TOSHIBA

Carrier

SMMS-e / SHRM-e

Quick Reference Guide

TC-QRG-01

DISCLAIMER

Please Note:

This Quick Reference is meant to be assist with troubleshooting and is not a substitute for Toshiba Carrier Engineering Manuals, Training Documents, white papers or industry best practices.

Always follow prescribed safety practices and local codes when installing or servicing Toshiba Carrier VRF equipment.

For further guidance, contact your regional or national Technical Support Manager.

TABLE OF CONTENTS

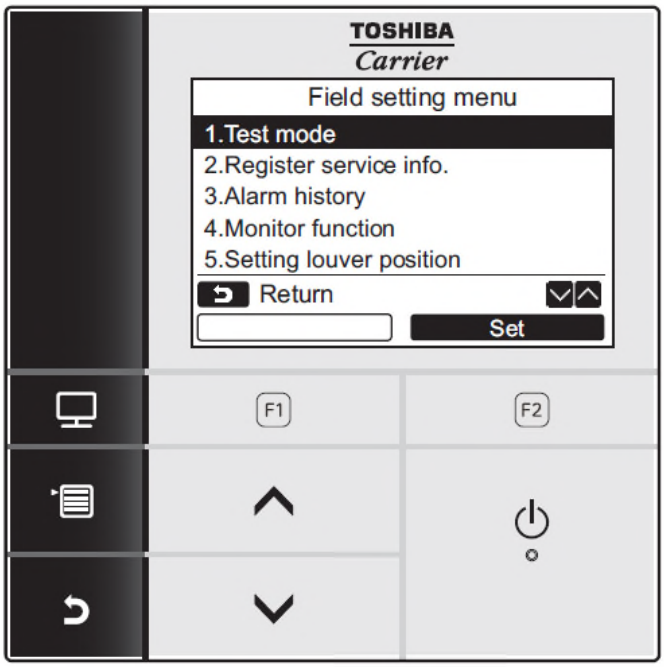
DN CODES

DN CODE SELECTION

How To Access The

RBC-AMS54E-UL

And Set The Proper DN Codes



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

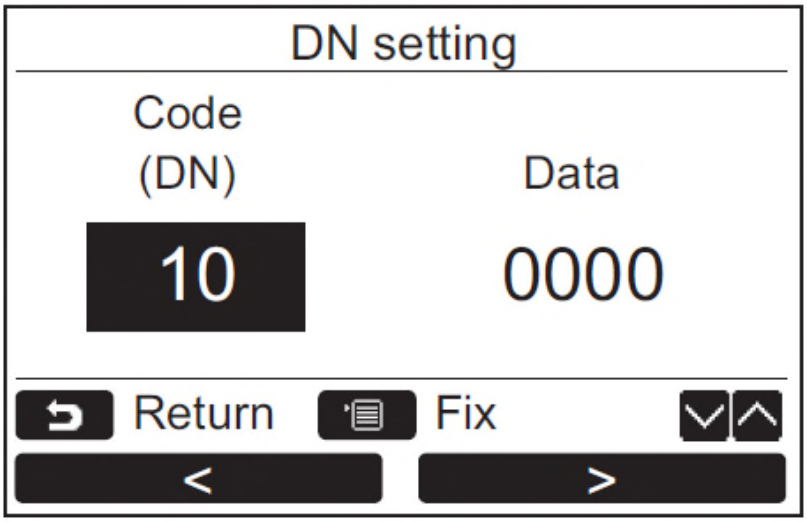
2 **Push and hold the [MENU] button and the [ ] button at the same time to display the "Field Setting Menu".**

- Push and hold the buttons for 4 more seconds.

3 **Push the [CANCEL] button and return.**

DN CODE SELECTION

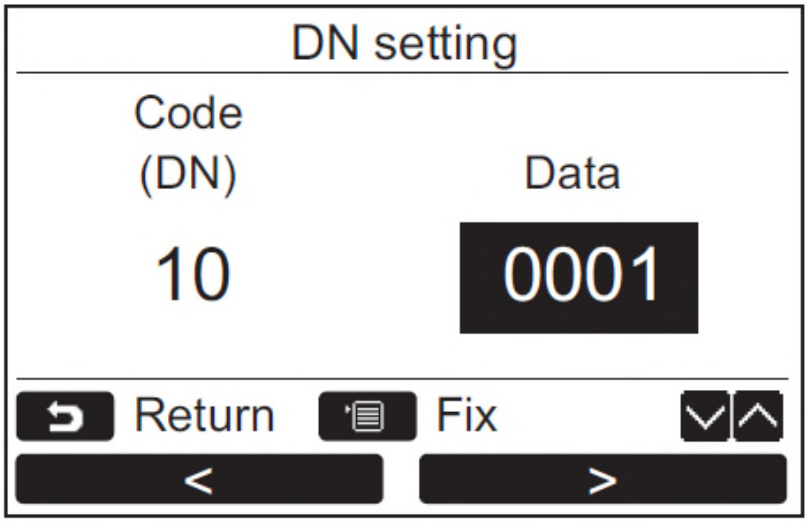
Carry out the setting operation while the indoor unit is stopped.
(Turn off the air conditioning unit before starting the setting operation.)



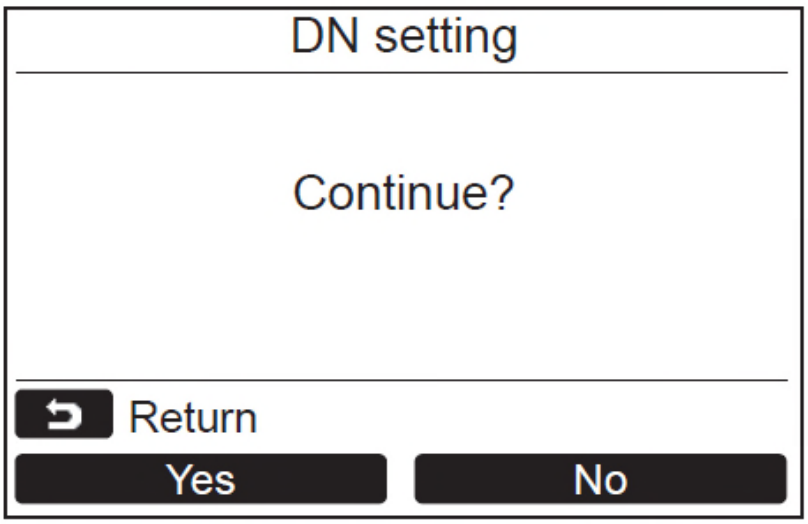
Push the [∧] / [∨] button to select "7. DN setting" on the "Field setting menu" screen, then push the "Set" [F2] button.

- 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 "<" [F1] button, then set "Code(DN)" with the [∧] / [∨] button.

DN CODE SELECTION



Move the cursor to select “Data” with the “ > >” [F2 F2] button, then set “Data” with the [∧ ∧] / [∨ ∨] button.



DN CODE SELECTION

Push the "No No" [F2 F2] 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 No" [F2 F2] button displays the unit selection screen when the group control is used. Push [CANCEL] 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 "Field setting menu" screen.

DN CODES

DN	Item	Description	At Shipment
01	Filter Display Delay Timer	**0000**: None **0001**: 150H **0002**: 2500H **0003**: 5000H **0004**: 10000H	According to Type
02	**Dirty Filter State**	**0000**: Standard **0001**: High Degree of Dirt	0000: Standard
03	Central Control Address (Shown as Group # on Central Control)	**0000**: No.1 Unit to **0064**: No.64 Unit **0099**: Unfixed	0099: Unfixed
04	**Specific Indoor Unit Priority**	**0000**: No Priority **0001**: Priority	0002:+2*C (3.6*F) (Floor Type 0000: 0*C)
05	Fan Control Heating	**0001**: Default 0009: Fan Off Thermo Off * Must have wired remote Change DN-32 to 0001 before use of DN-05	**0001**:
06	Heating SuctionTemp Shift	**0000**: No Shift **0001**: +1*C (+1.8*F) **0002**: + 2*C (+3.6F) to **0010**: +10*C (+18*F) (Up to +6 Recommended)	**0002**: +2*C (3.6*F)
OC	**Preparing Indication Selection**	**0000**: Preparing indicated **0001**: No Indication	**0000**: Preparing indicated
0D	Existence of AUTO Mode	**0000**: Provided **0001**: Not Provided (Automatic selection from connected outdoor unit)	**0001**: Not Provided
0E	**FS Box**	**0000**: Only 1 indoor unit on FS **0001**: More than 1 indoor unit	**0000**: Standard
0F	Cooling Only	**0000**: Heat Pump **0001**: Cooling Only (No Display of (AUTO) (HEAT))	**0000**: Heat Pump
10	**Unit Type**	**0001:** 4-Way Air Discharge Cassette **0004:** Standard Ducted **0005:** Slim Duct **0006**: High Static Ducted **0007:** Under Ceiling **0008:** High Wall **0014:** Compact 4 Way	Depending on Model
11	Indoor Unit Capacity	**0000**: Unfixed **0001** to **0034** See Page 50 SHRM Quick Reference	According to Capacity
12	**Line Address**	**0000**: No.1 Unit to **0030**: No. 30 Unit	**0099**: Unfixed
13	Indoor Unit Address	**0001**: No.1 Unit to **0064**: No.64 Unit	**0099**: Unfixed
14	**Group Address**	**0000**: Individual **0001**: Header in Group **0002**: Follower in Group	**0099**: Unfixed
19	Louver Type (Air direction adjustment)	**0000**: No louver **0001**: Swing only **0002**: (1-Way Air discharge Cassette type, Under Ceiling type) **0003**: (2-Way Air discharge Cassette type) 0004: (4-Way Air discharge Cassette type)	According to Type
1E	**Temp Range C/H**	0000: 0 degree to 0010: 10 degree	0003: 3 Degree
	(Dead Band Heat Cool/Cool Heat)	(Cool / Heat are reversed with +/- (data value) / 2 against the set temperature)	
	Auto Switch Control Point		(Ts +/- 1.5)

DN CODES

DN	Item	Description	At Shipment
2A	**Selection of option/error input (CN70)**	**0000**: Filter Input **0001**: Alarm Input (Air washer, etc.) **0002**: None	**0002**: None
2b	Thermo Output SW (T10 3)	**0000**: Indoor thermostat on **0001**: ON receiving output of outdoor compressor	**0000**: Thermo on
2E	**HA Terminal (CN61) select**	**0000**: Usual **0001**: Leaving -ON prevention control **0002**: Fire alarm input	**0000**: Usual (HA terminal)
31	Venting fan control	**0000**: Unavailable **0001**: Available	**0000**: Unavailable
32	**TA sensor location**	**0000**: Body TA sensor **0001**: Remote controller sensor	**0000**: Body TA sensor
33	Temperature unit select	**0000**: *C **0001**: *F(at factory shipment)	**0001**: *F
36	Room temp on display	**0000**: set point **0001**: shows room temp	0
40	**Humidifier Control**	Drain pump control **0003**: Humidifier on Drain Off	**0003**:
42	Self Clean Operation Time (4 way Cassette Only)	**0000**: None **0000**: .5h to .012: 0h Set when compressor-ON time is 10 to 60 minutes When ON time is 60 minutes or more, the double of this operation time setting is set.	**0002**: 1 hour
45	**Selection of louver horizontal discharge position (4-Way Air Discharge Type Only)**	**0000**: Smudging less setting **0002**: Cold draft preventing setting	**0000**: Smudging-less setting
C2	Current Demand X% to outdoor unit	**0050**: 50% **0100**: 100%	**0075**: 75%
CC	**Setting of self-clean operation forced stop (4-Way cassette type only)**	**0000**: No Clean operation is performed in case of stop by HA input HA operation output OFF during clean operation in case of stop by remote controller **0001**: YES Clean operation is not performed in case of stop bt HA input HA operation output ON during clean operation in case of stop by remote controller	**0000**: None
CD	Clean operation stop function when [ON/OFF] operation is prohibited. (4-Way cassette type only)	The air conditioner stops (including fire alarm such as remote monitor system) while setup of [ON/OFF] operation prohibited (Central 1,2) is performed from central controller side. **0000**: Valid (clean operation) **0001**: Invalid (no clean operation)	**0000**: Valid
CE	Domestic/Overseas	**0000**: Domestic **0001**: Overseas	**0000**:

DN CODES

DN	Item	Description	At Shipment
DB	Diff T Secondary Heat	Setting Cut in - Cut out differential of secondary heat **0000**: 0*F **0001**: to 0010 **0001**:=1*F 0010:=9*F 0005&6=5*F	
DC	**Delta T Secondary Heat**	Setting enables secondary heat and disables cooling signal CN60 **0000**: None **0001**: to 0010 **0001**:=1*F **0010**:=9*F **0005&6=5*F**	**0000**: None
D1	Frost prevention/Objective Heating	**0000**: Impossible **0001**: Valid	**0000**: None
D3	**Revolution frequency of self clean operation (4-Way cassette Type Only)**	**0000**: Invalid **0001**: Valid	**0001**: Valid (210 rpm / operation)
D4	Display / No display of [Dry Operation] during self clean operation (4-Way Air Discharge Type Only)	**0000**: Display **0001**: No Display	**0000**: Display
EO	**For North America**	**0000**: **0001**: North America	
72/9B	**Fan Control in Defrost**	DN72 DN9B Fan Operation Defrost 1 0 Stop 0 1 RC Setting 0 2 Hot Start Control invalid	0
F0	Swing Mode	**0001**: Standard **0002**: Dual Swing **0003**: Cycle Swing **0000**: No Synchronization	**0001**: Standard
F1	**Fixed Louver position (Louver No.1)**	**0000**: Release **0001**: Horizontal position **0005**: Downward discharge position	**0000**: Not Fixed
F2	Fixed Louver position (Louver No.2)	**0000**: Release **0001**: Horizontal position **0005**: Downward discharge position	**0000**: Not Fixed
F3	**Fixed Louver position (Louver No. 3)**	**0000**: Release **0001**: Horizontal position **0005**: Downward discharge position	**0000**: Not Fixed
F4	Fixed Louver position (Louver No. 4)	**0000**: Release **0001**: Horizontal position **0005**: Downward discharge position	**0000**: Not Fixed
7A	**Temperature Increment**	**0000**: 2 Degree F **0001**: 1 Degree F	**0000**: 2 Degree F
1F	Max setting temp Cooling (remote)	Setting range in Celsius Only -15 to 60 (5.0F to 140.0F)	29 Celsius (84.2F)
20	**Min setting temp Cooling** (remote)	Setting range in Celsius Only -15 to 60 (5.0F to 140.0F)	18 Celsius (64.4F)
21	Max setting temp Heating	Setting range in Celsius Only -15 to 60 (5.0F to 140.0F)	29 Celsius (84.2F)

DN CODES

DN	Item	Description	At Shipment
22	**Min setting temp Heating** (remote)	Setting range in Celsius Only -15 to 60 (5.0F to 140.0F)	18 Celsius (64.4F)
25	Max setting temp Auto (remote)	Setting range in Celsius Only -15 to 60 (5.0F to 140.0F)	29 Celsius (84.2F)
26	**Min setting temp Auto** (remote)	Setting range in Celsius Only -15 to 60 (5.0F to 140.0F)	18 Celsius (64.4F)
28	**Auto Restart**	**0000**: None **0001**: Restart	0000: None
5D	High Ceiling Static Adjustment	Slim, high static ducted **0000**: Lo **0001:** Standard Medium **0003:** Hi Hi **0006:** Lo Lo 4-Way, High Wall **0000:** Lo **0001:Medium 0003:** Hi **0000:** Lo **0001:Medium 0003:** Hi	**0001**: Standard (slim, high static ducted) **0000**: Standard (4-Way cassette, medium static) **0000**: Standard (Ceiling)
60	**Timer Set** (Wired Remote)	**0000**: Available **0001**: Unavailable	**0000**: Available
69	Louver Position Selection Cooling	**0000**: Normal **0001**: Down Allowed	0000: Normal
86	**Correction of feeling of strong heating**	**0000**: Not provided **0001**: Provided	**0000**: Not Provided
92	Outside interlock release condition	**0000**: Operation Stop **0001**: Release communication signal receive	**0000**: Operation Stop
9A	**Fan Control Cooling**	**0000**: Standard **0001**: L to LL	**0000**: Default
9B	**Hot Start Function**		**0000**: Default
77	**Dual Set point**	**0000:** no dual set point **0002:** Dual Set point enabled	
FE	**Group Control**	Check service manual	
C5	**Flip Function**		

ERROR CODES

ERROR CODES

Check Codes Displayed on Remote Controller and SHRM-e Outdoor Unit (7-Segment Display on I/F Board) and Locations to Be Checked

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
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 defect in indoor P.C. board. • Check remote controller address settings (when two remote controllers are in use). • Check remote controller P.C. board.
E02	–	–	Remote controller	Remote controller transmission 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 (SW30, Bit 2).
E06	E06	No. of indoor units from which signal is received normally	I/F	Signal lack of indoor unit	All stop	Indoor unit initially communicating normally fails to return signal for specified length of time.	• Check power supply to indoor unit. (Is power turned on?) • Check connection of indoor-outdoor communication cable. • Check connection of communication connectors on indoor P.C. board. • Check connection of communication connectors on outdoor P.C. board. • Check for trouble in indoor P.C. board. • Check for trouble 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 (SW30, Bit 2). • Check connection of indoor-outdoor communication circuit.

