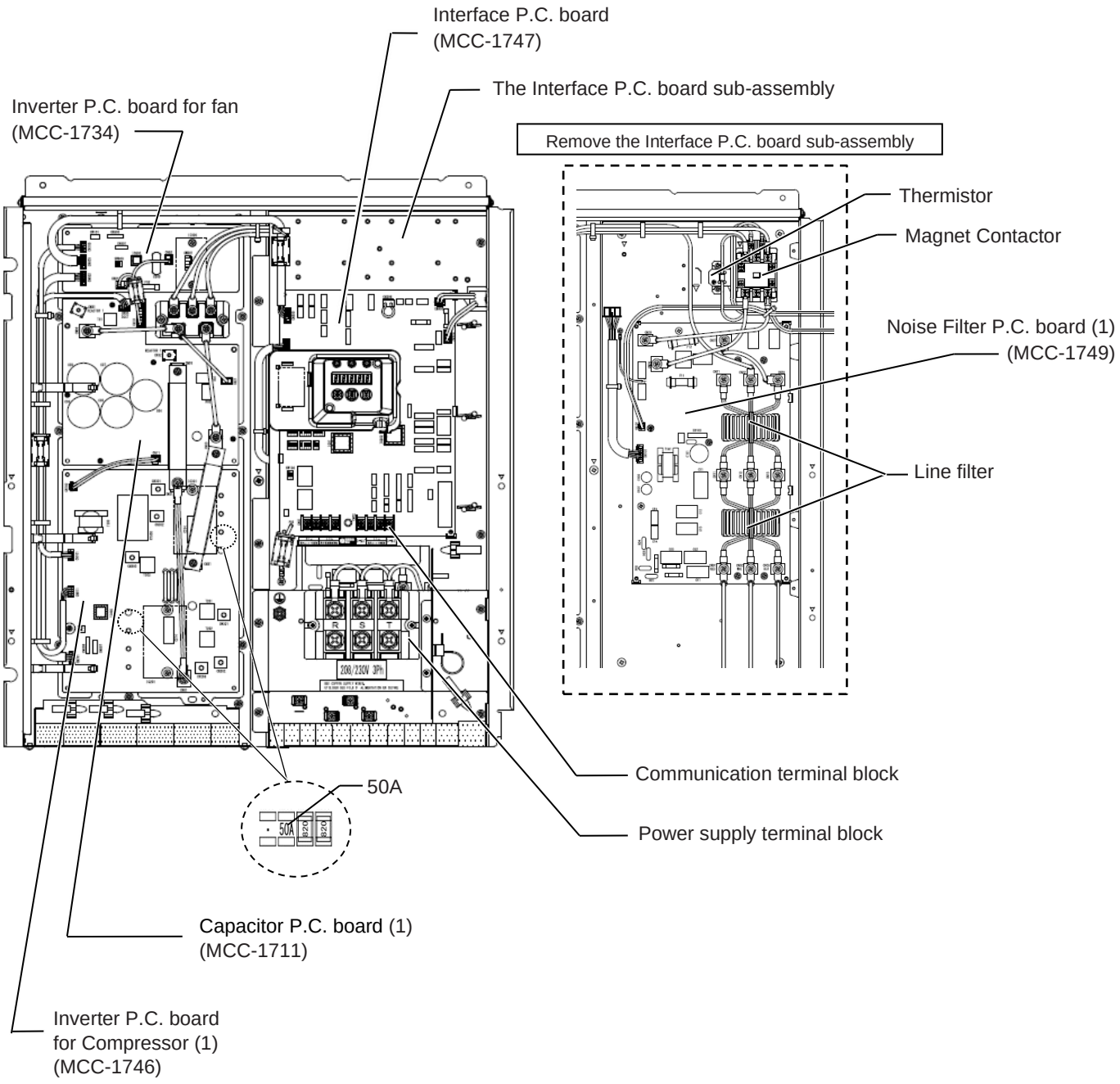
### 13-1-1. List of service parts (Inverter)

| Parts code | Description | Applicable model | Parts | Product code | Specifications |
|---|---|---|---|---|---|
| 43T60440 | Power supply terminal block | MMY-MUP0721HT9*<br>MMY-MUP0961HT9*<br>MMY-MUP072H1HT9* | — | TERMINAL (100A) | AC600V/100A, 3P |
| 43TN9876 | Noise Filter P.C. board (1) | | MCC-1749 | S-ASM-PCB (N/F) | — |
| 43T55396 | Line filter | | — | LINE-FILTER | 0.4mH/AC450V/50A |
| 43TN9879 | Interface P.C. board | | MCC-1747 | S-ASM-PCB (I/F) | — |
| 43TN9883 | Inverter P.C. board for Compressor (1) | | MCC-1746 | S-ASM-PCB (COMP) | 50A |
| 43TN9885 | Capacitor P.C. board (1) | | MCC-1711 | S-ASM-PCB (CAPA) | — |
| 43TN9882 | Inverter P.C. board for Fan | | MCC-1734 | S-ASM-PCB (FAN) | — |
| 43T31301 | DIODE | | DF60LB80 | DIODE | 60A/800V |
| 43T52322 | Magnet Contactor | | FC-2SUL | MAG-CONTACTOR | — |
| 43T50345 | PTC Thermistor | | MZ32-101R | THERMISTOR (PTC) | 13A/AC500V |

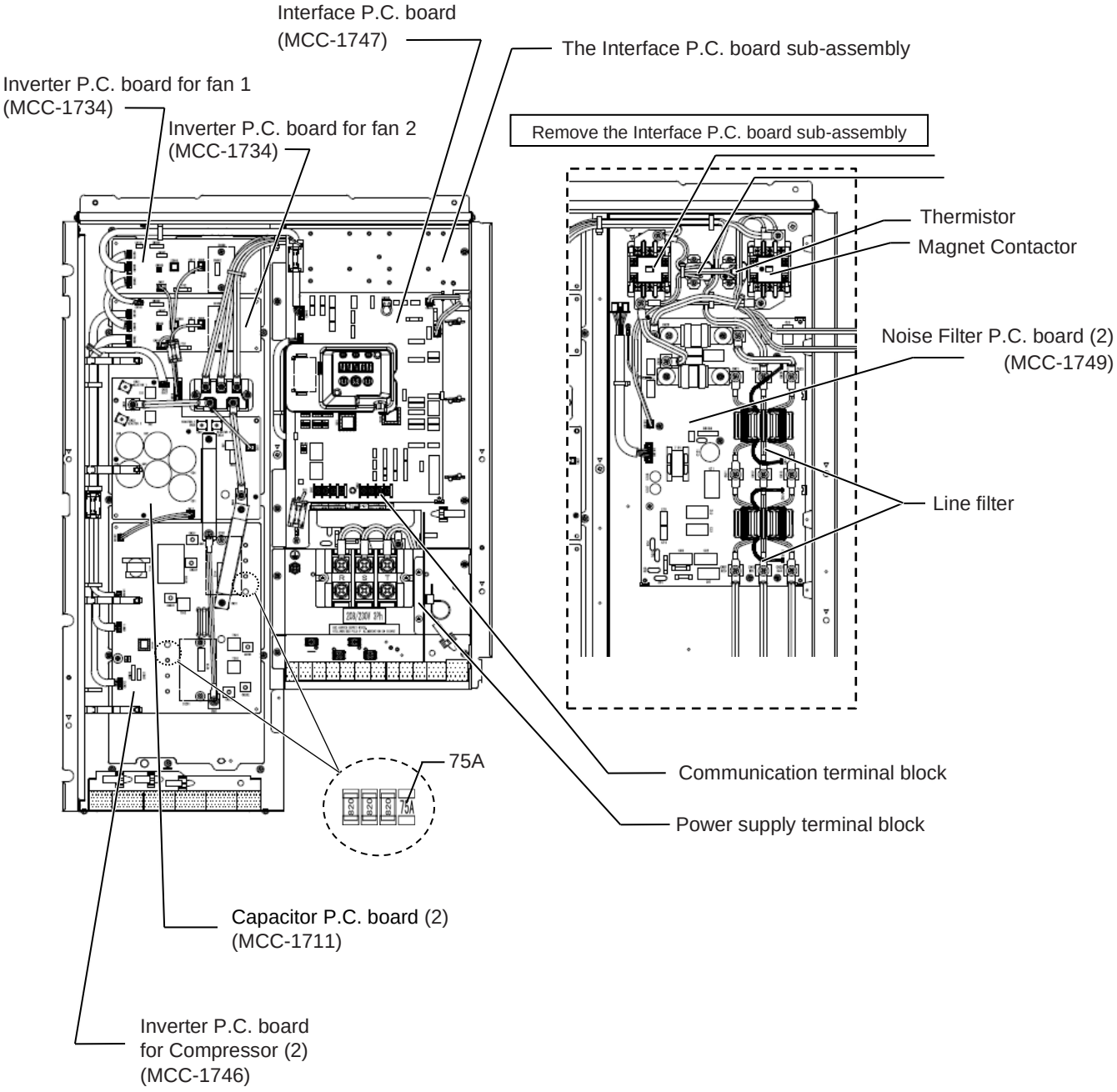
| Parts code | Description | Applicable model | Parts | Product code | Specifications |
|---|---|---|---|---|---|
| 43T60440 | Power supply terminal block | MMY-MUP1201HT9*<br>MMY-MUP1441HT9*<br>MMY-MUP1681HT9*<br>MMY-MUP096H1HT9*<br>MMY-MUP120H1HT9* | — | TERMINAL (100A) | AC600V/100A, 3P |
| 43TN9877 | Noise Filter P.C. board (2) | | MCC-1749 | S-ASM-PCB (N/F) | — |
| 43T55397 | Line filter | | — | LINE-FILTER | 0.9mH/AC460V/50A |
| 43TN9879 | Interface P.C. board | | MCC-1747 | S-ASM-PCB (I/F) | — |
| 43TN9884 | Inverter P.C. board for Compressor (2) | | MCC-1746 | S-ASM-PCB (COMP) | 75A |
| 43TN9886 | Capacitor P.C. board (2) | | MCC-1711 | S-ASM-PCB (CAPA) | — |
| 43TN9882 | Inverter P.C. board for fan | | MCC-1734 | S-ASM-PCB (FAN) | — |
| 43T31302 | DIODE | | DF100LA80 | DIODE | 100A/800V |
| 43T52321 | Magnet Contactor | | FC-1SUL | MAG-CONTACTOR | — |
| 43T50345 | PTC Thermistor | | MZ32-101R | THERMISTOR (PTC) | 13A/AC500V |

### 13-1-2. Configuration of inverter assembly

MMY-MUP0721HT9*
MMY-MUP0961HT9*
MMY-MUP072H1HT9*



MMY-MUP1201HT9*
MMY-MUP1441HT9*
MMY-MUP1681HT9*
MMY-MUP096H1HT9*
MMY-MUP120H1HT9*



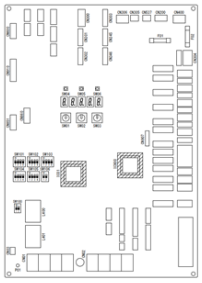
### 13-1-3. Interface P.C. Board (MCC-1747) Replacement Procedure

Target model　43TN9879: ALL models

This Interface service P.C. board is commonly installed in different models. After replacing the service board, Please change the model.

**Included items:**

①MCC-1747 : 1pcs



②Spacer : 4pcs

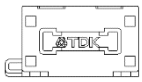
③Spacer : 2pcs

④Support : 1pcs

⑤Bush : 3pcs

⑥Short Connector : 1pcs

⑦Clamp filter：1pcs




**Replacement steps:**

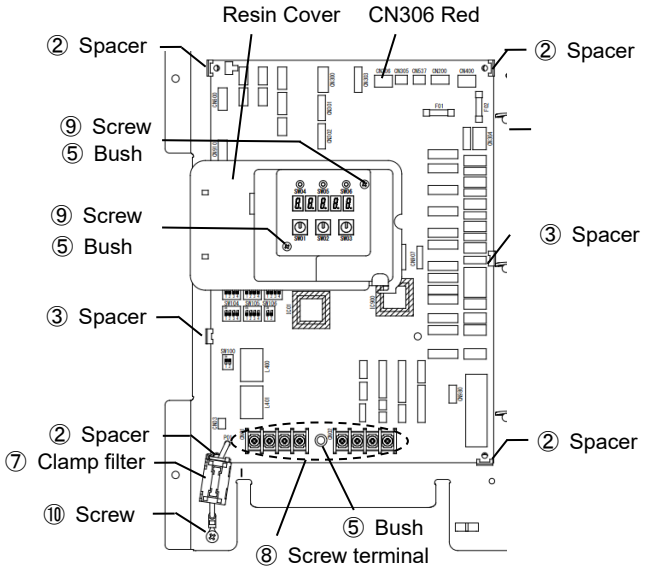
(1) Turn off the power supply of the outdoor unit and wait at least 5 minutes for the capacitor to discharge.

(2) Remove all of the connectors and wiring for screw terminals(⑧) which were connected to the interface P.C. board. (Remove the connectors by pulling the connector body. Do not pull the wire.)

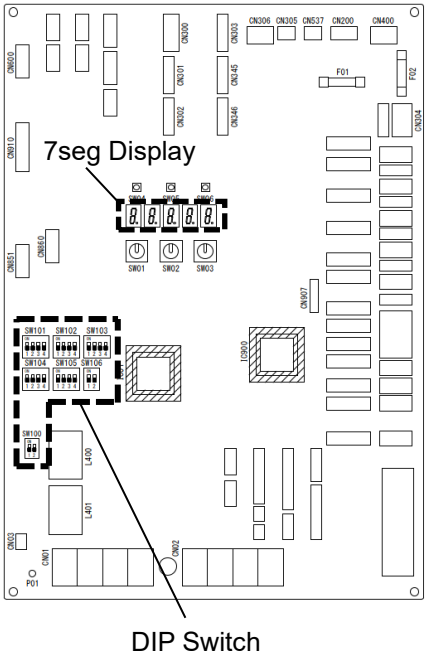
(3) Remove 3 screws(⑨:2pcs, ⑩:1pcs). (These screws are to be re-used after procedure.)

(4) Remove the P.C. board from the 6 spacers. (②:4pcs, ③:2pcs)

(5) Set the DIP switch settings of the service board to match as before replacement.




**Interface P.C.Board (43TN9879)**




(6) Use new spacers(②, ③), a supporter(④) if they are broken.

(7) Using new bushes(⑤), attach the service board.

(8) Re-connect the connectors and resin cover, screws(⑨, ⑩), screw terminals(⑧). Be sure that all the connectors and the screw terminals are connected correctly and securely inserted.

The torque of the screws

| | | | |
|---|---|---|---|
| ⑧ | Screw terminal | M4 x 0.4" (10mm) | 0.89 ft•lbs (1.2 N•m) |
| ⑨ | Screw | M3 x 0.98" (25mm) | 0.44 ft•lbs (0.6 N•m ) |
| ⑩ | Screw | M4 x 0.3" (8mm) | 0.89 ft•lbs (1.2 N•m) |

(9) Attach a new clamp filter(⑦) to the lead as in the above figure. And fix it with the lead using a cable tie. (The cable tie is included in the package of clamp filter(⑦).

(10) The product with HP-SW2 should connect HP-SW2 to CN306. The product without HP-SW2 should connect a short connector(⑥) to CN306.
Caution: Please do not use a short connector(⑥) for a product with HP-SW2. The protection circuit does not operate.

