

## ■ Compressor Step Control

Compressor operations vary with the following steps according to information in "2.2 Compressor PI Control".

Furthermore, the operating priority of compressors is subject to information in "■ Operating Priority and Rotation of Compressors".

## Single unit installation

REYQ8PY1, 10PY1, 12PY1

| STEP No. | INV   | STD1 |
|----------|-------|------|
| 1        | 52Hz  |      |
| 2        | 56Hz  |      |
| 3        | 62Hz  |      |
| 4        | 68Hz  |      |
| 5        | 74Hz  |      |
| 6        | 80Hz  |      |
| 7        | 88Hz  |      |
| 8        | 96Hz  |      |
| 9        | 104Hz |      |
| 10       | 110Hz |      |
| 11       | 116Hz |      |
| 12       | 124Hz |      |
| 13       | 132Hz |      |
| 14       | 144Hz |      |
| 15       | 158Hz |      |
| 16       | 166Hz |      |
| 17       | 176Hz |      |
| 18       | 188Hz |      |
| 19       | 202Hz |      |
| 20       | 210Hz |      |
| 21       | 52Hz  | ON   |
| 22       | 62Hz  | ON   |
| 23       | 68Hz  | ON   |
| 24       | 74Hz  | ON   |
| 25       | 80Hz  | ON   |
| 26       | 88Hz  | ON   |
| 27       | 96Hz  | ON   |
| 28       | 104Hz | ON   |
| 29       | 116Hz | ON   |
| 30       | 124Hz | ON   |
| 31       | 132Hz | ON   |
| 32       | 144Hz | ON   |
| 33       | 158Hz | ON   |
| 34       | 176Hz | ON   |
| 35       | 188Hz | ON   |
| 36       | 202Hz | ON   |
| 37       | 210Hz | ON   |

← Initial step

←REYQ8PY1 upper limit

REYQ14PY1, 16PY1

| STEP No. | INV1  | INV2  |
|----------|-------|-------|
| 1        | 52Hz  | 52Hz  |
| 2        | 56Hz  | 56Hz  |
| 3        | 62Hz  | 62Hz  |
| 4        | 66Hz  | 66Hz  |
| 5        | 70Hz  | 70Hz  |
| 6        | 74Hz  | 74Hz  |
| 7        | 80Hz  | 80Hz  |
| 8        | 88Hz  | 88Hz  |
| 9        | 92Hz  | 92Hz  |
| 10       | 96Hz  | 96Hz  |
| 11       | 104Hz | 104Hz |
| 12       | 110Hz | 110Hz |
| 13       | 116Hz | 116Hz |
| 14       | 124Hz | 124Hz |
| 15       | 132Hz | 132Hz |
| 16       | 144Hz | 144Hz |
| 17       | 158Hz | 158Hz |
| 18       | 166Hz | 166Hz |
| 19       | 176Hz | 176Hz |
| 20       | 188Hz | 188Hz |
| 21       | 202Hz | 202Hz |
| 22       | 210Hz | 210Hz |
| 23       | 218Hz | 218Hz |
| 24       | 232Hz | 232Hz |
| 25       | 248Hz | 248Hz |
| 26       | 266Hz | 266Hz |

← Initial step

## Notes:

1. INV : Inverter compressor  
STD1 : Standard compressor 1  
STD2 : Standard compressor 2
2. Depending on the operating conditions of compressors, the compressors may run in patterns other than those aforementioned.

**Two-unit multi system**

REYQ18PY1, 20PY1 (8+10/12HP)

(To increase Step No.)

| STEP No. | unit 1 INV | unit 2 INV | STD          |
|----------|------------|------------|--------------|
| 1        | 52Hz       | 52Hz       | Initial step |
| 2        | 56Hz       | 56Hz       |              |
| 3        | 62Hz       | 62Hz       |              |
| 4        | 66Hz       | 66Hz       |              |
| 5        | 70Hz       | 70Hz       |              |
| 6        | 74Hz       | 74Hz       |              |
| 7        | 80Hz       | 80Hz       |              |
| 8        | 88Hz       | 88Hz       |              |
| 9        | 92Hz       | 92Hz       |              |
| 10       | 96Hz       | 96Hz       |              |
| 11       | 104Hz      | 104Hz      |              |
| 12       | 110Hz      | 110Hz      |              |
| 13       | 116Hz      | 116Hz      |              |
| 14       | 124Hz      | 124Hz      |              |
| 15       | 132Hz      | 132Hz      |              |
| 16       | 144Hz      | 144Hz      |              |
| 17       | 158Hz      | 158Hz      |              |
| 18       | 166Hz      | 166Hz      |              |
| 19       | 176Hz      | 176Hz      |              |
| 20       | 80Hz       | 80Hz       | ON           |
| 21       | 88Hz       | 88Hz       | ON           |
| 22       | 96Hz       | 96Hz       | ON           |
| 23       | 104Hz      | 104Hz      | ON           |
| 24       | 116Hz      | 116Hz      | ON           |
| 25       | 124Hz      | 124Hz      | ON           |
| 26       | 132Hz      | 132Hz      | ON           |
| 27       | 144Hz      | 144Hz      | ON           |
| 28       | 158Hz      | 158Hz      | ON           |
| 29       | 176Hz      | 176Hz      | ON           |
| 30       | 188Hz      | 188Hz      | ON           |
| 31       | 202Hz      | 202Hz      | ON           |
| 32       | 210Hz      | 210Hz      | ON           |

(To decrease Step No.)

| STEP No. | unit 1 INV | unit 2 INV | STD |
|----------|------------|------------|-----|
| 1        | 52Hz       |            |     |
| 2        | 56Hz       |            |     |
| 3        | 62Hz       |            |     |
| 4        | 68Hz       |            |     |
| 5        | 74Hz       |            |     |
| 6        | 80Hz       |            |     |
| 7        | 88Hz       |            |     |
| 8        | 96Hz       |            |     |
| 9        | 104Hz      |            |     |
| 10       | 52Hz       | 52Hz       |     |
| 11       | 56Hz       | 56Hz       |     |
| 12       | 62Hz       | 62Hz       |     |
| 13       | 66Hz       | 66Hz       |     |
| 14       | 70Hz       | 70Hz       |     |
| 15       | 74Hz       | 74Hz       |     |
| 16       | 80Hz       | 80Hz       |     |
| 17       | 88Hz       | 88Hz       |     |
| 18       | 92Hz       | 92Hz       |     |
| 19       | 96Hz       | 96Hz       |     |
| 20       | 104Hz      | 104Hz      |     |
| 21       | 110Hz      | 110Hz      |     |
| 22       | 116Hz      | 116Hz      |     |
| 23       | 124Hz      | 124Hz      |     |
| 24       | 132Hz      | 132Hz      |     |
| 25       | 52Hz       | 52Hz       | ON  |
| 26       | 62Hz       | 62Hz       | ON  |
| 27       | 68Hz       | 68Hz       | ON  |
| 28       | 74Hz       | 74Hz       | ON  |
| 29       | 80Hz       | 80Hz       | ON  |
| 30       | 88Hz       | 88Hz       | ON  |
| 31       | 96Hz       | 96Hz       | ON  |
| 32       | 104Hz      | 104Hz      | ON  |
| 33       | 116Hz      | 116Hz      | ON  |
| 34       | 124Hz      | 124Hz      | ON  |
| 35       | 132Hz      | 132Hz      | ON  |
| 36       | 144Hz      | 144Hz      | ON  |
| 37       | 158Hz      | 158Hz      | ON  |
| 38       | 176Hz      | 176Hz      | ON  |
| 39       | 188Hz      | 188Hz      | ON  |
| 40       | 202Hz      | 202Hz      | ON  |
| 41       | 210Hz      | 210Hz      | ON  |

REYQ22PY1, 24PY1 (10/12+12HP)

(To increase Step No.)

| STEP No. | unit 1 INV | unit 2 INV | STD          |
|----------|------------|------------|--------------|
| 1        | 52Hz       | 52Hz       | Initial step |
| 2        | 56Hz       | 56Hz       |              |
| 3        | 62Hz       | 62Hz       |              |
| 4        | 66Hz       | 66Hz       |              |
| 5        | 70Hz       | 70Hz       |              |
| 6        | 74Hz       | 74Hz       |              |
| 7        | 80Hz       | 80Hz       |              |
| 8        | 88Hz       | 88Hz       |              |
| 9        | 92Hz       | 92Hz       |              |
| 10       | 96Hz       | 96Hz       |              |
| 11       | 104Hz      | 104Hz      |              |
| 12       | 110Hz      | 110Hz      |              |
| 13       | 116Hz      | 116Hz      |              |
| 14       | 124Hz      | 124Hz      |              |
| 15       | 132Hz      | 132Hz      |              |
| 16       | 144Hz      | 144Hz      |              |
| 17       | 158Hz      | 158Hz      |              |
| 18       | 166Hz      | 166Hz      |              |
| 19       | 176Hz      | 176Hz      |              |
| 20       | 80Hz       | 80Hz       | ON1          |
| 21       | 88Hz       | 88Hz       | ON1          |
| 22       | 96Hz       | 96Hz       | ON1          |
| 23       | 104Hz      | 104Hz      | ON1          |
| 24       | 116Hz      | 116Hz      | ON1          |
| 25       | 124Hz      | 124Hz      | ON1          |
| 26       | 132Hz      | 132Hz      | ON1          |
| 27       | 88Hz       | 88Hz       | ON2          |
| 28       | 96Hz       | 96Hz       | ON2          |
| 29       | 104Hz      | 104Hz      | ON2          |
| 30       | 124Hz      | 124Hz      | ON2          |
| 31       | 144Hz      | 144Hz      | ON2          |
| 32       | 158Hz      | 158Hz      | ON2          |
| 33       | 166Hz      | 176Hz      | ON2          |
| 34       | 176Hz      | 158Hz      | ON2          |
| 35       | 188Hz      | 188Hz      | ON2          |
| 36       | 202Hz      | 202Hz      | ON2          |
| 37       | 210Hz      | 210Hz      | ON2          |
| 38       | 202Hz      | 202Hz      | ON2          |
| 39       | 210Hz      | 210Hz      | ON2          |

(To decrease Step No.)

| STEP No. | unit 1 INV | unit 2 INV | STD |
|----------|------------|------------|-----|
| 1        | 52Hz       |            |     |
| 2        | 56Hz       |            |     |
| 3        | 62Hz       |            |     |
| 4        | 68Hz       |            |     |
| 5        | 74Hz       |            |     |
| 6        | 80Hz       |            |     |
| 7        | 88Hz       |            |     |
| 8        | 96Hz       |            |     |
| 9        | 104Hz      |            |     |
| 10       | 52Hz       | 52Hz       |     |
| 11       | 56Hz       | 56Hz       |     |
| 12       | 62Hz       | 62Hz       |     |
| 13       | 66Hz       | 66Hz       |     |
| 14       | 70Hz       | 70Hz       |     |
| 15       | 74Hz       | 74Hz       |     |
| 16       | 80Hz       | 80Hz       |     |
| 17       | 88Hz       | 88Hz       |     |
| 18       | 92Hz       | 92Hz       |     |
| 19       | 96Hz       | 96Hz       |     |
| 20       | 104Hz      | 104Hz      |     |
| 21       | 110Hz      | 110Hz      |     |
| 22       | 116Hz      | 116Hz      |     |
| 23       | 124Hz      | 124Hz      |     |
| 24       | 132Hz      | 132Hz      |     |
| 25       | 52Hz       | 52Hz       | ON1 |
| 26       | 62Hz       | 62Hz       | ON1 |
| 27       | 68Hz       | 68Hz       | ON1 |
| 28       | 74Hz       | 74Hz       | ON1 |
| 29       | 80Hz       | 80Hz       | ON1 |
| 30       | 88Hz       | 88Hz       | ON1 |
| 31       | 96Hz       | 96Hz       | ON1 |
| 32       | 104Hz      | 104Hz      | ON1 |
| 33       | 52Hz       | 52Hz       | ON2 |
| 34       | 62Hz       | 62Hz       | ON2 |
| 35       | 74Hz       | 74Hz       | ON2 |
| 36       | 88Hz       | 88Hz       | ON2 |
| 37       | 96Hz       | 96Hz       | ON2 |
| 38       | 104Hz      | 104Hz      | ON2 |
| 39       | 124Hz      | 124Hz      | ON2 |
| 40       | 144Hz      | 144Hz      | ON2 |
| 41       | 158Hz      | 158Hz      | ON2 |
| 42       | 166Hz      | 166Hz      | ON2 |
| 43       | 176Hz      | 176Hz      | ON2 |
| 44       | 188Hz      | 188Hz      | ON2 |
| 45       | 202Hz      | 202Hz      | ON2 |
| 46       | 210Hz      | 210Hz      | ON2 |
| 47       | 202Hz      | 202Hz      | ON2 |
| 48       | 210Hz      | 210Hz      | ON2 |

**Notes:**

1. INV : Inverter compressor  
STD : Standard compressor

Figures after ON represent the number of STD compressors in operation.

2. "Master unit", and "slave unit" in this section are the names for control, and they will be transferred according to the priority of rotation system.
3. Depending on the operating conditions of compressors, the compressors may run in patterns other than those aforementioned.

**Three-unit multi system**

REYQ26PY1, 28PY1 (10/12+16HP)

(To increase Step No.)

| STEP No. | unit 1 INV | unit 2 INV | STD           |
|----------|------------|------------|---------------|
| 1        | 52Hz       | 52Hz       | ←Initial step |
| 2        | 56Hz       | 56Hz       |               |
| 3        | 62Hz       | 62Hz       |               |
| 4        | 66Hz       | 66Hz       |               |
| 5        | 70Hz       | 70Hz       |               |
| 6        | 74Hz       | 74Hz       |               |
| 7        | 80Hz       | 80Hz       |               |
| 8        | 88Hz       | 88Hz       |               |
| 9        | 92Hz       | 92Hz       |               |
| 10       | 96Hz       | 96Hz       |               |
| 11       | 104Hz      | 104Hz      |               |
| 12       | 110Hz      | 110Hz      |               |
| 13       | 116Hz      | 116Hz      |               |
| 14       | 124Hz      | 124Hz      |               |
| 15       | 132Hz      | 132Hz      |               |
| 16       | 144Hz      | 144Hz      |               |
| 17       | 158Hz      | 158Hz      |               |
| 18       | 166Hz      | 166Hz      |               |
| 19       | 176Hz      | 176Hz      |               |
| 20       | 80Hz       | 80Hz       | ON1           |
| 21       | 88Hz       | 88Hz       | ON1           |
| 22       | 96Hz       | 96Hz       | ON1           |
| 23       | 104Hz      | 104Hz      | ON1           |
| 24       | 116Hz      | 116Hz      | ON1           |
| 25       | 124Hz      | 124Hz      | ON1           |
| 26       | 132Hz      | 132Hz      | ON1           |
| 27       | 88Hz       | 88Hz       | ON2           |
| 28       | 96Hz       | 96Hz       | ON2           |
| 29       | 104Hz      | 104Hz      | ON2           |
| 30       | 124Hz      | 124Hz      | ON2           |
| 31       | 144Hz      | 144Hz      | ON2           |
| 32       | 92Hz       | 92Hz       | ON3           |
| 33       | 104Hz      | 104Hz      | ON3           |
| 34       | 116Hz      | 116Hz      | ON3           |
| 35       | 124Hz      | 124Hz      | ON3           |
| 36       | 144Hz      | 144Hz      | ON3           |
| 37       | 158Hz      | 158Hz      | ON3           |
| 38       | 166Hz      | 166Hz      | ON3           |
| 39       | 176Hz      | 176Hz      | ON3           |
| 40       | 188Hz      | 188Hz      | ON3           |
| 41       | 202Hz      | 202Hz      | ON3           |
| 42       | 210Hz      | 210Hz      | ON3           |

(To decrease Step No.)

| STEP No. | unit 1 INV | unit 2 INV | STD |
|----------|------------|------------|-----|
| 1        | 52Hz       |            |     |
| 2        | 56Hz       |            |     |
| 3        | 62Hz       |            |     |
| 4        | 68Hz       |            |     |
| 5        | 74Hz       |            |     |
| 6        | 80Hz       |            |     |
| 7        | 88Hz       |            |     |
| 8        | 96Hz       |            |     |
| 9        | 104Hz      |            |     |
| 10       | 52Hz       | 52Hz       |     |
| 11       | 56Hz       | 56Hz       |     |
| 12       | 62Hz       | 62Hz       |     |
| 13       | 66Hz       | 66Hz       |     |
| 14       | 70Hz       | 70Hz       |     |
| 15       | 74Hz       | 74Hz       |     |
| 16       | 80Hz       | 80Hz       |     |
| 17       | 88Hz       | 88Hz       |     |
| 18       | 92Hz       | 92Hz       |     |
| 19       | 96Hz       | 96Hz       |     |
| 20       | 104Hz      | 104Hz      |     |
| 21       | 110Hz      | 110Hz      |     |
| 22       | 116Hz      | 116Hz      |     |
| 23       | 124Hz      | 124Hz      |     |
| 24       | 132Hz      | 132Hz      |     |
| 25       | 52Hz       | 52Hz       | ON1 |
| 26       | 62Hz       | 62Hz       | ON1 |
| 27       | 68Hz       | 68Hz       | ON1 |
| 28       | 74Hz       | 74Hz       | ON1 |
| 29       | 80Hz       | 80Hz       | ON1 |
| 30       | 88Hz       | 88Hz       | ON1 |
| 31       | 96Hz       | 96Hz       | ON1 |
| 32       | 104Hz      | 104Hz      | ON1 |
| 33       | 52Hz       | 52Hz       | ON2 |
| 34       | 62Hz       | 62Hz       | ON2 |
| 35       | 74Hz       | 74Hz       | ON2 |
| 36       | 88Hz       | 88Hz       | ON2 |
| 37       | 96Hz       | 96Hz       | ON2 |
| 38       | 52Hz       | 52Hz       | ON3 |
| 39       | 62Hz       | 62Hz       | ON3 |
| 40       | 74Hz       | 74Hz       | ON3 |
| 41       | 92Hz       | 92Hz       | ON3 |
| 42       | 104Hz      | 104Hz      | ON3 |
| 43       | 116Hz      | 116Hz      | ON3 |
| 44       | 124Hz      | 124Hz      | ON3 |
| 45       | 144Hz      | 144Hz      | ON3 |
| 46       | 158Hz      | 158Hz      | ON3 |
| 47       | 166Hz      | 166Hz      | ON3 |
| 48       | 176Hz      | 176Hz      | ON3 |
| 49       | 188Hz      | 188Hz      | ON3 |
| 50       | 202Hz      | 202Hz      | ON3 |
| 51       | 210Hz      | 210Hz      | ON3 |

REYQ 30PY1, 32PY1 (14/16+16HP)

(To increase Step No.)

| STEP No. | unit 1 INV | unit 2 INV | STD           |
|----------|------------|------------|---------------|
| 1        | 52Hz       | 52Hz       | ←Initial step |
| 2        | 56Hz       | 56Hz       |               |
| 3        | 62Hz       | 62Hz       |               |
| 4        | 66Hz       | 66Hz       |               |
| 5        | 70Hz       | 70Hz       |               |
| 6        | 74Hz       | 74Hz       |               |
| 7        | 80Hz       | 80Hz       |               |
| 8        | 88Hz       | 88Hz       |               |
| 9        | 92Hz       | 92Hz       |               |
| 10       | 96Hz       | 96Hz       |               |
| 11       | 104Hz      | 104Hz      |               |
| 12       | 110Hz      | 110Hz      |               |
| 13       | 116Hz      | 116Hz      |               |
| 14       | 124Hz      | 124Hz      |               |
| 15       | 132Hz      | 132Hz      |               |
| 16       | 144Hz      | 144Hz      |               |
| 17       | 158Hz      | 158Hz      |               |
| 18       | 166Hz      | 166Hz      |               |
| 19       | 176Hz      | 176Hz      |               |
| 20       | 80Hz       | 80Hz       | ON1           |
| 21       | 88Hz       | 88Hz       | ON1           |
| 22       | 96Hz       | 96Hz       | ON1           |
| 23       | 104Hz      | 104Hz      | ON1           |
| 24       | 116Hz      | 116Hz      | ON1           |
| 25       | 124Hz      | 124Hz      | ON1           |
| 26       | 132Hz      | 132Hz      | ON1           |
| 27       | 88Hz       | 88Hz       | ON2           |
| 28       | 96Hz       | 96Hz       | ON2           |
| 29       | 104Hz      | 104Hz      | ON2           |
| 30       | 124Hz      | 124Hz      | ON2           |
| 31       | 144Hz      | 144Hz      | ON2           |
| 32       | 92Hz       | 92Hz       | ON3           |
| 33       | 104Hz      | 104Hz      | ON3           |
| 34       | 116Hz      | 116Hz      | ON3           |
| 35       | 124Hz      | 124Hz      | ON3           |
| 36       | 144Hz      | 144Hz      | ON3           |
| 37       | 96Hz       | 96Hz       | ON4           |
| 38       | 104Hz      | 104Hz      | ON4           |
| 39       | 116Hz      | 116Hz      | ON4           |
| 40       | 124Hz      | 124Hz      | ON4           |
| 41       | 144Hz      | 144Hz      | ON4           |
| 42       | 158Hz      | 158Hz      | ON4           |
| 43       | 166Hz      | 166Hz      | ON4           |
| 44       | 176Hz      | 176Hz      | ON4           |
| 45       | 188Hz      | 188Hz      | ON4           |
| 46       | 202Hz      | 202Hz      | ON4           |
| 47       | 210Hz      | 210Hz      | ON4           |

(To decrease Step No.)

| STEP No. | unit 1 INV | unit 2 INV | STD |
|----------|------------|------------|-----|
| 1        | 52Hz       |            |     |
| 2        | 56Hz       |            |     |
| 3        | 62Hz       |            |     |
| 4        | 68Hz       |            |     |
| 5        | 74Hz       |            |     |
| 6        | 80Hz       |            |     |
| 7        | 88Hz       |            |     |
| 8        | 96Hz       |            |     |
| 9        | 104Hz      |            |     |
| 10       | 52Hz       | 52Hz       |     |
| 11       | 56Hz       | 56Hz       |     |
| 12       | 62Hz       | 62Hz       |     |
| 13       | 66Hz       | 66Hz       |     |
| 14       | 70Hz       | 70Hz       |     |
| 15       | 74Hz       | 74Hz       |     |
| 16       | 80Hz       | 80Hz       |     |
| 17       | 88Hz       | 88Hz       |     |
| 18       | 92Hz       | 92Hz       |     |
| 19       | 96Hz       | 96Hz       |     |
| 20       | 104Hz      | 104Hz      |     |
| 21       | 110Hz      | 110Hz      |     |
| 22       | 116Hz      | 116Hz      |     |
| 23       | 124Hz      | 124Hz      |     |
| 24       | 132Hz      | 132Hz      |     |
| 25       | 52Hz       | 52Hz       | ON1 |
| 26       | 62Hz       | 62Hz       | ON1 |
| 27       | 68Hz       | 68Hz       | ON1 |
| 28       | 74Hz       | 74Hz       | ON1 |
| 29       | 80Hz       | 80Hz       | ON1 |
| 30       | 88Hz       | 88Hz       | ON1 |
| 31       | 96Hz       | 96Hz       | ON1 |
| 32       | 104Hz      | 104Hz      | ON1 |
| 33       | 52Hz       | 52Hz       | ON2 |
| 34       | 62Hz       | 62Hz       | ON2 |
| 35       | 74Hz       | 74Hz       | ON2 |
| 36       | 88Hz       | 88Hz       | ON2 |
| 37       | 96Hz       | 96Hz       | ON2 |
| 38       | 52Hz       | 52Hz       | ON3 |
| 39       | 62Hz       | 62Hz       | ON3 |
| 40       | 74Hz       | 74Hz       | ON3 |
| 41       | 96Hz       | 96Hz       | ON3 |
| 42       | 104Hz      | 104Hz      | ON3 |
| 43       | 52Hz       | 52Hz       | ON4 |
| 44       | 62Hz       | 62Hz       | ON4 |
| 45       | 74Hz       | 74Hz       | ON4 |
| 46       | 96Hz       | 96Hz       | ON4 |
| 47       | 104Hz      | 104Hz      | ON4 |
| 48       | 116Hz      | 116Hz      | ON4 |
| 49       | 124Hz      | 124Hz      | ON4 |
| 50       | 144Hz      | 144Hz      | ON4 |
| 51       | 158Hz      | 158Hz      | ON4 |
| 52       | 166Hz      | 166Hz      | ON4 |
| 53       | 176Hz      | 176Hz      | ON4 |
| 54       | 188Hz      | 188Hz      | ON4 |
| 55       | 202Hz      | 202Hz      | ON4 |
| 56       | 210Hz      | 210Hz      | ON4 |

**Notes:**

- INV : Inverter compressor  
STD : Standard compressor  
Figures after ON represent the number of STD compressors in operation.
- “Master unit”, and “slave unit” in this section are the names for control, and they will be transferred according to the priority of rotation system.
- Depending on the operating conditions of compressors, the compressors may run in patterns other than those aforementioned.

## REYQ34PY1, 36PY1 (8+10/12+16HP)

| (To increase Step No.) |            |            |            |               |
|------------------------|------------|------------|------------|---------------|
| STEP No.               | unit 1 INV | unit 2 INV | unit 3 INV | STD           |
| 1                      | 52Hz       | 52Hz       | 52Hz       | ←Initial step |
| 2                      | 56Hz       | 56Hz       | 56Hz       |               |
| 3                      | 62Hz       | 62Hz       | 62Hz       |               |
| 4                      | 66Hz       | 66Hz       | 66Hz       |               |
| 5                      | 68Hz       | 68Hz       | 68Hz       |               |
| 6                      | 70Hz       | 70Hz       | 70Hz       |               |
| 7                      | 74Hz       | 74Hz       | 74Hz       |               |
| 8                      | 80Hz       | 80Hz       | 80Hz       |               |
| 9                      | 88Hz       | 88Hz       | 88Hz       |               |
| 10                     | 96Hz       | 96Hz       | 96Hz       |               |
| 11                     | 104Hz      | 104Hz      | 104Hz      |               |
| 12                     | 110Hz      | 110Hz      | 110Hz      |               |
| 13                     | 116Hz      | 116Hz      | 116Hz      |               |
| 14                     | 124Hz      | 124Hz      | 124Hz      |               |
| 15                     | 80Hz       | 80Hz       | 80Hz       | ON1           |
| 16                     | 88Hz       | 88Hz       | 88Hz       | ON1           |
| 17                     | 96Hz       | 96Hz       | 96Hz       | ON1           |
| 18                     | 104Hz      | 104Hz      | 104Hz      | ON1           |
| 19                     | 116Hz      | 116Hz      | 116Hz      | ON1           |
| 20                     | 124Hz      | 124Hz      | 124Hz      | ON1           |
| 21                     | 132Hz      | 132Hz      | 132Hz      | ON1           |
| 22                     | 88Hz       | 88Hz       | 88Hz       | ON2           |
| 23                     | 96Hz       | 96Hz       | 96Hz       | ON2           |
| 24                     | 104Hz      | 104Hz      | 104Hz      | ON2           |
| 25                     | 124Hz      | 124Hz      | 124Hz      | ON2           |
| 26                     | 144Hz      | 144Hz      | 144Hz      | ON2           |
| 27                     | 92Hz       | 92Hz       | 92Hz       | ON3           |
| 28                     | 104Hz      | 104Hz      | 104Hz      | ON3           |
| 29                     | 116Hz      | 116Hz      | 116Hz      | ON3           |
| 30                     | 124Hz      | 124Hz      | 124Hz      | ON3           |
| 31                     | 144Hz      | 144Hz      | 144Hz      | ON3           |
| 32                     | 158Hz      | 158Hz      | 158Hz      | ON3           |
| 33                     | 166Hz      | 166Hz      | 166Hz      | ON3           |
| 34                     | 176Hz      | 176Hz      | 176Hz      | ON3           |
| 35                     | 188Hz      | 188Hz      | 188Hz      | ON3           |
| 36                     | 202Hz      | 202Hz      | 202Hz      | ON3           |
| 37                     | 210Hz      | 210Hz      | 210Hz      | ON3           |

| (To decrease Step No.) |            |            |            |     |
|------------------------|------------|------------|------------|-----|
| STEP No.               | unit 1 INV | unit 2 INV | unit 3 INV | STD |
| 1                      | 52Hz       |            |            |     |
| 2                      | 56Hz       |            |            |     |
| 3                      | 62Hz       |            |            |     |
| 4                      | 68Hz       |            |            |     |
| 5                      | 74Hz       |            |            |     |
| 6                      | 80Hz       |            |            |     |
| 7                      | 88Hz       |            |            |     |
| 8                      | 96Hz       |            |            |     |
| 9                      | 104Hz      |            |            |     |
| 10                     | 52Hz       | 52Hz       |            |     |
| 11                     | 56Hz       | 56Hz       |            |     |
| 12                     | 62Hz       | 62Hz       |            |     |
| 13                     | 66Hz       | 66Hz       |            |     |
| 14                     | 70Hz       | 70Hz       |            |     |
| 15                     | 74Hz       | 74Hz       |            |     |
| 16                     | 52Hz       | 52Hz       | 52Hz       |     |
| 17                     | 56Hz       | 56Hz       | 56Hz       |     |
| 18                     | 62Hz       | 62Hz       | 62Hz       |     |
| 19                     | 66Hz       | 66Hz       | 66Hz       |     |
| 20                     | 68Hz       | 68Hz       | 68Hz       |     |
| 21                     | 70Hz       | 70Hz       | 70Hz       |     |
| 22                     | 74Hz       | 74Hz       | 74Hz       |     |
| 23                     | 80Hz       | 80Hz       | 80Hz       |     |
| 24                     | 88Hz       | 88Hz       | 88Hz       |     |
| 25                     | 96Hz       | 96Hz       | 96Hz       |     |
| 26                     | 52Hz       | 52Hz       | 52Hz       | ON1 |
| 27                     | 62Hz       | 62Hz       | 62Hz       | ON1 |
| 28                     | 68Hz       | 68Hz       | 68Hz       | ON1 |
| 29                     | 74Hz       | 74Hz       | 74Hz       | ON1 |
| 30                     | 80Hz       | 80Hz       | 80Hz       | ON1 |
| 31                     | 88Hz       | 88Hz       | 88Hz       | ON1 |
| 32                     | 96Hz       | 96Hz       | 96Hz       | ON1 |
| 33                     | 104Hz      | 104Hz      | 104Hz      | ON1 |
| 34                     | 52Hz       | 52Hz       | 52Hz       | ON2 |
| 35                     | 62Hz       | 62Hz       | 62Hz       | ON2 |
| 36                     | 74Hz       | 74Hz       | 74Hz       | ON2 |
| 37                     | 88Hz       | 88Hz       | 88Hz       | ON2 |
| 38                     | 96Hz       | 96Hz       | 96Hz       | ON2 |
| 39                     | 52Hz       | 52Hz       | 52Hz       | ON3 |
| 40                     | 62Hz       | 62Hz       | 62Hz       | ON3 |
| 41                     | 74Hz       | 74Hz       | 74Hz       | ON3 |
| 42                     | 92Hz       | 92Hz       | 92Hz       | ON3 |
| 43                     | 104Hz      | 104Hz      | 104Hz      | ON3 |
| 44                     | 116Hz      | 116Hz      | 116Hz      | ON3 |
| 45                     | 124Hz      | 124Hz      | 124Hz      | ON3 |
| 46                     | 144Hz      | 144Hz      | 144Hz      | ON3 |
| 47                     | 158Hz      | 158Hz      | 158Hz      | ON3 |
| 48                     | 166Hz      | 166Hz      | 166Hz      | ON3 |
| 49                     | 176Hz      | 176Hz      | 176Hz      | ON3 |
| 50                     | 188Hz      | 188Hz      | 188Hz      | ON3 |
| 51                     | 202Hz      | 202Hz      | 202Hz      | ON3 |
| 52                     | 210Hz      | 210Hz      | 210Hz      | ON3 |