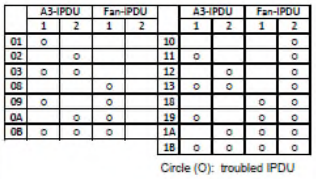
ERROR CODES

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
E08	E08	Duplicated indoor address	Indoor unit I/F	Duplicated indoor address	All stop	More than one indoor unit are assigned same address.	• Check indoor addresses. • Check for any change made to remote controller connection (group/ individual) since indoor address setting.
E09	–	–	Remote controller	Duplicated master remote controller	Stop of corresponding unit	In two remote controller configuration (including wireless), both controllers are set up as master. (Header indoor unit is shut down with alarm, while follower indoor units continue operating.)	• Check remote controller settings. • Check remote controller P.C. boards.
E10	–	–	Indoor unit	Indoor inter-MCU communication trouble	Stop of corresponding unit	Communication cannot be established/maintained upon turning on of power or during communication.	• Check for trouble in indoor P.C. board
E12	E12	01: Indoor-outdoor communication 02: Outdoor-outdoor communication	I/F	Automatic address starting trouble	All stop	• Indoor automatic address setting is started while automatic address setting for equipment in other refrigerant line is in progress. • Outdoor automatic address setting is started while automatic address setting for indoor units is in progress.	• Perform automatic address setting again after disconnecting communication cable to that refrigerant line.
E15	E15	–	I/F	Indoor unit not found during automatic address setting	All stop	Indoor unit cannot be detected after indoor automatic address setting is started.	• Check connection of indoor-outdoor communication line. • Check for trouble in indoor power supply system. • Check for noise from other devices. • Check for power failure. • Check for trouble in indoor P.C. board.
E16	E16	00: Overloading 01-: No. of units connected	I/F	Too many indoor units connected	All stop	• Combined capacity of indoor units exceeds 135% of combined capacity of outdoor units. **Note:** **If this code comes up after backup setting for outdoor unit failure is performed, perform "No overloading detected" setting.** <"No overloading detected" setting method> Turn on SW09/Bit 2 on I/F P.C. board of outdoor header unit. • More than 64 indoor units are connected.	• Check capacities of indoor units connected. • Check combined capacities of indoor units. • Check capacity settings of outdoor units. • Check No. of indoor units connected. • Check for trouble in outdoor P.C. board (I/F).
E17	–	–	Indoor unit	Indoor units(s) -FS unit(s) communication trouble	Stop of corresponding unit(s)	There is no communication from FS unit(s)	• Check order in which power was turned on. • Check indoor unit(s)-FS unit(s) cable

ERROR CODES

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

ERROR CODES

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
E31	E31	 Circle (O): troubled IPDU	I/F	IPDU communication trouble	All stop	Communication is disrupted between IPDUs (P.C. boards) in inverter box.	• Check wiring and connectors involved in communication between IPDU-I/F P.C. board for bad contact or broken wire. • Check for trouble in outdoor P.C. board (I/F, A3-IPDU or Fan IPDU). • Check for external noise.
		80		Communication trouble between MCU and Sub MCU	All stop	Communication between MCU and Sub MCU stopped.	• Operation of power supply reset (OFF for 60 seconds or more) • Outdoor I/F PC board trouble check
F01	–	–	Indoor unit	Indoor TCJ sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TCJ sensor connector and wiring. • Check resistance characteristics of TCJ sensor. • Check for trouble 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 trouble 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 trouble 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 trouble 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 trouble in outdoor P.C. board (I/F).
F06	F06	01: TE1 sensor trouble 02: TE2 sensor trouble	I/F	TE1/TE2 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TE1/TE2 sensor connectors. • Check resistance characteristics of TE1/TE2 sensors. • Check for trouble in outdoor P.C. board (I/F).
F07	F07	01: TL1 sensor trouble	I/F	TL1 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TL1 sensor connector. • Check resistance characteristics of TL1 sensor. • Check for trouble in outdoor P.C. board (I/F).

ERROR CODES

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
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 trouble 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 trouble in indoor P.C. board.
F11	–	–	Indoor unit	Indoor TF sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TF sensor connector and wiring. • Check resistance characteristics of TF sensor. • Check for trouble in indoor P.C. board.
F12	F12	01: TS1 sersor trouble 02: TS2 sersor trouble	I/F	TS1/TS2 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TS1/ TS2 sensor connector • Check resistance characteristics of TS1/TS2 sensor. • Check for trouble
F13	F13	01: Compressor 1 side 02: Compressor 2 side	IPDU	TH sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Trouble in IPM built-in temperature sensor → Replace A3-IPDU 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 defect in pressure sensors PD and PS. • Check for trouble in outdoor P.C. board (I/F). • Check for deficiency in compressive output of compressor.
F17	–	–	Indoor unit	TOA sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TOA sensor connector. • Check resistance characteristics of TOA sensor. • Check for trouble in outdoor I/F P.C. board.
F18	–	–	Indoor unit	TRA sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TRA sensor connector. • Check resistance characteristics of TRA sensor. • Check for trouble in outdoor I/F P.C. board.
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 defect in PS sensor. • Check for deficiency in compressive output of compressor. • Check for trouble in 4-way valve. • Check for trouble in outdoor P.C. board (I/F). • Check for trouble 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 trouble in PD sensor. • Check for trouble in outdoor P.C. board (I/F).

ERROR CODES

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
F29	–	–	Indoor unit	Other indoor trouble	Stop of corresponding unit	Indoor P.C. board does not operate normally.	• Check for defect in indoor P.C. board (faulty EEPROM)
F31	F31	–	I/F	Outdoor EEPROM trouble	All stop *1	Outdoor P.C. board (I/F) does not operate normally.	• Check power supply voltage. • Check power supply noise. • Check for trouble in outdoor P.C. board (I/F).
H01	H01	01: Compressor 1 side 02: Compressor 2 side	IPDU	Compressor breakdown	All stop	Inverter current detection circuit detects overcurrent and shuts system down.	• Check power supply voltage.(AC208/230V ± 10%). • Check for trouble in compressor. • Check for possible cause of abnormal overloading. • Check for trouble in outdoor P.C. board (A3-IPDU).
H02	H02	01: Compressor 1 side 02: Compressor 2 side	IPDU	Compressor trouble (lockup) MG-CTTtrouble	All stop	Overcurrent is detected several seconds after startup of inverter compressor.	• Check for trouble in compressor. • Check power supply • voltage. (AC208/230V ± 10%). • Check compressor system wiring, particularly for open phase. • Check connection of connectors/terminals on A3-IPDU P.C. board. • Check conductivity of case heater. (Check for refrigerant problem inside compressor.) • Check for trouble in outdoor P.C. board (A3-IPDU). • Check outdoor MG-CTT.
H03	H03	01: Compressor 1 side 02: Compressor 2 side	IPDU	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 trouble in outdoor P.C. board (A3-IPDU). • Check the External / Current sensor
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 trouble 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, PMV3). • Check for trouble in SV2 or SV4 circuits. • Check for trouble 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.

MG-CTT: Magnet contactor

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

ERROR CODES

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
H07	H07	–	I/F	Low oil level protection	All stop	Operating compressor detects continuous state of low oil level for about 2 hours.	<All outdoor units in corresponding line to be checked> • Check balance pipe service valve to confirm full opening. • Check connection and installation of TK1, TK2, TK4, and TK5 sensors. • Check resistance characteristics of TK1, TK2, TK4, and TK5 sensors. • Check for gas or oil leak in same line. • Check for refrigerant problem inside compressor casing. • Check SV3A, SV3B, SV3C, SV3D valves for trouble. • Check oil return circuit of oil separator for clogging. • Check oil equalizing circuit for clogging.
H08	H08	01: TK1 sensor trouble 02: TK2 sensor trouble 04: TK4 sensor trouble 05: TK5 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 trouble 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 trouble in outdoor P.C. board (I/F).
					All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TK4 sensor connector. • Check resistance characteristics of TK4 sensor. • Check for trouble in outdoor P.C. board (I/F).
					All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TK5 sensor connector. • Check resistance characteristics of TK5 sensor. • Check for trouble 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 trouble in outdoor P.C. board (I/F).

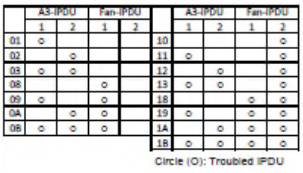
ERROR CODES

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
H16	H16	01: TK1 oil circuit trouble 02: TK2 oil circuit trouble 04: TK4 oil circuit trouble 05: TK5 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, TK2, TK4, and TK5 sensors • Check for clogging in oil equalizing circuit capillary and faulty operation in check valve. • Check for refrigerant entrapment inside compressor.
						No temperature change is detected by TK2 despite compressor 2 having been started.	• Check for disconnection of TK2 sensor. • Check resistance characteristics of TK2 sensor. • Check for connection trouble involving TK1, TK2, TK4, and TK5 sensors • Check for clogging in oil equalizing circuit capillary and faulty operation in check valve. • Check for refrigerant entrapment inside compressor.
						No temperature change is detected by TK4 despite compressor having been started.	• Check for disconnection of TK4 sensor. • Check resistance characteristics of TK4 sensor. • Check for connection trouble involving TK1, TK2, TK4, and TK5 sensors • Check for clogging in oil equalizing circuit capillary and faulty operation in check valve. • Check for refrigerant entrapment inside compressor.
						No temperature change is detected by TK5 despite compressor having been started.	• Check for disconnection of TK5 sensor. • Check resistance characteristics of TK5 sensor. • Check for connection trouble involving TK1, TK2, TK4, and TK5 sensors • Check for clogging in oil equalizing circuit capillary and faulty operation in check valve. • Check for refrigerant entrapment inside compressor.
J03	–	–	Indoor unit	Duplication of FS units	Stop of corresponding unit(s)	More than one FS units have been set up in one refrigirant line.	• Check indoor unit(s)-FS unit(s) cable
J10	J10	Detected indoor address	Indoor unit	FS unit overflow trouble	All stop	• Float switch operates • Float switch circuit is open-circuited or disoonnected at connector.	• Check float switch connector • Check operation of drain pump. • Check drain pump circuit • Check drain pipe for clogging • Check for defect indoor PC board.
J11	–	–	Indoor unit	FS unit Temperature sensor(TCS) trouble	Stop of corresponding unit(s)	Sensor resistanoe is infinity or zero(open/ short circuit)	• Check connection of TCS sensor connector • Check resistance characteristics of TCS sensor. • Check for defect FS unit PC board.
L02	L02	–	Indoor unit	Outdoor units model disagreement trouble	All stop	In case of different outdoor unit	• Check outdoor unit model.
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.

ERROR CODES

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
L05	–	–	I/F	Duplicated priority indoor unit (as displayed on priority indoor unit)	All stop	More than one indoor units have been set up as priority indoor unit.	• Check display on priority indoor unit.
L06	L06	No. of priority indoor units	I/F	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)	All stop	More than one indoor units have been set up as priority indoor unit.	• Check displays on priority indoor unit and outdoor unit.
L07	–	–	Indoor unit	Connection of group control cable to stand-alone indoor unit	Stop of corresponding unit	There is at least one stand-alone indoor unit to which group control cable is connected.	• Check indoor addresses.
L08	L08	–	Indoor unit	Indoor group / addresses not set	Stop of corresponding unit	Address setting has not been performed for indoor units.	• Check indoor addresses. **Note:** **This code is displayed when power is turned on for the first time after installation.**
L09	–	–	Indoor unit	Indoor capacity not set	Stop of corresponding unit	Capacity setting has not been performed for indoor unit.	Set indoor capacity. (DN = 11)
L10	L10	–	I/F	Outdoor capacity not set	All stop	Jumper wire provided on P.C. board for servicing I/F P.C. board has not been removed as required for given model.	Check model setting of P.C. board for servicing outdoor I/F P.C. board.
L12	L12	01:FS unit(s) installation trouble	I/F	FS unit(s) outside the application setting	All stop	Set up other than multi port FS unit(s) to 36 ton or more system	• Check outdoor unit model name • Check FS unit model name • Check restricted installation of FS unit
L17	L17	–	I/F	Incompatible combination of outdoor units	All stop	Old model outdoor unit (prior to 6 series) has been connected	• Check outdoor unit model
L18	L18	Detected indoor address	FS unit	Cooling/heating selection unit trouble	Stop of corresponding unit	Cooling/heating cycle trouble resulting from piping trouble is detected	• Check Cooling/Heating FS unit • Check set Cooling-only setting.
L20	–	–	Network adaptor Indoor unit	Duplicated central control address	All stop	There is duplication in central control address setting.	• Check central control addresses. • Check network adaptor P.C. board .
L23	L23	Clean converter seting	I/F	SW setting mistake	All stop	Outdoor P.C. board (I/F) does not operate normally.	• Check switch setting of Bit 3 and 4 of SW17 in outdoor P.C. board (I/F).
L24	L24	01:Duplication of FS units address 02:Indoor units operation mode priority setting	I/F	FS unit(s) setting trouble	All stop	• Address setting has not been performed for FS units • Priority setting has not been performed for indoor units	• Check FS units addres • Check indoor units operation mode priority setting • Check outdoor unit 7 segment monitor
L28	L28	–	I/F	Too many outdoor units connected	All stop	There are more than three outdoor units.	• Check No. of outdoor units connected (Only up to 3 units per system allowed). • Check communication lines between outdoor units. • Check for defect in outdoor P.C. board (I/F).