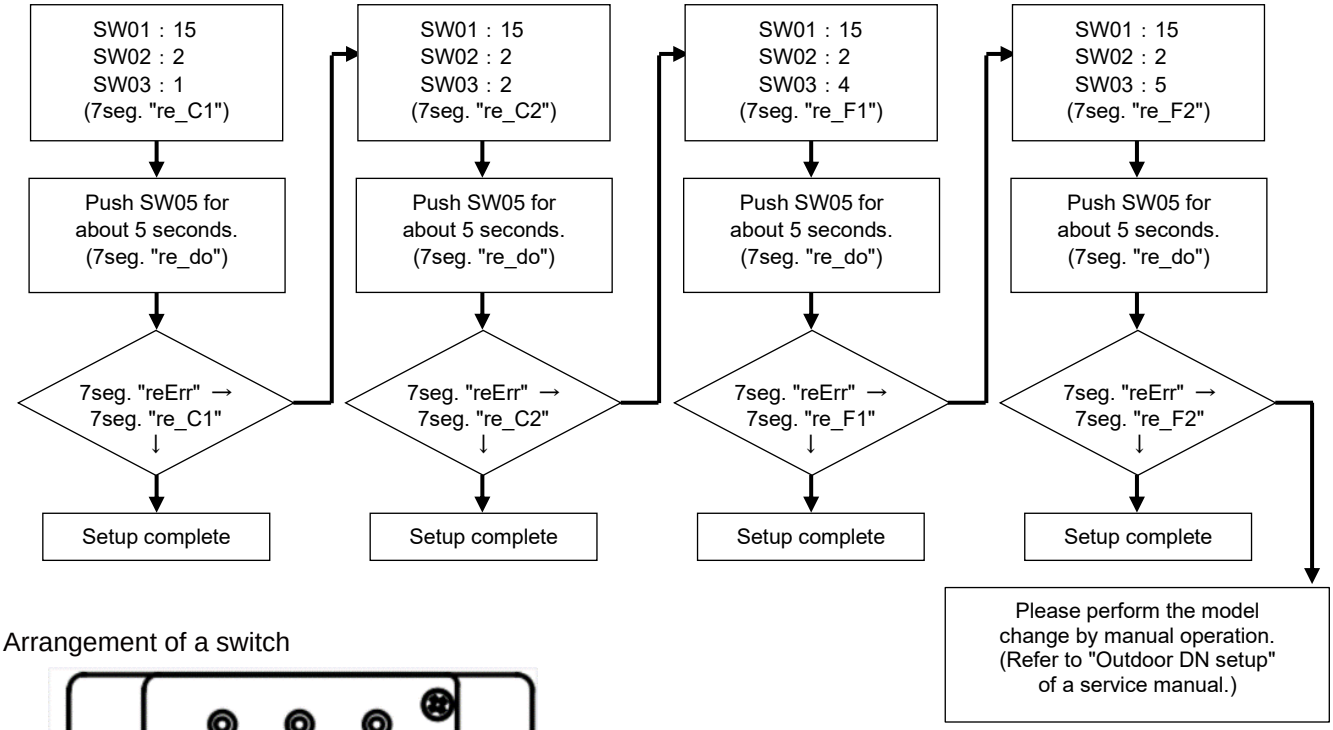
(11) If a component on the P.C. board is bent during board replacement, adjust it manually ensuring that it is not short or contact other parts.

(12) Install the cover, then turn on the power supply.

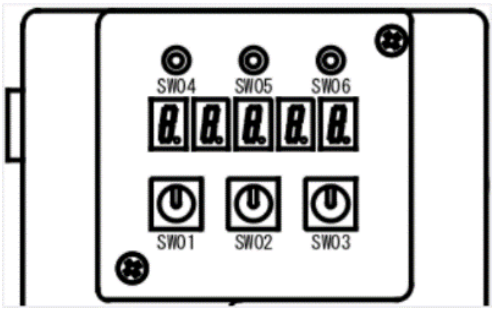
(13) “L10: Outdoor capacity not set” check code is displayed on the 7-segment display.

Perform a model change by the following flow.

By completing this procedure, it is restored to the state before a model setup and a setup of the outdoor DN code (O.DN) exchanging. (The data of the model setup and the outdoor DN code (O.DN) is automatically backed up by the inverter P.C. board.)



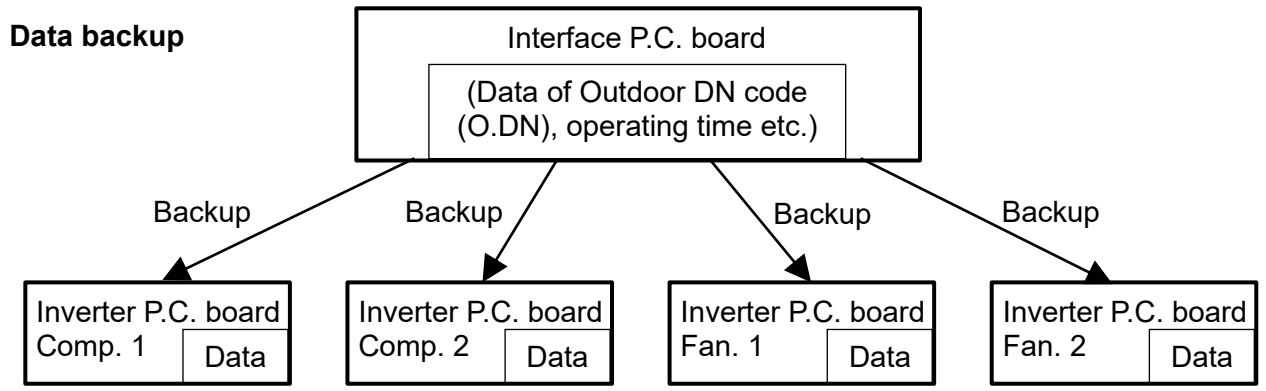

Arrangement of a switch




(14) Set SW01 : 1, SW02 : 1, SW03 : 1. Check the operation.

## Appendix 1 Data backup

1) The Outdoor DN code (O.DN) data that includes the model settings from the interface P.C. board will automatically be backed up to the Inverter P.C. board for Compressor and Inverter P.C. board for fan.




2) Data backup will be performed under one of the following conditions.
   • Every hour after power on (when the compressor is stopped)
   • When the outdoor DN code (O.DN) has been changed
   Caution should be taken, since the old data for the Inverter P.C. board will be overwritten.

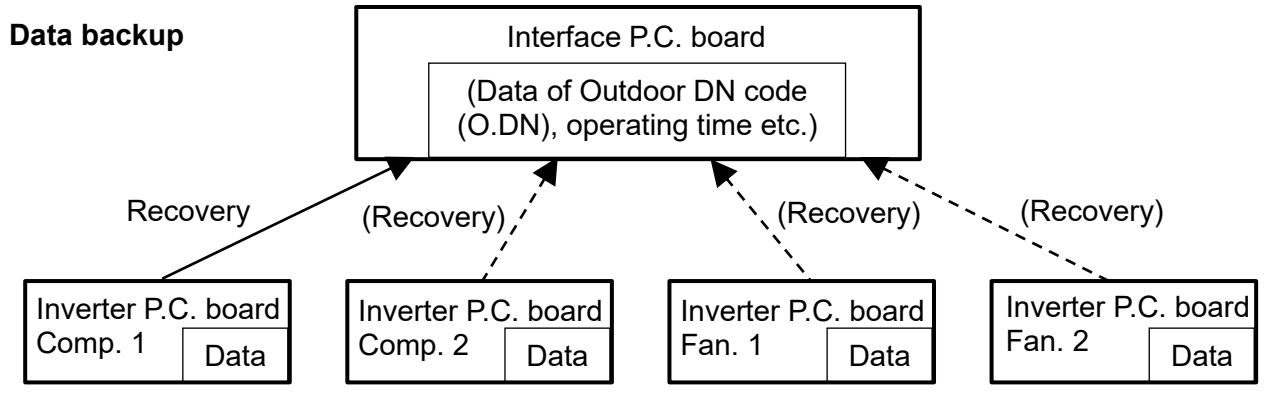
2) The same backup data will be saved on each inverter P.C. board

3) Data backup prohibition settings
   Data backup prohibition settings will be activated when bit 1 on SW106 is turned ON.
   Set the data backup prohibition settings if backing up on interface P.C. board is not desired.

| | | |
|---|---|---|
| SW106 | Bit 1 | OFF：Normal (Data backup will be performed)<br>ON： Data backup will not be performed on Inverter P.C. board. |

## Appendix 2 Data recovery

1) Data recovery will be performed from inverter P.C. board for Compressor 1, and if this fails, recovery will be performed from Compressor 2, Fan 1, and Fan 2, in that order.
   If this fails as well, the same data will be saved on each Inverter P.C. board, so data recovery will be done if recovery is successful from any of these Inverter P.C. boards.
   Skip this procedure if there is an Inverter P.C. board with a failure.




* Recovery is done if recovery is successful from either of the Inverter P.C. board.

2) Perform data recovery within one hour after powering if the Interface P.C. board has been replaced with a Service P.C. board. If one hour elapses after powering, data recovery will not be available since the data for the service P.C. board will be written to the Inverter P.C. board.
   If one hour is about to elapse before data recovery, turn the power OFF temporarily for the outdoor unit.

3) When performing data recovery, important data such as operating time will be recovered with the outdoor DN code (O.DN), so perform data recovery when replacing the Interface P.C. board, and set the Outdoor DN code (O.DN) manually if this is not possible.

## Appendix 3 Model settings for case that data cannot be recovered

The model settings are unset on the service P.C. board, and in an unset state, the check code [L10] will be displayed and operation will not be available.
The model settings will be recovered with the data recovery, but if data recovery cannot be performed, set the Outdoor Unit Function Code (O.DN) [003] manually according to the model name of the outdoor unit.
Normal operations may not be available if the settings are different from those before replacing.

| Model name | O.DN [003] |
|---|---|
| Undefined | 0000 |
| MMY-MUP0721HT9P-UL | 0001 |
| MMY-MUP0961HT9P-UL | 0002 |
| MMY-MUP1201HT9P-UL | 0003 |
| MMY-MUP1441HT9P-UL | 0004 |
| MMY-MUP1681HT9P-UL | 0005 |
| MMY-MUP072H1HT9PUL | 000C |
| MMY-MUP096H1HT9PUL | 000D |
| MMY-MUP120H1HT9PUL | 000E |

For the communication method setting (TCC-LINK / TU2C-LINK), all outdoor units and all indoor units in the same system must have the same settings. The factory setting of the service P.C. board is TCC-LINK communication. Check the DN code of the connected outdoor unit or indoor unit, and if it is set to TU2C-LINK, set the service P.C. board to TU2C-LINK as well.

| | Outdoor unit (O.DN) [082] | Indoor unit (I.DN) [FC] |
|---|---|---|
| TCC-LINK | 0000 | 0000 |
| TU2C-LINK | 0003 | 0003 |

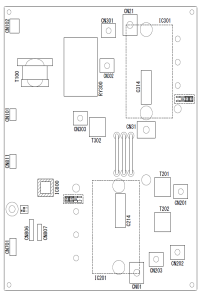
### 13-1-4. Compressor P.C. Board (MCC-1746) Replacement Procedure

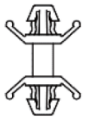
Target model 43TN9883: MMY-MUP0721HT9*/0961HT9*/072H1HT9*
43TN9884: MMY-MUP1201HT9*/1441HT9*/1681HT9*/096H1HT9*/120H1HT9*

This board is commonly installed in different models. Set the DIP switch (SW800) settings of the service board to match as before replacement.

**Included items:**

① MCC-1746 : 1pcs ② Spacer : 4pcs ③ Bush : 1pcs ④ Collar : 1pcs





**Replacement Steps:**

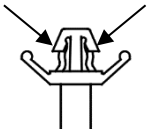
(1) Turn off the power supply of the outdoor unit and wait at least 5 minutes for the capacitor to discharge.

(2) Remove all of the connectors attached to the Compressor P.C. board. (Remove the connectors by pulling the connector body. Do not pull the wire.)

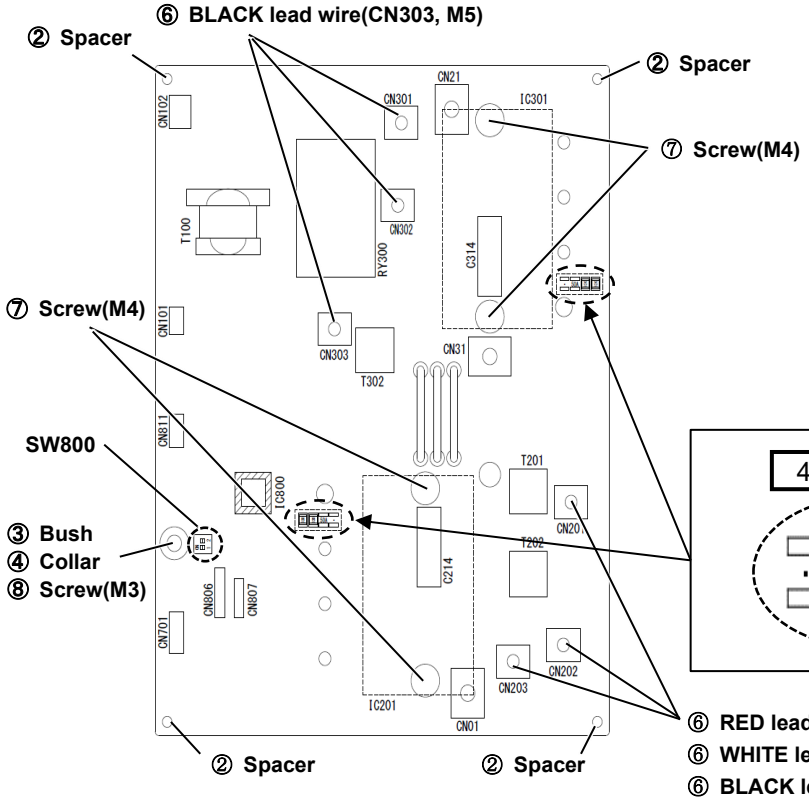
(3) Remove the BUS-BAR and lead wire screws(⑤ : 5pcs (M6) ) that connected the Capacitor P.C. board and the Compressor P.C. board.

(4) Remove all of the connector and screw terminals(⑥ : 6pcs (M5) ) which were connected to the Compressor P.C. board. (Remove the connectors by pulling the connector body. Do not pull the wire.)

Pinch this part by round-nose pliers for removing the P.C. board



**② Spacer**



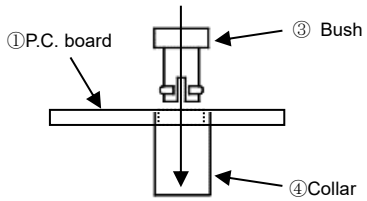
(5) Remove 5 screws(⑦ : 4pcs(M4), ⑧ : 1pcs(M3) ).

(6) Keep the removed screws as they will be reused.

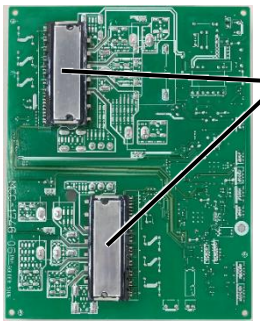
(7) Remove the P.C. board from the 4 spacers (②) by round-nose pliers.

(8) Set the DIP switch (SW800) settings of the service board to match as before replacement.

(9) If spacers (②) are damaged, replace it and attach collars(④) and bushes(③) to the service P.C. board(①).




(10) Apply the Silicone Thermal Grease to the semiconductors (IC201, IC301) on the service P.C. board, align the hole positions of heat sink, and mount the service P.C. board on the outdoor control unit. And fix the service P.C. board to the outdoor control unit by the spacers (②).



Uniformly apply the Silicone Thermal Grease to the heat dissipating surfaces of the IPM (IC201, IC301).
Note: Do this work carefully. Please do not soil or scratch the area which attaches the semiconductor of heat sink.

Silicone Thermal Grease use one of the following
・Momentive Performance Materiais ''TIG1000''
・Dow Cornig Toray ''SC102''
・Mizutani Electric Ind ''HSC1000''
・Shin-Etsu Chemical ''G-746'' or ''G-747''

(11) Screw the Compressor P.C. board to the heat sink by the 5 screws (⑦ : 4pcs(M4), ⑧ : 1pcs(M3) ) that were removed in step (5). If the screws are loose, the semiconductors will generate heat, and cause it to breakdown. Do not use an electric driver or an air driver. The semiconductor may receive a damage.

(12) Re-connect the connectors and screw terminals (⑥ : 6pcs (M5) ) that were removed in step (4). Be sure that all the connectors and the screw terminals are connected correctly and securely inserted.

(13) Re-connect the BUS-BAR and lead wire screws (⑤ : 5pcs (M6) ) that were removed in step (3) to the Capacitor P.C. board and the Compressor P.C. board. Be sure that all the screw terminals are connected correctly.

(14) If the components on the P.C. board were bent during board replacement, adjust it manually ensuring that it is not short or contact other parts.

(15) Install the cover, then turn on the supply. Check the operation.

The torque of the screws

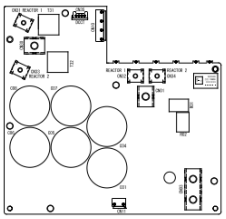
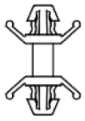
| | | | |
|---|---|---|---|
| ⑤ | Screw terminal | M6 x 0.47" (12mm) | 2.21 ft•lbs (3.0 N•m) |
| ⑥ | Screw terminal | M5 x 0.4" (10mm) | 1.48 ft•lbs (2.0 N•m) |
| ⑦ | IC201, IC301 | M4 x 0.6" (15mm) | 0.89 ft•lbs (1.2 N•m) |
| ⑧ | Collar and bush | M3 x 0.98" (25mm) | 0.44 ft•lbs (0.6 N•m ) |

### 13-1-5. Capacitor P.C. Board (MCC-1711) Replacement Procedure

Target model 43TN9885: MMY-MUP0721HT9*/0961HT9*/072H1HT9*
43TN9886: MMY-MUP1201HT9*/1441HT9*/1681HT9*/096H1HT9*/120H1HT9*

**Included items:**

① MCC-1711 : 1pcs ② Spacer : 2pcs ③ Bush : 5pcs ④ Collar : 5pcs

**Replacement Steps:**

(1) Turn off the power supply of the outdoor unit and wait at least 5 minutes for the capacitor to discharge.