## REYQ38PY1, 40PY1 (10/12+12+16HP)

| (To increase Step No.) |            |            |            |               |
|------------------------|------------|------------|------------|---------------|
| STEP No.               | unit 1 INV | unit 2 INV | unit 3 INV | STD           |
| 1                      | 52Hz       | 52Hz       | 52Hz       | ←Initial step |
| 2                      | 56Hz       | 56Hz       | 56Hz       |               |
| 3                      | 62Hz       | 62Hz       | 62Hz       |               |
| 4                      | 66Hz       | 66Hz       | 66Hz       |               |
| 5                      | 68Hz       | 68Hz       | 68Hz       |               |
| 6                      | 70Hz       | 70Hz       | 70Hz       |               |
| 7                      | 74Hz       | 74Hz       | 74Hz       |               |
| 8                      | 80Hz       | 80Hz       | 80Hz       |               |
| 9                      | 88Hz       | 88Hz       | 88Hz       |               |
| 10                     | 96Hz       | 96Hz       | 96Hz       |               |
| 11                     | 104Hz      | 104Hz      | 104Hz      |               |
| 12                     | 110Hz      | 110Hz      | 110Hz      |               |
| 13                     | 116Hz      | 116Hz      | 116Hz      |               |
| 14                     | 124Hz      | 124Hz      | 124Hz      |               |
| 15                     | 80Hz       | 80Hz       | 80Hz       | ON1           |
| 16                     | 88Hz       | 88Hz       | 88Hz       | ON1           |
| 17                     | 96Hz       | 96Hz       | 96Hz       | ON1           |
| 18                     | 104Hz      | 104Hz      | 104Hz      | ON1           |
| 19                     | 116Hz      | 116Hz      | 116Hz      | ON1           |
| 20                     | 124Hz      | 124Hz      | 124Hz      | ON1           |
| 21                     | 132Hz      | 132Hz      | 132Hz      | ON1           |
| 22                     | 88Hz       | 88Hz       | 88Hz       | ON2           |
| 23                     | 96Hz       | 96Hz       | 96Hz       | ON2           |
| 24                     | 104Hz      | 104Hz      | 104Hz      | ON2           |
| 25                     | 124Hz      | 124Hz      | 124Hz      | ON2           |
| 26                     | 144Hz      | 144Hz      | 144Hz      | ON2           |
| 27                     | 92Hz       | 92Hz       | 92Hz       | ON3           |
| 28                     | 104Hz      | 104Hz      | 104Hz      | ON3           |
| 29                     | 116Hz      | 116Hz      | 116Hz      | ON3           |
| 30                     | 124Hz      | 124Hz      | 124Hz      | ON3           |
| 31                     | 144Hz      | 144Hz      | 144Hz      | ON3           |
| 32                     | 96Hz       | 96Hz       | 96Hz       | ON4           |
| 33                     | 104Hz      | 104Hz      | 104Hz      | ON4           |
| 34                     | 116Hz      | 116Hz      | 116Hz      | ON4           |
| 35                     | 124Hz      | 124Hz      | 124Hz      | ON4           |
| 36                     | 144Hz      | 144Hz      | 144Hz      | ON4           |
| 37                     | 158Hz      | 158Hz      | 158Hz      | ON4           |
| 38                     | 166Hz      | 166Hz      | 166Hz      | ON4           |
| 39                     | 176Hz      | 176Hz      | 176Hz      | ON4           |
| 40                     | 188Hz      | 188Hz      | 188Hz      | ON4           |
| 41                     | 202Hz      | 202Hz      | 202Hz      | ON4           |
| 42                     | 210Hz      | 210Hz      | 210Hz      | ON4           |

| (To decrease Step No.) |            |            |            |     |
|------------------------|------------|------------|------------|-----|
| STEP No.               | unit 1 INV | unit 2 INV | unit 3 INV | STD |
| 1                      | 52Hz       |            |            |     |
| 2                      | 56Hz       |            |            |     |
| 3                      | 62Hz       |            |            |     |
| 4                      | 68Hz       |            |            |     |
| 5                      | 74Hz       |            |            |     |
| 6                      | 80Hz       |            |            |     |
| 7                      | 88Hz       |            |            |     |
| 8                      | 96Hz       |            |            |     |
| 9                      | 104Hz      |            |            |     |
| 10                     | 52Hz       | 52Hz       |            |     |
| 11                     | 56Hz       | 56Hz       |            |     |
| 12                     | 62Hz       | 62Hz       |            |     |
| 13                     | 66Hz       | 66Hz       |            |     |
| 14                     | 70Hz       | 70Hz       |            |     |
| 15                     | 74Hz       | 74Hz       |            |     |
| 16                     | 52Hz       | 52Hz       | 52Hz       |     |
| 17                     | 56Hz       | 56Hz       | 56Hz       |     |
| 18                     | 62Hz       | 62Hz       | 62Hz       |     |
| 19                     | 66Hz       | 66Hz       | 66Hz       |     |
| 20                     | 68Hz       | 68Hz       | 68Hz       |     |
| 21                     | 70Hz       | 70Hz       | 70Hz       |     |
| 22                     | 74Hz       | 74Hz       | 74Hz       |     |
| 23                     | 80Hz       | 80Hz       | 80Hz       |     |
| 24                     | 88Hz       | 88Hz       | 88Hz       |     |
| 25                     | 96Hz       | 96Hz       | 96Hz       |     |
| 26                     | 52Hz       | 52Hz       | 52Hz       | ON1 |
| 27                     | 62Hz       | 62Hz       | 62Hz       | ON1 |
| 28                     | 68Hz       | 68Hz       | 68Hz       | ON1 |
| 29                     | 74Hz       | 74Hz       | 74Hz       | ON1 |
| 30                     | 80Hz       | 80Hz       | 80Hz       | ON1 |
| 31                     | 88Hz       | 88Hz       | 88Hz       | ON1 |
| 32                     | 96Hz       | 96Hz       | 96Hz       | ON1 |
| 33                     | 104Hz      | 104Hz      | 104Hz      | ON1 |
| 34                     | 52Hz       | 52Hz       | 52Hz       | ON2 |
| 35                     | 62Hz       | 62Hz       | 62Hz       | ON2 |
| 36                     | 74Hz       | 74Hz       | 74Hz       | ON2 |
| 37                     | 88Hz       | 88Hz       | 88Hz       | ON2 |
| 38                     | 96Hz       | 96Hz       | 96Hz       | ON2 |
| 39                     | 52Hz       | 52Hz       | 52Hz       | ON3 |
| 40                     | 62Hz       | 62Hz       | 62Hz       | ON3 |
| 41                     | 74Hz       | 74Hz       | 74Hz       | ON3 |
| 42                     | 92Hz       | 92Hz       | 92Hz       | ON3 |
| 43                     | 104Hz      | 104Hz      | 104Hz      | ON3 |
| 44                     | 52Hz       | 52Hz       | 52Hz       | ON4 |
| 45                     | 62Hz       | 62Hz       | 62Hz       | ON4 |
| 46                     | 74Hz       | 74Hz       | 74Hz       | ON4 |
| 47                     | 96Hz       | 96Hz       | 96Hz       | ON4 |
| 48                     | 104Hz      | 104Hz      | 104Hz      | ON4 |
| 49                     | 116Hz      | 116Hz      | 116Hz      | ON4 |
| 50                     | 124Hz      | 124Hz      | 124Hz      | ON4 |
| 51                     | 144Hz      | 144Hz      | 144Hz      | ON4 |
| 52                     | 158Hz      | 158Hz      | 158Hz      | ON4 |
| 53                     | 166Hz      | 166Hz      | 166Hz      | ON4 |
| 54                     | 176Hz      | 176Hz      | 176Hz      | ON4 |
| 55                     | 188Hz      | 188Hz      | 188Hz      | ON4 |
| 56                     | 202Hz      | 202Hz      | 202Hz      | ON4 |
| 57                     | 210Hz      | 210Hz      | 210Hz      | ON4 |

**Notes:**

1. INV : Inverter compressor

STD : Standard compressor

Figures after ON represent the number of STD compressors in operation.

2. "Master unit", and "slave unit" in this section are the names for control, and they will be transferred according to the priority of rotation system.

3. Depending on the operating conditions of compressors, the compressors may run in patterns other than those aforementioned.

## REYQ42PY1, 44PY1 (10/12+16+16HP)

(To increase Step No.)

| STEP No. | unit 1 INV | unit 2 INV | unit 3 INV | STD           |
|----------|------------|------------|------------|---------------|
| 1        | 52Hz       | 52Hz       | 52Hz       | ←Initial step |
| 2        | 56Hz       | 56Hz       | 56Hz       |               |
| 3        | 62Hz       | 62Hz       | 62Hz       |               |
| 4        | 66Hz       | 66Hz       | 66Hz       |               |
| 5        | 68Hz       | 68Hz       | 68Hz       |               |
| 6        | 70Hz       | 70Hz       | 70Hz       |               |
| 7        | 74Hz       | 74Hz       | 74Hz       |               |
| 8        | 80Hz       | 80Hz       | 80Hz       |               |
| 9        | 88Hz       | 88Hz       | 88Hz       |               |
| 10       | 96Hz       | 96Hz       | 96Hz       |               |
| 11       | 104Hz      | 104Hz      | 104Hz      |               |
| 12       | 110Hz      | 110Hz      | 110Hz      |               |
| 13       | 116Hz      | 116Hz      | 116Hz      |               |
| 14       | 124Hz      | 124Hz      | 124Hz      |               |
| 15       | 80Hz       | 80Hz       | 80Hz       | ON1           |
| 16       | 88Hz       | 88Hz       | 88Hz       | ON1           |
| 17       | 96Hz       | 96Hz       | 96Hz       | ON1           |
| 18       | 104Hz      | 104Hz      | 104Hz      | ON1           |
| 19       | 116Hz      | 116Hz      | 116Hz      | ON1           |
| 20       | 124Hz      | 124Hz      | 124Hz      | ON1           |
| 21       | 132Hz      | 132Hz      | 132Hz      | ON1           |
| 22       | 88Hz       | 88Hz       | 88Hz       | ON2           |
| 23       | 96Hz       | 96Hz       | 96Hz       | ON2           |
| 24       | 104Hz      | 104Hz      | 104Hz      | ON2           |
| 25       | 124Hz      | 124Hz      | 124Hz      | ON2           |
| 26       | 144Hz      | 144Hz      | 144Hz      | ON2           |
| 27       | 92Hz       | 92Hz       | 92Hz       | ON3           |
| 28       | 104Hz      | 104Hz      | 104Hz      | ON3           |
| 29       | 116Hz      | 116Hz      | 116Hz      | ON3           |
| 30       | 124Hz      | 124Hz      | 124Hz      | ON3           |
| 31       | 144Hz      | 144Hz      | 144Hz      | ON3           |
| 32       | 96Hz       | 96Hz       | 96Hz       | ON4           |
| 33       | 104Hz      | 104Hz      | 104Hz      | ON4           |
| 34       | 116Hz      | 116Hz      | 116Hz      | ON4           |
| 35       | 124Hz      | 124Hz      | 124Hz      | ON4           |
| 36       | 144Hz      | 144Hz      | 144Hz      | ON4           |
| 37       | 96Hz       | 96Hz       | 96Hz       | ON5           |
| 38       | 104Hz      | 104Hz      | 104Hz      | ON5           |
| 39       | 116Hz      | 116Hz      | 116Hz      | ON5           |
| 40       | 124Hz      | 124Hz      | 124Hz      | ON5           |
| 41       | 144Hz      | 144Hz      | 144Hz      | ON5           |
| 42       | 158Hz      | 158Hz      | 158Hz      | ON5           |
| 43       | 166Hz      | 166Hz      | 166Hz      | ON5           |
| 44       | 176Hz      | 176Hz      | 176Hz      | ON5           |
| 45       | 188Hz      | 188Hz      | 188Hz      | ON5           |
| 46       | 202Hz      | 202Hz      | 202Hz      | ON5           |
| 47       | 210Hz      | 210Hz      | 210Hz      | ON5           |

(To decrease Step No.)

| STEP No. | unit 1 INV | unit 2 INV | unit 3 INV | STD |
|----------|------------|------------|------------|-----|
| 1        | 52Hz       |            |            |     |
| 2        | 56Hz       |            |            |     |
| 3        | 62Hz       |            |            |     |
| 4        | 68Hz       |            |            |     |
| 5        | 74Hz       |            |            |     |
| 6        | 80Hz       |            |            |     |
| 7        | 88Hz       |            |            |     |
| 8        | 96Hz       |            |            |     |
| 9        | 104Hz      |            |            |     |
| 10       | 52Hz       | 52Hz       |            |     |
| 11       | 56Hz       | 56Hz       |            |     |
| 12       | 62Hz       | 62Hz       |            |     |
| 13       | 66Hz       | 66Hz       |            |     |
| 14       | 70Hz       | 70Hz       |            |     |
| 15       | 74Hz       | 74Hz       |            |     |
| 16       | 52Hz       | 52Hz       | 52Hz       |     |
| 17       | 56Hz       | 56Hz       | 56Hz       |     |
| 18       | 62Hz       | 62Hz       | 62Hz       |     |
| 19       | 66Hz       | 66Hz       | 66Hz       |     |
| 20       | 68Hz       | 68Hz       | 68Hz       |     |
| 21       | 70Hz       | 70Hz       | 70Hz       |     |
| 22       | 74Hz       | 74Hz       | 74Hz       |     |
| 23       | 80Hz       | 80Hz       | 80Hz       |     |
| 24       | 88Hz       | 88Hz       | 88Hz       |     |
| 25       | 96Hz       | 96Hz       | 96Hz       |     |
| 26       | 52Hz       | 52Hz       | 52Hz       | ON1 |
| 27       | 62Hz       | 62Hz       | 62Hz       | ON1 |
| 28       | 68Hz       | 68Hz       | 68Hz       | ON1 |
| 29       | 74Hz       | 74Hz       | 74Hz       | ON1 |
| 30       | 80Hz       | 80Hz       | 80Hz       | ON1 |
| 31       | 88Hz       | 88Hz       | 88Hz       | ON1 |
| 32       | 96Hz       | 96Hz       | 96Hz       | ON1 |
| 33       | 104Hz      | 104Hz      | 104Hz      | ON1 |
| 34       | 52Hz       | 52Hz       | 52Hz       | ON2 |
| 35       | 62Hz       | 62Hz       | 62Hz       | ON2 |
| 36       | 74Hz       | 74Hz       | 74Hz       | ON2 |
| 37       | 88Hz       | 88Hz       | 88Hz       | ON2 |
| 38       | 96Hz       | 96Hz       | 96Hz       | ON2 |
| 39       | 52Hz       | 52Hz       | 52Hz       | ON3 |
| 40       | 62Hz       | 62Hz       | 62Hz       | ON3 |
| 41       | 74Hz       | 74Hz       | 74Hz       | ON3 |
| 42       | 92Hz       | 92Hz       | 92Hz       | ON3 |
| 43       | 104Hz      | 104Hz      | 104Hz      | ON3 |
| 44       | 52Hz       | 52Hz       | 52Hz       | ON4 |
| 45       | 62Hz       | 62Hz       | 62Hz       | ON4 |
| 46       | 74Hz       | 74Hz       | 74Hz       | ON4 |
| 47       | 96Hz       | 96Hz       | 96Hz       | ON4 |
| 48       | 52Hz       | 52Hz       | 52Hz       | ON5 |
| 49       | 68Hz       | 68Hz       | 68Hz       | ON5 |
| 50       | 80Hz       | 80Hz       | 80Hz       | ON5 |
| 51       | 96Hz       | 96Hz       | 96Hz       | ON5 |
| 52       | 104Hz      | 104Hz      | 104Hz      | ON5 |
| 53       | 116Hz      | 116Hz      | 116Hz      | ON5 |
| 54       | 124Hz      | 124Hz      | 124Hz      | ON5 |
| 55       | 144Hz      | 144Hz      | 144Hz      | ON5 |
| 56       | 158Hz      | 158Hz      | 158Hz      | ON5 |
| 57       | 166Hz      | 166Hz      | 166Hz      | ON5 |
| 58       | 176Hz      | 176Hz      | 176Hz      | ON5 |
| 59       | 188Hz      | 188Hz      | 188Hz      | ON5 |
| 60       | 202Hz      | 202Hz      | 202Hz      | ON5 |
| 61       | 210Hz      | 210Hz      | 210Hz      | ON5 |

## REYQ46PY1, 48PY1 (14/16+16+16HP)

(To increase Step No.)

| STEP No. | unit 1 INV | unit 2 INV | unit 3 INV | STD           |
|----------|------------|------------|------------|---------------|
| 1        | 52Hz       | 52Hz       | 52Hz       | ←Initial step |
| 2        | 56Hz       | 56Hz       | 56Hz       |               |
| 3        | 62Hz       | 62Hz       | 62Hz       |               |
| 4        | 66Hz       | 66Hz       | 66Hz       |               |
| 5        | 68Hz       | 68Hz       | 68Hz       |               |
| 6        | 70Hz       | 70Hz       | 70Hz       |               |
| 7        | 74Hz       | 74Hz       | 74Hz       |               |
| 8        | 80Hz       | 80Hz       | 80Hz       |               |
| 9        | 88Hz       | 88Hz       | 88Hz       |               |
| 10       | 96Hz       | 96Hz       | 96Hz       |               |
| 11       | 104Hz      | 104Hz      | 104Hz      |               |
| 12       | 110Hz      | 110Hz      | 110Hz      |               |
| 13       | 116Hz      | 116Hz      | 116Hz      |               |
| 14       | 124Hz      | 124Hz      | 124Hz      |               |
| 15       | 80Hz       | 80Hz       | 80Hz       | ON1           |
| 16       | 88Hz       | 88Hz       | 88Hz       | ON1           |
| 17       | 96Hz       | 96Hz       | 96Hz       | ON1           |
| 18       | 104Hz      | 104Hz      | 104Hz      | ON1           |
| 19       | 116Hz      | 116Hz      | 116Hz      | ON1           |
| 20       | 124Hz      | 124Hz      | 124Hz      | ON1           |
| 21       | 132Hz      | 132Hz      | 132Hz      | ON1           |
| 22       | 88Hz       | 88Hz       | 88Hz       | ON2           |
| 23       | 96Hz       | 96Hz       | 96Hz       | ON2           |
| 24       | 104Hz      | 104Hz      | 104Hz      | ON2           |
| 25       | 124Hz      | 124Hz      | 124Hz      | ON2           |
| 26       | 144Hz      | 144Hz      | 144Hz      | ON2           |
| 27       | 92Hz       | 92Hz       | 92Hz       | ON3           |
| 28       | 104Hz      | 104Hz      | 104Hz      | ON3           |
| 29       | 116Hz      | 116Hz      | 116Hz      | ON3           |
| 30       | 124Hz      | 124Hz      | 124Hz      | ON3           |
| 31       | 144Hz      | 144Hz      | 144Hz      | ON3           |
| 32       | 96Hz       | 96Hz       | 96Hz       | ON4           |
| 33       | 104Hz      | 104Hz      | 104Hz      | ON4           |
| 34       | 116Hz      | 116Hz      | 116Hz      | ON4           |
| 35       | 124Hz      | 124Hz      | 124Hz      | ON4           |
| 36       | 144Hz      | 144Hz      | 144Hz      | ON4           |
| 37       | 96Hz       | 96Hz       | 96Hz       | ON5           |
| 38       | 104Hz      | 104Hz      | 104Hz      | ON5           |
| 39       | 116Hz      | 116Hz      | 116Hz      | ON5           |
| 40       | 124Hz      | 124Hz      | 124Hz      | ON5           |
| 41       | 144Hz      | 144Hz      | 144Hz      | ON5           |
| 42       | 96Hz       | 96Hz       | 96Hz       | ON6           |
| 43       | 104Hz      | 104Hz      | 104Hz      | ON6           |
| 44       | 116Hz      | 116Hz      | 116Hz      | ON6           |
| 45       | 124Hz      | 124Hz      | 124Hz      | ON6           |
| 46       | 144Hz      | 144Hz      | 144Hz      | ON6           |
| 47       | 158Hz      | 158Hz      | 158Hz      | ON6           |
| 48       | 166Hz      | 166Hz      | 166Hz      | ON6           |
| 49       | 176Hz      | 176Hz      | 176Hz      | ON6           |
| 50       | 188Hz      | 188Hz      | 188Hz      | ON6           |
| 51       | 202Hz      | 202Hz      | 202Hz      | ON6           |
| 52       | 210Hz      | 210Hz      | 210Hz      | ON6           |

(To decrease Step No.)

| STEP No. | unit 1 INV | unit 2 INV | unit 3 INV | STD |
|----------|------------|------------|------------|-----|
| 1        | 52Hz       |            |            |     |
| 2        | 56Hz       |            |            |     |
| 3        | 62Hz       |            |            |     |
| 4        | 68Hz       |            |            |     |
| 5        | 74Hz       |            |            |     |
| 6        | 80Hz       |            |            |     |
| 7        | 88Hz       |            |            |     |
| 8        | 96Hz       |            |            |     |
| 9        | 104Hz      |            |            |     |
| 10       | 52Hz       | 52Hz       |            |     |
| 11       | 56Hz       | 56Hz       |            |     |
| 12       | 62Hz       | 62Hz       |            |     |
| 13       | 66Hz       | 66Hz       |            |     |
| 14       | 70Hz       | 70Hz       |            |     |
| 15       | 74Hz       | 74Hz       |            |     |
| 16       | 52Hz       | 52Hz       | 52Hz       |     |
| 17       | 56Hz       | 56Hz       | 56Hz       |     |
| 18       | 62Hz       | 62Hz       | 62Hz       |     |
| 19       | 66Hz       | 66Hz       | 66Hz       |     |
| 20       | 68Hz       | 68Hz       | 68Hz       |     |
| 21       | 70Hz       | 70Hz       | 70Hz       |     |
| 22       | 74Hz       | 74Hz       | 74Hz       |     |
| 23       | 80Hz       | 80Hz       | 80Hz       |     |
| 24       | 88Hz       | 88Hz       | 88Hz       |     |
| 25       | 96Hz       | 96Hz       | 96Hz       |     |
| 26       | 52Hz       | 52Hz       | 52Hz       | ON1 |
| 27       | 62Hz       | 62Hz       | 62Hz       | ON1 |
| 28       | 68Hz       | 68Hz       | 68Hz       | ON1 |
| 29       | 74Hz       | 74Hz       | 74Hz       | ON1 |
| 30       | 80Hz       | 80Hz       | 80Hz       | ON1 |
| 31       | 88Hz       | 88Hz       | 88Hz       | ON1 |
| 32       | 96Hz       | 96Hz       | 96Hz       | ON1 |
| 33       | 104Hz      | 104Hz      | 104Hz      | ON1 |
| 34       | 52Hz       | 52Hz       | 52Hz       | ON2 |
| 35       | 62Hz       | 62Hz       | 62Hz       | ON2 |
| 36       | 74Hz       | 74Hz       | 74Hz       | ON2 |
| 37       | 88Hz       | 88Hz       | 88Hz       | ON2 |
| 38       | 96Hz       | 96Hz       | 96Hz       | ON2 |
| 39       | 52Hz       | 52Hz       | 52Hz       | ON3 |
| 40       | 62Hz       | 62Hz       | 62Hz       | ON3 |
| 41       | 74Hz       | 74Hz       | 74Hz       | ON3 |
| 42       | 92Hz       | 92Hz       | 92Hz       | ON3 |
| 43       | 104Hz      | 104Hz      | 104Hz      | ON3 |
| 44       | 52Hz       | 52Hz       | 52Hz       | ON4 |
| 45       | 62Hz       | 62Hz       | 62Hz       | ON4 |
| 46       | 74Hz       | 74Hz       | 74Hz       | ON4 |
| 47       | 96Hz       | 96Hz       | 96Hz       | ON4 |
| 48       | 104Hz      | 104Hz      | 104Hz      | ON4 |
| 49       | 52Hz       | 52Hz       | 52Hz       | ON5 |
| 50       | 68Hz       | 68Hz       | 68Hz       | ON5 |
| 51       | 80Hz       | 80Hz       | 80Hz       | ON5 |
| 52       | 96Hz       | 96Hz       | 96Hz       | ON5 |
| 53       | 104Hz      | 104Hz      | 104Hz      | ON5 |
| 54       | 52Hz       | 52Hz       | 52Hz       | ON6 |
| 55       | 68Hz       | 68Hz       | 68Hz       | ON6 |
| 56       | 80Hz       | 80Hz       | 80Hz       | ON6 |
| 57       | 96Hz       | 96Hz       | 96Hz       | ON6 |
| 58       | 104Hz      | 104Hz      | 104Hz      | ON6 |
| 59       | 116Hz      | 116Hz      | 116Hz      | ON6 |
| 60       | 124Hz      | 124Hz      | 124Hz      | ON6 |
| 61       | 144Hz      | 144Hz      | 144Hz      | ON6 |
| 62       | 158Hz      | 158Hz      | 158Hz      | ON6 |
| 63       | 166Hz      | 166Hz      | 166Hz      | ON6 |
| 64       | 176Hz      | 176Hz      | 176Hz      | ON6 |
| 65       | 188Hz      | 188Hz      | 188Hz      | ON6 |
| 66       | 202Hz      | 202Hz      | 202Hz      | ON6 |
| 67       | 210Hz      | 210Hz      | 210Hz      | ON6 |

## Notes:

1. INV : Inverter compressor

STD : Standard compressor

Figures after ON represent the number of STD compressors in operation.

2. "Master unit", and "slave unit" in this section are the names for control, and they will be transferred according to the priority of rotation system.

3. Depending on the operating conditions of compressors, the compressors may run in patterns other than those aforementioned.

## 2.3 Electronic Expansion Valve PI Control

### Main electronic expansion valve EVM control

When the outdoor unit heat exchanging is performed via the evaporator (20SA is set to ON), this function is used to exert PI control on the electronic expansion valve (Y1E or Y3E) so that the evaporator outlet superheated degree (SH) will become constant.

$$SH = T_g - T_e$$

SH: Evaporator outlet superheated degree (°C)

T<sub>g</sub> : Suction pipe temperature (°C) detected by the heat exchanger gas pipe thermistor R2T.

T<sub>e</sub> : Low pressure equivalent saturated temperature (°C)

### Subcooling electronic expansion valve EVT control

In order to make the maximum use of the subcool heat exchanger, this function is used to exert PI control on the electronic expansion valve (Y2E, Y5E or Y3E) so that the evaporator-side gas pipe superheated degree (SH) will become constant.

$$SH = T_{sh} - T_e$$

SH: Evaporator outlet superheated degree (°C)

T<sub>sh</sub>: Suction pipe temperature (°C) detected by the subcool heat exchanger outlet thermistor R5T

T<sub>e</sub>: Low pressure equivalent saturated temperature (°C)

### Refrigerant charge electronic expansion valve EVJ control

While in automatic refrigerant charge mode, this function is used to exert PI control on the opening degree of the electronic expansion valve (Y2E or Y4E) in response to outdoor temperature and close the valve after the completion of refrigerant charge.

For normal operation, fully open this electronic expansion valve.

## 2.4 Step Control of Outdoor Unit Fans

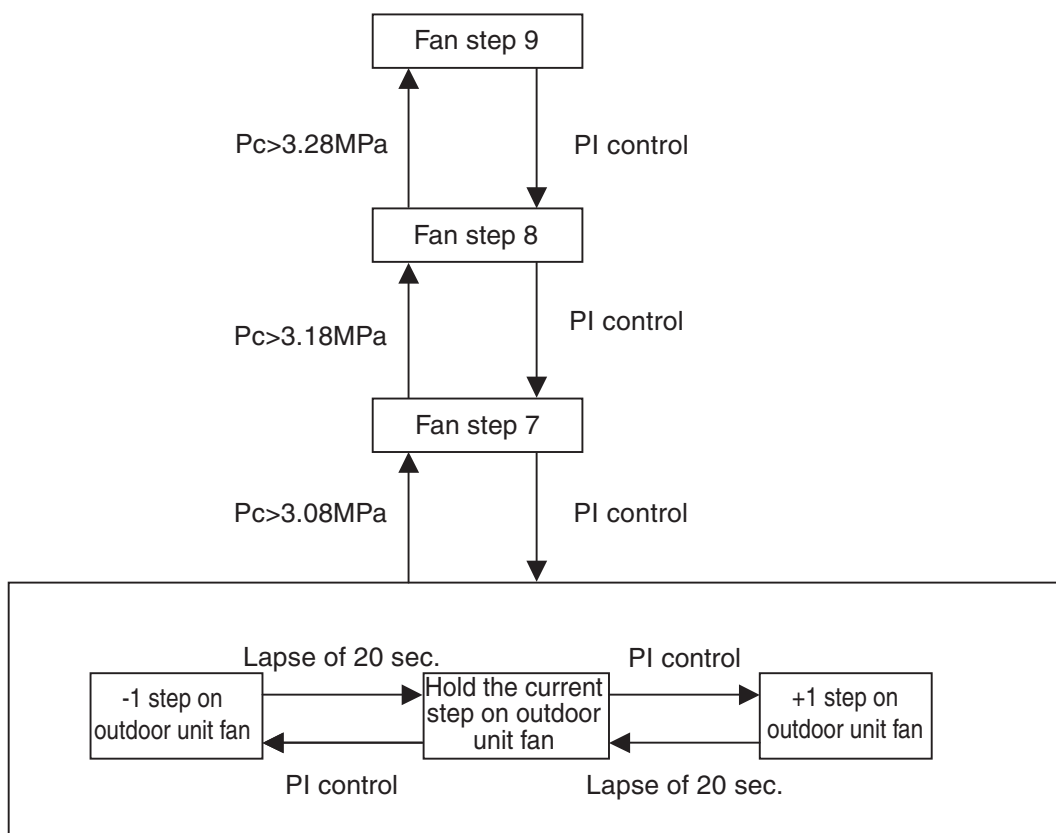
Used to control the revolutions of outdoor unit fans in the steps listed in table below, according to condition changes.

| STEP No. | Fan revolutions (rpm) |           |           |           |           |               |     |     |           |           |
|----------|-----------------------|-----------|-----------|-----------|-----------|---------------|-----|-----|-----------|-----------|
|          | Single type           |           |           |           |           | Multiple type |     |     |           |           |
|          | 8HP                   | 10HP      | 12HP      | 14HP      | 16HP      | M8            | M10 | M12 | M14       | M16       |
| 0        | 0                     | 0         | 0         | 0         | 0         | 0             | 0   | 0   | 0/0       | 0/0       |
| 1        | 285/255               | 285/255   | 285/255   | 285/255   | 285/255   | 350           | 350 | 350 | 230/0     | 230/0     |
| 2        | 315/285               | 315/285   | 315/285   | 360/315   | 360/315   | 370           | 370 | 370 | 380/0     | 380/0     |
| 3        | 360/330               | 360/330   | 360/330   | 395/365   | 395/365   | 400           | 400 | 400 | 290/260   | 290/260   |
| 4        | 430/400               | 430/400   | 430/400   | 480/440   | 480/440   | 450           | 450 | 450 | 375/345   | 375/345   |
| 5        | 590/560               | 590/560   | 590/560   | 560/530   | 560/530   | 540           | 560 | 560 | 570/540   | 570/540   |
| 6        | 690/660               | 690/660   | 690/660   | 760/730   | 760/730   | 610           | 680 | 680 | 720/690   | 720/690   |
| 7        | 820/790               | 820/790   | 820/790   | 960/930   | 960/930   | 680           | 710 | 710 | 910/880   | 910/880   |
| 8        | 920/890               | 920/890   | 951/931   | 1125/1095 | 1155/1125 | 710           | 750 | 775 | 1091/1061 | 1091/1061 |
| 9        | 920/890               | 920/890   | 1020/990  | 1125/1095 | 1200/1170 | 796           | 821 | 870 | 1136/1106 | 1136/1106 |
|          | Fan1/Fan2             | Fan1/Fan2 | Fan1/Fan2 | Fan1/Fan2 | Fan1/Fan2 |               |     |     | Fan1/Fan2 | Fan1/Fan2 |

\* Figures listed above are all those controlled while in standard mode, which vary when the system is set to high static pressure or capacity precedence mode.

## 2.5 Outdoor Unit Fan Control in Cooling Operation

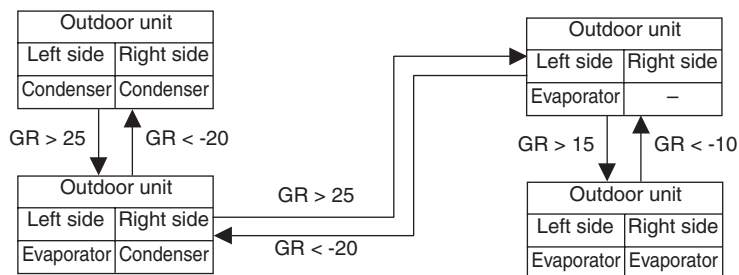
While in cooling operation, if the outdoor temperature is low, this mode provides high-pressure control using the outdoor unit fan to retain appropriate liquid pressure, thus ensuring refrigerant circulation rate to be supplied to indoor units.



## 2.6 Heat Exchanger Control

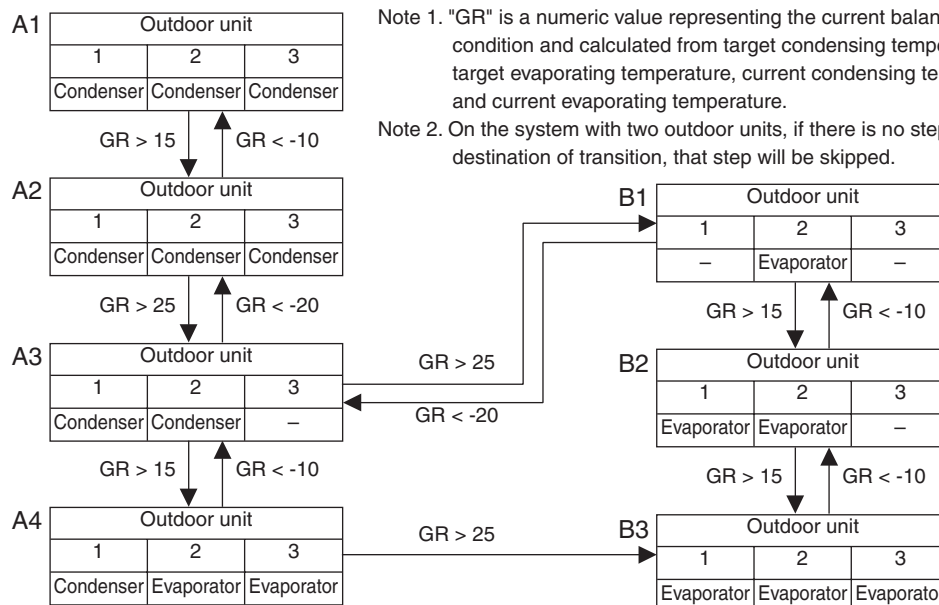
While in heating or cool/heat simultaneous operation, ensure target condensing and evaporating temperature by changing over the air heat exchange of outdoor unit to the evaporator or the condenser in response to loads.