ERROR CODES

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
L29	L29	 Circle (○): Troubled IPDU	I/F	Trouble in No. of IPDUs	All stop	Insufficient number of IPDUs are detected when power is turned on.	• Check model setting of P.C. board for servicing outdoor I/F P.C. board. • Check connection of UART communication connector. • Check A3-IPDU, fan IPDU, and I/F P.C. board for trouble.
L30	L30	Detected indoor address	Indoor unit	External interlock of indoor unit	Stop of corresponding unit	• Signal is present at external trouble input terminal (CN80) for 1 minute.	**When external device is connected to CN80 connector:** 1) Check for trouble in external device. 2) Check for trouble in indoor P.C. board. **When external device is not connected to CN80 connector:** 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.
P02	P02	01: Compressor 1 side 02: Compressor 2 side	I/F	Boost converter circuit trouble	All stop	Circuit protection for boost circuit	• Check power supply voltage. (AC 208/230V ± 10%) • Check connection of connectors/terminals on A3-IPDU P.C.board. • Check wiring for CH-95 reactor.
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, 3, 4) for clogging. • Check resistance characteristics of TD1 sensor. • Check for insufficiency in refrigerant quantity. • Check for defect in 4-way valve. • Check for leakage of SV4 circuit. • Check SV4 circuit (wiring or installation trouble in SV41 or SV42). • Check for SV15 for clogging. • Check stuck in the check valve of the circuit which by passes the main heat exchanger and sub heat exchanger.

ERROR CODES

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
P04	P04	01: Compressor 1 side 02: Compressor 2 side	IPDU	Activation of high-pressure SW	All stop	High-pressure SW is activated.	• Check connection of high-pressure SW connector. • Check for trouble in PD pressure sensor. • Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check for trouble in outdoor fan. • Check for trouble in outdoor fan motor. • Check outdoor PMVs (PMV1, 3) for clogging. • Check indoor/outdoor heat exchangers for clogging. • Check for short-circuiting of outdoor suction/discharge air flows. • Check SV2 circuit for clogging. • Check for trouble 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 faulty operation of check valve in discharge pipe convergent section. • Check gas balancing SV4 valve circuit. • Check SV5 valve circuit. • Check for refrigerant overcharging.
P05	P05	00:	I/F	Detection of open phase/phase sequence	All stop	• Open phase is detected when power is turned on. • Inverter DC voltage is too high (overvoltage) or too low (undervoltage).	• Check for trouble in outdoor P.C. board (I/F). • Check wiring of outdoor power supply.
		01: Compressor 1 side 02: Compressor 2 side		Inverter DC voltage (Vdc) trouble (compressor) MG-CTT trouble			
P07	P07	01: Compressor 1 side 02: Compressor 2 side	IPDU I/F	Heat sink overheating trouble	All stop	Temperature sensor built into IPM (TH) is overheated.	• Check power supply voltage. • Check outdoor fan system trouble. • Check heat sink cooling duct for clogging. • Check IPM and heat sink for thermal performance for faulty installation. (e.g. mounting screws and thermal conductivity) • Check for trouble in A3-IPDU.(faulty IPM built-in temperature sensor (TH))
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 trouble in indoor P.C. board.
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 trouble in fan motor. • Check for trouble in indoor P.C. board. • Check impact of outside air treatment (OA).

MG-CTT: Magnet contactor

ERROR CODES

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote 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 follower unit that has been turned off. <During heating operation> When system is in heating operation, outdoor PMV 1 continuously registers opening of 300p or less while under superheat control.	• Check full-close operation of outdoor PMV (1, 4). • Check for trouble in PD or PS sensor. • Check gas balancing circuit (SV2) for clogging. • Check balance pipe. • Check SV3B circuit for clogging. • Check trouble in outdoor P.C. board (I/F). • Check capillary of oil separator oil return circuit for clogging. • Check for leakage of check valve in discharge pipe convergent section.
P15	P15	01: TS condition	I/F	Gas leakdetection (TS1 condition)	All stop	Protective shutdown due to sustained suction temperature at or above judgment criterion for at least 10 minutes is repeated four times or more. <TS 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, 4) for clogging. • Check resistance characteristics of TS1 sensor. • Check for trouble 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, 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, 4) for clogging. • Check resistance characteristics of TD2 sensor. • Check for trouble in 4-way valve. • Check SV4 circuit for leakage. • Check SV4 circuit (for wiring or installation trouble involving SV41 and SV42). • Check for SV15 for clogging. • Check stuck in the check valve of the circuit which by passes the main heat exchanger and sub heat exchanger.

ERROR CODES

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
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 trouble in main body of 4-way valve. • Check for coil trouble in 4-way valve and loose connection of its connector. • Check resistance characteristics of TS1 and TE1,TE2 sensors. • Check output voltage characteristics of P and Ps pressure sensors. • Check for wiring trouble involving TE1 and TL1 sensors.
P20	P20	–	I/F	Activation of high-pressure protection	All stop	<During cooling operation> PD sensor detects pressure equal to or greater than 558.25psi (3.85 MPa). <During heating operation> PD sensor detects pressure equal to or greater than 552psi (3.6 MPa).	• Check for trouble in PD pressure sensor. • Check service valves (gas side, liquid side) to confirm full opening. • Check for trouble in outdoor fan. • Check for trouble in outdoor fan motor. • Check outdoor PMV (PMV1, 4) for clogging. • Check indoor/outdoor heat exchangers for clogging. • Check for short-circuiting of outdoor suction/ discharge air flows. • Check SV2 circuit for clogging. • Check for trouble 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 trouble operation of check valve in discharge pipe convergent section. • Check gas balancing SV4 valve circuit. • Check SV5 valve circuit. • Check for refrigerant overcharging. • Check for SV15 for clogging. • Check stuck in the check valve of the circuit which by passes the main heat exchanger and sub heat exchanger.

ERROR CODES

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Check code	Sub-code					
P22	P22	#0:Element short circuit	IPDU	Outdoor fan IPDU trouble *Put in Fan IPDU No. in [#] mark	All stop	(Sub code: #0) Fan IPDU over current protection circuit Flow of current equal to or greater than the specified value is detected during startup of the fan.	• Check fan motor. • Check for trouble in fan IPDU P.C. board
		#1:Position detection circuit trouble			All stop	(Sub code: #1) Fan IPDU position detection circuit Position detection is not going on normally.	• Check fan motor. • Check connection of fan motor connector. • Check for trouble in fan IPDU P.C. board.
		#3:Motor lock trouble			All stop	(Sub code: #3) Gusty wind, an obstruction, or another external factor Speed estimation is not going on normally.	• Check fan motor. • Check for trouble in fan IPDU P.C. board
		#4:Motor current trouble			All stop	(Sub code: #4) Fan IPDU over current protection circuit Flow of current equal to or greater than the specified value is detected during operation of the fan.	• Check fan motor. • Check connection of fan motor connector. • Check for trouble in fan IPDU P.C. board.
		#C:TH sensor temperature trouble			All stop	(Sub code: #C) Higher temperature than the specified value is detected during operation of the fan.	• Check fan motor. • Check for trouble in fan IPDU P.C. board
		#D:TH sensor short circuit/release trouble			All stop	(Sub code: #D) The resistance value of the sensor is infinite or zero (open or short circuit).	• Check for trouble in fan IPDU P.C. board.
		#E:Vdc voltage trouble			All stop	(Sub code: #E) Fan IPDU DC voltage protection circuit The DC voltage higher or lower than the specified value is detected.	• Check power voltage of the main power supply. • Check for trouble in fan IPDU P.C. board. • Check connection of fan IPDU P.C. board.
P26	P26	01: Compressor 1 side 02: Compressor 2 side	IPDU	IPM short-circuit protection trouble	All stop	Overcurrent is momentarily detected during startup of compressor.	• Check connector connection and wiring on A3-IPDU P.C. board. • Check for trouble in compressor (layer short-circuit). • Check for trouble in outdoor P.C. board (A3-IPDU).
P29	P29	01: Compressor 1 side 02: Compressor 2 side	IPDU	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 trouble in A3-IPDU P.C. board.
P31	–	–	Indoor unit	Other indoor trouble (group follower unit trouble)	Stop of corresponding unit	There is trouble in other indoor unit in group, resulting in detection of E07/L07/L03/L08.	• Check indoor P.C. board.

J03 – Multiple stats on 1 port (multi port box)

ERROR CODES

Check codes Detected by TCC-LINK Central Control Device

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Main remote controller	Outdoor 7-segment display						
	Sub-code						
C05	–		TCC-LINK	TCC-LINK central control device transmission trouble	Continued operation	Central control device is unable to transmit signal.	• Check for trouble in central control device. • Check for trouble in central control communication line. • Check termination resistance setting.
C06	–			TCC-LINK central control device reception trouble	Continued operation	Central control device is unable to receive signal.	• Check for trouble in central control device. • Check for trouble in central control communication line. • Check terminator resistor setting. • Check power supply for devices at other end of central control communication line. • Check trouble in P.C. boards of devices at other end of central control communication line.
C12	–		General-purpose device I/F	Batch alarm for general-purpose device control interface	Continued operation	Trouble signal is input to control interface for general-purpose devices.	• Check trouble input.
P30	Differs according to nature of alarm-causing trouble		TCC-LINK	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.

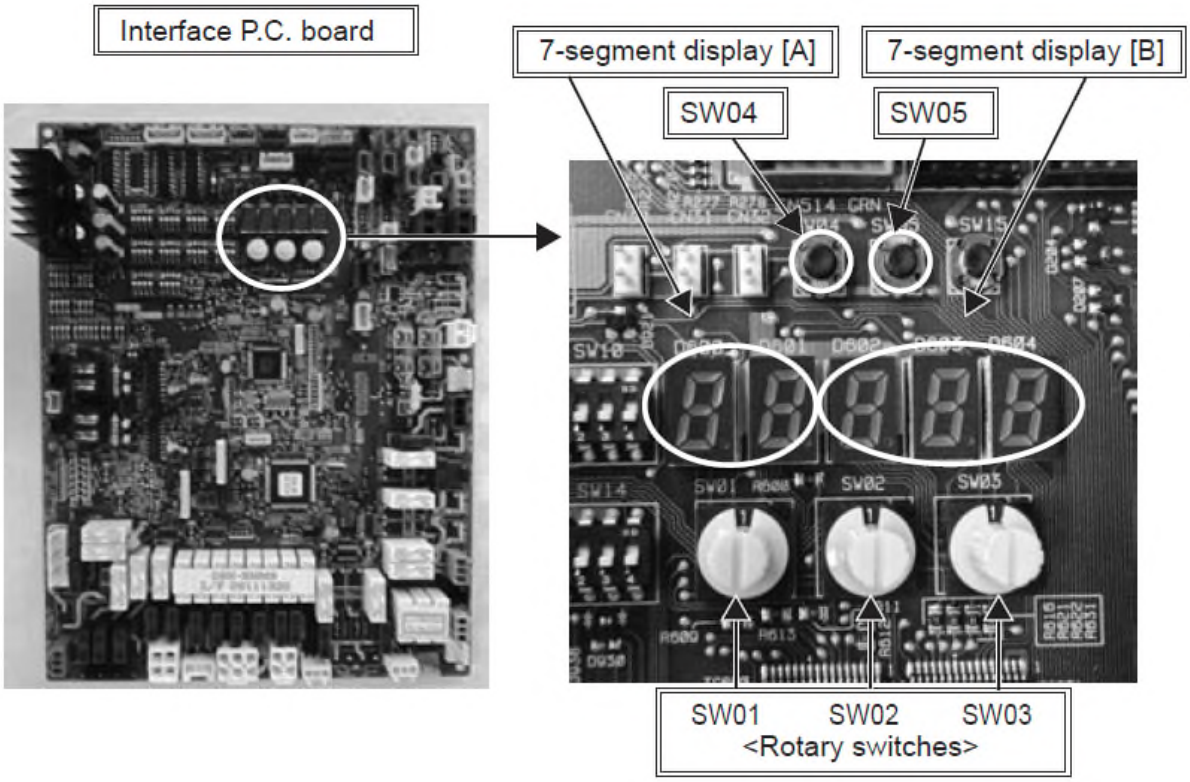
SERVICE FUNCTIONS

SERVICE FUNCTIONS

Connected Quantity of Indoor Units

Set rotary switches to [1,4,3]. The display will show how many are connected on the left two digits. The right three digits will show how many are thermal on in cooing.

Set rotary switches to [1,5,3]. The display will show how many are connected on the left two digits. The right three digits will show how many are thermal on in heating.



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 press SW04 for 2 seconds or more.

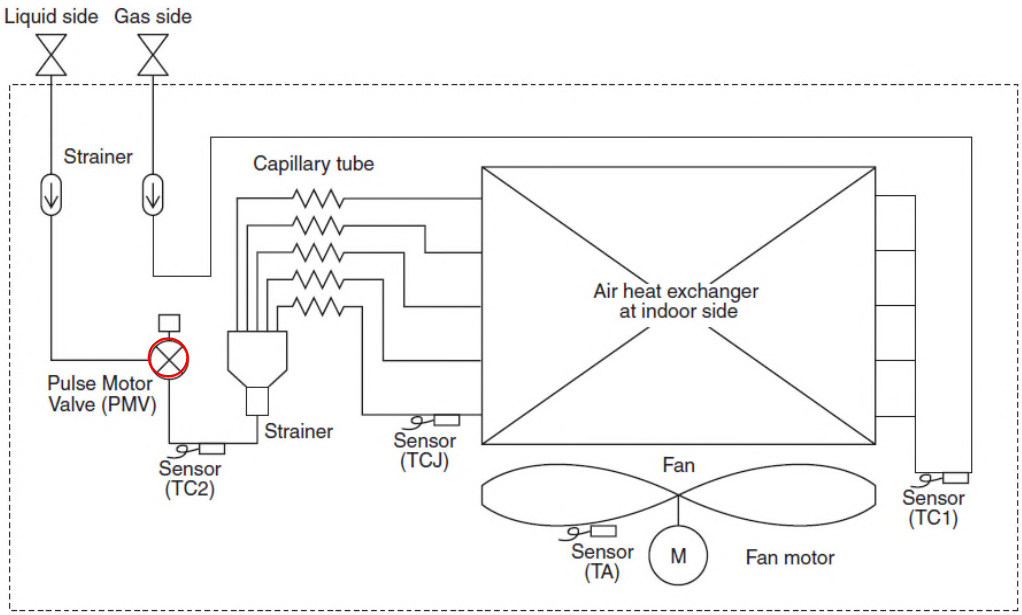
(Display appears on 7-segment display for 2 minutes as follows.) [P] [FF]

[Close Fully]

Set the switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/3/1], and press 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.



Pulse Motor Valve (PMV) Forced Open Fully/Close fully Function in Outdoor Unit

This function is provided to force open or closed the PMVs (PMV1/PMV2, PMV4) used in the outdoor unit for 2 minutes.

[PMV1/PMV2 Open fully]

On the interface P.C. board of the outdoor unit, set the dip switch [SW12·bit1] to [OFF], [SW12·bit2] to [OFF], and short-circuit CN30.

