TOSHIBA

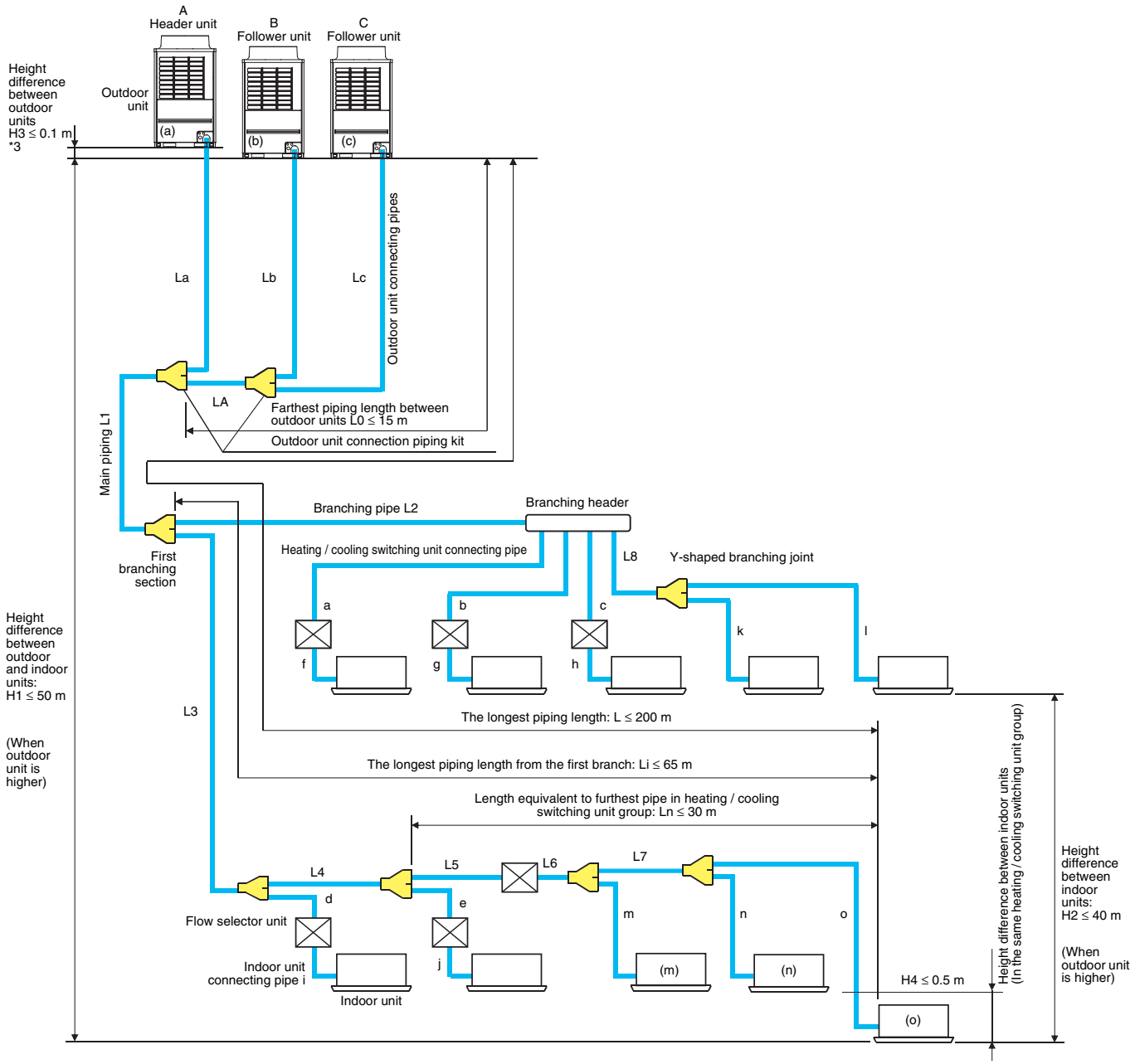
File No. A13-001

Quick reference

SHRM i

SUPER HEAT RECOVERY MULTI

Allowable length of refrigerant pipes and allowable height difference between units



System restriction

Outdoor unit combination	Up to 3 units	
Total capacity of outdoor units	Up to 42 HP	
Indoor unit connection	Up to 48 units	
Total capacity of indoor units (varies depending on the height difference between indoor units.)	H2 ≤ 15 m	135 % of outdoor units' capacity
	15 m < H2	105 % of outdoor units' capacity

Limit on connecting multiple indoor units to flow selector unit

Model name	RBM-Y1123FE*	RBM-Y1803FE*	RBM-Y2803FE*
Total capacity codes of connected indoor units	Below 11.2	11.2 to below 18.0	18.0 to 28.0 or less
Max. No. of connected indoor unit	Below 5	Below 8	Below 8

Cautions for installation

- Set the outdoor unit first connected to the bridging pipe to the indoor units as the header unit.
- Install the outdoor units in order of their capacity codes: A (header unit) ≥ B ≥ C
- When connecting gas pipes to indoor units, use Y-shaped branching joints to keep pipes level.
- When piping to outdoor units using Outdoor unit connection piping kits, intersect the pipes to the outdoor unit and those to indoor units at a right angle.

Allowable length and allowable height difference of refrigerant piping

Item				Allowable value	Pipes
Pipe length	Total extension of pipe (liquid pipe, real length)		Less than 34 HP or less	300 m	LA + La + Lb + Lc + L1 + L2 + L3 + L4 + L5 + L6 + L7 + L8 + a + b + c + d + e + f + g + h + i + j + k + l + m + n + o
			34 HP or more	500 m	
	Farthest piping length L (*1, *3)		Equivalent length	200 m	LA + Lc + L1 + L3 + L4 + L5 + L6 + L7 + o
			Real length	180 m	
	Max. equivalent length of Main piping	H2 > 3 m	Equivalent length	100 m	L1
			Real length	85 m	
		H2 ≤ 3 m	Equivalent length	120 m	
			Real length	100 m	
	Farthest equivalent piping length from the first branch Li (*1)		H2 > 3 m	50 m	L3 + L4 + L5 + L6 + L7 + o
			H2 ≤ 3 m	65 m	
	Farthest equivalent piping length between outdoor units L0 (*1)			15 m	LA + Lc (LA + Lb)
	Maximum equivalent piping length of pipes connected to outdoor units			10 m	Lc (La, Lb)
	Maximum real length of terminal branching section to indoor units			30 m	a + f, b + g, c + h, d + l, e + j, k, l
	Maximum real length of between Flow Selector unit and indoor unit			15 m	f, g, h, l, j
	Maximum equivalent length between branching sections			50 m	L2, L3, L4, L8
Height difference	Height between outdoor and indoor units H1		Upper outdoor units	50 m	—
			Lower outdoor units	30 m	—
	Height between indoor units H2		Upper outdoor units	40 m	—
			Lower outdoor units	3 m	—
	Height between outdoor units H3			0.1 m	—
<In case of connecting flow selector unit to multiple indoor units>					
	Maximum equivalent length indoor units in group control by one Flow Selector unit Ln			30 m	L6 + L7 + o
	Maximum real length between Flow Selector unit and indoor unit (*2)			15 m	To run wires to indoor unit (m): L6 + m . 15 m, L5 + L6 + L7 + n . 30 m, L5 + L6 + L7 + o . 30 m To run wires to indoor unit (n): L5 + L6 + m . 30 m, L6 + L7 + n . 15 m, L5 + L6 + L7 + o . 30 m
	Height difference between indoor units in group control by one Flow Selector unit H4			0.5 m	—

*1: Farthest outdoor unit from the first branch: (C), farthest indoor unit: (o)

*2: Run wires to one indoor unit and flow selector unit linked with one of those remote controllers if flow selector unit is connected to multiple indoor units.

*3: Allowable values for length equivalent to furthest pipe are shown below and they vary according to performance rank of outdoor unit.
22.4 to 40.0: 185 m, 45.0 to 78.5: 195 m, 85.0 to 118.0: 200 m

Selection of pipe size

Capacity code of indoor and outdoor units

Selection of pipe material

- For the indoor unit, the capacity code is decided at each capacity rank. (Table 1)
- The capacity codes of the outdoor units are decided at each capacity rank. The maximum number of connectable indoor units and the total value of capacity codes of the indoor units are also decided. (Table 2)

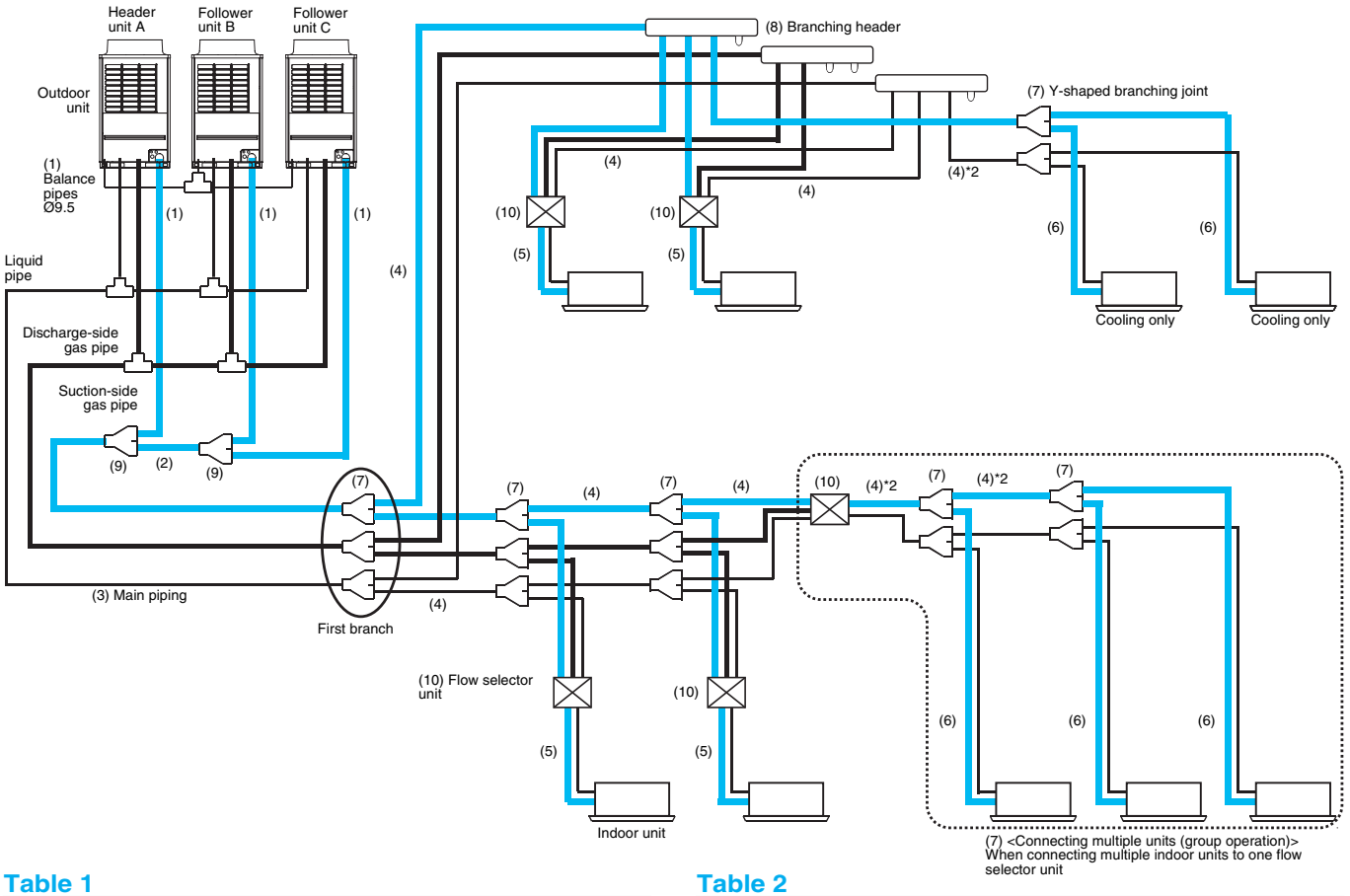


Table 1

Indoor unit capacity rank	Capacity code	
	Equivalent to HP	Equivalent to capacity
007	0.8 HP	2.2
009	1 HP	2.8
012	1.25 HP	3.6
015	1.7 HP	4.5
018	2 HP	5.6
024	2.5 HP	7.1
027	3 HP	8
030	3.2 HP	9
036	4 HP	11.2
048	5 HP	14
056	6 HP	16
072	8 HP	22.4
096	10 HP	28

Table 2

Outdoor unit model name	Capacity code		No. of indoor units
	Equivalent to HP	Equivalent to capacity	
MAP0804✻	8 HP	22.4	13
MAP1004✻	10 HP	28	16
MAP1204✻	12 HP	33.5	20
MAP1404✻	14 HP	40	23
AP1614✻	16 HP	45	27
AP1814✻	18 HP	50.4	30
AP2014✻	20 HP	56	33
AP2214✻	22 HP	61.5	37
AP2414✻	24 HP	68	40
AP2614✻	26 HP	73	43
AP2814✻	28 HP	78.5	47
AP3014✻	30 HP	85	48
AP3214✻	32 HP	90	48
AP3414✻	34 HP	96	48
AP3614✻	36 HP	101	48
AP3814✻	38 HP	106.5	48
AP4014✻	40 HP	112	48
AP4214✻	42 HP	118	48

* For combination of the outdoor units, refer to “Combination of outdoor units”.

NOTE

Compared with the capacity code of the outdoor unit, the total value of capacity codes of the connectable indoor units differs based on the height difference between the indoor units.

- When the height difference between the indoor units is 15 m or less: Up to 70~135 % of the capacity code (Equivalent to HP) of the outdoor unit (Equivalent to HP) of the outdoor unit
- When the height difference between the indoor units is over 15 m: Up to 70~105 % of the capacity code

Selection of pipe size

(1) Outdoor unit connecting pipe

Use part: Outdoor unit ↓ Outdoor unit connection piping kit

Model	Balance pipe side	Suction gas side	Discharge gas side	Liquid side
MAP080	Ø9.5	Ø22.2	Ø19.1	Ø12.7
MAP100	Ø9.5	Ø22.2	Ø19.1	Ø12.7
MAP120	Ø9.5	Ø28.6	Ø19.1	Ø12.7
MAP140	Ø9.5	Ø28.6	Ø22.2	Ø15.9

(2) Between Outdoor unit connection piping *6

Use part: Outdoor unit connection piping kit ↓ Outdoor unit connection piping kit

Total capacity codes of outdoor units at the downstream side		Suction gas side	Discharge gas side	Liquid side
Equivalent to capacity	Equivalent to HP			
45.0 to below 61.5	16 to below 22	Ø28.6	Ø22.2	Ø15.9
61.5 to below 73.0	22 to below 26	Ø34.9	Ø28.6	Ø19.1
73.0 or more	26 or more	Ø34.9	Ø28.6	Ø19.1

(3) Main piping

Use part: Outdoor unit connection piping kit of header unit ↓ First branching section

Total capacity codes of indoor units at the downstream side		Suction gas side	Discharge gas side	Liquid side
Equivalent to capacity	Equivalent to HP			
22.4 to below 33.5	8 to below 12	Ø22.2	Ø19.1	Ø12.7
33.5 to below 38.4	12 to below 14	Ø28.6	Ø19.1	Ø12.7
38.4 to below 45.0	14 to below 16	Ø28.6	Ø22.2	Ø15.9
45.0 to below 61.5	16 to below 22	Ø28.6	Ø22.2	Ø19.1
61.5 to below 73.0	22 to below 26	Ø34.9	Ø28.6	Ø19.1
73.0 to below 101.0	26 to below 36	Ø34.9	Ø28.6	Ø22.2
101.0 or more	36 or more	Ø41.3	Ø34.9	Ø22.2

Remarks: Pipe size differs based on the total capacity codes of all outdoor units (See Table 2.)

(4) Branching pipe *1, *2, *6

Use part: Branching section ↓ Branching section; Branching section ↓ Flow Selector unit; Flow Selector unit ↓ Branching section

Total capacity codes of indoor units at the downstream side		Suction gas side	Discharge gas side	Liquid side
Equivalent to capacity	Equivalent to HP			
Below 18	Below 6.4	Ø15.9	Ø12.7	Ø9.5
18 to below 34	6.4 to below 12.2	Ø22.2	Ø19.1	Ø12.7
34 to below 45.5	12.2 to below 16.2	Ø28.6	Ø22.2	Ø15.9
45.5 to below 56.5	16.2 to below 20.2	Ø28.6	Ø22.2	Ø19.1
56.5 to below 70.5	20.2 to below 25.2	Ø34.9	Ø28.6	Ø19.1
70.5 to below 98.5	25.2 to below 35.2	Ø34.9	Ø28.6	Ø22.2
98.5 or more	35.2 ore more	Ø41.3	Ø34.9	Ø22.2

Remarks: Pipe size differs based on the total capacity code value of indoor units at the downstream side. (See Table 1 and 2.)

(5) Indoor unit connecting pipe

Use part: Flow Selector unit ↓ Indoor unit

Capacity rank	Equivalent to HP	Gas side	Liquid side
007 to 012	0.8 to 1.25	Ø9.5	Ø6.4
015 to 018	1.7 to 2.0	Ø12.7	Ø6.4
024 to 056	2.5 to 6.0	Ø15.9	Ø9.5
072 to 096	8.0 to 10.0	Ø22.2	Ø12.7

<table>
<tr><th>No.</th><th>Title</th><th>Use part</th><th>Selection of pipe size</th><th>Remarks</th></tr>
<tr><td>(6)</td><td>Indoor unit connecting pipe</td><td>Terminal branching section
↓
Indoor unit</td><td>
<table>
<tr><th>Capacity rank</th><th>Equivalent to HP</th><th>Length of piping</th><th>Gas side</th><th>Liquid side</th></tr>
<tr><td rowspan="2">007 to 012</td><td rowspan="2">0.8 to 1.25</td><td>15 m or less real length</td><td>Ø9.5</td><td>Ø6.4</td></tr>
<tr><td>Exceeds 15 m real length</td><td>Ø12.7</td><td>Ø9.5</td></tr>
<tr><td rowspan="2">015 to 018</td><td rowspan="2">1.7 to 2.0</td><td>15 m or less real length</td><td>Ø12.7</td><td>Ø6.4</td></tr>
<tr><td>Exceeds 15 m real length</td><td>Ø15.9</td><td>Ø9.5</td></tr>
<tr><td>024 to 056</td><td>2.5 to 6.0</td><td>—</td><td>Ø15.9</td><td>Ø9.5</td></tr>
<tr><td>072 to 096</td><td>8.0 to 10.0</td><td>—</td><td>Ø22.2</td><td>Ø12.7</td></tr>
</table>
</td><td></td></tr>
<tr><td>(7)</td><td>Y-shaped branching joint
*3, *4</td><td>Branching section</td><td>
<table>
<tr><th colspan="2">Total capacity code of indoor units</th><th colspan="2">Model name</th></tr>
<tr><th>Equivalent to capacity</th><th>Equivalent to HP</th><th>For 3 piping</th><th>For 2 piping</th></tr>
<tr><td>Below 18.0</td><td>Below 6.4</td><td>RBM-BY55FE</td><td>RBM-BY55E</td></tr>
<tr><td>18.0 to below 40.0</td><td>6.4 to below 14.2</td><td>RBM-BY105FE</td><td>RBM-BY105E</td></tr>
<tr><td>40.0 to below 70.5</td><td>14.2 to below 25.2</td><td>RBM-BY205FE</td><td>RBM-BY205E</td></tr>
<tr><td>70.5 or more</td><td>25.2 or more</td><td>RBM-BY305FE</td><td>RBM-BY305E</td></tr>
</table>
</td><td></td></tr>
<tr><td>(8)</td><td>Branching header
*3, *4, *5</td><td>Branching sectio</td><td>
<table>
<tr><th colspan="2" rowspan="2">Total capacity code of indoor units</th><th colspan="2"></th></tr>
<tr><th>Equivalent to capacity</th><th>Equivalent to HP</th><th>For 3 piping</th><th>For 2 piping</th></tr>
<tr><td rowspan="2">For 4 branches</td><td>Below 40.0</td><td>Below 14.2</td><td>RBM-HY1043FE</td><td>RBM-HY1043E</td></tr>
<tr><td>40.0 to below 70.5</td><td>14.2 to below 25.2</td><td>RBM-HY2043FE</td><td>RBM-HY2043E</td></tr>
<tr><td rowspan="2">For 8 branches</td><td>Below 40.0</td><td>Below 14.2</td><td>RBM-HY1083FE</td><td>RBM-HY1083E</td></tr>
<tr><td>40.0 to below 70.5</td><td>14.2 to below 25.2</td><td>RBM-HY2083FE</td><td>RBM-HY2083E</td></tr>
</table>
</td><td></td></tr>
<tr><td>(9)</td><td>Outdoor unit connection piping kit
*6</td><td>Branching section</td><td>
<table>
<tr><th colspan="2">Total capacity codes of outdoor units at the downstream side</th><th rowspan="2">Model name</th></tr>
<tr><th>Equivalent to capacity</th><th>Equivalent to HP</th></tr>
<tr><td>Below 73.0</td><td>Below 26.0</td><td>RBM-BT14FE</td></tr>
<tr><td>73.0 or more</td><td>26.0 or more</td><td>RBM-BT24FE</td></tr>
</table>
</td><td></td></tr>
<tr><td>(10)</td><td>Flow Selector unit
*7</td><td></td><td>
<table>
<tr><th colspan="3">Total capacity codes of connected indoor units</th><th rowspan="2">Model name</th></tr>
<tr><th>Equivalent to capacity</th><th>Equivalent to HP</th><th>Max. No. of connected indoor unit</th></tr>
<tr><td>Below 11.2</td><td>Below 4.0</td><td>Below 5</td><td>RBM-Y1123FE*</td></tr>
<tr><td>11.2 to below 18.0</td><td>4.0 to below 6.4</td><td>Below 8</td><td>RBM-Y1803FE*</td></tr>
<tr><td>18.0 to 28.0 or less</td><td>6.4 to below 10.0</td><td>Below 8</td><td>RBM-Y2803FE*</td></tr>
</table>
</td><td></td></tr>
</table>

*1: Use the same size as the main pipe if it is larger than the main pipe.

*2: Use a suction gas pipe and a liquid pipe for the two pipes branching downstream from the flow selector unit and the dedicated cooling circuit.

*3: Select the branch pipe of the first branch according to the outdoor capacity code.

*4: Select according to the outdoor unit capacity code if the total of the indoor capacity codes exceeds the outdoor unit capacity code.

*5: It is possible to select up to a maximum capacity code total AP056 (6 hp) for the first circuit after the header branch. When using a branch header for the first branch with an outdoor unit capacity code of 33.5 (12 hp equivalent) or more and 73.0 (26 hp equivalent) or less, use RBM-HY2043FE (4 branches) and RBM-HY-2083FE (8 branches) regardless of the total value of the capacity codes of the downstream indoor units. And, a branch header cannot be used as the first branch if the performance rank is over 73.0 (26 hp equivalent).

*6: The downstream starting point is the main pipe.

*7: Only group operation with one remote controller (or two remote controllers) is possible if one flow selector unit is connected to multiple indoor units.

Adding refrigerant

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

Calculation of additional refrigerant charge amount

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

NOTE

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

Outdoor unit type	MAP080	MAP100	MAP120	MAP140
Charging amount (kg)	11.0			

Additional refrigerant charge amount at local site	=	Real length of liquid pipe	×	Additional refrigerant charge amount per 1m liquid pipe (Table 1)	× 1.3 +	Corrective amount of refrigerant depending on HP of co-operating outdoor units (Table 2)

Table 1

Liquid pipe dia. (mm)	6.4	9.5	12.7	15.9	19.1	22.2
Additional refrigerant amount/1m liquid pipe (kg/m)	0.025	0.055	0.105	0.160	0.250	0.350

Table 2

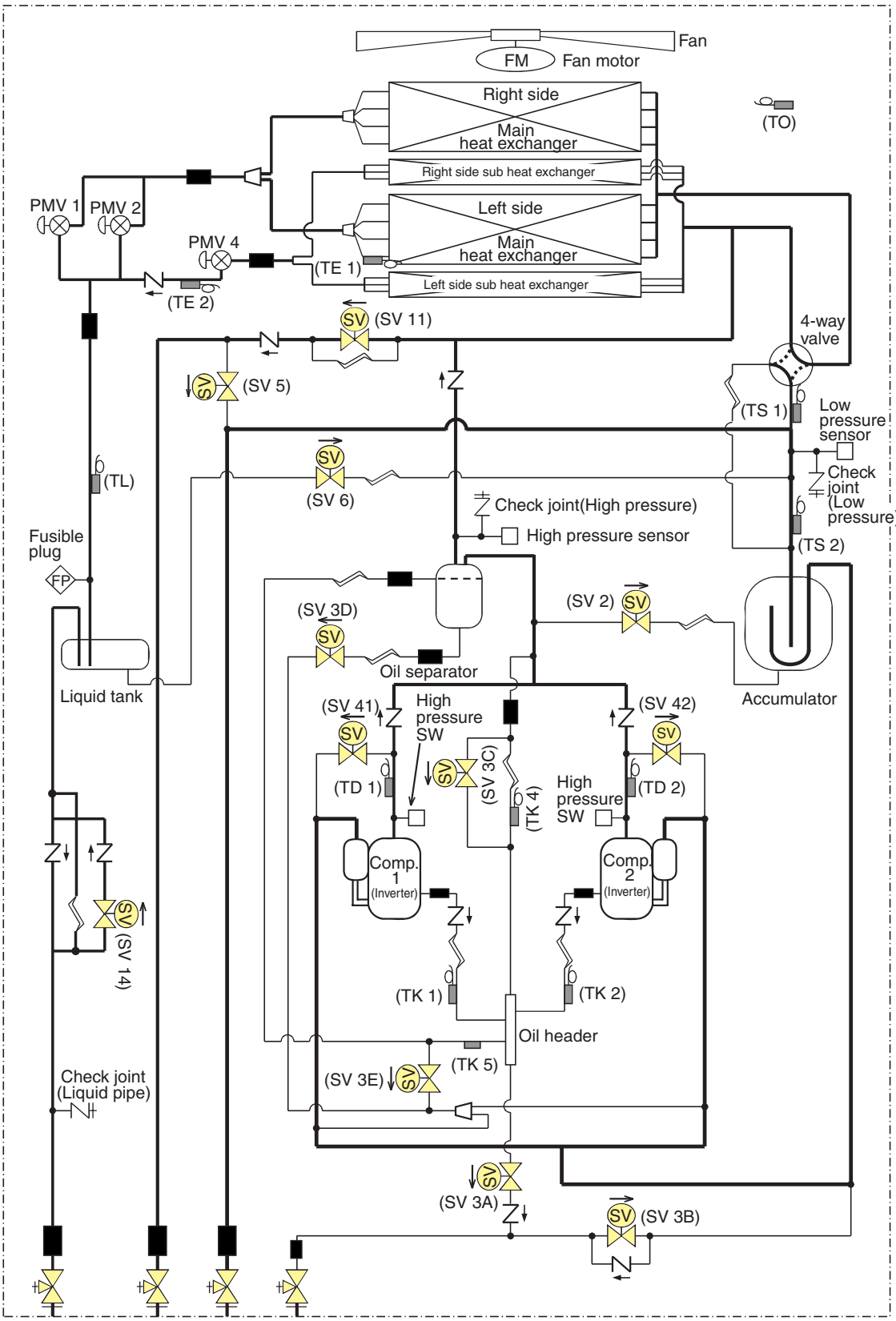
Equivalent HP	Model name of outdoor unit MMY-	Combination of outdoor unit MMY-			Corrective of refrigerant (kg)
		Unit 1	Unit 2	Unit 3	
8 HP	MAP0804*	MAP0804*	—	—	2
10 HP	MAP1004*	MAP1004*	—	—	3
12 HP	MAP1204*	MAP1204*	—	—	8
14 HP	MAP1404*	MAP1404*	—	—	10
16 HP	AP1614*	MAP0804*	MAP0804*	—	0
18 HP	AP1814*	MAP1004*	MAP0804*	—	1.5
20 HP	AP2014*	MAP1004*	MAP1004*	—	3.5
22 HP	AP2214*	MAP1204*	MAP1004*	—	7.5
24 HP	AP2414*	MAP1404*	MAP1004*	—	8.5
26 HP	AP2614*	MAP1404*	MAP1204*	—	11
28 HP	AP2814*	MAP1404*	MAP1404*	—	12
30 HP	AP3014*	MAP1004*	MAP1004*	MAP1004*	2.5
32 HP	AP3214*	MAP1204*	MAP1004*	MAP1004*	5
34 HP	AP3414*	MAP1404*	MAP1004*	MAP1004*	6
36 HP	AP3614*	MAP1204*	MAP1204*	MAP1204*	8
38 HP	AP3814*	MAP1404*	MAP1204*	MAP1204*	9.5
40 HP	AP4014*	MAP1404*	MAP1404*	MAP1204*	11
42 HP	AP4214*	MAP1404*	MAP1404*	MAP1404*	12.5

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 (8, 10HP)

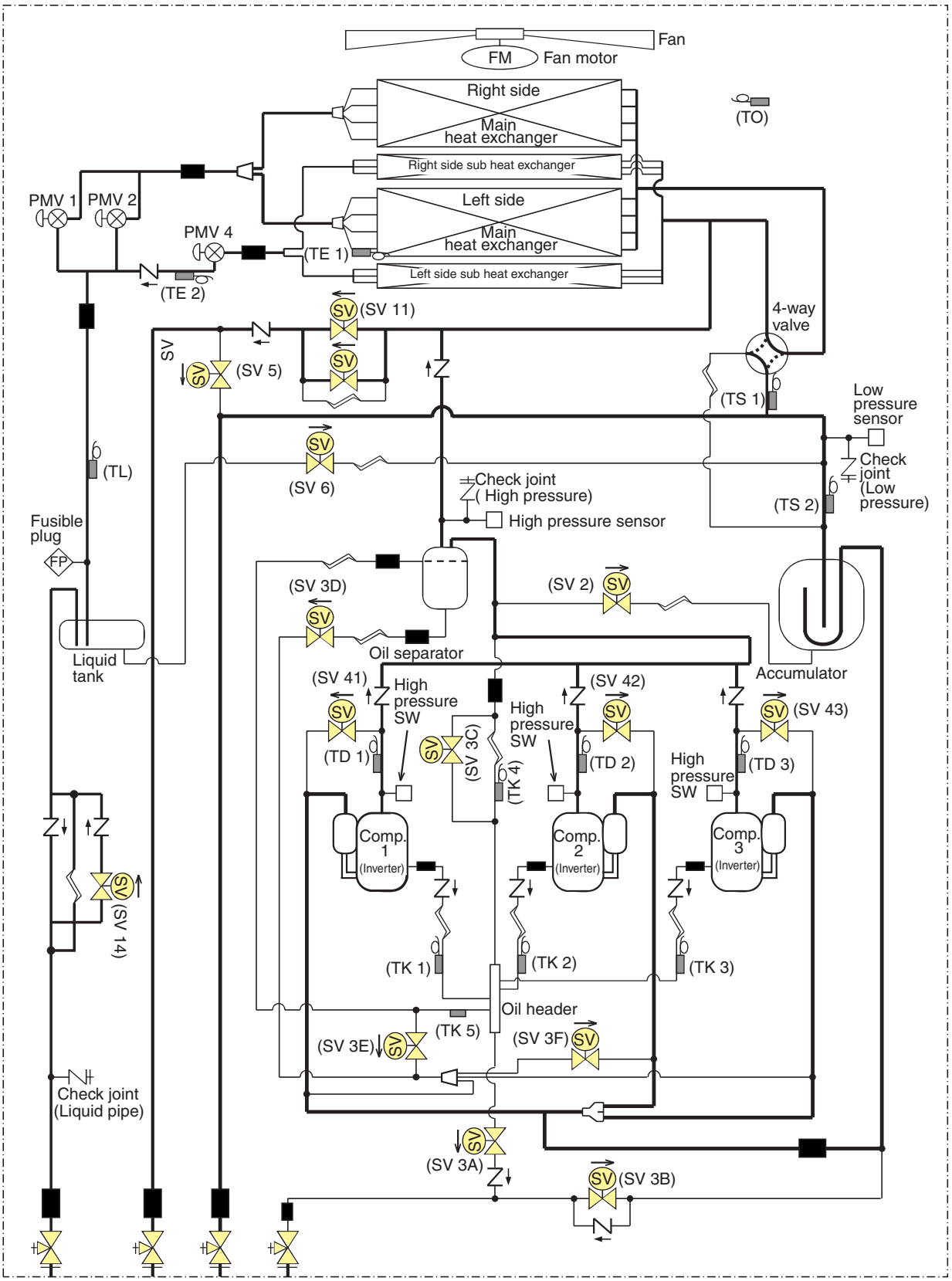
Model: MMY-MAP0804∗, MMY-MAP1004∗



Symbol							
	Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Tempe. sensor	Distributor

Outdoor Unit (12, 14HP)