### [Single system]



Note 1. "GR" is a numeric value representing the current balanced condition and calculated from target condensing temperature, target evaporating temperature, current condensing temperature, and current evaporating temperature.

### [Multi outdoor unit system]



Note 1. "GR" is a numeric value representing the current balanced condition and calculated from target condensing temperature, target evaporating temperature, current condensing temperature, and current evaporating temperature.

Note 2. On the system with two outdoor units, if there is no step for the destination of transition, that step will be skipped.

## 3. Special Control

### 3.1 Startup Control

This control is used to equalize the pressure in the front and back of the compressor prior to the startup of the compressor, thus reducing startup loads. Furthermore, the inverter is turned ON to charge the capacitor.

In addition, to avoid stresses to the compressor due to oil return or else after the startup, the following control is made and the position of the four way valve is also determined. To position the four way valve, the master and slave units simultaneously start up.

#### 3.1.1 Startup Control in Cooling Operation

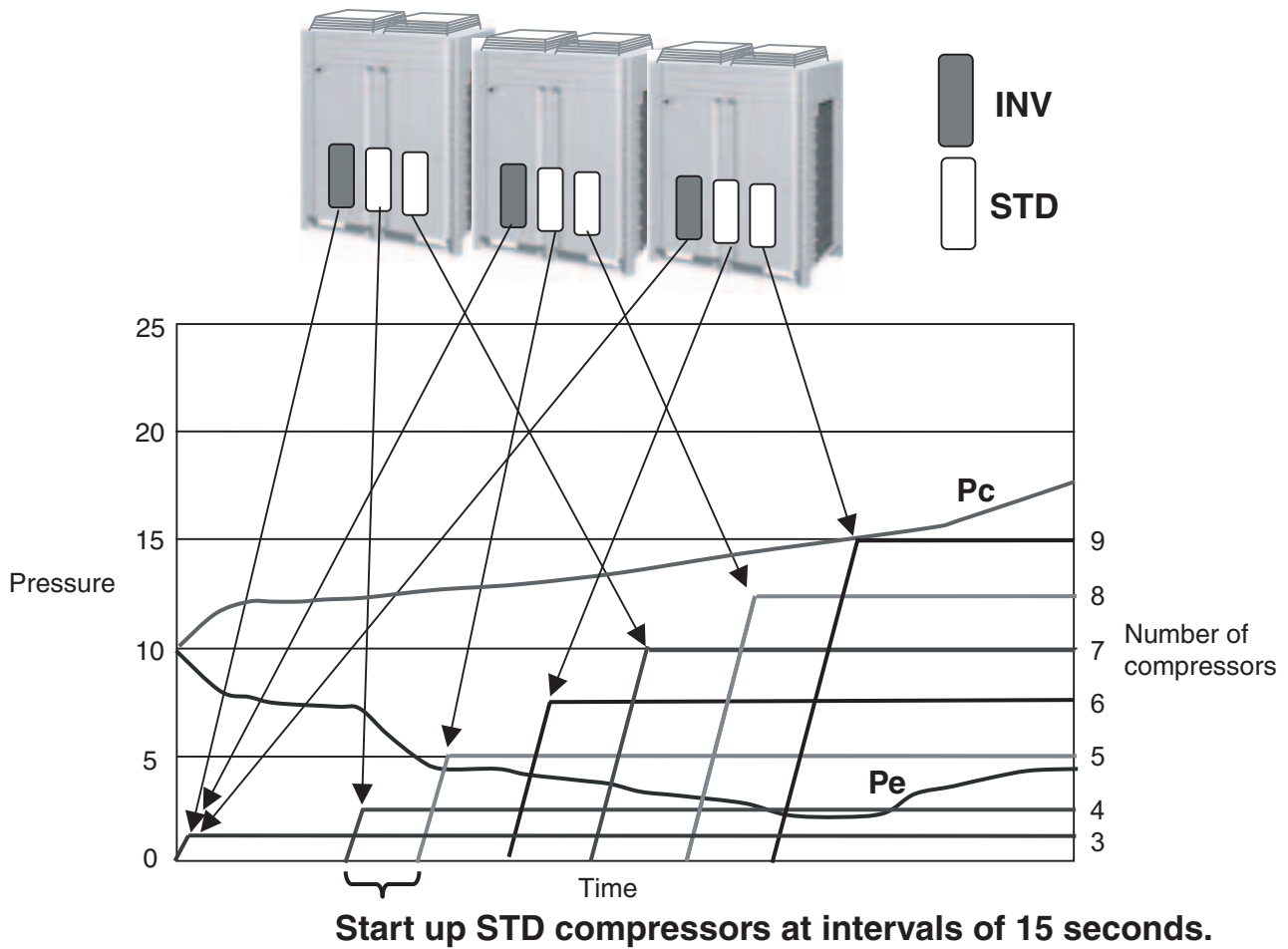
| Actuator  | Symbol | Elect. symbol |      | Control before startup | Startup control                |  |
|---|--------|---------------|------|------------------------|--------------------------------|--|
|   |        | REYQ          | REMQ |                        | STEP1                          | STEP2  |
| Compressor 1  | —      | M1C           | M1C  | 0 Hz                   | 52 Hz+OFF+OFF                  | 52Hz+OFF+OFF+2STEP / 20 sec.<br>(Until it reaches Pc-Pe>0.39 MPa)  |
| Compressor 2  |        | M2C           | M2C  |                        |                                |  |
| Compressor 3  |        | —             | M3C  |                        |                                |  |
| Outdoor unit fan 1                                    | —      | M1F           | M1F  | STEP4                  | Ta<20°C: OFF<br>Ta≥20°C: STEP4 | +1step/15 sec. (When Pc_max>2.16 MPa)<br>-1step/15 sec. (When Pc_max<1.77 MPa)                           |
| Outdoor unit fan 2                                    |        | M2F           | M2F  |                        |                                |  |
| Electronic expansion valve (Main)                     | EVM    | Y1E<br>Y3E    | Y1E  | 0 pls                  | 1375 pls                       | 1375 pls   |
| Electronic expansion valve (Supercooling)             | EVT    | Y2E<br>Y5E    | Y3E  | 0 pls                  | 0 pls                          | 0 pls  |
| Electronic expansion valve (Refrigerant charge)       | EVJ    | Y4E           | Y2E  | 80 pls                 | 80 pls                         | 80 pls   |
| Four way valve (Heat exchanger switch)                | 20SA   | Y2S<br>Y9S    | Y3S  | OFF                    | OFF                            | OFF  |
| Four way valve (High/low pressure gas pipe switch)    | 20SB   | Y8S           | Y2S  | ON                     | ON                             | ON   |
| Solenoid valve (Main bypass)                          | SVE    | Y5S<br>Y10S   | Y6S  | OFF                    | ON                             | ON   |
| Solenoid valve (Hot gas)                              | SVP    | Y4S           | Y5S  | OFF                    | OFF                            | OFF  |
| Solenoid valve (Refrigerant regulator liquid pipe )   | SVL    | Y3S           | Y4S  | OFF                    | OFF                            | OFF  |
| Solenoid valve (Refrigerant regulator gas vent pipe)  | SVG    | Y1S           | Y1S  | OFF                    | OFF                            | OFF  |
| Solenoid valve (Refrigerant regulator exhaust pipe)   | SVO    | Y7S           | Y7S  | OFF                    | OFF                            | OFF  |
| Solenoid valve (Refrigerant regulator discharge pipe) | SVT    | Y6S           | Y8S  | OFF                    | OFF                            | OFF  |
| Ending conditions                                     |        |               |      | A lapse of 60 sec.     | A lapse of 15 sec.             | OR <ul style="list-style-type: none"> <li>• A lapse of 90 sec.</li> <li>• Pc - Pe&gt;0.39 MPa</li> </ul> |

### 3.1.2 Startup Control in Heating Operation

| Actuator  | Symbol | Elect. symbol |      | Control before startup   | Startup control  |  |
|---|--------|---------------|------|--|--|--|
|   |        | REYQ          | REMQ |  | STEP1  | STEP2  |
| Compressor 1  | —      | M1C           | M1C  | 0 Hz   | 52 Hz+OFF+OFF  | 52Hz+OFF+OFF+2STEP / 20 sec.<br>(Until it reaches Pc-Pe>0.39 MPa)  |
| Compressor 2  |        | M2C           | M2C  |  |  |  |
| Compressor 3  |        | —             | M3C  |  |  |  |
| Outdoor unit fan 1                                    | —      | M1F           | M1F  | STEP4  | 20SA=ON: STEP7<br>20SA=OFF<br>+1step/15 sec. (When Pc_max>2.16 MPa)<br>-1step/15 sec. (When Pc_max<1.77 MPa) | 20SA=ON: STEP7<br>20SA=OFF<br>+1step/15 sec. (When Pc_max>2.16 MPa)<br>-1step/15 sec. (When Pc_max<1.77 MPa) |
| Outdoor unit fan 2                                    |        | M2F           | M2F  |  |  |  |
| Electronic expansion valve (Main)                     | EVM    | Y1E<br>Y3E    | Y1E  | 0 pls  | 20SA=ON: SH Control<br>20SA=OFF: 1375 pls  | 20SA=ON: SH Control<br>20SA=OFF: 1375 pls  |
| Electronic expansion valve (Supercooling)             | EVT    | Y2E<br>Y5E    | Y3E  | 0 pls  | 0 pls  | 0 pls  |
| Electronic expansion valve (Refrigerant charge)       | EVJ    | Y4E           | Y2E  | 80 pls   | 80 pls   | 80 pls   |
| Four way valve (Heat exchanger switch)                | 20SA   | Y2S<br>Y9S    | Y3S  | When outdoor heat exchanger is evaporator: ON<br>When outdoor heat exchanger is condenser: OFF | When outdoor heat exchanger is evaporator: ON<br>When outdoor heat exchanger is condenser: OFF               | When outdoor heat exchanger is evaporator: ON<br>When outdoor heat exchanger is condenser: OFF               |
| Four way valve (High/low pressure gas pipe switch)    | 20SB   | Y8S           | Y2S  | OFF  | OFF  | OFF  |
| Solenoid valve (Main bypass)                          | SVE    | Y5S<br>Y10S   | Y6S  | OFF  | OFF  | OFF  |
| Solenoid valve (Hot gas)                              | SVP    | Y4S           | Y5S  | OFF  | OFF  | OFF  |
| Solenoid valve (Refrigerant regulator liquid pipe)    | SVL    | Y3S           | Y4S  | OFF  | OFF  | OFF  |
| Solenoid valve (Refrigerant regulator gas vent pipe)  | SVG    | Y1S           | Y1S  | OFF  | OFF  | OFF  |
| Solenoid valve (Refrigerant regulator exhaust pipe)   | SVO    | Y7S           | Y7S  | OFF  | OFF  | OFF  |
| Solenoid valve (Refrigerant regulator discharge pipe) | SVT    | Y6S           | Y8S  | OFF  | OFF  | OFF  |
| Ending conditions                                     |        |               |      | A lapse of 60 sec.   | A lapse of 15 sec.   | OR <ul style="list-style-type: none"> <li>• A lapse of 90 sec.</li> <li>• Pc - Pe&gt;0.39 MPa</li> </ul>     |

## 3.2 Large Capacity Start Up Control (Heating)

For startup, oil return operation, or setup after defrosting, start up multiple compressors at a high speed according to the conditions of indoor units with thermostat ON, thus maximizing the equipment capacity.



### [Starting conditions]

- OR
- The system starts heating operation with thermostat ON at a high load.
  - The system completes defrosting operation.
  - The system switches the operation mode from cooling to heating or simultaneous cooling and heating operation.

### [Control]

1. Start multiple INV compressors in the system at one time.
2. Start multiple STD compressors in the system at intervals of 15 seconds.

### 3.3 Oil Return Operation

This function is used to recover refrigerant oil that flows out from the compressor to the system side by conducting oil return operation in order to prevent the compressor from running out of refrigerant oil.

#### 3.3.1 Cooling Oil Return Operation

##### [Start conditions]

Referring to the following conditions, start cooling oil return operation.

- OR
- Integral oil rise rate is reached to specified level.
  - When cumulative compressor operating time exceeds 8 hours (2 hours when the power supply turns ON for the first time)

Furthermore, the integral oil rise rate is calculated by Tc, Te, and compressor loads.

The higher the compressor operating step No., the cumulative refrigerant oil consumption increases.

| Outdoor unit actuator  | Symbol | Elect. symbol |      | Oil return operation  | Operation after oil return   |
|--|--------|---------------|------|---|--|
|  |        | REYQ          | REMQ |   |  |
| Compressor 1   | —      | M1C           | M1C  | 52Hz+ON+ON<br>(Subsequently, constant low pressure control)<br>Maintain the number of compressors that were used before oil return operation) | 52Hz+ON+ON<br>(Subsequently, constant low pressure control)<br>Maintain the number of compressors that were used before oil return operation)                |
| Compressor 2   |        | M2C           | M2C  |   |  |
| Compressor 3   |        | —             | M3C  |   |  |
| Outdoor unit fan 1   | —      | M1F           | M1F  | Cooling fan control   | Cooling fan control  |
| Outdoor unit fan 2   |        | M2F           | M2F  |   |  |
| Four way valve (for heat exchanger selection)                  | 20SA   | Y2S<br>Y9S    | Y3S  | OFF   | OFF  |
| Four way valve (for high- and low-pressure gas pipe selection) | 20SB   | Y8S           | Y2S  | ON  | ON   |
| Electronic expansion valve (main)                              | EVM    | Y1E<br>Y3E    | Y1E  | 1375pls   | 1375pls  |
| Electronic expansion valve (subcooling)                        | EVT    | Y2E<br>Y5E    | Y3E  | SH control  | SH control   |
| Electronic expansion valve (refilling refrigerant)             | EVJ    | Y4E           | Y2E  | 80pls   | 80pls  |
| Solenoid valve (main bypass)                                   | SVE    | Y5S<br>Y10S   | Y6S  | ON  | ON   |
| Solenoid valve (hot gas)                                       | SVP    | Y4S           | Y5S  | OFF   | OFF  |
| Solenoid valve (liquid pipe of refrigerant regulator)          | SVL    | Y3S           | Y4S  | 0pls  | 0pls   |
| Solenoid valve (gas discharge pipe of refrigerant regulator)   | SVG    | Y1S           | Y1S  | 0pls  | 0pls   |
| Solenoid valve (drain pipe of refrigerant regulator)           | SVO    | Y7S           | Y7S  | 0pls  | 0pls   |
| Solenoid valve (discharge pipe of refrigerant regulator)       | SVT    | Y6S           | Y8S  | 0pls  | 0pls   |
| End conditions   |        |               |      | or  | or   |
|  |        |               |      | <ul style="list-style-type: none"> <li>• After a lapse of 5 min.</li> <li>• TsA - Te&lt;5°C</li> </ul>  | <ul style="list-style-type: none"> <li>• After a lapse of 3 min.</li> <li>• Pe_min&lt;5°C</li> <li>• Pc_max&gt;3.63MPa</li> <li>• HTdmax&gt;100°C</li> </ul> |

\*1: In case of multi outdoor unit system:

Master unit: It conducts the operation listed in the table above.

Slave units: Operating units conduct the operation listed in the table above.

Non-operating units conduct the operation listed in the table above after the "Oil returning" process.  
(Non-operating units stop while in "Preparation" mode.)

| Cooling indoor unit actuator |                       | Oil return operation                           |
|------------------------------|-----------------------|--|
| Fan                          | Thermo ON unit        | Remote control setting                         |
|                              | Unit not in operation | OFF  |
|                              | Thermo OFF unit       | Remote control setting                         |
| Motorized valve              | Thermo ON unit        | Normal opening degree                          |
|                              | Unit not in operation | 192pls   |
|                              | Thermo OFF unit       | Normal opening degree for forced thermostat ON |

| Cooling BS unit actuator         | Elect. symbol | Oil return operation |
|----------------------------------|---------------|----------------------|
| Electronic expansion vale (EVH)  | Y4E           | 600pls               |
| Electronic expansion vale (EVL)  | Y5E           | 760pls               |
| Electronic expansion vale (EVHS) | Y2E           | 480pls               |
| Electronic expansion vale (EVLS) | Y3E           | 480pls               |
| Electronic expansion vale (EVSC) | Y1E           | 0pls                 |

### 3.3.2 Heating Oil Return Operation (including cooling / heating simultaneous operation)

#### [Start conditions]

Referring to the following conditions, start heating oil return operation.

- OR
- Integral oil rise rate is reached to specified level.
  - When cumulative compressor operating time exceeds 8 hours (2 hours when the power supply turns ON for the first time)

Furthermore, the integral oil rise rate is calculated by Tc, Te, and compressor loads.

The higher the compressor operating step No., the cumulative refrigerant oil consumption increases.

| Actuator   | Symbol | Elect. symbol |      | Oil return operation   |
|--|--------|---------------|------|--|
|  |        | REYQ          | REMQ |  |
| Compressor 1   | —      | M1C           | M1C  | Maintain load that was applied before oil return operation.<br>When current circulation rate < circulation rate required for oil return operation, turn ON the STD compressor every 10 seconds (up to 3 units at maximum). |
| Compressor 2   |        | M2C           | M2C  |  |
| Compressor 3   |        | —             | M3C  |  |
| Outdoor unit fan 1   | —      | M1F           | M1F  | When outdoor unit heat exchanger is condenser, the fan will run under cooling fan control.   |
| Outdoor unit fan 2   |        | M2F           | M2F  | When outdoor unit heat exchanger is evaporator, the fan will run at the fan step 7 or 8.   |
| Electronic expansion valve (main)                              | EVM    | Y1E<br>Y3E    | Y1E  | 20SA=ON : PI control<br>20SA=OFF : 418pls  |
| Electronic expansion valve (subcooling)                        | EVT    | Y2E<br>Y5E    | Y3E  | PI control   |
| Electronic expansion valve (refilling refrigerant)             | EVJ    | Y4E           | Y2E  | 80pls  |
| Four way valve (for heat changer selection)                    | 20SA   | Y2S<br>Y9S    | Y3S  | When outdoor unit heat exchanger is condenser, the valve will turn OFF.<br>When outdoor unit heat exchanger is evaporator, the valve will turn ON.   |
| Four way valve (for high- and low-pressure gas pipe selection) | 20SB   | Y8S           | Y2S  | OFF  |
| Solenoid valve (main bypass)                                   | SVE    | Y5S<br>Y10S   | Y6S  | OFF  |
| Solenoid valve (hot gas)                                       | SVP    | Y4S           | Y5S  | 0pls   |
| Solenoid valve (liquid pipe of refrigerant regulator)          | SVL    | Y3S           | Y4S  | 0pls   |
| Solenoid valve (gas discharge pipe of refrigerant regulator)   | SVG    | Y1S           | Y1S  | 0pls   |
| Solenoid valve (drain pipe of refrigerant regulator)           | SVO    | Y7S           | Y7S  | 0pls   |
| Solenoid valve (discharge pipe of refrigerant regulator)       | SVT    | Y6S           | Y8S  | 0pls   |
| End conditions   |        |               |      | or <ul style="list-style-type: none"> <li>• Pe_min&lt;0.22MPa</li> <li>• After a lapse of 9 min.</li> </ul>  |

\*1: In case of multi outdoor unit system:

Master unit: It conducts the operation listed in the table above.

Slave units: Operating units conduct the operation listed in the table above.

Non-operating units conduct the operation listed in the table above after the "Oil returning" process.  
(Non-operating units stop while in "Preparation" mode.)

| Cooling indoor unit actuator |                       | Oil return operation                           |
|------------------------------|-----------------------|--|
| Fan                          | Thermo ON unit        | Remote control setting                         |
|                              | Unit not in operation | OFF  |
|                              | Thermo OFF unit       | Remote control setting                         |
| Motorized valve              | Thermo ON unit        | Normal opening degree                          |
|                              | Unit not in operation | 192pls   |
|                              | Thermo OFF unit       | Normal opening degree for forced thermostat ON |

| Heating indoor unit actuator |                       | Oil return operation                           |
|------------------------------|-----------------------|--|
| Fan                          | Thermo ON unit        | Remote control setting                         |
|                              | Unit not in operation | OFF  |
|                              | Thermo OFF unit       | LL   |
| Motorized valve              | Thermo ON unit        | Normal opening degree                          |
|                              | Unit not in operation | 224 pls  |
|                              | Thermo OFF unit       | Normal opening degree for forced thermostat ON |

| Cooling BS unit actuator         | Elect. symbol | Oil return operation             |
|----------------------------------|---------------|----------------------------------|
| Electronic expansion vale (EVH)  | Y4E           | 0pls                             |
| Electronic expansion vale (EVL)  | Y5E           | 760pls                           |
| Electronic expansion vale (EVHS) | Y2E           | 0pls (60pls when Pc_max>2.85MPa) |
| Electronic expansion vale (EVLS) | Y3E           | 480pls                           |
| Electronic expansion vale (EVSC) | Y1E           | PI control                       |

| Heating BS unit actuator         | Elect. symbol | Oil return operation  |
|----------------------------------|---------------|---|
| Electronic expansion vale (EVH)  | Y4E           | 760pls  |
| Electronic expansion vale (EVL)  | Y5E           | 0pls  |
| Electronic expansion vale (EVHS) | Y2E           | 60pls   |
| Electronic expansion vale (EVLS) | Y3E           | 0pls (60pls when Pc_max>2.85MPa)                            |
| Electronic expansion vale (EVSC) | Y1E           | 0pls (PI control at simultaneous cooling/heating operation) |

## 3.4 Defrost Operation

### [Start conditions]

Referring to the following conditions, start defrost operation.

- & {
- When there is a decrease in the coefficient of heat transfer of outdoor unit heat exchanger
  - When there is a drop in the temperature of outdoor unit heat exchanger outlet (Tb)
  - When the low pressure stays low for a certain amount of time (2 hours minimum)

Furthermore, the thermal conductivity of outdoor unit heat exchanger is calculated by Tc, Te, and compressor loads.

| Defrosting outdoor unit actuator                               | Symbol | Elect. symbol |      | Defrost operation  | Operation after defrost  |
|--|--------|---------------|------|--|--|
|  |        | REYQ          | REMQ |  |  |
| Compressor 1   | —      | M1C           | M1C  | REYQ8•10•12P: 232Hz+ON<br>REYQ14•16P: 232Hz+232Hz<br>REMQ8P: 210Hz<br>REMQ10•12P: 210Hz+ON<br>REMQ14•16P: 202Hz+ON+ON  | REYQ8•10•12P: upper limit 124Hz(STD Holds)<br>REYQ14•16P: 232Hz+232Hz<br>REMQ8P: 210Hz<br>REMQ10•12P: 210Hz+ON<br>REMQ14•16P: 210Hz+ON+ON                        |
| Compressor 2   |        | M2C           | M2C  |  |  |
| Compressor 3   |        | —             | M3C  |  |  |
| Outdoor unit fan 1   | —      | M1F           | M1F  | Pcmax>2.45MPa <span style="border: 1px solid black; padding: 2px;">OFF</span> <span style="border: 1px solid black; padding: 2px;">FANSTEP4</span> Pcmax<2.36MPa   | Pcmax>2.45MPa <span style="border: 1px solid black; padding: 2px;">OFF</span> <span style="border: 1px solid black; padding: 2px;">FANSTEP4</span> Pcmax<2.36MPa |
| Outdoor unit fan 2   |        | M2F           | M2F  | Pcmax>3.04MPa <span style="border: 1px solid black; padding: 2px;">FANSTEP6</span> Pcmax<2.95MPa   | Pcmax>3.04MPa <span style="border: 1px solid black; padding: 2px;">FANSTEP6</span> Pcmax<2.95MPa   |
| Four way valve (for heat changer selection)                    | 20SA   | Y2S<br>Y9S    | Y3S  | OFF  | OFF  |
| Four way valve (for high- and low-pressure gas pipe selection) | 20SB   | Y8S           | Y2S  | Holds  | Holds  |
| Electronic expansion valve (main)                              | EVM    | Y1E<br>Y3E    | Y1E  | 1375pls  | 0pls   |
| Electronic expansion valve (subcooling)                        | EVT    | Y2E<br>Y5E    | Y3E  | SH control   | 0pls   |
| Electronic expansion valve (refilling refrigerant)             | EVJ    | Y4E           | Y2E  | 80pls  | 80pls  |
| Solenoid valve (main bypass)                                   | SVE    | Y5S<br>Y10S   | Y6S  | ON   | OFF  |
| Solenoid valve (hot gas)                                       | SVP    | Y4S           | Y5S  | OFF  | OFF  |
| Solenoid valve (liquid pipe of refrigerant regulator)          | SVL    | Y3S           | Y4S  | 0pls   | 0pls   |
| Solenoid valve (gas discharge pipe of refrigerant regulator)   | SVG    | Y1S           | Y1S  | 0pls   | 0pls   |
| Solenoid valve (drain pipe of refrigerant regulator)           | SVO    | Y7S           | Y7S  | 0pls   | 0pls   |
| Solenoid valve (discharge pipe of refrigerant regulator)       | SVT    | Y6S           | Y8S  | 0pls   | 0pls   |
| End conditions   |        |               |      | REYP8 to 16P (by unit)<br>or <span style="font-size: 2em; vertical-align: middle;">{</span> <ul style="list-style-type: none"> <li>• 6 min. and 30 sec.</li> <li>• Tb &gt; 11°C continues for a period of 90 consecutive sec.</li> <li>• Pc_max &gt; 3.04MP</li> </ul> REMQ8 to 12P (by unit)<br>or <span style="font-size: 2em; vertical-align: middle;">{</span> <ul style="list-style-type: none"> <li>• 5 min. and 30 sec.</li> <li>• Tb &gt; 11°C for a period of 10 consecutive sec.</li> <li>• Pc_max &gt; 3.04MPa</li> </ul> REMQ14 and 16P (by unit)<br>or <span style="font-size: 2em; vertical-align: middle;">{</span> <ul style="list-style-type: none"> <li>• 5 min. and 30 sec.</li> <li>• Tb &gt; 11°C for a period of 30 consecutive sec.</li> <li>• Pc_max &gt; 3.04MPa</li> </ul> | <span style="font-size: 2em; vertical-align: middle;">{</span> <ul style="list-style-type: none"> <li>• 30 sec.</li> <li>• Pc_max&gt;3.04MPa</li> </ul>          |

| Evaporating outdoor unit actuator                              | Symbol | Elect. symbol |      | Defrost operation   | Operation after defrost  |
|--|--------|---------------|------|---|--|
|  |        | REYQ          | REMQ |   |  |
| Compressor 1   | —      | M1C           | M1C  | REYQ8•10•12P: 232Hz+ON<br>REYQ14•16P: 232Hz+232Hz<br>REMQ8P: 210Hz<br>REMQ10•12P: 210Hz+ON<br>REMQ14•16P: 210Hz+ON+ON | Upper limit 124Hz (STD Holds)<br>REYP400•480A: 232Hz+232Hz<br>REMP224A: 210Hz<br>REMP280•335A: 210Hz+ON<br>REMP400•450A: 210Hz+ON+ON |
| Compressor 2   |        | M2C           | M2C  |   |  |
| Compressor 3   |        | M3C           | M3C  |   |  |
| Outdoor unit fan 1   | —      | M1F           | M1F  | Fan control   | Fan control  |
| Outdoor unit fan 2   |        | M2F           | M2F  |   |  |
| Four way valve (for heat changer selection)                    | 20SA   | Y2S<br>Y9S    | Y3S  | ON  | ON   |
| Four way valve (for high- and low-pressure gas pipe selection) | 20SB   | Y8S           | Y2S  | Holds   | Holds  |
| Electronic expansion valve (main)                              | EVM    | Y1E<br>Y3E    | Y1E  | PI control  | PI control   |
| Electronic expansion valve (subcooling)                        | EVT    | Y2E<br>Y5E    | Y3E  | SH control  | 0pls   |
| Electronic expansion valve (refilling refrigerant)             | EVJ    | Y4E           | Y2E  | 80pls   | 80pls  |
| Solenoid valve (main bypass)                                   | SVE    | Y5S<br>Y10S   | Y6S  | OFF   | OFF  |
| Solenoid valve (hot gas)                                       | SVP    | Y4S           | Y5S  | OFF   | OFF  |
| Solenoid valve (liquid pipe of refrigerant regulator)          | SVL    | Y3S           | Y4S  | 0pls  | 0pls   |
| Solenoid valve (gas discharge pipe of refrigerant regulator)   | SVG    | Y1S           | Y1S  | 0pls  | 0pls   |
| Solenoid valve (drain pipe of refrigerant regulator)           | SVO    | Y7S           | Y7S  | 0pls  | 0pls   |
| Solenoid valve (discharge pipe of refrigerant regulator)       | SVT    | Y6S           | Y8S  | 0pls  | 0pls   |

| Cooling indoor unit actuator |                       | Defrost operation      |  |
|------------------------------|-----------------------|------------------------|--|
| Fan                          | Thermo ON unit        | Remote control setting |  |
|                              | Unit not in operation | OFF                    |  |
|                              | Thermo OFF unit       | Remote control setting |  |
| Motorized valve              | Thermo ON unit        | Normal opening degree  |  |
|                              | Unit not in operation | 0pls                   |  |
|                              | Thermo OFF unit       | 0pls                   |  |

| Heating indoor unit actuator |                       | Defrost operation |        |
|------------------------------|-----------------------|-------------------|--------|
| Fan                          | Thermo ON unit        | REYQ              | REMQ   |
|                              | Unit not in operation | OFF               | LL     |
|                              | Thermo OFF unit       | OFF               | LL     |
| Motorized valve              | Thermo ON unit        | 0pls              | 224pls |
|                              | Unit not in operation | 0pls              | 0pls   |
|                              | Thermo OFF unit       | 0pls              | 224pls |

| Cooling BS unit actuator         | Elect. symbol | Defrost operation |
|----------------------------------|---------------|-------------------|
| Electronic expansion vale (EVH)  | Y4E           | 0pls              |
| Electronic expansion vale (EVL)  | Y5E           | 760pls            |
| Electronic expansion vale (EVHS) | Y2E           | 0pls              |
| Electronic expansion vale (EVLS) | Y3E           | 480pls            |
| Electronic expansion vale (EVSC) | Y1E           | 0pls              |

| Heating BS unit actuator         | Elect. symbol | Defrost operation                                    |
|----------------------------------|---------------|--|
| Electronic expansion vale (EVH)  | Y4E           | 760pls   |
| Electronic expansion vale (EVL)  | Y5E           | 0pls   |
| Electronic expansion vale (EVHS) | Y2E           | 60pls  |
| Electronic expansion vale (EVLS) | Y3E           | 0pls (REYQ8~16P) 60pls (REMQ8~16P)                   |
| Electronic expansion vale (EVSC) | Y1E           | 0pls (PI control for cool/heat concurrent operation) |

## 3.5 Pump-down Residual Operation

### 3.5.1 Pump-down Residual Operation in Cooling Operation

If the liquid refrigerant stays in the Evaporator at the startup of a compressor, this liquid refrigerant enters the compressor, thus resulting in diluted oil in the compressor and then degraded lubrication performance.

Consequently, in order to recover the refrigerant in the Evaporator while the compressor stops, the pump-down residual operation is conducted.

| Actuator  | Symbol | Elect. symbol |      | Master unit operation  | Slave unit operation |
|---|--------|---------------|------|--|----------------------|
|   |        | REYQ          | REMQ |  |                      |
| Compressor 1  | —      | M1C           | M1C  | 124 Hz+OFF+OFF   | OFF                  |
| Compressor 2  |        | M2C           | M2C  |  |                      |
| Compressor 3  |        | M3C           | M3C  |  |                      |
| Outdoor unit fan 1                                    | —      | M1F           | M1F  | Fan control  | Fan control          |
| Outdoor unit fan 2                                    |        | M2F           | M2F  |  |                      |
| Electronic expansion valve (Main)                     | EVM    | Y1E<br>Y3E    | Y1E  | 1375 pls   | 1375 pls             |
| Electronic expansion valve (Supercooling)             | EVT    | Y2E<br>Y5E    | Y3E  | 0 pls  | 0 pls                |
| Electronic expansion valve (Refrigerant charge)       | EVJ    | Y4E           | Y2E  | 80 pls   | 80 pls               |
| Four way valve (Heat exchanger switch)                | 20SA   | Y2S<br>Y9S    | Y3S  | OFF  | OFF                  |
| Four way valve (High/low pressure gas pipe switch)    | 20SB   | Y8S           | Y2S  | ON   | ON                   |
| Solenoid valve (Main bypass)                          | SVE    | Y5S<br>Y10S   | Y6S  | ON   | ON                   |
| Solenoid valve (Hot gas)                              | SVP    | Y4S           | Y5S  | OFF  | OFF                  |
| Solenoid valve (Refrigerant regulator liquid pipe )   | SVL    | Y3S           | Y4S  | OFF  | OFF                  |
| Solenoid valve (Refrigerant regulator gas vent pipe)  | SVG    | Y1S           | Y1S  | OFF  | OFF                  |
| Solenoid valve (Refrigerant regulator exhaust pipe)   | SVO    | Y7S           | Y7S  | OFF  | OFF                  |
| Solenoid valve (Refrigerant regulator discharge pipe) | SVT    | Y6S           | Y8S  | OFF  | OFF                  |
| Ending conditions                                     |        |               |      | or <ul style="list-style-type: none"> <li>• 5 min.</li> <li>• Pe_min&lt;0.49 MPa *</li> <li>• Pc_max&lt;2.94 MPa *</li> <li>• Master unit Tdi&gt;110°C</li> <li>• Master unit Tp&gt;125°C</li> </ul> |                      |

\* Pe\_min and Pc\_max indicate the minimum and maximum values in the system, respectively.