(2) Remove all of the connectors attached to the Capacitor P.C. board. (Remove the connectors by pulling the connector body. Do not pull the wire.)

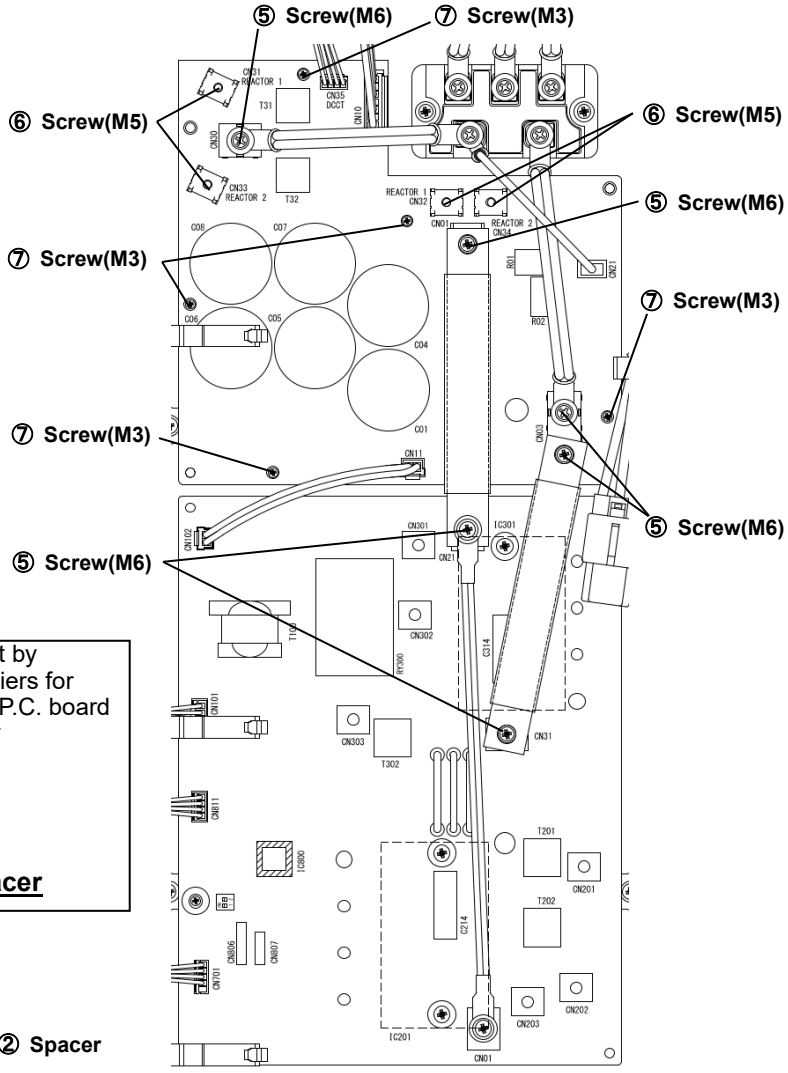
(3) Remove the BUS-BAR and lead wire screws (⑤ : 6pcs (M6) ) that connect the Compressor P.C. board and the Capacitor P.C. board.

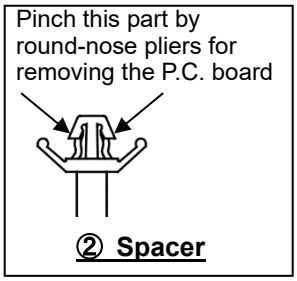
(4) Remove the reactor lead wire screws(⑥ : 2 or 4 pcs (M5) ). (For the model has REACTOR 2, manage the combination so as not to make a mistake when reconnecting.)

(5) Remove the screws(⑦ : 5pcs (M3) ).

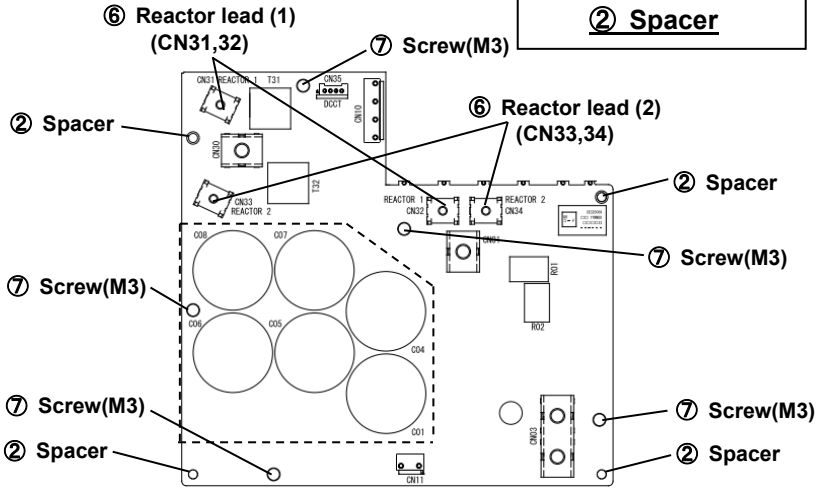
(6) Keep the removed screws as they will be reused.

(7) Using pliers to remove the Capacitor P.C. board from the two spacers (②).

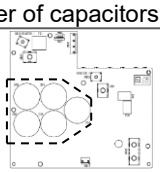
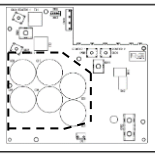


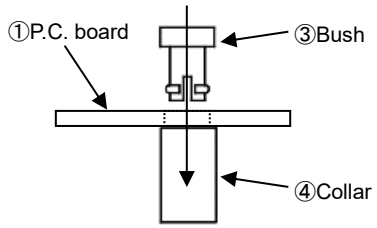

**Capacitor P.C. board**
(43TN9885, 43TN9886)




How to identify the service board

| Parts code | Number of capacitors |
|---|---|
| 43TN9 885 | 5 pcs  |
| 43TN9 886 | 6 pcs  |

(8) If spacers (②) are damaged, replace it and attach collars(④) and bushes(③) to the service P.C. board(①).




(9) Attach the Capacitor P.C. board with the five screws(⑦：5pcs (M3) ) removed in step (5).

(10) Attach the reactor lead wire using the 2 or 4 screws removed in step (4) (⑥：2 or 4 pcs (M5) ).
For the model has REACTOR 2, be careful not to make a mistake in the combination of lead wires.
Notes：The screws are loose, the connection part will heat up and cause a malfunction.
Do not use electric drivers or air drivers.

(11) Attach the BUS-BAR and lead wires removed in step (3) with 6 screws(⑤：6pcs (M6) ).
Notes：The screws are loose, the connection part will heat up and cause a malfunction.
Do not use electric drivers or air drivers.

(12) Reconnect the connector. Connect correctly and securely.

(13) If the components on the P.C. board were bent during board replacement, adjust it manually ensuring that it is not short or contact other parts.

(14) Attach the cover, turn on the power, and check the operation.

The torque of the screws

| | | | |
|---|---|---|---|
| ⑤ | Screw terminal | M6 x 0.47" (12mm) | 2.21 ft•lbs (3.0 N•m) |
| ⑥ | Screw terminal | M5 x 0.4" (10mm) | 1.48 ft•lbs (2.0 N•m) |
| ⑦ | Collar and bush | M3 x 0.98" (25mm) | 0.44 ft•lbs (0.6 N•m ) |

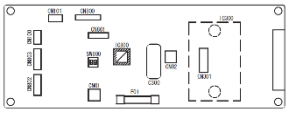
### 13-1-6. Fan-Motor P.C. Board (MCC-1734) Replacement Procedure

Target model 43TN9882: ALL model

This board is commonly installed in different models. Set the DIP switch (SW800) settings of the service board to match as before replacement.

**Included items:**

① MCC-1734 : 1pcs



② Spacer : 4pcs

**Replacement steps:**

(1) Turn off the power supply of the outdoor unit and wait at least 5 minutes for the capacitor to discharge.

(2) Remove all of the connector which were connected to the Fan-motor P.C. board. (Remove the connectors by pulling the connector body. Do not pull the wire.)

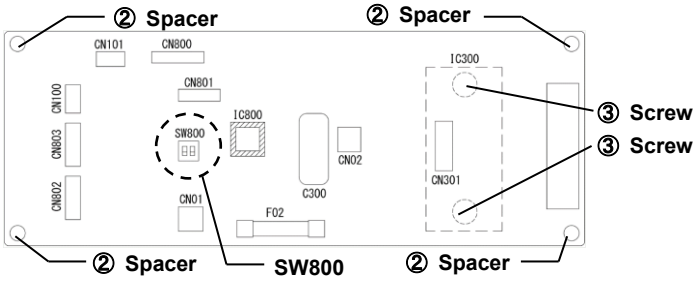
(3) Remove 2 screws(③).
(These screws are to be re-used after procedure.)

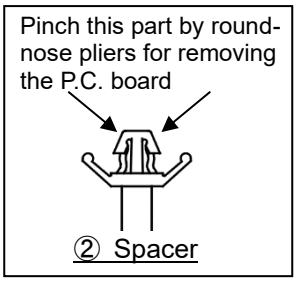
(4) Remove the P.C. board from 4 spacers(②) by round-nose pliers.

(5) Set the SW800 setting of the service P.C. board to match as before replacement.

(6) Apply the Silicone Thermal Grease to the semiconductors (IC300) on the service P.C. board, and align the positions of the heat sink holes to mount the Fan-motor P.C. board on the outdoor control unit. And fix the Fan-motor P.C. board to the outdoor control unit by the spacers (②).

Fan-motor P.C. board (43TN9882)




Uniformly apply the Silicone Thermal Grease to the heat dissipating surfaces of the IPM (IC300).
Note: Do this work carefully. Please do not soil or scratch the area which attaches the semiconductor of a heat sink.

Silicone Thermal Grease use one of the following
・Momentive Performance Materiais ''TIG1000'' ・Mizutani Electric Ind ''HSC1000''
・Shin-Etsu Chemical ''G-746'' or ''G-747'' ・Dow Cornig Toray ''SC102''

(7) Screw the Fan-motor P.C. board to the heat sink by the 2 screws (③) that were removed in step (3).
If the screws are loose, the semiconductors will generate heat, and cause it to breakdown.
Do not use an electric driver or an air driver. The semiconductor may receive a damage.

The torque of the screws

| | | | |
|---|---|---|---|
| ③ | Screw | M3 x 0.55" (14mm) | 0.44 ft•lbs (0.6 N•m ) |

(8) Re-connect the connectors. Be sure that all the connectors are connected correctly and securely inserted.

(9) If the components on the P.C. board were bent during board replacement, adjust it manually ensuring that it is not short or contact other parts.

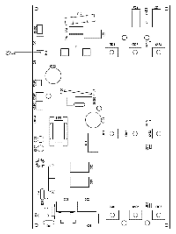
(10) Install the cover, then turn on the supply. Check the operation.

### 13-1-7(1). Noise Filter P.C. Board (MCC-1749) Replacement Procedure

Target model 43TN9876: MMY-MUP0721HT9*/0961HT9*/072H1HT9*

**Included items:**

① MCC-1749 : 1pcs ② Spacer : 4pcs ③ Spacer : 2pcs ④ Bush : 6pcs




**Replacement Steps:**

(1) Turn off the power supply of the outdoor unit and wait at least 5 minutes for the capacitor to discharge.

(2) Remove all of the connectors attached to the Noise Filter P.C. board. (Remove the connectors by pulling the connector body. Do not pull the wire.)

(3) Remove screws (⑦ : 12pcs (M6) ) and Line-Filters which were connected to the Noise Filter P.C. board.

(4) Remove 8 screws(⑤ : 6pcs (M3), ⑥ : 2pcs (M4) ).

(5) Keep the removed screws as they will be reused.

(6) Remove the P.C. board from 6 spacers (②:4pcs, ③:2pcs).

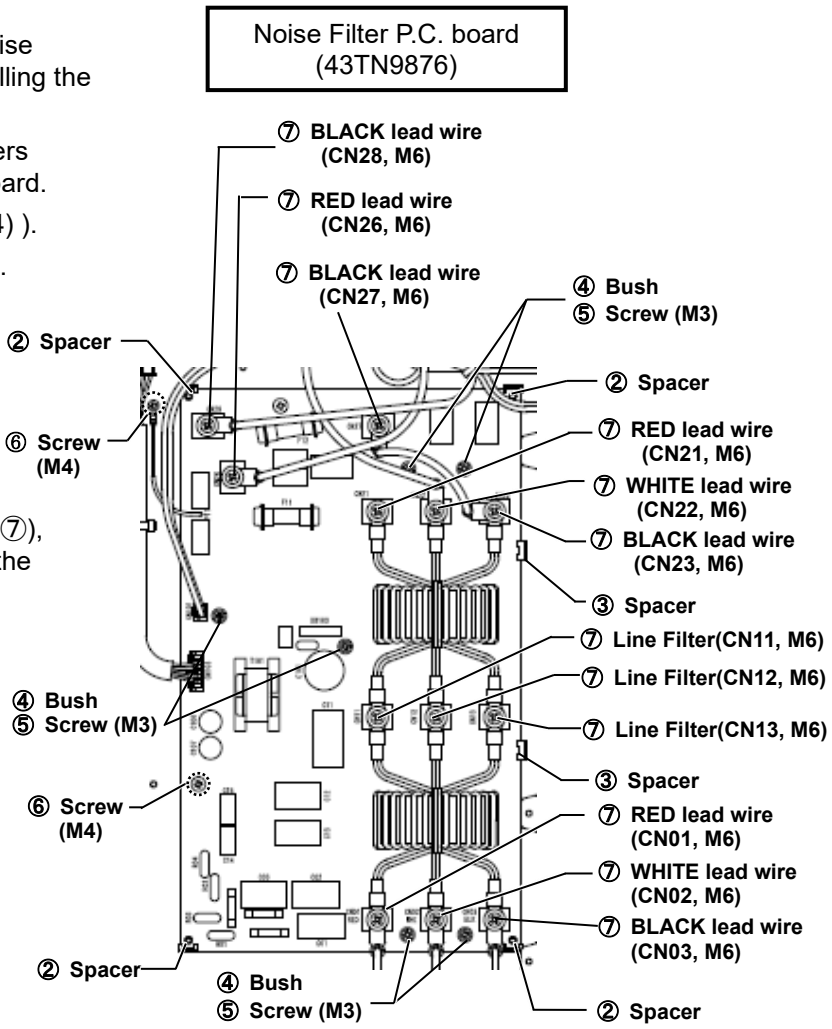
(7) If spacers (②, ③) are damaged, replace it and attach bushes(④) to the service P.C. board(①).

(8) Screw the Noise Filter P.C. board by 8 screws (⑤, ⑥) that were removed in step (4).

(9) Re-connect the connectors and screw terminals(⑦), Line-Filters. Be sure that all the connectors and the screw terminals are connected correctly and securely inserted.

(10) If the components on the P.C. board were bent during board replacement, adjust it manually ensuring that it is not short or contact other parts.

(11) Install the cover, then turn on the supply. Check the operation.




The torque of the screws

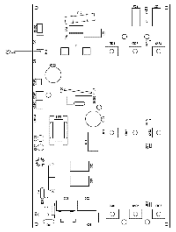
| | | | |
|---|---|---|---|
| ⑤ | Screw | M3 x 0.7" (18mm) | 0.44 ft•lbs (0.6 N•m ) |
| ⑥ | Screw | M4 x 0.3" (8mm) | 0.89 ft•lbs (1.2 N•m ) |
| ⑦ | Screw terminal | M6 x 0.47" (12mm) | 2.21 ft•lbs (3.0 N•m) |

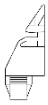
## 13-1-7(2). Noise Filter P.C. Board (MCC-1749) Replacement Procedure

Target model 43TN9877: MMY-MUP1201HT9*/1441HT9*/1681HT9*/096H1HT9*/120H1HT9*

### Included items:

① MCC-1749 : 1pcs ② Spacer : 4pcs ③ Spacer : 2pcs ④ Bush : 6pcs






### Replacement Steps:

(1) Turn off the power supply of the outdoor unit and wait at least 5 minutes for the capacitor to discharge.

(2) Remove all of the connectors and solderless terminal tabs (CN04, CN14, CN15, CN29) attached to the Noise Filter P.C. board. (Remove the connectors by pulling the connector body. Do not pull the wire.)

(3) Remove screws (⑦ : 12pcs (M6) ) and Line-Filters which were connected to the Noise Filter P.C. board.

(4) Remove fuse screws (⑧ : 4pcs (M6) ) and 2 fuses which were connected to the Noise Filter P.C. board. (If the fuse is not broken, reuse it.)