[PMV1/PMV2 Close fully]

On the interface P.C. board of the outdoor unit, set the dip switch [SW12·bit1] to [OFF], [SW12·bit2] to [OFF], and short-circuit CN31.

[PMV4 Open fully]

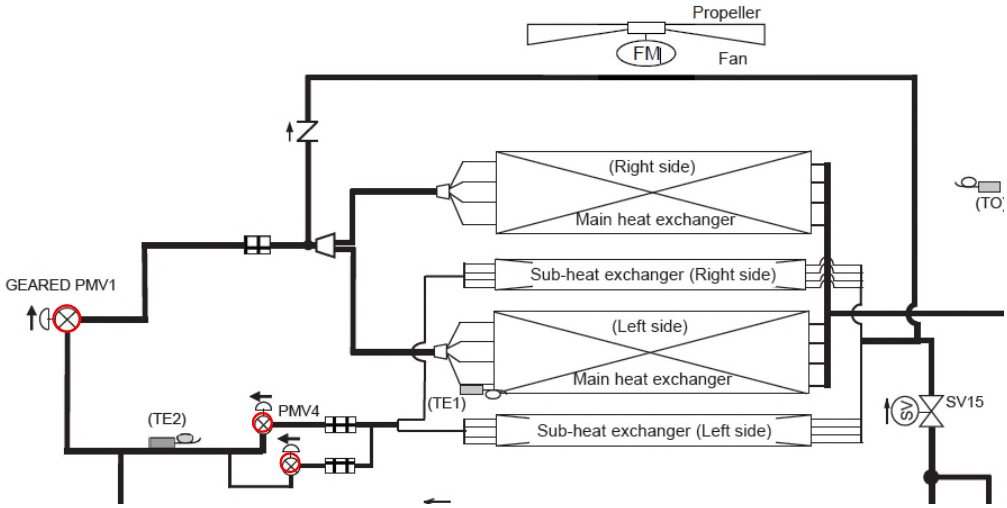
On the interface P.C. board of the outdoor unit, set the dip switch [SW12·bit1] to [OFF], [SW12·bit2] to [ON], and short-circuit CN30.

[PMV4 Close fully]

On the interface P.C. board of the outdoor unit, set the dip switch [SW12·bit1] to [OFF], [SW12·bit2] to [ON], and short-circuit CN31.

[Clear]

For both open fully and close fully, after 2 minutes, the opening returns to the normal opening.
Be sure to remove the cord used for short-circuit after confirmation, and set the dip switch [SW12·bit1] to [OFF] and [SW12·bit2] to [OFF].



SERVICE FUNCTIONS

Outdoor Solenoid Control

1 **Set the switches to 2/1/3**

2 **SW04 = Start**

3 **Choose valve with SW02**

SW02	7-segment display [B]	Operation pattern of solenoid valve														Case heater output
		SV2	SV5	SV41	SV42	SV43	SV3A	SV3B	SV3C	SV3D	SV3E	SV3F	SV6	SV11	SV14	
1	[2]	O	—	—	—	—	—	—	—	—	O	—	—	—	—	O
2	[5]	—	O	—	—	—	—	—	—	—	O	—	—	—	—	O
3	[41]	—	—	O	—	—	—	—	—	—	O	—	—	—	—	O
4	[42]	—	—	—	O	—	—	—	—	—	O	—	—	—	—	O
5	[43]	—	—	—	—	O	—	—	—	—	O	—	—	—	—	O
6	[3A]	—	—	—	—	—	O	—	—	—	O	—	—	—	—	O
7	[3b]	—	—	—	—	—	—	O	—	—	O	—	—	—	—	O
8	[3C]	—	—	—	—	—	—	—	O	×	O	O	—	—	—	O
9	[3d]	—	—	—	—	—	—	—	—	O	×	O	—	—	—	O
10	[3–]	—	—	—	—	—	O	O	O	×	O	×	—	—	—	O
11	[6]	—	—	—	—	—	—	—	—	—	O	—	O	—	—	O
12	[ ]	—	—	—	—	—	—	—	—	—	O	—	—	—	—	O
13	[11]	—	—	—	—	—	—	—	—	—	O	—	—	O	—	O
15	[14]	—	—	—	—	—	—	—	—	—	O	—	—	—	O	O
16	[ALL]	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O

[Clear]

Return switches SW01/SW02/SW03 on the interface P.C. board to [1/1/1].

NOTE) As this function is not based on the specified general control scheme, be sure to release this mode after checking.

SERVICE FUNCTIONS

Refrigerant Recovery

1. **Open IDU PMV valves and power down IDUs (2,3,1 > SW04 > power down IDUs within 2 minutes).**

2. **Open all solenoid valves (2,1,3 > SW04 > SW02=16).**

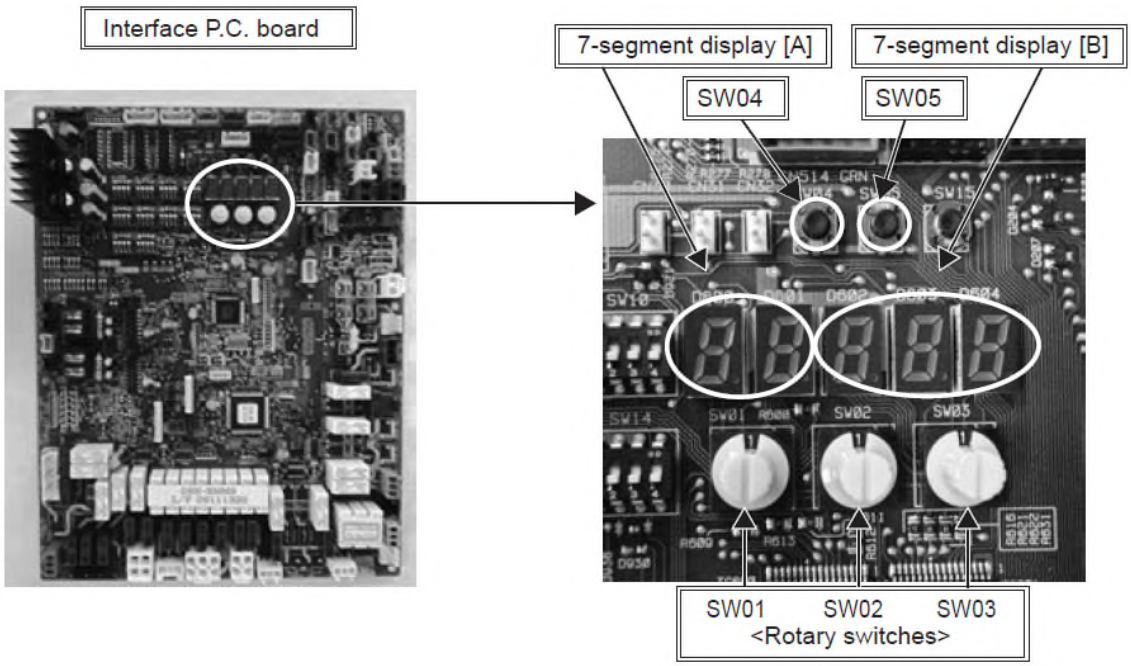
3. **Recover refrigerant from liquid, suction, and hot gas pipes at the same time.**

For pump down or pump out refer to service manual.

SERVICE FUNCTIONS

Clearing Addresses

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 5 seconds.	System/indoor unit/group address
2	2	22	Confirm that the 7-segment display indicates “A.d.nEt” and turn SW04 ON for more than 5 seconds.	Central control address



Test Run

No	Function	Outline	Setup/Release	7-segment Display
1	All 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 press SW04 for 2 seconds or more. **Release** Return SW01/SW02/SW03 to [1/1/1].	Section A [C.] Section B [– C]
2	All 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 press 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 press 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 press 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 64) to be started, and press SW04 for 2 seconds or more. **Release** Return SW01/SW02/SW03 to [1/1/1].	Section A [C.H] Section B [00] Section A: Displays the corresponding indoor address. Section B: 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 64) to be stopped, and press SW05 for 2 seconds or more. **Release** Return SW01/SW02/SW03 to [1/1/1].	Section A [C.H] Section B [00] Section A: Displays the corresponding indoor address. Section B: 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 press SW04 for 10 seconds or more. **Release** Return SW01/SW02/SW03 to [1/1/1].	Section A [C.H] Section B [00] Section A: Displays the corresponding indoor address. Section B: Displays [FF] for 5 seconds from test operation-ON.

BOARD REPLACEMENT

Interface P.C. Board (MCC-1673) Replacement Procedure

This Interface board is commonly installed in different models before shipment. When the board assembly is to be replaced, check the displayed inspection contents below and replace the board in accordance with the model, following the below procedure.

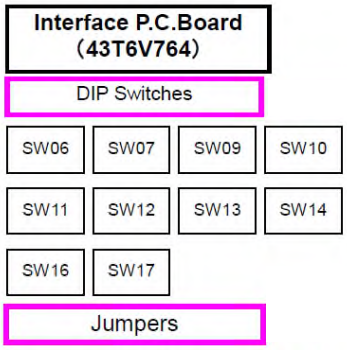
Replacement steps:

1. Turn off the power supply of the outdoor unit and wait at least 5 minutes.
2. Remove all of the connectors connected to the interface board. (Remove the connectors by pulling the connector body. Do not pull the wire).
3. Remove the interface board from the six PCB mounts (0).
4. Cut the jumper wires of the service board, as instructed in the table below.

   The jumper setting differs from original supplied PCB, therefore be sure to configure the Jumpers as in the table below.

   If the model is not specified, check code MO" is displayed and the equipment will not operate.

Model name	Model size	J09	J10	J11	J12	J22	J25
Service P.C. Board		Yes	Yes	Yes	Yes	Yes	Yes
MMY-MAP0726FT9P-UL	990W	—	Cut	—	—	—	Cut
MMY-MAP0966FT9P-UL	1210W	Cut	—	—	—	—	Cut
MMY-MAP1206FT9P-UL		Cut	Cut	Cut	Cut	—	Cut
MMY-MAP1446FT9P-UL	1600W	Cut	—	Cut	Cut	—	Cut
MMY-MAP1686FT9P-UL		—	—	Cut	Cut	—	Cut



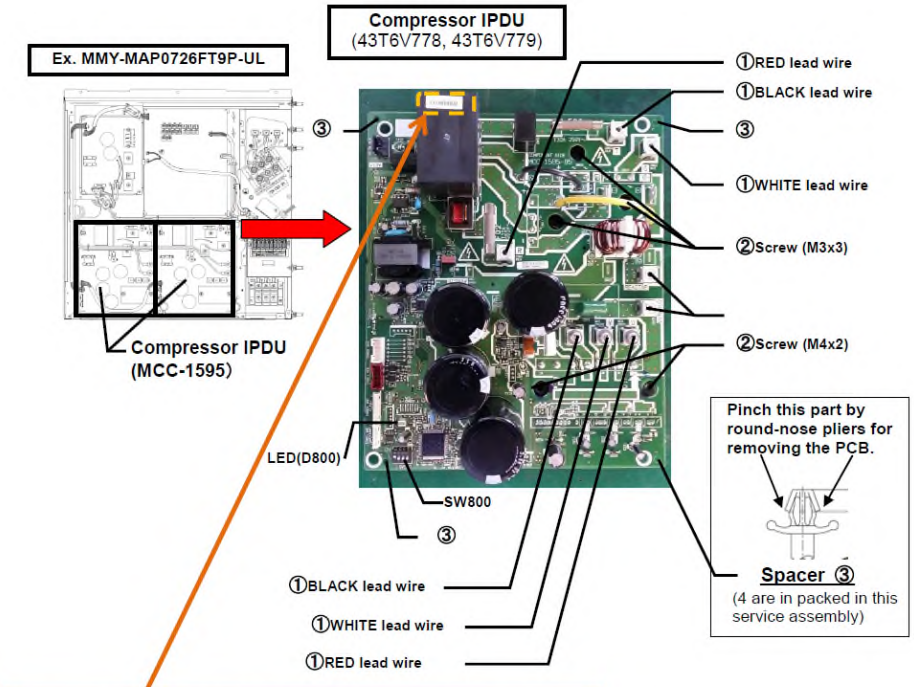
1. Set the DIP switch settings of the service board to match the switch settings of the PCB being replaced.
2. Install the service board to the outdoor control unit (Confirm that it is securely fixed to the PCB Mounts).
3. Connect the connectors (Confirm that they are correctly and securely inserted).
4. If a component on the board is bent during board replacement, adjust it manually ensuring that it is not short or contact other parts.
5. Install the cover, then turn on the power supply. Check the operation.

Comp-IPDU P.C. Board (MCC-1595) Replacement Procedure <6 to 10 ton outdoor unit case>

This board is commonly installed in different models before shipment. Set the DIP switch (SW800) setting of the service board to the switch setting before replacement.

Replacement steps:

1. Turn off the power supply of the outdoor unit and allow at least 5 minutes for the capacitor to discharge. Before going to Step (2), Check the light of LED(D800) turned off.
2. Remove all the connectors and the Faston and screw terminals(1O) connected to the Compressor IPDU. (Remove the connectors by pulling the connector body. Do not pull the wire).
3. Remove all the five screws(2)) which secures the Compressor IPDU to the Heat sink. (These screws are to be re-used after procedure.)
4. Remove the Compressor IPDU from the four spacers (C)) by pinching the top of the spacers by round-nose pliers.

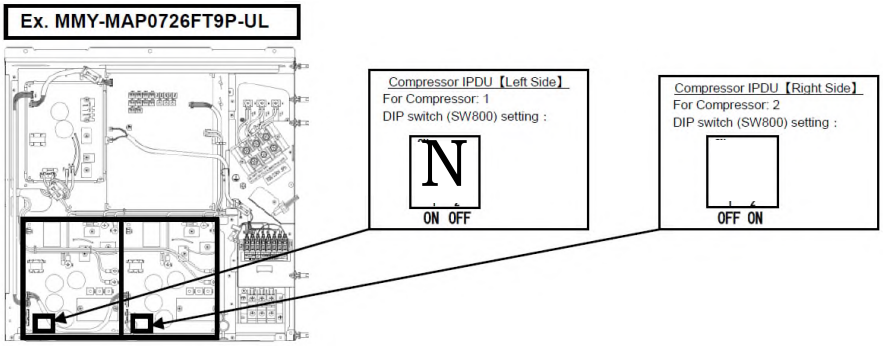


Check the label printing, and don't miss the Part No. of Comp-IPDU.

Part No.	Type name: MMY-MAP****		Label printing
	0726 FT9P-UL	0966/1206 FT9P-UL	
43T6V778	O		1114980502
43T6V779		O	1114980503

Comp-IPDU P.C. Board (MCC-1595) Replacement Procedure <6 to 10 ton outdoor unit case>

5. Set the DIP switch (SW800) setting of the service board to match the switch setting from the original PCB. -Set the DIP switch (SW800) depending on the position of the IPDU within the electrical box, as shown in the following diagram.



6. Apply the Silicone Thermal Grease to the semiconductors (DB01, DB02, DB03, Q201) on the service PC board, and align the positions of the heat sink holes to mount the Compressor IPDU on the outdoor control unit. And fix the Compressor IPDU to the outdoor control unit by the spacers (0).

