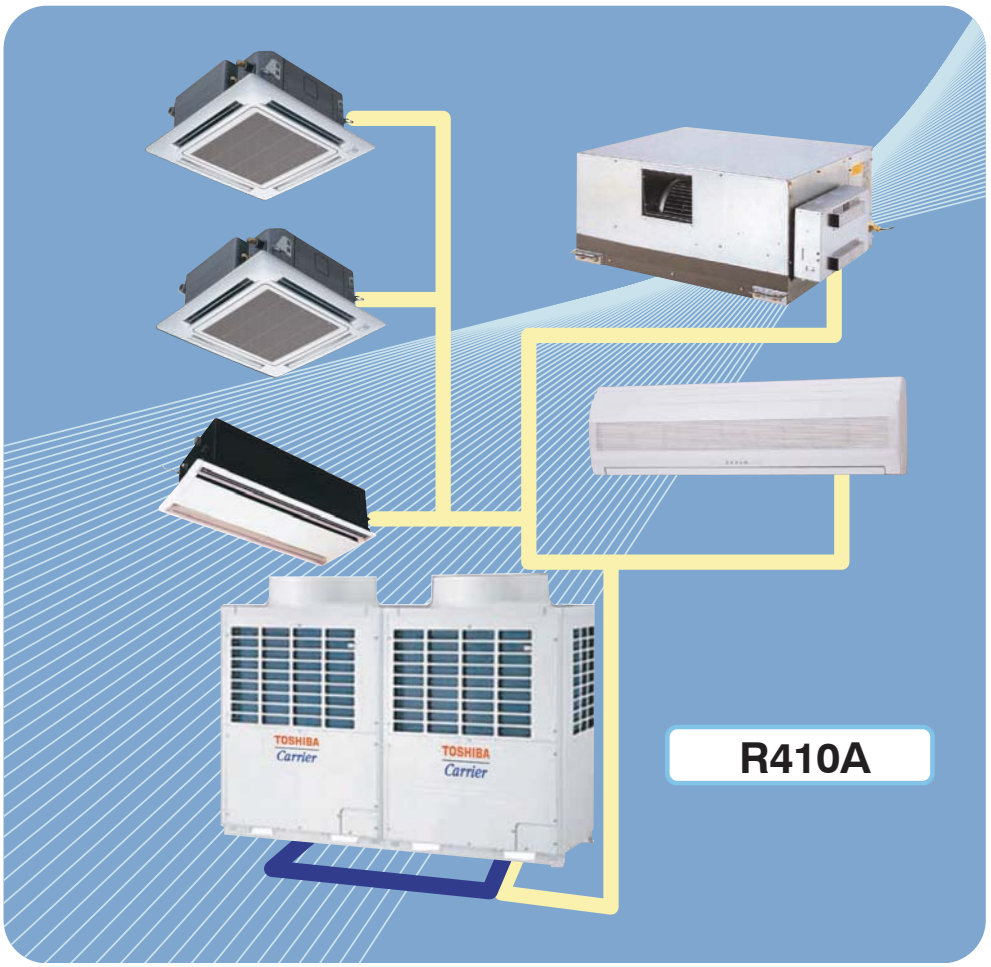
TOSHIBA
Carrier

FILE NO. : A12-004

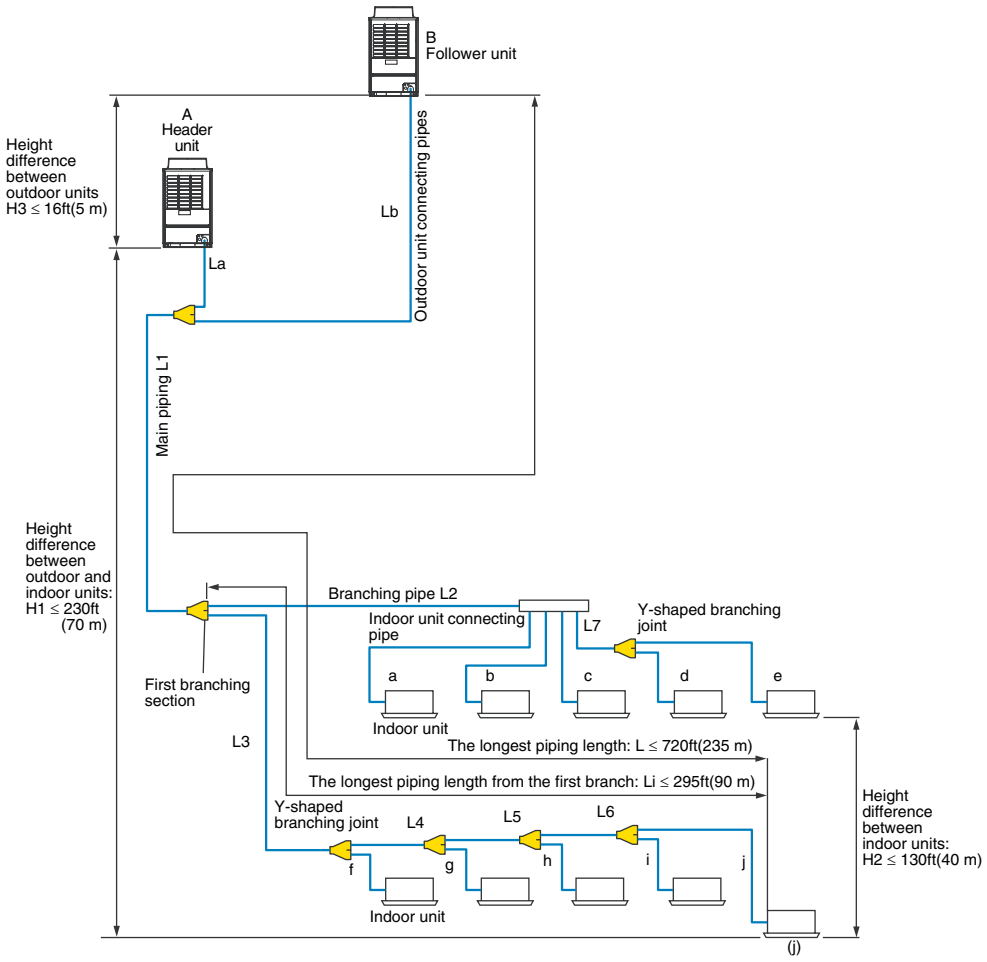
Quick reference

SMMS i

SUPER MODULAR MULTI SYSTEM



Allowable Length of Refrigerant Pipes and Allowable Height Difference between Units



System Restriction

Outdoor unit combination	Up to 2 units	
Total capacity of outdoor units	Up to 20 Tons	
Indoor unit connection	Up to 38 units	
Total capacity of indoor units (varies depending on the height difference between indoor units.)	H2 ≤ 49.2ft	✻ 125% of outdoor units' capacity
	49.2ft < H2	105% of outdoor units' capacity

✻ 120% if "Medium Static Ducted Type" is included in the system.

Cautions for Installation

- The header unit is connected to main piping to indoor units.
- The header unit is the one with the highest capacity code. A (header unit) ≥ B
- To connect gas pipes to indoor units, use Y-shaped branching joints to keep pipes level.
- When Outdoor unit connection piping kits is used to pipe to outdoor units, intersect the pipes to the outdoor unit and those to indoor units at a right angle as shown in figure 1 on "6. INSTALLATION OF THE OUTDOOR UNIT". Do not connect them as in figure 2 on "6. INSTALLATION OF THE OUTDOOR UNIT".

Allowable Length and Allowable Height Difference of Refrigerant Piping

Item			Allowable value(ft(m))	Pipes
Pipe length	Total extensionof pipe (liquid pipe)	Actual length	985 (300)	La + Lb + L1 + L3 + L4 + L5 + L6 + L7 + a + b + c + d + e + f + g + h + i + j
	Farthest piping length L (✻1)	Equivalent length	720 (220)	Lb + L1 + L3 + L4 + L5 + L6 + j
		Actual length	590 (180)	
	Main piping length	Equivalent length	395 (120)	L1
		Actual length	330 (100)	
	Farthest equivalent piping length from the first branch Li (✻1)		295 (90)(✻2)	L3 + L4 + L5 + L6 + j
	Maximum equivalent piping length of pipes connected to outdoor units		33 (10)	La, Lb
	Maximum actual length of pipes connected to indoor units		98 (30)	a, b, c, d, e, f, g, h, i, j
	Maximum equivalent length between branching sections		165 (50)	L2, L3, L4, L5, L6, L7
Height difference	Height between outdoor and indoor units H1	Upper outdoor units	230 (70)(✻3)	—
		Lower outdoor unit	130 (40)(✻4)	—
	Height between indoor units H2		130 (40)	—
	Height between indoor units H3		16 (5)	—

✻1: Farthest outdoor unit from the first branch: (B), farthest indoor unit: (j)

✻2: Make the difference 215 ft (65 m) or less if the height difference between outdoor and indoor units (H1) is more than 10 ft (3 m).

✻3: Make the difference 165 ft (50 m) or less if the height difference between indoor units (H2) is more than 10 ft (3 m).

✻4: Make the difference 98 ft (30 m) or less if the height difference between indoor units (H2) is more than 10 ft(3 m).

03 Adding Refrigerant

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

Calculation of additional refrigerant charge amount

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

NOTE

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

Model MMY-MAP	0724H9UL, 0724HT6UL, 0964HT9UL, 0964HT6UL, 1144HT9UL, 1144HT6UL
Refrigerant amount charged in factory	25.4 lb

Additional refrigerant charge amount (lb) =	Actual length of liquid pipe	×	Additional refrigerant charge amount per liquid pipe 1ft (Table 1)	+	Adjustment amount of refrigerant (Table 2)

Table 1

Liquid pippe outer diameter (in)	Ø1/4"	Ø3/8"	Ø1/2"	Ø5/8"	Ø3/4"
Additional refrigerant amount / 1ft (lb)	0.017	0.037	0.071	0.108	0.168

Table 2

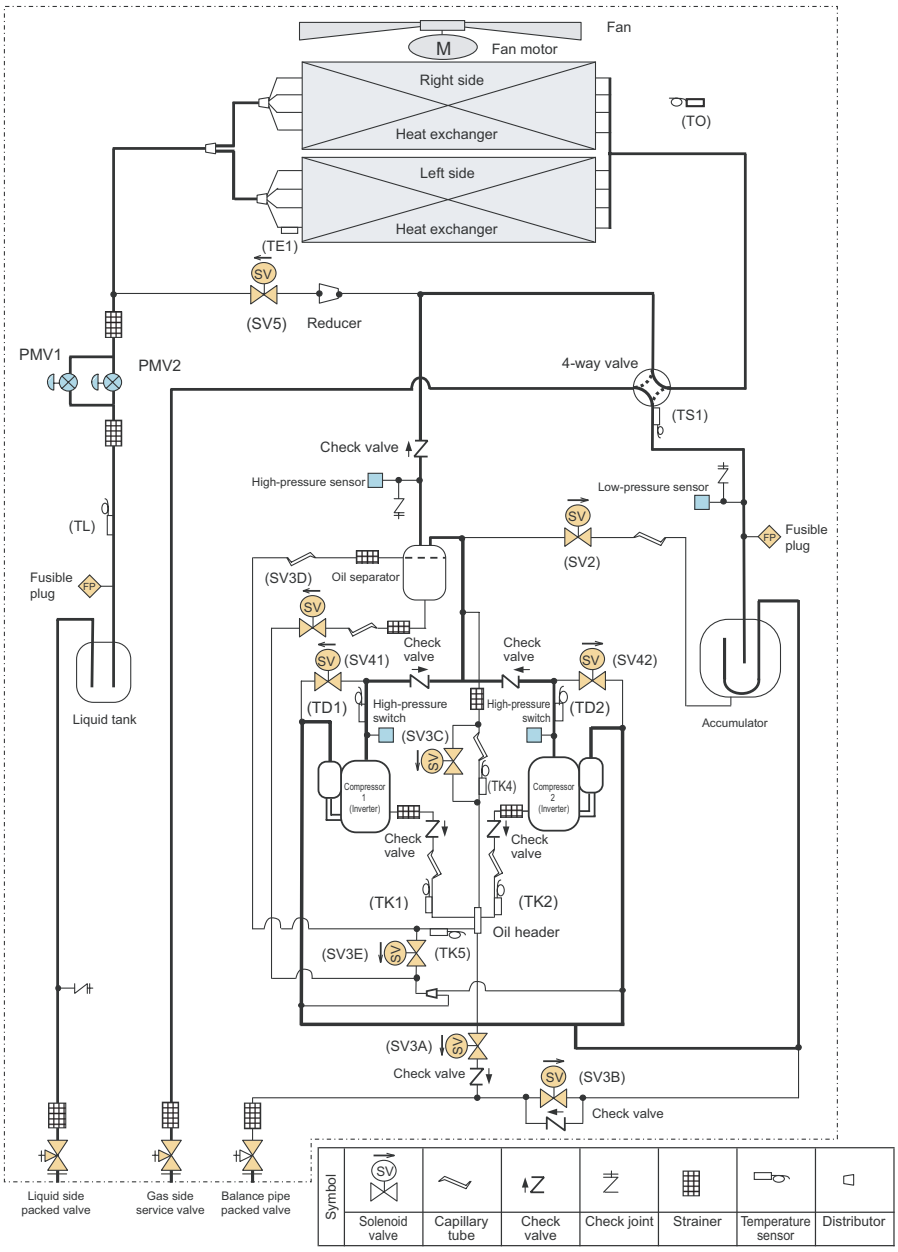
Outdoor unit capacity type	Adjustment amount of refrigerant (lb)	Combined outdoor units	
072 type	3.31	072 type	—
096 type	13.23	096 type	—
114 type	15.43	114 type	—
144 type	0.00	072 type	072 type
168 type	16.53	096 type	072 type
192 type	27.56	096 type	096 type
228 type	27.56	114 type	114 type

Charging of refrigerant

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

Outdoor Unit (6 Ton)