### 3.5.2 Pump-down Residual Operation in Heating Operation and Simultaneous Cooling / Heating Operation

| Actuator  | Symbol | Elect. symbol |      | Master unit operation  | Slave unit operation   |
|---|--------|---------------|------|--|--|
|   |        | REYQ          | REMQ |  |  |
| Compressor 1  | —      | M1C           | M1C  | 124 Hz+OFF+OFF   | OFF  |
| Compressor 2  |        | M2C           | M2C  |  |  |
| Compressor 3  |        | M3C           | M3C  |  |  |
| Outdoor unit fan 1                                    | —      | M1F           | M1F  | Fan control  | Fan control  |
| Outdoor unit fan 2                                    |        | M2F           | M2F  |  |  |
| Electronic expansion valve (Main)                     | EVM    | Y1E<br>Y3E    | Y1E  | When 20SA=ON: 0 pls<br>When 20SA=OFF: 1375 pls   | When 20SA=ON: 0 pls<br>When 20SA=OFF: 1375 pls   |
| Electronic expansion valve (Supercooling)             | EVT    | Y2E<br>Y5E    | Y3E  | 0 pls  | 0 pls  |
| Electronic expansion valve (Refrigerant charge)       | EVJ    | Y4E           | Y2E  | 80 pls   | 80 pls   |
| Four way valve (Heat exchanger switch)                | 20SA   | Y2S<br>Y9S    | Y3S  | When outdoor heat exchanger is evaporator: ON<br>When outdoor heat exchanger is condenser: OFF   | When outdoor heat exchanger is evaporator: ON<br>When outdoor heat exchanger is condenser: OFF |
| Four way valve (High/low pressure gas pipe switch)    | 20SB   | Y8S           | Y2S  | OFF  | OFF  |
| Solenoid valve (Main bypass)                          | SVE    | Y5S<br>Y10S   | Y6S  | OFF  | OFF  |
| Solenoid valve (Hot gas)                              | SVP    | Y4S           | Y5S  | OFF  | OFF  |
| Solenoid valve (Refrigerant regulator liquid pipe )   | SVL    | Y3S           | Y4S  | OFF  | OFF  |
| Solenoid valve (Refrigerant regulator gas vent pipe)  | SVG    | Y1S           | Y1S  | OFF  | OFF  |
| Solenoid valve (Refrigerant regulator exhaust pipe)   | SVO    | Y7S           | Y7S  | OFF  | OFF  |
| Solenoid valve (Refrigerant regulator discharge pipe) | SVT    | Y6S           | Y8S  | OFF  | OFF  |
| Ending conditions                                     |        |               |      | or <ul style="list-style-type: none"> <li>• 3 min.</li> <li>• Pe_min&lt;0.25 MPa *</li> <li>• Pc_max&lt;3.13 MPa *</li> <li>• Master unit Tdi&gt;110°C</li> <li>• Master unit Tp&gt;140°C</li> </ul> |  |

\* Pe\_min and Pc\_max indicate the minimum and maximum values in the system, respectively.

## 3.6 Standby

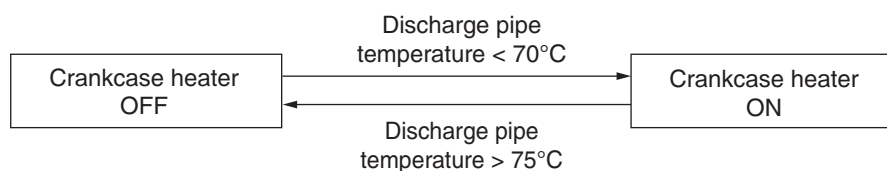
### 3.6.1 Restart Standby

Used to forcibly stop the compressor for a period of 2 minutes, in order to prevent the frequent ON/OFF of the compressor and equalize the pressure within the refrigerant system.

| Actuator  | Symbol | Elect. symbol |      | Operation                      |                                |                                |                                |
|---|--------|---------------|------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
|   |        | REYQ          | REMQ | REYQ8~16P                      | REMQ8P                         | REMQ10•12P                     | REMQ14•16P                     |
| Compressor1   | —      | M1C           | M1C  | OFF                            | OFF                            | OFF                            | OFF                            |
| Compressor2   | —      | M2C           | M2C  | OFF                            | —                              | OFF                            | OFF                            |
| Compressor3   | —      | M3C           | M3C  | —                              | —                              | —                              | OFF                            |
| Outdoor unit fan1                                     | —      | MF1           | MF1  | Ta>30°C: STEP4<br>Ta≤30°C: OFF | Ta>30°C: STEP4<br>Ta≤30°C: OFF | Ta>30°C: STEP4<br>Ta≤30°C: OFF | Ta>30°C: STEP4<br>Ta≤30°C: OFF |
| Outdoor unit fan2                                     | —      | MF2           | MF2  | Ta>30°C: STEP4<br>Ta≤30°C: OFF | —                              | —                              | Ta>30°C: STEP4<br>Ta≤30°C: OFF |
| Electronic expansion valve (Main)                     | EVM    | Y1E<br>Y3E    | Y1E  | 0 pls                          |                                |                                |                                |
| Electronic expansion valve (Supercooling)             | EVT    | Y2E<br>Y5E    | Y3E  | 0 pls                          |                                |                                |                                |
| Electronic expansion valve (Refrigerant charge)       | EVJ    | Y4E           | Y2E  | 80 pls                         |                                |                                |                                |
| Four way valve (Heat exchanger switch)                | 20SA   | Y2S<br>Y9S    | Y3S  | Holds                          |                                |                                |                                |
| Four way valve (High/low pressure gas pipe switch)    | 20SB   | Y8S           | Y2S  | Holds                          |                                |                                |                                |
| Solenoid valve (Main bypass)                          | SVE    | Y5S<br>Y10S   | Y6S  | OFF                            |                                |                                |                                |
| Solenoid valve (Hot gas)                              | SVP    | Y4S           | Y5S  | OFF                            |                                |                                |                                |
| Solenoid valve (Refrigerant regulator liquid pipe )   | SVL    | Y3S           | Y4S  | OFF                            |                                |                                |                                |
| Solenoid valve (Refrigerant regulator gas vent pipe)  | SVG    | Y1S           | Y1S  | OFF                            |                                |                                |                                |
| Solenoid valve (Refrigerant regulator exhaust pipe)   | SVO    | Y7S           | Y7S  | OFF                            |                                |                                |                                |
| Solenoid valve (Refrigerant regulator discharge pipe) | SVT    | Y6S           | Y8S  | OFF                            |                                |                                |                                |
| Ending conditions                                     | —      |               |      | 2 min.                         |                                |                                |                                |

### 3.6.2 Crankcase Heater Control

In order to prevent the refrigerant from melting in the compressor oil in the stopped mode, this mode is used to control the crankcase heater.



## 3.7 Stopping Operation

### 3.7.1 When System is in Stop Mode (Normal operation stop)

This mode is used to define actuator operations when the system stops.

| Actuator  | Symbol | Elect. symbol |      | Operation                            |        |            |            |
|---|--------|---------------|------|--------------------------------------|--------|------------|------------|
|   |        | REYQ          | REMQ | REYQ8~16P                            | REMQ8P | REMQ10•12P | REMQ14•16P |
| Compressor1   | —      | M1C           | M1C  | OFF                                  | OFF    | OFF        | OFF        |
| Compressor2   | —      | M2C           | M2C  | OFF                                  | —      | OFF        | OFF        |
| Compressor3   | —      | M3C           | M3C  | —                                    | —      | —          | OFF        |
| Outdoor unit fan1                                     | —      | M1F           | M1F  | OFF                                  | OFF    | OFF        | OFF        |
| Outdoor unit fan2                                     | —      | M2F           | M2F  | OFF                                  | —      | —          | OFF        |
| Electronic expansion valve (Main)                     | EVM    | Y1E<br>Y3E    | Y1E  | 0 pls                                |        |            |            |
| Electronic expansion valve (Supercooling)             | EVT    | Y2E<br>Y5E    | Y3E  | 0 pls                                |        |            |            |
| Electronic expansion valve (Refrigerant charge)       | EVJ    | Y4E           | Y2E  | 80 pls                               |        |            |            |
| Four way valve (Heat exchanger switch)                | 20SA   | Y2S<br>Y9S    | Y3S  | Holds                                |        |            |            |
| Four way valve (High/low pressure gas pipe switch)    | 20SB   | Y8S           | Y2S  | Holds                                |        |            |            |
| Solenoid valve (Main bypass)                          | SVE    | Y5S<br>Y10S   | Y6S  | OFF                                  |        |            |            |
| Solenoid valve (Hot gas)                              | SVP    | Y4S           | Y5S  | OFF                                  |        |            |            |
| Solenoid valve (Refrigerant regulator liquid pipe )   | SVL    | Y3S           | Y4S  | OFF                                  |        |            |            |
| Solenoid valve (Refrigerant regulator gas vent pipe)  | SVG    | Y1S           | Y1S  | OFF                                  |        |            |            |
| Solenoid valve (Refrigerant regulator exhaust pipe)   | SVO    | Y7S           | Y7S  | OFF                                  |        |            |            |
| Solenoid valve (Refrigerant regulator discharge pipe) | SVT    | Y6S           | Y8S  | OFF                                  |        |            |            |
| Ending conditions                                     | —      |               |      | Indoor unit thermostat is turned ON. |        |            |            |

### 3.7.2 Stop due to Malfunction

In order to protect compressors, if any of the following items has an abnormal value, the system will make "stop with thermostat OFF" and the malfunction will be determined according to the number of retry times.

| Item   | Judgment Criteria          | Malfunction Code |
|--|----------------------------|------------------|
| 1. Abnormal low pressure level               | 0.07MPa                    | E4               |
| 2. Abnormal high pressure level              | 4.0MPa                     | E3               |
| 3. Abnormal discharge pipe temperature level | 135°C                      | F3               |
| 4. Abnormal power supply voltage             | Reverse-phase power supply | U1               |
| 5. Abnormal inverter current level           | 16.1A: 260 sec.            | L8               |
| 6. Abnormal radiator fin temperature level   | 93°C                       | L4               |

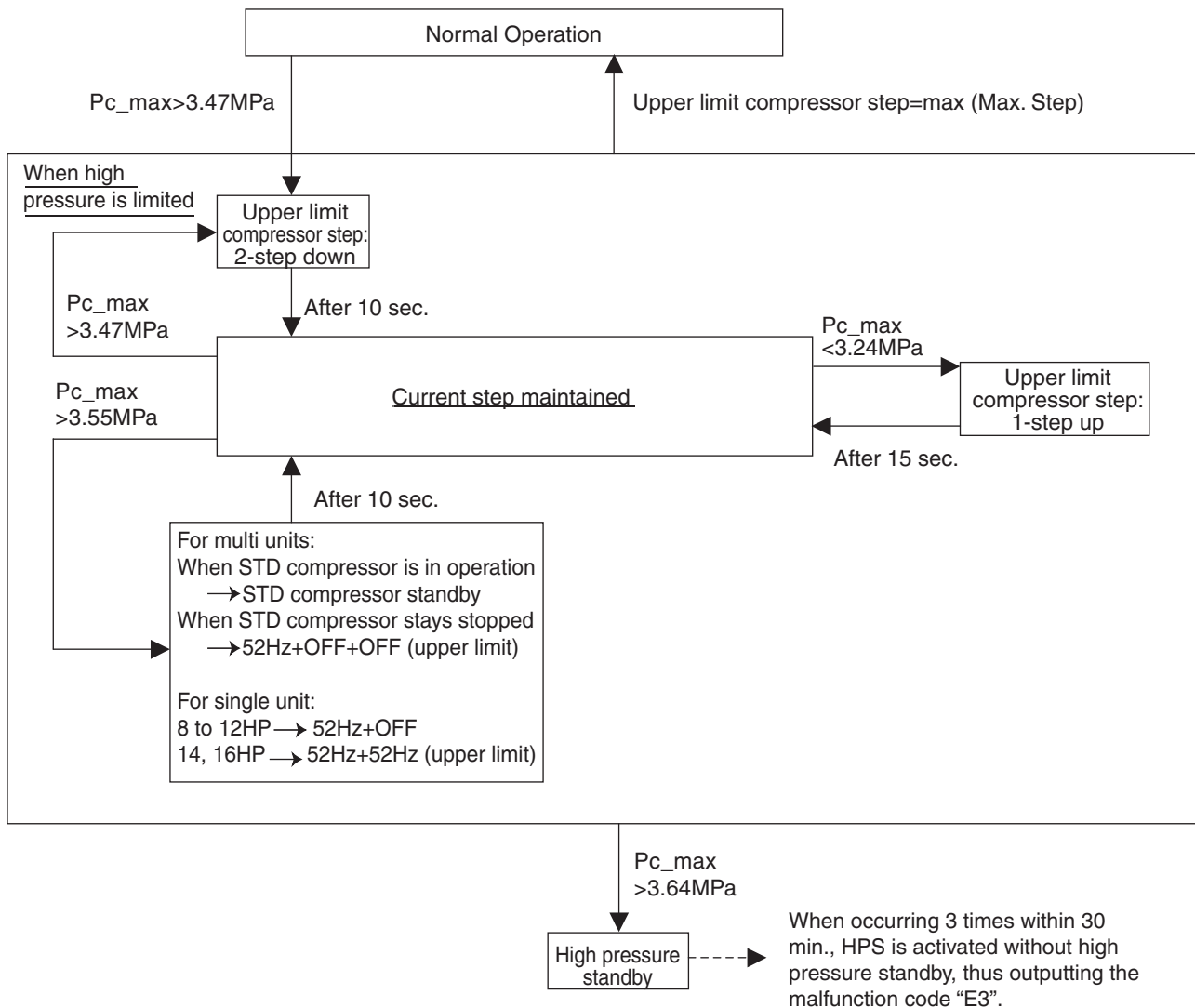
## 4. Protection Control

### 4.1 High Pressure Protection Control

This high pressure protection control is used to prevent the activation of protection devices due to abnormal increase of high pressure and to protect compressors against the transient increase of high pressure.

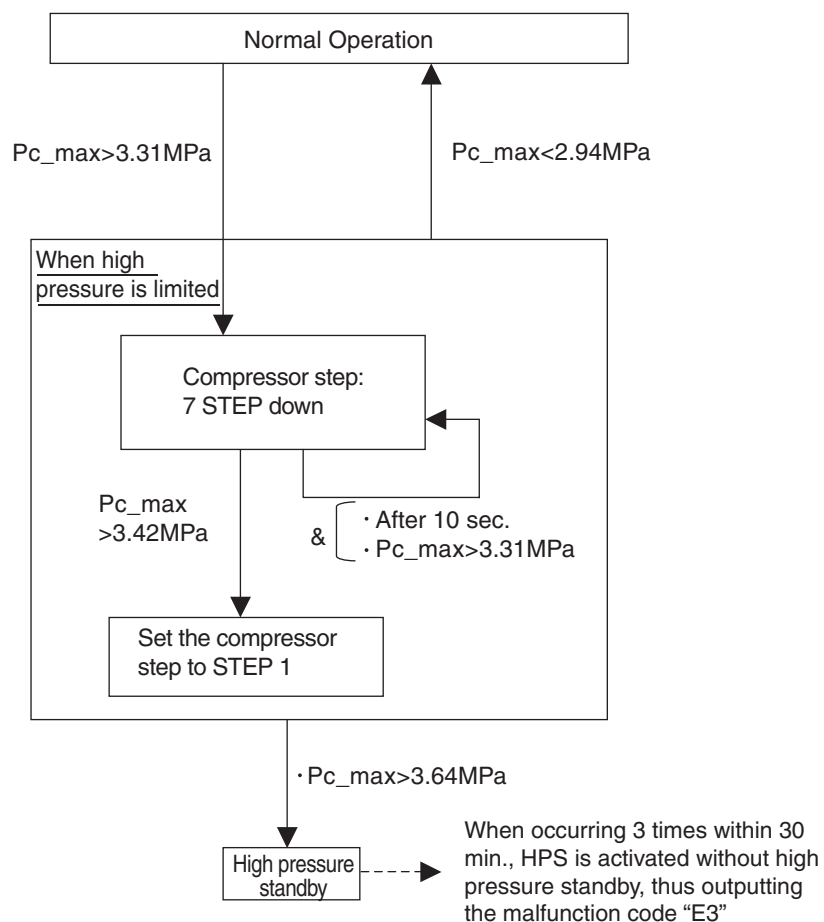
**[In cooling operation]**

- ★ The following control is performed in the entire system.  
Pc\_max indicates the maximum value within the system.



**[Heating Operation and Simultaneous Cooling / Heating Operation]**

- ★ The following control is performed in the entire system.  
 Pc\_max indicates the maximum value within the system.

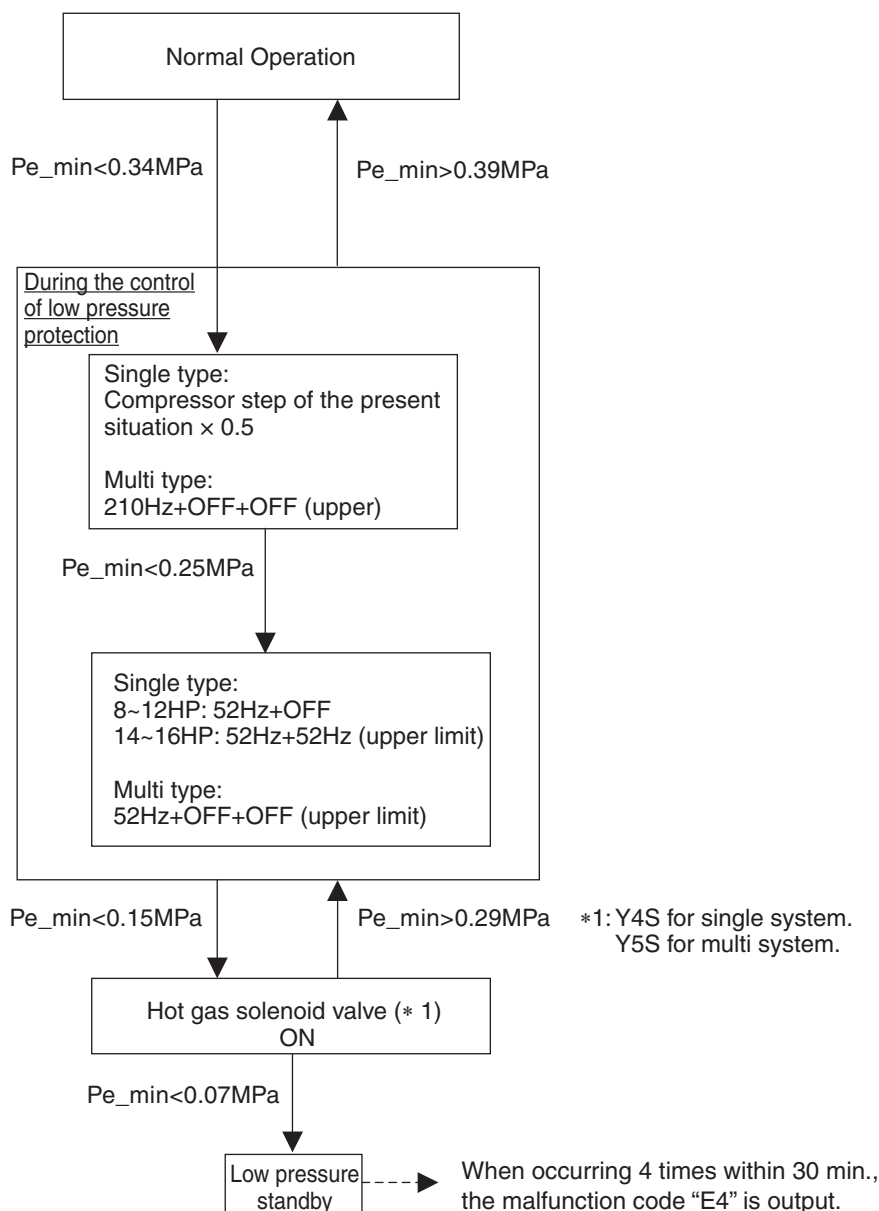


## 4.2 Low Pressure Protection Control

This low pressure protection control is used to protect compressors against the transient decrease of low pressure.

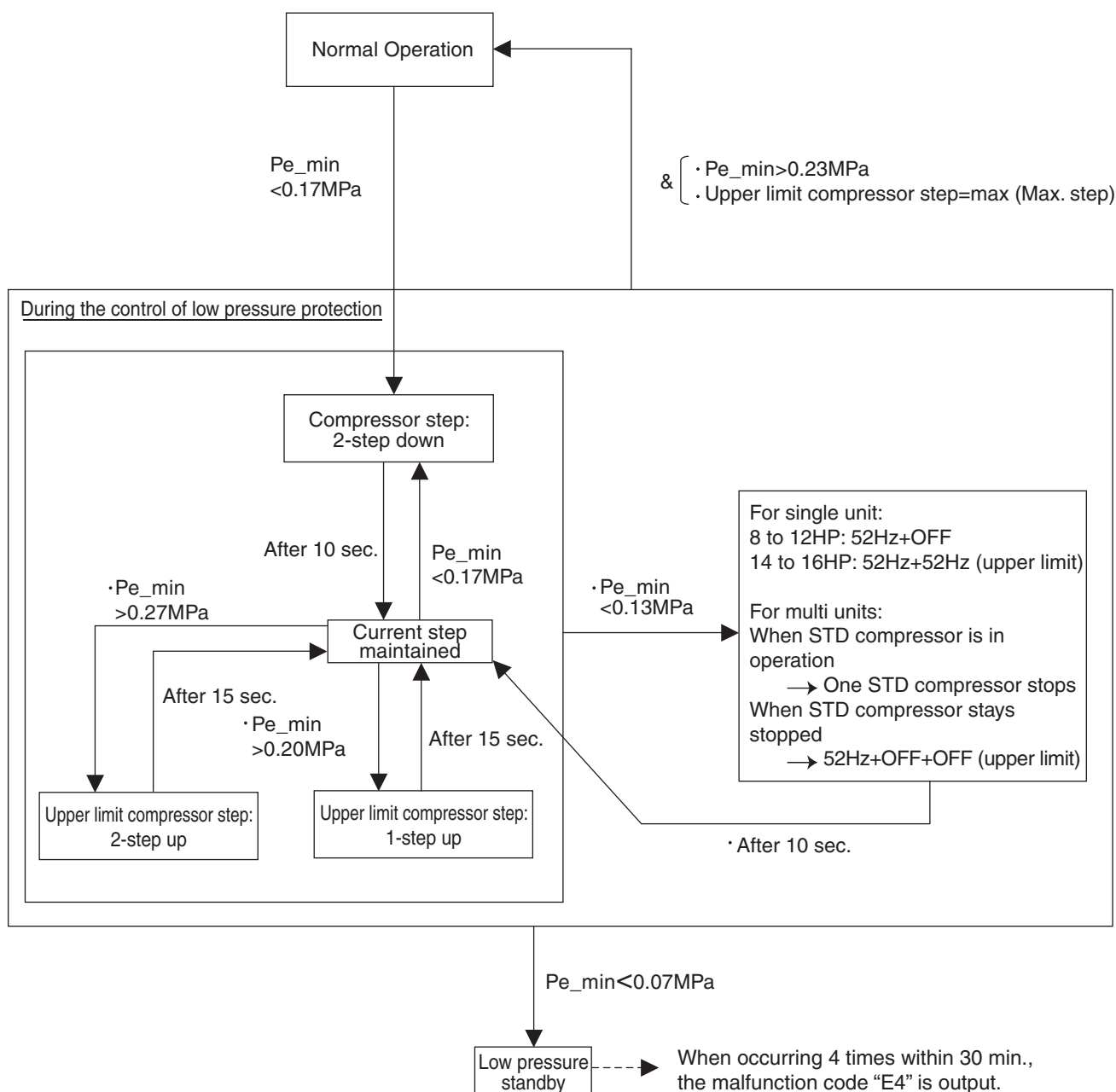
### [In cooling operation]

- ★ Because of common low pressure, the following control is performed in the system.  
Pe\_min indicates the minimum value within the system.



**[In heating operation and Simultaneous Cooling / Heating Operation]**

- ★ The following control is performed in the system.  
 Pe\_min indicates the minimum value within the system.



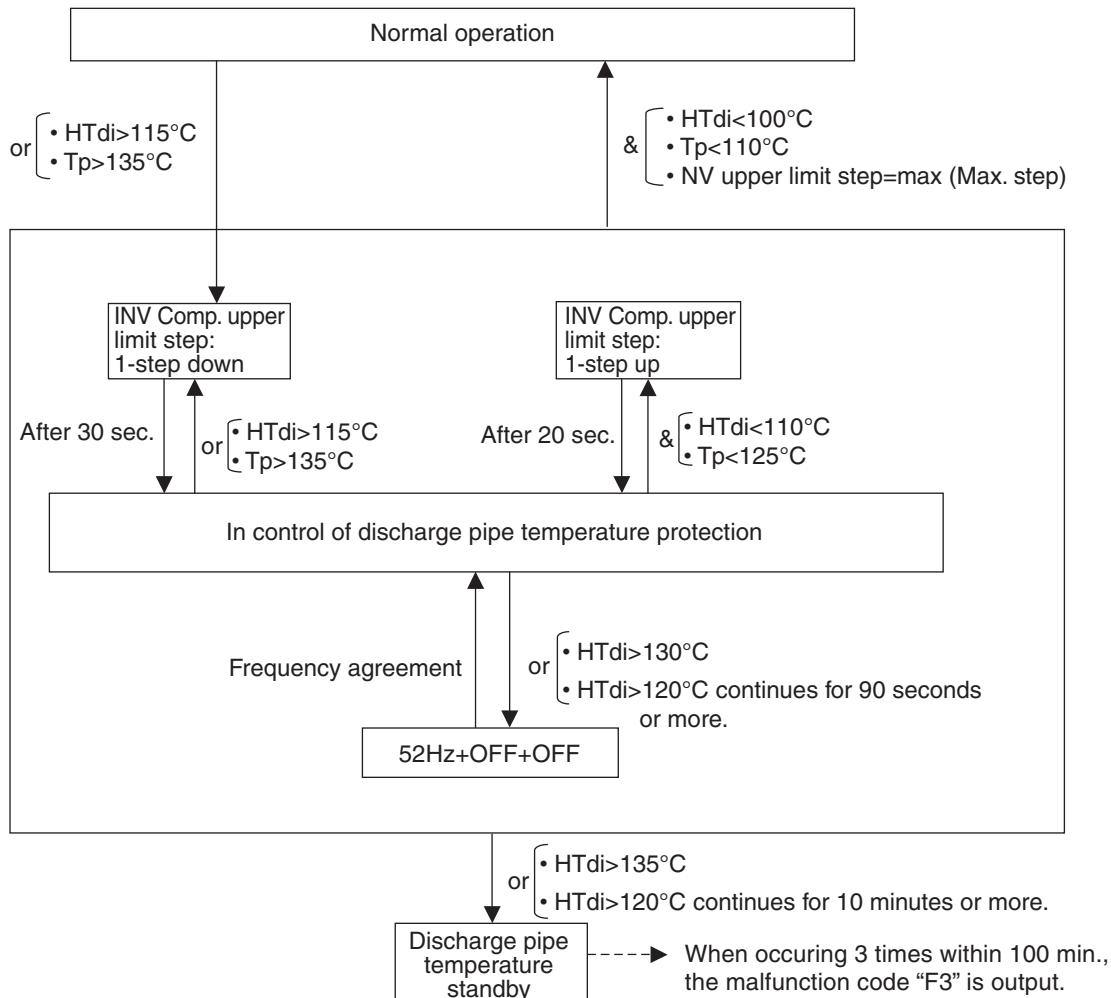
## 4.3 Discharge Pipe Protection Control

This discharge pipe protection control is used to protect the compressor internal temperature against a malfunction or transient increase of discharge pipe temperature.

### [Contents]

★ The following control is performed for each compressor of single unit as well as multi units.

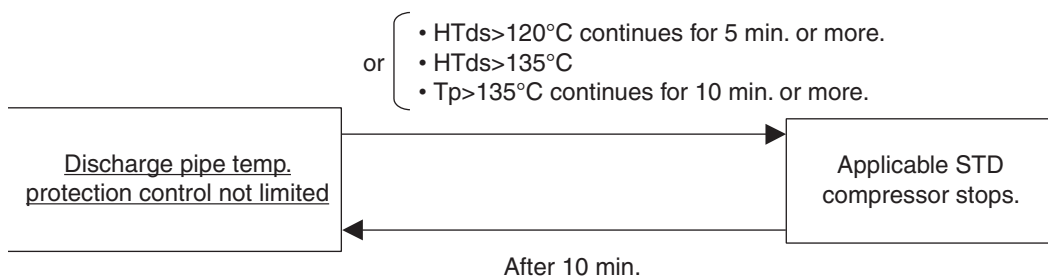
### [INV compressor]



### [STD compressor]

HTds: Value of STD compressor discharge pipe temperature (Tds) compensated with outdoor air temperature.

Tp : Value of compressor port temperature calculated by Tc and Te, and suction superheated degree.



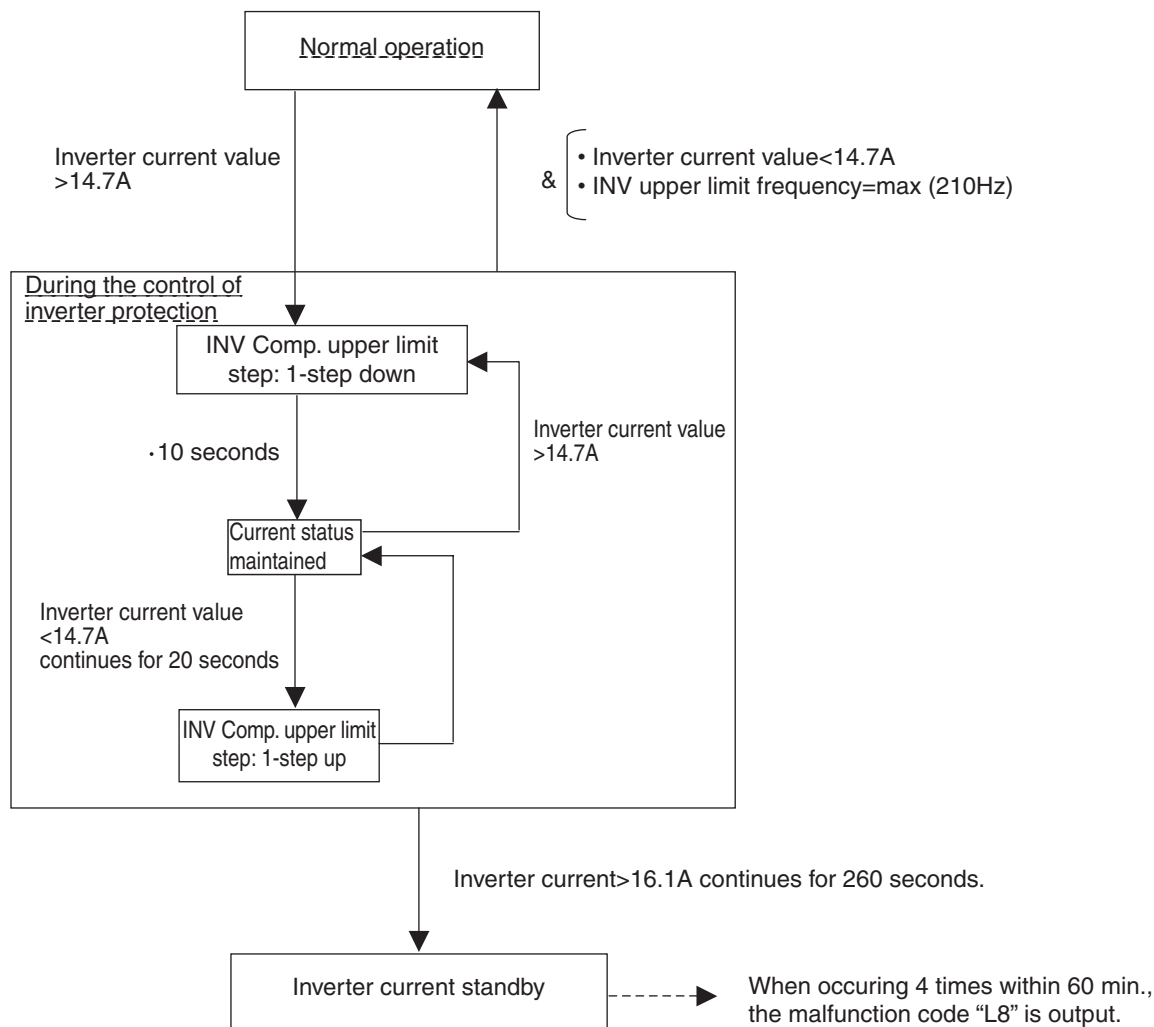
## 4.4 Inverter Protection Control

Inverter current protection control and inverter fin temperature control are performed to prevent tripping due to a malfunction, or transient inverter overcurrent, and fin temperature increase.