(5) Remove 8 screws(⑤ : 6pcs (M3), ⑥ : 2pcs (M4) ).

(6) Keep the removed screws as they will be reused.

(7) Remove the Noise Filter P.C. board from 6 spacers (②:4pcs, ③:2pcs).

(8) If spacers (②, ③) are damaged, replace it and attach bushes(④) to the service P.C. board(①).

(9) Screw the Noise Filter P.C. board by 8 screws (⑤, ⑥) that were removed in step (5).

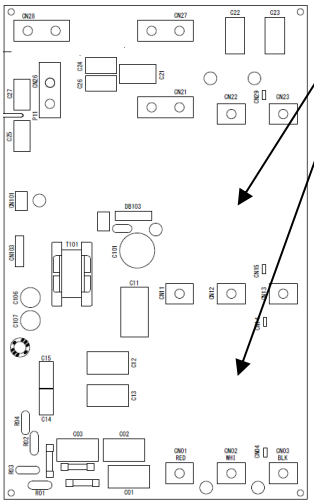
(10) Re-connect the fuses and screw terminals(⑧).

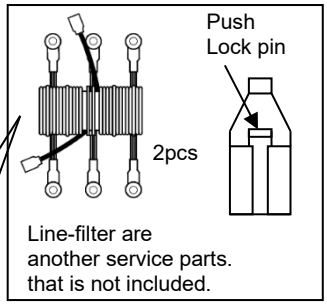
(11) Re-connect the connectors and screw terminals(⑦), Line-Filters, solderless terminal tabs (CN04, CN14, CN15, CN29). Be sure that all the connectors and the screw terminals are connected correctly and securely inserted.

(12) If the components on the P.C. board were bent during board replacement, adjust it manually ensuring that it is not short or contact other parts.

(13) Install the cover, then turn on the supply. Check the operation.

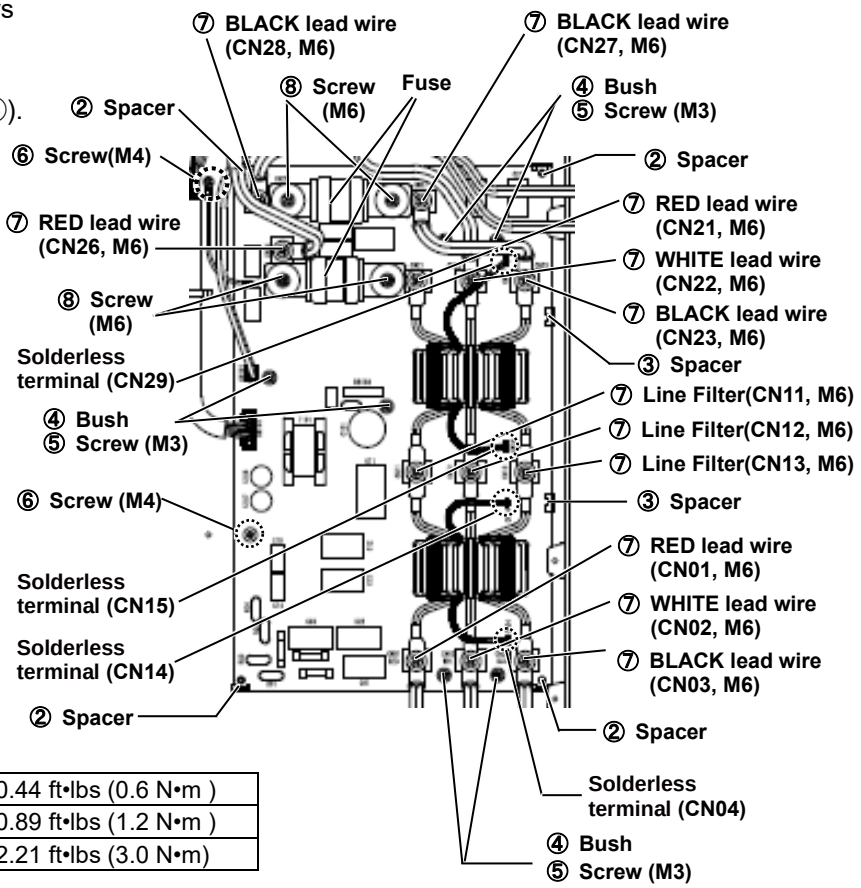
Noise Filter P.C. board (43TN9877)






How to remove a Line-filter

a) Remove the solderless terminal tabs. (CN04, CN14, CN15, CN29)
b) Remove the screw terminals. (CN01, CN02, CN03)
c) Remove the screws (CN11, CN12, CN13), holding the lower Line-filter (L01).
d) Remove the screw (CN21, CN22, CN23), holding the upper Line-filter(L02).
*L01 and L02 are same parts.



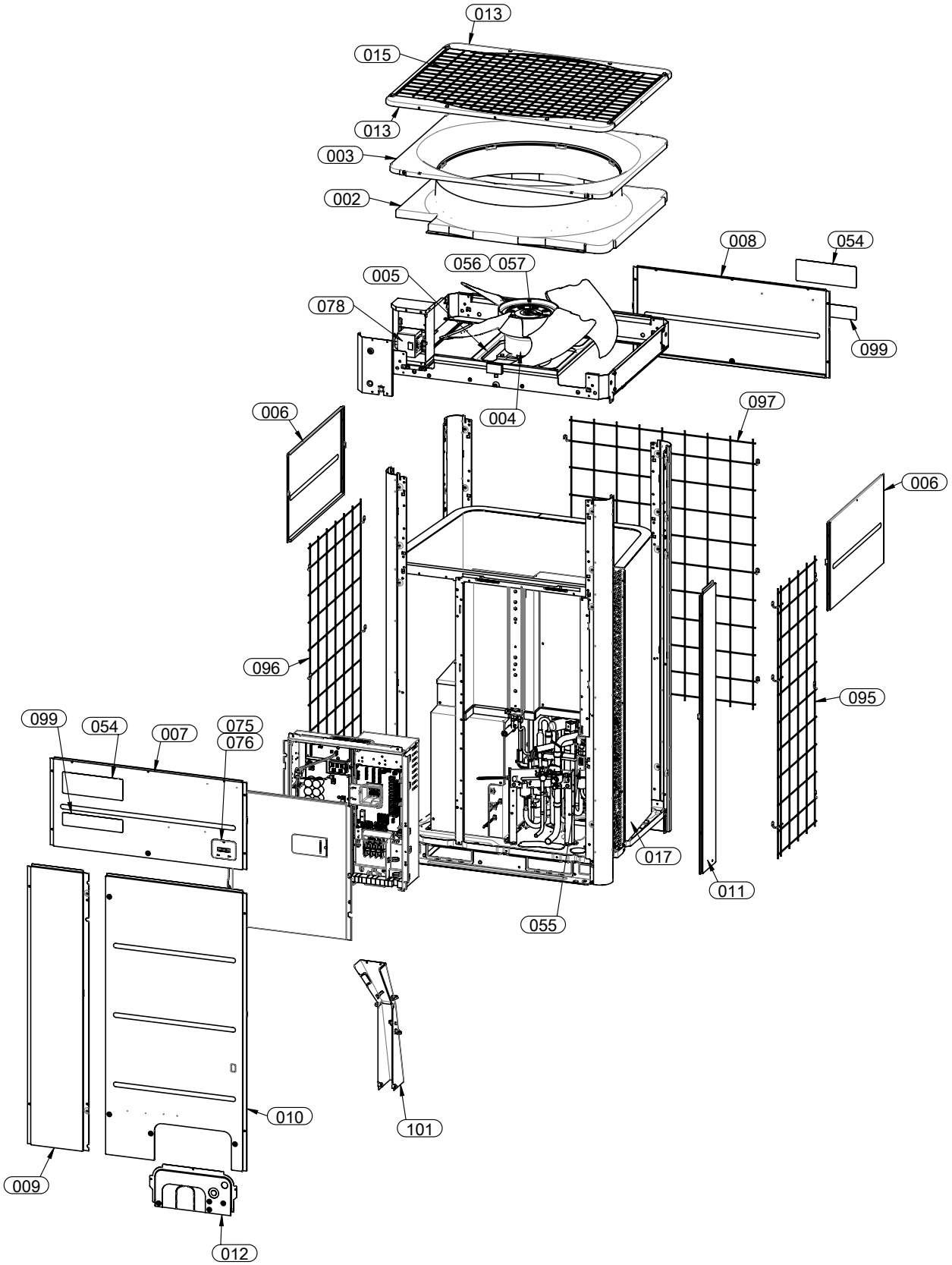

The torque of the screws

| | | | |
|---|---|---|---|
| ⑤ | Screw | M3 x 0.7" (18mm) | 0.44 ft•lbs (0.6 N•m ) |
| ⑥ | Screw | M4 x 0.3" (8mm) | 0.89 ft•lbs (1.2 N•m ) |
| ⑦ | Screw terminal | M6 x 0.47" (12mm) | 2.21 ft•lbs (3.0 N•m) |

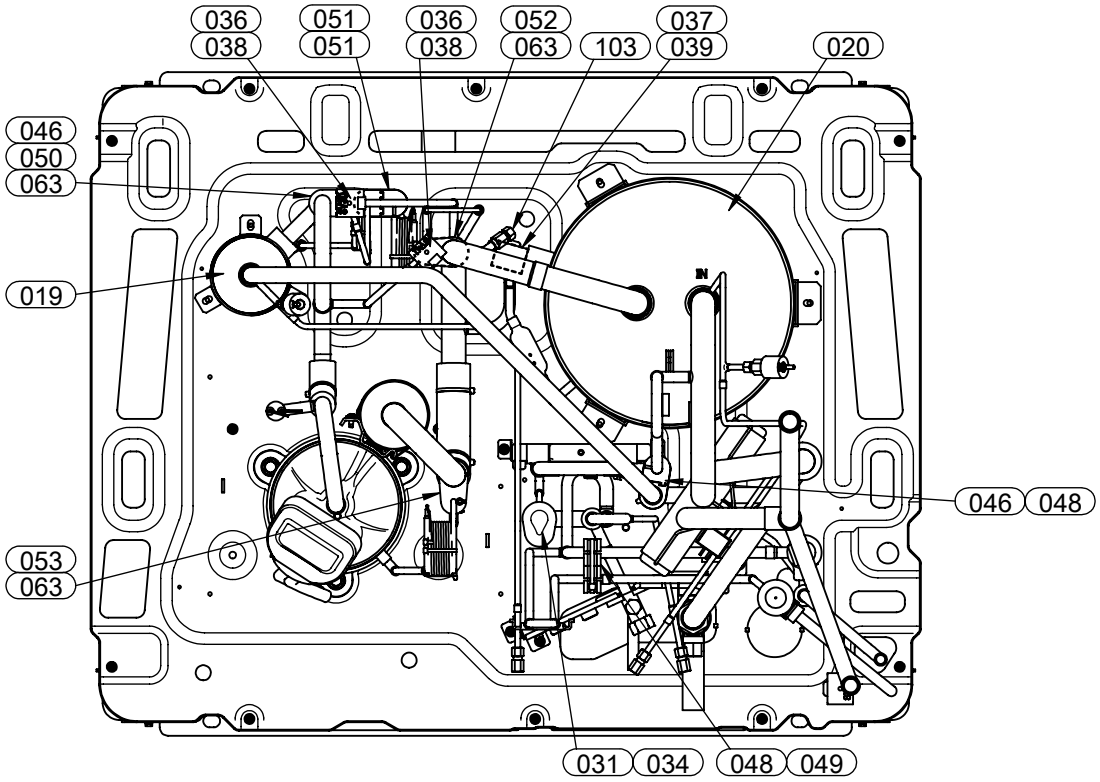
# 14. EXPLODED DIAGRAM/PARTS LIST

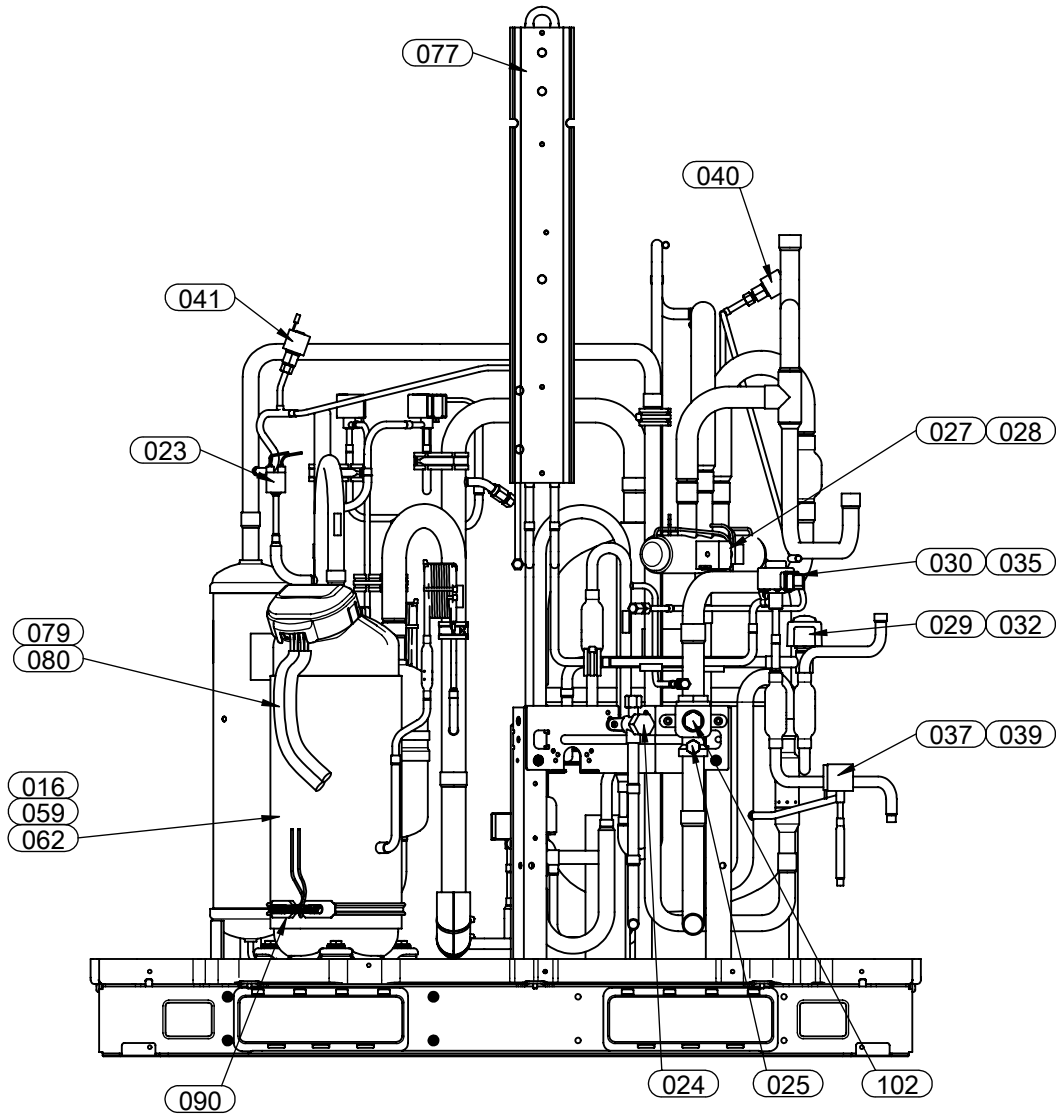
## 14-1. Outdoor unit (6 ton, 8 ton)