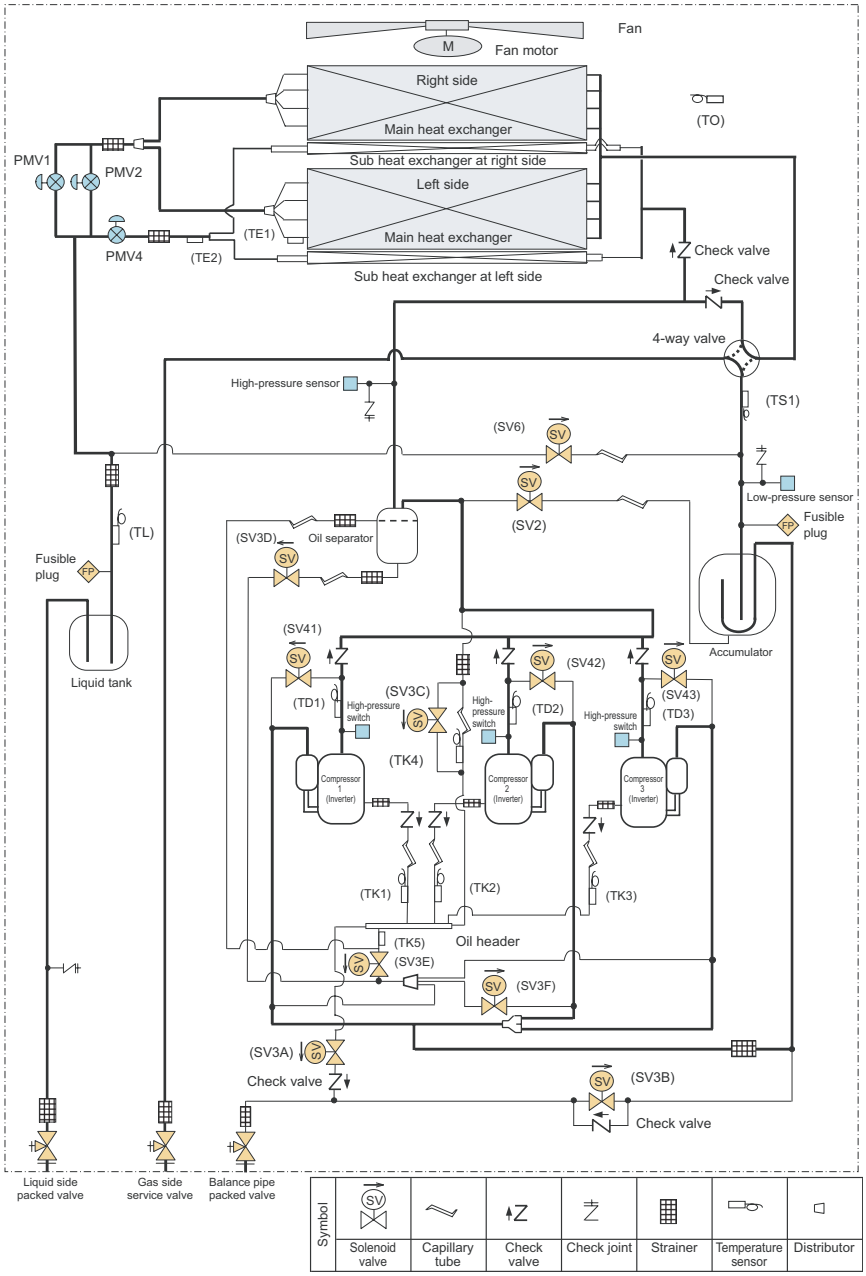
Model: MMY-MAP0724HT9UL, MMY-MAP0724HT6UL



05 Refrigerant Piping Systematic Drawing (continue)

Outdoor Unit (8, 10 Ton)

Model: MMY-MAP0964HT9UL, MMY-MAP1144HT9UL, MMY-MAP0964HT6UL, MMY-MAP1144HT6UL



Explanation of Functional Parts

Functional part name		Functional outline
Solenoid valve	SV3A	(Connector CN321: White) 1) Supplies oil reserved in the oil header during ON time.
	SV3B	(Connector CN321: White) 1) Returns oil supplied in the balance pipe to the compressor.
	SV3C	(Connector CN321: White) 1) Pressurizes oil reserved in the oil header during ON time.
	SV3D	(Connector CN322: White) 1) Reserves oil in the oil separator during OFF time. 2) Returns oil reserved in the oil separator to the compressor during ON time.
	SV3E	(Connector CN322: White) 1) Turns on during operation and balances oil between compressors.
	SV3F	(Connector CN323: White) 1) Controls oil level balances between compressors.
	SV2	(Hot gas bypass) (Connector CN311: White) 1) Low pressure release function4 2) High pressure release function 3) Gas balance function during stop time
	SV41 SV42 SV43	(Start compensation valve of compressor) (SV41 Connector CN312: Blue, SV42 Connector CN312: Blue, SV43 Connector CN313: Red) 1) For gas balance start 2) High pressure release function 3) Low pressure release function
	SV5	(Connector CN314: White) 1) Preventive function for high-pressure rising in heating operation
	SV6	(Connector CN315: White) 1) Liquid bypass function for discharge temperature release (cooling bypass function)
4-way valve		(Connector CN317:Blue) 1) Cooling/heating exchange 2) Reverse defrost
Pulse motor valve	PMV1, 2	(Connector CN300, 301: White) 1) Super heat control function in heating operation 2) Liquid line shut-down function while follower unit stops 3) Under cool adjustment function in cooling operation 4) Exchange function between main and sub exchangers in cooling operation
	PMV4	(Connector CN303: Red) 1) Exchange function between main and sub exchangers in cooling operation 2) Preventive function for high-pressure rising in heating operation
Oil separator		1) Prevention for rapid decreasing of oil (Decreases oil flowing to the cycle) 2) Reserve function of surplus oil
Temp. Sensor	TD1 TD2 TD3	(TD1 Connector CN502: White, TD2 Connector CN503: Pink, TD3 Connector CN504: Blue) 1) Protection of compressor discharge temp. 2) Used for discharge temperature release
	TS1	(Connector CN505: White) 1) Controls PMV super heat in heating operation
	TE1	(Connector CN520: Green) 1) Controls defrost in heating operation 2) Controls outdoor fan in heating operation
	TE2	(Connector CN521: Red) 1) Controls exchange function between main and sub exchangers
	TK1, TK2, TK3, TK4, TK5	(TK1 Connector CN531: Black, TK2 Connector CN532: Green, TK3 Connector CN533:Red, TK4 Connector CN534:Yellow, TK5 Connector CN535: Red) 1) Judges oil level of the compressor
	TL	(Connector CN523: White) 1) Detects under cool in cooling operation
	TO	(Connector CN507: Yellow) 1) Detects outside temperature
Pressure sensor	High pressure sensor	(Connector CN501: Red) 1) Detects high pressure and controls compressor capacity 2) Detects high pressure in cooling operation, and controls the fan in low ambient cooling operation 3) Detects under cool in indoor unit in heating operation
	Low pressure sensor	(Connector CN500: White) 1) Detects low pressure in cooling operation and controls compressor capacity 2) Detects low pressure in heating operation, and controls the super heat
Heater	Compressor case heater	(Compressor 1 Connector CN331: White, Compressor 2 Connector CN332: Blue, Compressor 3 Connector CN333: Black) 1) Prevents liquid accumulation to compressor
	Accumulator case heater	(Connector CN334: Red) 1) Prevents liquid accumulation to accumulator
Balance pipe		1) Oil balancing in each outdoor unit

07 Check Codes Displayed on Remote Control

Check Codes Displayed on Remote Control and SMMS-i Outdoor Unit (7-Segment Display on I/F Board) and Locations to Be Checked

Main remote control	Description
E01	Indoor-remote control communication error (detected at remote control end)
E02	Remote control transmission error
E03	Indoor-remote control communication error (detected at indoor end)
E04	Indoor-outdoor communication circuit error (detected at indoor end)
E06	Dropping out of indoor unit
—	Indoor-outdoor communication circuit error (detected at outdoor end)
E08	Duplicated indoor address
E09	Duplicated master remote control
E10	Indoor inter- MCU communication error
E12	Automatic address starting error
E15	Indoor unit not found during automatic address setting
E16	Too many indoor units connected
E18	Error in communication between indoor header and follower units
E19	Error in number of outdoor header units
E20	Connection to other line found during automatic address setting
E23	Outdoor-outdoor communication transmission error
E25	Duplicated follower outdoor address
E26	Dropping out of outdoor unit
E28	Outdoor follower unit error
E31	IPDU communication error
F01	Indoor TCJ sensor error
F02	Indoor TC2 sensor error
F03	Indoor TC1 sensor error
F04	TD1 sensor error
F05	TD2 sensor error
F06	TE1/TE2 sensor error
F07	TL sensor error
F08	To sensor error
F10	Indoor TA sensor error
F11	Indoor TF sensor error
F12	TS1 sensor error
F13	TH sensor error
F15	Outdoor temperature sensor wiring error (TE1, TL)
F16	Outdoor pressure sensor wiring error (Pd, Ps)
F22	TD3 sensor error
F23	Ps sensor error
F24	Pd sensor error
F29	Other indoor error
F31	Outdoor EEPROM error

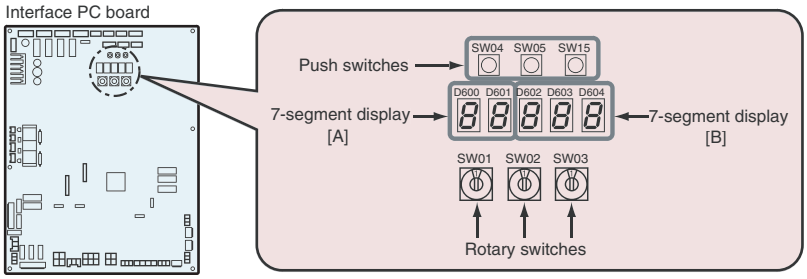
Main remote control	Description
H01	Compressor breakdown
H02	Compressor error (lockup) MG-CTT error
H03	Current detection circuit error
H05	TD1 sensor miswiring (incomplete insertion)
H06	Activation of low-pressure protection
H07	Low oil level protection
H08	Error in temperature sensor for oil level detection
H15	TD2 sensor miswiring (incomplete insertion)
H16	Oil level detection circuit error
H25	TD3 sensor miswiring (incomplete insertion)
L03	Duplicated indoor header unit
L04	Duplicated outdoor line address
L05	Duplicated priority indoor unit (as displayed on priority indoor unit)
L06	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)
L07	Connection of group control cable to standalone indoor unit
L08	Indoor group/addresses not set
L09	Indoor capacity not set
L10	Outdoor capacity not set
L20	Duplicated central control address
L28	Too many outdoor units connected
L29	Error in No. of IPDUs
L30	External interlock of indoor unit
—	Extended IC error
P01	Indoor fan motor error
P03	Discharge temperature TD1 error
P04	Activation of highpressure SW
P05	Detection of open phase/phase sequence
	Inverter DC voltage (Vdc) error (compressor) MG-CTT error
P07	Heat sink overheating error
P10	Indoor overflow error
P12	Indoor fan motor error
P13	Outdoor liquid backflow detection error
P15	Gas leakdetection (TS1 condition)
	Gas leak detection (TD condition)
P17	Discharge temperature TD2 error
P18	Discharge temperature TD3 error
P19	4-way valve reversing error
P20	Activation of high-pressure protection
P22	Outdoor fan IPDU error
P26	G-TR shortcircuit protection error
P29	Compressor position detection circuit error
P31	Other indoor error (group follower unit error)

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.)

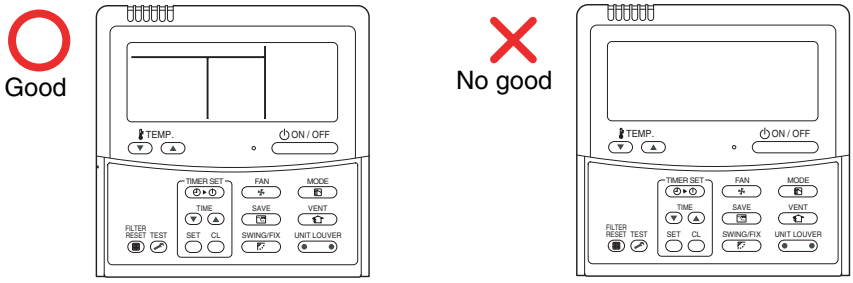
<Check on the outdoor unit>

(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, "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].)



<Check on the indoor unit>

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



Normal status
(Power suppl ied and operation stopped)

When power is not supplied normally

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

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

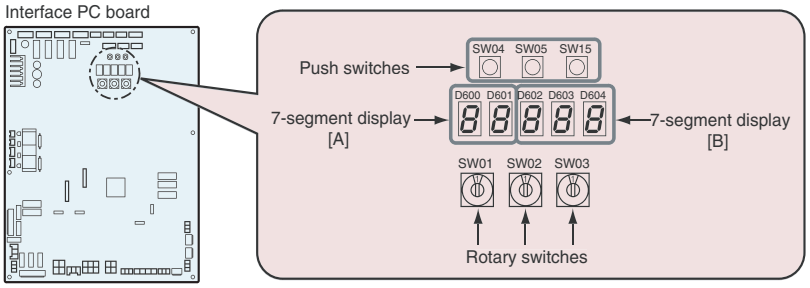
09 Address Setup (continue)

Precautions

(1) Address setup is not performed simply by turning on the power supply.
(2) For indoor units, address setup can be done either by manual address setup or by automatic address setup:
Automatic address setup: Setup from SW15 on the interface PC board of the header unit
Manual address setup: Setup from the wired remote control.
(For details, refer to "Address Setup Procedure.")
(3) Automatic setup usually takes about 5 minutes per line. In some cases, however, it may take up to 10 minutes.
(4) It is unnecessary to operate the air conditioner to achieve address setup.