- ★ In the case of multi-outdoor-unit system, each INV compressor performs these controls in the following sequence.

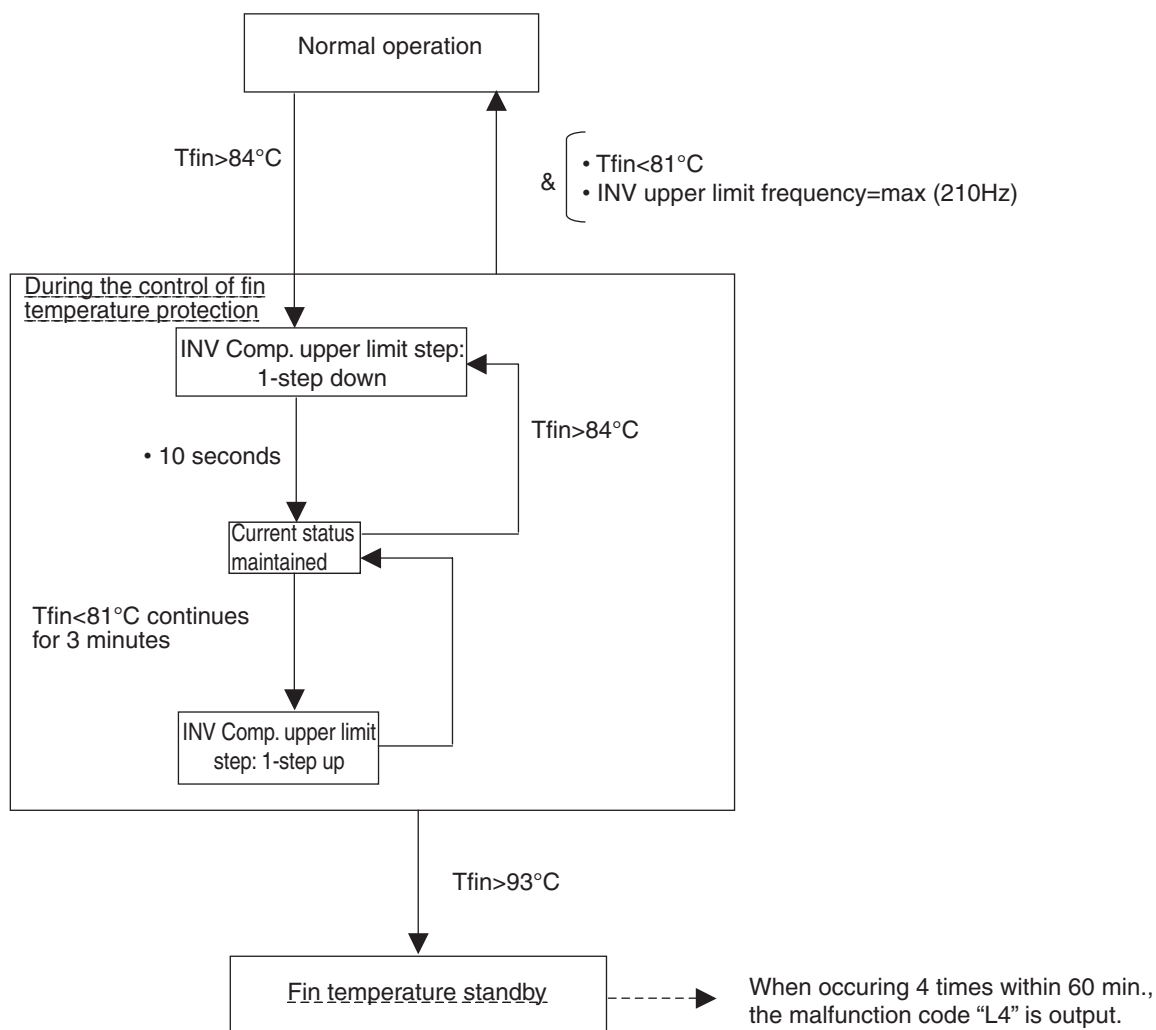
### [Inverter overcurrent protection control]

- ★ Perform the following control of integrated as well as multi units for each INV compressor.



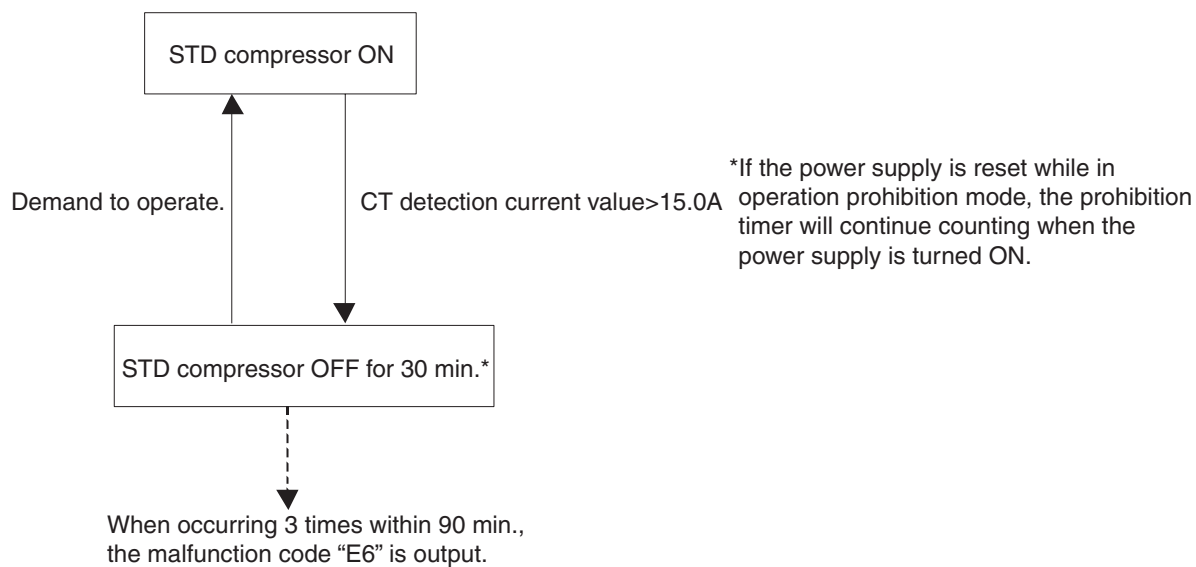
**[Inverter fin temperature control]**

★ Perform the following control of integrated as well as multi units for each INV compressor.



## 4.5 STD Compressor Overload Protection

This control is used to prevent abnormal heating due to overcurrent to the compressor resulting from failures of STD compressor such as locking.



## 5. Other Control

### 5.1 Backup Operation

If any of the compressors goes wrong, disable the relevant compressor or the relevant outdoor unit from operating, and then conduct emergency operation only with operational compressors or outdoor units.

"Emergency operation with remote control reset" and "Emergency operation with outdoor unit PC board setting" are available

| Applicable model \ Operating method | (1) Emergency operation with remote control reset (Auto backup operation) | (2) Emergency operation with outdoor unit PC board setting (Manual backup operation) |
|-------------------------------------|---|--|
| REYQ8 ~ 16PY1                       | —   | Backup operation by the compressor   |
| REYQ18 ~ 48PY1                      | Backup operation by the indoor unit                                       | Backup operation by the outdoor unit   |

#### (1) Emergency operation with remote control reset

[Operating method]

Reset the remote control. (Press the **RUN/STOP** button for 4 seconds or more.)

[Details of operation]

Disable the defective outdoor unit from operating, and then only operate other outdoor units.

(On systems with 1 outdoor unit, this emergency operation is not available.)

#### (2) Emergency operation with outdoor unit PC board setting

[Setting method]

Make setting of the compressor, "the operation of which is to be disabled", in field setting mode (setting mode 2).

(For detail of the setting method, refer to page 224.)

[Details of operation]

Disable the compressor with "operation disable setting" made from operating and only operate other compressors.

(On the system with 1 compressor "REYQ8PY1", this emergency operation is not available.)

### 5.2 Demand Operation

In order to save the power consumption, the capacity of outdoor unit is saved with control forcibly by using "Demand 1 Setting" or "Demand 2 Setting".

To operate the unit with this mode, additional setting of "Continuous Demand Setting" or external input by external control adapter is required.

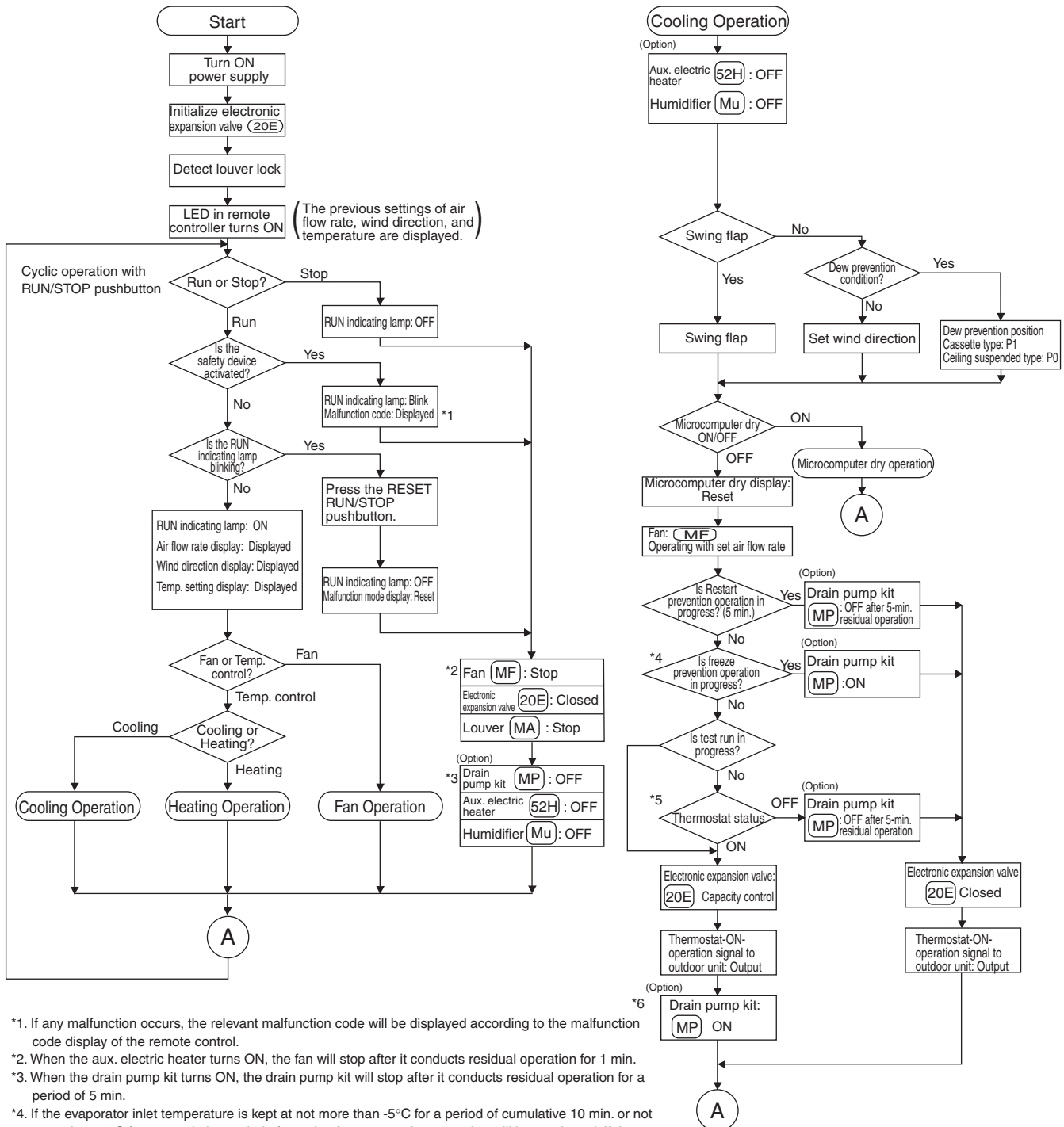
| Set item | Condition | Content   |
|----------|-----------|---|
| Demand 1 | Mode 1    | The compressor operates at approx. 60% or less of rating. |
|          | Mode 2    | The compressor operates at approx. 70% or less of rating. |
|          | Mode 3    | The compressor operates at approx. 80% or less of rating. |
| Demand 2 | —         | The compressor operates at approx. 40% or less of rating. |

### 5.3 Heating Operation Prohibition

Heating operation is prohibited above 24°C ambient temperature.

## 6. Outline of Control (Indoor Unit)

### 6.1 Operation Flow Chart



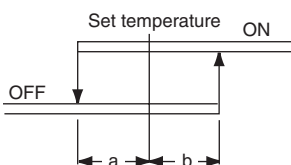
\*1. If any malfunction occurs, the relevant malfunction code will be displayed according to the malfunction code display of the remote control.

\*2. When the aux. electric heater turns ON, the fan will stop after it conducts residual operation for 1 min.

\*3. When the drain pump kit turns ON, the drain pump kit will stop after it conducts residual operation for a period of 5 min.

\*4. If the evaporator inlet temperature is kept at not more than -5°C for a period of cumulative 10 min. or not more than -1°C for a cumulative period of 40 min., frost prevention operation will be conducted. If the evaporator inlet temperature is kept at not less than 7°C for a consecutive period of 10 min., the frost prevention operation will be reset.

\*5. Thermostat status

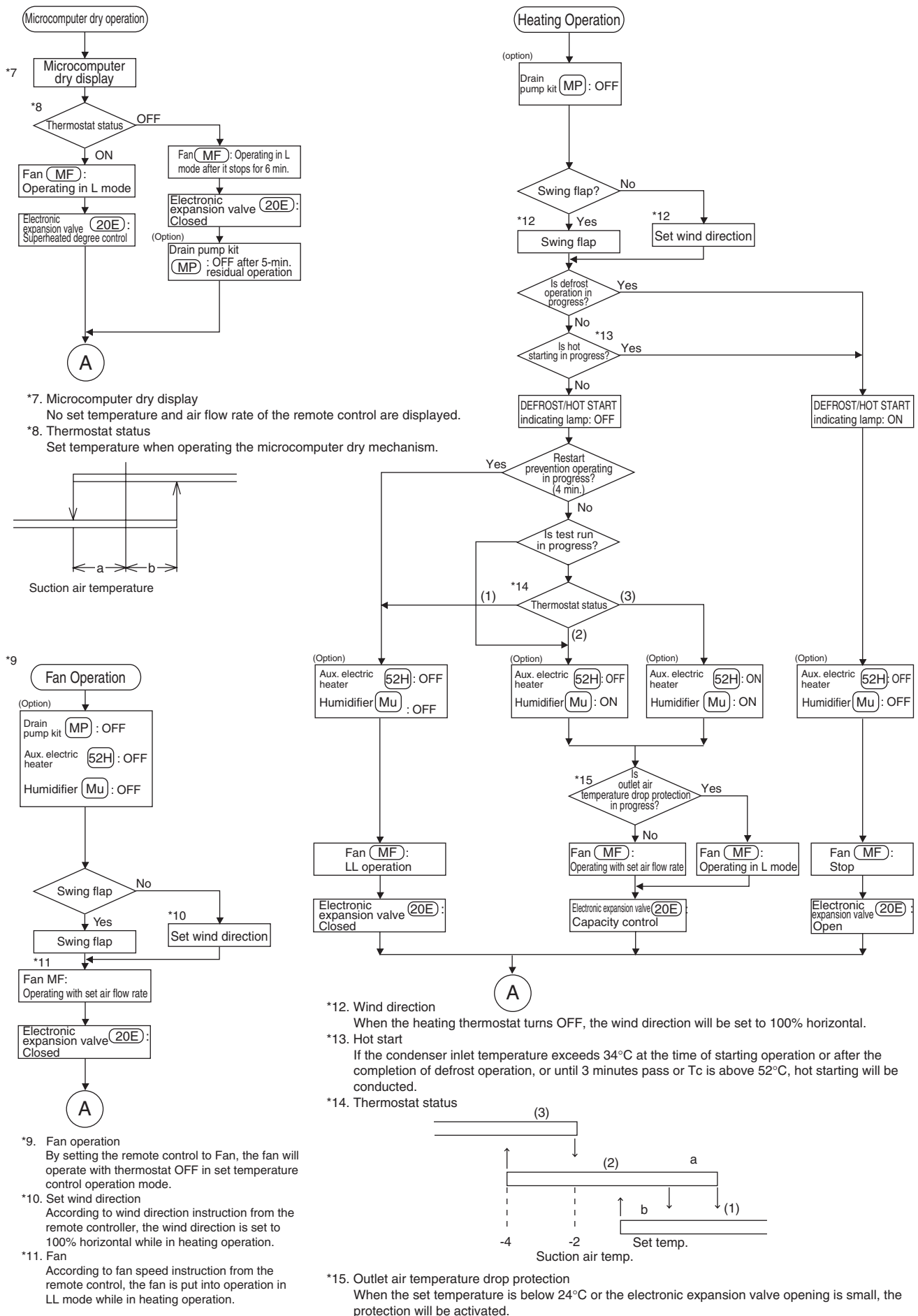


Suction air temperature

a=b=1

(a=b=0.5 is only available for the FXCQ, FXFQ, FXHQ, and FXKQ series.)

\*6. The FXCQ, FXFQ, FXKQ, and FXSQ series have the drain pump as standard equipment.



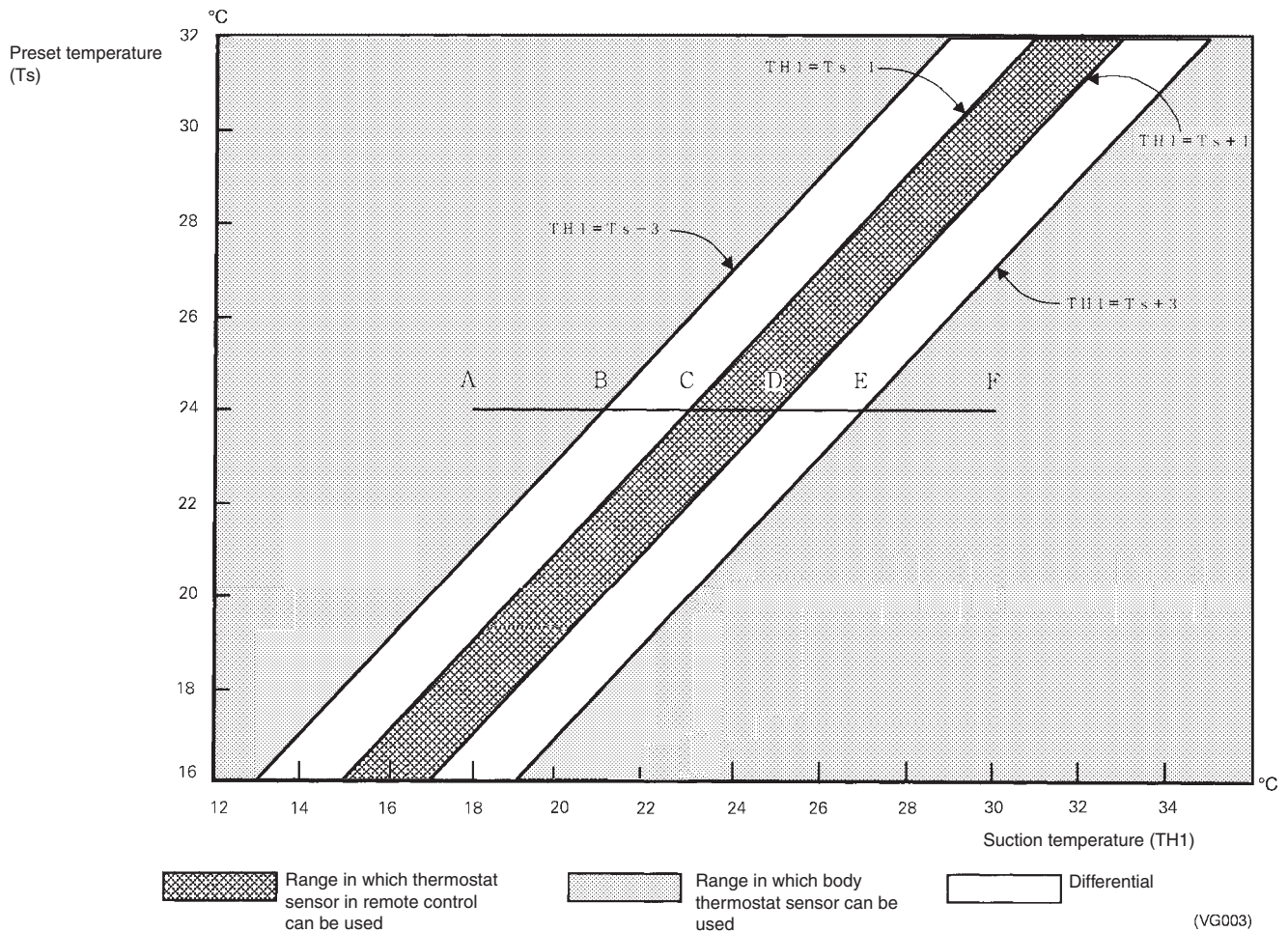
## 6.2 Thermostat Control

### 6.2.1 Thermostat Sensor in Remote Control

Temperature is controlled by both the thermostat sensor in remote control and air suction thermostat in the indoor unit. (This is however limited to when the field setting for the thermostat sensor in remote control is set to "Use".)

#### Cooling

If there is a significant difference in the preset temperature and the suction temperature, fine adjustment control is carried out using a body thermostat sensor, or using the sensor in the remote control near the position of the user when the suction temperature is near the preset temperature.



#### ■ Ex: When cooling

**Assuming the preset temperature in the figure above is 24°C, and the suction temperature has changed from 18°C to 30°C (A → F):**

(This example also assumes there are several other air conditioners, the VRV system is off, and that temperature changes even when the thermostat sensor is off.)

Body thermostat sensor is used for temperatures from 18°C to 23°C (A → C).

Remote control thermostat sensor is used for temperatures from 23°C to 27°C (C → E).

Body thermostat sensor is used for temperatures from 27°C to 30°C (E → F).

**And, assuming suction temperature has changed from 30°C to 18°C (F → A):**

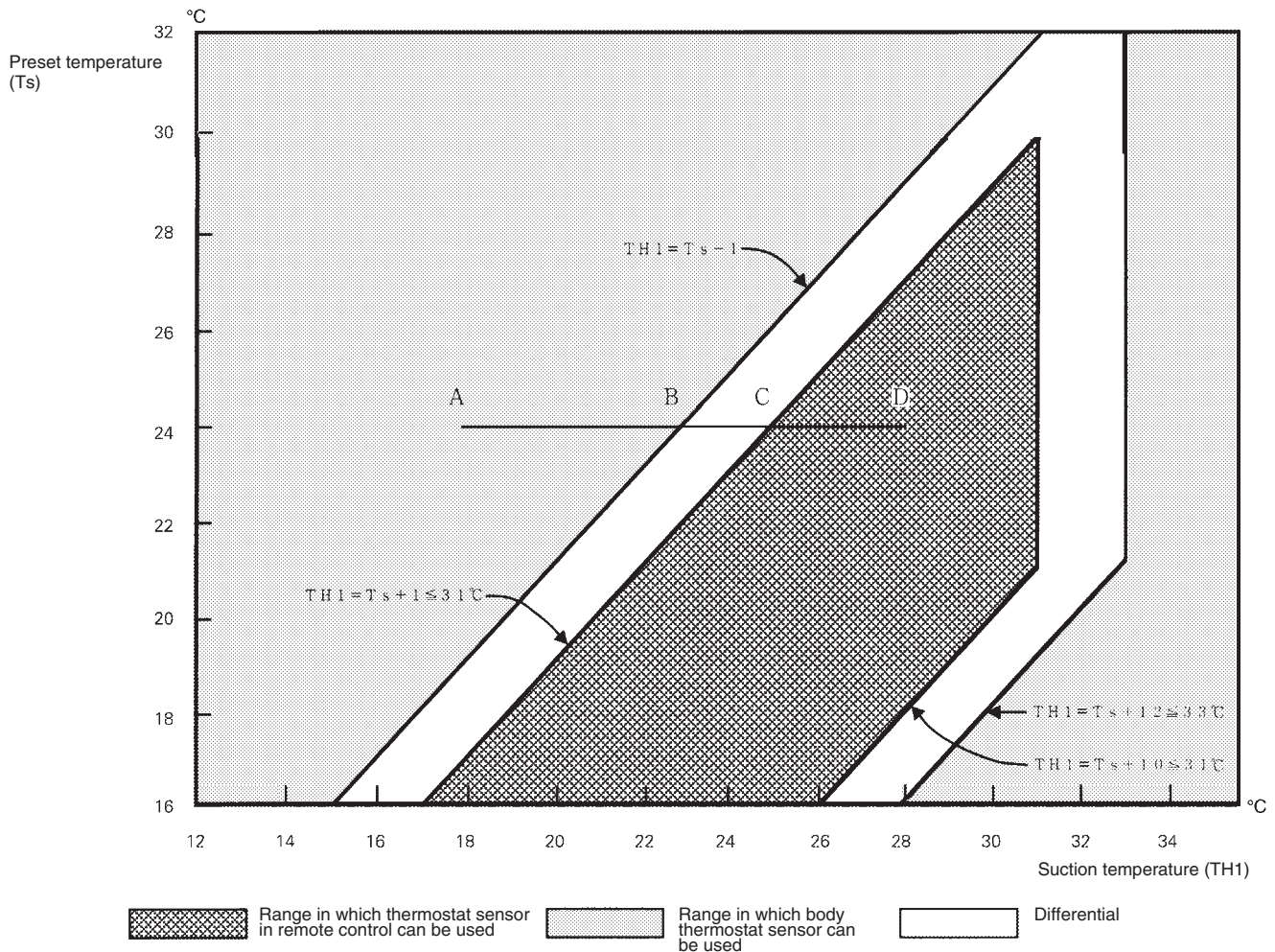
Body thermostat sensor is used for temperatures from 30°C to 25°C (F → D).

Remote control thermostat sensor is used for temperatures from 25°C to 21°C (D → B).

Body thermostat sensor is used for temperatures from 21°C to 18°C (B → A).

## Heating

When heating, the hot air rises to the top of the room, resulting in the temperature being lower near the floor where the occupants are. When controlling by body thermostat sensor only, the unit may therefore be turned off by the thermostat before the lower part of the room reaches the preset temperature. The temperature can be controlled so the lower part of the room where the occupants are doesn't become cold by widening the range in which thermostat sensor in remote control can be used so that suction temperature is higher than the preset temperature.



(V2769)

■ **Ex: When heating Assuming the preset temperature in the figure above is 24°C, and the suction temperature has changed from 18°C to 28°C (A → D):**

(This example also assumes there are several other air conditioners, the VRV system is off, and that temperature changes even when the thermostat sensor is off.)

Body thermostat sensor is used for temperatures from 18°C to 25°C (A → C).

Remote control thermostat sensor is used for temperatures from 25°C to 28°C (C → D).

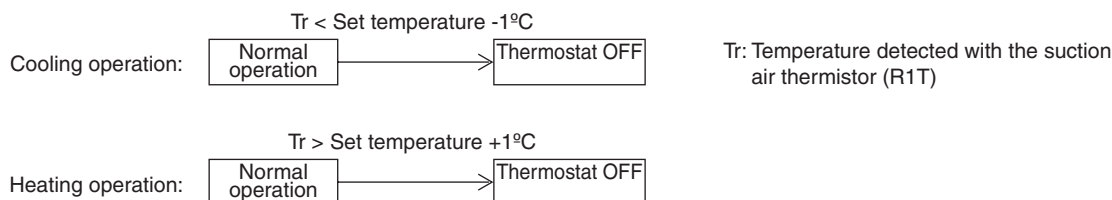
**And, assuming suction temperature has changed from 28°C to 18°C (D → A):**

Remote control thermostat sensor is used for temperatures from 28°C to 23°C (D → B).

Body thermostat sensor is used for temperatures from 23°C to 18°C (B → A).

## 6.2.2 Thermostat Control while in Normal Operation

VRV multi systems are set at factory to thermostat control mode using the remote control. While in normal thermostat differential control mode (i.e., factory set mode), the thermostat turns OFF when the system reaches a temperature of  $-1^{\circ}\text{C}$  from the set temperature while in cooling operation or of  $+1^{\circ}\text{C}$  from that while in heating operation.

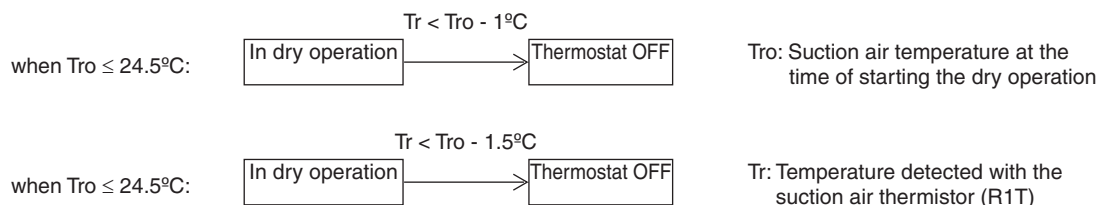


While in a single remote control group control, the body thermostat is only used for this control. Furthermore, while in heating operation, cassette-mounted indoor units conduct the thermostat control by a value compensated by  $-2^{\circ}\text{C}$  for the value detected with the body thermostat. (Through field settings, the thermostat differential setting can be changed from  $1^{\circ}\text{C}$  to  $0.5^{\circ}\text{C}$ . For details on the changing procedure, refer to information on page onward.)

## 6.2.3 Thermostat Control in Dry Operation

While in dry operation, the thermostat control is conducted according to a suction temperature at the time of starting the dry operation.

Assuming that the suction air temperature at the time of starting the dry operation is  $T_{ro}$  and the suction air temperature in operation is  $Tr$ ,



Furthermore, while in dry operation mode, fans operate at L flow rate, stops for a period of six minutes while the thermostat is OFF, and then return to operation at L flow rate. (This control is used to prevent a rise in indoor temperature while in thermostat OFF mode.)

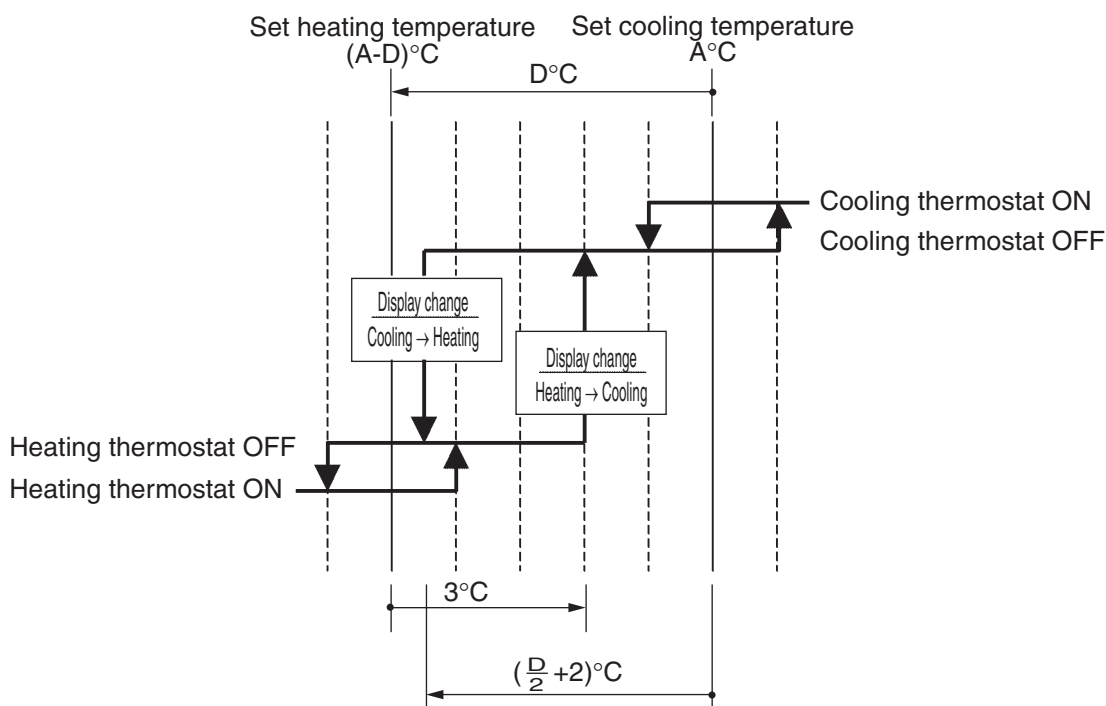
## 6.2.4 Thermostat Control with Operation Mode Set to "AUTO"

When the operation mode is set to "AUTO" on the remote control, the system will conduct the temperature control shown below.