Model: MMY-MAP1204∗, MMY-MAP1404∗



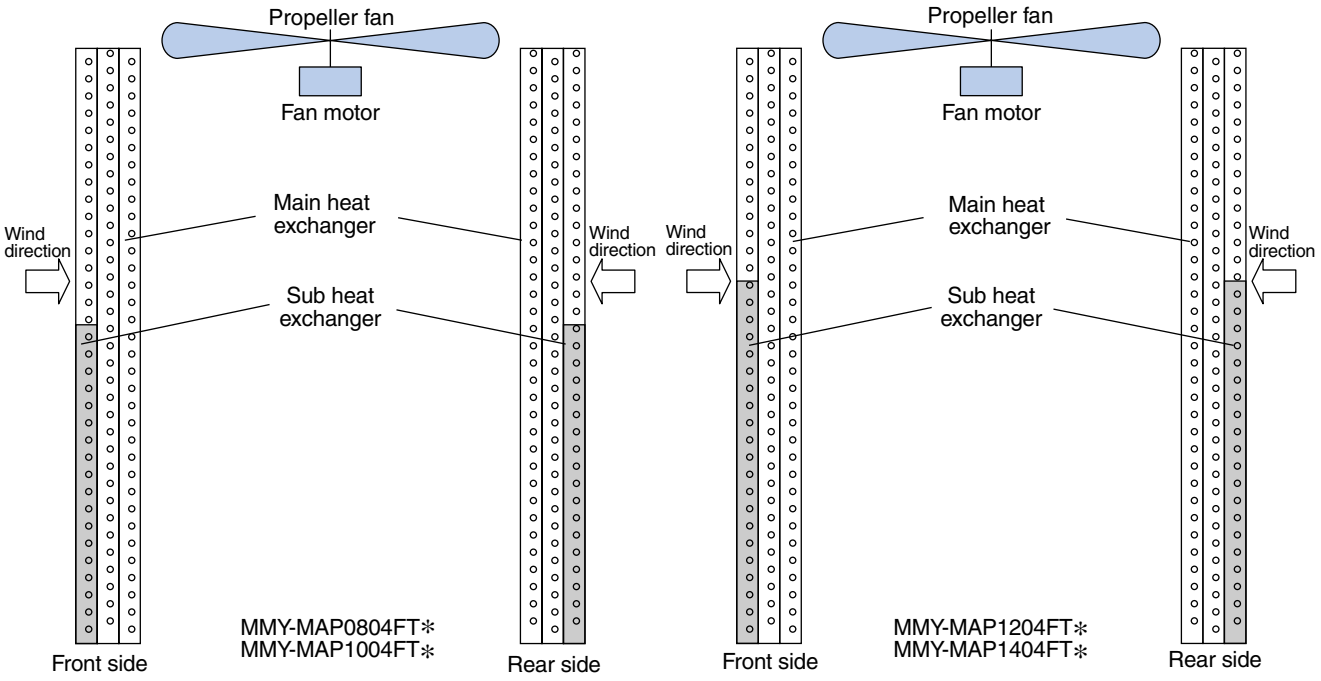
Symbol							
	Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Tempe. sensor	Distributor

Refrigerant Piping Systematic Drawing (Continued)

Explanation of Functional Parts

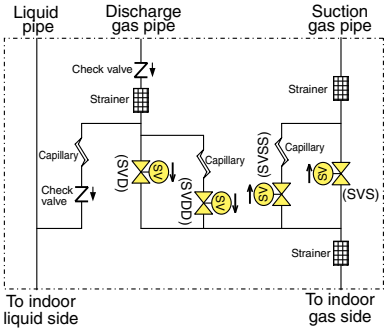
Functional part name		Functional outline
Solenoid valve	SV3A	(Connector CN321: White) 1) Supplies oil reserved in the oil header during ON time.
	SV3B	(Connector CN321: White) 1) Returns oil supplied in the balance pipe to the compressor.
	SV3C	(Connector CN321: White) 1) Pressurizes oil reserved in 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	(Connector CN311: White) Hot gas bypass 1) Low pressure release function 2) High pressure release function 3) Gas balance function during stop time
	SV41 SV42 SV43	(SV41 Connector CN312: Blue, SV42 Connector CN312: Blue, SV43 Connector CN313: Red) Start compensation valve of compressor 1) For gas balance start 2) High pressure release function 3) Low pressure release function
	SV5	(Connector CN314: White) 1) Gas balance function at defrost operation when the number of heating indoor units increased/decreased 2) Gas recovery function in the discharge gas pipes when the single cooling operation
	SV6	(Connector CN315: White) 1) Liquid bypass function for discharge temperature release (cooling bypass function) 2) Refrigerant recovery function from the stopped follower unit
	SV11	(Connector CN319: White) To block discharge gas pipe (At single cooling or defrost operation)
	SV14	(Connector CN336: Yellow) 1) To block the liquid line
4-way valve		(Connector CN317:Blue) 1) Cooling/heating exchange 2) Reverse defrost 3) Exchange of main heat exchanger with auxiliary heat exchanger
Pulse motor valve	PMV1, 2	(Connector CN300, 301: White) 1) Super heat control function at single heating, collective heating operation 2) Under cool control function in single cooling operation
	PMV4	(Connector CN303: Red) 1) Controls flow volume of the auxiliary heat exchanger at collective operation 2) Preventive function for high-pressure rising in single 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.
	TS1	(Connector CN505: White) 1) Controls PMV1, 2 super heat in single heating / collective heating
	TS2	(Connector CN506: Black) 1) Controls indoor oil recovery at single cooling, collective cooling operation 2) Detects overheat of the cycle
	TE1	(Connector CN520: Green) 1) Controls defrost in single / collective heating operation 2) Controls outdoor fan in single / collective heating operation
	TE2	(Connector CN521: Red) 1) Controls flow volume of the auxiliary heat exchanger at collective operation
	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 at single operation / collective 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 at single operation / collective cooling operation, and controls the fan in low ambient cooling operation 3) Detects under cool in indoor unit at single operation / collective heating operation 4) Controls rps of outdoor fan at collective cooling operation
	Low pressure sensor	(Connector CN500: White) 1) Detects low pressure at single / collective cooling operation and controls compressor capacity 2) Detects low pressure at single / collective 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

Configuration of outdoor unit heat exchanger

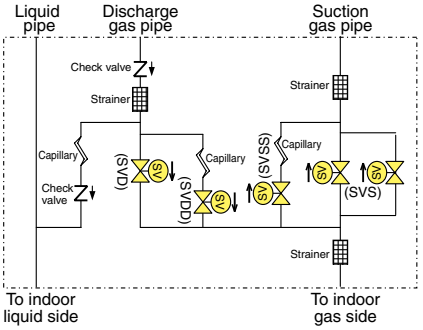


Flow Selector Unit

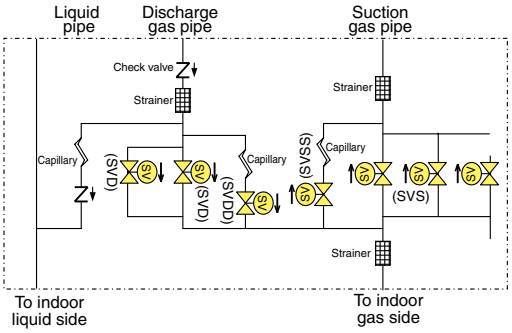
RBM-Y1123FE



RBM-Y1803FE



RBM-Y2803FE



Functional parts name		Function outline
Solenoid valve	**SVD**	(Discharge gas block valve) 1) High-pressure gas circuit at heating operation
	SVS	(Suction gas block valve) 1) Low-pressure gas circuit at cooling operation
	SVDD	(Pressure valve) 1) To increase pressure when No. of indoor heating units are increased
	SVSS	(Regulator valve) 1) To recover refrigerant in the stopped cooling thermo-OFF indoor unit 2) To decrease pressure when No. of indoor heating units are decreased

<Exchange of operation mode>

For exchange between each operation mode, follow the table below: When “Momentary stop” is executed, the unit does not operate for 3 minutes after stop of operation before update.

		After exchange			
		Single cooling (OFF)	Collective cooling (ON)	Collective heating (ON)	Single heating (ON)
Before exchange	Single cooling (OFF)		Operation continuation (OFF → ON)	Operation continuation (OFF → ON)	Momentary stop (OFF → ON)
	Collective cooling (ON)	Operation continuation (ON → OFF)		Operation continuation (ON as it is)	Operation continuation (ON as it is)
	Collective heating (ON)	Momentary stop (ON → OFF)	Operation continuation (ON as it is)		Operation continuation (ON as it is)
	Single heating (ON)	Momentary stop (ON → OFF)	Operation continuation (ON as it is)	Operation continuation (ON as it is)	

Note) In the table, status of 4-way valve is indicated in parenthesis.

<Exchange unit valve ON-OFF list>

Indoor operation mode	Control valve output outline of cooling/heating exchange unit (Operation standard)			
	SVD (High-pressure circuit valve)	SVDD (Pressure valve <For delay>)	SVS (Low-pressure circuit valve)	SVSS (Regulator valve <For delay>)
1. Stop (Remote controller OFF) <When all the system stop>	OFF <OFF>	OFF <OFF>	OFF <OFF>	ON <OFF>
2. Cooling thermo OFF	OFF	OFF	OFF	ON
3. Cooling thermo ON	OFF	OFF	ON	ON
4. Heating thermo OFF	ON	OFF	OFF	OFF
5. Heating thermo ON				
6. During detection of [E04] error	OFF	ON	OFF	OFF

Check code	Description of error
E06	Indoor unit initially communicating normally fails to return signal (reduction in number of indoor units connected).
E07	Signal cannot be transmitted to indoor units (→ indoor units left without communication from outdoor unit).
E08	More than one indoor unit is assigned same address (also detected at indoor unit end).
E12	• Indoor automatic address setting is started while automatic address setting for equipment in other refrigerant line is in progress. • Outdoor automatic address setting is started while automatic address setting for indoor units is in progress.
E15	Indoor unit fails to communicate while automatic address setting for indoor units is in progress.
E16	Combined capacity of indoor units is too large (more than 135% of combined capacity of outdoor units).
E19	There is no or more than one outdoor header unit in one refrigerant line.
E20	Indoor unit from other refrigerant line is detected while indoor automatic address setting is in progress.
E23	Signal cannot be transmitted to other outdoor units.
E25	There is duplication in outdoor addresses set manually.
E26	Follower outdoor unit initially communicating normally fails to do so (reduction in number of follower outdoor units connected).
E28	Outdoor header unit detects fault relating to follower outdoor unit (detail displayed on follower outdoor unit).
E31	There is no communication between IPDUs (P.C. boards) in inverter box. Outdoor I/F board error When power supply was turned on within 30 seconds (before electric discharge of capacitor) after power supply was reset
F04	Outdoor discharge temperature sensor (TD1) has been open/short-circuited.
F05	Outdoor discharge temperature sensor (TD2) has been open/short-circuited.
F06	Outdoor heat exchanger temperature sensors (TE1, TE2) have been open/short-circuited.
F07	Outdoor liquid temperature sensor (TL) has been open/short-circuited.
F08	Outdoor outside air temperature sensor (TO) has been open/short-circuited.
F12	Outdoor suction temperature sensor (TS1, TS2) has been open/short-circuited.
F15	Wiring error in outdoor temperature sensors (TE1, TL) has been detected.
F16	Wiring error in outdoor pressure sensors (Pd, Ps) has been detected.
F22	Outdoor discharge temperature sensor (TD3) has been open/short-circuited.
F23	Output voltage of low pressure sensor (Ps) is zero.
F24	Output voltage of high pressure sensor (Pd) is zero or provides abnormal readings when compressors have been turned off.
F31	Outdoor EEPROM is faulty (alarm and shutdown for header unit and continued operation for follower unit)

Check code	Description of error
H05	Wiring/installation error or detachment of outdoor discharge temperature sensor (TD1) has been detected.
H06	Low pressure (Ps) sensor detects abnormally low operating pressure.
H07	Temperature sensor for oil level detection (TK1-5) detects abnormally low oil level.
H08	Temperature sensor for oil level detection (TK1-5) has been open/short-circuited.
H15	Wiring/installation error or detachment of outdoor discharge temperature sensor (TD2) has been detected.
H16	No temperature change is detected by temperature sensor for oil level detection (TK1-5) despite compressor having been started.
H25	Wiring/installation error or detachment of outdoor discharge temperature sensor (TD3) has been detected.
L04	Identical refrigerant line address has been assigned to outdoor units belonging to different refrigerant piping systems.
L05	More than one indoor unit has been set up as priority indoor unit.
L06	More than one indoor unit has been set up as priority indoor unit.
L08	Address setting has not been performed for one or more indoor units (also detected at indoor end).
L10	Outdoor unit capacity has not been set (after P.C. board replacement).
L17	Old model outdoor unit (prior to 3 series) has been connected.
L18	Cooling/heating cycle error resulting from piping error is detected.
L28	More than 3 outdoor units have been connected.
L29	There are insufficient number of IPDUs (P.C. boards) in inverter box.
L30	Indoor unit has been shut down for external error input in one refrigerant line (detected by indoor unit).
L31	There is part failure in P.C. board (I/F).
P03	Outdoor discharge temperature sensor (TD1) has detected abnormally high temperature.
P05	Open phase is detected when power is turned on. Inverter DC voltage is too high (overvoltage) or too low (undervoltage).
P07	Temperature sensor built into IGBT (TH) detects overheating.
P10	Indoor unit has been shutdown in one refrigerant line due to detection of overflow (detected by indoor unit).
P13	State of refrigerant cycle circuit indicates liquid backflow operation.
P15	Outdoor suction temperature sensor (TS1) detects sustained and repeated high temperatures that exceed standard value.
P17	Outdoor discharge temperature sensor (TD2) detects abnormally high temperature.
P18	Outdoor discharge temperature sensor (TD3) detects abnormally high temperature.
P19	Abnormality in refrigerating cycle is detected during heating operation.
P20	High pressure (Pd) sensor detects high pressure that exceeds standard value.

(Errors detected by IPDU featuring in SMMS-i standard outdoor unit - typical examples)

Check code	Description of error	Check code	Description of error
F13	Temperature sensor built into indoor IGBT (TH) has been open/short-circuited.	P04	High-pressure SW is activated.
H01	Inverter current (Idc) detection circuit detects overcurrent.	P07	Temperature sensor built into IGBT (TH) detects overheating.
H02	Compressor lockup is detected	P22	Outdoor fan IPDU detects error.
H03	Abnormal current is detected while inverter compressor is turned off.	P26	Short-circuit protection for compressor motor driver circuit components is activated (momentary overcurrent).
		P29	Compressor motor position detection error is detected.

Note) The above check codes are examples only, and different check codes may be displayed depending on the outdoor unit configuration (e.g. a Super Modular multi system). For details, see the service manual for the outdoor unit.

(Error detected by indoor unit)

Check code	Description of error	Check code	Description of error
E03	Communication from remote controller or network adaptor has been lost (so has central control communication).	L03	There is more than one header unit in group.
E04	Signals are not being received from outdoor unit.	L07	There is at least one stand-alone indoor unit to which group control cable is connected.
E08	Indoor unit detects address identical to its own.	L08	Address setting has not been performed for one or more indoor units (also detected at outdoor unit end).
E10	MCU communication between main controller and motor microcontroller is faulty.	L09	Capacity setting has not been performed for indoor unit.
E18	Periodic communication between indoor header and follower units cannot be maintained.	L20	There is duplication in central control address setting.
F01	Heat exchanger temperature sensor (TCJ) has been open/short-circuited.	L30	Unit shutdown has been caused by external error input (CN80).
F02	Heat exchanger temperature sensor (TC2) has been open/short-circuited.	F17	Open/Short of outside air suction temperature sensor (TOA) was detected.
F03	Heat exchanger temperature sensor (TC1) has been open/short-circuited.	F18	Open/Short of indoor air suction temperature sensor (TRA) was detected.
F10	Ambient temperature sensor (TA) has been open/ short-circuited.	P01	Indoor AC fan error is detected (activation of fan motor thermal relay).
F11	Discharge temperature sensor (TF) has been open/ short-circuited.	P10	Float switch has been activated.
F29	Indoor EEPROM is abnormal (some other error may be detected).	P12	Indoor DC fan error (e.g. overcurrent or lock-up) is detected.
L02	In case that outdoor unit model is different (Not corresponded)	P31	Follower unit cannot be operated due to header unit alarm (E03/L03/L07/L08).

(Error detected by main remote controller)

Check code	Description of error
E01	Signals cannot be received from indoor unit; master remote controller has not been set (including two remote controller control).
E02	Signals cannot be transmitted to indoor unit.
E09	Both remote controllers have been set as master remote controller in two remote controller control (alarm and shutdown for header unit and continued operation for follower unit)

(Error detected by central control device)

Check code	Description of error	Check code	Description of error
C05	Central control device is unable to transmit signal due to duplication of central control device.	—	Multiple network adapters are connected to remote controller communication line.
C06	Central control device is unable to receive signal.	P30	Group follower unit is faulty (unit No. and above detail [∗∗∗] displayed on main remote controller)
C12	Device connected to general-purpose device control interface for TCC-LINK is faulty.		

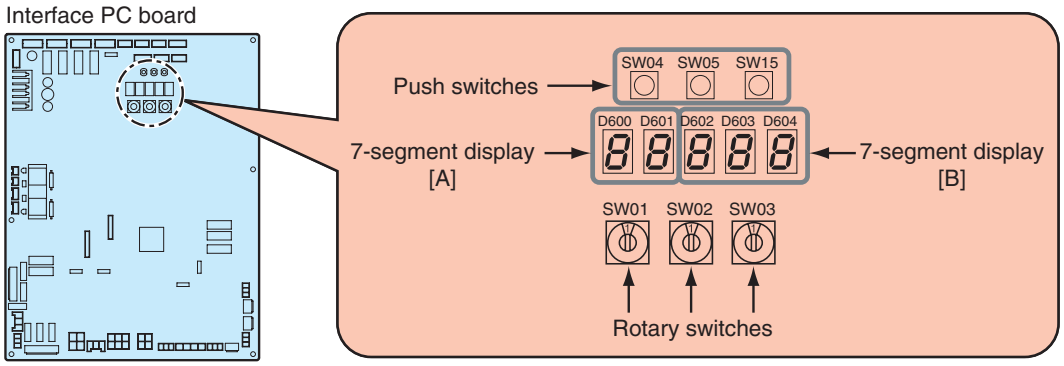
Note) The same error, e.g. a communication error, may result in the display of different check codes depending on the device that detects it.
Moreover, check codes detected by the main remote controller/central control device do not necessarily have a direct impact on air conditioner operation.

Check at Main Power-on

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

<Check on the outdoor unit>

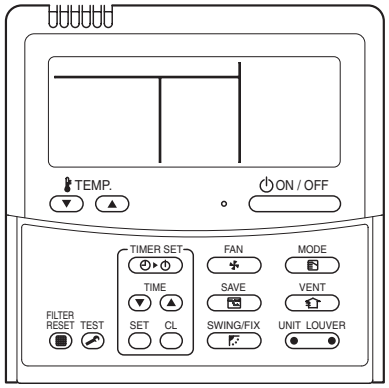
(1) Check that all the rotary switches, SW01, SW02, and SW03, on the interface PC board of the header unit are set to "1."
(2) If another check code is displayed on the 7-segment display [B], remove the cause of the problem referring to Section, "8 TROUBLESHOOTING" in SERVICE MANUAL.
(3) Check that "L08" 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 "U1" is displayed on the 7-segment display [A].)



<Check on the indoor unit>

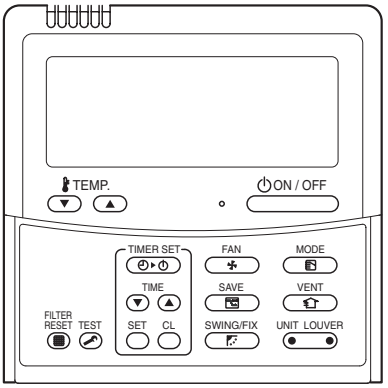
(1) Display check on the remote controller (in the case of a wired remote controller)
Check that a frame, as shown in the following figure at left, is displayed on the LC display section of the remote controller.

Good



Normal status
(power supplied and operation stopped)

No good



When power is not supplied normally

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

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

Address Setup (Continued)

Address Setup

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

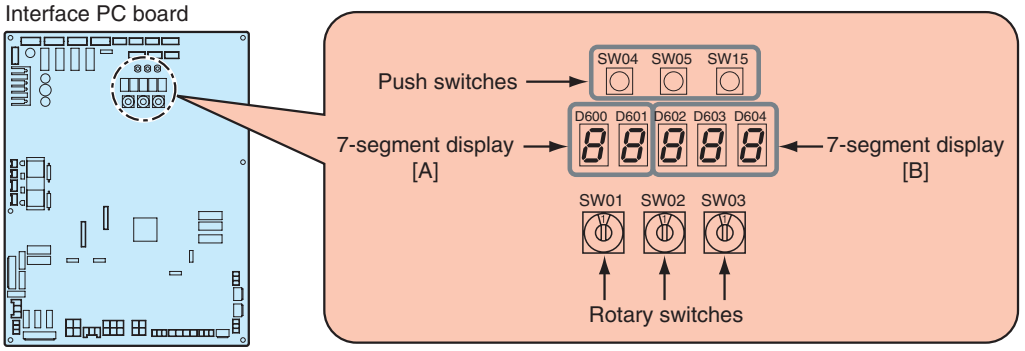
Precautions

(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 controller. (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.)

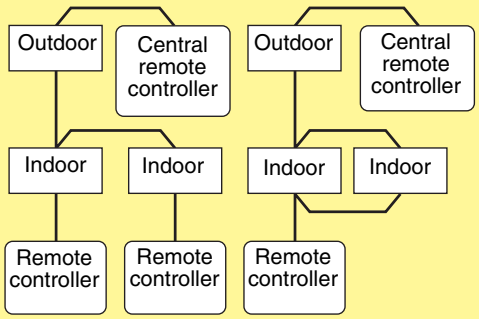
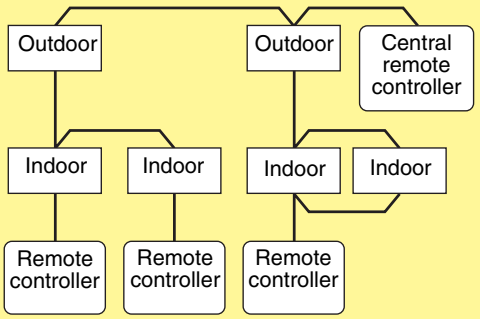
Note:
The address cannot be set up if switches are not operated.</td></tr>
<tr><td>5</td><td>Display check after setup</td><td>• After address setup, “U1” “ ” is displayed on the 7-segment display.
• For follower outdoor units, “U2” to “U3” are displayed on the 7-segment display [A].
• If an error code is displayed on the 7-segment display [B], remove the cause of the problem referring to “8 TROUBLESHOOTING” in SERVICE MANUAL.</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 horsepower]</td><td>[H P]</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**

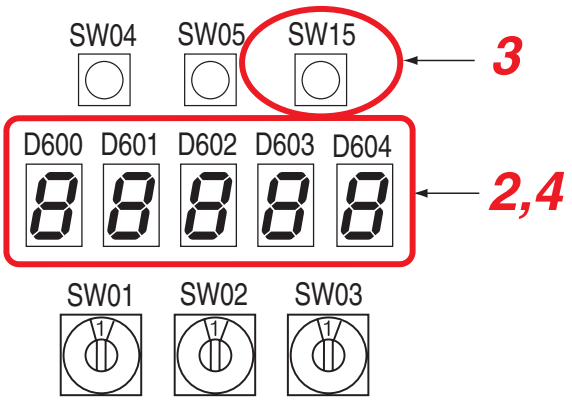
Central control of 2 or more refrigerant lines: **go to Address setting procedure 2**

(Example)	When controlling a single refrigerant line centrally	When controlling 2 or more refrigerant lines centrally
Address setting procedure	**To procedure 1**	**To procedure 2**
System 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.

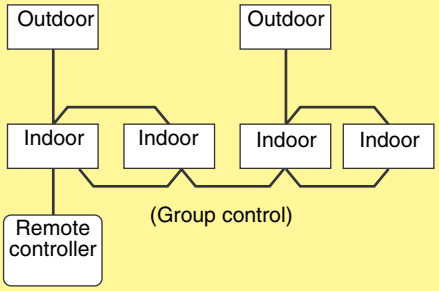
Interface P.C. board on the header outdoor unit



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 controller.

Address Setup (Continued)

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

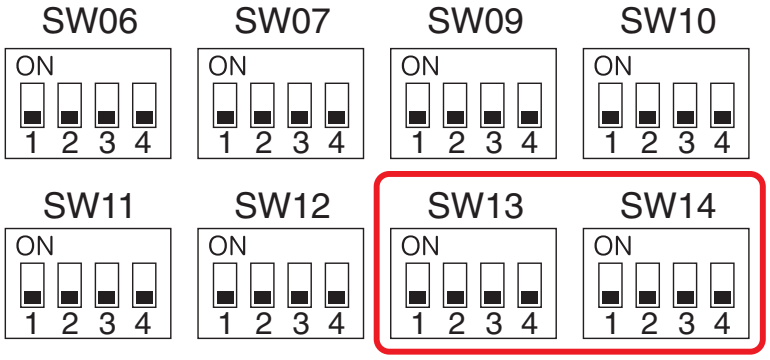
Address setting procedure 2

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 DI/SDI series.

Interface P.C. board on the header outdoor unit



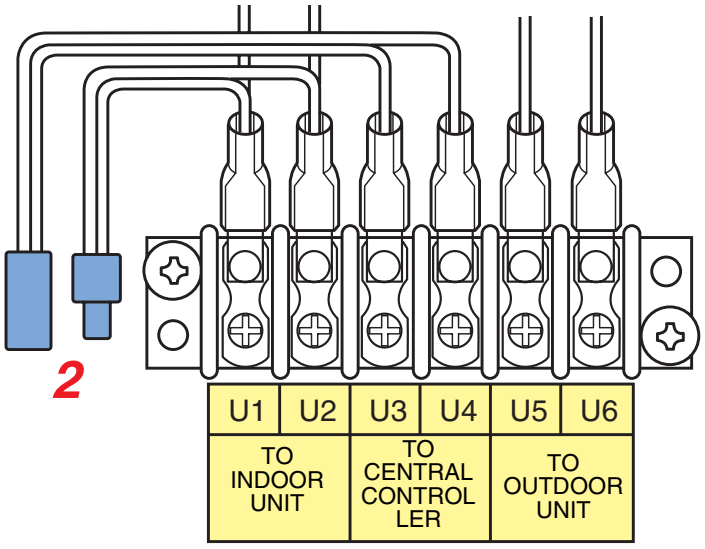
Line address switches on the outdoor interface PC board (○: switch on, ×: switch off)

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

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

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.

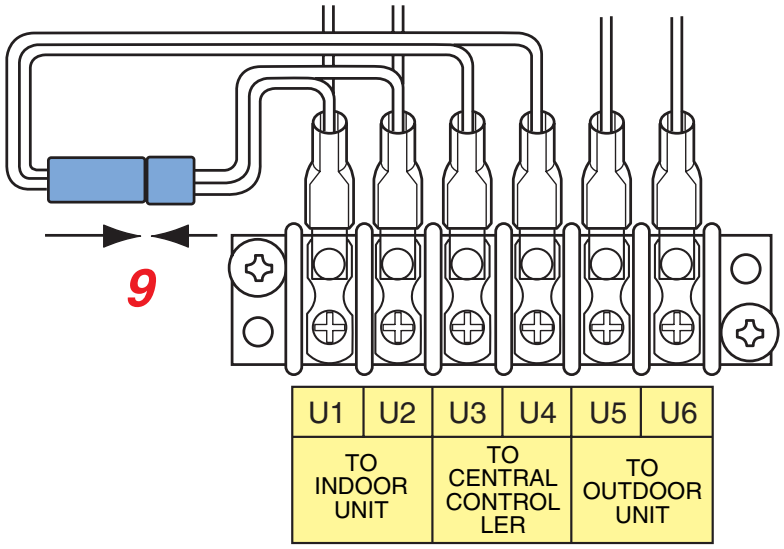
7 **Repeat steps 4 to 6 for other refrigerant lines.**
Be sure to implement a test operation prior to the actual operation in each system.

Address Setup (Continued)

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)

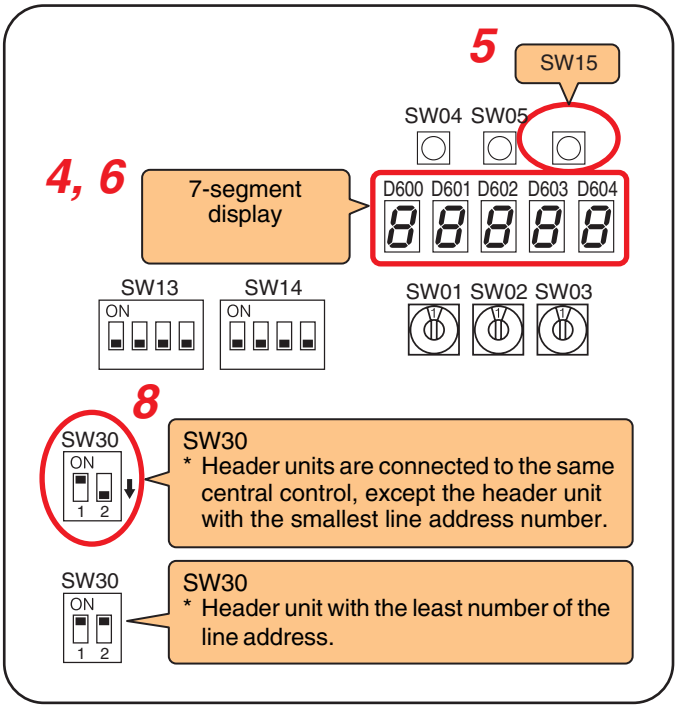
9 **Connect the relay connectors between the [U1, U2] and [U3, U4] terminals of the header outdoor unit of each refrigerant line.**



10 **Set the central control address.**

(For the setting of the central control address, refer to the installation manuals of the central control devices or "Manual address setup from the remote controller" in the next to the following page and after.

Header unit interface P.C. board

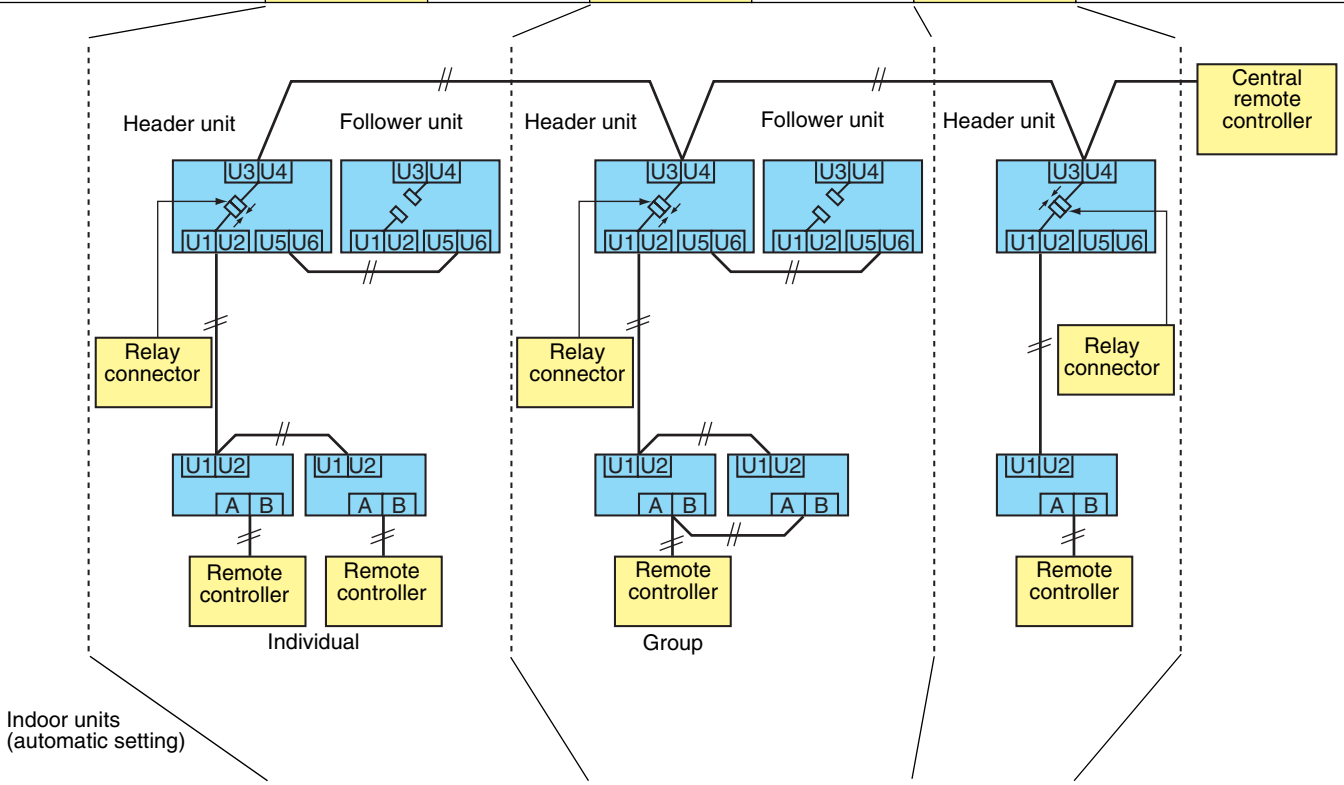


Switch setting (setting example when controlling 2 or more refrigerant lines centrally)

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
Bit 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



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

⚠ CAUTION

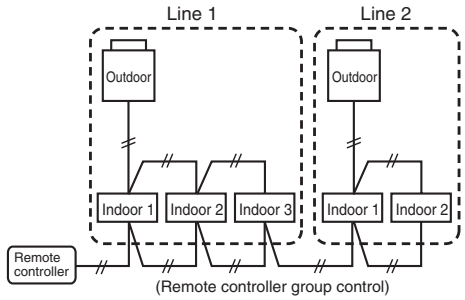
Relay connector connection

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.