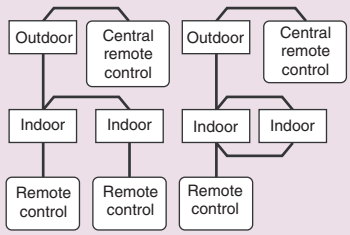
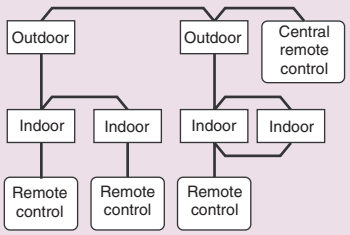
Address Setup and Check Procedure

<table>
<tr><th>Procedure</th><th>Item</th><th>Operation and check contents</th></tr>
<tr><td>1</td><td>Indoor unit power-on</td><td>Turn on the power of the indoor unit for the refrigerant line for which the address is to be set up.</td></tr>
<tr><td>2</td><td>Outdoor unit power-on</td><td>Turn on the power of all the outdoor units for the refrigerant line for which the address is to be set up.</td></tr>
<tr><td>3</td><td>7-segment display check</td><td>Check that "L08" is displayed on the 7-segment display [B] on the interface PC board of the header unit in the system where the address is to be set up.</td></tr>
<tr><td>4</td><td>Address setup start</td><td>Confirm the items in "Address Setup Procedure," and then set up the address according to the operation procedure. (Be careful to note that the setup operation may differ in group control and central control systems.)
Note:
The address cannot be set up if switches are not operated.</td></tr>
<tr><td>5</td><td>Display check after setup</td><td>• After address setup, "U1" " " is displayed on the 7-segment display.
• For follower outdoor units, "U2" to "U4" are displayed on the 7-segment display [A].
• If an error code is displayed on the 7-segment display [B], remove the cause of the problem referring to "TROUBLESHOOTING."</td></tr>
<tr><td>6</td><td>System information check after setup</td><td>Using the 7-segment display function, check the system information of the scheduled system. (This check is executed on the interface PC board of the header unit.)
<table>
<tr><th></th><th colspan="3">Rotary switch setup</th><th colspan="2">7-segment display</th></tr>
<tr><th></th><th>SW01</th><th>SW02</th><th>SW03</th><th>[A]</th><th>[B]</th></tr>
<tr><td>System capacity</td><td>1</td><td>2</td><td>3</td><td>[Number of ton]</td><td>[ton]</td></tr>
<tr><td>Number of connected outdoor units</td><td>1</td><td>3</td><td>3</td><td>[Number of units]</td><td>[P]</td></tr>
<tr><td>Number of connected indoor units</td><td>1</td><td>4</td><td>3</td><td>[Number of connected units]</td><td></td></tr>
</table>
After the above checks, return rotary switches SW01, SW02, and SW03 to 1/1/1.</td></tr>
</table>



Address Setup Procedure

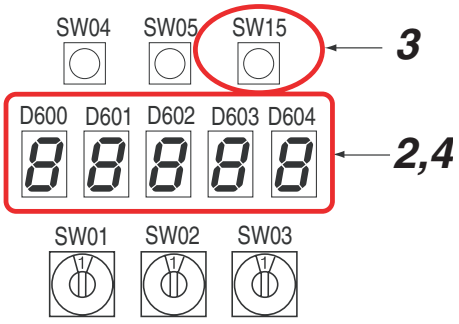
No central control : go to Address setting procedure 1
Central control of 2 or more refrigerant lines : go to Address setting procedure 2

(Example)	When a single refrigerant line is centrally controlled	When 2 or more refrigerant lines are centrally controlled
Address setting procedure	See procedure 1	See procedure 2
Control wiring diagram		

Address setting procedure 1

1. **Turn on indoor units first, and then turn on outdoor units.**
2. **About one minute after turning the power on, confirm that the 7-segment display on the interface P.C. board of the header outdoor unit indicates. U. 1. L08 (U. 1. flash)**
3. **Push SW 15 to start the automatic address setting.**
   (It may take up to 10 minutes (normally about 5 minutes) to complete one line's setting.)
4. **The 7-segment display indicates. Auto 1 → Auto 2 → Auto 3**
   After the indication, U. 1. - - - (U. 1. flash) starts flashing on the display.
   When the flashing stops and U. 1. - - - (U. 1. light) remain lit on the display, the setting is complete.

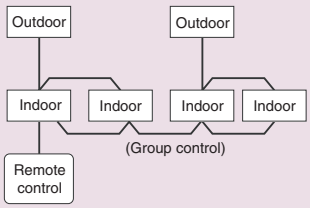
Interface P.C. board on the header outdoor unit



REQUIREMENT

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

11 Address Setup (continue)

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

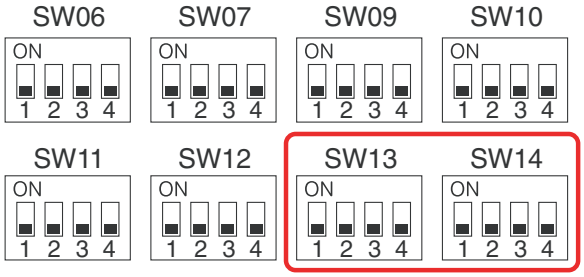
Address setting procedure 2

1 **Set a system address for each system using SW 13 and 14 on the interface P.C. board on the header outdoor unit of each system.**
(Factory default: Address 1)

NOTE

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

Interface P.C. board on the header outdoor unit



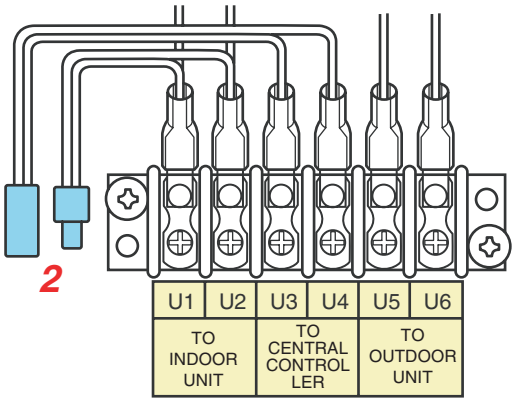
Line address switches on the outdoor interface P.C. board (O : switch ON, × : switch OFF)

Line address	SW13 1	2	3	4	SW14 1	2	3	4
1				×	×	×	×	×
2				×	O	×	×	×
3				×	×	O	×	×
4				×	O	O	×	×
5				×	×	×	O	×
6				×	O	×	O	×
7				×	×	O	O	×
8				×	O	O	O	×
9				×	×	×	×	O
10				×	O	×	×	O
11				×	×	O	×	O
12				×	O	O	×	O
13				×	×	×	O	O
14				×	O	×	O	O

Line address	SW13 1	2	3	4	SW14 1	2	3	4
15				×	×	O	O	O
16				×	O	O	O	O
17				O	×	×	×	×
18				O	O	×	×	×
19				O	×	O	×	×
20				O	O	O	×	×
21				O	×	×	O	×
22				O	O	×	O	×
23				O	×	O	O	×
24				O	O	O	O	×
25				O	×	×	×	O
26				O	O	×	×	O
27				O	×	O	×	O
28				O	O	O	×	O

Not used for setup of line address (do not change setup.)

2 Be sure to disconnect the relay connectors between the [U1U2] and [U3U4] terminals on all the header outdoor units that will be connected to the central control. (Factory default: disconnected)



3 Turn on indoor units first, and then turn on outdoor units.

4 About 1 minute after turning the power on, confirm that the 7-segment display on the interface P.C. board of the header outdoor unit indicates . **U. 1. L08 (U. 1. flash)**

5 Push SW 15 to start the automatic address setting.
(It may take up to 10 minutes (normally about 5 minutes) to complete one line's setting.)

6 The 7-segment display indicates **Auto 1 → Auto 2 → Auto 3** .

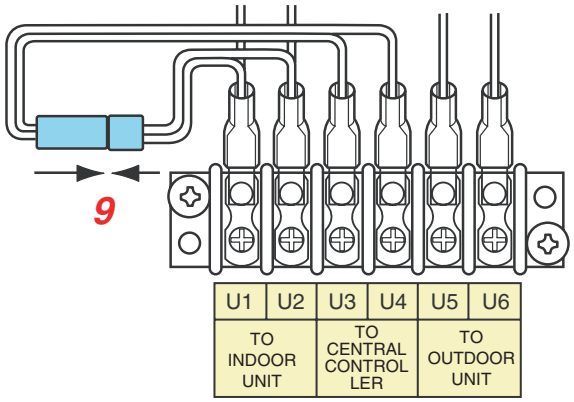
After the indication, **U. 1. - - - (U. 1. flash)** starts flashing on the display.

When the flashing stops and **U. 1. - - - (U. 1. light)** , remains lit on the display, the setting is complete.

7 Repeat steps *4* to *6* for other refrigerant lines.

8 After completing address setting of all systems, turn off dip switch 2 of SW30 on the interface P.C. boards of all the header outdoor units connected to the same central control, except the unit that has the lowest address.
(For unifying the termination of the wiring for the central control of indoor and outdoor units)

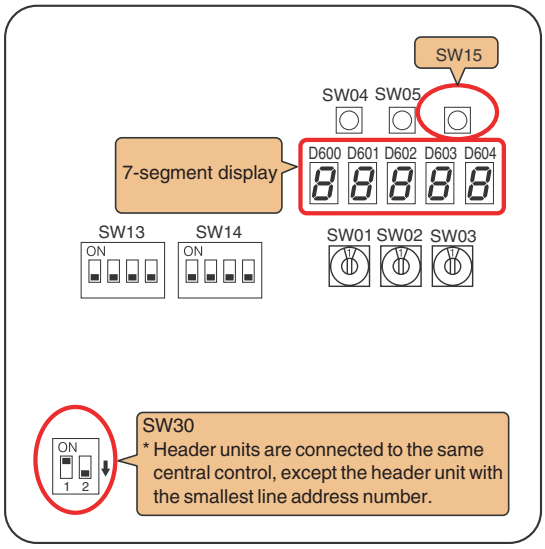
9 Connect the relay connectors between the [U1, U2] and [U3, U4] terminals of the header outdoor unit of each refrigerant line.



13 Address Setup (continue)

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

Header unit interface P.C. board

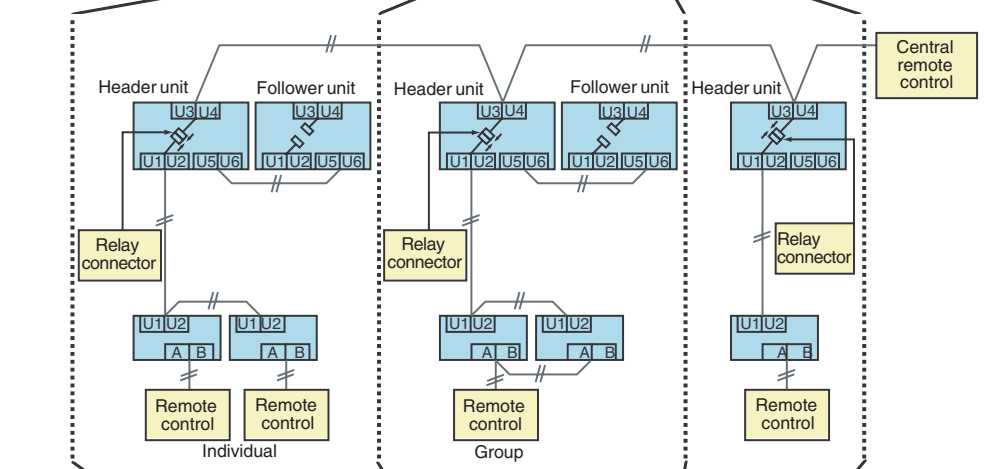


Switch setting (setting example when controlling 2 or more refrigerant lines centrally)

Outdoor units (setting manually)

*The items in bold font must be set manually.

Outdoor unit's interface P.C. board	Header unit	Follower unit	Header unit	Follower unit	Header unit	Factory default
SW13, 14 (Line (system) address)	1	(No setting required)	2	(No setting required)	3	1
Dip switch 2 of SW30 (Terminator of indoor/ outdoor communication line and central control line)	ON	(No setting required)	Set to OFF after setting addresses.	(No setting required)	Set to OFF after setting addresses.	ON
Relay connector	Connect after setting addresses.	Open	Connect after setting addresses.	Open	Connect after setting addresses.	Open



Indoor units (automatic setting)

Line (system) address	1	1	2	2	3
Indoor unit address	1	2	1	2	1
Group address	0	0	1	2	0

⚠ CAUTION

Relay connector connection

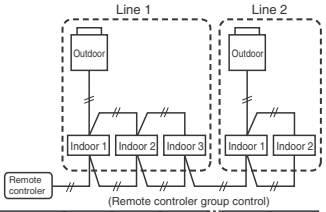
Never connect relay connectors between the [U1, U2] and [U3, U4] terminals before completing address setting of all the refrigerant lines. Otherwise, the addresses cannot be set correctly.

15 Address Setup (continue)

Manual Address Setup from the Remote Control

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

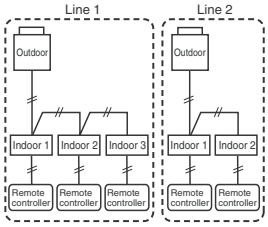
(Wiring example for 2 refrigerant lines)



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

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

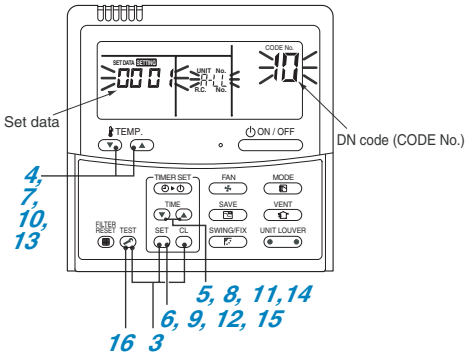
(Wiring during manual address setup)



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

Group address

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



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

2 **Turn on the power.**

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

▼ **(Refrigerant line address)**

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

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

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

▼ **(Indoor address)**

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

8 **Using the TIME buttons, set up the indoor address.**
(0001~0048)

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

▼ **(Group address)**

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

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

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

▼ **(Central control address)**

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

14 **Using the TIME buttons, set up the central control address. (0001~0064)**

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

16 **Push the TEST button.**
Setup is finished (“Setting up” blinks; when “Setting up” goes off, operation is possible).

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

Resetting the Address (Resetting to the Factory Default (Address Undecided))

Method 1

Clearing each address separately using a wired remote control.

Set the system address, indoor unit address and group address to "0099" using a wired remote control.

(For the setting procedure, refer to the address setting procedures using the wired remote control on the previous pages.)

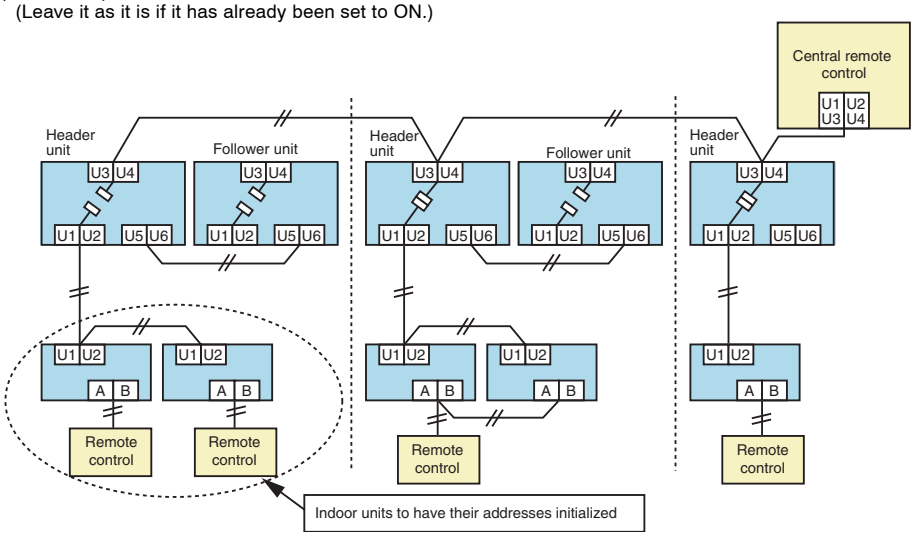
Method 2

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

1 Turn off the refrigerant line to reset to the factory default and set the header outdoor unit of the line as below.

1) Disconnect the relay connectors between the [U1, U2] and [U3, U4] terminals.
(Leave them as they are if they have already been disconnected.)