Furthermore, setting changes of the differential value (D°C) can be made according to information in the "Field settings with remote control (p. 160 and later)" section.

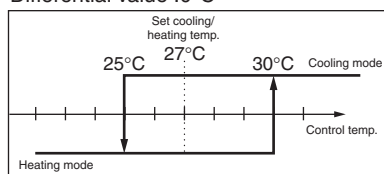
| Mode No. | Setting switch No. | Contents of setting                               | Setting position No. |     |     |     |     |     |     |     |
|----------|--------------------|---|----------------------|-----|-----|-----|-----|-----|-----|-----|
|          |                    |   | 01                   | 02  | 03  | 04  | 05  | 06  | 07  | 08  |
| 12       | 4                  | Differential value while in "AUTO" operation mode | 0°C                  | 1°C | 2°C | 3°C | 4°C | 5°C | 6°C | 7°C |

01: Factory setting

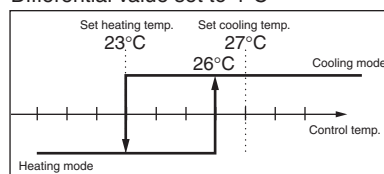


(Ex.) When automatic cooling temperature is set to 27°C:

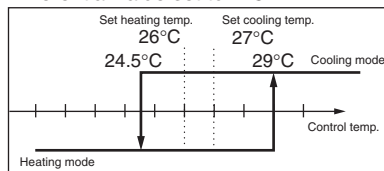
Differential value :0°C



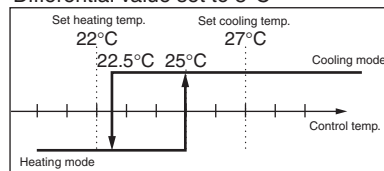
Differential value set to 4°C



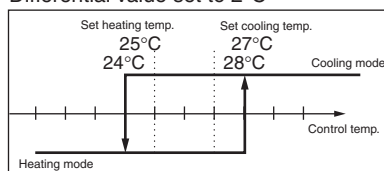
Differential value set to 1°C



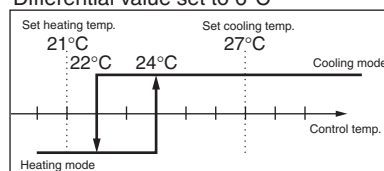
Differential value set to 5°C



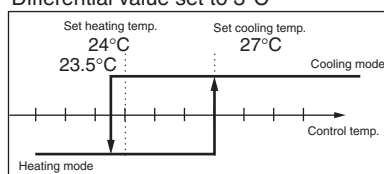
Differential value set to 2°C



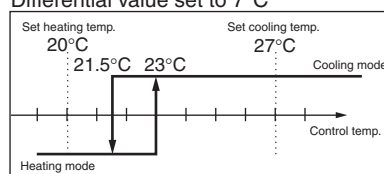
Differential value set to 6°C



Differential value set to 3°C



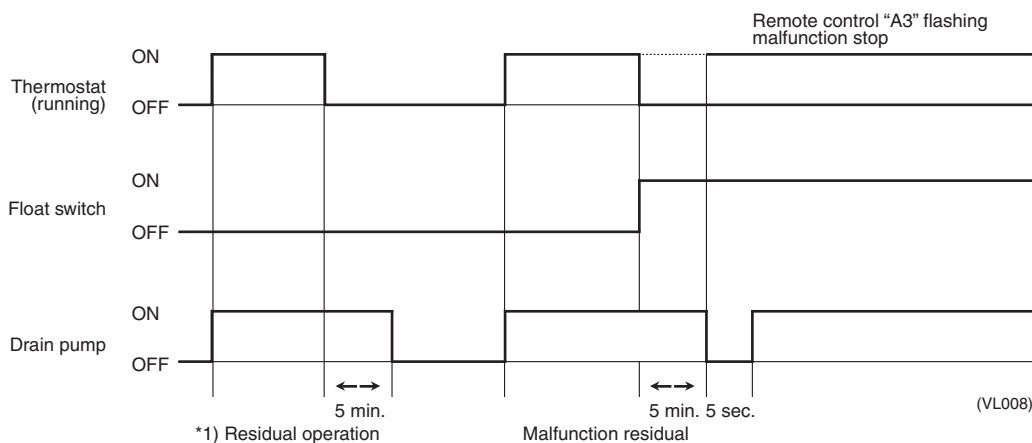
Differential value set to 7°C



### 6.3 Drain Pump Control

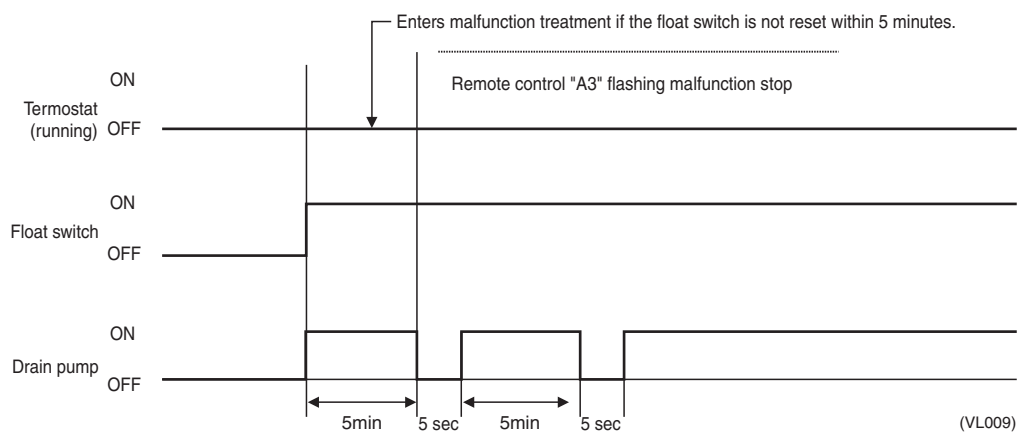
1. The drain pump is controlled by the ON/OFF buttons (4 button (1) - (4) given in the figure below).

### 6.3.1 When the Float Switch is Tripped while the Cooling Thermostat is ON:

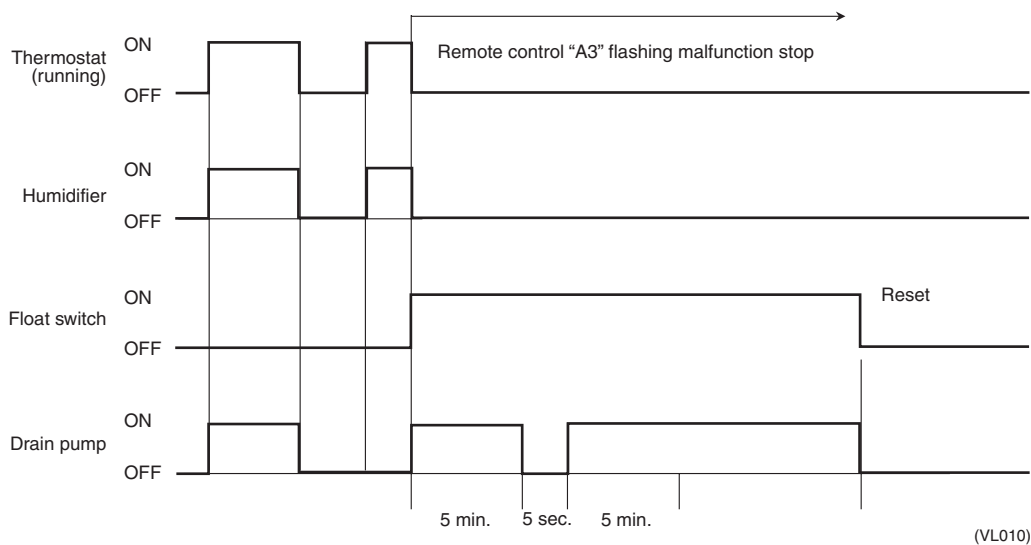


\* 1. The objective of residual operation is to completely drain any moisture adhering to the fin of the indoor unit heat exchanger when the thermostat goes off during cooling operation.

### 6.3.2 When the Float Switch is Tripped while the Cooling Thermostat is OFF :

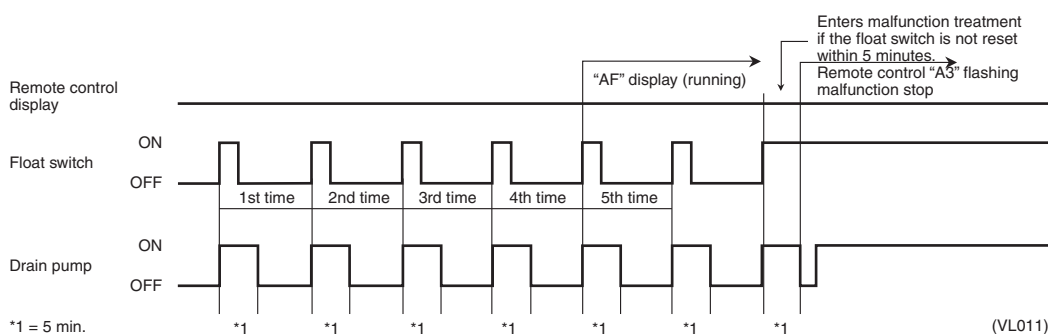


### 6.3.3 When the Float Switch is Tripped During Heating Operation:



During heating operation, if the float switch is not reset even after the 5 minutes operation, 5 seconds stop, 5 minutes operation cycle ends, operation continues until the switch is reset.

### 6.3.4 When the Float Switch is Tripped and "AF" is Displayed on the Remote Control:



**Note:** If the float switch is tripped five times in succession, a drain malfunction is determined to have occurred. "AF" is then displayed as operation continues.

## 6.4 Control of Electronic Expansion Valve

Electronic expansion valves in indoor units have the functions of conducting superheated degree control in cooling operation and subcooled degree control in heating operation. However, if the indoor units receive any control command such as a protection control command or a special control command from the outdoor unit, the units will give a priority to the control command.

- Superheated degree control in cooling operation

This function is used to adjust the opening of the electronic expansion valve so that superheated degree (SH), which is calculated from the detection temperature (Tg) of the gas pipe thermistor (R3T) and the detection temperature (T1) of the liquid temperature thermistor (R2T) of the indoor unit, will come close to a target superheated degree (SHS).

At that time, correction to the superheated degree is made according to the differences ( $\Delta T$ ) between set temperature and suction air thermistor temperature.

$$SH = T_g - T_1$$

SH:Evaporator outlet superheated degree (°C)

Tg:Indoor unit gas pipe temperature (R3T)

T1:Indoor unit liquid pipe temperature (R2T)

SHS (Target SH value)

SHS:Target superheated degree

- Normally 5°C.
- As  $\Delta T$  (Remote control set temp. - Suction air temp.) becomes larger, SHS becomes lower.
- As  $\Delta T$  (Remote control set temp. - Suction air temp.) becomes smaller, SHS becomes higher.

- Sub cooled degree control in heating operation

This function is used to adjust the opening of the electronic expansion valve so that the high-pressure equivalent saturated temperature (Tc), which is converted from the detected pressure of the high pressure sensor in the outdoor unit, and the subcooled degree (SC), which is calculated from the detected temperature (T1) of the liquid temperature thermistor (R2T) in the indoor unit, will come close to the target subcooled degree (SCS).

At that time, corrections to the subcooled degree are made according to differences ( $\Delta T$ ) between set temperature and suction air thermistor temperatures.

$$SC = T_c - T_1$$

SC:Condenser outlet subcooled degree (°C)

Tc:High pressure equivalent saturated temperature detected by the high pressure sensor (S1NPH)

T1:Indoor unit liquid pipe temperature (R2T)

SCS (Target SC value)

SCS:Target supercooled degree

- Normally 5°C.
- As  $\Delta T$  (Remote control set temp. - Suction air temp.) becomes larger, SCS becomes lower.
- As  $\Delta T$  (Remote control set temp. - Suction air temp.) becomes lower, SCS becomes larger.

## 6.5 Freeze Prevention

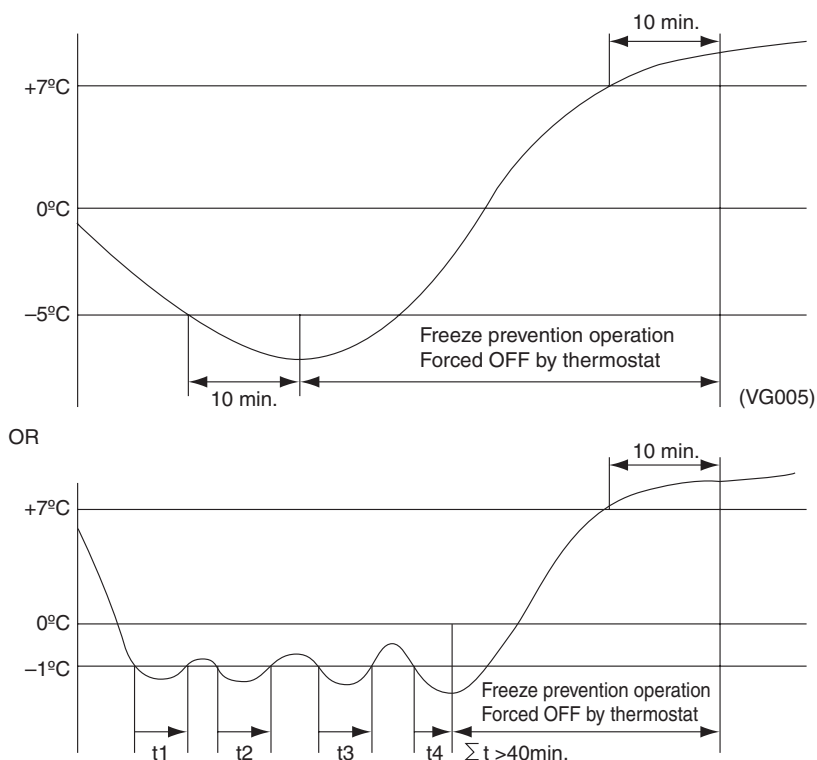
### Freeze Prevention by Off Cycle (Indoor Unit)

When the temperature detected by liquid pipe temperature thermistor (R2T) of the indoor unit heat exchanger drops too low, the unit enters freeze prevention operation in accordance with the following conditions, and is also set in accordance with the conditions given below.

When freeze prevention is activated, the electronic expansion valve is closed, the drain pump turns ON and the fan tap is fixed to L air flow. When the following conditions for stopping are satisfied, it returns.

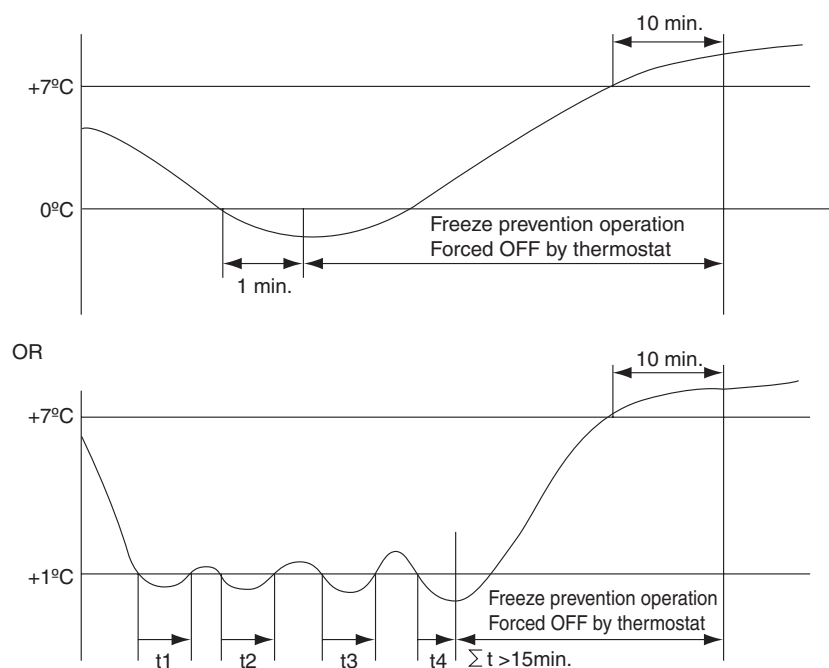
Conditions for starting freeze prevention: Temperature is  $-1^{\circ}\text{C}$  or less for total of 40 min., or temperature is  $-5^{\circ}\text{C}$  or less for total of 10 min.

Conditions for stopping freeze prevention: Temperature is  $+7^{\circ}\text{C}$  or more for 10 min. continuously



[Conditions for starting when air flow direction is two-way or three-way]

Conditions for starting: Temperature is  $1^{\circ}\text{C}$  or less for a total of 15 minutes or  $0^{\circ}\text{C}$  or less for 1 minute continuously.

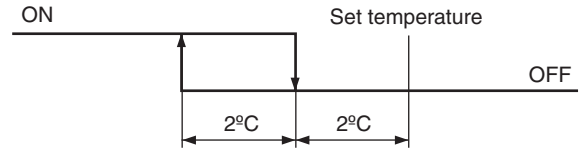


## 6.6 Heater Control (Optional PC Board KRP1B...is required.)

The heater control is conducted in the following manner.

### [Normal control]

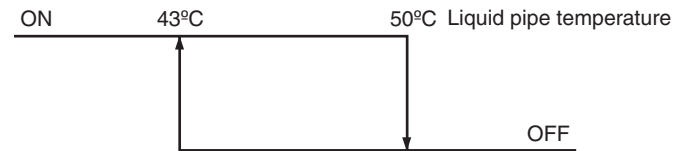
While in heating operation, the heater control (ON/OFF) is conducted as shown on the right.



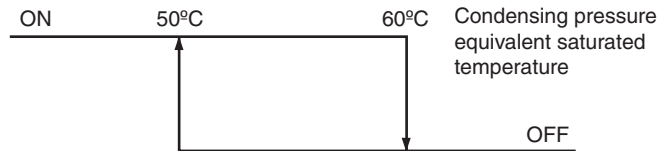
### [Overload control]

When the system is overloaded in heating operation, the heater will be turned OFF in the following two manners.

(1) The heater control (ON/OFF) is conducted through the liquid pipe temperature (R2T) of the indoor unit.



(2) The heater control (ON/OFF) is conducted by converting the heater temperature into the condensing pressure equivalent saturated temperature (Tc) according to the temperature detection through the high pressure sensor (SINPH) of the outdoor unit.



### [Fan residual operation]

While the heater turns OFF, in order to prevent the activation of the thermal protector, the fan conducts residual operation for a given period of time after the heater turns OFF. (This operation is conducted regardless of with or without heater equipped.)

Residual operation time = 100 seconds on ceiling suspended type or 60 seconds on other types

## 6.7 List of Swing Flap Operations

Swing flaps operate as shown in table below.

|         |   |                    | Fan             | Flap       |                      |                |
|---------|---|--------------------|-----------------|------------|----------------------|----------------|
|         |   |                    |                 | FXFQ       | FXCQ<br>FXHQ<br>FXKQ | FXAQ           |
| Heating | Hot start from defrosting operation                             | Swing              | OFF             | Horizontal | Horizontal           | Horizontal     |
|         |   | Wind direction set | OFF             | Horizontal | Horizontal           | Horizontal     |
|         | Defrosting operation  | Swing              | OFF             | Horizontal | Horizontal           | Horizontal     |
|         |   | Wind direction set | OFF             | Horizontal | Horizontal           | Horizontal     |
|         | Thermostat OFF  | Swing              | LL              | Horizontal | Horizontal           | Horizontal     |
|         |   | Wind direction set | LL              | Horizontal | Horizontal           | Horizontal     |
|         | Hot start from thermostat OFF mode (for prevention of cold air) | Swing              | LL              | Horizontal | Horizontal           | Horizontal     |
|         |   | Wind direction set | LL              | Horizontal | Horizontal           | Horizontal     |
|         | Stop  | Swing              | OFF             | Horizontal | Horizontal           | Totally closed |
|         |   | Wind direction set | OFF             | Horizontal | Horizontal           | Totally closed |
| Cooling | Thermostat ON in dry operation using micro computer             | Swing              | L* <sup>1</sup> | Swing      | Swing                | Swing          |
|         |   | Wind direction set | L* <sup>1</sup> | Set        | Set                  | Set            |
|         | Thermostat OFF in dry operation using micro computer            | Swing              | OFF or L        | Swing      | Swing                | Swing          |
|         |   | Wind direction set |                 | Set        | Set                  | Set            |
|         | Thermostat OFF in cooling                                       | Swing              | Set             | Swing      | Swing                | Swing          |
|         |   | Wind direction set | Set             | Set        | Set                  | Set            |
|         | Stop  | Swing              | OFF             | Horizontal | Horizontal           | Totally closed |
|         |   | Wind direction set | OFF             | Set        | Horizontal           | Totally closed |
|         | Micro computer control (including cooling operation)            | Swing              | L               | Swing      | Swing                | Swing          |
|         |   | Wind direction set | L               | Set        | Set                  | Set            |

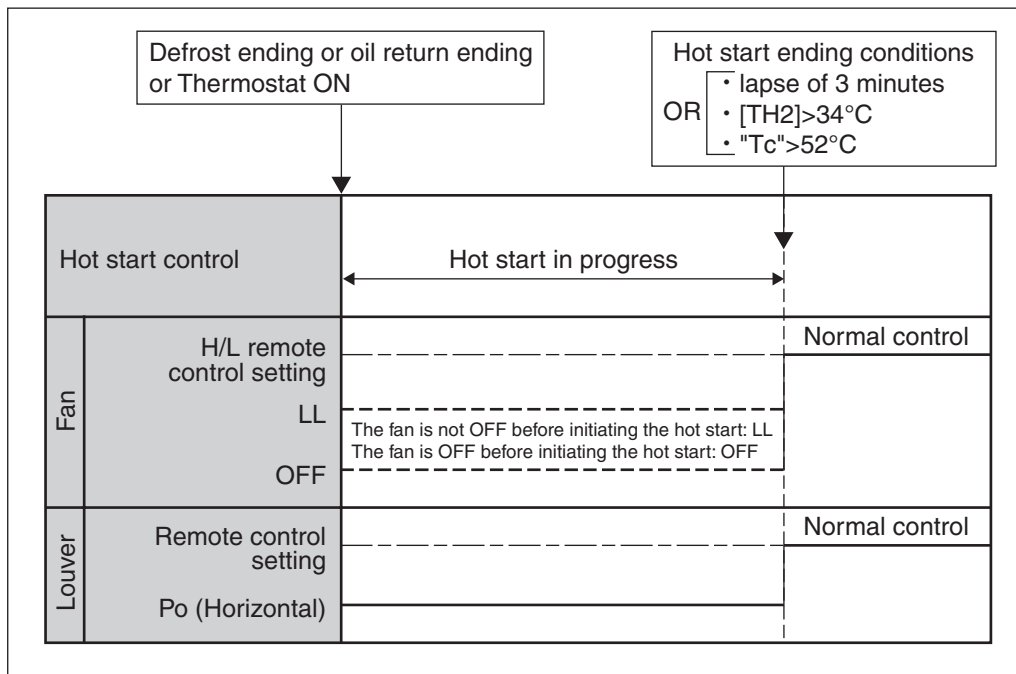
\*1. L or LL only on FXFQ models

## 6.8 Hot Start Control (In Heating Operation Only)

At startup with thermostat ON or after the completion of defrosting in heating operation, the indoor unit fan is controlled to prevent cold air from blasting out and ensure startup capacity.

### [Detail of operation]

When either the **start condition 1** or the **start condition 2** is established, the operations shown below will be conducted.

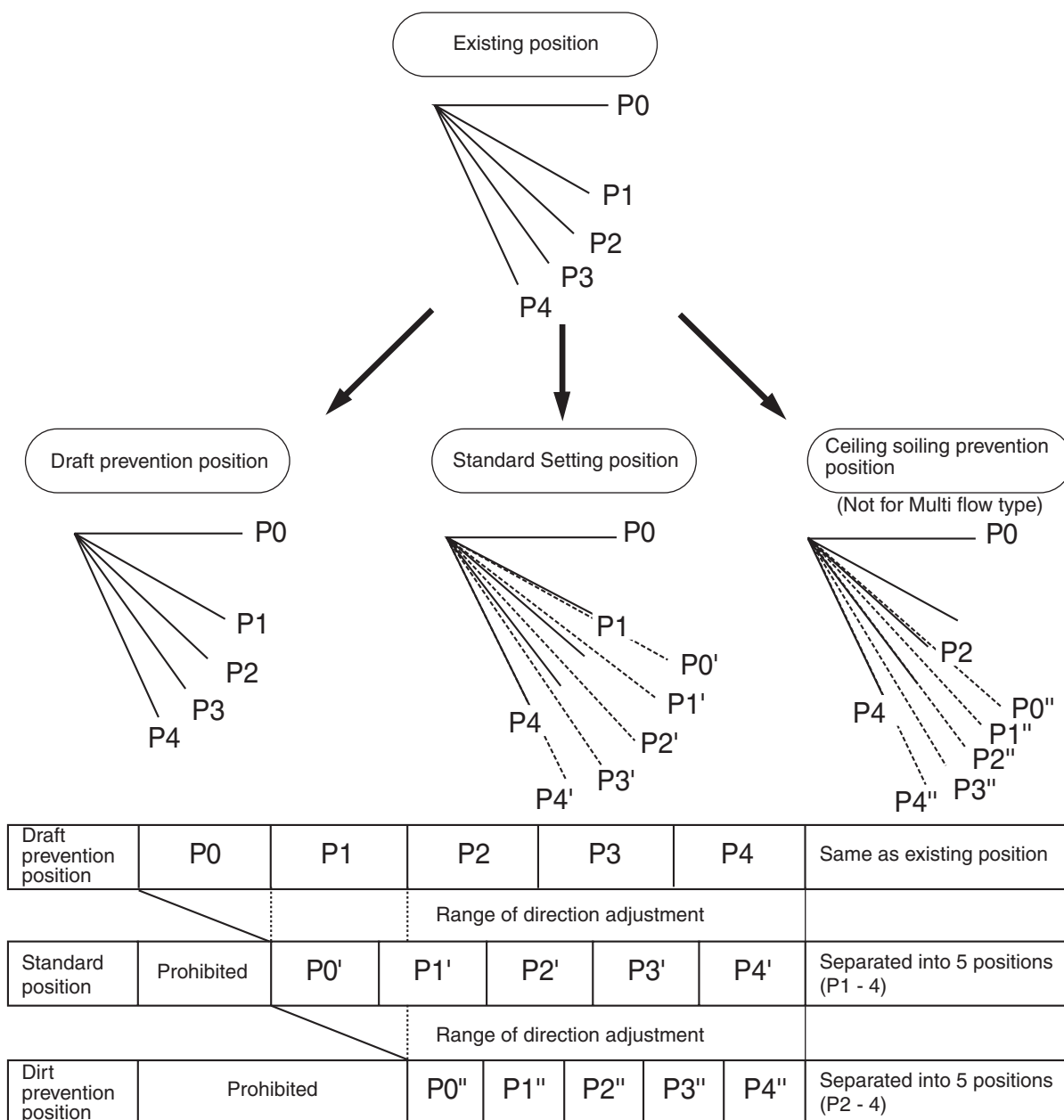


TH<sub>2</sub>: Temperature (°C) detected with the gas thermistor

TC : High pressure equivalent saturated temperature

## 6.9 Louver Control for Preventing Ceiling Dirt

We have added a control feature that allows you to select the range of in which air direction can be adjusted in order to prevent the ceiling surrounding the air discharge outlet of ceiling mounted cassette type units from being soiled. (This feature is available on double flow, multi-flow and corner types.)



The factory set position is standard position.

(VL012)

# Part 5

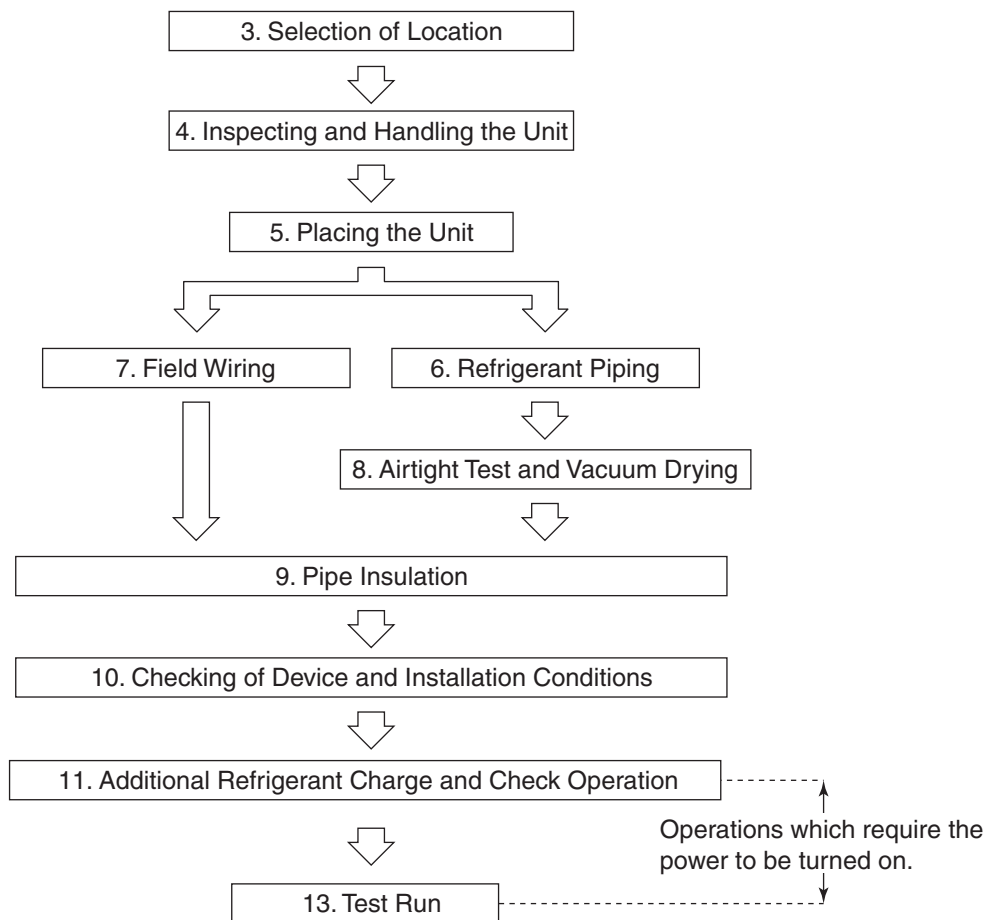
## Test Operation

|   |     |
|---|-----|
| 1. Test Operation .....                     | 154 |
| 1.1 Installation Process .....              | 154 |
| 1.2 Procedure and Outline .....             | 155 |
| 1.3 Operation when Power is Turned On ..... | 187 |
| 2. Outdoor Unit PC Board Layout .....       | 188 |
| 3. Field Setting .....                      | 189 |
| 3.1 Field Setting from Remote control ..... | 189 |
| 3.2 Field Setting from Outdoor Unit .....   | 202 |

# 1. Test Operation

## 1.1 Installation Process

Below Figure shows the installation process. Install in the order of the steps shown.



## 1.2 Procedure and Outline

Follow the following procedure to conduct the initial test operation after installation.

### 1.2.1 Check Work Prior to Turn Power Supply On

Check the below items.

- Power wiring
- Control transmission wiring between units
- Earth wire

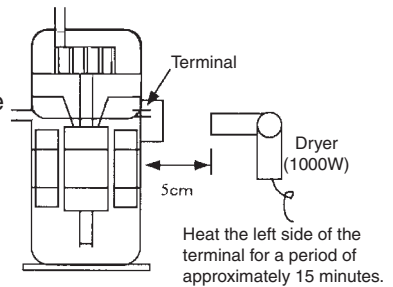


- Is the wiring performed as specified?
- Is the designated wire used?
- Is the wiring screw of wiring not loose?
- Is the grounding work completed?
- Is the insulation of the main power supply circuit deteriorated?  
Use a 500V megger tester to measure the insulation. (\*1)
- Do not use a megger tester for other circuits than 200V (or 240V) circuit.

\*1: Measure to be taken against decreased insulation resistance in the compressor

If the compressor is left to stand for an extended period of time after the refrigerant charge with the stop valve open and the power supply OFF, the refrigerant may be mixed in the compressor, thus decreasing the insulation resistance.

Heat the compressor as shown on the right and then recheck the insulation.



Check on refrigerant piping / insulation materials



- Is the pipe size proper?
- Are the design pressures for the liquid pipe, suction pipe, dual pressure gas pipe, and pressure equalizer pipe (in case of multi units) all not less than 4.0 MPa?
- Is the pipe insulation material installed securely?  
Liquid, suction and high & low pressure gas pipe need to be insulated. (Otherwise causes water leak.)

Check airtight test and vacuum drying.



- Have the airtight test and the vacuum drying been conducted according to the procedure in the Installation Manual?

Check on amount of refrigerant charge



○ Is a proper quantity of refrigerant charged?  
The following method is available for additional charging of refrigerant.

(1) Calculate additional refrigerant quantity.

