FILE NO. SVM-23019-5

TOSHIBA

Carrier

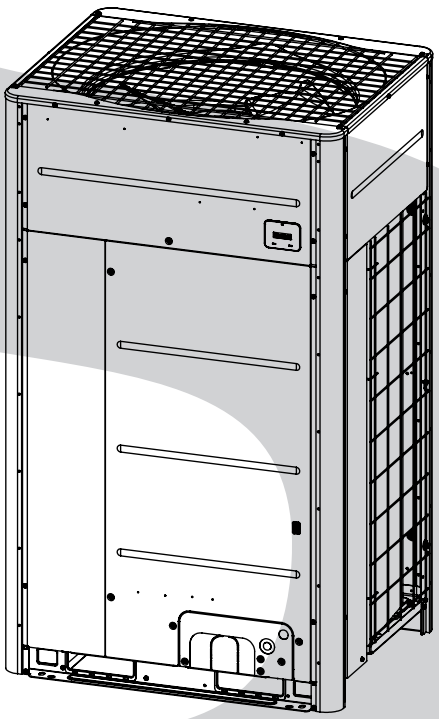
AIR CONDITIONER (MULTI TYPE)

SERVICE MANUAL

< Super Modular Multi System-u SMMS-u >

Outdoor

MMY-MUP0721HT6P-UL
MMY-MUP0961HT6P-UL
MMY-MUP1201HT6P-UL
MMY-MUP1441HT6P-UL
MMY-MUP1681HT6P-UL
MMY-MUP1921HT6P-UL
MMY-MUP072H1HT6PUL
MMY-MUP096H1HT6PUL
MMY-MUP120H1HT6PUL



Revised on Jan, 2024

CONTENTS

SAFETY CAUTION 6
REFRIGERANT (R410A) 20
1. WIRING DIAGRAMS 23
2. PARTS RATING 26
2-1. Outdoor Unit (MMY-MUP***1HT6P-UL) 26
2-1-1. Winding resistance of outdoor unit main parts 27
2-2. Inverter Assembly 28
2-3. Parts Layout in Outdoor Unit 29
2-4. Parts Layout in Inverter Assembly 31
2-5. Outdoor (Inverter) Print Circuit Board 34
2-5-1. Interface P.C. board (MCC-1747) 34
2-5-2. Noise Filter P.C. board (MCC-1749) 35
2-5-3. Inverter P.C. board for compressor (MCC-1729) 36
2-5-4. Inverter P.C. board for fan (MCC-1734) 37
2-5-5. USB isolate P.C. board (MCC-1754) 38
3. REFRIGERANT PIPING SCHEMATIC DRAWING 39
4. COMBINED REFRIGERANT PIPING SYSTEM SCHEMATIC DIAGRAMS 44
4-1. Refrigerant Flow (Cooling) 44
4-2. Refrigerant Flow (Single Defrost) 45
4-3. Refrigerant Flow (Heating) 46
4-4. Refrigerant Flow (Individual Defrost) 47
4-5-1. (1) Refrigerant Flow (Automatic emergency cooling) 48
4-5-1. (2) Refrigerant Flow (Automatic emergency cooling) 48
4-5-2. (1) Refrigerant Flow (Automatic emergency heating) 50
4-5-2. (2) Refrigerant Flow (Automatic emergency heating) 51
4-6. Refrigerant Flow (Reclaim) 52
5. CONTROL OUTLINE 53
5-1. Outdoor Unit 53
5-2. Indoor Unit 62
6. APPLIED CONTROL AND FUNCTIONS 73
6-1. Method to Set Outdoor Unit Function Code No. (O.DN) 73
6-2. Applied Control of Outdoor Unit 78
6-2-1. Outdoor Fan High Static Pressure Shift 78
6-2-2. Priority Operation Mode Setting 79
6-2-3. Applied Control of Outdoor Unit 81
6-3. Notice Code 93
6-4. System Cooperation Defrosting 95
6-5. Night operation (Sound reduction control) 98
7. TEST OPERATION 100
7-1. Procedure and Summary of Test Operation 100
7-2. Check Items before Test Operation (before powering-on) 101
7-3. Check at Main Power-on 108
7-4. Address Setup 110
7-4-1. Precautions 110
7-4-2. Address Setup and Check Procedure 110
7-4-3. Address Setup Procedure 111
7-4-4. Check after Address Setup when Central Control System Is Connected 136

7-5. Troubleshooting in Test Operation 137
7-5-1. A Check Code is Displayed on the Remote Controller 137
7-5-2. No Remote Controller Response with Check Code 138
7-5-3. No Remote Controller Response without Check Code 138
7-5-4. Connected Indoor/Outdoor Unit Quantity Check 139
7-6. Test Operation (test run) Check 141
7-6-1. Fan Check 141
7-6-2. Cooling/Heating Test Operation Check 142
7-7. Service Support Function 147
7-7-1. Check Function for Connecting of Refrigerant and Control Lines 147
7-7-2. Function to Start/Stop (ON/OFF) Indoor Unit from Outdoor Unit 149
7-7-3. Check Code Clearing Function 156
7-7-4. Remote Controller Distinction Function 159
7-7-5. Pulse Motor Valve (PMV) Forced Open/Close Function in Indoor Unit 160
7-7-6. Pulse Motor Valve (PMV) Forced Open/Close Function and Solenoid valve Forced ON Function in Outdoor Unit 161
7-7-7. Fan Operation Check in Outdoor Unit 163
7-7-8. Abnormal Outdoor Unit Discrimination Method By Fan Operating Function 164
7-7-9. Manual Adjustment Function of Outside Temperature (TO) Sensor 165
7-7-10. Refrigerant leakage detection 165
7-7-11. Monitor Function of Remote Controller Switch 167
7-8. Wave Tool Advance for SMMS-u Series 169
7-8-1. Before the Use of Wave Tool Advance 169
7-8-2. About Wave Tool Advance 169
7-8-3. Valid/Prohibition/Permission setting for Test operation from WTA App. 169
7-8-4. Confirmation for NFC tag Communication 170

8. TROUBLESHOOTING 171
8-1. Overview 171
8-2. Troubleshooting method 172
8-3. Troubleshooting based on information displayed on remote controller 178
8-4. Check Codes list 182
8-5. Diagnosis procedure for each check code 196
8-6. 7-Segment Display Function 229
8-7. Oil Level Judgment Display 236
8-8. SMMS-u Outdoor Interface P.C. Board Function Setting Change Table 237
8-9. Leakage/Clogging of Refrigerating Cycle Circuit 239
8-10. Sensor Characteristics 245
8-11. Pressure Sensor Output Check 248

9. BACKUP OPERATION (EMERGENCY OPERATION) 250
9-1. Note for Backup Operation 250
9-2. Compressor Backup Operation Setting 251
9-3. Outdoor Unit Backup Operation Setting 253
9-3-1. Follower outdoor unit backup operation setting (failure of follower outdoor unit) 253
9-3-2. Header outdoor unit backup operation setting (failure of header outdoor unit) 256
9-4. Cooling-Season Outdoor Unit Backup Operation Setting 258
9-5. Outdoor Unit Automatic Backup Operation Outline 259

10. OUTDOOR UNIT REFRIGERANT RECOVERY METHOD 260
10-1. Refrigerant Recovery from Troubled Outdoor Unit (Reclaim) 260
10-1-1. Note for refrigerant recovery operation 260
10-1-2. Refrigerant recovery procedure A (Case that the troubled outdoor unit turn on) 260
10-1-3. Refrigerant recovery procedure B (Case that the troubled outdoor unit does not turn on) 262
10-2. How to Operate System While Troubled Outdoor Unit Being Repaired 263
10-3. Work procedure after Repair 264

11. REPLACING COMPRESSORS 265
11-1. Compressor Replacement Procedure (Outline) 265
11-2. Replacement of Compressors 266
11-3. Check Procedure to Search Cause of Compressor Oil Shortage 270
12. OUTDOOR UNIT PARTS REPLACEMENT METHODS 274
13. P.C. BOARD REPLACEMENT PROCEDURES 291
13-1. Replacement of outdoor P.C. board & Inverter Parts 291
13-1-1. List of service parts (Inverter) 291
13-1-2. Configuration of inverter assembly 292
13-1-3. Interface P.C. Board (MCC-1747) Replacement Procedure 295
13-1-4. Compressor P.C. Board (MCC-1729) Replacement Procedure 299
13-1-5. Fan-Motor P.C. Board (MCC-1734) Replacement Procedure 301
13-1-6. Noise Filter P.C. Board (MCC-1749) Replacement Procedure 302
14. EXPLODED DIAGRAM/PARTS LIST 303
14-1. Outdoor unit (6 ton, 8 ton) 303
14-2. Outdoor unit (10 ton ton 14 ton) 306
14-3. Outdoor unit (16 ton) 309

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> MMU-UP***1HP-UL (Made in Thailand model)	SVM-22074
<Compact 4-Way Cassette Type> MMU-UP***1MH-UL (Made in Japan model)	A10-2209
<1-Way Cassette Type> MMU-UP***1YHP-UL (Made in Thailand model)	SVM-22075 SVM-22076
<Concealed Duct Standard Type> MMD-UP***1BHP-UL (Made in Thailand model)	SVM-22078
<Concealed Duct High Static Pressure Type> MMD-UP***1HP-UL (Made in Thailand model)	SVM-22079 SVM-23027
<Slim Duct Type> MMD-UP***1SPH-UL (Made in Japan model)	A10-2209
<Under Ceiling Type> MMC-UP***1HP-UL (Made in Thailand model)	SVM-22077
<Floor Console Exposed type> MML-UP***1H-UL (Made in Japan model)	A10-2209
<Floor Console Recessed type> MML-UP***1BH-UL (Made in Japan model)	A10-2209
<Outside Air Unit Type> MMD-AP***1HF2UL (Made in Japan model)	A10-1603-3
<High Wall Type> MMK-UP***1HP-UL (Made in Thailand model)	SVM-22081 SVM-22082 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. • The qualified installer who is allowed to do the electrical work involved in installation, relocation and removal has the qualifications pertaining to this electrical work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to electrical work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified installer who is allowed to do the refrigerant handling and piping work involved in installation, relocation and removal has the qualifications pertaining to this refrigerant handling and piping work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to refrigerant handling and piping work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified installer who is allowed to work at heights has been trained in matters relating to working at heights with the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work.
Qualified service person (*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. • The qualified service person who is allowed to do the electrical work involved in installation, repair, relocation and removal has the qualifications pertaining to this electrical work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to electrical work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified service person who is allowed to do the refrigerant handling and piping work involved in installation, repair, relocation and removal has the qualifications pertaining to this refrigerant handling and piping work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to refrigerant handling and piping work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified service person who is allowed to work at heights has been trained in matters relating to working at heights with the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work.

Definition of Protective Gear

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

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

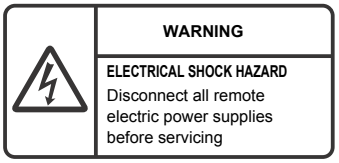
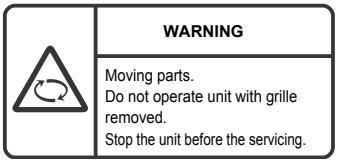
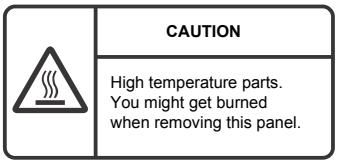
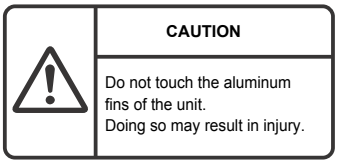
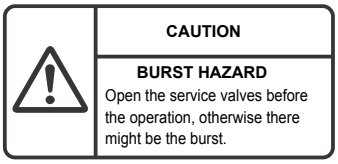
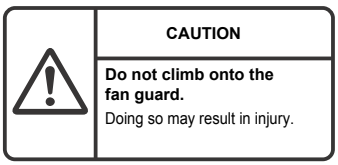
Indication	Explanation
⚠ **DANGER**	Indicates contents assumed that an imminent danger causing a death or serious injury of the repair engineers and the third parties when an incorrect work has been executed.
⚠ **WARNING**	Indicates possibilities assumed that a danger causing a death or serious injury 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) The sentences near an illustrated mark describe the concrete prohibited contents.
	Indicates mandatory items (Compulsory items to do) The sentences near an illustrated mark describe the concrete mandatory contents.
	Indicates cautions (Including danger / warning) The sentences or illustration near or in an illustrated mark describe the concrete cautious contents.

■ Warning indications on the air conditioner unit

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

PRECAUTIONS FOR SAFETY

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

⚠ DANGER

Turn off breaker	Before carrying out the installation, maintenance, repair or removal work, be sure to set the circuit breaker for both the indoor and outdoor units to the OFF position. Otherwise, electric shocks may result.
	Before opening the intake grille of the indoor unit or service panel of the outdoor unit, set the circuit breaker to the OFF position. Failure to set the circuit breaker to the OFF position may result in electric shocks through contact with the interior parts. Only a qualified installer (*1) or qualified service person (*1) is allowed to remove the intake grille of the indoor unit or service panel of the outdoor unit and do the work required.
	Before opening the electric box cover set the circuit breaker to the OFF position. Failure to set the circuit breaker to the OFF position may result in injury through contact with the rotation parts. Only a qualified installer (*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. There is a danger of electric shocks if the circuit breaker is set to ON by mistake.
	When checking the electric parts, removing the cover of the electric parts box of Indoor Unit and/or front panel of outdoor unit inevitably to determine the failure, put a sign “Do not enter” around the site before the work. Failure to do this may result in third person getting electric shock.
	Before operating the air conditioner after having completed the work, check that the electrical parts box cover of the indoor unit and service panel of the outdoor unit are closed, and set the circuit breaker to the ON position. You may receive an electric shock if the power is turned on without first conducting these checks.
Stay on protection	If, in the course of carrying out repairs, it becomes absolutely necessary to check out the electrical parts with the electrical parts box cover of one or more of the indoor units and the service panel of the outdoor unit removed in order to find out exactly where the trouble lies, wear insulated heat-resistant gloves, insulated boots and insulated work overalls, and take care to avoid touching any live parts. You may receive an electric shock if you fail to heed this warning. Only qualified service person (*1) is allowed to do this kind of work.

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

⚠ WARNIG

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

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

Prohibition of modification.	Do not modify the products. Do not also disassemble or modify the parts. It may cause a fire, electric shock or injury.
Use specified parts.	When any of the electrical parts are to be replaced, ensure that the replacement parts satisfy the specifications given in the Service Manual (or use the parts contained on the parts list in the Service Manual). Use of any parts which do not satisfy the required specifications may give rise to electric shocks, smoking and / or a fire.
Do not bring a child close to the equipment.	If, in the course of carrying out repairs, it becomes absolutely necessary to check out the electrical parts with the electrical parts box cover of one or more of the indoor units and the service panel of the outdoor unit removed in order to find out exactly where the trouble lies, put a sign in place so that no-one will approach the work location before proceeding with the work. Third-party individuals may enter the work site and receive electric shocks if this warning is not heeded.
Insulating measures	Connect the cut-off lead wires with crimp contact, etc., put the closed end side upward and then apply a water cut method, otherwise a leak or production of fire is caused at the users' side.
No fire	When performing repairs using a gas burner, replace the refrigerant with nitrogen gas because the oil that coats the pipes may otherwise burn. When repairing the refrigerating cycle, take the following measures. 1) Be attentive to fire around the cycle. When using a gas stove, etc., be sure to put out fire before work; otherwise the oil mixed with refrigerant gas may catch fire. 2) Do not use a brazing in the closed room. When using it without ventilation, carbon monoxide poisoning may be caused. 3) Do not bring inflammables close to the refrigerant cycle, otherwise fire of the 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. For the products which use R410A refrigerant, the refrigerant name is indicated at a position on the outdoor unit where is easy to see. To prevent miss charging, the route of the service port is changed from one of the former R22.
	Do not use any refrigerant different from the one specified for complement or replacement. Otherwise, abnormally high pressure may be generated in the refrigeration cycle, which may result in a failure or explosion of the product or an injury to your body.
	For an air conditioner which uses R410A, never use other refrigerant than R410A. For an air conditioner which uses other refrigerant (R22, etc.), never use R410A. If different types of refrigerant are mixed, abnormal high pressure generates in the refrigerating cycle and an injury due to breakage may be caused.
	When the air conditioner has been installed or relocated, follow the instructions in the Installation Manual and purge the air completely so that no gases other than the refrigerant will be mixed in the refrigerating cycle. Failure to purge the air completely may cause the air conditioner to malfunction.
	Do not charge refrigerant additionally. If charging refrigerant additionally when refrigerant gas leaks, the refrigerant composition in the refrigerating cycle changes resulted in change of air conditioner characteristics or refrigerant over the specified standard amount is charged and an abnormal high pressure is applied to the inside of the refrigerating cycle resulted in cause of breakage or injury. Therefore if the refrigerant gas leaks, recover the refrigerant in the air conditioner, execute vacuuming, and then newly recharge the specified amount of liquid refrigerant. In this time, never charge the refrigerant over the specified amount.
	When recharging the refrigerant in the refrigerating cycle, do not mix the refrigerant or air other than R410A into the specified refrigerant. If air or others is mixed with the refrigerant, abnormal high pressure generates in the refrigerating cycle resulted in cause of injury due to breakage.
	After installation work, check the refrigerant gas does not leak. If the refrigerant gas leaks in the room, poisonous gas generates when gas touches to fire such as fan heater, stove or cooking stove though the refrigerant gas itself is innocuous.
	Never recover the refrigerant into the outdoor unit. When the equipment is moved or repaired, be sure to recover the refrigerant with recovering device. The refrigerant cannot be recovered in the outdoor unit; otherwise a serious accident such as breakage or injury is caused.

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

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

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

Explanations given to user

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

Relocation

- Only a qualified installer (*1) or qualified service person (*1) is allowed to relocate the air conditioner.
  It is dangerous for the air conditioner to be relocated by an unqualified individual since a fire, electric shocks, injury, water leakage, noise and / or vibration may result.
- When carrying out the 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.

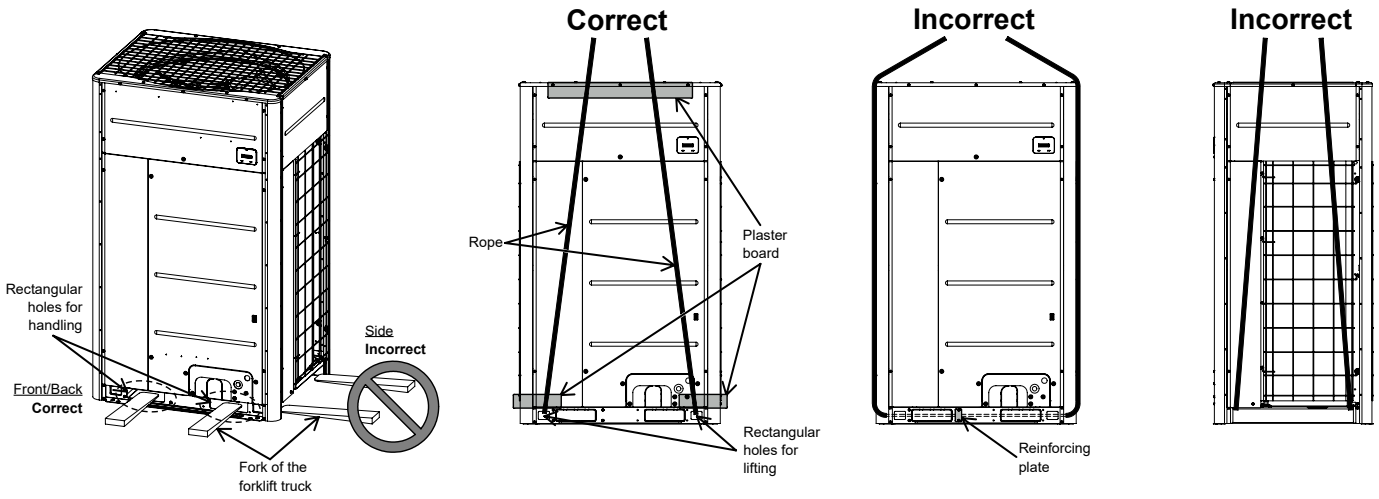
(*1) Refer to the “Definition of Qualified Installer or Qualified Service Person”

Carrying in the outdoor unit

⚠ CAUTION

Handle the outdoor unit carefully, observing the following items

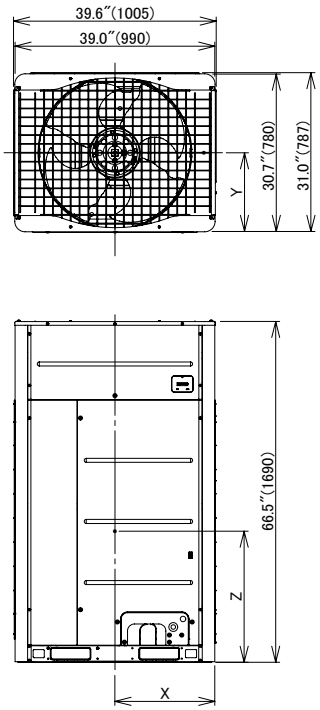
- When using a forklift truck or other machinery for loading/unloading in transportation, insert the fork of the forklift truck into the rectangular holes for handling as shown below.
- When lifting up the unit, insert a rope able to bear the unit's weight into the rectangular holes for handling, and 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.)



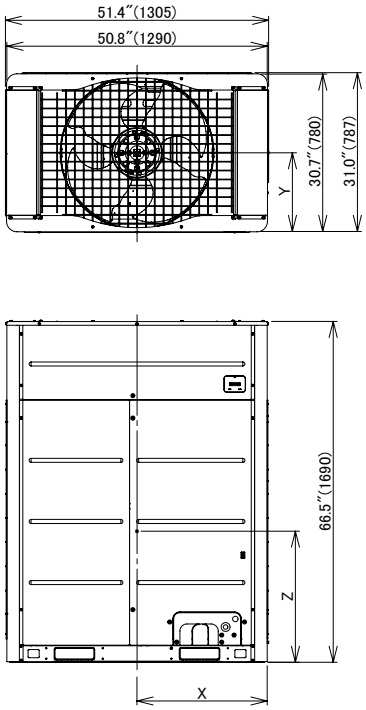
Weight center and weight

◆ Weight center of an outdoor unit

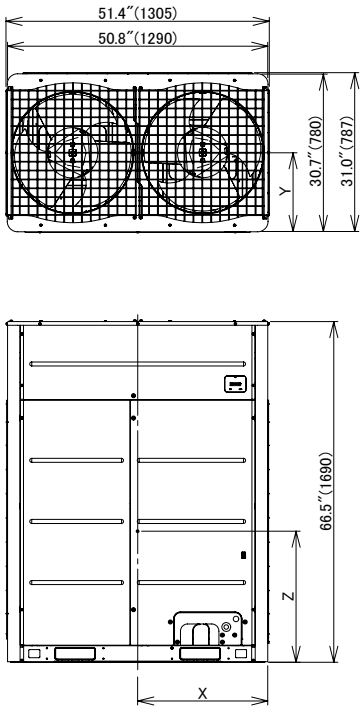
A



B



C



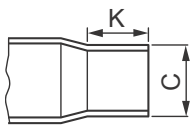
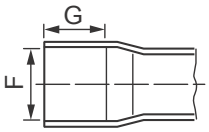
460V
Standard

No.	Model type	X (in (mm))	Y (in (mm))	Z (in (mm))	Weight (Lbs (Kg))
A	MMY-MUP0721HT6P-UL	20.6 (523)	13.0 (330)	28.0 (710)	520.3 (236)
	MMY-MUP0961HT6P-UL				
C	MMY-MUP1201HT6P-UL	26.7 (677)	13.2 (335)	31.1 (790)	701.1 (318)
	MMY-MUP1641HT6PUL				
	MMY-MUP1921HT6P-UL	25.0 (660)	13.4 (340)	33.6 (835)	809.1 (367)

High heat

No.	Model type	X (in (mm))	Y (in (mm))	Z (in (mm))	Weight (Lbs (Kg))
B	MMY-MUP072H1HT6PUL	25.4 (645)	13.8 (350)	27.5 (700)	610.7 (277)
C	MMY-MUP096H1HT6PUL	26.7 (677)	13.2 (335)	31.1 (790)	701.1 (318)
	MMY-MUP120H1HT6PUL	26.7 (677)	13.2 (335)	31.1 (790)	754.0 (342)

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***1HT6P-UL		072	096	120	144	168	192
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***H1HT6P-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	192	-	-	7.70	3.50
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 refrigerant	lbs	0.44			0.88						1.32				2.20	
	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 refrigerant	lbs	0.44		0.88						1.32			
	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 refrigerant	lbs	0.88					1.32						
	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 refrigerant	lbs	0.42	0.6	0.72	0.82	0.92	1.19	1.51	1.71	1.9	2.5	3.08
	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 refrigerant	lbs	3.96	5.46	6.25	7.04	7.83	8.82	9.81	11.78	12.57	14.15	15.73
	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 Enter the refrigerate name for identification
Brazing machine/ 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∗∗∗ ↑ This letter indicates U series model.	Other than U series MMY-MAP∗∗∗ MCY-MHP∗∗∗
Indoor unit	MM∗-**U**P∗∗∗ ↑ This letter indicates U series model.	Other than U series MM∗-AP∗∗∗
Wired remote controller	RBC-A∗∗**U**∗∗∗ ↑ This letter indicates U series model.	Other than U series
Wireless remote controller kit & receiver unit	RBC-AX**U**∗∗∗ ↑ This letter indicates U series model.	Other than U series
Remote sensor	TCB-TC∗∗**U**∗∗∗ ↑ This letter indicates U series model.	Other than U series

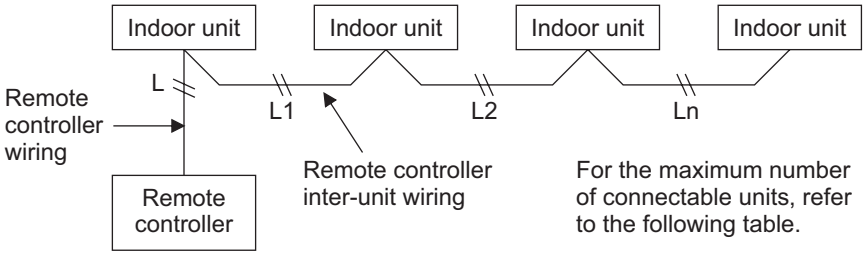
U series outdoor unit : SMMS-u (MMY-MUP∗∗∗)
Other than U series outdoor unit : SMMS-i, SMMS-e etc. (MMY-MAP∗∗∗)

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

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

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

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



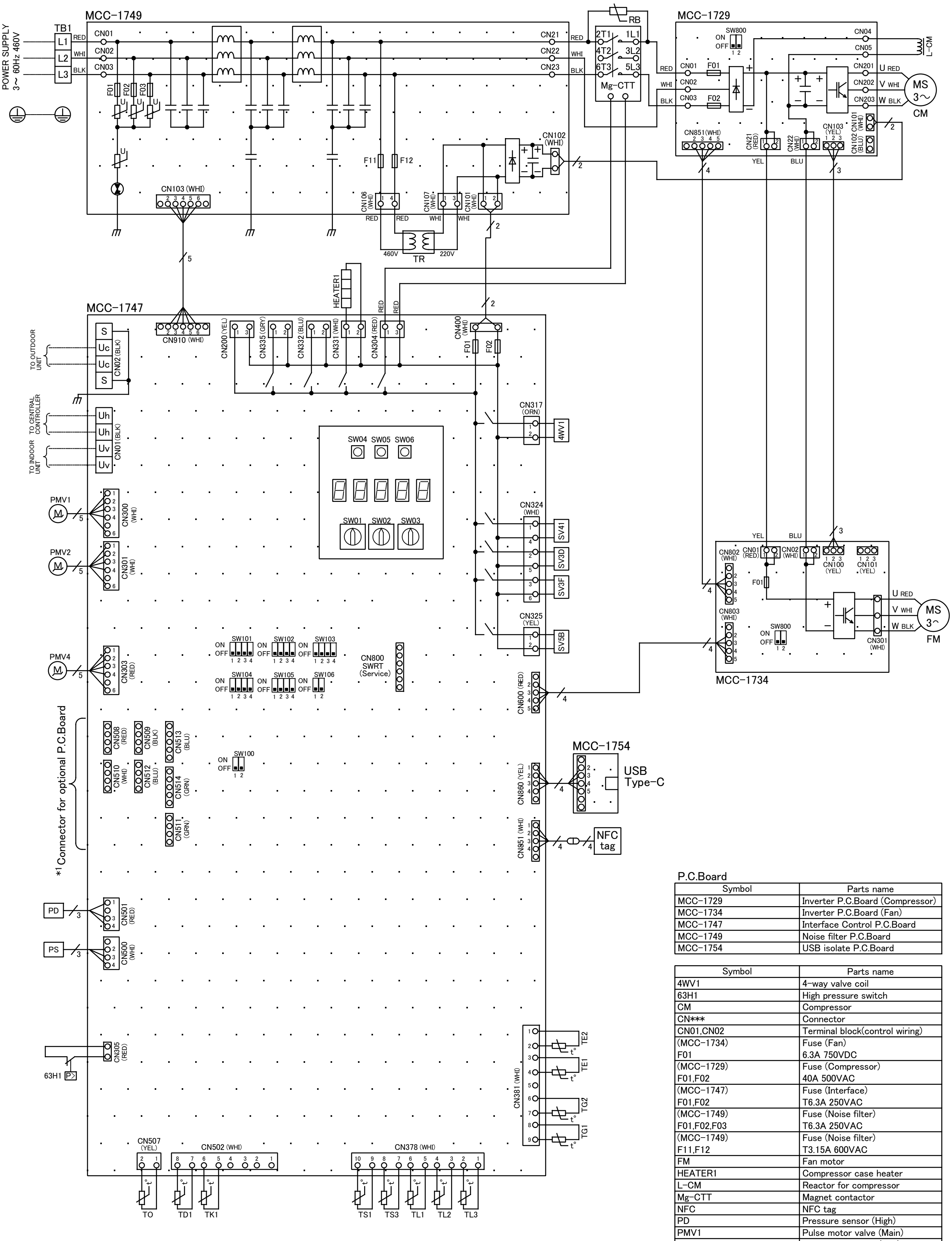
The combination of unit type and the number of the maximum connection of a communication method

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

* Other than U series

1.WIRING DIAGRAMS

6, 8 ton Model: MMY-MUP0721HT6P-UL, MMY-MUP0961HT6P-UL, MMY-MUP072H1HT6PUL



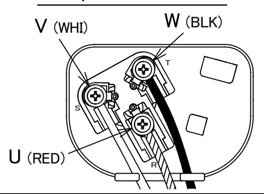
*1 The installation of the optional board is up to four pieces.

P.C.Board

Symbol	Parts name
MCC-1729	Inverter P.C.Board (Compressor)
MCC-1734	Inverter P.C.Board (Fan)
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-1734) F01	Fuse (Fan) 6.3A 750VDC
(MCC-1729) F01,F02	Fuse (Compressor) 40A 500VAC
(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) T3.15A 600VAC
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 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
TR	Trans

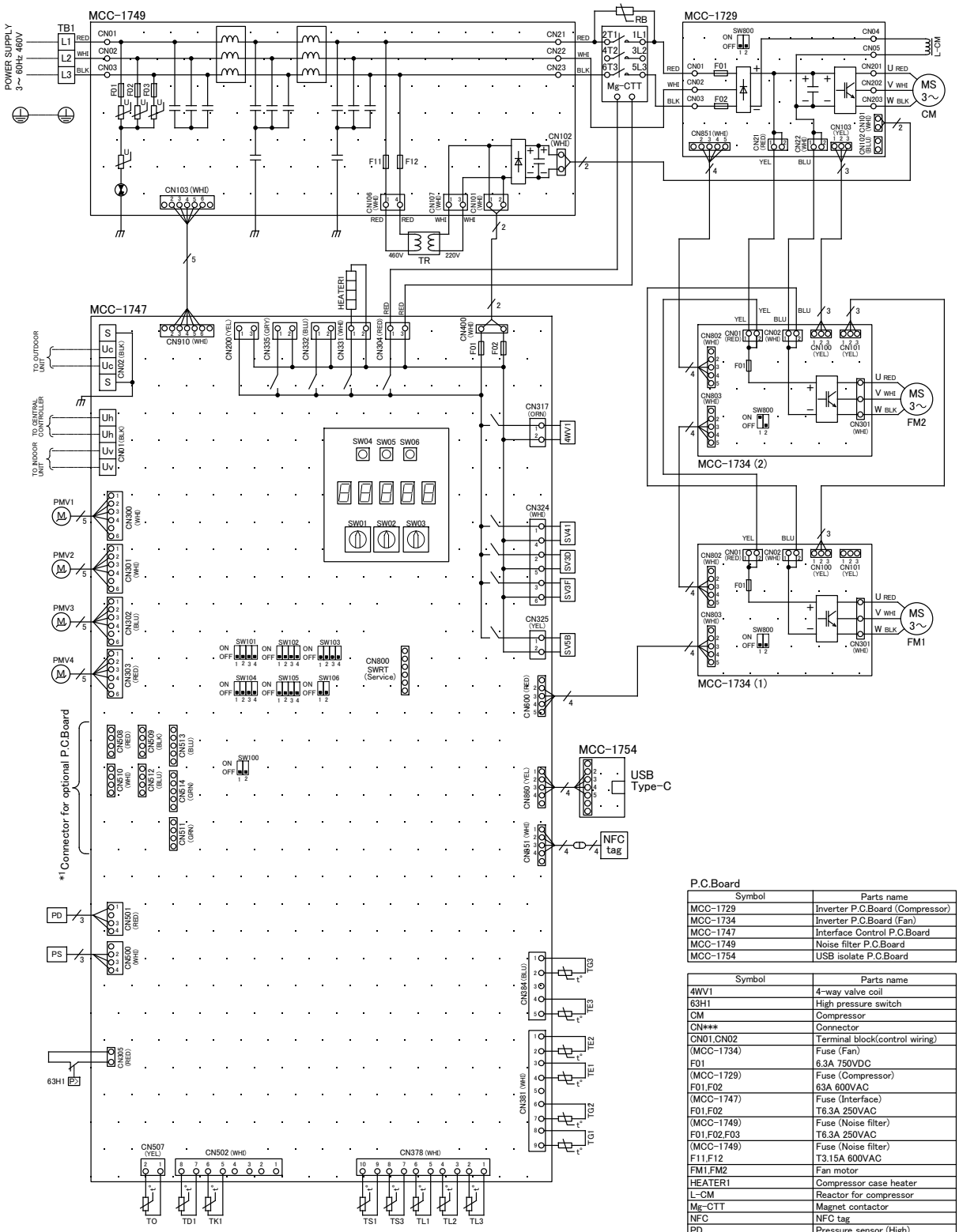
Compressor terminal



Symbol	Meaning
-------	Field wiring
⏚	Protective earth
◫	Terminal block
—o—	Terminal
[o o]	Connector
[.....]	P.C.Board

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

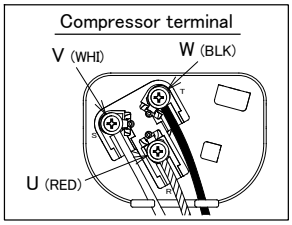
10, 12, 14 ton Model: MMY-MUP1201HT6P-UL, MMY-MUP1441HT6P-UL, MMY-MUP1681HT6P-UL MMY-MUP096H1HT6PUL, MMY-MUP120H1HT6PUL



*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

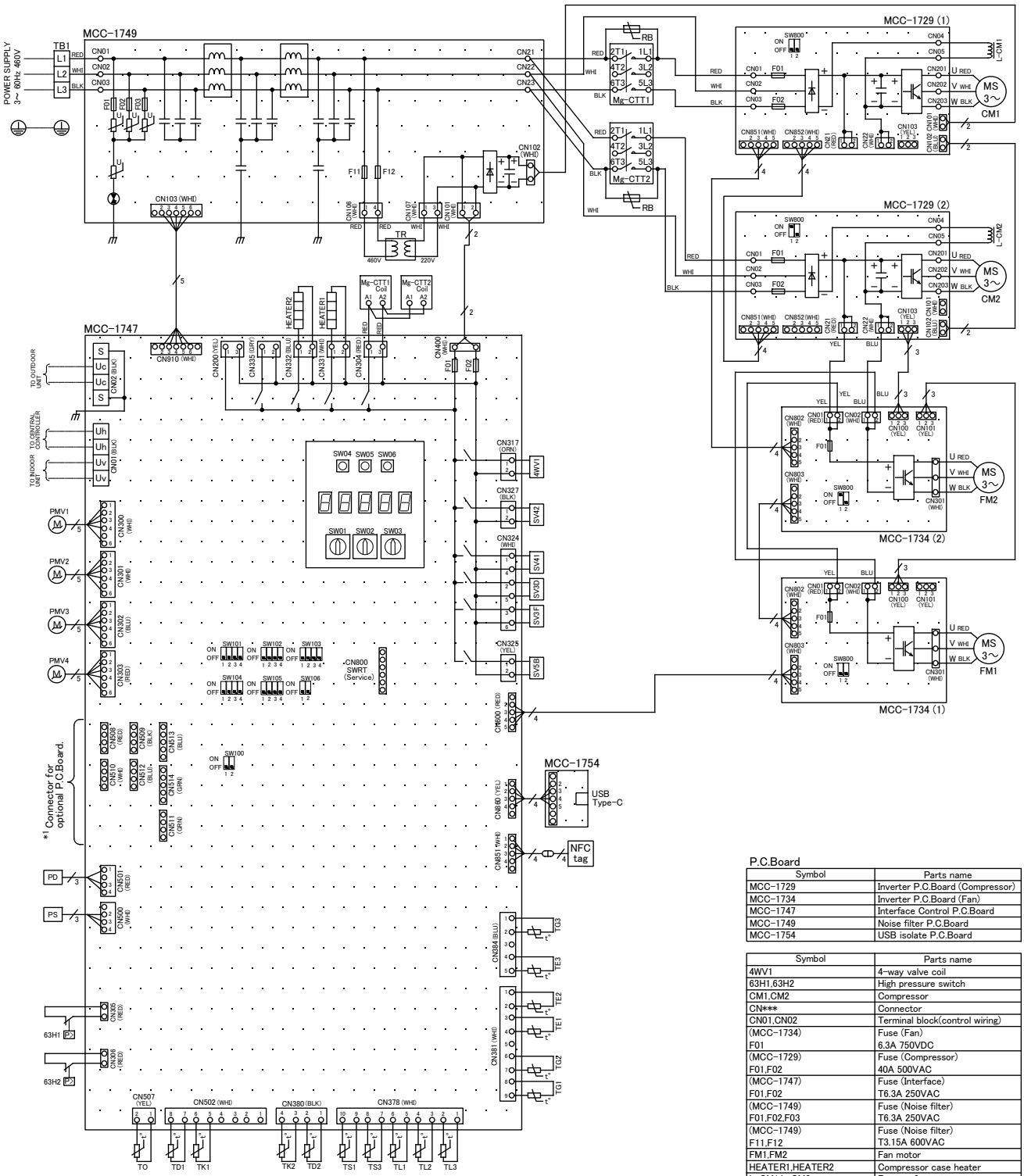


P.C.Board

Symbol	Parts name
MCC-1729	Inverter P.C.Board (Compressor)
MCC-1734	Inverter P.C.Board (Fan)
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-1734) F01	Fuse (Fan) 6.3A 750VDC
(MCC-1729) F01,F02	Fuse (Compressor) 63A 600VAC
(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) T3.15A 600VAC
FM1,FM2	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(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
TR	Trans

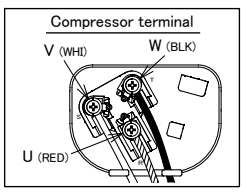
16 ton Model: MMY-MUP1921HT6P-UL



*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



P.C.Board

Symbol	Parts name
MCC-1729	Inverter P.C.Board (Compressor)
MCC-1734	Inverter P.C.Board (Fan)
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
63H1,63H2	High pressure switch
CM1,CM2	Compressor
CN***	Connector
CN01,CN02	Terminal block(control wiring)
(MCC-1734)	Fuse (Fan)
F01	6.3A 750VDC
(MCC-1729)	Fuse (Compressor)
F01,F02	40A 500VAC
(MCC-1747)	Fuse (Interface)
F01,F02	T6.3A 250VAC
(MCC-1749)	Fuse (Noise filter)
F01,F02,F03	T6.3A 250VAC
(MCC-1749)	Fuse (Noise filter)
F11,F12	T3.15A 600VAC
FM1,FM2	Fan motor
HEATER1,HEATER2	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,SV42,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,TD2	Discharge temp. sensor
TE1,TE2,TE3	Heat exchange temp. sensor
TG1,TG2,TG3	Gas temp. sensor
TK1,TK2	Oil temp. sensor
TL1,TL2,TL3	Liquid temp. sensor
TO	Air temp. sensor
TS1,TS3	Suction temp. sensor
TR	Trans

2. PARTS RATING

2-1. Outdoor Unit (MMY-MUP***1HT6P-UL)

No.	Part name	Model	Specifications	MMY-MUP0721HT6P-UL	MMY-MUP0961HT6P-UL	MMY-MUP1201HT6P-UL	MMY-MUP1441HT6P-UL	MMY-MUP1681HT6P-UL	MMY-MUP1921HT6P-UL	MMY-MUP072H1HT6PUL	MMY-MUP096H1HT6PUL	MMY-MUP120H1HT6PUL
1	Compressor	LA771A3TB-20M	Output: 4.05 kW×1	○								
1	Compressor	LA771A3TB-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	LA771A3TB-20M	Output: 7.05 kW×2						○			
1	Compressor	LA771A3TB-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	0.5~4.3~4.5V / 0 ~ 568psi (3.92MPa)	○	○	○	○	○	○	○	○	○
7	Pressure sensor (For low pressure)	NSK-BH020F-U918	0.5~4.5V / 0 ~ 142psi (0.98MPa)	○	○	○	○	○	○	○	○	○
8	Fan motor	ICF-620A1000-1	DC530-620 / 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

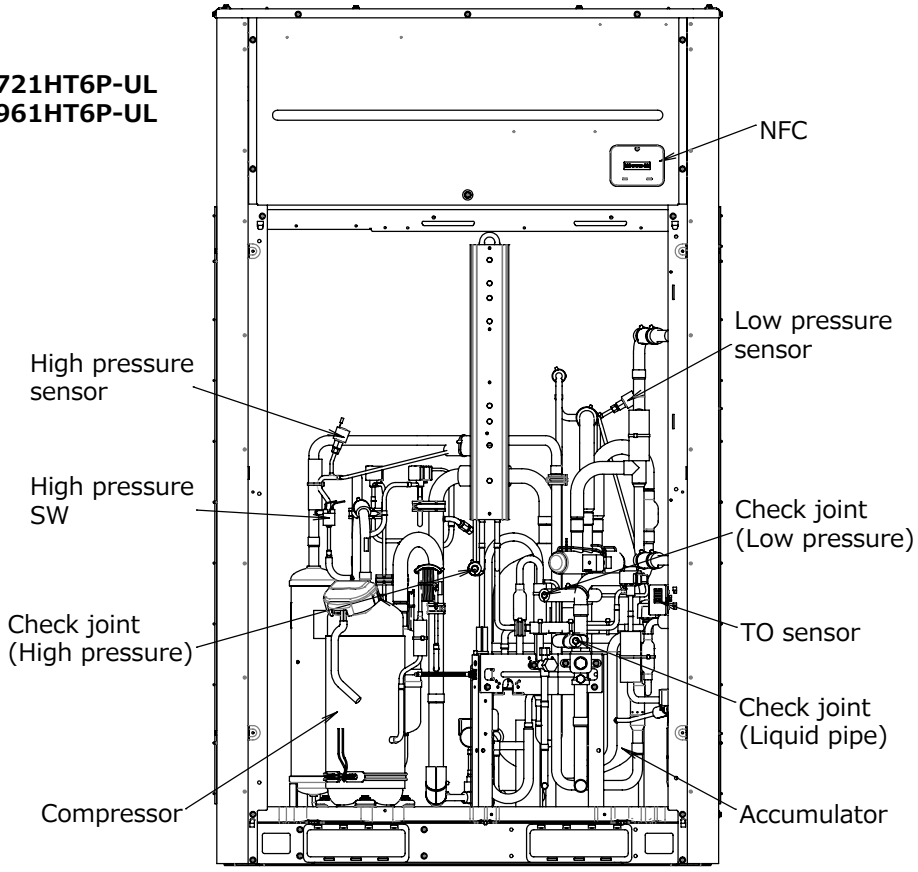
<table>
<tr><th>No.</th><th>Part name</th><th>Checking procedure</th></tr>
<tr><td>1</td><td>Compressor
(Model : LA771A3TB-20M)</td><td>Measure and compare each winding resistance by digital tester.
<table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>Red – White</td><td rowspan="3">0.242 Ω ±0.012</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
(Model : LA1201K4FB-10UC)</td><td>Measure and compare each winding resistance by digital tester.
<table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>Red – White</td><td rowspan="3">0.204 Ω ±0.01</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
(Model : ICF-620A1000-1)</td><td>Measure and compare each winding resistance by digital tester.
<table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>Red – White</td><td rowspan="3">10.38Ω ± 1.04</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
(Model : PQ-M10012*)
(Model : UKV-A376)</td><td>Measure each winding resistance by digital tester.
<table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>Black - Gray (COM)</td><td rowspan="4">46 Ω ±4</td></tr><tr><td>Yellow - Gray (COM)</td></tr><tr><td>Red - Gray (COM)</td></tr><tr><td>Orange - Gray (COM)</td></tr></table>68°F(20°C)</td></tr>
<tr><td>5</td><td>PMV (Pulse Motor Valve) coil
(Model : PAM-MD12TF*)</td><td>Measure each winding resistance by digital tester.
<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
(Model : SQ-A2522G*)</td><td>Measure each winding resistance by digital tester.
<table><tr><th>Resistance value</th></tr><tr><td>1707 Ω ±10%</td></tr></table>68°F(20°C)</td></tr>
<tr><td>7</td><td>2-way valve coil
(Model : FQ-A0520D*)</td><td>Measure each winding resistance by digital tester.
<table><tr><th>Resistance value</th></tr><tr><td>1830 Ω ±10%</td></tr></table>68°F(20°C)</td></tr>
<tr><td>8</td><td>2-way valve coil
(Model :TEV-SMOAQ2247B1)</td><td>Measure each winding resistance by digital tester.
<table><tr><th>Resistance value</th></tr><tr><td>1411 Ω ±7%</td></tr></table>68°F(20°C)</td></tr>
</table>

2-2. Inverter Assembly

No.	Part name	Model	Specifications	MMY-MUP0721HT6P-UL	MMY-MUP0961HT6P-UL	MMY-MUP1201HT6P-UL	MMY-MUP1441HT6P-UL	MMY-MUP1681HT6P-UL	MMY-MUP1921HT6P-UL	MMY-MUP072H1HT6PUL	MMY-MUP096H1HT6PUL	MMY-MUP120H1HT6PUL
1	Power supply terminal block	HP-T3015-31-3P-L3S	AC600V/100A, 3P	○	○	○	○	○	○	○	○	○
2	Noise Filter P.C. board	MCC-1749	—	○	○	○	○	○	○	○	○	○
3	Line filter	—	0.9mH / AC460V / 50A	○	○	○	○	○	○	○	○	○
4	Interface P.C. board	MCC-1747	—	○	○	○	○	○	○	○	○	○
5	Inverter P.C. board for Compressor (1)	MCC-1729	50A	○	○				○	○		
6	Inverter P.C. board for Compressor (2)	MCC-1729	75A			○	○	○			○	○
7	Inverter P.C. board for Fan	MCC-1734	—	○	○	○	○	○	○	○	○	○
8	Magnet Contactor	FC-1SUL	—	○	○	○	○	○	○	○	○	○
9	PTC Thermistor	MZ32-101R	13A / AC500V	○	○	○	○	○	○	○	○	○

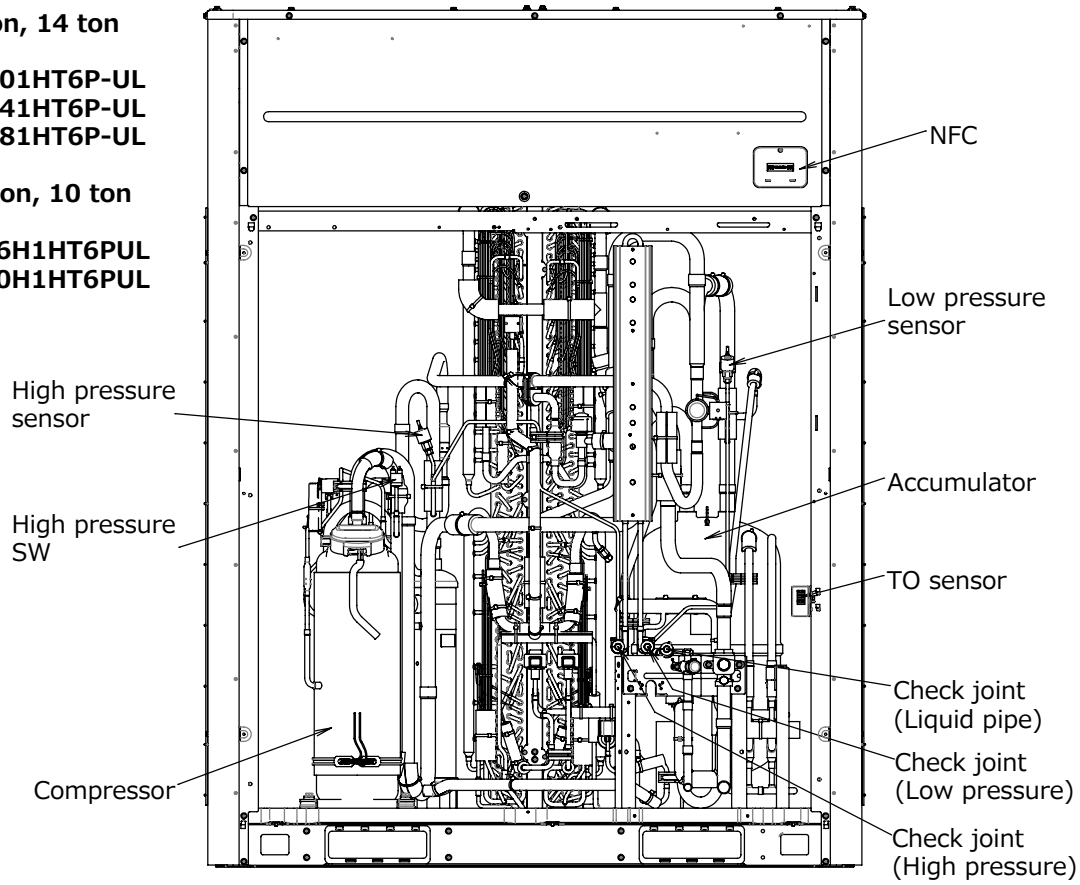
2-3. Parts Layout in Outdoor Unit

6 ton, 8 ton
Model:
MMY-MUP0721HT6P-UL
MMY-MUP0961HT6P-UL

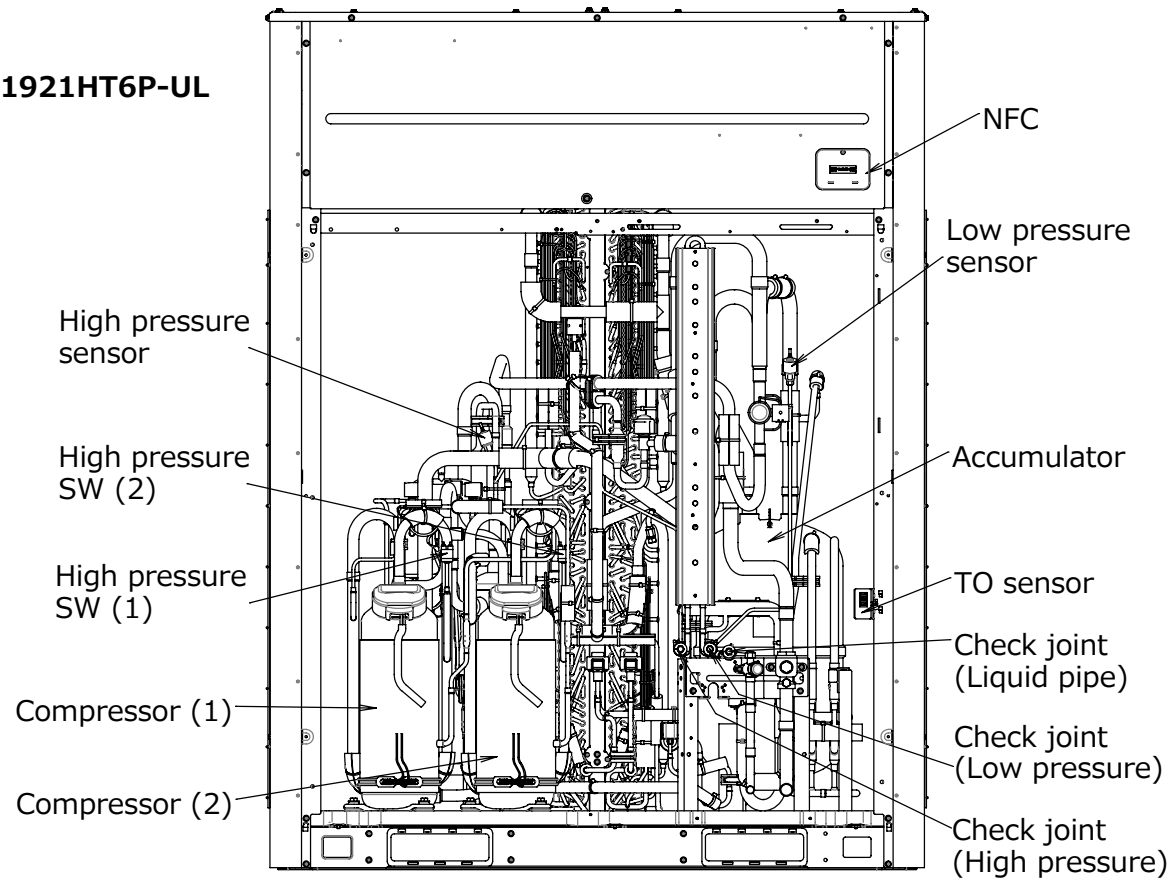


10 ton, 12 ton, 14 ton
Model:
MMY-MUP1201HT6P-UL
MMY-MUP1441HT6P-UL
MMY-MUP1681HT6P-UL

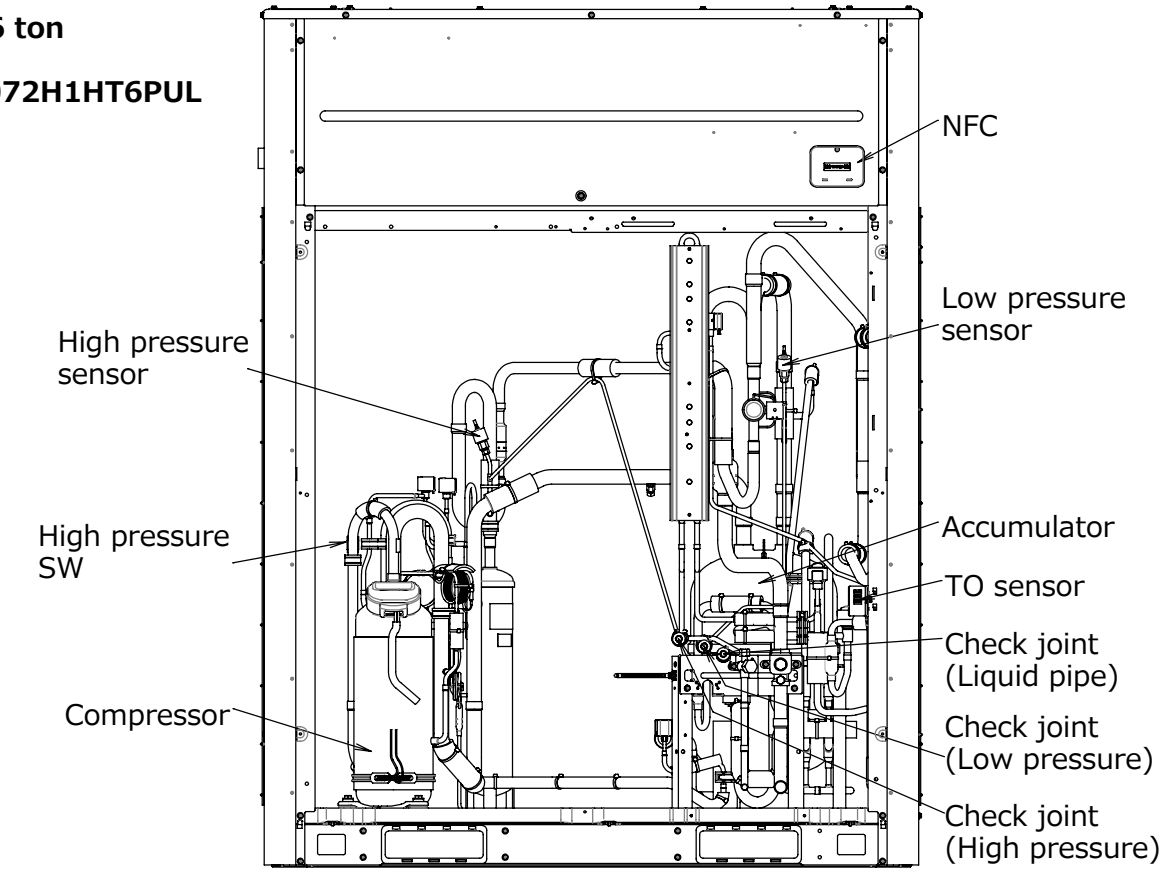
High heat 8 ton, 10 ton
Model:
MMY-MUP096H1HT6PUL
MMY-MUP120H1HT6PUL



16 ton
Model:
MMY-MUP1921HT6P-UL

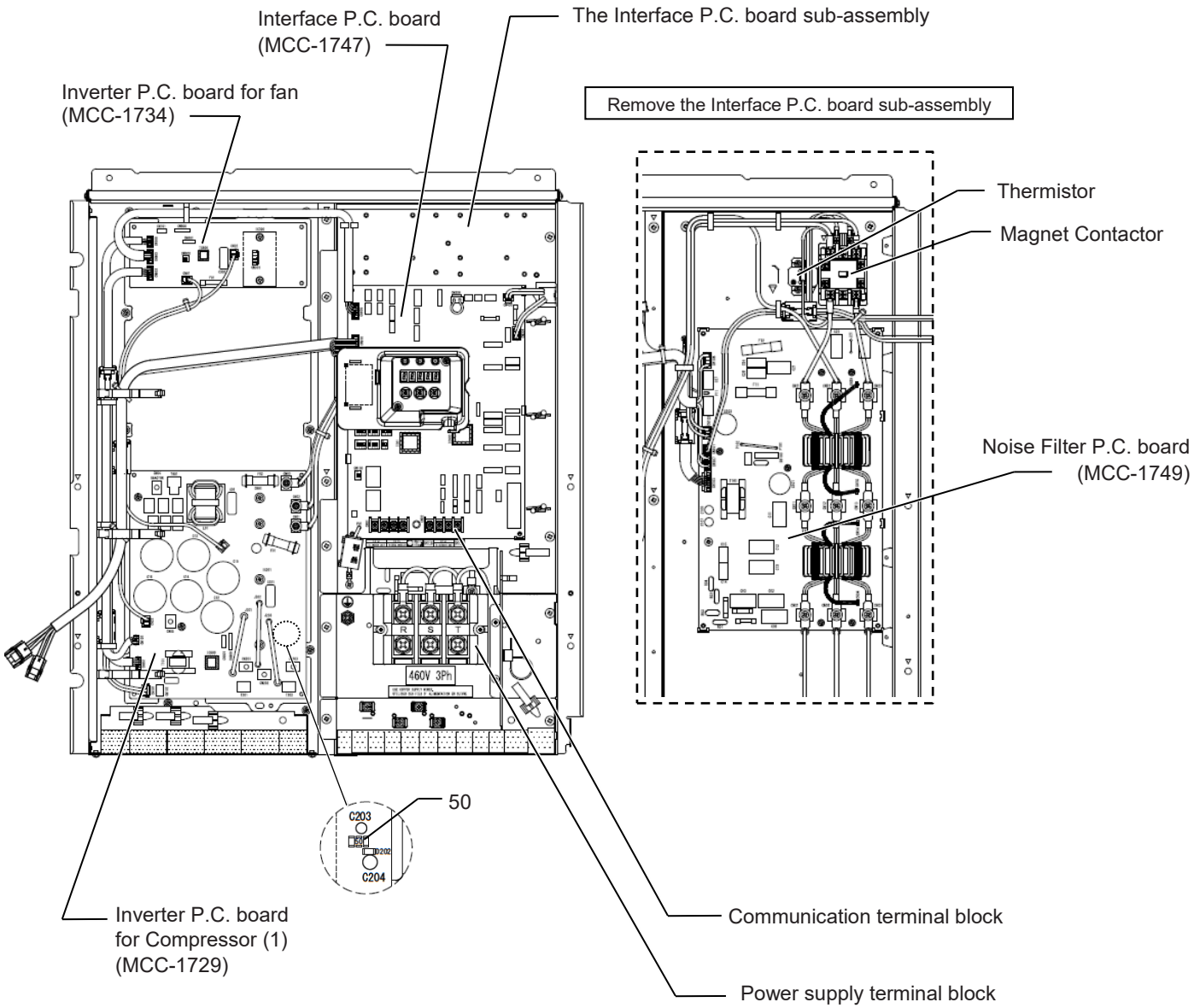


High heat 6 ton
Model:
MMY-MUP072H1HT6PUL

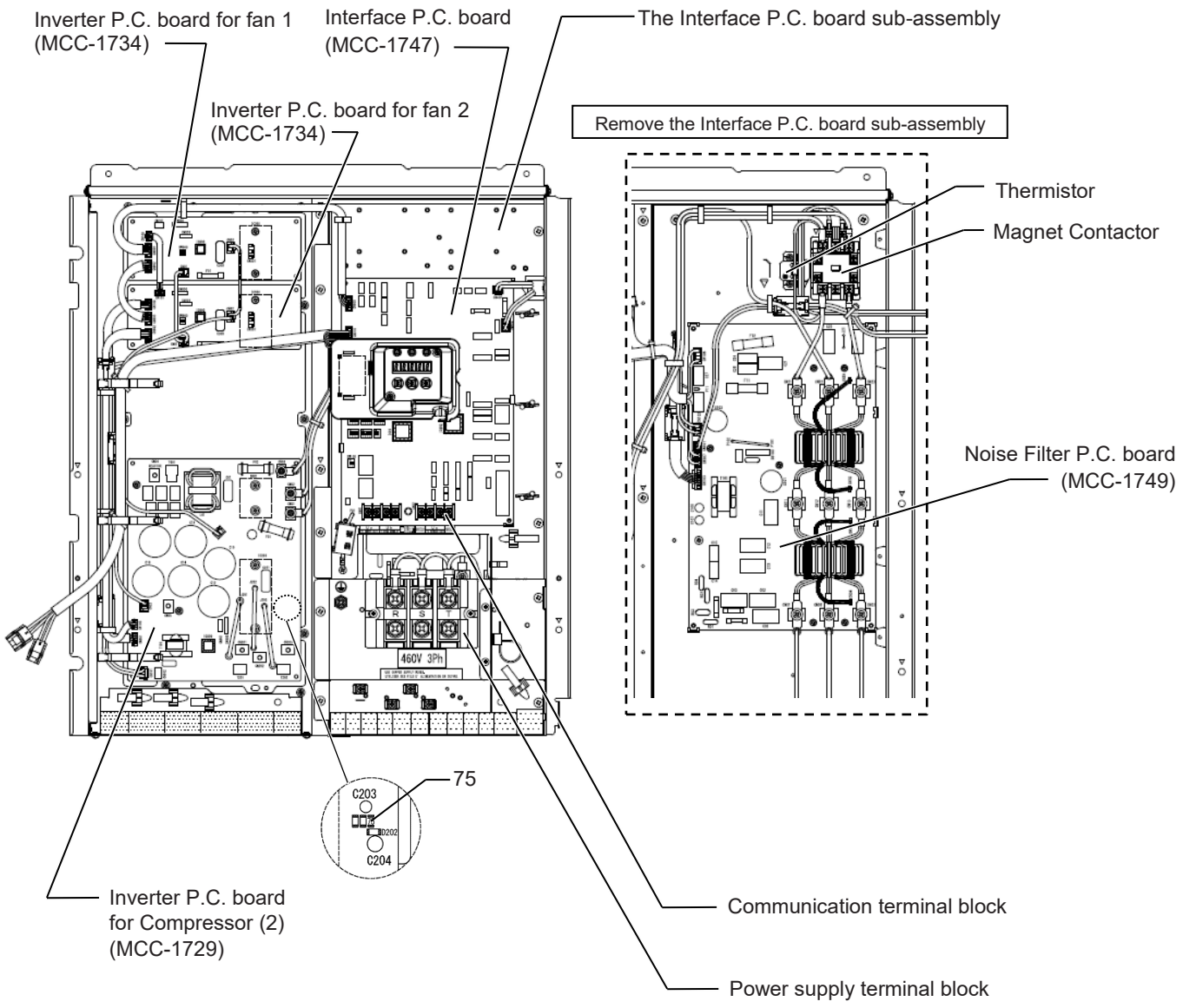


2-4. Parts Layout in Inverter Assembly

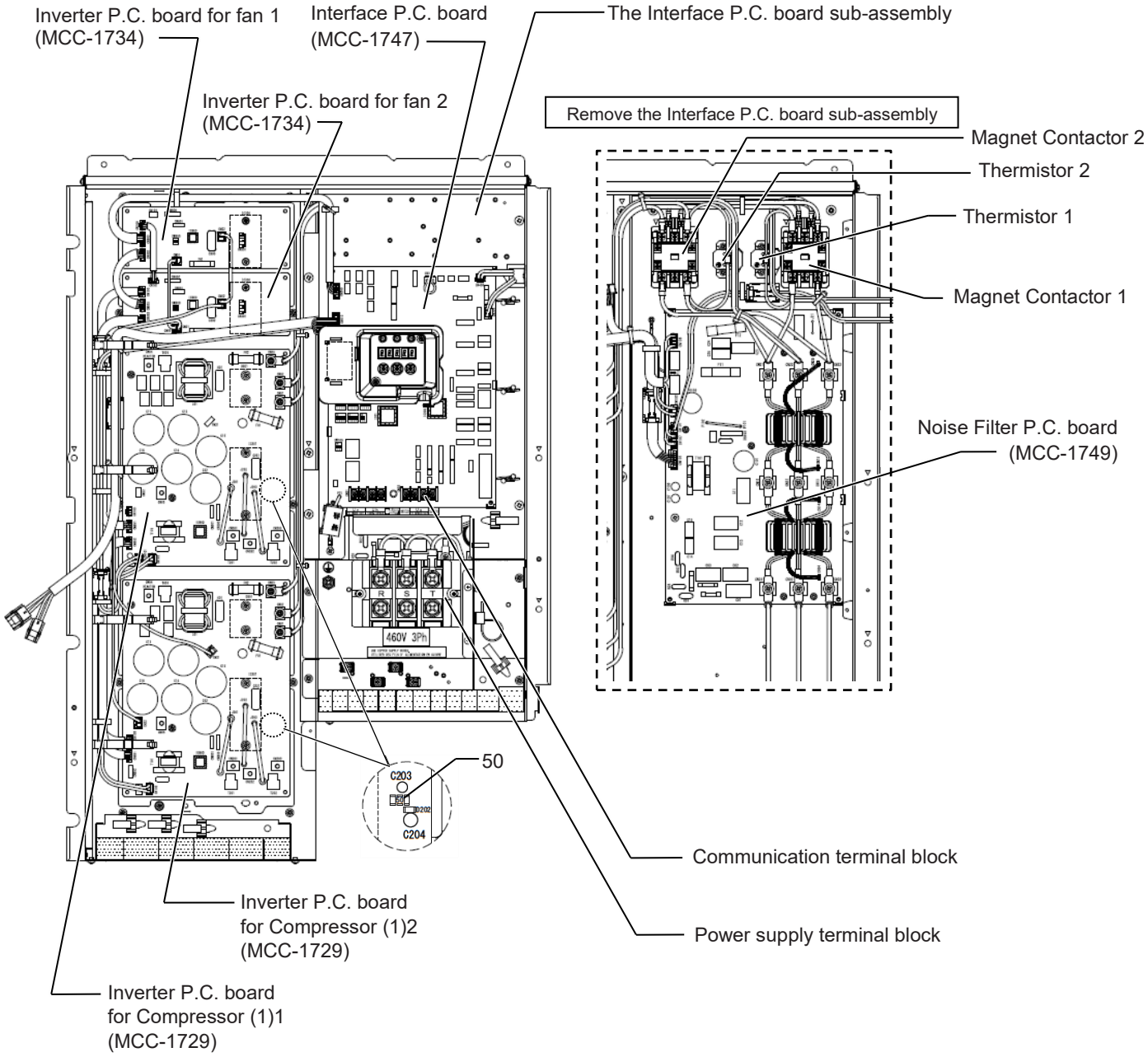
6, 8ton, High heat 6ton
Model: MMY-MUP0721HT6*, MUP0961HT6*, MUP072H1HT6*



10, 12, 14ton, High heat 8, 10ton
Model: MMY-MUP1201HT6*, MUP1441HT6*, MUP1681HT6*, MUP096H1HT6*, MUP120H1HT6*

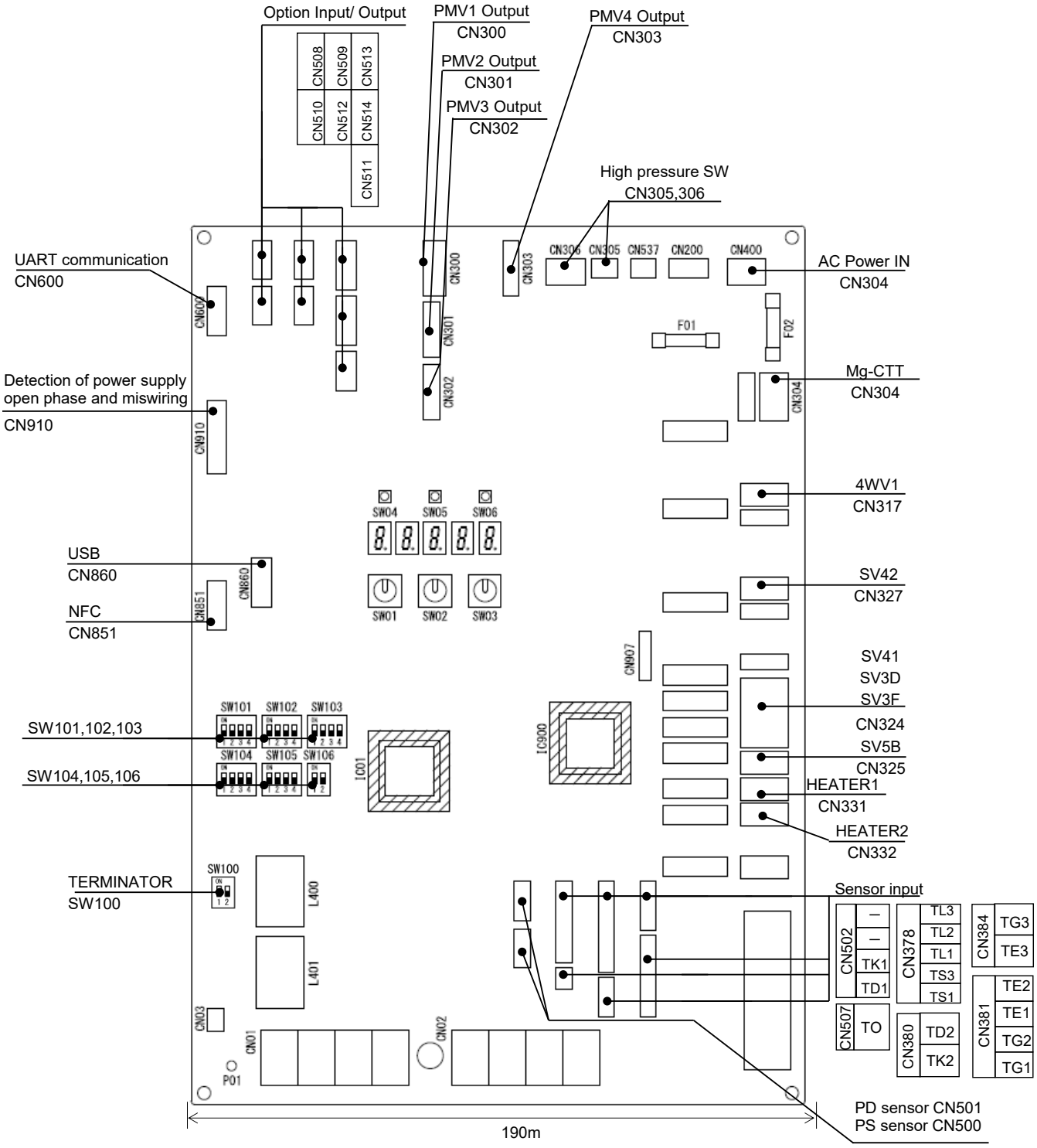


16ton
Model: MMY-MUP1921HT6*

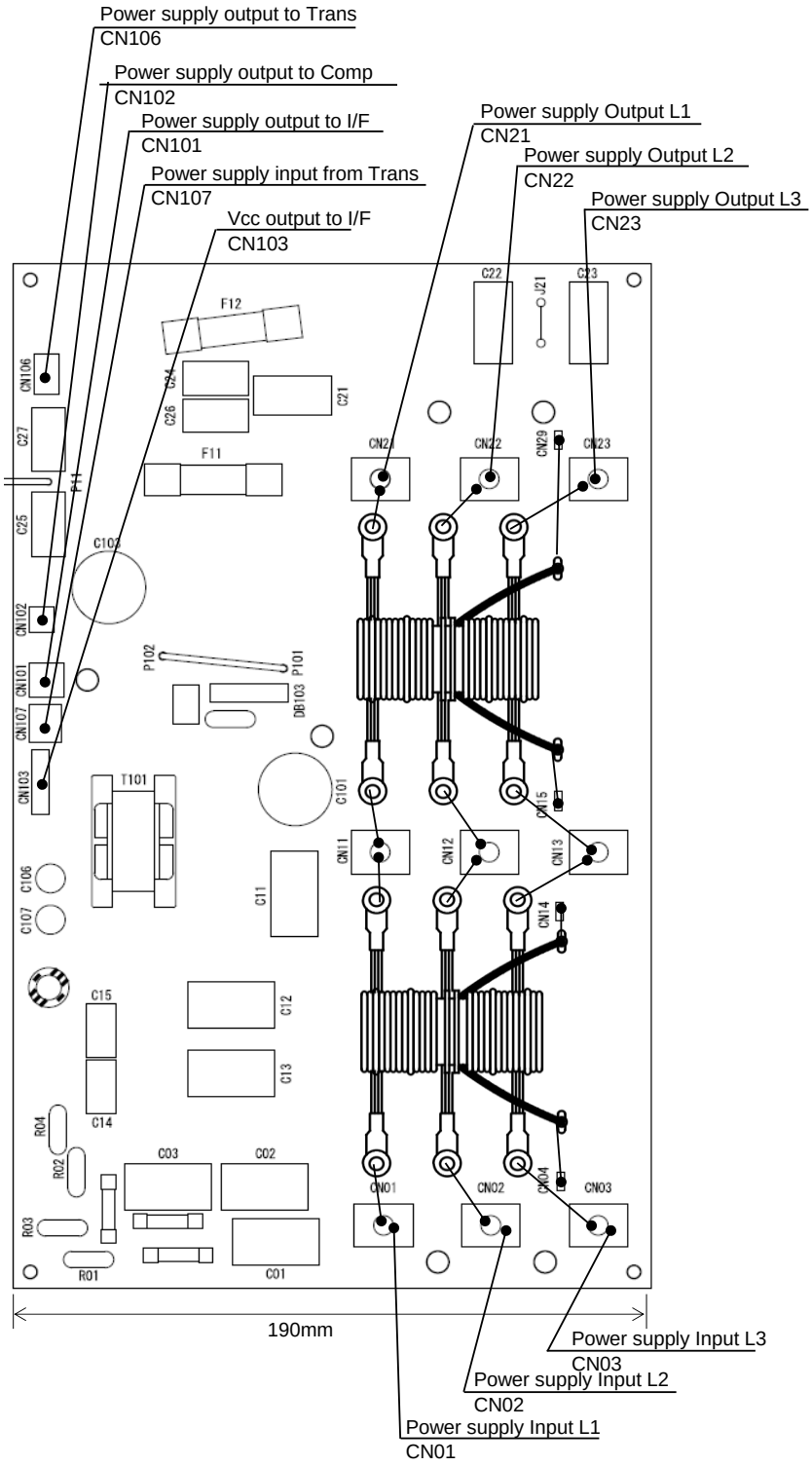


2-5. Outdoor (Inverter) Print Circuit Board

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



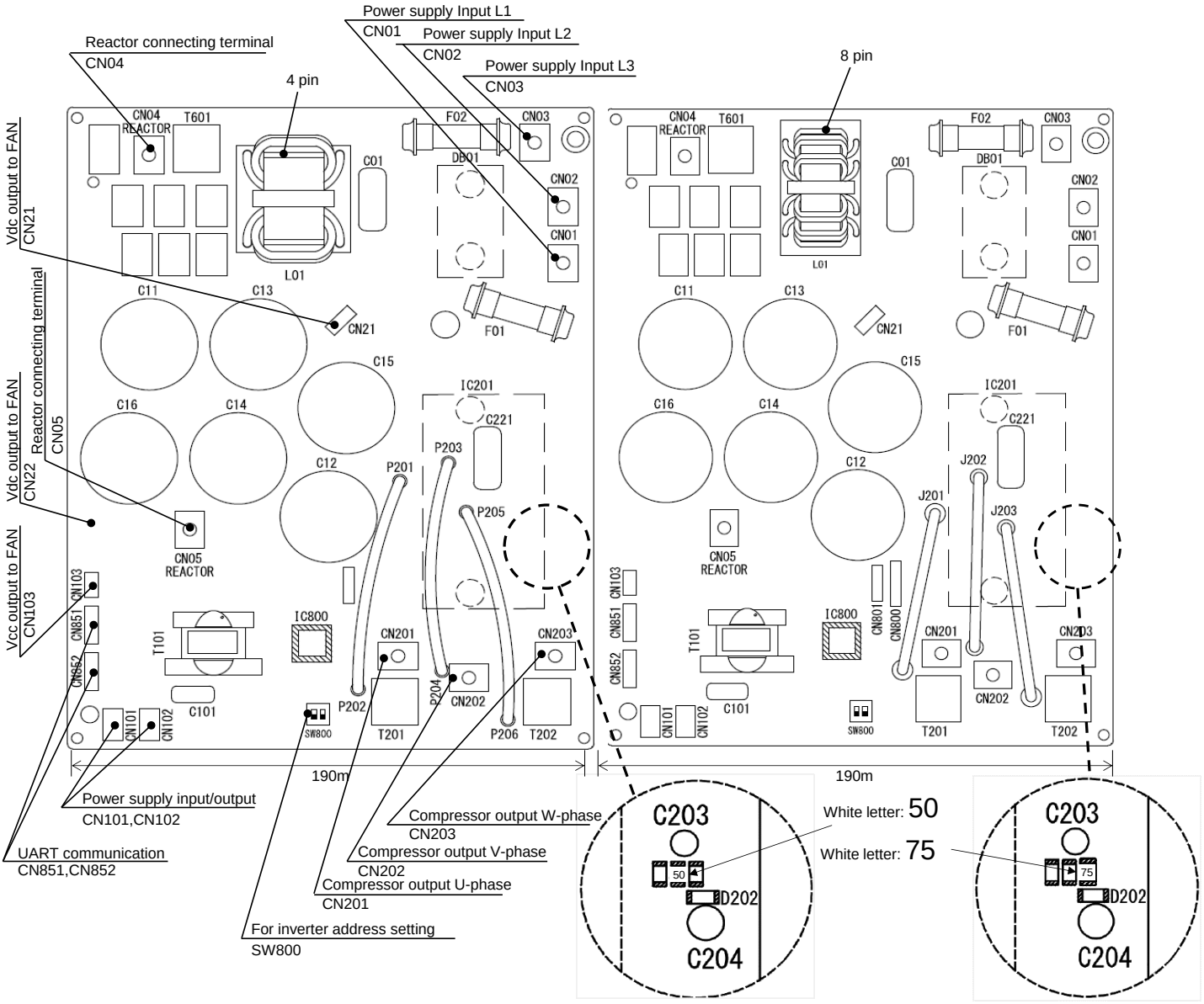
2-5-2. Noise Filter P.C. board (MCC-1749)



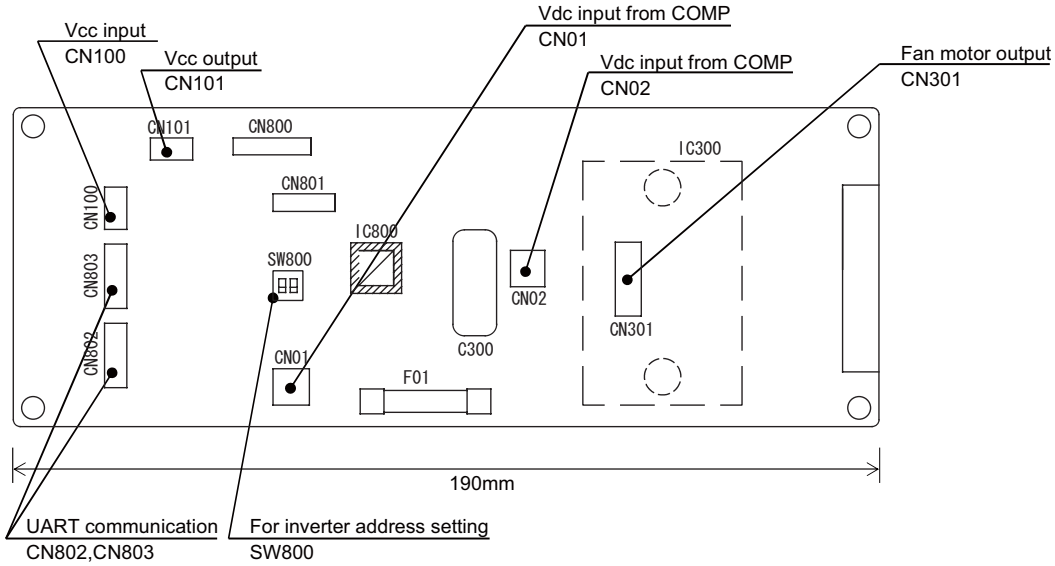
2-5-3. Inverter P.C. board for compressor (MCC-1729)

1290W 2Comp 2Fan model (A3 Compressor)
(16 ton)
990W 1Comp 1Fan model (A3 Compressor)
(6, 8 ton, High heat 6 ton)

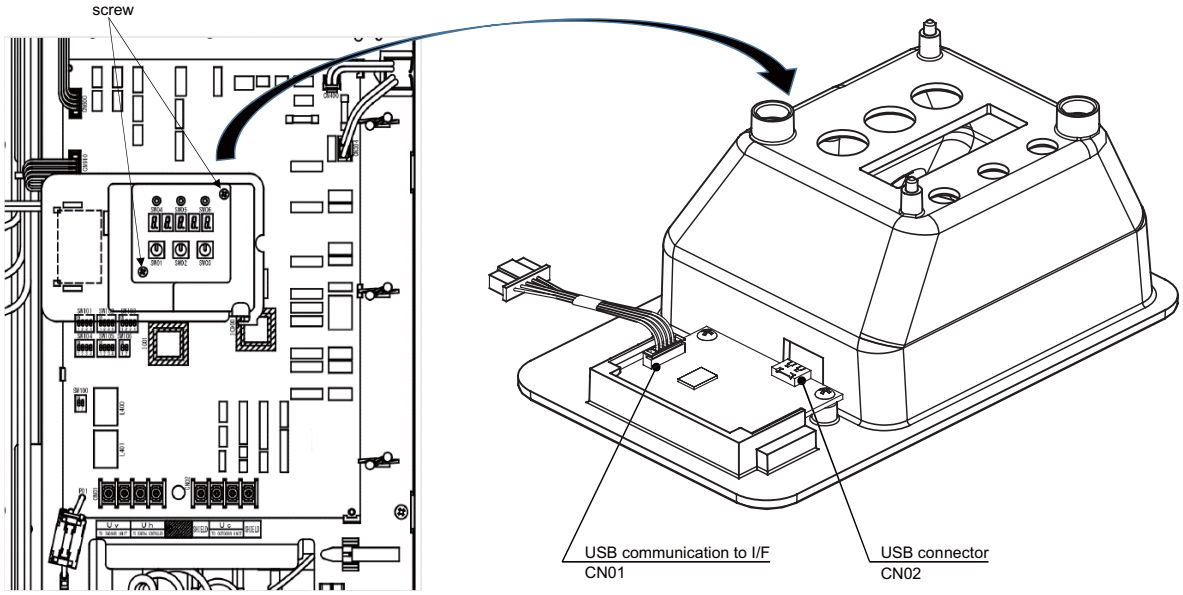
1290W 1Comp 2Fan model (K4 Compressor)
(10, 12, 14 ton, High heat 8, 10 ton)



2-5-4. Inverter P.C. board for fan (MCC-1734)



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

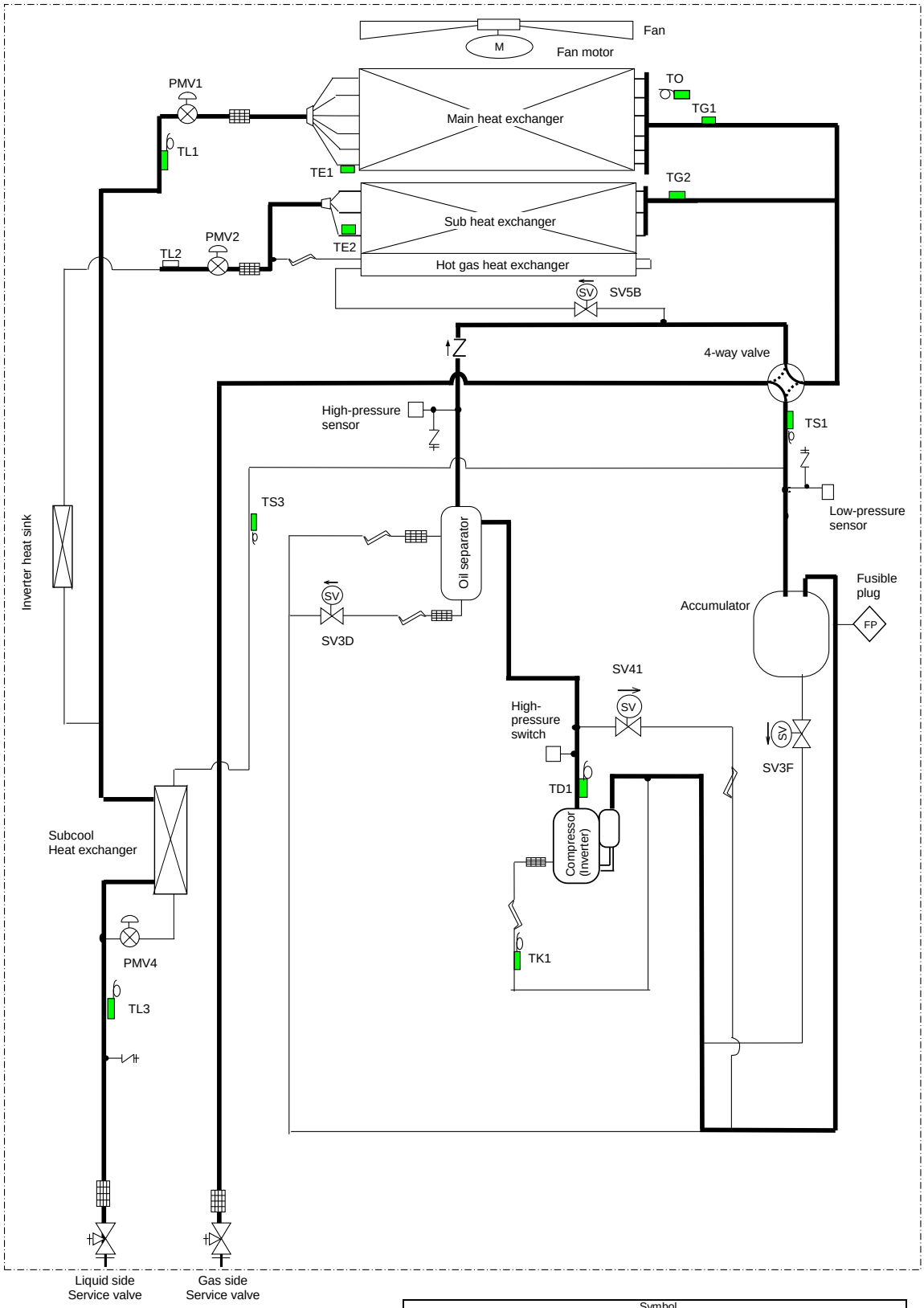


3. REFRIGERANT PIPING SCHEMATIC DRAWING

Outdoor unit

Standard 6,8ton／High heat 6ton

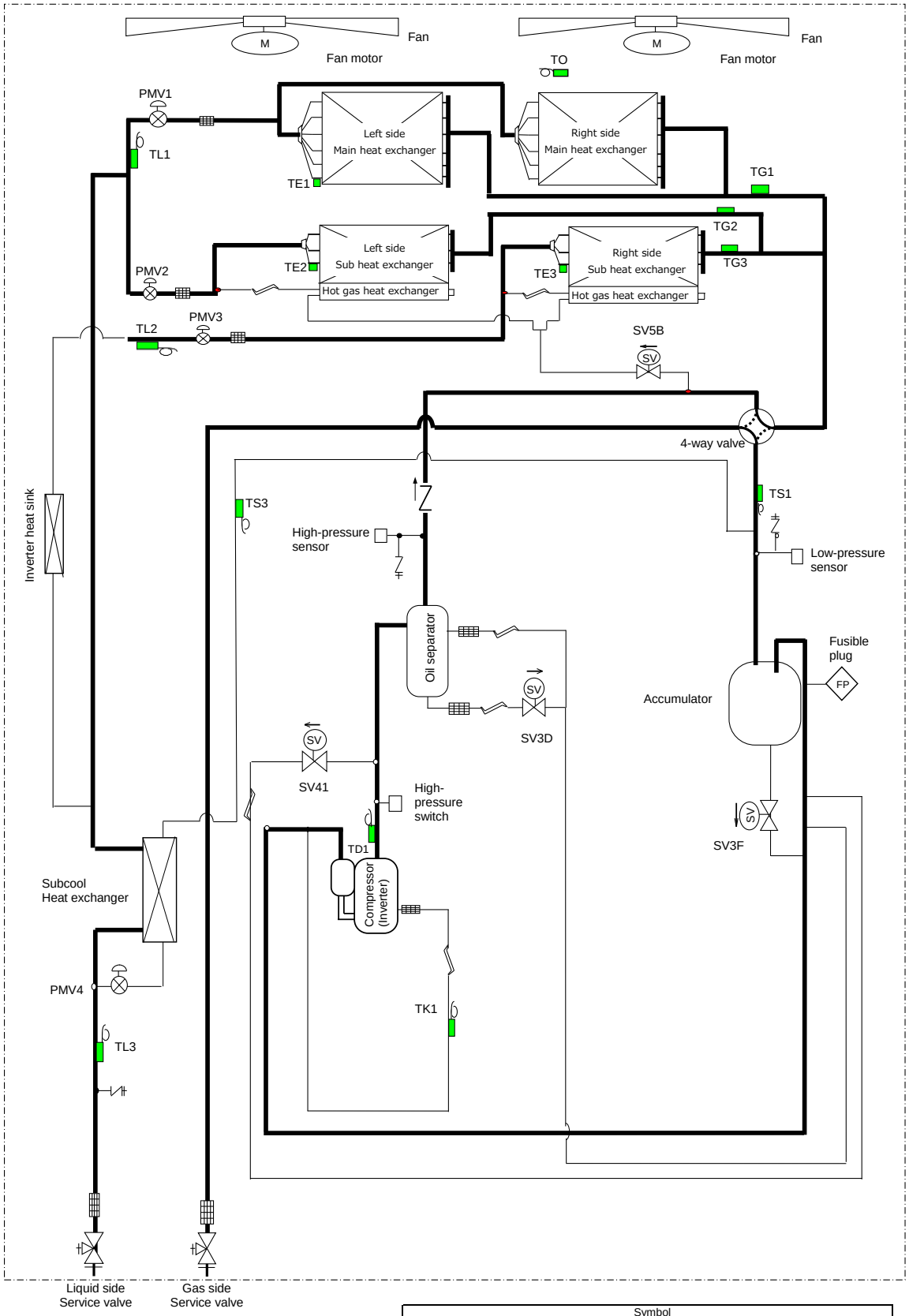
Model: MMY-MUP0721*，MUP0961*，MUP072H1*



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

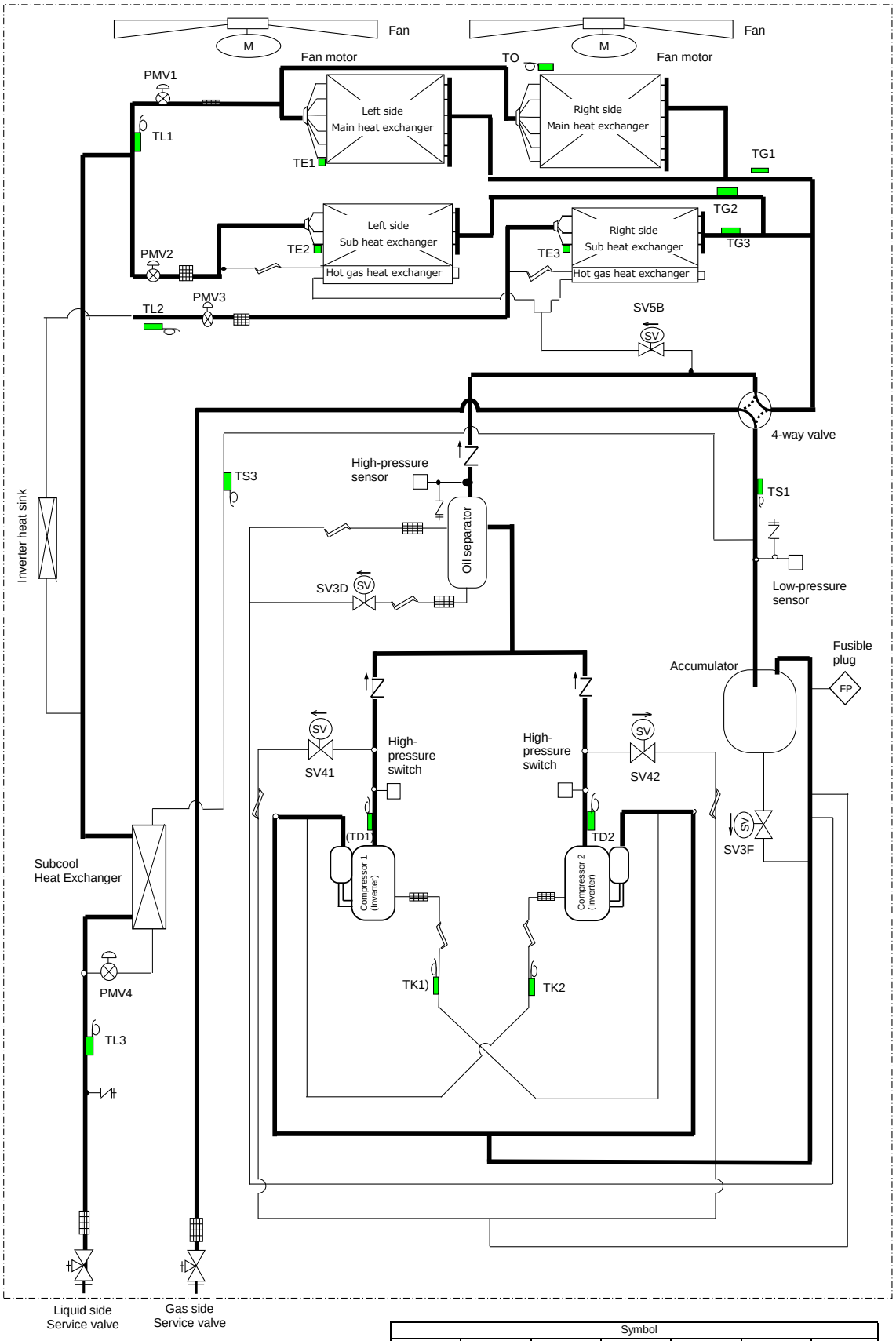
Standard 10,12,14ton／High heat 8,10ton

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



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

Standard 16ton
Model: MMY-MUP1921*

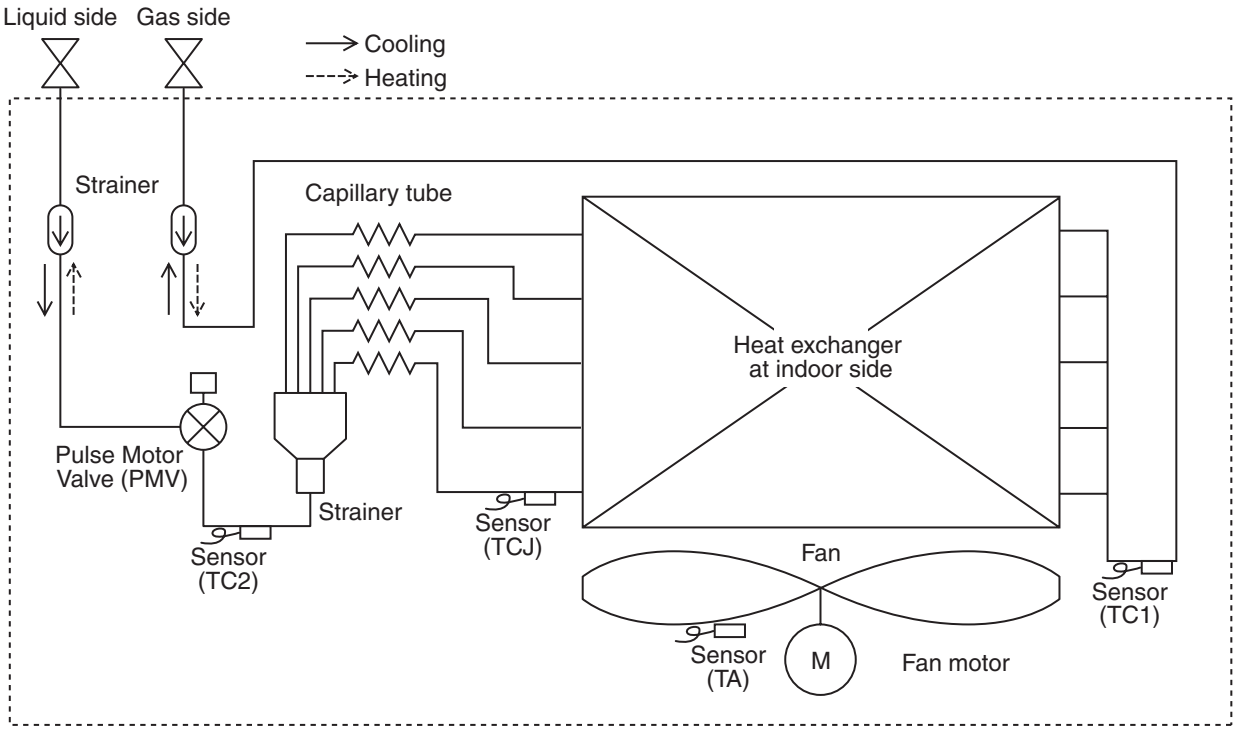


Symbol						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

Functional Part Name

	SV3D	(Connector CN324 : WHI) 1) Reserves oil in the oil separator during OFF time. 2) Returns oil reserved in the oil separator to the compressor during ON time.
	SV3F	(Connector CN324: WHI) 1) Supplies oil in the accumulator to the compressor 2) Shuts off the liquid refrigerant from the accumulator when the compressor dilution
	SV41 SV42	(SV41 • • • Connector CN324 : WHI , SV42 • • • Connector CN327 : BLK) 1) High/Low pressure balance Prevention of subcool oil backflow when compressor stop, start-up compensation when starting up the compressor, reducing refrigerant noise when starting up heating operation 2) High pressure release function 3) Low pressure release function 4) Keeps the compressor reliability when Hot Gas Bypass system (prevent dilution with oil) 5) Releases capacity (Refrigerant mass bypass function in minimum cooling operation)
	SV5B	(Connector CN325 : YEL) 1) Outdoor unit freeze protection during heating with hot gas bypass 2) High pressure release function
4-Way valve		(Connector CN317 : ORN) 1) Cooling/Heating change 2) Reverses Defrost
Pulse Motor Valve	PMV1	(Connector CN300 : WHI) 1) Controls superheat and subcool of the main heat exchanger 2) Stored liquid refrigerant reduction control in low ambient cooling operation (recovers stored liquid refrigerant in the main heat exchanger)
	PMV2 PMV3	(PMV2 • • • Connector CN301 : WHI , PMV3 • • • Connector CN302 : BLU) 1) Controls superheat and subcool of the sub heat exchanger 2) Maintains discharge pressure in low ambient cooling operation
	PMV4	(Connector CN303 : RED) 1) Controls superheat and subcool of the sub-cooling heat exchanger 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) 2) Reserve function of excess oil
Temperature Sensor	TD1 TD2	(TD1 • • • Connector CN502 : WHI , TD2 • • • Connector CN380 : BLK) 1) Protection of compressor discharge temperature 2) Used for discharge temperature release
	TG1 TG2 TG3	(TG1 • • • Connector CN381 : WHI , TG2 • • • Connector CN381 : WHI , TG3 • • • Connector CN384 : BLU) 1) Controls superheat of PMV in heating operation
	TE1	(Connector CN381 : WHI) 1) Controls the main heat exchanger defrost in heating operation 2) Controls outdoor fan in heating operation
	TE2 TE3	(TE2 • • • Connector CN381 : WHI , TE3 • • • Connector CN384 : BLU) 1) Controls the main heat exchanger defrost in heating operation 2) Controls outdoor fan in heating operation
	TL1	(Connector CN378 : WHI) 1) Detects the main heat exchanger subcool in cooling operation 2) Use as main complement switching during cooling operation
	TL2	(Connector CN378 : WHI) 1) Detects subcool of the sub-cooling heat exchanger in cooling operation 2) Use as main complement switching in cooling operation [3 way variable heat exchanger]
	TL3	(Connector CN378 : WHI) 1) Controls subcool of the sub-cooling heat exchanger
	TS1	(Connector CN378 : WHI) 1) Controls PMV superheat in heating operation
	TS3	(Connector CN378 : WHI) 1) Controls subcool of the sub-cooling heat exchanger
	TO	(Connector CN507 : YEL) 1) Detects outside temperature
	TK1 TK2	(TK1 • • • Connector CN502 : WHI , TK2 • • • Connector CN380 : BLK) 1) Judges oil level of the compressor
Pressure Sensor	High pressure sensor	(Connector CN501 : RED) 1) Detects high pressure 2) Controls the fan in low ambient cooling operation 3) Detects subcool of indoor units in heating operation
	Low pressure sensor	(Connector CN500 : WHI) 1) Detects low pressure 2) Controls superheat in heating operation
Heater	Compressor case heater	(Comp1 • • • Connector CN331 : WHI , Comp2 • • • Connector CN332 : BLU) 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) 1) Controls superheat in cooling operation 2) Controls subcool in heating operation 3) Recovers refrigerant oil in cooling operation 4) Recovers refrigerant oil in heating operation
Temp. Sensor	1.TA	(Connector CN104 (2P): Yellow) 1) Detects indoor return air temperature
	2.TC1	(Connector CN100 (3P): Brown) 1) Controls PMV superheat in cooling operation
	3.TC2	(Connector CN101 (2P): Black) 1) Controls PMV subcool in heating operation
	4.TCJ	(Connector CN102 (2P): Red) 1) Controls PMV superheat in cooling operation