Manual address setup from the remote controller

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

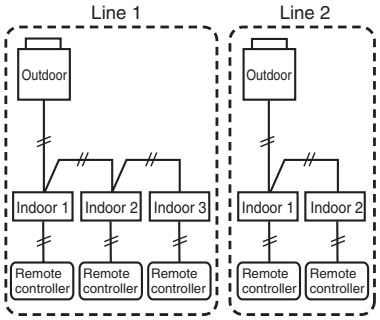
(Wiring example for 2 refrigerant lines)



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

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

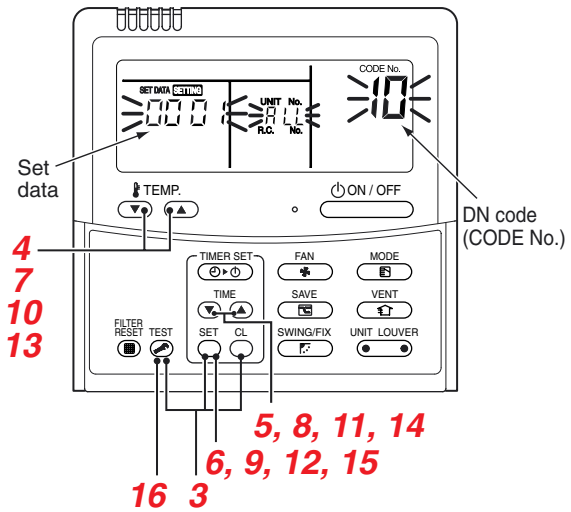
(Wiring during manual address setup)



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

Group address

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



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

2 **Turn on the power.**

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

LCD begins blinking.

▼ (Refrigerant line address)

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

5 **Using the TIME buttons, set up the line address (match it with the line address on the interface 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** controllers.

NOTE

(1) When setting the line address from the remote controller, 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.

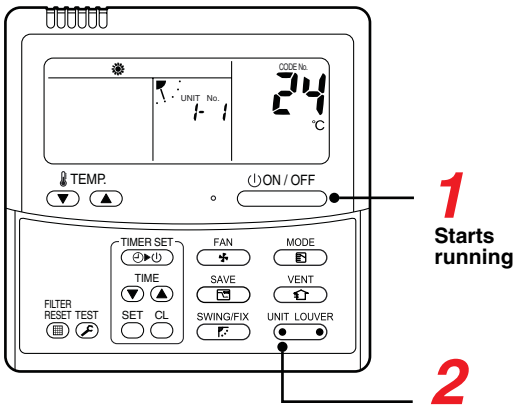
(2) When manual address setup has been done from a remote controller, and central control over refrigerant lines is to be done, setup the header unit of each line as follows:
- Using SW13 and SW14 on the interface PC board of the header unit of each line, setup the line address for each line.
- Except 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 controller

◆ Confirming the numbers and positions of indoor units

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

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



(Execute it while the units are running.)

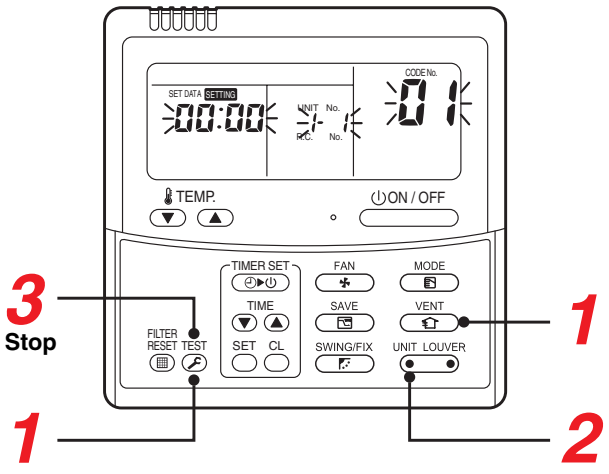
1 **Push the ON / OFF button if the units stop.**

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

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

To find an indoor unit's position from its address

▼When checking unit numbers controlled as a group



(Execute it while the units are stopped.)

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

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

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

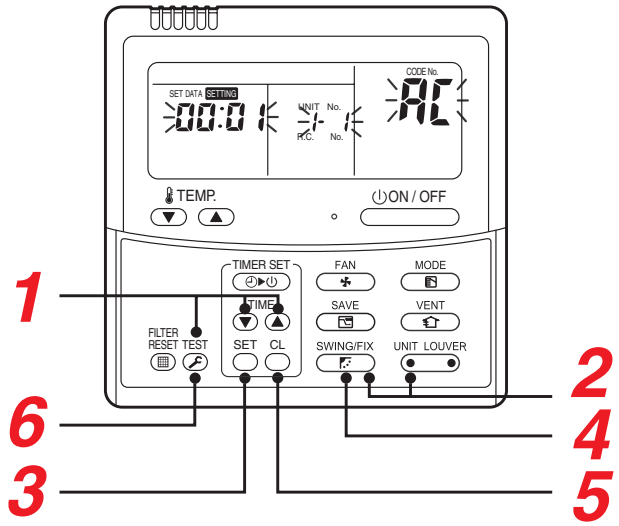
2 Push the UNIT LOUVER button (left side of the button). Each time you push the button, the indoor unit numbers are indicated one after another.

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

3 Push the TEST button to finish the procedure.

All the indoor units in the group stop.

▼To check all the indoor unit addresses using an arbitrary wired remote controller. (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. RC (Address Change) are indicated on the LCD display. (Select an outdoor unit.)**

2 **Push UNIT LOUVER the (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.**

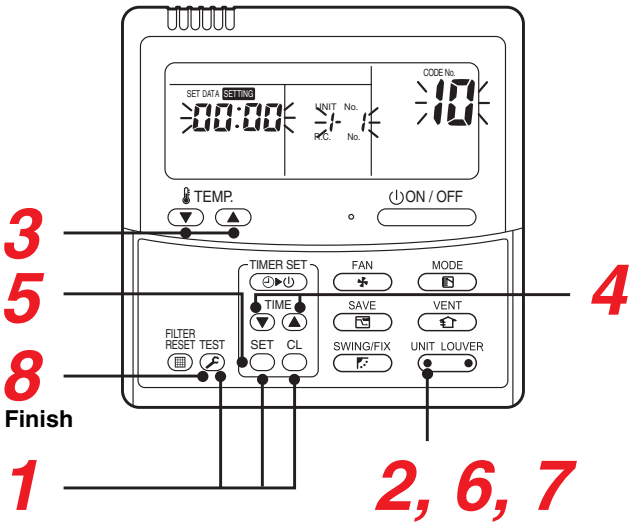
- After returning to step 2, select another system address and check the indoor unit addresses of the line.

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

Changing the indoor unit address using a remote controller

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

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

Address Setup (Continued)

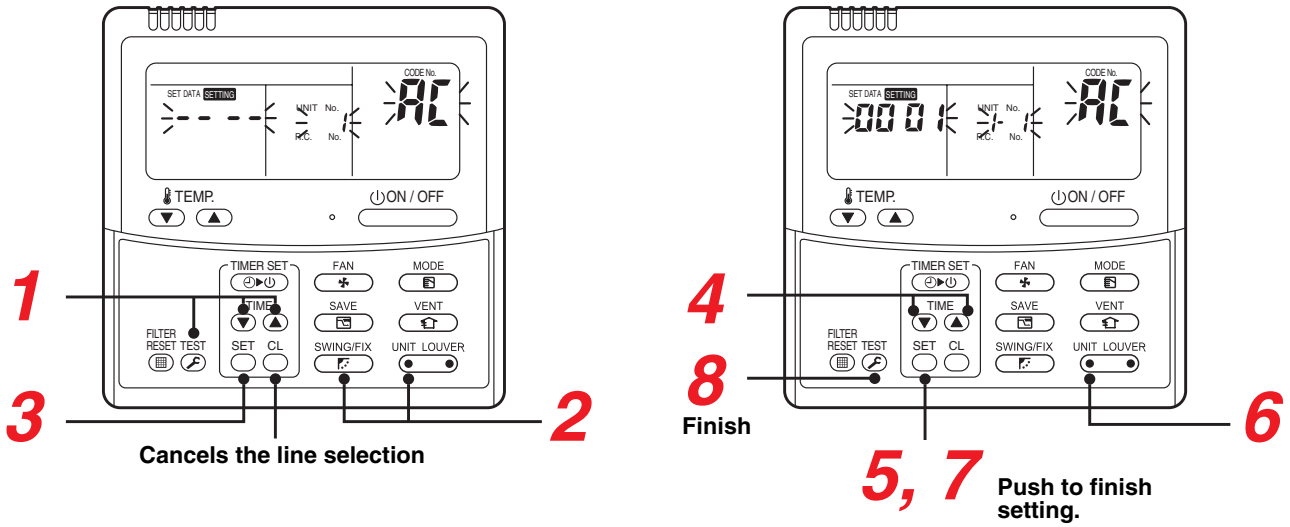
▼To change all the indoor unit addresses using an arbitrary wired remote controller. (The method is available when the addresses have already been set automatically.)

(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 controller.

* 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.**

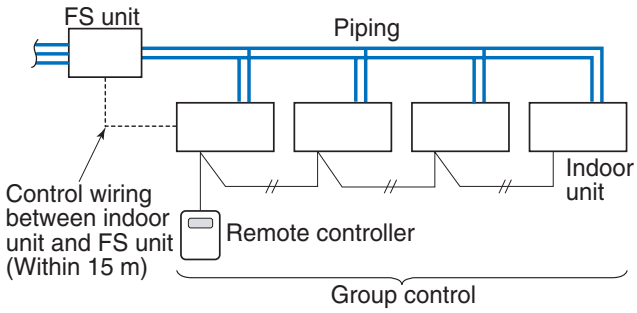
(All the segments on the LCD display light up.)

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

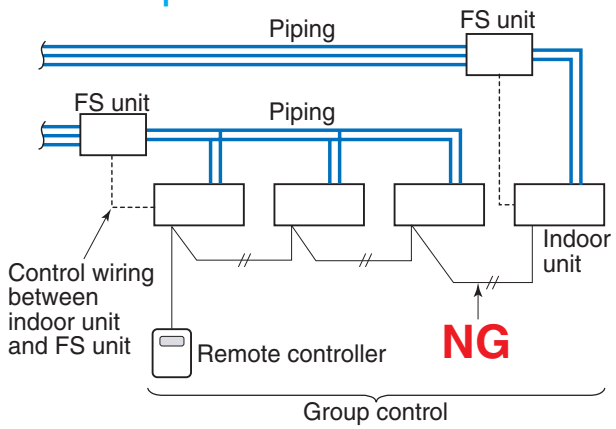
Setting when connecting multiple indoor units to a FS (Flow Selector) unit

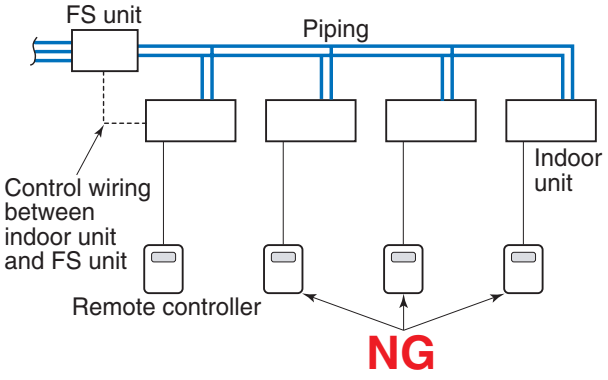
◆ Cautions to connection of indoor unit

- When connecting the multiple indoor units to a single FS unit, it is necessary to set up the CODE No.. Be sure to set up the CODE No. after setup of address.
- When connecting the multiple indoor units to a single FS unit, only group control is available. For the indoor unit, a remote controller cannot be individually connected.
- FS unit must be connected to one of the multiple indoor units which is under group control of a remote controller. The distance between FS unit and the indoor unit must be within 15 m.



Incorrect example of connection





◆ How to set up CODE No.

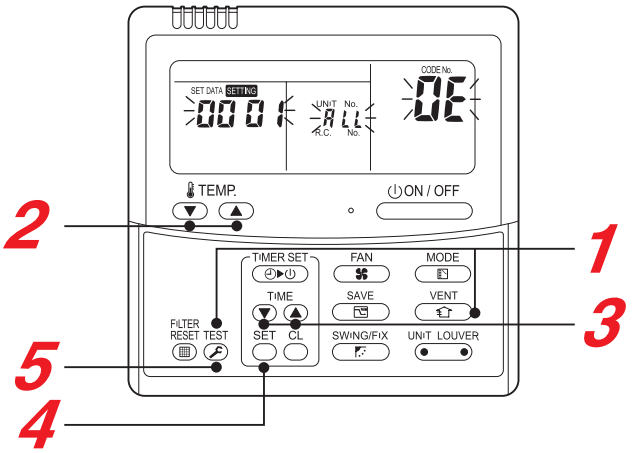
1 **Push VENT + TEST buttons simultaneously for 4 seconds or more.**
- ALL is displayed in the UNIT No. window.
- In this time, the fans of all the indoor units in the group control start the fan operation.

2 **Using the set temperature buttons ▼ / ▲, select the CODE No. "0E".**

3 **Change SET DATA to "0 1" by the timer buttons ▼ / ▲.**

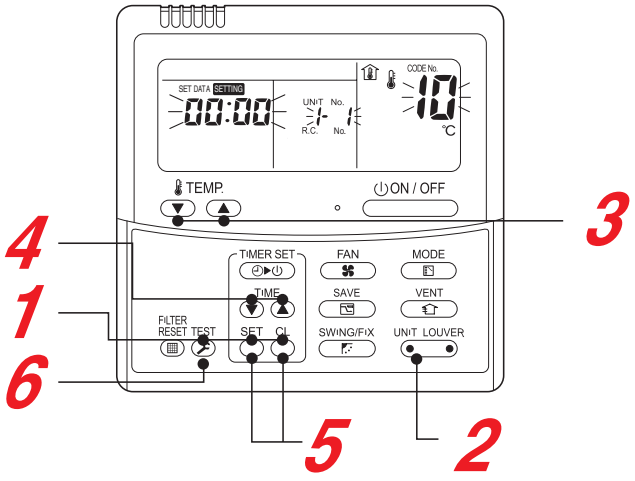
4 **Push SET button.**

5 **Push TEST button. Then the setup finished.**



How to set up the cooling only indoor unit

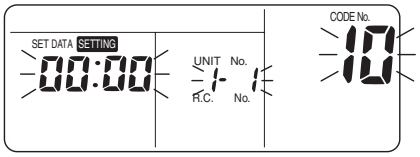
When setting the specific indoor unit to Cooling Only unit without connecting to the flow selector unit, setup to the indoor unit to become the Cooling Only unit is necessary. Perform setup in the following procedure.
Setup to the indoor unit is performed by handling the wired remote controller.
Even if a wired remote controller is not used, attach a wired remote controller for setup.
Change the setup with the wired remote controller before using the air conditioner with a wireless remote controller.
Change the setup during stop of the operation.
(Be sure to stop operation of the air conditioner.)



1 When pushing SET + CL + TEST buttons simultaneously for 4 seconds or more, after a while, the display part flashes as shown in the figure.

Check that the displayed CODE No. is [10].

- If the CODE No. indicates one other than [10], push TEST button to erase the display, and then retry the operation from the first step.
  (After pushing TEST button, the operation of remote controller cannot be accepted after a while.)

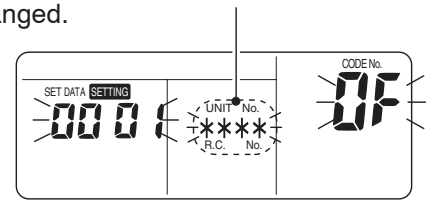


(* The display changes according to the indoor unit model.)

2 In a group control, the firstly displayed indoor unit No. becomes the header unit.

Every pushing UNIT LOUVER button (left side of the button), the indoor unit No. in the group control is displayed successively.

Select an indoor unit of which setting is to be changed.



In this time, the position of the indoor unit of which setup is to be changed can be confirmed because the fan and louver of the selected indoor unit work.

3 Use ▼ or ▲ buttons of the set temperature to specify the CODE No. [0F].

4 Use ▼ or ▲ buttons of the timer time to select the setup data [0001].

SET DATA	0000	0001
Cooling Only setup	Heat pump	Cooling Only

5 Push SET button. In this time, if the display changes from flashing to lighting, the setup completes.

- To change the setup of an indoor unit other than the selected one, start operation from Procedure 2.
- In a group control, setup change of all the indoor units in a group is necessary.
  To change the setup of the set other than the selected one, start again operation from Procedure 2.

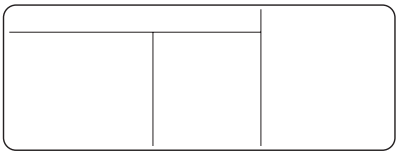
⚠ CAUTION

Cooling Only and Heat pump cannot exist in the same group.

- Pushing CL button clears the set up contents which have been already set.
  In this case, retry from Procedure 2.

6 When the setup finished, push TEST button. (The setup is determined.)

Pushing TEST button deletes the display and returns to normal stop status.
(For some time after TEST button has been pushed, the operation of the remote controller cannot be accepted.)



Single cooling/Single heating Test Operation Check

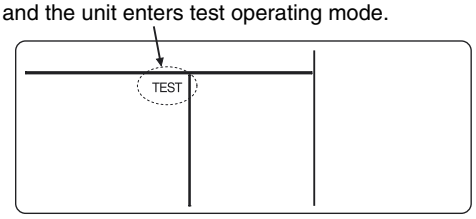
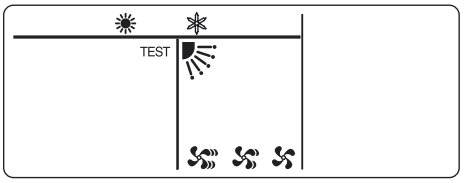
The Single cooling/Single heating test operation check can be performed on both the indoor remote controller and the outdoor header unit interface PC board.

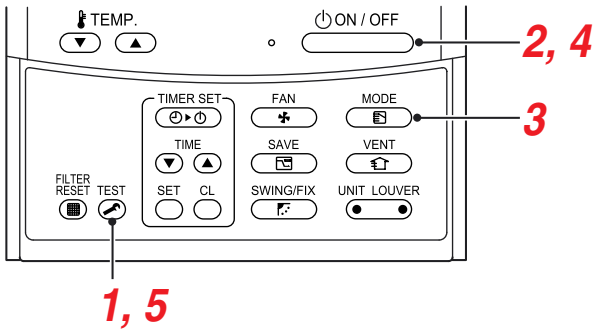
(1) Test operation start/stop operation

Test operation from the indoor remote controller

- Wired remote controller: Refer to the items below in “Test operation” of the wired remote controller.
- Wireless remote controller: Refer to the items below in “Test operation” of the wireless remote controller.
- Lite-Vision plus remote controller : Refer to the installation manual of RBC-AMS51E

▼Wired remote controller

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



▼Wireless remote controller (Except the 4-way Cassette type and the Ceiling type)

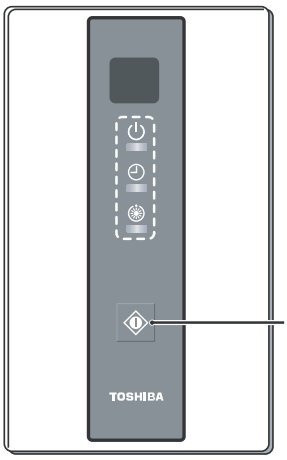
Test run (Forced cooling operation)

Requirement:

- Finish the forced cooling operation in a short time because it applies excessive strength to the air conditioner.

How to perform forced cooling operation

1. When TEMPORARY button is pushed for 10 seconds or more, “Pi!” sound is heard and the operation changes to a forced cooling operation.
   After approx. 3 minutes, a cooling operation starts forcedly.
   Check cool air starts blowing. If the operation does not start, check wiring again.
2. To stop a test operation, push TEMPORARY button once again (Approx. 1 second).
   - Check wiring / piping of the indoor and outdoor units in forced cooling operation.



TEMPORARY-Taste

▼Wireless remote controller (4-way Cassette type)

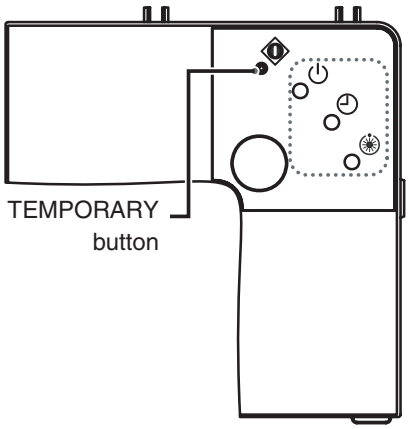
Test run (Forced cooling operation)

Requirement:

- Finish the forced cooling operation in a short time because it applies excessive strength to the air conditioner.

How to perform forced cooling operation

1. When TEMPORARY button is pushed for 10 seconds or more, “Pi!” sound is heard and the operation changes to a forced cooling operation.
   After approx. 3 minutes, a cooling operation starts forcedly.
   Check cool air starts blowing. If the operation does not start, check wiring again.
2. To stop a test operation, push TEMPORARY button once again (Approx. 1 second).
   - Check wiring / piping of the indoor and outdoor units in forced cooling operation.



(For Receiver Unit)

▼Wireless remote controller (Ceiling type)

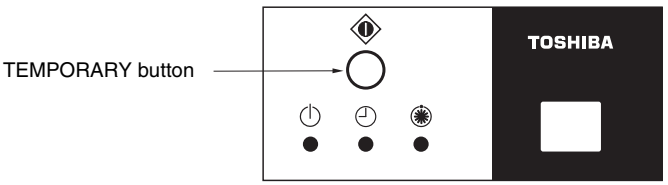
Test run (Forced cooling operation)

Requirement:

- Finish the forced cooling operation in a short time because it applies excessive strength to the air conditioner.

How to perform forced cooling operation

1. When TEMPORARY button is pushed for 10 seconds or more, “Pi!” sound is heard and the operation changes to a forced cooling operation.
   After approx. 3 minutes, a cooling operation starts forcedly.
   Check cool air starts blowing. If the operation does not start, check wiring again.
2. To stop a test operation, push TEMPORARY button once again (Approx. 1 second).
   - Check wiring / piping of the indoor and outdoor units in forced cooling operation.



(For Receiver Unit)

Test operation from the outdoor unit

Note) The test operation returns to normal operating mode after 60 minutes.

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

Method 1

Clearing each address separately using a wired remote controller.
Set the system address, indoor unit address and group address to "0099" using a wired remote controller.
(For the setting procedure, refer to the address setting procedures using the wired remote controller on the previous pages.)

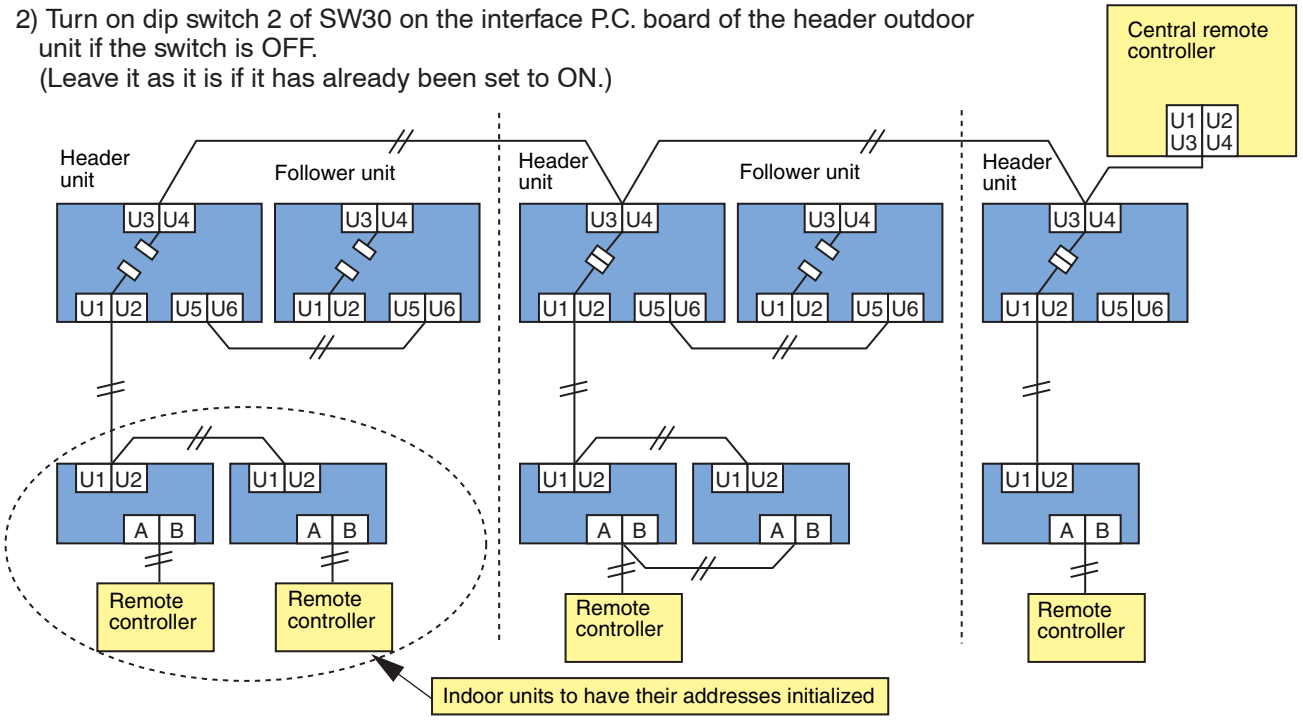
Method 2

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

1 Turn off the refrigerant line to reset to the factory default 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 five seconds.	System/indoor unit/group address
2	2	2	Confirm that the 7-segment display indicates "A.d.nEt" and turn SW04 ON for more than five seconds.	Central control address

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

4 After 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.

Address Setup (Continued)

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 controller.
(Line address, Indoor address, Group address, Central address)
For the setup method, refer to “Manual address setup from the remote controller.” above.

Method 2

Set up an address from the outdoor unit.

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

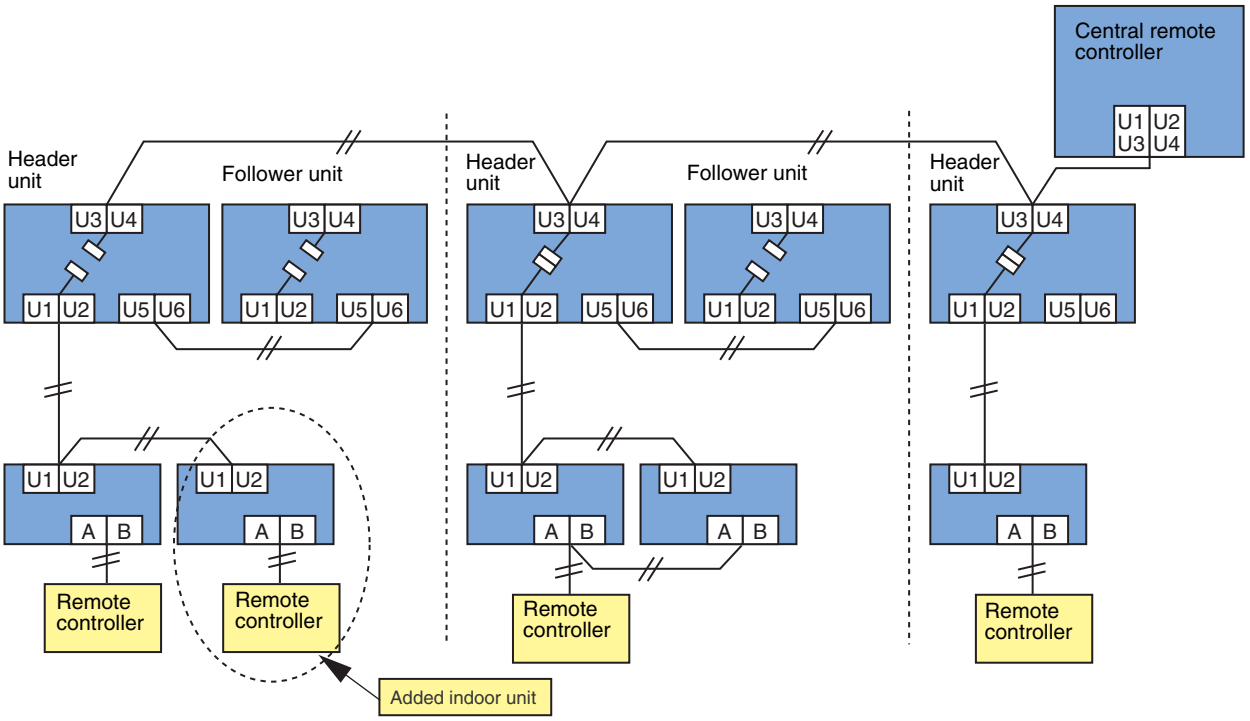
Setup procedure

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.

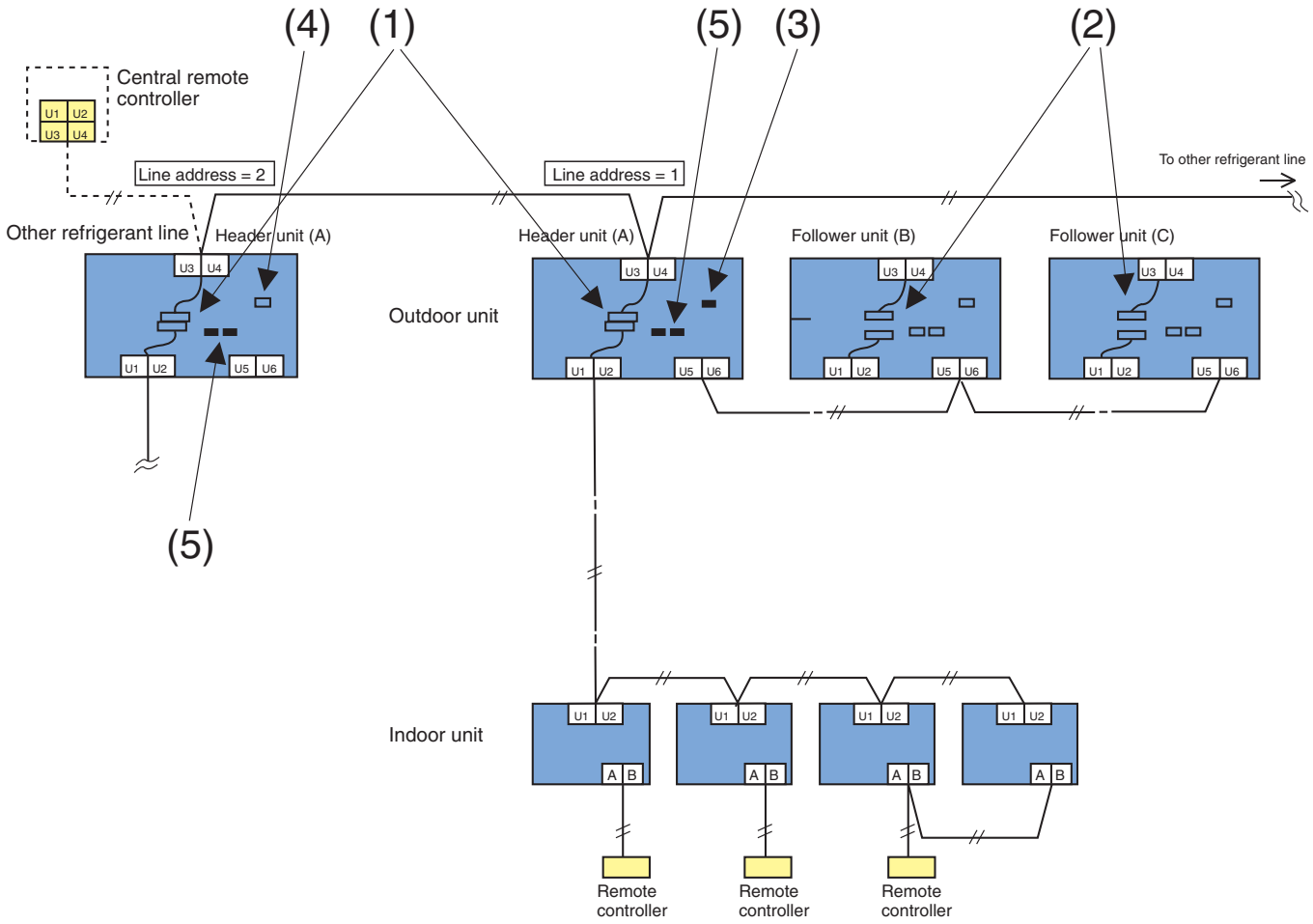
Turn off the indoor/outdoor power.