2) Turn on dip switch 2 of SW30 on the interface P.C. board of the header outdoor unit if the switch is OFF.
(Leave it as it is if it has already been set to ON.)



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

SW01	SW02	SW03	SW04	Clearable addresses
2	1	2	Confirm that the 7-segment display indicates "A.d.buS" and turn SW04 ON for more than 5 seconds.	System/indoor unit/group address
2	2	2	Confirm that the 7-segment display indicates "A.d.nEt" and turn SW04 ON for more than 5 seconds.	Central control address

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

4 After a time "U.1.L08" appears on the 7-segment display if the address clearing has been completed successfully. If the 7-segment display indicates "A.d. n.G.", the outdoor unit may still connected with other refrigerant lines. Check the connection of the relay connectors between [U1, U2] and [U3, U4].

NOTE

Take care to carry out the procedure above correctly; otherwise, addresses in other refrigerate lines may also be cleared.

5 Set the addresses again after finishing the clearance.

17 Address Setup (continue)

In the Case of an Increase in Address-undefined Indoor Units (Extension, etc.)

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

Method 1

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

Method 2

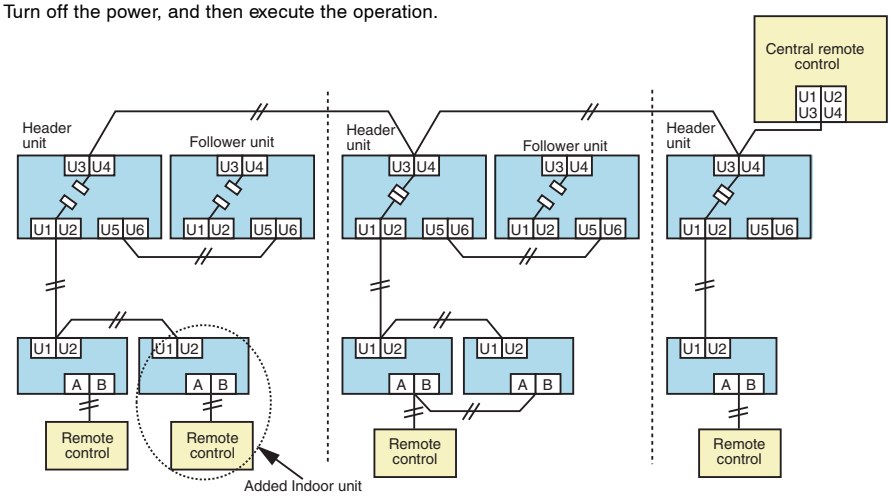
Set up an address from the outdoor unit.
* Leave the addresses of the units for which addresses have already been set up as they are.
Set up an address only for the unit where the address is undefined.
Addresses are allocated from lower numbers.

Setup procedure

Set up the outdoor header units in the refrigerant line to which indoor units have been added, as follows.

1 Remove the relay connector between U1/U2 and U3/U4.

2 If it is off, turn on SW30-bit 2 on the interface PC board at outdoor header unit side.
∗ Turn off the power, and then execute the operation.



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

4 Execute the following operation on the interface PC board of the header unit.

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

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

5 When "U.1. - - -" is displayed on the 7-segment display, the setup operation finished.

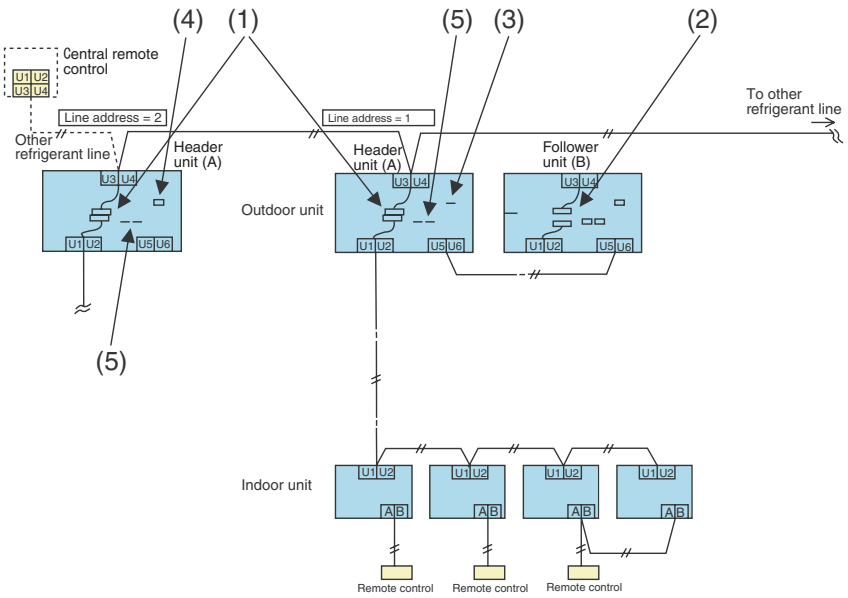
Turn off the indoor/outdoor power.

6 Return to the following setup as before.

- Relay connector
- SW30-bit 2
- SW01, SW02, SW03

Check after Address Setup when Central Control System Is Connected

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



	Main check items	Check
Relay connector	(1) Is the relay connector of the header unit connected after address setup?	
	(2) Is the relay connector of the follower unit removed?	
Terminal resistance	(3) Is the end resistance (SW30-bit 2) of the header unit with the smallest line address number in the central control turned on? (Setup is unnecessary for follower units.)	
	(4) Is the terminal resistance (SW30-bit 2) of the header units, except for the line with the smallest central control line address, turned off? (Setup is unnecessary for follower units.)	
Line address	(5) Are addresses in the line address (SW13, SW14) not duplicated in each refrigerant line?	

NOTE

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

19 Troubleshooting in Test Operation

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

A Check Code Is Displayed on the Remote Control

Check the code displayed on the indoor remote control	Header unit 7- segment display	Cause	Countermeasures
E04	—	When outdoor power is off	Check that the header outdoor unit power is on
	L08	Address setup error • Only line addresses of the connected indoor units are undefined. • The outdoor line address and the line addresses of all the indoor units do not match. • The indoor addresses are duplicated. (Units except those displaying E04 are duplicated.) • A header unit is not set up in group control (except groups displaying E04).	Set up the address again.
	E08 ⇔ -XX Alternate blinking	Duplication of indoor addresses (address number in the subcode of the check code are duplicated).	Set up the address again.
	E07	There is no outdoor terminal resistance, or there are two or more resistances. (After address setup, when terminal resistance setup is changed after poweringon) SW30	Check SW30 bit 2 of the header unit. No connection between multiple refrigerant lines: SW30 bit 2 is on. Connection between multiple refrigerant lines: SW30 bit 2 of the connected header unit is turned on only for one line.
		Transmission circuit error at the interface side (PC board failure)	Replace the interface PC board.
	E06	After address setup, communication from all the indoor units is interrupted under the condition that a normal operation can be performed.	Check and correct disconnection of the indoor/ outdoor communication line (the communication line between the header unit and the leading indoor unit). Check for the influence of communication noise.
E16	E16 ⇔-XX Alternate blinking	Exceeded the number or capacity of connected indoor units	Adjust the number or capacity of connected indoor units.
E23	E23	Communication between outdoor units has stopped.	Check the number of connected outdoor units. Check that outdoor unit power is on.
E25	E25	Duplication of outdoor addresses (only when an outdoor address was manually set up)	Do not use manual setup for outdoor addresses.
E26	E26 ⇔ -XX Alternate blinking	Number of connected outdoor units has decreased. • When installing an outdoor backup • The power of a follower unit is not turned on.	Correction of the cause of error occurrence • If it occurs when installing a backup, clear the error after setup finishes. • If the power of a follower unit is not turned on, turn on the power.
L04	L04	Duplication of outdoor line addresses • Line address setup error (occurred after connection between U1/U2 and U3/U4 connectors)	Modify the line address setup of the header unit between lines. (Set up SW13 and SW14 on the interface PC board.)
L05 (*)	—	Duplication of indoor units with priority	Set up priority only for one indoor unit.
L06 (*)	L06	There are two or more indoor units set up with priority.	Among indoor units indicating “L05,” set one unit with priority.
L08	L08	Address setup error • Only indoor addresses of all the connected indoor units are undefined.o0	Set up the addresses again. Modify the setup.

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

Operation from the Indoor Remote Control is not Accepted, and a Check Code is Displayed on the 7-Segment Display of the Interface P.C. Board of the Header Unit

Indoor remote control status	Header unit 7-segment display	Cause	Countermeasures
No response	L08	Line addresses and indoor addresses of all the connected indoor units are not set.	Set up addresses.
		There is no header unit of group control.	Set up a group address.
	E19 ⇔ -00 Alternate blinking	Indoor unit power is not turned on.	Turn on the power again. (In the order: indoor → outdoor)
		Indoor/outdoor communication line is not correctly connected to the U1/U2 terminal of the header unit . (Indoor/outdoor cannot communicate before address setup.)	Correct wiring
		There is no of outdoor terminal resistance, or there are two or more resistances (before address setup). SW30	Check SW30 bit 2 of the header unit. No connection between multiple refrigerant lines: SW30 bit 2 is on. Connection between multiple refrigerant lines: SW30 bit 2 of the connected header unit is turned on only for one line.
	E19 ⇔ -02 Alternate blinking	When connecting an indoor/outdoor communication line between outdoor units under the condition of a connected communication line between outdoor units.	Correct wiring
		SW08 setup error	Turn all SW08 switches to "off."
	E20 ⇔ -01 Alternate blinking	Address setup is performed with connecting an indoor/ outdoor communication line between outdoor units.	Correct wiring
		Address setup is performed under the condition of connecting multiple refrigerant lines.	Correct wiring

There is no Display of a Check Code on the 7-Segment Display on the Interface P.C. Board of the Header Unit, Although there is Indoor Unit that is not Accepting Operation from the Indoor Remote Control

Indoor remote control status	Header unit 7-segment display	Cause	Countermeasures
No response	None	The communication line is not connected between indoor and outdoor (the unit that does not respond to the indoor remote control).	Modify the wiring.
		Line address and indoor address are not set (the unit that does not respond to the indoor remote control).	Set up the address.
		The power of the header unit of the group is not turned on in indoor group control (the unit that does not respond to the indoor remote control).	Turn on the power.
		Group address is set to the follower unit for individual control (the unit that does not respond to the indoor remote control).	Set the group address to "0" in the case of individual control.
No display on the indoor remote control (no line is output.)	None	The power is not turned on (the unit that is not displayed on the indoor remote control).	Turn on the power.
		The indoor remote control is not connected with a wire (the unit that is not displayed on the indoor remote control).	Modify the wiring.
		Miswiring of the indoor remote control (the unit that is not displayed on the indoor remote control)	Modify the wiring.
		Indoor remote control communication circuit error (the unit that is not displayed on the indoor remote control) If 208/230V is incorrectly applied to the indoor remote control terminal, the remote control communication circuit fails.	Remove the fast-on terminal connected to indoor remote control terminals A/B, and check the voltage. If voltage is not applied (normally 15 to 18V), replace the PC board.

21 Troubleshooting in Test Operation (continue)

In Checking the Number of Connected Outdoor Units and Connected Indoor Units after Address Setup, a Lower Number of Connected Units is Displayed. (There are Outdoor/Indoor Units that do not Operate in a Test Operation.)

Status	Cause	Countermeasures
The number of connected outdoor units is too few.	Miswiring of communication lines between outdoor units or an unconnected wire . (Address setup operation finished without recognizing a miswired follower unit.)	After modification of wiring, set up the addresses again and check the number of connected outdoor units.
The number of connected indoor units is too few.	Miswiring of communication lines between indoor units or an unconnected wire . (Address setup operation finished without recognizing a miswired indoor unit.)	After modification of wiring, set up the addresses again and check the number of connected indoor units.
The number of outdoor units connected to a group is too few in group operation from an indoor remote control.	The indoor remote control is not connected with wire. Miswiring of the indoor remote control	Using the main indoor remote control connected to a group, start a test operation, specify the unit that is not operating (the unit not connected to the group), and then check the wiring.
	Indoor remote control communication circuit error If 208/230V is incorrectly applied to the remote control terminal, the remote control communication circuit fails.	Using the main indoor remote control connected to a group, start a test operation and then specify the unit that is not operating (the unit not connected to the group). Remove the fast-on terminal connected to remote control terminals A/B, and check the voltage. If voltage is not applied (normally 15 to18 V), replace the PC board.