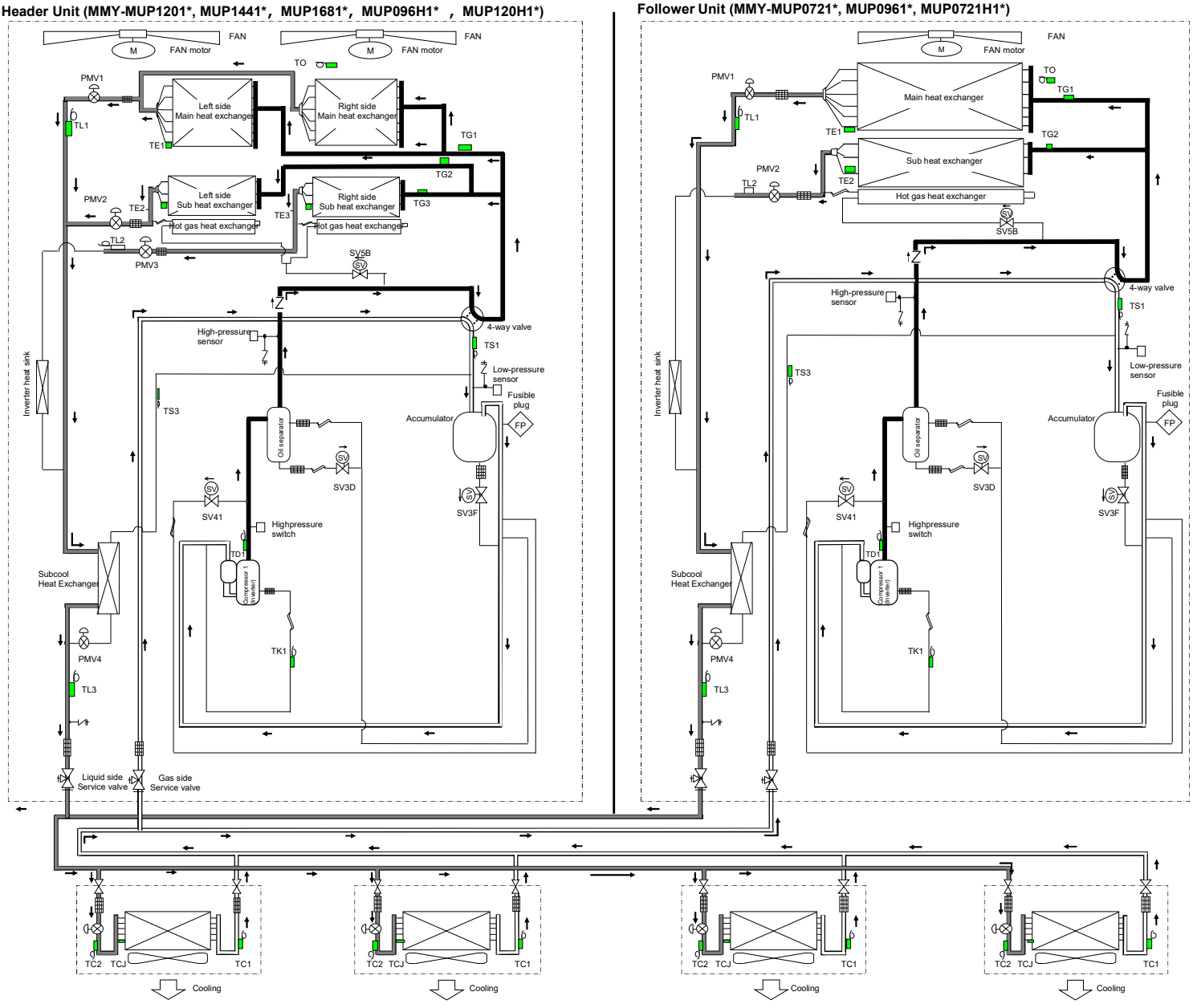
* Please refer to each indoor unit Service Manual for details of each sensor

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

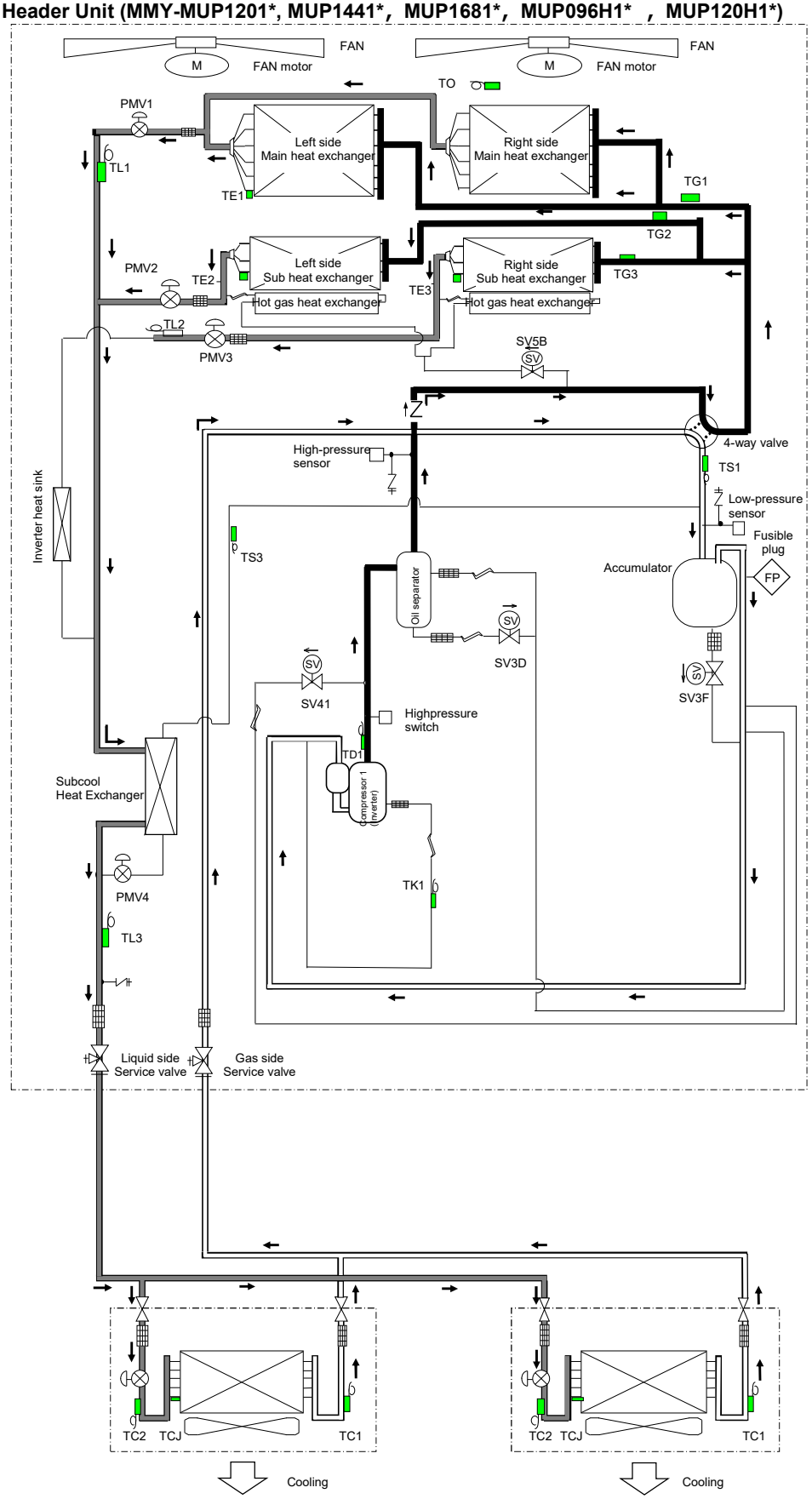
High-pressure gas refrigerant
Condensed liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Low-pressure circuit (Refrigerant recovery line)

(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

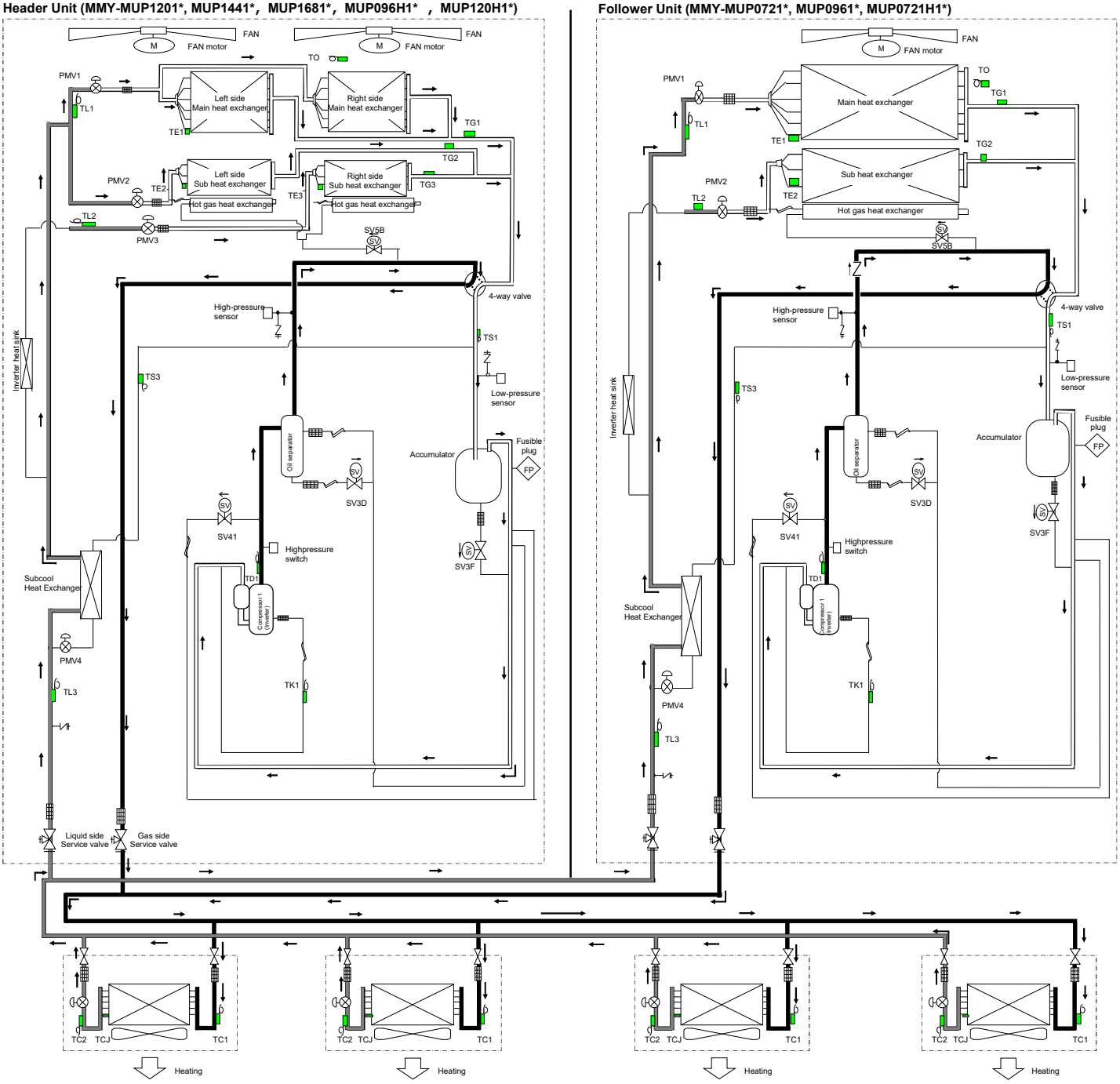
High-pressure gas refrigerant
Evaporative gas refrigerant (Low pressure)
Condensed liquid refrigerant
Low-pressure circuit (Refrigerant recovery line)

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*)



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

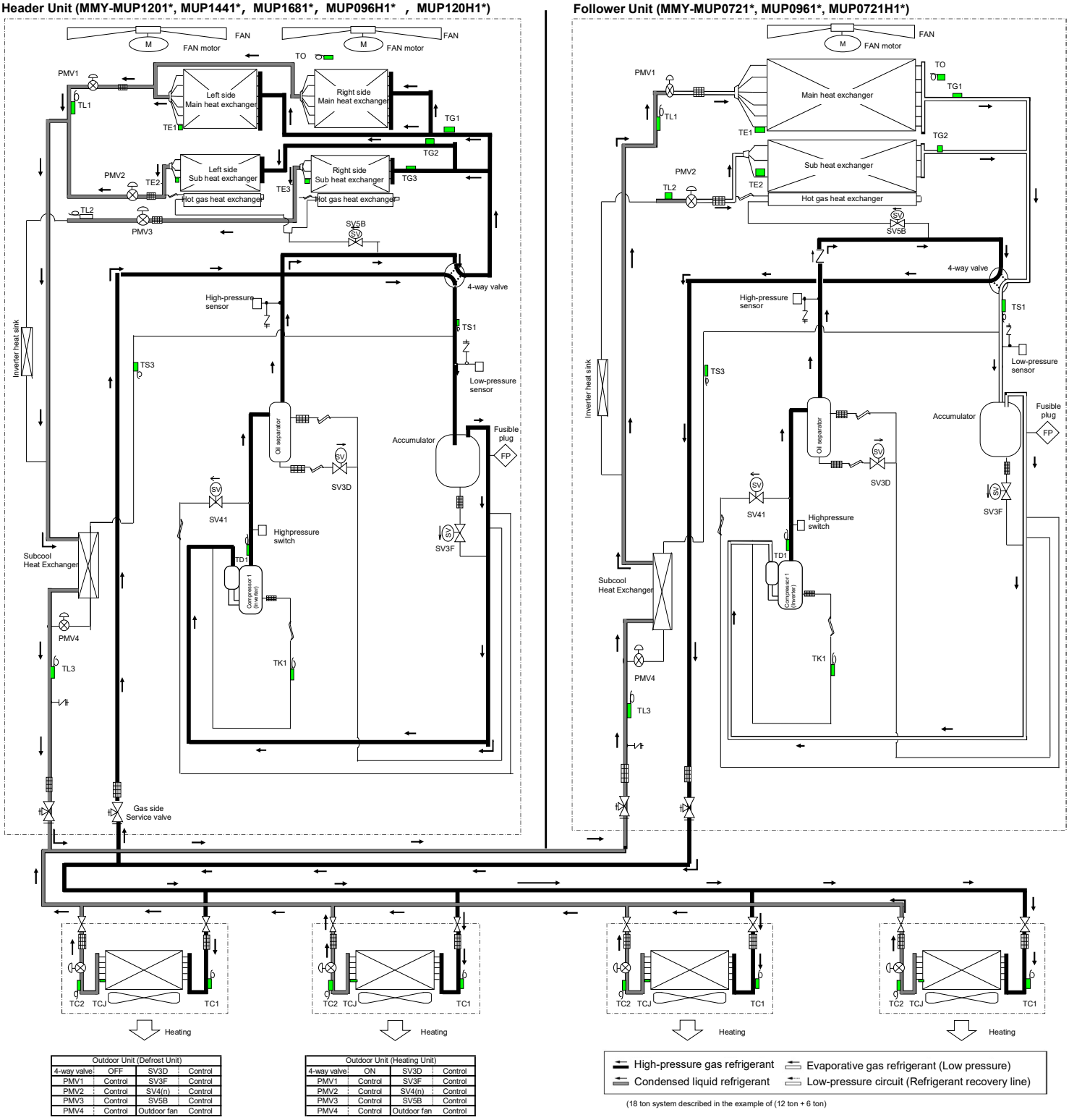
(18 ton system described in the example of (12 ton + 6 ton)

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

4-4. 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)

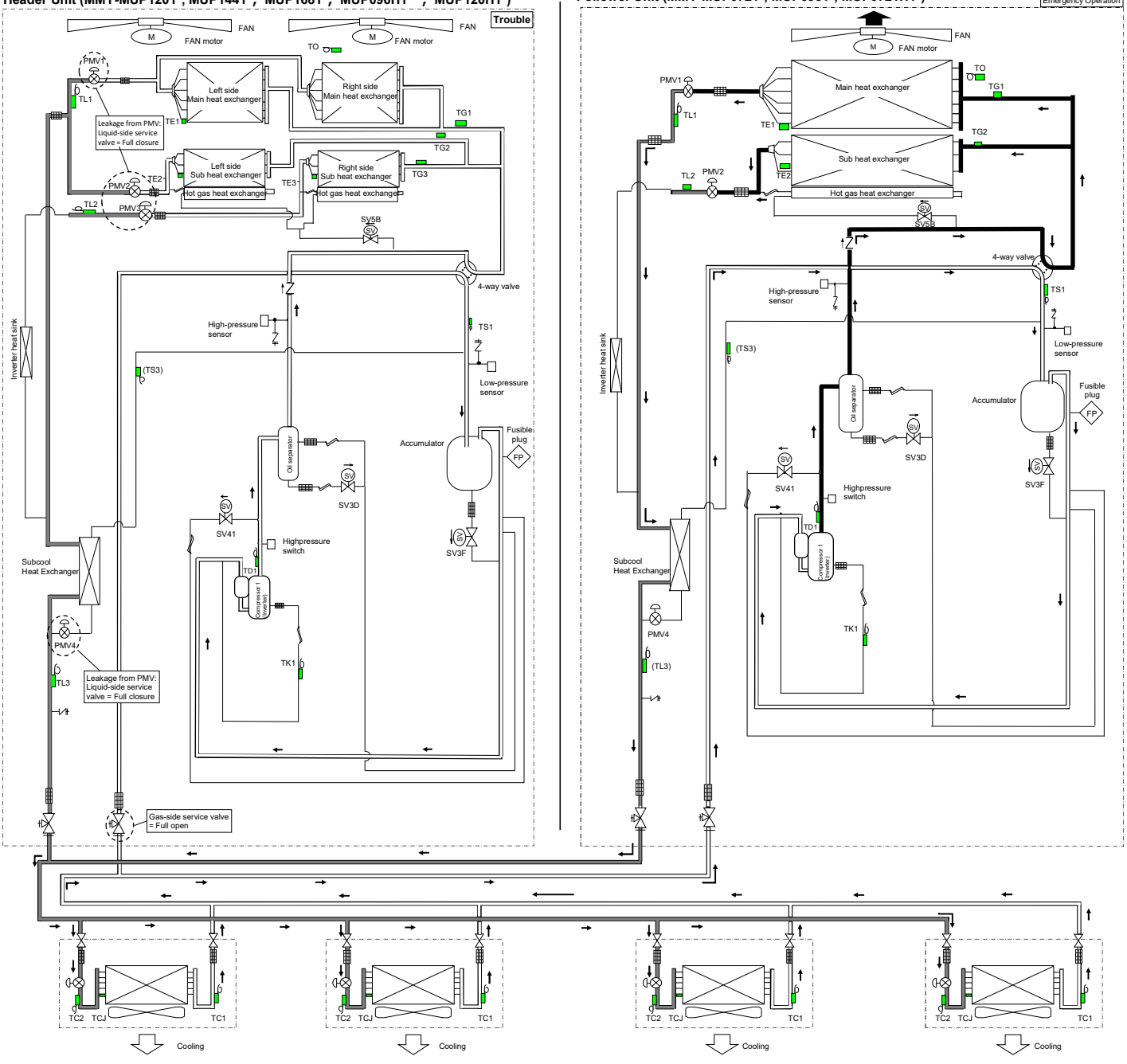
The outdoor unit which communication line between indoor and outdoor is connected is the "Header unit".
Other outdoor units are called “Follower units”.

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)

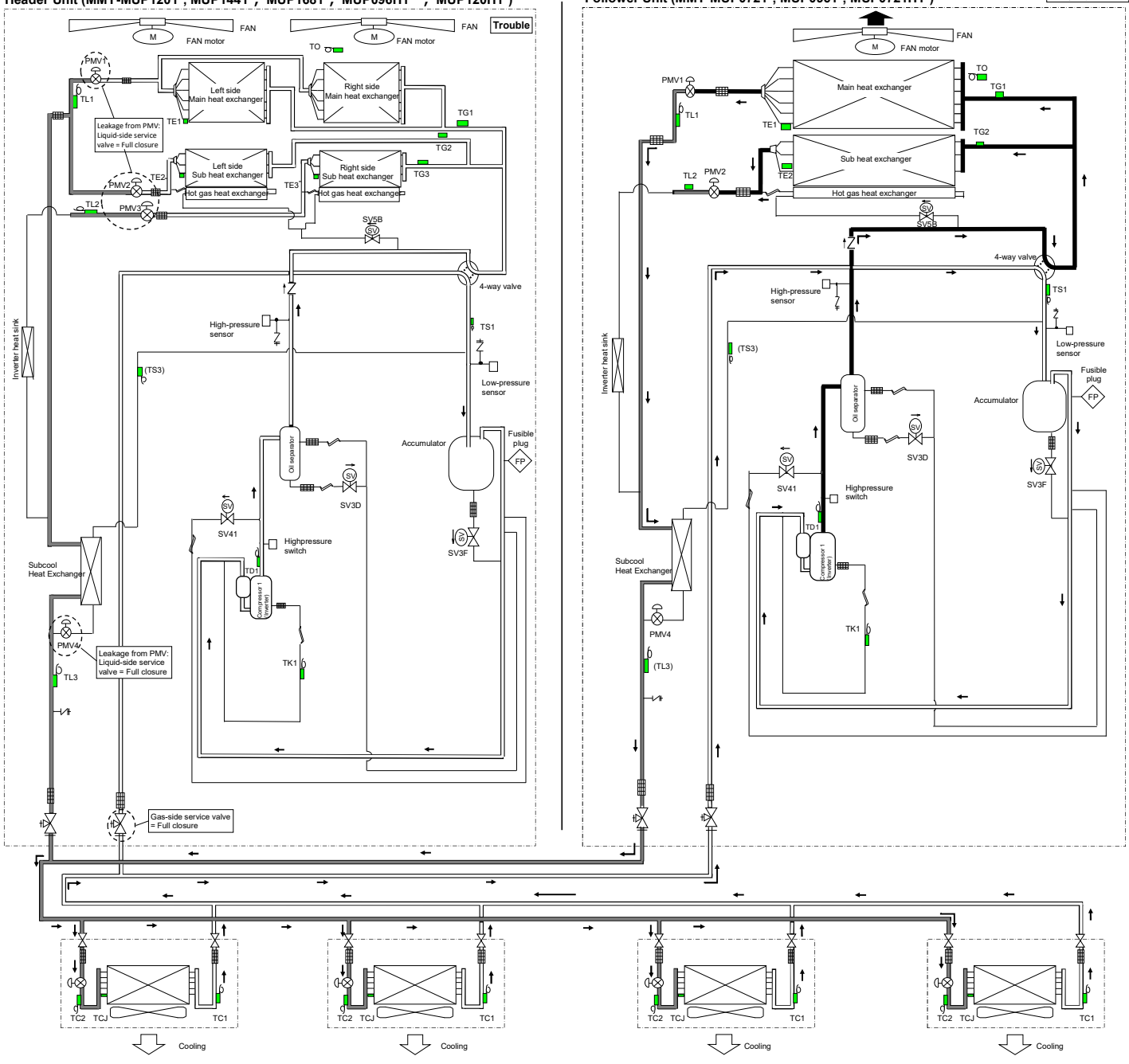
The outdoor unit which communication line between indoor and outdoor is connected is the "Header unit". Other outdoor units are called “Follower units”.

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)

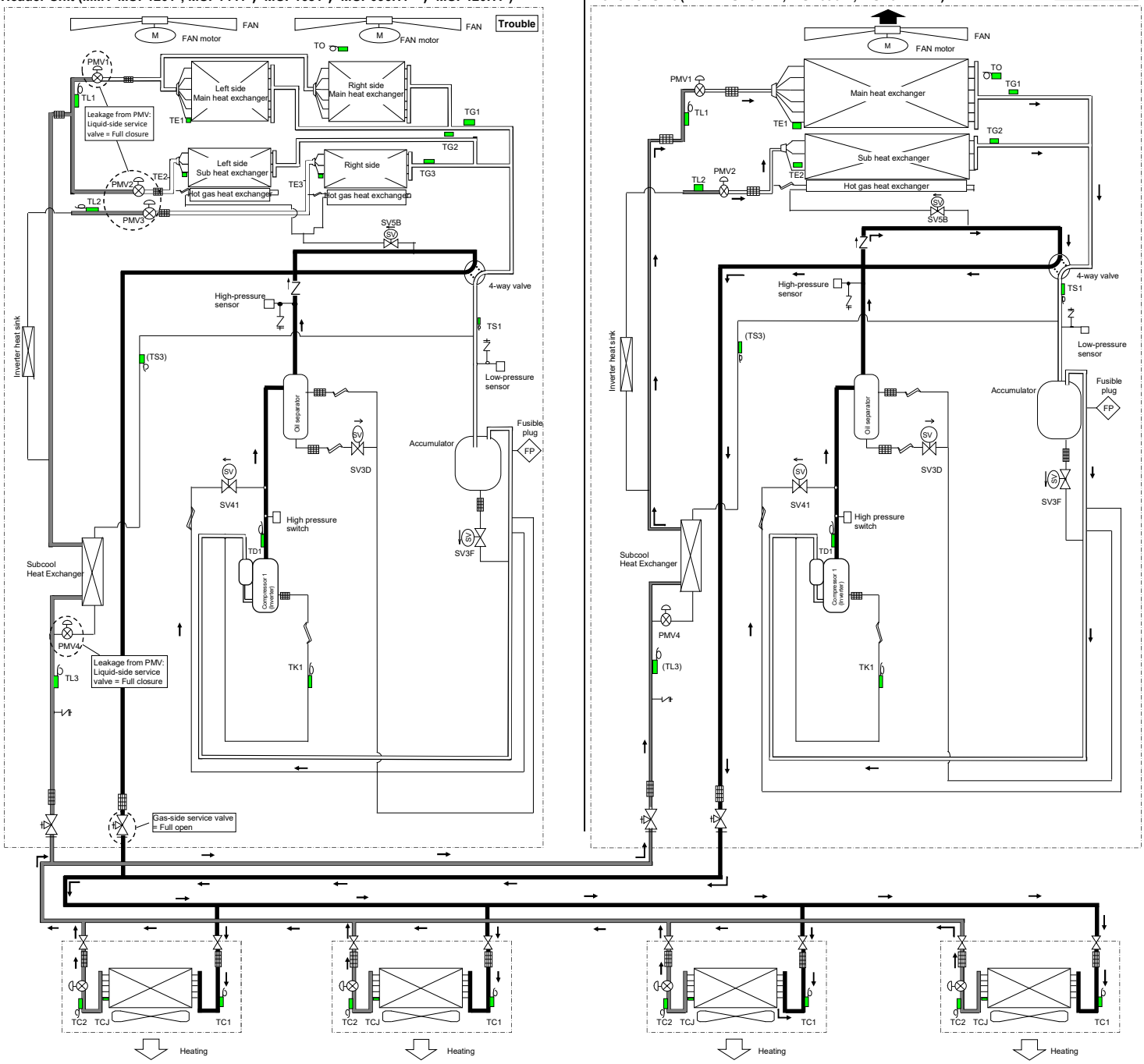
The outdoor unit which communication line between indoor and outdoor is connected is the "Header unit". Other outdoor units are called “Follower units”.

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)

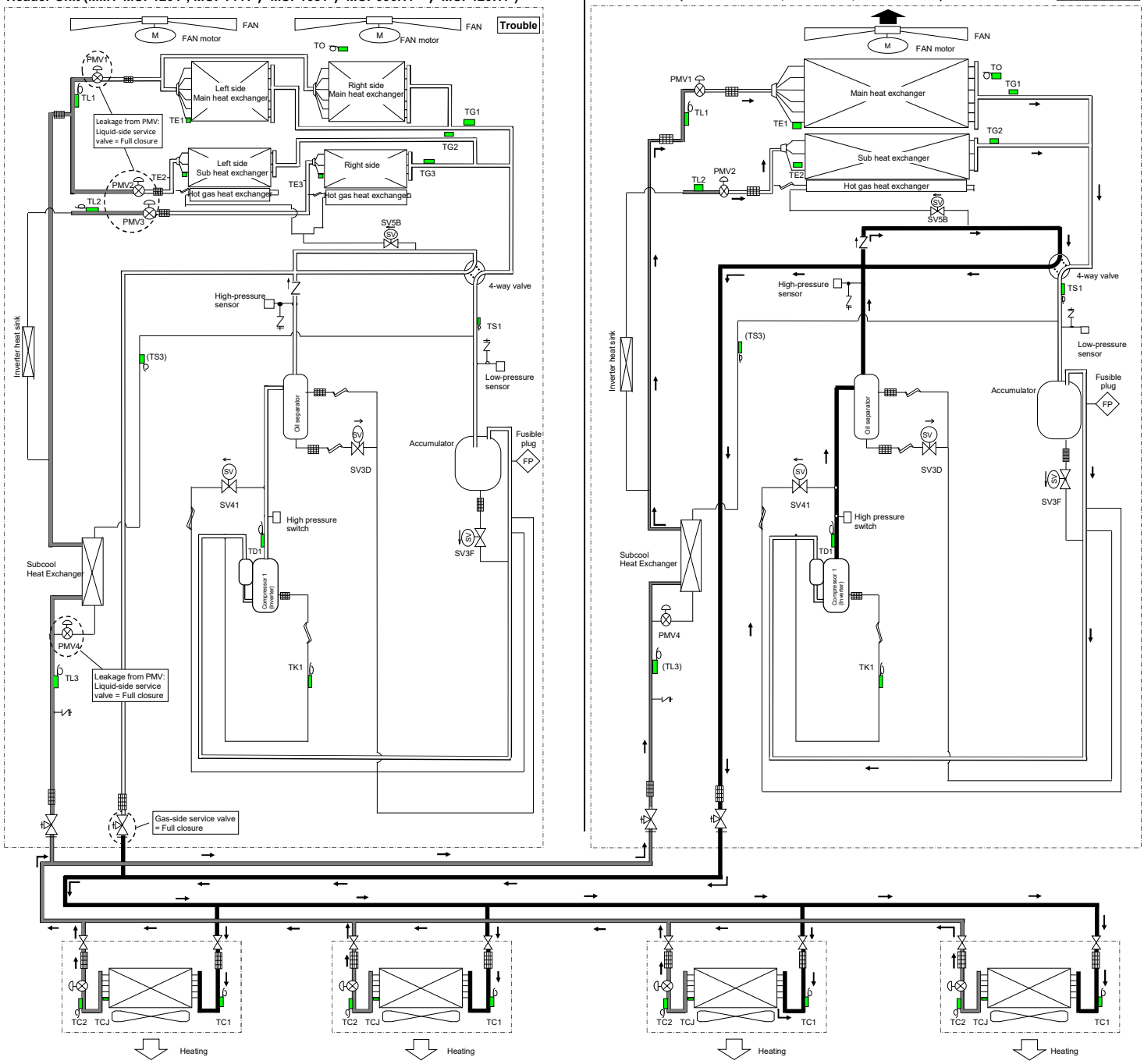
The outdoor unit which communication line between indoor and outdoor is connected is the "Header unit". Other outdoor units are called “Follower units”.

4-5-2. (2) 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)

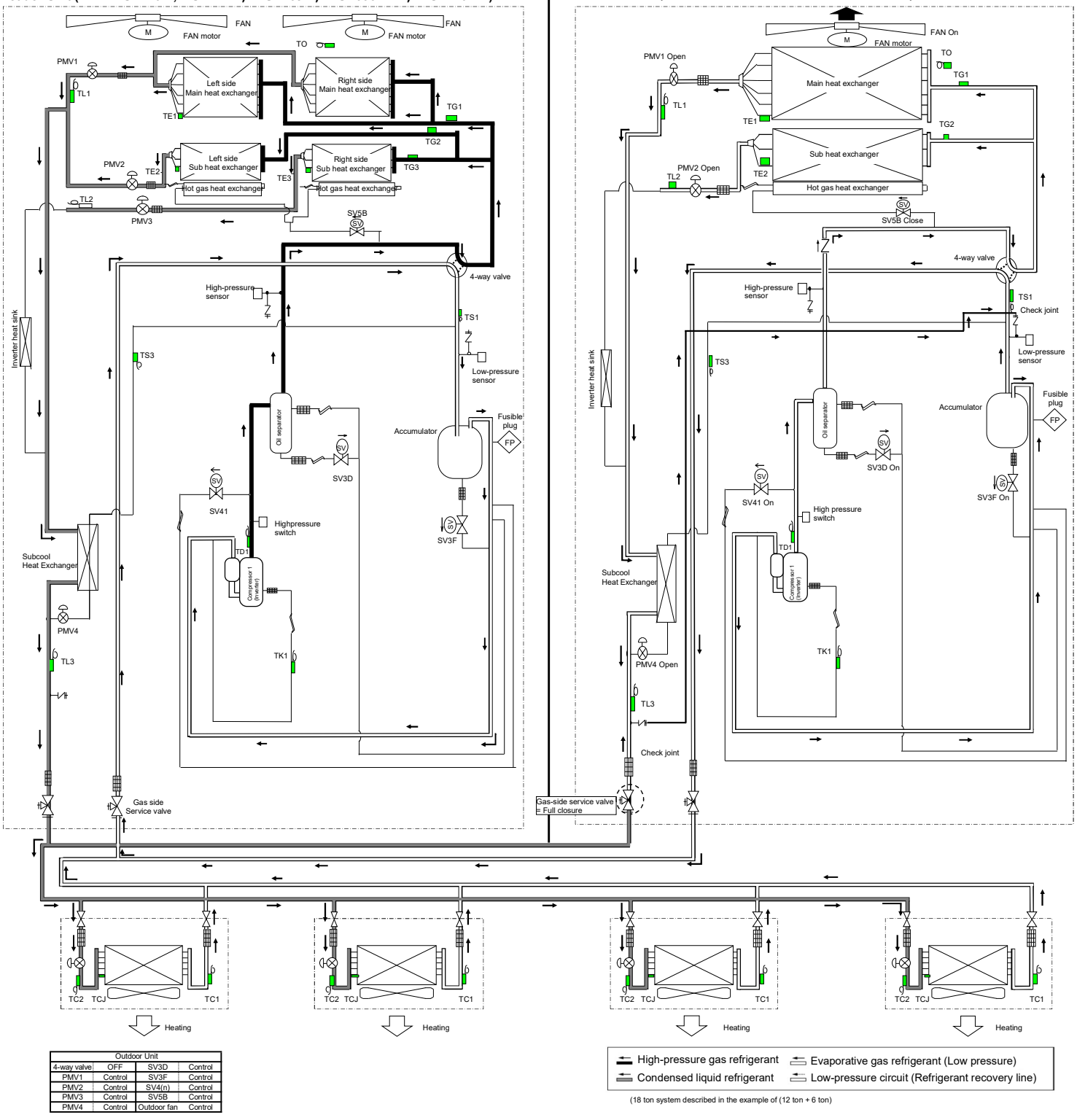
The outdoor unit which communication line between indoor and outdoor is connected is the "Header unit". Other outdoor units are called “Follower units”.

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

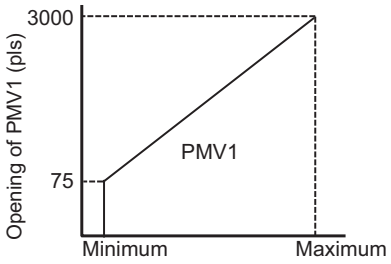
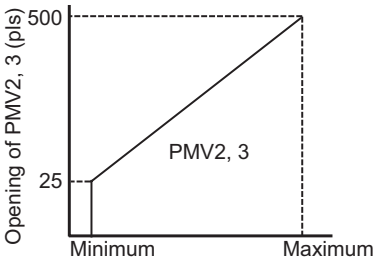
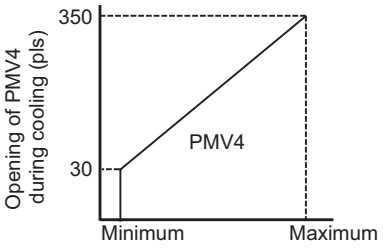
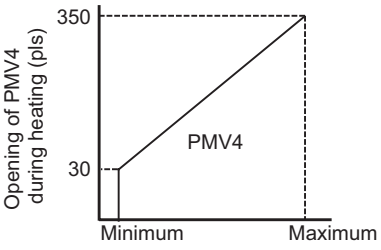
High-pressure gas refrigerant
Condensed liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Low-pressure circuit (Refrigerant recovery line)

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

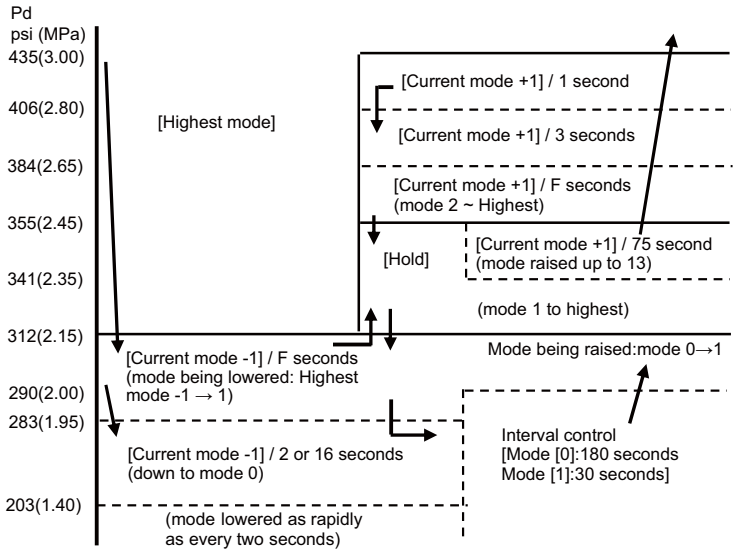
The outdoor unit which communication line between indoor and outdoor is connected is the "Header unit". Other outdoor units are called “Follower units”.

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) 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. 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). 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). 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.   2. PMV 4 control 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). 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) 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.  	

Item	Description of operation, numerical data, and other information	Remarks
2. Outdoor fan control	1. Cooling fan control 1) Outdoor fan speed (mode) is controlled on the basis of measurements provided by the Pd sensor. 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.	

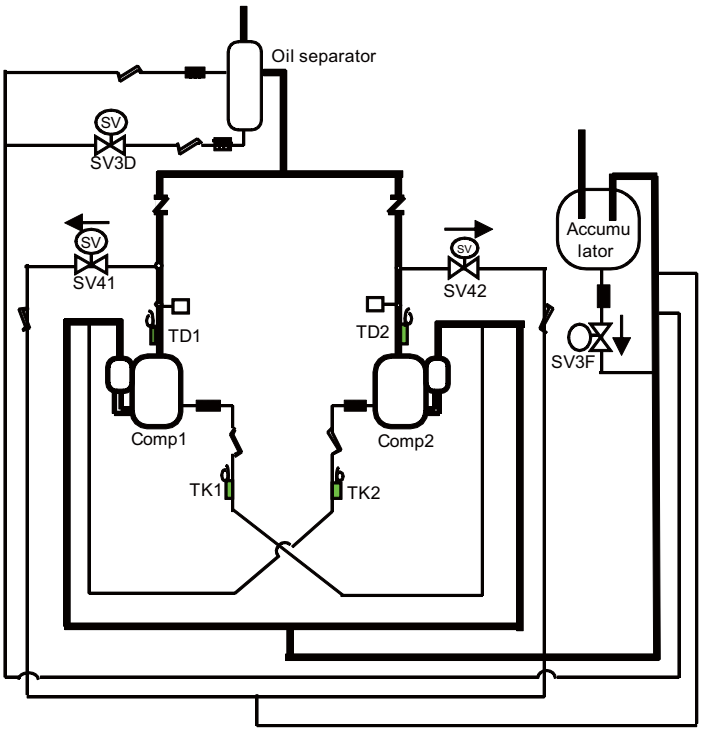


	* Available control modes are 0 (at rest) to 63.	• The fan speed corresponding to the highest mode varies with the capacity of the outdoor unit.
	2. Heating fan control 1) Outdoor fan speed (mode) is controlled on the basis of the measurements provided by the TE temperature sensor. 2) If TE > 77 ºF(25 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. 3) For a specified period after air conditioner start up and during defrosting this control is disabled. 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 • 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 . . . 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. • Mode down is valid only when TH(x) temperature < 167°F(75°C)
1) Lowers the current fan mode upper limit by -1 mode 2) After that, while the conditions are met, the mode will be down every 30 seconds. 3) The lower limit of the mode down is the fan mode "54". 4) When the comp is turned off, this control is canceled and it returns to the initial setting upper limit mode. 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. 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. 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. 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. 3) If the shortage is not resolves by the operation of 2), shift to the oil recovery operation. 4) This control function is performed whenever at least one compressor is in operation. 	• The predicted TK sensor temperature is the predicted value of the TK sensor temperature when the oil is in proper condition • SV3D valve: Solenoid valve for oil return of oil separator • Oil level judgment ① guide When predicted TK-TK < 50°F(10°C), the oil level is ② appropriate When predicted TK-TK ≥ 50°F(10°C), the oil level is insufficient • Predicted TK1, 2 and TK1, and 2 sensor temperature It can check by "8-6. 7-Segment Display Function". • 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. [1] During cooling operation 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. This control is managed by the header outdoor unit. 1) Control start condition • The operating time of the compressor in which an insufficient oil level is detected exceeds 15 minutes • The operating time of the compressor in which an insufficient oil level is detected exceeds 30 minutes • The operating time of the compressor in which an insufficient oil level is detected exceeds 45 minutes • 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. 2) Control content • The operating compressor is operated at the target speed, the stopped compressor is started, and the compressor is operated at the target speed. • 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. • After the recovery control is performed for a predetermined time, the recovery control ends and the normal cooling operation is resumed. [2] During heating operation 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. • Reverse defrost control is performed every 15 minutes after an insufficient oil level is confirmed during heating operation. • 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. * 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. • 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. 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. 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. [1] Paused heating indoor unit PMV minute opening control • Control start condition When all the following conditions are satisfied • There are units with heating thermostat ON and other than thermostat ON (stop/thermostat OFF). • When the outdoor unit determines the refrigerant shortage condition • When the outdoor PMV opening exceeds the specified opening or the TD sensor temperature exceeds the specified value • Control content When the control starts, the PMV in the indoor unit during stop opens by a minute opening. [2] Heating refrigerant recovery control Control start condition • At the start of heating operation (when Comp. is turned on from Comp. OFF) • During heating operation transition after defrosting • 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. • 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. • 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. [Defrosting start condition (single and common system common)] • 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.) * 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. ① Reverse defrosting method (the outdoor unit is a single system) 1. Defrost control content 1) Stop the compressor that is running. 2) After a certain period of time, the four-way valve is turned off and the outdoor fan is stopped. 3) Turn on the compressor that is off and operate it at the target speed for defrost control. 2. Defrost termination condition 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. 3. Defrost end control content ① Stop the compressor again. ② Turns on the four-way valve after a certain period of time. ③ Control the refrigerant recovery in the heating room. For control details, see "6. Heating refrigerant (oil) recovery control". ② Individual defrost method (outdoor unit is combined system) 1. Outdoor unit grouping method The outdoor unit is divided into Gr1 and Gr2 when the power is turned on. 2. Defrost control content 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. 2) Heating Gr continues heating operation as it is 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. 3. Defrost termination condition 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. * 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. 4. Defrost end control content 1) Defrosting Gr unit ① Operates the compressor at standby speed. ② After a certain period of time, the four-way valve turns on. ③ Shift to heating start pattern control. 2) Unit of heating Gr ① When all the outdoor units included in the defrosting Gr turn on the four-way valve, the normal heating operation is restored. ② The outdoor unit to be stopped stops its operation.	• TE sensor detection temperature is the lowest temperature of TE1, TE2, TE3 • Frosting temperature is -29.3°F(-1.5°C) • 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. • Fan mode may be controlled during defrosting for cycle protection. • The compressor speed during defrost control is controlled below 85.0rps. • TE sensor detection temperature is the lowest temperature of TE1, TE2, TE3 • Frosting temperature is -29.3°F(-1.5°C) • Fan mode may be controlled during defrosting for cycle protection. • The compressor speed of the defrost unit during individual reverse defrost control is controlled at 60.0rps or less. • 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
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.
① Control condition
• At power on
• When the compressor is switched from ON to OFF during cooling operation or heating operation.
② Control content
• SV4 (x) is turned on when the power is turned on, and then turned off when ΔP (= Pd - Ps) becomes 290 or less.
• SV4 (x) turns on when the compressor turns off.
(Turns on when ΔP (Pd - Ps) is 435 or more, and turns off when ΔP (Pd - Ps) is 290 or less.)

(2) SV4 high pressure release control
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.
① Control condition
• Compressor ON
② Control content
• When Pd ≥ P1, SV4 (x) is turned on.
• When Pd ≤ P2, SV4 (x) is turned off.
* P1 and P2 of each outdoor unit are as follows

<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>

③ Release condition
• When the system is stopped and the thermostat is off

(3) SV4 low pressure release control
• The purpose of this control is to protect the Ps drop during compression ON.
• This control is performed independently by the header unit and each follower unit.
① Control condition
The outdoor unit that is turned on will judge each item individually.

② Control content
• When Ps ≤ 23.2psi (0.16MPa), turn on SV4 (x).
• When Ps ≥ 29.0psi (0.20MPa), SV4 (x) is turned off.

③ Release condition
• 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.

① Control condition
Perform when all the following conditions are met.
• It is an outdoor unit with startup priority 1.
• When the compressor speed is less than A [rps] during cooling operation
<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)

② Control content
• 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.
• 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.

③ Release condition
• When the system is stopped and the thermostat is off
• When TD (X) > 216°F(102°C) is detected
• 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.
1) Control details
• Compressors are shut down when Pd reaches or exceeds P0
• The Pd control point P0 is switched according to the start priority of the outdoor unit
• The compressor restart prevention timer (2 minutes 30 seconds) is set, and the control terminated.

<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.
If the power supply has not been turned on for a specified period before a post-installation test run. Compressor failure may occur.
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.
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.
1) Control details
• The heaters are turned on while the compressors are turned off.
• 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).
• 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 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. The maximum current and power value for each capacity of each model are as follows 460V ・Standard ton / Maximum current / Maximum power 16 / 30.28 / 21.69 14 / 26.07 / 18.67 12 / 23.38 / 16.75 10 / 22.95 / 16.44 8 / 16.61 / 11.90 6 / 16.53 / 11.84 ・High heat ton / Maximum current / Maximum power 10 / 24.13 / 17.29 8 / 23.74 / 17.00 6 / 17.60 / 12.61 *2 For comp models, it is the maximum value per comp. 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. (2) Heat sink overheat abnormality ① Stop the compressor operation when the TH sensor temperature exceeds 199.4°F(93°C). ② When the above is stopped, the abnormal count is set to 1, and it restarts after 2 minutes and 30 seconds. If you continue the operation for 10 minutes or more after restarting, the trouble count will be cleared ③ A trouble is confirmed with a trouble count of "4". (3) High pressure SW control ① Inverter compressor stops driving the compressor when the high pressure SW is operating. ② When the above is stopped, the abnormal count is set to 1, and it restarts after 2 minutes and 30 seconds. If you continue the operation for 10 minutes or more after restarting, the trouble count will be cleared. ③ The trouble count becomes "4" and the trouble is confirmed. 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. Therefore, the control is for the purpose of preventing dew condensation on the element. 1) Control condition • Compressor ON • Do not execute this control during startup control • Do not execute this control during defrosting operation 2) Control content ① During cooling operation, when TO-TL2 ≥ 5K is continued for 5 minutes ② During heating operation, at the time point when TO supplement-TL2 ≥ 5K is continued for 5 minutes • The header outdoor unit will be stopped, and the system restart prevention timer will be set. • For the follower outdoor units, the compressor of the unit that detected the abnormality is turned off to prevent the compressor from restarting. Set the timer and send the [compressor start permission: OFF] signal outside the center room. • Abnormality count is [1].	

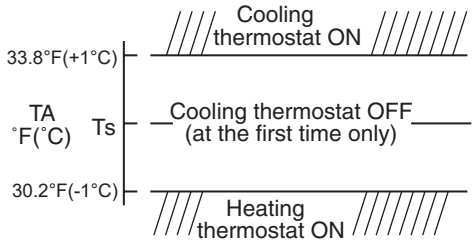
<Other points to note>

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.

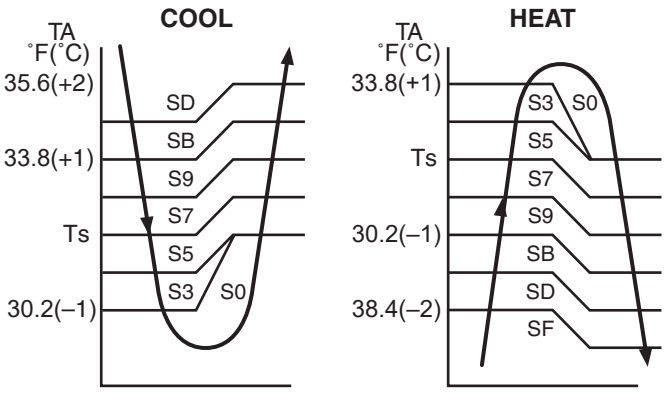
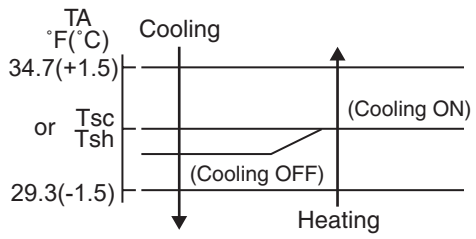
3) Fan mode during heating operation on same system line of indoor unit
   In the same system line of indoor unit, if there's one indoor unit is on the heating operation, the other indoor units cannot do Fan Mode. The indoor unit for which Fan Mode is selected will be forcibly stopped, and ["operation 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
When the power supply is reset, the outdoors are distinguished and the control is selected according to the distinguished result.
2) Setting of indoor fan speed and existence of air direction adjustment
Based on EEPROM data, select setting of the indoor fan speed and the existence of air direction adjustment.
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
(Heat recovery system outdoor unit type)</td><td>• TA and Ts automatically select COOL/HEAT operation mode for operation.
• The operation is performed as shown in the following figure according to TA value at the first time only.
(In the range of Ts – 1 < TA < Ts + 1, Cooling thermostat OFF (Fan) / Setup air volume operation continues.)</td></tr>
</table>


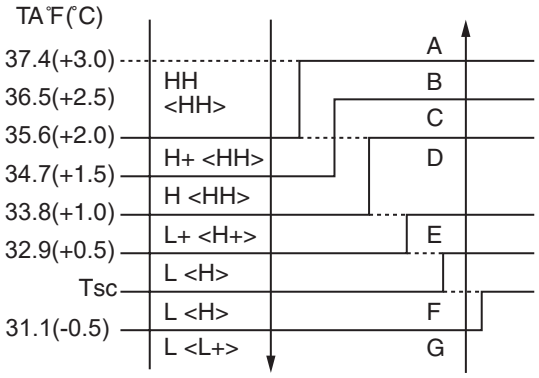
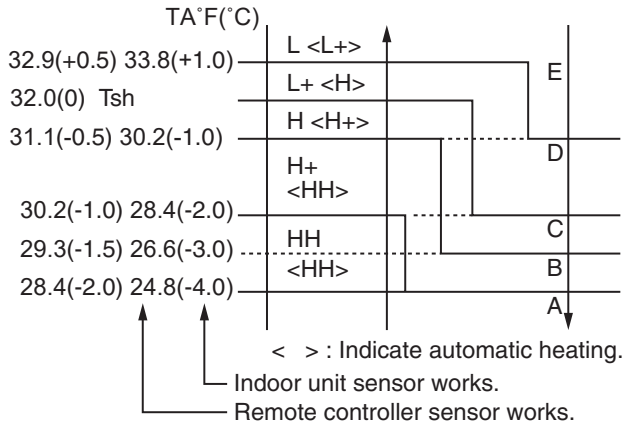
∗ Heat recover system outdoor unit type can select automatic mode.
While a wireless remote controller is used, the mode is notified by “Pi Pi” (two times) receiving sound and the alternate flashing of [TIMER] and [READY].
To clear the alternate flashing, change the mode on the wireless remote controller.</td><td>TA: Room temp.
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.
<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>
The initial factory default value
<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

Except while sensor of the remote controller is controlled
(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.
 
</td><td>Ts: Setup temp.
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.
 

Description in the parentheses shows an example of cooling ON/OFF.

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.
2) For the automatic capacity control after judgment of cooling/heating, refer to item No.4.
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
Tsc: Setup temp. in cooling operation
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]) 2) When the air speed mode [AUTO] is selected, the air speed varies by the difference between TA and Ts. **<COOL>**  < > : Indicate automatic cooling. • Air speed mode [AUTO] in case when remote controller sensor works is equal to that in case when indoor unit sensor works. • 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. • When cooling operation has started, select a downward slope for the air speed, that is, the high position. • If the temperature is just on the difference boundary, the air speed is not changed. **<HEAT>**  < > : Indicate automatic heating. Indoor unit sensor works. Remote controller sensor works. ( ) : indicate the value when the remote controller sensor is worked. • 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. • When heating operation has started, select an upward slope for the air speed, that is, the high position. • If the temperature is at the difference boundary, the air speed is not changed. • If TC2 ≥ 140˚F(60˚C), the air speed increases by 1 step.	HH > H+ > H > L+ > L > UL Fan speed 4-way cassette Compact 4-way 2-way cassette 1-way cassette (SH) Depends on fan speed mode selection at the remote controller. (H+) and (L+) cannot be selected. For Floor Standing Concealed Type,or Floor Standing Cabinet Type,(HH), (H), (L) or [AUTO] can be selected regardless of remote controller models. Code No. 32 0000: Indoor unit sensor (Main unit) 0001: Remote controller sensor 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.

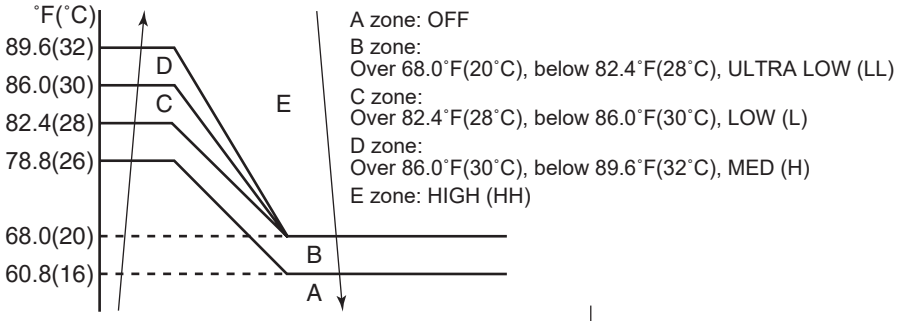
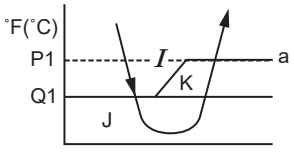
4-way, compact 4-way (only UP015), 2-way, 1-way (SH)
(Air speed selection of UP012 or less and UP018 for Compact 4-way are only Standard.)

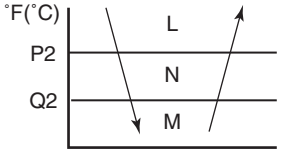
CODE No. [5d]	Factory default		Type 1		Type 3		Type 6	
	0000		0001		0003		0006	
SW501 (1)/(2)	OFF/OFF		ON/OFF		OFF/ON		ON/ON	
Tap	COOL	HEAT	COOL	HEAT	COOL	HEAT	COOL	HEAT
F1					HH	HH	HH	HH
F2			HH	HH				
F3				H+	H+, H	H+, H	H+, H, L+, L	H+, H, L+, L
F4			H+					
F5		HH		H				
F6	HH		H+		L+	L+		
F7	H+	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.
• When B zone has been continuing for 6 minutes, the operation shifts to C zone.
• For the defrosting operation, the control point is set to 42.8˚F(+6˚C).
 
</td><td>TCJ: Temperature of indoor heat exchanger sensor
• In D and E zones, priority is given to remote controller air speed setup.
• 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.
• When “J” zone is detected for 5 minutes, the thermostat is forcedly off.
• In “K” zone, the timer count is interrupted, and held.
• When “I”zone is detected, the timer is cleared and the operation returns to the normal operation.
• If “J” zone continues, operation of the indoor fan in LOW mode continues until it reaches the “I”zone.
It is reset when the following conditions are satisfied.
Reset conditions
1) TC1 ≥ 53.6˚F(12˚C) and TCJ ≥ 53.6˚F(12˚C)
2) 20 minutes passed after stop.
 

<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.
• When “M” zone is detected for 45 minutes, the thermostat is forcedly off.
• In “N” zone, the timer count is interrupted and held.
• When shifting to “M” zone again, the timer count restarts and continues.
• If “L”zone is detected, the timer is cleared and the operation returns to normal operation.
Reset conditions
1) TC1 ≥ 53.6˚F(12˚C) and TCJ ≥ 53.6˚F(12˚C)
2) 20 minutes passed after stop.
 

<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

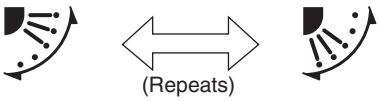
( ) value:
When the power supply is turned on, the forced thermostat becomes OFF if the temperature is less than this indicated temperature.</td></tr>
</table>

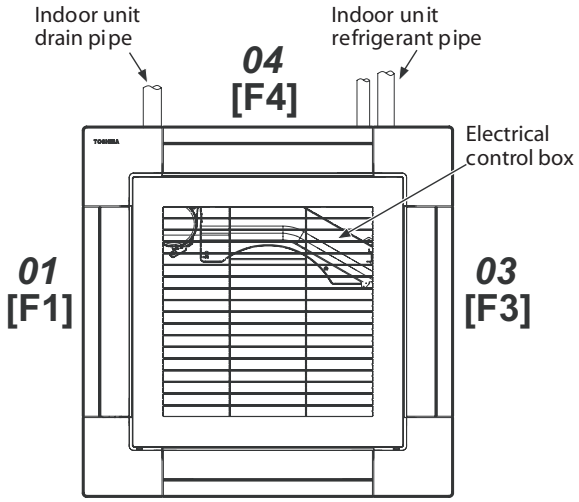
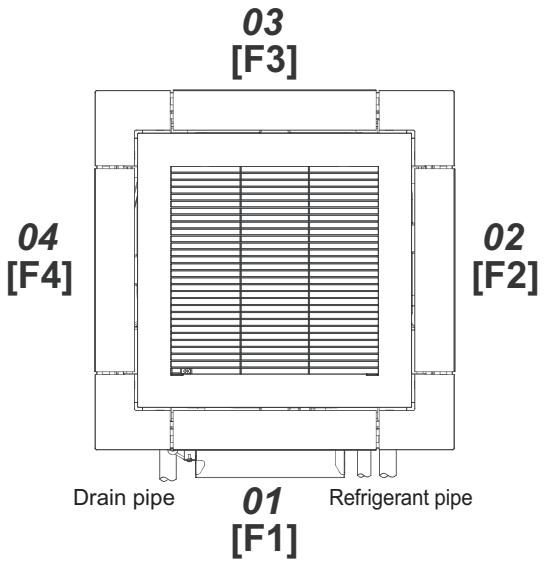
No.	Item	Outline of specifications	Remarks
9	Refrigerant (Oil) recovery control in cooling operation	The indoor unit which is under STOP/Thermostat-OFF status or which operates in [FAN] mode performs the following controls when it received the refrigerant oil recovery signal from the outdoor unit at the cooling operation. 1) Opens PMV of the indoor unit with a constant opening degree. 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. • A model with a drain pump : 4-way cassette Compact 4-way 2-way cassette 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. 1) Opens PMV of the indoor unit with a constant opening degree. 2) Detects temperature of TC2 and then closes PMV. 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 ⊛]. • Recovery operation normally takes place when it detect that the refrigerant is less. • A model with a drain pump : 4-way cassette Compact 4-way 2-way cassette 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. 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) 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. 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] • A model with a drain pump : 4-way cassette Compact 4-way 2-way cassette 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. 2) The HA terminal is ON/OFF depending on HA control output. 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. In case of group operation, use the connector to connect HA terminal to either master or follower indoor unit.

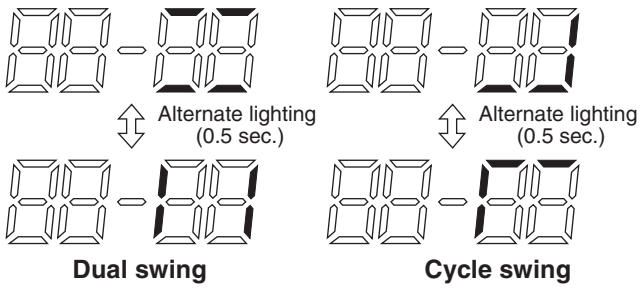
<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>15</td><td>Display of filter sign [▦]
(Not provided to the wireless type)</td><td>1) The filter sign is displayed with LC by sending the filter-reset signal to the remote controller when the specified time (150H/2500H) elapsed as a result of integration of the operation time of the indoor fan.
2) The integrated timer is cleared when the filter-reset signal is received from the remote controller.
In this time, if the specified time elapsed, the counted time is reset and the liquid crystal display is deleted.
<table><tr><th>Filter service life</th><th>2500H</th><th>150H</th></tr><tr><td>Type</td><td>4-way cassette type
Compact 4-way cassette type
1-way cassette type (SH, YH)
2-way cassette type</td><td>Floor standing type
Floor standing concealed type
Floor standing cabinet type</td></tr></table></td><td>[▦ FILTER] goes on.
The filter sign is not displayed in RBC-ASCU11*.</td></tr>
<tr><td>16</td><td>Display of
[⏻ Operation standby]
[☀ Heating standby]</td><td><Operation standby> Displayed on the remote controller
1) When the following check codes are indicated
• Open phase of power supply wiring [P05] was detected.
• There is an indoor unit that detected the indoor overflow [P10].
• There is an indoor unit that detected the interlock alarm [L30].
2) During forced thermostat OFF
• [COOL/DRY] operation is unavailable because the other indoor unit operates with [HEAT] mode.
• [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.
3) The above indoor units that cannot operate stay in thermostat OFF status.
4) The indoor fan stops because the system performs [Recovery operation for heating refrigerant (Oil)].

<Heating standby> Displayed on the remote controller
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>• <⏻ Operation standby> display
No display for wireless type remote controller

• <☀ Heating standby> 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.
2) Setting contents
<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 • When the louver position is changed, the position moves necessarily to downward discharge position once to return to the set position. • The louver position can be set up in the following operation range. **In cooling/dry operation** **In heating/fan operation**  • In group twin/triple operation, the louver positions can be set up collectively or individually. In case that HEAT refrigerant recovery control was performed in STOP status, the louver position becomes horizontal when the operation is resumed. 2) Swing setup 4-way cassette, Compact 4-way, 2-way cassette, 1-way cassette (SH), Floor standing : • [SWING] is displayed and the following display is repeated. **In all operations**  (Repeats) • In group operation, the louver positions can be set up collectively or individually. 1-way cassette (YH) : • [SWING] is displayed and the following display is repeated. **In all operations**  • In group operation, the louver positions can be set up collectively or individually. 3) When the unit stopped or the warning was output, the louver is automatically set to full closed position. 4) When PRE-HEAT (Heating ready) is displayed (Heating operation started or defrost operation is performed), heating thermostat is off or self-cleaning is performed, the louver is automatically set to horizontal discharge position. * The louver which air direction is individually set or the locked louver closes fully when the unit stops and the louver is automatically set to horizontal discharge position when PRE-HEAT (Heating ready) is displayed, heating thermostat is off.	Subject model : 4-way cassette Compact 4-way 2-way cassette 1-way cassette (SH)

No.	Item	Outline of specifications	Remarks
18	Louver control (Continued)	**<<Individual air direction setup>>** • Pushing UNIT LOUVER Louver select button enables every discharge port to set up the air direction. The louver numbers that are displayed on the display part correspond to those in the following figure. • In case of no input (key operation) for approx. 5 seconds during setting of individual air direction (during displaying of louver No. on the remote controller screen), the remote controller screen returns to the normal display screen. • For the air direction illustration during normal operation, the air direction of the least No. among the louvers which are block-set is displayed. • While individual air direction is being set, the remote controller operation (Illustration of air direction) and operation of the real machine are linked. • When selecting a case, UNIT LOUVER Louver select button is not pushed or louver No. is not displayed, the air directions of all the louvers are collectively set up.  **4-way cassette type**  **Compact 4-way cassette type**	Subject model : 4-way cassette Compact 4-way 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>>** • 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*) Swing mode can be selected by Code No.(DN) setup [F0]. 1) Standard (4 pieces: same phase) swing → Data: [0001 (At shipment)] When Swing operation is selected, four louvers align at the horizontal discharge position and then start the Swing operation at the same time. 2) Dual swing → Data: [0002] When operation is selected, the louvers of louver No. [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. 3) Cycle swing → Data: [0003] When operation is selected, the louver No. [01] moves to the horizontal discharge position, [03] to the downward discharge position, [02] and [04] to the middle position and then start the Swing operation at the same time. • 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) (In the case of RBC-AMT*)  **Dual swing** **Cycle swing** **<<Louver lock (Louver fix)>>** • For the air direction setup for each discharge port, the louver position can be locked during the normal operation. • An arbitrary air direction of an arbitrary louver can be registered and set by keeping UNIT LOUVER button pushed for 4 seconds or more on the remote controller. (In the case of RBC-AMT*) Louver lock can be selected by Code No.(DN) setup [F1], [F2], [F3] or [F4]. (In the case of RBC-ASCU11*) • 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 : 4-way cassette Compact 4-way Carry out setting operation during stop of the unit; otherwise the unit stops operation. Carry out setting operation during stop of the unit; otherwise the unit stops operation.

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

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>18</td><td>Louver control
(Continued)</td><td>• If there is the locked louver in the unit, [⊕] goes on the remote controller screen.
• While the following controls are performed, the louvers operate even if executing the louver lock.
<table><tr><th></th><th>Control which ignores lock</th><th>Objective louver No.</th></tr><tr><td>①</td><td>Operation stop</td><td>Full-close position</td></tr><tr><td>②</td><td>When heating operation started</td><td>Horizontal discharge position</td></tr><tr><td>③</td><td>Heating 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.

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)
2) DC motor operates according to the command from the indoor controller.
(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.
(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]
Subject model :
4-way cassette
Compact 4-way
2-way cassette
1-way cassette (SH)(YH)
Floor standing</td></tr>
<tr><td>20</td><td>Power saving mode</td><td>(In the case of RBC-AMT*)
1. Push the SAVE button on the remote controller
2. The “ ” segment lights up on the wired remote controller display.
3. The requirement capacity ratio is limited to approximately 75 %.
4. If the power saving operation is enabled, the settings are retained when the operation is stopped, when the mode is changed, or when the power is reset.
The power saving operation will be enabled at the next time the operation starts.
• 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.

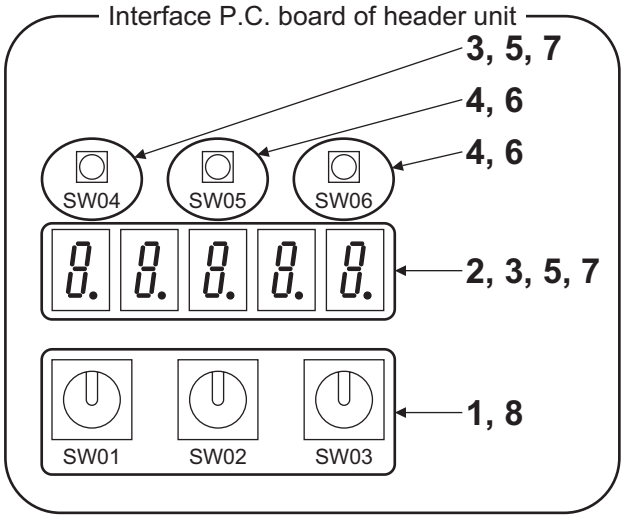
◆ Applicable controls setup

(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.)

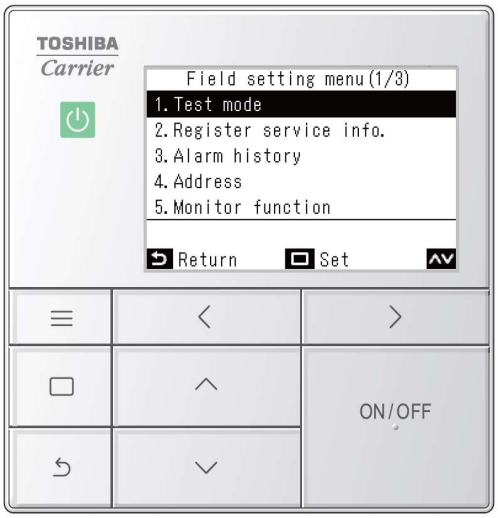
When switching settings from the interface P.C. board of the outdoor unit

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) .



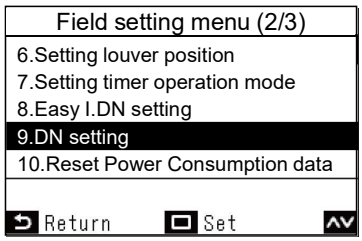
When switching from the wired remote controller (RBC-AWSU**)

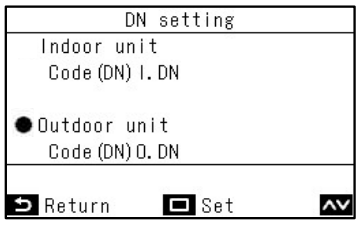
Basic procedure
Be sure to stop the air conditioner before making settings.
(Change the setup while the air conditioner is not working.)

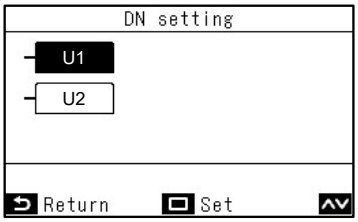


1 **Push the [Menu] button to display the menu screen**

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

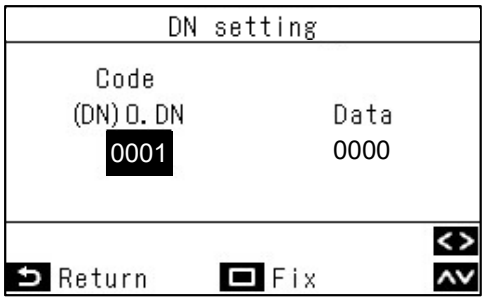


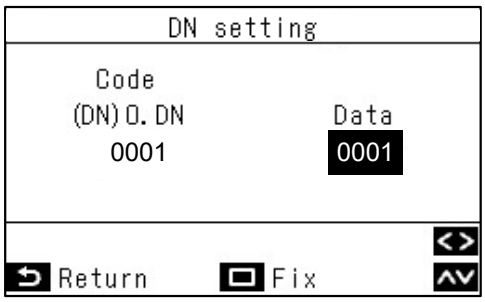


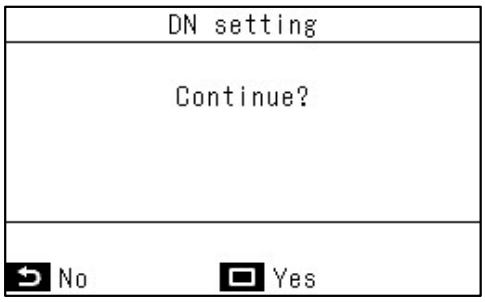


3 **Push the [ ] / [ ] button to select "9.DN setting" on the "Field setting menu" screen, then push the " Set" [Set/Fix]" button.**

→ 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
<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-UP072H1HT6P-UL</td><td>0015</td></tr>
<tr><td>MMY-UP0721HT6P-UL</td><td>0006</td><td>MMY-UP096H1HT6P-UL</td><td>0016</td></tr>
<tr><td>MMY-UP0961HT6P-UL</td><td>0007</td><td>MMY-UP120H1HT6P-UL</td><td>0017</td></tr>
<tr><td>MMY-UP1201HT6P-UL</td><td>0008</td><td></td><td></td></tr>
<tr><td>MMY-UP1441HT6P-UL</td><td>0009</td><td></td><td></td></tr>
<tr><td>MMY-UP1681HT6P-UL</td><td>0010</td><td></td><td></td></tr>
<tr><td>MMY-UP1921HT6P-UL</td><td>0011</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. 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.
0001 : Regardless of the elapsed time, WTA cannot start test operation.
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 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).
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 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
[0A] [0C] : 0000 to 0255 (1 kW to 255 kW)
[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>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 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 0001 : Priority cooling
0002 : Priority operation unit No. 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 0001 : High Static Pressure Operation</td><td>0000 : Usual</td></tr>
<tr><td>01A</td><td>Operation standby Heating standby</td><td>0000 : None 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 0002 : 2-system cooperation (master unit) 0003 : 3-system cooperation (master unit) * 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 0001 when not using central controller for control for system cooperation defrosting, 0001 to 0128 when using central controller	0000: None
01F	System cooperation defrosting settings 3 (cooperation address)	0000: None 0001: Master unit 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 ※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*	1921*
Maximum external static pressure	0.32 inWG(80Pa)	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	9780
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)

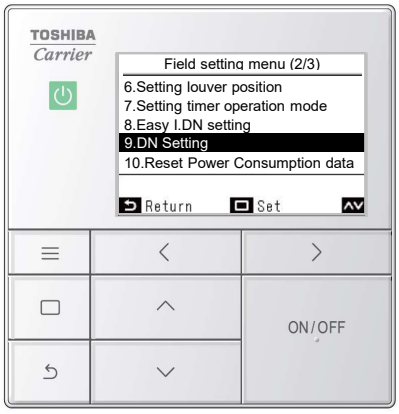
(2) Indoor unit setup method for priority indoor unit mode
The setting can be changed only when the system is at rest. (Be sure to turn off the system prior to this operation.)

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".**

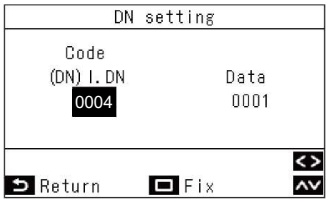
Push and hold the buttons for more than 4 seconds.

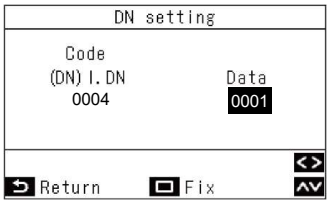
3 **Push the [ ] / [ ] button to select "9.DN setting" on the "Field setting menu" screen,then push the " Set" [Set / Fix] button.**

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.

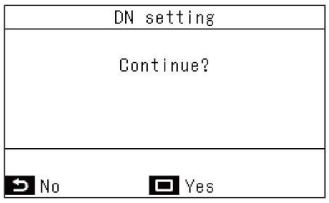
4 **Move the cursor to select "DN code" with the " " button, then set "0004" with the [ ] / [ ] button.**

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

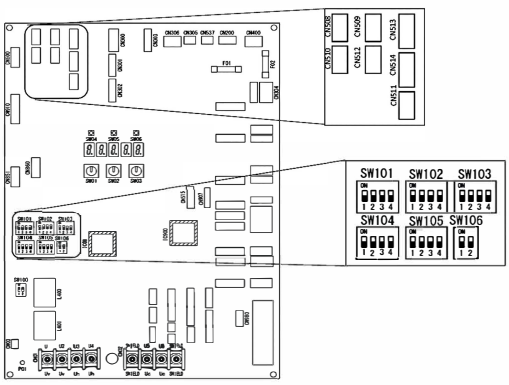
Outdoor unit DN Code (O.DN)	[00C]	[00D]
Value	19	35

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

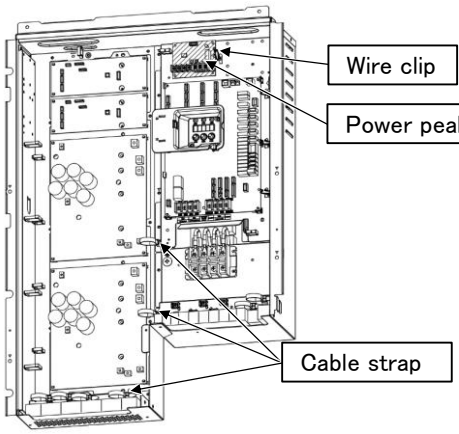
Layout of Outdoor Unit Interface P.C. Board

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

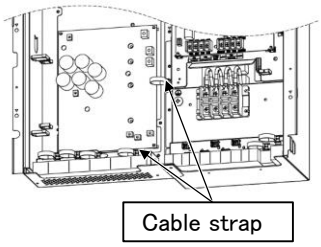


Optional application control board mounting position.

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

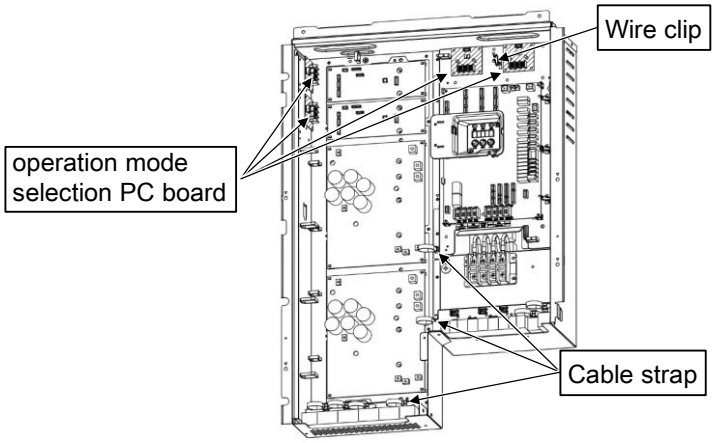


Inverter case type A
(MMY-MUP1921*)
Quantity of cable straps : 3

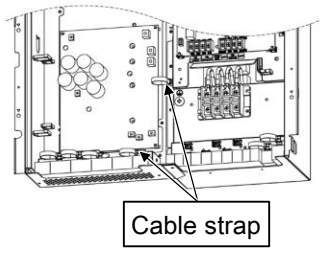


Inverter case type B
(MMY-MUP0721*, 0961*, 1201*, 1441*, 1681*,
072H1*, 096H1*, 120H1*)
Quantity of cable straps : 2

Operation mode selection PC board(TCB-PCMO4UL)

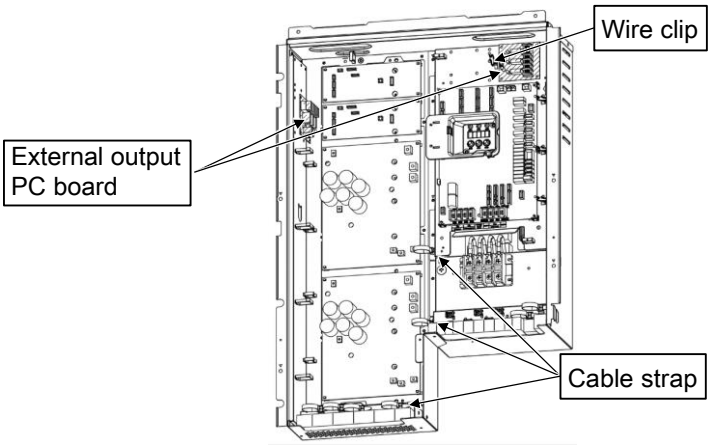


Inverter case type A
(MMY-MUP1921*)
Quantity of cable straps : 3

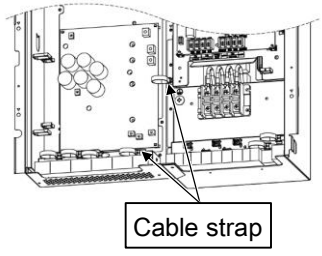


Inverter case type B
(MMY-MUP0721*, 0961*, 1201*, 1441*, 1681*,
072H1*, 096H1*, 120H1*)
Quantity of cable straps : 2

External output PC board(TCB-PCIN4UL)



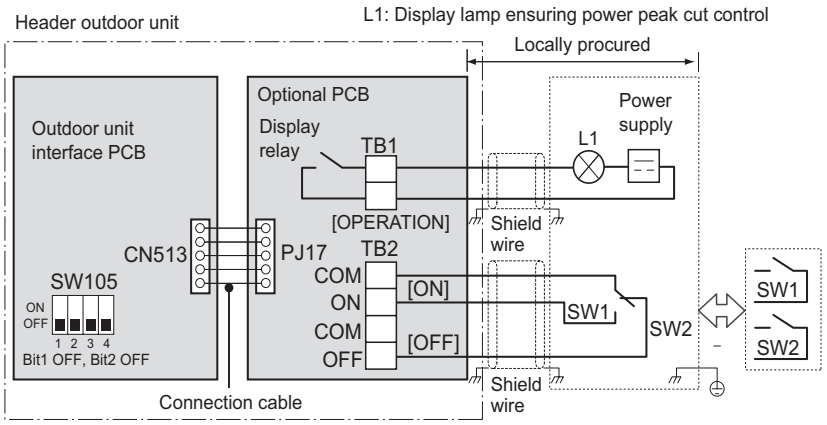
Inverter case type A
(MMY-MUP1921*)
Quantity of cable straps : 3



Inverter case type B
(MMY-MUP0721*, 0961*, 1201*, 1441*, 1681*,
072H1*, 096H1*, 120H1*)
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)

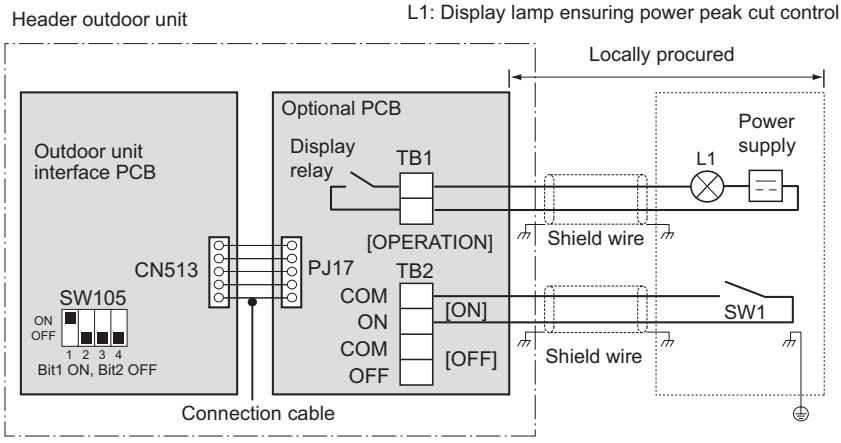
When connecting a conductive load (e.g. relay coil) to the display relay load, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

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.

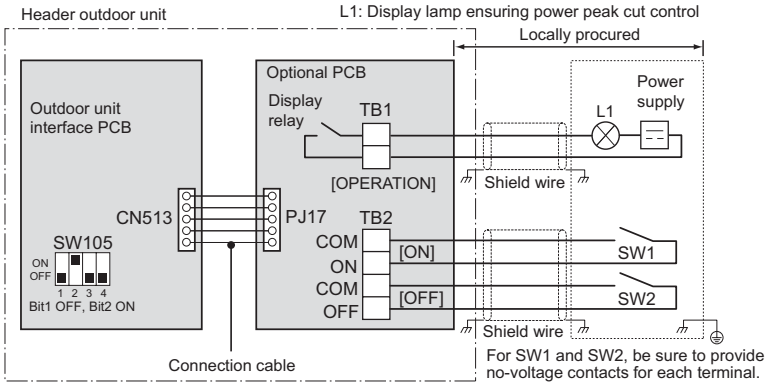
<Electrical Rating>
220 to 240 VAC, 10 mA or more, 1 A or less
24 VAC, 10 mA or more, 1 A or less (non-conductive load)

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.

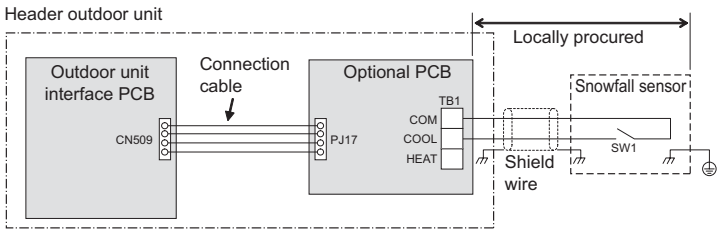
NOTE 3: Power consumption is estimated, causing approx. ±5 % difference from the actual power consumption.
To perform accurate power peak-cut control, use a demand controller and electric power meter.

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

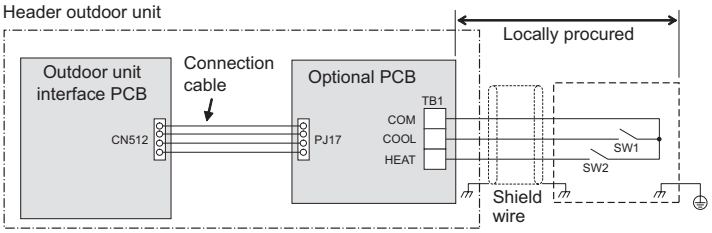
An external snowfall signal turns on the outdoor unit fan.

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; It does not matter whether the state is ON or OFF after 100 msec from the signal input. Batch-operation accepted. 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

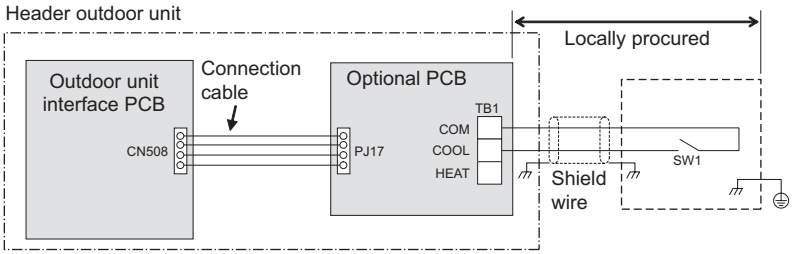
- Input signal is detected in the rising edge between OFF and ON of SW1/SW2 and the control is accepted in 100 msec from the edge.
- When COOL terminals (SW1 and SW2) are simultaneously turned ON, the control turned ON first is valid, and the control turned ON later is invalid.

⚠ 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).