- Calculate a necessary additional refrigerant charging amount according to the procedure for calculation shown below.
- \* Procedure for calculating additional refrigerant charging amount (Unit: 0.1 kg)

$$R = \left( \frac{\text{Total length of } \phi 22.2\text{-mm liquid pipe}}{\text{Total length of } \phi 22.2\text{-mm liquid pipe}} \right) \times 0.37 + \left( \frac{\text{Total length of } \phi 19.1\text{-mm liquid pipe}}{\text{Total length of } \phi 19.1\text{-mm liquid pipe}} \right) \times 0.26 + \left( \frac{\text{Total length of } \phi 15.9\text{-mm liquid pipe}}{\text{Total length of } \phi 15.9\text{-mm liquid pipe}} \right) \times 0.18 + \left( \frac{\text{Total length of } \phi 12.7\text{-mm liquid pipe}}{\text{Total length of } \phi 12.7\text{-mm liquid pipe}} \right) \times 0.12 + \left( \frac{\text{Total length of } \phi 9.5\text{-mm liquid pipe}}{\text{Total length of } \phi 9.5\text{-mm liquid pipe}} \right) \times 0.059 + \left( \frac{\text{Total length of } \phi 6.4\text{-mm liquid pipe}}{\text{Total length of } \phi 6.4\text{-mm liquid pipe}} \right) \times 0.022 \times 1.02$$

Correction amount with indoor unit Correction amount with a total capacity of indoor units

| System name          | Correction amount | Correction amount   |                        |
|----------------------|-------------------|---|------------------------|
| Model REYQ8-16PY1B   | 3.6 kg            | Ratio of total capacity of the connected indoor units to the rated capacity of the outdoor unit (A) |                        |
| Model REYQ18-20P7Y1B | 1.0kg             |   |                        |
| Model REYQ22-24P7Y1B | 1.5kg             | Model REYQ18 - 32P7Y1B  | Model REYQ34 - 48P7Y1B |
| + Model REYQ26P7Y1B  | 2.0kg             | 100%<A≤120%   | 0.5kg                  |
| Model REYQ28-30P7Y1B | 2.5kg             | 120%<A≤130%   | 0.5kg 1.0kg            |
| Model REYQ32-40P7Y1B | 3.0kg             |   |                        |
| Model REYQ42P7Y1B    | 3.5kg             |   |                        |
| Model REYQ44-46P7Y1B | 4.0kg             |   |                        |
| Model REYQ48P7Y1B    | 4.5kg             |   |                        |

- If there is a refrigerant shortage, charge a liquid refrigerant through the stop valve service port with the stop valves of liquid and those of gas closes after the completion of vacuum drying.
- If the refrigerant charging is still insufficient, "turn ON the power supply" following the information on the page 155.

○ Has the additional refrigerant charging amount been recorded on the "Precautions for servicing" label?

Check the stop valves for conditions.

○ Check to be sure the stop valves are under the following conditions.

| Liquid-pipe stop valve | Equalizing pipe stop valve | Dual pressure gas pipe stop valve | Suction pipe stop valve |
|------------------------|----------------------------|-----------------------------------|-------------------------|
| Open                   | Open                       | Open                              | Open                    |

## 1.2.2 Turn Power On

Turn outdoor unit and indoor unit power on.



Check the LED display of the outdoor unit PC board.



- Be sure to turn the power on 6 hours before starting operation to protect compressors. (to power on crankcase heater)

- Check to be sure the transmission is normal.  
The transmission is normal if the LEDs display conditions as shown in table below.

LED display ○ ON ● OFF ● Blinking

| LED display<br>(Default status before delivery) | Micro-computer operation monitor | MODE | TEST | COOL / HEAT select |        |       | Low noise | Demand | Multi |
|---|----------------------------------|------|------|--------------------|--------|-------|-----------|--------|-------|
|   |                                  |      |      | IND                | MASTER | SLAVE |           |        |       |
|   |                                  |      |      | H3P                | H4P    | H5P   | H6P       | H7P    | H8P   |
| One outdoor unit installed                      |                                  | ●    | ●    | ○                  | ●      | ●     | ●         | ●      | ●     |
| When multiple outdoor unit installed (*)        | Master                           | ●    | ●    | ○                  | ●      | ●     | ●         | ●      | ○     |
|   | Slave 1                          | ●    | ●    | ●                  | ●      | ●     | ●         | ●      | ●     |
|   | Slave 2                          | ●    | ●    | ●                  | ●      | ●     | ●         | ●      | ●     |

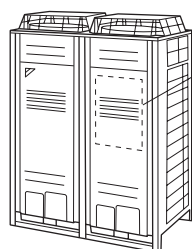
- (\*) The master unit is the outdoor unit to which the transmission wiring for the indoor units is connected.  
The other outdoor units are slave units.

Make field settings with outdoor unit PC board.



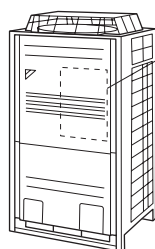
- Make field settings if needed.  
(For the setting procedure, refer to information in "3.2. Field Setting from Outdoor Unit" on page 202 onward.)  
For the outdoor-multi system, make field settings with the master unit.  
(Field settings made with the slave unit will be all invalid.)

<REYQ8~16PY1>



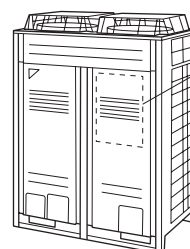
Inside a switch box  
"A1P" PC board

<REM8~12PY1>



Inside a switch box  
"A1P" PC board

<REM14, 16PY1>



Inside a switch box  
"A1P" PC board

\* Another switch box is provided on the front left side of the unit, but it requires no field settings.

Conduct check operations.



Check for normal operation.

The check operations shown below will be automatically initiated.

- Check for erroneous wirings
- Check for failure to open stop valves
- Check for excessive refrigerant refilling
- Automatic judgment of piping length

- Before starting the normal operation after the completion of check operations, make sure indoor and outdoor units normally operate.

### 1.2.3 Air Tight Test and Vacuum Drying

**Note:**

- Always use nitrogen gas for the airtightness test.
- Absolutely do not open the shutoff valve until the main power circuit insulation measurement has been completed. (measuring after the shutoff valve is opened will cause the insulation value to drop.)

**<Needed tools>**

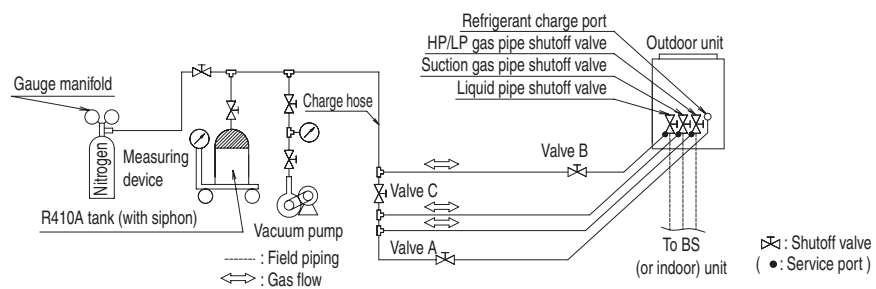
|                                     |  |
|-------------------------------------|--|
| Gauge manifold<br>Charge hose valve | <ul style="list-style-type: none"> <li>• To prevent entry of any impurities and insure sufficient pressure resistance, always use the special tools dedicated for R-410A.</li> <li>• Use charge hose that have pushing stick for connecting to service port of shutoff valves or refrigerant charge port.</li> </ul> |
| Vacuum pump                         | <ul style="list-style-type: none"> <li>• The vacuum pump for vacuum drying should be able to lower the pressure to <math>-100.7\text{kPa}</math> (5 Torr <math>-755\text{mm Hg}</math>).</li> <li>• Take care the pump oil never flow backward into the refrigerant pipe during the pump stops.</li> </ul>           |

**<The system for air tight test and vacuum drying>**

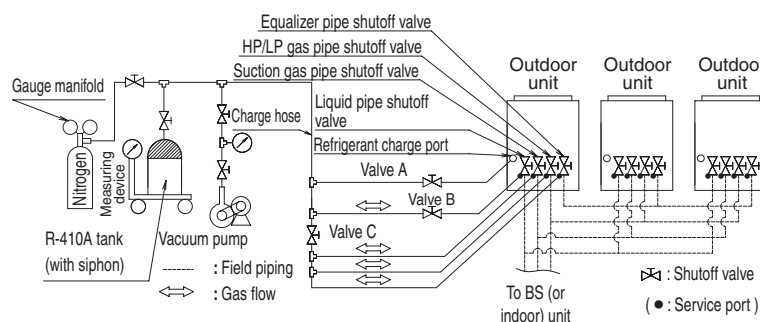
- Referring to next figure, connect an nitrogen tank, refrigerant tank, and a vacuum pump to the outdoor unit.

The refrigerant tank and the charge hose connection to refrigerant charge port or the valve A in next figure are needed in “1.2.5 Additional Refrigerant Charge and Check Operation”.

**REYQ8~16PY1B**

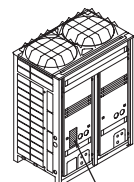


**REYQ18~48P7Y1B**



**Note:**

- The airtightness test and vacuum drying should be done using the service ports of equalizer pipe, HP/LP gas pipe, suction gas pipe and liquid pipe shutoff valve.  
See the [R-410A] Label attached to the front plate of the outdoor unit for details on the location of the service port (see figure at right)
- See [Shutoff valve operation procedure] in “1.2.5.1 Before Working” for details on handling the shutoff valve.
- The refrigerant charge port is connected to unit pipe.  
When shipped, the unit contains the refrigerant, so use caution when attaching the charge hose.



[R-410A] Label

**<Air tight test>**

Pressurize the liquid pipe, suction gas pipe, HP/LP gas pipe and equalizer pipe from the service ports of each shutoff valve to 4.0MPa (40bar) (do not pressurize more than 4.0MPa (40bar)). If the pressure does not drop within 24 hours, the system passes the test.

If there is a pressure drop, check for leaks, make repairs and perform the airtight test again.

**<Vacuum drying>**

Evacuate the system from the liquid and gas pipes by using a vacuum pump for more than 2 hours and bring the system to  $-100.7\text{kPa}$  or less. After keeping the system under that condition for more than 1 hour, check if the vacuum gauge rises or not. If it rises, the system may either contain moisture inside or have leaks.

**Note:**

■ **If moisture might enter the piping, follow below.**

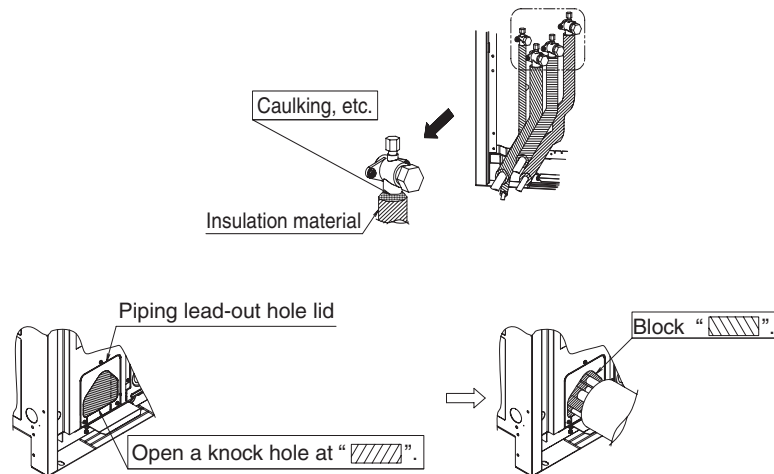
(I.e., if doing work during the rainy season, if the actual work takes long enough that condensation may form on the inside of the pipes, if rain might enter the pipes during work, etc.)

1. After performing the vacuum drying for two hours, pressurize to  $0.05\text{ MPa}$  (i.e., vacuum breakdown) with nitrogen gas, then depressurize down to  $-100.7\text{ kPa}$  for an hour using the vacuum pump (vacuum drying).
2. If the pressure does not reach  $-100.7\text{ kPa}$  even after depressurizing for at least two hours, repeat the vacuum breakdown - vacuum drying process.

After vacuum drying, maintain the vacuum for an hour and make sure the pressure does not rise by monitoring with a vacuum gauge.

## 1.2.4 Pipe Insulation

- Insulation of pipes should be done after performing “1.2.3. Air Tight Test and Vacuum Drying”.
- Always insulate the liquid piping, the HP/LP gas piping, the gas piping, the equalizer pipe (between the outdoor units for the outdoor multi system) and these pipe connections.  
Failing to insulate the pipes may cause leaking or burns.  
Especially, be sure to insulate the HP/LP gas piping as withstanding as the suction pipe because the suction gas follows in the HP/LP gas piping when the system is whole cooling mode.  
And be sure to use the insulation which can withstand such temperatures of  $120^{\circ}\text{C}$  or more for the HP/LP gas piping, the equalizer pipe and the gas piping because the HP/LP gas follows in these pipings.
- Reinforce the insulation on the refrigerant piping according to the installation environment. Condensation might form on the surface of the insulation. Refer to the below.
  - Ambient temperature :  $30^{\circ}\text{C}$ , humidity : 75% to 80% RH : min. thickness : 15mm.
  - If the ambient temperature exceeds  $30^{\circ}\text{C}$  and the humidity 80% RH, then the min. thickness is 20mm.
 See the Engineering data book for detail.
- If there is a possibility that condensation on the shutoff valve might drip down into the indoor unit through gaps in the insulation and piping because the outdoor unit is located higher than the indoor unit, etc., this must be prevented by caulking the connections, etc. **(Refer to next figure)**
- The piping lead-out hole lid should be attached after opening a knock hole. **(Refer to next figure)**
- If small animals and the like might enter the unit through the piping lead-out hole, close the hole with blocking material (procured on site) after completion of “1.2.5 Additional Refrigerant Charge and Check Operation”. **(Refer to next figure)**



**Note:**

- After knocking out the holes, we recommend you remove burrs in the knock holes (**See above figure**) and paint the edges and areas around the edges using the repair paint.

### 1.2.5 Additional Refrigerant Charge and Check Operation

The outdoor unit is charged with refrigerant when shipped from the factory, but depending on the size and length of the piping when installed, it may require additional charging.

For charging the additional refrigerant, follow the procedure in this chapter.



And then carry out the check operation.

Note: Total amount of refrigerant should be 100kg or less

### 1.2.5.1 Before Working

**[About the refrigerant cylinder]**

Check whether the cylinder has a siphon pipe before charging and place the cylinder so that the refrigerant is charged in liquid form. (See the figure below.)

|   |  |
|---|--|
| With siphon pipe  |  |
|  | Stand the cylinder upright and charge.<br>(The siphon pipe goes all the way inside,<br>so the cylinder does not need be put<br>upside-down charge in liquid form.) |
| Other tanks   |  |
|  | Stand the cylinder upside-down and charge.   |

**Note:**

- Always use the proper refrigerant (R-410A). If charged with the refrigerant containing an improper material, it may cause an explosion or accident.
- R-410A is a mixed refrigerant, so charging it as a gas will cause the refrigerant composition to change, which may prevent normal operation.

## [Special notice of product]

### CLASSIFICATION

This air conditioner comes under the term “appliances not accessible to the general public”.

### EMC CHARACTERISTICS

VRVIII System is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

### REFRIGERANT

#### VRVIII System use R-410A refrigerant.

- The refrigerant R-410A requires strict cautions for keeping the system clean, dry and tight. Read the chapter “REFRIGERANT PIPING” carefully and follow these procedures correctly.
  - A.Clean and dry
 

Foreign materials (including mineral oils such as SUNISO oil or moisture) should be prevented from getting mixed into the system.
  - B.Tight
 

Take care to keep the system tight when installing.

R-410A does not contain any chlorine, does not destroy the ozone layer, and does not reduce the earth’s protection against harmful ultraviolet radiation.

R-410A can contribute slightly to the greenhouse effect if it is released.
- Since R-410A is a mixed refrigerant, the required additional refrigerant must be charged in its liquid state. If the refrigerant is charged in a state of gas, its composition changes and the system will not work properly.

#### Limit by the total maximum refrigerant charge

The total maximum refrigerant charge of a VRVIII system must be below 100kg, this to be in accordance with CE requirement (EN60335-2-40 standard).

This means that in case the total maximum refrigerant charge of the system (factory and additional charge) is equal to or more than 100kg you must divide your multiple outdoor system into smaller independent systems, each containing less than 100kg refrigerant charge.

For factory charge, refer to the unit name plate.

#### Important information regarding the refrigerant used

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent gases into the atmosphere.

Refrigerant type : R-410A

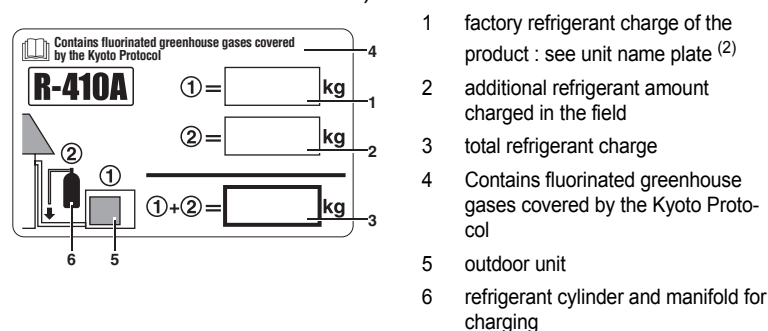
GWP <sup>(1)</sup> value : 1975

<sup>(1)</sup> GWP = global warming potential

Please fill in with indelible ink,

- ① the factory refrigerant charge of the product,
- ② the additional refrigerant amount charged in the field and
- ① + ② the total refrigerant charge on the refrigerant charge label supplied with the product.

The filled out label must be adhered in the proximity of the product charging port (e.g. onto the inside of the service cover).



<sup>(2)</sup> In case of multiple outdoor systems, only 1 label must be adhered, mentioning the total factory refrigerant charge of all outdoor units connected on the refrigerant system.

### DESIGN PRESSURE

Since design pressure is 4.0MPa or 40bar (for R-407C units : 3.3MPa or 33bar), the wall thickness of pipes should be more carefully selected in accordance with the relevant local and national regulations.

## [Shutoff Valve Operation Procedure]

When operating the shutoff valve, follow the procedure instructed below.

### Note:

- Do not open the shutoff valve until “1.2.1 Check work prior to turn power supply on” in page 149 are completed. If the shutoff valve is left open without turning on the power, it may cause refrigerant to buildup in the compressor, leading insulation degradation.
- Be sure to use the correct tools.
- The shutoff valve is not a back-seat type. If forced it to open, it might break the valve body.
- When using a service port, use the charge hose.
- After tightening the cap, make sure no refrigerant gas is leaking.

### [Tightening torque]

The sizes of the shutoff valves on each model and the tightening torque for each size are listed in the table below.

#### <Size of Shutoff Valve>

##### REYQ8~16PY1B

|                           | 8HP type   | 10HP type | 12HP type | 14HP type   | 16HP type |
|---------------------------|--|-----------|-----------|-------------|-----------|
| Liquid pipe shutoff valve | $\phi 9.5$<br>The 12HP type corresponds to the 12.7-diameter onsite piping using the accessory pipe.   |           |           | $\phi 12.7$ |           |
| Suction gas shutoff valve | $\phi 25.4$<br>The 8HP type corresponds to the 19.1-diameter onsite piping using the accessory pipe.<br>The 10HP type corresponds to the 22.2-diameter onsite piping using the accessory pipe.<br>The 12-16 HP type corresponds to the 28.6-diameter onsite piping using the accessory pipe. |           |           |             |           |
| HP/LP gas shutoff valve   | $\phi 19.1$<br>The 8HP type corresponds to the 15.9-diameter onsite piping using the accessory pipe.<br>The 14-16 HP type corresponds to the 22.2-diameter onsite piping using the accessory pipe.   |           |           |             |           |

##### REYQ18~48P7Y1B

|                              | 8HP type  | 10HP type | 12HP type | 14HP type   | 16HP type |
|------------------------------|---|-----------|-----------|-------------|-----------|
| Liquid pipe shutoff valve    | $\phi 9.5$<br>The 12HP type corresponds to the 12.7-diameter onsite piping using the accessory pipe.  |           |           | $\phi 12.7$ |           |
| Suction gas shutoff valve    | $\phi 25.4$<br>The 8 · 10HP type corresponds to the 22.2-diameter onsite piping using the accessory pipe.<br>The 12-16 HP type corresponds to the 28.6-diameter onsite piping using the accessory pipe. |           |           |             |           |
| HP/LP gas shutoff valve      | $\phi 19.1$<br>The 14 · 16 HP type corresponds to the 22.2-diameter onsite piping using the accessory pipe.   |           |           |             |           |
| Equalizer pipe shutoff valve | $\phi 19.1$   |           |           |             |           |

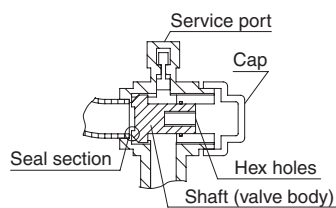


fig 34

**[To open]**

1. Remove the cap and turn the shaft counterclockwise with the hexagon wrench (JISB4648).
2. Turn it until the shaft stops.
3. Make sure to tighten the cap securely.  
(For the tightening torque, refer to the item <Tightening Torque>.)

**[To close]**

1. Remove the cap and turn the shaft clockwise with the hexagon wrench (JISB4648).
2. Securely tighten the valve until the shaft contacts the main body seal.
3. Make sure to tighten the cap securely.  
(For the tightening torque, refer to the item <Tightening Torque>.)

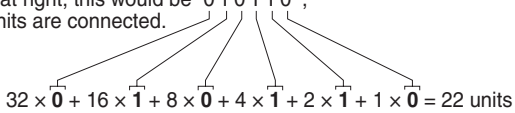
**<Tightening torque>**

| Shutoff valve size | Tightening torque N·m (Turn clockwise to close) |                          |                 |              |
|--------------------|---|--------------------------|-----------------|--------------|
|                    | Shaft (valve body)                              |                          | Cap (valve lid) | Service port |
| φ 9.5              | 5.4 - 6.6                                       | Hexagonal wrench<br>4 mm | 13.5 - 16.5     | 11.5 - 13.9  |
| φ 12.7             | 8.1 - 9.9                                       |                          | 18.0 - 22.0     |              |
| φ 19.1             | 27.0 - 33.0                                     | Hexagonal wrench<br>8 mm | 22.5 - 27.5     |              |
| φ 25.4             |   |                          |                 |              |

### [How to Check How Many Units are Connected]

It is possible to find out how many indoor or outdoor unit in the system are turned on by operating the push button on the PC-board (A1P) of outdoor unit (In case of multi system master unit).

Follow the procedure below to check how many indoor or outdoor units are turned on.

| (LED display : ● ...OFF ○ ...ON ◐ ...Blinking * ...Uncertain)  |   | LED display |             |             |             |             |             |             |
|--|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|  |   | H<br>1<br>P | H<br>2<br>P | H<br>3<br>P | H<br>4<br>P | H<br>5<br>P | H<br>6<br>P | H<br>7<br>P |
| 1. Press the MODE button (BS1) once at Setting Mode 1 (H1P: off) and set the MONITOR MODE (H1P: Blinking).   |   | ◐           | ●           | ●           | ●           | ●           | ●           | ●           |
| 2. Press the SET button (BS2) the number of times until the LED display matches that at right.   | For checking the number of outdoor units: eight times | ◐           | ●           | ●           | ○           | ●           | ●           | ●           |
|  | For checking the number of indoor units: five times   | ◐           | ●           | ●           | ●           | ○           | ●           | ○           |
| 3. Press the RETURN button (BS3) and read the number of units from the display of H2P through H7P.<br>[Reading Method]<br>The display of H2P through H7P should be read as a binary number, with ◐ standing for "1" and ● standing for "0".  |   | ◐           | *           | *           | *           | *           | *           | *           |
| <p>Ex: For the LED display at right, this would be "0 1 0 1 1 0", which would mean 22 units are connected.</p>  <p>Note: "000000" indicates 64 units.</p> |   | ◐           | ●           | ◐           | ●           | ◐           | ◐           | ●           |
| 4. Press the MODE button (BS1) once. This returns to <b>Setting Mode 1</b> (H1P: OFF, default).  |   | ●           | ●           | ○           | ●           | ●           | ●           | ●           |

#### Note:

Press the "MODE button" (BS1) if you get confused while operating.  
This returns to **Setting Mode 1** (H1P: OFF, default).

### 1.2.5.2 Procedure of Adding Refrigerant Charging and Check Operation - REYQ8~16PY1B

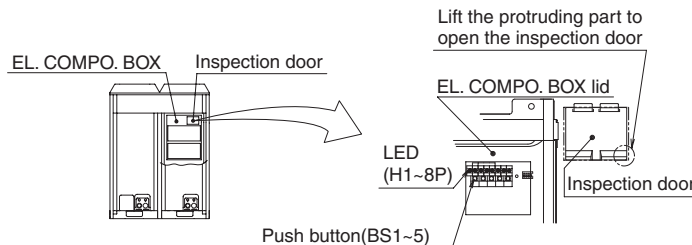


#### Warning



#### Electric Shock Warning

- Make sure to close the EL. COMPO. BOX lid before turning on the power when performing the refrigerant charging operation.
- Perform the setting on the PC board (A1P) of the outdoor unit and check the LED display after the power is on via the inspection door which is in the EL. COMPO. BOX lid.



- Use an insulated rod to operate the push buttons via the EL. COMPO. BOX's inspection door. There is a risk of electric shock if you touch any live parts, since this operation must be performed with the power on.



#### Caution

- Make sure to use the protect tool (protective grooves and goggles) when charging the refrigerant.
- Due to a danger of liquid hammer, the refrigerant must not be charged over the allowable maximum amount when charging the refrigerant.
- Do not perform the refrigerant charging operation under working for the BS and indoor unit.
- When opening the front panel, make sure to take caution to the fan rotation during the working.  
After the outdoor unit stops operating, the fan may keep rotation for a while.

#### Note:

- If operation is performed within 12 minutes after the BS, indoor and outdoor units are turned on, H2P will be lit on and the compressor will not operate.  
Check the LED display indicate as shown below.

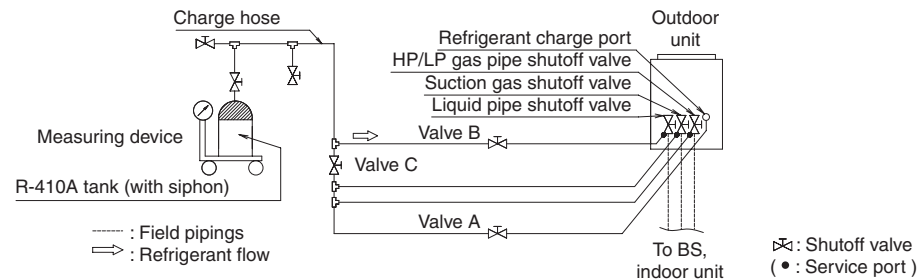
| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ●   | ●   | ○   | ●   | ●   | ●   | ●   |

- In order to ensure uniform refrigerant distribution, it may take up to around 10 minutes for the compressor to start up after the unit starting operating. This is not a malfunction.
- The refrigerant charge port is connected to the piping inside the unit.  
When the unit is shipped from the factory, the unit's internal piping is already charged with refrigerant, so be careful when connecting the charge hose.
- After adding the refrigerant, make sure to close the lid of the refrigerant charging port.  
The tightening torque for the lid is 11.5 to 13.9 Nm.
- See [Shutoff valve operation procedure] in chapter 1.2.5.1 for details on how to handle shutoff valves.
- When done or when pausing the refrigerant charging operation, close the valve of the refrigerant tank immediately.  
The refrigerant charge port of this product have electric expansion valve.  
The valve will be closed at end of refrigerant charging. However the valve will be opened on operation after refrigerant charging (check operation, normal operation, etc.).  
If the tank is left with the valve open, the amount of refrigerant which is properly charged may be off the point.
- Make sure to perform the check operation after installation. Otherwise, the malfunction code "U3" will be displayed and normal operation cannot be performed.  
And the failure of "Check of miswiring" may also cause abnormal operation. Performance may drop due to the failure of "Judgment of piping length".
- Check operation must be performed for each refrigerant piping system.  
Checking is impossible if plural systems are being done at once.
- The individual problems of indoor units can not be checked.  
About these problems check by test run after the check operation is completed. (See chapter 1.2.6)
- The check operation cannot be performed in recovery or other service modes.

### 1.2.5.2.1 Procedure of Adding Refrigerant charging

1. Make sure the following works are complete in accordance with the installation manual.
  - Piping work
  - Wiring work
  - Air tight test
  - Vacuum drying
  - Installation work for BS, indoor unit
2. Calculate the “additional charging amount” using “How to calculate the additional refrigerant to be charged” in “**6 Example of Connection**” on page 435.
3. Open the valve B (**See figure below**. The valve A,C and the liquid pipe, suction gas pipe, HP/LP gas pipe shutoff valves must be left closed), and charge the refrigerant of the “additional charging amount” from the liquid side shutout valve service port.

#### REYQ8~16PY1B



4. If the “additional charging amount” was charged fully, close the valve B and go to step 6.  
If the “additional charging amount” was not charged fully, close the valve B and go to step 5.
5. Perform the refrigerant charging following [Automatic refrigerant charging operation procedure] as shown below. And charge the remaining refrigerant of the “additional charging amount”.



#### Note:

- For performing the automatic refrigerant charging operation, the push button on the PC-board (A1) of outdoor unit are used. (See page 159.)  
And the refrigerant are charged from the refrigerant charge port via the valve A. (See above figure.) For operating the push button and opening or closing the valves, follow the procedure.
- During Automatic refrigerant charging operation, the system will select charging mode (cooling mode or heating mode) by the temperature condition as follows.

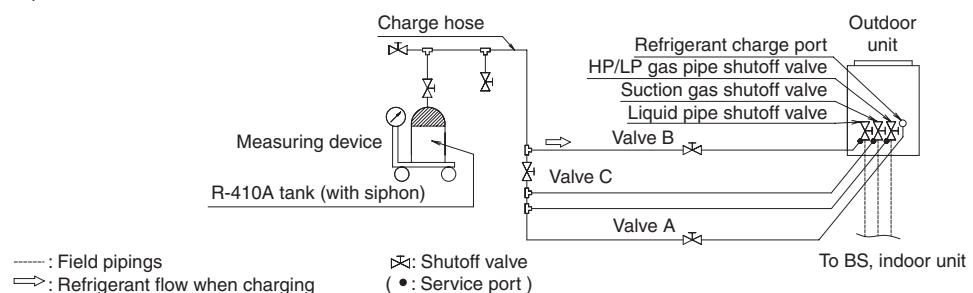
|                                  |   |              |
|----------------------------------|---|--------------|
| Outdoor temp. : 0°C DB ~ 43°C DB | ➡ | Cooling mode |
| Indoor temp. : 10°C DB ~ 32°C DB |   |              |
| Less than above range            | ➡ | Heating mode |

When charging in cooling mode, the system will stop operation when the required amount of refrigerant is charged.

During charging in heating mode, a person must manually close valve A and stop operation. Beforehand, check the remaining refrigerant that is needed to charge based on the “additional charging amount” in step 2 and the charged amount in step 3.

- The refrigerant will be charged about 30kg in one hour at outdoor temp. 30°C DB (about 12kg at outdoor temp. 0°C DB).
- During Automatic refrigerant charging operation, you can stop the operation forcibly by pushing MODE button (BS1).

#### REYQ8~16PY1B



**[Automatic refrigerant charging operation procedure]**

**Note:** The marks of LED mean as follows.

● : OFF    ○ : ON    ◐ : Blinking    \*: OFF, ON or Blinking

- (1) Open the liquid pipe, suction gas pipe and HP/LP gas pipe shutoff valves. (The valve A~C must be closed. See figure 31.)
- (2) • Close the EL. COMPO. BOX (1) lid and all front panel except on the EL. COMPO. BOX (1) side. (\*1) And turn the power to the outdoor unit and all connected BS, indoor units. (\*2)
  - After H2P stop blinking (about 12 minutes after turning on the power), check H2P is OFF. If H2P is ON, check the malfunction code in the remote control of indoor unit and correct the malfunction in accordance with [Remote control display malfunction code] on page 168.
- (3) Check the LED. And push the MODE button (BS1) once if the LED displays is not as below.

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ●   | ●   | ○   | ●   | ●   | ●   | ●   |

- (4) Push the TEST button (BS4) once. (The LED displays will change as below.)

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ○   | ○   | ○   | ○   | ○   | ○   | ○   |

- (5) Hold the TEST button (BS4) down for 5 seconds or more.  
(The LED displays will change as below and fan of outdoor unit will start rotation.)

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ●   | ◐   | ●   | ●   | ●   | *   | *   |

- (6) When the compressor start working and the LED displays change any state in below (\*3), go to "In case of cooling mode" or "In case of heating mode" in accordance with the LED displays.

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ◐   | ◐   | ◐   | ●   | ○   | ●   | ○   |
| ◐   | ◐   | ●   | ●   | ○   | ●   | ○   |

➡ Go to "In case of

➡ Go to "In case of

#### — In case of cooling mode —

- (7) Push the TEST button (BS4) once within 5 minutes after procedure (5) (\*4) and close the all front panels (\*5).  
After that, open the valve A immediately (See bottom figure on page 166) (\*6) and watch the remote control display of indoor unit.
- (8) If the remote control display shows "PE" code (\*7), ready to close the valve A.  
And go to procedure (9).  
If the remote control display shows other code, close the valve A immediately and refer to [Remote control cooling mode malfunction code] on page 169.