Silicone Thermal Grease use one of the following
- Momentive Performance Materials "TIG1000"
- Dow Corning Toray "SC102"
- Mizutani Electric Ind "HSC1000"
- Shin-Etsu Chemical "G-746" or "G-747"

7. Screw the Compressor IPDU to the heat sink by the five screws that were removed in step (3). If the screws are loose, the effect component will generate heat, and cause it to breakdown. Do not use an electric driver or an air driver. As it can cause component damage. The torque of the screws are referred to table below.
   Screw tightening torque (ft• lbs)

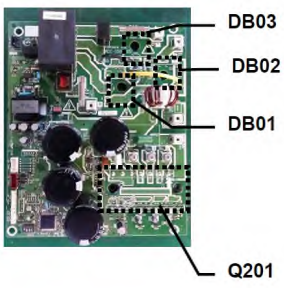
Screw tightening torque (ft·lbs)

Screw diameter	Torque(ft•lbs)
M4 (for Q201)	0.89(1.2N·m)
M3 (for DB01, DB02, DB03)	0.37(0.5N·m)

8. Re-connect the connectors and screw terminals (0&®). Be sure that all the connectors and the screw terminals are connected correctly and securely inserted.

   If the components on the PCB were bent during this procedure, straighten them so they do not touch other parts.

   Install the cover, then turn on the supply. Check the operation



BOARD REPLACEMENT

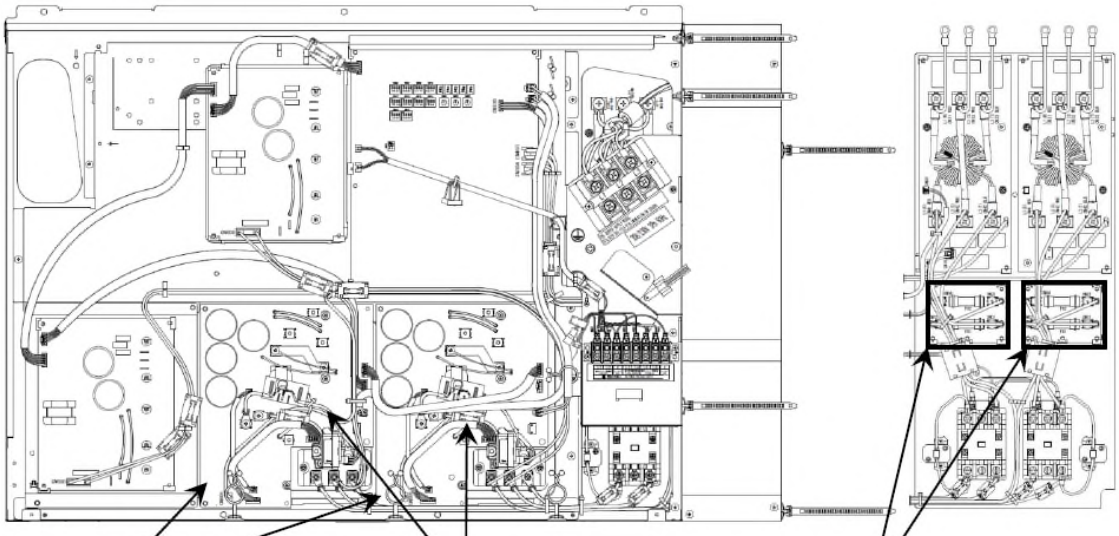
Comp IPDU P.C. Board (MCC-1687A,B & External Varistor Assembly) Replacement Procedure <12 to 14 ton outdoor unit case>

Compressor IPDU (43T6V780) includes three components parts:

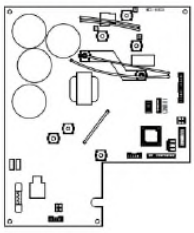
1. Comp IPDU P.C. Board (MCC-1687A) & External Varistor Assembly
2. Fuse P.C. Board (MCC-1687B)

Layout of Inverter
(for 12 to 14 ton outdoor unit case)

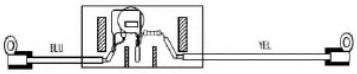
Layout of
Noise Filter BOX



(1) Comp IPDU P.C. Board
(MCC-1687A)



(1) External Varistor Assembly



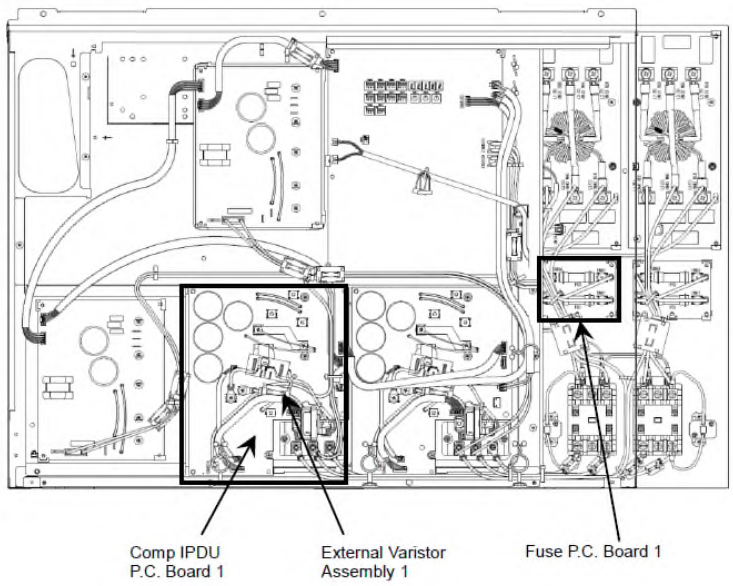
(2) Fuse P.C. Board
(MCC-1687B)

BOARD REPLACEMENT

The construction of the components
For the pair of three component parts, refer to the drawings below.

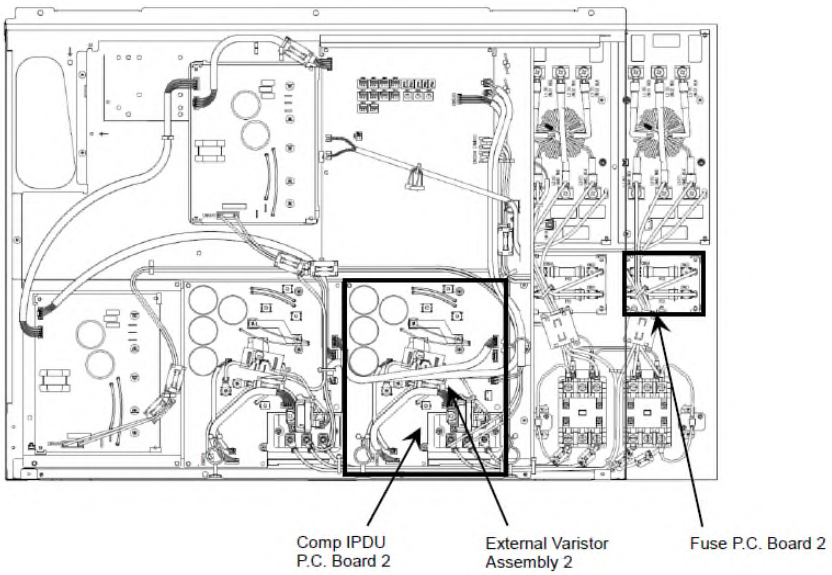
Pair of Comp-IPDU 1 (Left Side)

Ex. MMY-MAP1686FT9P-UL



Pair of Comp-IPDU 2 (Right Side)

Ex. MMY-MAP1686FT9P-UL



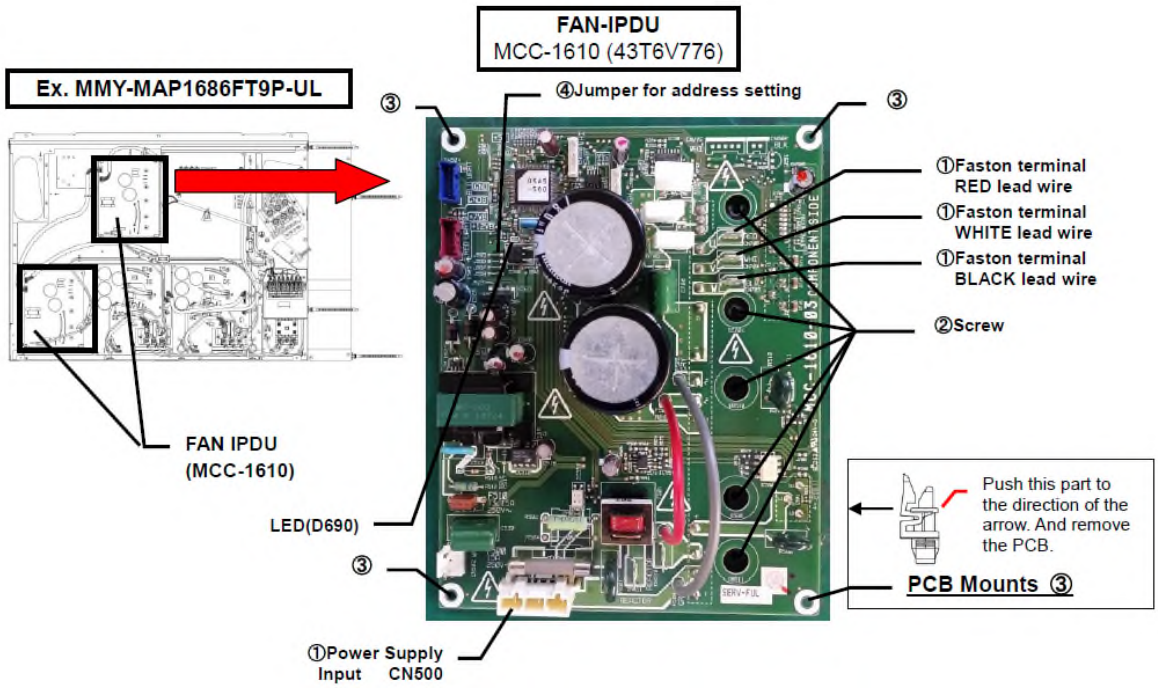
BOARD REPLACEMENT

Fan-IPDU P.C. Board (MCC-1610) Replacement Procedure

This board is commonly installed in different models before shipment. Set the DIP switch (SW800) setting of the service board to the switch setting before replacement.

Replacement steps:

1. Turn off the power supply of the outdoor unit and allow at least 5 minutes for the capacitor to discharge. Check the light of LED(D690) turned off.
2. Remove all the connectors and the Faston and screw terminals(0) connected to the FAN IPDU. (Remove the connectors and Faston terminals by pulling the connector body. Do not pull the wire).
3. Remove all five screws(®) which secures the FAN IPDU to the Heat sink.
   (These screws are to be re-used after procedure.)
4. Remove the Fan IPDU from the four PCB Mounts (0).



1. Confirm that no dirt or damage is on the sub heat sink. As it can reduce the heat transfer efficiency, and cause a breakdown.

COMPRESSOR BACKUP

COMPRESSOR BACKUP

This product offers backup modes of operation to tide over certain emergency situations. If a fault 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.

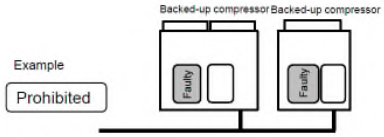
Note For Backup Operation

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

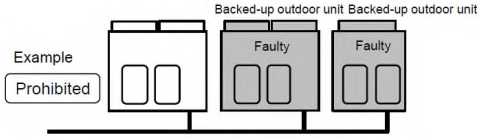
Contents of fault	Method of backup operation	Setting procedure
One of the compressors in the same unit fails (see Note 1)	Compressor backup (see Note 2)	Go to 10-2.
All the compressors in the same unit fail	Outdoor unit backup or cooling-season outdoor unit backup (see Notes 1, 3, 4 and 5)	Go to 10-3. or 10-4.
A fault occurs in a compressor motor coil (e.g. a layer short-circuit)		
A fault occurs in a refrigerating cycle part, fan or related part, or electrical part		
A fault occurs in a temperature sensor or pressure sensor		

Note 1: If the compressor has failed due to a fault 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.

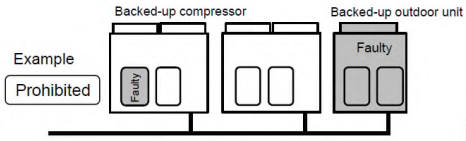
Note 2: Keep the number of backed-up outdoor units under compressor backup operation to one in the system (single refrigerant line).



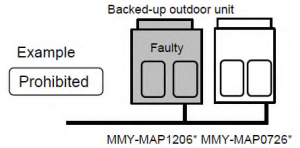
Note 3: Keep the number of backed-up outdoor units under outdoor unit backup operation to one in the system (single refrigerant line).

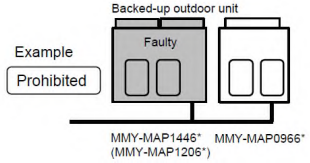


Note 4: It is prohibited to combine compressor backup operation and outdoor unit backup operation.



Note 5 : When the chassis of different size are combined, do not perform back up operation with the large size chassis.





COMPRESSOR BACKUP

Compressor Backup Operation Setting

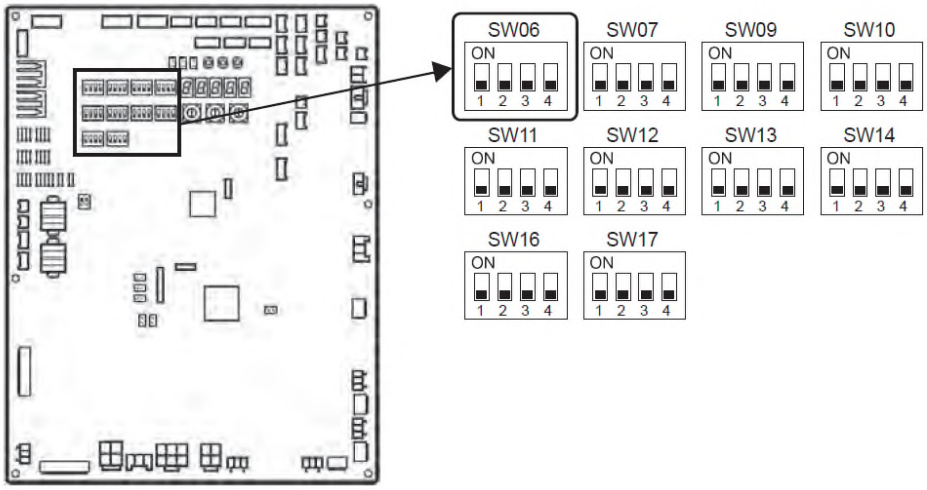
Outline

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

Work Procedure

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

(2) Set the DIP switches of SW06, provided on the interface P.C. board of the outdoor unit with the faulty compressor, as shown in the table below.



Two-compressor model	SW06			
	Bit 1	Bit 2	Bit 3	Bit 4
Factory default setting	OFF	OFF	OFF	OFF
When compressor No.1 (front left) is faulty	ON	OFF	OFF	OFF
When compressor No.2 (front right) is faulty	OFF	ON	OFF	OFF

COMPRESSOR BACKUP

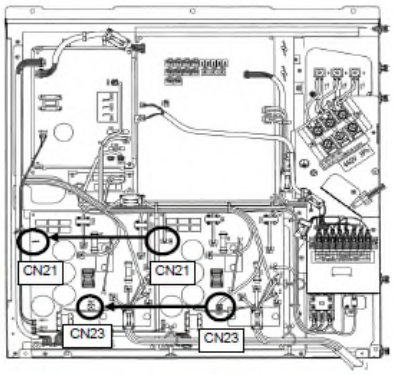
(3) Change the connection of wiring between Comp-IPDU and Fan-IPDU, as shown in the below.