MMY-MUP0721HT9P-UL
MMY-MUP0961HT9P-UL

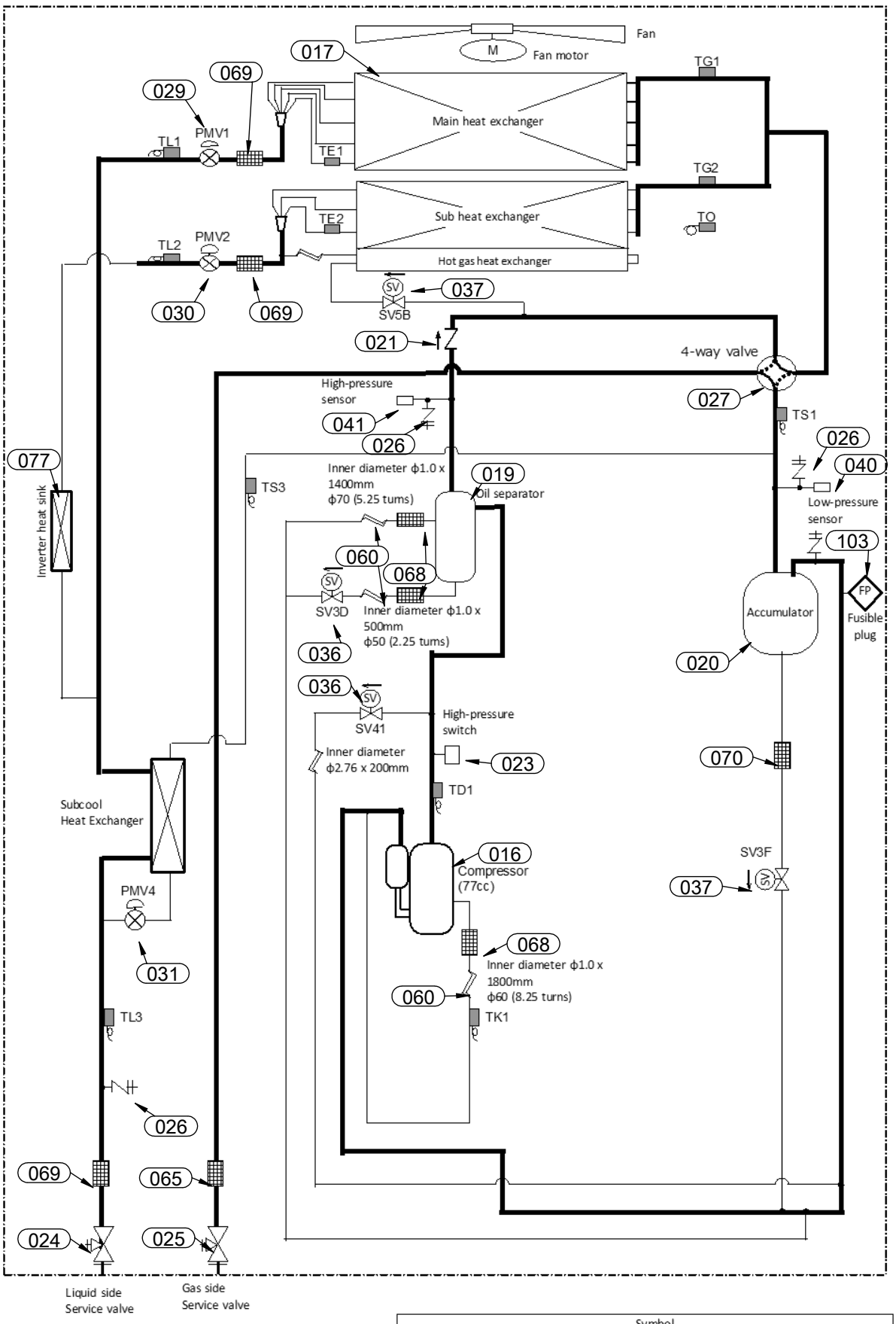


Outdoor unit (6ton, 8ton)
MMY-MUP0721HT9P-UL
MMY-MUP0961HT9P-UL



Outdoor unit (6ton, 8ton)
MMY-MUP0721HT9P-UL
MMY-MUP0961HT9P-UL

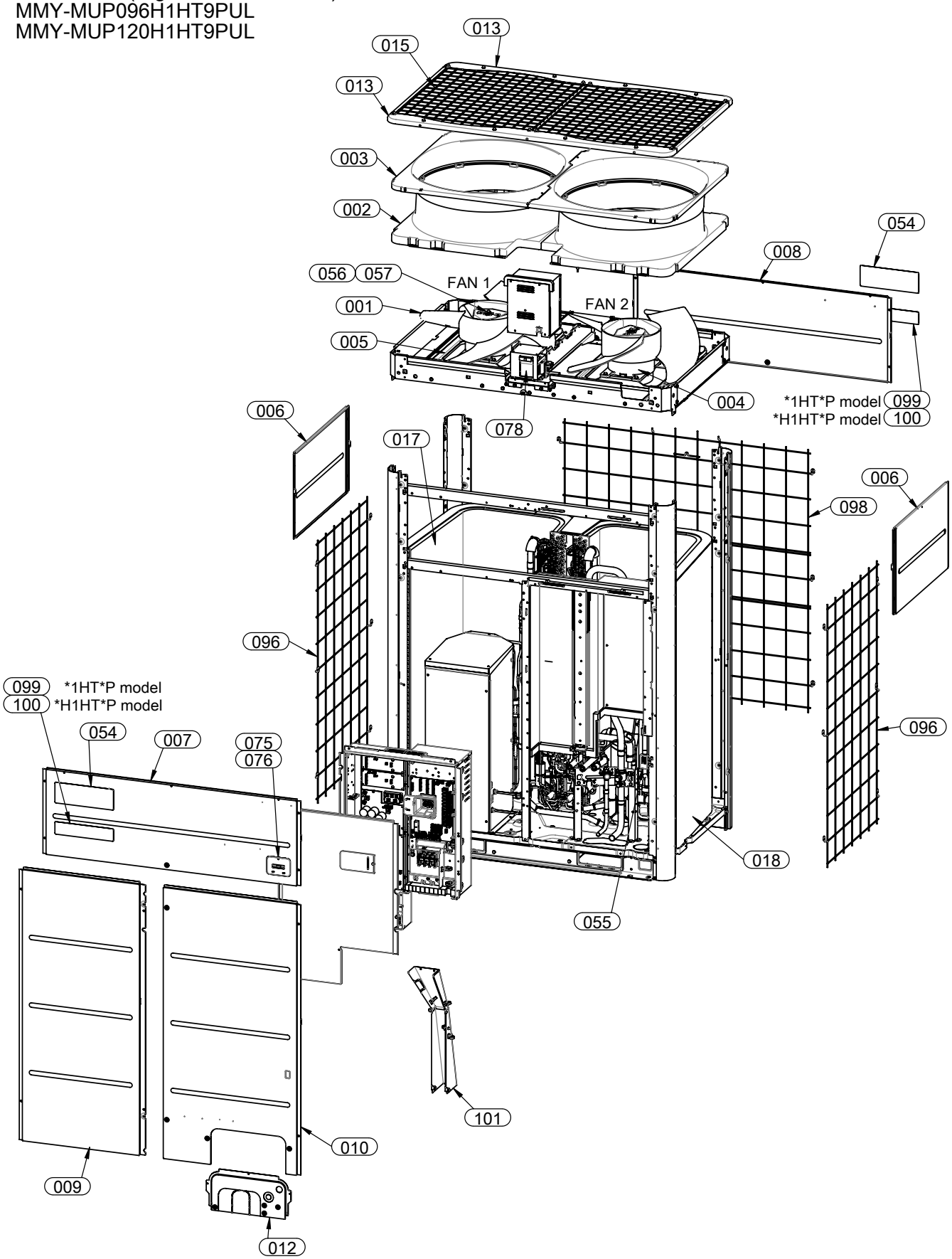



| Symbol | | | | | | |
|---|---|---|---|---|---|---|
| Solenoid valve | Capillary tube | Check valve | Check joint | Strainer | Temperature sensor | Distributor |

## 14-2. Outdoor unit (10 ton to 14 ton)

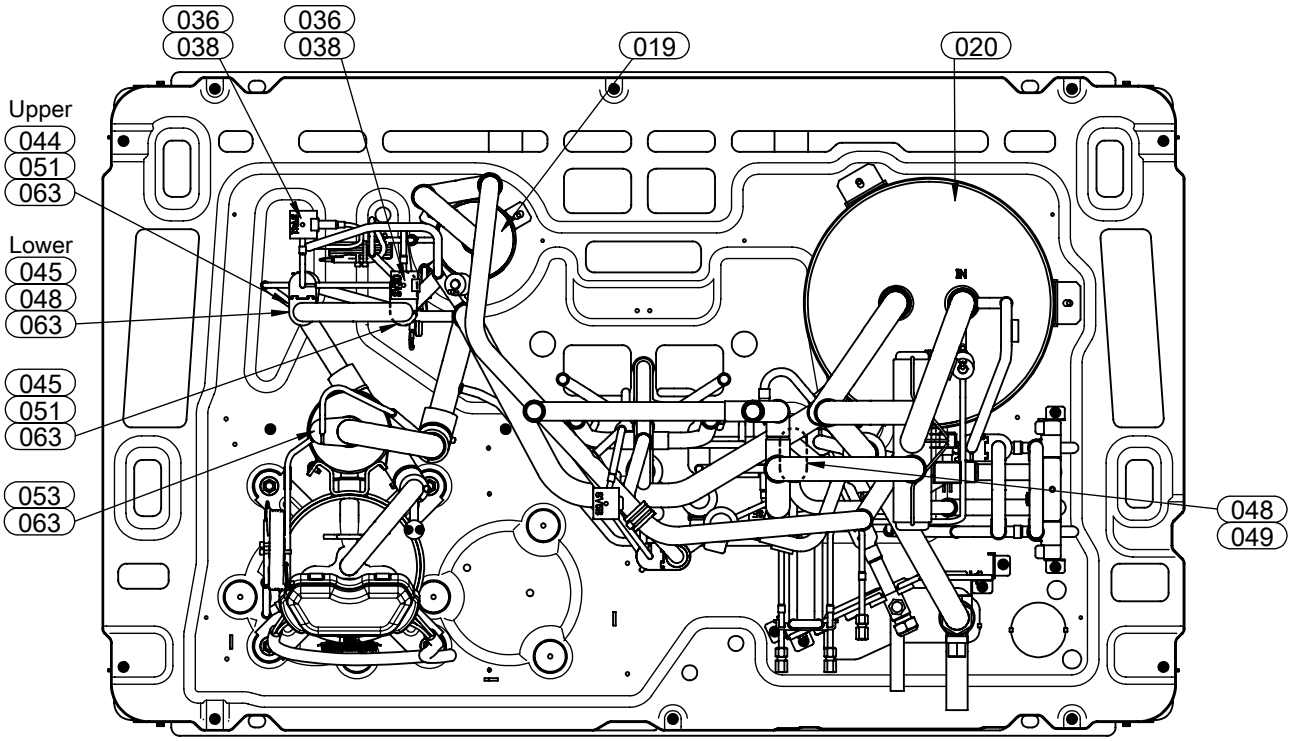
Outdoor unit (10ton, 12ton, 14ton)
MMY-MUP1201HT9P-UL
MMY-MUP1441HT9P-UL
MMY-MUP1681HT9P-UL

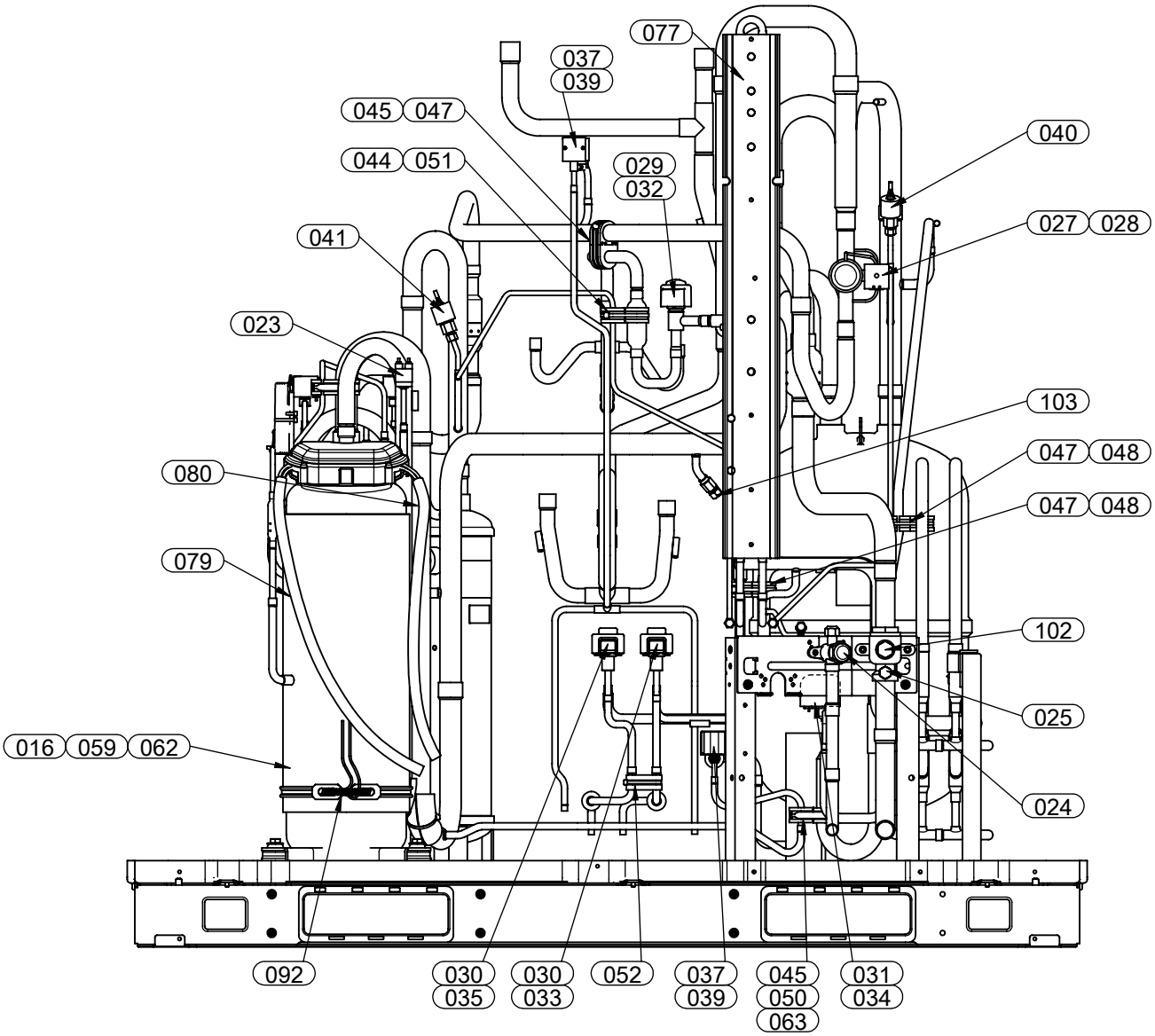
Outdoor unit (High heat 8ton, 10ton)
MMY-MUP096H1HT9PUL
MMY-MUP120H1HT9PUL



Outdoor unit (10ton, 12ton, 14ton)
MMY-MUP1201HT9P-UL
MMY-MUP1441HT9P-UL
MMY-MUP1681HT9P-UL

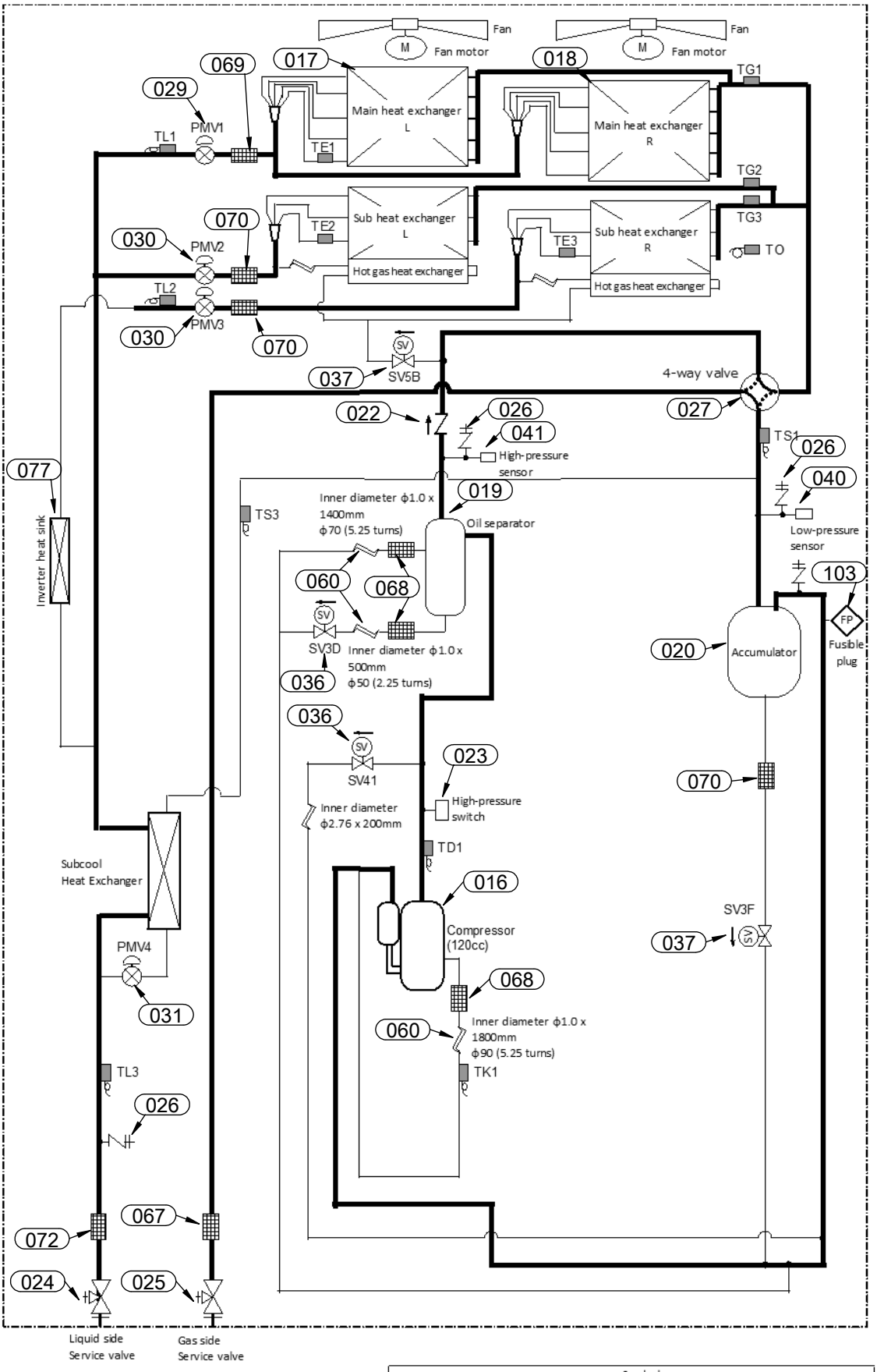
Outdoor unit (High heat 8ton, 10ton)
MMY-MUP096H1HT9PUL
MMY-MUP120H1HT9PUL