When usiug a remote comtroller with the model name RBC-AMT32UL

	CODE No.	Data name	Display format	Unit	Remote control display example
Indoor unit data *2	00	Room temperature (During control)	×1	˚C	[0027]=27˚C
	01	Room temperature (Remote control)	×1	˚C	
	02	Indoor suction 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 temperature (TF) *1	×1	˚F	
	08	Indoor PMV opening	×1/10	pls	[0150]=1500 pulse
System data	0A	No. of connected indoor units	×1	unit	[0024]=24 units
	0B	Total capacity of connected indoor units	×10	ton	[0215]=21.5 ton
	0C	No. of connected outdoor units	×1	unit	[0002]=2 units
	0D	Total capacity of outdoor units	×10	ton	[0160]=16 ton

	CODE No.		Data name	Display format	Unit	Remote control display example
	U1	U2				
Outdoor unit individual data 1 *3	10	20	High-pressure sensor detention pressure (Pd)	×10	psi	[4350]=435 psi
	11	21	Low-pressure sensor detention pressure (Ps)	×10	psi	
	12	22	Compressor 1 discharge temperature (Td1)	×1	˚F	[0080]=80˚F
	13	23	Compressor 2 discharge temperature (Td2)	×1	˚F	
	14	24	Compressor 3 discharge temperature (Td3)	×1	˚F	
	15	25	Suction temperature (TS)	×1	˚F	
	16	26	Outdoor coil temperature 1 (TE1)	×1	˚F	
	17	27	Outdoor coil temperature 2 (TE2)	×1	˚F	
	18	28	Temperature at liquid side (TL)	×1	˚F	
	19	29	Outside ambient temperature (TO)	×1	˚F	
	1A	2A	PMV1 + 2 opening	×1	pls	[0500]=500 pulse
	1B	2B	PMV4 opening	×1	pls	
	1C	2C	Compressor 1 current (I1)	×10	A	[0135]=13.5 A
	1D	2D	Compressor 2 current (I2)	×10	A	
	1E	2E	Compressor 3 current (I3)	×10	A	
	1F	2F	Outdoor fan current (IFan)	×10	A	

	CODE No.		Data name	Display format	Unit	Remote control display example
	U1	U2				
Outdoor unit individual data 2 *4	50	60	Compressor 1 revolutions	×10	rps	[0642]=64.2 rps
	51	61	Compressor 2 revolutions	×10	rps	
	52	62	Compressor 3 revolutions	×10	rps	
	53	63	Outdoor fan mode	×1	mode	[0058]= 58 mode
	54	64	Compressor IPDU 1 heat sink temperature	×1	˚F	[0080]=80˚F
	55	65	Compressor IPDU 2 heat sink temperature	×1	˚F	
	56	66	Compressor IPDU 3 heat sink temperature	×1	˚F	
	57	67	Outdoor fan IPDU heat sink temperature	×1	˚F	
	58	—	Heating/cooling recovery controlled *5	0: Normal 1: Recovery controlled		[0010]=Heating recovery controlled [0001]=Cooling recovery controlled
	59	—	Pressure release *5	0: Normal 1: Release controlled		[0010]=Pressure release controlled
	5A	—	Discharge temperature release *5			[0001]=Discharge temperature release controlled
	5B	—	Follower unit release (U2/U2/U4 outdoor units) *5			[0100]=U2 outdoor unit release controlled [0010]=U3 outdoor unit release controlled [0001]=U4 outdoor unit release controlled
	5F	6F	Outdoor unit capacity	×10	ton	[0080]=8 ton

∗1 Only a part of indoor unit types is installed with the discharge 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)
∗5 Only the CODE No. 5* of U1 outdoor unit (Header unit) is displayed.

23 Monitoring Function of Remote Control Switch (continue)

NOTE

(1) When setting the line address from the remote control, do not use addresses 29 and 30.
Addresses 29 and 30 cannot be set up on the outdoor unit. If they are incorrectly used, the code "E04" (indoor/outdoor communication circuit error) is output.

(2) When manual address setup has been done from a remote control, and central control over refrigerant lines is to be done, setup the header unit of each line as follows:
- Using SW13 and SW14 on the interface PC board of the header unit of each line, setup the line address for each line.
- Except for the line with the smallest line address number, set SW03-bit 2 to "off" for the interface PC board of the header unit of lines connected to the same central control (put the resistance of the end terminals of the central control line, indoors and outdoors, into one).
- Connect the relay connector between U1/U2 and U3/U4 of the header unit for each refrigerant line.
- After that, set up the central control address.
(For central control address setup, refer to the installation manual of the central control devices.)

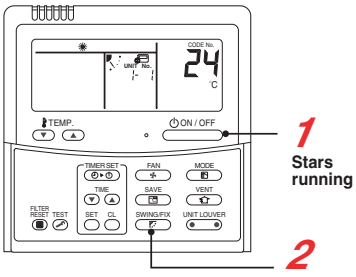
Confirming the Indoor Unit Addresses and the Position of an Indoor Unit Using the Remote Control

◆ Confirming the numbers and positions of indoor units

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

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

(Execute it while the units are running.)



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

2 Push the UNIT LOUVER button (left side of the button).
A unit *1- 1* numbers is indicated on the LCD (it will disappear after a few seconds).

The indicated number shows the system address and indoor unit address of the unit.
When 2 or more indoor units are connected to the remote control (group-controlled units), a number of other connected units appears each time you push the UNIT LOUVER button (left side of the button).

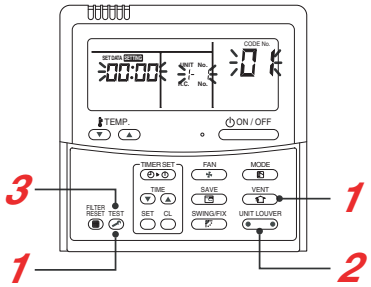
To find an indoor unit's position from its address

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

(Execute it while the units are stopped.)

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

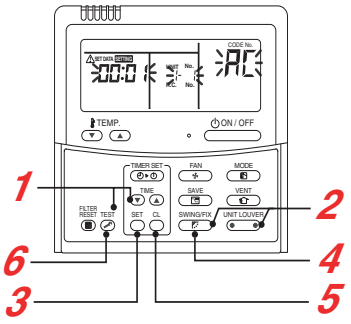
1 Push and hold the VENT and TEST buttons at the same time for more than 4 seconds.
- *ALL* appears on UNIT No. on the LCD display.
- The fans and louvers of all the indoor units in the group are activated.



2 Push the UNIT LOUVER button (left side of the button). Each time you push the button, the indoor unit numbers are indicated one after another.
- The first-indicated unit number is the address of the header unit.
- Only the fan and louvers of the indicated indoor unit are activated.

3 Push the TEST button to finish the procedure.
All the indoor units in the group stop.

● **To check all the indoor unit addresses using an arbitrary wired remote control.**
(When communication wirings of 2 or more refrigerant lines are interconnected for central control)



(Execute it while the units are stopped.)

You can check indoor unit addresses and positions of the indoor units in a single refrigerant line.
When an outdoor unit is selected, the indoor unit numbers of the refrigerant line of the selected unit are indicated one after another and the fan and louvers of the indicated indoor units are activated.

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

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

3 **Push the SET button to confirm the system address selection.**
- The address of an indoor unit connected to the selected refrigerant line is indicated on the LCD display and its fan and louvers are activated.

4 **Push the UNIT LOUVER button (left side of the button).**
Each time you push the button, the indoor unit numbers of the selected refrigerant line are indicated one after another.
- Only the fan and louvers of the indicated indoor unit are activated.

● **To select another system address**

5 **Push the CL button to return to step 2.**
- After returning to step 2, select another system address and check the indoor unit addresses of the line.

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

Changing the Indoor Unit Address Using a Remote Control

To change an indoor unit address using a wired remote control.

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

(Execute it while the units are stopped.)

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

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

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

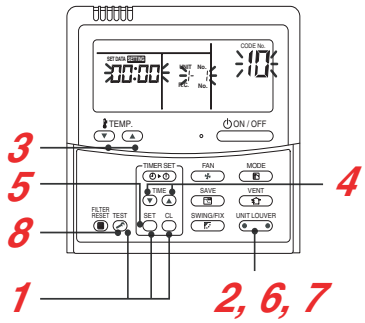
4 **Push the TIME (▼) / (▲) buttons repeatedly to change the value indicated in the SET DATA section to that you want.**

5 **Push the SET button.**

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

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

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



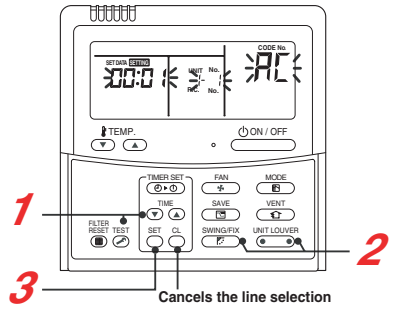
Monitoring Function of Remote Control Switch (continue)

- **To change all the indoor unit addresses using an arbitrary wired remote control.**
  (The method is available when the addresses have already been set automatically.)
  (When communication wirings of 2 or more refrigerant lines are interconnected for central control)

NOTE

You can change the addresses of indoor units in each refrigerant line using an arbitrary wired remote control.

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



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

(Execute it while the units are stopped.)

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

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

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

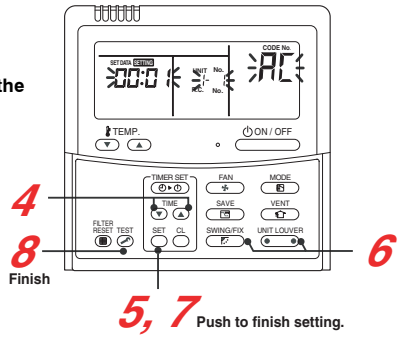
4 **Push the TIME ▼ / ▲ buttons repeatedly to change the value of the indoor unit address in SET DATA.**
Change the value in SET DATA to that of a new address.

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

6 **Push the UNIT LOUVER button (left side of the button) repeatedly to select another address to change.**
Each time you push the button, the indoor unit numbers in a refrigerant line are indicated one after another.
Only the fan and louvers of the selected indoor unit are activated.
Repeat steps **4** to **6** to change the indoor unit addresses so as to make each of them unique.

7 **Push the SET button.**
(All the segments on the LCD display light up.)

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



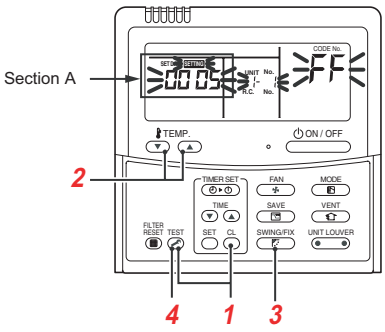
Error Clearing Function

Clearing From the Main Remote Control

- **Error clearing in outdoor unit**
  Error of the outdoor unit currently detected is cleared by the unit of one refrigerant circuit system to which the indoor units operated by the remote control is connected. (Error of the indoor unit is not cleared.)
  For clearing errors, the service monitor function of the remote control is used.

<Method>

1. **Change the mode to service monitor mode by pushing CL + TEST buttons simultaneously for 4 seconds or more.**
2. **Using TEMP. buttons, set CODE No. to "FF".**
3. **The display in Section A in the following figure is counted with interval of 5 seconds as "0005" → "0004" → "0003" → "0002" → "0001" → "0000".**
   When the count arrives "0000", the error is cleared.
   ∗ However, counting from "0005" is repeated on the display.
4. **When TEST button is pushed, the status returns to the normal status.**



- **Error clearing in indoor unit**
  Error in the indoor unit is cleared by ON / OFF button on the remote control. (Only error of the indoor unit connected with operating remote control is cleared.)

Clearing Error by Using Switches on the Interface P.C. Board of the Header Unit

Using the switches on the interface P.C. board of the header unit, this function is to clear the currently detected error for each refrigerant circuit system without resetting the power supply.
Errors in both outdoor and indoor units are once cleared, and error detection is performed again.

Clearing Error by Resetting Power

This function is provided to clear error in a system by resetting the power of all the outdoor and the indoor units.
As same as the clearing method by the interface P.C. board, errors of both the outdoor and the indoor units are once cleared, and error detection is performed again.

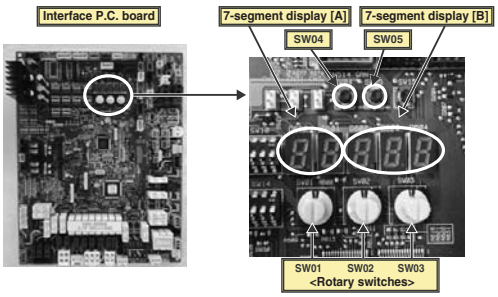
<Method>

(1) Be sure to reset power of both the outdoor and the indoor units.
(2) Turn on the power of the indoor unit prior to the power of the outdoor unit.
(If the power is turned on in reverse order, a check code [E19] (No. of header unit error) is output.)

NOTE

After power reset, it requires usually 3 minutes to power-on due to the initial communication of the system.
In some cases, it requires max. 10 minutes.

Set the rotary switches on the interface P.C. board of the header unit as follows. Set SW01/SW02/SW03 to [2/16/1]	7-segment display [A] [B] [E r][ ]
↓	
Press the push-switch SW04 on the same board for 5 seconds or more.	
↓	
[C L] is displayed in 7-segment display [B] on the board (for 5 seconds), and the error is completely cleared.	7-segment display [A] [B] [E r][C L]



27 Method to Set Indoor Unit Function DN Code

When Performing this Task, be sure to Use a Wired Remote Control

<Procedure> To be performed only when system at rest

1 **Push the TEST + SET + CL buttons simultaneously and hold for at least 4 seconds.**
The unit No. displayed first is the address of the header indoor unit in group control. Then the fan and louver of the selected indoor unit move.

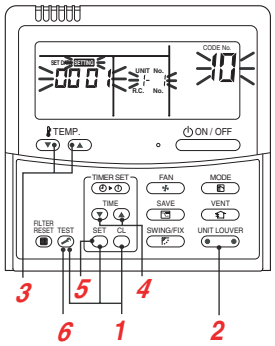
2 **Each time the "Select unit" side of the UNIT LOUVER button is pressed, one of the indoor unit Nos. under group control is displayed in turn. Then the fan and louver of the selected indoor unit move.**

3 **Use the TEMP. button to select the CODE No. (DN code) of the desired function.**

4 **Use the TIME button to select the desired SET DATA associated with the selected function.**

5 **Push the SET button. (The display changes from flashing to steady.)**
- To change the selected indoor unit, go back to step **2**.
- To change the selected function, go back to step **3**.