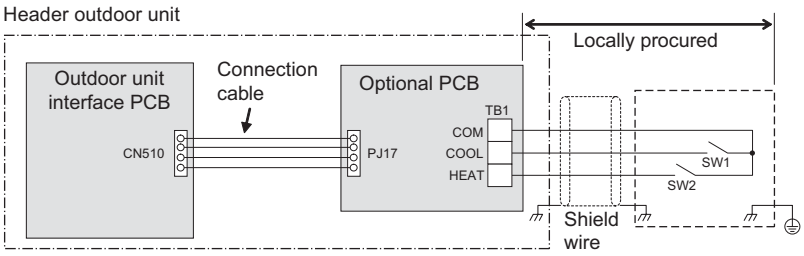
The system's capacity is reduced during low-noise operation.
The table below provides a rough guide to this capacity reduction.

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%
MUP1921*	52/54	Approx. 60%	Approx. 60%
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

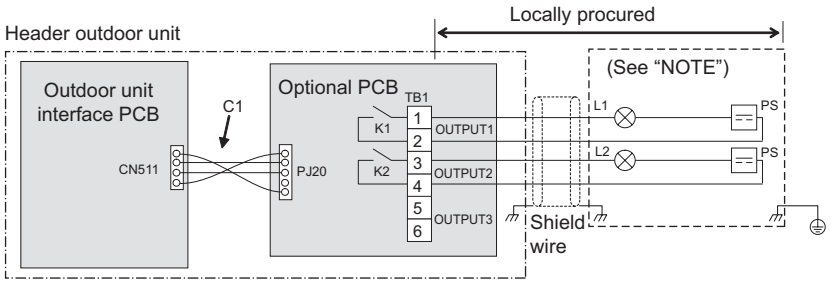
Indoor unit operation intervention function

The statuses of indoor units operating in a mode other 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.
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.
• 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.
• 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

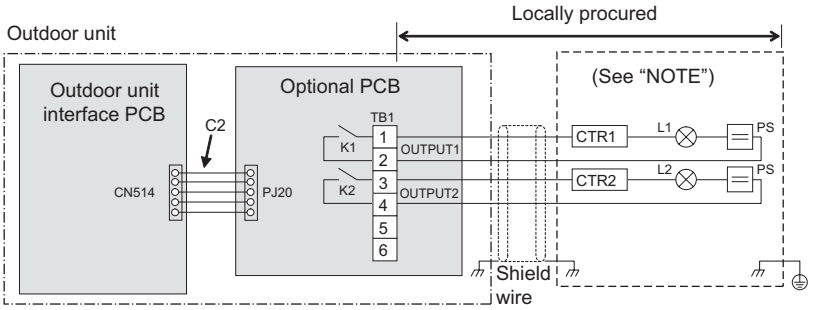
- Output terminals (OUTPUT1, 2) must satisfy the following electrical rating.
- When connecting a conductive load (e.g. relay coil) to loads K1 and K2, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

<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



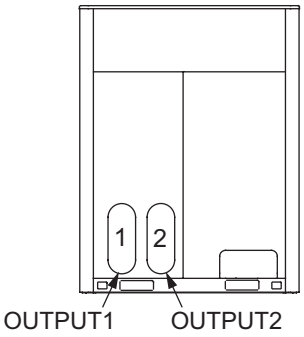
Operation

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

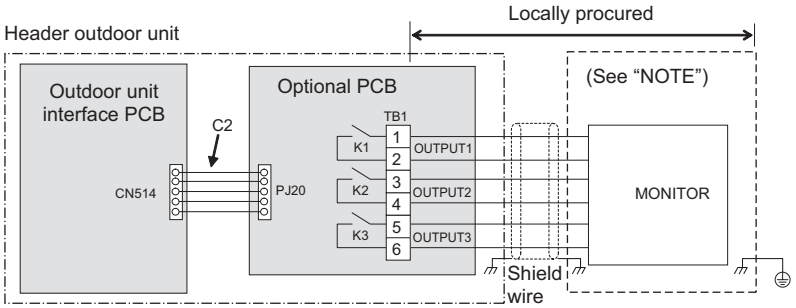
- Output terminals (OUTPUT1, 2) must satisfy the following electrical rating.
- When connecting a conductive load (e.g. relay coil) to loads K1and K2 insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

<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

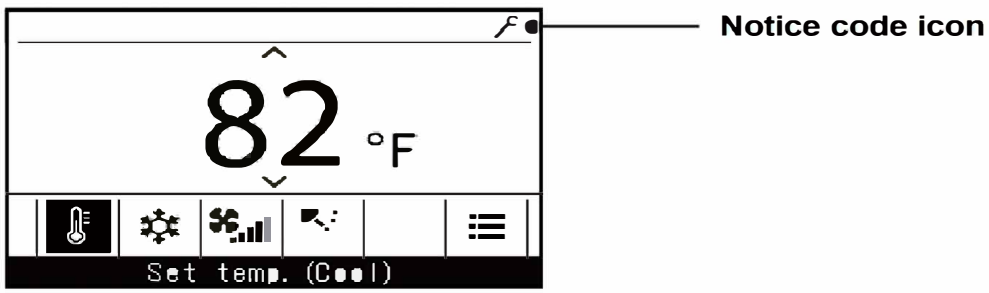
- Notice Code is a function only in TC2U-Link communication.
- When the outdoor or indoor unit detects its conditions requiring caution or maintenance, this function notices you to check your units with the spanner mark (Notice code mark) on the wired remote controller or central controller display.
- 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

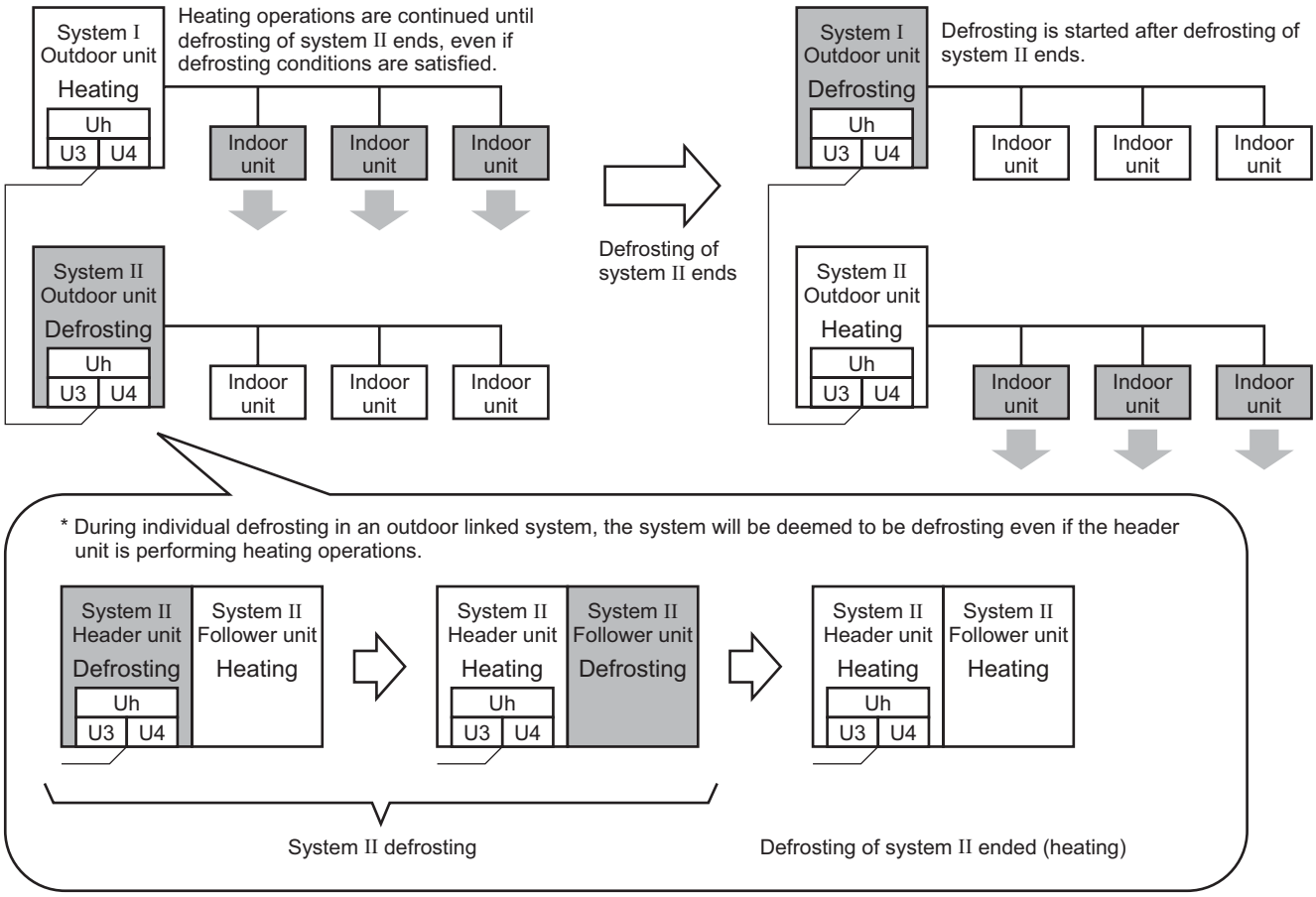
Notice code No.	Item	Content
001	Compressor maintenance timer over	This notice code is detected or issued from the outdoor unit when the actual operation cumulative time of comp.1 or comp.2 exceeds the compressor maintenance time set. The compressor maintenance time is not set at the factory. To use 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. (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.

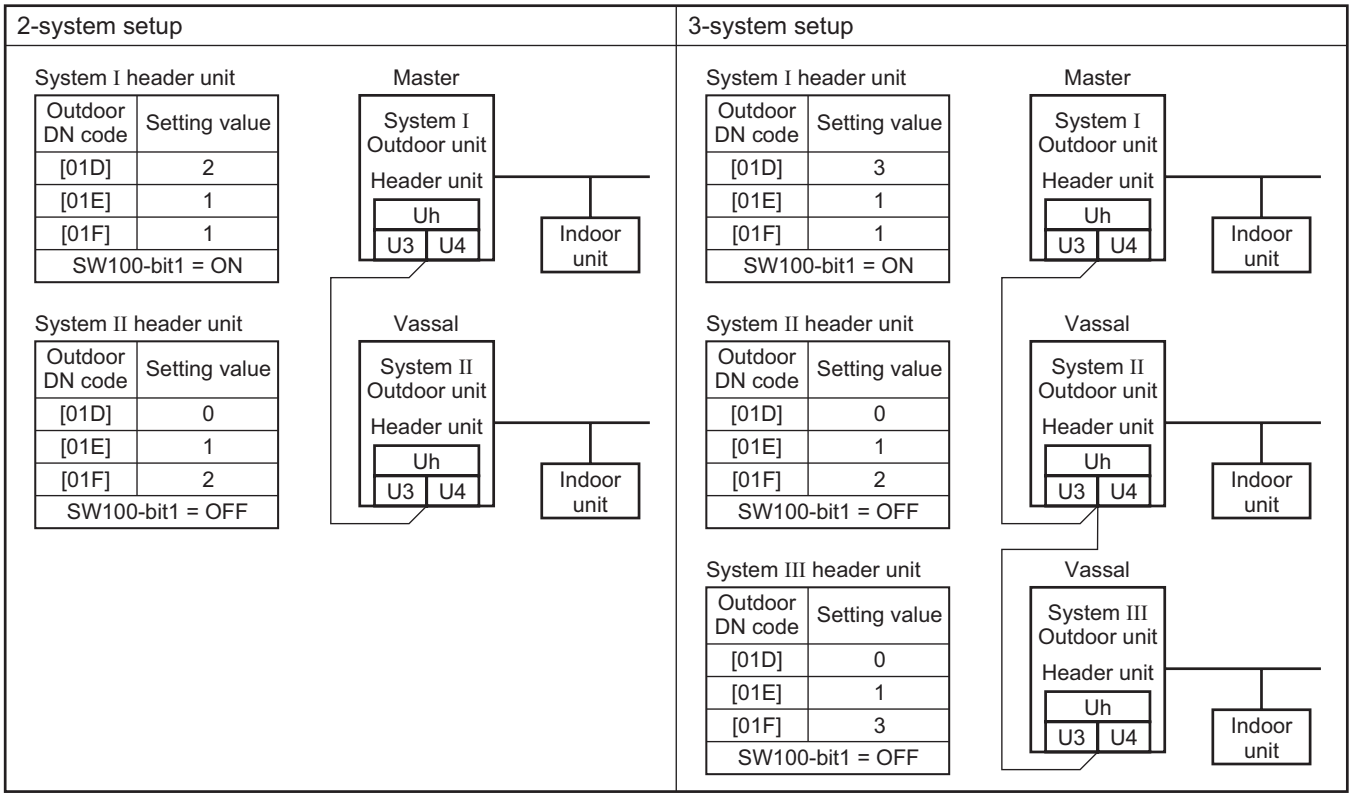
2) Set the outdoor DN code [01E] of each header unit to 0001.
When using the central controller for system cooperation defrosting control, set to 0001 through 0128 in accordance with the manual for the central controller.

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 0002 : 2-system cooperation (master unit) 0003 : 3-system cooperation (master unit) * 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 0001 when not using central controller for control for system cooperation defrosting, 0001 to 0128 when using central controller	0000: None
01F	System cooperation defrosting settings 3 (cooperation address)	0000: None 0001: Master unit 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

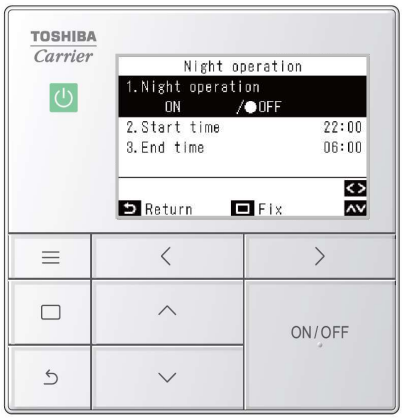
·The 'Night operation' function of RBC-AWSU** remote control can be used with SMMS-u. It reduces the sound of outdoor unit putting priority on quietness during night time operation, etc., and the operation time can be set.

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.**

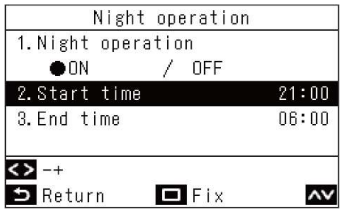
3 **Push the [ ] / [ ] button to select "1.Night operation" on the "Night operation" screen.**

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".**

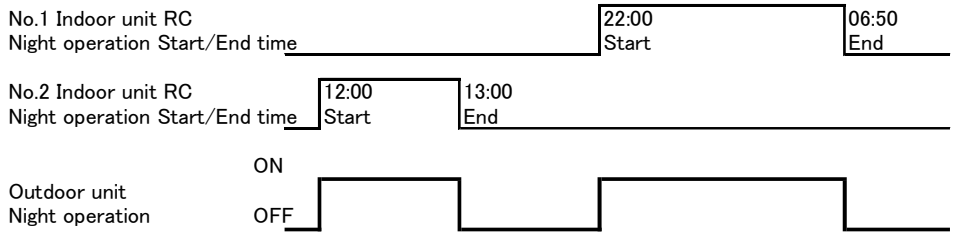
4 **Push the [ ] / [ ] button to set the time.**

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

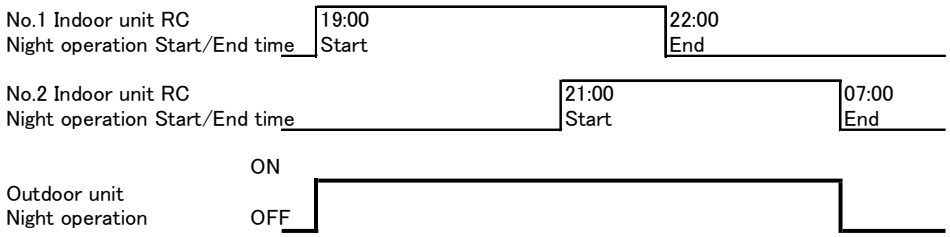
■ Control outline

- 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.

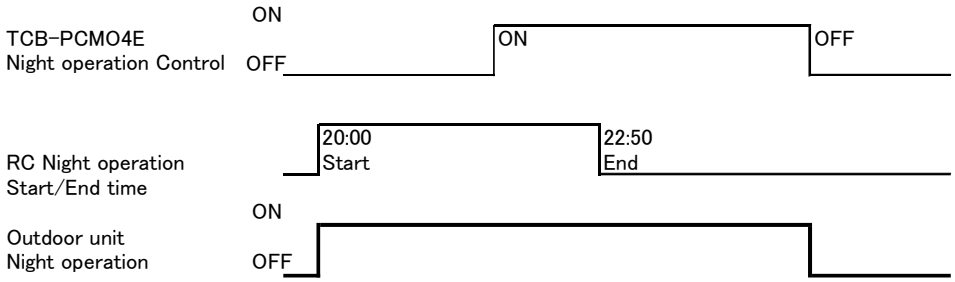
・ The 'Night operation can be set by a number of remote controls. It operates according to the start time and the end time set by each remote controls.



・ 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.



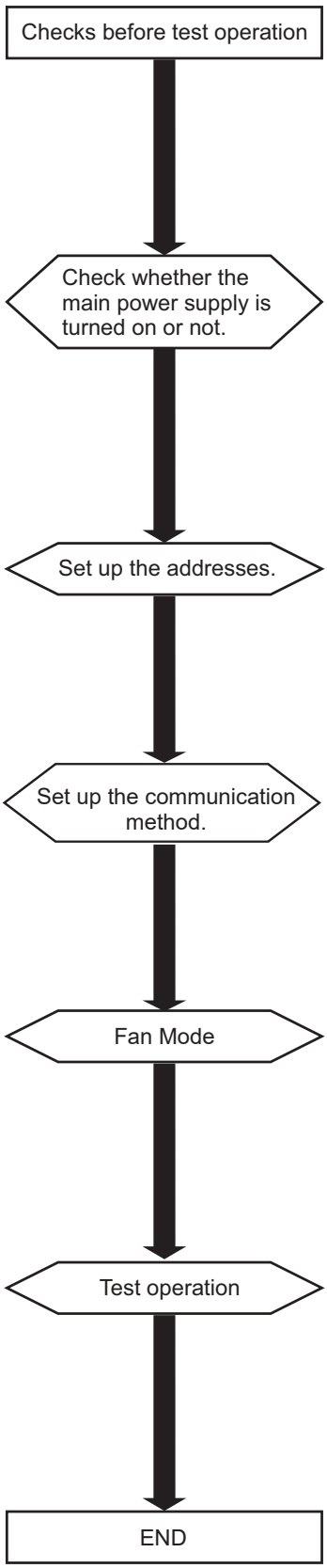
・ The 'Night operation' with remote controls, and the 'Night Operation Control' with optional control P.C.board (TCB-PCMO4E) connected to the outdoor unit, can be used together. The outdoor unit operates in 'Night Operation' when either control is effective.



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.

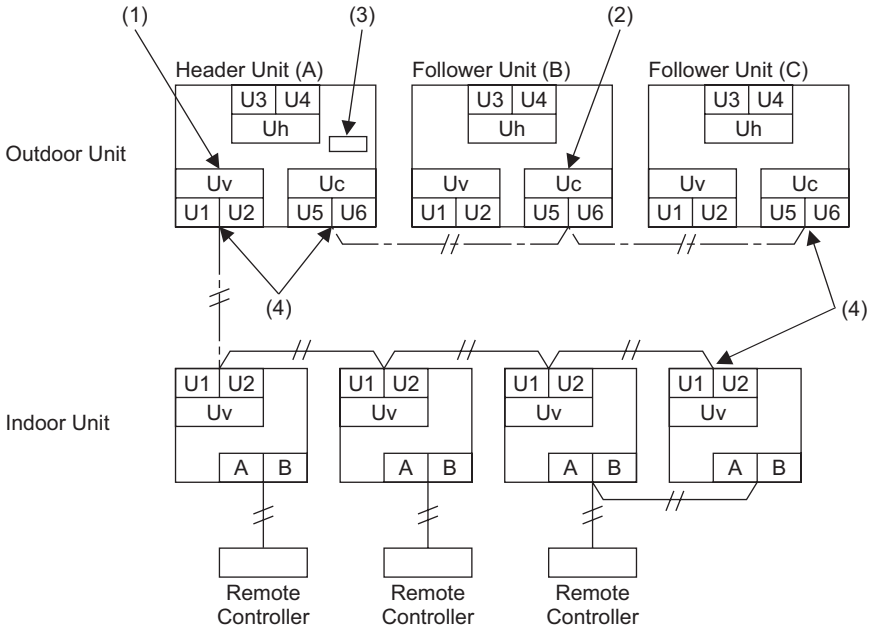
7-2. Check Items before Test Operation (before powering-on)

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:

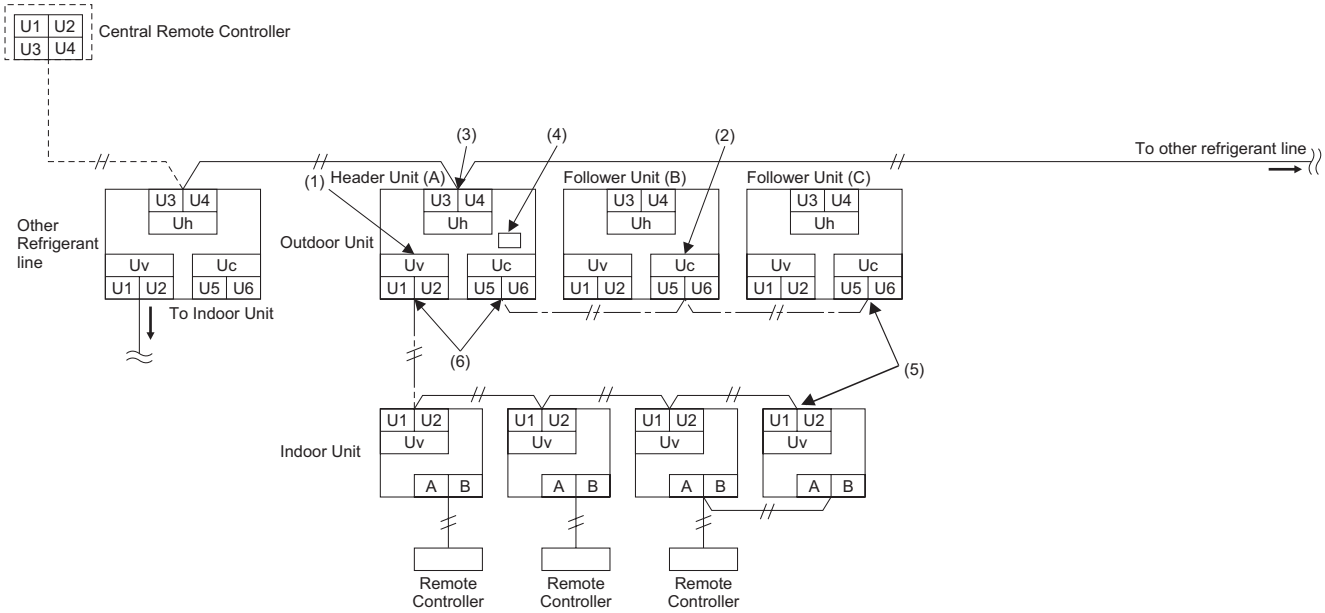


Main check items	Check
(1) Are the indoor and outdoor communication lines of the header unit connected to the U1/U2 (Uv) terminals?	
(2) Is the communication line between outdoor units connected to the U5/U6 (Uc) terminal?	
(3) Is the header unit setting (SW101-bit 1) turned on? Is the terminator resistor (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? (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? Is the terminator resistor (SW100-bit 2 (termination resistance of Uv line)) on the interface PC board of the header unit turned on? * 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? (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: → Are Network adapter (TCB-PCNT30TLE2) correctly connected? → 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 Follower unit (B) ☐ A Follower unit (C) ☐ A		Indoor unit ☐ A
Is the gauge of the power cable correct?		Header unit (A) ☐ mm^2 Follower unit (B) ☐ mm^2 Follower unit (C) ☐ mm^2		Indoor unit ☐
Is the control communication line correct?		Indoor-outdoor connection terminals (U1, U2) ☐ Outdoor-outdoor connection terminals (U5, U6) ☐ 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	192	-	-	7.70	3.50
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

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.)

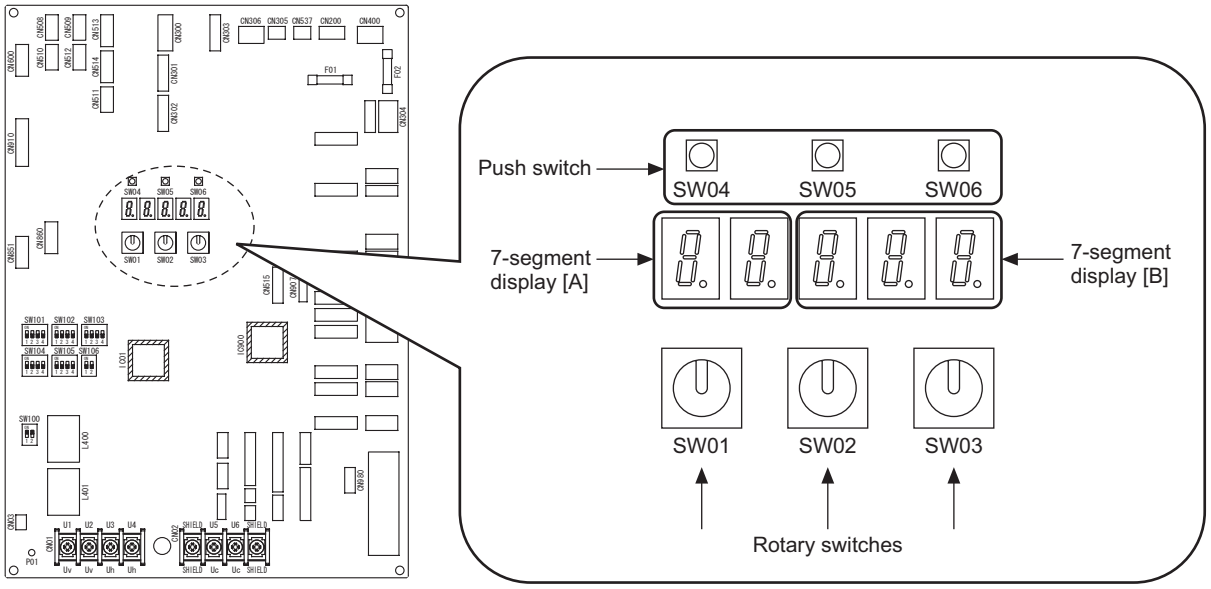
<Check on the outdoor unit>

(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

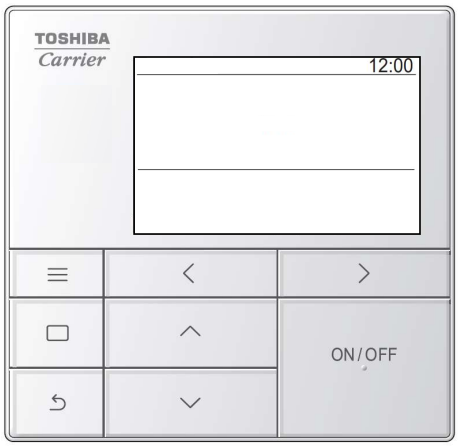


<Check on the indoor unit>

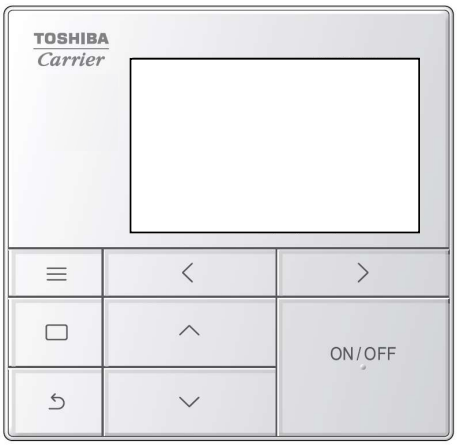
(1) Display check on the remote controller (in the case of a wired remote controller)
Check that a frame, as shown in the following figure at left, is displayed on the LC display section of the remote controller.

<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.

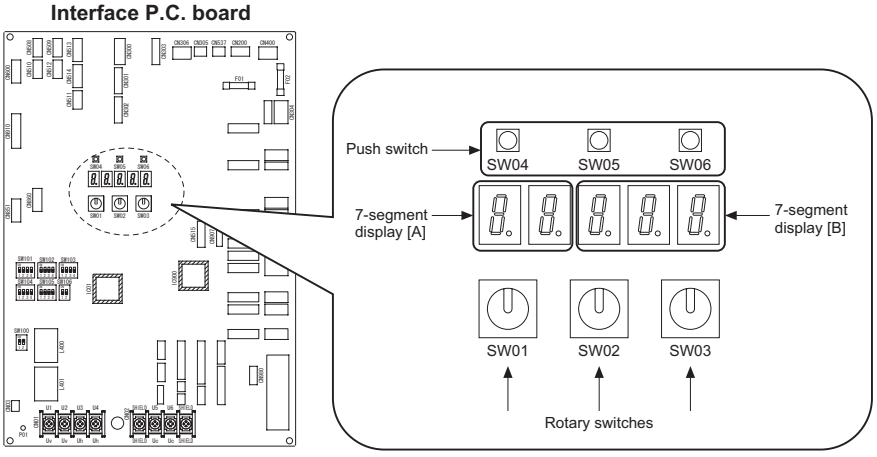
7-4-1. Precautions

(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.
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.
(Be careful to note that the setup operation may differ in group control and central control systems.)
Note:
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.
• For follower outdoor units, "U2" to "U5" are displayed on the 7-segment display [A].
• 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.
Note:
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.
• 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.</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.
(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]
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

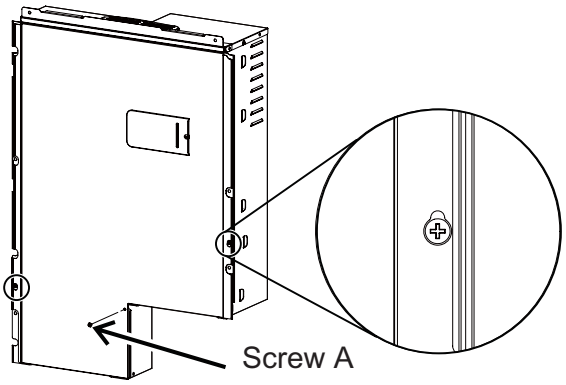
Before setting the address, it is necessary to set the DIP-SW on the header outdoor unit interface P.C. board.

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-MUP1921.
(There is no screw A for MMY-MUP0721, MUP0961, MUP1201, MUP1441, MUP1681, MUP072H1 MUP096H1 and 120H1)

(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.



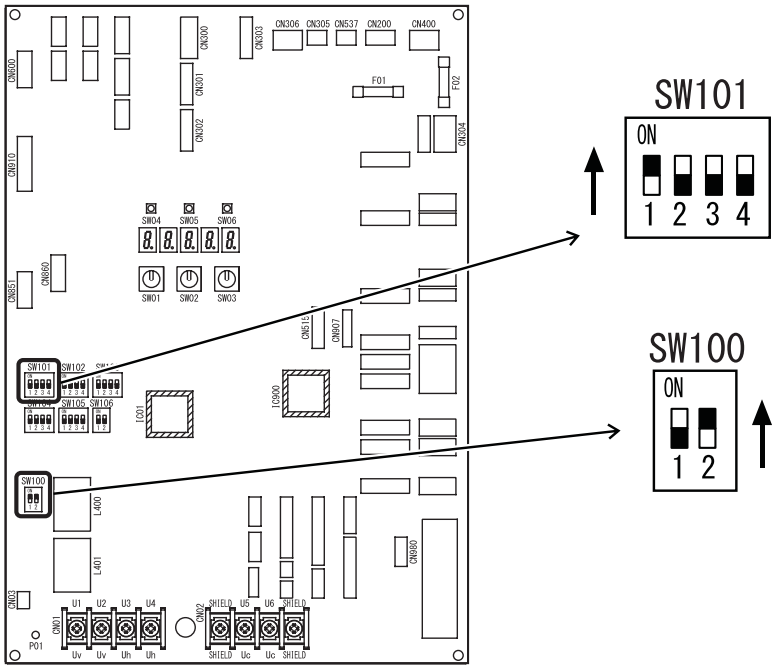
2. Follow the steps below to set the DIP switch on the header outdoor unit interface P.C. board.

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)

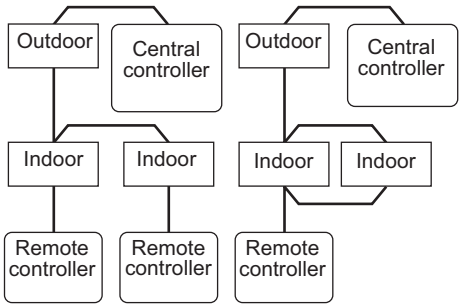
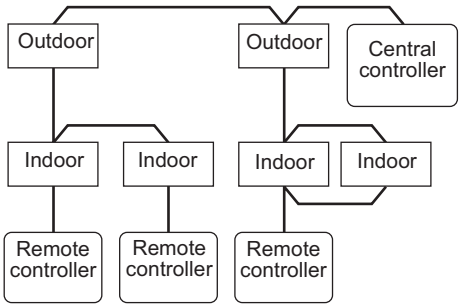
* Header outdoor unit setting is required also of an outdoor independent system.

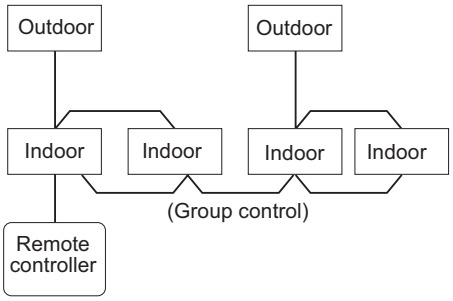
Interface P.C. board on the header outdoor unit



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.

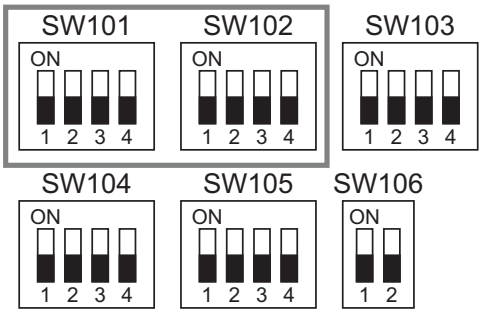
(1) Set a line (system) address for each system using SW 101 and 102 on the interface P.C. board on the header outdoor unit of each system.
(Factory default: Address 1)

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.

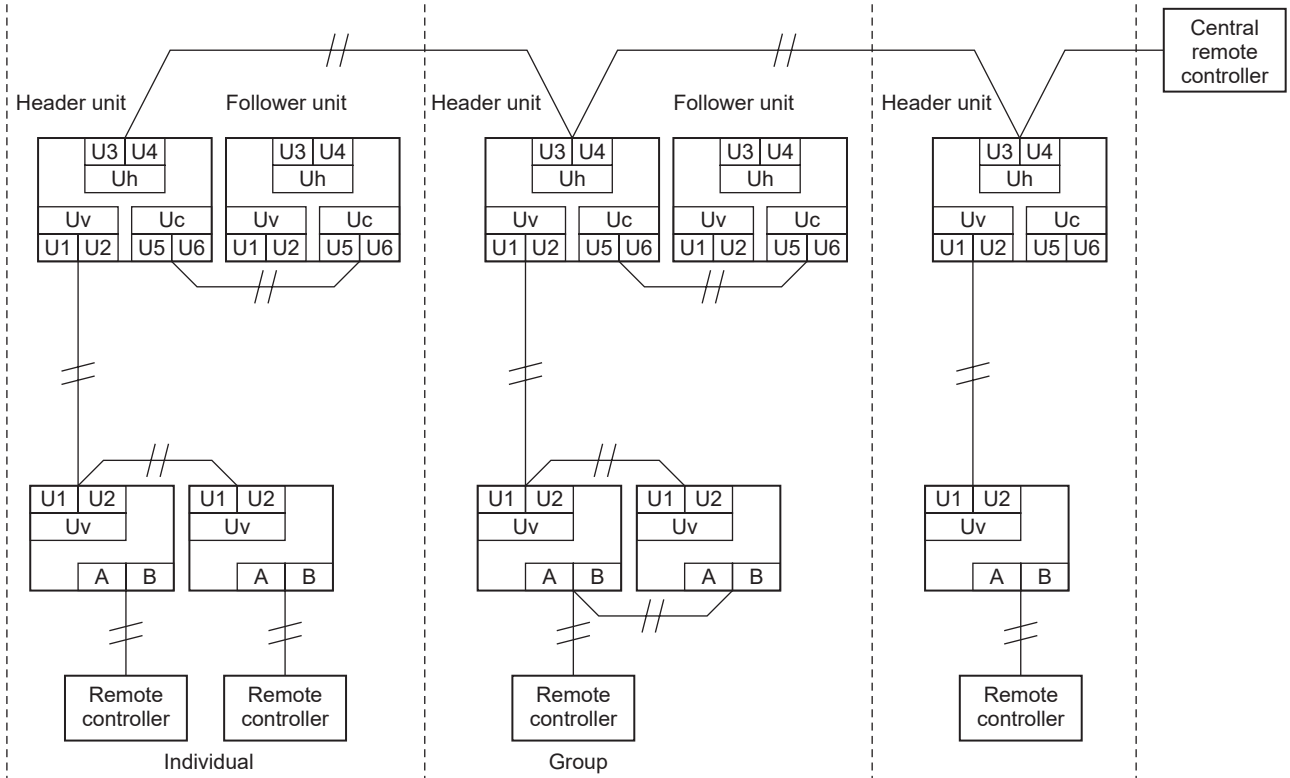
: SW101 Bit 1 is for header outdoor unit setting, so it is not used for system address setting.

(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.

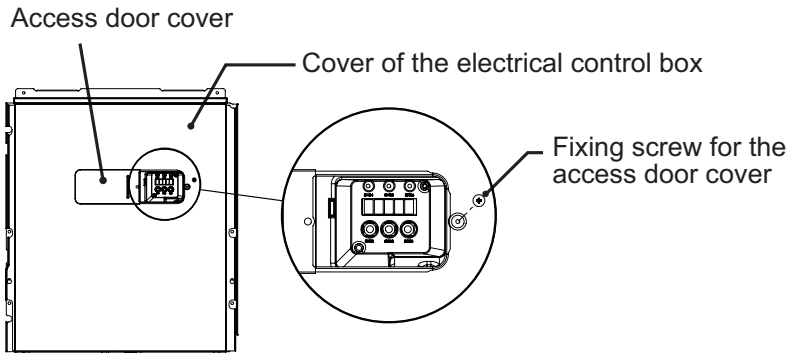
- Refrigerant line (system) address (Indoor unit code[12]) ... The line address of the indoor units are automatically set to the same number as the line address set in both SW101 and 102 of the outdoor Header unit I/F board.
- Indoor address (Indoor unit code[13]) Indoor address automatically set in 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.**

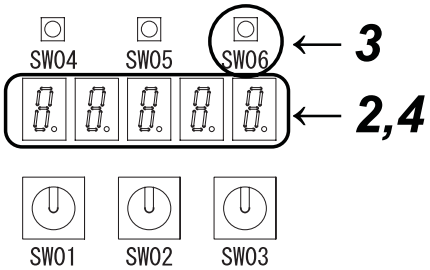
3 **Push SW06 for more than 1 second to start the automatic address setting.**
(It may take up to 10 minutes (normally about 5 minutes) to complete one line's setting.)

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.**

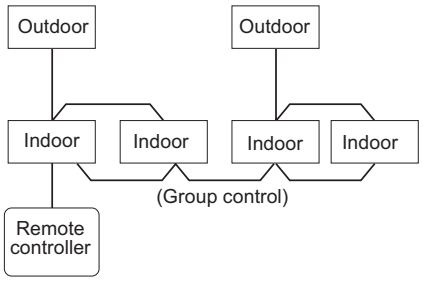
6 **Set the central control address.**
(For the setting of the central control address, refer to the installation manuals of the central control devices.)

Interface P.C. board on the header outdoor unit



REQUIREMENT

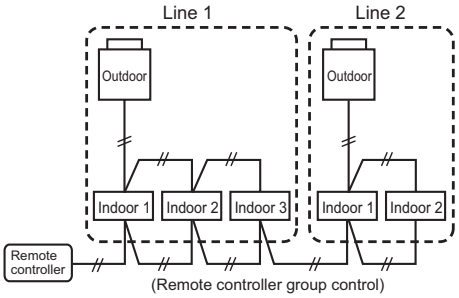
- When 2 or more refrigerant lines are controlled as a group, be sure to turn on all the indoor units in the group before setting addresses.
- If you set the unit addresses of each line separately, each line's header indoor unit is set separately. In that case, the Code No. "L03" (Indoor header unit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

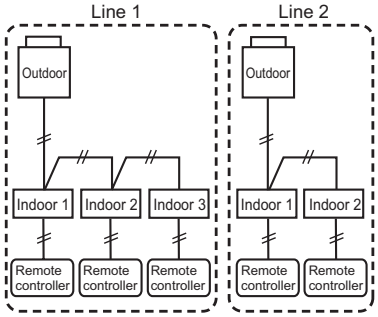


(Remote controller group control)

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.

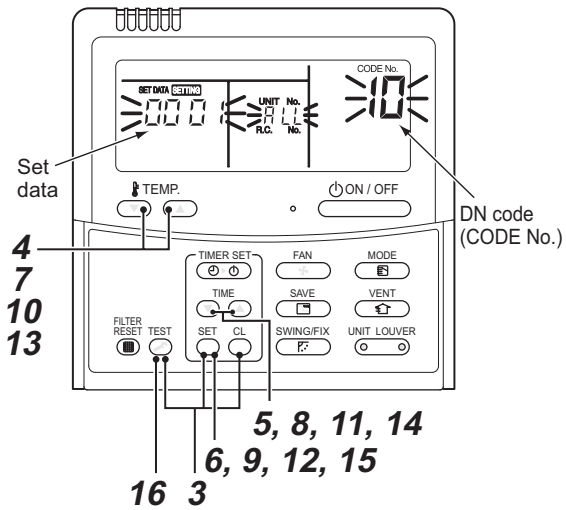
(Wiring during manual address setup)



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)**

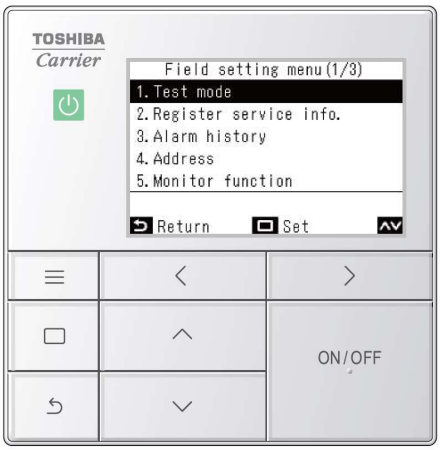
15 **Push SET button. (OK when display goes on).**

16 **Push the TEST button.**

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

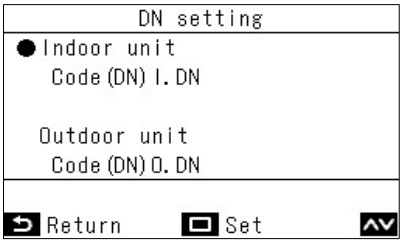
17 **Return to the original wiring over remote controllers.**

<RBC-AWSU**>



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

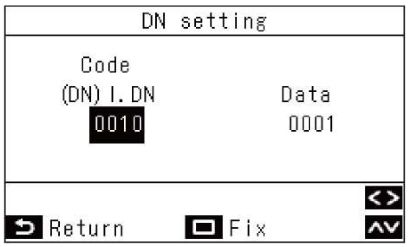
2 **Push and hold the [Menu] button and the [ ] button at the same time to display the "Field setting menu".**
→Push and hold the buttons for more than 4 seconds



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

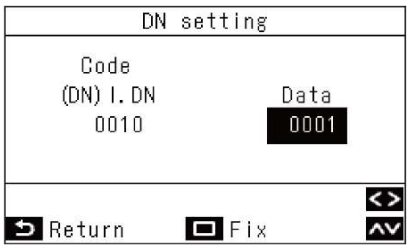
4 **Push the [ ] / [ ] button to select the indoor unit and push the " Set" [Set / Fix] button.**

→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.

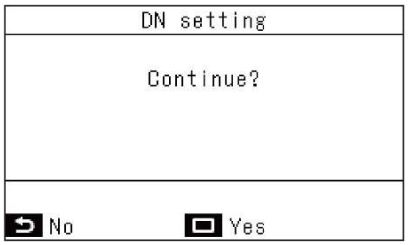


▼ (Refrigerant line address)

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

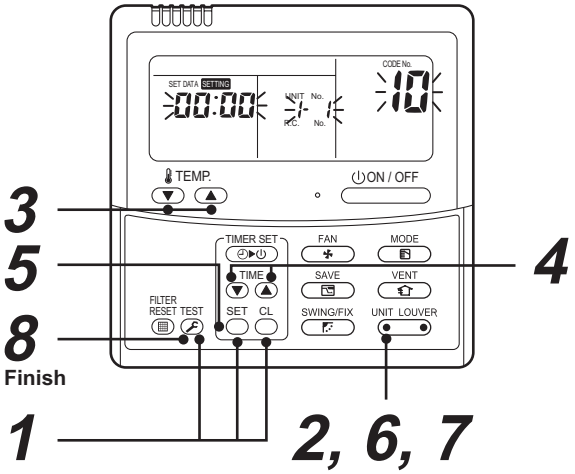
(1) The Code No. [E04] (Indoor / outdoor communication trouble) will appear if line (system) addresses are mistakenly set.
(2) When manual address setup has been done from a remote controller, and central control over refrigerant lines is to be done, setup the header unit of each line as follows:
- Using 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.**

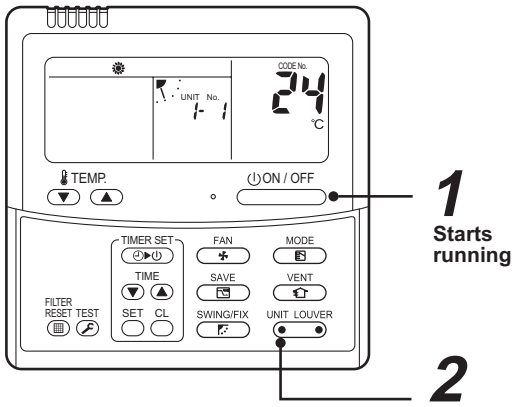
■ Confirming the indoor unit addresses and the position of an indoor unit using the remote controller

◆ 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.)

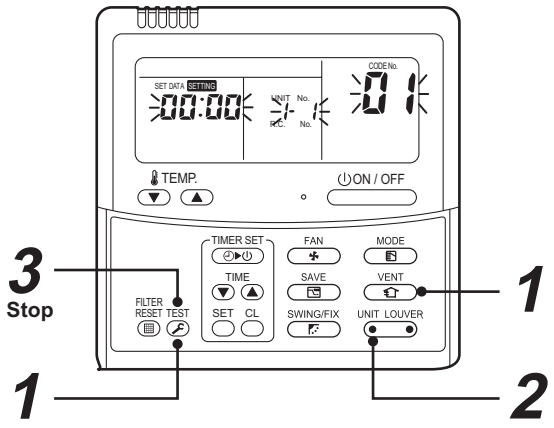
1 Push the ON / OFF button if the units stop.

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.

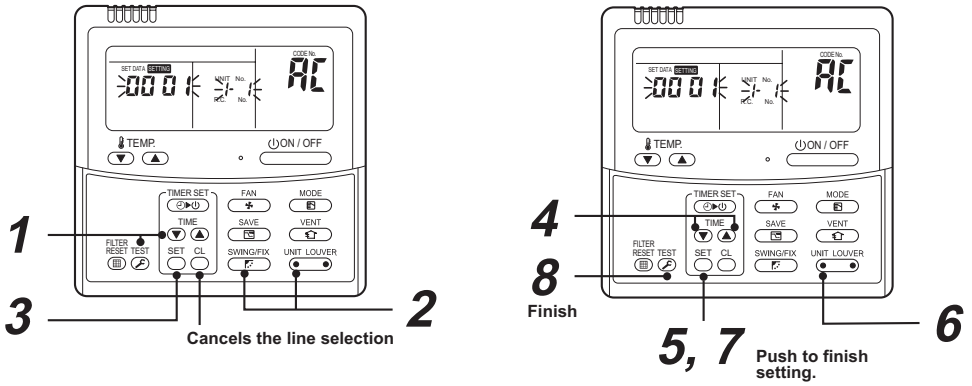
(The method is available when the addresses have already been set automatically.)

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. AC (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.

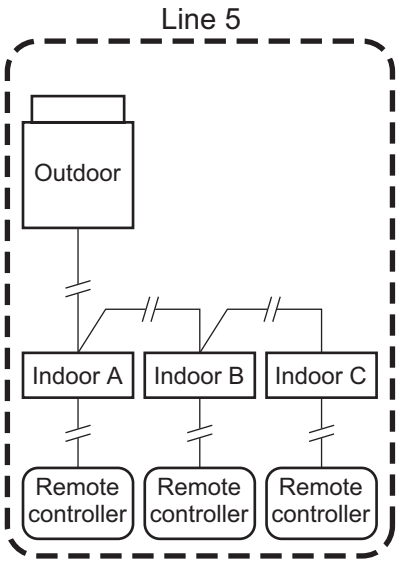
1) Turn the power for every outdoor unit and indoor unit on.
2) Perform "Automatic address setup" from the header outdoor unit.
   The system address, indoor address, and the group address will be set for every indoor unit in the system automatically.
3) Perform "Communication setting" from the header 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

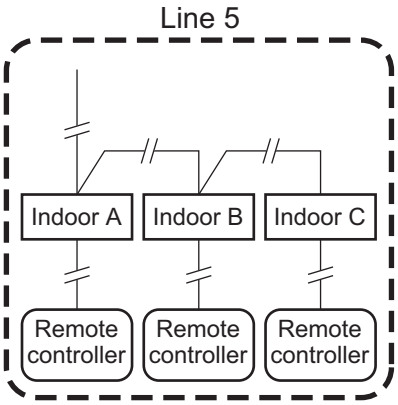
Method 2 (Setting the address manually from the remote controller)

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.

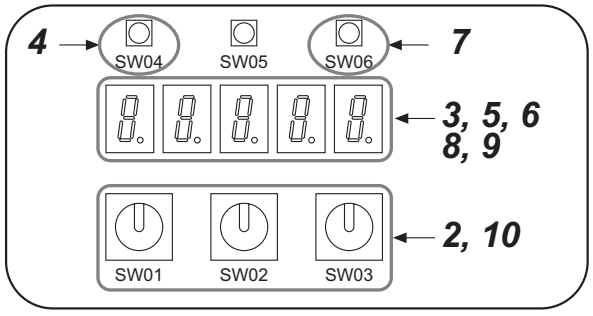
   (When the number of the connected indoor units differs from the number of indoor units displayed on the 7-segment display, clear the communication type setting to eliminate the cause.
   To clear the communication type setting, push and hold the SW05 for 5 seconds or more.
   The 7-segment display flashes “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

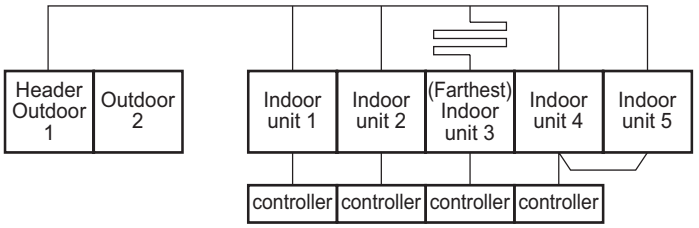


■ Procedure to set up the communication method manually

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>

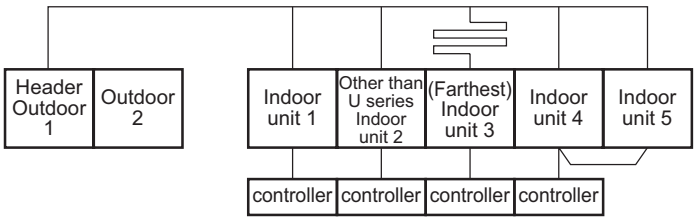
1) Set the Outdoor Unit Function Code (O.DN) [082] of all outdoor units to "0003".
2) Set the Indoor Unit Function Code (I.DN) [FC] of all indoor units to "0003".
3) Set the Indoor Unit Function Code (I.DN) [1FC] of the farthest indoor unit to "0001" (set the indoor terminating resistor to ON).
   * 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).



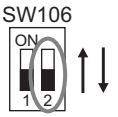
O.DN[82] Communication setting	0	0	0	–	0	0	0	I.DN[FC] Communication setting
			0	–	0	0	0	I.DN[1FC] Indoor termination resistance setup
Line (system) address (DIP SW)	7	–	7	7	7	7	7	I.DN[12] Line (system) address
			1	2	3	4	5	I.DN[13] Indoor unit address
			0	0	0	1 (Header)	2 (Follower)	I.DN[14] Group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

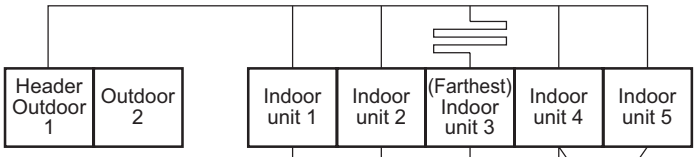
- This is a function in which the communication method setting for all the outdoor units and indoor units (every outdoor unit connected to the Uc line and every indoor unit connected to the Uv line) will reset to the TCC-Link communication settings. Also, the indoor terminal resistance settings for every 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].)

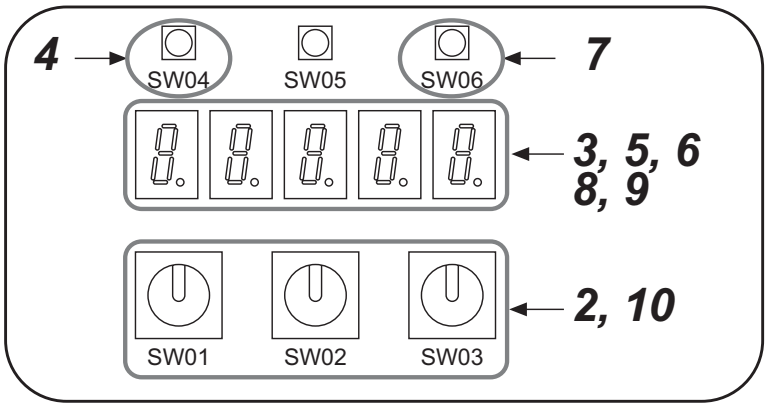
(7) Push and hold SW06 for more than 5 seconds.

(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.

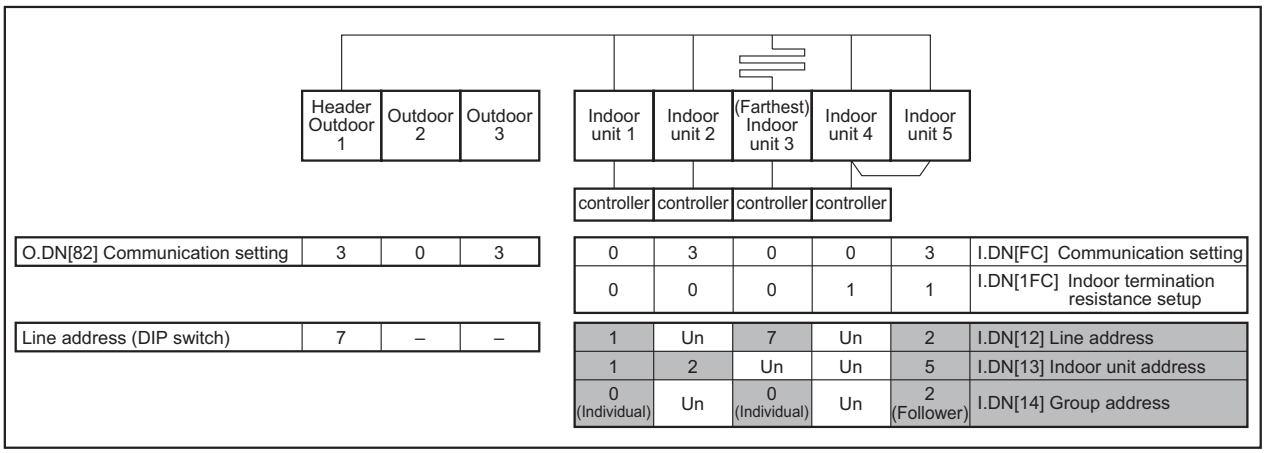
   Method 2 Change the communication method setting and the address for the indoor unit to be added manually from the indoor DN code (I.DN).

* 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.

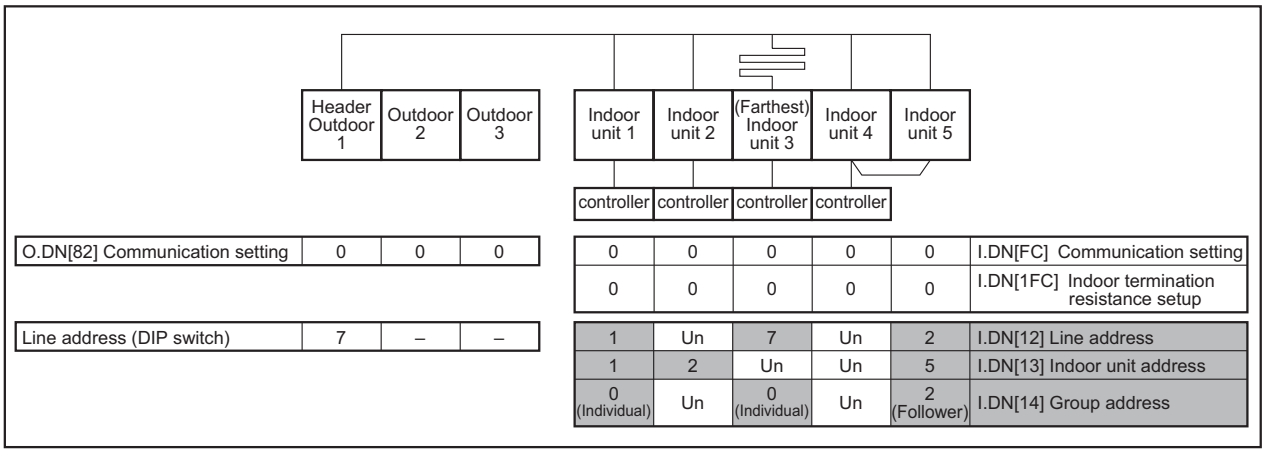
(Reference) Method to clear when communication method settings, address set / unset are coexisting

- 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.

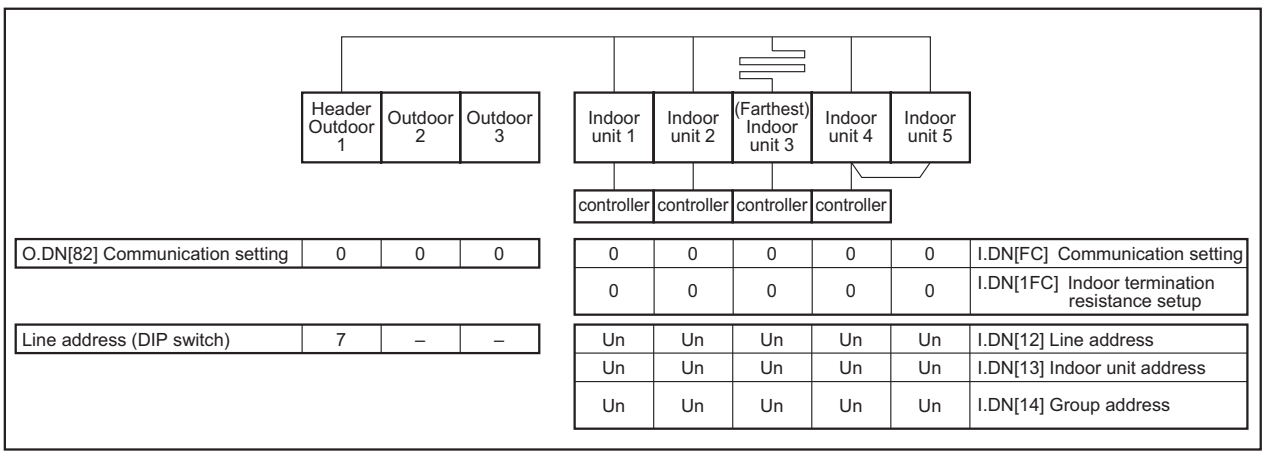
* Make sure that the communication method clearing is performed in advance.
If the addresses are batch-cleared before clearing the communication method, the communication method cannot be cleared since there will be no indoor units that can communicate with the outdoor unit.



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)

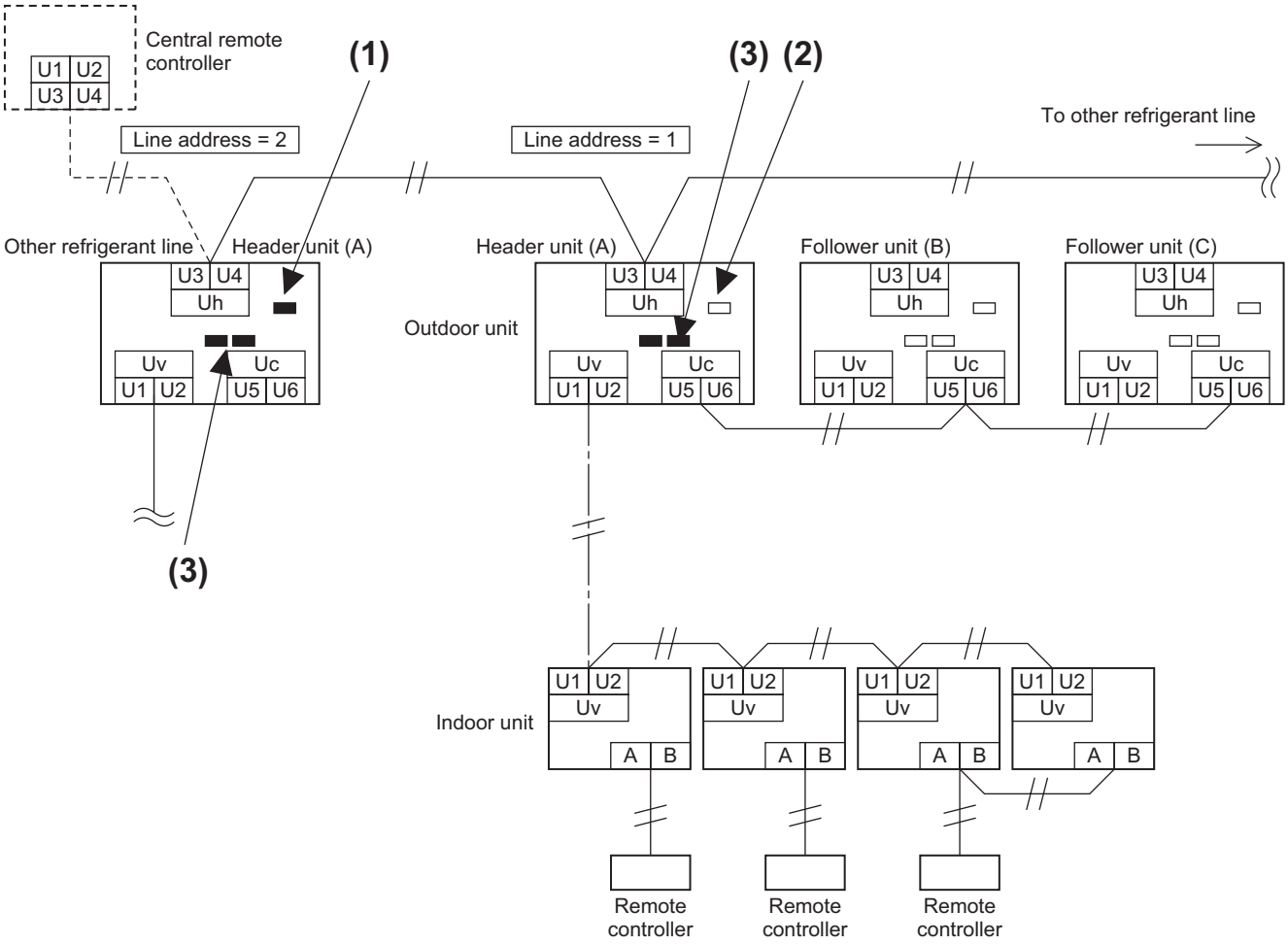


(Reference) Operations for communication method automatic setup / communication method clear, automatic address setting / address batch clear (When the outdoor unit, indoor unit, and the remote controller are all U series)

[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 • Only line addresses of the connected indoor units are undefined. • The outdoor line address and the line addresses of all the indoor units do not match. • The indoor addresses are duplicated. (Units except those displaying E04 are duplicated.) • 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)  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.
		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). Check for the influence of communication noise. 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. • 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. • Check whether there is defect or not on outdoor unit interface P.C.board. • 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. • When installing an outdoor backup • The power of a follower unit is not turned on.	Correction of the cause of trouble occurrence • If it occurs when installing a backup, clear the trouble after setup finishes. • If the power of a follower unit is not turned on, turn on the power.
L04	L04	Duplication of outdoor line addresses • 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 • Only indoor addresses of all the connected indoor units are undefined.	Set up the addresses again. 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

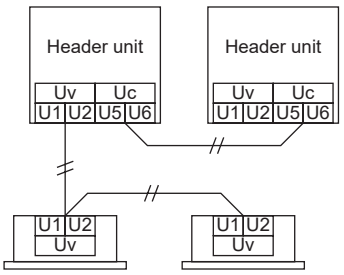
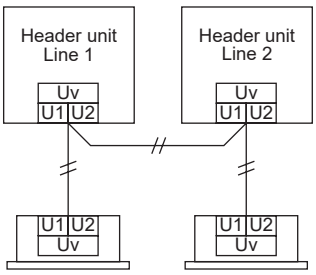
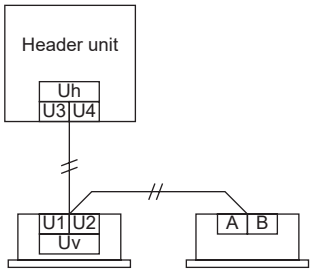
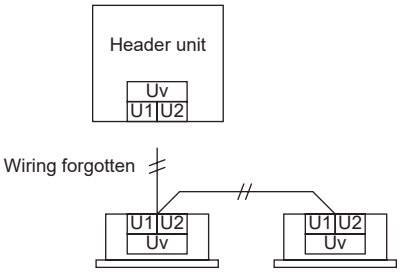
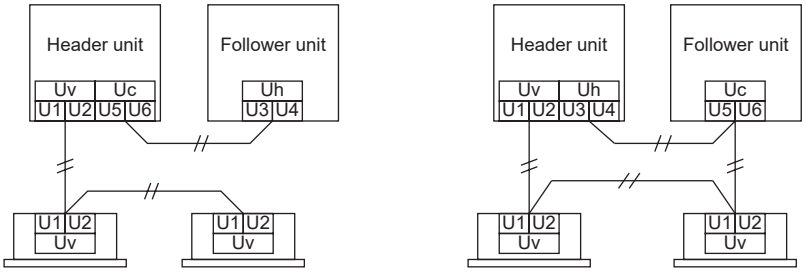
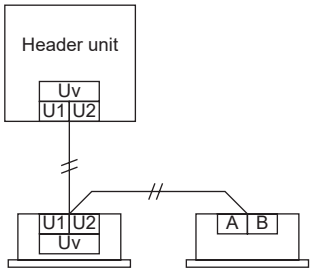
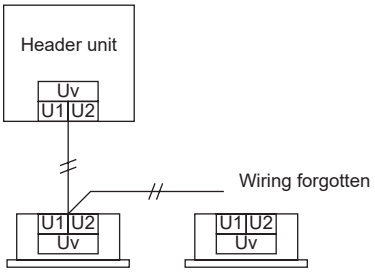
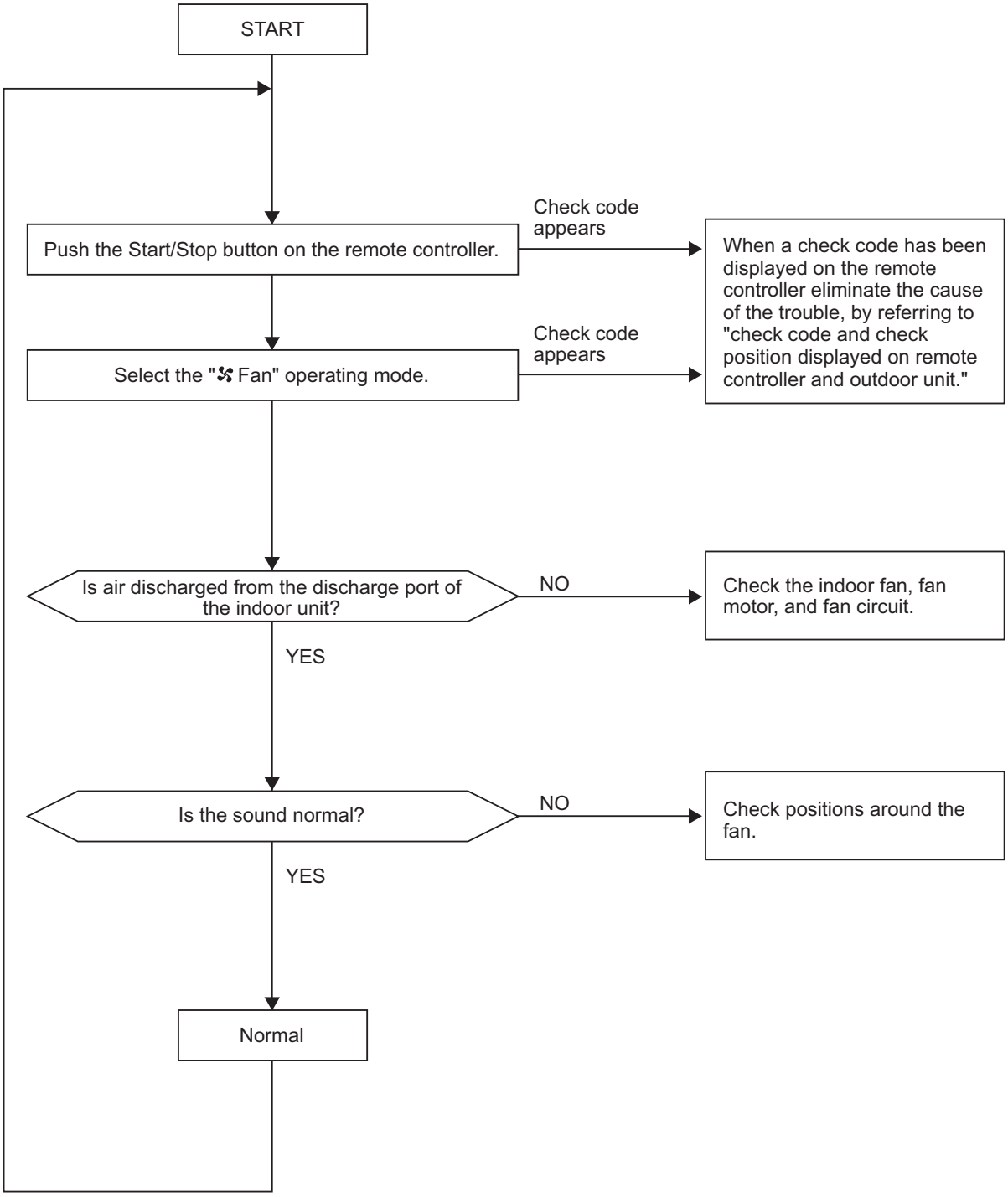
Figure	Remote controller status	Header unit 7-segment display	Miswiring example
Fig 1	No response	E19, 02	 • Follower unit is incorrectly set to header unit.  • Indoor/outdoor communication line is miswired to header unit of other system.
Fig 2	E04	L08	 • Indoor/outdoor communication line is miswired 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.

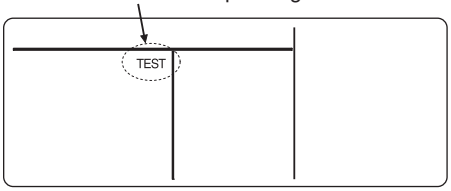
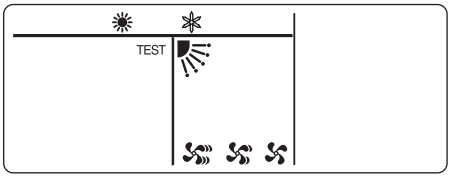
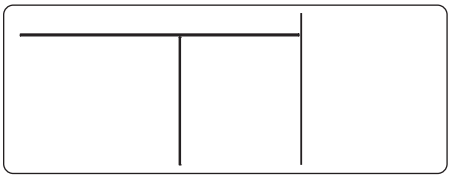
(1) Test operation start/stop operation

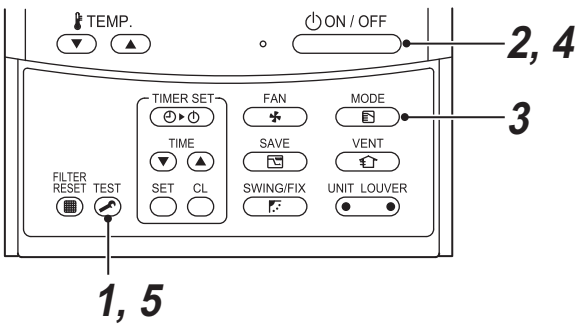
Test operation from the indoor remote controller

- 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.

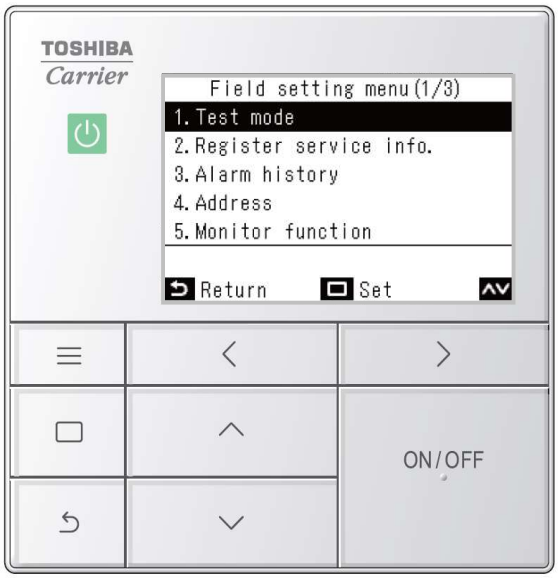
▼ Wired remote controller

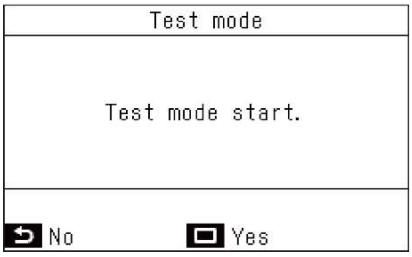
<RBC-AMT*>

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. 
2	Push the ⏻ON / OFF button.
3	Using the Select Mode button, select the “❄ COOL” or “☀ HEAT” operating mode. • Do not use an operating mode other than “❄ COOL” or “☀ HEAT”. • Temperature adjustment is unavailable during test operation. • Trouble is detected as usual. 
4	When the test operation has finished, push the ⏻ON / OFF button to stop the operation. (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.) 

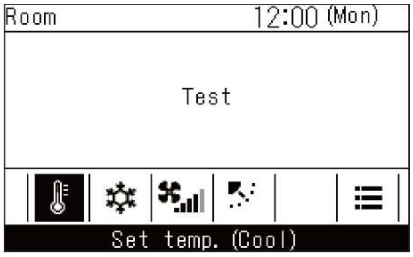


<RBC-AWSU**>

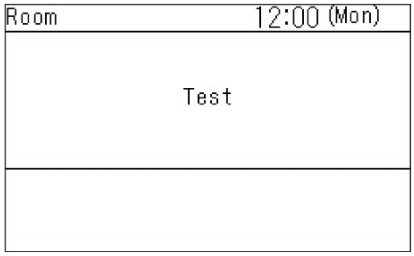




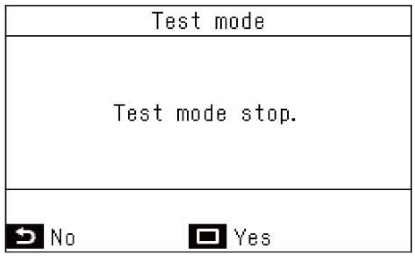
(1)



(2)



(3)



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.

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.

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.

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

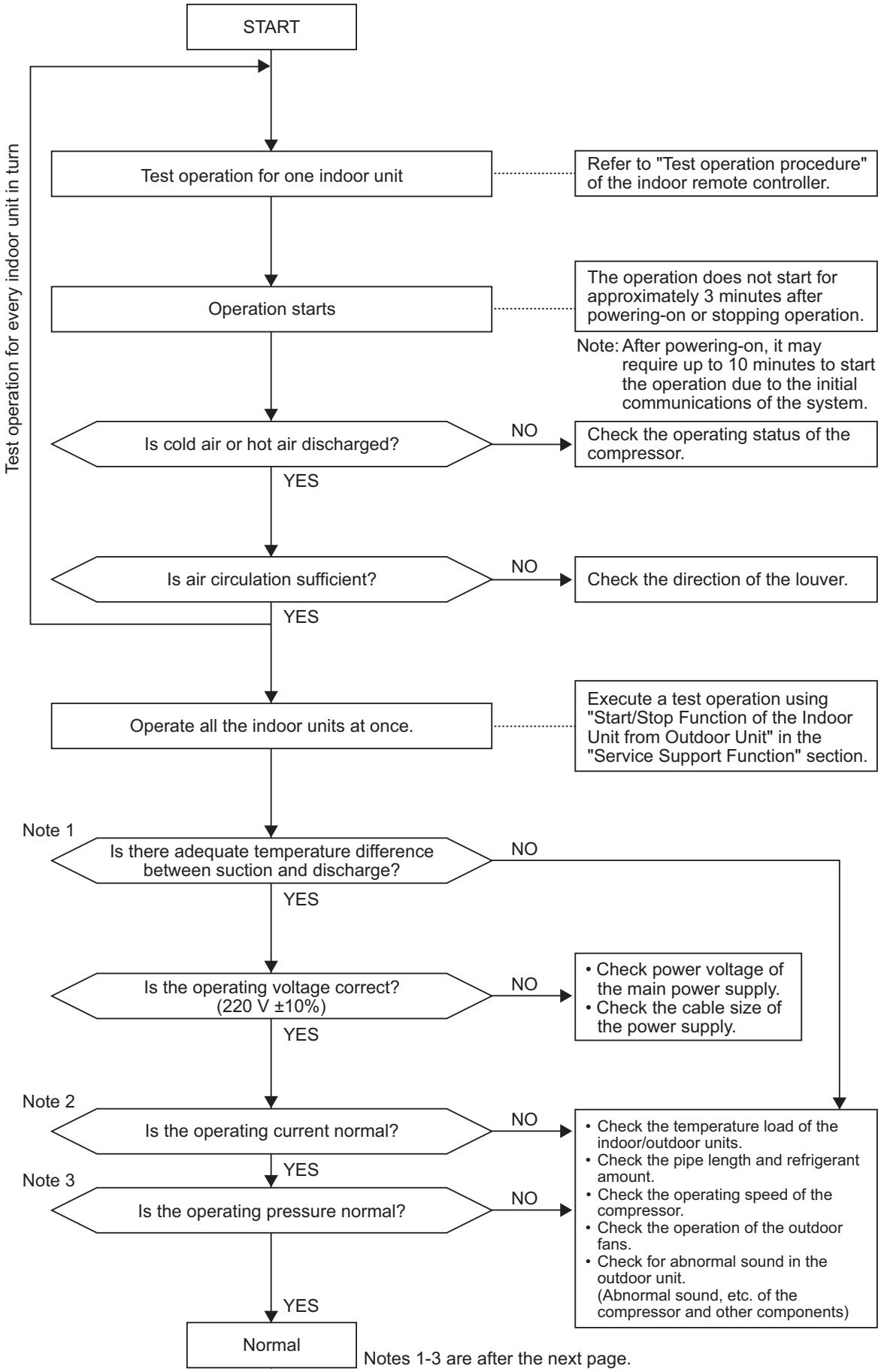
Test operation from the outdoor unit

- 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*	1921*
Current value	(A)	16.53	16.61	22.95	23.38	26.07	30.28
Model	MMY-MUP	072H1*	096H1*	120H1*			
Current value	(A)	15.14	17.6	23.74			

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/-
1921*	Cooling	445	139	189	63	56	108	90	62	61	High	95/-	80/67
	Heating	330	93	159	28	85	31	77	72	70	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

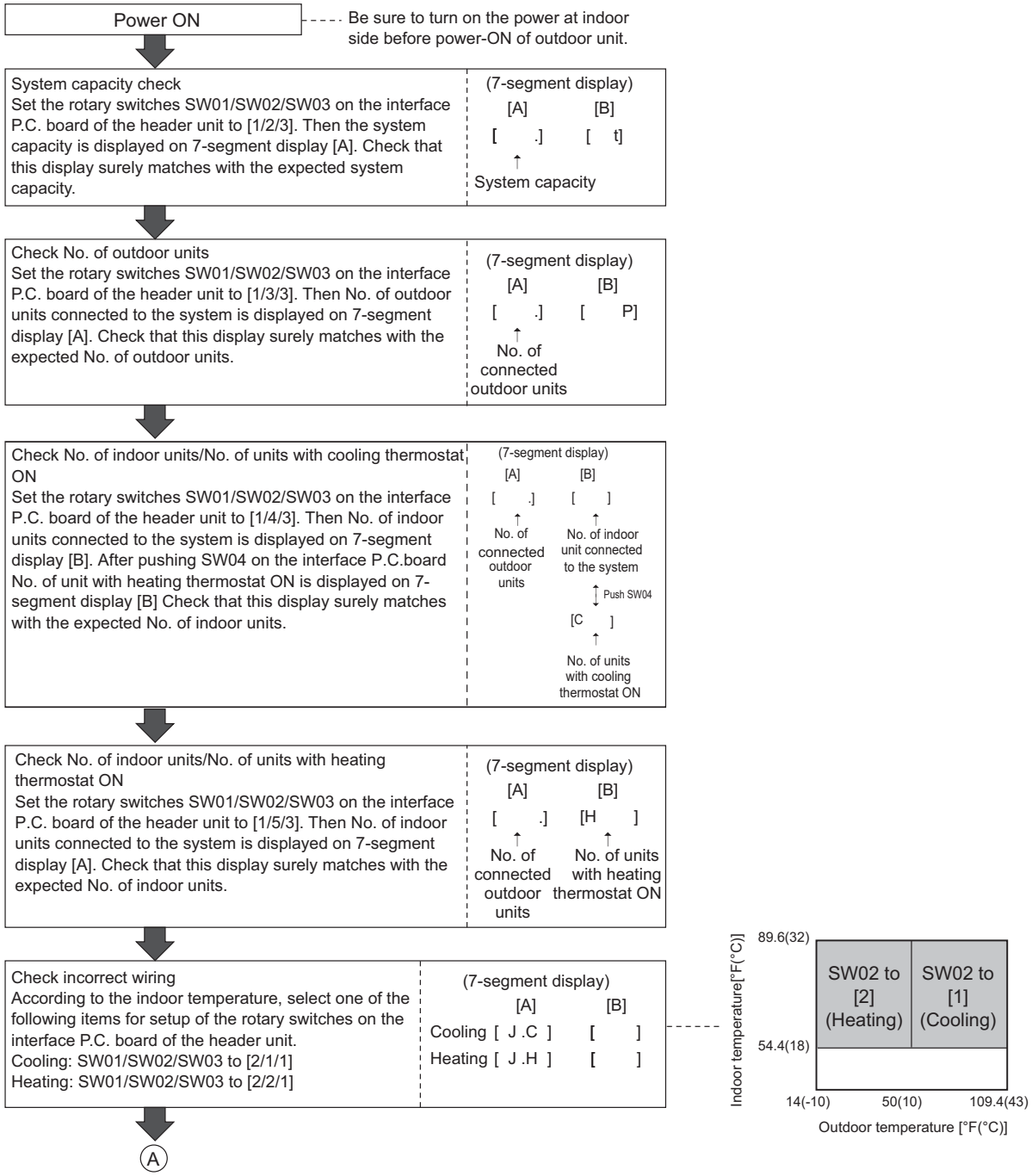
7-7-1. Check Function for Connecting of Refrigerant and Control Lines

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.”

Ⓐ

Operation start
Push the push-switch SW04 on the interface P.C. board of the header unit for 2 seconds or more. The operation starts.
Check that 7-segment display [B] shows [CC] for cooling and [HH] for heating.

(7-segment display)

	[A]	[B]
Cooling	[C]	[CC]
Heating	[H]	[HH]

Operation

Confirmation of check results (1)
Check that No. of misconnected indoor units is displayed on 7-segment display [B] after 15 minutes. (If there is no misconnection, [00P] is displayed.)

(7-segment display)

[A] [ ] ↑ C or H

[B] [# # P] ↑ No. of misconnected indoor units

This check operation requires 15 minutes even if there is no misconnection or there is any misconnection.

Confirmation of check results (2)
Push the push-switch SW05 on the interface P.C. board of the header unit for 2 seconds or more. The indoor address in which trouble is being detected is displayed on 7-segment display [B]. If there are multiple indoor address in which trouble is being detected, they are successively exchanged and displayed.
(When SW05 is turned on again, the display returns to display of No. of units.)

(7-segment display)

[A] [ ] ↑ C or H

[B] [# #] ↑ Address display of misconnected indoor unit

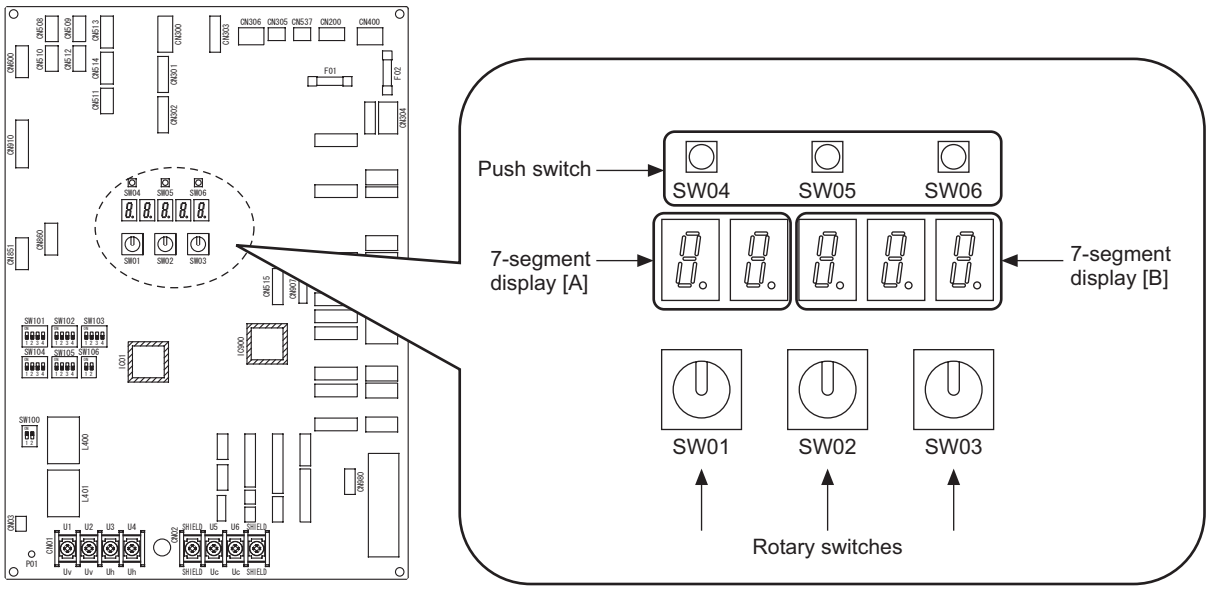
After check, return the rotary switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [1/1/1].

(7-segment display)

[A] [U1]

[B] [ ]

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.

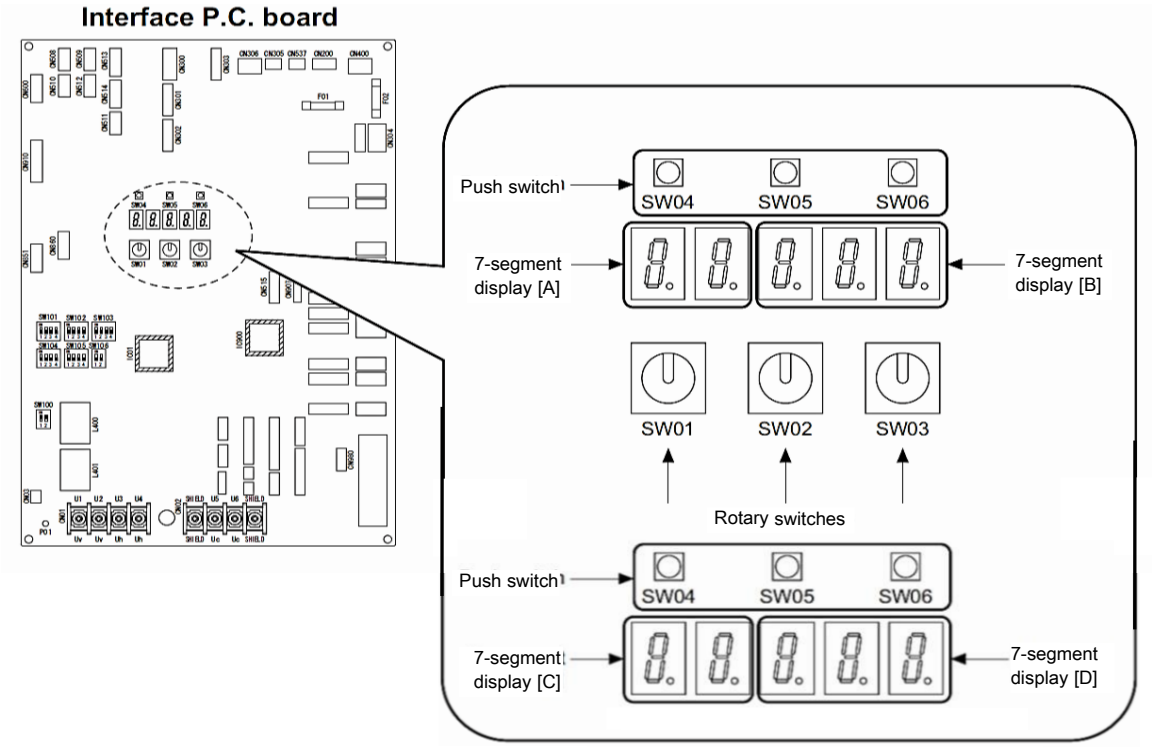
No	Function	Outline	Setup/Release	7-segment display
1	Cooling test operation	Changes the mode of all the connected indoor units collectively to cooling test operation. Note) Control operation same as usual test operation from remote control is performed.	[Setup] Set SW01/SW02/SW03 to [2/5/1], and push SW04 for 2 seconds or more.[Release] 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. Note) Control operation same as usual test operation from remote control is performed.	[Setup] Set SW01/SW02/SW03 to [2/6/1], and push SW04 for 2 seconds or more.[Release] 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. Note) Control operation same as usual test operation from remote control is performed.	[Setup] Set SW01/SW02/SW03 to [2/9/1], and push SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [F.] Section B [– F]
4	Batch start	Starts all the connected indoor units collectively. Note) The contents follow to the setup of remote controller.	[Setup] Set SW01/SW02/SW03 to [2/7/1], and push SW04 for 2 seconds or more.[Release] Return SW01/SW02/SW03 to [1].	Section A [C.H] Section B [11] [00] is displayed on Section B for 5 seconds.
	Batch stop	Stops all the connected indoor units collectively.	[Setup] Set SW01/SW02/SW03 to [2/7/1], and push SW05 for 2 seconds or more.[Release] Return SW01/SW02/SW03 to [1].	Section A [C.H] Section B [00] [00] is displayed on Section B for 5 seconds.
5	Individual start	Starts the specified indoor unit. Notes) • The contents follow to the setup of remote controller. • The other indoor units keep the status as they are.	[Setup] 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. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section C [ ] Section D [ ] Section C: Displays the corresponding indoor address. Section D: Displays [11] for 5 seconds from operation-ON.
	Individual stop	Stops the specified indoor unit. Note) The other indoor units keep the status as they are.	[Setup] 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. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section C [ ] Section D [ ] Section C: Displays the corresponding indoor address. Section D: Displays [00] for 5 seconds from operation-OFF.
	Individual test operation	Operates the specified indoor unit. Note) The other indoor units keep the status as they are.	[Setup] Set SW01 to [16], set SW02 and SW03 to address No. to be operated, and push SW04 for 10 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section C [ ] Section D [ ] Section C: Displays the corresponding indoor address. 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].)