Outdoor unit (10ton, 12ton, 14ton)
MMY-MUP1201HT*
MMY-MUP1441HT*
MMY-MUP1681HT*

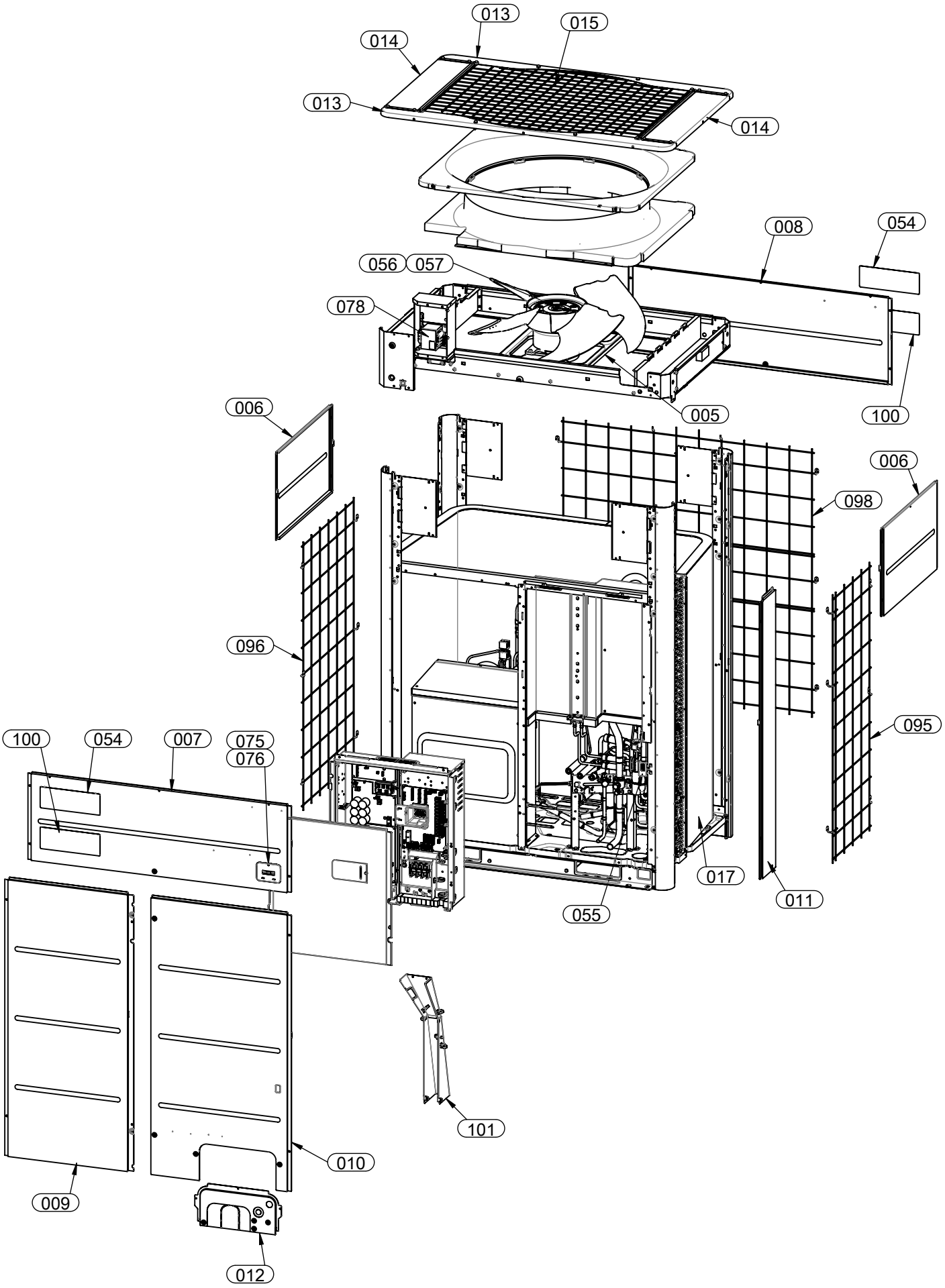
Outdoor unit (High heat 8ton, 10ton)
MMY-MUP096H1HT*
MMY-MUP120H1HT*



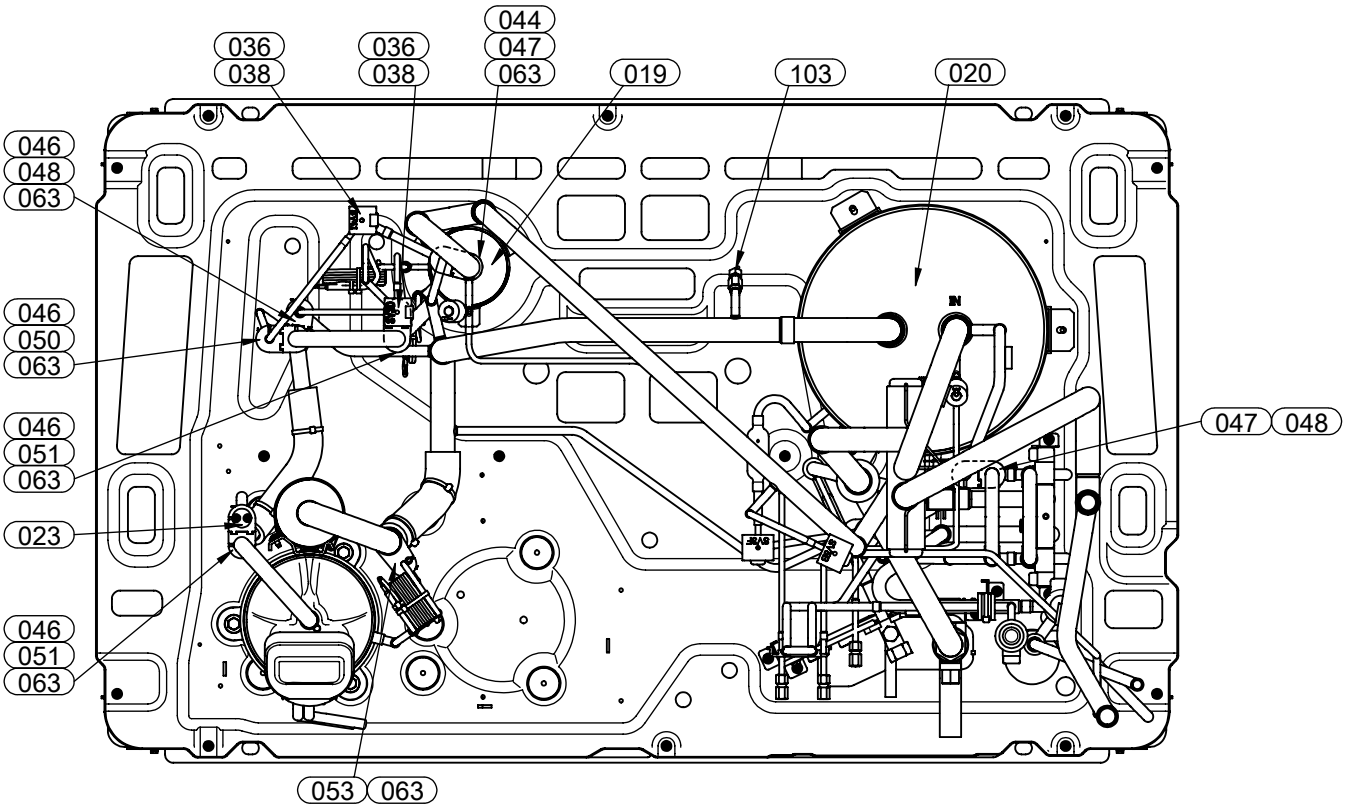

| Symbol | | | | | | |
|---|---|---|---|---|---|---|
| Solenoid valve | Capillary tube | Check valve | Check joint | Strainer | Temperature sensor | Distributor |

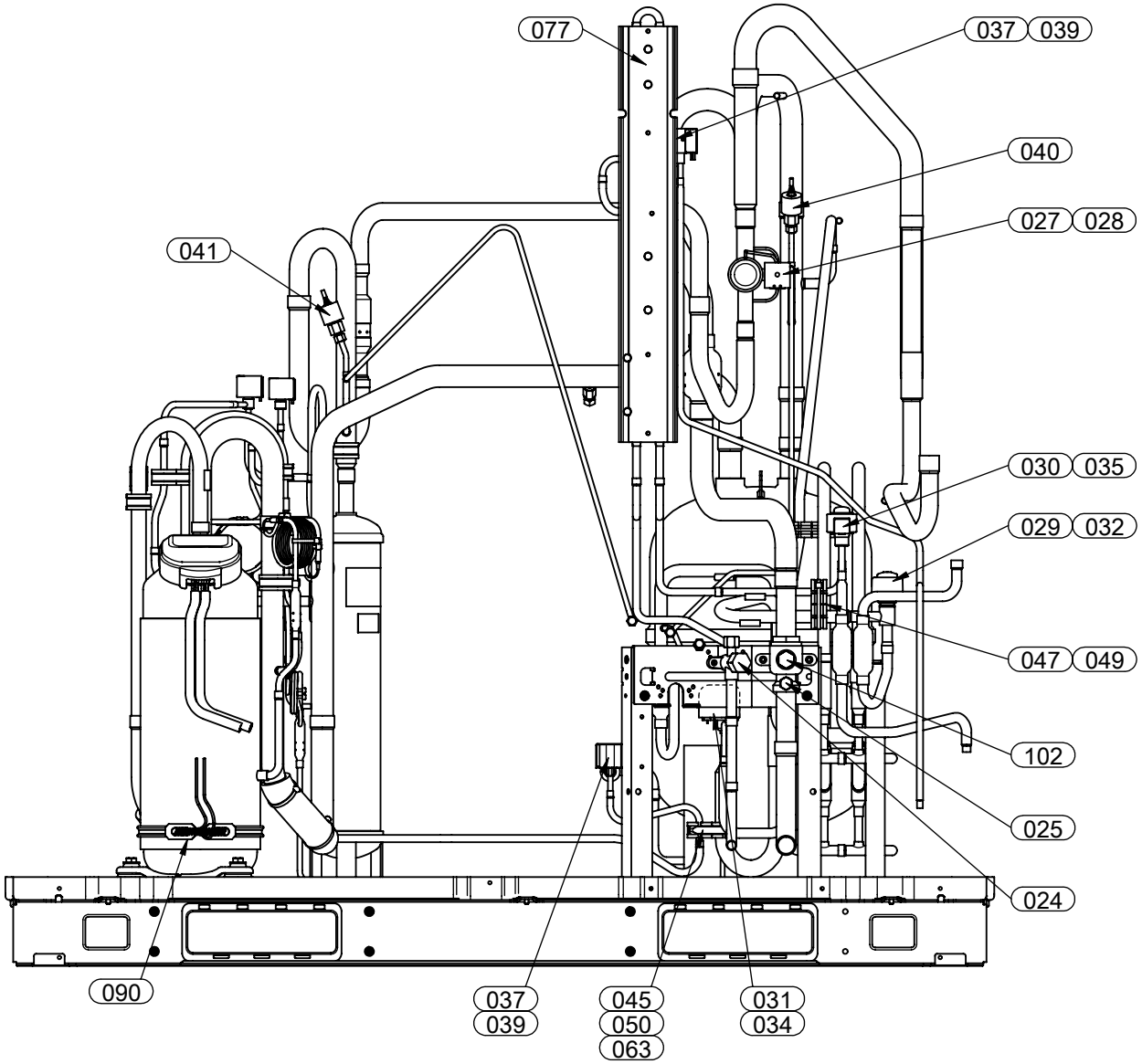
## 14-3. Outdoor unit (High heat 6ton)

MMY-MUP072H1HT9PUL

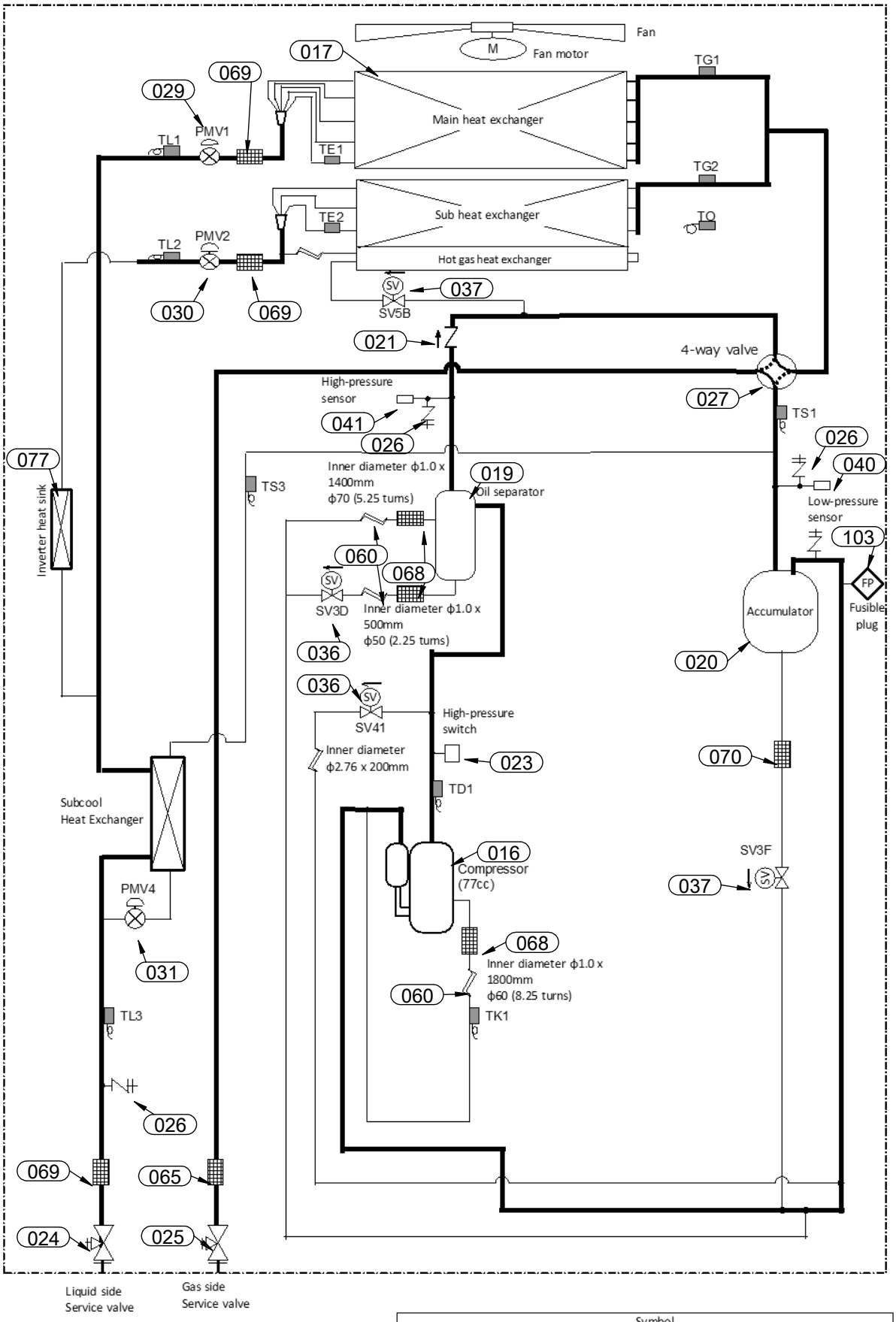


Outdoor unit (High heat 6ton)
MMY-MUP072H1HT9PUL



Outdoor unit (High heat 6ton)
MMY-MUP072H1HT9PUL




| Symbol | | | | | | |
|---|---|---|---|---|---|---|
| Solenoid valve | Capillary tube | Check valve | Check joint | Strainer | Temperature sensor | Distributor |