Outdoor Unit (6, 8, 10ton)

Model: MMY-MAP0726FT6P-UL, MMY-MAP0966FT6P-UL, MMY-MAP1206FT6P-UL

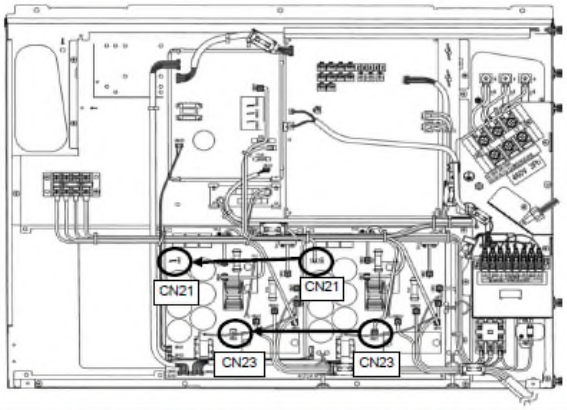
1. When compressor No.1 (front left) is faulty: No change to the connection of wiring
2. When compressor No.2 (front right) is faulty: Change the connection of wiring between Comp-IPDU and Fan-IPDU as shown in the below.

Ex. MMY-MAP0726FT6P-UL



Change the connection of wiring which is connected to the CN21, 23 of Comp-IPDU2
- Change to CN21 of Comp-IPDU1 from CN21 of Comp-IPDU2
- Change to CN23 of Comp-IPDU2 from CN23 of Comp-IPDU2

Ex. MMY- MAP0966FT6P-UL, MAP1206FT6P-UL



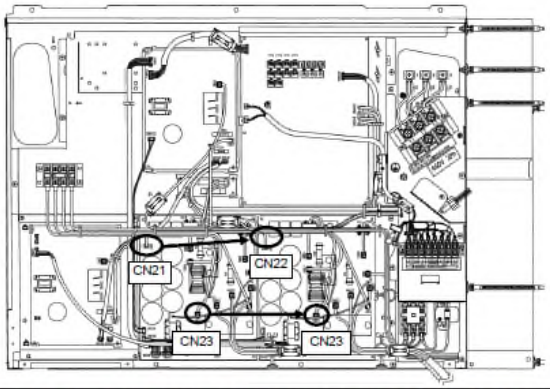
Change the connection of wiring which is connected to the CN21, 23 of Comp-IPDU2
- Change to CN21 of Comp-IPDU1 from CN21 of Comp-IPDU2
- Change to CN23 of Comp-IPDU2 from CN23 of Comp-IPDU2

COMPRESSOR BACKUP

Outdoor Unit (12, 14 ton)

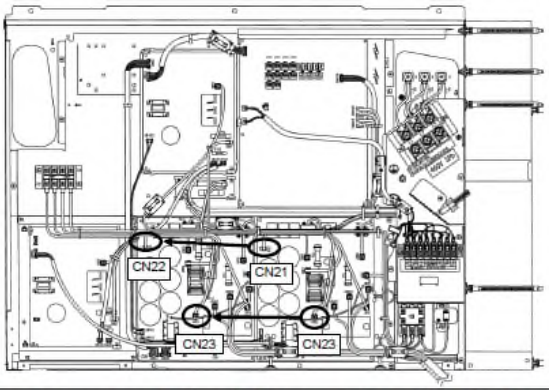
Model: MMY-MAP1446FT6P-UL, MAP1686FT6P-UL

1. When compressor No.1 (front left) is faulty: Change the connection of wiring between Comp-IPDU and Fan-IPDU as shown in the below.



Change the connection of wiring which is connected to the CN21, 23 of Comp-IPDU1
・Change to CN22 of Comp-IPDU2 from CN21 of Comp-IPDU1
・Change to CN23 of Comp-IPDU2 from CN23 of Comp-IPDU1
(Tighten two wirings together with screw terminal)

2. When compressor No.2 (front right) is faulty: Change the connection of wiring between Comp-IPDU and Fan-IPDU as shown in the below.



Change the connection of wiring which is connected to the CN21, 23 of Comp-IPDU2
・Change to CN22 of Comp-IPDU1 from CN21 of Comp-IPDU2
・Change to CN23 of Comp-IPDU1 from CN23 of Comp-IPDU2
(Tighten two wirings together with screw terminal)

COMPRESSOR BACKUP

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 fault 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 faulty compressor)
- **A failure of a pressure sensor (PD or PS) or a temperature sensor (TD1, TD2, TS1, TS2, TE1, TE2, TK1, TK2, TK4, TK5 or TL1)**

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

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 valves of the liquid and balance pipe fully open (to prevent refrigerant stagnation in the unit).

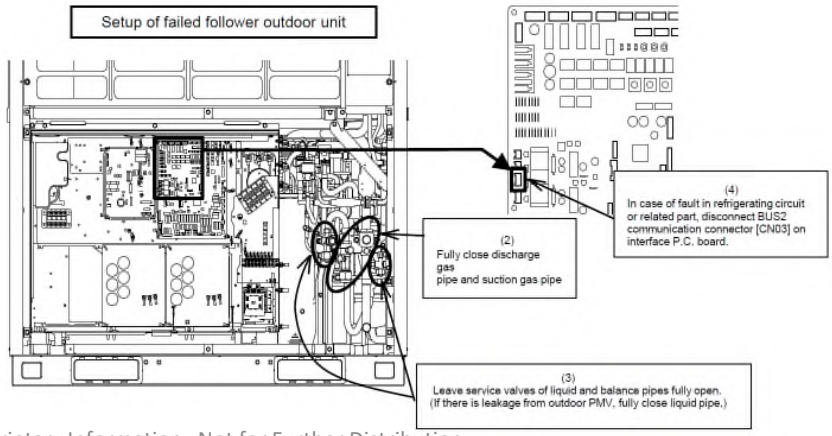
However, if there is a leakage from an outdoor PMV (unable to close), fully close the liquid pipe service valve.

(4) <In case of fault in compressor, electrical part, I/F P.C. board, or IPDU P.C. board>

From this point on, keep the power supply to the failed unit off.

<In case of fault in refrigerating circuit or related part (pressure sensor, temperature sensor, refrigerating cycle part, or fan system part)>

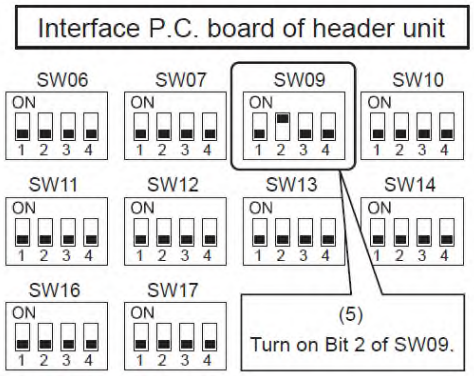
Disconnect the connector [CN03] for outdoor-outdoor communication (BUS2) provided on the interface P.C. board.



COMPRESSOR BACKUP

Setup Of Header Unit

(5) Turn on Bit 2 of SW09 on the interface P.C. board of the header unit. (Setting to prevent connected indoor units capacity over trouble. (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 fault in compressor, electrical part, I/F P.C. board, or IPDU P.C. board>

Leave the power supply off.

<In case of fault 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] (trouble 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 (trouble 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, press SW04 and hold for 5 seconds or more.

3) [Er] [… CL] (trouble 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] [– – –].)

COMPRESSOR BACKUP

(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.

↓

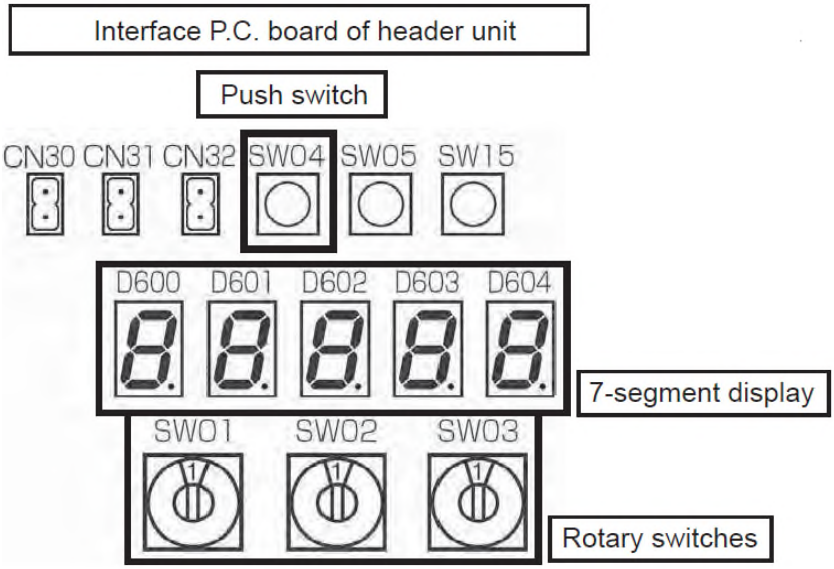
Press SW04 and hold for 5 seconds or more

[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.

COMPRESSOR BACKUP

Header outdoor unit backup operation setting (failure of header outdoor unit)

Work Procedure

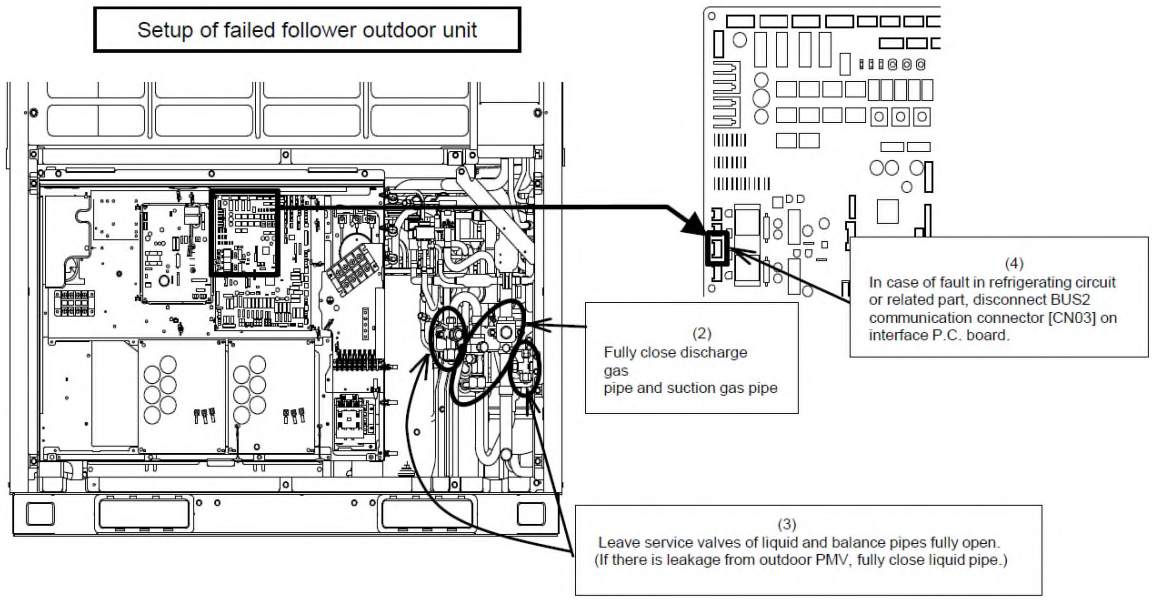
(1) Turn off the power supply to all the units connected to the system at the source.

[Setup of failed header outdoor unit]

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

(3) Leave the service valves of the liquid and balance pipes fully open (to prevent refrigerant stagnation in the failed
outdoor 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 fault in compressor, electrical part, I/F P.C. board, or IPDU P.C. board>
From this point on, keep the power supply to the failed unit off.
<In case of fault in refrigerating circuit or related part (pressure sensor, temperature sensor, refrigerating cycle part, or fan system part)>
Disconnect the connector [CN03] for outdoor-outdoor communication (BUS2) provided on the interface P.C. board.



COMPRESSOR BACKUP

Selection of New Header Unit

(5) Select a new header unit from the follower units on the basis of the following criteria:

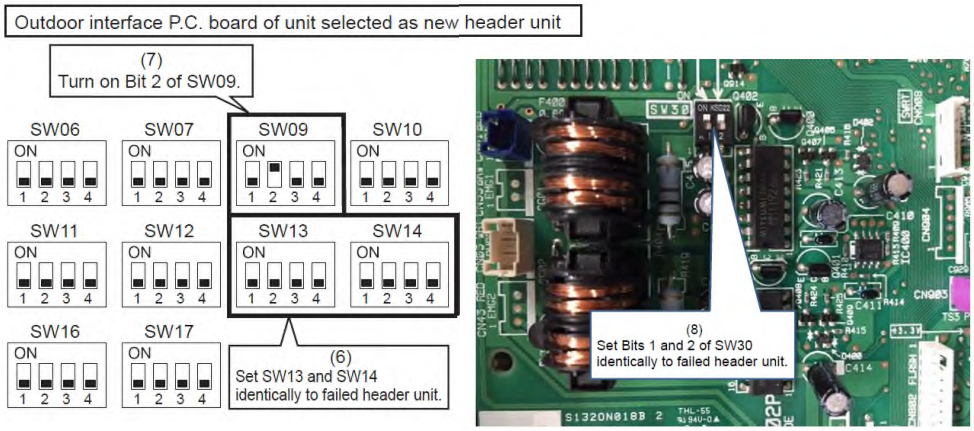
- If only one follower unit is connected, select it as the header unit.
- If two follower units are connected, select the follower unit that is nearest to the failed header unit.

[Setup of new header unit]

(6) Set SW13 and SW14 on the interface P.C. board same as the setting of failed header unit (refrigerant line address setting).

(7) Turn on Bit 2 of SW09. (Setting to prevent connected indoor unit capacity over trouble. (E16))

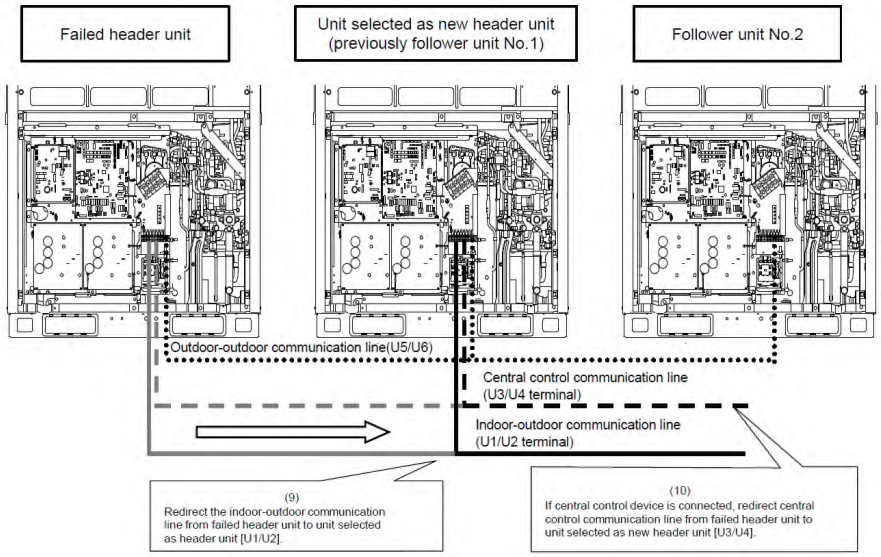
(8) Set Bits 1 and 2 of SW30 on the interface P.C. board same as that of the failed header unit (terminator resistance setting).