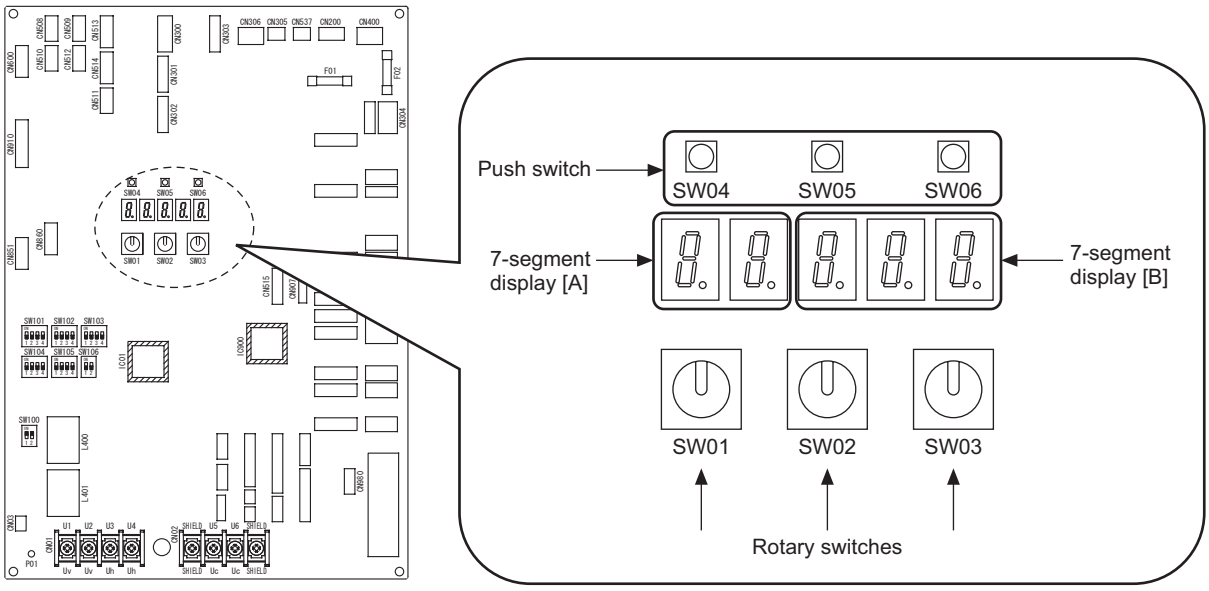
[2] Push SW04 on the same board for 2 seconds or more. ---------- Start

[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



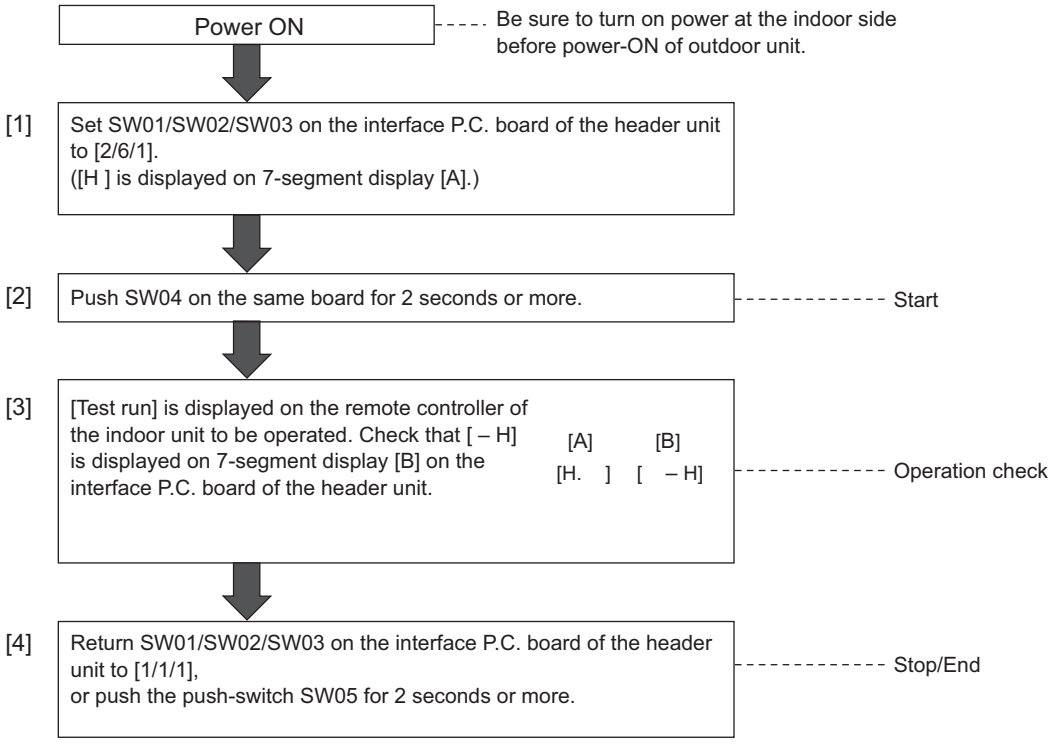
NOTE) The test operation returns to the normal operation after 60 minutes.

- 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.

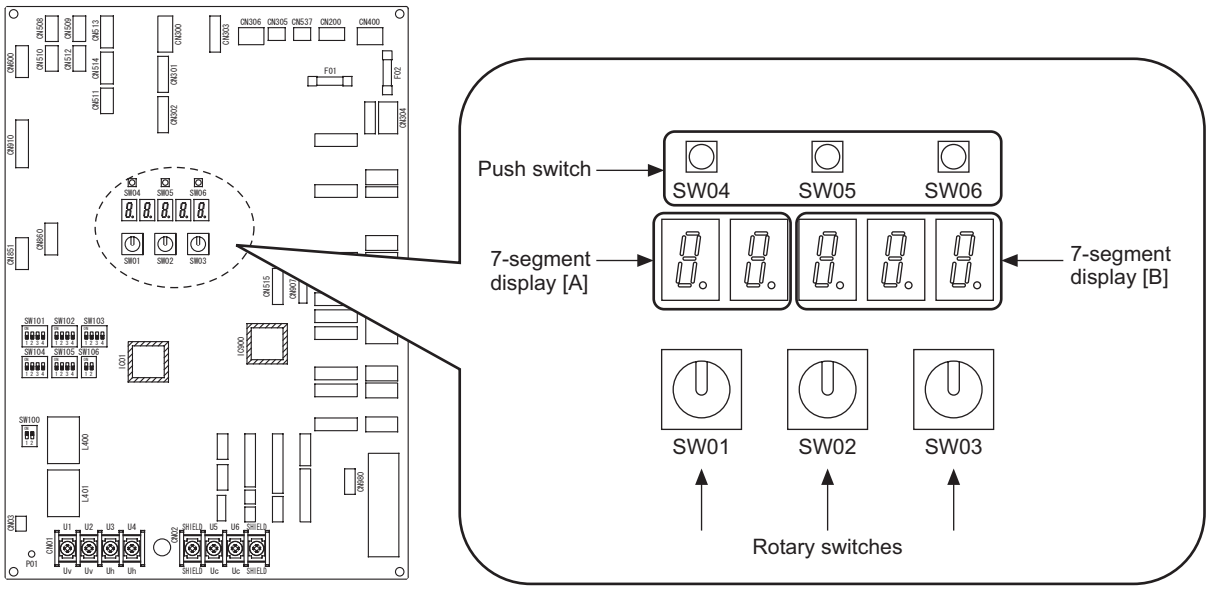
(2) Heating test operation function

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



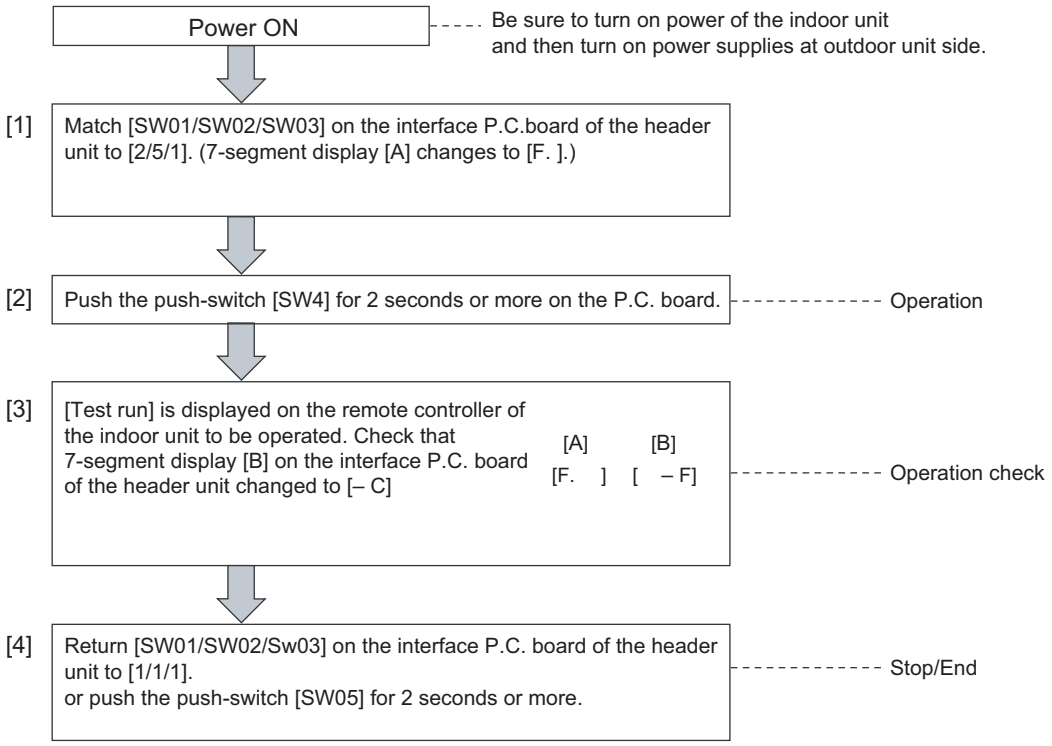
NOTE) The test operation returns to the normal operation after 60 minutes.

- 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.

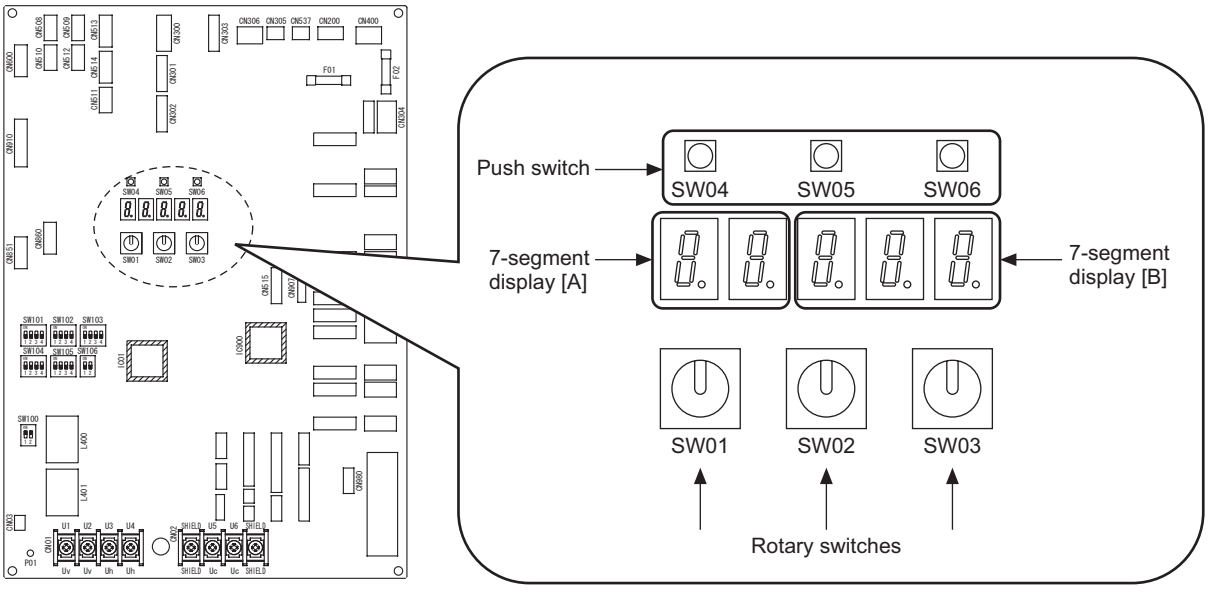
(3) Fan test operation function

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

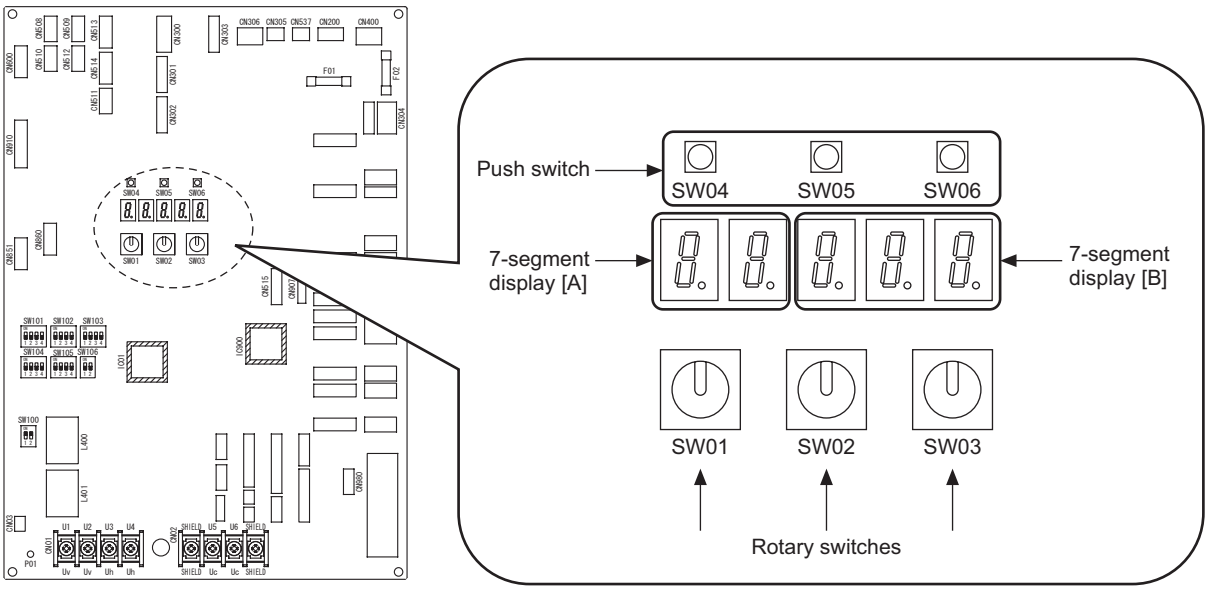
[4] The indoor unit to be started operates. — Operation check

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.

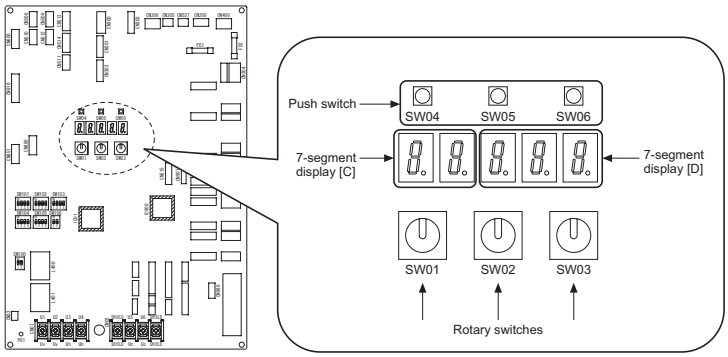
Set up the operation mode of the remote controller. (If it is not set up, the operation continues with the current mode.)

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.**

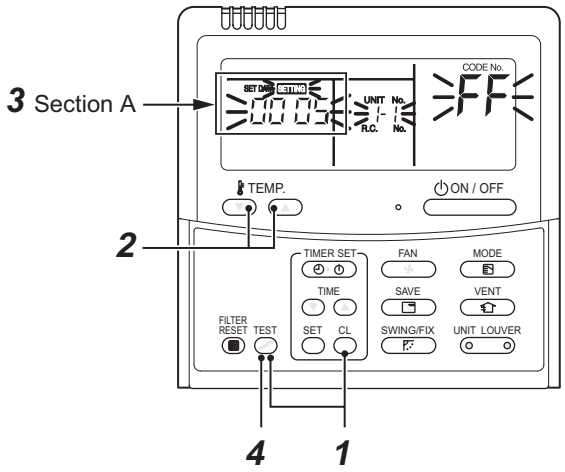
2 **Using TEMP. buttons, set CODE No. to "FF".**

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.**

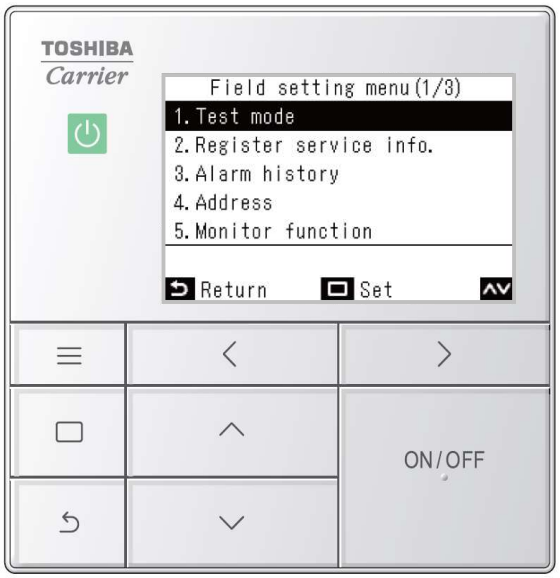


▼ Check code clearing in indoor unit

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>**

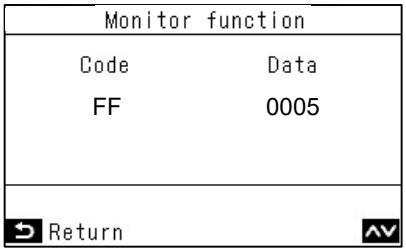
▼ Clearing a check code of the outdoor unit
There is no such function in the remote controller.



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] [ ]

↓

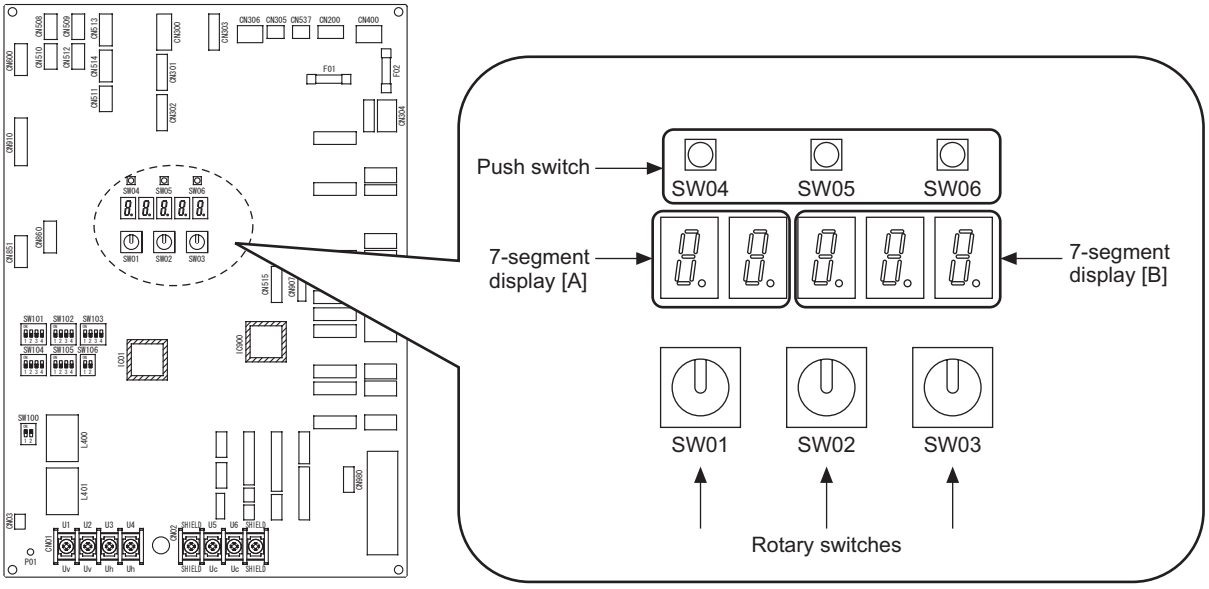
[2] Push the push-switch SW04 on the same board for 5 seconds or more.

↓

[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.

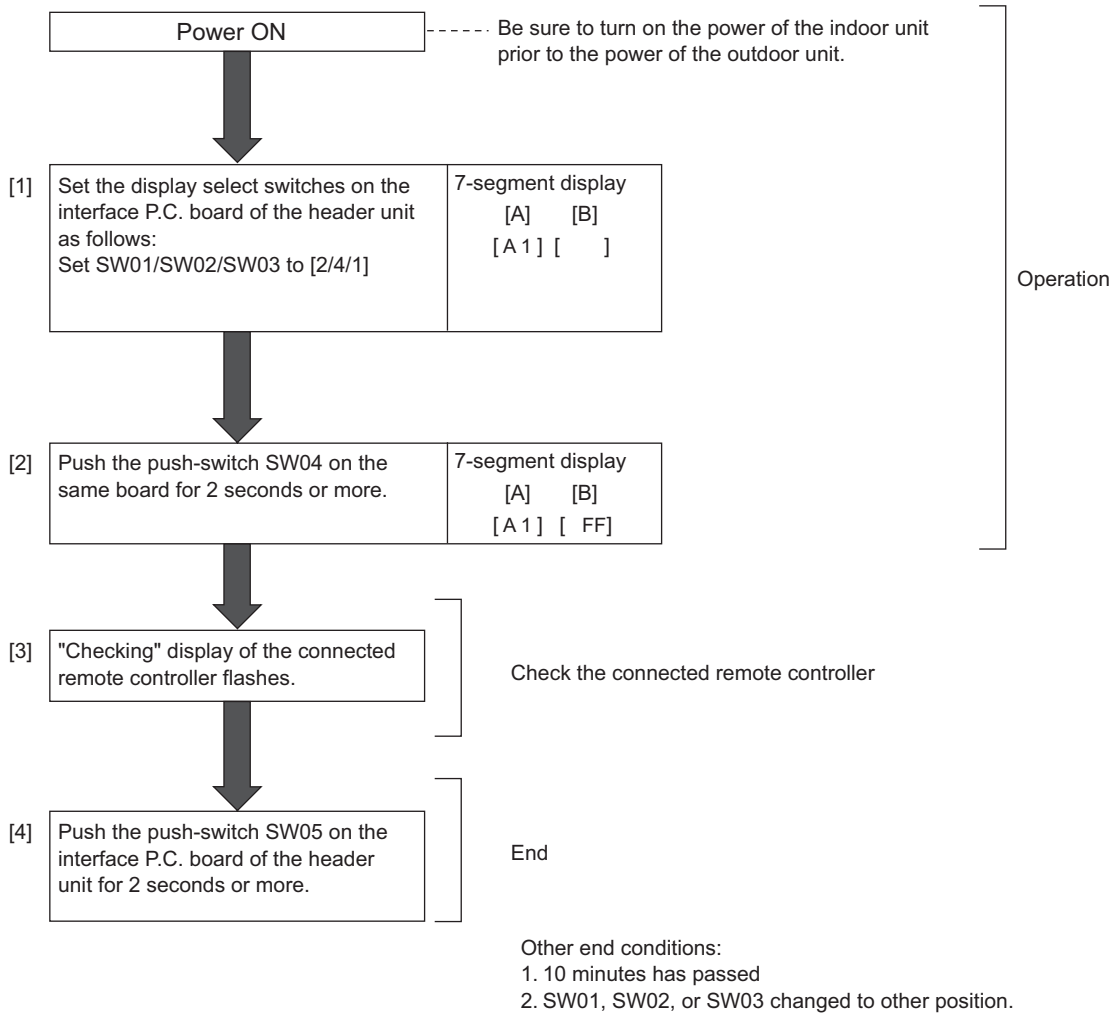
(2) Turn on the power of the indoor unit prior to the power of the outdoor unit.
(If the power is turned on in reverse order, a check code [E19] (No. of header unit trouble) is output.)

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.

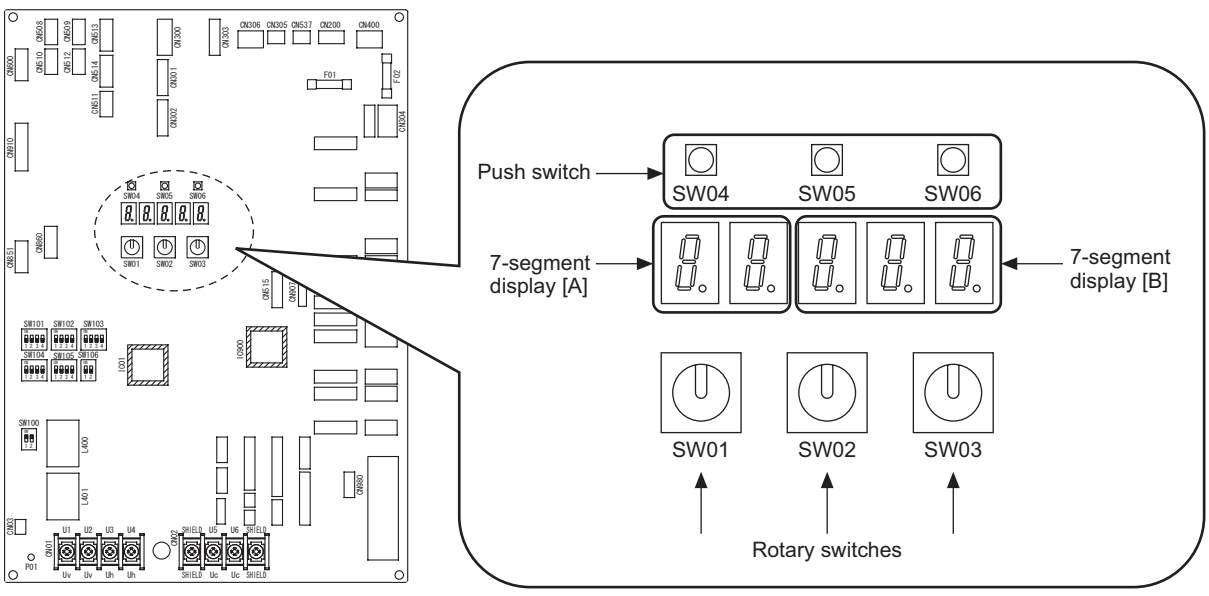
7-7-4. Remote Controller Distinction Function

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.

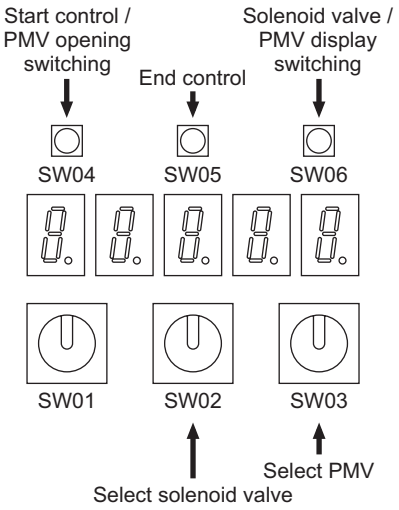
[Control start method]

(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 3 D]	-	-	✓	-	-	✓
	5		[H.r 3 F]	-	-	-	✓	-	✓
	6		[H.r 3 -]	-	-	✓	✓	-	✓
	7		[H.r 5 B]	-	-	-	-	✓	✓
	8 ~ 15		[H.r - - -]	-	-	-	-	-	✓
	16		[H.r A L L]	✓	✓	✓	✓	✓	✓

[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 1921*, 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]).

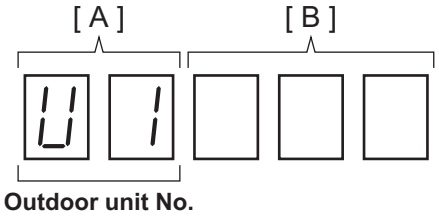
[Operation]

<In case to operate the fan in the failed outdoor unit only>

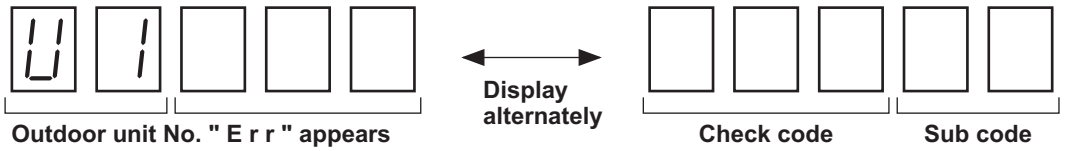
(1) Check that the switches SW01/SW02/SW03 on the interface P.C. board in the header unit are set to [1/1/1].

7-segment display

Normal state



Abnormal state



(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] Possibility of leakage: [… … 1] 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] Completed: [… … 1]
2	15	14	Heating initial value	A	[H. i]
				B	Incomplete: [… … 0] 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

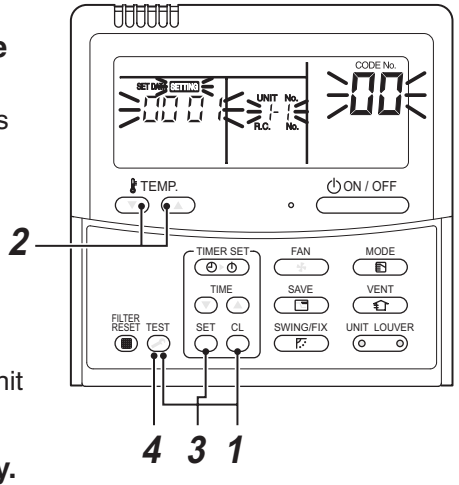
Switching to the service monitor mode

<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.**

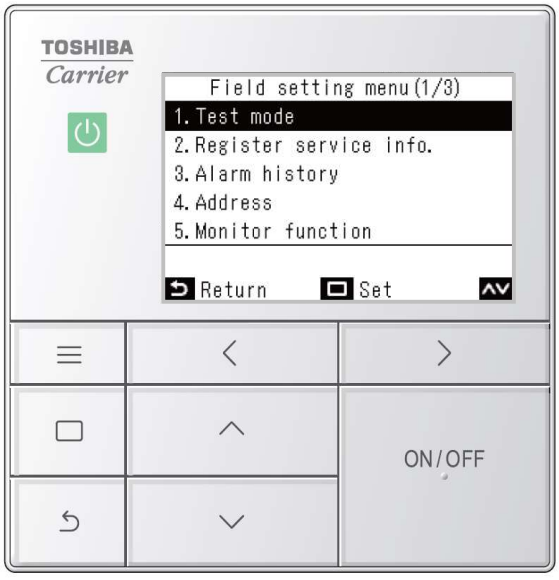
For displayed codes, refer to the table next page.

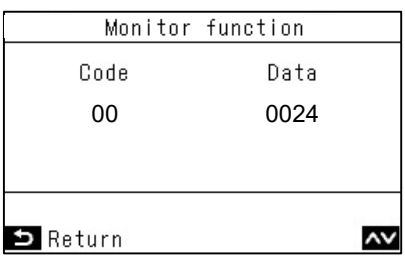
3 **Push SET button to determine the item to be monitored.**

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 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 1 : Recovery controlled		[0010]=Heating recovery control [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 1～ : Setting address		[9999]=Case where no terminating resistance is set to any of the indoor units [0048]=Termination resistance setting Indoor unit address 48
	B9	Communications protocol	0 : TCC-LINK 1 : TU2C-LINK		[0000]=TCC-LINK [0001]=TU2C-LINK
	BA	Uv line communication speed	0 : 9600 bps 1 : 19200 bps		[0000]=9600bps [0001]=19200bps
	BB	Demand control	0 : Normally 1 : Demand control		[0000]=Normally [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.

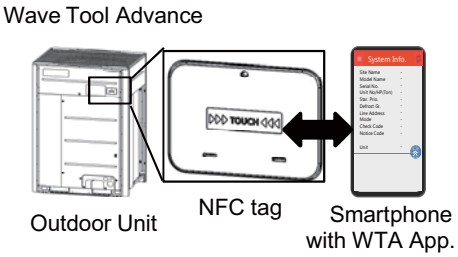
Please move to the following URL(or QR Code), and confirm
"Objective product list" and "**Smartphone model & OS Version**".
After confirmation, download/install the Wave Tool Advance Application (WTA App.) and USER GUIDE.
Be sure to read the USER GUIDE before the use of this application.

<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

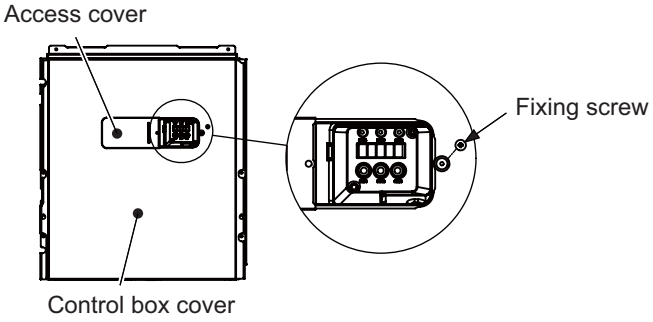
7-8-2. About Wave Tool Advance

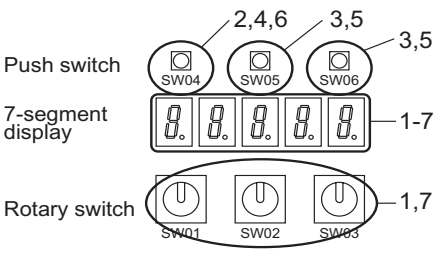
- This application is the NFC(Near Field Communication) function of smartphone.
- When it is used, make sure that the NFC antenna on the smartphone is aligned with the “TOUCH “mark on the NFC tag.
- Refer to the USER GUIDE of the Wave Tool Advance for the details.



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 *"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 *"d.␣␣␣1" shows prohibition of TEST operation by WTA App.,	9	1	1	-	Push	Push	d.␣␣␣1
6	Push SW04 more than 2sec. 7-seg display will change from flashing to lighting.	9	1	1	Push more than 2 sec	-	-	Flashing--> d.␣␣␣1 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 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.

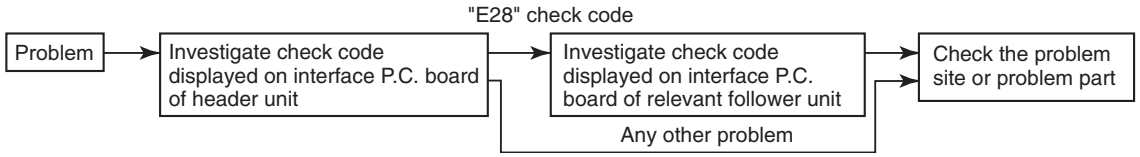
(c) Things to check prior to troubleshooting (behaviors listed below are normal)

NO.	Behavior	Possible cause
1	A compressor would not start	• The air conditioner is being controlled by the 3-minute protective function. • It is in standby status though the room temperature has reached the setup temperature. • It is being operated in timer mode or fan mode. • It is being in initial communication.
2	An indoor fan would not start	• The air conditioner is being controlled by the cool air discharge preventive function in "heating"?
3	An outdoor fan would not start or would change speed for no reason	• The air conditioner is being operated in "cooling" under the low outside air temperature. • It is being operated in defrost operation.
4	An indoor fan would not stop	• The air conditioner is being controlled by function of residual heat elimination being performed as part of the air conditioner shutdown process after heating operation.
5	The air conditioner would not respond to a start/stop command from a remote controller	• The air conditioner is being operated under external or remote 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.

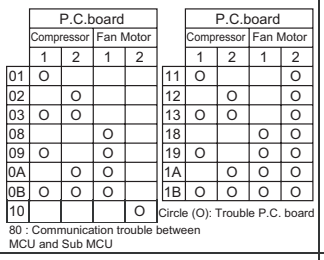
Note: The same trouble, e.g. a communication trouble, may result in the display of different check codes depending on the device that detects it.
Moreover, check codes detected by the main remote controller/central control device do not necessarily have a direct impact on air conditioner operation.

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). • In TU2C-LINK communication system, if the termination resistance is not set in any of the indoor units • 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 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. • 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 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 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 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 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 02: TE2 sensor 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 02: TL2 sensor 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 02: TG2 sensor 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 03: TS3 sensor 04: TS3 sensor disconnect	F12	◎	◎	○	ALT	• Outdoor suction temperature sensor (TS1,TS3) trouble • 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. • 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 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 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.

<table>
<tr><th colspan="2">Check code</th><th></th><th colspan="4">Display of receiving unit</th><th></th><th></th></tr>
<tr><th colspan="2">Outdoor 7-segment display</th><th rowspan="2">Central control or main remote controller display</th><th colspan="4">Indicator light block</th><th rowspan="2">Typical problem site</th><th rowspan="2">Description of Check code</th></tr>
<tr><th></th><th>Sub-code</th><th>Operation</th><th>Timer</th><th>Ready</th><th>Flash</th></tr>
<tr><td>L29</td><td><table>
<tr><th></th><th colspan="4">P.C.board
Compressor / Fan Motor</th><th></th><th colspan="4">P.C.board
Compressor / Fan Motor</th></tr>
<tr><th></th><th>1</th><th>2</th><th>1</th><th>2</th><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><td>11</td><td>O</td><td></td><td></td><td>O</td></tr>
<tr><td>02</td><td></td><td>O</td><td></td><td></td><td>12</td><td></td><td>O</td><td></td><td>O</td></tr>
<tr><td>03</td><td>O</td><td>O</td><td></td><td></td><td>13</td><td>O</td><td>O</td><td></td><td>O</td></tr>
<tr><td>08</td><td></td><td></td><td>O</td><td></td><td>18</td><td></td><td></td><td>O</td><td>O</td></tr>
<tr><td>09</td><td>O</td><td></td><td>O</td><td></td><td>19</td><td>O</td><td></td><td>O</td><td>O</td></tr>
<tr><td>0A</td><td></td><td>O</td><td>O</td><td></td><td>1A</td><td></td><td>O</td><td>O</td><td>O</td></tr>
<tr><td>0B</td><td>O</td><td>O</td><td>O</td><td></td><td>1B</td><td>O</td><td>O</td><td>O</td><td>O</td></tr>
<tr><td>10</td><td></td><td></td><td></td><td>O</td></tr>
</table>Circle (O): Trouble P.C. board</td><td>L29</td><td>◎</td><td>○</td><td>◎</td><td>SIM</td><td>Trouble in number of P.C. boards</td><td>There are insufficient number of P.C. board in inverter box.</td></tr>
<tr><td></td><td>00</td><td>L29</td><td>◎</td><td>○</td><td>◎</td><td>SIM</td><td>The number of P.C. board trouble</td><td>When there is much number of an inverter P.C. board to model setting of an interface P.C. board.</td></tr>
<tr><td>L30</td><td>Detected indoor unit No.</td><td>(L30)</td><td>◎</td><td>○</td><td>◎</td><td>SIM</td><td>Indoor external trouble input (interlock)</td><td>Indoor unit has been shut down for external trouble input in one refrigerant line (detected by indoor unit).</td></tr>
<tr><td>P03</td><td>–</td><td>P03</td><td>◎</td><td>●</td><td>◎</td><td>ALT</td><td>Outdoor discharge (TD1) temperature trouble</td><td>Outdoor discharge temperature sensor (TD1) has detected abnormally high temperature.</td></tr>
<tr><td>P04</td><td>01: Compressor 1
02: Compressor 2</td><td>P04</td><td>◎</td><td>●</td><td>◎</td><td>ALT</td><td>Activation of high-pressure SW</td><td>High-pressure SW is activated.</td></tr>
<tr><td>P05</td><td>00: Power detection trouble
01: Open phase</td><td>P05</td><td>◎</td><td>●</td><td>◎</td><td>ALT</td><td>Power detection trouble /Open phase detection</td><td>Open phase is detected when power is turned on.</td></tr>
<tr><td rowspan="2">P07</td><td>00 : Compressor 1 or 2 heat sink trouble
01 : Compressor 1 heat sink trouble
02 : Compressor 2 heat sink trouble</td><td rowspan="2">P07</td><td rowspan="2">◎</td><td rowspan="2">●</td><td rowspan="2">◎</td><td rowspan="2">ALT</td><td>Heat sink overheating trouble</td><td>Temperature sensor built into IPM (TH) detects overheating.</td></tr>
<tr><td>04: Heat sink dewing</td><td>Heat sink dewing trouble</td><td>Outdoor liquid temperature sensor (TL2) has detected abnormally low temperature.</td></tr>
<tr><td>P10</td><td>Indoor unit No. detected</td><td>(P10)</td><td>●</td><td>◎</td><td>◎</td><td>ALT</td><td>Indoor unit overflow</td><td>Indoor unit has been shutdown in one refrigerant line due to detection of overflow (detected by indoor unit).</td></tr>
<tr><td>P11</td><td>–</td><td>P11</td><td>●</td><td>◎</td><td>◎</td><td>ALT</td><td>Outdoor heat exchanger freeze trouble</td><td>Remaining frost on outdoor heat exchanger has been detected repeatedly.</td></tr>
<tr><td>P13</td><td>–</td><td>P13</td><td>●</td><td>◎</td><td>◎</td><td>ALT</td><td>Outdoor liquid backflow detection trouble</td><td>State of refrigerant cycle circuit indicates liquid backflow operation.</td></tr>
<tr><td>P14</td><td>01: Outdoor unit valve is close</td><td>P14</td><td>●</td><td>◎</td><td>◎</td><td>ALT</td><td>Another refrigerant cycle protection</td><td>Outdoor unit valve is forget to open during test run.</td></tr>
<tr><td>P15</td><td>01: TS condition
02: TD condition</td><td>P15</td><td>◎</td><td>●</td><td>◎</td><td>ALT</td><td>Gas leak detection</td><td>Outdoor suction temperature sensor (TS1) detects sustained and repeated high temperatures that exceed standard value.</td></tr>
<tr><td>P17</td><td>–</td><td>P17</td><td>◎</td><td>●</td><td>◎</td><td>ALT</td><td>Outdoor discharge (TD2) temperature trouble</td><td>Outdoor discharge temperature sensor (TD2) detects abnormally high temperature.</td></tr>
<tr><td>P19</td><td>Outdoor unit No. detected</td><td>P19</td><td>◎</td><td>●</td><td>◎</td><td>ALT</td><td>4-way valve reversing trouble</td><td>Abnormality in refrigerating cycle is detected during heating operation.</td></tr>
<tr><td>P20</td><td>–</td><td>P20</td><td>◎</td><td>●</td><td>◎</td><td>ALT</td><td>Activation of high-pressure protection</td><td>High pressure (Pd) sensor detects high pressure that exceeds standard value.</td></tr>
</table>

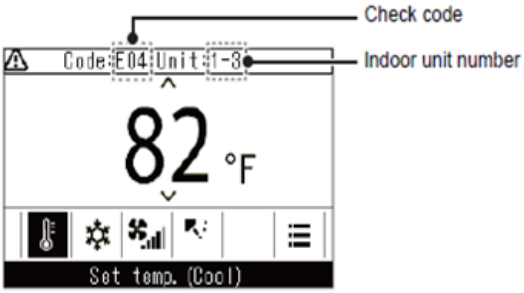
(Check code detected by Inverter of Compressor featuring in outdoor unit - typical examples)

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		
F13	1∗: Compressor 1 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 2∗: Compressor 2	H01	●	◎	●		Compressor breakdown	Inverter current (Idc) detection circuit detects overcurrent.
H02	1∗: Compressor 1 2∗: Compressor 2	H02	●	◎	●		Compressor trouble (lockup)	Compressor lockup is detected
H03	1∗: Compressor 1 2∗: Compressor 2	H03	●	◎	●		Current detection circuit trouble	Abnormal current is detected while inverter compressor is turned off.
H17	1∗: Compressor 1 2∗: Compressor 2	H17	●	◎	●		Compressor trouble (Step out)	Compressor is in step-out condition.
H28	1∗: Compressor 1 2∗: Compressor 2	H28	●	◎	●		Compressor motor winding trouble	Compressor motor winding is layer shorted.
P05	1∗: Compressor 1 side 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 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 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 2∗: Compressor 2	P25	◎	●	◎	ALT	Compressor P.C.board trouble	IPM for compressor is broken. (short-circuit etc.)
P26	1∗: Compressor 1 2∗: Compressor 2	P26	◎	●	◎	ALT	Compressor start up trouble	Open phase or IPM overcurrent for compressor is detected.
P29	1∗: Compressor 1 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]**

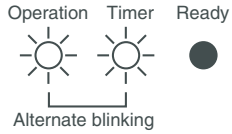
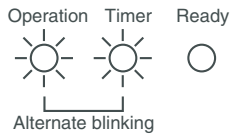
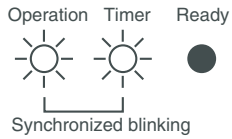
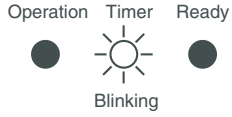
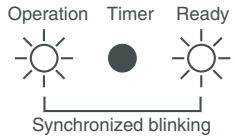
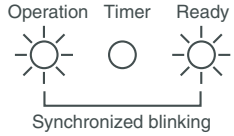
Using indoor unit indicators (receiving unit light block) (wireless type)

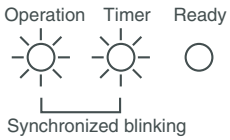
To identify the check code, check the 7-segment display on the header unit. To check for check codes not displayed on the 7-segment display, consult the “List of Check Codes (Indoor Unit)” in “8-2. Troubleshooting method”.

● : Goes off ○ : Lighting ☼ : Blinking (0.5 seconds)

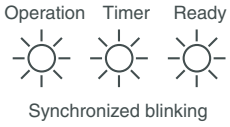
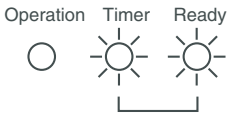
Light block	Check code	Cause of trouble		
Operation ● Timer ● Ready ● All lights out	–	Power turned off or trouble in wiring between receiving and indoor units		
Operation ● Timer ● Ready ☼ Blinking	E01	Trouble reception	Receiving unit	Trouble or poor contact in wiring between receiving unit and indoor 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 Inverter DC voltage (Vdc) trouble 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 Compressor leads trouble 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) Outdoor unit temperature sensor wiring / installation trouble	
	F16	Wiring trouble in outdoor high pressure sensor (Pd) and low pressure sensor (Ps) 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 (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. • Check for failure in central control communication line. • Check termination resistance setting.
C06	—		Central control device	Central control device reception trouble	Continued operation	Central control device is unable to receive signal.	• Check for failure in central control device. • Check for failure in central control communication line. • Check terminator resistor setting. • Check power supply for devices at other end of central control communication line. • Check failure in P.C. boards of devices at other end of central control communication line.
C12	—		General-purpose device I/F	Batch alarm for general-purpose device control interface	Continued operation	Trouble signal is input to control interface for general-purpose devices.	• Check trouble input.
E01	—	—	Remote controller	Indoor-remote controller communication trouble (detected at remote controller end)	Stop of corresponding unit	Communication between indoor P.C. board and remote controller is disrupted.	• Check remote controller inter-unit tie cable (A/B). • Check for broken wire or connector bad contact. • Check indoor power supply. • Check for failure in indoor P.C. board. • Check remote controller address settings (when two remote controllers are in use). • Check remote controller P.C. board.
E02	—	—	Remote controller	Remote controller transmission trouble	Stop of corresponding unit	Signal cannot be transmitted from remote controller to indoor unit.	• Check internal transmission circuit of remote controller. --- Replace remote controller as necessary.
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. • Check indoor address setting. • Check indoor-outdoor tie cable. • 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** All indoor unit initially communicating normally fails to return signal for specified length of time. **Condition 2** Outdoor I / F board SW103, Bit4 : OFF (Factory default)	• Check power supply to indoor unit. (Is power turned on?) • Check connection of indoor-outdoor communication cable. • Check connection of communication connectors on indoor P.C. board. • Check connection of communication connectors on outdoor P.C. board. • Check for failure in indoor P.C. board. • Check for failure in outdoor P.C. board (I/F).
	—	—	Indoor unit	Indoor-outdoor communication circuit trouble	Only specified indoor units stop	**Condition 1** Indoor unit initially communicating normally fails to return signal for specified length of time.	• Check power supply to indoor unit. (Is power turned on?) • Check indoor-outdoor power-on sequence. • Check indoor address setting • Check wiring of Indoor-outdoor communication wires • Check outdoor terminator resistor setting (SW100, Bit 2).
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?) • Check indoor-outdoor power-on sequence. • Check indoor address setting • Check wiring of Indoor-outdoor communication wires • Check outdoor terminator resistor setting (SW100, Bit 2).
			I/F	Dropping out of indoor unit (E06)		Display on main remote controller. Indoor units unavailable for indoor / outdoor communication. :E04 Indoor units available for indoor / outdoor communication. : E06 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?) • Check connection of indoor-outdoor communication cable. • Check connection of communication connectors on indoor P.C. board. • Check connection of communication connectors on outdoor P.C. board. • Check for failure in indoor P.C. board. • Check for failure in outdoor P.C. board (I/F).
—	E07	—	I/F	Indoor-outdoor communication circuit trouble (detected at outdoor end)	All stop	Signal cannot be transmitted from outdoor to indoor units for 30 seconds continuously.	• Check outdoor terminator resistor setting (SW100, Bit 2). • Check connection of indoor-outdoor communication circuit.
E08	E08	Duplicated indoor address	Indoor unit I/F	Duplicated indoor address	All stop	More than one indoor unit are assigned same address.	• Check indoor addresses. • Check for any change made to remote controller connection (group/ individual) since indoor address setting.

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. • Check remote controller P.C. boards.
E10	—	—	Indoor unit	Indoor inter-MCU communication trouble	Stop of corresponding unit	Communication cannot be established/maintained upon turning on of power or during communication.	• Check for failure in indoor P.C. board
E12	E12	01: Indoor-outdoor communication 02: Outdoor-outdoor communication	I/F	Automatic address starting trouble	All stop	• Indoor automatic address setting is started while automatic address setting for equipment in other refrigerant line is in progress. • Outdoor automatic address setting is started while automatic address setting for indoor units is in progress.	• Check whether the outdoor unit of other systems or the indoor unit is connected to Uv (U1/U2) line or Uc (U5/U6) line. • Perform automatic address setting again after disconnecting communication cable to that refrigerant line.
E15	E15	—	I/F	Indoor unit not found during automatic address setting	All stop	Indoor unit cannot be detected after indoor automatic address setting is started.	• Check connection of indoor-outdoor communication line. • Check for trouble in indoor power supply system. • Check for noise from other devices. • Check for power failure. • Check for failure in indoor P.C. board.
E16	E16	00: Capacity over 01-: No. of units connected	I/F	Too many indoor units connected	All stop	• Combined capacity of indoor units is too large. **Note:** **If this code comes up after backup setting for outdoor unit failure is performed, perform "No capacity over detected" setting.** <"No capacity over detected" setting method> Turn on SW103 / Bit 3 on I/F P.C. board of outdoor header unit. For Cooling Only model, this check code is not displayed even if it exceeds the combined capacity of indoor units. • More than 128 indoor units are connected.	• Check capacities of indoor units connected. • Check total capacity of indoor units. • Check capacity settings of outdoor units. • Check No. of indoor units connected. • 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. • Check indoor power supply wiring. • Check P.C. boards of indoor units.
E19	E19	00: No header unit 02: Two or more header units	I/F	Trouble in number of outdoor header units	All stop	• There are more than one outdoor header units in one line. • There is no outdoor header unit in one line.	The outdoor unit which turned on SW101 and the bit 1 of the interface P.C. board is set to Header unit. • Check SW101 bit 1 of follower outdoor unit. • Check connection of indoor-outdoor communication line. • Check for failure in outdoor P.C. board (I/F).
E20	E20	01: Connection of outdoor unit from other line 02: Connection of indoor unit from other line	I/F	Connection to other line found during automatic address setting	All stop	Equipment from other line is found to have been connected when indoor automatic address setting is in progress.	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?)
• Check connection of tie cables between outdoor units for bad contact or broken wire.
• Check communication connectors on outdoor P.C. boards.
• Check for failure in outdoor P.C. board (I/F).
• Check termination resistance setting for communication between outdoor units.</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:
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.
• Check power supply to outdoor unit. (Is power turned on?)
• Check connection of tie cables between outdoor units for bad contact or broken wire.
• Check communication connectors on outdoor P.C. boards.
• Check for failure in outdoor P.C. board (I/F).</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.
<Convenient functions>
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.
If SW04 and SW05 are pushed simultaneously, the fans of normal outdoor units come on.
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.
• Check for failure in outdoor P.C. board (I/F, comp. P.C. board or Fan P.C. board).
• 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)
• 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. • Check resistance characteristics of TCJ sensor. • Check for failure in indoor P.C. board.
F02	—	—	Indoor unit	Indoor TC2 sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TC2 sensor connector and wiring. • Check resistance characteristics of TC2 sensor. • Check for failure in indoor P.C. board.
F03	—	—	Indoor unit	Indoor TC1 sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TC1 sensor connector and wiring. • Check resistance characteristics of TC1 sensor. • Check for failure in indoor P.C. board.
F04	F04	—	I/F	TD1 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TD1 sensor connector. • Check resistance characteristics of TD1 sensor. • Check for failure in outdoor P.C. board (I/F).
F05	F05	—	I/F	TD2 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TD2 sensor connector. • Check resistance characteristics of TD2 sensor. • Check for failure in outdoor P.C. board (I/F).
F06	F06	01: TE1 sensor trouble 02: TE2 sensor trouble 03: TE3 sensor trouble	I/F	TE1/TE2/TE3 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TE1/TE2/TE3 sensor connectors. • Check resistance characteristics of TE1/TE2/TE3 sensors. • Check for failure in outdoor P.C. board (I/F).
F07	F07	01: TL1 sensor trouble 02: TL2 sensor trouble 03: TL3 sensor trouble	I/F	TL1/TL2/TL3 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TL1/TL2/TL3 sensor connector. • Check resistance characteristics of TL1/TL2/TL3 sensor. • Check for failure in outdoor P.C. board (I/F).
F08	F08	—	I/F	TO sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TO sensor connector. • Check resistance characteristics of TO sensor. • Check for failure in outdoor P.C. board (I/F).
F09	F09	01: TG1 sensor trouble 02: TG2 sensor trouble 03: TG3 sensor trouble	I/F	TG1/TG2/TG3 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TG1/TG2/TG3 sensor connectors. • Check resistance characteristics of TG1/TG2/TG3 sensors. • Check for failure in outdoor P.C. board (I/F).
F10	—	—	Indoor unit	Indoor TA sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TA sensor connector and wiring. • Check resistance characteristics of TA sensor. • Check for failure in indoor P.C. board.

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. • Check resistance characteristics of TF sensor. • Check for failure in indoor P.C. board.
F12	F12	01: TS1 sensor trouble 03: TS3 sensor trouble 04: TS3 sensor disconnect	I/F	TS1/TS3 sensor trouble	All stop	• Sensor resistance is infinity or zero (open/short circuit). • When TS3 detects an unusual temperature during compressor operation and PMV4 operation in cooling mode.	• Check connection of TS1/TS3 sensor connector • Check resistance characteristics of TS1/TS3 sensor. • The attachment check of TS3 sensor. • Check for failure in indoor P.C. board.
F13	F13	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	TH sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Failure in IPM built-in temperature sensor → Replace Compressor P.C. board.
F15	F15	—	I/F	Outdoor temperature sensor wiring trouble (TE1, TL1)	All stop	During compressor operation in HEAT mode, TL1 continuously provides temperature reading higher than indicated by TL1 by at least specified margin for 3 minutes or more.	• Check installation of TE1 and TL1 sensors. • Check resistance characteristics of TE1 and TL1 sensors. • Check for outdoor P.C. board (I/F) trouble
F16	F16	—	I/F	Outdoor pressure sensor wiring trouble (Pd, Ps)	All stop	Readings of high-pressure Pd sensor and low-pressure Ps sensor are switched. Output voltages of both sensors are zero.	• Check connection of high-pressure Pd sensor connector. • Check connection of low-pressure Ps sensor connector. • Check for failure in pressure sensors Pd and Ps. • Check for trouble in outdoor P.C. board (I/F). • Check for compressor poor compression.
F23	F23	—	I/F	Ps sensor trouble	All stop	Output voltage of Ps sensor is zero.	• Check for connection trouble involving Ps sensor and Pd sensor connectors. • Check connection of Ps sensor connector. • Check for failure in Ps sensor. • Check for compressor poor compression. • Check for failure in 4-way valve. • Check for failure in outdoor P.C. board (I/F). • Check for failure in SV4 circuit.
F24	F24	—	I/F	Pd sensor trouble	All stop	Output voltage of Pd sensor is zero (sensor open-circuited). Pd > 4.15MPa despite compressor having been turned off.	• Check connection of Pd sensor connector. • Check for failure in Pd sensor. • Check for failure in outdoor P.C. board (I/F).
F29	—	—	Indoor unit	Other indoor trouble	Stop of corresponding unit	Indoor P.C. board does not operate normally.	• Check for failure in indoor P.C. board (failure EEPROM)
F31	F31	—	I/F	Outdoor EEPROM trouble	All stop *1	Outdoor P.C. board (I/F) does not operate normally.	• Check power supply voltage. • Check power supply noise. • Check for failure in outdoor P.C. board (I/F).

*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 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. (AC460V ± 10%). • Check for failure in compressor. • Check for possible cause of abnormal overloading. • Check for failure in outdoor P.C. board (Compressor).
H02	H02	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor trouble (lockup) MG-CTT trouble	All stop	Overcurrent is detected several seconds after startup of inverter compressor.	• Check for failure in compressor. • Check compressor system wiring, particularly for open phase. • Check connection of connectors/terminals on compressor P.C. board. • Check conductivity of case heater. (Check for refrigerant problem inside compressor.)
H03	H03	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Current detection circuit trouble	All stop	Current flow of at least specified magnitude is detected despite inverter compressor having been shut turned off.	• Check current detection circuit wiring. • Check failure in outdoor P.C. board (Compressor).
H05	H05	—	I/F	TD1 sensor miswiring (incomplete insertion)	All stop	Discharge temperature of compressor 1 (TD1) does not increase despite compressor being in operation.	• Check installation of TD1 sensor. • Check connection of TD1 sensor connector and wiring. • Check resistance characteristics of TD1 sensor. • Check for failure in outdoor P.C. board (I/F).
H06	H06	—	I/F	Activation of low-pressure protection	All stop	Low-pressure Ps sensor detects operating pressure lower than 0.02MPa.	• Check service valves to confirm full opening (both gas and liquid sides). • Check outdoor PMVs for clogging (PMV1, 2, 3). • Check for failure in SV4 circuits. • Check for failure in low-pressure Ps sensor. • Check indoor filter for clogging. • Check valve opening status of indoor PMV. • Check refrigerant piping for clogging. • Check operation of outdoor fan (during heating). • Check for insufficiency in refrigerant quantity.
H07	H07	—	I/F	Low oil level protection	All stop	Operating compressor detects continuous state of low oil level for about 2 hours.	<All outdoor units in corresponding line to be checked> • Check connection and installation of TK1 and TK2 sensors. • Check resistance characteristics of TK1 and TK2 sensors. • Check for gas or oil leak in same line. • Check for refrigerant problem inside compressor casing. • Check SV3D, SV3F valves for failure. • Check oil return circuit of oil separator for clogging. • 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 02: TK2 sensor trouble	I/F	Trouble in temperature sensor for oil level detection	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TK1 sensor connector. • Check resistance characteristics of TK1 sensor. • Check for failure in outdoor P.C. board (I/F).
					All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TK2 sensor connector. • Check resistance characteristics of TK2 sensor. • Check for failure in outdoor P.C. board (I/F).
H15	H15	—	I/F	TD2 sensor miswiring (incomplete insertion)	All stop	Discharge temperature of (TD2) does not increase despite compressor 2 being in operation.	• Check installation of TD2 sensor. • Check connection of TD2 sensor connector and wiring. • Check resistance characteristics of TD2 sensor. • Check for failure in outdoor P.C. board (I/F).
H16	H16	01: TK1 oil circuit trouble 02: TK2 oil circuit trouble	I/F	Oil level detection circuit trouble	All stop	No temperature change is detected by TK1 despite compressor 1 having been started.	• Check for disconnection of TK1 sensor. • Check resistance characteristics of TK1 sensor. • Check for connection trouble involving TK1 and TK2 sensors • Check for clogging in oil equalizing circuit capillary. • Check for refrigerant entrapment inside compressor.
						No temperature change is detected by TK2 despite compressor 2 having been started.	• Check for disconnection of TK2 sensor. • Check resistance characteristics of TK2 sensor. • Check for connection trouble involving TK1 and TK2 sensors • Check SV3F valve malfunction. • Check for clogging in oil equalizing circuit capillary. • Check for refrigerant entrapment inside compressor.
H17	H17	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor trouble (Step-out)	All stop	Compressor is in step-out condition.	• Check power supply voltage. (AC460V ± 10%). • Check for failure in compressor. • Check for possible cause of abnormal overloading. • Check for failure in outdoor P.C. board (compressor).
H28	H28	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor motor winding trouble	All stop	Abnormal compressor current is detected	• Check for failure in compressor. • Check connection of connectors/terminals on compressor and compressor P.C.board • 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. • 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.

<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>L05</td><td>—</td><td>—</td><td>I/F</td><td>Duplicated priority indoor unit (as displayed on priority indoor unit)</td><td>All stop</td><td>More than one indoor units have been set up as priority indoor unit.</td><td>• Check display on priority indoor unit.</td></tr>
<tr><td>L06</td><td>L06</td><td>No. of priority indoor units</td><td>I/F</td><td>Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)</td><td>All stop</td><td>More than one indoor units have been set up as priority indoor unit.</td><td>• Check displays on priority indoor unit and outdoor unit.</td></tr>
<tr><td>L07</td><td>—</td><td>—</td><td>Indoor unit</td><td>Connection of group control cable to standalone indoor unit</td><td>Stop of corresponding unit</td><td>There is at least one standalone indoor unit to which group control cable is connected.</td><td>• Check indoor addresses.</td></tr>
<tr><td>L08</td><td>L08</td><td>—</td><td>Indoor unit</td><td>Indoor group / addresses not set</td><td>Stop of corresponding unit</td><td>Address setting has not been performed for indoor units.</td><td>• Check indoor addresses.
Note:
This code is displayed when power is turned on for the first time after installation.</td></tr>
<tr><td>L09</td><td>—</td><td>—</td><td>Indoor unit</td><td>Indoor capacity not set</td><td>Stop of corresponding unit</td><td>Capacity setting has not been performed for indoor unit.</td><td>Set indoor capacity. (DN = 11)</td></tr>
<tr><td>L10</td><td>L10</td><td>—</td><td>I/F</td><td>Outdoor capacity not set</td><td>All stop</td><td>Initial setting of I/F P.C. board has not been implemented.</td><td>• Check model setting of P.C. board for servicing outdoor I/F P.C. board.</td></tr>
<tr><td>L17</td><td>L17</td><td>—</td><td>I/F</td><td>Outdoor model incompatibility trouble</td><td>All stop</td><td>Outdoor unit that cannot be connected is connected.</td><td>• Check the model name of the outdoor unit.</td></tr>
<tr><td>L20</td><td>—</td><td>—</td><td>Network adaptor Indoor unit</td><td>Duplicated central control address</td><td>All stop</td><td>There is duplication in central control address setting.</td><td>• Check central control addresses.</td></tr>
<tr><td>L23</td><td>—</td><td>—</td><td>I/F</td><td>SW setting trouble</td><td>All stop</td><td>Outdoor P.C. board (I/F) does not operate normally.</td><td>• Check switch setting of outdoor P.C. board (I/F).</td></tr>
<tr><td>L28</td><td>L28</td><td>—</td><td>I/F</td><td>Too many outdoor units connected</td><td>All stop</td><td>There are more than 5 outdoor units.</td><td>• Check No. of outdoor units connected (Only up to 5 units per system allowed).
• Check communication lines between outdoor units.
• Check for failure in outdoor P.C. board (I/F).</td></tr>
<tr><td rowspan="2">L29</td><td rowspan="2">L29</td><td>
<table>
<tr><th colspan="3"></th><th colspan="4">P.C.board</th></tr>
<tr><th colspan="3"></th><th colspan="2">Compressor</th><th colspan="2">Fan Motor</th></tr>
<tr><th colspan="3"></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><td></td></tr>
<tr><td>02</td><td></td><td>O</td><td></td><td></td><td></td></tr>
<tr><td>03</td><td>O</td><td>O</td><td></td><td></td><td></td></tr>
<tr><td>08</td><td></td><td></td><td>O</td><td></td><td></td></tr>
<tr><td>09</td><td>O</td><td></td><td>O</td><td></td><td></td></tr>
<tr><td>0A</td><td></td><td>O</td><td>O</td><td></td><td></td></tr>
<tr><td>0B</td><td>O</td><td>O</td><td>O</td><td></td><td></td></tr>
<tr><td>10</td><td></td><td></td><td></td><td></td><td>O</td></tr>
<tr><td>11</td><td>O</td><td></td><td></td><td></td><td>O</td></tr>
<tr><td>12</td><td></td><td>O</td><td></td><td></td><td>O</td></tr>
<tr><td>13</td><td>O</td><td>O</td><td></td><td></td><td>O</td></tr>
<tr><td>18</td><td></td><td></td><td>O</td><td></td><td>O</td></tr>
<tr><td>19</td><td>O</td><td></td><td>O</td><td></td><td>O</td></tr>
<tr><td>1A</td><td></td><td>O</td><td>O</td><td></td><td>O</td></tr>
<tr><td>1B</td><td>O</td><td>O</td><td>O</td><td></td><td>O</td></tr>
</table>
Circle (O):
Trouble P.C. board</td><td>I/F</td><td>Trouble in No. of P.C. board</td><td>All stop</td><td>Insufficient number of P.C. board are detected when power is turned on.</td><td>• Check model setting of P.C. board for servicing outdoor I/F P.C. board.
• Check connection of UART communication connector.
• Check compressor P.C. board, fan P.C. board, and I/F P.C. board for failure.</td></tr>
<tr><td>00</td><td>I/F</td><td>The number of inverter P.C. boards is abnormal.</td><td>All stop</td><td>When there is much number of an inverter P.C. board to model setting of an interface P.C. board.</td><td>• Check I/F P.C. board exchange has been correctly performed as a procedure.
• Check for failure in I/F P.C. board.
• Check for inverter P.C. board for compressors and inverter P.C. board for fan</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					
L30	L30	Detected indoor address	Indoor unit	Indoor external interlock (External abnormal input)	Stop of corresponding unit	• Indoor unit has been shut down due to external abnormal input signal.	**When external device is connected:** 1) Check for trouble in external device. 2) Check for trouble in indoor P.C. board. **When external device is not connected:** 1) Check for trouble in indoor P.C. board.
—	L31	—	I/F	Extended IC trouble	Continued operation	There is part failure in P.C. board (I/F).	Check outdoor P.C. board (I/F).
P01	—	—	Indoor unit	Indoor fan motor trouble	Stop of corresponding unit		• Check the lock of fan motor (AC fan). • Check wiring.
P03	P03	—	I/F	Discharge temperature TD1 trouble	All stop	Discharge temperature (TD1) exceeds 239˚F(115˚C).	• Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check outdoor PMVs (PMV1, 2, 3, 4) for clogging. • Check resistance characteristics of TD1 sensor. • Check for insufficiency in refrigerant quantity. • Check for failure in 4-way valve. • Check for leakage of SV4 circuit. • Check SV4 circuit (wiring or installation trouble in SV41 or SV42).
P04	P04	01: Compressor 1 side 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. • Check for failure in Pd pressure sensor. • Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check for failure in outdoor fan. • Check for failure in outdoor fan motor. • Check outdoor PMVs (PMV1, 2, 3) for clogging. • Check indoor/outdoor heat exchangers for clogging. • Check for short-circuiting of outdoor suction/discharge air flows. • Check for failure in outdoor P.C. board (I/F). • Check for trouble in indoor fan system (possible cause of air flow reduction). • Check opening status of indoor PMV. • Check indoor-outdoor communication line for wiring trouble. • Check for failure operation of check valve in discharge pipe convergent section. • Check gas balancing SV4 valve circuit. • Check for refrigerant overcharging.
P05	P05	00: Power detection trouble 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). • Check wiring of outdoor power supply. • Check power supply voltage.
		1∗: Compressor 1 side 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 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. • Check IPM and heat sink for thermal performance for failure installation. (e.g. mounting screws and thermal conductivity) • Check for failure in Compressor P.C. board. (failure IPM built-in temperature sensor (TH))
		01: Compressor 1 heat sink trouble 02: Compressor 2 heat sink trouble 04: Heat sink dewing	I/F	Heat sink overheating trouble Heat sink dewing trouble	All stop	Condensation detection on heat sink has occurred four times or more in operation. Temperature sensor built into IPM (TH) is overheated.	• Check outdoor fan system trouble. • Check IPM and heat sink for thermal performance for troubled installation. (e. g. mounting screws and thermal conductivity) • Check for failure in compressor P.C. board. (failure IPM built-in temperature sensor (TH)) • Check shortage of refrigerant. • Check outdoor service valves. • Check connection of TL2 sensor. • Check resistance characteristics of TL2 sensor. • Check resistance characteristics of TO sensor. • Check malfunctions of Pd and Ps sensors. • Check outdoor I/F P.C. board malfunction. • Check PMV2 and PMV3. • Check refrigerant stagnation.
P10	P10	Detected indoor address	Indoor unit	Indoor overflow trouble	All stop	• Float switch operates. • Float switch circuit is open-circuited or disconnected at connector.	• Check float switch connector. • Check operation of drain pump. • Check drain pump circuit. • Check drain pipe for clogging. • Check for failure in indoor P.C. board.
P11	—	—	I/F	Outdoor heat exchanger freeze trouble	All stop	• Outdoor heat exchanger remaining frost detection has occurred eight times or more due to abnormal frost formation in heating operation.	• Check shortage of refrigerant. • Check connection of TE1, TE2 and TE3 sensors. • Check resistance characteristics of TE1, TE2, and TE3 sensors. • Check disconnection of TS1 sensor. • Check resistance characteristics of TS1 sensor. • Check outdoor I/F P.C. board malfunction. • Check operation of 4 way valve. • Check operation of outdoor PMV (1, 2, 3). • Check short circuit from outlet air to inlet air.
P12	—	—	Indoor unit	Indoor fan motor trouble	Stop of corresponding unit	• Motor speed measurements continuously deviate from target value. • Overcurrent protection is activated.	• Check connection of fan connector and wiring. • Check for failure in fan motor. • Check for failure in indoor P.C. board. • Check impact of outside air treatment (OA).

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> When system is in cooling operation, high pressure is detected in the unit that has been turned off. <During heating operation> When system is in heating operation, low pressure is detected to be high in unit that has been turned off.	• Check full-close operation of outdoor PMV (1, 2, 3, 4). • Check for failure in Pd or Ps sensor. • Check failure in outdoor P.C. board (I/F). • Check capillary of oil separator oil return circuit for clogging. • Check for leakage of check valve in discharge pipe
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) • Check connection indoor-outdoor unit communication cable. • Check indoor unit sensor and PMV. • 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. <TS trouble judgment criterion> In cooling operation: 140˚F(60˚C) In heating operation: 104˚F(40˚C)	• Check for insufficiency in refrigerant quantity. • Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check PMVs (PMV1, 2, 3, 4) for clogging. • Check resistance characteristics of TS1 sensor. • Check for failure in 4-way valve. • Check SV4 circuit for leakage
		02: TD condition	I/F	Gas leak detection (TD condition)	All stop	Protective shutdown due to sustained discharge temperature (TD1 or TD2) at or above 226.4˚F(108˚C) for at least 10 minutes is repeated four times or more.	• Check for insufficiency in refrigerant quantity. • Check PMVs (PMV 1, 2, 3, 4) for clogging. • Check resistance characteristics of TD1 and TD2 sensors. • Check indoor filter for clogging. • Check piping for clogging. • Check SV4 circuit (for leakage or coil installation trouble).
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. • Check outdoor PMVs (PMV1, 2, 3, 4) for clogging. • Check resistance characteristics of TD2 sensor. • Check for failure in 4-way valve. • Check SV4 circuit for leakage. • Check SV4 circuit (for wiring or installation trouble involving SV41 and SV42).
P19	P19	Detected outdoor unit No.	I/F	4-way valve reversing trouble	All stop	Abnormal refrigerating cycle data is collected during heating operation.	• Check for failure in main body of 4-way valve. • Check for coil failure in 4-way valve and loose connection of its connector. • Check resistance characteristics of TS1 and TE1,TE2,TE3 sensors. • Check output voltage characteristics of Pd and Ps pressure sensors. • 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> Pd sensor detects pressure equal to or greater than 3.85 MPa. <During heating operation> Pd sensor detects pressure equal to or greater than 3.6 MPa.	• Check for failure in Pd pressure sensor. • Check service valves (gas side, liquid side) to confirm full opening. • Check for failure in outdoor fan. • Check for failure in outdoor fan motor. • Check outdoor PMV (PMV1, 2, 3, 4) for clogging. • Check indoor/outdoor heat exchangers for clogging. • Check for short-circuiting of outdoor suction/ discharge air flows. • Check for failure in outdoor P.C. board (I/F). • Check for failure in indoor fan system (possible cause of air flow reduction). • Check opening status of indoor PMV. • Check indoor-outdoor communication line for wiring trouble. • Check for troble operation of check valve in discharge pipe convergent section. • Check gas balancing SV4 valve circuit. • Check for refrigerant overcharging.
P22	P22	1∗: Fan P.C. board 1 2∗: Fan P.C. board 2	Fan INV. P.C. board	Outdoor fan P.C. board trouble	All stop	Protected operation of Fan inverter P.C. board	• Check fan motor. • Check for failure in fan P.C. board. • Check connection of fan motor connector. • Check power voltage of the main power supply.
P25	P25	1∗: Compressor 1 side 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. • Check for failure in compressor P.C.board.
P26	P26	1∗: Compressor 1 side 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. • Check connection of connectors/terminals on compressor and compressor P.C.board. • Check winding resistance between phases of compressor. • Check for failure in compressor P.C.board.
P29	P29	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor position detection circuit trouble	All stop	Position detection is not going on normally.	• Check wiring and connector connection. • Check for compressor layer short-circuit. • Check for failure in compressor P.C. board.
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. • Check for failure in central control communication line. • Check terminator resistor setting. • Check power supply for devices at other end of central control communication line. • Check failure in P.C. boards of devices at other end of central control communication line.

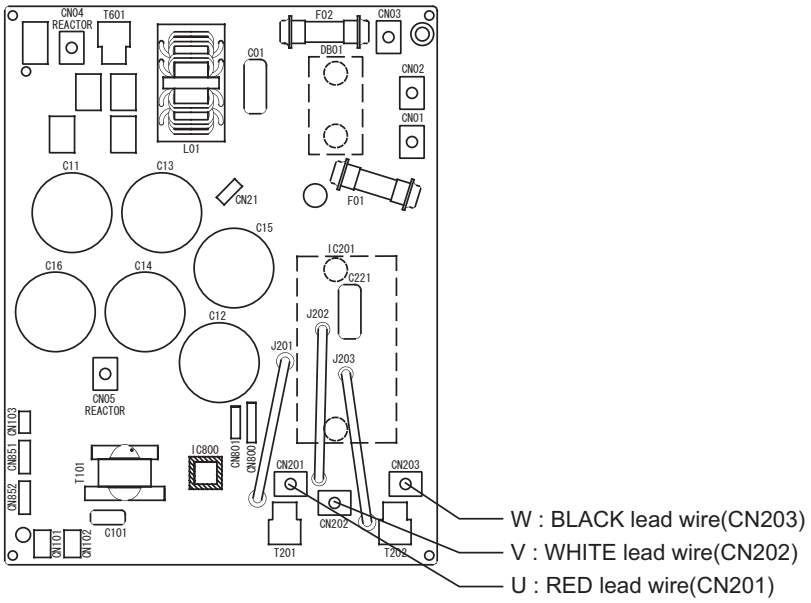
▼ Points to Note When Servicing Compressor

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

▼ How to Check Inverter Output

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

No.	Measured leads	Criterion
1	CN201 - CN202	240-400V
2	CN202 - CN203	240-400V
3	CN203 - CN201	240-400V



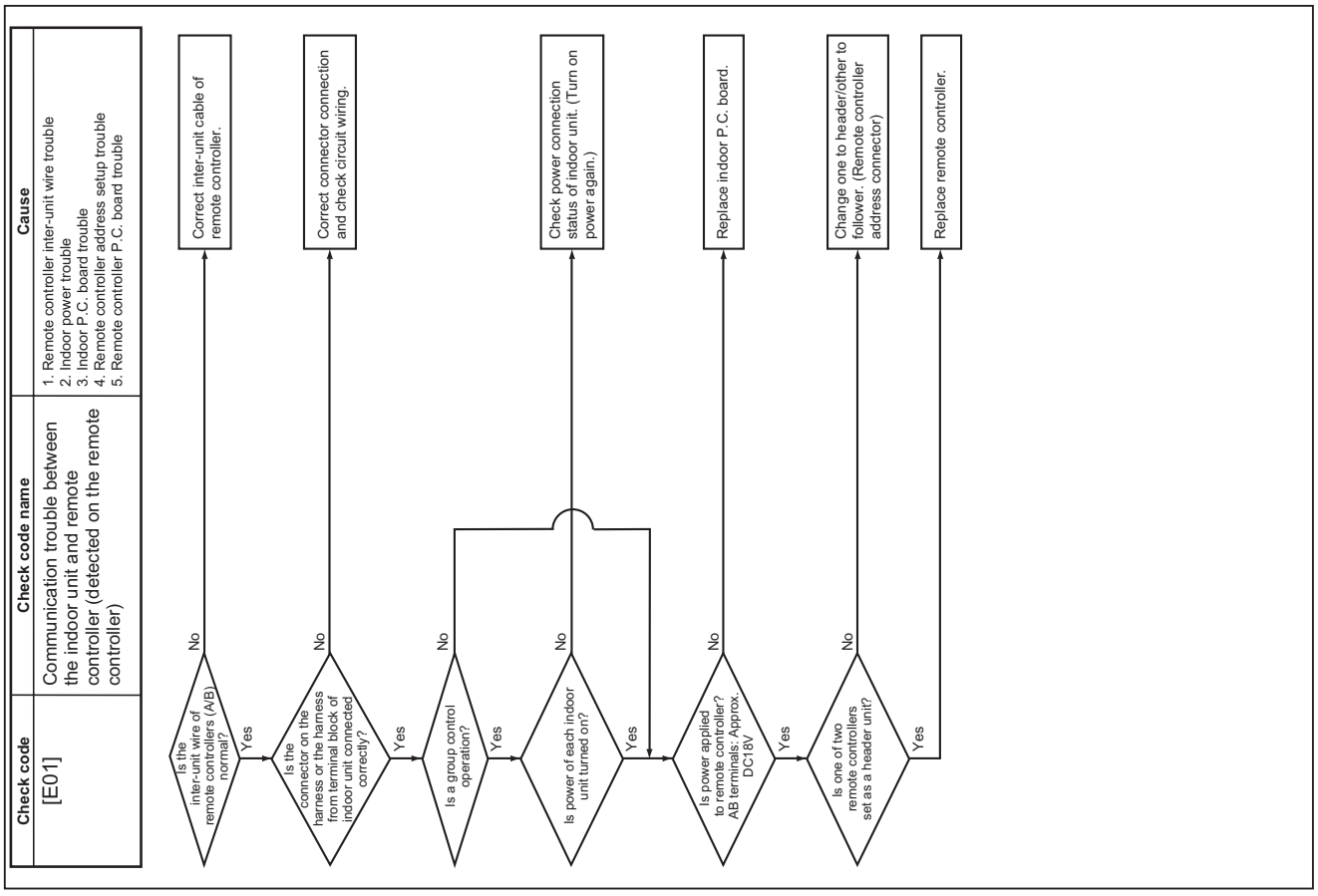
▼ How to Check Resistance of Compressor Winding

(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 phase to phase is below. (Use a mΩ multimeter)
  - LA771A3TB-20M : 0.242 ± 0.012Ω
  - LA1201K4FB-10UC : 0.204Ω ± 0.01Ω

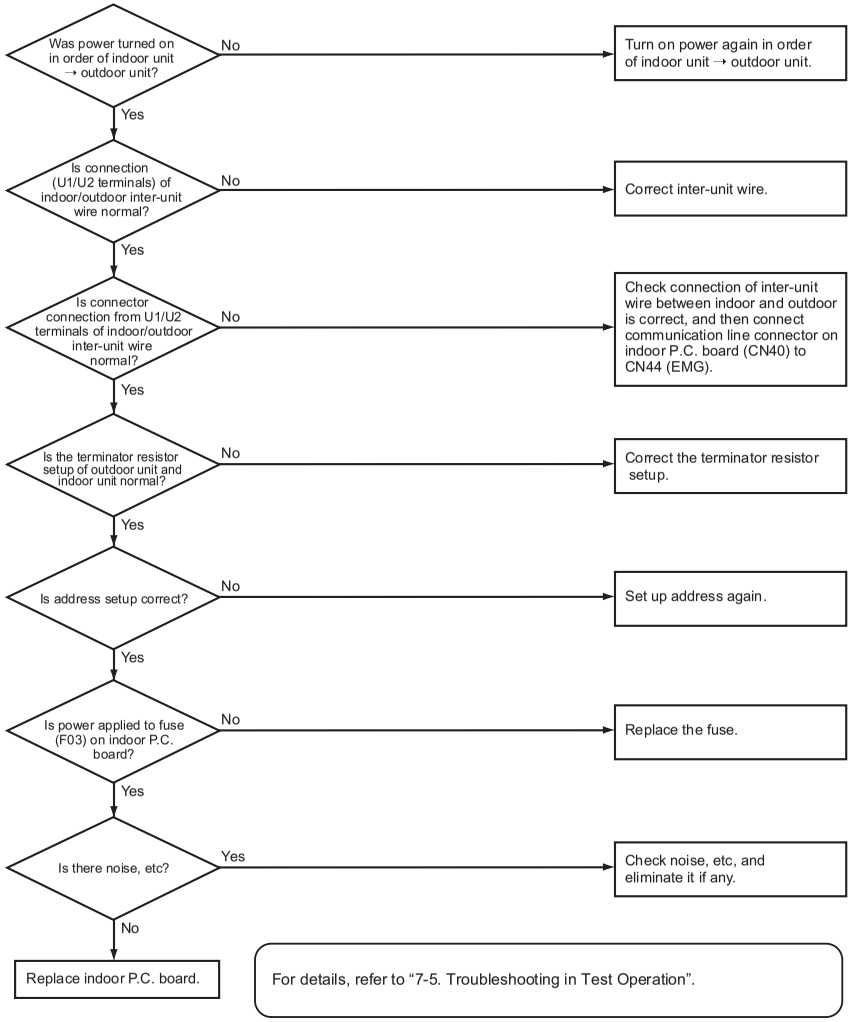
▼ How to Check Outdoor Fan Motor

(1) Turn off the power supply.
(2) Remove fan motor leads from the fan P.C. board for the outdoor fan.
(3) Rotate the fan by hand. If the fan does not turn, the fan motor is 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 9.3-11.5Ω range. (Use a digital multimeter.)

8-5. Diagnosis procedure for each check code



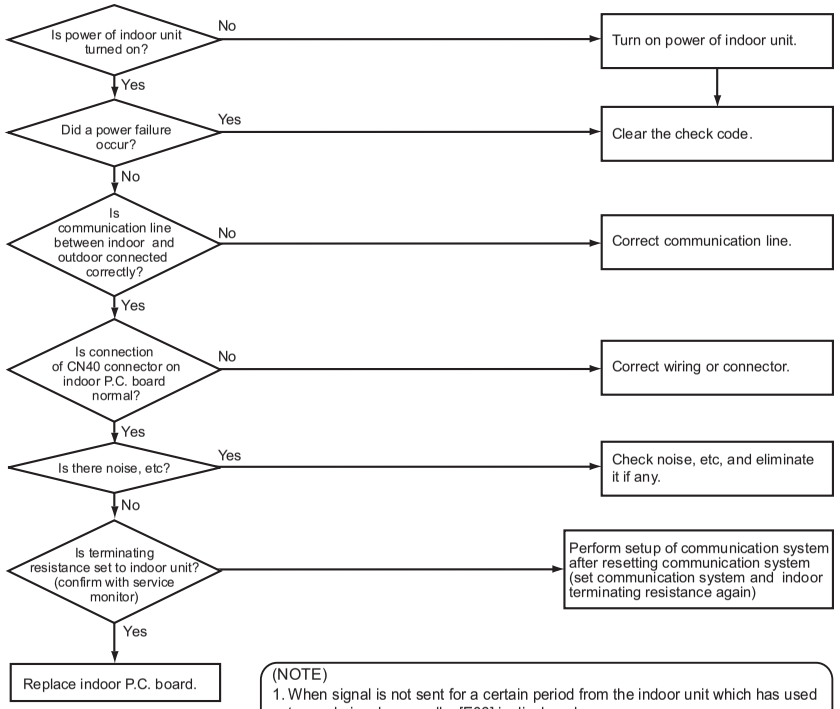
Check code	Check code name	Cause
[E04]	Indoor/Outdoor communication circuit trouble (Detected at indoor side)	1. Power of outdoor unit was firstly turned on. 2. Connection trouble of communication line between indoor and outdoor 3. Terminator resistor setup trouble on communication between indoor and outdoor 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 2. Communication connector's connection trouble on indoor unit, trouble on P.C. board 3. Communication connector's connection trouble on outdoor unit, trouble on I/F board 4. Power supply of indoor unit (Is power turned on?) 5. Communication trouble with indoor unit with terminating resistance set

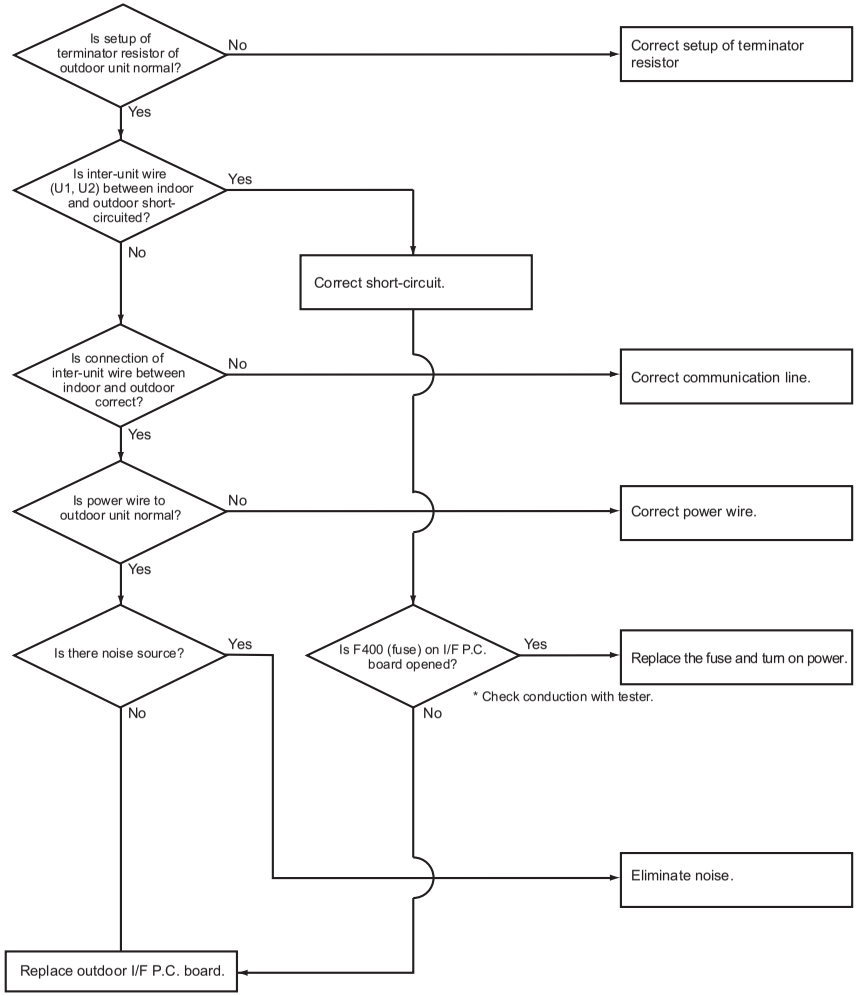
Sub-code: No. of indoor units which received signals normally



(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".

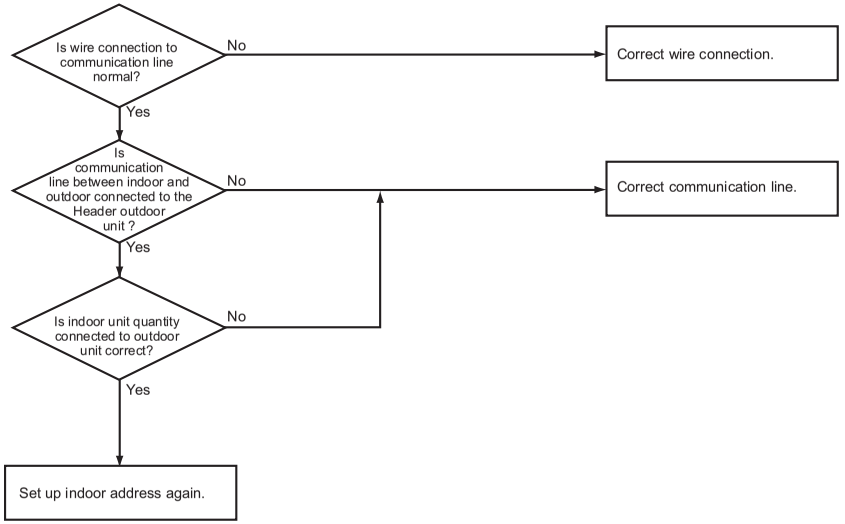
Check code	Check code name	Cause
[E07]	Indoor/Outdoor communication circuit trouble (Detected at outdoor side)	1. Indoor/outdoor communication terminator resistor setup trouble 2. Indoor/outdoor communication connection trouble



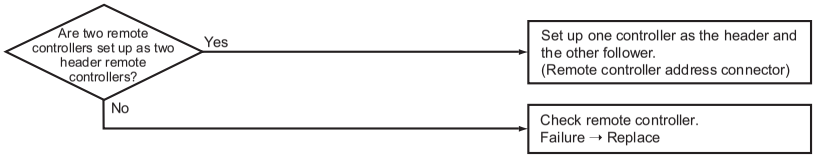
Check code	Check code name	Cause
[E08]	Duplicated indoor addresses	Indoor addresses are duplicated.

Sub-code: Duplicated indoor address

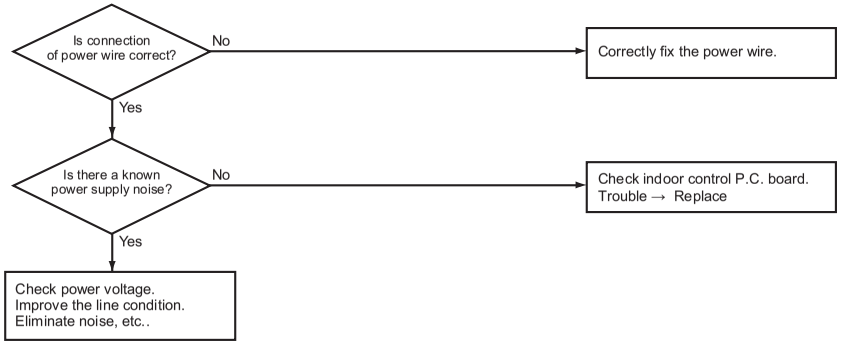
Using a wired remote controller check the setup CODE No. (DN code) 12, 13, and 14.
When there is no address duplication, check to the following flowchart.



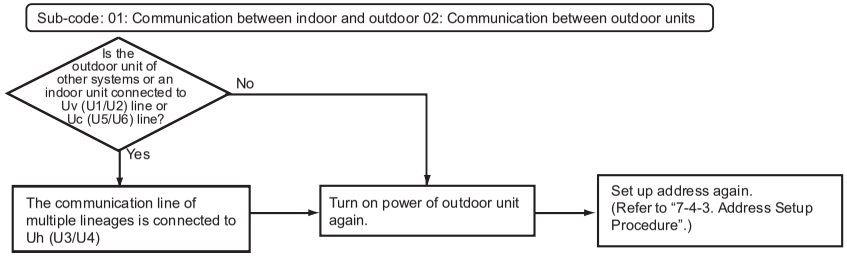
Check code	Check code name	Cause
[E09]	Duplicated header remote controller	Setup of header remote controller is duplicated.



Check code	Check code name	Cause
[E10]	Communication trouble between indoor MCUs.	Indoor P.C. board trouble.

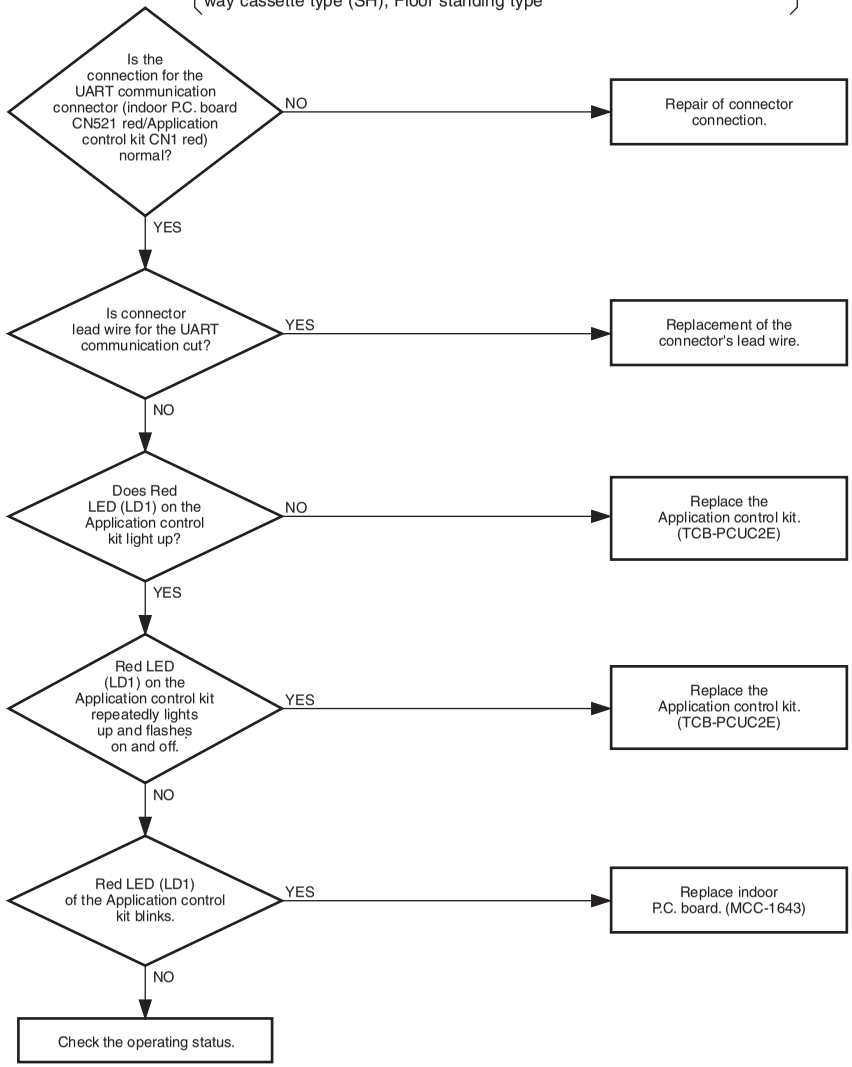


Check code	Check code name	Cause
[E12]	Automatic address start trouble	1. Starting automatic addressing of indoor units during automatic addressing in another refrigerant line. (Sub-code: 01) 2. Starting automatic addressing of outdoor units during automatic addressing of indoor units (Sub-code: 02)



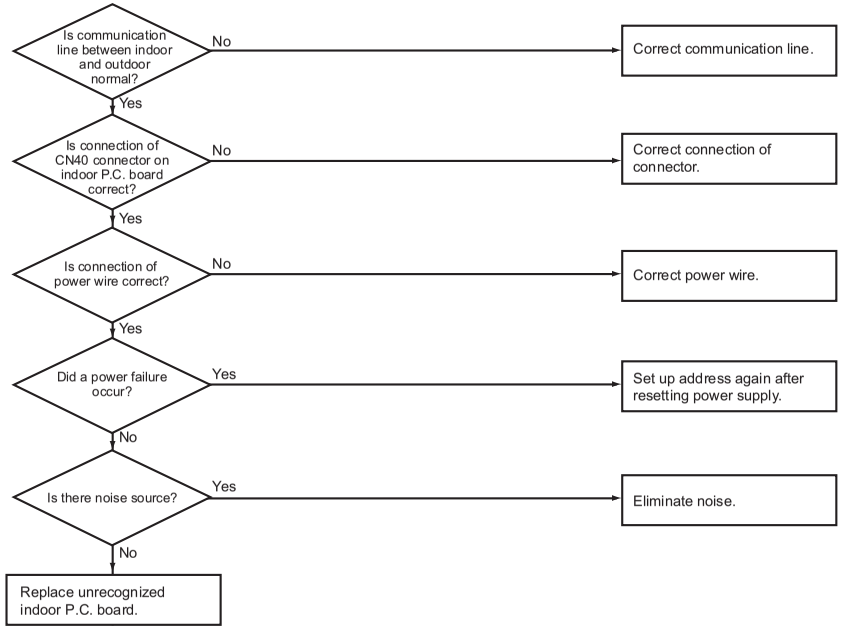
Check code	Check code name	Cause
[E11]	Communication trouble between Application control kit and Indoor unit	1.Application control kit trouble 2. Indoor P.C. board trouble

4-way cassette type, Compact 4-way cassette type 2-way cassette type, 1-way cassette type (SH), Floor standing type



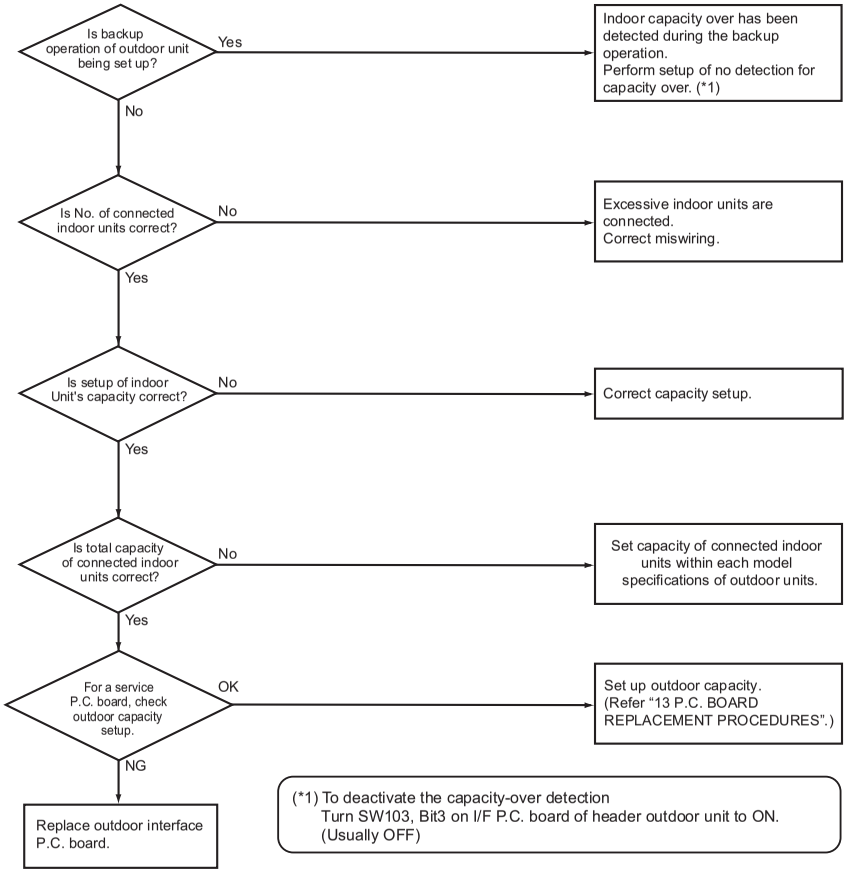
Check code	Check code name	Cause
[E15]	No corresponding indoor unit during automatic address	1. Communication line connection trouble between indoor and outdoor 2. Indoor power system trouble 3. Noise trouble from surrounding devices 4. Power failure 5. Indoor P.C. board trouble

When a trouble occurs even if indoor unit addresses were set after power had been reset, check the following flowchart.