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

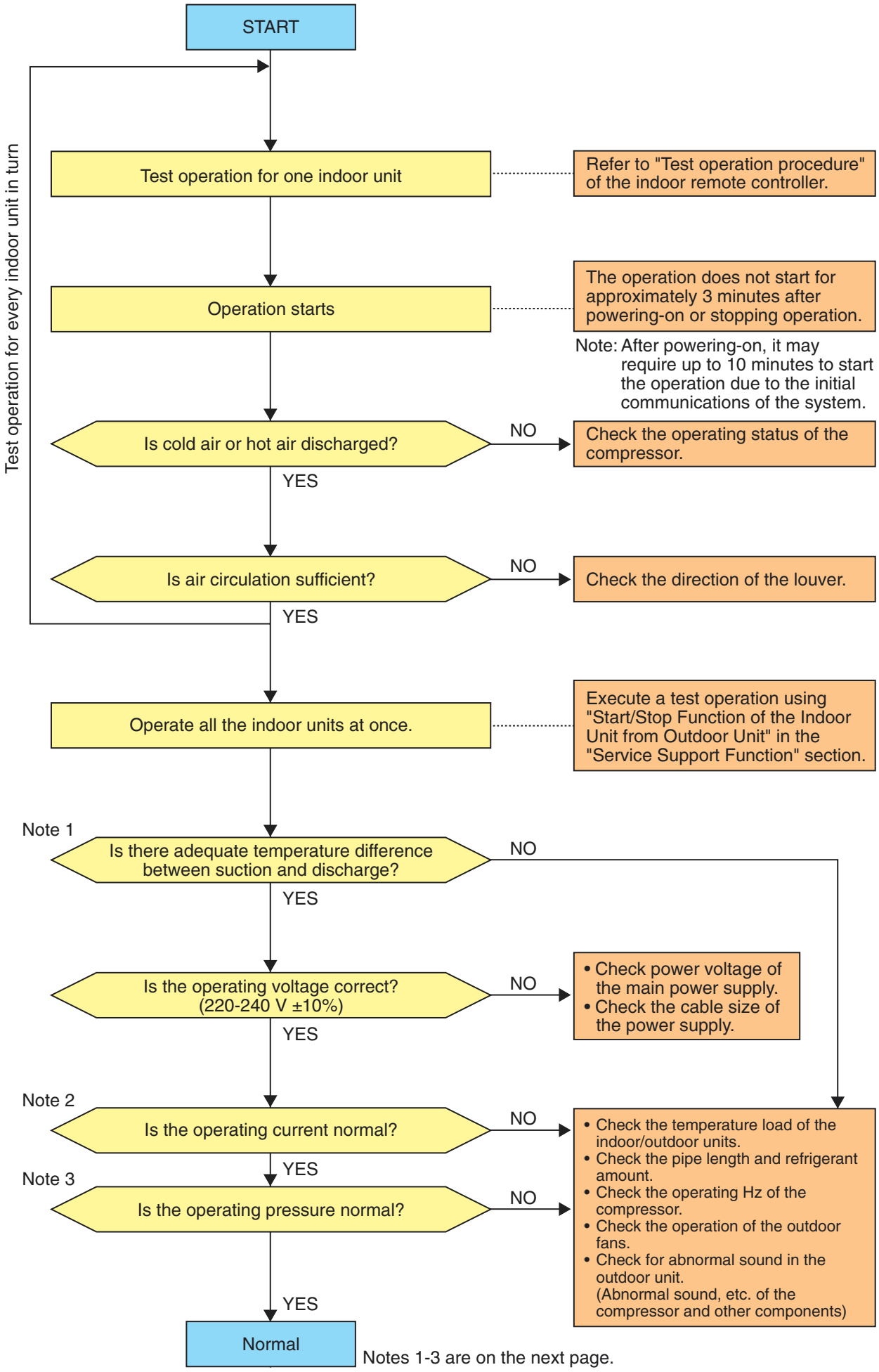
When the central control system is connected, check that the following setup has finished after address setup.



	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 controller, or optional devices.



Notes 1-3 are on the next page.

Note 1 : Criteria for the difference between suction and discharge temperatures

(1) Individual cooling operation
After operating for a minimum of 30 minutes in "COOL" mode, if the ΔT dry bulb temperature difference between suction and discharge air of the indoor unit is 8°C or more, it is normal.

(2) Individual heating operation
After operating for a minimum of 30 minutes in "HEAT" mode, if the ΔT dry bulb temperature difference between suction and discharge air of the indoor unit is 15°C or more, it is normal.

* If demand from the indoor unit on the outdoor unit is low because the difference between the temperature set by the remote controller and the temperature of the room is small, then the ΔT temperature difference is small.
* Consider that ΔT temperature difference may diminish in cases of a system in which the connected indoor unit capacity exceeds the outdoor unit capacity, the pipe length is long, or a large difference exists among outdoor units.

Note 2 : Criteria for operating power current

The table below shows the maximum current for each outdoor unit. Under standard conditions, operating current is about 80% of the value shown in the table below.

Outdoor unit	MMY-MAP	0804*	1004*	1204*	1404*
Current value	(A)	23.5	25.5	28.5	33.2

Note 3 : Criteria for cycle status

(1) These data are based on operating a 4-way Cassette type air conditioner of 100% connection with standard piping length.
Data may vary depending on temperature conditions, installed pipe length, and room shape combinations, or indoor unit connection capacity.
For pressure criteria in different temperature conditions, refer to (2).

Outdoor unit MMY-MAP	Operating mode	Pressure (MPa)		Pipe surface temperature (˚C)						Number of compressor rotations (rps)*			Indoor fan	Air temperature condition (DB/WB) ˚C)	
		Pd	Ps	Discharge (TD)	Suction (TS1)	Suction (TS2)	Indoor heat exchanger (TC)	Outdoor heat exchanger (TE)	Liquid temperature (TL)	Compressor 1	Compressor 2	Compressor 3		Indoor	Outdoor
0804*	Single cooling	2.9	0.9	85	30	15	10	40	40	52	52	—	High	27/19	35/—
	Single heating	3.0	0.7	85	5	5	35	3	30	55	55	—	High	20/—	7/6
1004*	Single cooling	3.0	0.8	87	30	15	10	40	40	68	68	—	High	27/19	35/—
	Single heating	3.1	0.7	85	4	4	35	2	30	68	68	—	High	20/—	7/6
1204*	Single cooling	3.1	0.8	85	25	15	10	40	40	55	55	55	High	27/19	35/—
	Single heating	3.1	0.7	85	4	4	35	3	30	58	58	58	High	20/—	7/6
1404*	Single cooling	3.0	0.8	90	25	15	10	40	40	65	65	65	High	27/19	35/—
	Single heating	3.1	0.7	90	3	3	35	2	30	65	65	65	High	20/—	7/6

* This compressor is driven with a 4-pole motor. The value of the compressor frequency (rps) measured with a clamp meter at the compressor lead line is two times the rotation count (rps) of the compressor.
* Each compressor may have a different frequency as a measure against resonance.
* The temperature of the indoor heat exchanger (TC) indicates TCJ sensor temperature when cooling, and TC2 sensor temperature when heating, respectively.

(2) Criteria for operating pressure

Operating mode		Single cooling	Single heating
Indoor temperature (˚C)		18~32	15~25
Outdoor temperature (˚C)		25~35	5~10
Pressure	High pressure (MPa)	2.0~3.3	2.5~3.3
	Low pressure (MPa)	0.5~0.9	0.5~0.7

* Criteria after 15 minutes or more has passed since operating started.

(3) On rotations of outdoor fans
Outdoor fans may rotate slowly to control pressure when cooling with low outer air temperature or heating with excessive load. For control content, also refer to items in Section 5, "Control Outline: Outdoor Unit, Outdoor Fan Control."

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

A Check Code Is Displayed on the Remote Controller

Check the code displayed on the indoor remote controller	Header unit 7-segment display	Cause	Countermeasures
E04	–	When outdoor power is off	Check that the header outdoor unit power is on
	L08	Address setup 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 powering-on) 	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(*)	L06	Duplication of indoor units with priority	Set up priority only for one indoor unit.
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.	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 controller is not accepted, and a check code is displayed on the 7-segment display of the interface PC board of the header unit.

Indoor remote controller status	Header unit 7-segment display	Cause	Countermeasures
No response	L08	Line addresses and indoor addresses of all the connected indoor units are not set.	Set up addresses.
		There is no header unit of group control.	Set up a group address.
	E19 ⇔ -00 Alternate blinking	Indoor unit power is not turned on.	Turn on the power again. (In the order: indoor → outdoor)
		Indoor/outdoor communication line is not correctly connected to the U1/U2 terminal of the header unit (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
	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 PC board of the header unit, althoug

Indoor remote controller status	Header unit 7-segment display	Cause	Countermeasures
No response	None	The communication line is not connected between indoor and outdoor (the unit that does not respond to the indoor remote controller).	Modify the wiring.
		Line address and indoor address are not set (the unit that does not respond to the indoor remote controller).	Set up the address.
		The power of the header unit of the group is not turned on in indoor group control (the unit that does not respond to the indoor remote controller).	Turn on the power.
		Group address is set to the follower unit for individual control (the unit that does not respond to the indoor remote controller).	Set the group address to “0” in the case of individual control.
No display on the indoor remote controller (no line is output.)	None	The power is not turned on (the unit that is not displayed on the indoor remote controller).	Turn on the power.
		The indoor remote controller is not connected with a wire (the unit that is not displayed on the indoor remote controller).	Modify the wiring.
		Miswiring of the indoor remote controller (the unit that is not displayed on the indoor remote controller)	Modify the wiring.
		Indoor remote controller communication circuit error (the unit that is not displayed on the indoor remote controller) If 220-240 V is incorrectly applied to the indoor remote controller terminal, the remote controller communication circuit fails.	Remove the fast-on terminal connected to indoor remote controller terminals A/B, and check the voltage. If voltage is not applied (normally 15 to 18 V), replace the PC board.

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 controller.	The indoor remote controller is not connected with wire. Miswiring of the indoor remote controller	Using the main indoor remote controller connected to a group, start a test operation, specify the unit that is not operating (the unit not connected to the group), and then check the wiring.
	Indoor remote controller communication circuit error If 220-240 V is incorrectly applied to the remote controller terminal, the remote controller communication circuit fails.	Using the main indoor remote controller connected to a group, start a test operation and then specify the unit that is not operating (the unit not connected to the group). Remove the fast-on terminal connected to remote controller terminals A/B, and check the voltage. If voltage is not applied (normally 15 to18 V), replace the PC board.

(1) Clearing from the main remote controller

▼ 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 controller is connected. (Error of the indoor unit is not cleared.)
For clearing errors, the service monitor function of the remote controller is used.

<Method>

1 **Change the mode to service monitor mode by pushing CL + TEST buttons simultaneously for 4 seconds or more.**

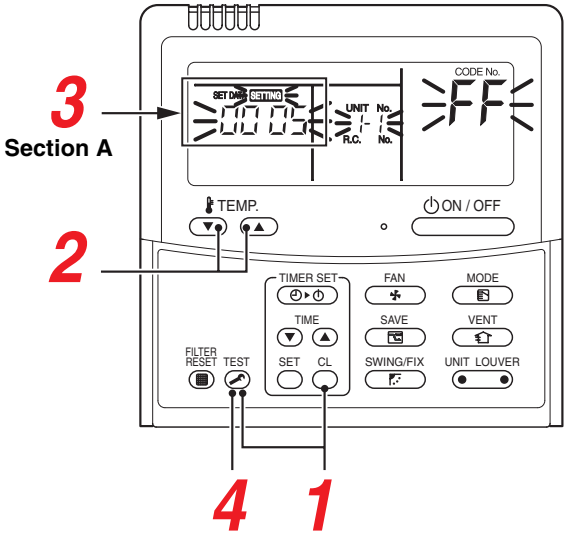
2 **Using TEMP buttons, set CODE No. to "FF".**

3 **The display in Section A in the following figure is counted with interval of 5 seconds as "0005" → "0004" → "0003" → "0002" → "0001" → "0000".**

When the count arrives "0000", the 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.**



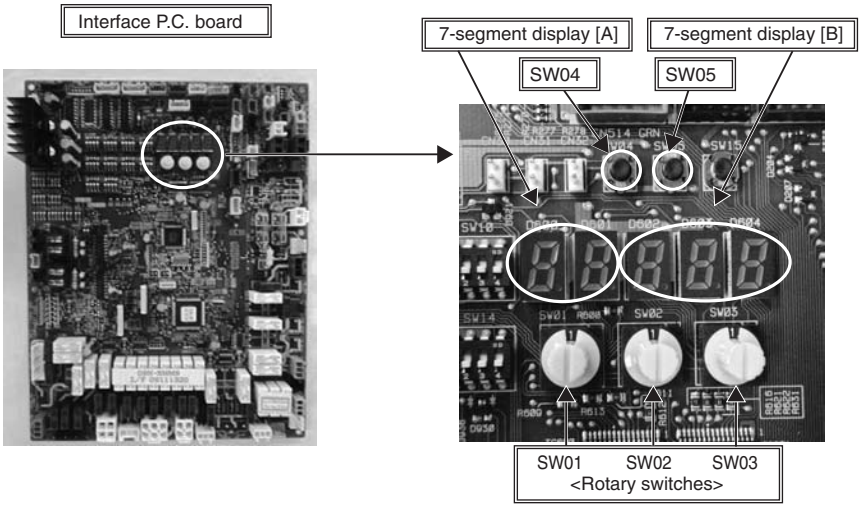
▼ Error clearing in indoor unit

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

(2) Clearing error by using switches on the interface board of the header unit

Using the switches on the interface P.C. board of the header unit, this function is to clear the currently detected 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.

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] [ ]
↓	
Push 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]



(3) 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 [E 19] (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.

Remote Controller Distinction Function

This function is provided to distinguish the remote controller connected to the indoor unit from the outdoor unit for a refrigerant circuit system by using switches on the interface P.C. board of the header unit.

<Distinction procedure>

Power ON

Be sure to turn on the power of the indoor unit prior to the power of the outdoor unit.

Set the display select switches on the interface P.C. board of the header unit as follows:
Set SW01/SW02/SW03 to [2/4/1]

7-segment display
[A] [B]
[A 1] [ ]

Push the push switch SW04 on the same board for 2 seconds or more.

7-segment display
[A] [B]
[A 1] [FF]

Operation

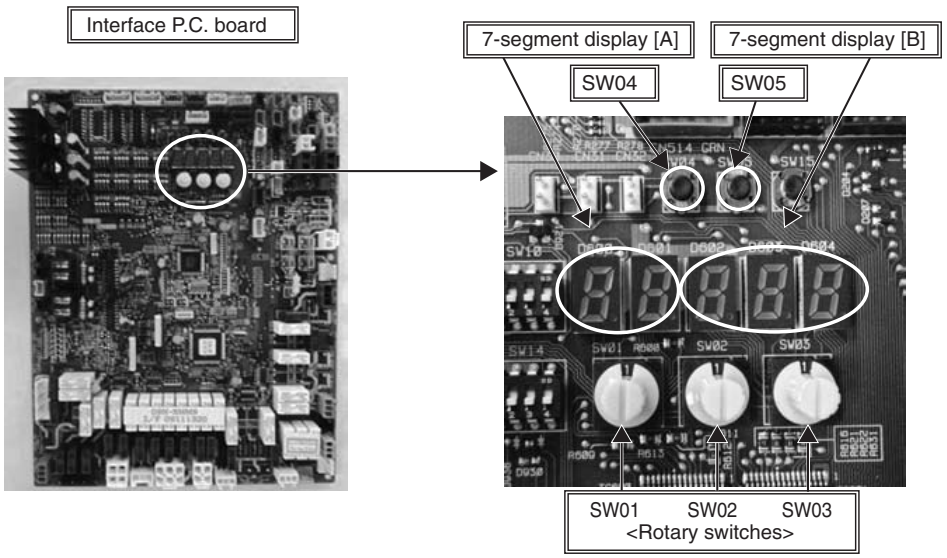
"Checking" display of the connected remote controller flashes.

Check the connected remote controller

Push the push switch SW05 on the interface P.C. board of the header unit for 2 seconds or more.

End

Other end conditions:
1. 10 minutes has passed
2. SW01, SW02, or SW03 changed to other position.



Error Clearing Function (Continued)

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.

Pulse Motor Valve (PMV) Forced Open Fully/Close fully Function in 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 P.C. 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 P.C. 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 P.C. 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 P.C. 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].

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 [×] 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
		SV2	SV5	SV41	SV42	SV43	SV3A	SV3B	SV3C	SV3D	SV3E	SV3F	SV6	SV11	SV14	
1	[2]	O	—	—	—	—	—	—	—	—	O	—	—	—	—	O
2	[5]	—	O	—	—	—	—	—	—	—	O	—	—	—	—	O
3	[41]	—	—	O	—	—	—	—	—	—	O	—	—	—	—	O
4	[42]	—	—	—	O	—	—	—	—	—	O	—	—	—	—	O
5	[43]	—	—	—	—	O	—	—	—	—	O	—	—	—	—	O
6	[3A]	—	—	—	—	—	O	—	—	—	O	—	—	—	—	O
7	[3b]	—	—	—	—	—	—	O	—	—	O	—	—	—	—	O
8	[3C]	—	—	—	—	—	—	—	O	×	O	O	—	—	—	O
9	[3d]	—	—	—	—	—	—	—	—	O	×	O	—	—	—	O
10	[3–]	—	—	—	—	—	O	O	O	×	O	×	—	—	—	O
11	[6]	—	—	—	—	—	—	—	—	—	O	—	O	—	—	O
12	[ ]	—	—	—	—	—	—	—	—	—	O	—	—	—	—	O
13	[11]	—	—	—	—	—	—	—	—	—	O	—	—	O	—	O
15	[14]	—	—	—	—	—	—	—	—	—	O	—	—	—	O	O
16	[ALL]	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O

[Clear]

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

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

Fan Operation Check in Outdoor Unit

This function is provided to check the fan operation of the outdoor unit by using switches on the interface P.C. board in the outdoor unit. The frequency of the fan speed can be controlled by setting of the switches. Use this function to check the operation or abnormal sound in the fan system. And, use this function while the system is stopped.

NOTE) Do not use this function during operation of the compressor. It may damage the compressor.

[Operation]

(1) Set the switches SW01/SW02/SW03 on the interface P.C. board of the outdoor unit to [2/1/4].
(2) When [F. d] is displayed in 7-segment display [A], keep pushing the switch SW04 for 2 seconds or more.
(3) When [63] is displayed in 7-segment display [B], the fan starts operation. (Max. mode operation)
(4) After that, by changing the setup number of the switches SW02 and SW03, 7-segment display [B] and the fan mode are changed.
(Mode output pattern of the fan is as follows.)

SW02	SW03	7-segment display [B]	Fan mode
1	4	[63]	63
2		[62]	62
3		[61]	61
4		[60]	60
5		[59]	59
6		[58]	58
7		[57]	57
8		[56]	56
9		[55]	55
10		[54]	54
11		[53]	53
12		[52]	52
13		[51]	51
14		[50]	50
15		[49]	49
16		[48]	48
1	5	[47]	47
2		[46]	46
3		[45]	45
4		[44]	44
5		[43]	43
6		[42]	42
7		[41]	41
8		[40]	40
9		[39]	39
10		[38]	38
11		[37]	37
12		[36]	36
13		[35]	35
14		[34]	34
15		[33]	33
16		[32]	32

SW02	SW03	7-segment display [B]	Fan mode
1	6	[31]	31
2		[30]	30
3		[29]	29
4		[28]	28
5		[27]	27
6		[26]	26
7		[25]	25
8		[24]	24
9		[23]	23
10		[22]	22
11		[21]	21
12		[20]	20
13		[19]	19
14		[18]	18
15		[17]	17
16		[16]	16
1	7	[15]	15
2		[14]	14
3		[13]	13
4		[12]	12
5		[11]	11
6		[10]	10
7		[9]	9
8		[8]	8
9		[7]	7
10		[6]	6
11		[5]	5
12		[4]	4
13		[3]	3
14		[2]	2
15		[1]	1
16		[0]	0

[Clear]

This function is cleared by one of the following operations.
(1) When SW01 setting number was changed to other number.
(2) Push-switch SW05 was push for 2 seconds or more.

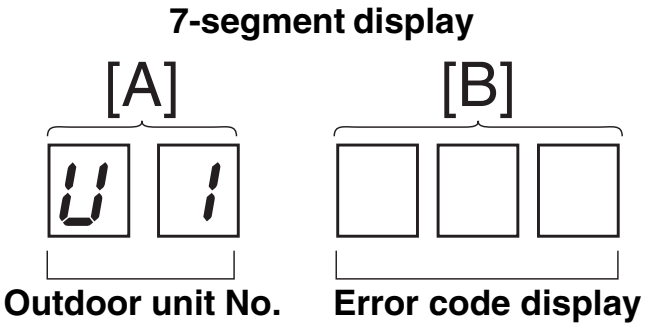
Abnormal Outdoor Unit Discrimination Method By Fan Operating Function

This function is provided to forcedly operate the fan of the outdoor unit in which an error occurred or the fan of thevnormal 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.

Manual Adjustment Function of Outside Temperature (TO) Sensor

This function is provided to fix TO sensor value manually by the switch operation on the interface P.C. board in the outdoor unit. When the unit stops abnormally due to TO sensor failure, etc, an emergent operation is available by setting up the value manually to position near the current outside temperature.

[Operation]

(1) Set the rotary switches on the interface P.C. board to numbers as follows:
- SW01/SW02/SW03 to [2/1/15]
- 7-segment display: [t o]

(2) Keep pushing the push switch SW04 on the interface P.C. board for 1 second or more. The mode changes to the TO sensor value fix manual mode.

(3) As shown in the following table, TO sensor value can be fixed by setting the rotary switch SW02 on the interface P.C. board.

[Clear]

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

SW02	7-segment display [B]	TO sensor value
1	[10]	10°C
2	[15]	15°C
3	[20]	20°C
4	[25]	25°C
5	[30]	30°C
6	[35]	35°C
7	[40]	40°C
8	[43]	43°C
9	[45]	45°C
10	[–15]	-15°C
11	[–10]	-10°C
12	[– 5]	-5°C
13	[0]	0°C
14	[2]	2°C
15	[5]	5°C
16	[7]	7°C

NOTE) If operated with TO sensor fixed by this function, the system control operation of the air conditioner may not be based on the specification of the product. Therefore an emergent operation should be restricted to a day or so.

<Service support function list>

SW01	SW02	SW03	7-segment display [A]	Function contents
2	1	1	[J . C]	Refrigerant circuit and control communication line check function (Cooling operation)
	2		[J . H]	Refrigerant circuit and control communication line check function (Heating operation)
	3		[P .]	Indoor PMV forced full open function
	4		[A . 1]	Indoor remote controller discriminating function
	5		[C .]	Cooling test operation function
	6		[H .]	Heating test operation function
	7		[C . H]	Indoor collective start/stop (ON/OFF) function
	11		[r . d]	Outdoor refrigerant recovery operation function (Pump down function)
	16		[E . r]	Error clear function

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

16	1~16	1	[0 1]~[1 6]	Indoor No. 1 to 16 unit	Indoor individual start/stop (ON/OFF) function
		2	[1 7]~[3 2]	Indoor No. 17 to 32 unit	
		34	[3 3]~[4 8]	Indoor No. 33 to 48 unit	

SW01	SW02	SW03	7-segment display [A/B]	Function contents
1	1	1	[U 1] [E28]	Follower unit error / Corresponding unit fan operation function

Error Clearing Function (Continued)

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 0002: +2˚C to 0010: +10˚C (Up to +6 recommended)	0002: +2˚C (Floor type 0000: 0˚C)
0d	Existence of [AUTO] mode	0000: Provided 0001: Not provided (Automatic selection from connected outdoor unit)	0001: Not provided
0E	FS unit Connection set of multiple indoor units	0000: Standard (1 FS unit : 1 indoor unit) 0001: Multiple units connected ((1 FS unit : Multiple indoor units)	0000:Standard
0F	Cooling only	0000: Heat pump 0001: Cooling only (No display of [AUTO] [HEAT])	0000: Heat pump
10	Type	0001: 4-way Cassette	Depending on model type
11	Indoor unit capacity	0000: Unfixed 0001 to 0050	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 0048: No.48 unit	0099: Unfixed
14	Group address	0000: Individual 0001: Header unit of group 0002: Follower unit of group	0099: Unfixed
19	Group address	0000: No louver 0001: Swing only 0002: (1-way Cassette type, Ceiling type) 0003: (2-way Cassette type) 0004: (4-way Cassette type)	According to type
1E	Temp difference of [AUTO] mode selection COOL → HEAT, HEAT → COOL	0000: 0 deg to 0010: 10 deg (For setup temperature, reversal of COOL/HEAT by } (Data value)/2)	0003: 3 deg (Ts ±1.5)
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 controller sensor	0000: Body TA sensor
33	Temperature unit select	0000: ˚C (at factory shipment) 0001: ˚F	0000: ˚C
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

<table>
<tr><th>DN</th><th>Item</th><th>Description</th><th>At shipment</th></tr>
<tr><td rowspan="3">5d</td><td>High-ceiling adjustment
(Air flow selection)</td><td>1-way cassette (SH)
<table>
<tr><th>Value</th><th>Type</th><th>AP015, AP018</th><th>AP024</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>3.5 m or less</td><td>3.8 m or less</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>4.0 m or less</td><td>4.0 m or less</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>4.2 m or less</td><td>4.2 m or less</td></tr>
</table>
2-way cassette
<table>
<tr><th>Value</th><th>Type</th><th>AP007~AP030</th><th>AP036~AP056</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>2.7 m or less</td><td>2.7 m or less</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>3.2 m or less (*)</td><td>3.0 m or less</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>3.8 m or less (*)</td><td>3.5 m or less</td></tr>
</table>
* The high-ceiling installation of model AP007 to AP012 can only be undertaken when the combined capacity of the indoor units connected is 100% or less than the capacity of the outdoor unit.
Do not proceed with high-ceiling installation if this limit is exceeded.
4-way cassette
<table>
<tr><th rowspan="2">Value</th><th>Type</th><th colspan="3">AP009~AP012</th><th colspan="3">AP015~AP018</th></tr>
<tr><th>Air flow at outlet</th><th>4 directions</th><th>3 directions</th><th>2 directions</th><th>4 directions</th><th>3 directions</th><th>2 directions</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>2.7 m</td><td>2.8 m</td><td>3.0 m</td><td>2.8 m</td><td>3.2 m</td><td>3.5 m</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>—</td><td>—</td><td>—</td><td>3.2 m</td><td>3.5 m</td><td>3.8 m</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>—</td><td>—</td><td>—</td><td>3.5 m</td><td>3.8 m</td><td>—</td></tr>
<tr><th rowspan="2">Value</th><th>Type</th><th colspan="3">AP024~AP030</th><th colspan="3">AP036~AP056</th></tr>
<tr><th>Air flow at outlet</th><th>4 directions</th><th>3 directions</th><th>2 directions</th><th>4 directions</th><th>3 directions</th><th>2 directions</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>3.0 m</td><td>3.3 m</td><td>3.6 m</td><td>3.0 m</td><td>3.3 m</td><td>3.6 m</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>3.3 m</td><td>3.5 m</td><td>3.8 m</td><td>3.3 m</td><td>3.5 m</td><td>3.8 m</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>3.6 m</td><td>3.8 m</td><td>—</td><td>3.6 m</td><td>3.8 m</td><td>—</td></tr>
</table>
Ceiling
<table>
<tr><th>Value</th><th>Type</th><th>AP015~AP056</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>3.5 m or less</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>4.0 m or less</td></tr>
</table></td><td rowspan="2">0000: Standard</td></tr>
<tr><td>Built-in filter</td><td colspan="2">2-way cassette
0000: Standard filter (factory default)
0001: Super long-life filter
4-way cassette
0000: Standard filter (factory default)
Ceiling
0000: Standard filter (factory default)
Concealed duct standard
0000: Standard filter (factory default)
0001: High-performance filter (65%, 90%)</td></tr>
<tr><td></td><td>Static pressure selection</td><td>Concealed duct standard
0000: Standard (factory default)
0001: High static pressure 1
0003: High static pressure 2
0006: Low static pressure</td><td>Slim Duct (AP007~AP018)
0000: Standard (factory default)
0001: High static pressure 1
0003: High static pressure 2
0006: High static pressure 3</td><td></td></tr>
<tr><td>60</td><td>Timer setting
(wired remote controller)</td><td>0000: Available (can be performed)</td><td>0001: Unavailable (cannot be performed)</td><td>0000: Available</td></tr>
</table>

Error Clearing Function (Continued)

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

DN	Item	Description	At shipment
40	Humidifier type setting	0000: No humidifier 0001: Humidifier	Depends on the type
47	Ventilation fan speed during nighttime heat purge operation	0000: Always LOW 0001: Operate at ventilation fan speed set last time the operation was stopped	0000: Always LOW
48	Unbalanced fan speed ventilation	0000: Invalid 0001: SA > EA 0002: SA < EA	0000: Invalid
4C	Nighttime heat purge setting	0000: Invalid 0001: Start in 1 hour to 0048: Start in 48 hours	0000: Invalid
4E	Linkage with external devices	0000: ON / OFF linked 0001: ON linked 0002: OFF linked	0000: ON / OFF linked
5C	Damper output	0000: Normal 0001: Nighttime heat purge compatible	0000: Normal
60	Timer setting (Wired remote controller)	0000: Possible 0001: Not possible	0000: Possible
BB	Humidity judgment by outdoor temperature	0000: Not judged 0001: Judged	0000: Not judged
BD	Continuous humidifying time	0001: 1 hour to 0020: 20 hours	0006: 6 hours
BE	Delay after drainage	0015: 15 minutes to 0030: 30 minutes	0015: 15 minutes
C9	Air to Air intake temperature correction (Cool)	0000: No shift 0001: –0.5˚C 0002: –1.0˚C to 0007: –3.5˚C	0004: –2.0˚C
CA	Air to Air intake temperature correction (Heat)	0000: No shift 0001: 0.5˚C 0002: 1.0˚C to 0007: 3.5˚C	0005: 2.5˚C
D0	Power saving mode	0000: Invalid 0001: Valid	0001: Valid
EA	Current ventilation mode	0002: Heat exchange mode 0003: Automatic mode	0002: Heat exchange mode
EB	Current ventilation fan speed	0002: High 0003: Low 0004: Unbalanced	0002: High
ED	Operation output	0000: Normal operation only 0001: Normal + Nighttime heat purge 0002: Nighttime heat purge only 0003: Supplying fan linked 0004: Exhausting fan linked	0000: Normal operation only
EE	Abnormal signal / Bypass mode signal switch	0000: Abnormal signal output 0001: Bypass signal output	0000: Abnormal signal output

Type
DN code " 10"

Value	Type	Model
0000	1-way Cassette MMU-AP	MMU-AP∗∗∗SH
0001*1	4-way Cassette MMU-AP	MMU-AP∗∗∗H
0002	2-way Cassette MMU-AP	MMU-AP∗∗∗WH
0003	1-way Cassette (Compact)	MMU-AP∗∗∗YH
0004	Concealed Duct Standard MMD-AP	MMD-AP∗∗∗BH
0005	Slim Duct MMD-AP	MMD-AP∗∗∗SPH (SH)
0006	Concealed Duct High Static Pressure	MMD-AP∗∗∗H
0007	Ceiling	MMC-AP∗∗∗H
0008	High Wall MMK-AP	MMK-AP∗∗∗H
0010	Floor Standing Cabinet MML-AP	MML-AP∗∗∗H
0011	Floor Standing Concealed MML-AP	MML-AP∗∗∗BH
0013	Floor Standing MMF-AP	MMF-AP∗∗∗H
	Compact 4-way Cassette	MMU-AP∗∗∗MH
0050	Air to Air Heat Excanger with DX coil Unit	MMD-VN∗∗∗HEX∗

*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
0011	024 type
0012	027 type
0013	030 type
0015	036 type
0017	048 type
0018	056 type
0021	072 type
0023	096 type
~	—

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

Function to Start / Stop (ON / OFF)

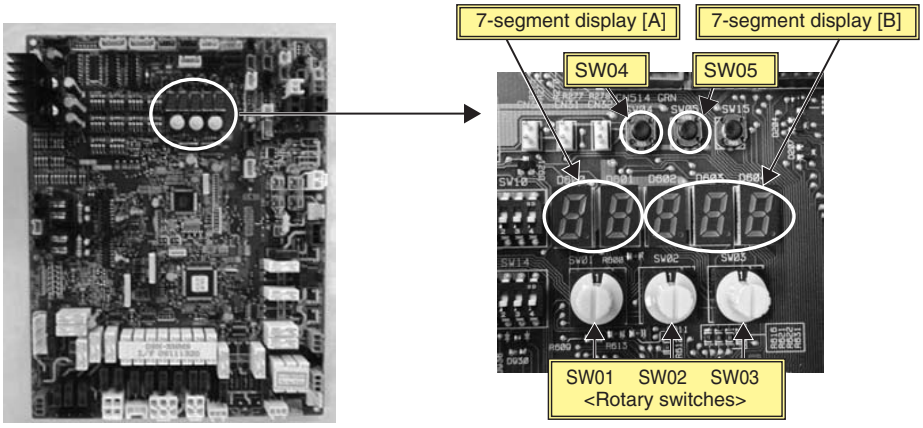
Indoor Unit from Outdoor Unit

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

No.	Function	Outline	Setup/Release	7-segment display
1	Single 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	Single heating test operation	Changes the mode of all the connected indoor units collectively to heating test operation. Note) Control operation same as usual test operation from remote control is performed.	[Setup] Set SW01/SW02/SW03 to [2/6/1], and push SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [H.] Section B [– H]
3	Fan test operation	Changes operation mode of all the connected indoor units collectively to test operation mode. Note) Control operation same as usual test operation from remote control is performed.	[Setup] Set SW01/SW02/SW03 to [2/9/1], and push SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [F.] Section B [– F]
4	Batch start	Starts all the connected indoor units collectively. Note) The contents follow to the setup of remote controller.	[Setup] Set SW01/SW02/SW03 to [2/7/1], and push SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1].	Section A [C.H] Section B [11] [00] is displayed on Section B for 5 seconds.
	Batch stop	Stops all the connected indoor units collectively.	[Setup] Set SW01/SW02/SW03 to [2/7/1], and push SW05 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1].	Section A [C.H] Section B [00] [00] is displayed on Section B for 5 seconds.
5	Individual start	Starts the specified indoor unit. Notes) • The contents follow to the setup of remote controller. • The other indoor units keep the status as they are.	[Setup] Set SW01 to [16], set SW02 and SW03 to address No. (1 to 48) to be started, and push SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [ ] Section B [ ] 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 48) to be stopped, and push SW05 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [ ] Section B [ ] 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 B [ ] Section A: Displays the corresponding indoor address. Section B: Displays [FF] for 5 seconds from test operation-ON.