6 **When the SET button is pushed, the system returns to normal off state.**



Type
DN code "10"

Value	Type	Model
0001∗1	4-way Air Discharge Cassette	MMU-AP∗∗∗H
0004	Concealed Duct Standard	MMD-AP∗∗∗BH
0005	Slim Duct	MMD-AP∗∗∗SPH (SH)
0006	Concealed Duct High Static Pressure	MMD-AP∗∗∗H
0007	Under Ceiling	MMC-AP∗∗∗H
0008	High Wall	MMK-AP∗∗∗H
0014	Compact 4-way Air Discharge Cassette	MMU-AP∗∗∗MH

∗1 Default value stored in EEPROM mounted on service P.C. board

Indoor Unit Capacity
DN code "11"

Value	Capacity
0000∗1	Invalid
0001	007 type
0003	009 type
0005	012 type
0007	015 type
0009	018 type
0010	021 type
0011	024 type
0012	027 type
0013	030 type
0015	036 type
0016	042 type
0017	048 type
0018	056 type
0021	072 type
0023	096 type

Function CODE No. (DN Code) Table (Includes All Functions Needed to Perform Applied Control on Site)

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 state of filter	0000: Standard 0001: High degree of dirt (Half of standard time)	0000: Standard
03	Central control address	0001: No.1 unit to 0064: No.64 unit 0099: Unfixed	0099: Unfixed
04	Specific indoor unit priority	0000: No priority 0001: Priority	0000: No priority
06	Heating temp shift	0000: No shift 0001: +1˚C(+1.8˚F) 0002: +2˚C(+3.6˚F) to 0010: +10˚C(+18˚F) (Up to +6 recommended)	0002: +2˚C(+3.6˚F) (Floor type 0000: 0˚C)
0d	Existence of [AUTO] mode	0000: Provided 0001: Not provided (Automatic selection from connected outdoor unit)	0001: Not provided
0F	Cooling only	0000: Heat pump 0001: Cooling only (No display of [AUTO] [HEAT])	0000: Heat pump
10	Type	0001: 4-way Air Discharge Cassette	Depending on model type
11	Indoor unit capacity	0000: Unfixed 0001 to 0034	According to capacity type
12	Line address	0001: 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 unit of group 0002: Follower unit of 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
28	Automatic restart of power failure	0000: None 0001: Restart	0000: None
2A	Selection of option/error input (CN70)	0000: Filter input 0001: Alarm input (Air washer, etc.) 0002: None	0002: None
2E	HA terminal (CN61) select	0000: Usual 0001: Leaving-ON prevention control 0002: Fire alarm input	0000: Usual (HA terminal)
31	Ventilating fan control	0000: Unavailable 0001: Available	0000: Unavailable
32	TA sensor selection	0000: Body TA sensor 0001: Remote control sensor	0000: Body TA sensor
33	Temperature unit select	0000: ˚C 0001: ˚F : (at factory shipment)	0001: ˚F
F0	Swing mode	0001: Standard 0002: Dual swing 0003: Cycle swing	0001: Standard
F1	Louver fixed position (Louver No.1)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
F2	Louver fixed position (Louver No.2)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
F3	Louver fixed position (Louver No.3)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
F4	Louver fixed position (Louver No.4)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed

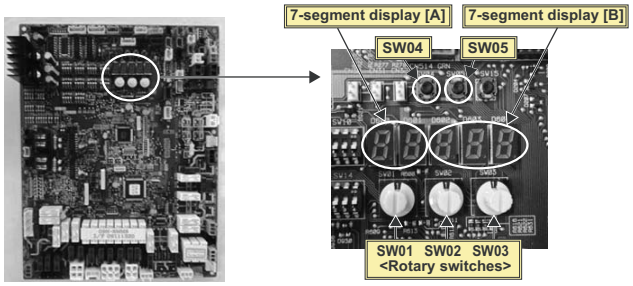
29 Function to Start/Stop (ON/OFF)

The following functions of the indoor unit can start or stop by the switches on the interface P.C. board of the header unit.

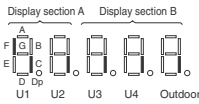
No	Function	Outline	Setup/Release	7-segment display
1	Cooling test operation	Changes the mode of all the connected indoor units collectively to cooling test operation. **Note)** Control operation same as usual test operation from remote control is performed.	**[Setup]** Set SW01/SW02/SW03 to [2/5/1],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

NOTES

1) This start/stop function only sends the signals from the outdoor unit to the indoor unit, such as start, stop, operation mode, etc. It does not resend the signals even if the indoor unit does not follow the sent signals.
2) The above controls are not used during abnormal stop.



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

SW01	SW02	SW03	Display detail				
1	1	3	Unused				
						A	B
	2		System capacity	A	[...6]~[10]:6 to 20 ton		
				B	[ton]		
	3		No. of outdoor units	A	[...1]~[...2]:1 to 2		
				B	[...P]		
	4		No. of indoor units connected/	A	[...0.]~[48.]:0 to 48 (No. of units connected)		
			No. of units with cooling thermo ON	B	[C...0]~[C48]:0 to 48 (No. of units with cooling thermo ON)		
	5		No. of indoor units connected/	A	[...0.]~[48.]:0 to 48 (No. of units connected)		
			No. of units with heating thermo ON	B	[H...0]~[H48]:0 to 48 (No. of units with heating thermo 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 right turned on: Header unit oil equalization request If element C shown on sketch at right 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 pick-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		Unused				
	16		—	A	—		
				B	—		

(2) Display of Outdoor Unit Information (Displayed on Each Outdoor Unit)

SW01	SW02	SW03	Display detail				
1	1	1	Error data	A	Outdoor unit No.: [U1] to [U4]		
				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 error. 7-segment display section A: [E.1] <SW04 + SW05> push SW function: Fan operation at outdoor unit without error. 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	6 ton to 10 ton [... ... 6. 0 t] to [... 1 0. 0t] A B A B		
				B			
	5		Compressor operation command	∗ Operation data of each compressor is displayed in turn in 2 second intervals. If compressor No. 3 does not exist, [--.---] is displayed.			
			Normal: Compressor speed (rps) is displayed in decimal format. 7-segment display (A/B): [C1. ∗∗∗] ⇨ [C2. ∗∗∗] ⇨ [C3. ∗∗∗] ⇨ ...				
			<SW04> push SW function: Switches to display of operating current (decimal value). 7-segment display (A/B): [i1 ∗∗∗] ⇨ [i2 ∗∗∗] ⇨ [i3 ∗∗∗] ⇨ ... Pushing of <SW05> restores normal display.				
	6		Outdoor fan mode	A	[FP]		
				B	Mode 0 to 63: [... 0] to [63]		
	7		Compressor backup	A	[C.b.]		
				B	Displays compressor backup setting status Normal: [... ... ...] Compressor No. 1 backup: [1 ... ...] Compressor No. 2 backup: [... 1 ...] Compressor No. 3 backup: [... ... 1]		
	8		—	A	—		
				B	—		
	9		Control valve output data	Displays control output status of solenoid valve		A	B
				4-way valve: ON / 4-way valve 2: OFF		H. 1	... ...
				4-way valve: OFF / 4-way valve 2: ON		H. 0	... ...
	10			SV2: ON / SV5: OFF / SV6: OFF		2. ...	1 0 0
				SV2: OFF / SV5: ON / SV6: ON		2. ...	0 1 0
				SV2: OFF / SV5: OFF / SV6: ON		2. ...	0 0 1
	11			SV3A: ON / SV3B: OFF / SV3C: OFF / SV3D: OFF		3. 1	0 0 0
				SV3A: OFF / SV3B: ON / SV3C: OFF / SV3D: OFF		3. 0	1 0 0
				SV3A: OFF / SV3B: OFF / SV3C: ON / SV3D: OFF		3. 0	0 1 0
				SV3A: OFF / SV3B: OFF / SV3C: OFF / SV3D: ON		3. 0	0 0 1
	12			SV41: ON / SV42: OFF / SV43: OFF		4. ...	1 0 0
				SV41: OFF / SV42: ON / SV43: OFF		4. ...	0 1 0
				SV41: OFF / SV42: OFF / SV43: ON		4. ...	0 0 1
	13			SV3F: OFF		A. ...	 0
				SV3F: ON		A. ...	 1
	14		PMV1/PMV2 opening	Displays opening data in decimal format (total opening)		∗∗	∗∗.P
	15		PMV4 opening	Displays opening data in decimal format		... ∗	∗∗.P
	16		Oil level judgment status				
			Normal	A	[o L.]		
				B	Initial display: [... ... ...], Oil level judgment result: [#.*.$] Displayed letters #, * and $ represent judgment results for compressor Nos. 1, 2 and 3, respectively ("0" for normal and "1" or "2" for low level).		
			<SW04> push SW function: Displays low level confirmed judgment result of each compressor.				
			∗Pushing of <SW05> restores normal display.	A	[L d.]		
				B	Compressor No. 1 low level being confirmed: [L ... ...] Compressor No. 2 low level being confirmed: [... L ...] Compressor No. 3 low level being confirmed: [... ... L]		

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

SW01	SW02	SW03	Display detail			A	B
1	1	2	Pd pressure data	Pd pressure (psi) is displayed in decimal format.		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	∗	∗ ∗. ∗
	6		TD3 sensor data		Letter symbol	t d	3 ... ...
					Data	∗	∗ ∗. ∗
	7		TS sensor data		Letter symbol	t S	... ...
					Data	∗	∗ ∗. ∗
	8		TE1 sensor data		Letter symbol	t E	... ...
					Data	∗	∗ ∗. ∗
	9		TE2 sensor data		Letter symbol	t E	2 ... ...
					Data	∗	∗ ∗. ∗
	10		TL sensor data		Letter symbol	t L	... ...
					Data	∗	∗ ∗. ∗
	11		TO sensor data		Letter symbol	t o	... ...
					Data	∗	∗ ∗. ∗
	12		TK1 sensor data		Letter symbol	F 1	... ...
					Data	∗	∗ ∗. ∗
	13		TK2 sensor data		Letter symbol	F 2	... ...
					Data	∗	∗ ∗. ∗
	14		TK3 sensor data		Letter symbol	F 3	... ...
					Data	∗	∗ ∗. ∗
	15		TK4 sensor data		Letter symbol	F 4	... ...
					Data	∗	∗ ∗. ∗
	16		TK5 sensor data		Letter symbol	F 5	... ...
					Data	∗	∗ ∗. ∗

(4) Display of Outdoor Cycle Data (Displayed at Header Unit)

* This method is used when displaying follower unit information on the 7-segment display of the header unit.

SW01	SW02	SW03	Display detail		
3	1	1~3	Error data	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2)
				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)
				B	
	3		Outdoor unit capacity	A B	6 ton to 10 ton [... ... 6. 0 t] to [... 1 0. 0t] A B A B
	4		Compressor operation command	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U4)
				B	Indicates which compressor is ON. ∗ Any unconnected compressors is represented by "–". (B) When compressor No. 1 is ON: 1 0 0 When compressor No. 2 is ON: 0 1 0 When compressor No. 3 is ON: 0 0 1
	5		Fan operation mode	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2)
				B	At rest: [F ... 0], In mode 63: [F 6 3]
	6		Release signal	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2)
				B	Normal: [r ... ...], Upon receiving release signal: [r ... 1]
	7		Oil level judgment	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2)
				B	Normal: [... ... ...], Low level: [... ... L]
	8		Compressor 1 operating current	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2)
				B	[∗∗.], ∗∗.∗ is value of operating current in decimal format.
	9		Compressor 2 operating current	A	[U..], ∗: SW03 setting No. + 1 (Outdoor unit No. U2)
				B	[∗∗.∗], ∗∗.∗ is value of operating current in decimal format.
	10		Compressor 3 operating current	A	[U..], ∗: SW03 setting No. + 1 (Outdoor unit No. U2)
				B	[∗∗.∗], ∗∗.∗ is value of operating current in decimal format.
	11		Fan operating current	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2)
				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

(5) 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 HP capacity	B	0. 2, 0. 5, 0. 8, ... 1, 1. 2, 1. 7, ... 2, 2. 5, ...3, 3. 2, ...4, ...5, ...6, ...8, 1 0, 1 6, 2 0
7			Indoor request 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 sensor data	B	Displayed in decimal format
11		1~4	Indoor TCJ sensor data	B	Displayed in decimal format
12			Indoor TC1 sensor data	B	Displayed in decimal format
13			Indoor TC2 sensor 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.

SW03	SW02	Indoor address	7-segment display section A
1	1~16	SW02 setting number	[01]~[16]
2	1~16	SW02 setting number +16	[17]~[32]
3	1~16	SW02 setting number +32	[33]~[48]
4	1~16	SW02 setting number +48	[49]~[64]

∗ Although 64 indoor unit addresses (Nos. 01-64) are theoretically available, the number of indoor units that can be connected to the same refrigerant piping system is limited to 48.

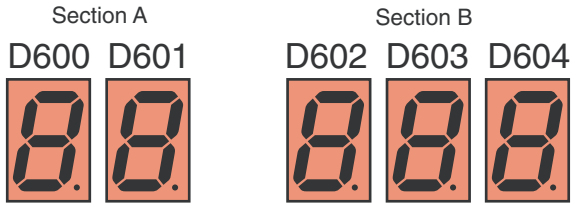
(6) Display of Outdoor EEPROM Writing Error Code (Displayed on Header Unit Only)

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

To display the error 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 error code of header unit (U1)	E. 1.	∗∗∗
	2		Latest error code of follower unit No. 1 (U2)	E. 2.	∗∗∗
	3		Latest error code of follower unit No. 2 (U3)	E. 3.	∗∗∗
	4		Latest error code of follower unit No. 3 (U4)	E. 4.	∗∗∗

• 7-Segment Display



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

Pulse Motor Valve (PMV) Forced Open/Close Function in Indoor Unit

This function is provided to open or close forcedly PMV for 2 minutes in all the indoor units by the switch operation on the interface P.C. board of the header unit.

This function is also used to open PMV fully when turning off the power and executing an operation.

<Operation>

[Open fully]

Set the switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/3/1], and push SW04 for 2 seconds or more. (Display appears on 7-segment display for 2 minutes as follows.) [P] [FF]

[Close fully]

Set the switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/3/1], and push SW05 for 2 seconds or more. (Display appears on 7-segment display for one minute as follows.) [P] [00]

[Clear]

After 2 minutes (1 minutes for “Close fully”) after setting up, the opening automatically returns to the normal opening.

Solenoid Valve Forced Open/Close Function in Outdoor Unit

This function is provided to forcedly open each solenoid valve mounted in the outdoor unit by the switch operation on the interface P.C. board in the outdoor unit.
Use this function to check there is no refrigerant clogging with ON/ OFF operation of the solenoid valve.

[Operation]

(1) Set the switches SW01/SW02/SW03 on the interface P.C. board of the outdoor unit to [2/1/3].
(2) When [H. r] is displayed in 7-segment display [A], keep pushing the switch SW04 for 2 seconds or more.
(3) From when [2] is displayed in 7-segment display [B], SV2 is turned on.
(4) After then, ON and OFF of each solenoid valve are exchanged by changing the setup number of the switch SW02.
(ON/OFF output pattern of each solenoid valve is as shown below.)

NOTE 1)

Display in 7-segment display [B] is exchanged just when the number of SW02 has been changed; on the other hand, the solenoid valve output is exchanged when SW02 has been kept with the same number for 5 seconds or more.

NOTE 2)

The mark [O] in the table indicates that the corresponding solenoid valve is forcedly turned on.

NOTE 3)

The mark [–] in the table indicates that ON/OFF of the solenoid valve is controlled based upon the specifications of the air conditioner.