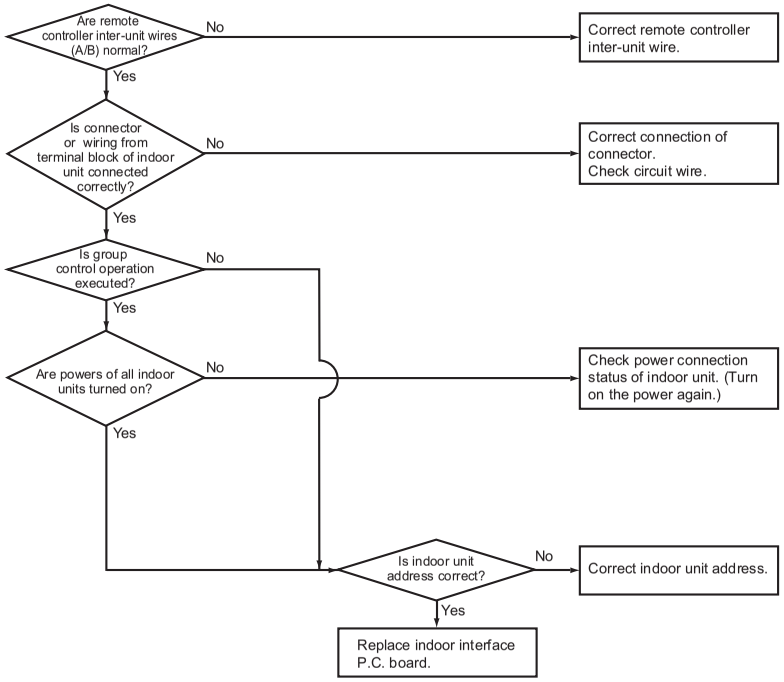
Check code	Check code name	Cause
[E16]	Number/capacity of connected indoor units beyond the limit	1. There are more than 128 connected indoor units. 2. Capacity over of total connected indoor units. 3. Incorrect setup of indoor units' horse power

Sub-code: 00 : Capacity over, 01-: number of connected units



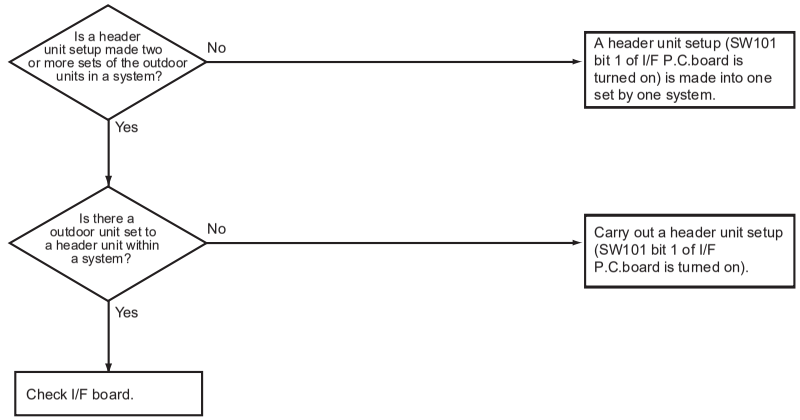
(*1) To deactivate the capacity-over detection
Turn SW103, Bit3 on I/F P.C. board of header outdoor unit to ON.
(Usually OFF)

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 2. Outdoor I/F P.C. board trouble

Sub-code: 00: No header unit 02: Two or more header units

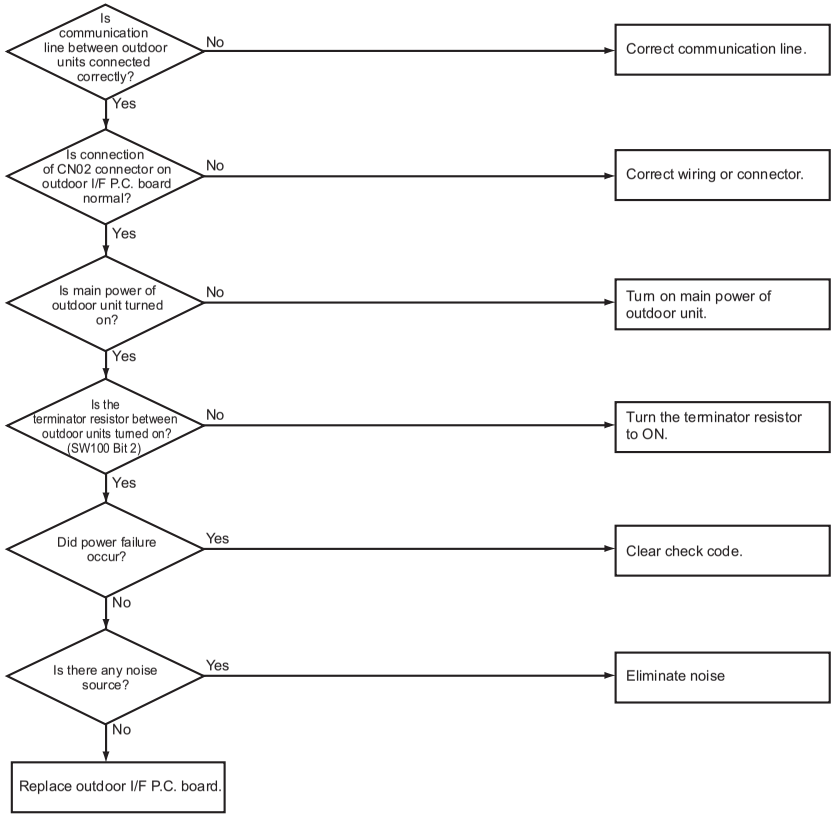


Check code	Check code name	Cause
[E20]	Unit connected to other line during automatic address	When starting automatic indoor address, a device in another line is connected.

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 2. Communication connector connection trouble between outdoor units, I/F P.C. board trouble 3. End terminal resistance setup trouble between outdoor units

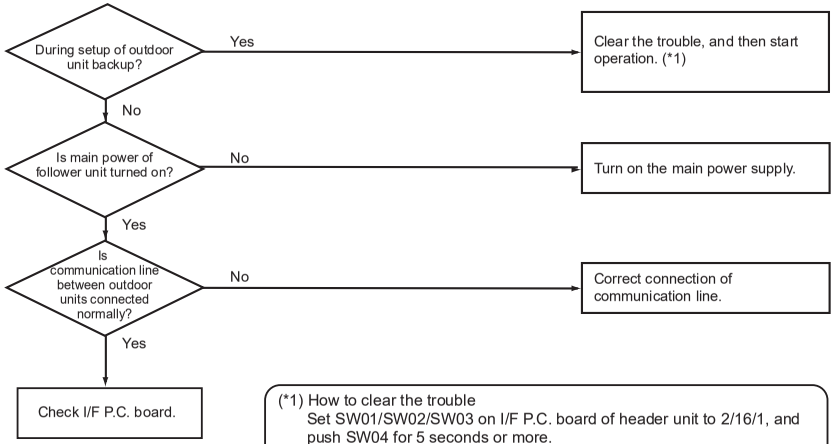


Check code	Check code name	Cause
[E25]	Duplicated follower outdoor address setup	Addresses are duplicated by manual setup of outdoor address

Do not set up outdoor addresses manually.

Check code	Check code name	Cause
[E26]	Decrease of connected outdoor units	1. Outdoor unit backup setup 2. Outdoor power trouble 3. Communication line connection trouble between outdoor units 4. Communication connector connection trouble 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.

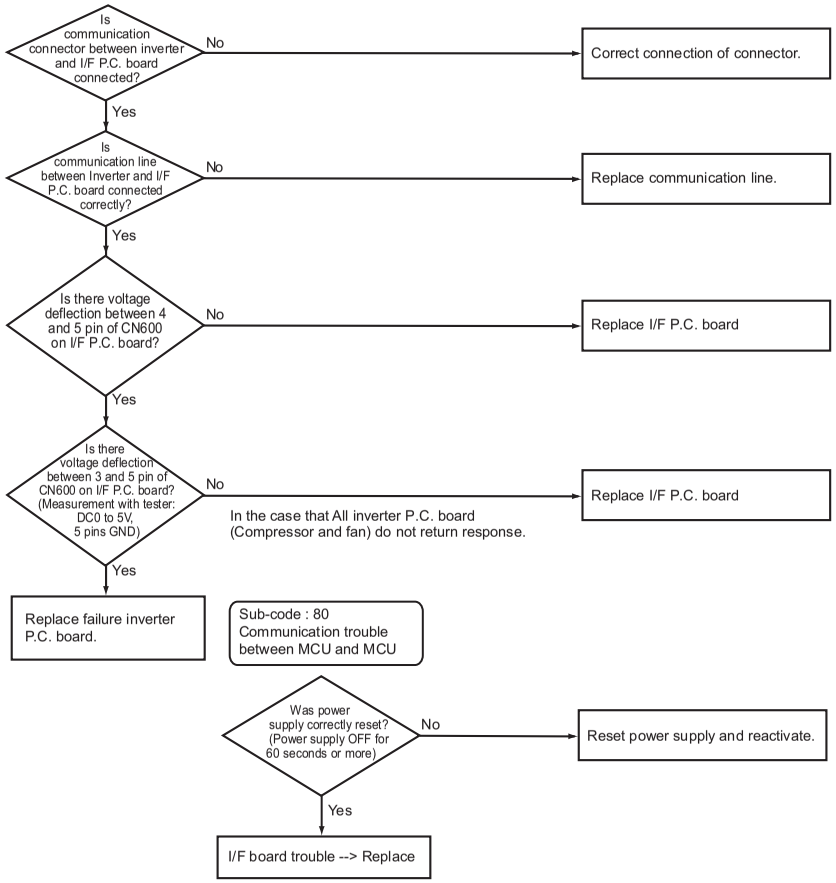
Check code	Check code name	Cause
[E31]	P.C. boards communication trouble	1. Connection trouble of communication line between inverter and I/F P.C. board 2. I/F P.C. board trouble 3. Inverter P.C. board trouble 4. External noise

Sub-code

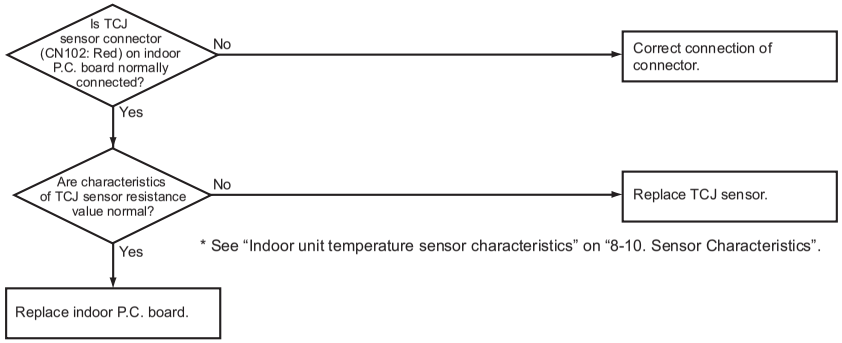
	P.C.board			
	Compressor		Fan Motor	
	1	2	1	2
01	O			
02		O		
03	O	O		
08			O	
09	O		O	
0A		O	O	
0B	O	O	O	
10				O

	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

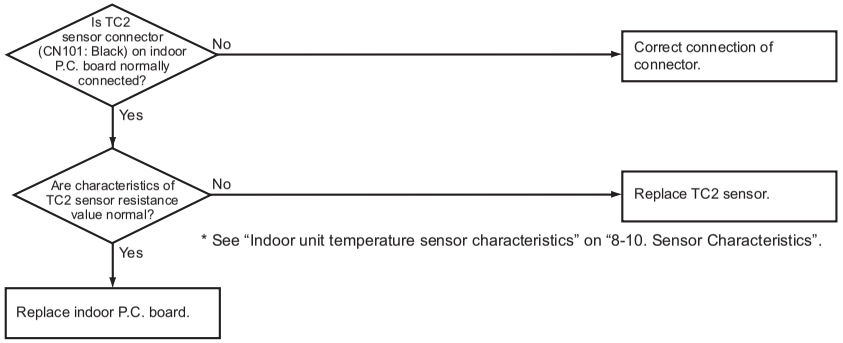


Check code	Check code name	Cause
[F01]	Indoor TCJ sensor trouble	TCJ sensor Open/Short-circuit



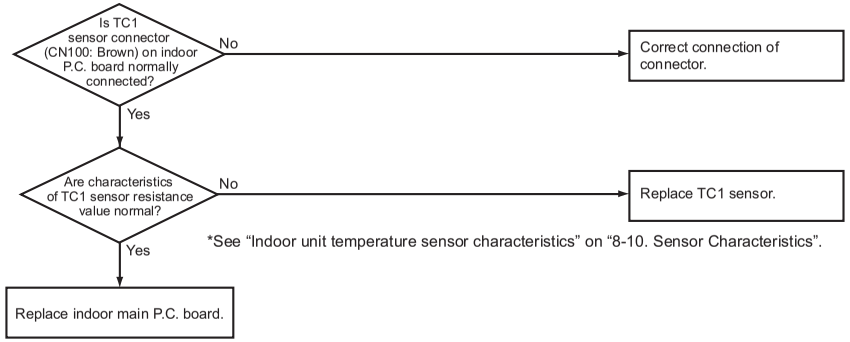
* See “Indoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.

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 2. 04:TS3 sensor disconnect

Sub-code: 01:TS1, 03:TS3, 04:TS3 sensor disconnect

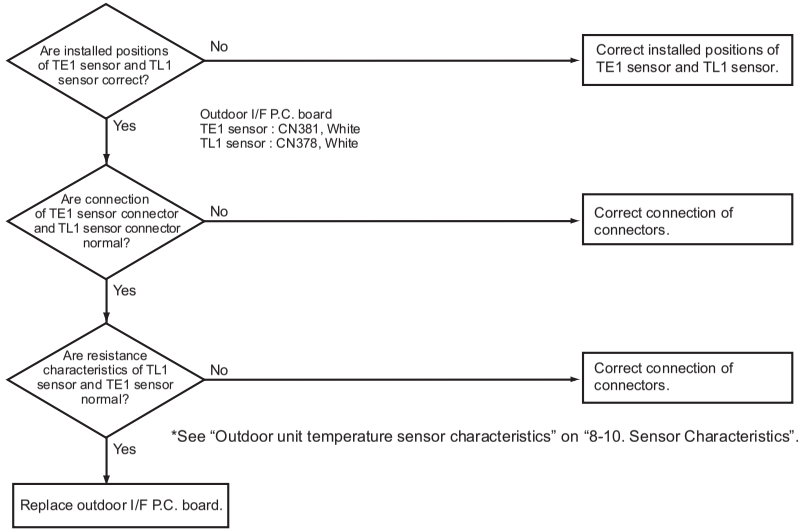
This is detection of open/short-circuit and disconnection of TS3 sensor. Check installation of TS3, disconnection of circuit for connection of connector (TS1, TS3 sensor: CN378 White) and resistance characteristics of sensor.
(See "Outdoor unit temperature sensor characteristics" on "8-10. Sensor Characteristics".)
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.

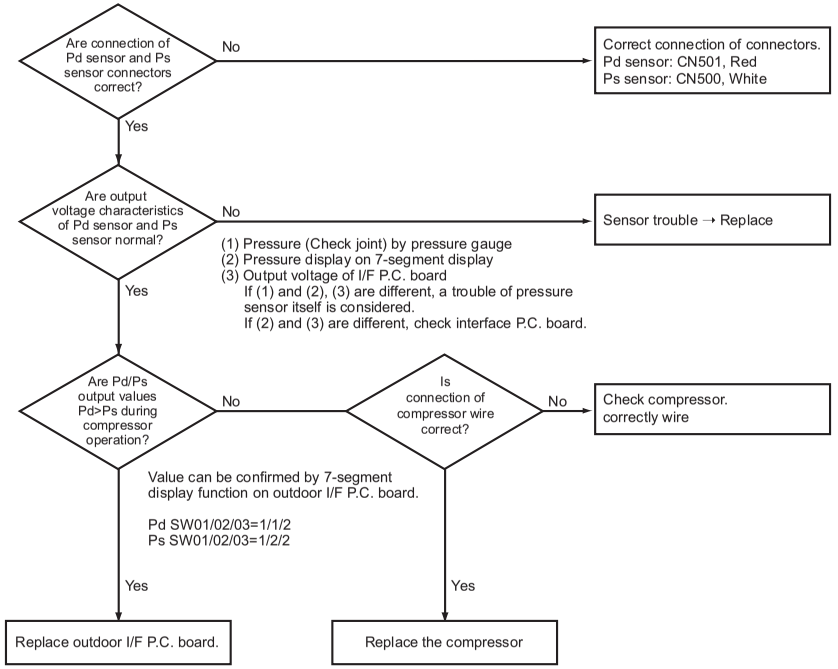
Check code	Check code name	Cause
[F15]	Outdoor temp sensor miswiring (TE1, TL1)	1. Misinstallation and misconnection of TE1 sensor and TL1 sensor 2. Resistance characteristics trouble of TE1 sensor and TL1 sensor 3. Outdoor P.C. board (I/F) trouble



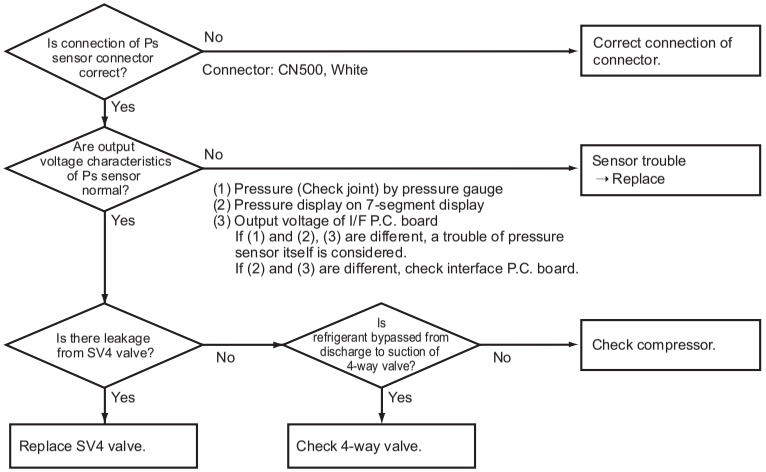
*See “Outdoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.

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. 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 2. SV4, 4-way valve trouble



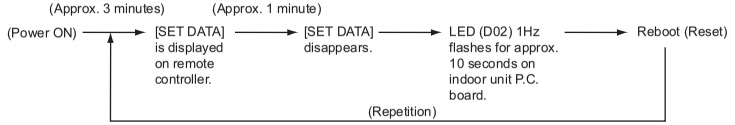
Check code	Check code name	Cause
[F24]	Pd sensor trouble	Output voltage trouble of Pd sensor

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.

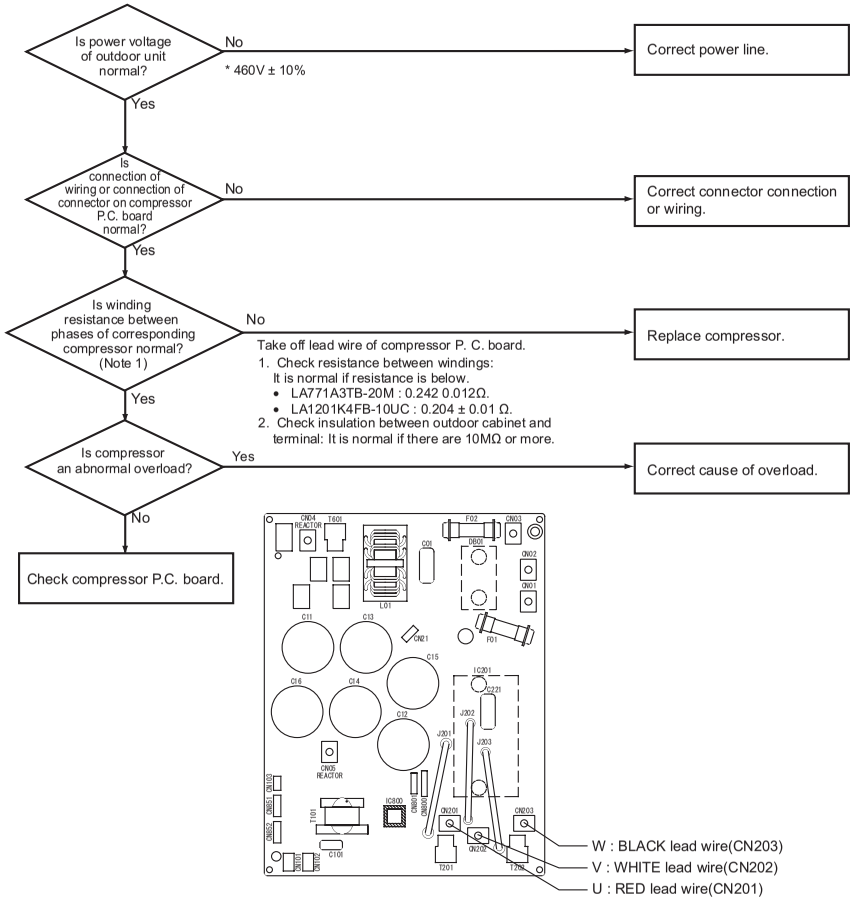
* If EEPROM was not inserted when power was turned on or it is absolutely impossible to read/write EEPROM data, the automatic address mode is repeated.



Check code	Check code name	Cause
[F31]	Outdoor EEPROM trouble	1. Outdoor unit power trouble (Voltage, noise, etc.) 2. Outdoor I/F P.C. board trouble

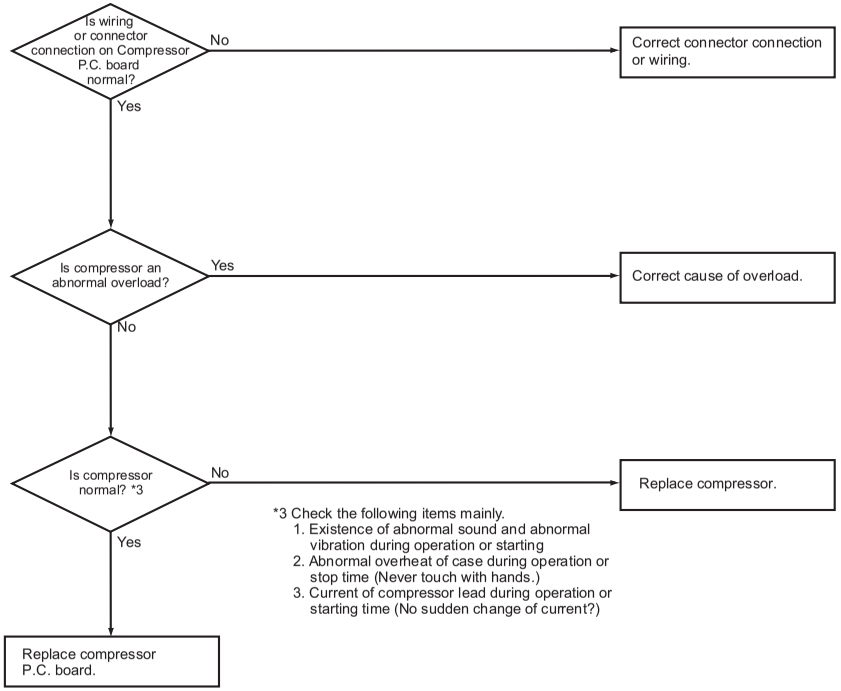
Check code	Check code name	Cause
[H01] [H17]	Compressor breakdown Rotor-stop power distribution has occurred. Judged that the synchronization could not be taken.	1. Outdoor unit power line trouble 2. Compressor circuit system trouble 3. Compressor trouble 4. Abnormal overload in operation 5. Compressor 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 2. Compressor trouble 3. Compressor P.C. board trouble

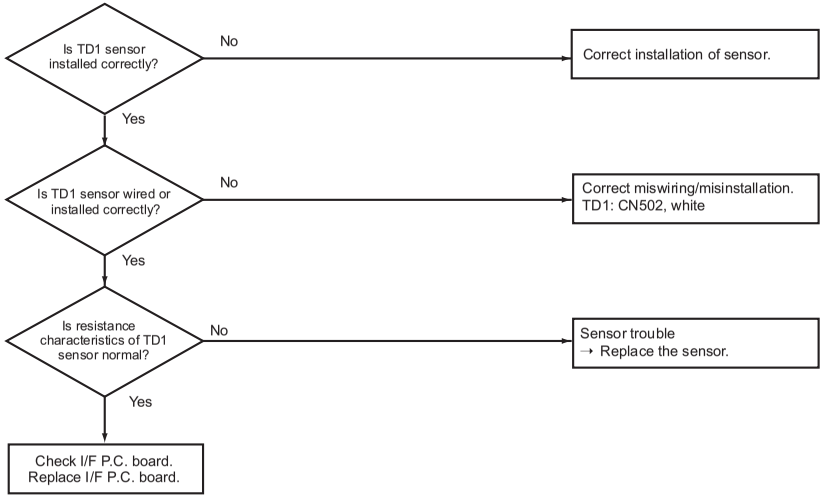
Sub-code:
1∗: Compressor 1,
2∗: Compressor 2



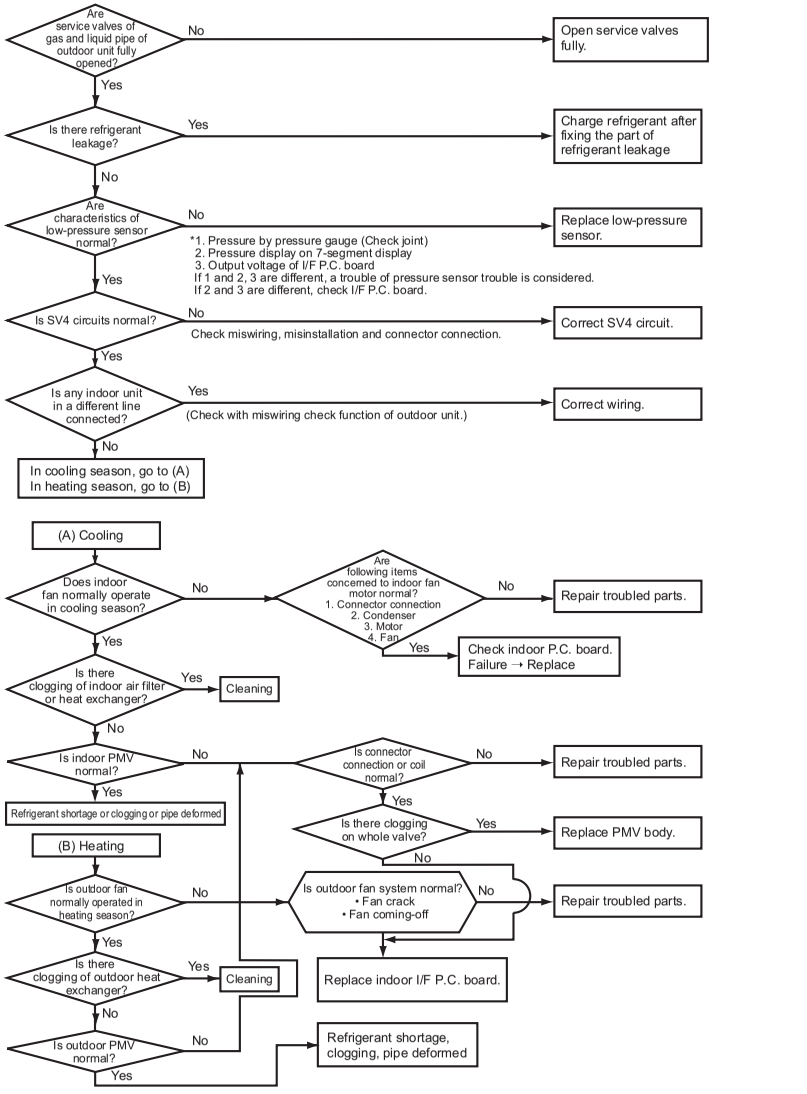
Check code	Check code name	Cause
[H03]	Current detective circuit system trouble	1. Wiring or connector connection trouble on compressor P.C. board 2. compressor P.C. board trouble

Sub-code:
1∗: Compressor 1,
2∗: Compressor 2

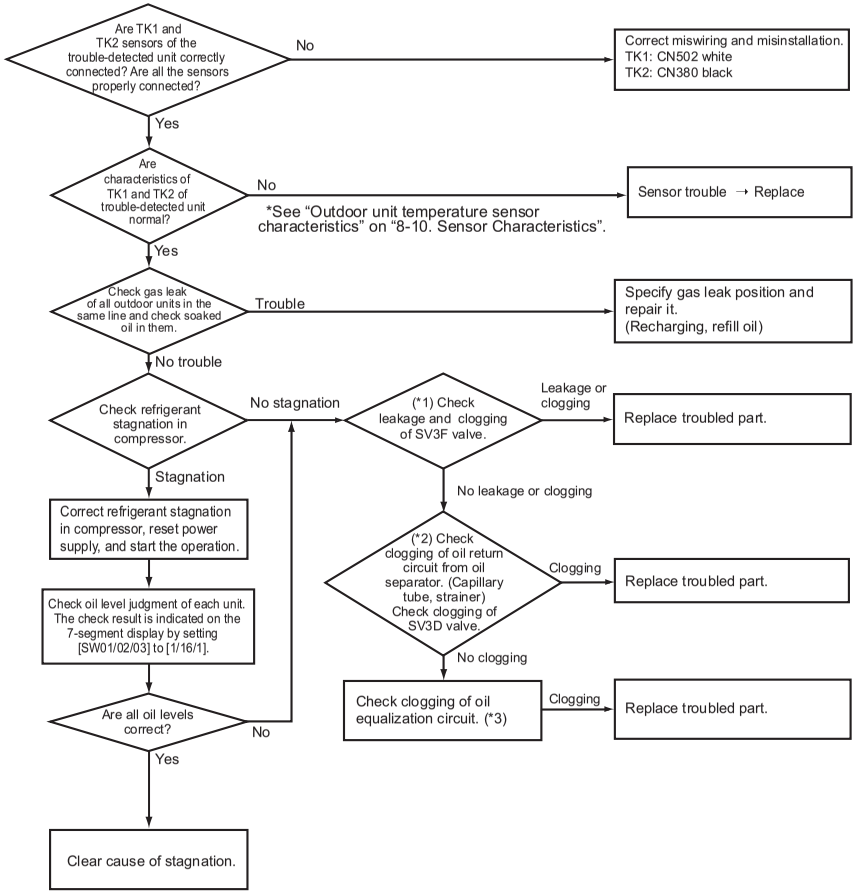
Check code	Check code name	Cause
[H05]	Outdoor discharge temperature sensor (TD1) misconnection	1. Coming-off of TD1 sensor 2.Misinstallation of TD1 sensor, miswiring, characteristics trouble of resistance value



Check code	Check code name	Cause
[H06]	Low-pressure protective operation	1. Service valve close 2. Ps sensor trouble 3. SV4 circuit trouble 4. Miswiring of communication between indoor and outdoor 5. Indoor/outdoor fan and condenser trouble 6. Indoor/outdoor PMV clogging 7. Indoor/outdoor heat exchanger clogging 8. Refrigerant shortage



Check code	Check code name	Cause
[H07]	Oil level down detection protection	1. Miswiring or misinstallation of TK1 and TK2 sensor. 2. TK1 and TK2 sensor trouble 3. Gas leak or oil leak in a line 4. Refrigerant stagnation of compressor case 5. SV3D valve trouble 6. Clogging of oil return circuit from oil separator 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.

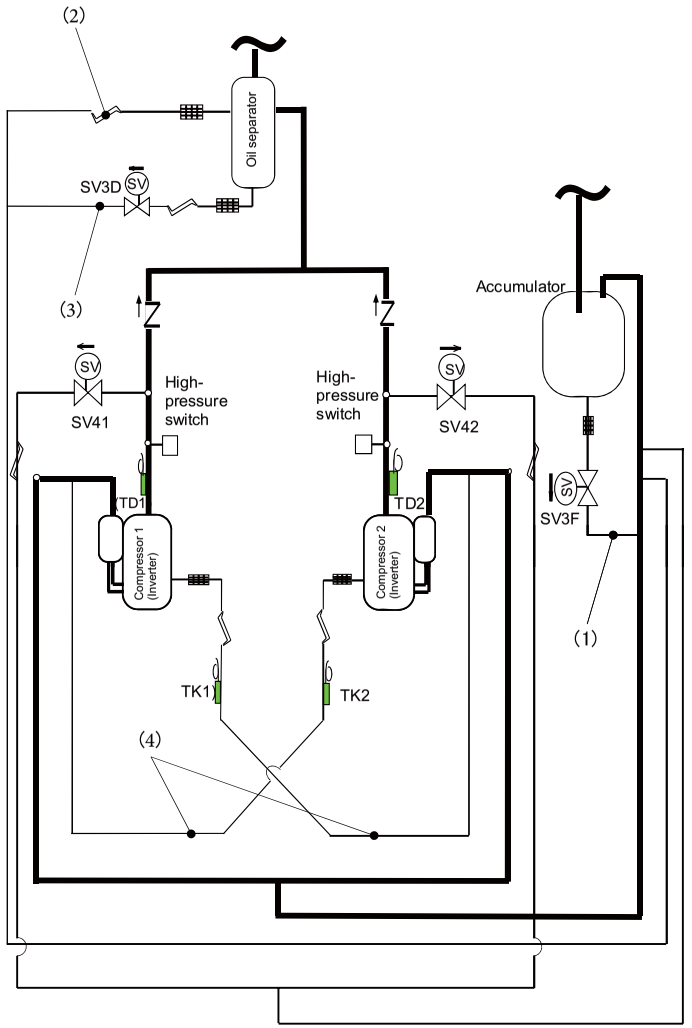
b) Clogging check for SV3D valve

- 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.



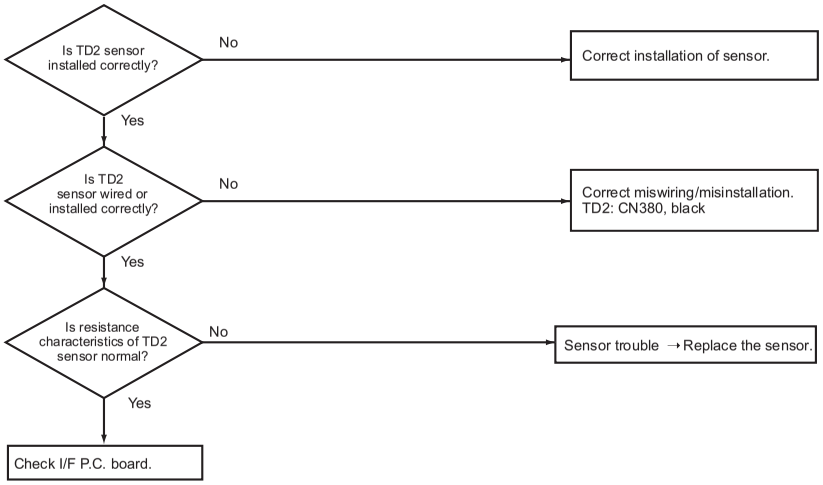
Check code	Check code name	Cause
[H08]	Oil level detective temperature sensor trouble	TK1 and TK2 sensor Open/Short-circuit

Sub-code:
01: TK1 sensor trouble 02: TK2 sensor trouble

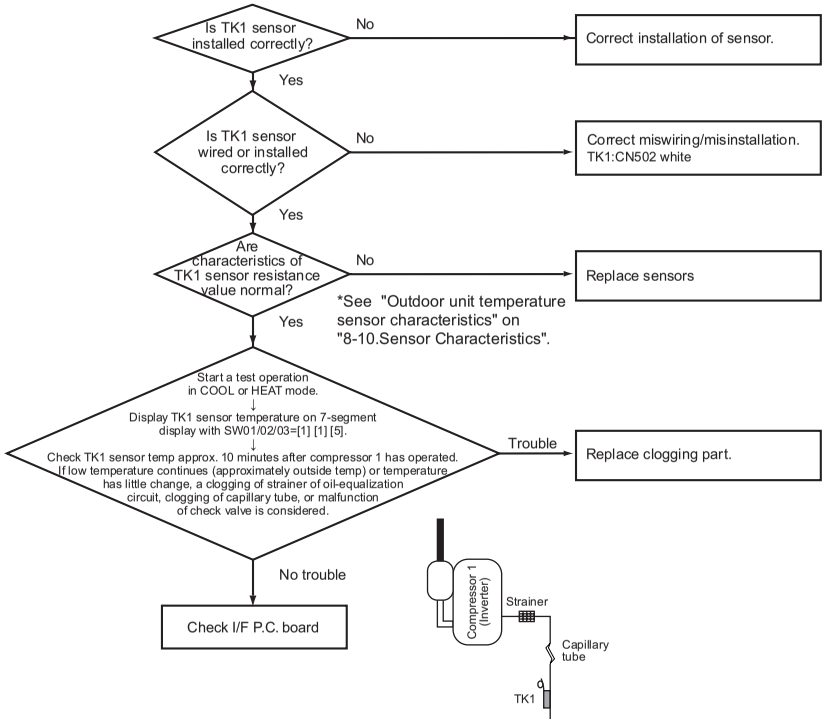
The detected trouble is an oil level detective temperature sensor trouble. Check disconnection of the wiring and resistance value of the sensor.
If the sensors are normal, replace the outdoor I/F P.C. board.

Circuit	Connector
TK1	CN502 white
TK2	CN380 black

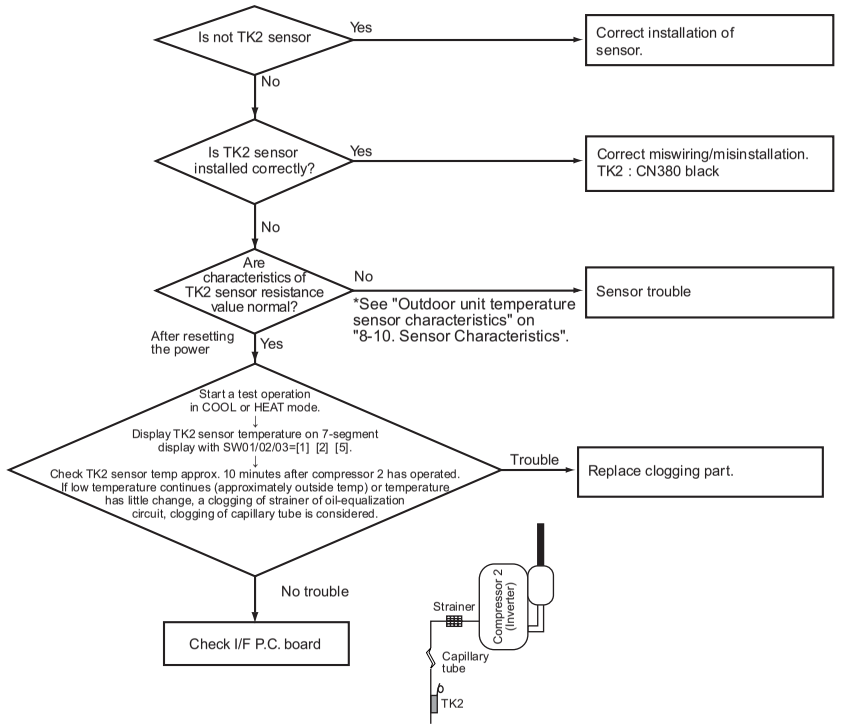
Check code	Check code name	Cause
[H15]	Outdoor discharge temperature sensor (TD2) misconnection	1. Coming-off of TD2 sensor 2. Misinstallation of TD2 sensor, miswiring, characteristics trouble of resistance value



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 2. Oil-equalization circuit trouble (Check valve, capillary clogging, strainer clogging) 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 2. Oil-equalization circuit trouble (Check valve, capillary clogging, strainer clogging) 3. Refrigerant stagnation in the compressor shell

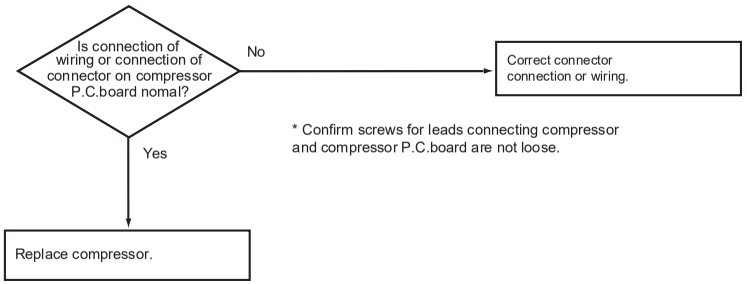


Check code	Check code name	Cause
[H17]	Compressor trouble (step-out etc.)	The clause of [H01] is referred to.

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



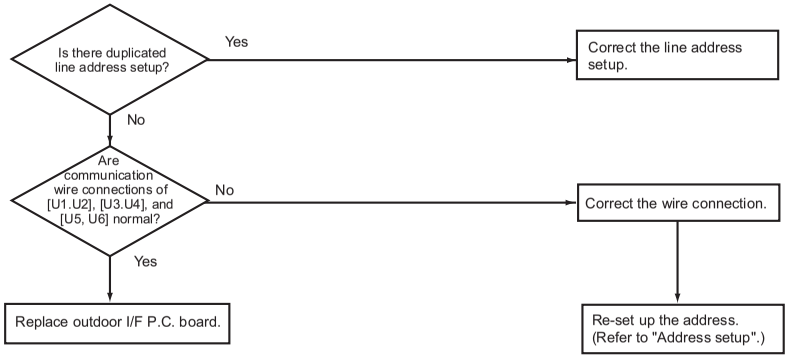
* Confirm screws for leads connecting compressor and compressor P.C.board are not loose.

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.

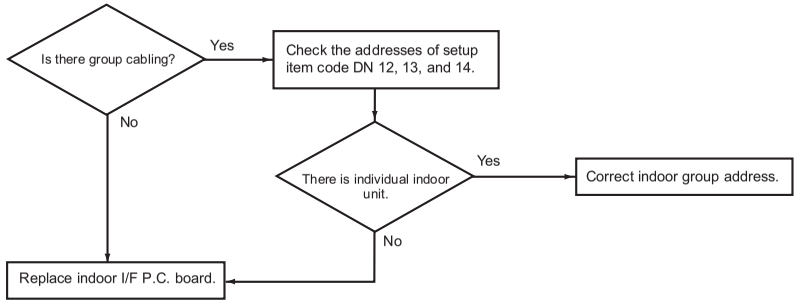
This check code is displayed on the indoor unit set as a prior one when two or more prior indoor units are detected.
• Priority setup with two or more units is not available. As only one indoor unit with priority is valid, change the setup.

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.

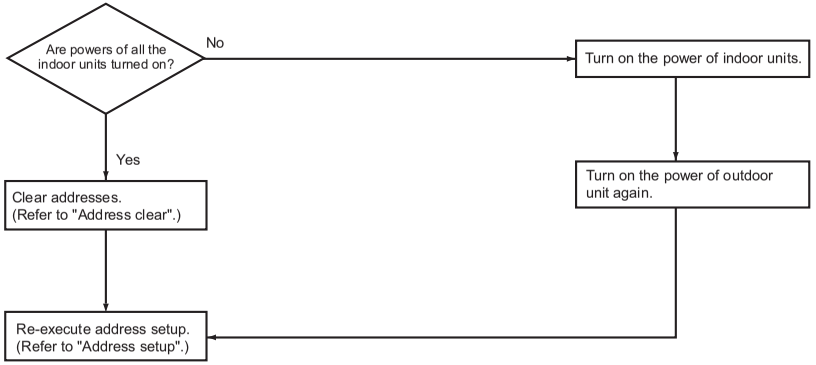
Sub-code: amount of indoor units with priority

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.

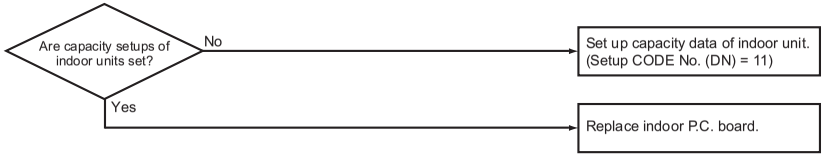


Check code	Check code name	Cause
[L08]	Indoor group / address unset	Indoor unit address is unset



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.

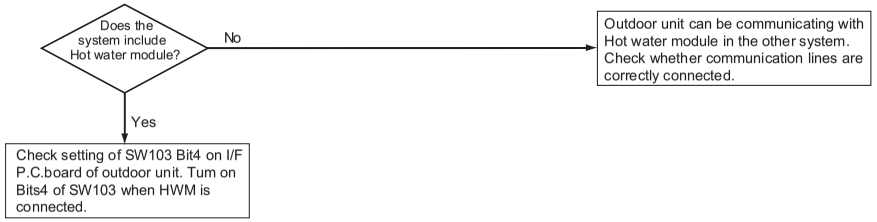
This code is displayed when you have not set up the model after replacing the I/F P.C. board. Please set up a mode according to "13-1-3. Interface P.C. Board (MCC-1747) Replacement Procedure".

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.

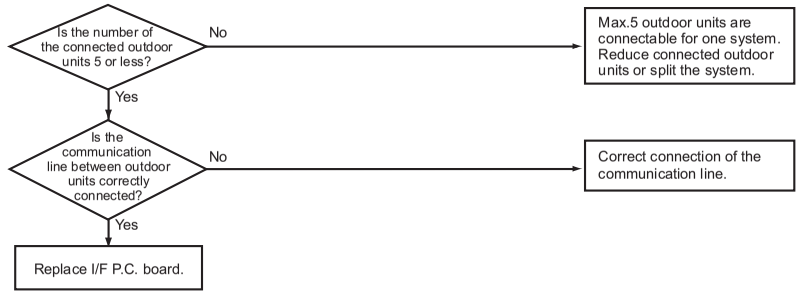
A SMMS-u series outdoor unit cannot be connected with an older series outdoor unit. Use it with another SMMS-u unit.

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. 2. Connection trouble of communication line between outdoor units 3. Outdoor I/F P.C. board trouble



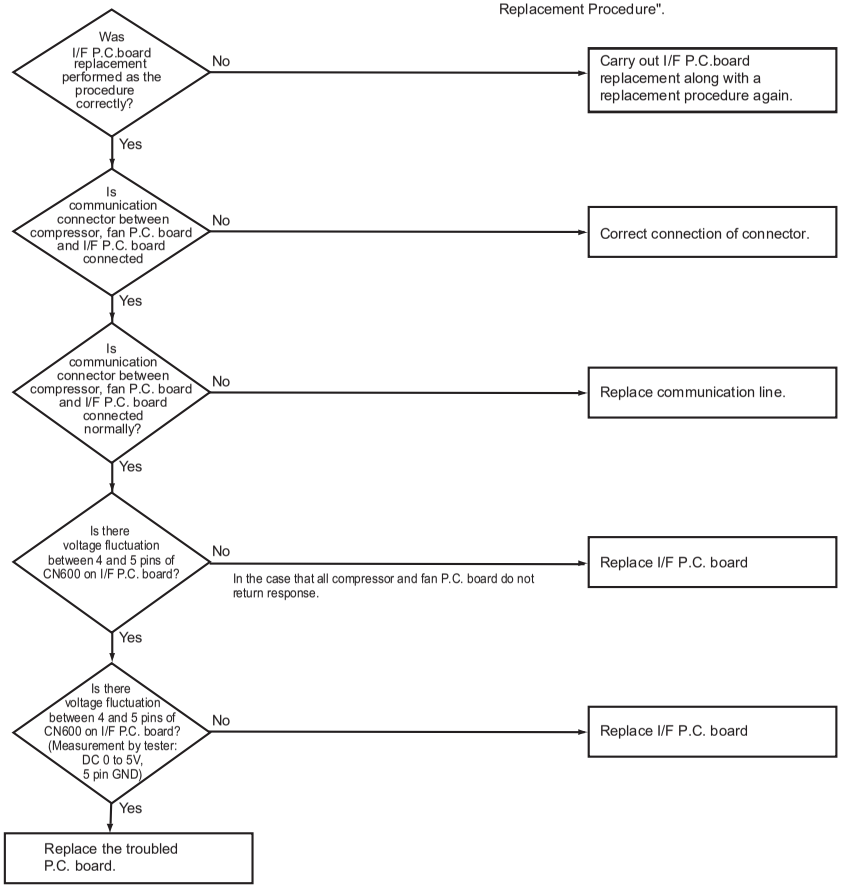
Check code	Check code name	Cause
[L29]	Inverter P.C. board quantity trouble	1. Incorrect model setup in service for I/F P.C. board 2. Communication trouble between compressor, fan P.C. board and I/F 3. Compressor, fan P.C. board, I/F P.C. board trouble

Sub-code

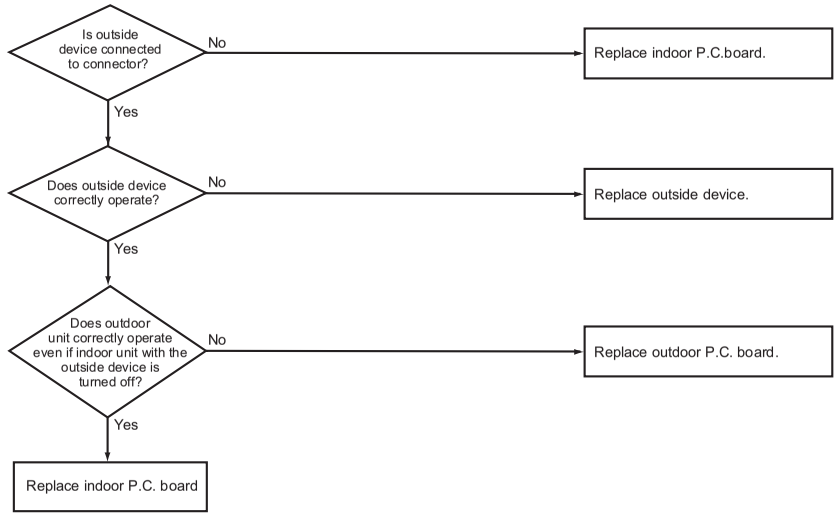
	P.C.board					P.C.board				
	Compressor		Fan Motor			Compressor		Fan Motor	
	1	2	1	2		1	2	1	2
01	O				11	O			O
02		O			12		O		O
03	O	O			13	O	O		O
08			O		18			O	O
09	O		O		19	O		O	O
0A		O	O		1A		O	O	O
0B	O	O	O		1B	O	O	O	O
10				O					

Circle (O): Trouble P.C. board

Please set the model according to "13-1-3. Interface P.C. Board (MCC-1747) Replacement Procedure".



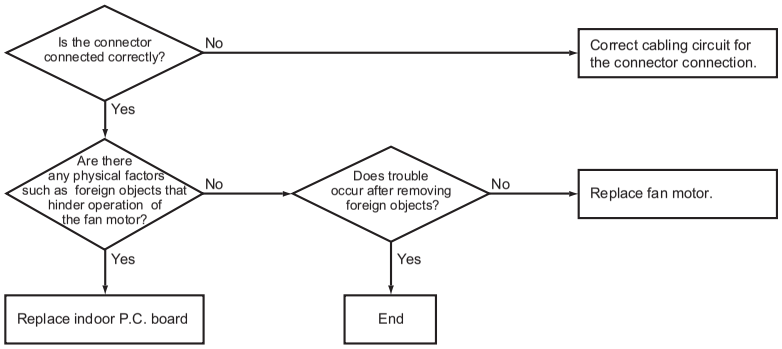
Check code	Check code name	Cause
[L30]	Interlock in indoor unit from outside	Abnormal input from the outside



Check code	Check code name	Cause
[L31]	Other IPDU troubles	1. Outdoor unit power trouble 2. Outdoor I/F P.C. board trouble

Check code	Check code name	Cause
[P01]	Indoor fan motor trouble	1. Wiring trouble 2. Check fan motor.

* For the models equipped with AC fan motor only

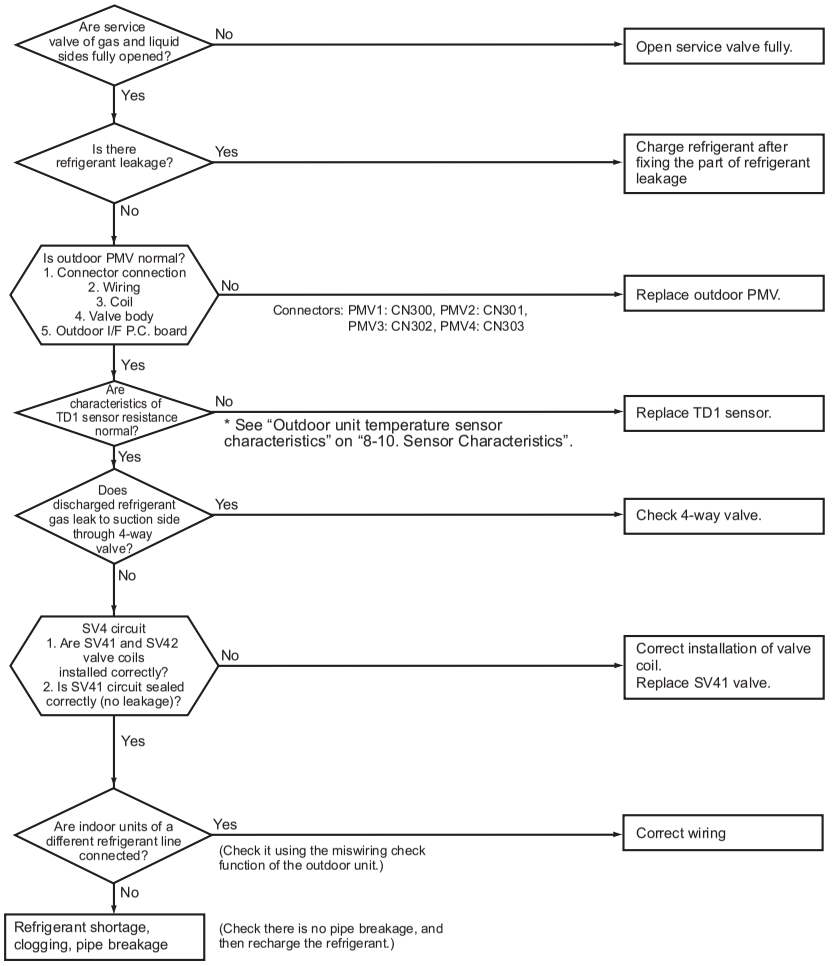


Check code	Check code name	Cause
[P05]	Phase trouble detected, power failure detected, abnormal inverter DC voltage (on compressor)	Phase trouble or power failure of the power supply to the outdoor unit

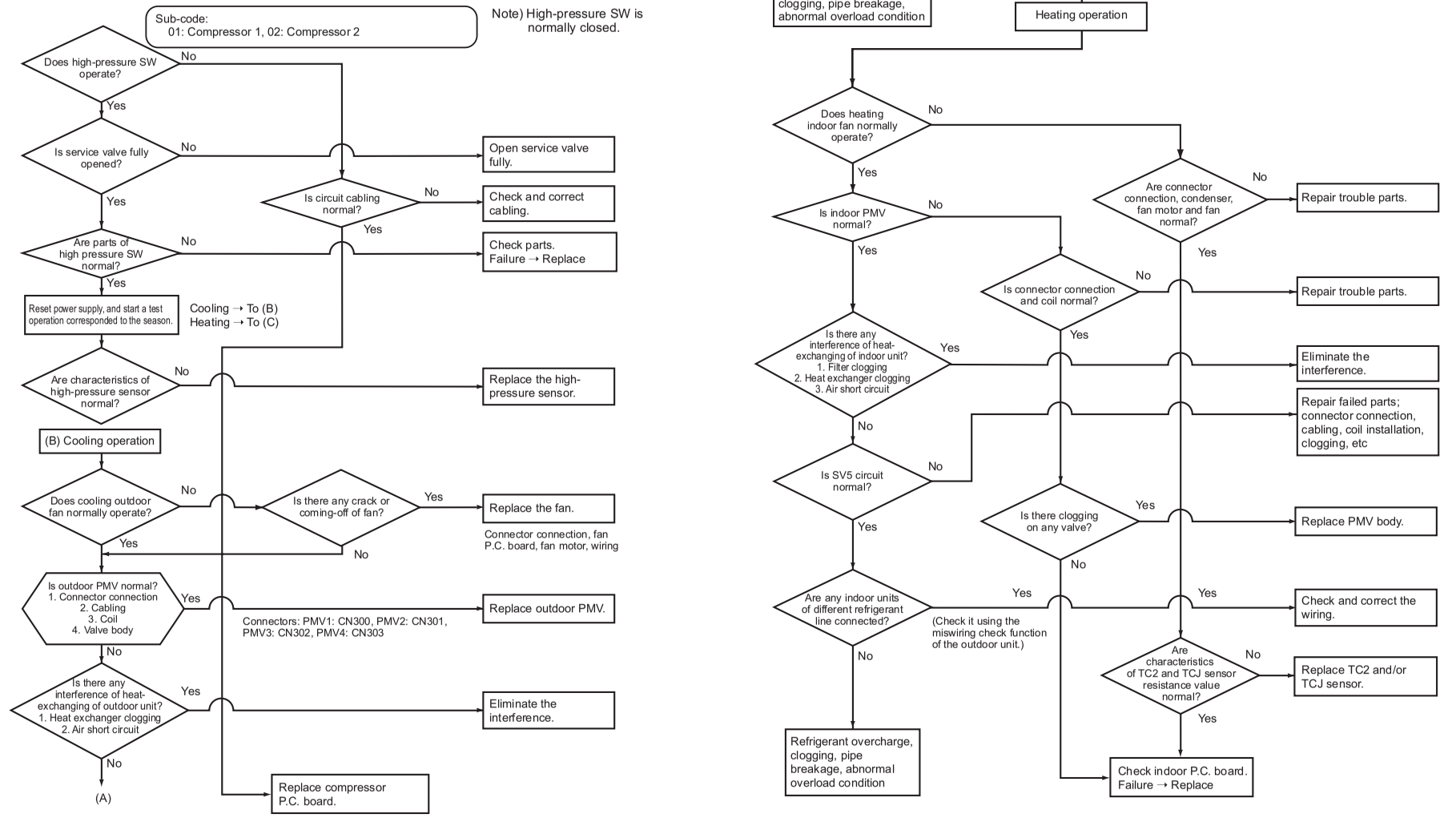
Sub-code:	00: Power detection trouble 01: Open phase --- 1*: Compressor 1 side 2*: Compressor 2 side

- 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 2. Outdoor PMV trouble 3. TD sensor trouble 4. Refrigerant shortage, clogging of refrigerant piping 5. 4-way valve trouble 6. SV4 circuit leakage, misinstallation

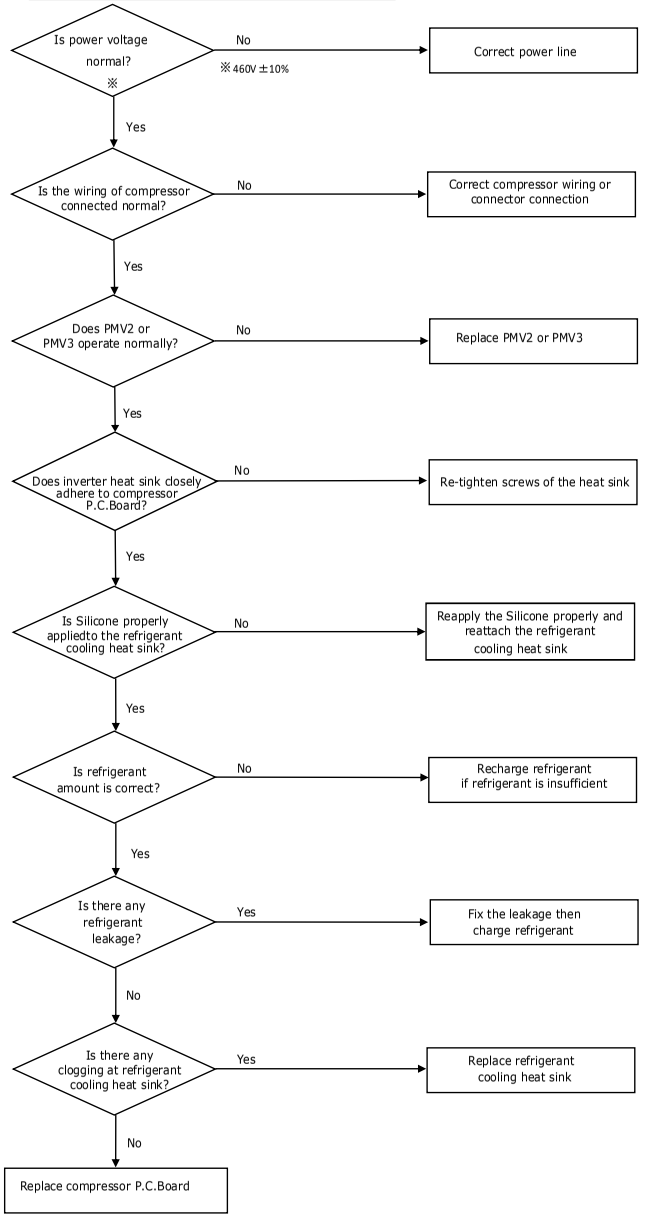


Check code	Check code name	Cause
[P04]	Trouble concerning high-pressure SW	1. High-pressure SW trouble 2. Service valve closed 3. Pd sensor trouble 4. Indoor/outdoor fan trouble 5. Indoor/outdoor PMV choke 6. Indoor/outdoor heat exchanger clogging, air short circuit 7. SV4 circuit trouble 8. Discharge line check valve malfunction 9. Refrigerant overcharge



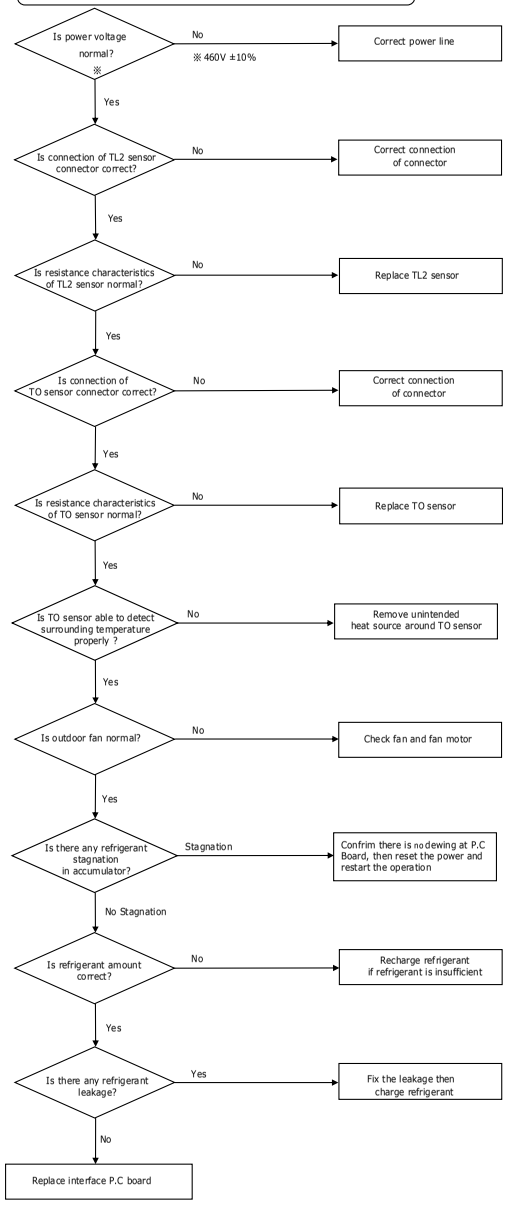
Check code	Check code name	Cause
[P07-1*, 2*]	Heat sink overheat trouble	1. Power voltage trouble 2. Heat sink installation trouble 3. Clogging at PMV2, 3 4. Compressor P.C.Board trouble

Sub-code:
00:Compressor temperature sensor trouble
1* : Compressor 1 TH sensor trouble
2* : Compressor 2 TH sensor trouble



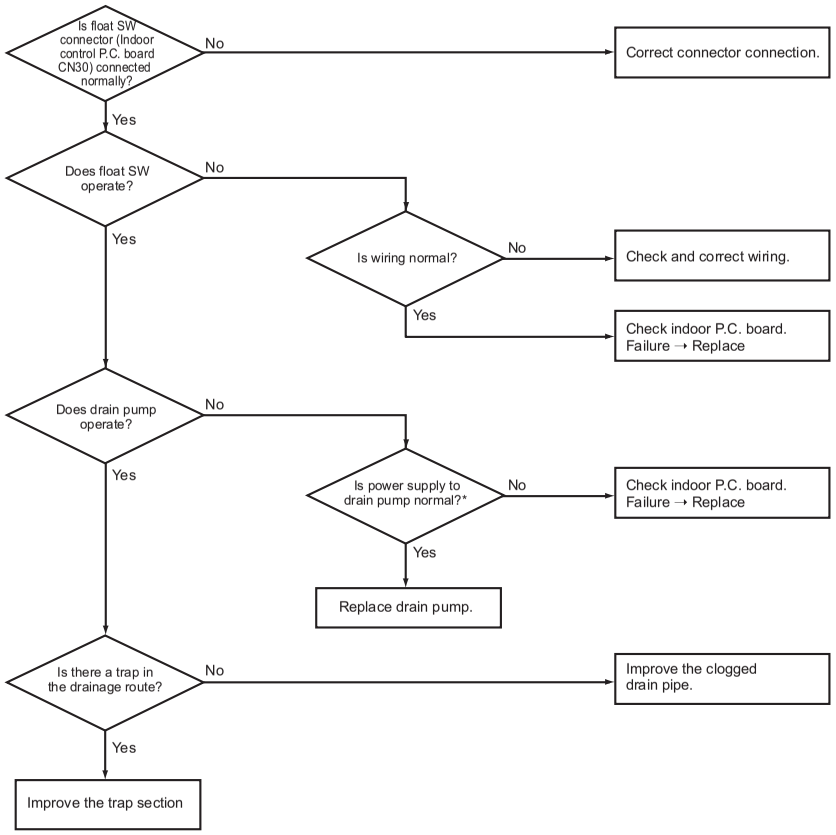
Check code	Check code name	Cause
[P07-04]	Heat sink dewing trouble	1. Power voltage trouble 2. Refrigerant stagnation in accumulator 3. Refrigerant leakage 4. Outdoor fan system trouble 5. TL2 sensor trouble 6. TO sensor trouble 7. Interface P.C.Board trouble

Sub-code:
04:Heat sink dewing trouble



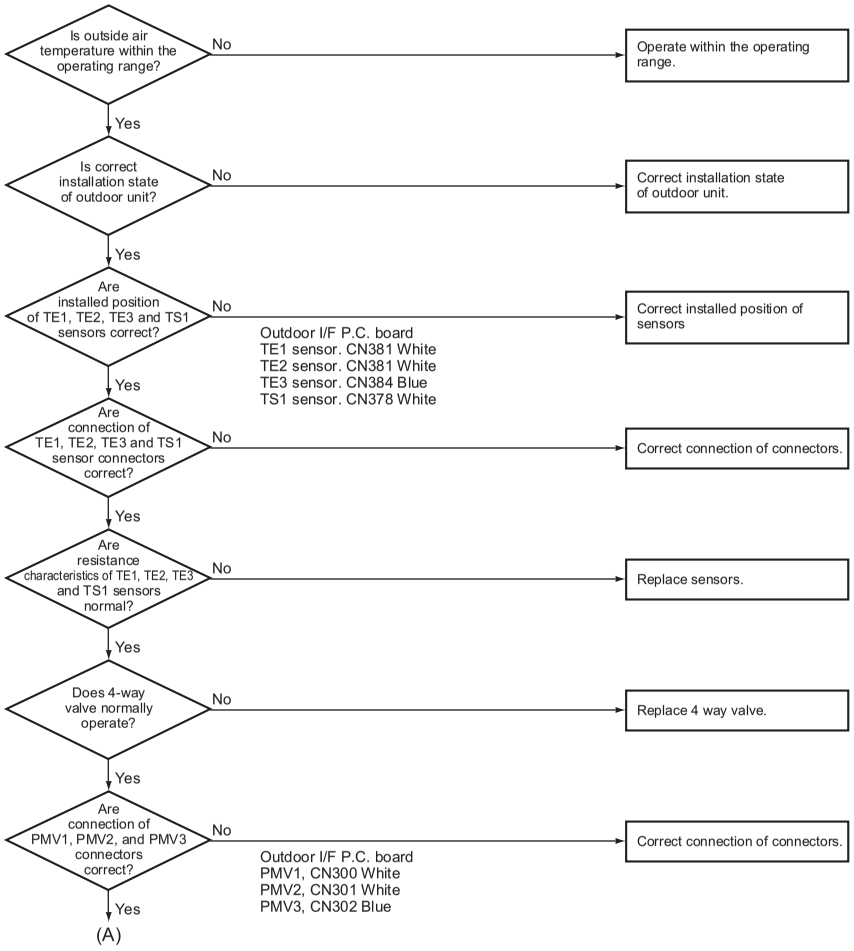
Check code	Check code name	Cause
[P10]	Water overflow in an indoor unit	1. Float SW malfunction 2. Drain pump malfunction 3. Clogging of drain pipe 4. Indoor P.C. board trouble

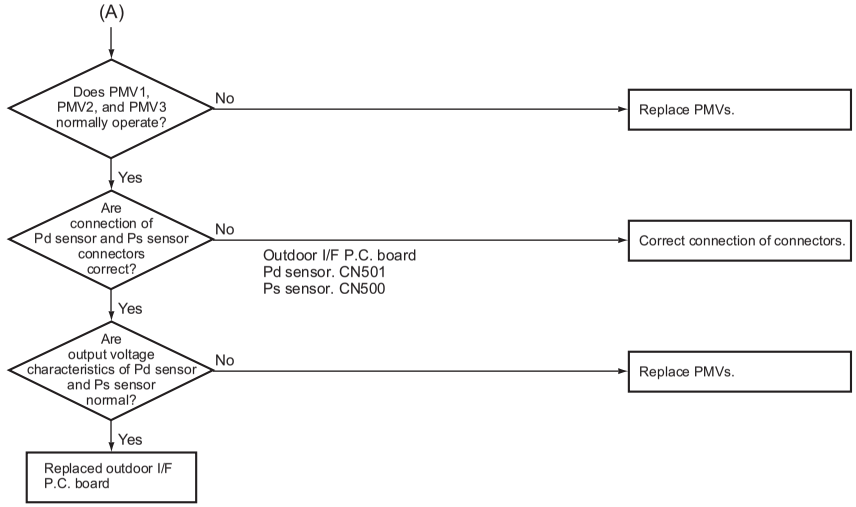
Sub-code: Overflowing indoor unit's address



* Check there is 220V voltage of 1-3 pin of CN504 on indoor P.C. board.

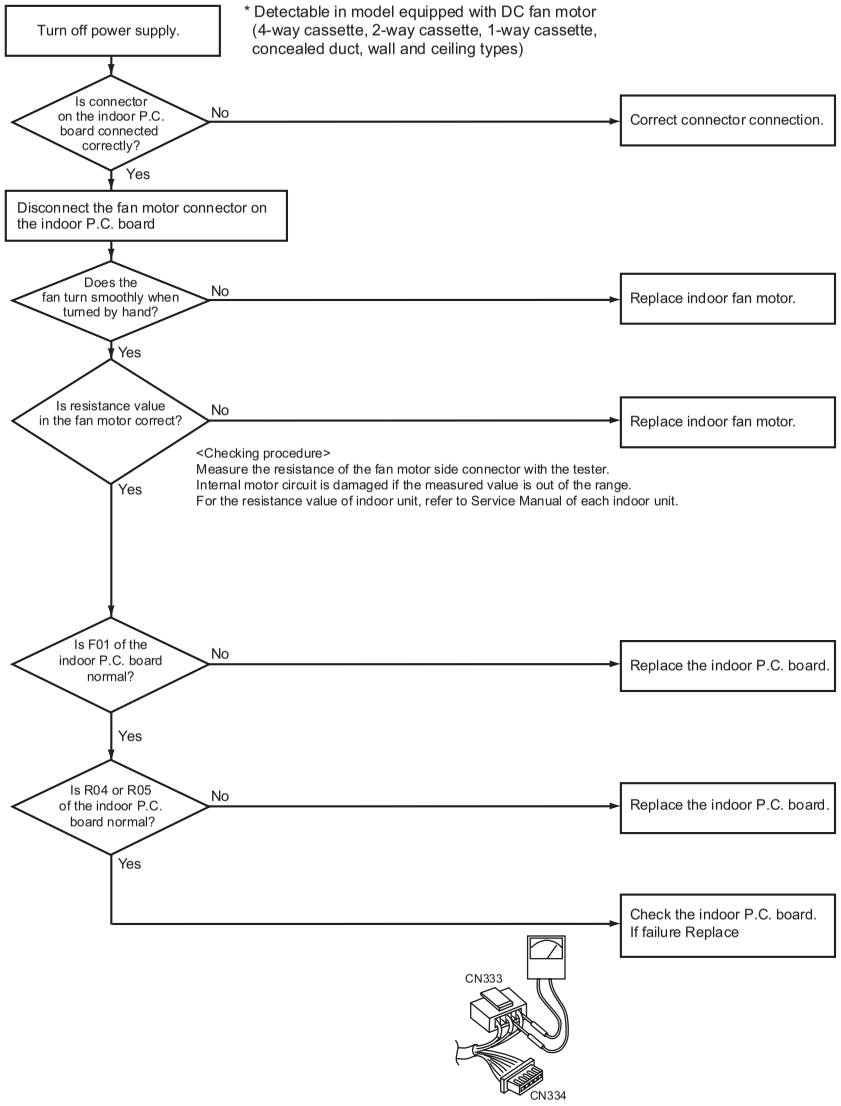
Check code	Check code name	Cause
[P11]	Outdoor heat exchanger freeze trouble	1. Refrigerant shortage 2. TE1, TE2, TE3 sensor trouble 3. Pd, Ps sensor trouble 4. TS1 sensor trouble 5. 4-way valve trouble 6. PMV1 / PMV2 / PMV3 trouble 7. Outdoor I/F P.C. board trouble 8. Short circuit from outlet air to inlet air



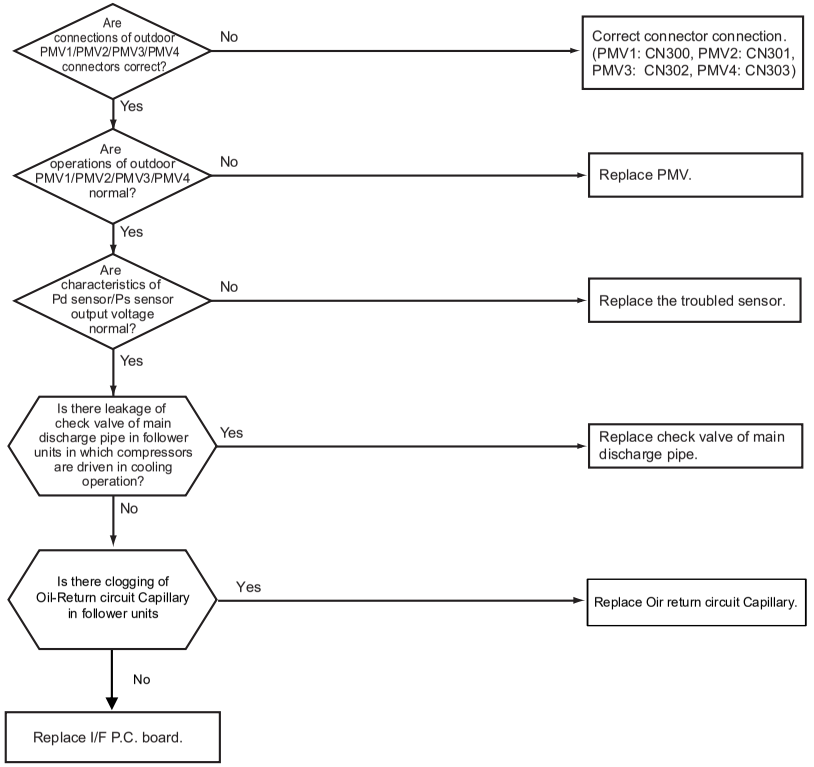


Check code	Check code name	Cause
[P12]	Indoor fan motor trouble	1. Wiring trouble of fan motor connector 2. Fan motor trouble 3. Indoor P.C. board trouble

* Detectable in model equipped with DC fan motor (4-way cassette, 2-way cassette, 1-way cassette, concealed duct, wall and ceiling types)

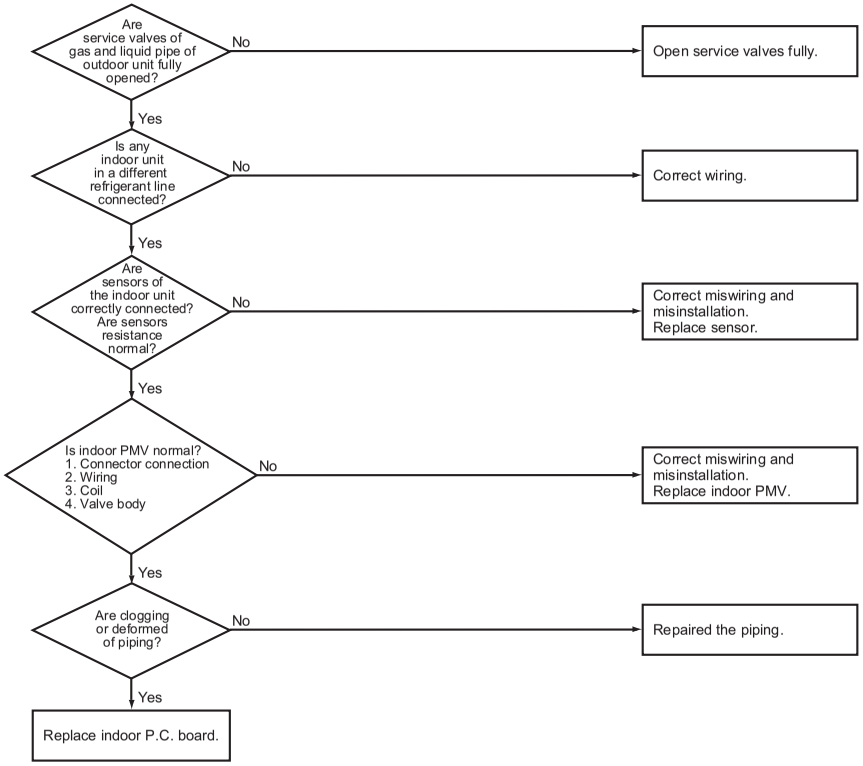


Check code	Check code name	Cause
[P13]	Outdoor liquid back detection trouble	1.PMV1/PMV3/PMV4 trouble 2. Pd sensor, Ps sensor trouble 3. Leakage at a check valve on a main discharge pipe 4. Outdoor I/F P.C. board trouble

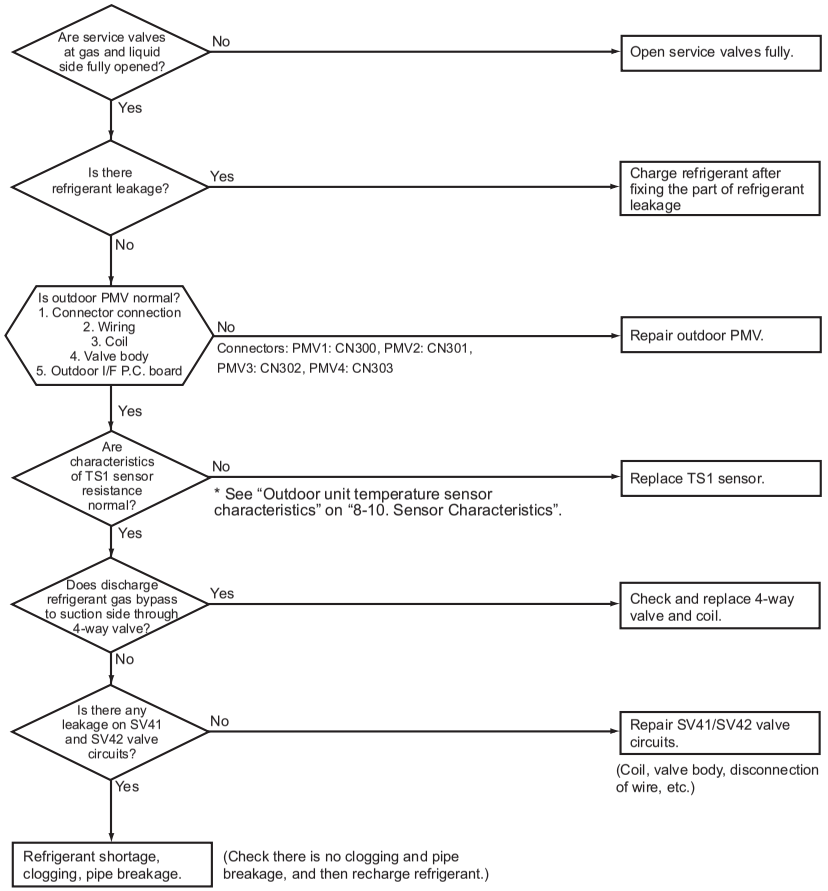


Check code	Check code name	Cause
[P14]	Another refrigerant cycle protection	1. Service valve closed 2. Indoor/outdoor communication wire miswiring 3. Indoor sensor or PMV trouble 4. Clogging or deformed of piping

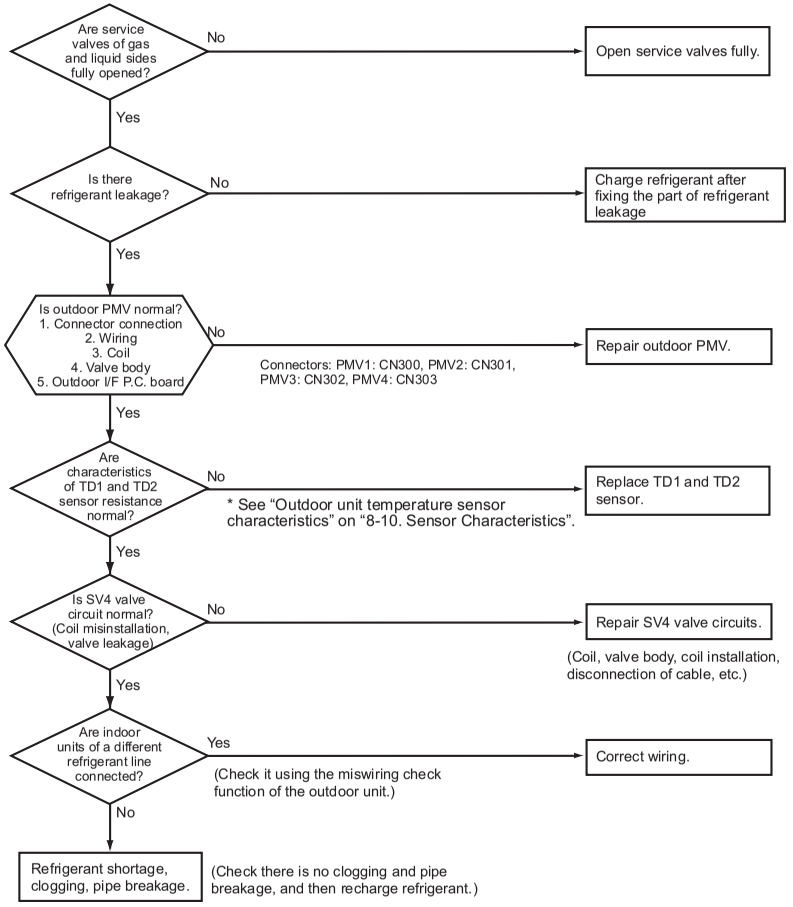
Sub-code 01: Outdoor unit valve is closed



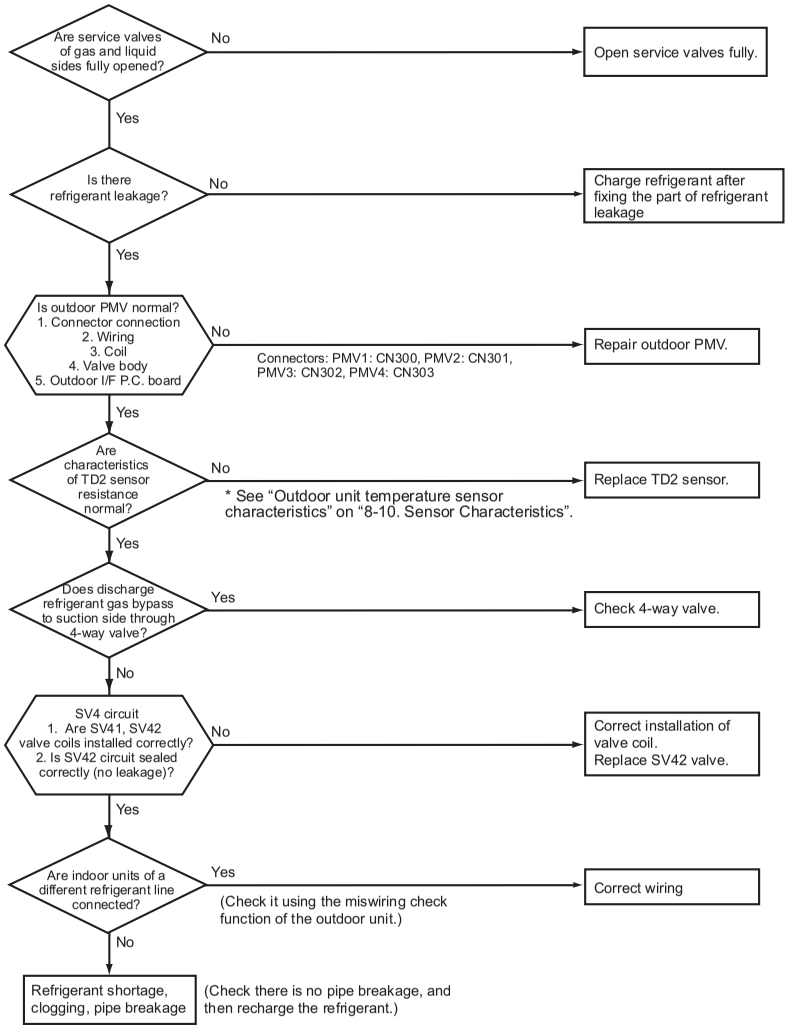
Check code	Check code name	Cause
[P15]	Gas leak detection TS condition (Sub-code: 01)	1. Outdoor unit service valve closed 2. Outdoor PMV trouble 3. TS1 sensor trouble 4. Refrigerant shortage, clogging refrigerant circuit 5. 4-way valve trouble 6. SV4 circuit trouble



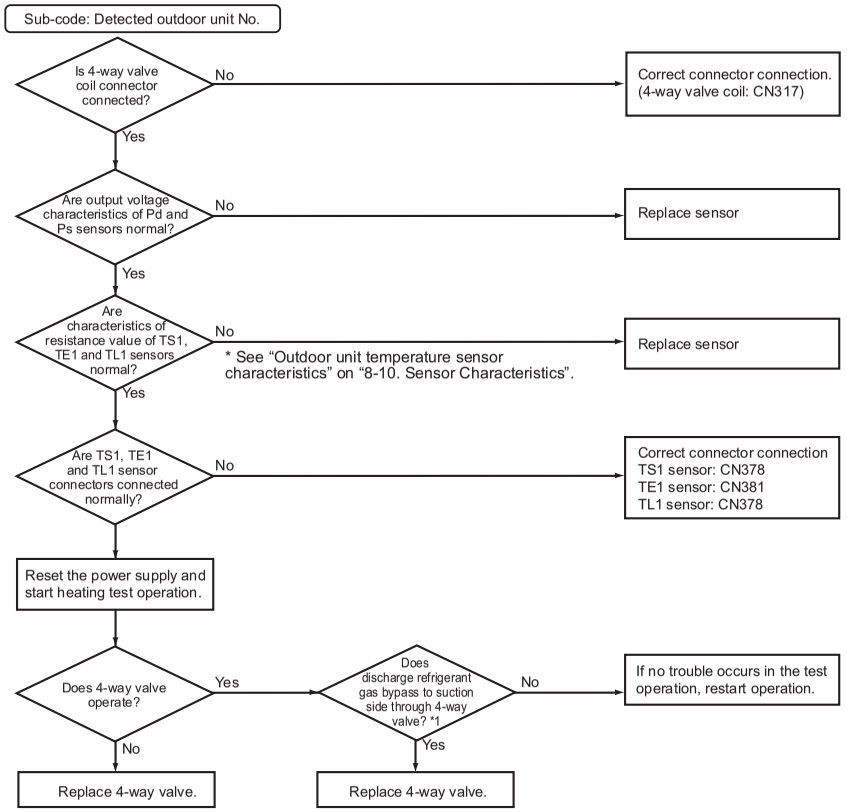
Check code	Check code name	Cause
[P15]	Gas leak detection TD condition (Sub-code: 02)	1. Outdoor unit service valve closed 2. Outdoor PMV trouble 3. TD sensor trouble 4. SV4 circuit trouble 5. Refrigerant shortage, clogging refrigerant circuit



Check code	Check code name	Cause
[P17]	Discharge temp TD2 trouble	1. Outdoor unit service valve closed 2. Outdoor PMV trouble 3. TD2 sensor trouble 4. Refrigerant shortage, clogging of refrigerant circuit 5. 4-way valve trouble 6. SV4 circuit leakage, misinstallation

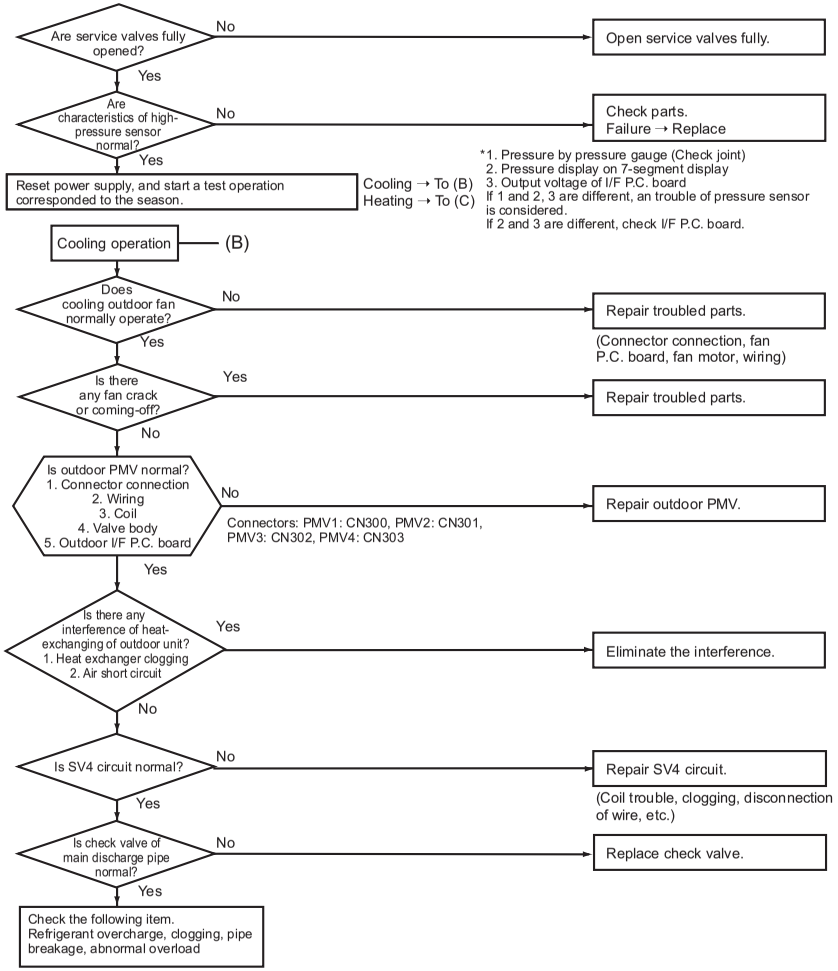


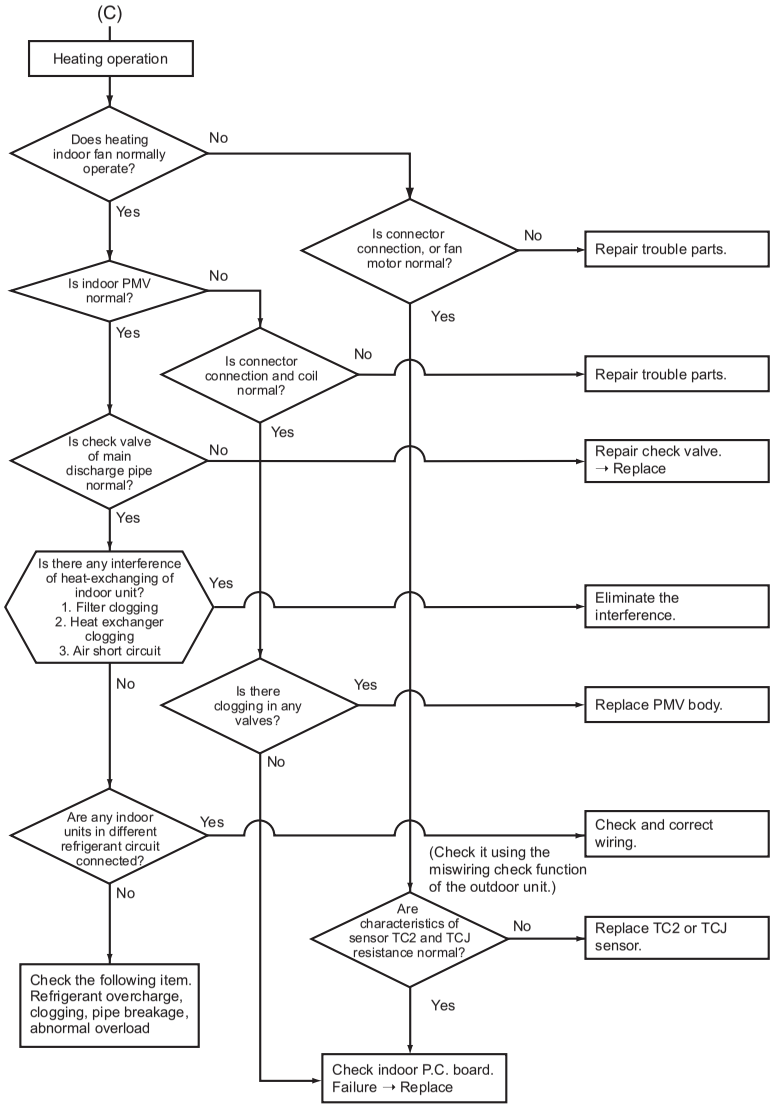
Check code	Check code name	Cause
[P19]	4-way valve reverse trouble	1. 4-way valve trouble 2. TS1 sensor/TE1 sensor trouble 3. Pd sensor/Ps sensor trouble 4. TE1 sensor/TL1 sensor misconnection



*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)

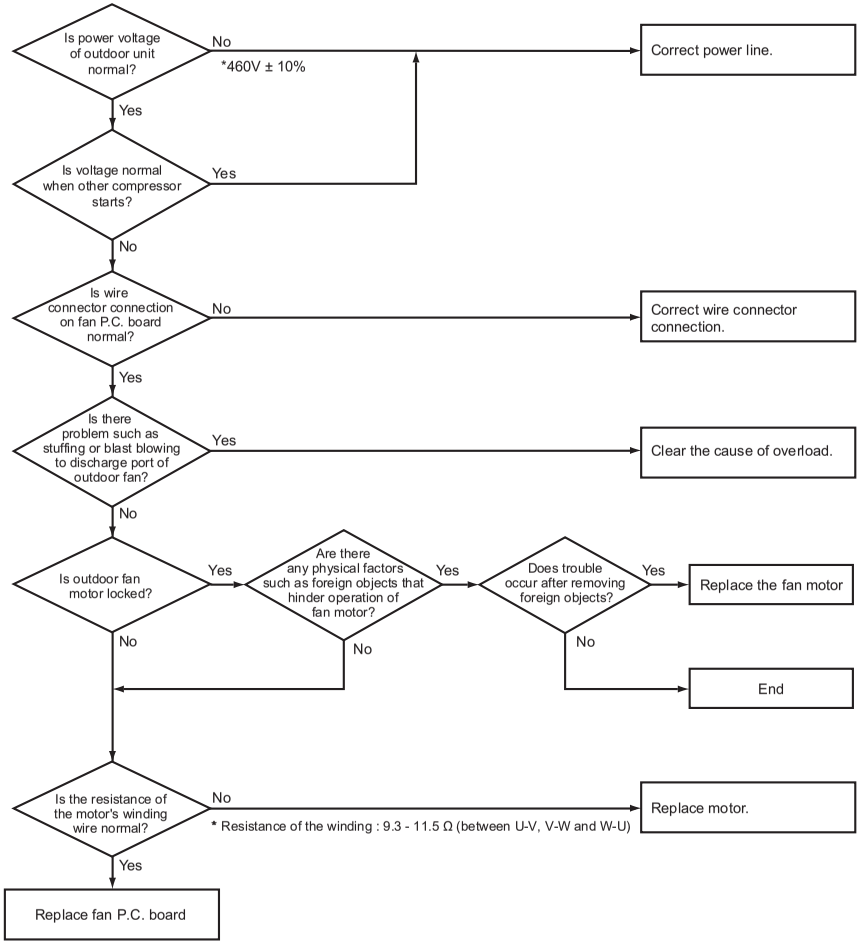
Check code	Check code name	Cause
[P20]	High-pressure protective operation	1. Pd sensor trouble 2. Service valve closed. 3. Indoor/outdoor fan trouble 4. Indoor/outdoor PMV clogging 5. Indoor/outdoor heat exchanger clogging 6. SV4 circuit trouble 7. Outdoor I/F P.C. board trouble 8. Operation trouble of check valve of main discharge pipe 9. Refrigerant overcharge





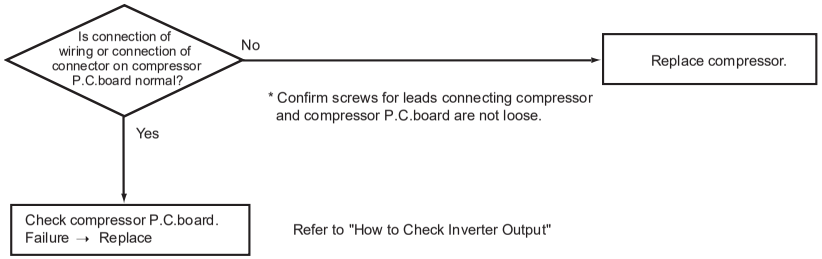
Check code	Check code name	Cause
[P22]	Outdoor fan motor trouble	1. Fan motor lock 2. Fan P.C. board trouble 3. Overload 4. External cause such as blast

Sub-code:
*1: Fan 1, *2: Fan 2



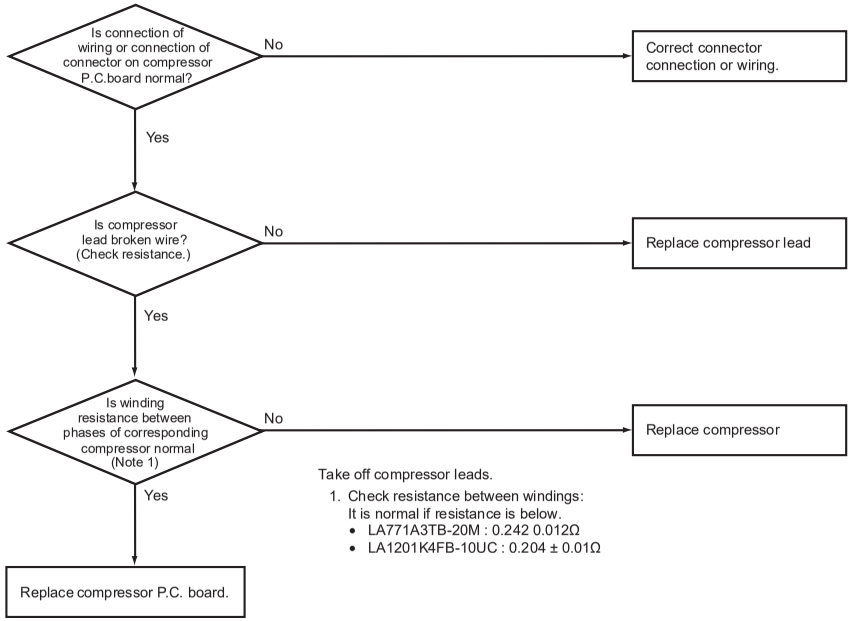
Check code	Check code name	Cause
[P25]	Compressor inverter P.C.board trouble	1. Compressor P.C.board trouble.