NOTE 1) This start/stop function only sends the signals from the outdoor unit to the indoor unit, such as start, stop, operation mode, etc. It does not resend the signals even if the indoor unit does not follow the sent signals.

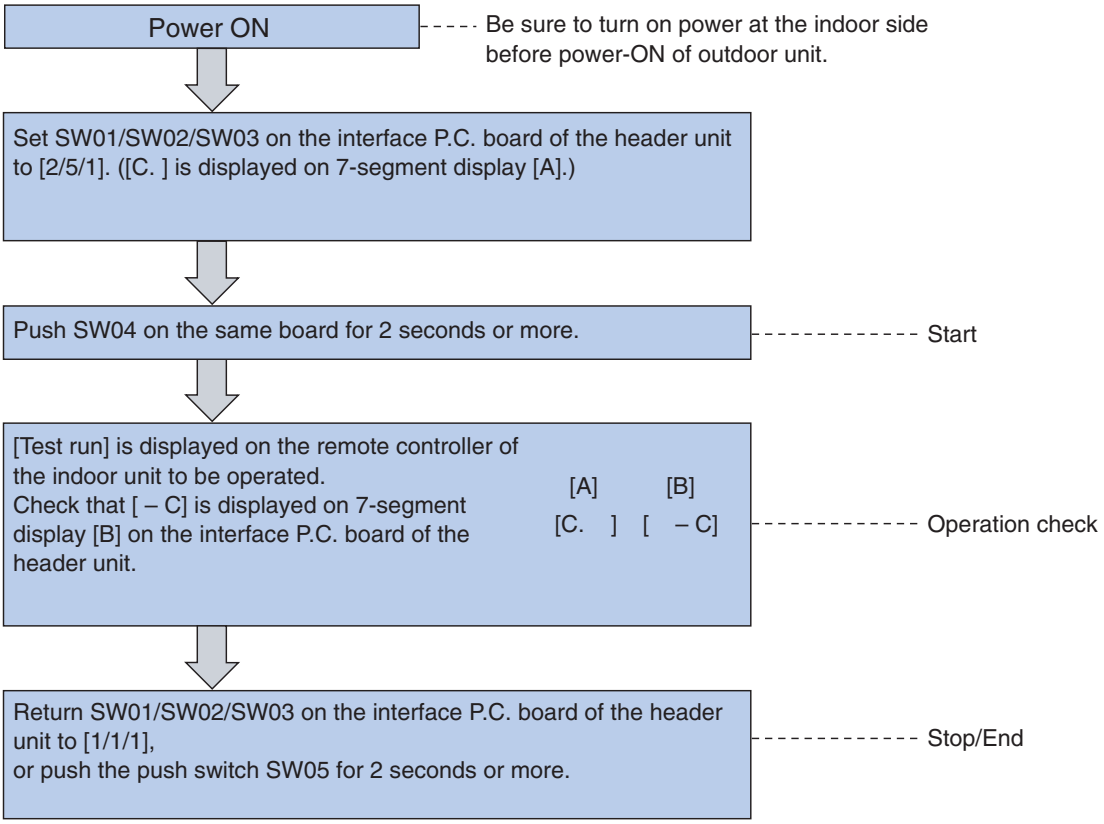
NOTE 2) The above controls are not used during abnormal stop.

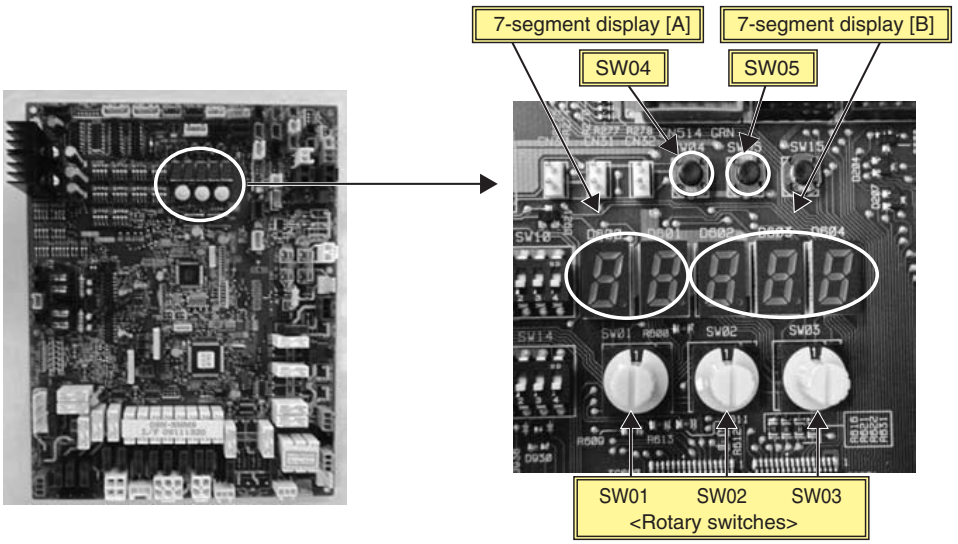


(1) Single cooling test operation function

This function is provided to change collectively the mode of all the indoor units connected to the same system for the cooling test operation mode, by using switches on the interface P.C. board of the header unit.

<Operation procedure>



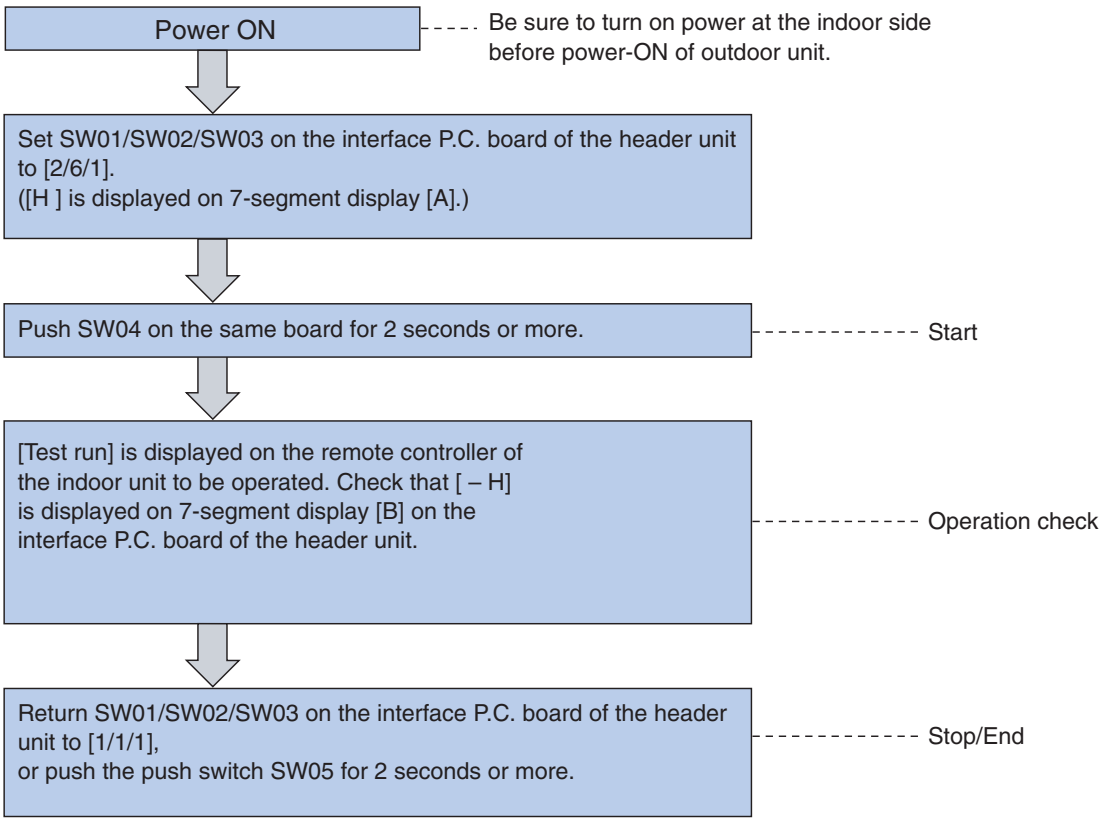


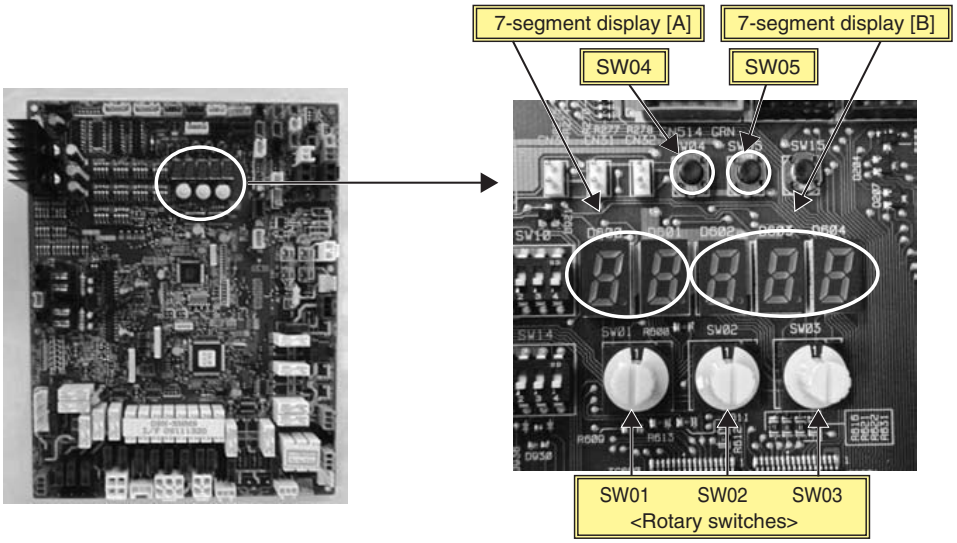
NOTE) The test operation returns to the normal operation after 60 minutes.

(2) Single heating test operation function

This function is provided to change collectively the mode of all the indoor units connected to the same system for the heating test operation mode, by using switches on the interface P.C. board of the header unit.

<Operation procedure>



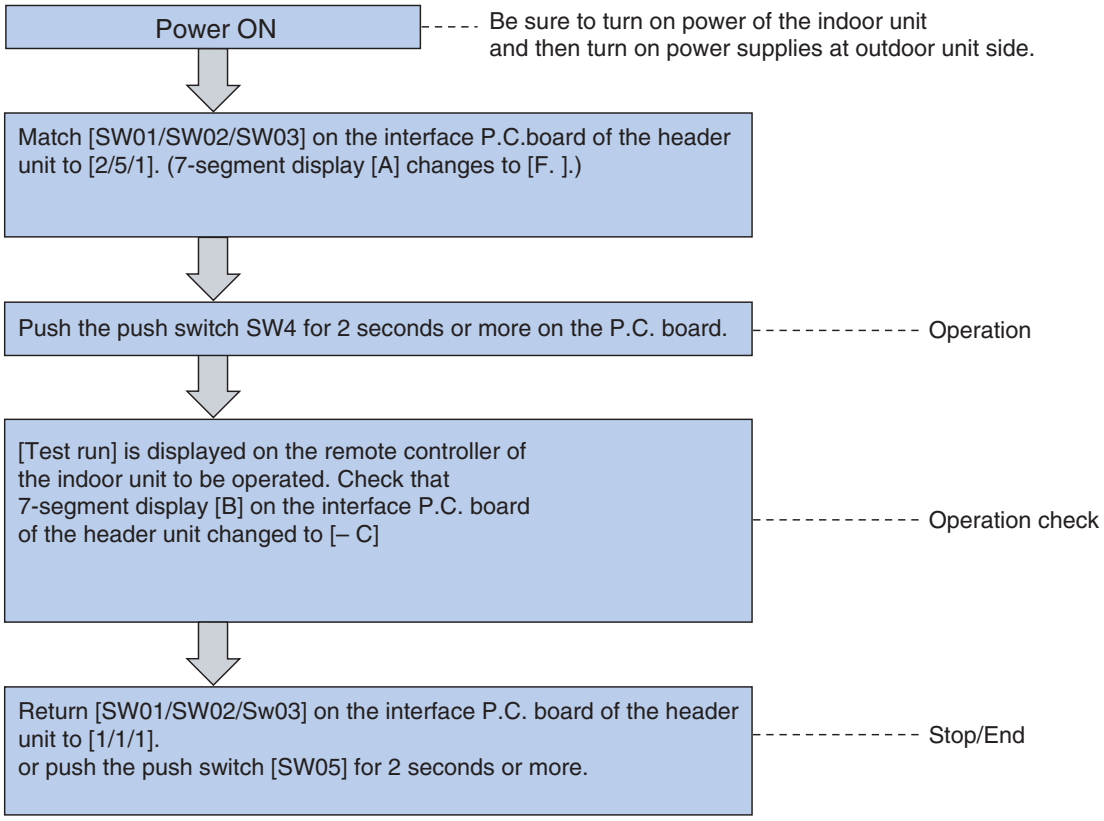


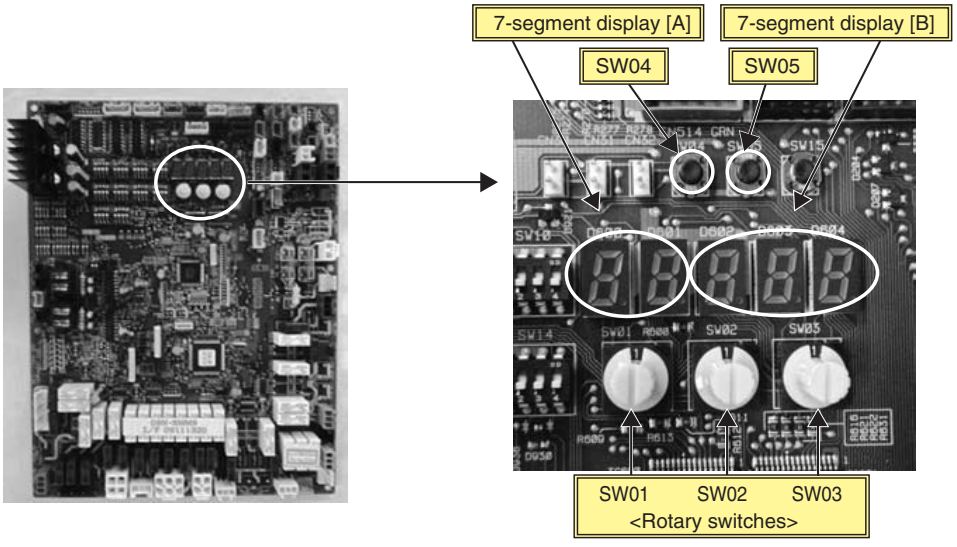
NOTE) The test operation returns to the normal operation after 60 minutes.

(3) Single fan test operation function

This function is provided to change collectively the mode of all the indoor units connected to the same system for the fan test operation mode by using switches on the interface P.C. board of the header unit.

<Operation procedure>





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

(4) Batch start/stop (ON/OFF) function

This function is provided to start/stop collectively all the indoor units connected to the same system by using switches on the interface P.C. board of the header unit.

<Operation procedure>

Power ON

Be sure to turn on power at the indoor side before power-ON of outdoor unit.

If an error is already displayed with SW01/SW02/SW03 being [1/1/1], return the status to normal one according to troubleshooting and then execute a test operation.

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

The unit which is not given with priority by heating priority control, cooling priority control, and selection of cooling or heating mode is not operated.
In this case, "operation ready" or "operation mode controlled" is displayed on the remote controller.

Set SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/7/1].
([C.H] is displayed on 7-segment display [A].)

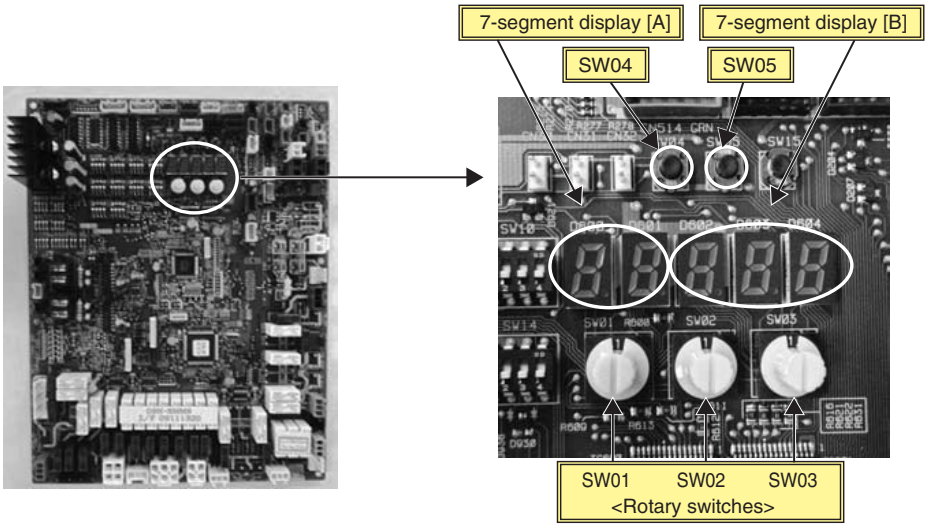
Push SW04 on the same board for 2 seconds or more. — Start

The indoor unit to be started operates. — Operation check

If the discharge temperature does not change though COOL or HEAT has been set up from the remote controller, misconnection is considered.

Push the push switch SW05 on the interface P .C. board of the header unit for 2 seconds or more. — Stop

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



(5) Individual start/stop (ON/OFF) individual test operation function

This function is provided to start/stop (ON/OFF) individually each indoor unit connected to the same system by using switches on the interface P.C. board of the header unit.
Set SW01 [16] and set SW02, SW03 to indoor address No. (1 to 48) to be started (Refer to the following table*) - only the setup indoor unit starts operation.

(In the rotary switches of the indoor unit which operates in a group by the remote controller, the follower unit cannot be individually started or stopped. In this case, [- -] is displayed on 7-segment display [B] on the interface P.C. board of the header unit.)

<Operation procedure>

Power ON

Be sure to turn on power at the indoor side before power-ON of outdoor unit.

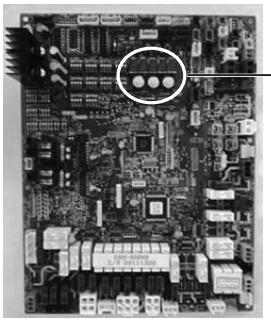
If an error is already displayed with SW01/SW02/SW03 being [1/1/1], return the status to normal one according to troubleshooting and then execute a test operation.

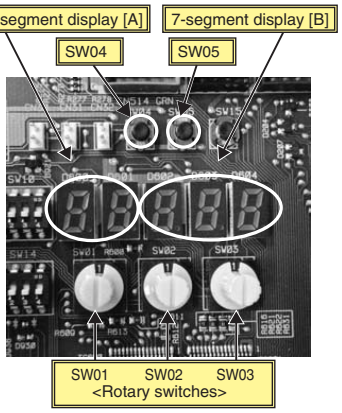
Set up the operation mode of the remote controller. (If it is not set up, the operation continues with the current mode.)

The unit which is not given with priority by heating priority control, cooling priority control, and selection of cooling or heating mode is not operated. In this case, "operation ready" or "operation mode controlled" is displayed on the remote controller.

Match the rotary switches on the interface P.C. board of the header unit to the following table*.

(7-segment display)
[A] [ ] ↑ Address display of corresponding indoor unit
[B] [ ] ↑ [00] is displayed for 5 seconds after operation-ON.





Push the push switch SW04 on the same board for 2 seconds or more.
(If pushed continuously for 10 seconds or more, the operation changes to the individual test operation.)

(7-segment display)
[A] [ ] ↑ Address display of corresponding indoor unit
[B] [ ] ↑ [11] is displayed for 5 seconds after operation-ON. (For individual test operation, [FF] is displayed.)

Start

The indoor unit to be started operates.

Operation check

If the discharge temperature does not change though COOL or HEAT has been set up from the remote controller, misconnection is considered.

Push the push switch SW05 on the interface P.C. board of the header unit for 2 seconds or more.

(7-segment display)
[A] [ ] ↑ Address display of corresponding indoor unit
[B] [ ] ↑ [00] is displayed for 5 seconds after operation-ON.

After test operation, return the display select switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [1/1/1].

End

*

SW01	SW02	SW03	Units to be operated
16	1~16	1	Address 1 to Address 16 } individually
16	1~16	2	Address 17 to Address 32 } individually
16	1~16	3	Address 33 to Address 48 } individually

In individual start/stop

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

Monitor Function of Remote Controller Switch

When using a remote controller with the model name RBC-AMT32E, the following monitor functions can be used.

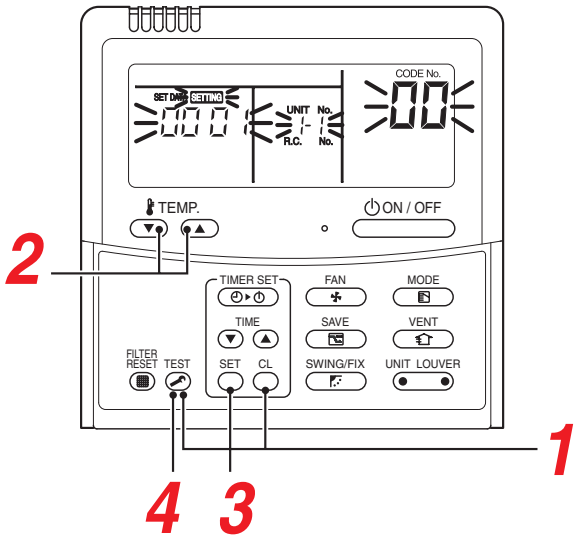
Calling of display screen

<Content>

The sensor temperature or operation status of the remote controller, indoor unit, or the outdoor unit can be known by calling up the service monitor mode from the remote controller.

[Procedure]

1. **Push TEST + CL buttons simultaneously for 4 seconds or more to call up the service monitor mode.**
   The service monitor goes on, and temperature of the CODE No. 00 is firstly displayed.
2. **Push the temperature setup TEMP buttons to select the CODE No. to be monitored.**
   For displayed codes, refer to the table next page.
3. **Push SET button to determine the item to be monitored.**
   Then monitor the sensor temperature or operation status of indoor unit and the outdoor unit in the corresponding refrigerant line.
4. **Pushing TEST button returns the display to the normal display.**



	CODE No.	Data name	Display format	Unit	Remote controller display example
Indoor unit data *1	00	Room temperature (During control) *1	×1	˚C	[0024] = 24˚C
	01	Room temperature (Remote controller)	×1	˚C	
	02	Indoor suction temperature (TA)	×1	˚C	
	03	Indoor coil temperature (TCJ)	×1	˚C	
	04	Indoor coil temperature (TC2)	×1	˚C	
	05	Indoor coil temperature (TC1)	×1	˚C	
	06	Indoor discharge temperature (TF) *2	×1	˚C	
	08	Indoor PMV opening	×1/10	pls	[0150] = 1500pls
	F3	Filter sign time	×1	h	[2500] = 2500h
	F9	Suction temperature of air to air heat exchanger (TSA) *2	×1	˚C	[0024] = 24˚C
	FA	Outside air temperature (TOA) *2	×1	˚C	
System data	0A	No. of connected indoor units	×1	unit	[0048] = 48 units
	0B	Total horsepower of connected indoor units	×10	HP	[0415] = 41.5HP
	0C	No. of connected outdoor units	×1	unit	[0004] = 4 units
	0D	Total horsepower of outdoor units	×10	HP	[0420] = 42HP

	CODE No.			Data name	Display format	Unit	Remote controller display example
	U1	U2	U3				
Outdoor unit individual data 1 *3	10	20	30	High-pressure sensor detention pressure (Pd)	×100	MPa	[0123]=1.23MPa
	11	21	31	Low-pressure sensor detention pressure (Ps)	×100	MPa	
	12	22	32	Compressor 1 discharge temperature (Td1)	×1	˚C	[0024]=24˚C
	13	23	33	Compressor 2 discharge temperature (Td2)	×1	˚C	
	14	24	34	Compressor 3 discharge temperature (Td3)	×1	˚C	
	15	25	35	Suction temperature (TS1)	×1	˚C	
	16	26	36	Outdoor coil temperature 1 (TE1)	×1	˚C	
	17	27	37	Outdoor coil temperature 2 (TE2)	×1	˚C	
	18	28	38	Temperature at liquid side (TL)	×1	˚C	
	19	29	39	Outside ambient temperature (TO)	×1	˚C	
	1A	2A	3A	PMV1 + 2 opening	×1	pls	[0500]=500pls
	1B	2B	3B	PMV4 opening	×1	pls	
	1C	2C	3C	Compressor 1 current (I1)	×10	A	[0135]=13.5A
	1D	2D	3D	Compressor 2 current (I2)	×10	A	
	1E	2E	3E	Compressor 3 current (I3)	×10	A	
	1F	2F	3F	Outdoor fan current (IFan)	×10	A	

	CODE No.			Data name	Display format	Unit	Remote controller display example
	U1	U2	U3				
Outdoor unit individual data 2 *4	50	60	70	Compressor 1 revolutions	×10	rps	[0642]=64.2rps
	51	61	71	Compressor 2 revolutions	×10	rps	
	52	62	72	Compressor 3 revolutions	×10	rps	
	53	63	73	Outdoor fan mode	×1	mode	[0058]= 58 mode
	54	64	74	Compressor IPDU 1 heat sink temperature	×1	˚C	[0024]=24˚C
	55	65	75	Compressor IPDU 2 heat sink temperature	×1	˚C	
	56	66	76	Compressor IPDU 3 heat sink temperature	×1	˚C	
	57	67	77	Outdoor fan IPDU heat sink temperature	×1	˚C	
	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	7F	Outdoor unit horsepower	×1	HP	[0014]=14HP

*1 When the units are connected to a group, data of the header indoor unit only can be displayed.

*2 Only a part of indoor unit types is installed with the discharge temperature sensor. This temperature is not displayed for other types.

*3 The first digit of an CODE No. indicates the outdoor unit number.

*4 The upper digit of an CODE No. -4 indicates the outdoor unit number.
1∗ , 5∗ ... U1 outdoor unit (Header unit)
2∗ , 6∗ ... U2 outdoor unit (Follower unit 1)
3∗ , 7∗ ... U3 outdoor unit (Follower unit 2)

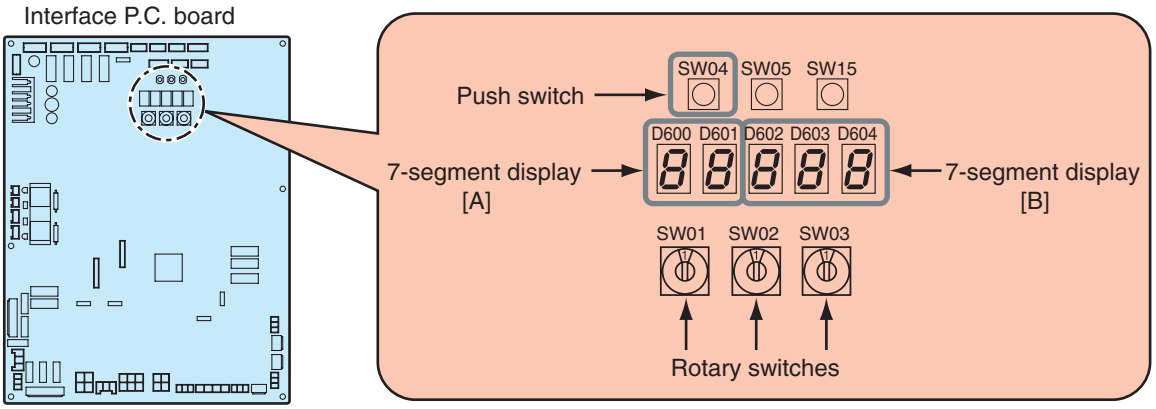
5 Only the CODE No. 5 of U1 outdoor unit (Header unit) is displayed.

Monitor Function of Remote Controller Switch (Continued)

7-Segment Display Function

7-segment display on outdoor unit (interface P.C. board)

The interface control P.C. board features a 7-segment LED display designed to check operational status. Display items can be changed by changing the combination of the number settings of rotary switches provided on the P.C. board (SW01, SW02 and SW03).



◆ Checking Procedure to Be Followed in Event of Abnormal Shutdown

If the system is shut down due to an error in the outdoor unit, perform checks in the following steps:

1 **Open the panel of the outdoor unit and inspection window of the electric parts box, and check the 7-segment display.**

The check code is displayed in the right-hand section of the 7-segment display [B].
[U1] [OOO] ([OOO]: Check code)

* To check the check code, set the rotary switches SW01/SW02/SW03 to [1/1/1].
If there is a sub-code, the display alternates between the check code [OOO] (3 seconds) and the subcode [OOO] (1 second).

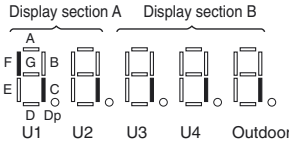
2 **Check the check code and follow the applicable diagnostic procedure.**

3 **If the 7-segment display shows [U 1] [E28], there is an error in a follower unit.**

Push the push switch SW04 on the header unit and hold for several seconds.
As the fan of the outdoor unit in which the error has occurred comes on, open the panel of the unit, and check the check code shown on the 7-segment display.

4 **Perform checks in accordance with the diagnostic procedure applicable to the check code.**

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

SW01	SW02	SW03	Display detail				
1	1	3	Unused			A	B
	2		System capacity	A	[...8]~[42]:8 to 42 HP		
				B	[HP]		
	3		No. of outdoor units	A	[...1]~[...3]:1 to 3		
				B	[...P]		
	4		No. of indoor units connected / No. of units with cooling thermo ON	A	[...0.]~[48.]:0 to 48 (No. of units connected)		
				B	[C...0]~[C48]:0 to 48 (No. of units with cooling thermo ON)		
	5		No. of indoor units connected / No. of units with heating thermo ON	A	[...0.]~[48.]:0 to 48 (No. of units connected)		
				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	V
				Operation mode selection: During priority heating (normal)		h.∗.	∗.∗.∗.
					Heating only	H.∗.	∗.∗.∗.
					Cooling only	C.∗.	∗.∗.∗.
				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] Simultaneous cooling: [Ch], Simultaneous heating: [Hc]		
				B	—		
	4		Outdoor unit HP capacity	A	8HP: [... 8], 10HP: [... 10], 12HP: [... 12], 14HP: [14]		
				B	[...HP]		
	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		H. 1	... ...
				4-way valve: OFF		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			SV11 A, B : ON / SV14: OFF / SV3F: OFF		A. 1	... 0 0
				SV11 A, B : OFF / SV14: ON / SV3F: OFF		A. 0	... 1 0
				SV11 A, B : OFF / SV14: OFF / SV3F: ON		A. 0	... 0 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 (MPaG) is displayed in decimal format. (MPaG: Approx. 10 times magnitude of kg/cm^{2}G)		P d.	∗. ∗ ∗
	2		Ps pressure data	Ps pressure (MPaG) is displayed in decimal format.		P s.	∗. ∗ ∗
	3		PL pressure conversion data	Converted PL pressure (MPaG) is displayed in decimal format.		P L.	∗. ∗ ∗
	4		TD1 sensor data	Temperature sensor reading (˚C) 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		TS1 sensor data		Letter symbol	t S	1 ... ...
					Data	∗	∗ ∗. ∗
	8		TS2 sensor data		Letter symbol	t S	2 ... ...
					Data	∗	∗ ∗. ∗
	9		TE1 sensor data		Letter symbol	t E	1 ... ...
					Data	∗	∗ ∗. ∗
	10		TE2 sensor data		Letter symbol	t E	2 ... ...
					Data	∗	∗ ∗. ∗
	11		TL sensor data		Letter symbol	t L	... ...
					Data	∗	∗ ∗. ∗
	12		TO sensor data		Letter symbol	t o	... ...
					Data	∗	∗ ∗. ∗

SW01	SW02	SW03	Display detail			A	B
1	1	5	TK1 sensor data	Temperature sensor reading (˚C) 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	F 1	... ...
					Data	∗	∗ ∗. ∗
	2		TK2 sensor data		Letter symbol	F 2	... ...
					Data	∗	∗ ∗. ∗
	3		TK3 sensor data		Letter symbol	F 3	... ...
					Data	∗	∗ ∗. ∗
	4		TK4 sensor data		Letter symbol	F 4	... ...
					Data	∗	∗ ∗. ∗
	5		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	1~2	Error data	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				B	Check code is displayed (latest one only). If there is no check code: [– – –].
	2		Type of compressor installed	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				B	
	3		Outdoor unit HP capacity	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				B	8HP: [... 8], 10HP: [... 10], 12HP: [... 12], 14HP: [14]
	4		Compressor operation command	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				B	Indicates which compressor is ON. ∗ Any unconnected compressors is represented by "–" (A) 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 to U3)
				B	At rest: [F ... 0], In mode 63: [F 6 3]
	6		Release signal	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				B	Normal: [r ... ...], Upon receiving release signal: [r ... 1]
	7		Oil level judgment	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				B	Normal: [... ... ...], Low level: [... ... L]
	8		Compressor 1 operating current	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				B	[∗∗.∗], ∗∗.∗ is value of operating current in decimal format.
	9		Compressor 2 operating current	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				B	[∗∗.∗], ∗∗.∗ is value of operating current in decimal format.
	10		Compressor 3 operating current	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				B	[∗∗.∗], ∗∗.∗ is value of operating current in decimal format.
	11		Fan operating current	A	[U.∗], ∗: SW03 setting No. + 1 (Outdoor unit No. U2 to U3)
				B	[∗∗.∗], ∗∗.∗ is value of operating current in decimal format.