COMPRESSOR BACKUP

(9) Redirect the indoor-outdoor communication line connected to the failed header unit [U1/U2] to the unit selected as the header unit [U1/U2].

(10)If a central control device is connected, connect the central control communication line [U3/U4] to the communication line terminal of the unit selected as the new header unit [U3/U4], and connect up the tie connector between the [U1/U2] and [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 fault in compressor, electrical part, I/F P.C. board, or IPDU P.C. board>

Leave the power supply off.

<In case of fault 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] (trouble 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.

ROTARY SWITCHES

ROTARY SWITCHES SW01, 02, 03

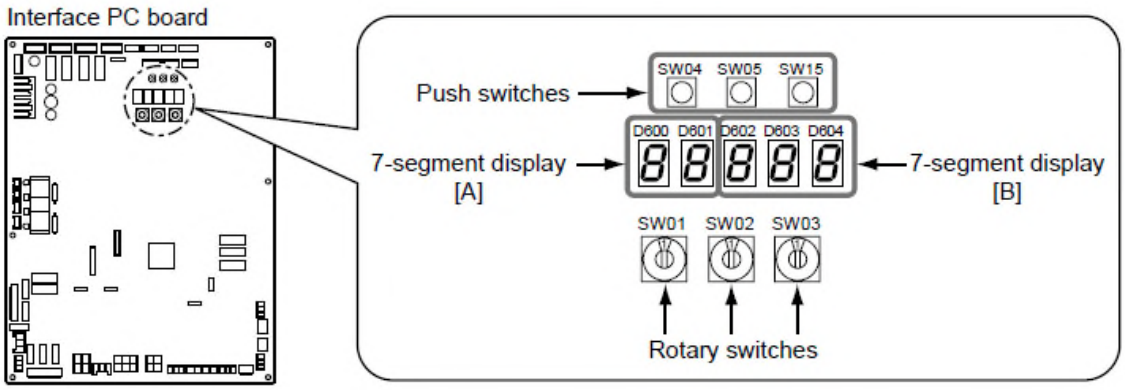
Check at Main Power-on

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, “9 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].)



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 (Pump down function)
	16		[E . r]	Check code clear function

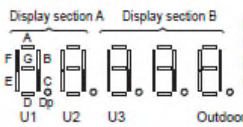
2	1~16	3	[H . r]	Solenoid valve forced open/close function
2	1~16	4~7	[F . d]	Fan forced operation function
2	1~16	15	[t . o]	Outside temperature sensor manual adjustment function

16	1~16	1	[0 1]~[1 6]	Indoor No. 1 to 16 unit	Indoor individual start/stop (ON/OFF) function
		2	[1 7]~[3 2]	Indoor No. 17 to 32 unit	
		3	[3 3]~[4 8]	Indoor No. 33 to 48 unit	
		4	[4 9]~[6 4]	Indoor No. 49 to 64 unit	

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

ROTARY SWITCH HEAT PUMP

Display of System Information (Displayed on Header Outdoor Unit Only)

SW01	SW02	SW03	Display detail				
1	1	3	–	–			
	2		System capacity	A	[… ...6.0t] ~ [...38.0t.] : 6 to 38ton		
				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	A	[…0.]~[64.]:0 to 64 (No. of units connected)		
				B	[C…0]~[C64]:0 to 64 (No. of units with cooling thermostat ON)		
	5		No. of indoor units connected / No. of units with heating thermostat ON	A	[…0.]~[64.]:0 to 64 (No. of units connected)		
				B	[H…0]~[H64]:0 to 64 (No. of units with heating thermostat ON)		
	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		Oil equalization request	A	Displayed through LED segment lighting pattern		
				B	 If element F shown on sketch at left turned on: Header unit oil equalization request If element C shown on sketch at left turned on: Follower unit oil equalization request			
	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]		
				B	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		–	–			

ROTARY SWITCH HEAT PUMP

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 [U3]
				B	Check code (only latest one displayed) If there is no check code, [– – –] is displayed. If there is sub-code, check code [* * *] and sub-code [– * *] are displayed alternately, for 3 seconds and 1 second, respectively.
			<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 capacity	A	6ton : [… …6.0t.], 8ton : [… … 8.0t.], 10ton : [… 10.0 t.], 12ton : [… 12.0t.], 14ton : [… 14.0t.]
				B	[…ton]
	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): [1.* * *] ⇒ [2.* * *] Pressing 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			SV2: ON / SV5: OFF / SV52: ON / SV6: OFF	2. 1	0 1 0
				SV2: OFF / SV5: ON / SV52: OFF / SV6: OFF	2. 0	1 0 0
				SV2: OFF / SV5: OFF / SV52: OFF / SV6: ON	2. 0	0 0 1
	11			SV3A: ON / SV3B: OFF / SV3C: OFF / SV3D: OFF	3. 1	0 0 0
				SV3A: OFF / SV3B: ON / SV3C: OFF / SV3D: OFF	3. 0	1 0 0
				SV3A: OFF / SV3B: OFF / SV3C: ON / SV3D: OFF	3. 0	0 1 0
				SV3A: OFF / SV3B: OFF / SV3C: OFF / SV3D: ON	3. 0	0 0 1
	12			SV41: ON / SV42: OFF	4. …	1 0 . . .
				SV41: OFF / SV42: ON	4. …	0 1 . . .
				SV41: OFF / SV42: OFF	4. …	0 0 . . .
	13			SV11A,B: ON / SV12: ON / SV14: ON / SV15: OFF	A. 1	1 1 0
				SV11A,B: OFF / SV12: OFF / SV14: OFF / SV15: ON	A. 0	0 0 1
	14		PMV1/PMV3 opening	Displays opening data in decimal format "Press <SW04>, then PMV1 display switches to PMV3 display".	PMV1	* *	* * .P
					PMV3	* *	* * .P
	15		PMV4 opening	Displays opening data in decimal format	… *	* * .P
	16		Oil level judgment			
			Normal	A	[o L.]
				B	Initial display: [… … …], Oil level judgment result: [L … …] 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.		
			* Pressing 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: Switch to the data display of insufficient confirmation integration timer for 2 minutes		
				A	[t …]
				B	Insufficient confirmation integration timer : [1 2 0] (Ex: for 120 minutes)

ROTARY SWITCH HEAT PUMP

Display of Outdoor Cycle Data (Displayed at Each Outdoor Unit)

SW01	SW02	SW03	Display detail			A	B
1	1	2	PD pressure data	PD pressure (psi) is displayed in decimal format.		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 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	*	* *. *
	8		TS2 sensor data		Letter symbol	t S	2 ... ...
					Data	*	* *. *
	9		TE1 sensor data		Letter symbol	t E	1 ... ...
					Data	*	* *. *
	10		TE2 sensor data		Letter symbol	t E	2 ... ...
					Data	*	* *. *
	11		TL sensor data		Letter symbol	t L	... ...
					Data	*	* *. *
	12		TO sensor data		Letter symbol	t o	... ...
					Data	*	* *. *

SW01	SW02	SW03	Display detail			A	B
1	1	5	TK1 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 with negative value is displayed as [– *] [* * *].		A	B
					Letter symbol	F 1	... ...
					Data	*	* *. *
	2		TK2 sensor data		Letter symbol	F 2	... ...
					Data	*	* *. *
	4		TK4 sensor data		Letter symbol	F 4	... ...
					Data	*	* *. *
	5		TK5 sensor data		Letter symbol	F 5	... ...
					Data	*	* *. *

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	1~3	Check code data	A	[U.*], *: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				B	Check code is displayed (latest one only). If there is no check code: [– – –].
	2		Type of compressor installed	A	[U.*], *: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				B	
	3		Outdoor unit capacity	A	[U.*], *: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				B	6 ton : [... 6.0], 8 ton : [... 8.0], 10 ton : [... 10.0], 12 ton : [12.0], 14 ton : [14.0]
	4		Compressor operation command	A	[U.*], *: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				B	Indicates which compressor is ON. * Any unconnected compressors is represented by "–". → B When compressor No. 1 is ON → 1 0 When compressor No. 2 is ON → 0 1
	5		Fan operation mode	A	[U.*], *: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				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 U3)
				B	Normal: [r ... ...], Upon receiving release signal: [r ... 1]
	7		Oil level judgment	A	[U.*], *: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				B	Normal: [... ... ...], Low level: [... ... L]
	8		Compressor 1 operating current	A	[U.*], *: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				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 U3)
				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

ROTARY SWITCH HEAT PUMP

Display of Indoor Unit Information (Displayed on Header Unit Only)

SW01	SW02	SW03	Display detail		
4	1~16	1~4	Indoor BUS communication signal receiving status	B	Upon receiving signal: [... ... 1], Other times: [... ... ...]
5			Indoor check code	B	No check code: [– – –]
6			Indoor 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
7			Indoor request command (S code, operation mode)	B	[#. ... *] # represents mode: COOL: [C. ... *], HEAT: [H. ... *] FAN: [F. ... *], OFF: [S. ... *] * represents S code: [#. ... 0] to [#. ... F]
8			Indoor PMV opening data	B	Displayed in decimal format
9			Indoor TA / TRA opening data	B	Displayed in decimal format
		11~14	Indoor TSA opening data	B	Displayed in decimal format
10		1~4	Indoor TF / TFA opening data	B	Displayed in decimal format
		11~14	Indoor TOA opening data	B	Displayed in decimal format
11		1~4	Indoor TCJ opening data	B	Displayed in decimal format
12			Indoor TC1 opening data	B	Displayed in decimal format
13			Indoor TC2 opening data	B	Displayed in decimal format

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]
	11		
	2	SW02 setting number +16	[17]~[32]
	12		
	3	SW02 setting number +32	[33]~[48]
	13		
	4	SW02 setting number +48	[49]~[64]
	14		

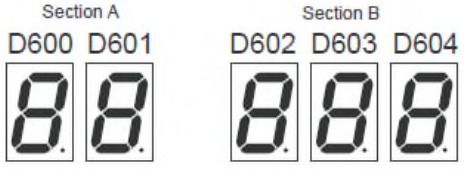
Display of Outdoor EEPROM Writing Error Code (Displayed on Header Unit Only)

* The latest code written in the EEPROM of each outdoor unit is displayed.
  (This function is used to check the code after the resetting of the power supply.)

To display the 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.	***

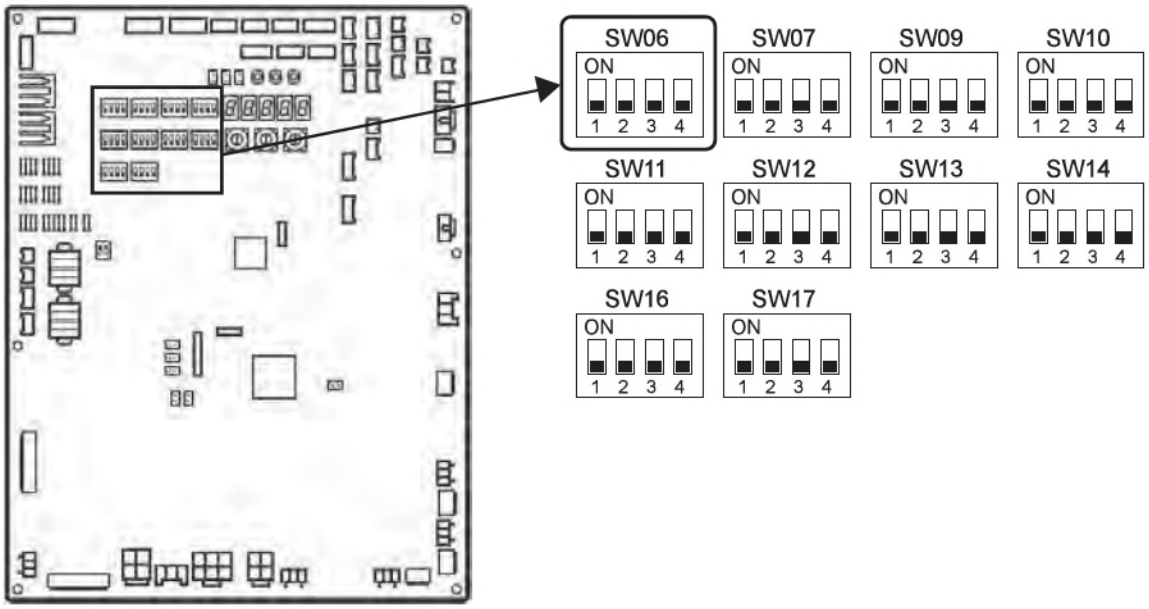
• 7-Segment Display



Set SW01/SW02/SW03 to [1/1/16] and push SW04 and hold for at least 5 seconds. The latest code of the header unit (U1) will be displayed.
If the setting of SW02 is changed, the latest code of a follow unit (U2-U3) will be displayed.