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. 2. Compressor leads trouble. 3. Compressor P.C.board trouble.

Sub-code:
1∗: Compressor 1, 2∗: Compressor 2

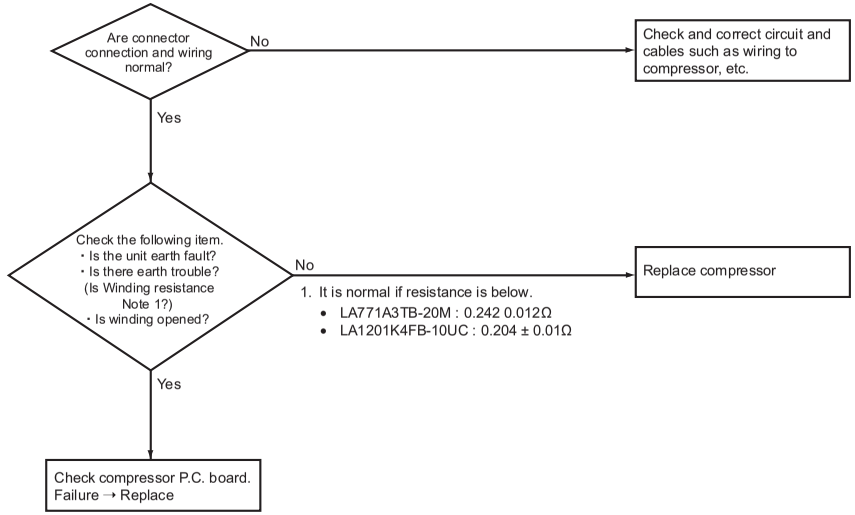


Take off compressor leads.

1. Check resistance between windings:
   It is normal if resistance is below.
   - LA771A3TB-20M : 0.242 0.012Ω
   - LA1201K4FB-10UC : 0.204 ± 0.01Ω

Check code	Check code name	Cause
[P29]	Compressor position detective circuit trouble	1. Wire/connector connection trouble 2. Compressor trouble 3. Compressor P.C. board trouble

Sub-code:
1∗: Compressor 1, 2∗: Compressor 2



1. It is normal if resistance is below.
   - LA771A3TB-20M : 0.242 0.012Ω
   - LA1201K4FB-10UC : 0.204 ± 0.01Ω

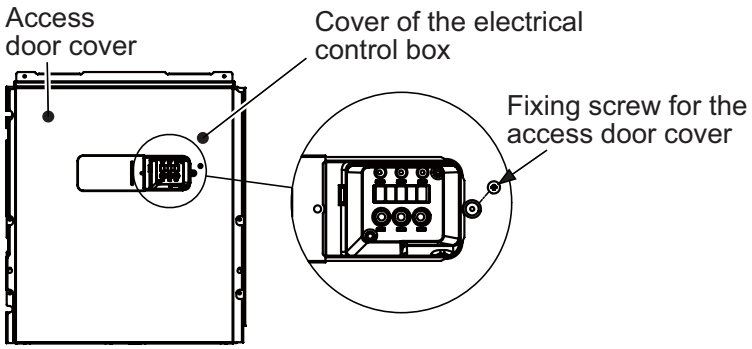
Check code	Check code name	Cause
[P31]	Other indoor trouble (Group follower unit trouble)	Another indoor unit in the group is abnormal.

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.

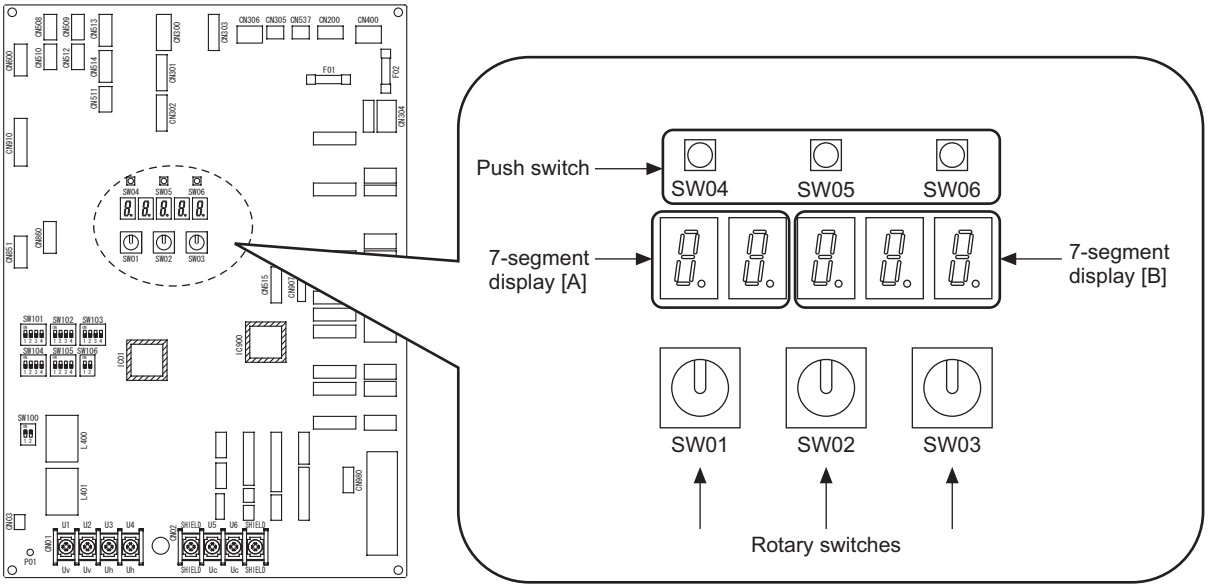
8-6. 7-Segment Display Function

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.

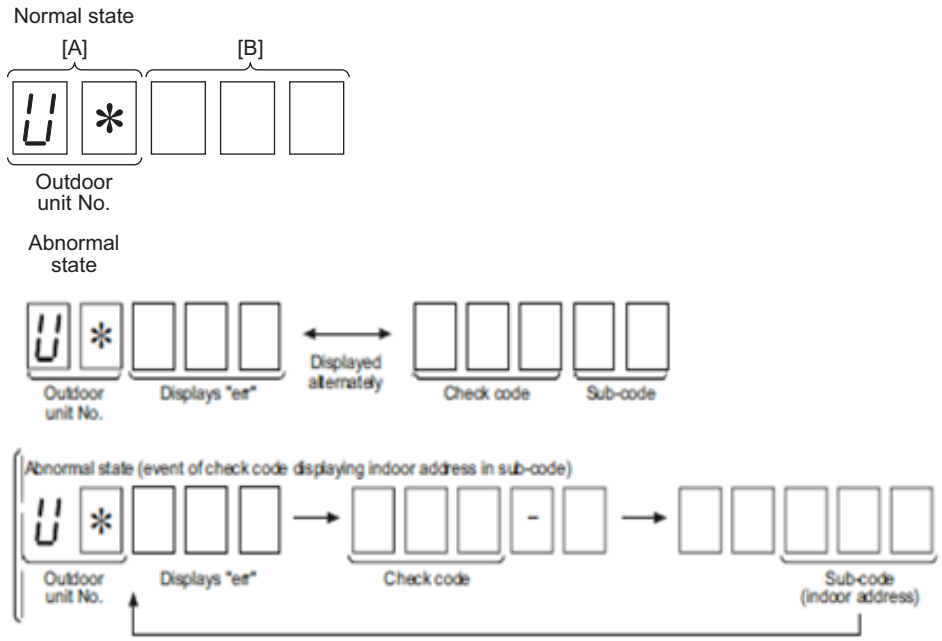
The check code is displayed in the 7-segment display.

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) (2) [H ... ... 0] ~ [H ... 74] : 0 ~ 74 (Number of cooling thermostat ON) *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) (2) [H ... ... 0] ~ [H ... 74] : 0 ~ 74 (Number of cooling thermostat ON) *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] 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. If there is check code, [U. ∗. err] ⇔ [OOO]. [△△] ([OOO] : Check code, [△△] : Sub-code) . . . (The display switches alternately) (∗: Outdoor unit No.)			
			<SW04> push SW function: Fan operation at outdoor unit with trouble. 7-segment display section A: [E.1] <SW04 + SW05> push SW function: Fan operation at outdoor unit without trouble. 7-segment display section A: [E.0] <SW05> push SW function: Fan operation function check mode is cancelled.					
	2		–	A	–			
				B	–			
	3		Operation mode	A	Stop [… …] Normal cooling: [… C], Normal heating: [… H], Normal defrosting: [… J]			
				B	–			
	4		Outdoor unit ton capacity	A B	6 ton: [ ] [ ] [6.] [0] [t] 8 ton: [ ] [ ] [8.] [0] [t] 10 ton: [ ] [1] [0.] [0] [t] 12 ton: [ ] [1] [2.] [0] [t] 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. 7-segment display (A/B): [C1. ... ...] ⇒ [... ∗ ∗ ∗, ∗] ⇒ [C2. ... ...] ⇒ [... ∗ ∗ ∗, ∗]					
			<SW04> push SW function: Switches to display of operating current (decimal value). 7-segment display (A/B): [i1 . ...] ⇒ [...****] ⇒ [i2. ... ...] ⇒ [...****] 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 Normal: [… … …] Compressor No. 1 backup: [1 … …] 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. "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: [#.∗.$] 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 … …] 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				
1	1	2	Pd pressure data	Pd pressure (psi) is displayed in decimal format. (psi: Approx. 14 times magnitude of kg/cm^{2}G)		A	B
						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). 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], 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. ∗ Any unconnected compressors is represented by "–". When compressor No. 1 is ON When compressor No. 2 is ON
					B 1 0 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	[#.... *] # represents mode : COOL : [C. ... *], HEAT : [H … F] FAN : [F. ... *], OFF : [S … *] * 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]

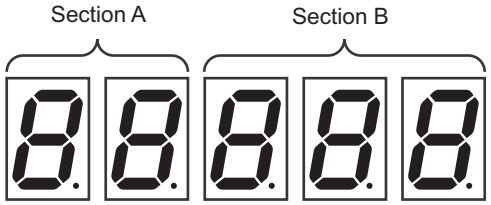
(6) Display of Outdoor EEPROM Writing Check Code (Displayed on Header Unit Only)

* 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.

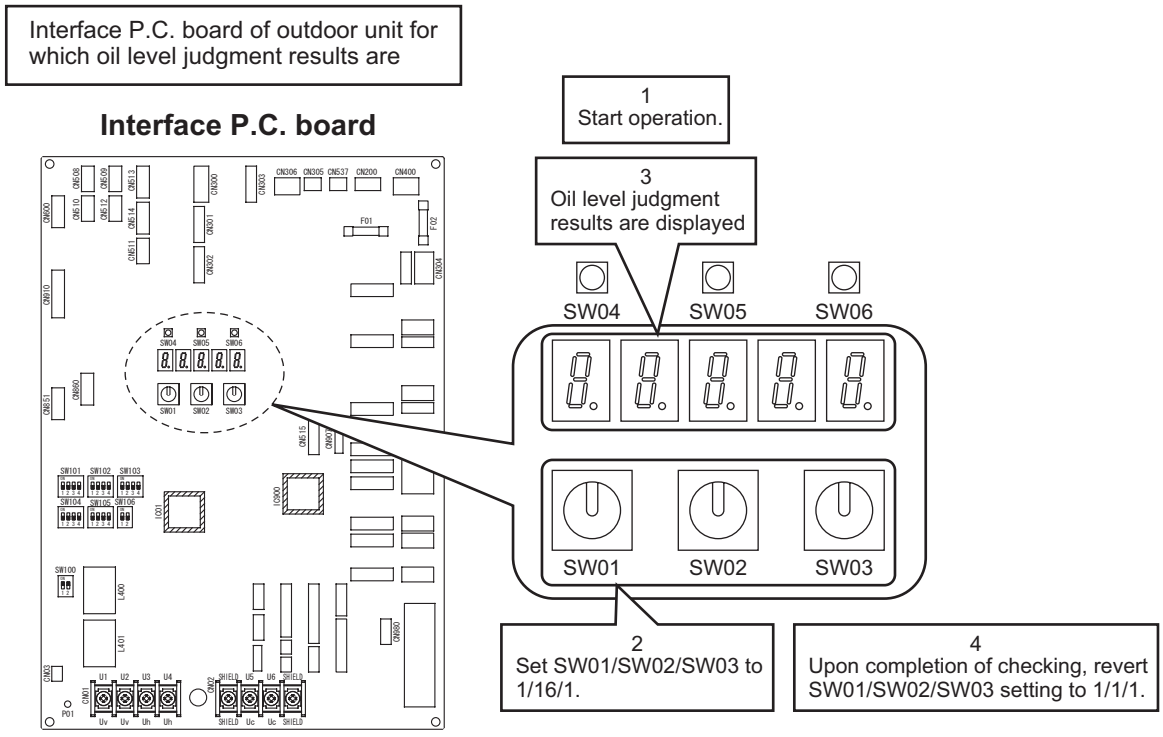
1 Operation Procedure

(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 2	Low level	The amount of oil in the compressor is insufficient. (Both “1” and “2” stand for insufficiency.) 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.

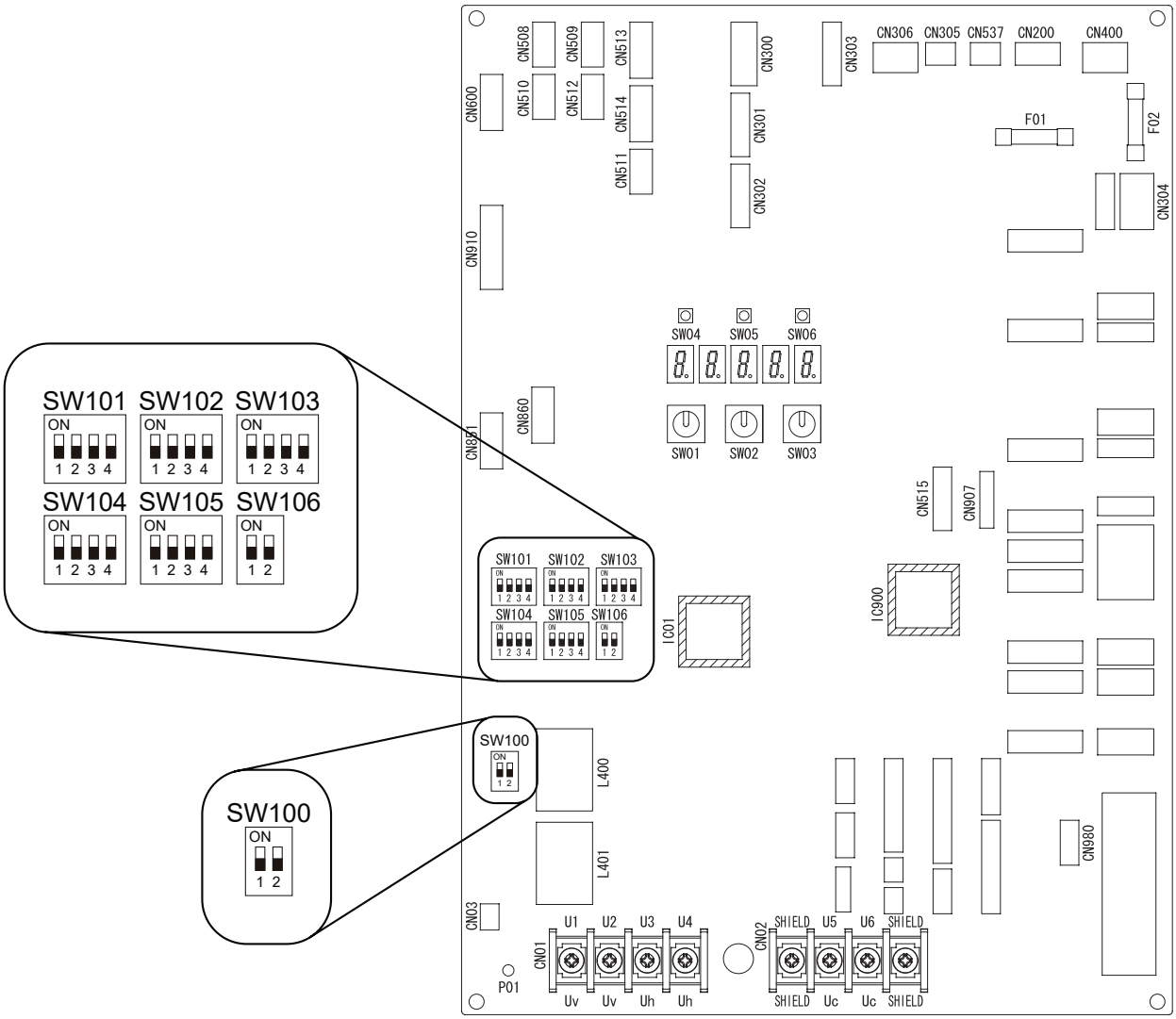
Judgment result for compressor 2
Judgment result for compressor 1

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) 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>) 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*)

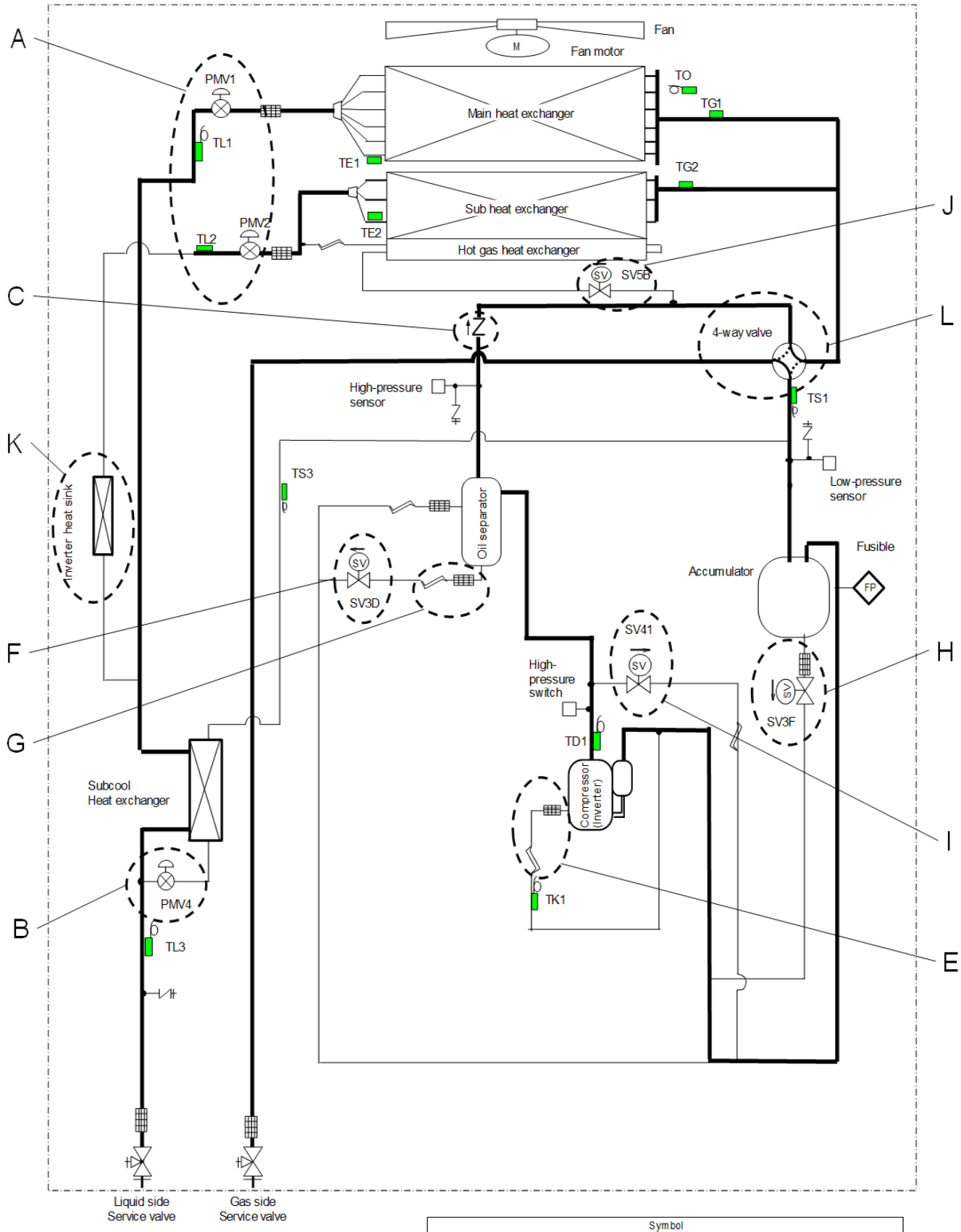
Clogging

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 Activation of low-pressure protection Discharge temp. trouble (TD1)	P20 H06 P03	Rise of pressure Fall of pressure 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 High-pressure SW system trouble	P20 P04-01	Abnormal rise of pressure
Oil-equalization circuit Capillary or Strainer	E	Corresponding unit	Oil level detection circuit trouble Oil level low detection and protection	H16-01 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 Outdoor heat exchanger freeze trouble	P20 P11	Rise of pressure 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 Oil level low detection and protection	P13 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 Oil level low detection and protection	P13 H07	Oil level low
Check valve in discharge pipe convergent section	C	Corresponding unit	Oil level low detection and protection Compressor breakdown Compressor trouble (lockup)	H07 H01-01 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 Gas leak detection	P19 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*)

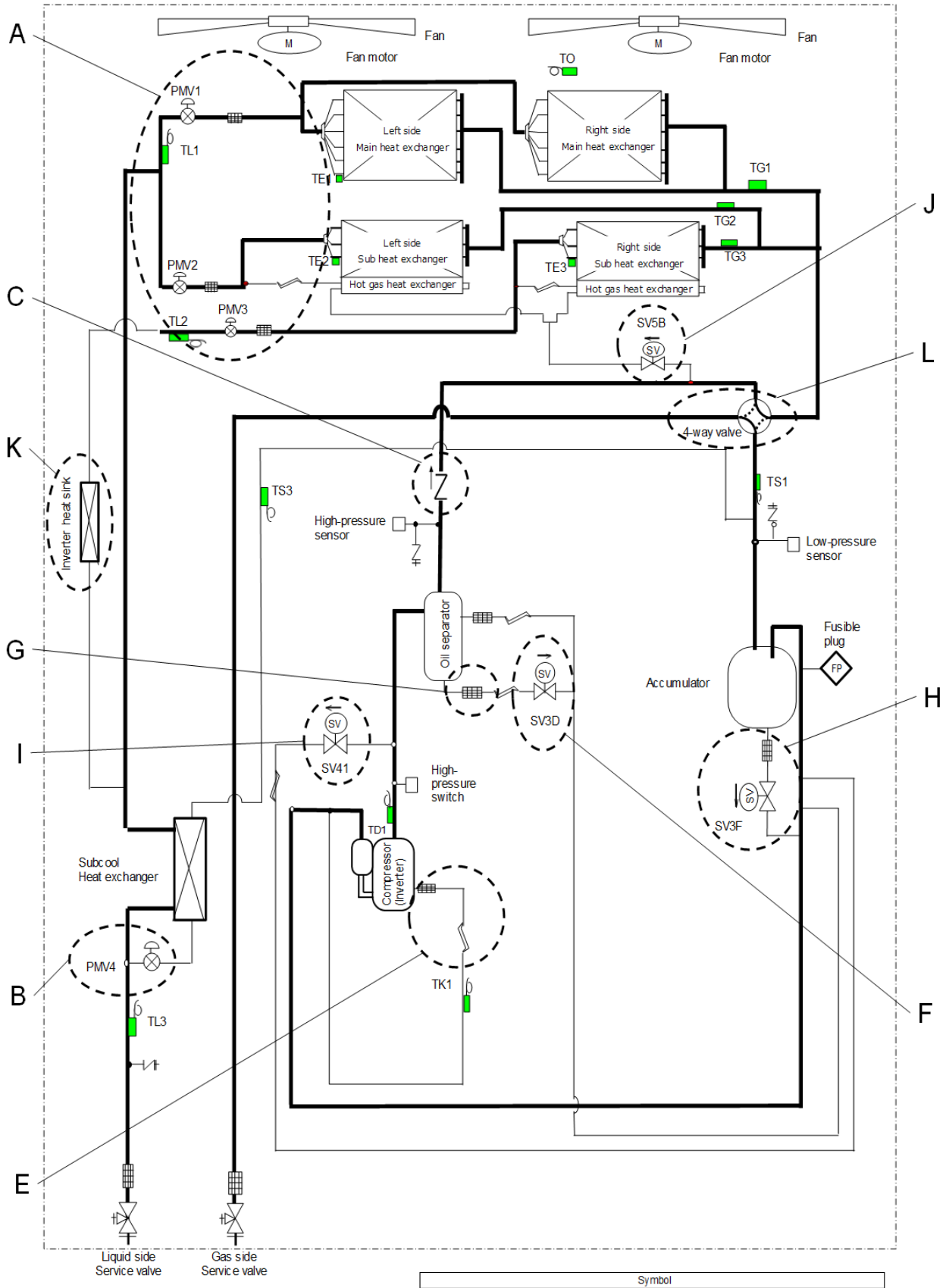
Clogging

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 Activation of low-pressure protection Discharge temp. trouble (TD1)	P20 H06 P03	Rise of pressure Fall of pressure 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 High-pressure SW system trouble	P20 P04-01	Abnormal rise of pressure
Oil-equalization circuit Capillary or Strainer	E	Corresponding unit	Oil level detection circuit trouble Oil level low detection and protection	H16-01 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 Outdoor heat exchanger freeze trouble	P20 P11	Rise of pressure 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 Oil level low detection and protection	P13 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 Oil level low detection and protection	P13 H07	Oil level low
Check valve in discharge pipe convergent section	C	Corresponding unit	Oil level low detection and protection Compressor breakdown Compressor trouble (lockup)	H07 H01-01 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 Gas leak detection	P19 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

List of Check Codes Generated upon Occurrence of Leakage/Clogging in Outdoor Cycle or Oil Circuit Part (MMY-MUP1921*)

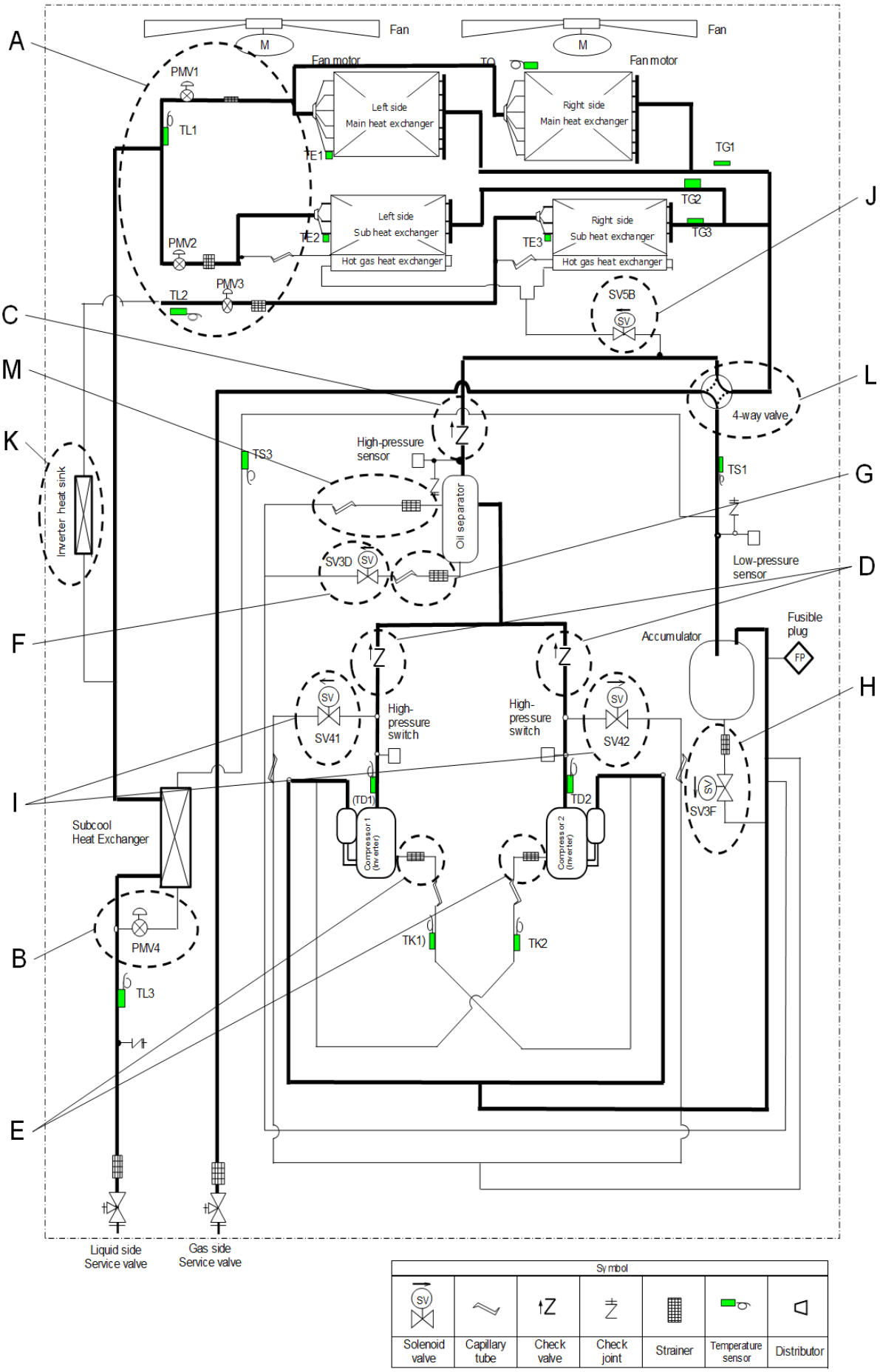
Clogging

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 Activation of low-pressure protection Discharge temp. trouble (TD1) Discharge temp. trouble (TD2)	P20 H06 P03 P17	Rise of pressure Fall of pressure Rise of discharge temp. (Compressor 1) Rise of discharge temp. (Compressor 2)
Outdoor PMV4	B	Corresponding unit	Discharge temp. trouble (TD1) Discharge temp. trouble (TD2)	P03 P17	Rise of discharge temp. (Compressor 1) Rise of discharge temp. (Compressor 2)
Check valve in discharge pipe convergent section	C	Corresponding unit	High-pressure protection trouble High-pressure SW system trouble	P20 P04-XX	Abnormal rise of pressure
Check valve in discharge pipe	D	Corresponding unit	High-pressure SW system trouble	P04-XX	Abnormal rise of pressure
Oil-equalization circuit Capillary or Strainer	E	Corresponding unit	Oil level detection circuit trouble Oil level low detection and protection	H16-XX H07	Oil circuit trouble or Oil level low
SV3D valve or SV3F valve circuit Strainer	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, 42 valve	I	Corresponding unit	High-pressure protection trouble	P20	Rise of pressure
SV5B valve	J	Corresponding unit	High-pressure protection trouble Outdoor heat exchanger freeze trouble	P20 P11	Rise of pressure Decreased defrost performance
Inverter heat sink	K	Corresponding unit	Heat sink overheating trouble	P07-XX	Rise of pressure
Oil-Return circuit Capillary or Strainer	M	Other connected unit	Outdoor liquid back flow trouble	P13	Oil level low

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 Oil level low detection and protection	P13 H07	Refrigerant entrapment
		Other connected unit	Discharge temp. trouble (TD1) Discharge temp. trouble (TD2)	P03 P17	Rise of discharge temp. (Compressor 1) Rise of discharge temp. (Compressor 2)
Outdoor PMV4	B	Corresponding unit	Outdoor liquid backflow trouble Oil level low detection and protection	P13 H07	Oil level low
Check valve in discharge pipe convergent section	C	Corresponding unit	Oil level low detection and protection Compressor breakdown Compressor trouble (lockup)	H07 H01-XX H02-XX	Refrigerant entrapment
Check valve in discharge pipe	D	Corresponding unit	Oil level low detection and protection Compressor breakdown Compressor trouble (lockup)	H07 H01-XX H02-XX	Refrigerant entrapment
SV41, 42 valve	I	Corresponding unit	Discharge temp. trouble (TD1) Discharge temp. trouble (TD2)	P03 P17	Rise of discharge temp. (Compressor 1) Rise of discharge temp. (Compressor 2)
4-way valve	L	Corresponding unit	4-way valve reversing trouble Gas leak detection	P19 P15	Incorrect internal position of 4-way valve

Outdoor Unit(Standard 16ton)
Model: MMY-MUP1921*



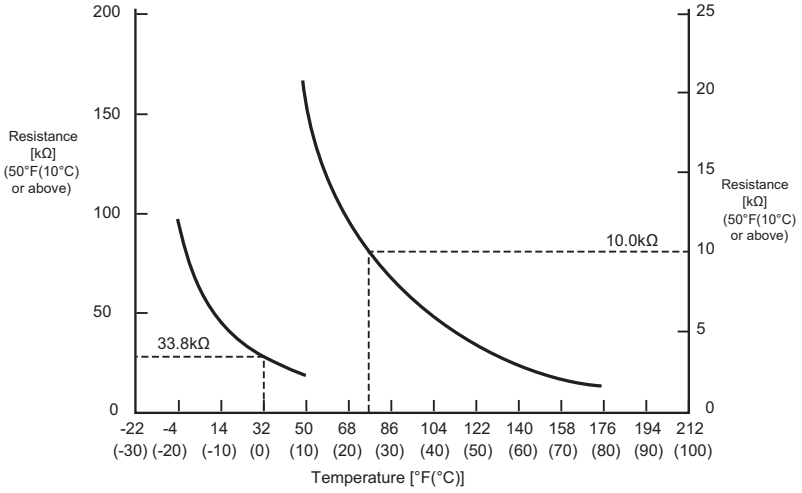
Symbol						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

8-10. Sensor Characteristics

Outdoor Unit

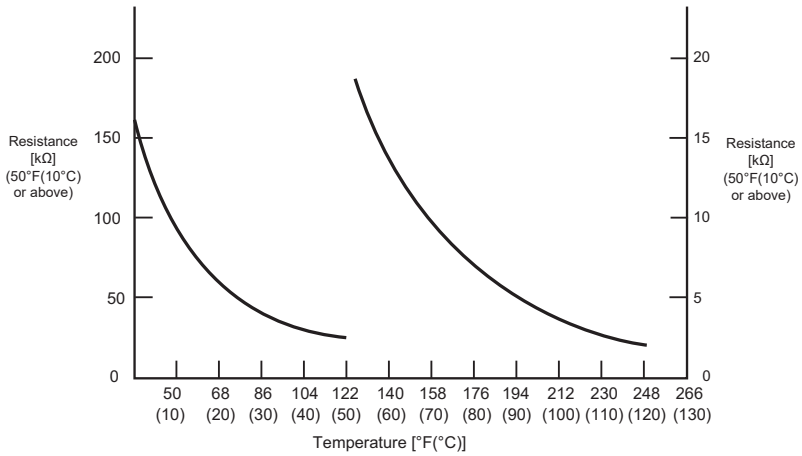
▼ Temperature sensor characteristics

Outdoor TS1, TS3, TE1, TE2, TE3, TL1, TL2, TL3 and TO sensors



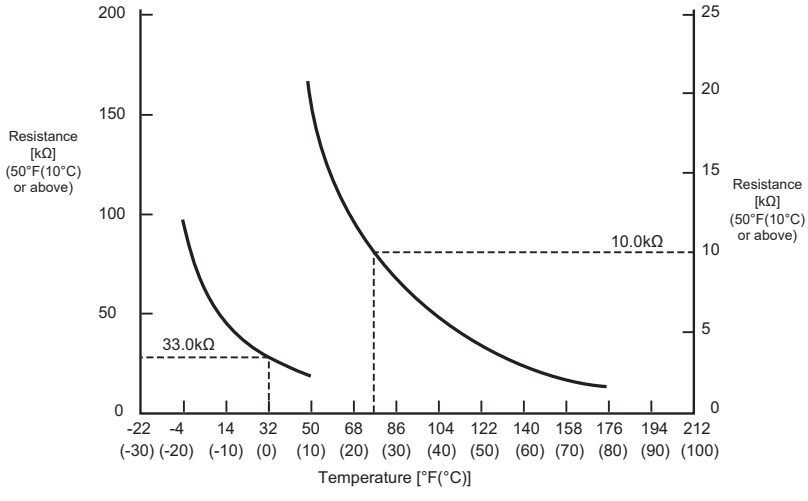
Temperature [°F(°C)]	Resistance [kΩ]
-4(-20)	101.7
5(-15)	76.3
14(-10)	57.7
23(-5)	44.0
32(0)	33.8
41(5)	26.1
50(10)	20.4
59(15)	16.0
68(20)	13.0
77(25)	10.0
86(30)	8.0
95(35)	6.4
104(40)	5.2
113(45)	4.2
122(50)	3.5
131(55)	2.8
140(60)	2.3
149(65)	1.9
158(70)	1.6
167(75)	1.4
176(80)	1.1

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

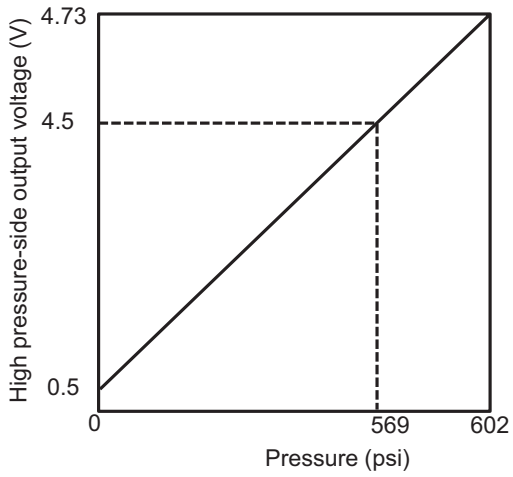
▼ Pressure sensor characteristics

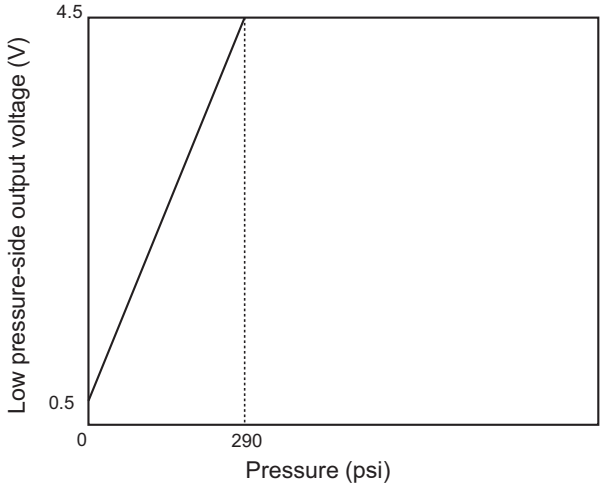
• Input/output wiring summary

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 0~569 psi	0.5~4.5V 0~290 psi

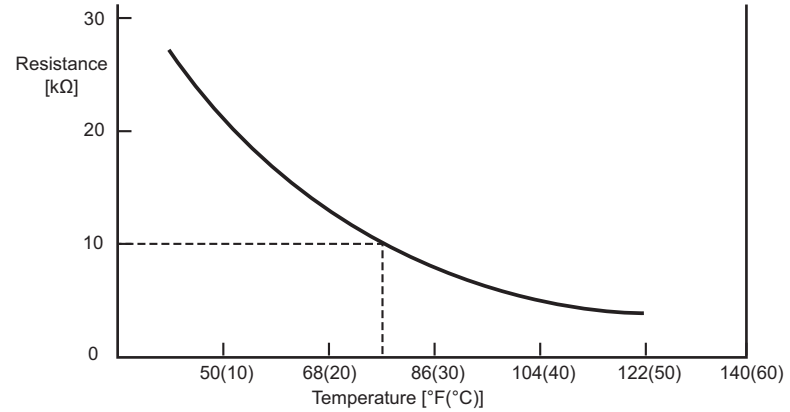




Indoor Unit

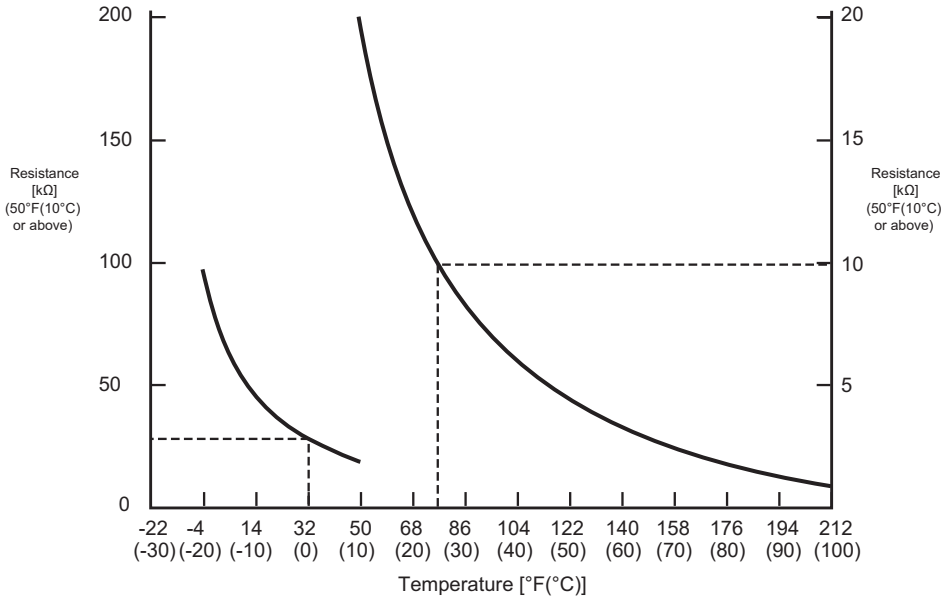
▼ Temperature sensor characteristics

Indoor TA(TSA), TRA,TF(TFA) sensor



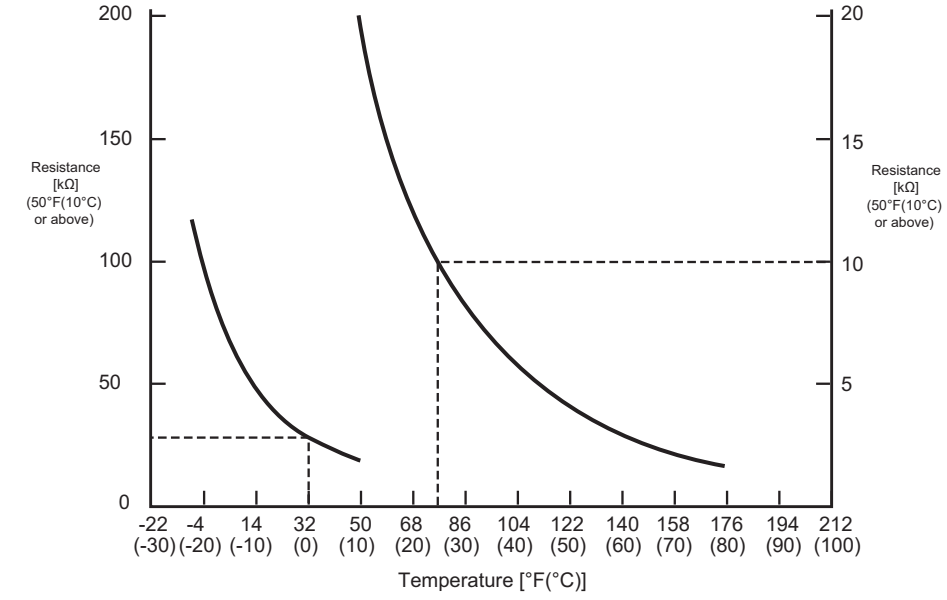
Temperature [°F(°C)]	Resistance [kΩ]
32(0)	33.8
41(5)	26.1
50(10)	20.4
59(15)	16.0
68(20)	12.6
77(25)	10.0
86(30)	8.0
95(35)	6.4
104(40)	5.2
113(45)	4.2
122(50)	3.5
131(55)	2.8
140(60)	2.3

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

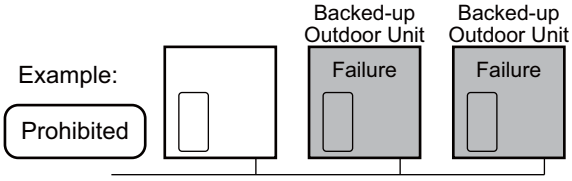
The method of backup operation differs according to the contents of trouble as shown in the table below.

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		

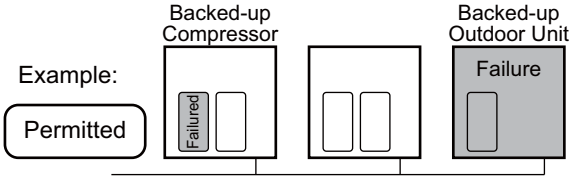
Note 1: If the compressor has failed due to a trouble in its motor coil (e.g. a layer short-circuit), do not perform compressor backup operation because of severe oil degradation. It could damage other outdoor units.

Note 2: Keep the number of backed-up outdoor units under compressor backup operation to one in the system (single refrigerant line).

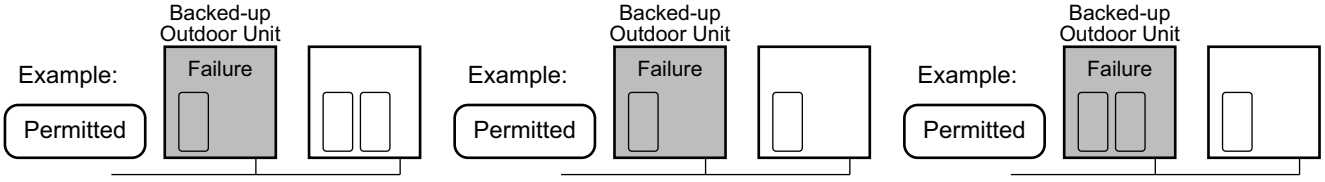
Note 3 : Keep the total backup outdoor units lower or equal than 50% of the outdoor units in one system refrigerant line.



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>

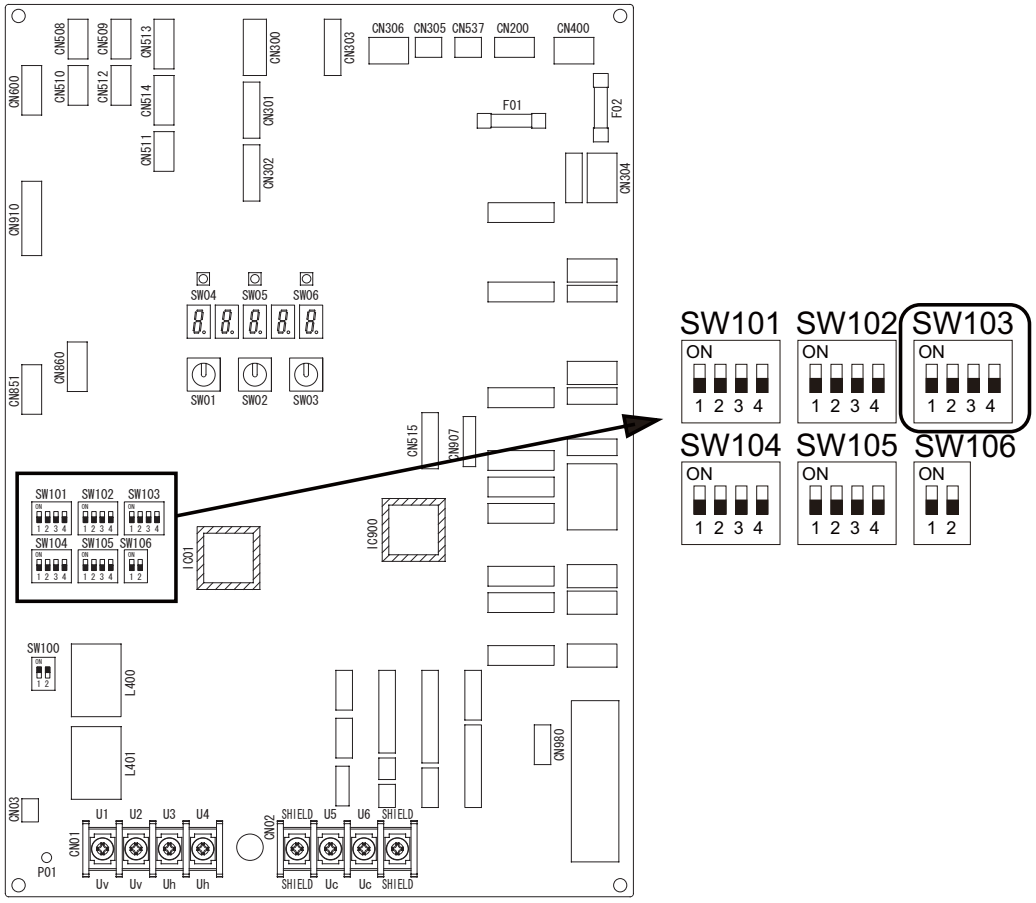
If a failure occurs to one of the compressors installed in outdoor unit, follow the procedure described below to back up the failured compressor by using the remaining, normal compressor.

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.



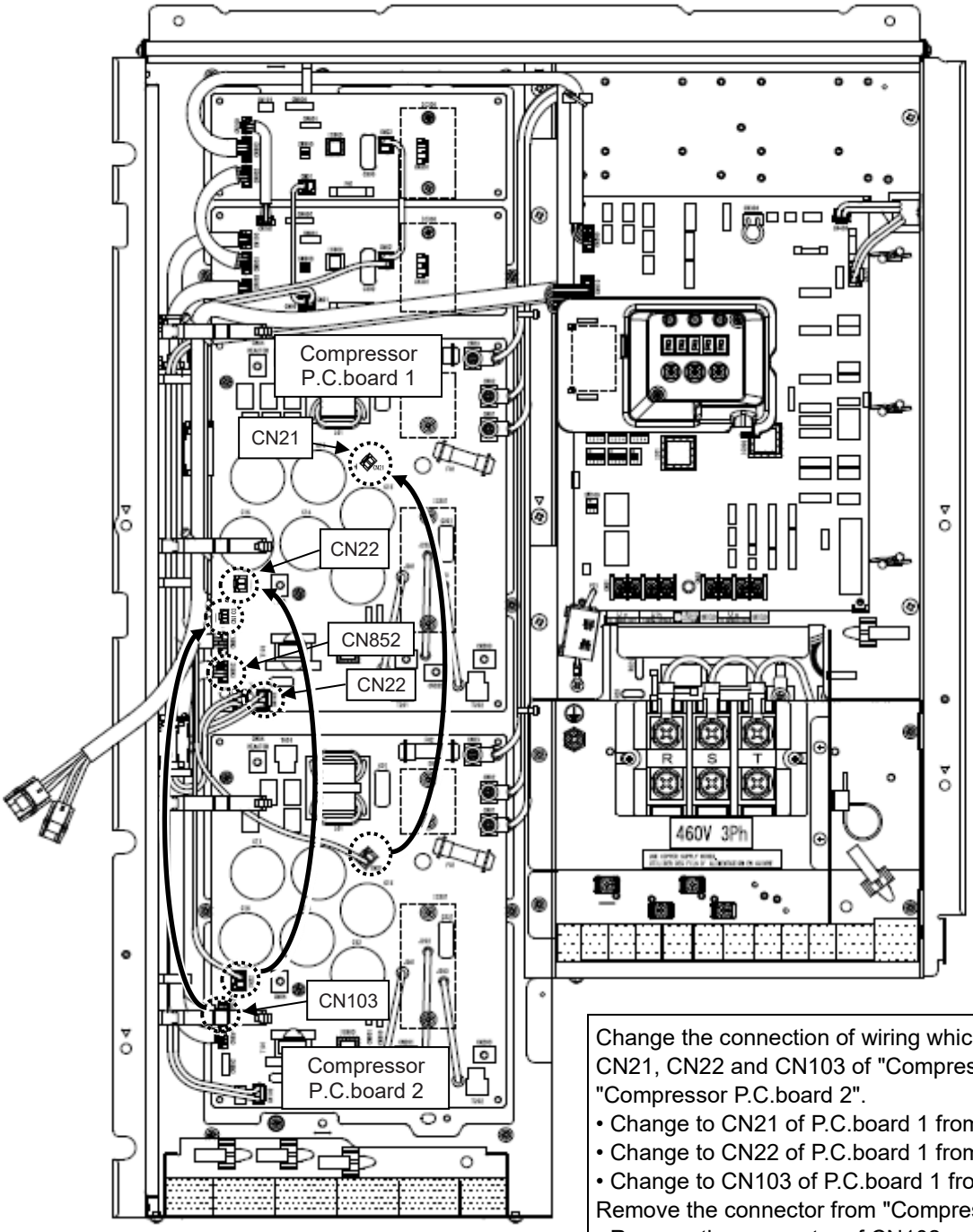
	SW103			
	Bit 1	**Bit 2**	**Bit 3**	**Bit 4**
Factory default setting	OFF	OFF	OFF	OFF
When compressor No.1 (front left) is failured	ON	OFF	OFF	OFF
When compressor No.2 (front right) is failured	OFF	ON	OFF	OFF

(3) Change the connection of wiring as shown in the below.

Outdoor Unit (16 ton)

Model: MMY-MUP1921*

1. When compressor No.1 is failure : No change the connection of wiring
2. When compressor No.2 is failure : Connection of wiring is changed as shown below.



Change the connection of wiring which is connected to the CN21, CN22 and CN103 of "Compressor P.C.board 1" and "Compressor P.C.board 2".

- Change to CN21 of P.C.board 1 from CN21 of P.C.board 2.
- Change to CN22 of P.C.board 1 from CN22 of P.C.board 2.
- Change to CN103 of P.C.board 1 from CN103 of P.C.board 2.

Remove the connector from "Compressor P.C.board 1"

- Remove the connector of CN102
- Remove the connector of CN852

(4) 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.

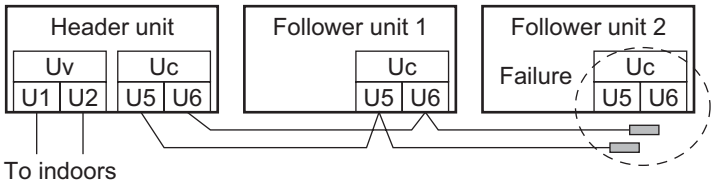
[Setup of failed follower outdoor unit]

(2) Fully close the gas pipe service valve of the failed outdoor unit.

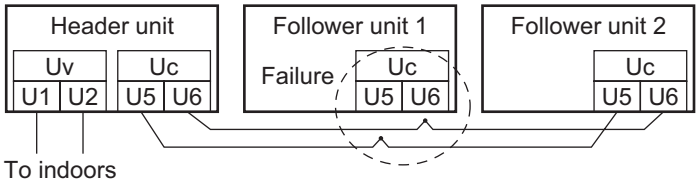
(3) Leave the service valve of the liquid pipe fully open (to prevent refrigerant stagnation in the unit). However, if there is a leakage from an outdoor PMV (unable to close), fully close the liquid pipe service valve.

(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)>

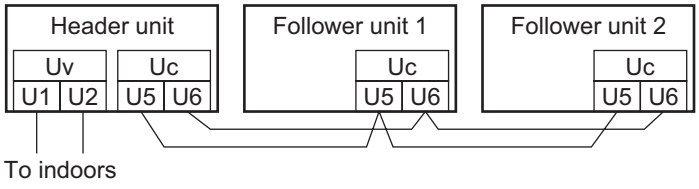
- In a case where the outdoor unit that is a terminal connection fails, disconnect the communication line to the outdoor unit from terminal [Uc(U5/U6)], and cover each of the lines U5 and U6 with insulating tape.

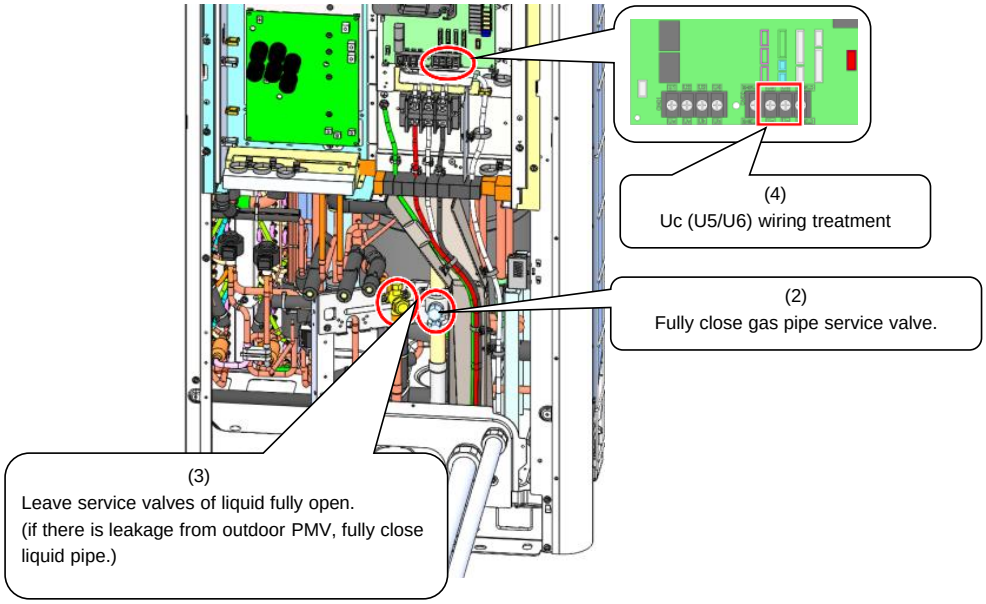


- In a case where an intermediate-connection outdoor unit fails, disconnect the communication line between both adjacent outdoor units from terminal [Uc(U5/U6)], and connect the communication lines.



(Reference) Normal wiring

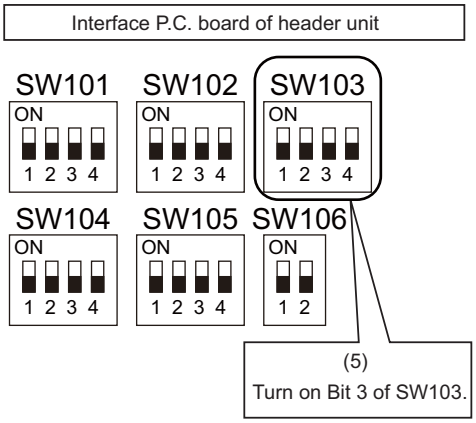




Setup of failed follower outdoor unit

[Setup of header unit]

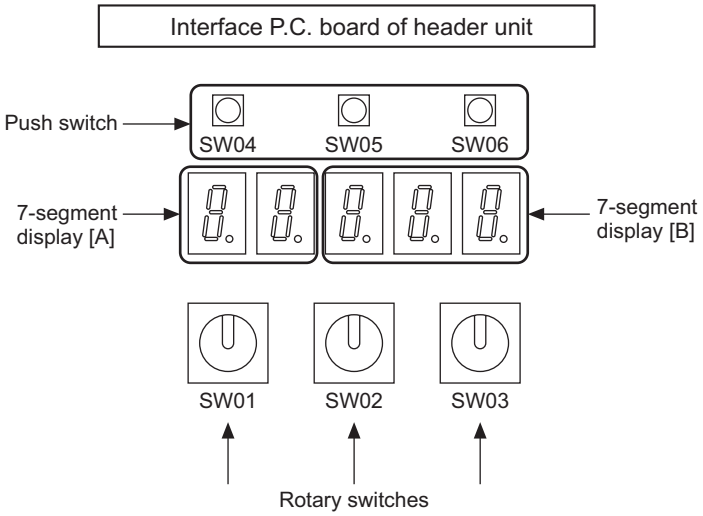
(5) Turn on Bit3 of SW103 on the interface P.C. board of the header unit.
(Setting to prevent connected indoor units capacity over failure (E16))



(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>

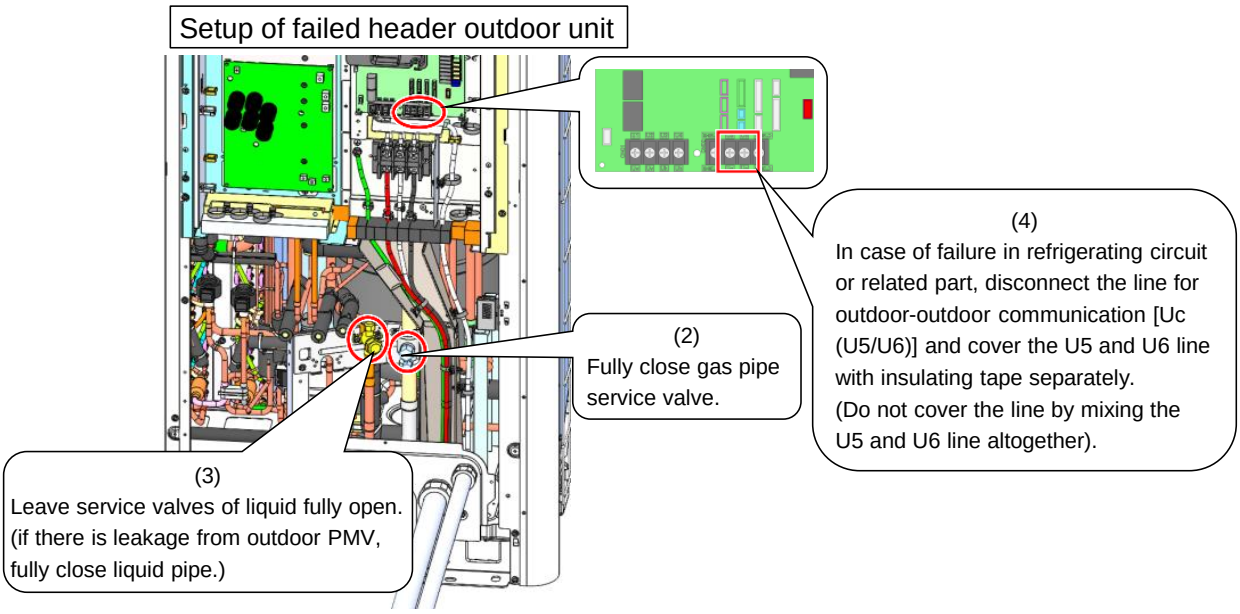
(1) Turn off the power supply to all the units connected to the system at the source.

[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]

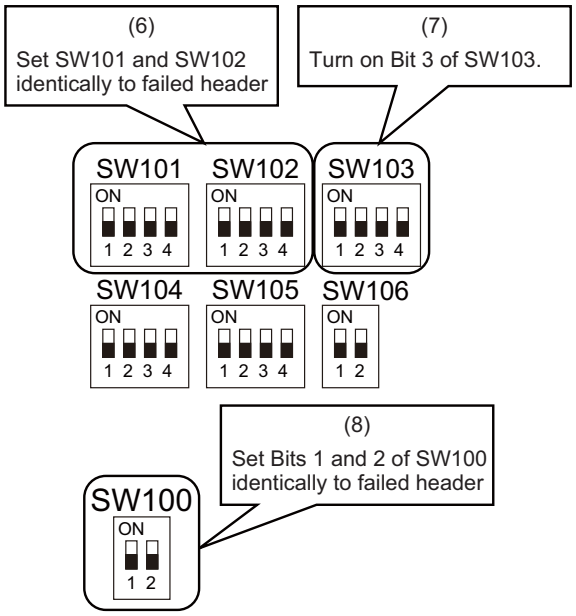
(5) Select a new header unit from the follower units on the basis of the following criteria:
- If only one follower unit is connected, select it as the header unit.
- If two follower units are connected, select the follower unit that is nearest to the failed header unit.

[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))

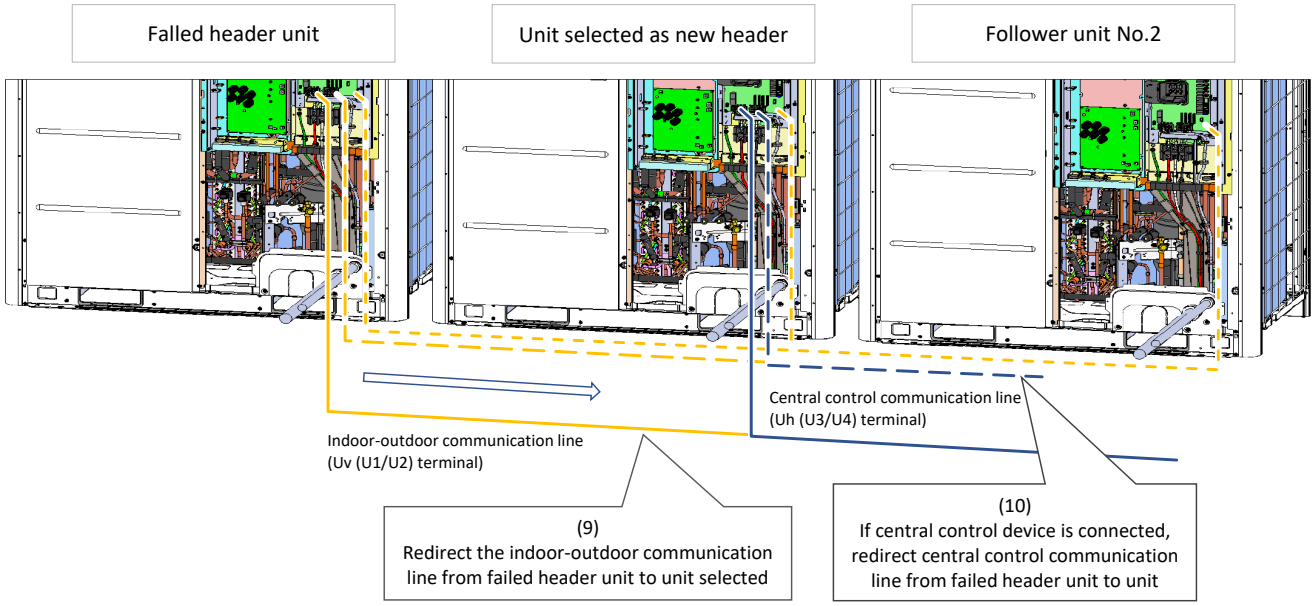
(8) Set Bits 1 and 2 of SW100 on the interface P.C. board same as that of the failed header unit (terminator resistance setting).



[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.

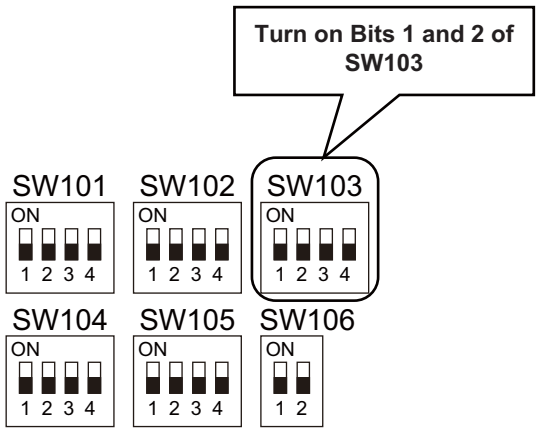
[Setup of failed outdoor unit]

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)

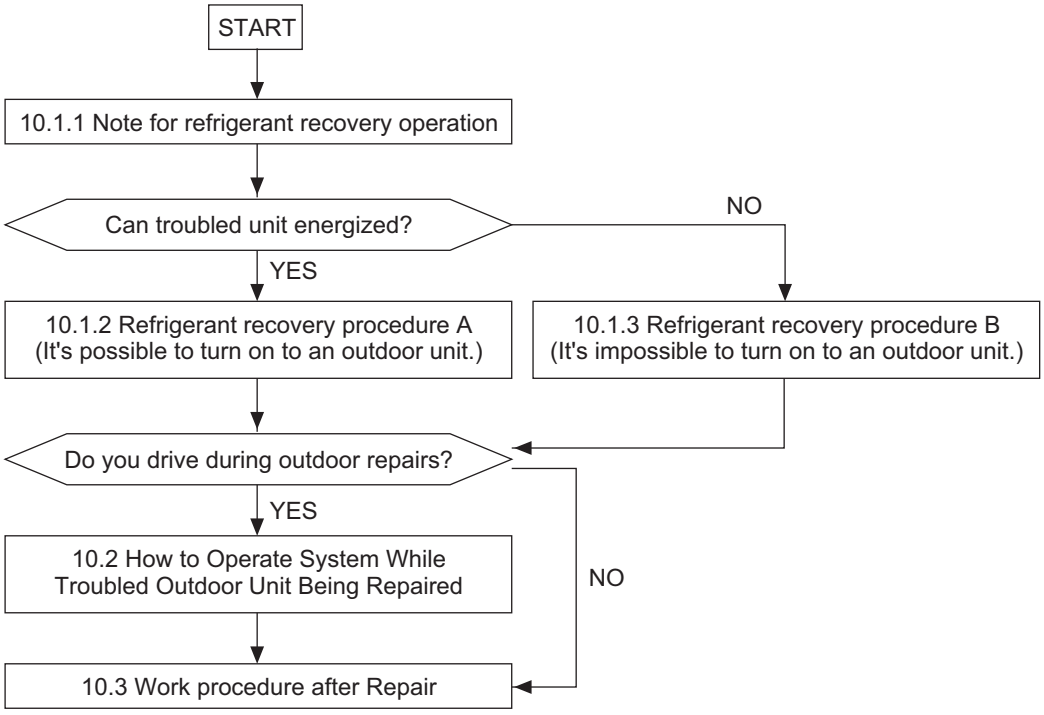
Check Code (----) Display during Outdoor Unit Automatic Backup Operation

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.)

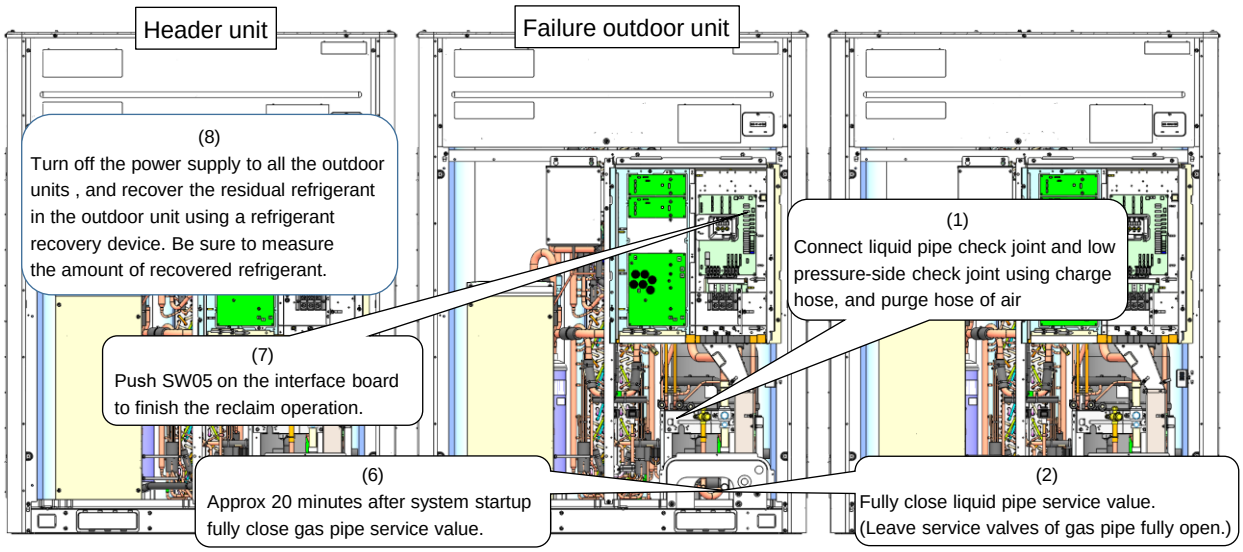
(3) Set SW01/02/03 on the interface P.C. board of the failed outdoor unit to 2/11/1. After [rd] [… … …] is displayed on the 7-segment display, push SW04 and hold for 5 seconds or more.

(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.

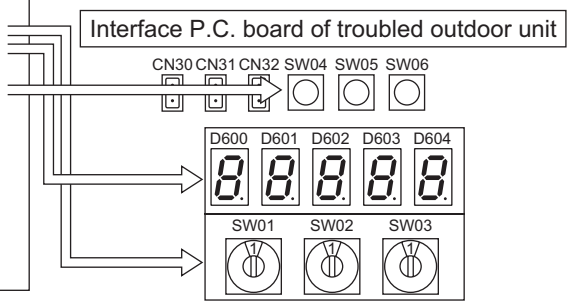
(6) Push SW05 on the interface board to finish the reclaim operation.

(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 Outdoor fan: On 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.

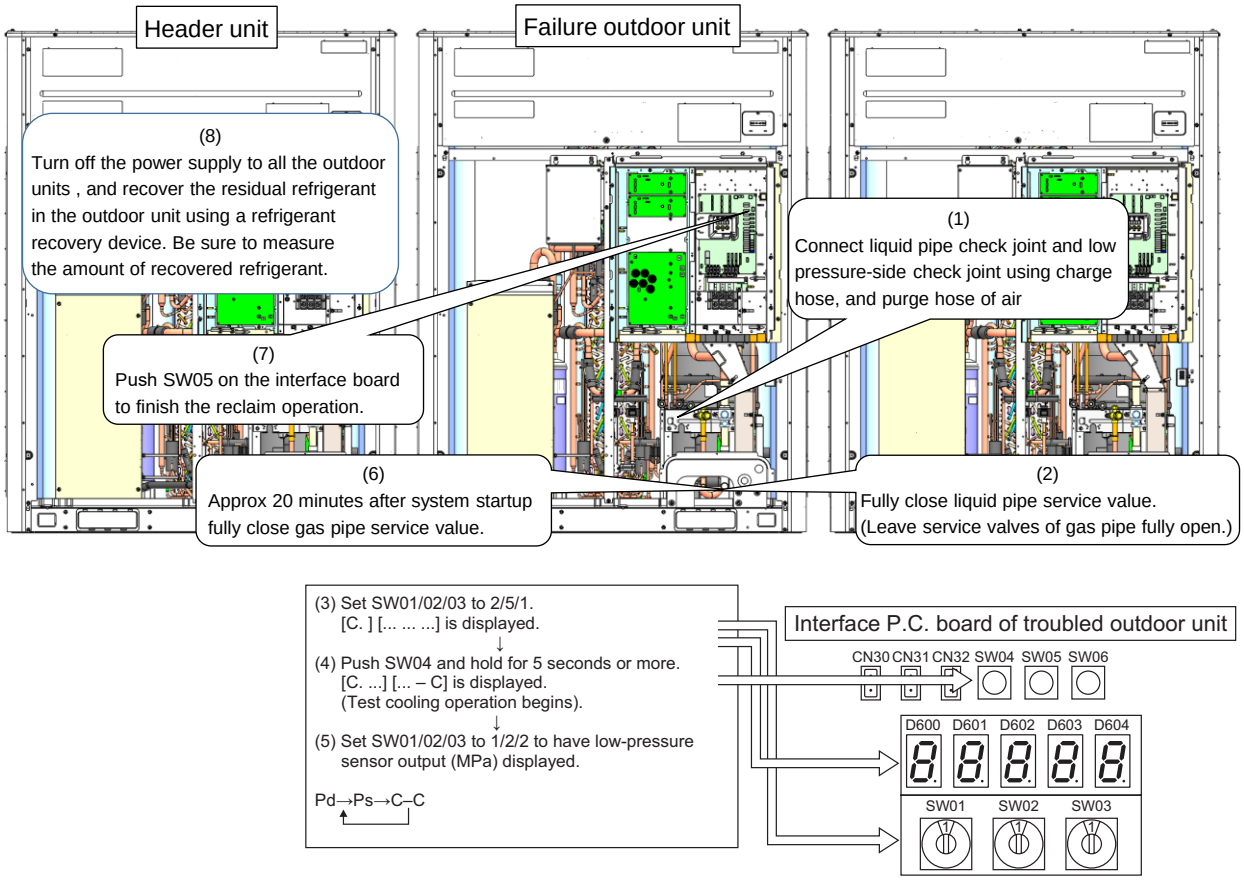
(4) After [C. …] [… – C] is displayed on the 7-segment display, the system starts operating in the test cooling operation mode.

(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	192	-	-	7.70	3.50
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>

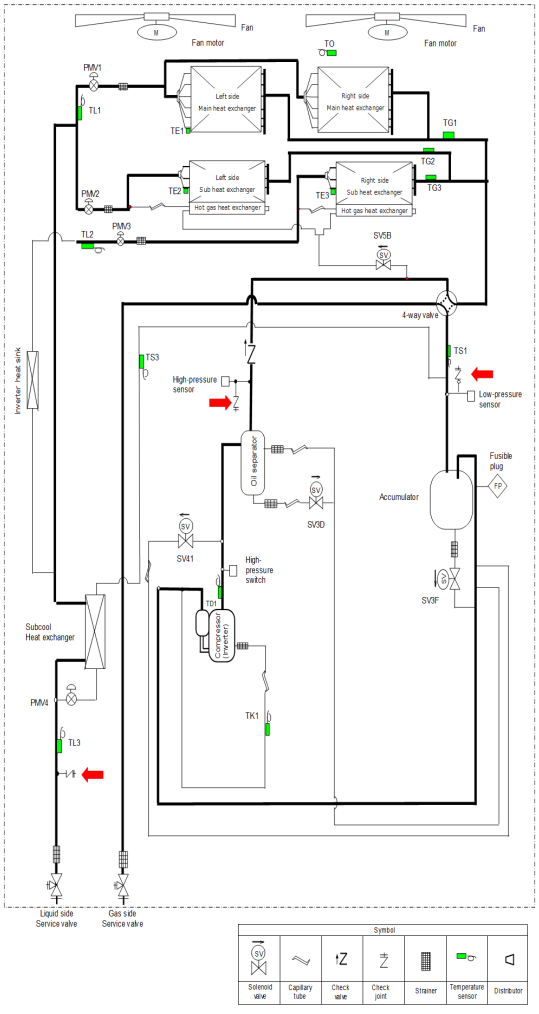
(1) Follow the procedure below to fully open PMV 1, 2, 3, and 4 and turn off the outdoor unit within 2 minutes after the operation is completed.
Note) The PMV fully open operation by the following operation will return to fully closed after 2 minutes.

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].

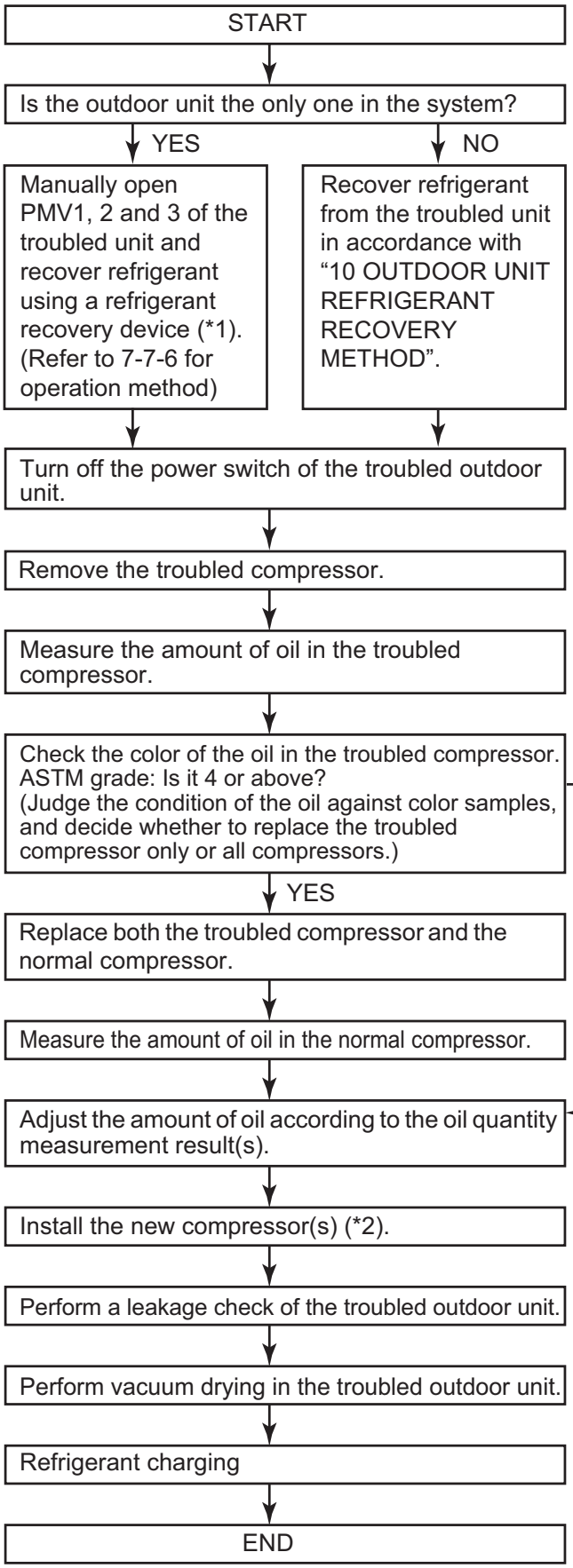
(3) Be sure to perform vacuuming in from the three check joints shown in the diagram below (liquid pipe, discharge pipe and suction pipe).

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 High heat 6 ton	0.502 gal
Standard 10,12,14 ton 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 High heat 6 ton	0.898 gal
Standard 10,12,14 ton 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):

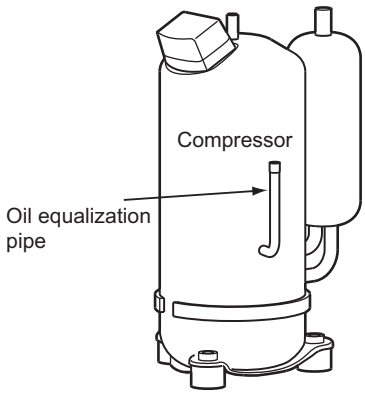
Standard 6,8,16 ton High heat 6 ton	0.211 ~ 0.370 gal
Standard 10,12,14 ton High heat 8,10 ton	0.528 ~ 0.687 gal

Oil separator's oil volume is normally around 0~0.264 gal

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*,1921*,072H1*

For Standard 6,8,16 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:

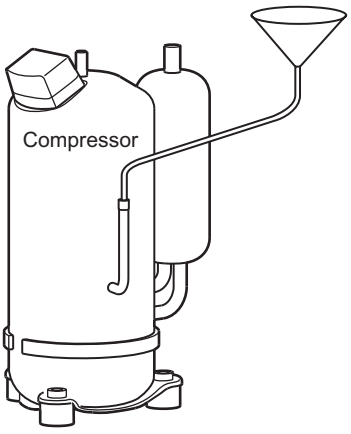
- Do not draw more than 0.211 [gal] of oil as it may cause damage to the compressor.
- If the troubled compressor contained 0.132gal or less, there may have been a problem with the oil equalization circuit, etc. Perform checks in accordance with “11-3. Check Procedure to Search Cause of Compressor Oil 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 [gal], by following the steps below.

1 Amount of oil in troubled compressor A [gal]: 0 ≤ A < 0.660

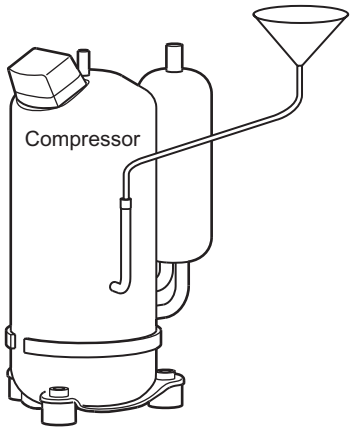
(1) Adjust the amount of oil in the new compressor to 0.660 gal
(Lay the new compressor down and draw 0.211 [gal] of oil via the oil-equalization pipe.)

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.

Model: MMY-MUP1921*
For Standard 16 ton
[When replacing normal as well as troubled compressor] - applicable to
<Remove the normal compressor>

- Remove the normal compressor in the same way as the troubled compressor.

Note:

- Be sure to insulate the removed compressor leads using insulation tape, etc.

⚠ 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.

<Measuring amount of oil in normal compressor>

- As was the case with the troubled compressor, measure the amount of oil contained by placing the compressor on a scale.
  Amount of oil in normal compressor: A [gal] = (Weight of compressor as it was dismantled (lbs) - 57.3lbs) × 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 compressors>

- Perform the adjustment on the basis of how much oil the failure compressor contained, A [gal], and how much oil the normal compressor contained, B [gal], by following the steps below.

1 Combined amount of oil in troubled and normal compressors A+B [gal]: 0 ≤ A+B < 0.581

(1) Adjust the amount of oil in the two new compressors to 0.264 gal each (total 0.581).
  - Lay the compressors down and draw .0211 [gal] of oil from each of them via their oil equalization pipes.

Notes:

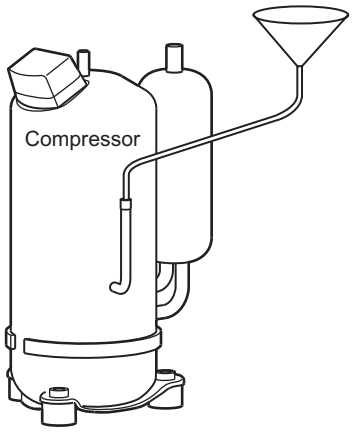
- Do not draw more than 0.211 [gal] of oil from a compressor as it may cause damage.
- If the troubled compressor contained 0.132 gal or less, there may have been a problem with the oil equalization circuit, etc. Perform checks in accordance with “11-3. Check Procedure to Search Cause of Compressor Oil Shortage”.

2 Combined amount of oil in troubled and normal compressors A+B [gal]: 0.581 ≤ A+B < 1.004

(1) Adjust the amount of oil in the two new compressors to (A+B)/2 gal each.
  - Lay the compressor down and draw [1.004-(A+B)][gal] of oil from each of them via their oil equalization pipes.