NOTE 4)

The mark [x] in the table indicates that the corresponding solenoid valve is forcedly turned off with this operation.

NOTE 5)

The case heater output is for both the compressor and accumulator heaters.

SW02	7-segment display [B]	Operation pattern of solenoid valve												Case heater output relay
		SV2	SV5	SV41	SV42	SV43	SV3A	SV3B	SV3C	SV3D	SV3E	SV3F	SV61	
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	[3b]	—	—	—	—	—	—	—	—	O	×	O	—	O
10	[3–]	—	—	—	—	—	O	O	O	×	O	×	—	O
11	[61]	—	—	—	—	—	—	—	—	—	O	—	O	O
12~15		—	—	—	—	—	—	—	—	—	O	—	—	O
16	ALL	O	O	O	O	O	O	O	O	O	O	O	O	O

∗ If the outdoor unit has no valve, then 7-segment display [B] shows [- -].

[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, be sure to release this mode after checking.

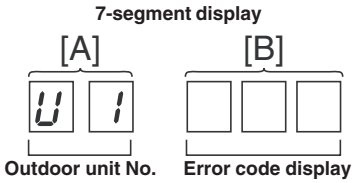
Abnormal Outdoor Unit Discrimination Method By Fan Operating Function

This function is provided to forcedly operate the fan of the outdoor unit in which an error occurred or the fan of the normal outdoor unit by the switch operation on the interface P.C. board in the header unit.
To specify which one of the follower units connected to the system was faulty, use this function for the system stop due to a follower unit fault (Check code [E28]).

[Operation]

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

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



(2) Push the push-switch SW04 for 2 seconds or more.
(3) [E 1] is displayed on 7-segment display [A].
(4) The fan of the outdoor unit in which error occurred starts operation within approx. 10 seconds after [E 1] was displayed.

<In case to operate the fans in all the normal outdoor units>

(1) Check that the switches SW01/SW02/SW03 on the interface P.C. board in the header unit are set to [1/1/1].
(2) Push the push-switches SW04 and SW05 at the same time for 2 seconds or more.
(3) [E 0] is displayed on 7-segment display [A].
(4) The fans of all the normal outdoor units start operation with the Max. fan speed within approx. 10 seconds after [E 0] was displayed.

[Release]

Push the push-switch SW05 on the interface P.C. board in the header unit for 2 seconds or more.
The outdoor fan which was operated stops.
* Check that [**U. 1**] is displayed on 7-segment display [A], and then finish the work.

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

This function is provided to forcedly open or close fully P.M.V. (PMV1/PMV2, PMV4) used in the outdoor unit for 2 minutes.

[PMV1/PMV2 Open fully]

On the interface board of the outdoor unit, set the dip switch [SW12 • bit1] to [OFF], [SW12 • bit2] to [OFF], and shortcircuit CN30.

[PMV1/PMV2 Close fully]

On the interface board of the outdoor unit, set the dip switch [SW12 • bit1] to [OFF], [SW12 • bit2] to [OFF], and shortcircuit CN31.

[PMV4 Open fully]

On the interface board of the outdoor unit, set the dip switch [SW12 • bit1] to [OFF], [SW12 • bit2] to [ON], and shortcircuit CN30.

[PMV4 Close fully]

On the interface board of the outdoor unit, set the dip switch [SW12 • bit1] to [OFF], [SW12 • bit2] to [ON], and shortcircuit 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].

BACKUP OPERATION (EMERGENCY OPERATION)

This product offers backup modes of operation to get 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(s), (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.

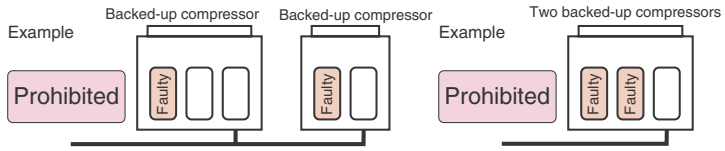
Note for Backup Operation

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

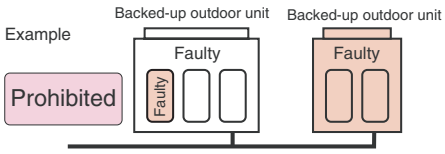
Contents of fault	Method of backup operation	Setting procedure
One of the compressors in the same unit fails (see Note 1)	Compressor backup (see Note 2)	Go to page 37.
All the compressors in the same unit fail	Outdoor unit backup or coolingseason outdoor unit backup (see Notes 1, 3, and 4)	Go to page 38 or 39.
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 preform compressor backup operation because of severe oil degradation. It could damage other outdoor units.

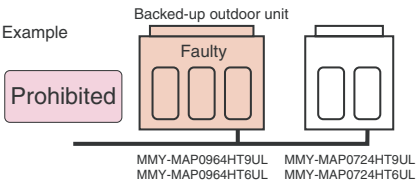
Note 2: Keep the number of backed-up outdoor units under compressor backup operation to one in the system (single refrigerant line).
For a three-compressor model, the backing up of two faulty compressors is prohibited.



Note 3: It is prohibited to combine compressor backup operation and outdoor unit backup operation.



Note 4: With a two-outdoor unit system containing an MMY-MAP0964HT9UL and a MMY-MAP0724HT9UL, do not preform outdoor unit backup operation to back up the MMY-MAP0964HT9UL.
With a two-outdoor unit system containing an MMY-MAP0964HT6UL and a MMY-MAP0724HT6UL, do not preform outdoor unit backup operation to back up the MMY-MAP0724HT6UL.
It could lead to compressor failure due to the abnormal peration.



BACKUP OPERATION (EMERGENCY OPERATION) (continue)

Compressor Backup Operation Setting

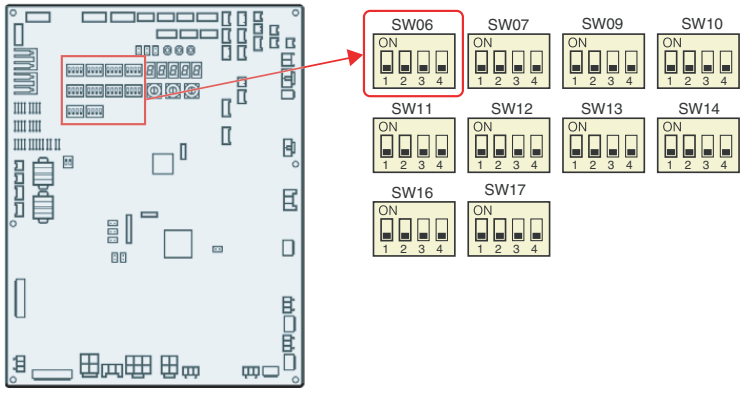
<Outline>

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(s).

<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.



Three-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 center) is faulty	OFF	ON	OFF	OFF
When compressor No. 3 (front right) is faulty	OFF	OFF	ON	OFF

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

(3) Turn on the power supply to all the units connected to the system.

This is the end of compressor backup operation setting.

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, TD3, TS1, TE1, TE2, TK1, TK2, TK3, TK4, TK5, or TL)

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

(1) Follower Outdoor Unit Backup Operation Setting (Failure of Follower Outdoor Unit)

<Work procedure>

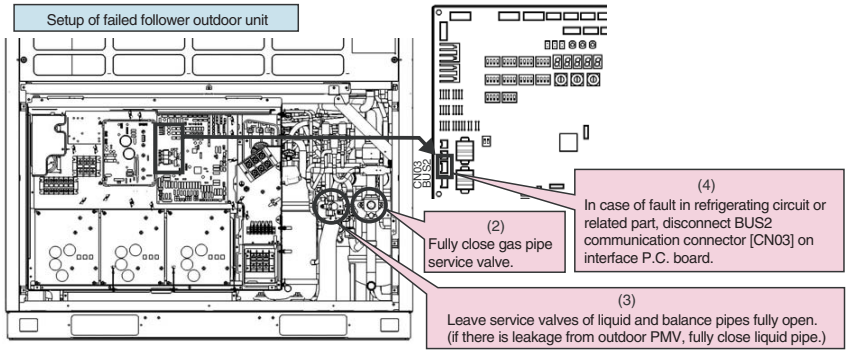
(1) Turn off the power supply to all the indoor and outdoor units connected to the system.

[Setup of failed follower outdoor unit]

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

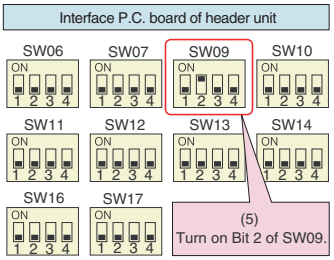
(3) Leave the service valves of the liquid and balance pipe fully open (to prevent refrigerant stagnation in the unit).
However, if there is a leakage from an outdoor PMV (unable to close), fully close the liquid pipe service valve.

(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.



[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 error. (E16))



BACKUP OPERATION (EMERGENCY OPERATION) (continue)

(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.

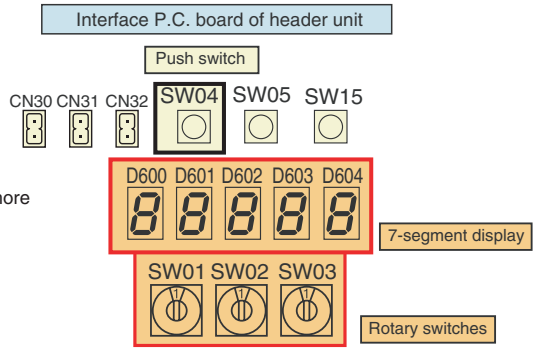
<In case of fault in refrigerating circuit or related part (pressure sensor, temperature sensor, refrigerating cycle part, or fan system part)>

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] (error 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 (error clearance).

1) Set SW01/02/03 on the interface P.C. board to 1/1/1 and confirm that [U1] [E26] (dropping out of an outdoor unit) is displayed on the 7-segment display.
2) Set SW01/02/03 on the interface P.C. board to 2/16/1. Upon confirming that [Er] [... ... ...] is displayed on the 7-segment display, push SW04 and hold for 5 seconds or more.
3) [Er] [... CL] (error clearance completed) will be displayed on the 7-segment display.
4) Set SW01/02/03 back to 1/1/1. (The display should change to [U1] [- - -].)

(7)
Set SW01/02/03 to 1/1/1
[U1] [E26] will be displayed.
↓
Set SW01/02/03 to [2/16/1].
[Er] [... ... ...] will be displayed.
↓
Push SW04 and hold for 5 seconds or more
[Er] [... CL] will be displayed.
↓
Set SW01/02/03 back to 1/1/1.
[U1] [— — —] will be displayed.



This is the end of follower outdoor unit backup operation setting. Check the operation.

(2) Header Outdoor Unit Backup Operation Setting (Failure of Header Outdoor Unit)

<Work procedure>

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

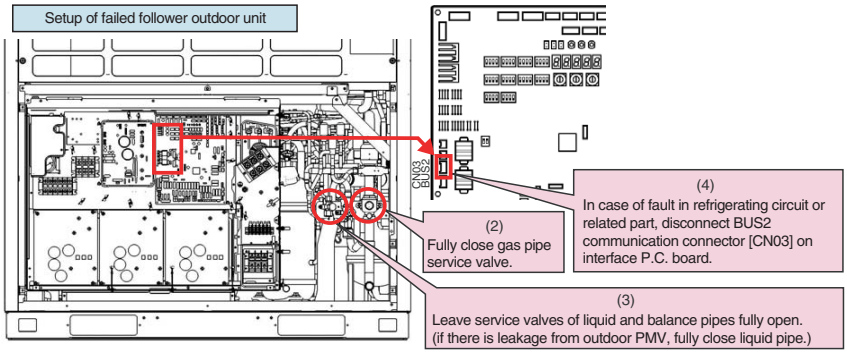
[Setup of failed header outdoor unit]

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

(3) Leave the service valves of the liquid 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.



[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 or more follower units are connected, select the follower unit that is nearest to the failed header unit.

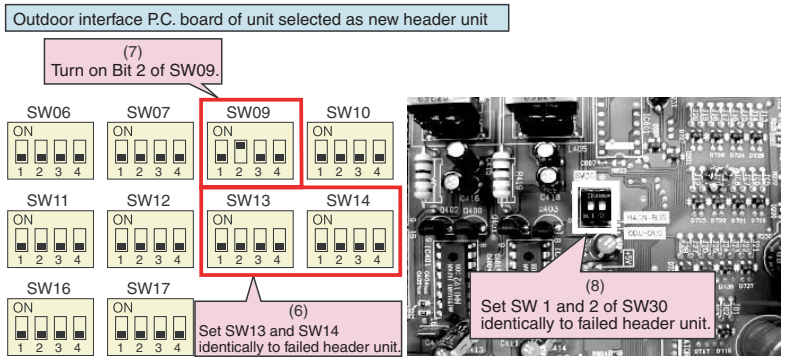
[Setup of new header unit]

(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 on the interface P.C. board.
(Setting to prevent connected indoor unit capacity over error. (E16))

BACKUP OPERATION (EMERGENCY OPERATION) (continue)

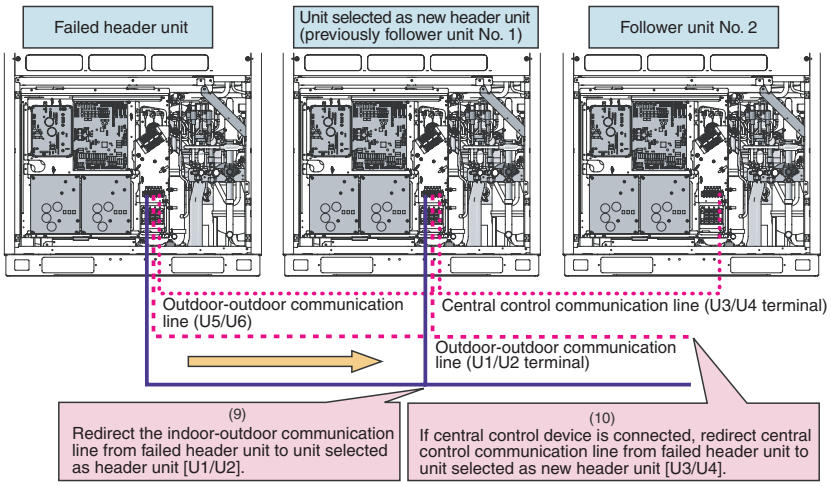
(8) Set Bits 1 and 2 of **SW30** on the interface P.C. board same as that of the failed header unit (terminator resistance setting).



[Wiring changes to communication line]

(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**] (error 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.