| Ref.No. | Part No. | Description | Q'ty/Set MMY-MUP****HT9P-UL | | | | |
|---|---|---|---|---|---|---|---|
| | | | 0721 | 0961 | 1201 | 1441 | 1681 |
| 001 | 43T20341 | FAN, PROPELLER, PS741-T | 1 | 1 | | | |
| 001 | 43T20359 | FAN, PROPELLER, PF581-T | | | 2 | 2 | 2 |
| 002 | 43T19374 | BELLMOUTH | 1 | 1 | | | |
| 002 | 43T19375 | BELLMOUTH | | | 2 | 2 | 2 |
| 003 | 43T19376 | BELL MOUTH, COVER | 1 | 1 | | | |
| 003 | 43T19377 | BELL MOUTH, COVER | | | 2 | 2 | 2 |
| 004 | 43T21539 | MOTOR, FAN, ICF-340A1000-1 | 1 | 1 | 2 | 2 | 2 |
| 005 | 43T00817 | BESE, MOTOR | 1 | 1 | 2 | 2 | 2 |
| 006 | 43T00913 | CABINET ASSY, SIDE, UP | 2 | 2 | 2 | 2 | 2 |
| 007 | 43T00812 | CABINET, FRONT, UP | 1 | 1 | | | |
| 007 | 43T00819 | CABINET, FRONT, UP | | | 1 | 1 | 1 |
| 008 | 43T00914 | CABINET ASSY, FRONT, UP | 1 | 1 | | | |
| 008 | 43T00915 | CABINET ASSY, FRONT, UP | | | 1 | 1 | 1 |
| 009 | 43T00814 | CABINET, FRONT, LEFT | 1 | 1 | | | |
| 009 | 43T00815 | CABINET, FRONT, LEFT | | | 1 | 1 | 1 |
| 010 | 43T00818 | CABINET ASSY, FRONT, RIGHT | 1 | 1 | 1 | 1 | 1 |
| 011 | 43T00816 | CABINET, RIGHT | 1 | 1 | | | |
| 012 | 43T00924 | PANEL | 1 | 1 | 1 | 1 | 1 |
| 013 | 43T00808 | CABINET, TOP | 2 | 2 | | | |
| 013 | 43T00809 | CABINET, TOP | | | 2 | 2 | 2 |
| 015 | 43T19391 | GUARD, FAN | 1 | 1 | | | |
| 015 | 43T19392 | GUARD, FAN | | | 2 | 2 | 2 |
| 016 | 43T41590 | COMPRESSOR, NA772A3TB-21M | 1 | 1 | | | |
| 016 | 43T41591 | COMPRESSOR, NA1200K4FB-10UC | | | 1 | 1 | 1 |
| 017 | 43T43690 | CONDENSER ASSY, TWO ROW | 1 | 1 | | | |
| 017 | 43T43692 | CONDENSER ASSY, TWO ROW, LEFT | | | 1 | 1 | |
| 017 | 43T43693 | CONDENSER ASSY, THREE ROW, LEFT | | | | | 1 |
| 018 | 43T43694 | CONDENSER ASSY, TWO ROW, RIGHT | | | 1 | 1 | |
| 018 | 43T43695 | CONDENSER ASSY, THREE ROW, RIGHT | | | | | 1 |
| 019 | 43T48314 | SEPARATOR, OIL | 1 | 1 | | | |
| 019 | 43T48325 | SEPARATOR, OIL | | | 1 | 1 | 1 |
| 020 | 43T48337 | ACCUMLATOR, 28L | | | 1 | 1 | 1 |
| 020 | 43T48339 | ACCUMLATOR, 24L | 1 | 1 | | | |
| 021 | 43T46445 | VALVE, CHECK, UCV-A1506DRQ5 | 1 | 1 | | | |
| 022 | 43T46446 | VALVE, CHECK, UCV-A1507DR | | | 1 | 1 | 1 |
| 023 | 43T63401 | SWITCH, PRESSURE | 1 | 1 | 1 | 1 | 1 |
| 024 | 43T46520 | VALVE, PACKED, 15.88 | | | 1 | 1 | 1 |
| 024 | 43T46522 | VALVE, PACKED, 12.7 | 1 | 1 | | | |
| 025 | 43T46393 | VALVE, BALL, 25.4 | 1 | 1 | 1 | 1 | 1 |
| 026 | 43T46409 | JOINT, CHECK | 3 | 3 | 3 | 3 | 3 |
| 027 | 43T46559 | VALVE, 4WAY | 1 | 1 | 1 | 1 | 1 |
| 028 | 43T46524 | COIL, SOLENOID, SQ-A2520D-000037 | 1 | 1 | 1 | 1 | 1 |
| 029 | 43T46447 | VALVE, PMV, PAM-BA2YGTF-1(φ4.8) | 1 | 1 | 1 | 1 | 1 |
| 030 | 43T46545 | VALVE, PMV, DPF(TS1)2.8C-01(φ2.8) | 1 | 1 | 2 | 2 | 2 |
| 031 | 43T46439 | VALVE, PMV, UKV-18D64(φ1.8) | 1 | 1 | 1 | 1 | 1 |
| 032 | 43T46525 | COIL, PMV, PAM-MD12TF-303 | 1 | 1 | 1 | 1 | 1 |
| 033 | 43T46539 | COIL, ASSY, SERVICE PMV | 1 | 1 | 1 | 1 | 1 |
| 034 | 43T46478 | COIL, PMV, UKV-A376U | 1 | 1 | 1 | 1 | 1 |
| 035 | 43T46539 | COIL, ASSY, SERVICE PMV | | | 1 | 1 | 1 |
| 036 | 43T46408 | VALVE, 2WAY, FDF2A88 | 2 | 2 | 2 | 2 | 2 |
| 037 | 43T46527 | VALVE, 2WAY, TEV-S1920DQ50 | 2 | 2 | 2 | 2 | 2 |
| 038 | 43T46529 | COIL, VALVE, 2WAY, ASSY, FQ-A0520D-001989 | 2 | 2 | 2 | 2 | 2 |
| 039 | 43T46531 | COIL, VALVE, 2WAY, TEV-SMOAQ2247B1 | 2 | 2 | 2 | 2 | 2 |
| 040 | 43T50433 | SENSOR ASSY, LOW PRESSURE | 1 | 1 | 1 | 1 | 1 |
| 041 | 43T50434 | SENSOR ASSY, HIGH PRESSURE | 1 | 1 | 1 | 1 | 1 |
| 044 | 43T49348 | RUBBER, SUPPORTER, PIPE, DIA 25.4 | | | 1 | 1 | 1 |
| 045 | 43T49349 | RUBBER, SUPPORTER, PIPE, DIA 22.2 | | | 5 | 5 | 5 |
| 046 | 43T49350 | RUBBER, SUPPORTER, PIPE, DIA 19.0 | 2 | 2 | | | |
| 047 | 43T49351 | RUBBER, SUPPORTER, PIPE, DIA 15.9 | | | 2 | 2 | 2 |
| 048 | 43T49352 | RUBBER, SUPPORTER, PIPE, DIA 12.7 | 2 | 2 | 4 | 4 | 4 |
| 049 | 43T49353 | RUBBER, SUPPORTER, PIPE, DIA 9.52 | 1 | 1 | 1 | 1 | 1 |
| 050 | 43T49354 | RUBBER, SUPPORTER, PIPE, DIA 8.0 | 1 | 1 | 1 | 1 | 1 |

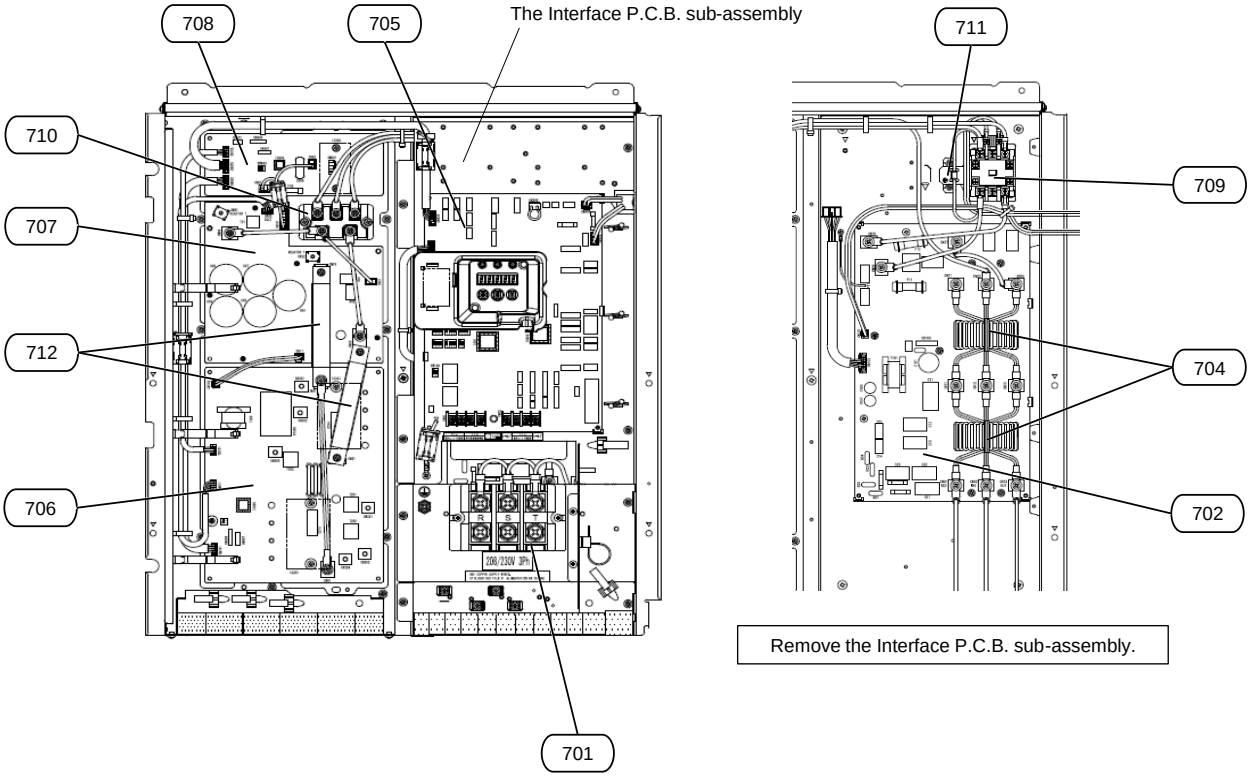
| Ref.No. | Part No. | Description | Q'ty/Set MMY-MUP****HT9P-UL | | | | |
|---|---|---|---|---|---|---|---|
| | | | 0721 | 0961 | 1201 | 1441 | 1681 |
| 051 | 43T49355 | RUBBER, SUPPORTER, PIPE, DIA 6.4 | 2 | 2 | 3 | 3 | 3 |
| 052 | 43T49347 | RUBBER, SUPPORTER, PIPE, DIA 8.0-DIA 8.0 | | | 1 | 1 | 1 |
| 052 | 43T49376 | RUBBER, SUPPORTER, PIPE, DIA 9.5-DIA 28.6 | 1 | 1 | | | |
| 053 | 43T49377 | RUBBER, SUPPORTER, PIPE, DIA 9.5-DIA 28.6 | 1 | 1 | 1 | 1 | 1 |
| 054 | 43T01345 | MARK, TOSHIBA CARRIER | 2 | 2 | 2 | 2 | 2 |
| 055 | 43T19380 | HOLDER, SENSOR, TO | 1 | 1 | 1 | 1 | 1 |
| 056 | 43T39351 | NUT, FLANGE | 1 | 1 | 2 | 2 | 2 |
| 057 | 43T39350 | WASHER | 1 | 1 | 2 | 2 | 2 |
| 059 | 43T49357 | RUBBER, CUSHION | 3 | 3 | | | |
| 059 | 43T49387 | RUBBER, CUSHION | | | 4 | 4 | 4 |
| 060 | 43T47375 | TUBE, CAPILLARY, BYPASS, ID 1.0 | 1 | 1 | 1 | 1 | 1 |
| 061 | 43T19333 | HOLDER, SENSOR | 12 | 12 | 14 | 14 | 14 |
| 062 | 43T47385 | BOLT, COMPRESSOR | 3 | 3 | | | |
| 062 | 43T47415 | BOLT, COMPRESSOR | | | 4 | 4 | 4 |
| 063 | 43T49358 | BAND, FIX | 3 | 3 | 5 | 5 | 5 |
| 064 | 43T85915 | OWNERS MANUAL for HT6P-UL | 1 | 1 | 1 | 1 | 1 |
| 065 | 43T47394 | STRAINER, DIA 45.0 | 1 | 1 | | | |
| 067 | 43T47395 | STRAINER, DIA 50.8 | | | 1 | 1 | 1 |
| 068 | 43T47388 | STRAINER, DIA 12.7 | 3 | 3 | 3 | 3 | 3 |
| 069 | 43T47390 | STRAINER, DIA 25.4 | 3 | 3 | 1 | 1 | 1 |
| 070 | 43T47414 | STRAINER, DIA 25.4 | 1 | 1 | 3 | 3 | 3 |
| 072 | 43T47416 | STRAINER, DIA 28.58 | | | 1 | 1 | 1 |
| 073 | 43T48329 | SCREW, SET (M5,10pcs) | 1 | 1 | 1 | 1 | 1 |
| 074 | 43T48330 | SCREW, SET (M5,100pcs) | 1 | 1 | 1 | 1 | 1 |
| 075 | 43TN9923 | PC BOARD ASSY, NFC | 1 | 1 | 1 | 1 | 1 |
| 076 | 43T63389 | HOLDER, NFC | 1 | 1 | 1 | 1 | 1 |
| 077 | 43T67313 | HEATSINK, ASSY | | | 1 | 1 | 1 |
| 077 | 43T67314 | HEATSINK, ASSY | 1 | 1 | | | |
| 078 | 43T58346 | REACTOR, CH-105 | 1 | 1 | 2 | 2 | 2 |
| 079 | 43T60610 | LEAD ASSY, COMPRESSOR | | | 1 | 1 | 1 |
| 079 | 43T60611 | LEAD ASSY, COMPRESSOR | 1 | 1 | | | |
| 080 | 43T60613 | LEAD ASSY, COMPRESSOR | | | 1 | 1 | 1 |
| 080 | 43T60614 | LEAD ASSY, COMPRESSOR | 1 | 1 | | | |
| 081 | 43T55375 | FILTER, NOISE | 2 | 2 | 3 | 3 | 3 |
| 083 | 43T50403 | SENSOR ASSY, TD1, TK1 | 1 | 1 | 1 | 1 | 1 |
| 085 | 43T50405 | SENSOR ASSY, TE1, TE2, TG1, TG2 | 1 | 1 | 1 | 1 | 1 |
| 086 | 43T50406 | SENSOR ASSY, TE3, TG3 | | | 1 | 1 | 1 |
| 087 | 43T50407 | SENSOR ASSY, TL1, TL2, TL3, TS1, TS3 | 1 | 1 | 1 | 1 | 1 |
| 088 | 43T50424 | SENSOR, TO | 1 | 1 | 1 | 1 | 1 |
| 090 | 43T57314 | HEATER, CASE, ASSY, 29W/240V, 2200L | 1 | 1 | | | |
| 092 | 43T57313 | HEATER, CASE, ASSY, 29W/240V, 2600L | | | 1 | 1 | 1 |
| 094 | 43149548 | LUBRICANT OIL, NISSEKI | 1 | 1 | 1 | 1 | 1 |
| 095 | 43T19393 | FIN GUARD, SIDE | 1 | 1 | | | |
| 096 | 43T19394 | FIN GUARD, SIDE | 1 | 1 | 2 | 2 | 2 |
| 097 | 43T19395 | FIN GUARD, BACK | 1 | 1 | | | |
| 098 | 43T19396 | FIN GUARD, BACK | | | 1 | 1 | 1 |
| 099 | 43T01346 | MARK, SMMS-u | 2 | 2 | 2 | 2 | 2 |
| 101 | 43T00925 | WIRE GUARD | 1 | 1 | 1 | 1 | 1 |
| 102 | 43T46567 | VALVE, BALL, SUPPORT PARTS | 1 | 1 | 1 | 1 | 1 |
| 103 | 43T49338 | PLUG, FUSIBLE | 1 | 1 | 1 | 1 | 1 |