Note) Follower unit is selected by setting SW03.

SW01	7-segment display section A
1	U2
2	U3

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

SW01	SW02	SW03	Display detail		
4	1~16	1~3	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		Displayed in decimal format
9			Indoor TA / TRA opening data		Displayed in decimal format
		11~13	Indoor TSA opening data		Displayed in decimal format
10		1~3	Indoor TF / TFA opening data		Displayed in decimal format
		11~13	Indoor TOA opening data		Displayed in decimal format
11		1~3	Indoor TCJ opening data	B	Displayed in decimal format
12			Indoor TC1 opening data	B	Displayed in decimal format
13			Indoor TC2 opening data	B	Displayed in decimal format

Note) Indoor address No. is selected by setting SW02 and SW03 and displayed on 7-segment display, section A.

SW02	SW03	Indoor address	7-segment display section A
1~16	1	SW02 setting number	[01]~[16]
	11		
	2	SW02 setting number +16	[17]~[32]
	12		
	3	SW02 setting number +32	[33]~[48]
	13		

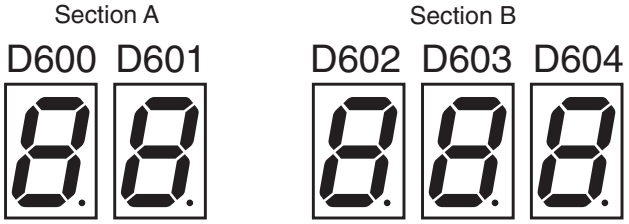
(6) Display of Outdoor EEPROM Writing Error Code (Displayed on Header Unit Only)

* 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.	∗∗∗

• 7-Segment Display



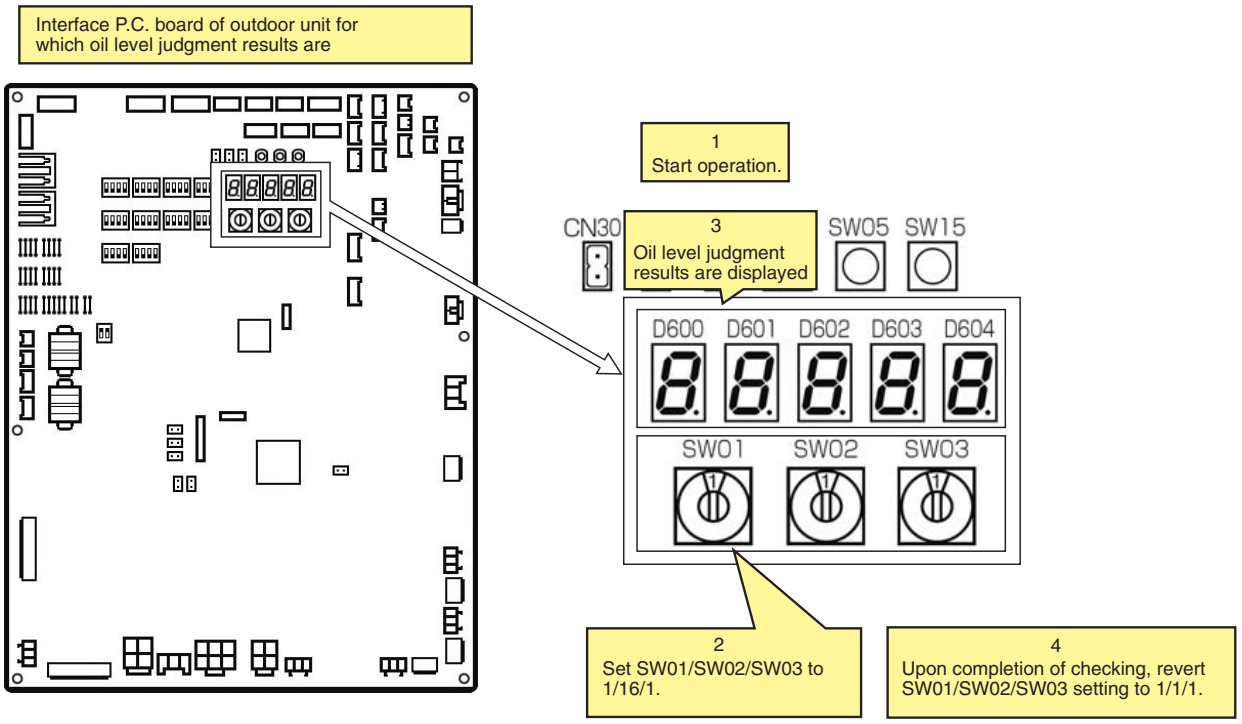
Set SW01/SW02/SW03 to [1/1/16] and push SW04 and hold for at least 5 seconds. The latest error code of the header unit (U1) will be displayed.
If the setting of SW02 is changed, the latest error code of a follow unit (U2-U3) will be displayed.

Oil Level Judgment Display

The current compressor oil level judgment results can be accessed by setting the switches provided on the interface P.C. board of an outdoor unit.
Perform the checks in accordance with the procedure described below.

1 Operation Procedure

(1) Start the operation.
(2) Set the switches provided on the interface P.C. board of the outdoor unit for which oil level judgment results are required as follows: SW01/SW02/SW03 = 1/16/1
(3) The oil level judgment result will be displayed on the 7-segment display.
7-segment display: [oL] [#. ".$]
The letters #, " and $ are digits that represent judgment results for compressor Nos. 1, 2 and 3, respectively.
(See the table below for the interpretation of the judgment results.)
(4) When checking is completed, revert the SW01/SW02/SW03 setting to [1/1/1].



2 Oil Level Judgment Results

Displayed digit	Judgment result	Description
0	Normal	The amount of oil in the compressor is sufficient.
1 2	Low level	The amount of oil in the compressor is insufficient. (Both "1" and "2" stand for insufficiency.) If this result persists, the system will turn itself off in a protective shutdown.

Display example

7-segment display [oL] [0 0 0] Oil level is normal for compressors 1, 2 and 3.
[oL] [2 2 2] Oil level is low for compressors 1, 2 and 3.
[oL] [0 2 0] Oil level is low for compressor 2 and normal for compressors 1 and 3.

- Judgment result for compressor 3
- Judgment result for compressor 2
- Judgment result for compressor 1

SHRM-i Outdoor Interface P.C. Board Function Setting Exchange Table

Switch/Function Setting Exchange

Part type		Exchange contents					Initial setting at shipment
SW06	DIP SW 4 bit	bit 1	Compressor 1 backup			OFF: Normal, ON: Backup when compressor 1 was in trouble	OFF
		bit 2	Compressor 2 backup			OFF: Normal, ON: Backup when compressor 2 was in trouble	OFF
		bit 3	Compressor 3 backup			OFF: Normal, ON: Backup when compressor 3 was in trouble	OFF
		All bit1, 2, and 3 are ON: Setup of outdoor unit backup					OFF
SW07	DIP SW 4 bit	bit 1	Demand control 1 (Standard specifications) Exchange of upper limit regulation			OFF: 0 to 100% ON : Middle to 100%	OFF
		bit 2	Demand control 2 (Expansion function) Exchange of 2 steps to 4 steps of upper limit			OFF: 2 steps (Standard) ON : 4 steps	OFF
SW09	DIP SW 4 bit	In case of center outdoor unit					
		bit 2	Indoor connection capacity over Judgment of error			OFF: Error judgment ON : None (when backup setting for outdoor unit)	OFF
		bit 4	Judgment of error for No. of connected indoor units			OFF: No error judgment ON : Error judgment	OFF
		In case of terminal outdoor unit					
		bit 4	Exchange of Outdoor unit No. / Start order No.			OFF: Outdoor unit No. [U. #] (#: 1 to 3) ON : Outdoor start order No. [y. #] (#: 1 to 3)	OFF
SW10	DIP SW 4 bit	bit 2	Outdoor fan high static pressure operation			OFF: Normal ON : High static pressure operation	OFF
		bit 3	For low noise operation			OFF: Normal ON : INV frequency upper limit restriction	OFF
		bit 4				OFF: Normal ON : Fan rpm upper limit restriction	OFF
SW11	DIP SW 4 bit	bit 4	Operation switching when indoor water overflow error detected			OFF: Entire system stops ON : System operation continues (Room which trouble occurred only stops.)	OFF
SW12	DIP SW 4 bit	bit 1	Selection of PMV open/close or manual operation			(According to the following setting contents)	OFF
		bit 2					OFF
				bit 1	bit 2		
				OFF	OFF	PMV1, 2 opens/closes by operation of CN30/CN31 (*3)	
				OFF	ON	PMV4 opens/closes by operation of CN30/CN31 (*3)	
SW13	DIP SW 4 bit	bit 4	Line address setup			(Used by combining with SW14)	OFF
SW14	DIP SW 4 bit	bit 1	Line address setup				OFF
		bit 2					OFF
		bit 3					OFF
		bit 4					OFF
SW16	DIP SW 4 bit	bit 1	Option function Output exchange of external output P.C. boa			(According to the following setting contents)	OFF
		bit 2					OFF
				bit 1	bit 2		
				OFF	OFF	Compressor operation output	
				ON	OFF	Display of system operation ratio	
SW17	DIP SW 4 bit	bit 3	Clean converter connected			OFF: No connection, ON: Connection	OFF
SW30	DIP SW 2 bit	bit 1	Communication termination resistance between outdoor units			OFF: No termination resistance ON : With termination resistance	ON
		bit 2	Communication termination resistance between indoor and outdoor units			OFF: No termination resistance ON : With termination resistance	ON
CN30	Check connector	Manual full opening operation for PMV opening operation				When released: Normal, When short-circuited: Open fully (*1)	Released
CN31	Check connector	Manual full closing operation for PMV opening operation				When released: Normal, When short-circuited: Closed fully (*2)	Released

*1 Manual PMV full opening operation by short-circuit of CN30 returns to normal status (Original opening) for 2 minutes.

*2 Manual PMV full closing operation by short-circuit of CN31 returns to normal status (Original opening) for 2 minutes.

*3 PMV full open/full close operation by short-circuited CN30/CN31 is for PMV which was selected by setting of SW12.

Oil Level Judgment Display (Continued)

Switching of Jumper Wire/Function Setup

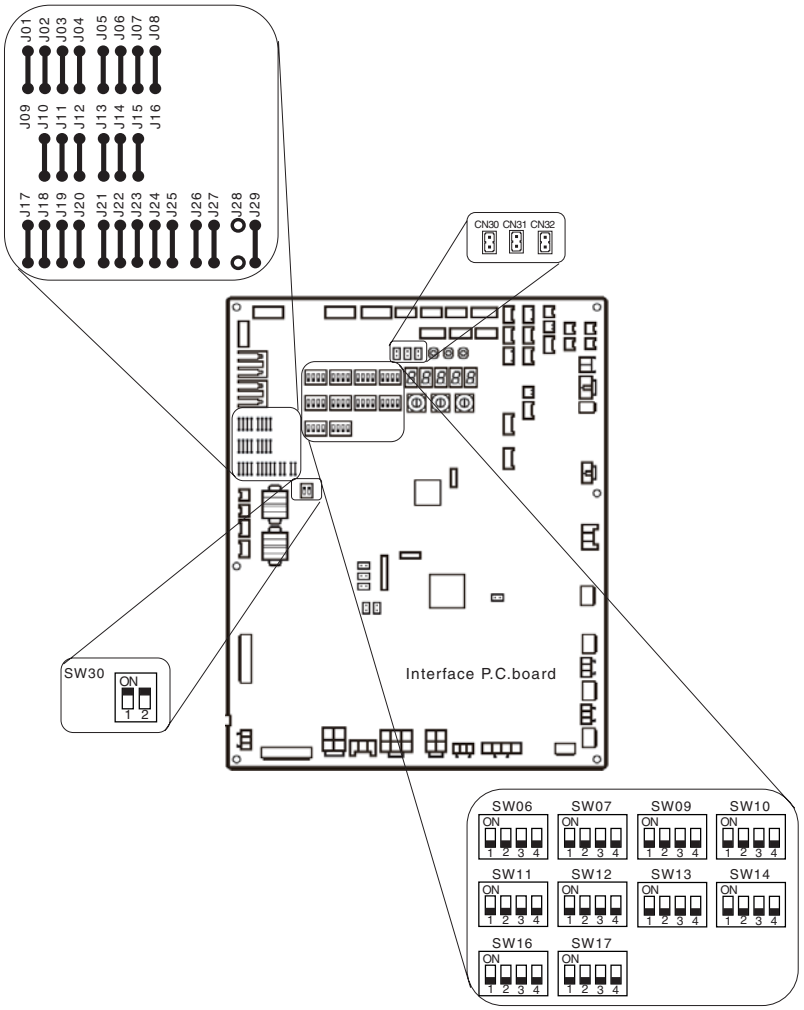
Function switching setup

○ : With jumper, × : Without jumper (Cut)

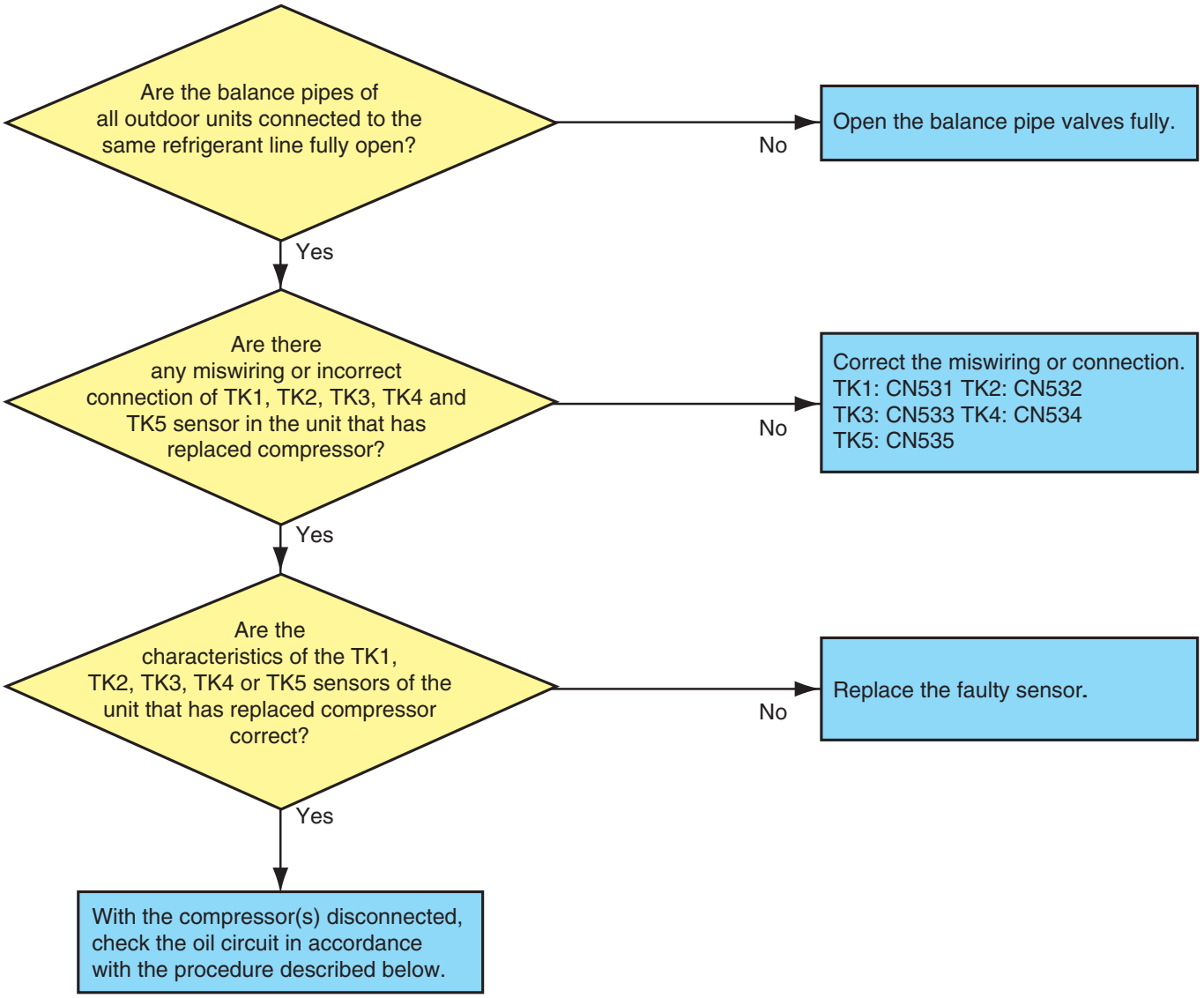
jumper	Part type					Exchange contents	Initial setting at shipment
J01	Optional function Operation mode selection operation switching				○	Indoor unit at not selected side is kept with waiting status.	○
					×	The mode is changed a mode which selected the operation mode of the indoor unit at not selected side.	
J04	Upper limit setup of demand capacity command in corresponding indoor during saving operation in indoor				○	Approx. 75% (Normal)	○
					×	Approx. 60%	
J09	Setup for service P.C. board (Model setup)	J09	J10	J11	J12		○
		○	○	○	○	At shipment from factory *4	
J10		×	×	○	○	MMY-MAP2244F	○
		○	×	○	○	MMY-MAP2804F	
J11		×	×	×	×	MMY-MAP3354F	○
		○	×	×	×	MMY-MAP4004F	
J12							○
J16	Demand control 1 (Standard specification) Corresponds to 2-core wire				○	Normal (3-core wire <Successive MAKE signal> or 4-core wire <Successive MAKE or Pulse signal>)	○
					×	2-core wire <Successive MAKE signal>	

*4 When you replace the board with a service board, be sure to cut the jumper wire matching with the outdoor unit model to be installed. (The jumper wires J09 to J12 which were mounted at shipment from the factory are provided to all the boards regardless of model type.)

Interface Board Switches and jumper wire positions to be used in the Function setup switching table



Check Procedure to Search Cause of Compressor Oil Shortage



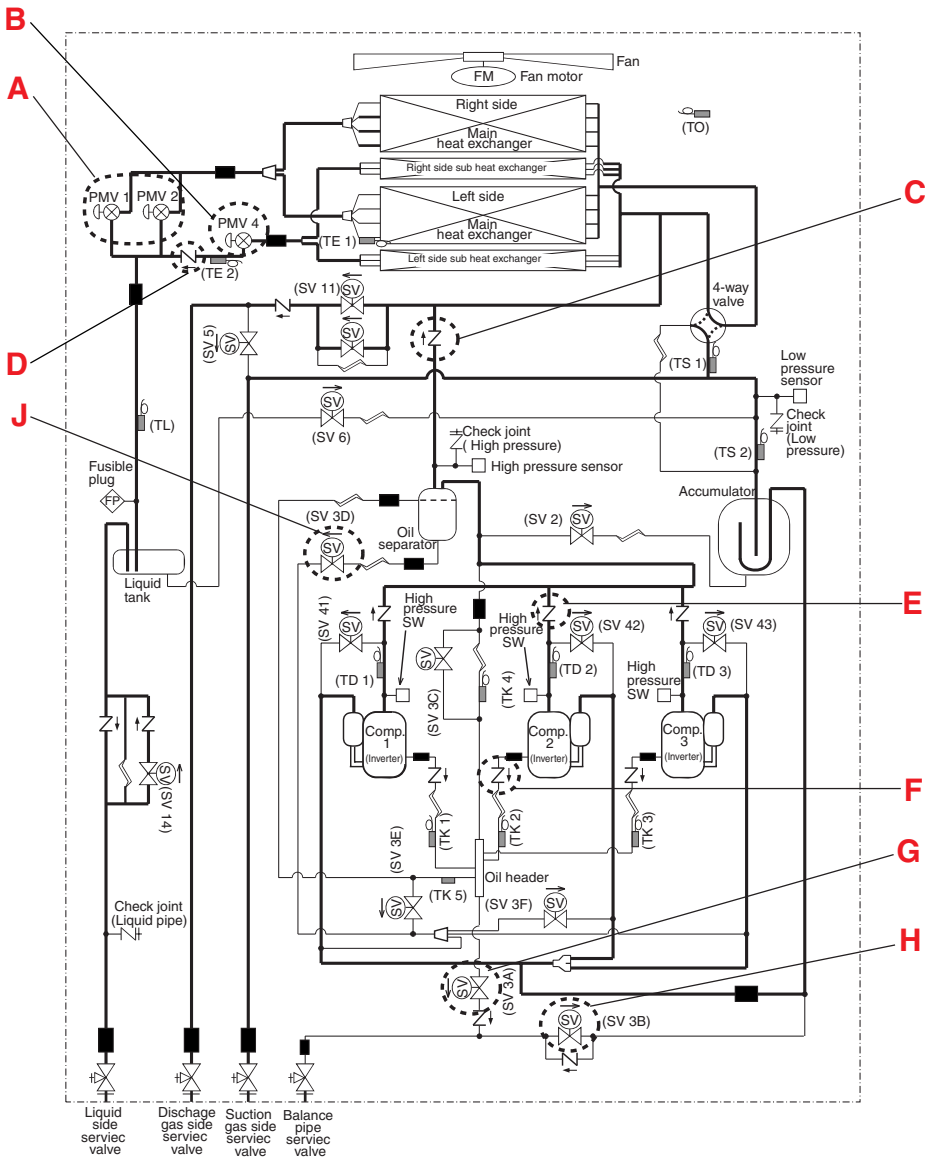
(To next page)

Oil Level Judgment Display (Continued)

<MMY-MAP0804∗, MAP1004∗, MAP1204∗ and MAP1404∗>

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

Check item	Location	Procedure
Leakage of outdoor PMV Leakage of check valve in discharge pipe convergent section	A,B C,D	1) Pressure nitrogen from check joint of the liquid pipe under condition that PMV1, 2 and 4 are fully closed, confirm the pressure using high-pressure check joint. If pressure of the high-pressure check joint rises, leakage from any of PMV1, 2, 4 (A, B) , check valve (D) and discharge check valve (C) is considered. Therefore replace all PMV1, 2, 4 (A, B), check valve (D), discharge check valve (C). 2) If pressure did not rise, open PMV1, 2 fully and then confirm pressure of the high-pressure check joint. When pressure was up, open fully PMV4 only and confirm pressure of the high-pressure check joint again. 3) When pressure was up, there is leakage from check valve (D) and discharge check valve (C). Therefore replace them. If pressure did not rise, there is leakage from discharge check valve. Therefore replace them.
Leakage of check valve in discharge pipe	E	4) With pressure applied to the check joint of with nitrogen, if gas escapes from the discharge pipe section of the disconnected compressor, there is a leak from the check valve of discharge pipe (E). Replace the part.
Leakage of check valve in oil equalization circuit	F	5) With pressure applied to the check joint of with nitrogen, if gas escapes from the oil equalization pipe section of the disconnected compressor, there is a leak from the oil equalization pipe check valve (F). Replace the part.
Leakage of SV3A valve	G	6) With pressure applied to the check joint of with nitrogen, manually open the SV3B valve. If gas escapes from the suction pipe section of the disconnected compressor, there is a leak from the SV3A valve. Replace the part.
Leakage of SV3B valve	H	7) Then manually open the SV3A valve. If gas escapes from the suction pipe section of the disconnected compressor, there is a leak from the SV3B valve. Replace the part.
Clogging of SV3E valve Clogging of oil-return distributor	I	8) With pressure applied to the check joint of with nitrogen, manually open the SV3E valve. If gas does not escape from the suction pipe section of the disconnected compressor, the SV3E valve or oil-return distributor is clogged. Replace the part.
Clogging of SV3D valve Clogging of oil-return capillary Clogging of oil-return distributor	J	9) With pressure applied to the check joint of with nitrogen, manually open the SV3D valve. If gas does not escape from the suction pipe section of the disconnected compressor, the SV3D valve, oil-return capillary or oil-return distributor is clogged. Replace the part.



Leakage/Clogging of Refrigerating Cycle Circuit

List of Check Codes Generated upon Occurrence of Leakage/Clogging in Outdoor Cycle or Oil Circuit Part (MMY-MAP0804∗, 1004∗,)

Clogging

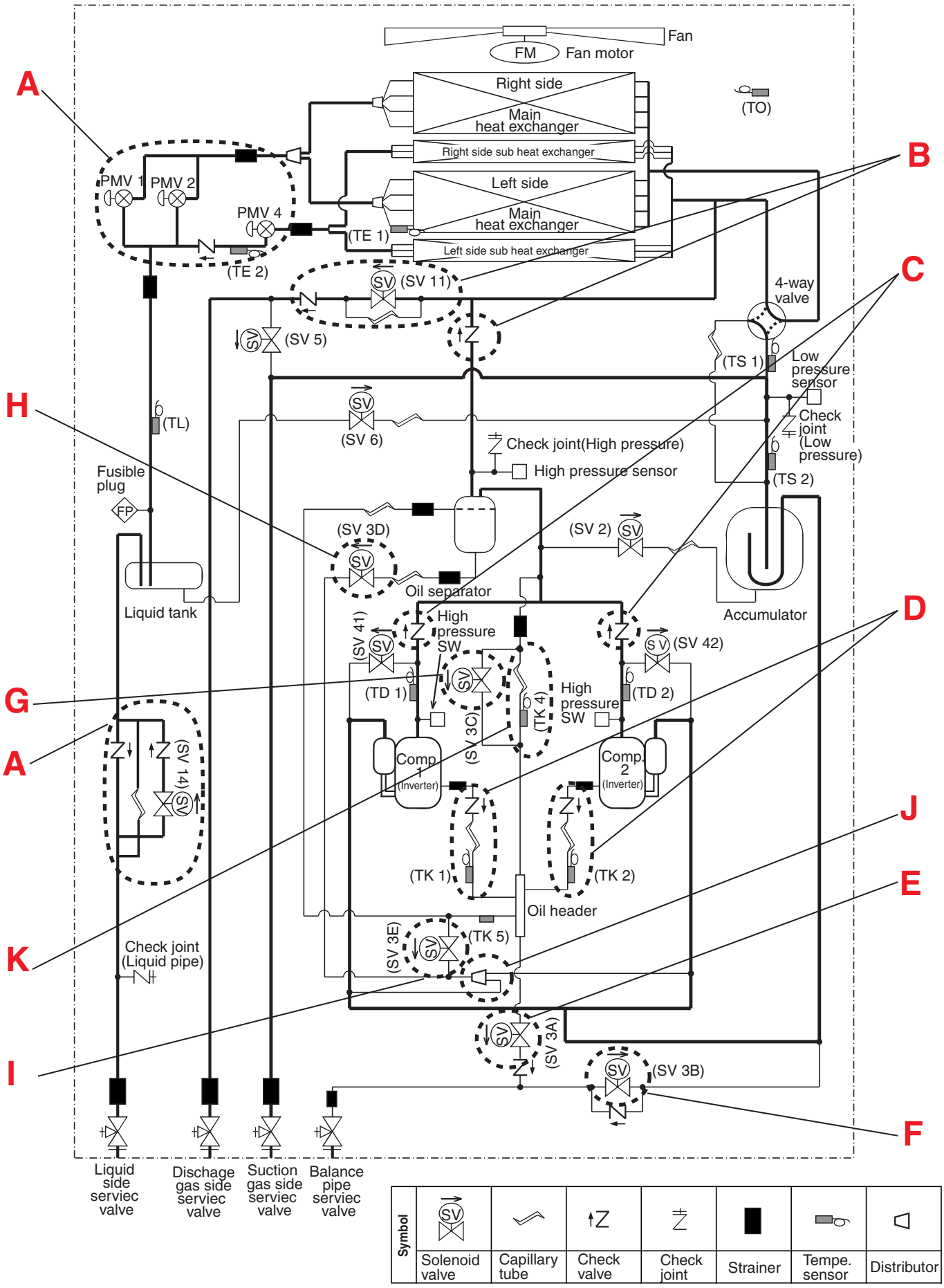
Part	Site of fault (see next page)	Check target unit	Detected fault and check code		Symptom
Outdoor PMV1, 2, 4 Outdoor PMV4 circuit check valve SV14 valve SV14 valve circuit check valve	A	Corresponding unit	Activation of high-pressure protection Activation of low-pressure protection Discharge temp. error (TD1) Discharge temp. error (TD2)	P20 H06 P03 P17	Rise of abnormal pressure Fall of pressure Rise of discharge temp. (compressor 1) Rise of discharge temp. (compressor 2)
Check valve in discharge pipe convergent section SV11 valve SV11 valve circuit check valve	B	Corresponding unit	High-pressure protection operation High-pressure SW system error	P20 P04-XX	Abnormal rise of pressure
Check valve in discharge pipe	C	Corresponding unit	High-pressure SW system error	P04-XX	Abnormal rise of pressure
Check valve in oil-equalization circuit Capillary Strainer	D	Corresponding unit	Oil level detection circuit error Oil level low detection and protection	H16-XX H07-XX	Oil circuit error or oil shortage judgment
SV3A valve	E	Other connected unit	Oil level low detection and protection	H07-XX	Oil level low
SV3B valve	F	Corresponding unit	Oil level low detection and protection	H07-XX	Oil level low
SV3C valve	G	Other connected unit	Oil level low detection and protection	H07-XX	Oil level low
SV3D valve SV3D valve circuit capillary Strainer	H	Corresponding unit	Oil level low detection and protection	H07-XX	Oil level low
SV3E valve	I	Corresponding unit	Oil level detection circuit error Oil level low detection and protection	H16-05 H07-XX	Oil circuit error Oil level low Oil level low
Oil return distributor	J	Corresponding unit	Oil level low detection and protection	H07-XX	Oil level low
SV3C bypass capillary	K	Corresponding unit	Oil level detection circuit error	H16-04	Oil circuit error

Leakage

Part	Site of fault (see next page)	Check target unit	Detected fault and check code		Symptom
Outdoor PMV1, 2	A	Corresponding unit	Outdoor liquid backflow error Oil level low detection and protection	P13 H07-XX	Refrigerant entrapment
		Other connected unit	Discharge temp. error (TD1) Discharge temp. error (TD2)	P03 P17	Rise of discharge temp. (compressor 1) Rise of discharge temp. (compressor 2)
Check valve in discharge pipe convergent section	B	Corresponding unit	Oil level low detection and protection Compressor breakdown Compressor error (lockup)	H07-XX H01-XX H02-XX	Refrigerant entrapment
Check valve in discharge pipe	C	Corresponding unit	Oil level low detection and protection Compressor breakdown Compressor error (lockup)	H07-XX H01-XX H02-XX	Refrigerant entrapment
Check valve in oil-equalization circuit	D	Corresponding unit	Oil level low detection and protection	H07-XX	Excessive amount of oil (Leaking side) Insufficient amount of oil (Normal side)
SV3A valve	E	Corresponding unit	Oil level low detection and protection	H07-XX	Oil level low
SV3C valve	G	Corresponding unit	Oil level low detection and protection	H07-XX	Oil level low

Note) "XX" represents sub-code

Oil Level Judgment Display (Continued)



Symbol	Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Tempe. sensor	Distributor

List of Check Codes Generated upon Occurrence of Leakage/Clogging in Outdoor Cycle or Oil Circuit Part
(MMY-MAP1204∗, 1404∗)