3 Combined amount of oil in troubled and normal compressors A+B [gal]: 1.004 ≤ A+B

(1) Adjust the amount of oil in the two new compressors to (A+B)/2 gal each.
  (Insert a hose into the discharge pipe or oil equalization pipe of each compressor and inject (A+B)/2-0.502 [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>

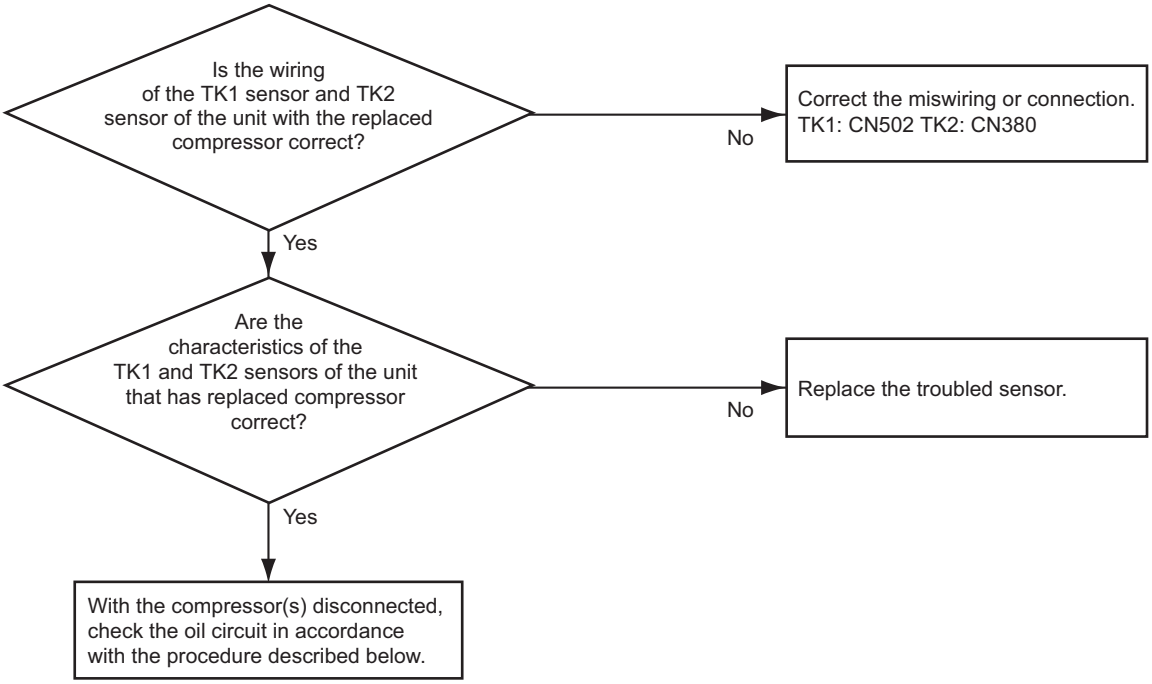
(1) Turn on the power switch of the outdoor unit.
(2) Fully open the PMV1.
(3) Fully open the PMV2.
(4) Fully open the PMV3
(5) Turn off the power switch of the outdoor unit

* 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



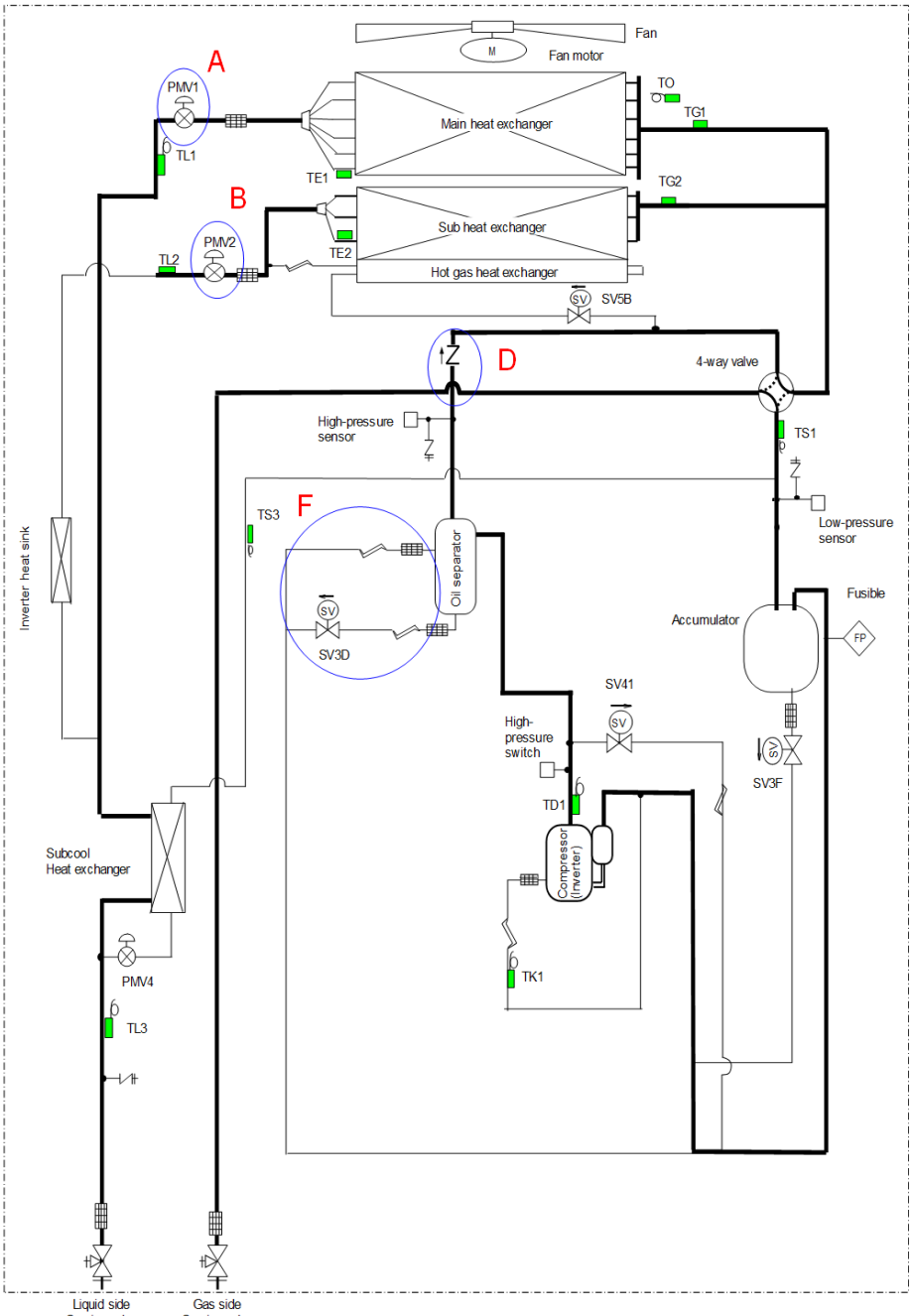
(To next page)

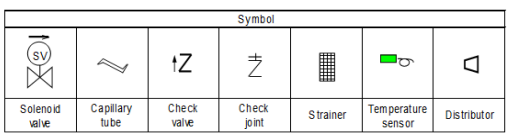
<MMY-MUP0721*,0961* and 072H1*>

Check items and procedures to follow when checking oil circuit with compressor(s) disconnected

Check item	Location	Procedure
Leakage of outdoor PMV 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. 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. 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. If the pressure increases, there is a leak from the check valve of discharge pipe (D). Replace the part.
Clogging of SV3D valve Clogging of oil-return capillary 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*



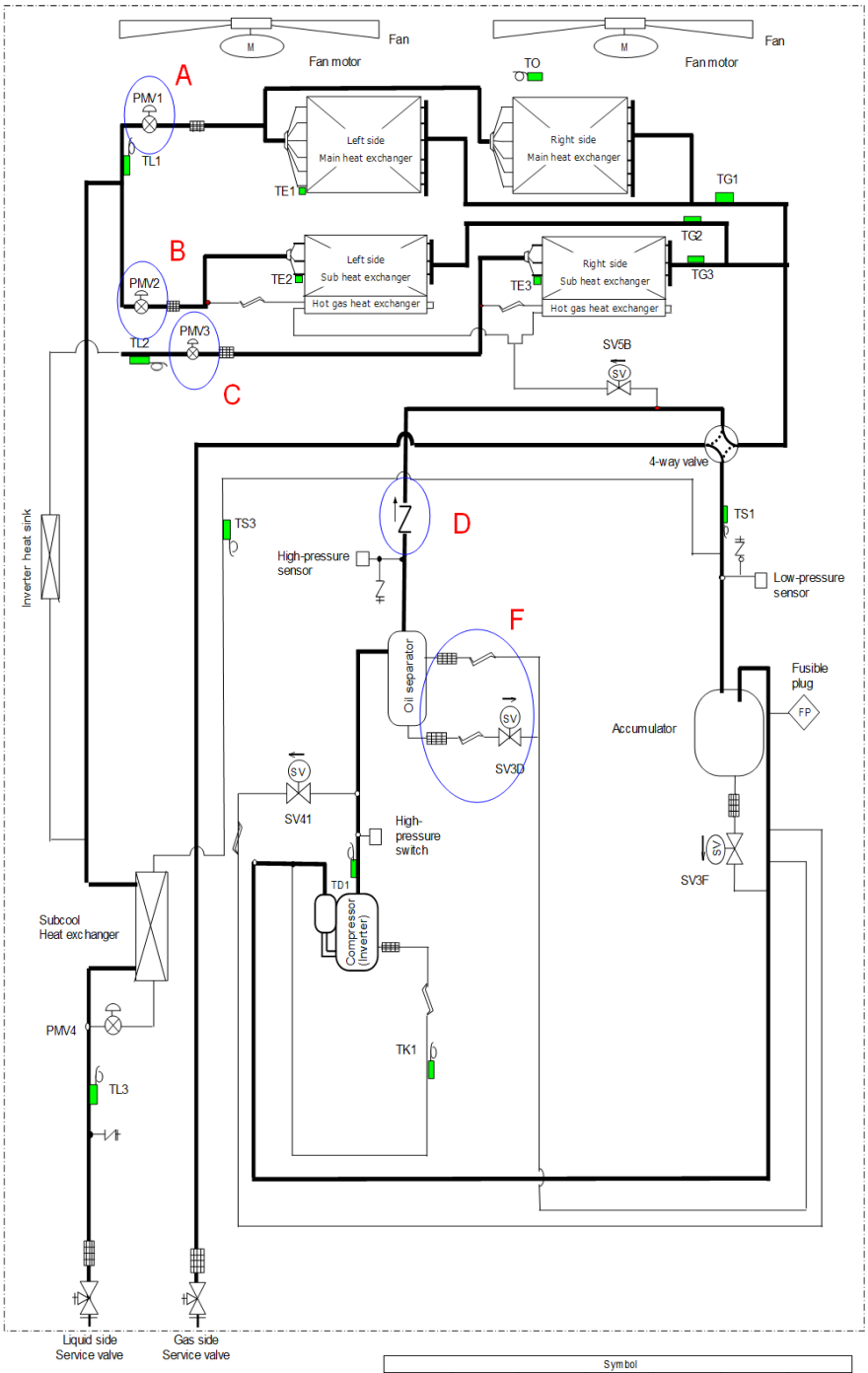


<MMY-MUP1201*,1441*,1681*,096H1*,120H1*>

Check items and procedures to follow when checking oil circuit with compressor(s) disconnected

Check item	Location	Procedure
Leakage of outdoor PMV Leakage of check valve in discharge pipe convergent section	A,B 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. 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. 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. If the pressure increases, there is a leak from the check valve of discharge pipe (D). Replace the part.
Clogging of SV3D valve Clogging of oil-return capillary 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*

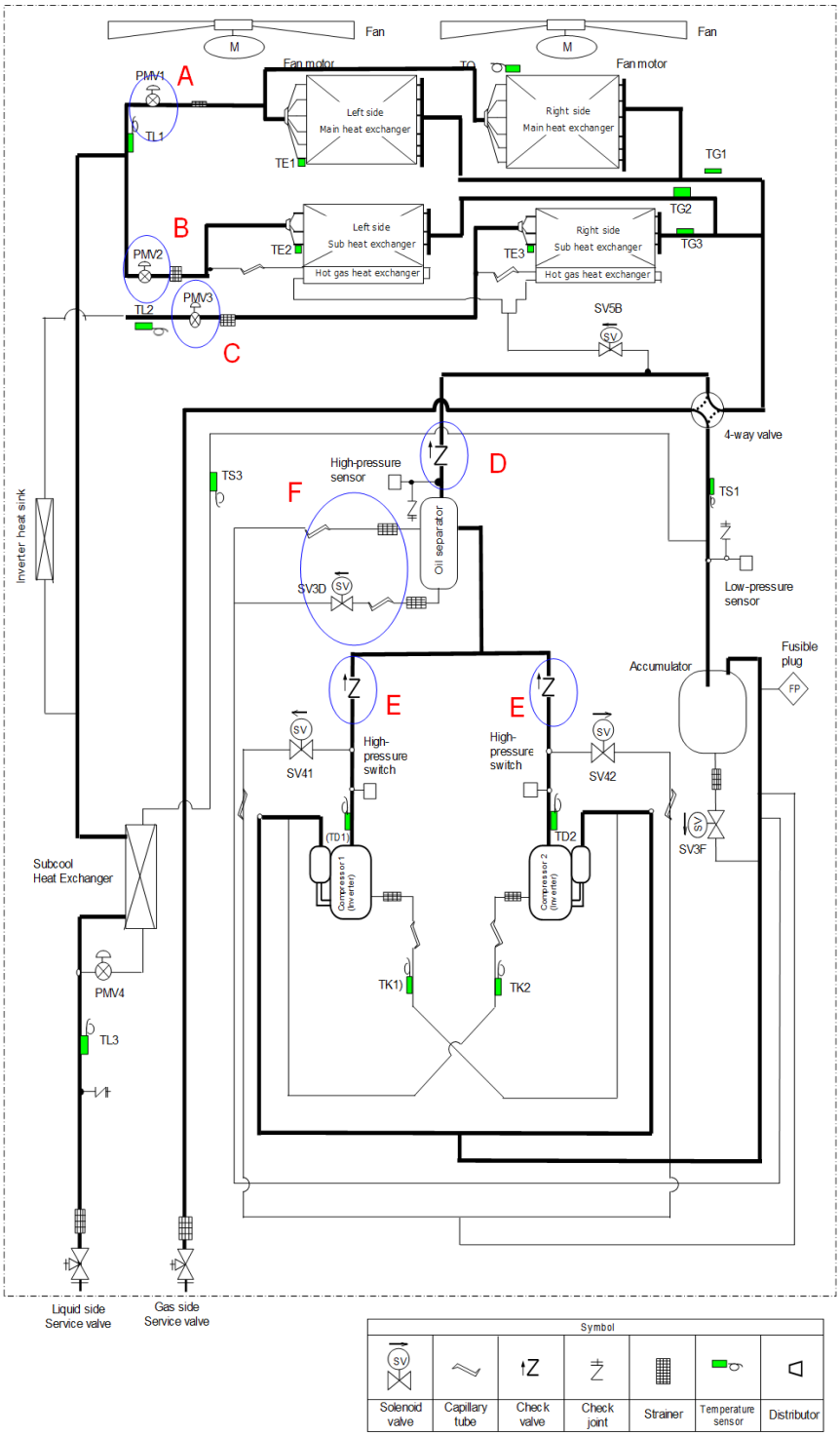


<MMY-MUP1921*>

Check items and procedures to follow when checking oil circuit with compressor(s) disconnected

Check item	Location	Procedure
Leakage of outdoor PMV Leakage of check valve in discharge pipe convergent section	A,B 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. 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 discharge pipe (D). Replace the troubled parts. 2) If the pressure does not increase, fully open outdoor PMV1 and 3 and check the pressure at the check joint of discharge pipe again. If the pressure increases, there is a leak from the check valve of discharge pipe (D). Replace the part.
Leakage of check valve in discharge pipe	E	3) With pressure applied to the check joint of discharge pipe with nitrogen, if gas escapes from the discharge pipe section of the disconnected compressor, there is a leak from the check valve of discharge pipe (E). Replace the part.
Clogging of SV3D valve Clogging of oil-return capillary Clogging of oil-return distributor	F	4) 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 16ton
Model: MMY-MUP1921*



12. OUTDOOR UNIT PARTS REPLACEMENT METHODS

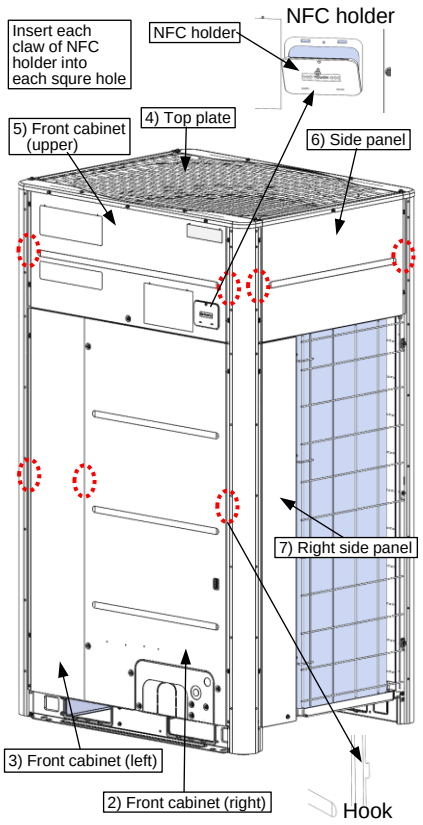
<table>
<tr><th>No.</th><th>Part</th><th>Work procedure</th><th>Remarks</th></tr>
<tr><td>1</td><td>Cabinet</td><td>

⚠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.

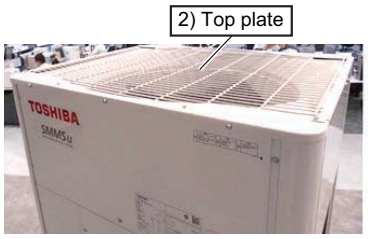
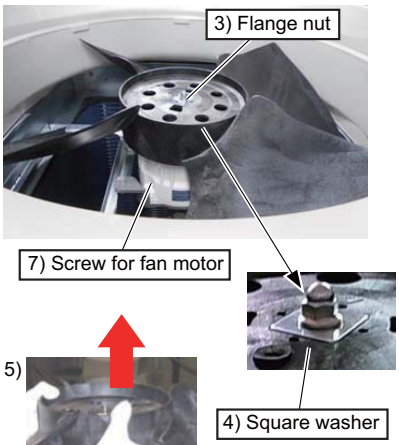
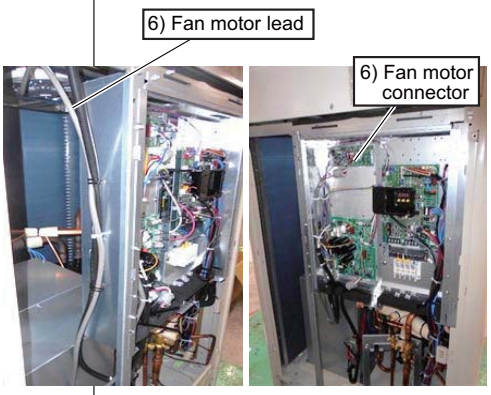
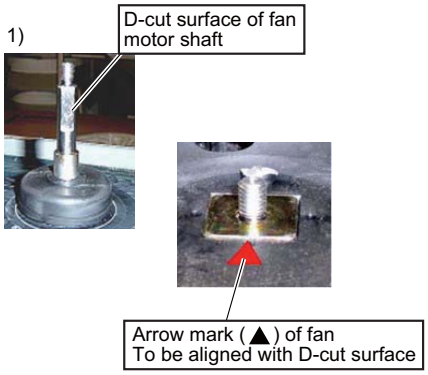
</td><td> 
</td></tr>
<tr><td></td><td></td><td>

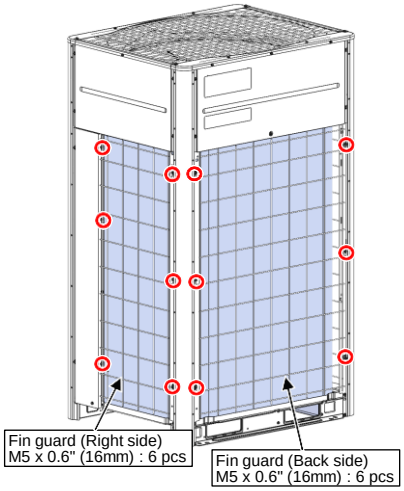
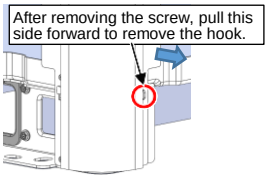
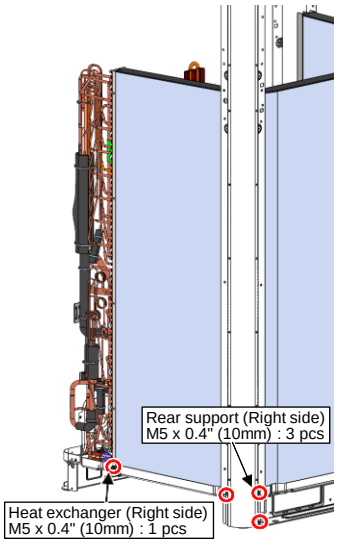
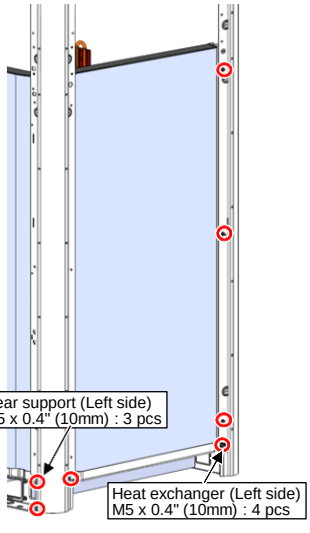
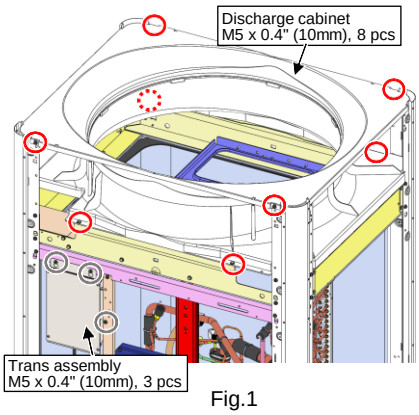
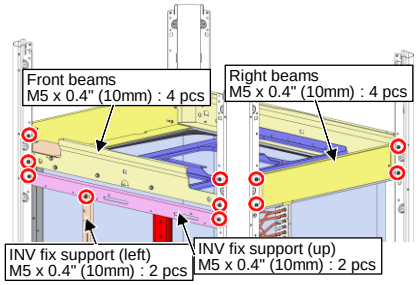
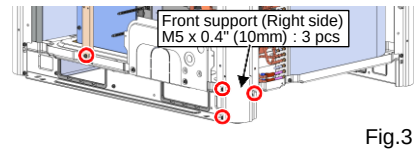
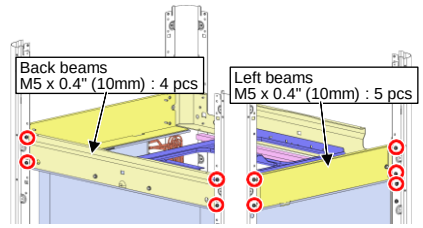
2. Attachment

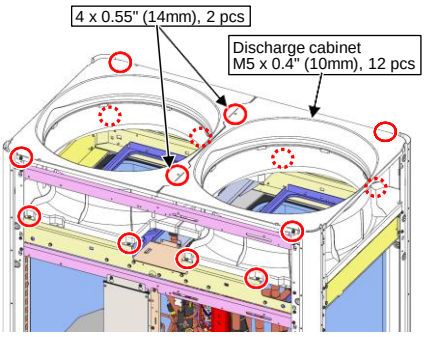
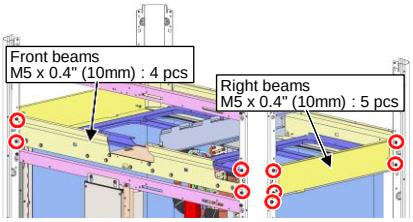
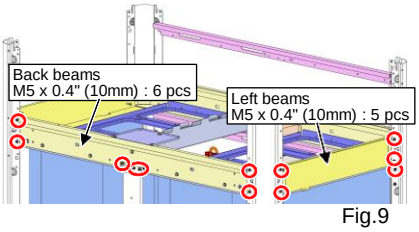
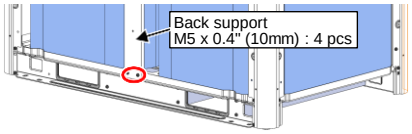
Carry out installation by following reverse procedure in the detachment 1) to 7).

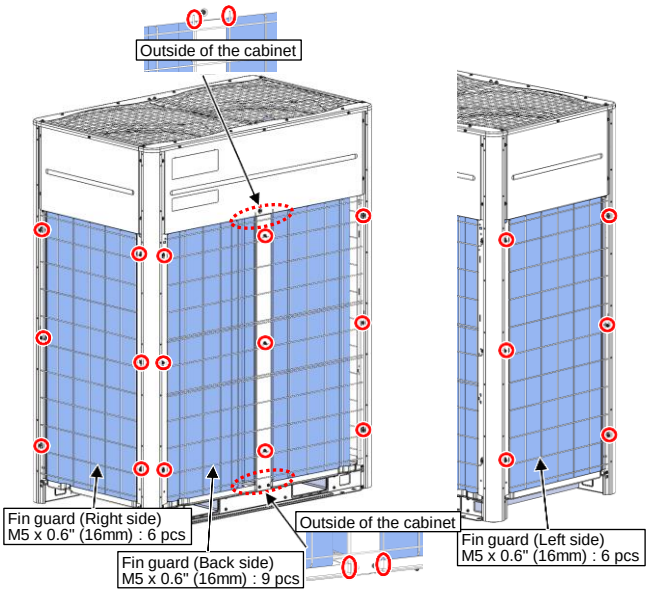
Hang the hooks into the slit on the metal frame to securely attach each cabinet.

</td><td></td></tr>
</table>

No.	Part	Work procedure	Remarks
2	Propeller fan and Fan motor	**⚠ WARNING** 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 screws for the top plate. (M5 × 0.4" (10mm) 10, 8 pcs: Front, 3 pcs. Back, 3 pcs. Left and Right, 1 pcs each.) 3) Remove the flange nut securing the fan motor and propeller fan. (To loosen the nut, turn it clockwise.) 4) Remove the square washer. 5) Remove the propeller fan. **⚠ CAUTION** Lift it straight up. Do not forcibly pull it, or it may get stuck. 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.) 7) Remove the fan motor. (M6 × 0.8" (20mm), 4 pcs)	  
		2. CAUTION for replacement or attachment 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.) 2) Be sure to put the square washer in place. (Otherwise, unusual noises and vibrations may result.) 3) Tighten the flange nut at a torque of 10.8 ft•lbs (14.7 N•m.) (To tighten the flange nut, turn it counterclockwise.) [When attaching two fan motors for 10-16 ton] Be sure to attach them to the original positions. Fan motor 1: Attach it to the left side. Connect the fan motor connector to the upper fan P.C. board. Fan motor 2: Attach it to the right side. Connect the fan motor connector to the lower fan P.C. board.	

No.	Part	Work procedure	Remarks
3	Heat exchanger	**⚠ WARNING** Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. **< 6ton, 8ton >** **1. Detachment** 1) Remove No. 1 Cabinet, No.2 propeller fan/fan motor, No. 4 Inverter assembly (Waterproof cover assembly) and No. 5 Reactor . 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. **(Fig.1 to 6)** Discharge cabinet : M5 x 0.4"(10mm), 8 pcs Motor base and Beams : M5 x 0.4"(10mm), 17 pcs Trans assembly : M5 x 0.4"(10mm), 17 pcs INV fix support (up) : M5 x 0.4"(10mm), 17 pcs INV fix support (left) : M5 x 0.4"(10mm), 17 pcs Rear supports : M5 x 0.4"(10mm), 6 pcs Front supports (right side) : M5 x 0.4"(10mm), 6 pcs Heat exchanger : M5 x 0.4"(10mm), 5 pcs **< Remove Fin guard >**  **< Remove Support>**   Fig.5  Fig.6	 Fig.1  Fig.2  Fig.3  Fig.4

No.	Part	Work procedure	Remarks
3	Heat exchanger	**⚠ WARNING** Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. **< 10ton, 12ton, 14ton, 16ton > < High heat 8ton, 10ton > 1. Detachment** 1) Remove No. 1 Cabinet, No.2 propeller fan/fan motor, No. 4 Inverter assembly (Waterproof cover assembly) and No. 5 Reactor . 2) Remove the discharge cabinet, the two rear supports, and the motor base and the four beams together. **(Fig.7 to 13)** Discharge cabinet : M5 × 0.4"(10mm), 12 pcs 4 x 0.55"(14mm), 2 pcs Motor base and Beams : M5 x 0.4"(10mm), 17 pcs Rear supports : M5 x 0.4"(10mm), 6 pcs Back support : M5 x 0.4"(10mm), 4 pcs Heat exchanger shield plate : M5 x 0.4"(10mm), 2 pcs Heat exchanger connecting plate : M5 x 0.4"(10mm), 2 pcs 4 x 0.4"(10mm), 6 pcs Heat exchanger : M5 x 0.4"(10mm), 4 pcs x 2 **< Remove Fin guard >**	 Fig.7  Fig.8  Fig.9  Fig.10



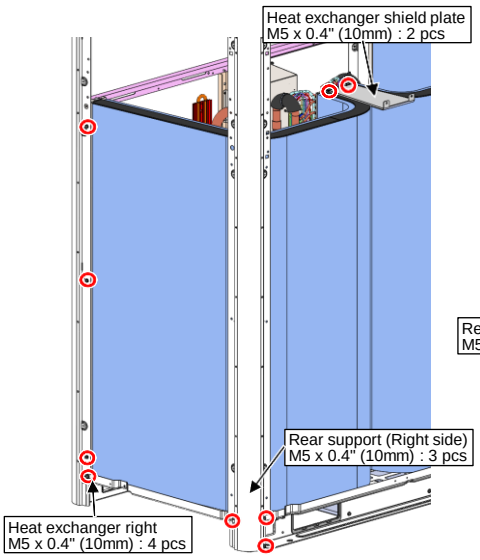


Fig.11

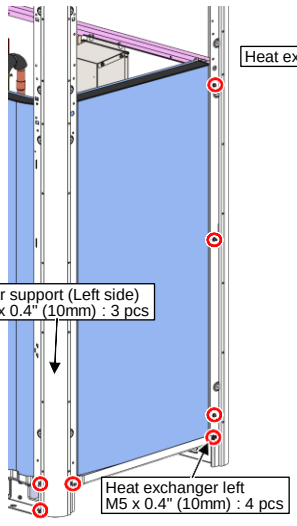


Fig.12

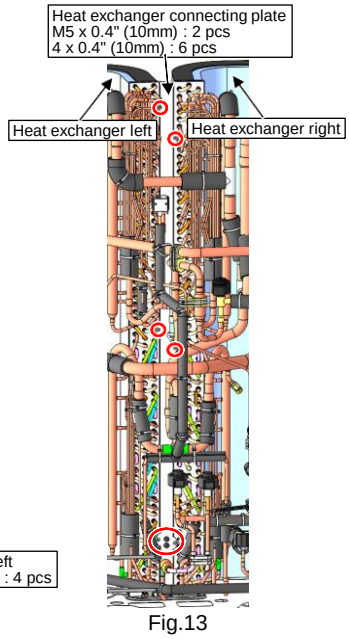
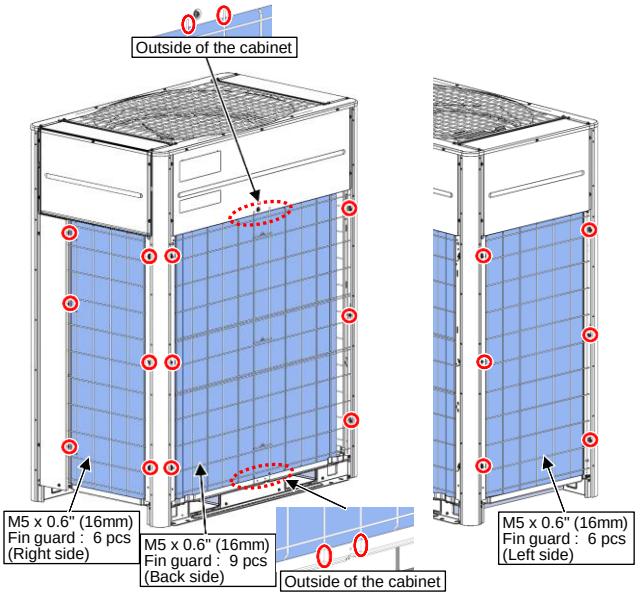
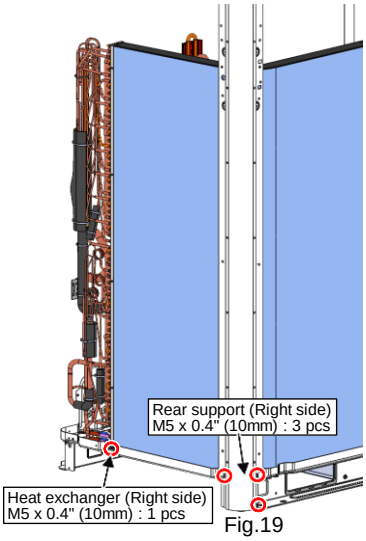
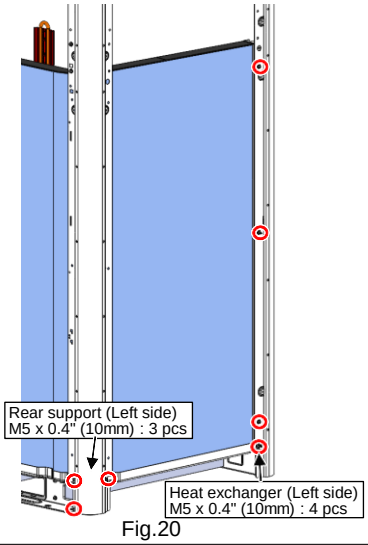
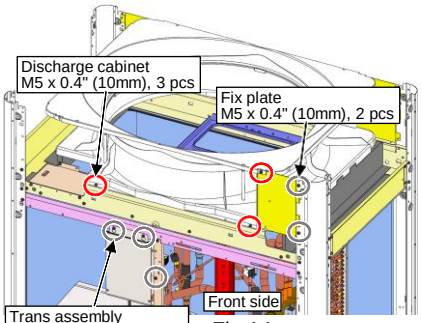
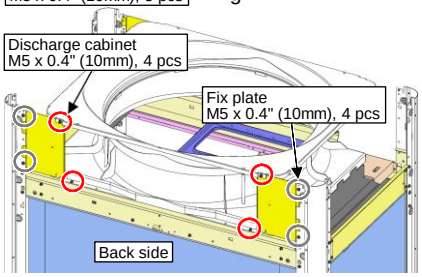
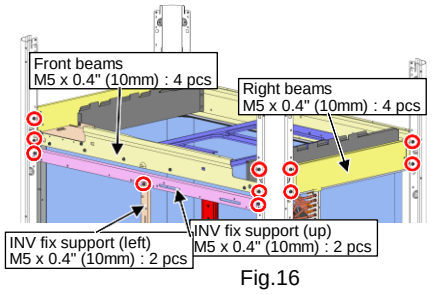
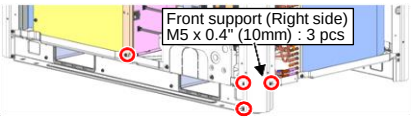
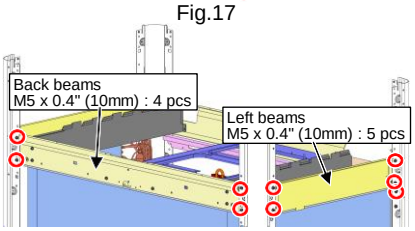


Fig.13

No.	Part	Work procedure	Remarks
3	Heat exchanger	**⚠ WARNING** Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. **< High heat 6ton >** **1. Detachment** 1) Remove No. 1 Cabinet, No.2 propeller fan/fan motor, No. 4 Inverter assembly (Waterproof cover assembly) and No. 5 Reactor . 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. **(Fig.14 to 20)** Discharge cabinet : M5 × 0.4"(10mm), 7 pcs Fix plate : M5 × 0.4"(10mm), 6 pcs Motor base and Beams : M5 x 0.4"(10mm), 17 pcs Trans box : M5 x 0.4"(10mm), 17 pcs INV fix support (up) : M5 x 0.4"(10mm), 17 pcs INV fix support (left) : M5 x 0.4"(10mm), 17 pcs Rear supports : M5 x 0.4"(10mm), 6 pcs Front supports (right side) : M5 x 0.4"(10mm), 6 pcs Heat exchanger : M5 x 0.4"(10mm), 5 pcs **< Remove Fin guard >**   Fig.19  Fig.20	 Fig.14  Fig.15  Fig.16  Fig.17  Fig.18

No.	Part	Work procedure	Remarks
3	Heat exchanger	3) Cut the pipes at the heat exchanger (Fig.21, Fig.22, Fig.23).	

< 6ton, 8ton >

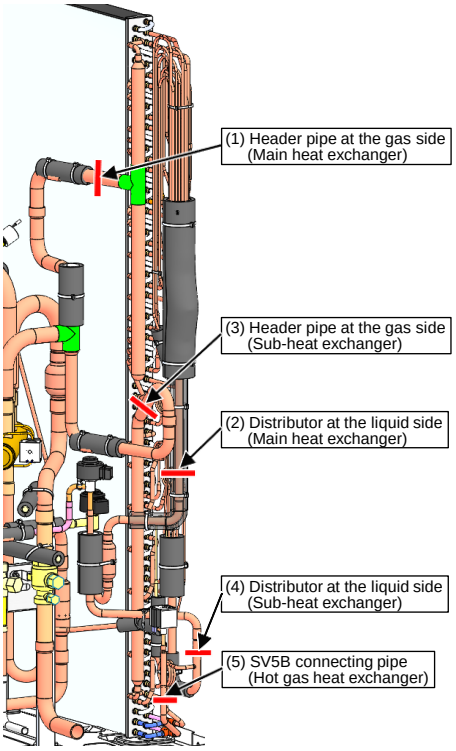


Fig.21

< 10ton, 12ton, 14ton, 16ton >
< High heat 8ton, 10ton >

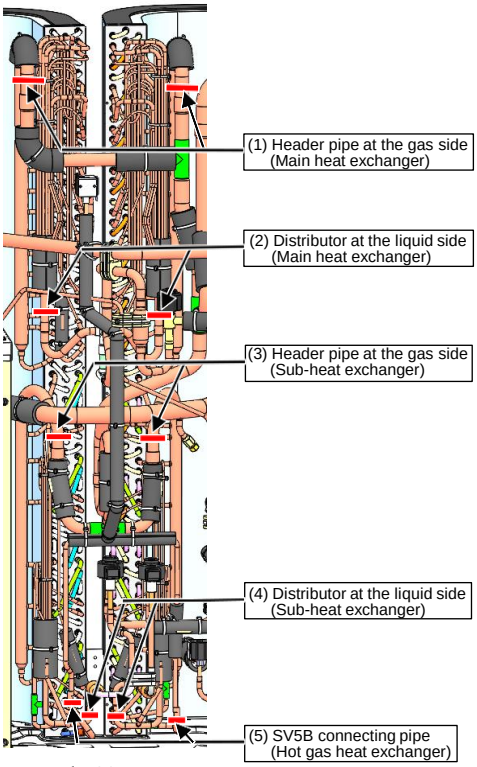


Fig.22

< High heat 6ton >

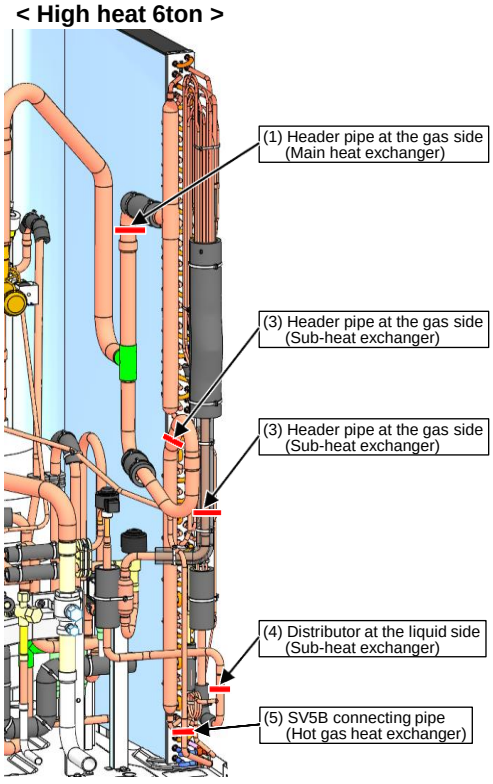
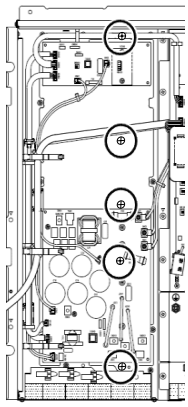
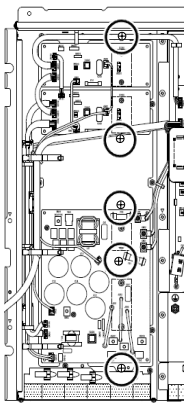
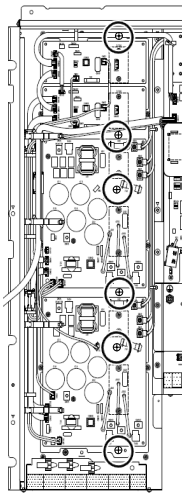
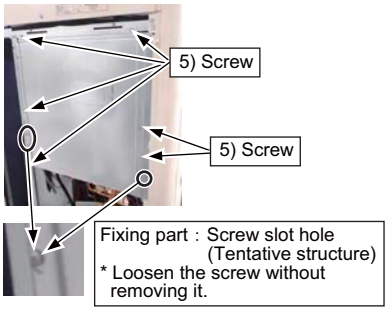
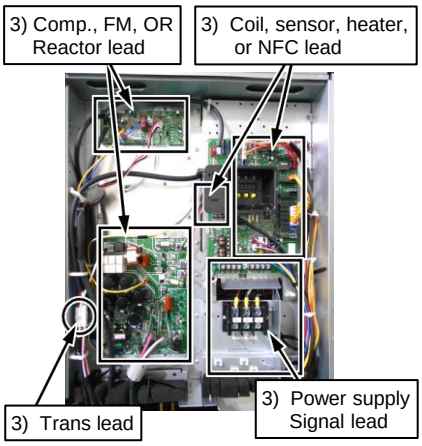
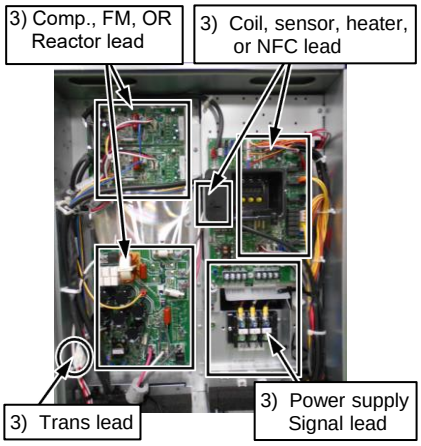
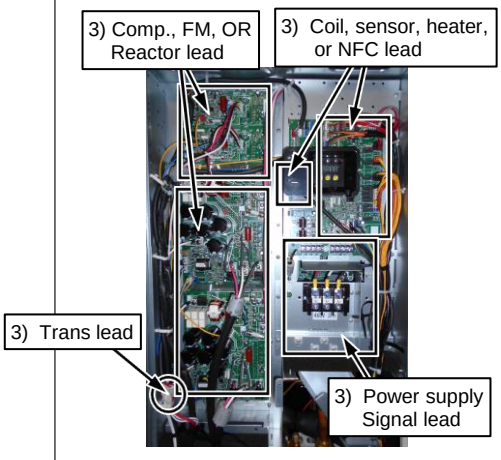


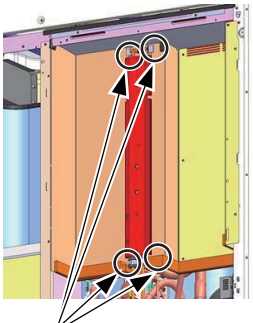
Fig.23

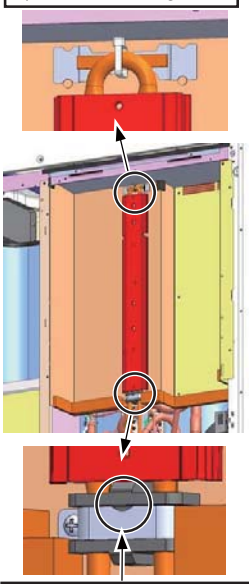
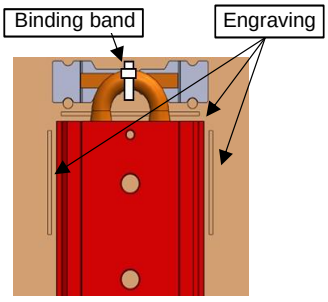
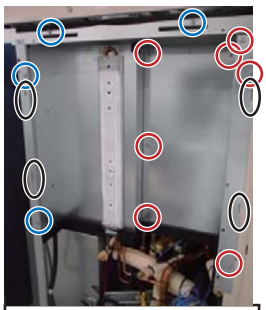
4) Remove the heat exchanger while draw it upward or atrear side.

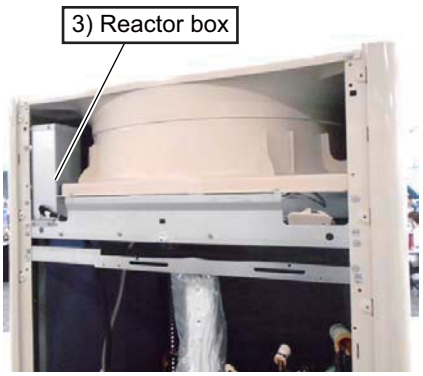
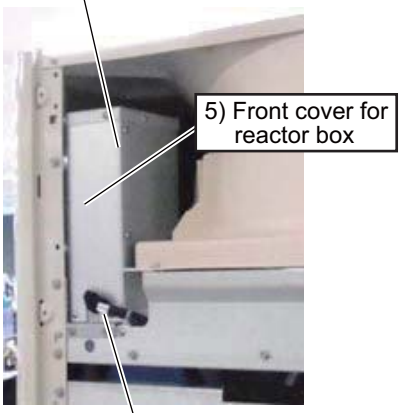
2. Attachment

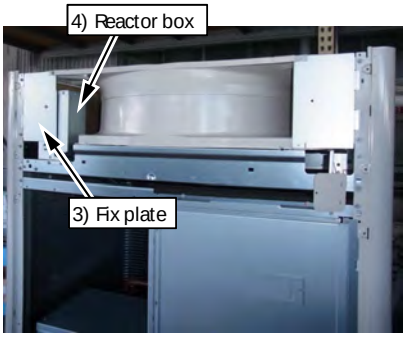
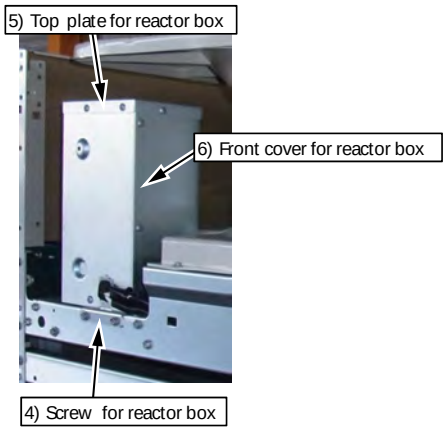
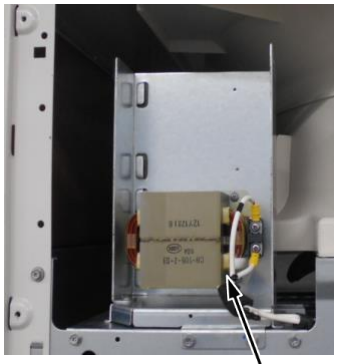
Carry out installation by following reverse procedure in the detachment 1) to 4).
*Mount temperature sensors, pipe covers, coils, etc. in their original positions.

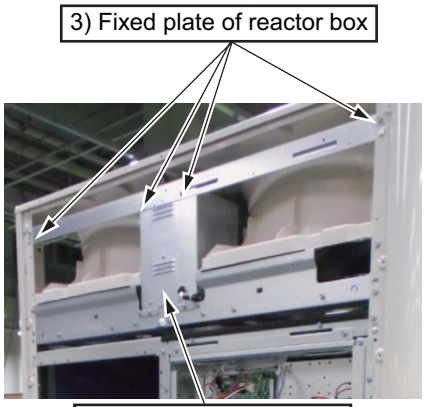
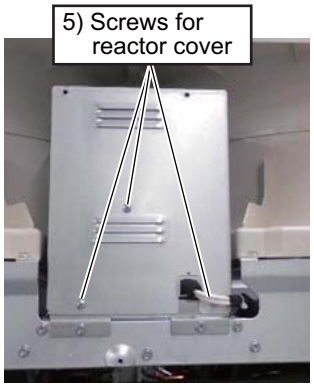
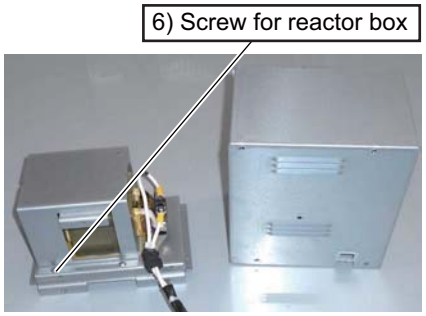
No.	Part	Work procedure	Remarks
4	Inverter assembly	**⚠ WARNING** Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. **1. Detachment** 1) Stop the air conditioner operation, and turn off the circuit breaker. 2) Remove the inverter cover. (M4 × 0.4" (10mm), 2 pcs.) 3) Remove the connectors and clamp, and remove each wire. 4) Remove the fixing screws for the heat sink. (6 to 14 ton : M4 × 0.6" (16mm), 5 pcs 16 ton : M4 × 0.6" (16mm), 6 pcs) Tighten the screws removed to the hole next to upper and lower slotted hole to remove the heat sink 5) Remove the fixing screws for the box. (M5 × 0.4" (10mm), 4 pcs for right and left, 2 pcs for top) 6) Lift up the box lightly to disengage the fixing hook at the right-lower part. (The lower part of the box comes out toward you.) 7) Hold the top board with both hands to disengage the top hook.  [6,8ton] [High heat 6 ton] 4) Fixing screws for the heat sink (5 pcs)  [10-14 ton] [High heat 8,10 ton] 4) Fixing screws for the heat sink (5 pcs)  [16 ton] 4) Fixing screws for the heat sink (6 pcs)	  [6,8 ton] Wiring position [High heat 6 ton]  [10-14 ton] Wiring position [High heat 8,10 ton]  [16 ton] Wiring position

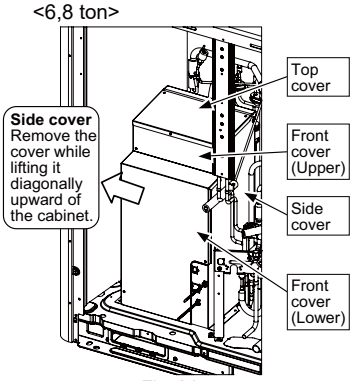
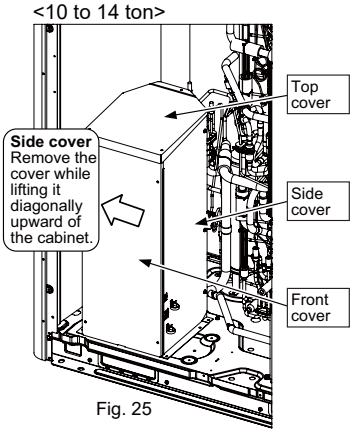
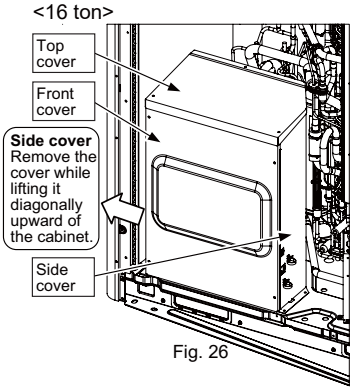
No.	Part	Work procedure	Remarks
4	Inverter assembly (continued)	**2. Attachment** 1) Carry out installation by following reverse procedure in the detachment 1) to 7). **NOTE 1** Apply thickly the heat sink grease to the refrigerant cooling heat sink and install the inverter box. Return the wires to the original state. (Application amount : 3.9 to 7.9 mil (100 to 200 μm) Heat dissipation grease (Part No. : 43167044) Silicone Thermal Grease use one the same below as PC borad. • Momentive Performance Materiais "TIG 1000" • Dow Cornig Toray "SC102" • Mizutani Electric Ind "HSC1000" • Shin-Etsu Chemical "G-746" or "G-747" **NOTE 2** 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. Tightening torque of each fixing screws. Fix the following screws with the specified tightening torque. Power supply terminal block : 1.8 to 2.2 ft•lbs (2.5 to 3.0 N•m) Earth terminal block : 4.0 to 4.9 ft•lbs (5.5 to 6.6 N•m) Signal terminal block : 0.9 to 1.0 ft•lbs (1.2 to 1.4 N•m) INV P.C.board Comp. fixing : 1.4 to 1.5 ft•lbs (1.9 to 2.1 N•m) INV P.C.board Reactor fixing : 1.4 to 1.5 ft•lbs (1.9 to 2.1 N•m) 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)  5) Fixing screws for the wire guard (2 pcs) (Equal to 6-16 ton) 6) Disengage the fixing at the lower right (Equal to 6-16 ton)  7) Lift the inverter assembly lightly to disengage the upper hook (2 pcs), and remove the inverter assembly. (Equal to 6-16 ton)  (NOTE1) Apply the the heat sink grease to the refrigerant cooling heat sink and install the inverter box.  (NOTE 2) Adjust the refrigerant cooling heat sink so that it is parallel to the heat sink on the box. Follow the size below for the space between the waterproof cover and the refrigerant cooling heat sink Top space : 0.16" (4mm) to 0.24" (6mm), Bottom space : 0.16" (4mm) to 0.24" (6mm)

No.	Part	Work procedure	Remarks
4	Waterproof cover assembly	**1. Detachment** 1) Stop the air conditioner operation, and turn off the circuit breaker. 2) Remove the inverter assembly. (Refer to the detachment for No.4 inverter assembly.) 3) Remove the binding band at the upper of the refrigerant cooling heat sink and the fixing rubber at the lower. 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. 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) 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) **NOTE** Remove the refrigerant cooling heat sink with care not to bend it. **2. Attachment** 1) Carry out installation by following reverse procedure in the detachment 1) to 5). **NOTE** 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. 1) Carry out installation by following reverse procedure in the detachment 1) to 7). **NOTE** 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  Align the heat sink with the rib at the upper-center of the fixing rubber to install the fixing rubber.  Fix the refrigerant cooling heat sink positioned along engraving of waterproof cover. 3) Remove the screws (M4) and the clamp, and remove the fixing rubber.  4) Remove the fan motor and reactor lead from the clamp. (6-14 ton : 2 pcs 16 ton : 3 pcs)  Fixing the right waterproof cover 5) Fixing screw (Red) (6 to 16 ton : 7 pcs) Hooking claw (Black : right 2 pcs) Fixing the left waterproof cover 5) Fixing screw (Blue) (6 to 14 ton : 4 pcs, 16 ton : 5 pcs) Hooking claw (Black : left 2 pcs)  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** 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) Following to works 1) to 5) in 1 of No.1 Cabinet, remove the cabinets. 3) Remove the screws for the reactor box. (M5 × 0.4" (10mm), 2 pcs) 4) Remove the top plate for reactor box. (M4 × 0.3" (8mm), 3pcs) 5) Remove the front cover for reactor box. (M4 × 0.3"(8mm), 4pcs, Hook at the left) 6) Remove the reactor. (M4 × 0.3" (8mm), 2pcs, Hook at the left)	  
		2. Attachment Carry out installation by following reverse procedure in the detachment 1) to 7). 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** 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) Following to works 1) to 5) in 1 of No.1 Cabinet, remove the cabinets. 3) Remove the fix plate. (M5 × 0.4" (10mm), 4 pcs) 4) Remove the screws for the reactor box. (M5 × 0.4" (10mm), 4 pcs) 5) Remove the top plate for reactor box. (M4 × 0.3" (8mm), 3 pcs) 6) Remove the front cover for reactor box. (M4 × 0.3" (8mm), 4 pcs) 7) Remove the reactor. (M4 × 0.3" (8mm), 2 pcs), Hook at the left)	  
		2. Attachment Carry out installation by following reverse procedure in the detachment 1) to 7). 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** 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) Following to works 1) to 5) in 1 of No.1 Cabinet, remove the cabinets. 3) Remove the screws for the fixed plate of reactor box. (M5 × 0.4" (10mm), 4 pcs) 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) 5) Remove the reactor cover. (M4 × 0.3" (8mm), 6 pcs) 6) Remove the reactor. (M4 × 0.3" (8mm), 4 pcs)	  
		2. Attachment Carry out installation by following reverse procedure in the detachment 1) to 6). Hook the hooks on each cabinet securely into the square holes in the supports. [When attaching two reactors for 16 ton] Be sure to wire the round type terminal leads to the specified reactors. Reactor 1: Wire the round type terminal lead without the black tape to the reactor 1. Reactor 2: Wire the round type terminal lead with the black tape to the reactor 2.	

No.	Part	Work procedure	Remarks
6	Compressor	**⚠ WARNING** Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. **1. Detachment** 1) Carry out work of No. 1 Cabinet and remove the compressor cover and soundproof materials. **⚠ WARNING** Be careful of burns. The compressor cover is very hot immediately after outdoor unit stops. <6,8 ton (Fig.24)> • Remove the cover in order of top, front (upper), front (lower), and side. • 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 <10 to 14 ton (Fig.25)> • Remove the cover in order of top, front (upper), front (lower), and side. • Screws for the compressor covers : M5 × 0.4" (10mm), 7 pcs * Screws for the base plate and the comp. cover : M5 × 0.4" (10mm), 5 pcs <16 ton(Fig.26)> • Remove the cover in order of top, front (upper), front (lower), and side. • Screws for the compressor covers : M5 × 0.4" (10mm), 7 pcs * Screws for the base plate and the comp. cover : M5 × 0.4" (10mm), 4 pcs * Use the ratchet tools with its length adjusted to detach 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. 3) Remove the pipes connected to the compressor in the order of oil equalizer pipe, discharge pipe, suction pipe*. * 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. 4) Remove the compressor bolts and anti-vibration take the compressor out of the unit.	<6,8 ton>  Fig. 24 <10 to 14 ton>  Fig. 25 <16 ton>  Fig. 26

<6,8 ton>

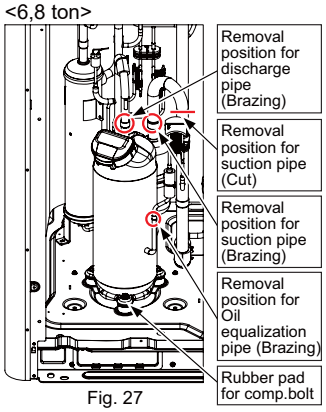


Fig. 27

<10 to 14 ton>

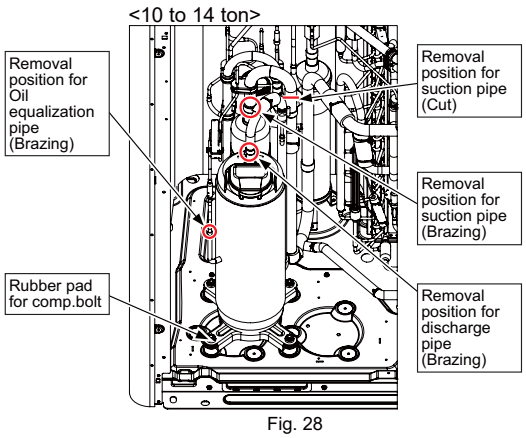


Fig. 28

<16 ton>

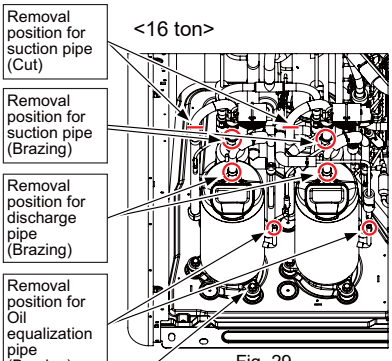
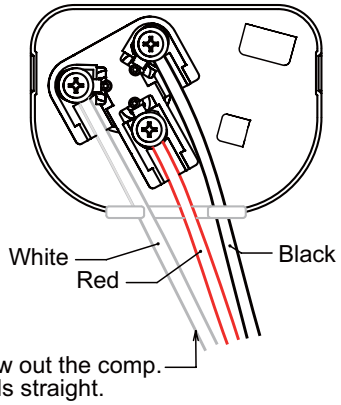


Fig. 29

No.	Part	Work procedure	Remarks
6	Compressor (continued)	**2. Attachment** 1) Carry out installation by following reverse procedure in the detachment 1) to 4). 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. * The right fig. 1 shows caution when the comp. leads are installed. • Incorporate the terminal block into the compressor. • Bend each terminal at 90°while holding the terminal block so that it does not tilt. • 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. (1) Temporary tightening the screws by your hand. (2) Tighten the screws securely with an electric screwdriver. (3) Tighten them with the specified torque using a torque wrench driver. (1.8 ft•lbs (2.5N•m)) * Do not screw the screws slantingly. Otherwise, the comp.leads may burn. • 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. • Do not apply excessive stress to the comp.leads. • Do not put the protective tubes in the terminal cover. • Note that the leads do not touch the comp. shell. 3) Wrap the soundproof material*1 around the compressor and install the compressor cover *2.(Fig. 30 to 32) *1 Wrap the soundproof material around the compressor so that its bottom is put on the legs of the compressor. *2 Install the commpressor cover so that pipes or wires around the comp. do not deform or are caught with the cover.	 [When attaching two compressors for 16 ton] Be sure to wire the comp. lead to the specified compressors. Compressor 1: Wire the longer lead to the left compressor. Compressor 2: Wire the shorter lead to the right compressor.

<6, 8 ton>

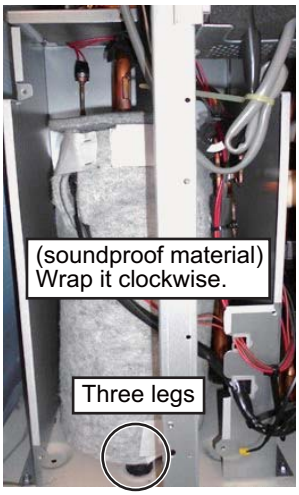


Fig. 30

<10 to 14 ton>

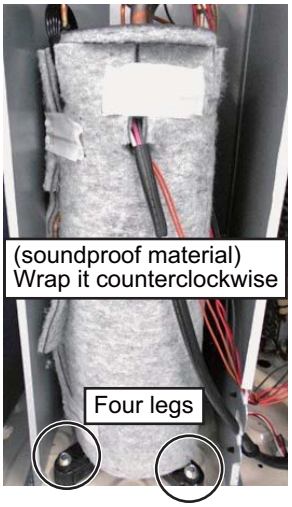


Fig. 31

<16 ton>

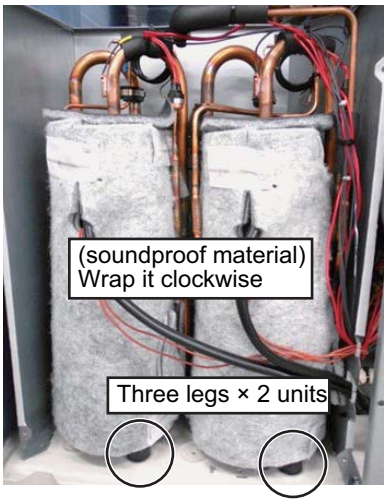
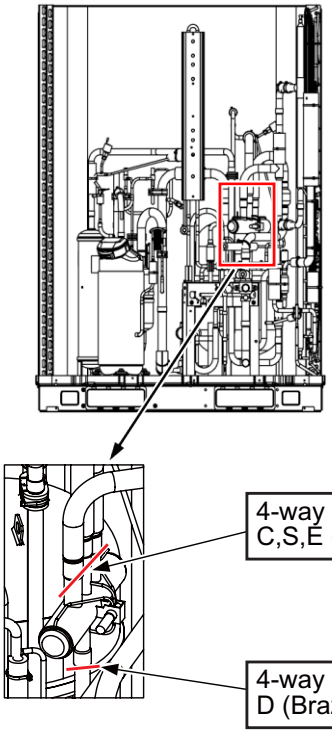
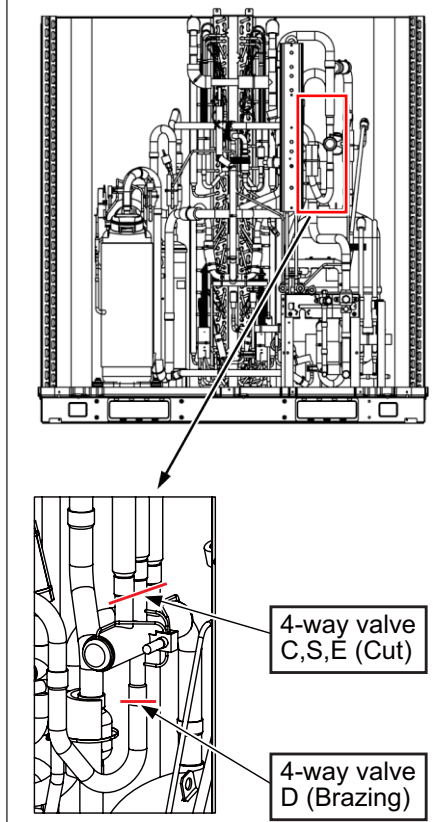
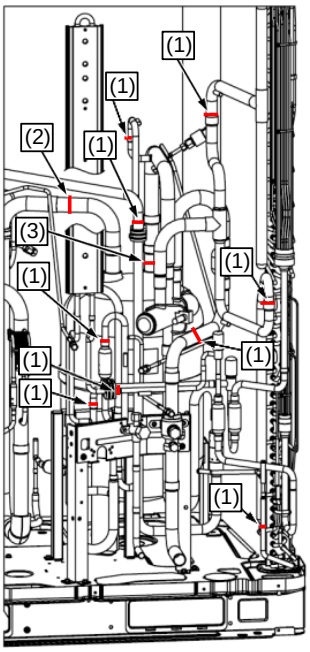
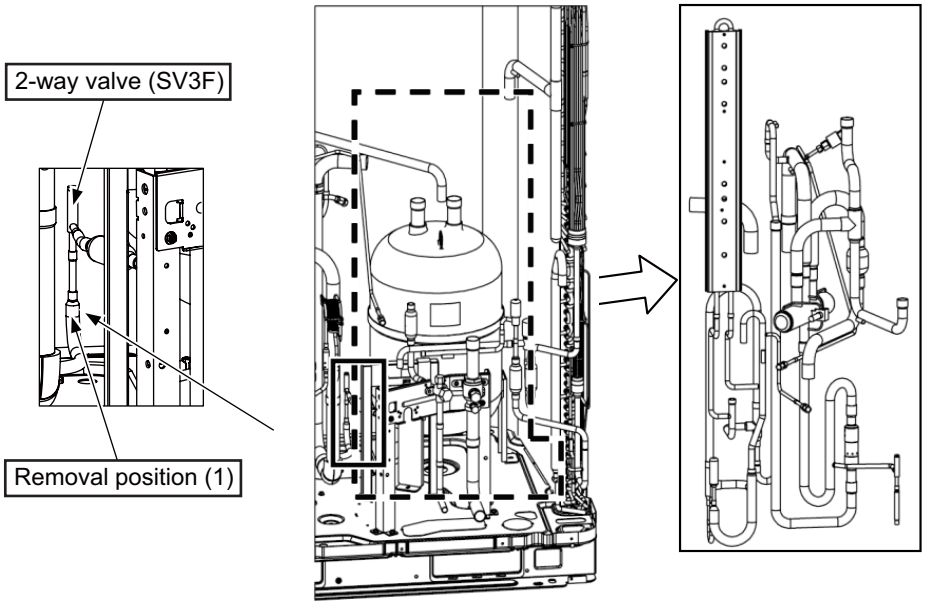
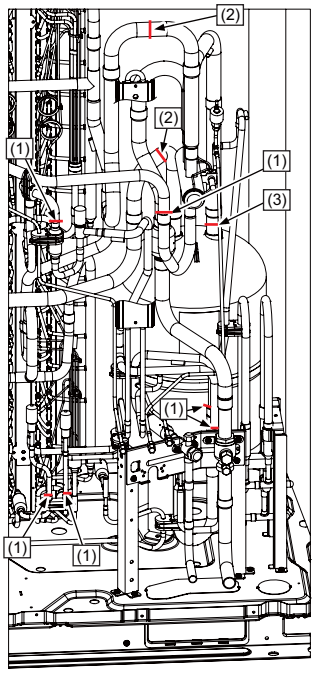
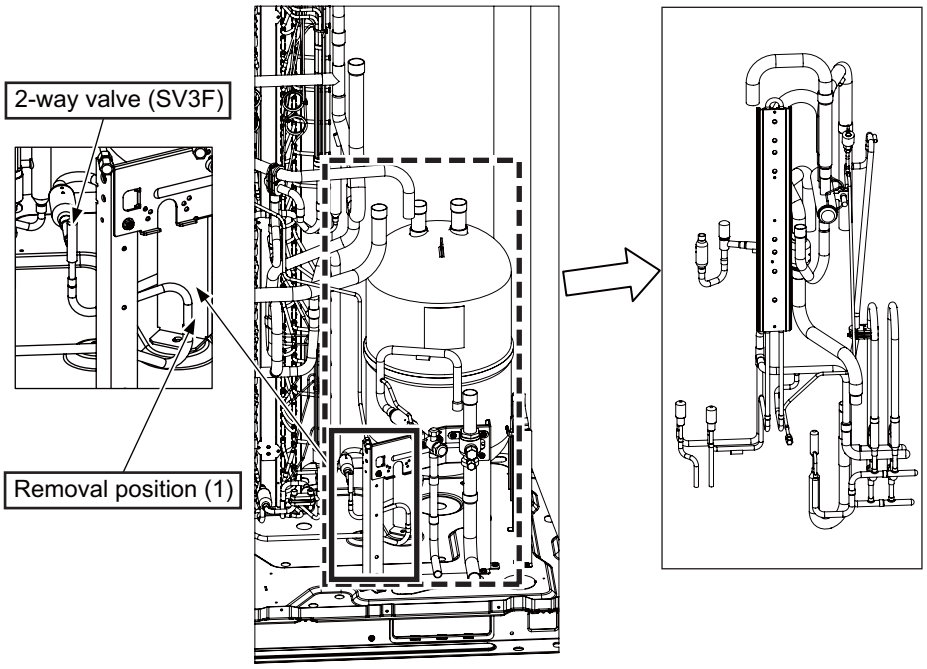


Fig. 32

No.	Part	Work procedure	Remarks
7	4-way valve - detachment/ attachment	⚠ **WARNING** Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. **1. Detachment** 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. 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. **2. Attachment** Carry out installation by following reverse procedure in the detachment 1) to 2).	<6, 8ton>  <10 to 16 ton> (Work procedure is the same as that of 6,8 ton) 

No.	Part	Work procedure	Remarks
8-1	Accumulator - detachment/ attachment <6,8 ton>	⚠ **WARNING** Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. **1. Detachment** 1) Carry out work of No. 1 Cabinet. 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. 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. * Use the pipes in service parts for installation. 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. Removing the inlet side joint of the 2-way valve (SV3F) may cause oil leak. 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. 6) Braze the 2-way valve piping to new accumulator to install the accumulator into the outdoor unit. **2. Attachment** Carry out installation by following reverse procedure in the detachment 1) to 4).	 **Space after the pipes are removed at 3)** **Pipes to be removed at 3)** 

No.	Part	Work procedure	Remarks
8-2	Accumulator - detachment/ attachment <10 to 16 ton>	**1. Detachment** 1) Carry out work of No. 1 Cabinet. 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. 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. * Use the pipes in service parts for installation. * Accesarry specifications of the discharge pipe differ at 10 to 14 ton and 16 ton Check the service part table. 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. Removing the inlet side joint of the 2-way valve (SV3F) may cause oil leak. 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. 6) Braze the 2-way valve piping to a new accumulator to install the accumulator into the outdoor unit.  **Space after the pipes are removed at 3)** **Pipes to be removed at 3)**  **2. Attachment** 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)

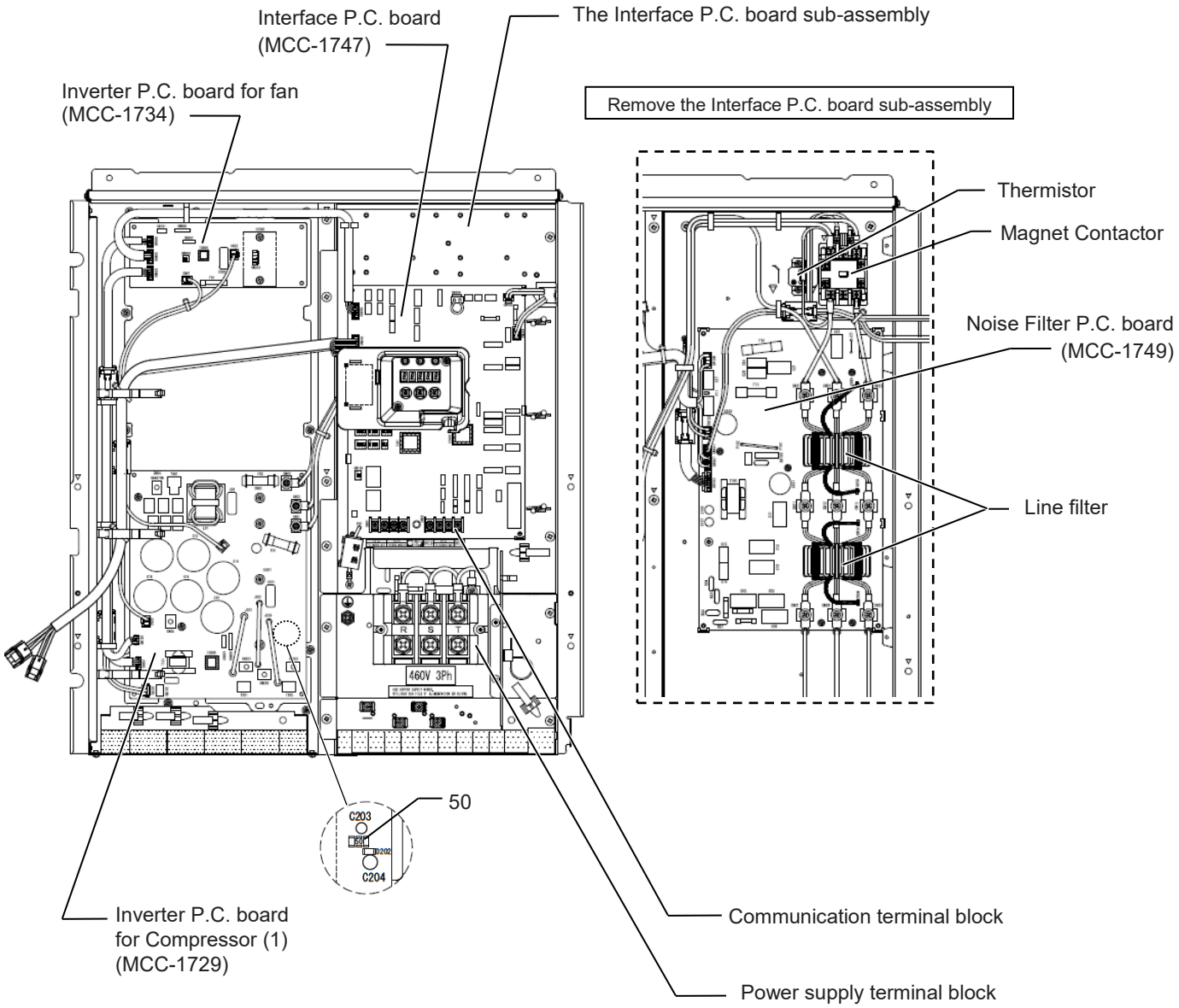
Parts code	Description	Applicable model	Parts	Product code	Specifications
43T60440	Power supply terminal block	MMY-MUP0721HT6* MMY-MUP0961HT6* MMY-MUP072H1HT6*	—	TERMINAL (100A)	AC600V/100A, 3P
43TN9878	Noise Filter P.C. board		MCC-1749	S-ASM-PCB (N/F)	—
43T55397	Line filter		—	LINE-FILTER	0.9mH/AC460V/50A
43TN9879	Interface P.C. board		MCC-1747	S-ASM-PCB (I/F)	—
43TN9880	Inverter P.C. board for Compressor (1)		MCC-1729	S-ASM-PCB (COMP)	50A
43T6W894	Inverter P.C. board for fan		MCC-1734	S-ASM-PCB (FAN)	—
43T52321	Magnet Contactor		FC-1SUL	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-MUP1201HT6* MMY-MUP1441HT6* MMY-MUP1681HT6* MMY-MUP096H1HT6* MMY-MUP120H1HT6*	—	TERMINAL (100A)	AC600V/100A, 3P
43TN9878	Noise Filter P.C. board		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)	—
43TN9881	Inverter P.C. board for Compressor (2)		MCC-1729	S-ASM-PCB (COMP)	75A
43T6W894	Inverter P.C. board for fan		MCC-1734	S-ASM-PCB (FAN)	—
43T52321	Magnet Contactor		FC-1SUL	MAG-CONTACTOR	—
43T50345	PTC Thermistor		MZ32-101R	THERMISTOR (PTC)	13A/AC500V

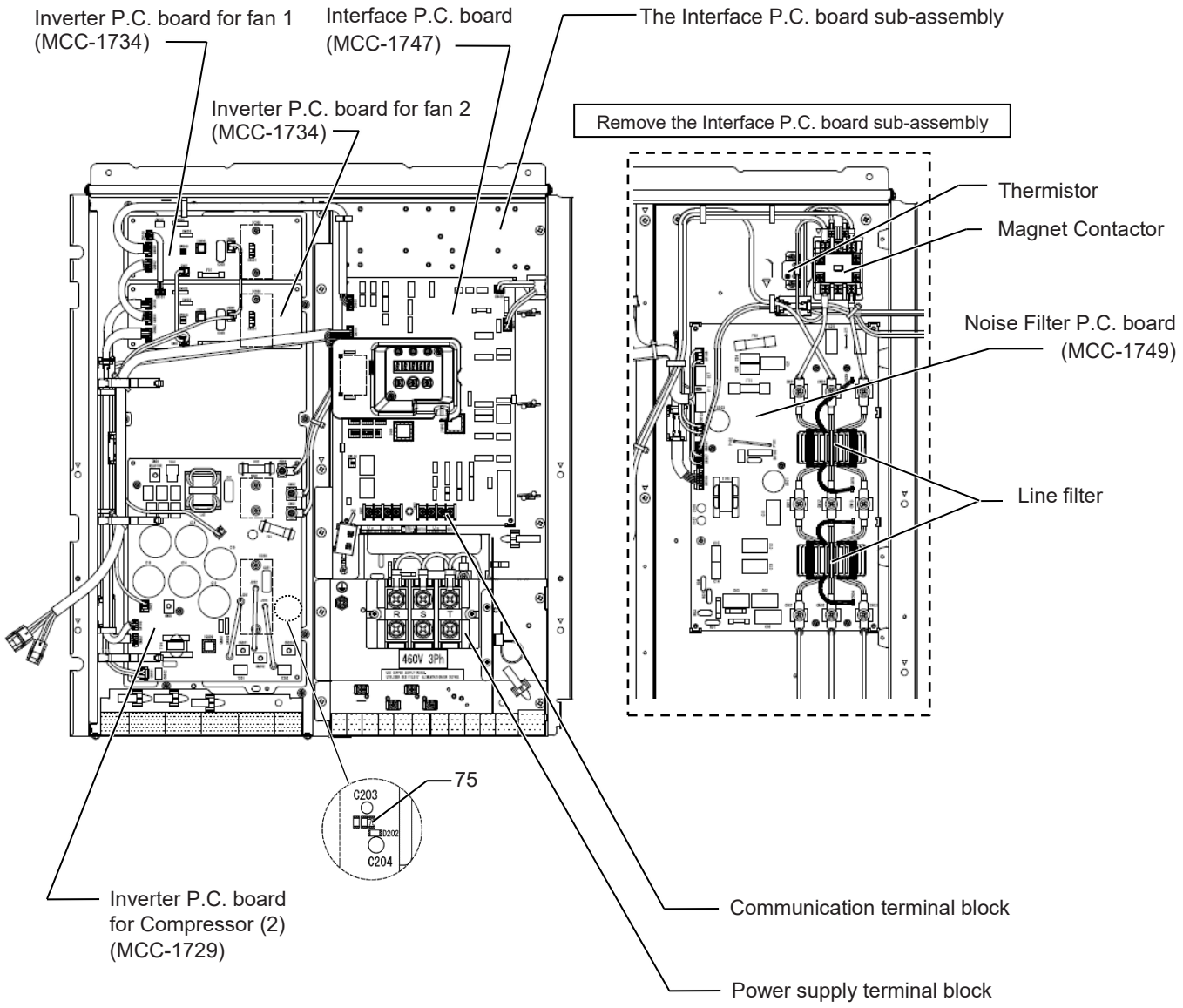
Parts code	Description	Applicable model	Parts	Product code	Specifications
43T60440	Power supply terminal block	MMY-MUP1921HT6*	—	TERMINAL (100A)	AC600V/100A, 3P
43TN9878	Noise Filter P.C. board		MCC-1749	S-ASM-PCB (N/F)	—
43T55397	Line filter		—	LINE-FILTER	0.9mH/AC460V/50A
43TN9879	Interface P.C. board		MCC-1747	S-ASM-PCB (I/F)	—
43TN9880	Inverter P.C. board for Compressor (1)		MCC-1729	S-ASM-PCB (COMP)	50A
43T6W894	Inverter P.C. board for fan		MCC-1734	S-ASM-PCB (FAN)	—
43T52321	Magnet Contactor		FC-1SUL	MAG-CONTACTOR	—
43T50345	PTC Thermistor		MZ32-101R	THERMISTOR (PTC)	13A/AC500V

13-1-2. Configuration of inverter assembly

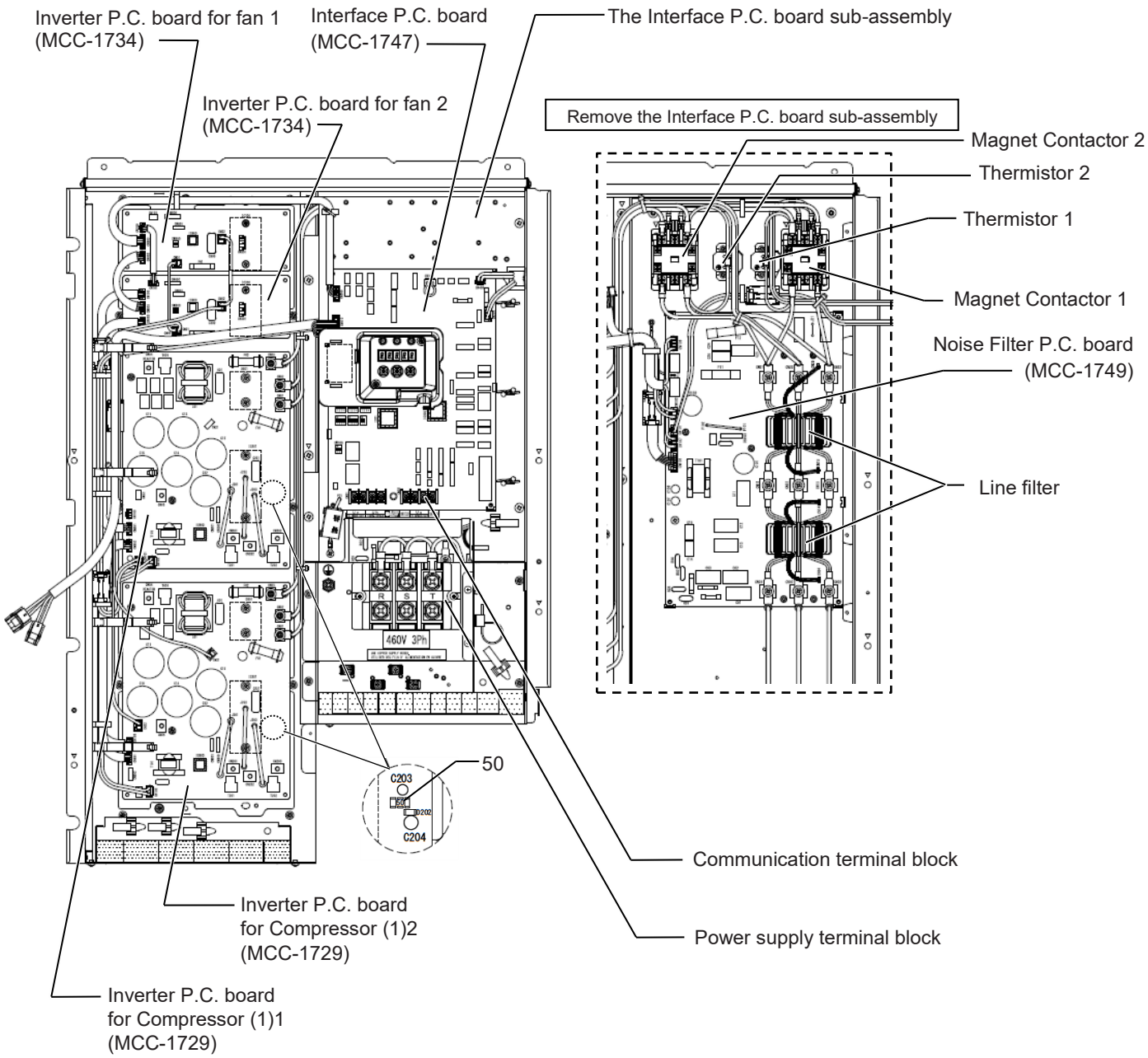
MMY-MUP0721HT6*
MMY-MUP0961HT6*
MMY-MUP072H1HT6*



MMY-MUP1201HT6*
MMY-MUP1441HT6*
MMY-MUP1681HT6*
MMY-MUP096H1HT6*
MMY-MUP120H1HT6*



MMY-MUP1921HT6*



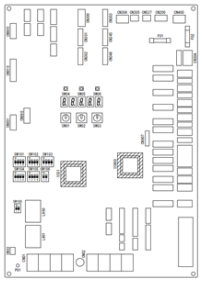
13-1-3. Interface P.C. Board (MCC-1747) Replacement Procedure

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.

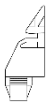
Included items:

①MCC-1747 : 1pcs



②Spacer : 4pcs

③Spacer : 2pcs

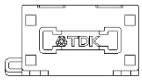


④Support : 1pcs

⑤Bush : 3pcs

⑥Short Connector : 1pcs

⑦Clamp filter：1pcs



Replacement steps:

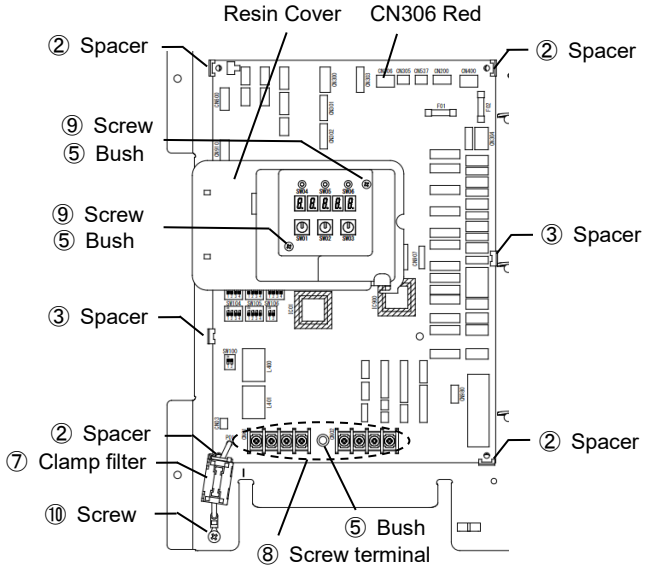
(1) Turn off the power supply of the outdoor unit and wait at least 5 minutes for the capacitor to discharge.

(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.)

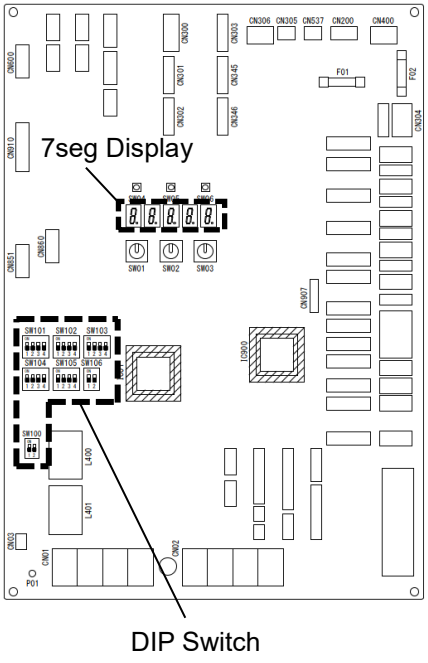
(3) Remove 3 screws(⑨:2pcs, ⑩:1pcs). (These screws are to be re-used after procedure.)

(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.

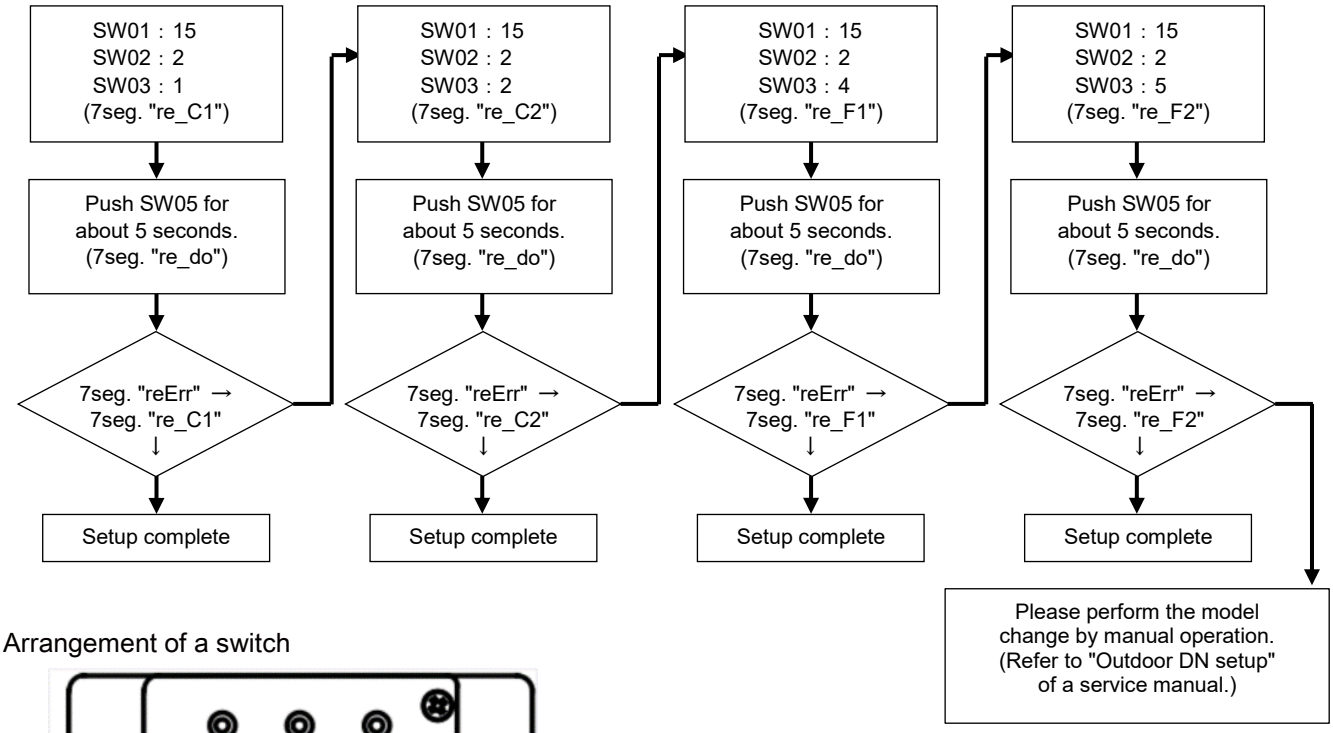
(11) If a component on the P.C. board is bent during board replacement, adjust it manually ensuring that it is not short or contact other parts.

(12) Install the cover, then turn on the power supply.

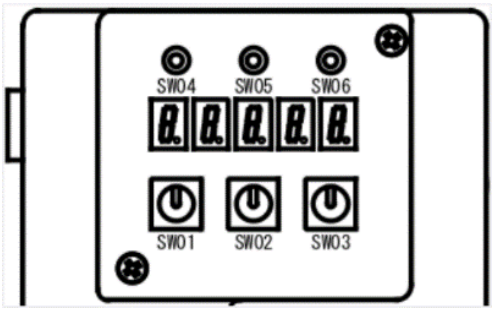
(13) “L10: Outdoor capacity not set” check code is displayed on the 7-segment display.

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

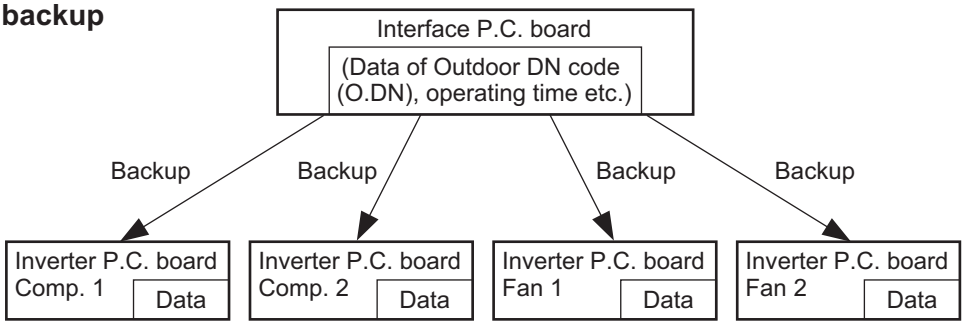


(14) Set SW01 : 1, SW02 : 1, SW03 : 1. Check the operation.

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.

Data backup



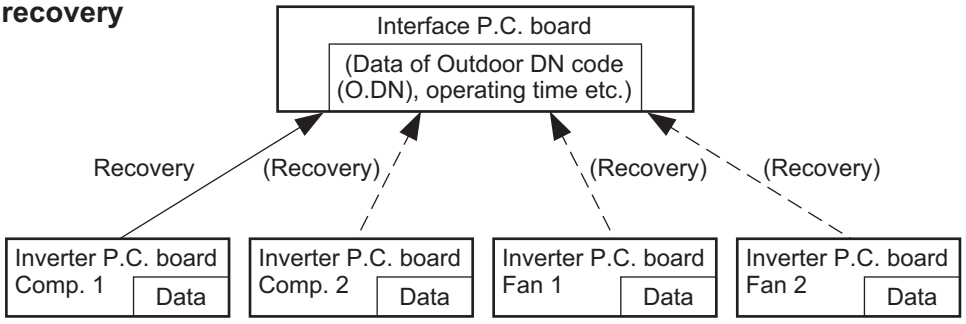
2) Data backup will be performed under one of the following conditions.
   - Every hour after power on (when the compressor is stopped)
   - When the outdoor DN code (O.DN) has been changed
     Caution should be taken, since the old data for the Inverter P.C. board will be overwritten.
3) The same backup data will be saved on each inverter P.C. board
4) 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) 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.