DIP SWITCHES

OUTDOOR UNIT DIP SWITCHES



SW06

Bit 1 Compressor 1 backup
Bit 2 Compressor 2 backup
Bit 3 N/A
Bit 4 N/A

SW07

Bit 1 Demand control 1 (see expansion board manual
Bit 2 Demand control 2 (see expansion board manual
Bit 3 N/A
Bit 4 N/A

SW09

Bit 1 N/A
Bit 2 Indoor over capacity
Bit 3 N/A
Bit 4 Number of Indoor unit over connected

OUTDOOR UNIT DIP SWITCHES

SW10

Bit 1 N/A
Bit 2 Outdoor fan high static
Bit 3 Low noise frequency upper limit
Bit 4 Low noise RPM upper limit

SW11

Bit 1 N/A
Bit 2 N/A
Bit 3 N/A
Bit 4 Indoor drain pump (on means system continues to run on fault)

SW12

Bit 1 PMV open/close by operation of CN30/CN31 (see Manual)
Bit 2 PMV open/close by operation of CN30/CN31 (see Manual)
Bit 3 N/A
Bit 4 N/A

SW13

Bit 1 N/A
Bit 2 N/A
Bit 3 N/A
Bit 4 Addressing the outdoor unit

OUTDOOR UNIT DIP SWITCHES

SW14

Bit 1 Addressing the outdoor unit
Bit 2 Addressing the outdoor unit
Bit 3 Addressing the outdoor unit
Bit 4 Addressing the outdoor unit

SW16

Bit 1 optional board compressor output (see manual)
Bit 2 optional board compressor output (see manual)
Bit 3 N/A
Bit 4 N/A

SW17

Bit 1 N/A
Bit 2 N/A
Bit 3 N/A
Bit 4 N/A

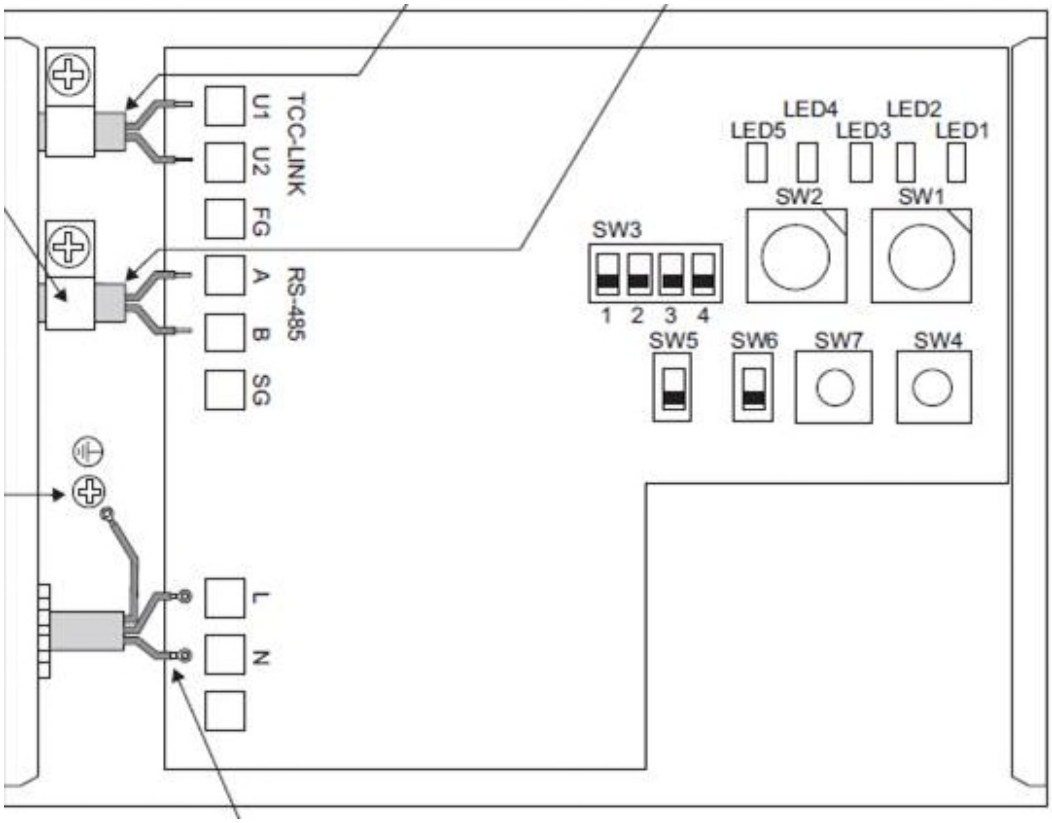
SW30

Bit 1 N/A
Bit 2 Communication termination resistor (only used when connecting multiple refrigeration circuits)

TCS-NET RELAY DIP SWITCHES

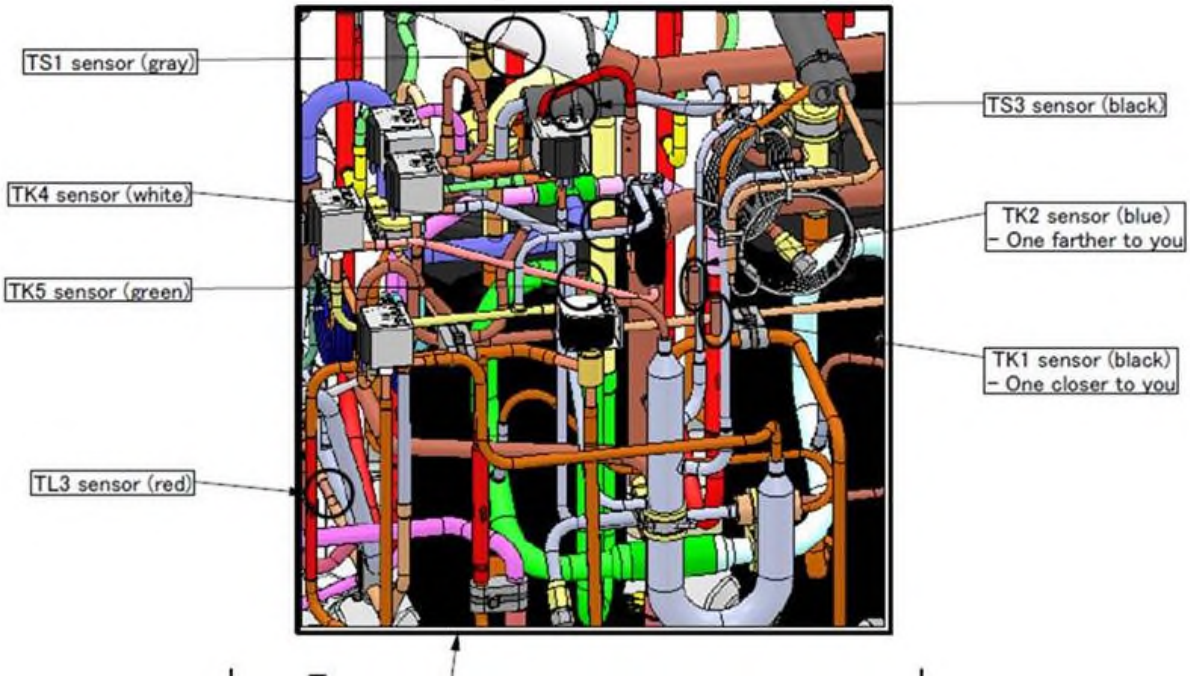
When no controllers are being used please enable (SW3 bit 4 = ON) on TCS-Net Relay.

SW3 bit 4 = on: no remote controller on IDUs
SW3 bit 4 = off: remote controller on IDUs

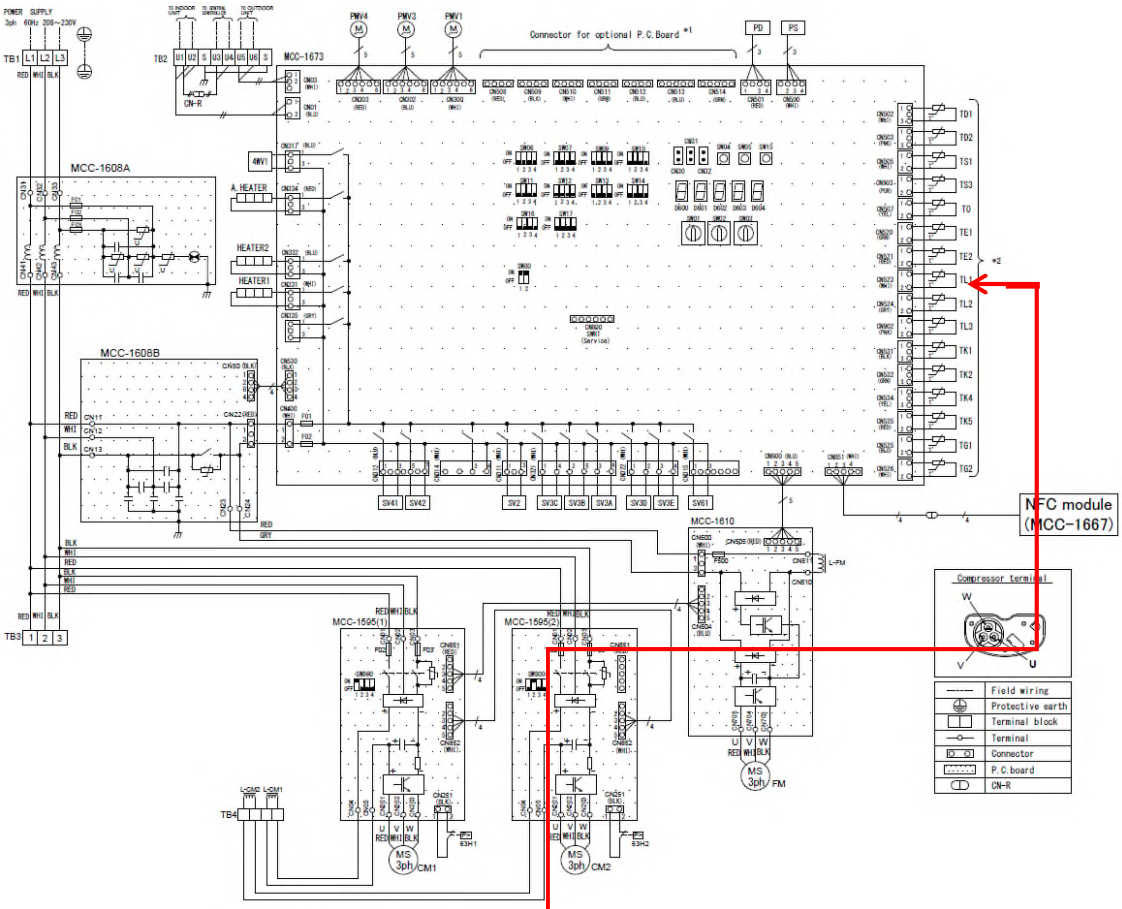


THERMISTOR LOCATIONS

THERMISTOR LOCATIONS



THERMISTOR LOCATIONS



*2 Temperature sensor color I/D

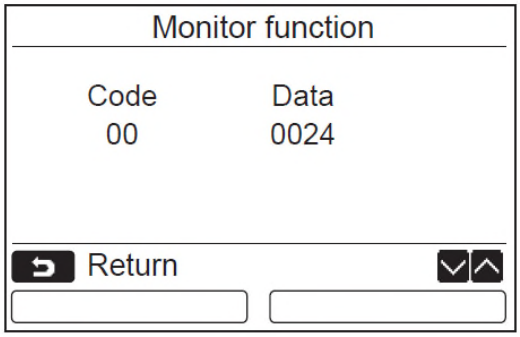
Symbol	Connector		Wire mark (Sensorholder)
	No.	color	color
TD1	CN502	WHI	YEL
TD2	CN503	PNK	RED
TE1	CN520	GRN	BLU
TK1	CN531	BLK	BLK
TK2	CN532	GRN	BLU
TK4	CN534	YEL	WHI
TK5	CN535	RED	GRN
TL1	CN523	WHI	YEL
TL3	CN902	PNK	RED
TO	CN507	YEL	—
TS1	CN505	WHI	GRY
TS3	CN903	PUR	BLK

MONITOR FUNCTION CODES

MONITOR FUNCTION ON THE CONTROLLER

RBC-AMS54E-UL

The sensor temperature or operational status of indoor unit, outdoor unit, or remote control can be monitored.



1 **Push the [∧]/[∨] button to select "4. Monitor function" on the "Field setting menu" screen, then push the "Set" [F2] button.**

- Push the [∧]/[∨] button to select the code to check data.

2 **Refer to the Installation Manual supplied with the indoor unit or outdoor unit or service manual for details about the check code and data.**

3 **Push the [CANCEL] button and return to the "Field setting menu" screen.**

MONITOR FUNCTION CODES SMMS-e

	CODE No.	Data name	Display format	Unit	Remote controller display example
Indoor unit data *2	00	Room temperature (Use to control)	×1	°C	[0027]= 27°C
	01	Room temperature (Remote controller)	×1	°C	
	02	Indoor suction air temperature (TA)	×1	°F	[0080]= 80 °F
	03	Indoor coil temperature (TCJ)	×1	°F	
	04	Indoor coil temperature (TC2)	×1	°F	
	05	Indoor coil temperature (TC1)	×1	°F	
	06	Indoor discharge air temperature (TF) *1	×1	°F	
	08	Indoor PMV opening	×1/10	pls	[0150]= 1500pls
	F3	Filter sign time	×1	h	[2500]= 2500h
	F9	Suction temperature of air to air heat exchanger (TSA) *1	×1	°F	[0080]= 80 °F
	FA	Outside air temperature (TOA)*1	×1	°F	
System data	0A	No. of connected indoor units	×1	unit	[0048]=48 units
	0B	Total horsepower of connected indoor units	×10	ton	[0215]=21.5 ton
	0C	No. of connected outdoor units	×1	unit	[0003]=3 units
	0D	Total horsepower of outdoor units	×10	ton	[0160]=16 ton

	CODE No.			Data name	Display format	Unit	Remote controller display example
	U1	U2	U3				
Outdoor unit individual data 1 *3	10	20	30	High-pressure sensor detention pressure (PD)	×100	psi	[4350] = 435 psi
	11	21	31	Low-pressure sensor detention pressure (PS)	×100	psi	
	12	22	32	Compressor 1 discharge temperature (TD1)	×1	°F	[0080] = 80 °F
	13	23	33	Compressor 2 discharge temperature (TD2)	×1	°F	
	15	25	35	Outdoor coil temperature (TE1)	×1	°F	
	16	26	36	Outdoor coil temperature (TE2)	×1	°F	
	19	29	39	Outside ambient temperature (TO)	×1	°F	
	1A	2A	3A	Suction temperature (TS1)	×1	°F	
	1B	2B	3B	Suction temperature (TS2)	×1	°F	
	1D	2D	3D	Temperature at liquid side (TL1)	×1	°F	

	CODE No.			Data name	Display format	Unit	Remote controller display example
	U1	U2	U3				
Outdoor unit individual data 2 *4	50	60	70	PMV1 opening	×1	pls	[0500] = 500pls
	51	61	71	PMV3 opening	×1	pls	
	52	62	72	PMV4 opening	×1	pls	
	53	63	73	1 fan model : Compressor 1 curent (I1) 2 fan model : Compressor 1 and Outdoor fan 1 current (I1)	×10	A	[0135] = 13.5A
	54	64	74	1 fan model : Compressor 2 and Outdoor fan 1 current (I2) 2 fan model : Compressor 2 and Outdoor fan 2 current (I2)	×10	A	
	56	66	76	Compressor 1 revolutions	×10	rps	[0642] = 64.2rps
	57	67	77	Compressor 2 revolutions	×10	rps	
	59	69	79	Outdoor fan mode	×1	mode	[0058] = 58 mode
	5A	6A	7A	Compressor IPDU 1 heat sink temperature	×1	°F	[0024] = 24 °F
	5B	6B	7B	Compressor IPDU 2 heat sink temperature	×1	°F	
	5D	6D	7D	Outdoor fan IPDU 1 heat sink temperature	×1	°F	
	5E	6E	7E	Outdoor fan IPDU 2 heat sink temperature	×1	°F	
	5F	6F	7F	Outdoor unit horsepower	×1	ton	[0080] = 8 ton

	CODE No.	Data name	Display format	Unit	Remote controller display example
Outdoor unit individual data 3 *5	90	Heating/cooling recovery controlled	0: Normal 1: Recovery controlled		[0010]=Heating recovery controlled [0001]=Cooling recovery controlled
	91	Pressure release	0: Normal 1: Release controlled		[0010]=Pressure release controlled
	92	Discharge temperature release			[0001]=Discharge temperature release controlled
	93	Follower unit release (U2/U3 outdoor units)			[0100]=U2 outdoor unit release controlled [0010]=U3 outdoor unit release controlled [0001]=U4 outdoor unit release controlled

*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 an CODE No. indicates the outdoor unit number.

*4 The upper digit of an CODE No. -4 indicates the outdoor unit number.

1* , 5* ... U1 outdoor unit (Header unit)

2*, 6* ... U2 outdoor unit (Follower unit 1)

3* , 7* ... U3 outdoor unit (Follower unit 2)

5 Only the CODE No. 9 of U1 outdoor unit (Header unit) is displayed.