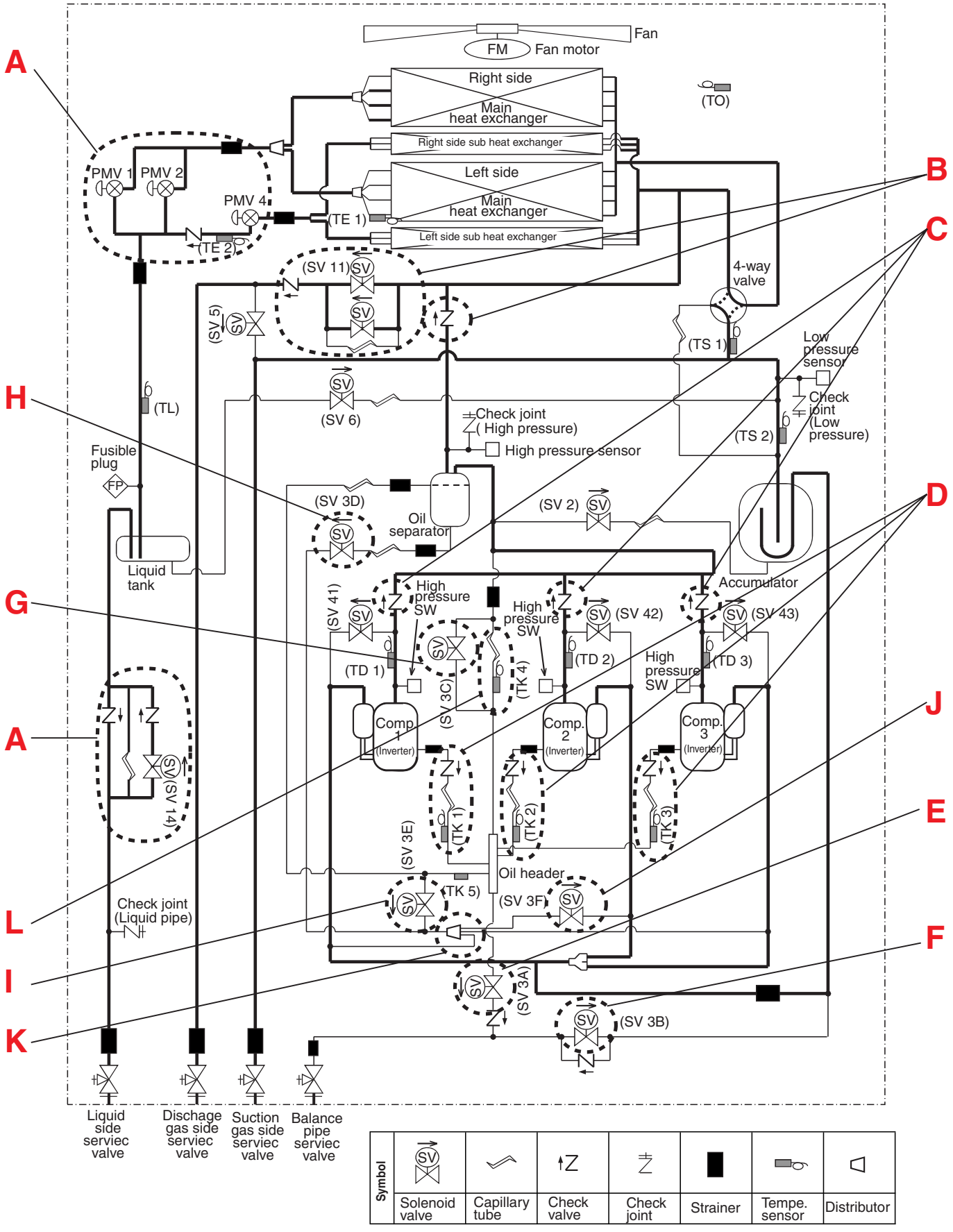
Clogging

Part	Site of fault (see next page)	Check target unit	Detected fault and check code		Symptom
Outdoor PMV1, 2, 4 Outdoor PMV4 circuit check valve SV14 valve SV14 valve circuit check valve	A	Corresponding unit	Activation of high-pressure protection Activation of low-pressure protection Discharge temp. error (TD1) Discharge temp. error (TD2) Discharge temp. error (TD3)	P20 H06 P03 P17 P18	Rise of abnormal pressure Fall of pressure Rise of discharge temp. (compressor 1) Rise of discharge temp. (compressor 2) Rise of discharge temp. (compressor 3)
Check valve in discharge pipe convergent section SV11 valve SV11 valve circuit check valve	B	Corresponding unit	High-pressure protection operation High-pressure SW system error	P20 P04-XX	Abnormal rise of pressure
Check valve in discharge pipe	C	Corresponding unit	High-pressure SW system error	P04-XX	Abnormal rise of pressure
Check valve in oil-equalization circuit Capillary Strainer	D	Corresponding unit	Oil level detection circuit error Oil level low detection and protection	H16-XX H07-XX	Oil circuit error or oil shortage judgment
SV3A valve	E	Other connected unit	Oil level low detection and protection	H07-XX	Oil level low
SV3B valve	F	Corresponding unit	Oil level low detection and protection	H07-XX	Oil level low
SV3C valve	G	Other connected unit	Oil level low detection and protection	H07-XX	Oil level low
SV3D valve SV3D valve circuit capillary Strainer	H	Corresponding unit	Oil level low detection and protection	H07-XX	Oil level low
SV3E valve	I	Corresponding unit	Oil level detection circuit error Oil level low detection and protection	H16-05 H07-XX	Oil circuit error Oil level low Oil level low
SV3F valve	J	Corresponding unit	Oil level low detection and protection	H07-XX	Oil level low
Oil return distributor	K	Corresponding unit	Oil level low detection and protection	H07-XX	Oil level low
SV3C bypass capillary	L	Corresponding unit	Oil level detection circuit error	H16-04	Oil circuit error

Leakage

Part	Site of fault (see next page)	Check target unit	Detected fault and check code		Symptom
Outdoor PMV1, 2	A	Corresponding unit	Outdoor liquid backflow error Oil level low detection and protection	P13 H07-XX	Refrigerant entrapment
		Other connected unit	Discharge temp. error (TD1) Discharge temp. error (TD2) Discharge temp. error (TD3)	P03 P17 P18	Rise of discharge temp. (compressor 1) Rise of discharge temp. (compressor 2) Rise of discharge temp. (compressor 3)
Check valve in discharge pipe convergent section	B	Corresponding unit	Oil level low detection and protection Compressor breakdown Compressor error (lockup)	H07-XX H01-XX H02-XX	Refrigerant entrapment
Check valve in discharge pipe	C	Corresponding unit	Oil level low detection and protection Compressor breakdown Compressor error (lockup)	H07-XX H01-XX H02-XX	Refrigerant entrapment
Check valve in oil-equalization circuit	D	Corresponding unit	Oil level low detection and protection	H07-XX	Excessive amount of oil (Leaking side) Insufficient amount of oil (Normal side)
SV3A valve	E	Corresponding unit	Oil level low detection and protection	H07-XX	Oil level low
SV3C valve	G	Corresponding unit	Oil level low detection and protection	H07-XX	Oil level low

Oil Level Judgment Display (Continued)



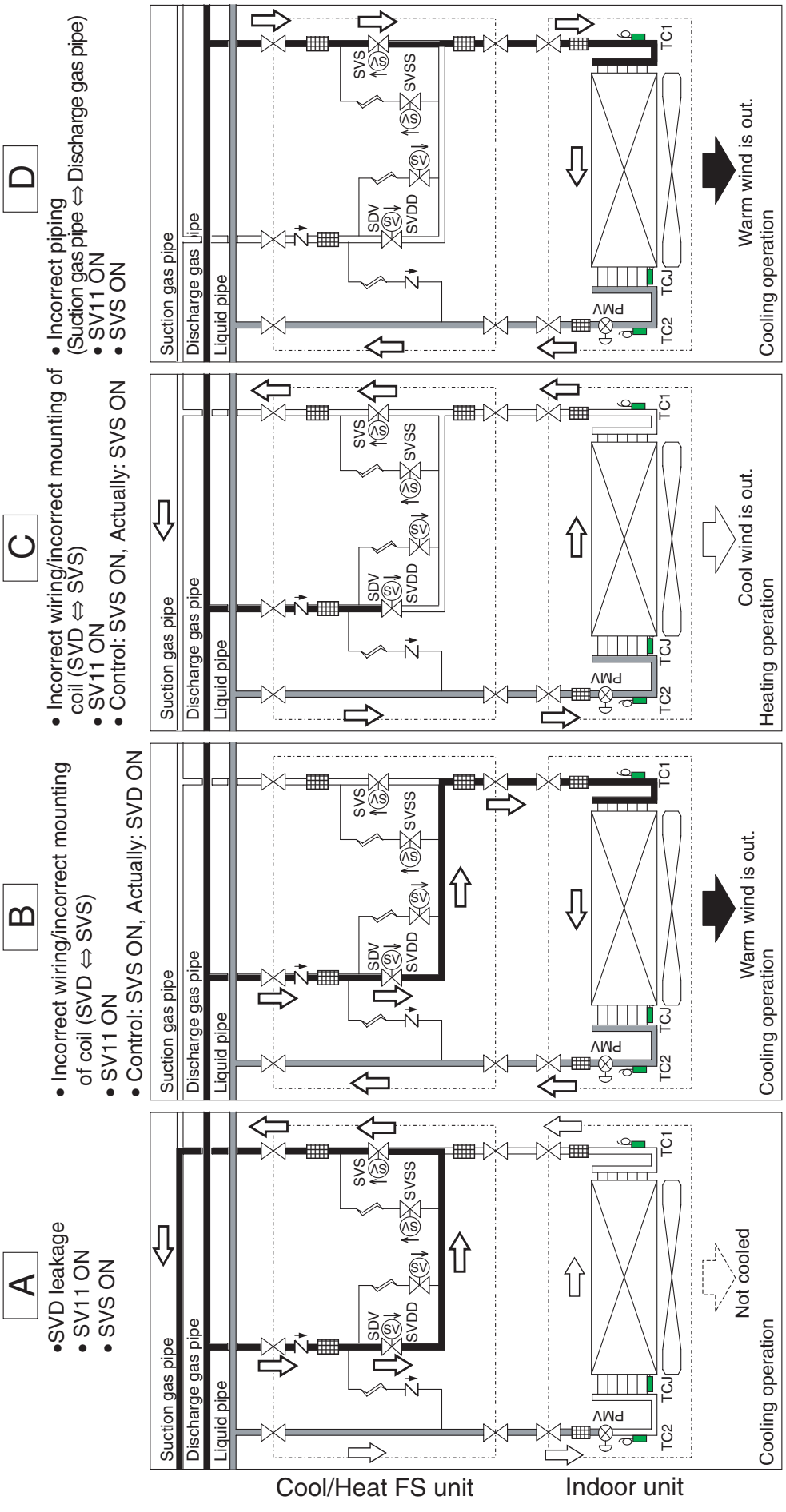
Symbol	Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Tempe. sensor	Distributor

Leakage of SVD valve or SVS valve, etc; Positions to be checked and check code when a trouble such as miswiring occurred.

Part name	Trouble mode	Operation mode	Phenomenon which appears as result (Corresponding indoor unit or flow selector unit)					Judgment and position to be checked	Example of refrigerant flow
			Not cooled	Not heated	May become almost normal capacity	● Abnormal refrigerant sound ○ Circulating sound	Detection of check code		
SVD valve	Clogging	Single heating Simultaneous cooling (Room heating) Simultaneous heating (Room heating)		○				• TC1 is lower than normal indoor unit. • Temperature of gas pipe at indoor side of the flow selector unit is lower than that of normal FS unit.	
	Leakage	Single cooling (SV11 ON) Simultaneous cooling (Room cooling) Simultaneous heating (Room cooling)	○			○ SVD circuit – SVS circuit		• Compared with normal indoor unit, TCJ is higher. • Suction gas pipe at outdoor side of the flow selector unit is hot. • Refrigerant circulating sound is heard in bypass from SVD valve to SVS valve.	A
		Single cooling (SV11 OFF)	○			○ SVSS circuit		• TCJ is higher than normal indoor unit. • Gas pipe at indoor side of the flow selector unit is not cold. • Refrigerant circulating sound is heard from SVSS valve.	
	Miswiring/ Misinstallation of coil SVD ↔ SVS	Single cooling (SV11 ON) Simultaneous cooling (Room cooling) Simultaneous heating (Room cooling)	○			○ SVD circuit		• Temperature of TCJ and TC1 become high similar to heating. (All heating circuit) • Discharge gas pipe at outdoor unit side of the flow selector unit is rather hot. • Refrigerant circulating sound is not heard from SVS valve, but it is heard from SVD valve.	B
		Single heating Simultaneous cooling (Room heating) Simultaneous heating (Room heating)		○		○ SVS circuit	L18 “Flow selector unit error”	. Gas pipe at indoor side of the flow selector unit is cold. (Cooling circuit, Liquid pack) . Refrigerant circulating sound is not heard from SVD valve, but it is heard from SVS valve.	C
SVS valve	Clogging	Single cooling Simultaneous cooling (Room cooling) Simultaneous heating (Room cooling)	○			○ SVSS circuit		• TCJ is higher than normal indoor unit. • Gas pipe at indoor side of the flow selector unit is not cold. • Refrigerant circulating sound is heard from SVSS valve.	
	Leakage	Single heating Simultaneous cooling (Room heating) Simultaneous heating (Room heating)		○		○ SVS circuit	P19 “4-way valve reversal error”	• Compared with normal indoor unit, TCJ is low. • Temperature of suction gas pipe at outdoor side of the flow selector unit is higher than that of normal flow selector unit. • Refrigerant circulating sound is heard from SVS valve circuit.	
SVDD valve	Clogging	Single heating Simultaneous cooling (Room heating) Simultaneous heating (Room heating)			○	● Indoor unit, flow selector unit		• In start time, when exchanging mode from cooling to heating after defrost operation, refrigerant shock sound may be heard.	
	Leakage	Single cooling (SV11 ON) Simultaneous cooling (Room cooling) Simultaneous heating (Room cooling)			○	○ SVDD circuit		• Refrigerant circulating sound may be heard from SVDD valve circuit. • Suction gas pipe at outdoor unit side of the flow selector unit may be hot.	
		Single heating Simultaneous cooling (Room heating) Simultaneous heating (Room heating)			○	○ SVDD circuit		• Refrigerant circulating sound may be heard from SVDD valve circuit.	
	Miswiring/ Misinstallation of coil SVD ↔ SVS	Single cooling (SV11 ON) Simultaneous cooling (Room cooling) Simultaneous heating (Room cooling)			○	○ SVDD circuit		• Refrigerant circulating sound may be heard from SVDD valve circuit. • Suction gas pipe at outdoor unit side of the flow selector unit may be hot.	
		Single heating Simultaneous cooling (Room heating) Simultaneous heating (Room heating)			○	● Indoor unit, flow selector unit		• In start time, when exchanging mode from cooling to heating after defrost operation, refrigerant shock sound may be heard.	

Part name	Trouble mode	Operation mode	Phenomenon which appears as result (Corresponding indoor unit or flow selector unit)					Judgment and position to be checked	Example of refrigerant flow
			Not cooled	Not heated	May become almost normal capacity	● Abnormal refrigerant sound ○ Circulating sound	Detection of check code		
SVSS valve	Clogging	Single cooling Simultaneous cooling (Indoor cooling) Simultaneous heating (Indoor cooling)			○	● Indoor unit, flow selector unit		• Operation is changed from heating to cooling.	
		Single heating Simultaneous cooling (Indoor heating) Simultaneous heating (Indoor heating)			○	● Indoor unit, flow selector unit		• Refrigerant i mpact sound is heard at defrost time.	
	Leakage	Single heating Simultaneous cooling (Indoor heating) Simultaneous heating (Indoor heating)			○	○ SVSS circuit		• Refrigerant sound may be heard from SVSS valve circuit. • Temperature of suction gas pipe at outdoor side of the selector unit is higher than that of normal selector unit.	
Discharge. Liquid bypass capillary, Check valve	Check valve Capillary clogging	Single cooling (SV11 ON) Simultaneous cooling (Indoor cooling) Simultaneous heating (Indoor cooling)	○				P15 [Gas leak detection]	• Gas short is observed and PD and PS may be lower than those in normal time. • TD and TS may be higher than those in normal time.	
		Single heating Simultaneous cooling (Indoor heating) Simultaneous heating (Indoor heating)		○					
	Check valve leakage	Single cooling (SV11 OFF)	○			○ Check valve circuit		• Refrigerant sound may be heard from check valve. • Discharge gas pipe is cold or it may be frozen.	
Piping Discharge pipe Liquid pipe Gas pipe	Incorrect piping Discharge pipe ↔ Suction gas pipe	Single cooling (SV11 OFF)			○			• Impossible judgment	
		Single cooling (SV11 ON) Simultaneous cooling (Indoor cooling) Simultaneous heating (Indoor cooling)						• TCJ and TC1 are heated same as heating. (Heating circuit) • Suction gas pipe at outdoor side of selector unit is fairly heated.	D
		Single heating Simultaneous cooling (Indoor heating) Simultaneous heating (Indoor heating)			○			• Temperature of suction gas pipe at outdoor side of the FS unit is higher than that of the normal FS unit.	
Commucation line Power supply line	Disconnection Contact error Miswiring	In some cases, phenomena such as above occur.							

<REFERENCE> An Example of Refrigerant Flow in FS Unit When Trouble Occurred

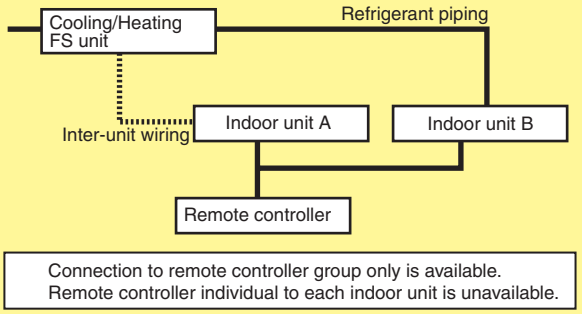


Troubleshooting when Multiple Indoor Units are Connected to Cool/Heat FS Unit

When multiple indoor units are connected to a Cool/Heat FS unit, it is necessary to set the Code No. [0E].
If this setting is forgotten, normal operation is impossible.

[Case that Code No. [0E] is set]
All the indoor units which are connected to the identical Cool/Heat FS unit operate according to the operation mode of the center unit. The Cool/Heat FS unit keeps the operation mode until all the indoor units will be thermostat-OFF.

[Case that Code No. [0E] is not set]
As the Cool/Heat FS unit is controlled by the indoor unit which is connected with inter-unit wiring, a normal operation is unavailable.
(In the right figure, operation follows to the indoor unit A.)



If Code No. [0E] is not set, the symptom below appears:
When the following trouble occurred, confirm the Code No. [0E] and then set the Code No. referring to item "How to connect multiple indoor units to a Cool/Heat FS unit".

[1] [Cool] is set on remote controller

	Indoor unit A	Indoor unit B	Cool/Heat FS unit				Symptom
			SVS	SVSS	SVD	SVDD	
1	Cooling operation	Cooling operation	ON	ON	OFF	OFF	Normal operation
2	Cooling operation	Cooling thermo-OFF	ON	ON	OFF	OFF	Normal operation
3	Cooling thermo-OFF	Cooling operation	OFF	ON	OFF	OFF	Cooling mode is not applied to the indoor unit B. (Fan status) [H06] An error (Low-pressure protective operation) may occur.

[2] [Heat] is set on remote controller

	Indoor unit A	Indoor unit B	Cool/Heat FS unit				Symptom
			SVS	SVSS	SVD	SVDD	
1	Heating operation	Heating operation	OFF	OFF	ON	OFF	Normal operation.
2	Heating operation	Heating thermo-OFF	OFF	OFF	ON	OFF	Normal operation.
3	Heating thermo-OFF	Heating operation	OFF	OFF	ON	OFF	Normal operation.

[3] [Cool/Heat Auto] is set on remote controller

	Indoor unit A	Indoor unit B	Cool/Heat FS unit				Symptom
			SVS	SVSS	SVD	SVDD	
1	Cooling operation	Cooling operation	ON	ON	OFF	OFF	Normal operation.
2	Cooling operation	Cooling thermo-OFF	ON	ON	OFF	OFF	Normal operation.
3	Cooling operation	Heating operation	ON	ON	OFF	OFF	Indoor unit [L18] error (Cool/Heat FS unit line error)
4	Cooling thermo-OFF	Cooling operation	OFF	ON	OFF	OFF	Heating mode is not applied to the indoor unit B. (Fan status) [H06] An error (Low-pressure protective operation) may occur.
5	Cooling thermo-OFF	Heating operation	OFF	ON	OFF	OFF	Heating mode is not applied to the indoor unit B. (Fan or stop status) [P20] An error (High-pressure protective operation) may occur.
6	Heating operation	Heating operation	OFF	OFF	ON	OFF	Normal operation.
7	Heating operation	Heating thermo-OFF	OFF	OFF	ON	OFF	Normal operation.
8	Heating operation	Cooling operation	OFF	OFF	ON	OFF	Indoor unit B discharges warm wind.
9	Heating thermo-OFF	Heating operation	OFF	OFF	ON	OFF	Normal operation.
10	Heating thermo-OFF	Cooling operation	OFF	OFF	ON	OFF	Indoor unit B discharges warm wind.

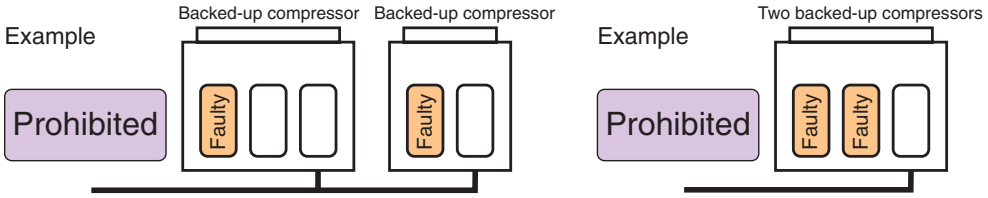
This product offers backup modes of operation to tide over certain emergency situations. If a fault occurs in one of the compressors, it is possible to operate the system on an emergency basis by operating only the remaining compressor(s), (compressor backup operation).
If one of the outdoor units fails 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

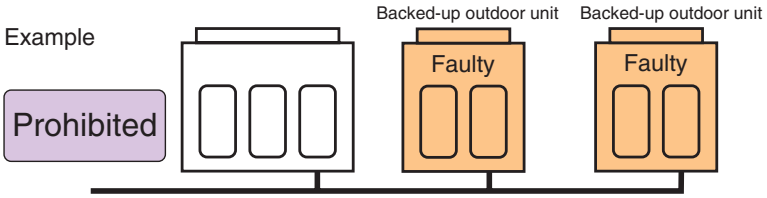
The method of backup operation differs according to the contents of fault as shown in the table below.

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 1)	Go to page 85.
All the compressors in the same unit fail	Outdoor unit backup or cooling-season outdoor unit backup (see Notes 2, 3 and 4)	Go to page 86.
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		

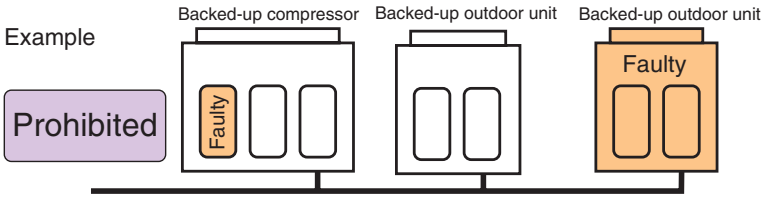
Note 1: Keep the number of backed-up outdoor units under compressor backup operation to one in the system (single refrigerant line). For a three-compressor model, the backing up of two faulty compressors is prohibited.



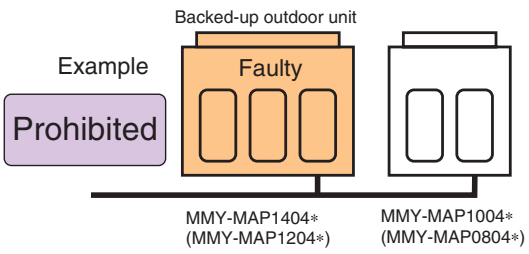
Note 2: Keep the number of backed-up outdoor units under outdoor unit backup operation to one in the system (single refrigerant line).



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 MMYMAP1404∗ (or MAP1204∗) and an MMYMAP1004∗ (or MMY-MAP0804∗), do not preform outdoor unit backup operation to back up the MMY-MAP1404∗ (or MAP1204∗).
It could lead to compressor failure due to the abnormal operation.



Compressor Backup Operation Setting

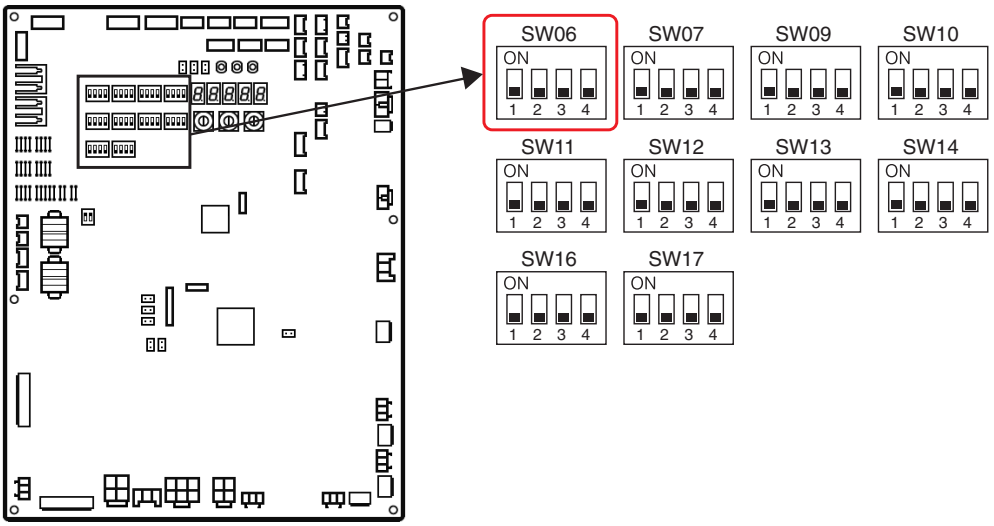
<Outline>

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.

Backup Setup for Outdoor Unit

Outline

In this model, setup of the backup operation is available in either the header unit or the follower unit in a situation where the outdoor units are defective. In a system in which two or more outdoor units are connected, carry out the backup operation on the outdoor unit if the error modes described below occur.

- Compressor error (Rare short error or when one compressor cannot operate, etc.)
- Pressure sensor (Pd, Ps) / Temperature sensor (TD1, TD2, TD3, TS1, TS2, TE1, TE2, TK1, TK2, TK3, TK4, TK5, TL) error
  Note only one outdoor unit within a given system can be subjected to the backup procedure.

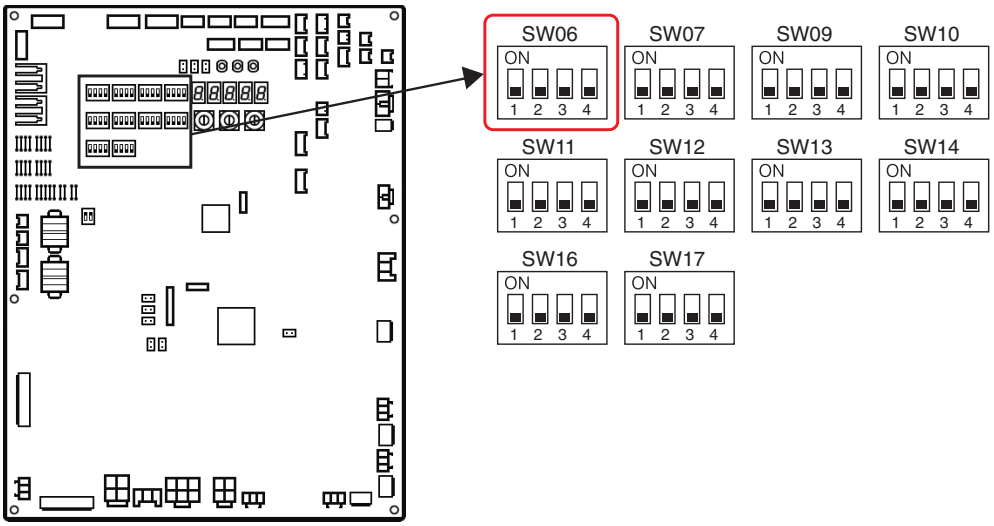
Procedure

(1) Turn off the main power supplies to all the units connected to the system.

[Set up procedure for the malfunctioning outdoor unit]

(The following work is common to the header unit and follower units in 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
Outdoor unit backup	ON	ON	ON	OFF

Two-compressor model	SW06			
	Bit 1	Bit 2	Bit 3	Bit 4
Factory default setting	OFF	OFF	OFF	OFF
Outdoor unit backup	ON	ON	OFF	OFF

(3) When there is leakage of outdoor PMV (does not close) or a trouble, close the liquid valve service valves fully.

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

When a trouble due to insufficient insulation, etc. occurred, remove in advance lead wire of the compressor.
This is the end of compressor backup operation setting.

Out Door 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.

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.

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).

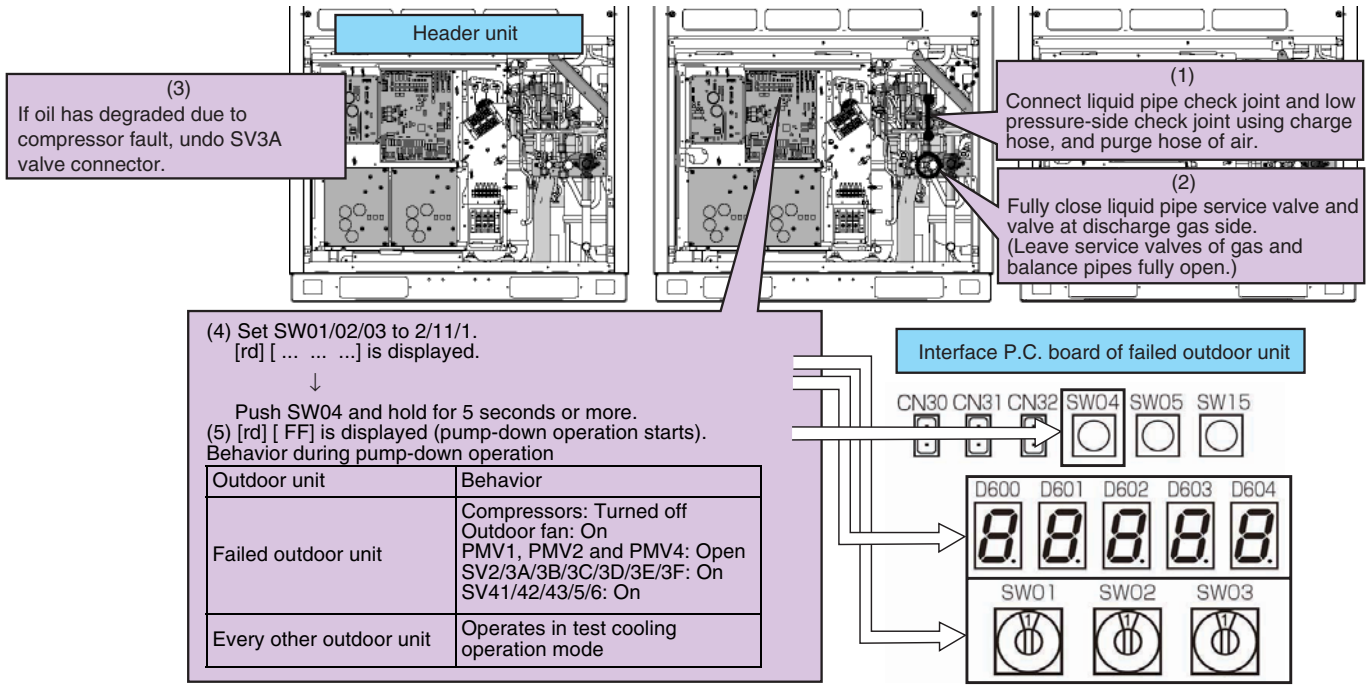
(2) Fully close the liquid pipe service valve and service valve at discharge gas side of the failed outdoor unit. (Leave the service valves of the suction gas and balance pipes fully open.)

(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.

(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.



Outdoor unit	Behavior
Failed outdoor unit	Compressors: Turned off Outdoor fan: On PMV1, PMV2 and PMV4: Open SV2/3A/3B/3C/3D/3E/3F: On SV41/42/43/5/6: On
Every other outdoor unit	Operates in test cooling operation mode

(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 (MPa) displayed.
(The display switches each time SW04 is pushed.)