OUTDOOR UNIT REFRIGERANT RECOVERY METHOD

Refrigerant Recovery from Failed Outdoor Unit (Pump-Down)

This product supports refrigerant pump-down, a function which allows refrigerant to be recovered from an outdoor unit in need of repair using a normal outdoor unit in a system featuring multiple outdoor units.

(1) Note for Refrigerant Recovery Operation

When performing pump-down operation, take note of the following matters:

Note 1: The pump-down refrigerant recovery rate changes with outside temperature and other factors.
After pump-down is completed, recover any residual gas using a refrigerant recovery device, etc., and be sure to measure the amount of recovered refrigerant. (The refrigerant recovery rate can be improved by heating the accumulator of the outdoor unit to be repaired during pump-down operation.)

Note 2: If pump-down has been performed, the system cannot be operated until the faulty outdoor unit is repaired. (Continued operation would be impossible due to a refrigerant overcharge.)

Note 3: If outdoor PMVs **1** and **2** both happen to be faulty (unable to open) or PMV 4 fails while fully closed, the refrigerant in the heat exchangers (or sub-heat exchangers) cannot be recovered. In that case, recover any residual gas in the heat exchangers (or sub-heat exchangers) using a tube piercing valve or some other tool. After a pump-down operation, do not perform any welding until the residual gas in the heat exchangers is recovered.

(2) Refrigerant Recovery Procedure A (Case of No Outdoor Unit Backup Operation Setting)

<Work procedure>

Turn on the power supply to the system at the source, but leave the system switched off.
If the fault involves poor insulation of a compressor motor, remove the motor leads before the power is turned on.

[Setup of failed outdoor unit]

(1) Connect the check joint of liquid pipe and the low pressure-side check joint using a charge hose, and purge the hose of air (to recover refrigerant from the liquid tank and heat exchangers).
(2) Fully close the liquid pipe service valve of the failed outdoor unit.
(Leave the service valves of the gas and balance pipes fully open.)
(3) If the oil is likely to has degraded due to a compressor fault, disconnect the SV3A valve connector of the failed outdoor unit (to prevent the degraded oil from flowing into other outdoor units).
(4) Set SW01/02/03 on the interface P.C. board of the failed outdoor unit to 2/11/1.
After [rd] [... ... ...] is displayed on the 7-segment display, push SW04 and hold for 5 seconds or more.

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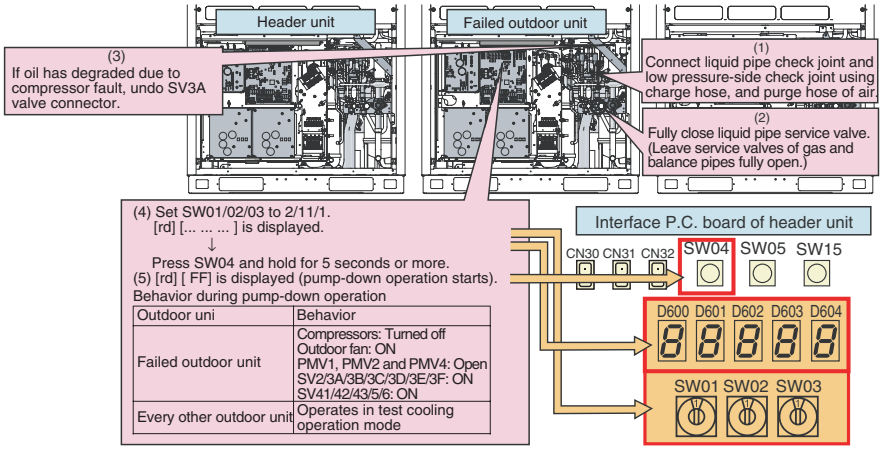
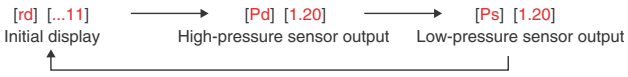
(5) [rd] [... FF] will be displayed on the 7-segment display, and pump-down operation will start.
* To put the operation on hold midway, turn off the power supply to all the outdoor units, or push SW05 on the interface P.C. board.



(6) Approx. 10 minutes after the system starts up, fully close the gas pipe service valve of the failed outdoor unit.
(7) Push SW04 of the failed outdoor unit to have pressure data (psi) displayed.
(The display switches each time SW04 is pushed.)

Display Example



[Selection of outdoor unit for pressure adjustment]

(8) Of all outdoor units operating in the pump-down mode, select the one with the lowest unit No. as an outdoor unit for pressure adjustment.

Identifying Unit No.

The unit No. is the number displayed on the 7-segment display when **SW01/02/03** are set to 1/1/1.
([U#] [. . .]: # represents the unit No.)

[Setup of outdoor units other than unit for pressure adjustment and failed unit]

(9) Leaving the balance pipes of the unit for pressure adjustment and the failed unit fully open, fully close the balance pipe service valves of all other outdoor units.

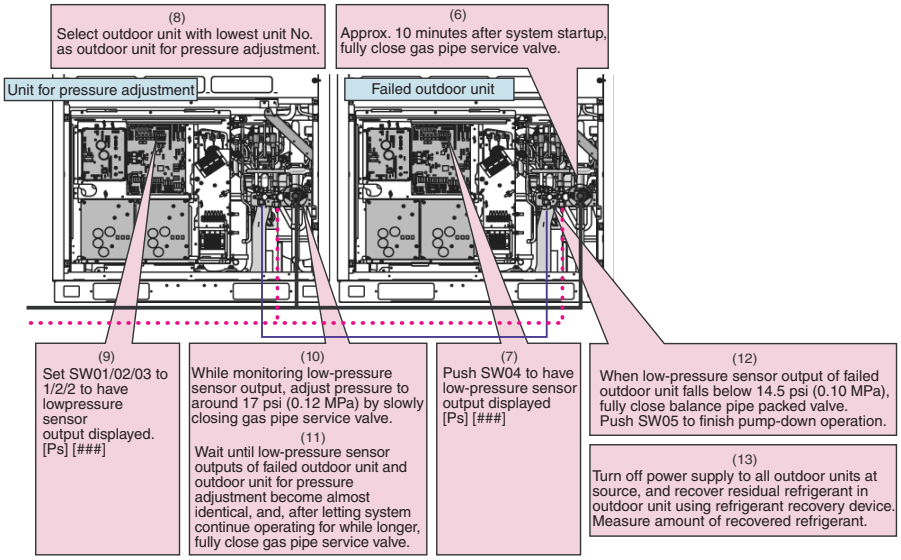
[Setup of outdoor unit for pressure adjustment]

(10) Set SW01/02/03 on the interface P.C. board of the outdoor unit for pressure adjustment to 1/2/2.
(11) As the low-pressure sensor output is displayed on the 7-segment display, adjust the pressure to around 0.12 MPa by slowly closing the gas pipe service valve, with checking pressure data.
(12) Compare the low-pressure sensor outputs of the failed unit with that of the unit for pressure adjustment, and wait until the two pressure readings become almost the same. After letting the system continue operating for a while longer, fully close the gas pipe service valve of the unit for pressure adjustment.

[Setup of failed outdoor unit]

(13) When the low-pressure sensor output of the failed outdoor unit falls below 14.5 psi, fully close the balance pipe packed valve, and push SW05 on the interface P.C. board to finish the pump-down operation.

(14) Turn off the power supply to all the outdoor units, and recover the residual refrigerant in the outdoor unit using a refrigerant recovery device.
Be sure to measure the amount of recovered refrigerant.
(This is necessary to determine how much additional refrigerant will be needed after the completion of the repair.)



This is the end of the refrigerant recovery operation.
Set SW01/02/03 of the failed outdoor unit and the outdoor unit for pressure adjustment back to 1/1/1.

OUTDOOR UNIT REFRIGERANT RECOVERY METHOD (continue)

(3) Refrigerant Recovery Procedure B (Case of Outdoor Unit Backup Operation Setting)

<Outline>

If outdoor unit backup operation setting is performed, **use an alternative refrigerant recovery procedure as described below, provided that the power cannot be turned on for the failed outdoor unit.**
(Refrigerant will be recovered from the failed outdoor unit using the test cooling operation function.)

Note 1: If cooling-season outdoor unit backup operation or outdoor unit backup operation is in progress with the power supply to the failed outdoor unit turned on, follow the procedure described in "(2) Refrigerant recovery procedure A (Case of no outdoor unit backup operation setting)".
If outdoor unit backup operation setting is performed with the power supply to the failed outdoor unit turned on, recovery operation can only start after putting the outdoor-outdoor communication connector on the interface P.C.board of that unit [CN03] back to its initial state and resetting the power supply.

Note 2: If the power cannot be turned on the failed outdoor unit, the solenoid valves and **PMVs** of the unit cannot be turned on, so that it reduces the amount of recovered refrigerant compared to a standard pump-down operation. Recover the residual gas in the unit using a refrigerant recovery device, and be sure to measure the amount of recovered refrigerant.

<Work procedure>

[Setup of failed outdoor unit]

(1) Connect the liquid pipe check joint and the low pressure-side check joint using a gauge manifold, and purge the manifold of air (to recover refrigerant from the liquid tank and heat exchangers).

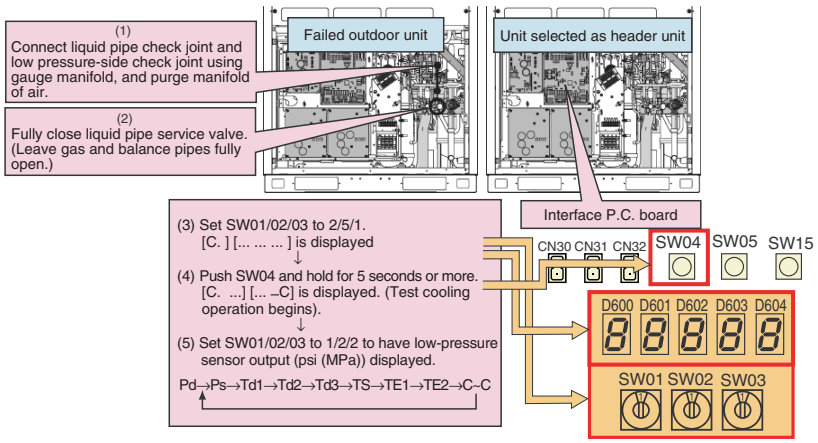
(2) Fully close the liquid pipe packed valve of the failed outdoor unit.
(Leave the service valve of the gas pipe and the packed valve of the balance pipe fully open.)

[Setup of unit selected as header unit (hereafter "header outdoor unit")]

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

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

(5) Set SW01/02/03 on the interface P.C. board of the header outdoor unit to 1/2/2 to have the low-pressure sensor output (MPa) displayed on the 7-segment display.



(6) Approx. 10 minutes after the system starts up, fully close the gas pipe service valve of the failed outdoor unit.

[Setup of outdoor unit for pressure adjustment]

(7) Select the header unit as the unit for pressure adjustment.

[Setup of outdoor units other than header unit and failed unit]

(8) Leaving the balance pipes of the unit for pressure adjustment and the failed unit fully open, fully close the balance pipe packed valves of all other outdoor units.

[Setup of header unit]

(9) While monitoring the low-pressure sensor output, adjust the pressure to around 17 psi by slowly closing the gas pipe service valve.

(10) Compare the manifold gauge pressure of the failed unit with the low-pressure sensor output of the header unit, and wait until the two pressure readings become almost identical.

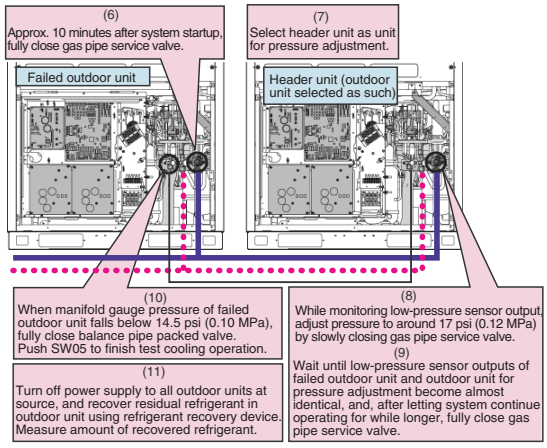
After letting the system continue operating for a while longer, fully close the gas pipe service valve of the unit for pressure adjustment.

[Setup of failed outdoor unit]

(11) When the manifold gauge pressure of the failed outdoor unit falls below 14.5 psi, fully close the balance pipe packed valve, and push **SW05** on the interface P.C. board to finish the test cooling operation.

(12) Turn off the power supply to all the outdoor units, and recover the residual refrigerant in the outdoor unit using a refrigerant recovery device.

Be sure to measure the amount of recovered refrigerant.
(This is necessary to determine how much additional refrigerant will be needed after the completion of the repair.)



This is the end of the refrigerant recovery operation.
Set SW01/02/03 of the header unit back to 1/1/1.

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How to Operate System While Failed Outdoor Unit Being Repaired

<Outline>

After refrigerant is recovered from the failed outdoor unit through a pump-down operation, the overall amount of refrigerant held by the system becomes excessive, and this makes it impossible to operate the remaining outdoor units even though they are not faulty. However, operation is still possible if the system-wide amount of refrigerant is adjusted in accordance with the procedure described below.

<Work procedure>

(1) Follow the steps specified in “Refrigerant Recovery from Failed Outdoor Unit (Pump-Down)”.

(2) Adjust the amount of refrigerant held by the system by removing some of it using a refrigerant recovery device, etc.
Determine the amount of refrigerant to be removed according to the capacity of the failed outdoor unit. (See the table below.)

Example:

If a 114 type outdoor unit is under repair in a 228 type system:
Amount of refrigerant required by system as it was initially (228 type) = 78.3 lb (34.5 kg)
Amount of refrigerant required by system with available outdoor units only (114 type) = 40.8 lb (26.0 kg)
Amount of refrigerant to be removed from system = 78.3 (34.5) – 40.8 (26.0) = 37.5 lb (8.5 kg)

(3) Set up the outdoor unit from which refrigerant has been recovered in the manner described in “Outdoor unit backup operation setting”.
This completes the procedure.

Outdoor unit capacity type	Combined outdoor units		Amount of refrigerant (lb (Kg))
072 type	072 type	—	28.7 (13.0)
096 type	096 type	—	38.6 (17.5)
114 type	144 type	—	40.8 (18.5)
144 type	072 type	072 type	50.7 (23.0)
168 type	096 type	072 type	67.2 (30.5)
192 type	096 type	096 type	78.3 (35.5)
228 type	114 type	114 type	78.3 (35.5)

MEMO

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