Data recovery



* Recovery is done if recovery is successful from either of the Inverter O.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-MUP0721HT6P-UL	0006
MMY-MUP0961HT6P-UL	0007
MMY-MUP1201HT6P-UL	0008
MMY-MUP1441HT6P-UL	0009
MMY-MUP1681HT6P-UL	0010
MMY-MUP1921HT6P-UL	0011
MMY-MUP072H1HT6PUL	0015
MMY-MUP096H1HT6PUL	0016
MMY-MUP120H1HT6PUL	0017

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

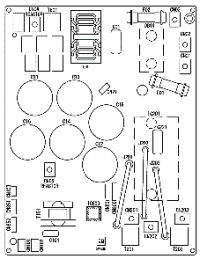
13-1-4. Compressor P.C. Board (MCC-1729) Replacement Procedure

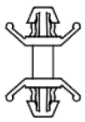
Target model 43TN9880: MMY-MUP0721HT6*/ 0961HT6*/ 072H1HT6*/ MMY-MUP1921HT6*
43TN9881: MMY-MUP1201HT6*/1441HT6*/1681HT6*/096H1HT6*/120H1HT6*

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-1729 : 1pcs ② Spacer : 4pcs ③ Bush : 2pcs ④ Collar : 2pcs





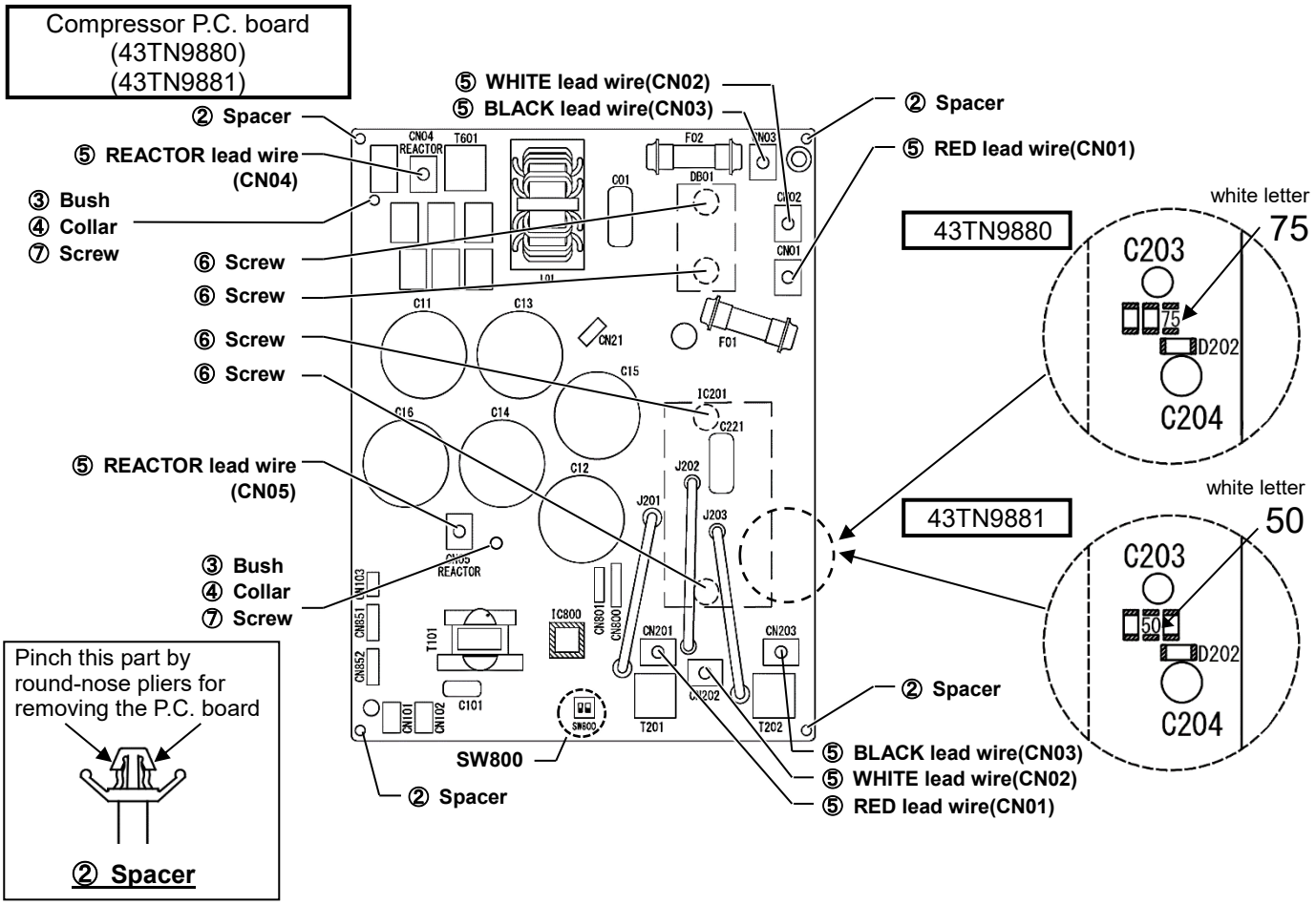
Replacement Steps:

(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 and screw terminals(⑤ : 8pcs) which were connected to the Compressor P.C. board. (Remove the connectors by pulling the connector body. Do not pull the wire.)

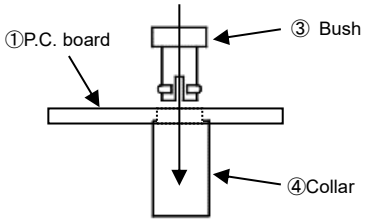
(3) Remove 6 screws(⑥ : 4pcs, ⑦ : 2pcs).
(These screws are to be re-used after procedure.)

(4) Remove the P.C. board from the 4 spacers (②) by round-nose pliers.

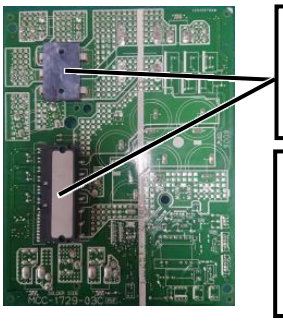


(5) Set the DIP switch (SW800) settings of the service board to match as before replacement.

(6) xchange spacers (②) and attach collars(④) and bushes(③) to the service P.C. board(①).



(7) Apply the Silicone Thermal Grease to the semiconductors (DB01, IC201) on the service P.C. board, and align the positions of the heat sink holes to mount the Compressor P.C. board on the outdoor control unit. And fix the Compressor 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) and rectifier (DB01).
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’’
・Dow Cornig Toray ‘’SC102’’
・Mizutani Electric Ind ‘’HSC1000’’
・Shin-Etsu Chemical ‘’G-746’’ or ‘’G-747’’

(8) Screw the Compressor P.C. board to the heat sink by the 6 screws (⑥, ⑦) 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.

(9) Re-connect the connectors and screw terminals (⑤). Be sure that all the connectors and the screw terminals are connected correctly and securely inserted.

The torque of the screws

⑤	Screw terminal	M5 x 0.4" (10mm)	1.48 ft•lbs (2.0 N•m)
⑥	DB01, Q201	M4 x 0.6" (15mm)	0.89 ft•lbs (1.2 N•m)
⑦	collar and bush	M3 x 0.98" (25mm)	0.44 ft•lbs (0.6 N•m)

(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.

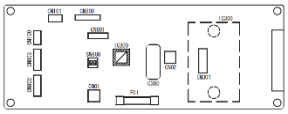
13-1-5. Fan-Motor P.C. Board (MCC-1734) Replacement Procedure

Target model　43T6W894: 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:

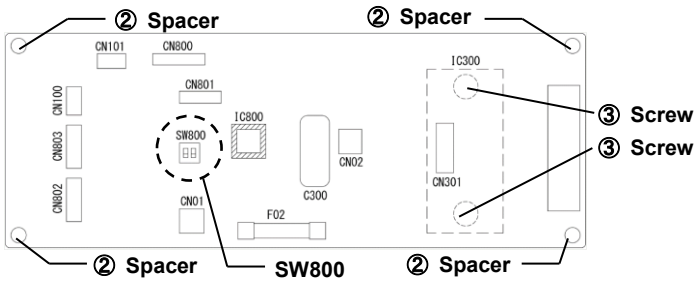
① MCC-1734 : 1pcs



② Spacer : 4pcs

Replacement steps:

Fan-motor P.C. board (43T6W894)



(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.)

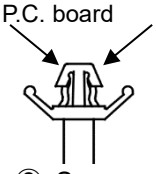
(3) R　ove 2 screws(③).
(These screws are to be re-used after procedure.)

(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).

Pinch this part by round-nose pliers for removing the P.C. board



② Spacer

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.

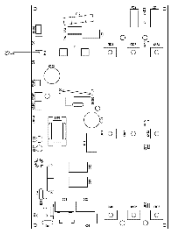
(10) Install the cover, then turn on the supply. Check the operation.

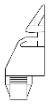
13-1-6. Noise Filter P.C. Board (MCC-1749) Replacement Procedure

Target model 43TN9878: ALL model

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), screw terminals(⑦ : 9pcs), Line-Filter which were connected to the Noise Filter P.C. board. (Remove the connectors by pulling the connector body. Do not pull the wire.)

(3) Remove 8 screws(⑤ : 6pcs, ⑥ : 2pcs). (These screws are to be re-used after procedure.)

(4) Remove the P.C. board from 6 spacers (②:4pcs, ③:2pcs).

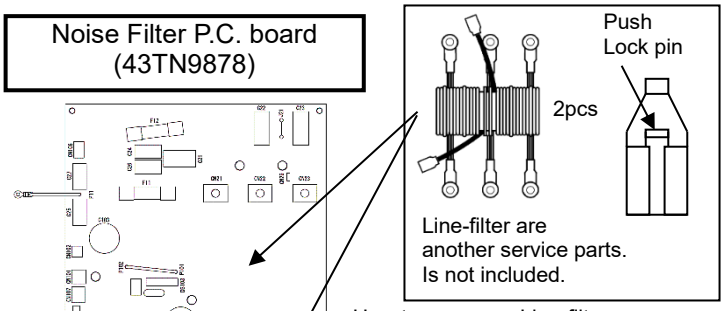
(5) Using new spacers(②, ③), bushes(④), attach the service board.

(6) Screw the Noise Filter P.C. board by 8 screws (⑤, ⑥) that were removed in step (3).

(7) 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.

(8) 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.

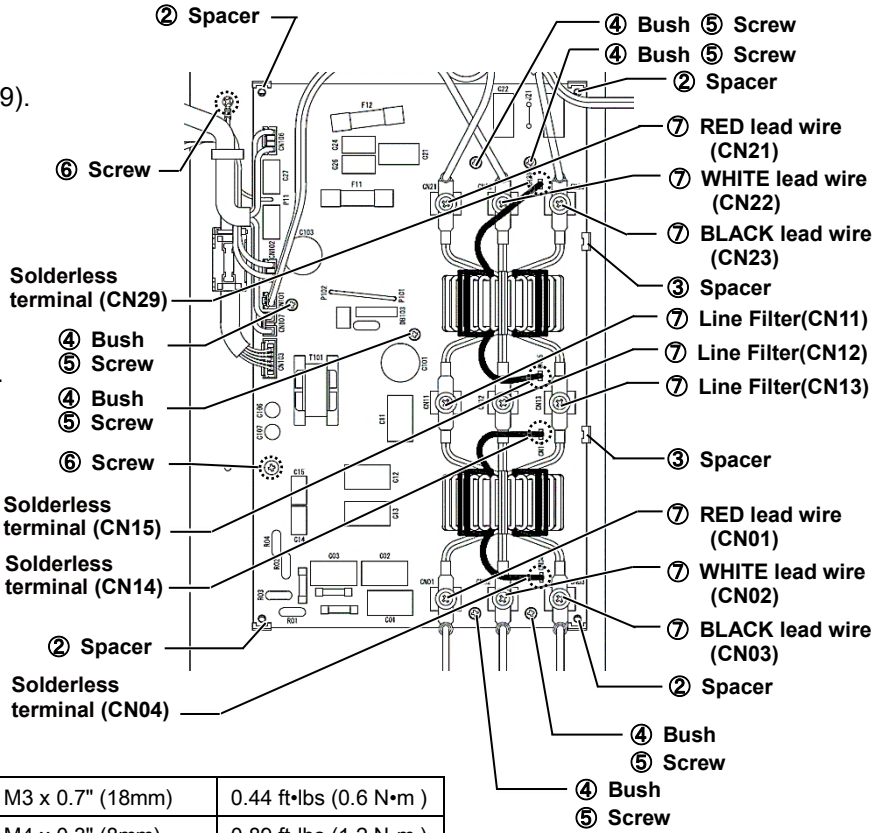
(9) Install the cover, then turn on the supply. Check the operation.



How to remove a Line-filter

a) Remove the solderless terminal tabs. (CN05, 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.



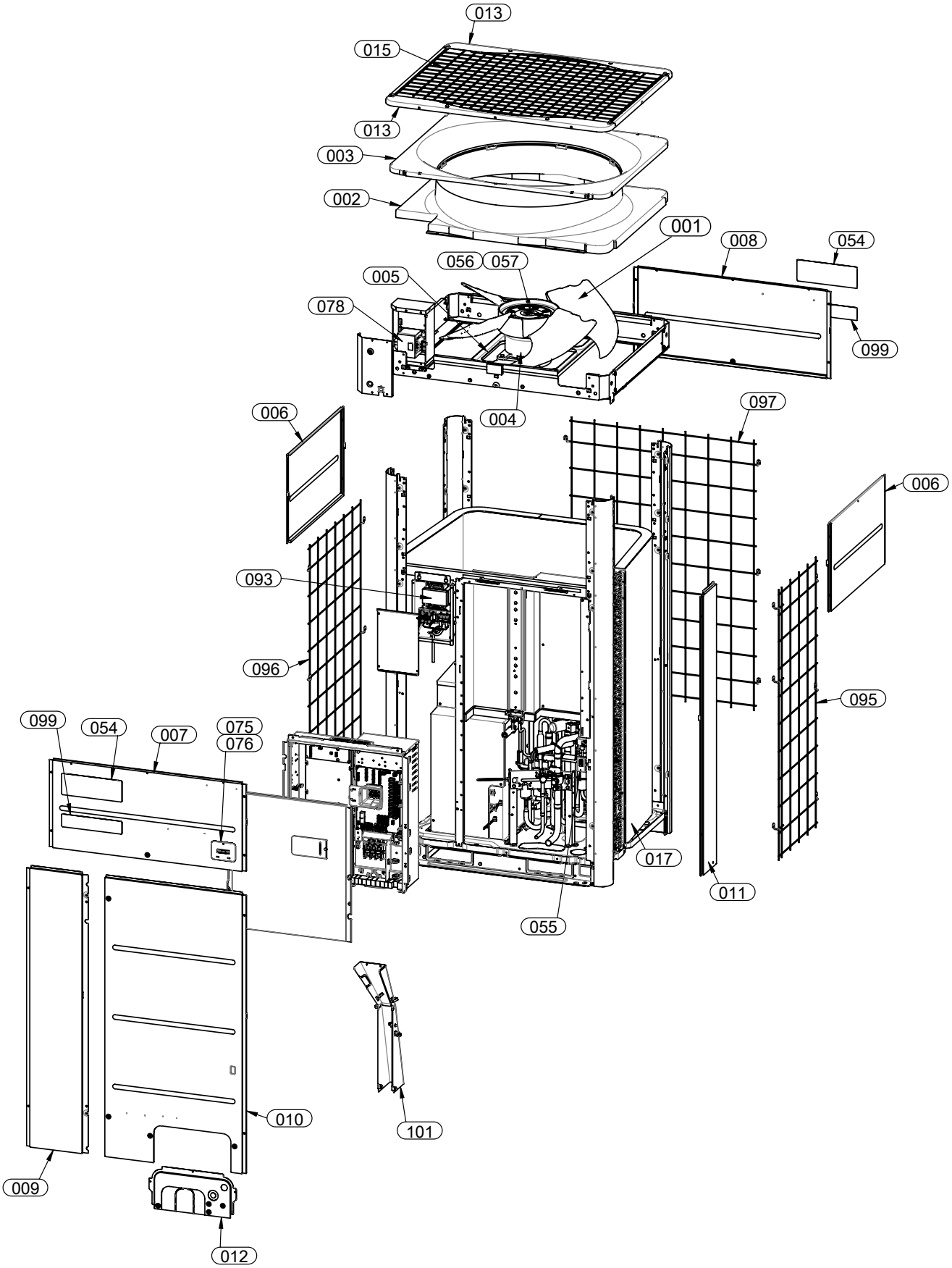
The torque of the screws

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)	1.8 ft•lbs (2.5 N•m)

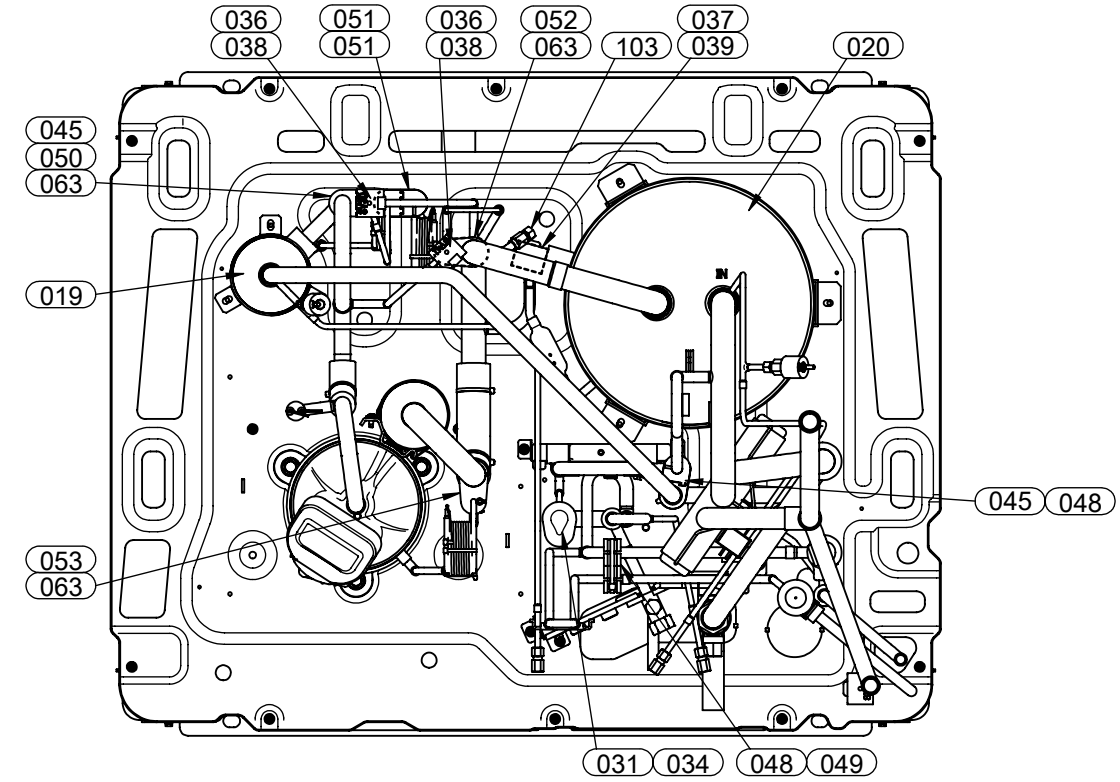
14. EXPLODED DIAGRAM/PARTS LIST

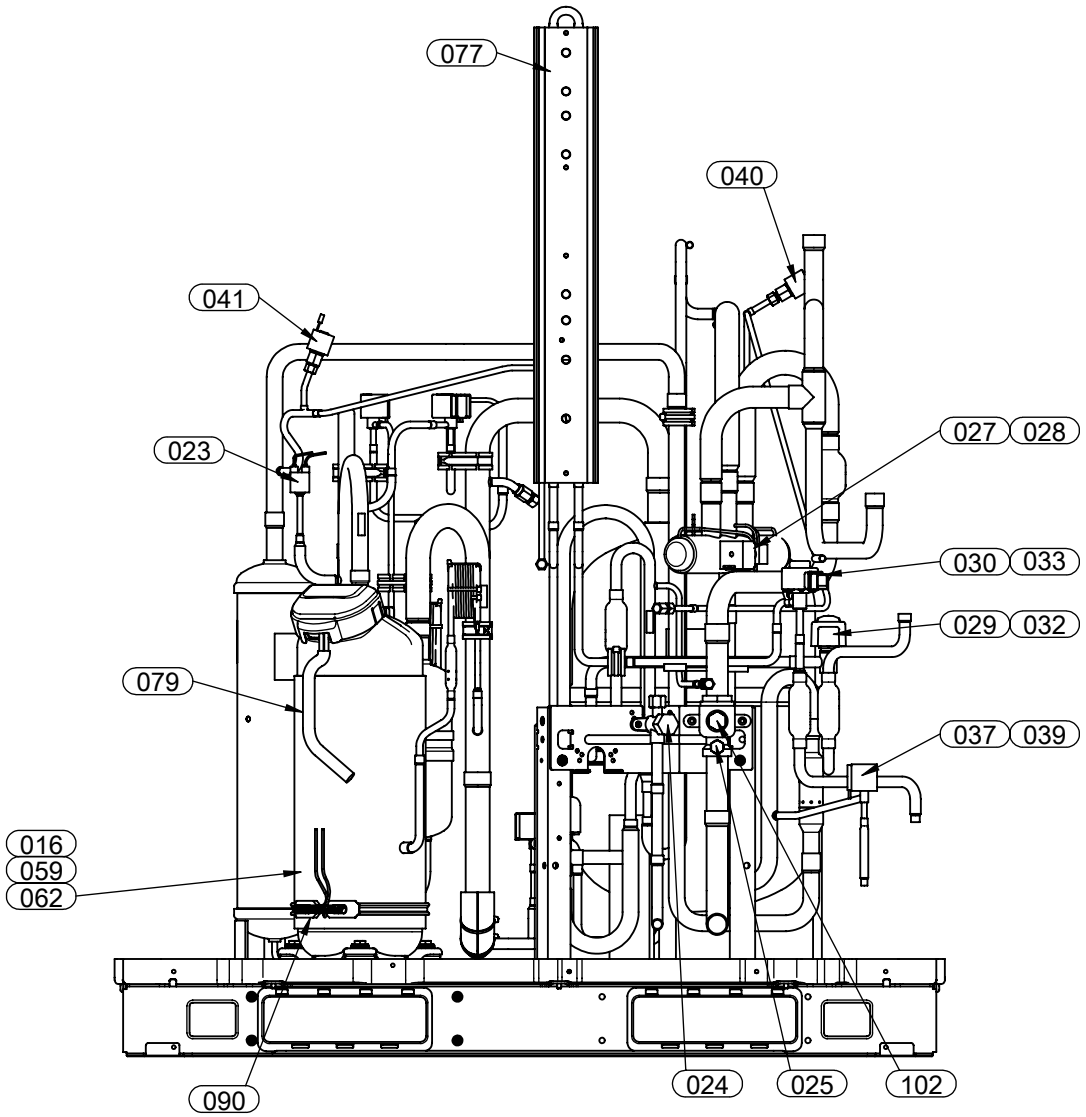
14-1. Outdoor unit (6 ton, 8 ton)

MMY-MUP0721HT6P-UL
MMY-MUP0961HT6P-UL

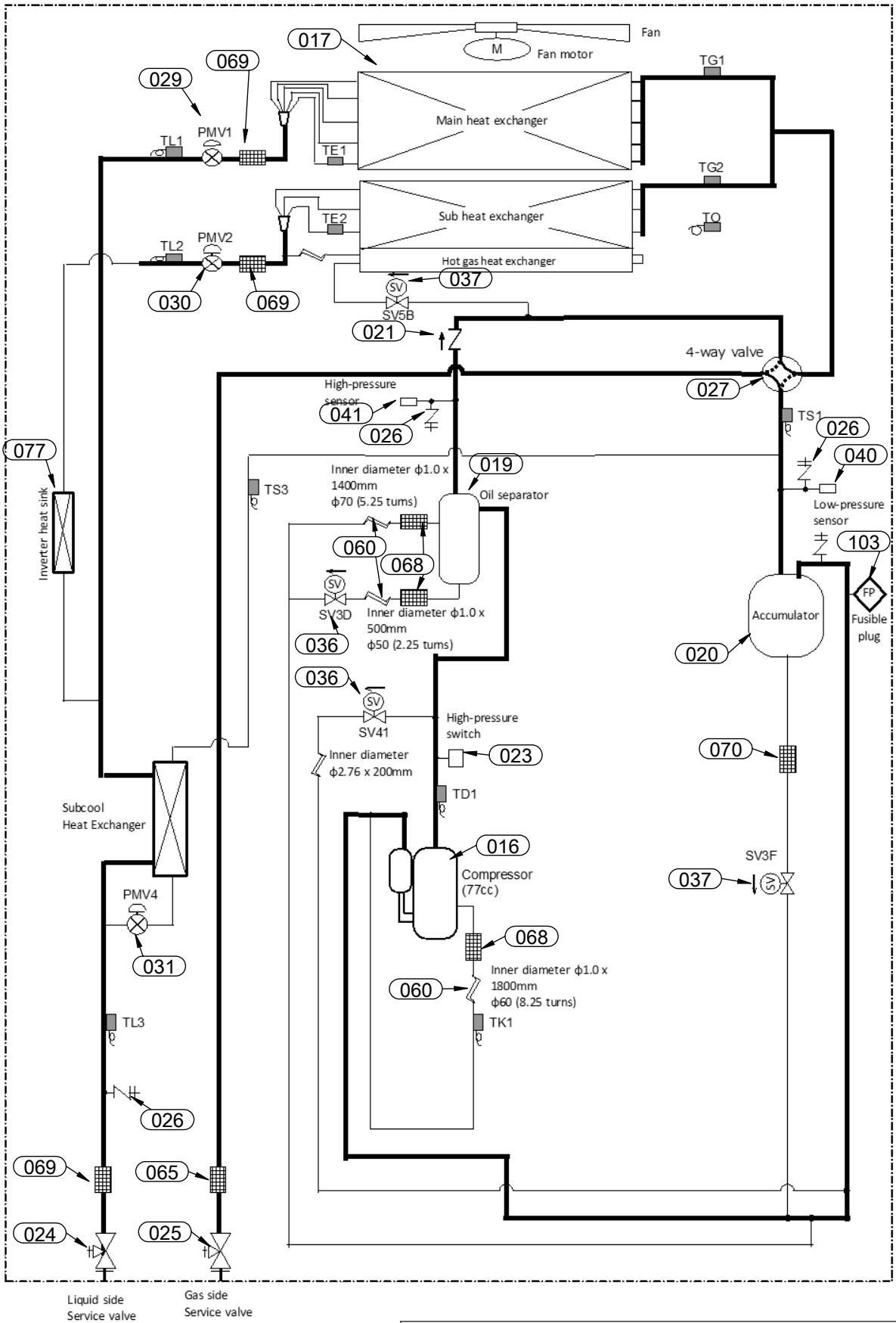


Outdoor unit (6ton, 8ton)
MMY-MUP0721HT6P-UL
MMY-MUP0961HT6P-UL





Outdoor unit (6ton, 8ton)
MMY-MUP0721HT6P-UL
MMY-MUP0961HT6P-UL

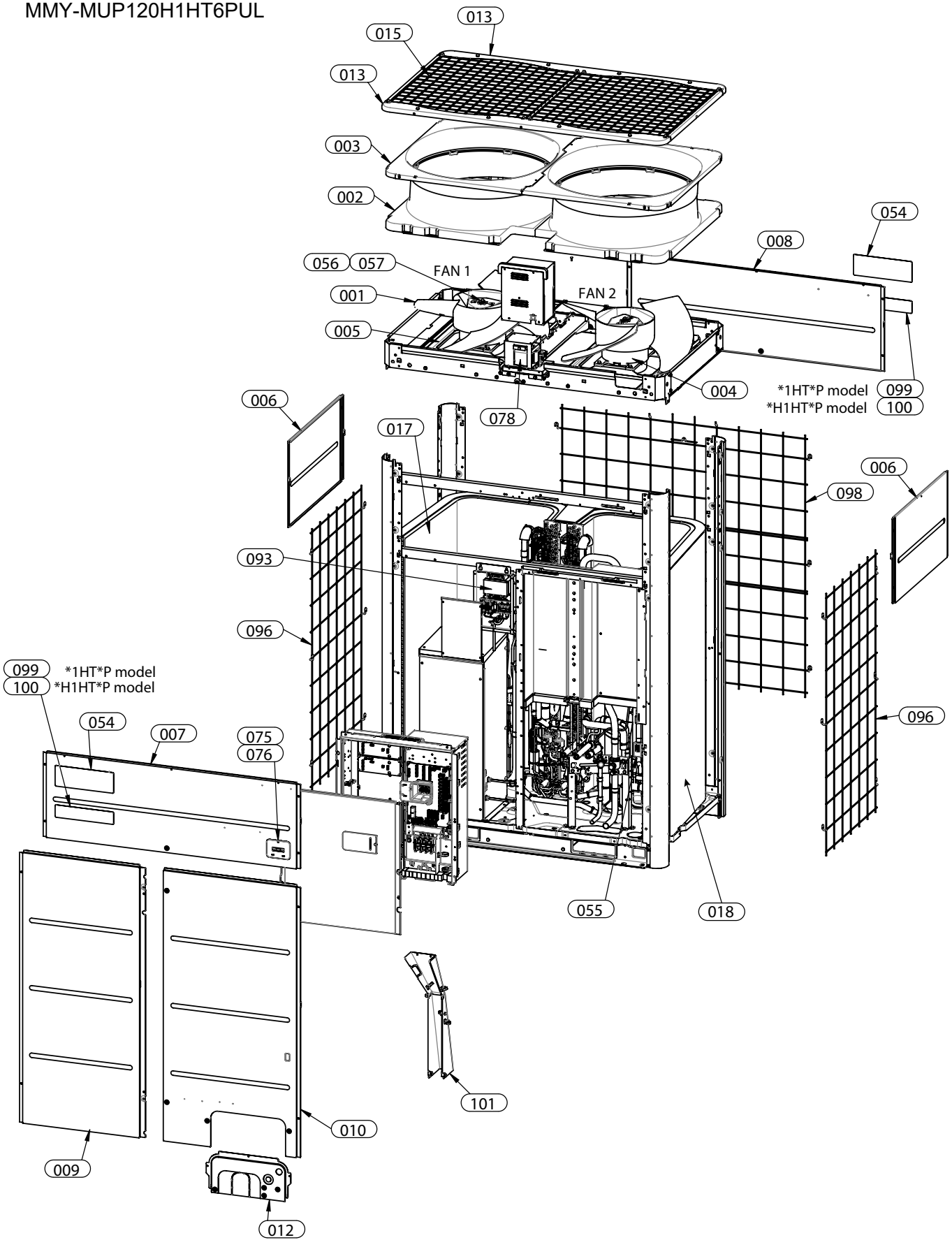


Symbol						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

14-2. Outdoor unit (10 ton to 14 ton)

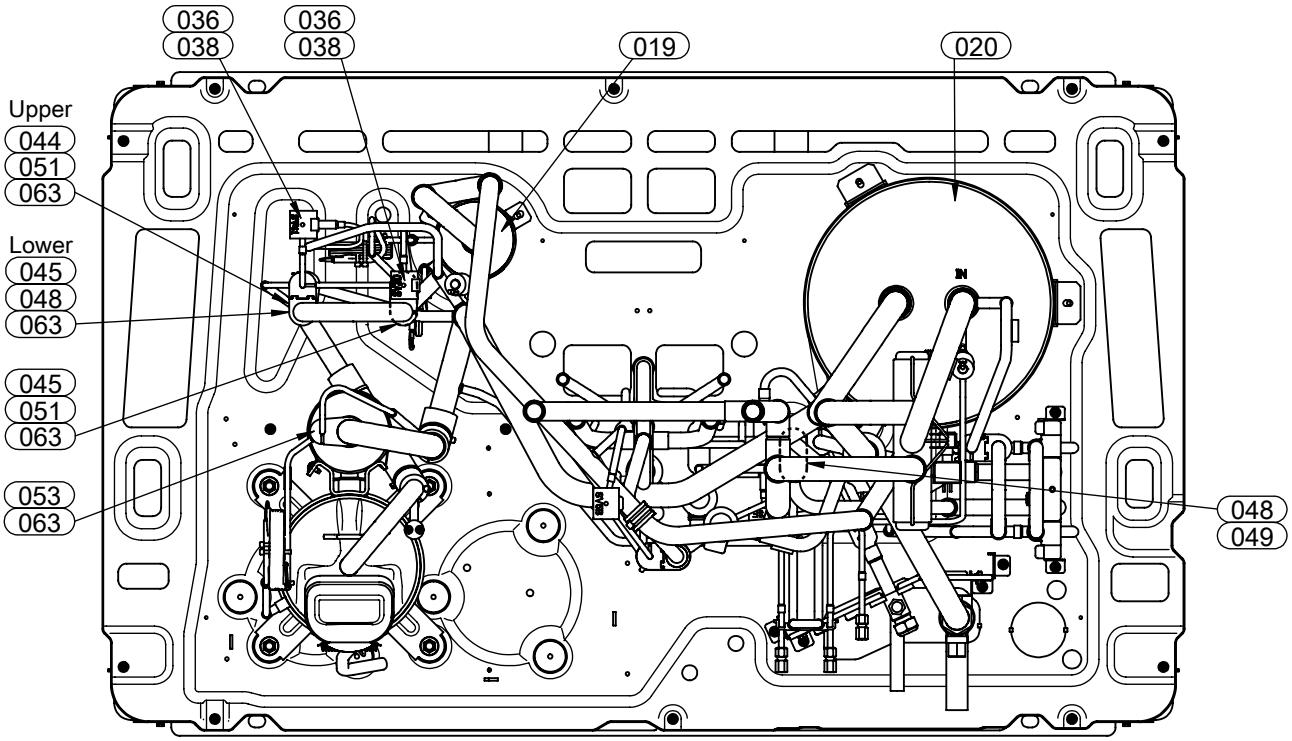
Outdoor unit (10ton, 12ton, 14ton)
MMY-MUP1201HT6P-UL
MMY-MUP1441HT6P-UL
MMY-MUP1681HT6P-UL

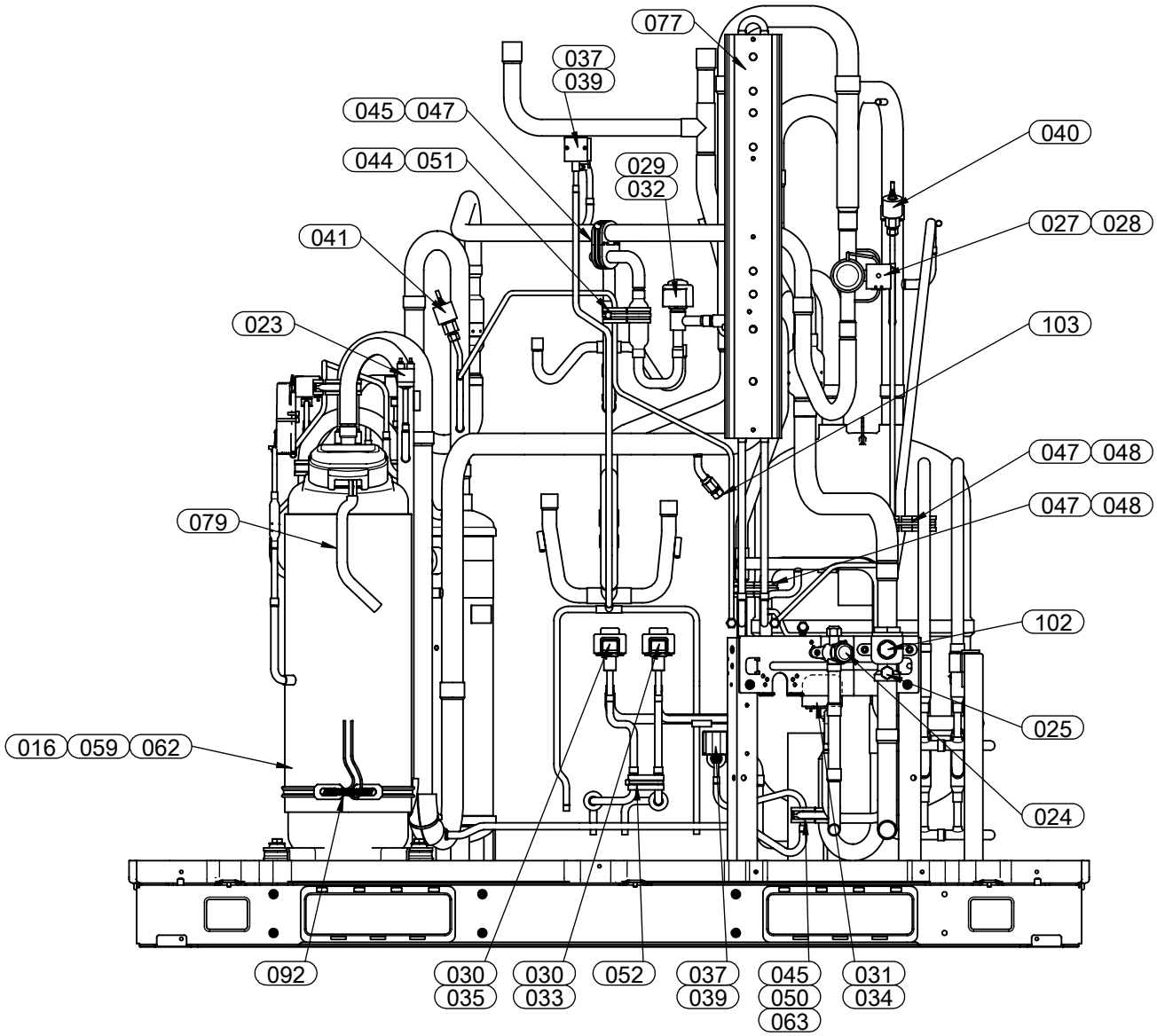
Outdoor unit (High heat 8ton, 10ton)
MMY-MUP096H1HT6PUL
MMY-MUP120H1HT6PUL



Outdoor unit (10ton, 12ton, 14ton)
MMY-MUP1201HT6P-UL
MMY-MUP1441HT6P-UL
MMY-MUP1681HT6P-UL

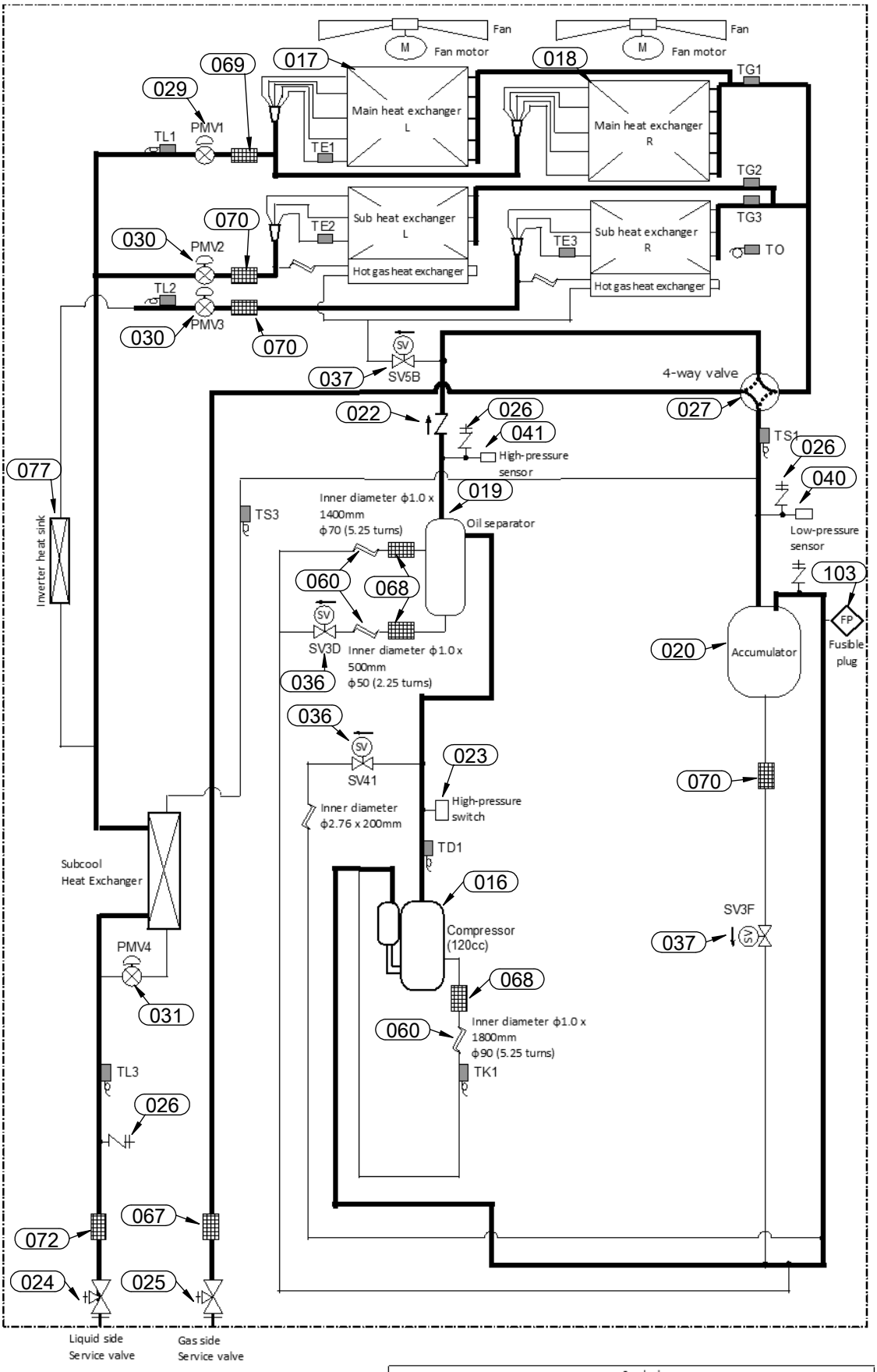
Outdoor unit (High heat 8ton, 10ton)
MMY-MUP096H1HT6PUL
MMY-MUP120H1HT6PUL





Outdoor unit (10ton, 12ton, 14ton)
MMY-MUP1201HT*
MMY-MUP1441HT*
MMY-MUP1681HT*

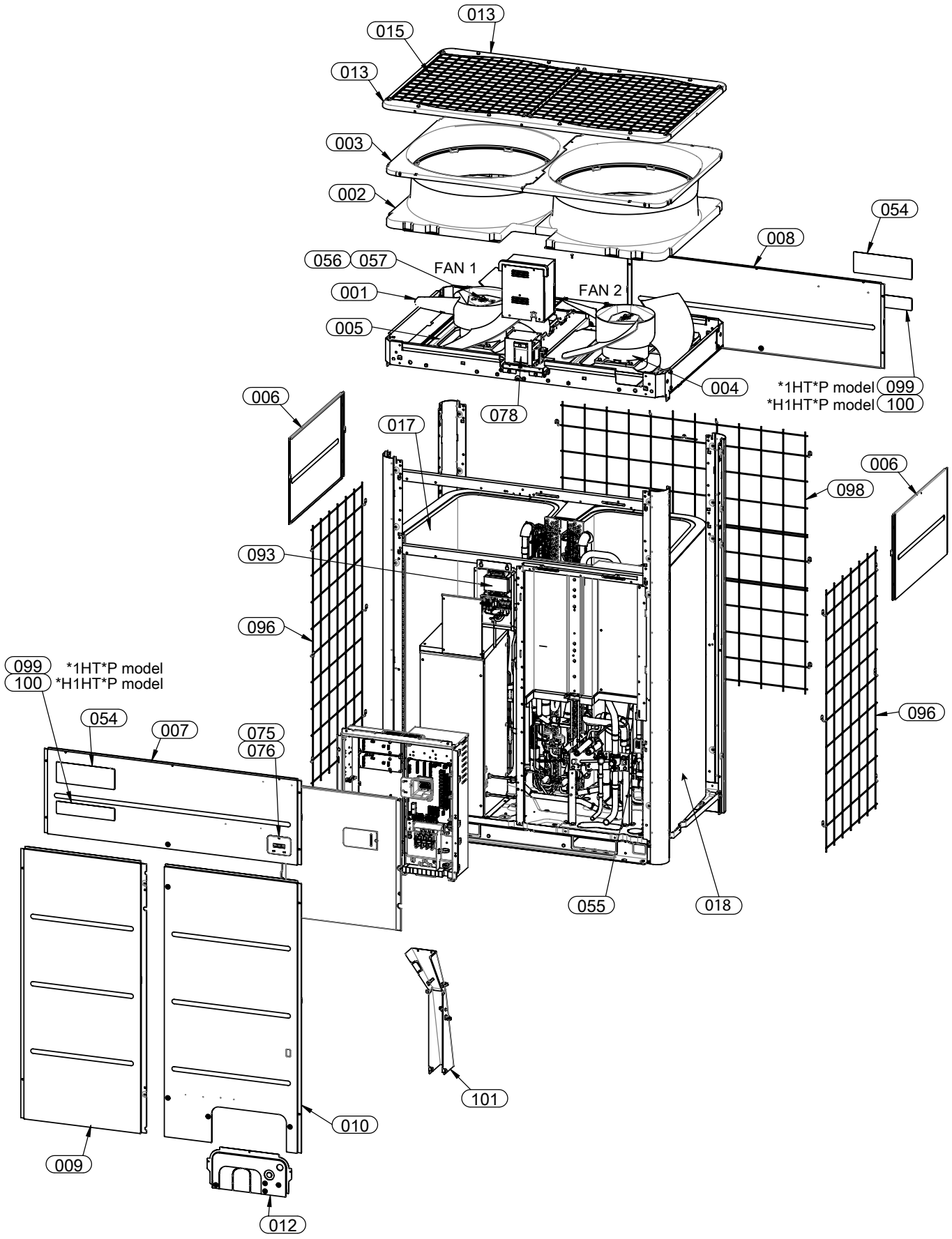
Outdoor unit (High heat 8ton, 10ton)
MMY-MUP096H1HT*
MMY-MUP120H1HT*



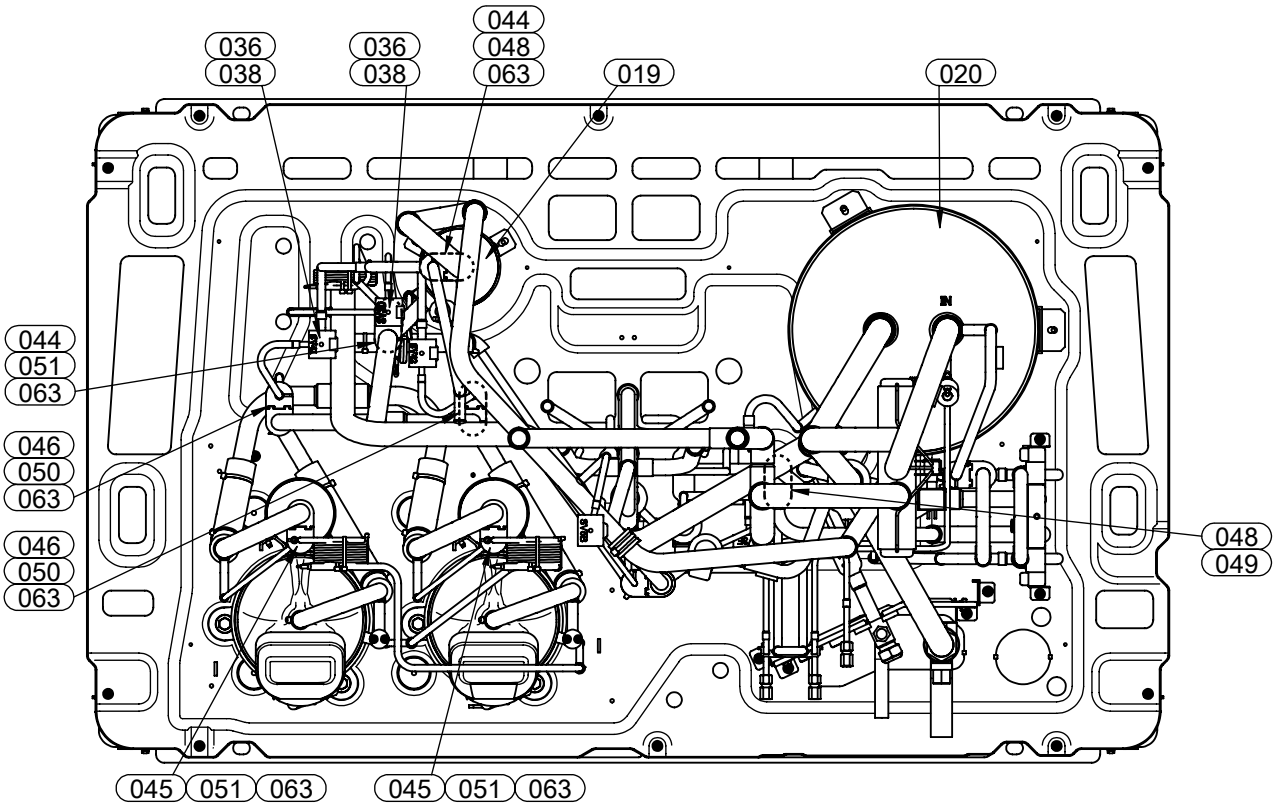
Symbol						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

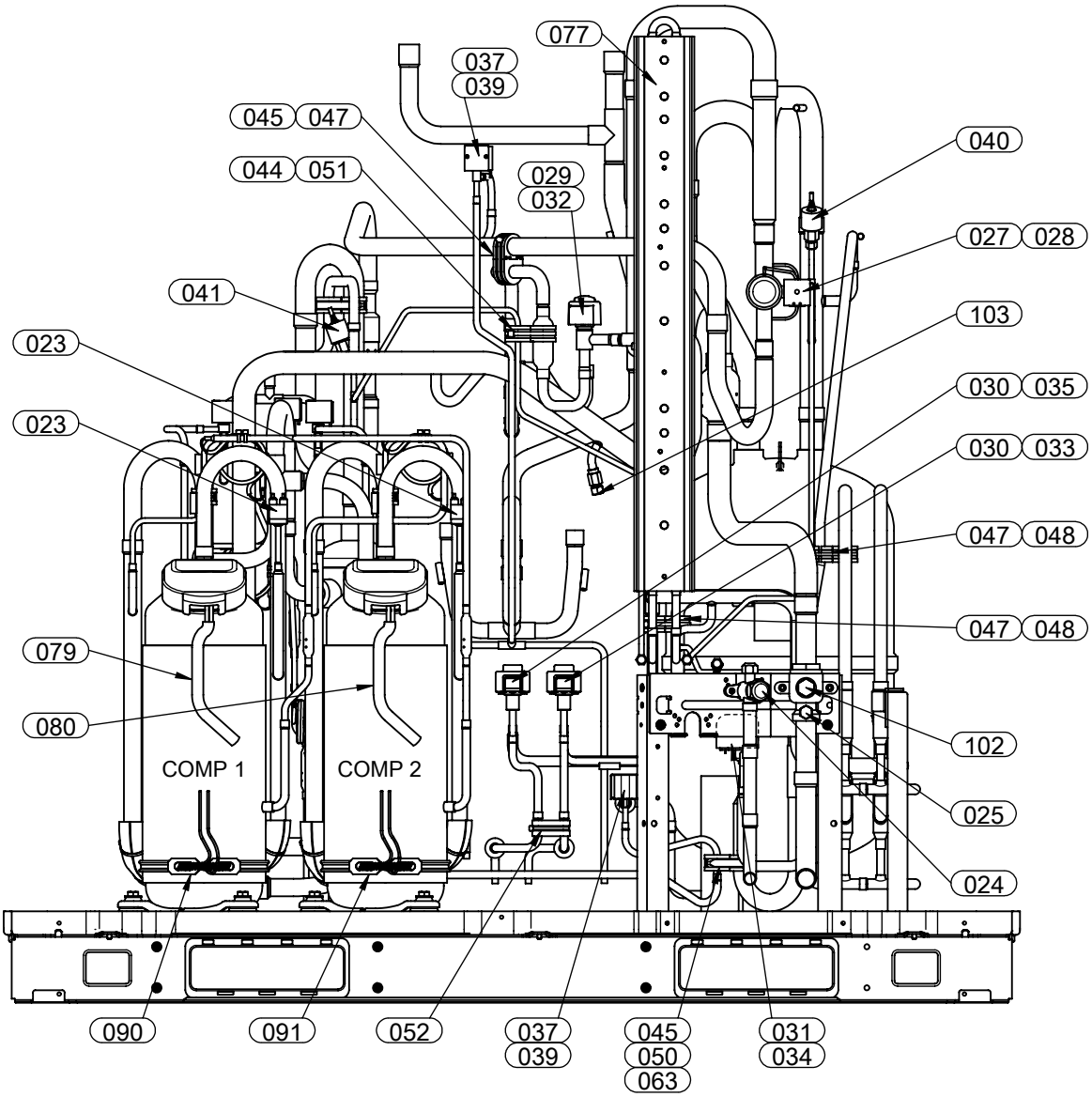
14-3. Outdoor unit (16ton)

MMY-MUP1921HT6P-UL

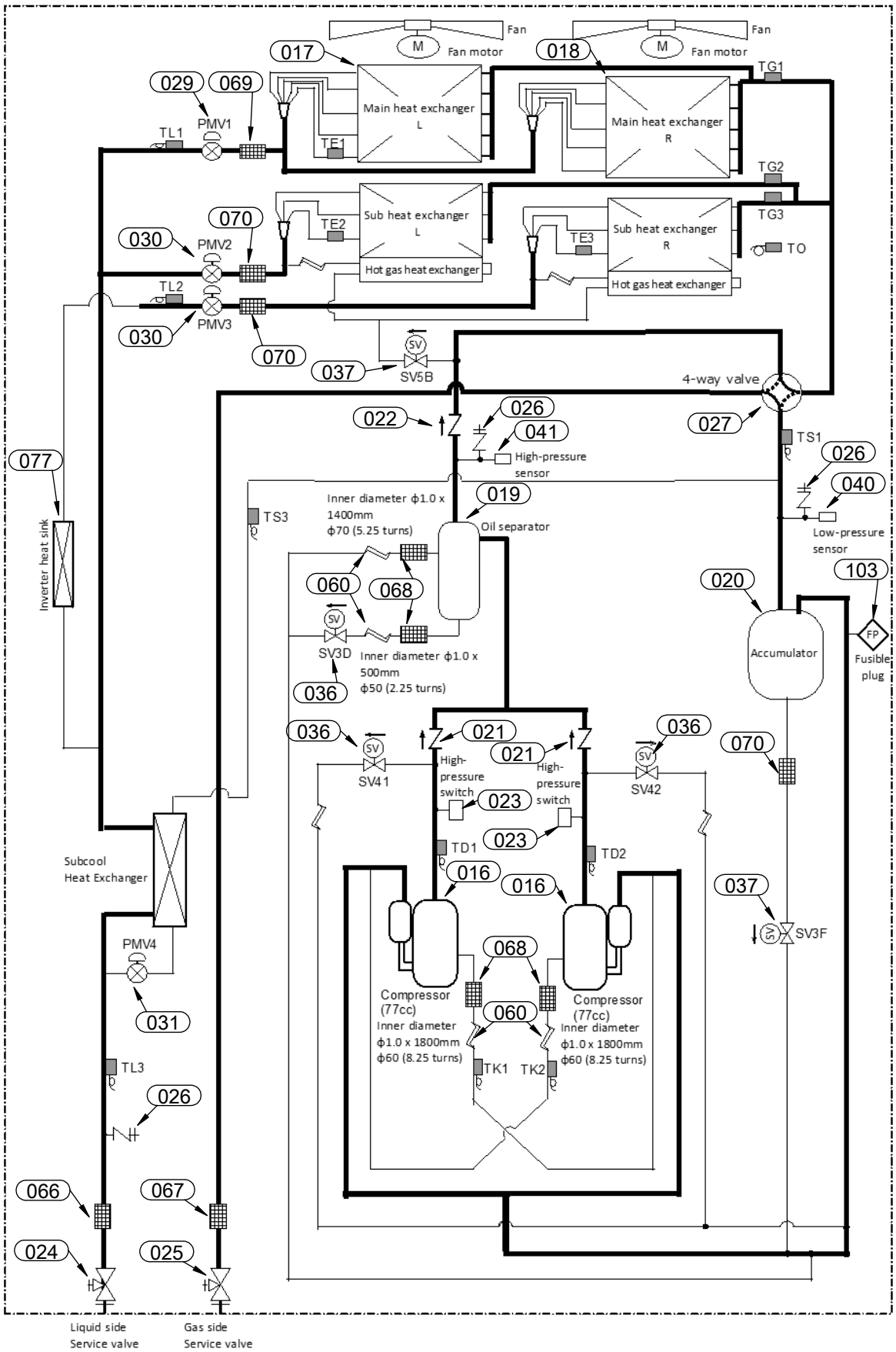


Outdoor unit (16ton)
MMY-MUP1921HT6P-UL



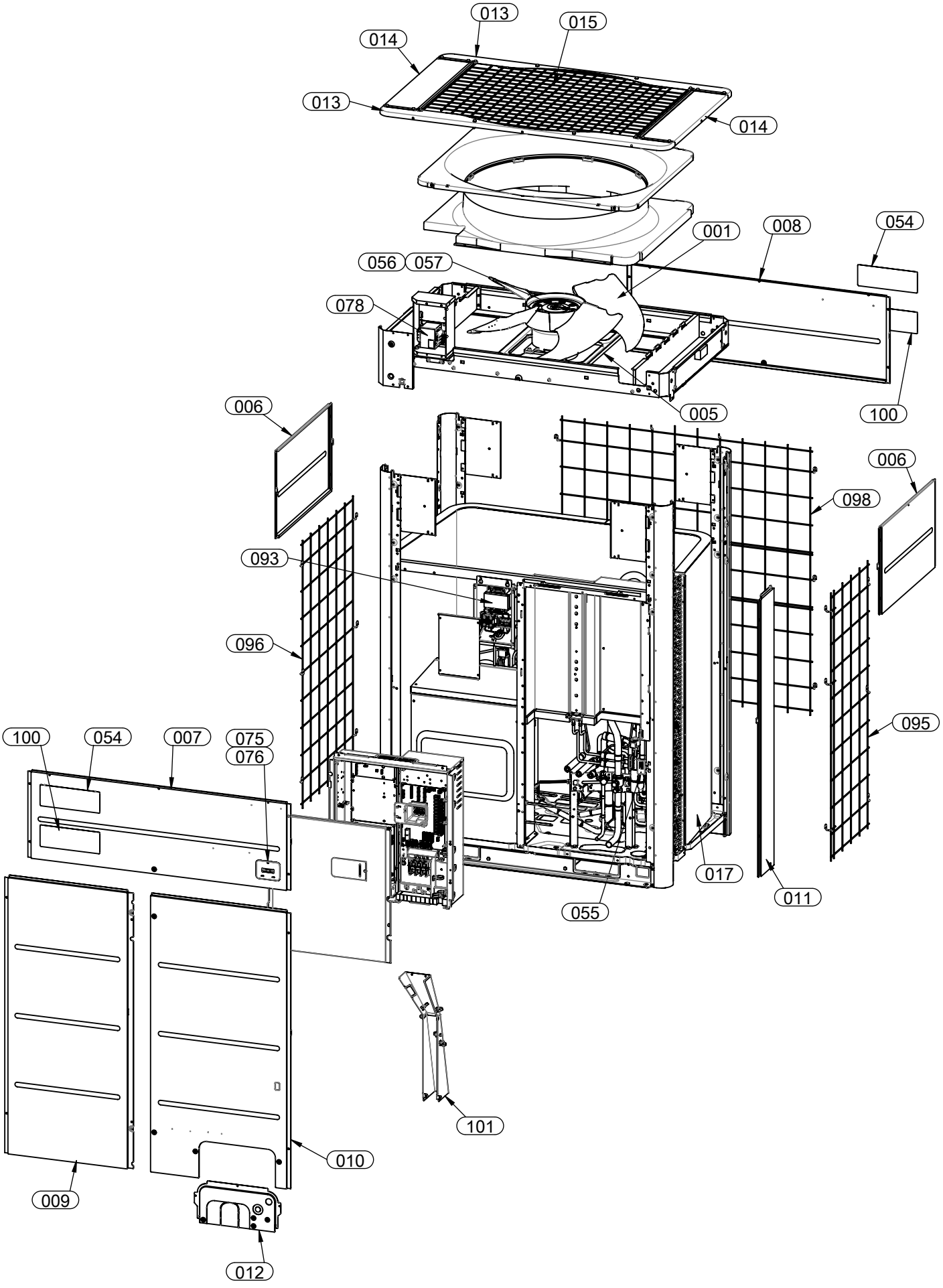


Outdoor unit (16ton)
MMY-MUP1921HT6P-UL

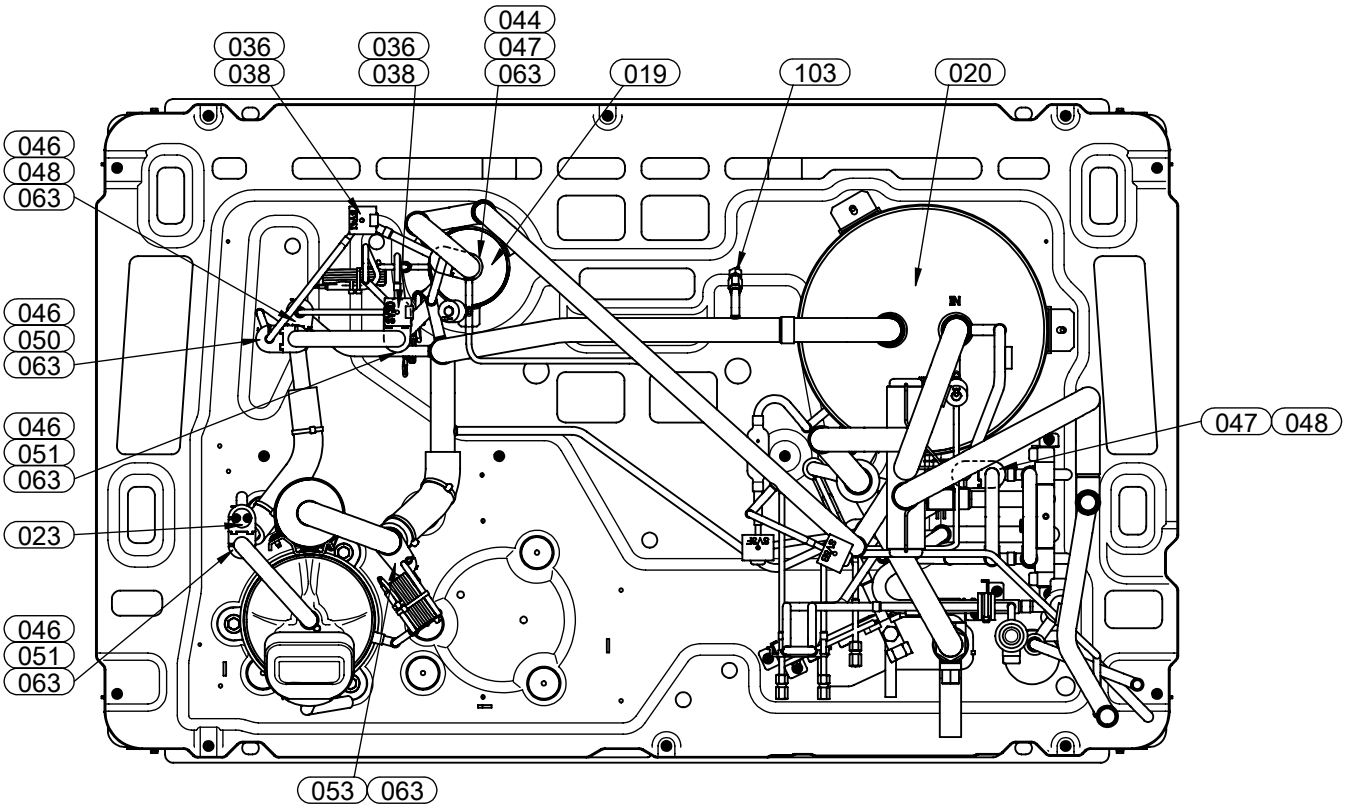


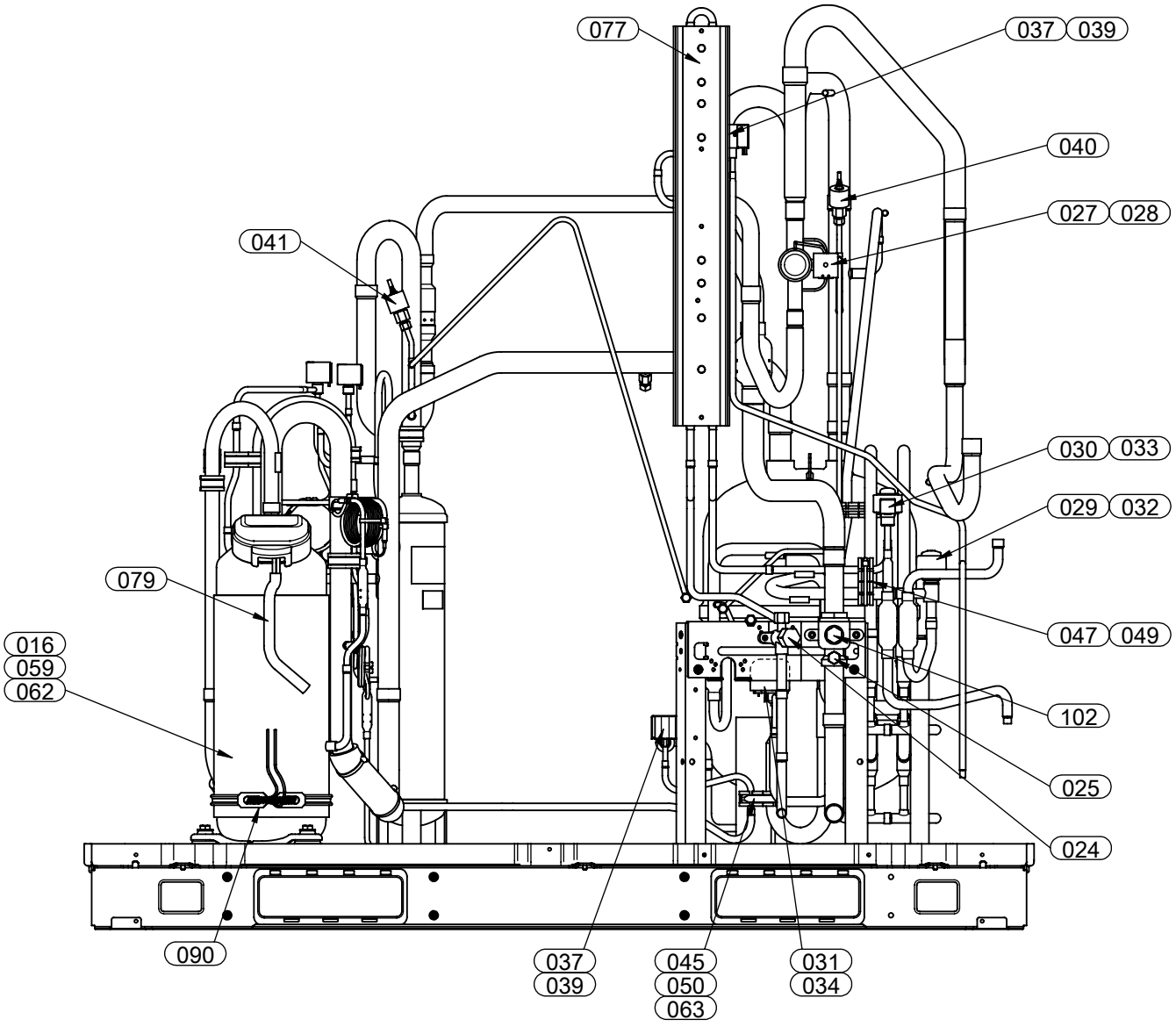
Symbol						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

Outdoor unit (High heat 6ton)
MMY-MUP072H1HT6PUL

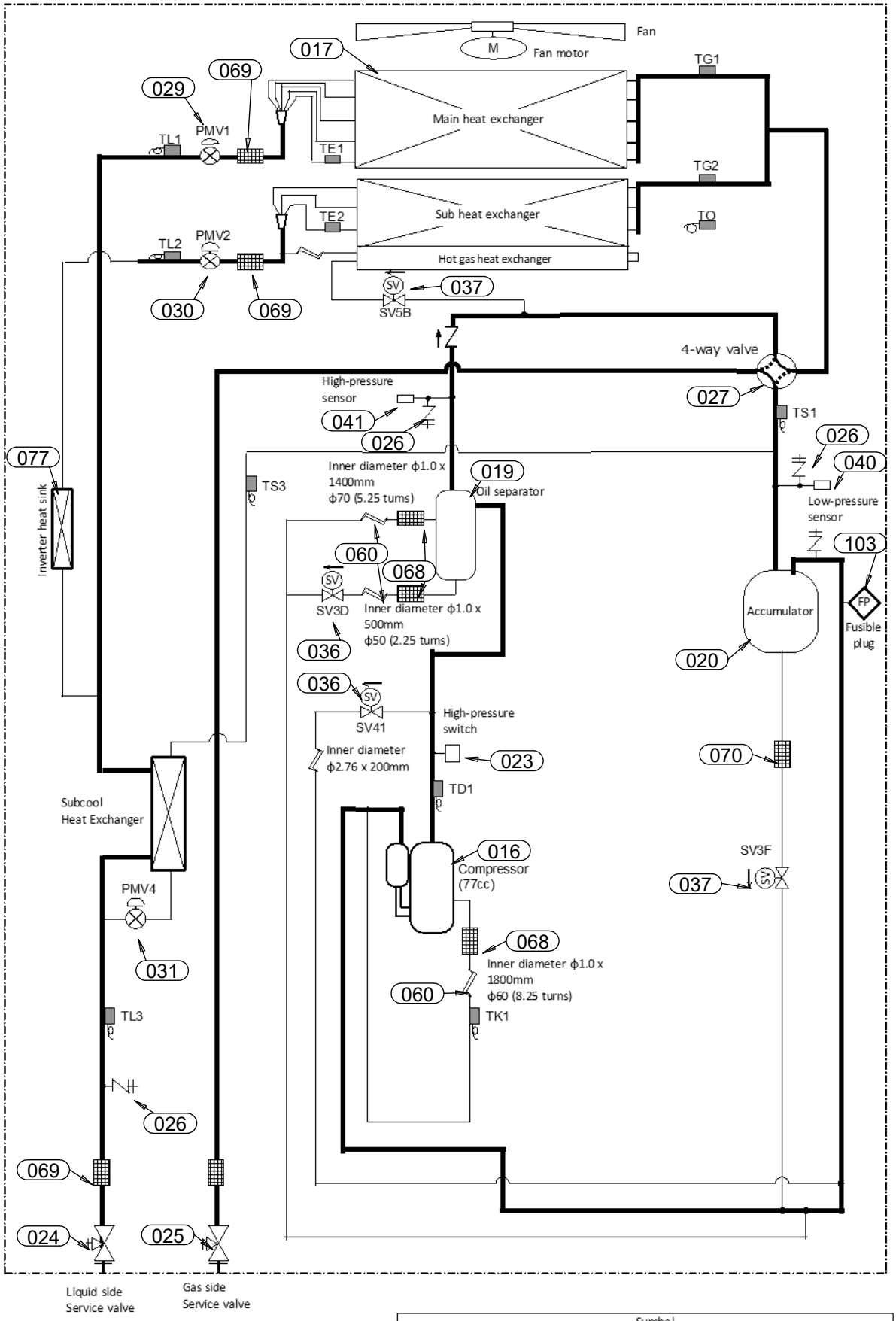


Outdoor unit (High heat 6ton)
MMY-MUP072H1HT6PUL





Outdoor unit (High heat 6ton)
MMY-MUP072H1HT6PUL



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

Ref.No.	Part No.	Description	Q'ty/Set MMY-MUP****HT6P-UL					
			0721	0961	1201	1441	1681	1921
001	43T20341	FAN, PROPELLER, PS741-T	1	1				
001	43T20359	FAN, PROPELLER, PF581-T			2	2	2	2
002	43T19374	BELLMOUTH	1	1				
002	43T19375	BELLMOUTH			2	2	2	2
003	43T19376	BELL MOUTH, COVER	1	1				
003	43T19377	BELL MOUTH, COVER			2	2	2	2
004	43T20360	MOTOR, FAN, DC530-620V, 2200L	1	1	2	2	2	2
005	43T00817	BESE, MOTOR	1	1	2	2	2	2
006	43T00913	CABINET ASSY, SIDE, UP	2	2	2	2	2	2
007	43T00812	CABINET, FRONT, UP	1	1				
007	43T00819	CABINET, FRONT, UP			1	1	1	1
008	43T00914	CABINET ASSY, FRONT, UP	1	1				
008	43T00915	CABINET ASSY, FRONT, UP			1	1	1	1
009	43T00814	CABINET, FRONT, LEFT	1	1				
009	43T00815	CABINET, FRONT, LEFT			1	1	1	1
010	43T00818	CABINET ASSY, FRONT, RIGHT	1	1	1	1	1	1
011	43T00816	CABINET, RIGHT	1	1				
012	43T00924	PANEL	1	1	1	1	1	1
013	43T00808	CABINET, TOP	2	2				
013	43T00809	CABINET, TOP			2	2	2	2
015	43T19391	GUARD, FAN	1	1				
015	43T19392	GUARD, FAN			2	2	2	2
016	43T41561	COMPRESSOR, LA1201K4FB-10UC			1	1	1	
016	43T41587	COMPRESSOR, LA771A3TB-20M	1	1				
016	43T41588	COMPRESSOR, LA771A3TB-20M						2
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	1
018	43T43694	CONDENSER ASSY, TWO ROW, RIGHT			1	1		
018	43T43695	CONDENSER ASSY, THREE ROW, RIGHT					1	1
019	43T48314	SEPARATOR, OIL	1	1				
019	43T48325	SEPARATOR, OIL			1	1	1	1
020	43T48337	ACCUMLATOR, 28L			1	1	1	
020	43T48338	ACCUMLATOR, 28L						1
020	43T48339	ACCUMLATOR, 24L	1	1				
021	43T46445	VALVE, CHECK, UCV-A1506DRQ5	1	1				2
022	43T46446	VALVE, CHECK, UCV-A1507DR			1	1	1	1
023	43T63401	SWITCH, PRESSURE	1	1	1	1	1	2
024	43T46520	VALVE, PACKED, 15.88			1	1	1	1
024	43T46522	VALVE, PACKED, 12.7	1	1				
025	43T46393	VALVE, BALL, 25.4	1	1	1	1	1	1
026	43T46409	JOINT, CHECK	3	3	3	3	3	3
027	43T46559	VALVE, 4WAY	1	1	1	1	1	1
028	43T46524	COIL, SOLENOID, SQ-A2520D-000037	1	1	1	1	1	1
029	43T46447	VALVE, PMV, PAM-BA2YGTF-1(φ4.8)	1	1	1	1	1	1
030	43T46545	VALVE, PMV, DPF(TS1)2.8C-01(φ2.8)	1	1	2	2	2	2
031	43T46439	VALVE, PMV, UKV-18D64(φ1.8)	1	1	1	1	1	1
032	43T46525	COIL, PMV, PAM-MD12TF-303	1	1	1	1	1	1
033	43T46539	COIL, ASSY, SERVICE PMV	1	1	1	1	1	1
034	43T46478	COIL, PMV, UKV-A376U	1	1	1	1	1	1
035	43T46539	COIL, ASSY, SERVICE PMV			1	1	1	1
036	43T46408	VALVE, 2WAY, FDF2A88	2	2	2	2	2	3
037	43T46527	VALVE, 2WAY, TEV-S1920DQ50	2	2	2	2	2	2
038	43T46529	COIL, VALVE, 2WAY, ASSY, FQ-A0520D-001989	2	2	2	2	2	3
039	43T46531	COIL, VALVE, 2WAY, TEV-SMOAQ2247B1	2	2	2	2	2	2
040	43T50433	SENSOR ASSY, LOW PRESSURE	1	1	1	1	1	1
041	43T50434	SENSOR ASSY, HIGH PRESSURE	1	1	1	1	1	1
044	43T49348	RUBBER, SUPPORTER, PIPE, DIA 25.4			1	1	1	2
045	43T49349	RUBBER, SUPPORTER, PIPE, DIA 22.2			5	5	5	5
046	43T49350	RUBBER, SUPPORTER, PIPE, DIA 19.0	2	2				3
047	43T49351	RUBBER, SUPPORTER, PIPE, DIA 15.9			2	2	2	2
048	43T49352	RUBBER, SUPPORTER, PIPE, DIA 12.7	2	2	4	4	4	4

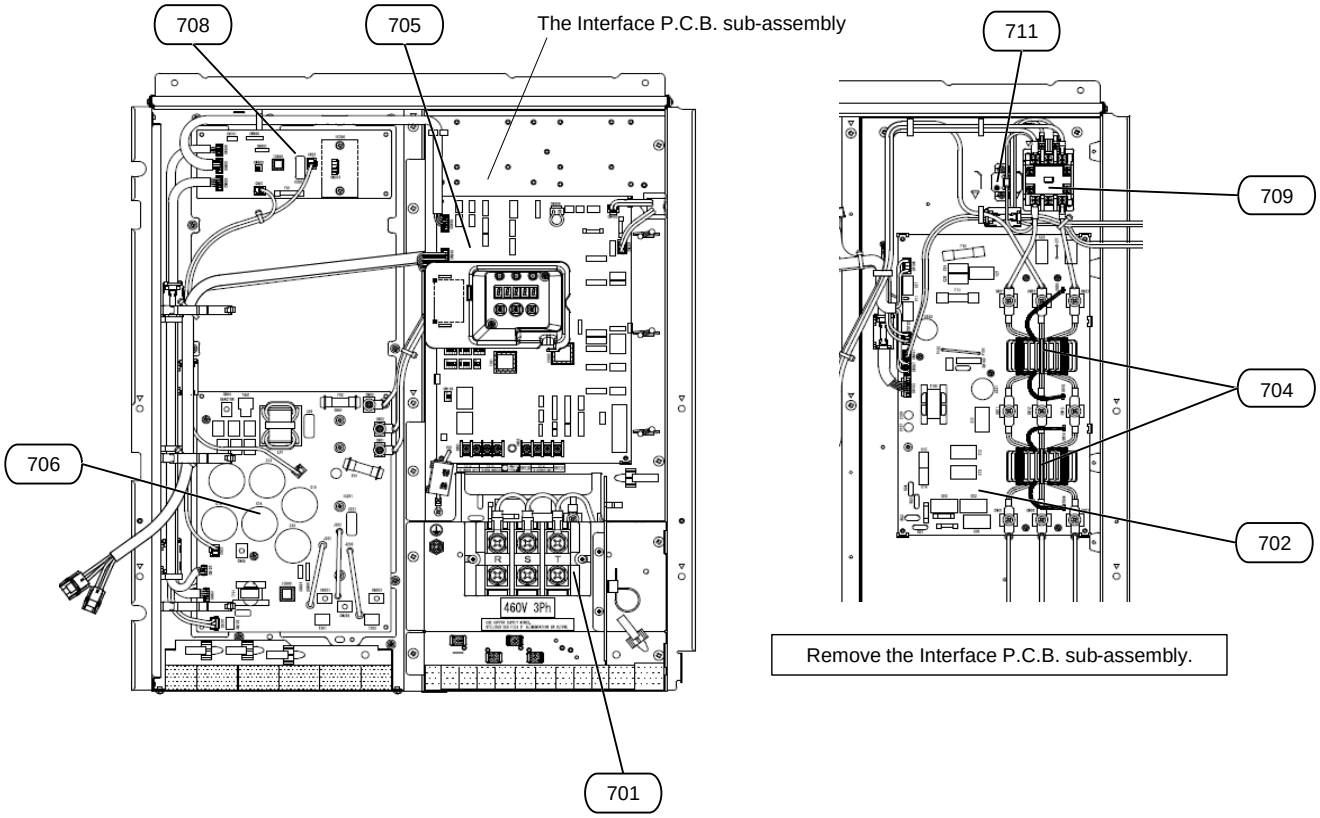
Ref.No.	Part No.	Description	Q'ty/Set MMY-MUP****HT6P-UL					
			0721	0961	1201	1441	1681	1921
049	43T49353	RUBBER, SUPPORTER, PIPE, DIA 9.52	1	1	1	1	1	1
050	43T49354	RUBBER, SUPPORTER, PIPE, DIA 8.0	1	1	1	1	1	3
051	43T49355	RUBBER, SUPPORTER, PIPE, DIA 6.4	2	2	3	3	3	4
052	43T49347	RUBBER, SUPPORTER, PIPE, DIA 8.0-DIA 8.0			1	1	1	1
052	43T49376	RUBBER, SUPPORTER, PIPE, DIA 9.5-DIA 28.6	1	1				
053	43T49377	RUBBER, SUPPORTER, PIPE, DIA 6.4-DIA 28.6	1	1	1	1	1	
054	43T01345	MARK, TOSHIBA CARRIER	2	2	2	2	2	2
055	43T19380	HOLDER, SENSOR, TO	1	1	1	1	1	1
056	43T39351	NUT, FLANGE	1	1	2	2	2	2
057	43T39350	WASHER	1	1	2	2	2	2
059	43T49357	RUBBER, CUSHION	3	3				6
059	43T49387	RUBBER, CUSHION			4	4	4	
060	43T47375	TUBE, CAPILLARY, BYPASS, ID 1.0	1	1	1	1	1	1
061	43T19333	HOLDER, SENSOR	12	12	14	14	14	16
062	43T47385	BOLT, COMPRESSOR	3	3				6
062	43T47415	BOLT, COMPRESSOR			4	4	4	
063	43T49358	BAND, FIX	3	3	5	5	5	7
064	43T85915	OWNERS MANUAL for HT6P-UL	1	1	1	1	1	1
065	43T47394	STRAINER, DIA 45.0	1	1				
067	43T47395	STRAINER, DIA 50.8			1	1	1	1
068	43T47388	STRAINER, DIA 12.7	3	3	3	3	3	4
069	43T47390	STRAINER, DIA 25.4	3	3	1	1	1	1
070	43T47414	STRAINER, DIA 25.4	1	1	3	3	3	3
072	43T47416	STRAINER, DIA 28.58			1	1	1	1
073	43T48329	SCREW, SET (M5,10pcs)	1	1	1	1	1	1
074	43T48330	SCREW, SET (M5,100pcs)	1	1	1	1	1	1
075	43TN9923	PC BOARD ASSY, NFC	1	1	1	1	1	1
076	43T63389	HOLDER, NFC	1	1	1	1	1	1
077	43T67312	HEATSINK, ASSY						1
077	43T67313	HEATSINK, ASSY			1	1	1	
077	43T67314	HEATSINK, ASSY	1	1				
078	43T58346	REACTOR, CH-105			1	1	1	
078	43T58347	REACTOR, CH-106	1	1				2
079	43T60534	LEAD ASSY, COMPRESSOR			1	1	1	1
080	43T60535	LEAD ASSY, COMPRESSOR	1	1				1
081	43T55375	FILTER, NOISE	2	2	3	3	3	4
083	43T50403	SENSOR ASSY, TD1, TK1	1	1	1	1	1	1
084	43T50404	SENSOR ASSY, TD2, TK2						1
085	43T50405	SENSOR ASSY, TE1, TE2, TG1, TG2	1	1	1	1	1	1
086	43T50406	SENSOR ASSY, TE3, TG3			1	1	1	1
087	43T50407	SENSOR ASSY, TL1, TL2, TL3, TS1, TS3	1	1	1	1	1	1
088	43T50424	SENSPR, TO	1	1	1	1	1	1
090	43T57314	HEATER, CASE, ASSY, 29W/240V, 2200L	1	1				1
091	43T57315	HEATER, CASE, ASSY, 29W/240V, 1900L						1
092	43T57313	HEATER, CASE, ASSY, 29W/240V, 2600L			1	1	1	
093	43T58333	TRANSFORMER	1	1	1	1	1	1
094	43149548	LUBRICANT OIL, NISSRKI	1	1	1	1	1	1
095	43T19393	FIN GUARD, SIDE	1	1				
096	43T19394	FIN GUARD, SIDE	1	1	2	2	2	2
097	43T19395	FIN GUARD, BACK	1	1				
098	43T19396	FIN GUARD, BACK			1	1	1	1
099	43T01346	MARK, SMMS-u	2	2	2	2	2	2
101	43T00925	WIRE GUARD	1	1	1	1	1	1
102	43T46567	VALVE, BALL, SUPPORT PARTS	1	1	1	1	1	1
103	43T49338	PLUG, FUSIBLE	1	1	1	1	1	1

Ref.No.	Part No.	Description	Q'ty/Set MMY-MUP****HT6P-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	43T20360	MOTOR, FAN, DC530-620V, 2200L	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	43T41561	COMPRESSOR, LA1201K4FB-10UC		1	1
016	43T41589	COMPRESSOR, LA771A3TB-20M	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

Ref.No.	Part No.	Description	Q'ty/Set MMY-MUP****HT6P-UL		
			072H1	096H1	120H1
041	43T50434	SENSOR ASSY, HIGH PRESSURE	1	1	1
044	43T49348	RUBBER, SUPPORTER, PIPE, DIA 25.4	1	1	1
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 6.4-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	43T67313	HEATSINK, ASSY		1	1
077	43T67314	HEATSINK, ASSY	1		
078	43T58346	REACTOR, CH-105		1	1
078	43T58347	REACTOR, CH-106	1		
079	43T60534	LEAD ASSY, COMPRESSOR	1	1	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	SENSPR, TO	1	1	1
090	43T57314	HEATER, CASE, ASSY, 29W/240V, 2200L	1		
092	43T57313	HEATER, CASE, ASSY, 29W/240V, 2600L		1	1
093	43T58333	TRANSFORMER	1	1	1
094	43149548	LUBRICANT OIL, NISSRKI	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

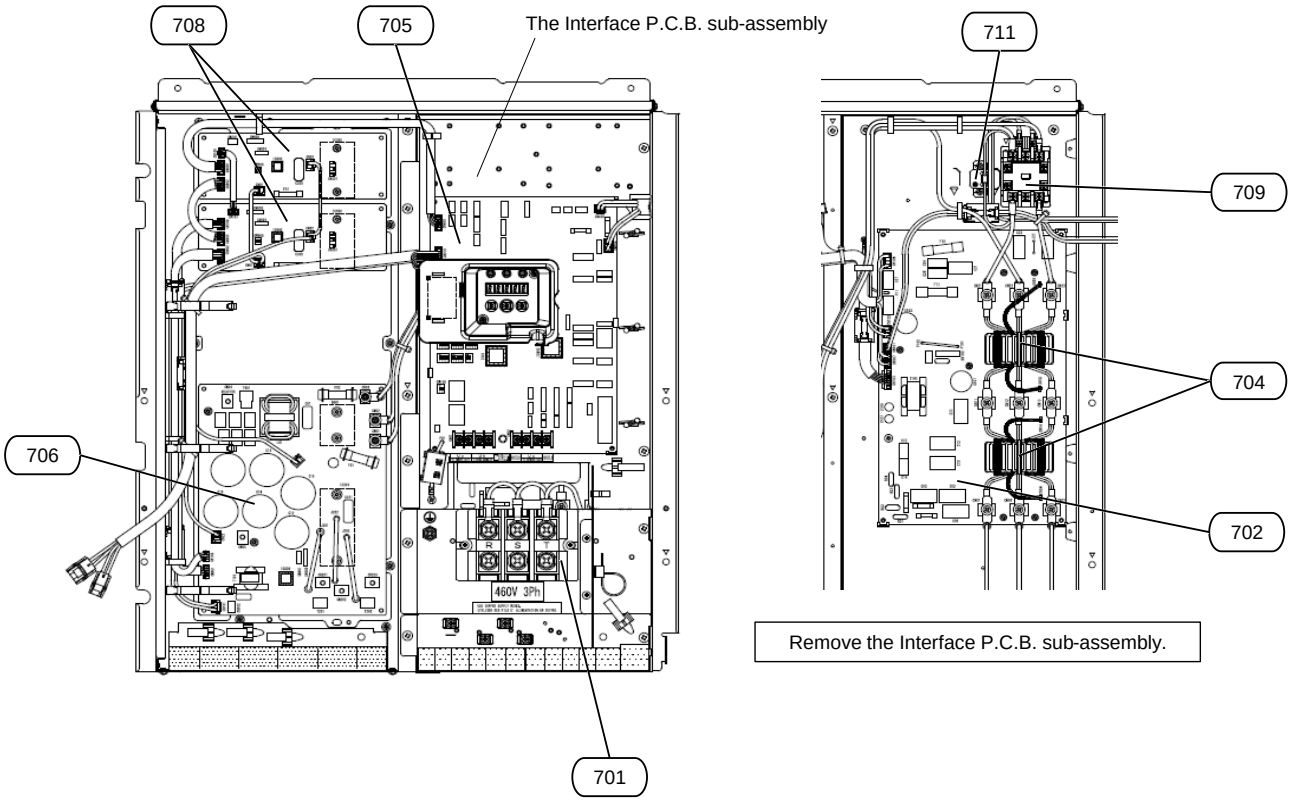
Model： MMY-MUP0721HT6*, 0961HT6*, 072H1HT6*



Ref. No.	Part No.	Description	Q'ty/Set	Drawing No.
701	43T60440	TERMINAL, 3P, 100A	1	1001606403
702	43TN9878	PC BOARD ASSY,NOISE FILTER,MCC-1749	1	1142190403
704	43T55397	FILTER, LINE	2	1004141201
705	43TN9879	PC BOARD ASSY,INTERFACE,MCC-1747	1	1142090504
706	43TN9880	PC BOARD ASSY,COMP-IPDU,MCC-1729	1	1142090606
708	43T6W894	PC BOARD ASSY,FAN-IPDU,MCC-1734	1	1142090701
709	43T52321	CONTACTOR,MAGNETIC,FC-1SUL	1	1000401404
711	43T50345	THERMISTOR,PTC	1	1000601801

Inverter Assembly

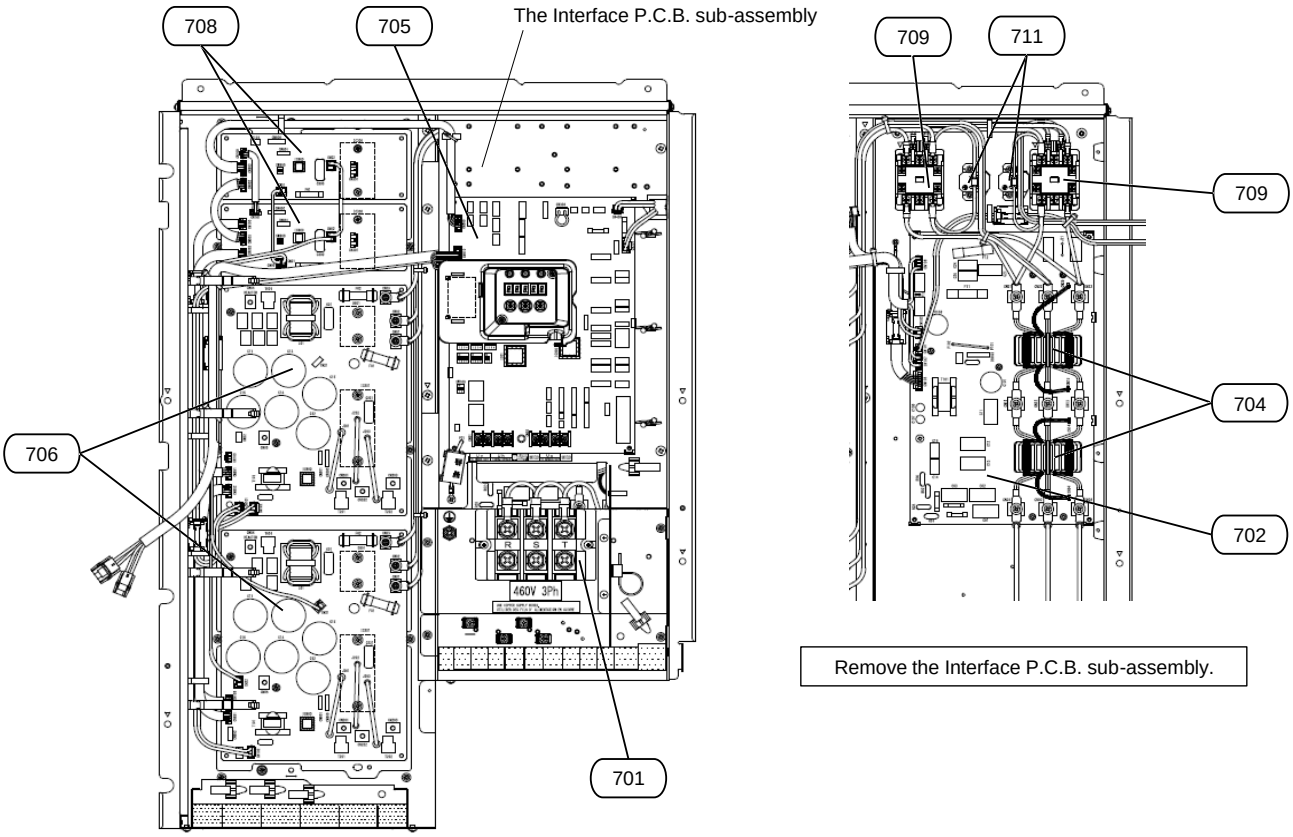
Model： MMY-MUP1201HT6*, 1441HT6*, 1681HT6*, 096H1HT6*, 120H1HT6*



Ref. No.	Part No.	Description	Q'ty/Set	Drawing No.
701	43T60440	TERMINAL, 3P, 100A	1	1001606403
702	43TN9878	PC BOARD ASSY,NOISE FILTER,MCC-1749	1	1142190403
704	43T55397	FILTER, LINE	2	1004141201
705	43TN9879	PC BOARD ASSY,INTERFACE,MCC-1747	1	1142090504
706	43TN9881	PC BOARD ASSY,COMP-IPDU,MCC-1729	1	1142090607
708	43T6W894	PC BOARD ASSY,FAN-IPDU,MCC-1734	2	1142090701
709	43T52321	CONTACTOR,MAGNETIC,FC-1SUL	1	1000401404
711	43T50345	THERMISTOR,PTC	1	1000601801

Inverter Assembly

Model： MMY-MUP1921HT6*



Ref. No.	Part No.	Description	Q'ty/Set	Drawing No.
701	43T60440	TERMINAL, 3P, 100A	1	1001606403
702	43TN9878	PC BOARD ASSY,NOISE FILTER,MCC-1749	1	1142190403
704	43T55397	FILTER, LINE	2	1004141201
705	43TN9879	PC BOARD ASSY,INTERFACE,MCC-1747	1	1142090504
706	43TN9880	PC BOARD ASSY,COMP-IPDU,MCC-1729	1	1142090606
708	43T6W894	PC BOARD ASSY,FAN-IPDU,MCC-1734	2	1142090701
709	43T52321	CONTACTOR,MAGNETIC,FC-1SUL	2	1000401404
711	43T50345	THERMISTOR,PTC	2	1000601801

Toshiba Carrier (Thailand) Co., Ltd.

144 / 9 Moo 5, Bangkadi Industrial Park, Tivanon Road, Tambol Bangkadi, Amphur Muang, Pathumthani 12000, Thailand