Display Example

[rd] […11] → [Pd] [1.20] → [Ps] [1.20]
Initial display — High-pressure sensor output — Low-pressure sensor output

[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]

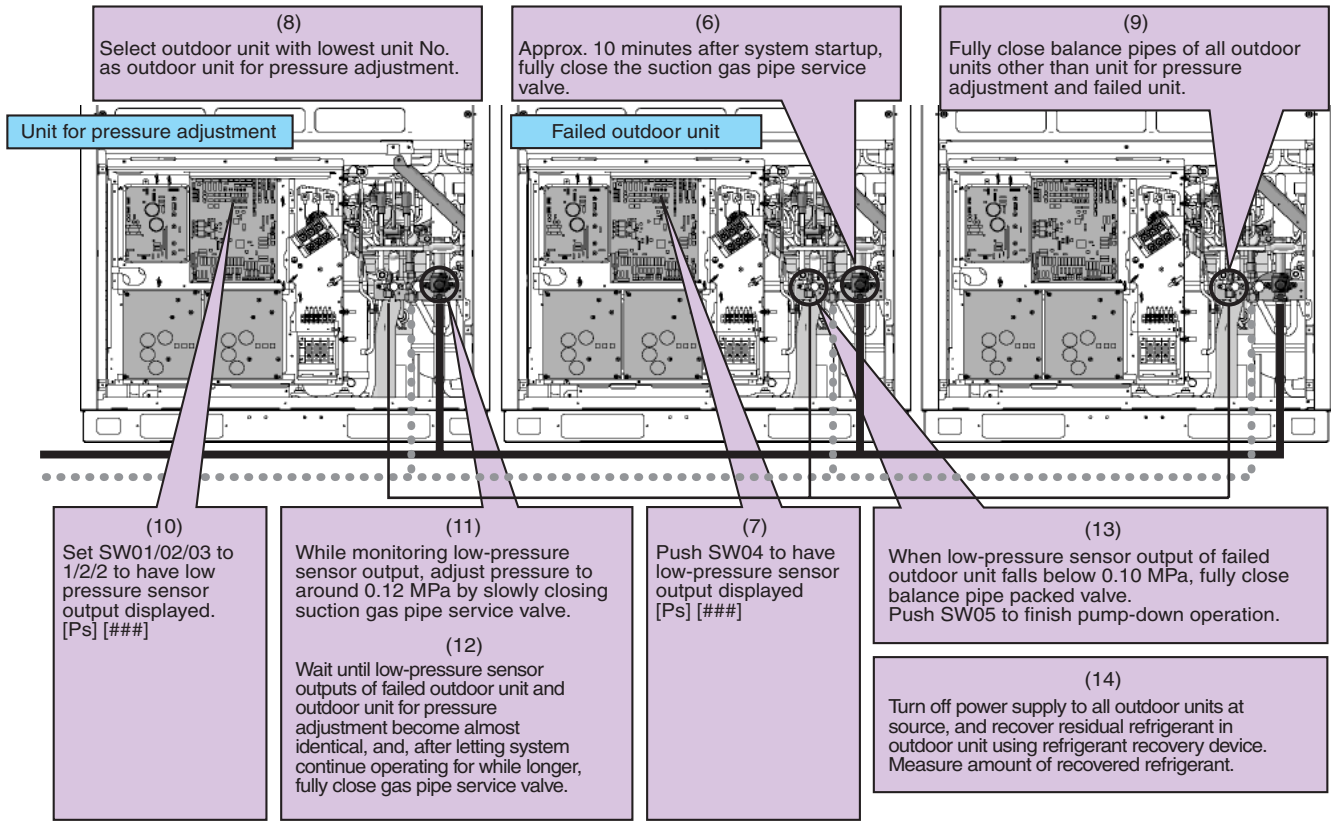
(9) Leaving the balance pipes of the unit for pressure adjustment and the failed unit fully open, fully close the balance pipe service valves of all other outdoor units.

[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 0.10MPa, 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.

Out Door Unit Refrigerant Recovery Method (Continued)

[Setup of the power cannot be turned on the failed outdoor unit]

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).

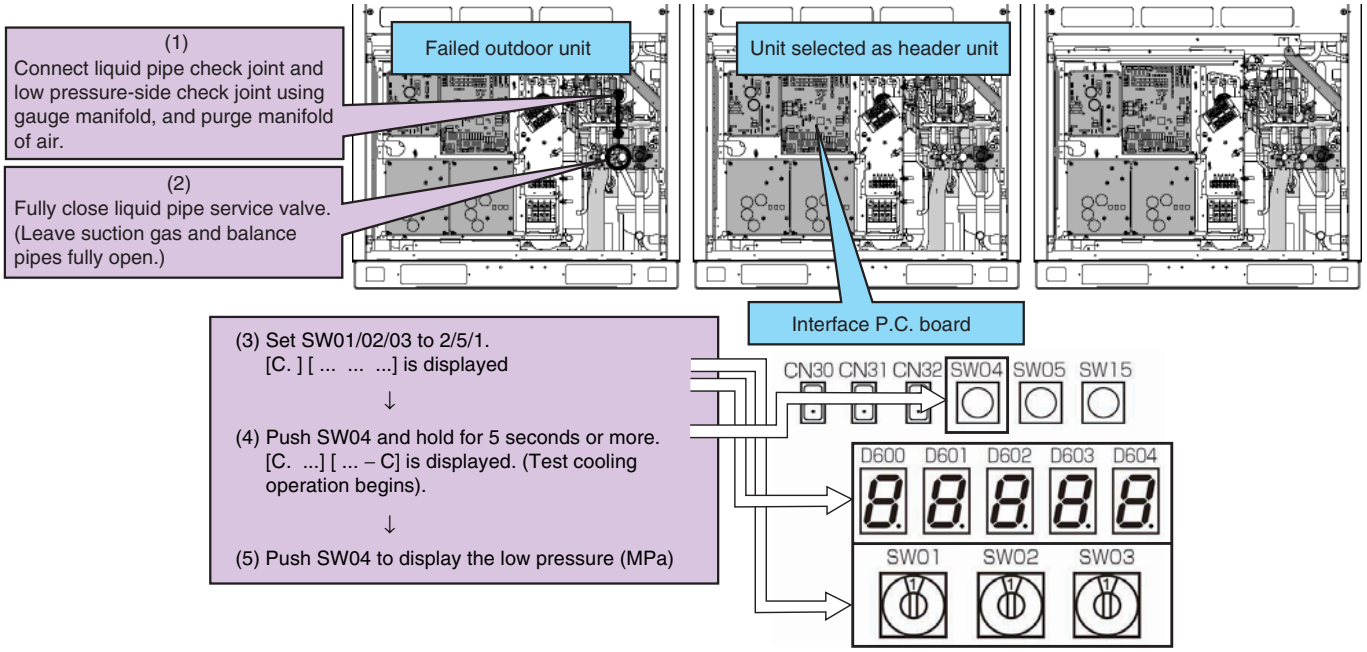
(2) Fully close the liquid pipe packed valve and service valve at discharge gas side of the failed outdoor unit. (Leave the service valve of the suction gas pipe and the packed valve of the balance pipe fully open.)

[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 suction 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]

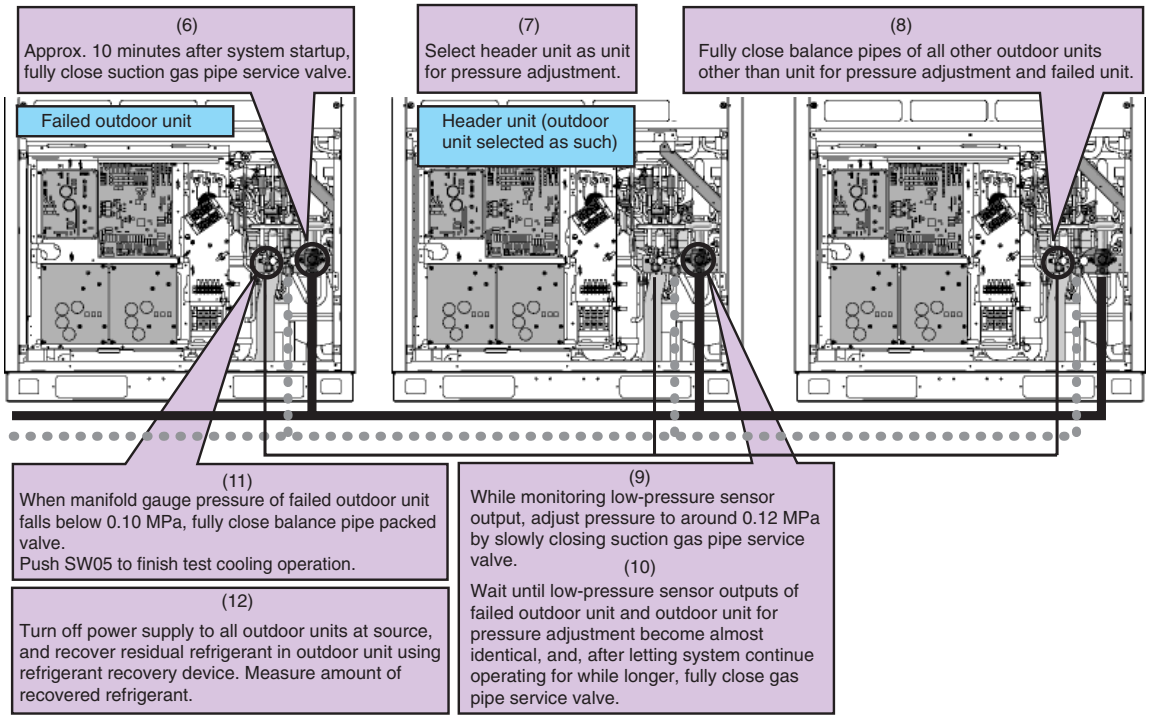
(9) While monitoring the low-pressure sensor output, adjust the pressure to around 0.12 MPa by slowly closing the suction gas pipe service valve.

(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 suction 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 0.10 MPa, 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.

Out Door Unit Refrigerant Recovery Method (Continued)

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 10HP outdoor unit is under repair in a 30HP system:
Amount of refrigerant required by system as it was initially (30HP in capacity) = 35.5kg
Amount of refrigerant required by system with available outdoor units only (20HP in capacity) = 25.5kg
Amount of refrigerant to be removed from system = 35.5 – 25.5 = 10kg

(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.

System capacity (HP)	Outdoor unit combination			Amount of refrigerant (kg)
8	8			13.0
10	10			14.0
12	12			19.0
14	14			21.0
16	8	8		22.0
18	10	8		23.5
20	10	10		25.5
22	12	10		29.5
24	14	10		30.5
26	14	12		33.0
28	14	14		34.0
30	10	10	10	35.5
32	12	10	10	38.0
34	14	10	10	39.0
36	12	12	12	41.0
38	14	12	12	42.5
40	14	14	12	44.0
42	14	14	14	45.5

Work procedure after Repair

When vacuuming in the repaired outdoor unit, follow the procedure described below.

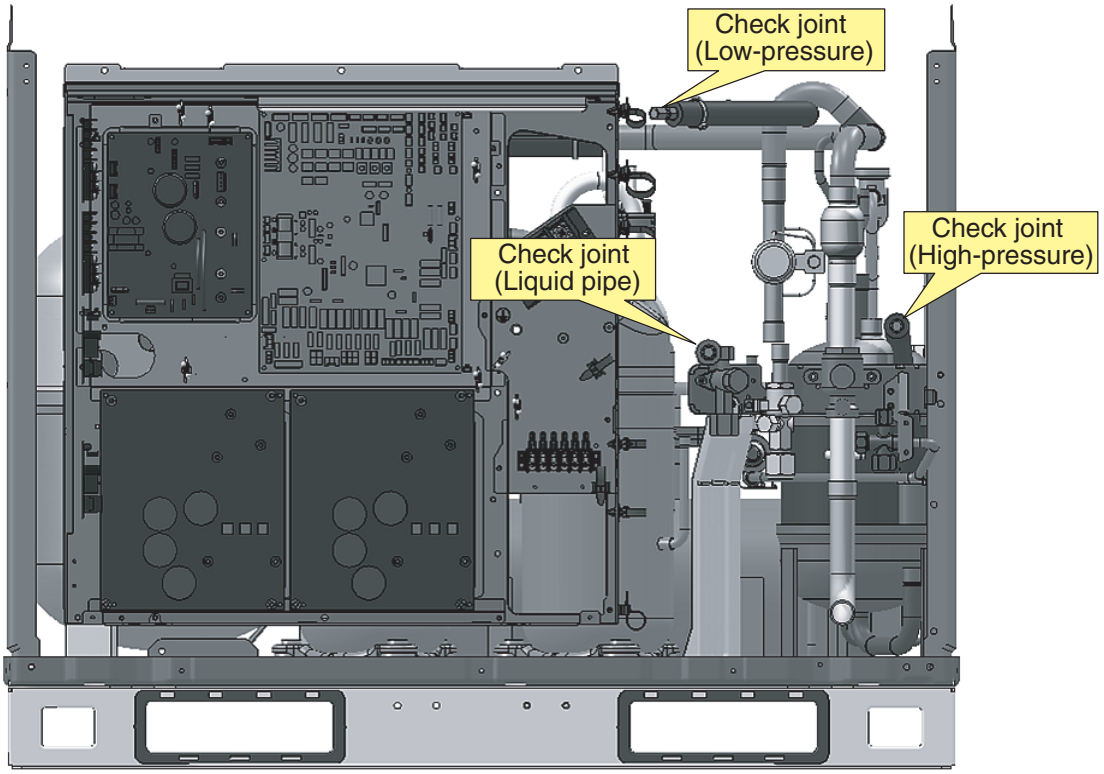
<Work procedure>

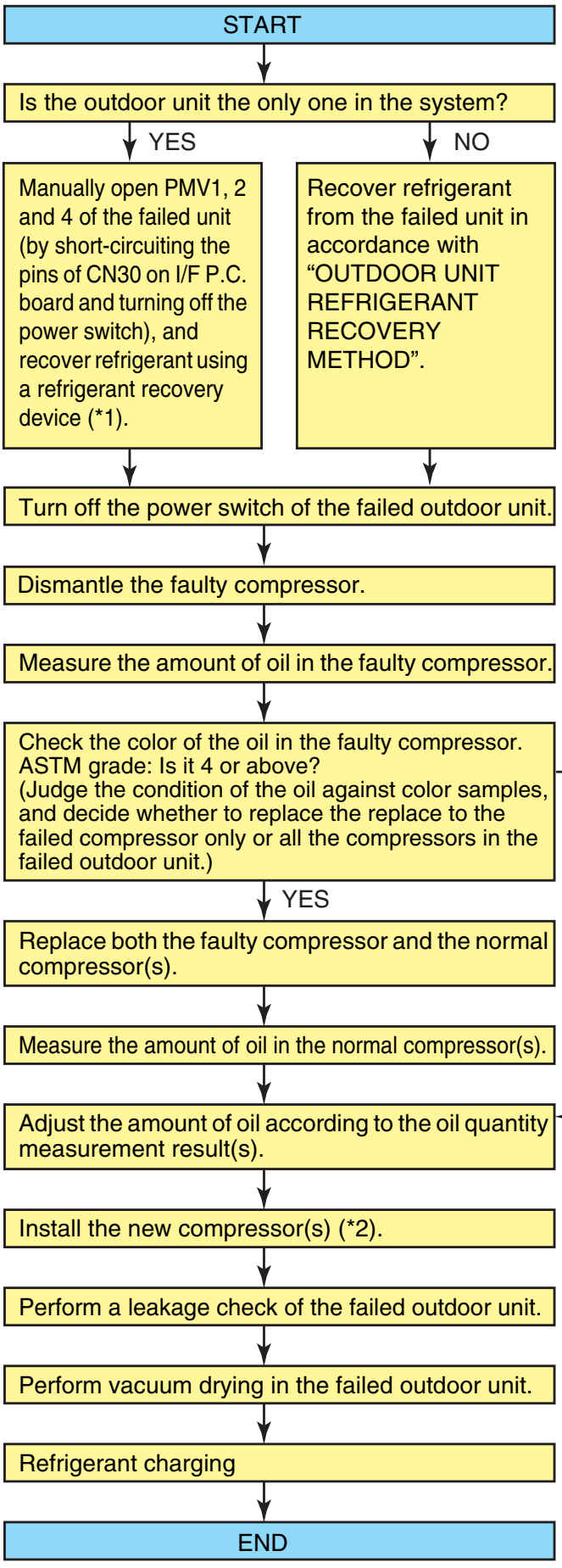
(1) Fully open PMV1 and 2 and PMV4 in accordance with the table below.

Note: PMV full-opening operation via short-circuiting of the CN30 pins is automatically undone after 2 minutes, causing the valves to fully close. To maintain fully open state, turn off the power switch of the outdoor unit within 2 minutes of the short-circuiting of the CN30 pins.

SW12				CN30	PMV operation
Bit 1	Bit 2	Bit 3	Bit 4		
OFF	OFF	OFF	OFF	Short-circuit	PMV1 and 2 fully open for 2 minutes.
OFF	ON	OFF	OFF	Short-circuit	PMV4 fully opens for 2 minutes.

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





⚠ WARNIMG

In situations such as indoor unit relocation and repairs, it is not possible to recover all the refrigerant held by the system in the outdoor units.
It could cause a serious accident, such as blow out or injury.
Be sure to perform refrigerant recovery using a refrigerant recovery device.

⚠ WARNIMG

When detaching a pipe by heating with a burner a welded joint, take care as any oil left in the piping may burn in a momentary flash of fire when the weld filler metal melts.

*1 The full-opening of PMV1, 2 and 4 via shortcircuiting of the CN30 pins is automatically undone after 2 minutes, causing the valves to fully close.
To maintain fully open state, turn off the power switch of the outdoor unit within 2 minutes.

*2 The SHRM-i (4 series) and the SHRM (2 series) use different types of compressors.
Be sure to check the service part code.

This flowchart only shows the standard compressor replacement procedure. Since the situation can differ site by site, perform the task in accordance with the following judgment criteria:

(1) New compressors are charged with 1900cc of oil per unit.

(2) The amount of oil held by an outdoor unit is as shown below.

(3) When a compressor is dismantled, it usually contains 800-1400cc oil.

	MAP0804∗, 1004∗	MAP1204∗, 1404∗
Amount of oil	4300cc	6700cc

The amount of oil held by an oil separator is usually 0-1000cc for MAP0804∗, MAP1004∗ and 0-1500cc for MAP1204∗ and MAP1404∗.

Replacement of Compressors

<Checking color of oil in faulty compressor>

- Lay the faulty compressor down, draw a small amount of oil via the oil equalization pipe, and check its color against color samples.
- Determine the number of compressors to be replaced according to the color checking result.
  ASTM grade: Below 4 → Replace the faulty compressor only.
  ASTM grade: 4 or above → Replace both the faulty compressor and the normal compressor(s).

⚠ WARNIMG

When detaching a pipe by heating with a burner a welded joint, take care as any oil left in the piping may burn in a momentary flash of fire when the weld filler metal melts.

[When replacing faulty compressor only]

<Adjusting amount of oil in new compressor> (1900cc at shipment)

- Perform the adjustment on the basis of how much oil the faulty compressor contained, A [cc], by following the steps below.

1 Amount of oil in faulty compressor A [cc]: 0 ≤ A < 1000

(1) Adjust the amount of oil in the new compressor to 1000cc.
(Lay the new compressor down and draw 900 [cc] of oil via the oil-equalization pipe.)

Notes:

- Do not draw more than 900 [cc] of oil as it may cause damage to the compressor.
- If the faulty compressor contained 500cc or less, there may have been a problem with the oil equalization circuit, etc. Perform checks in accordance with “11-3. Check Procedure to Search Cause of Compressor Oil Shortage”.

2 Amount of oil in faulty compressor A [cc]: 1000 ≤ A < 1900

(1) Adjust the amount of oil in the new compressor to A cc.
(Lay the new compressor down and draw (1900 - A) [cc] of oil via the oil equalization pipe.)

3 Amount of oil in faulty compressor A [cc]: 1900 ≤ A

(1) Adjust the amount of oil in the new compressor to A cc.
(Insert a hose into the discharge pipe or oil equalization pipe of the new compressor and inject (A-1900) [cc] of oil using a funnel, etc.)

[When replacing normal as well as faulty compressor] - applicable to MMY-MAP0804* and 1004*

<Dismantling normal compressor>

• Dismantle the normal compressor in the same way as the faulty compressor.

Note:

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

⚠ WARNIMG

When detaching a pipe by heating with a burner a welded joint, take care as any oil left in the piping may burn in a momentary flash of fire when the weld filler metal melts.

<Measuring amount of oil in normal compressor>

• As was the case with the faulty compressor, measure the amount of oil contained by placing the compressor on a scale.
Amount of oil in normal compressor: B [cc] = (Weight of compressor as it was dismantled (kg) - 22.7) × 1042
(Specific volume of oil: 1042 [cc/kg])

Note:

• When a compressor is empty, it weighs 22.7kg.

<Adjusting amount of oil in new compressors>

• Perform the adjustment on the basis of how much oil the faulty compressor contained, A [cc], and how much oil the normal compressor contained, B [cc], by following the steps below.

1 **Combined amount of oil in faulty and normal compressors A+B [cc]: 0 ≤ A+B < 2000**

(1) Adjust the amount of oil in the two new compressors to 1000cc each (total 2000cc).
• Lay the compressors down and draw 900 [cc] of oil from each of them via their oil equalization pipes.

Notes:

• Do not draw more than 900 [cc] of oil from a compressor as it may cause damage.

• If the faulty compressor contained 500cc or less, there may have been a problem with the oil equalization circuit, etc. Perform checks in accordance with “11-3. Check Procedure to Search Cause of Compressor Oil Shortage” in SERVICE MANUAL.

2 **Combined amount of oil in faulty and normal compressors A+B [cc]: 2000 ≤ A+B < 3800**

(1) Adjust the amount of oil in the two new compressors to (A+B)/2 cc each.
• Lay the compressors down and draw [3800-(A+B)]/2 [cc] of oil from each of them via their oil equalization pipes.

3 **Combined amount of oil in faulty and normal compressors A+B [cc]: 3800 ≤ A+B**

(1) Adjust the amount of oil in the two new compressors to (A+B)/2 cc each.
(Insert a hose into the discharge pipe or oil equalization pipe of each compressor and inject (A+B)/2-1900 [cc] of oil using a funnel, etc.)

[When replacing normal as well as faulty compressors] - applicable to MMY-MAP1204* and 1404*

<Dismantling normal compressors>

• Dismantle the normal compressors in the same way as the faulty compressor.

Note:

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

⚠ WARNIMG

When detaching a pipe by heating with a burner a welded joint, take care as any oil left in the piping may burn in a momentary flash of fire when the weld filler metal melts.

<Measuring amounts of oil in normal compressors>

• As was the case with the faulty compressor, measure the amount of oil contained by placing each compressor on a scale.
Amount of oil in normal compressor: B, C [cc] = (Weight of compressor as it was dismantled (kg) - 22.7) × 1042
(Specific volume of oil: 1042 [cc/kg])

Note:

• When a compressor is empty, it weighs 22.7kg.

<Adjusting amount of oil in new compressors>

• Perform the adjustment on the basis of how much oil the faulty compressor contained, A [cc], and how much oil the normal compressors contained, B and C [cc], by following the steps below.

1 Combined amount of oil in faulty compressor and two normal compressors
A+B+C [cc]: 0 ≤ A+B+C < 3000

(1) Adjust the amount of oil in the three new compressors to 1000cc each (total 3000cc).
• Lay the compressors down and draw 900 [cc] of oil from each of them via their oil equalization pipes.

Notes:

• Do not draw more than 900 [cc] of oil from a compressor as it may cause damage.
• If the faulty compressor contained 500cc or less, there may have been a problem with the oil equalization circuit, etc. Perform checks in accordance with “11-3. Check Procedure to Search Cause of Compressor Oil Shortage” in SERVICE MANUAL.

2 Combined amount of oil in faulty compressor and two normal compressors
A+B+C [cc]: 3000 ≤ A+B+C < 5700

(1) Adjust the amount of oil in the three new compressors to (A+B+C)/3 cc each.
• Lay the compressors down and draw [5700-(A+B+C)]/3 [cc] of oil from each of them via their oil equalization pipes.

3 Combined amount of oil in faulty compressor and two normal compressors
A+B+C [cc]: 5700 ≤ A+B+C

(1) Adjust the amount of oil in the three new compressors to (A+B+C)/3 cc each.
(Insert a hose into the discharge pipe or oil equalization pipe of each compressor and inject (A+B+C)/3-1900 [cc] of oil using a funnel, etc.)

Replacing Compressors (Continued)

<Installing compressor>

• Install a compressor by following the dismantling procedure in reverse.

⚠ WARNIMG

The dismantling process may have loosened compressor leads and faston connectors. Prior to installation, therefore, tighten them a little with a pair of pliers, and verify that they are tight after reconnection.

Notes:

• Although a compressor is provided with only two hexagonal bolts, it is standard.
• The tightening torque of the hexagonal bolts, used to mount the compressor, is 200kg/cm.
• If oil has been drawn from the accumulator, repair the cut pipe through pinching and brazing.

<Vacuum-pumping>

(Single outdoor unit system)

• Before performing vacuum-pumping, fully open PMV1, 2 and 4. If they are closed, the heat exchangers of the outdoor unit cannot be vacuum-pumped.
• Connect a vacuum pump consecutively to the check joints placed in the liquid and discharge pipes and on the high-pressure side of the suction pipe, and turn it on.
• Operate the vacuum drying until the vacuum gauge indicates 1 mmHg.

<Method to fully open PMV manually>

(1) Turn on the power switch of the outdoor unit.
(2) With the Bits 1 and 2 of SW12 set to off, short-circuit the pins of CN30.
(3) Disconnect the connectors of PMV1 and 2 from the I/F P.C. board.
(4) With the Bits 1 and 2 of SW12 set to off and on, respectively, short-circuit the pins of CN30.
(5) Disconnect the connector of PMV4 from the I/F P.C. board
(6) Turn off the power switch of the outdoor unit.

<Refrigerant charging>

• Inject the same amount of refrigerant as the recovered residual refrigerant via the charging port of the liquidside service valve.

Pressure Sensor Output Check

Outdoor Unit

▼ Pd sensor characteristics

0 to 4.41 MPa (0.5 to 5V output for 0 to 4.41 MPa)
Voltage readings across pins 2 and 3 of CN501 on indoor unit main P.C. board (with negative-side probe of multimeter placed on pin 3)

VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)
0.00	0.00	0.0	1.00	0.49	5.0	1.99	1.46	14.9	2.99	2.44	24.9	3.98	3.42	34.8
0.02	0.00	0.0	1.02	0.51	5.2	2.01	1.48	15.1	3.01	2.46	25.1	4.00	3.44	35.0
0.04	0.00	0.0	1.04	0.53	5.4	2.03	1.50	15.3	3.03	2.48	25.3	4.02	3.45	35.2
0.06	0.00	0.0	1.06	0.54	5.5	2.05	1.52	15.5	3.05	2.50	25.5	4.04	3.48	35.4
0.08	0.00	0.0	1.07	0.56	5.7	2.07	1.54	15.7	3.07	2.52	25.7	4.06	3.49	35.6
0.10	0.00	0.0	1.09	0.58	5.9	2.09	1.56	15.9	3.09	2.54	25.9	4.08	3.51	35.8
0.12	0.00	0.0	1.11	0.60	6.1	2.11	1.58	16.1	3.11	2.56	26.1	4.10	3.53	36.0
0.14	0.00	0.0	1.13	0.62	6.3	2.13	1.60	16.3	3.13	2.57	26.3	4.12	3.55	36.2
0.16	0.00	0.0	1.15	0.64	6.5	2.15	1.62	16.5	3.15	2.59	26.4	4.14	3.57	36.4
0.18	0.00	0.0	1.17	0.66	6.7	2.17	1.64	16.7	3.16	2.61	26.6	4.16	3.59	36.6
0.20	0.00	0.0	1.19	0.68	6.9	2.19	1.66	16.9	3.18	2.63	26.8	4.18	3.61	36.8
0.22	0.00	0.0	1.21	0.70	7.1	2.21	1.67	17.1	3.20	2.65	27.0	4.20	3.63	37.0
0.23	0.00	0.0	1.23	0.72	7.3	2.23	1.69	17.3	3.22	2.67	27.2	4.22	3.65	37.2
0.25	0.00	0.0	1.25	0.74	7.5	2.25	1.71	17.5	3.24	2.69	27.4	4.24	3.67	37.4
0.27	0.00	0.0	1.27	0.76	7.7	2.27	1.73	17.7	3.26	2.71	27.6	4.26	3.69	37.6
0.29	0.00	0.0	1.29	0.77	7.9	2.29	1.75	17.9	3.28	2.73	27.8	4.28	3.70	37.8
0.31	0.00	0.0	1.31	0.79	8.1	2.31	1.77	18.0	3.30	2.75	28.0	4.30	3.72	38.0
0.33	0.00	0.0	1.33	0.81	8.3	2.32	1.79	18.2	3.32	2.77	28.2	4.32	3.74	38.2
0.35	0.00	0.0	1.35	0.83	8.5	2.34	1.81	18.4	3.34	2.79	28.4	4.34	3.76	38.4
0.37	0.00	0.0	1.37	0.85	8.7	2.36	1.83	18.6	3.36	2.80	28.6	4.36	3.78	38.6
0.39	0.00	0.0	1.39	0.87	8.9	2.38	1.85	18.8	3.38	2.82	28.8	4.38	3.80	38.8
0.41	0.00	0.0	1.41	0.89	9.1	2.40	1.87	19.0	3.40	2.84	29.0	4.40	3.82	38.9
0.43	0.00	0.0	1.43	0.91	9.3	2.42	1.89	19.2	3.42	2.86	29.2	4.41	3.84	39.1
0.45	0.00	0.0	1.45	0.93	9.5	2.44	1.90	19.4	3.44	2.88	29.4	4.43	3.86	39.3
0.47	0.00	0.0	1.47	0.95	9.6	2.46	1.92	19.6	3.46	2.90	29.6	4.45	3.88	39.5
0.49	0.00	0.0	1.48	0.97	9.8	2.48	1.94	19.8	3.48	2.92	29.8	4.47	3.90	39.7
0.51	0.01	0.1	1.50	0.99	10.0	2.50	1.96	20.0	3.50	2.94	30.0	4.49	3.92	39.9
0.53	0.03	0.3	1.52	1.00	10.2	2.52	1.98	20.2	3.52	2.96	30.2	4.51	3.93	40.1
0.55	0.05	0.5	1.54	1.02	10.4	2.54	2.00	20.4	3.54	2.98	3.04	4.53	3.95	40.3
0.57	0.07	0.7	1.56	1.04	10.6	2.56	2.02	20.6	3.56	3.00	30.5	4.55	3.97	40.5
0.59	0.08	0.9	1.58	1.06	10.8	2.58	2.04	20.8	3.57	3.02	30.7	4.57	3.99	40.7
0.61	0.10	1.1	1.60	1.08	11.0	2.60	2.06	21.0	3.59	3.03	30.9	4.59	4.01	40.9
0.63	0.12	1.3	1.62	1.10	11.2	2.62	2.08	21.2	3.61	3.05	31.1	4.61	4.03	41.1
0.65	0.14	1.4	1.64	1.12	11.4	2.64	2.10	21.4	3.63	3.07	31.3	4.63	4.05	41.3
0.66	0.16	1.6	1.66	1.14	11.6	2.66	2.12	21.6	3.65	3.09	31.5	4.65	4.07	41.5
0.68	0.18	1.8	1.68	1.16	11.8	2.68	2.13	21.8	3.67	3.11	31.7	4.67	4.09	41.7
0.70	0.20	2.0	1.70	1.18	12.0	2.70	2.15	22.0	3.69	3.13	31.9	4.69	4.11	41.9
0.72	0.22	2.2	1.72	1.20	12.2	2.72	2.17	22.2	3.71	3.15	32.1	4.71	4.13	42.1
0.74	0.24	2.4	1.74	1.21	12.4	2.73	2.19	22.3	3.73	3.17	32.3	4.73	4.15	42.3
0.76	0.26	2.6	1.76	1.23	12.6	2.75	2.21	22.5	3.75	3.19	32.5	4.75	4.16	42.5
0.78	0.28	2.8	1.78	1.25	12.8	2.77	2.23	22.7	3.77	3.21	32.7	4.77	4.18	42.7
0.80	0.30	3.0	1.80	1.27	13.0	2.79	2.25	22.9	3.79	3.23	32.9	4.79	4.20	42.9
0.82	0.31	3.2	1.82	1.29	13.2	2.81	2.27	23.1	3.81	3.25	33.1	4.81	4.22	43.0
0.84	0.33	3.4	1.84	1.31	13.4	2.83	2.29	23.3	3.83	3.26	33.3	4.82	4.24	43.2
0.86	0.35	3.6	1.86	1.33	13.6	2.85	2.31	23.5	3.85	3.28	33.5	4.84	4.26	43.4
0.88	0.37	3.8	1.88	1.35	13.8	2.87	2.33	23.7	3.89	3.30	33.7	4.86	4.28	43.6
0.90	0.39	4.0	1.90	1.37	13.9	2.89	2.35	23.9	3.89	3.32	33.9	4.88	4.30	43.8
0.92	0.41	4.2	1.91	1.39	14.1	2.91	2.36	24.1	3.91	3.34	34.1	4.90	4.32	44.0
0.94	0.43	4.4	1.93	1.41	14.3	2.93	2.38	24.3	3.93	3.36	34.3	4.92	4.34	44.2
0.96	0.45	4.6	1.95	1.43	14.5	2.95	2.40	24.5	3.95	3.38	34.5	4.94	4.36	44.4
0.98	0.47	4.8	1.97	1.44	14.7	2.97	2.42	24.7	3.97	3.40	34.7	4.96	4.38	44.6
												4.98	4.39	44.8

Outdoor Unit

▼ Ps sensor characteristics

0 to 1.47 MPa (0.5 to 5V output for 0 to 1.47 MPa)
Voltage readings across pins 2 and 3 of CN500 on indoor unit main P.C. board (with negative-side probe of multimeter placed on pin 3)

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

MEMO

TOSHIBA