| Ref.No. | Part No. | Description | Q'ty/Set MMY-MUP****HT9P-UL | | |
|---|---|---|---|---|---|
| | | | 072H1 | 096H1 | 120H1 |
| 001 | 43T20341 | FAN, PROPELLER, PS741-T | 1 | | |
| 001 | 43T20359 | FAN, PROPELLER, PF581-T | | 2 | 2 |
| 002 | 43T19374 | BELLMOUTH | 1 | | |
| 002 | 43T19375 | BELLMOUTH | | 2 | 2 |
| 003 | 43T19377 | BELL MOUTH, COVER | | 2 | 2 |
| 004 | 43T21539 | MOTOR, FAN, ICF-340A1000-1 | 1 | 2 | 2 |
| 005 | 43T00817 | BESE, MOTOR | 1 | 2 | 2 |
| 006 | 43T00913 | CABINET ASSY, SIDE, UP | 2 | 2 | 2 |
| 007 | 43T00812 | CABINET, FRONT, UP | 1 | | |
| 007 | 43T00819 | CABINET, FRONT, UP | | 1 | 1 |
| 008 | 43T00914 | CABINET ASSY, FRONT, UP | 1 | | |
| 008 | 43T00915 | CABINET ASSY, FRONT, UP | | 1 | 1 |
| 009 | 43T00814 | CABINET, FRONT, LEFT | 1 | | |
| 009 | 43T00815 | CABINET, FRONT, LEFT | | 1 | 1 |
| 010 | 43T00818 | CABINET ASSY, FRONT, RIGHT | 1 | 1 | 1 |
| 011 | 43T00816 | CABINET, RIGHT | 1 | | |
| 012 | 43T00924 | PANEL | 1 | 1 | 1 |
| 013 | 43T00809 | CABINET, TOP | | 2 | 2 |
| 013 | 43T00867 | CABINET, TOP | 2 | | |
| 014 | 43T00877 | CABINET, TOP, SIDE | 2 | | |
| 015 | 43T19391 | GUARD, FAN | 1 | | |
| 015 | 43T19392 | GUARD, FAN | | 2 | 2 |
| 016 | 43T41591 | COMPRESSOR, NA1200K4FB-10UC | | 1 | 1 |
| 016 | 43T41592 | COMPRESSOR, NA772A3TB-21M | 1 | | |
| 017 | 43T43691 | CONDENSER ASSY, TWO ROW | 1 | | |
| 017 | 43T43692 | CONDENSER ASSY, TWO ROW, LEFT | | 1 | |
| 017 | 43T43693 | CONDENSER ASSY, THREE ROW, LEFT | | | 1 |
| 018 | 43T43694 | CONDENSER ASSY, TWO ROW, RIGHT | | 1 | |
| 018 | 43T43695 | CONDENSER ASSY, THREE ROW, RIGHT | | | 1 |
| 019 | 43T48314 | SEPARATOR, OIL | 1 | | |
| 019 | 43T48325 | SEPARATOR, OIL | | 1 | 1 |
| 020 | 43T48337 | ACCUMLATOR, 28L | | 1 | 1 |
| 020 | 43T48340 | ACCUMLATOR, 24L | 1 | | |
| 022 | 43T46446 | VALVE, CHECK, UCV-A1507DR | 1 | 1 | 1 |
| 023 | 43T63401 | SWITCH, PRESSURE | 1 | 1 | 1 |
| 024 | 43T46520 | VALVE, PACKED, 15.88 | | 1 | 1 |
| 024 | 43T46522 | VALVE, PACKED, 12.7 | 1 | | |
| 025 | 43T46393 | VALVE, BALL, 25.4 | 1 | 1 | 1 |
| 026 | 43T46409 | JOINT, CHECK | 3 | 3 | 3 |
| 027 | 43T46559 | VALVE, 4WAY | 1 | 1 | 1 |
| 028 | 43T46524 | COIL, SOLENOID, SQ-A2520D-000037 | 1 | 1 | 1 |
| 029 | 43T46447 | VALVE, PMV, PAM-BA2YGTF-1(φ4.8) | 1 | 1 | 1 |
| 030 | 43T46545 | VALVE, PMV, DPF(TS1)2.8C-01(φ2.8) | 1 | 2 | 2 |
| 031 | 43T46439 | VALVE, PMV, UKV-18D64(φ1.8) | 1 | 1 | 1 |
| 032 | 43T46525 | COIL, PMV, PAM-MD12TF-303 | 1 | 1 | 1 |
| 033 | 43T46539 | COIL, ASSY, SERVICE PMV | 1 | 1 | 1 |
| 034 | 43T46478 | COIL, PMV, UKV-A376U | 1 | 1 | 1 |
| 035 | 43T46539 | COIL, ASSY, SERVICE PMV | | 1 | 1 |
| 036 | 43T46408 | VALVE, 2WAY, FDF2A88 | 2 | 2 | 2 |
| 037 | 43T46527 | VALVE, 2WAY, TEV-S1920DQ50 | 2 | 2 | 2 |
| 038 | 43T46529 | COIL, VALVE, 2WAY, ASSY, FQ-A0520D-001989 | 2 | 2 | 2 |
| 039 | 43T46531 | COIL, VALVE, 2WAY, TEV-SMOAQ2247B1 | 2 | 2 | 2 |
| 040 | 43T50433 | SENSOR ASSY, LOW PRESSURE | 1 | 1 | 1 |
| 041 | 43T50434 | SENSOR ASSY, HIGH PRESSURE | 1 | 1 | 1 |
| 044 | 43T49348 | RUBBER, SUPPORTER, PIPE, DIA 25.4 | 1 | 1 | 1 |

| Ref.No. | Part No. | Description | Q'ty/Set MMY-MUP****HT9P-UL | | |
|---|---|---|---|---|---|
| | | | 072H1 | 096H1 | 120H1 |
| 045 | 43T49349 | RUBBER, SUPPORTER, PIPE, DIA 22.2 | 1 | 5 | 5 |
| 046 | 43T49350 | RUBBER, SUPPORTER, PIPE, DIA 19.0 | 4 | | |
| 047 | 43T49351 | RUBBER, SUPPORTER, PIPE, DIA 15.9 | 2 | 2 | 2 |
| 048 | 43T49352 | RUBBER, SUPPORTER, PIPE, DIA 12.7 | 2 | 4 | 4 |
| 049 | 43T49353 | RUBBER, SUPPORTER, PIPE, DIA 9.52 | 2 | 1 | 1 |
| 050 | 43T49354 | RUBBER, SUPPORTER, PIPE, DIA 8.0 | 2 | 1 | 1 |
| 051 | 43T49355 | RUBBER, SUPPORTER, PIPE, DIA 6.4 | 2 | 3 | 3 |
| 052 | 43T49347 | RUBBER, SUPPORTER, PIPE, DIA 8.0-DIA 8.0 | | 1 | 1 |
| 053 | 43T49377 | RUBBER, SUPPORTER, PIPE, DIA 9.5-DIA 28.6 | 1 | 1 | 1 |
| 054 | 43T01345 | MARK, TOSHIBA CARRIER | 2 | 2 | 2 |
| 055 | 43T19380 | HOLDER, SENSOR, TO | 1 | 1 | 1 |
| 056 | 43T39351 | NUT, FLANGE | 1 | 2 | 2 |
| 057 | 43T39350 | WASHER | 1 | 2 | 2 |
| 059 | 43T49357 | RUBBER, CUSHION | 3 | | |
| 059 | 43T49387 | RUBBER, CUSHION | | 4 | 4 |
| 060 | 43T47375 | TUBE, CAPILLARY, BYPASS, ID 1.0 | 1 | 1 | 1 |
| 061 | 43T19333 | HOLDER, SENSOR | 11 | 14 | 14 |
| 062 | 43T47385 | BOLT, COMPRESSOR | 3 | | |
| 062 | 43T47415 | BOLT, COMPRESSOR | | 4 | 4 |
| 063 | 43T49358 | BAND, FIX | 7 | 5 | 5 |
| 064 | 43T85915 | OWNERS MANUAL for HT6P-UL | 1 | 1 | 1 |
| 067 | 43T47395 | STRAINER, DIA 50.8 | 1 | 1 | 1 |
| 068 | 43T47388 | STRAINER, DIA 12.7 | 3 | 3 | 3 |
| 069 | 43T47390 | STRAINER, DIA 25.4 | 3 | 1 | 1 |
| 070 | 43T47414 | STRAINER, DIA 25.4 | 1 | 3 | 3 |
| 072 | 43T47416 | STRAINER, DIA 28.58 | | 1 | 1 |
| 073 | 43T48329 | SCREW, SET (M5,10pcs) | 1 | 1 | 1 |
| 074 | 43T48330 | SCREW, SET (M5,100pcs) | 1 | 1 | 1 |
| 075 | 43TN9923 | PC BOARD ASSY, NFC | 1 | 1 | 1 |
| 076 | 43T63389 | HOLDER, NFC | 1 | 1 | 1 |
| 077 | 43T67314 | HEATSINK, ASSY | 1 | | |
| 077 | 43T67313 | HEATSINK, ASSY | | 1 | 1 |
| 078 | 43T58346 | REACTOR, CH-105 | 1 | 2 | 2 |
| 079 | 43T60610 | LEAD ASSY, COMPRESSOR | | 1 | 1 |
| 079 | 43T60612 | LEAD ASSY, COMPRESSOR | 1 | | |
| 080 | 43T60613 | LEAD ASSY, COMPRESSOR | | 1 | 1 |
| 080 | 43T60615 | LEAD ASSY, COMPRESSOR | 1 | | |
| 081 | 43T55375 | FILTER, NOISE | 2 | 3 | 3 |
| 083 | 43T50403 | SENSOR ASSY, TD1, TK1 | 1 | 1 | 1 |
| 085 | 43T50405 | SENSOR ASSY, TE1, TE2, TG1, TG2 | 1 | 1 | 1 |
| 086 | 43T50406 | SENSOR ASSY, TE3, TG3 | | 1 | 1 |
| 087 | 43T50407 | SENSOR ASSY, TL1, TL2, TL3, TS1, TS3 | 1 | 1 | 1 |
| 088 | 43T50424 | SENSOR, TO | 1 | 1 | 1 |
| 090 | 43T57314 | HEATER, CASE, ASSY, 29W/240V, 2200L | 1 | | |
| 092 | 43T57313 | HEATER, CASE, ASSY, 29W/240V, 2600L | | 1 | 1 |
| 094 | 43149548 | LUBRICANT OIL, NISSEKI | 1 | 1 | 1 |
| 095 | 43T19393 | FIN GUARD, SIDE | 1 | | |
| 096 | 43T19394 | FIN GUARD, SIDE | 1 | 2 | 2 |
| 098 | 43T19396 | FIN GUARD, BACK | 1 | 1 | 1 |
| 100 | 43T01347 | MARK, ELITE-HEAT | 2 | 2 | 2 |
| 101 | 43T00925 | WIRE GUARD | 1 | 1 | 1 |
| 102 | 43T46567 | VALVE, BALL, SUPPORT PARTS | 1 | 1 | 1 |
| 103 | 43T49338 | PLUG, FUSIBLE | 1 | 1 | 1 |

**Inverter Assembly**

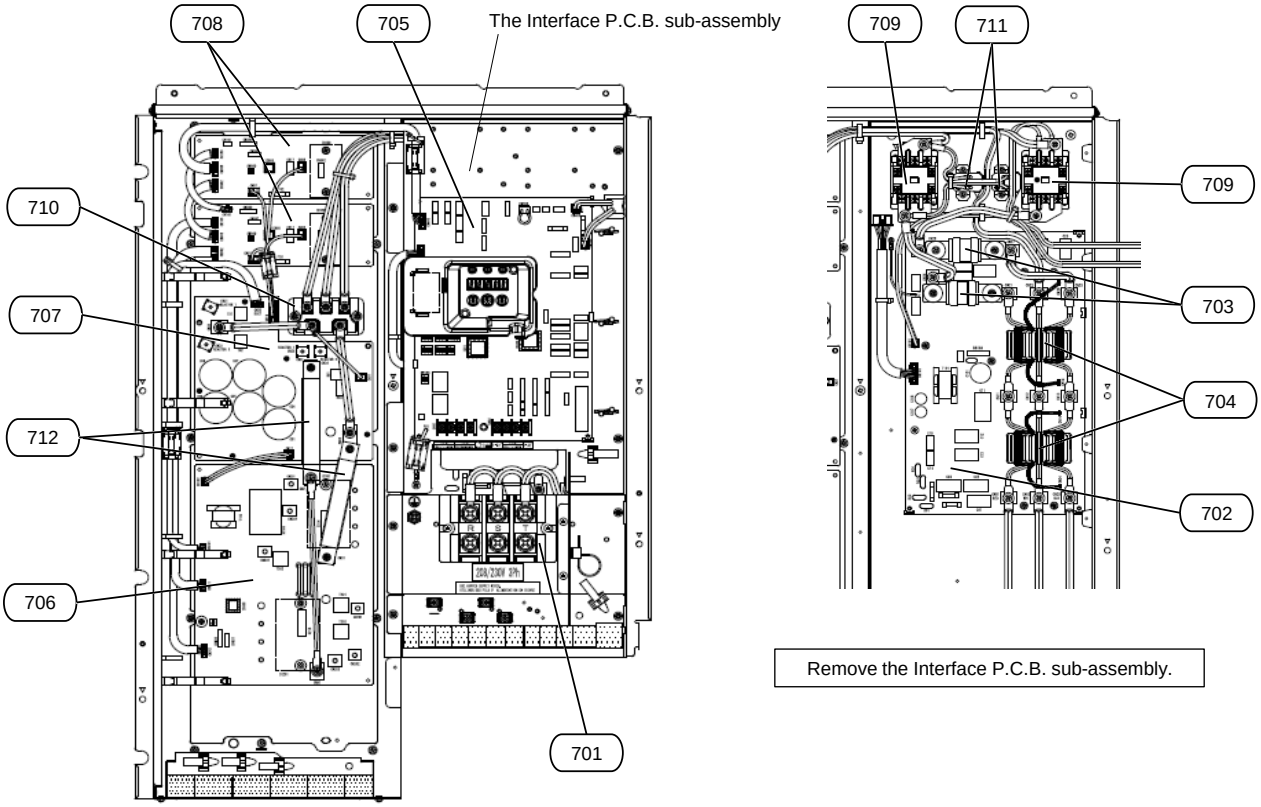
Model： MMY-MUP0721HT9*, 0961HT9*, 072H1HT9*




| Ref. No. | Part No. | Description | Q'ty/Set | Drawing No. |
|---|---|---|---|---|
| 701 | 43T60440 | TERMINAL, 3P, 100A | 1 | 1001606403 |
| 702 | 43TN9876 | PC BOARD ASSY,NOISE FILTER,MCC-1749 | 1 | 1142190401 |
| 704 | 43T55396 | FILTER, LINE | 2 | 1004135501 |
| 705 | 43TN9879 | PC BOARD ASSY,INTERFACE,MCC-1747 | 1 | 1142090504 |
| 706 | 43TN9883 | PC BOARD ASSY,COMP-IPDU,MCC-1746 | 1 | 1142190601 |
| 707 | 43TN9885 | PC BOARD ASSY,COMP-IPDU,MCC-1711 | 1 | 1142190901 |
| 708 | 43TN9882 | PC BOARD ASSY,FAN-IPDU,MCC-1734 | 1 | 1142090702 |
| 709 | 43T52322 | CONTACTOR,MAGNETIC,FC-2SUL | 1 | 1000401508 |
| 710 | 43T31301 | DIODE, 60A | 1 | 1004822104 |
| 711 | 43T50345 | THERMISTOR,PTC | 2 | 1000601801 |
| 712 | 43T60609 | BAR, METAL | 2 | 1142190001 |

## Inverter Assembly

Model： MMY-MUP1201HT9*, 1441HT9*, 1681HT9*, 096H1HT9*, 120H1HT9*




| Ref. No. | Part No. | Description | Q'ty/Set | Drawing No. |
|---|---|---|---|---|
| 701 | 43T60440 | TERMINAL, 3P, 100A | 1 | 1001606403 |
| 702 | 43TN9877 | PC BOARD ASSY,NOISE FILTER,MCC-1749 | 1 | 1142190402 |
| 703 | 43T60608 | FUSE, 150A | 2 | 1004135301 |
| 704 | 43T55397 | FILTER, LINE | 2 | 1004141201 |
| 705 | 43TN9879 | PC BOARD ASSY,INTERFACE,MCC-1747 | 1 | 1142090504 |
| 706 | 43TN9884 | PC BOARD ASSY,COMP-IPDU,MCC-1746 | 1 | 1142190602 |
| 707 | 43TN9886 | PC BOARD ASSY,COMP-IPDU,MCC-1711 | 1 | 1142190902 |
| 708 | 43TN9882 | PC BOARD ASSY,FAN-IPDU,MCC-1734 | 2 | 1142090702 |
| 709 | 43T52321 | CONTACTOR,MAGNETIC,FC-1SUL | 2 | 1000401404 |
| 710 | 43T31302 | DIODE, 100A | 1 | 1004822102 |
| 711 | 43T50345 | THERMISTOR,PTC | 2 | 1000601801 |
| 712 | 43T60609 | BAR, METAL | 2 | 1142190001 |

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