**Beware the fan running when open the front panel.**

**The fan may continue rotating after the system stop the operation.**

- (9) When the compressor stop working (the fan may continue rotation.), close the valve A immediately (\*8).  
And check the LED displays are as below and the remote control display shows "P9" code.

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ○   | ◐   | ◐   | ○   | ○   | ○   | ○   |

After checking, push the MODE button (BS1) once and the charging is complete.

### — In case of cooling mode —

- (7) Push the TEST button (BS4) once within 5 minutes after procedure (5) (\*4) and close the all front panels.

After that, open the valve A immediately (See figure on page 166) (\*6) and check the charged amount by measuring device.

During operation, if the remote control display shows “P2” or “P8” code, close the valve A immediately and refer to [Remote control heating mode malfunction code].



**Beware the fan running when open the front panel.**

**The fan may continue rotating after the system stop the operation.**

- (8) When the required amount of refrigerant is charged, close the valve A (See figure on page 166) (\*8) and push the RETURN button (BS3) once. And then go to procedure (9).  
 (9) Push the MODE button (BS1) once, and the charging is complete.

### Notes (\*1)~(\*9)

- (\*1)Lead the refrigerant charge hose etc. from the pipe intake.

All front panels must be closed at the procedure (7).

- (\*2)•If you perform the refrigerant charging operation within the refrigerant system that have the power off unit, the operation cannot finish properly.

Check the number of outdoor and indoor units that is powered.

For checking, see [How to check how many units are connected] on page 164.

- To energize the crankcase heater, make sure to turn on for 6 hours before starting operation.

- (\*3)It takes about 2~10 minutes for getting stability of refrigerant state.

If the additional refrigerant is little and operation is started before getting stability, the system can not judge the charging amount precisely and it cause over charge.

- (\*4)If the TEST button (BS4) is not pushed within 5 minutes, “P2” code will displayed in the remote control. In this case, refer [Remote control cooling (or heating) mode malfunction code] on page 169, 170.

- (\*5)If the front panel is opened during the operation, the system cannot operate properly.


- (\*6)If you leave the system without connecting the refrigerant tank or opening the valve A for 30 minutes or more, the system stop operation and “P2” code are displayed in remote control. In this case, refer [Remote control cooling (or heating) mode malfunction code].

- (\*7)Depending on the situation of operation such as the charging amount is little, the “PE” code may not be displayed and the “P9” code may be displayed.

- (\*8)Always close the valve A and take the tank off.

The refrigerant charge port of this unit have electric expansion valve and the valve are closed when charging is finished. However, the valve will opened when ather operation (Check operation, normal operation, etc.). If you leave the tank connected, the refrigerant will charged and it cause over charge.

### [Remote control cooling mode malfunction code]

| Code     | The work contents   |   |
|----------|---|---|
| PE       | Charging is almost finished. Ready to close the valve A.  |   |
| PA<br>PH | The refrigerant tank is empty. Close the valve A and replace empty tank to the new tank. After changing the tank, open the valve A again.<br> <b>Beware the fan running. The outdoor unit does not stop operation.</b>   |   |
| P8       | Close the valve A immediately, and restart the operation from procedure (3).  |   |
| P2       | Operation is interrupted. Close the valve A immediately and check the below items. <ul style="list-style-type: none"><li>● Check if HP/LP gas pipe, suction gas pipe or liquid pipe shutoff valve is opened.</li><li>● Check the refrigerant tank is connected and the valve A was opened.</li><li>● Check if the air inlet and outlet of the indoor unit are not closed by an obstruction.</li></ul> | After correcting the abnormality, restart the operation from procedure (3). |
| *        | Operation is stopped abnormally. Close the valve A immediately. Confirm the malfunction code and correct the abnormality following the [Remote control displays malfunction code] in chapter 11-2-2.  |   |
| P9       | Charging is finished. Close the valve A and take the refrigerant tank off.  |   |

**[Remote control heating mode malfunction code]**

| Code | The work contents   |
|------|---|
| P8   | Close the valve A immediately and push the TEST button (BS4) once. And restart from procedure (7) of "In case of heating mode".   |
| P2   | Operation is interrupted. Close the valve A immediately and check the below items. <ul style="list-style-type: none"> <li>● Check if HP/LP gas pipe, suction gas pipe or liquid pipe shutoff valve is opened.</li> <li>● Check the refrigerant tank is connected and the valve A was opened.</li> <li>● Check if the air inlet and outlet of the indoor unit are not closed by an obstruction.</li> </ul> |

6. After completing the additional refrigerant charging, record the charging amount on the accessory "REQUEST FOR THE INDICATION" label (Installation records) and adhere it to the back side of the front panel. Also, record the factory charged refrigerant amount, additional refrigerant amount in the field and total refrigerant amount of the system to "ADDITIONAL REF. CHARGE" label and adhere in the proximity of the refrigerant charge port. About "ADDITIONAL REF. CHARGE" label, refer to [Important information regarding the refrigerant used] in "Special notice of product" on page 155.

**1.2.5.2.2 Procedure of check operation**

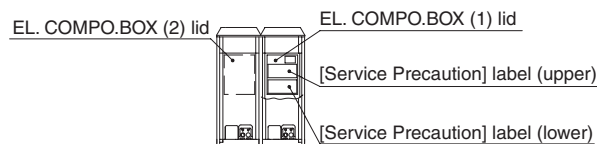
- Check operation perform the following work. Do the check operation following below. Otherwise, malfunction code "U3" will be displayed in the remote control and normal operation can not be carried out.
  - Check of shutoff valve opening
  - Check of miswiring
  - Judgment of piping length
  - Check of refrigerant overcharge

**Note:**

- Check operation can not be carried out at outdoor temp. less than  $-5^{\circ}\text{C}$ . Perform the check operation at day or time that outdoor temp. is  $-5^{\circ}\text{C}$  or more.

**[Check Operation Procedure]**

- (1) Close the EL. COMPO. BOX (1) lid and all front panels except as the side of the EL. COMPO. BOX (1) and turn on the power to the outdoor unit and all connected BS, indoor units. (Be sure to turn the power on at least 6 hours before operation in order to have power running to the crank case heater.)
- (2) Make the onsite settings as needed using the push button (BS1-BS5) on the outdoor unit PC-board (A1P) with the power on. (See "Field setting from outdoor unit" on page 196)
- (3) Perform the check operation following the Check Operation Method of the [Service Precautions] label (lower) on the EL. COMPO. BOX (1) lid (see figure below). The system operation for about 40~60 minutes and automatically stops the check operation. If the malfunction code is not displayed in the remote control after the system stop, check operation is completed. Normal operation will be possible after 5 minutes. If the malfunction code is displayed in the remote control, correct the malfunction following [Remote control displays malfunction code] and perform the check operation again.

**Note:**

For interrupting the check operation, push RETURN button (BS3).

**[Remote control displays malfunction code]**

| Malfunction code       | Installation error  | Remedial action  |
|------------------------|---|--|
| E3, E4<br>F3, F6<br>UF | The shutoff valve of the outdoor unit is left closed.   | Open the shutoff valve.  |
| U1                     | The phases of the power to the outdoor unit is reversed.  | Exchange two of the three phases (L1, L2, L3) to make a proper connection.   |
| U1<br>U4<br>LC         | No power is supplied to an outdoor, BS or indoor unit (including phase interruption).   | Make sure the power source wire is properly connected to the outdoor, BS or indoor unit and revise if necessary.   |
| UF                     | There is conflict on the connection of transmission wiring in the system.   | Check if the refrigerant piping line and the transmission wiring are consistent with each other.   |
| E3<br>F6<br>UF         | Refrigerant overcharge.   | Recalculate the additional amount refrigerant from the piping length and correct the refrigerant charge level by recovering any excessive refrigerant with a refrigerant recovery machine.   |
| E4<br>F3               | Insufficient refrigerant.   | <ul style="list-style-type: none"> <li>● Check if the additional refrigerant charge has been finished correctly.</li> <li>● Recalculate the additional amount refrigerant from the piping length and add the adequate amount.</li> </ul> |
| U7, U4<br>UF, UH       | Field wiring is connected to "TO MULTI UNIT (Q1,Q2)" terminal on the outdoor unit PC-board (A1P) when the system is one outdoor system. | Remove the line from the "TO MULTI UNIT (Q1, Q2)" terminal.  |
| UA                     | The internal transmission wiring to "TO MULTI UNIT (Q1,Q2)" for the single outdoor unit system are disconnected.                        | Connect the internal transmission wiring to "TO MULTI UNIT (Q1,Q2)". (See the wiring diagram.)   |



**Note:** If any malfunction codes other than the above are displayed, check the service manual for how to respond.

**1.2.5.2.3 TEST RUN**

1. Before test run
  - Make sure the following works are completed in accordance with the installation manual.
    - Piping work
    - Wiring work
    - Air tight test
    - Vacuum drying
    - Additional refrigerant charge
    - Check operation
  - Check that all work for the BS, indoor unit are finished and there are no danger to operate.
2. Test Run
 

After all works are completed, operate the unit normally and check the following.

  - (1) Make sure the indoor and outdoor units are operating normally.
  - (2) Operate each indoor unit one by one and make sure the corresponding outdoor unit is also operating.
  - (3) Check to see if cold (or hot) air is coming out from the indoor unit.
  - (4) Push the fan direction and strength buttons on the remote control to see if they operate properly.



- Note:**
- Heating is not possible if the outdoor temperature is 24°C or higher. Refer to the Operation manual.
  - If a knocking sound can be heard in the liquid compression of the compressor, stop the unit immediately and then energize the crank case heater for a sufficient length of time before restarting the operation.
  - Once stopping, the compressor will not restart in about 5 minutes even if the On/Off button of the remote control is pushed.
  - When the system operation is stopped by the remote control, the outdoor units may continue operating for further 5 minutes at maximum.
  - The outdoor unit fan may rotate at low speeds if the Night-time low noise setting or the External low noise level setting is made, but this is not a malfunction.

- If the check operation was not performed at first installation, the malfunction code "U3" will be displayed in the remote control.  
Perform the check operation following "**1.2.5.2.2 Procedure of check operation**".

### 3. Checks After Test Run

**Perform the following checks after the test run is complete.**

- Record the contents of field setting.  
→ Record them on the accessory "REQUEST FOR THE INDICATION" label.  
And attach the label on the back side of the front panel.
- Record the installation date.  
→ Record the installation date on the accessory "REQUEST FOR THE INDICATION" label  
in accordance with the IEC60335-2-40.  
And attach the label on the back side of the front panel.



**Note:** After the test run, when handing the unit over to the customer, make sure the EL.COMPO.BOX lid, the inspection door, and the unit casing are all attached.

### 1.2.5.3 Procedure for Additional Refrigerant Charge and Check operation - REYQ18~48P7Y1B (REMQ8~16P7Y1B)



Adding refrigerant using the automatic refrigerant charging function is recommended.

**Follow the procedures below.**



- When charging a system, charging over the permissible quantity can cause liquid hammer.
- Always use protective gloves and protect your eyes when charging refrigerant.
- When the refrigerant charging procedure is done or when pausing, close the valve of the refrigerant tank immediately.
  - The refrigerant charge port has a electric expansion valve and will be closed at the end of the refrigerant charging. However, the valve will be opened when operating the unit after refrigerant charging.
  - If the tank is left with the valve open, the amount of refrigerant which is properly charged may get off point. More refrigerant may be charged by any remaining pressure after the unit has stopped.



#### **Electric shock warning**

- Close the electric component box lid before turning on the main power.
- Perform the settings on the circuit board (A1P) of the outdoor unit and check the LED display after the power is on via the service lid which is in the lid of the electric component box. Operate switches with an insulated stick (such as a ball-point pen) to avoid touching the life parts. Make sure to re-attach the inspection cover into the switch box cover after the job is finished.



- If the power of some units is turned off, the charging procedure can not be finished properly.
- Make sure to turn ON the power 6 hours before starting the operation. This is necessary to warm the crankcase by the electric heater.
- If operation is performed within 12 minutes after the indoor units, BS units and outdoor unit are turned on, the H2P-LED will be lit and the compressor will not operate.

#### **Note:**

- See "Stop valve operation procedure" on page 157 for details on how to handle stop valves.
- The refrigerant charging port is connected to the piping inside the unit. The unit's internal piping is already factory charged with refrigerant, so be careful when connecting the charge hose.
- After adding the refrigerant, do not forget to close the lid of the refrigerant charging port. The tightening torque for the lid is 11.5 to 13.9 N · m.
- In order to ensure uniform refrigerant distribution, it may take the compressor  $\pm 10$  minutes to start up after the unit has started operation. This is not a malfunction.

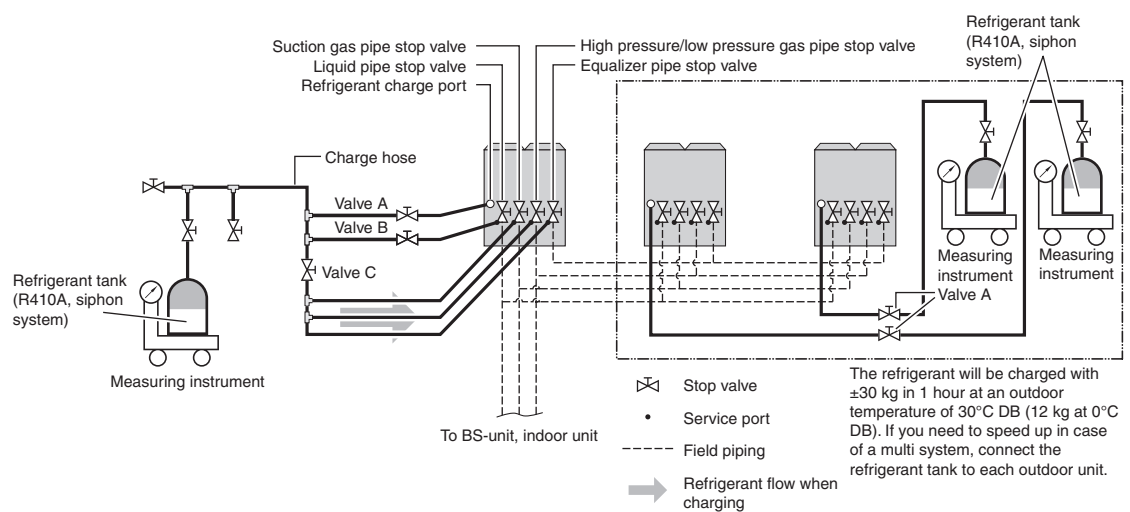
The automatic refrigerant charging has limits as described below.

At out of limit, the system can not operate the automatic refrigerant charging.

|                            |                   |
|----------------------------|-------------------|
| Outdoor temperature        | : 0°C DB~43°C DB  |
| Indoor temperature         | : 10°C DB~32°C DB |
| Total indoor unit capacity | : ≥80%            |

To speed up the process of charging refrigerant for large systems, it is recommended to first manually charge a portion of the refrigerant first before performing automatic charging.

1. Calculate how much refrigerant to be added using the formula explained in the chapter "How to calculate the additional refrigerant to be charged" on page 156.
2. The amount of pre-charging is 10 kg less than the calculated amount.
3. Open valve B (the valves A and C, the liquid pipe, the suction gas pipe and the high pressure/low pressure gas pipe stop valves must be left closed) and charge the refrigerant in liquid form via the liquid pipe stop valve service port.  
(See figure below)



4. If the calculated amount of pre-charging is reached, close valve B.



At least the unit should be charged with its original amount of refrigerant (refer to the nameplate on the unit), before starting the automatic charging.

5. After pre-charging, perform the refrigerant charge operation as shown below and charge the remaining refrigerant of the additional charging amount through valve A. (See above figure)

**Note:**

For a multi outdoor unit system, it is not required to connect all charge ports to a refrigerant tank.

The refrigerant will be charged with  $\pm 30$  kg in 1 hour time at an outdoor temperature of 30°C DB or with  $\pm 12$  kg at an outdoor temperature of 0°C DB.

If you need to speed up in case of a multiple outdoor system, connect the refrigerant tanks to each outdoor unit as shown in figure on page 174.

**1. Start of automatic charging refrigerant**

- Open the liquid pipe, suction gas pipe, high pressure/low pressure gas pipe and equalizer pipe stop valves and the service port stop valve. (Valves A, B and C must be closed.)
- Close all front panels except the electric component box front panel and turn the power ON.
- Make sure all indoor units are connected, refer to "How to check how many units are connected" on page 179.
- If the H2P LED is not flashing (in 12 minutes time after turning on the power), make sure it is displayed as shown in the "Normal system display" on page 177.  
If the H2P LED is flashing, check the malfunction code on the remote control " Remote control malfunction code display" on page 178.



- If you perform the refrigerant charging operation within the refrigerant system with one or more units with power OFF, the refrigerant charging operation can not be accomplished properly.  
For confirming the number of indoor units with power ON, refer to "How to check how many units are connected" on page 179.  
In case of a multi system, turn the power ON to all outdoor units in the refrigerant system.
- To energize the crankcase heater, make sure to turn the power ON at least 6 hours before starting operation.

2. Press the **BS1 MODE** button once if the LEDs combination is not as in the figure below.

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ●   | ●   | ○   | ●   | ●   | ●   | ●   |

3. Press the **BS4 TEST** button once.

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ○   | ○   | ○   | ○   | ○   | ○   | ○   |

4. Hold the **BS4 TEST** button down for 5 seconds or more.

**5. Charging mode judgement**

However, if the indoor temperature is 10°C DB or lower, in some cases the unit will charge in heating mode to increase the indoor temperature.

The unit will automatically select the cooling mode or heating mode for charging.



- When charging in cooling mode, the unit will stop operating when the required amount of refrigerant is charged.
- During charging in heating mode, a person must manually close valve A before complete charging is finished. The required amount is the calculated amount (see "6. Example of connection" on page 433), therefore, the weight must be monitored constantly.

## ■ Charging in heating mode

### 6. Start up

Wait while the unit is preparing for charging in heating mode.

|  | H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|--|-----|-----|-----|-----|-----|-----|-----|
| Pressure control<br>(for the first minute)   | ●   | ◐   | ●   | ●   | ●   | ●   | ○   |
| Start up control<br>(for the next 2 minutes)   | ◐   | ◐   | ●   | ●   | ●   | ○   | ●   |
| Waiting for stable<br>heating conditions<br>(for the next ±15<br>minutes (according<br>to the system)) | ◐   | ◐   | ●   | ●   | ●   | ○   | ○   |

It takes about 2 to 10 minutes for the system to become stable.

In case of a small charging amount, the system will start charging the refrigerant before the system reaches the stable state. It may disturb a correct decision and may cause overcharging.

### 7. Ready

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ◐   | ◐   | ●   | ●   | ○   | ●   | ○   |

Press the **BS4 TEST** button once within 5 minutes.

If the **BS4 TEST** button is not pushed within 5 minutes, "P2" will be displayed on the remote control. Refer to "Remote control malfunction code display" on page 172.

### 8. Operation

When the following LED display is shown, open valve A and close the front panel. If the front panel is left open, the system can not operate properly during the refrigerant charging.



When the refrigerant tank is not connected or is left with the valve closed for 30 minutes or more, the outdoor unit will stop operation and the "P2" code will be displayed on the remote control of the indoor unit. Follow the procedure as described in "Remote control malfunction code display" on page 178.

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ○   | ◐   | *   | *   | *   | *   | *   |

\* = The state of this LED is not important.



When a malfunction occurs, check the display of the remote control and refer to "Remote control malfunction code display" on page 178.

### 9. Complete

If the calculated amount of refrigerant is reached, close valve A and press the **BS3 RETURN** button once.

#### Note:

Always close valve A and remove the refrigerant tank immediately after finishing the refrigerant charge operation.

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ◐   | ◐   | ◐   | ○   | ○   | ○   | ○   |



**Beware of the fan blades** when you open the frontpanel.

The fan may still rotate for a while after unit operation has stopped.

### 10. In case leak detection function not required

Press the **BS1 MODE** button once and the charging is complete.

Record the amount that was added on the additional refrigerant charge label provided with the unit and attach it on the back side of the front panel.

Perform the test procedure as described in "Test operation" on page 184.

### ■ Charging in cooling mode

#### 6. Start up

Wait while the unit is preparing for charging in cooling mode.

|  | H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|--|-----|-----|-----|-----|-----|-----|-----|
| Pressure control<br>(for the first minute)   | ●   | ◐   | ●   | ●   | ●   | ●   | ○   |
| Start up control<br>(for the next 2 minutes)   | ●   | ◐   | ●   | ●   | ●   | ○   | ●   |
| Waiting for stable<br>cooling conditions<br>(for the next ±15<br>minutes (according<br>to the system)) | ●   | ◐   | ●   | ●   | ●   | ○   | ○   |

It takes about 2 to 10 minutes for the system to become stable. In case of a small charging amount, the system will start charging the refrigerant before the system reaches the stable state. It may disturb a correct decision and may cause overcharging.

#### 7. Ready

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ◐   | ◐   | ◐   | ●   | ○   | ●   | ○   |

Press the **BS4 TEST** button once within 5 minutes.

If the **BS4 TEST** button is not pushed within 5 minutes, "P2" will be displayed on the remote control. Refer to "Remote control malfunction code display" on page 178.

#### 8. Operation

When the following LED display is shown, open valve A and close the front panel. If the front panel is left open, the system can not operate properly during the refrigerant charging.



When the refrigerant tank is not connected or is left with the valve closed for 30 minutes or more, the outdoor unit will stop operation and the "P2" code will be displayed on the remote control of the indoor unit. Follow the procedure as described in "Remote control malfunction code display" on page 178.

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ○   | ◐   | *   | *   | *   | *   | *   |

\* = The state of this LED is not important.



When a malfunction occurs, check the display of the remote control and refer to "Remote control malfunction code display" on page 178.

**9. Complete**

The display on the remote control shows a flashing "PE" code for signalling that automatic charging will be finished in about 10 minutes.

When the unit stops operating, close valve A immediately and check the LEDs and check if the "PS" code is displayed on the remote control.

**Note:**

Always close valve A and remove the refrigerant tank immediately after finishing the refrigerant charge operation.

The refrigerant charge port of these units have electric expansion valves that will close automatically when refrigerant charging operation has finished. However, the electric expansion valves will be opened when other operations start after finishing refrigerant charging operation. If the refrigerant tank is left with the valve open, the amount of refrigerant which is properly charged may be off the point.

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ○   | ◐   | ◐   | ○   | ○   | ○   | ○   |

If the LED indication is not as shown above, correct the malfunction (as indicated in the display of the remote control) and restart the complete charging procedure. When the charging amount is little, the "PE" code may not be displayed, but instead the "PS" code will be displayed immediately.

**10. Press the BS1 MODE button once and the charging is complete.**

Record the amount that was added on the additional refrigerant charge label provided with the unit and attach it on the back side of the front panel.

Perform the test procedure as described in "Test operation" on page 184.

**[Normal system display]**


| LED display<br>(Default status<br>before delivery) |                                | Microcom<br>puter<br>operation<br>monitor |             |                        |                   |  |                        |                     |               |              |
|--|--------------------------------|---|-------------|------------------------|-------------------|--|------------------------|---------------------|---------------|--------------|
|  |                                | HAP                                       | Mode<br>H1P | Ready/<br>Error<br>H2P | Individual<br>H3P | Cooling/Heating<br>changeover<br>Bulk<br>(master)<br>H4P | Bulk<br>(slave)<br>H5P | Low<br>noise<br>H6P | Demand<br>H7P | Multi<br>H8P |
| Single outdoor<br>unit system                      |                                | ◐   | ●           | ●                      | ○                 | ●  | ●                      | ●                   | ●             | ●            |
| Multiple<br>outdoor<br>unit<br>system              | Master<br>unit <sup>(a)</sup>  | ◐   | ●           | ●                      | ○                 | ●  | ●                      | ●                   | ●             | ○            |
|  | Slave<br>unit 1 <sup>(a)</sup> | ◐   | ●           | ●                      | ●                 | ●  | ●                      | ●                   | ●             | ◐            |
|  | Slave<br>unit 2 <sup>(a)</sup> | ◐   | ●           | ●                      | ●                 | ●  | ●                      | ●                   | ●             | ●            |

(a) The state of the H8P (multi) LED in a multi-system shows which unit is the master unit (○), slave 1 unit (◐) or slave 2 unit (●).  
Only the master unit is connected to the indoor units with interunit wiring.

**[Remote control malfunction code display]****Remote control heating mode malfunction codes**

| Error code                   |  |   |
|------------------------------|--|---|
| <i>P8</i> recharge operation | Close valve A immediately and press the TEST OPERATION button once. The operation will restart from the charging mode judgement onwards.   |   |
| <i>P2</i> charge hold        | Close valve A immediately. Check following items:<br>- Check if the gas side stop valve is opened correctly<br>- Check if the valve of the refrigerant cylinder is opened<br>- Check if the air inlet and outlet of the indoor unit are not obstructed | After correcting the abnormality, restart the automatic charging procedure again. |

**Remote control cooling mode malfunction codes**

| Error code                         |   |   |
|------------------------------------|---|---|
| <i>PR, PH, PC</i> replace cylinder | Close valve A and replace the empty cylinder. When renewed, open valve A (the outdoor unit will not stop operating).<br>The code on the display shows the unit where a cylinder is to be renewed:<br><i>PR</i> = master unit, <i>PH</i> = slave unit 1, <i>PC</i> = slave unit 2, flashing <i>PR, PH</i> and <i>PC</i> = all units<br>After replacing the cylinder, open valve A again and continue the work. |   |
|                                    |  In case of an outdoor multi system, replacing the refrigerant tank of the outdoor unit during the refrigerant charging operation when the display on the remote control is not showing <i>PR, PH</i> or <i>PC</i> , may cause an abnormal stop of the refrigerant charging operation.                                       |   |
| <i>P8</i> recharge operation       | Close valve A immediately.<br>Restart the automatic charging procedure again.   |   |
| <i>P2</i> charge hold              | Close valve A immediately. Check following items:<br>- Check if the high pressure/low pressure gas pipe, suction gas pipe, liquid pipes and equalizer pipe stop valves are opened correctly<br>- Check if the valve of the refrigerant cylinder is opened<br>- Check if the air inlet and outlet of the indoor unit are not obstructed<br>- Check if the indoor temperature is not lower than 10°C DB         | After correcting the abnormality, restart the automatic charging procedure again. |
| * abnormal stop                    | Close valve A immediately. Confirm the malfunction code by the remote control and correct the abnormality by following the "Correcting after abnormal completion of the test operation" on page 25.   |   |

**[Checks after adding refrigerant]**

- Are the stop valves for both liquid and gas open?
- Is the amount of refrigerant, that has been added, recorded?



Make sure to open the stop valves after charging the refrigerant.  
Operating with the stop valves closed will damage the compressor.

## [How to check how many units are connected]

It is possible to find out how many indoor units are active and connected by operating the push-button switch on the printed circuit board (A1P) of the working outdoor unit.

Make sure that all the indoor units connected to the outdoor unit are active.

Follow the 5-step procedure as explained below.

- The LEDs on the A1P shows the operating status of the outdoor unit and the number of indoor units that are active.

● OFF

☀ ON

⦿ Blinking

- The number of units that are active can be read from the LED display in the "Monitor Mode" procedure below.

**Example:** in the following procedure there are 22 units active:

### Note:

Wherever during this procedure, press the **BS1 MODE** button if something becomes unclear.

You will return to setting mode 1 (H1P= ● "OFF").

### 1. Setting mode 1 (default system status)

Default status (normal)

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ●   | ●   | ○   | ●   | ●   | ●   | ●   |

Press the **BS1 MODE** button to switch from setting mode 1 to monitor mode.

### 2. Monitor mode

Default status display

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ⦿   | ●   | ●   | ●   | ●   | ●   | ●   |

To check the number of indoor units, press the **BS2 SET** button 5 times

### 3. Monitor mode

Selection status of how many connected indoor units to display.

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ⦿   | ●   | ●   | ●   | ○   | ●   | ○   |

Pressing the **BS3 RETURN** button causes the LED display to show the data on the number of indoor units that are connected.

### 4. Monitor mode

Displaying the number of connected indoor units

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ⦿   | ●   | ⦿   | ●   | ⦿   | ⦿   | ●   |
|     | 32  | 16  | 8   | 4   | 2   | 1   |

Calculate the number of connected indoor units by adding the values of all (H2P~H7P) blinking (⦿) LEDs together.

In this example: 16+4+2=22 units

Press the **BS1 MODE** button to return to step 1, setting mode 1 (H1P= ● "OFF").

## 1.2.6 Before operation

### 1.2.6.1 Service precautions



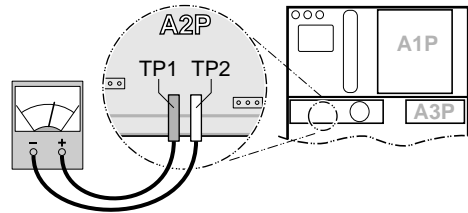
**WARNING: ELECTRIC SHOCK**



#### Caution when performing service to inverter equipment

1. Do not open the electric box cover for 10 minutes after the power supply is turned off.
2. Measure the voltage between terminals on the terminal block for power supply with a tester and confirm that the power supply is shut off.

In addition, measure the points, as shown in the figure below, with a tester and confirm that the voltage of the capacitor in the main circuit is less than 50 V DC.



3. To prevent damaging the PC-board, touch a noncoated metal part to eliminate static electricity before pulling out or plugging in connectors.
4. The performing of the service to the inverter equipment must be started after the junction connectors X1A, X2A, X3A, X4A (X3A and X4A are for 14~16 unit type only) for the fan motors in the outdoor unit are been pulled out. Be careful not to touch the live parts. (If a fan rotates due to strong wind, it may store electricity in the capacitor or in the main circuit and cause electric shock.)
5. After the service is finished, plug the junction connector back in. Otherwise the error code E7 will be displayed on the remote control and normal operation will not be performed.

For details refer to the wiring diagram labelled on the back of the electric box cover.

---

**Pay attention to the fan.** It is dangerous to inspect the unit while the fan is running. Be sure to turn off the main switch and to remove the fuses from the control circuit located in the outdoor unit.

---



**Note: Play it safe!**

For protection of the PCB, touch the switch box casing by hand in order to eliminate static electricity from your body before performing service.

### 1.2.6.2 Checks before initial start-up



**Note:** Remark that during the first running period of the unit, required power input may be higher than stated on the nameplate of the unit. This phenomenon originates from the compressor that needs elapse of a 50 hours run in period before reaching smooth operation and stable power consumption.



- Make sure that the circuit breaker on the power supply panel of the installation is switched off.
- Attach the power wire securely.
- Introducing power with a missing N-phase or with a mistaken N-phase will break the equipment.

After the installation, check the following before switching on the circuit breaker:

1. The position of the switches that require an initial setting  
Make sure that switches are set according to your application needs before turning the power supply on.
2. Power supply wiring and transmission wiring  
Use a designated power supply and transmission wiring and make sure that it has been carried out according to the instructions described in this manual, according to the wiring diagrams and according to local and national regulations.
3. Pipe sizes and pipe insulation  
Make sure that correct pipe sizes are installed and that the insulation work is properly executed.
4. Air tight test and vacuum drying  
Make sure the air tight test and vacuum drying were completed.
5. Additional refrigerant charge  
The amount of refrigerant to be added to the unit should be written on the included "Added Refrigerant" plate and attached to the rear side of the front cover.
6. Insulation test of the main power circuit  
Measure the insulation resistance and check if the value is in accordance with relevant local and national regulations.
7. Installation date and field setting  
Be sure to keep record of the installation date on the sticker on the rear of the upper front panel according to EN60335-2-40. and keep record of the contents of the field setting.

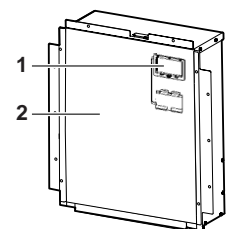
### 1.2.6.3 Field setting

If required, carry out field settings according to the following instructions. Refer to the service manual for more details.

#### Opening the switch box and handling the switches

When carrying out field settings, remove the inspection cover (1).

Operate the switches with an insulated stick (such as a ball-point pen) to avoid touching live parts.



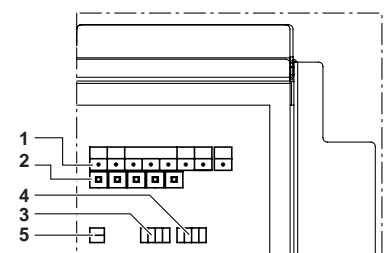
Make sure to re-attach the inspection cover (1) into the switch box cover (2) after the job is finished.



**Note:** Make sure that all outside panels, except for the panel on the electric box, are closed while working.  
Close the lid of the electric box firmly before turning on the power.

#### Location of the dip switches, LEDs and buttons

1. LED H1~8P
2. Push button switches BS1~BS5
3. DIP switch 1 (DS1: 1~4)
4. DIP switch 2 (DS2: 1~4)
5. DIP switch 3 (DS3: 1~2)



**LED state**

Throughout the manual the state of the LEDs is indicated as follows:

- OFF
- ON
- ◐ Blinking

**Setting the push button switch (BS1~5)**

Function of the push button switch which is located on the outdoor unit PCB (A1P):

| MODE     | TEST: ◐  | C/H SELECT |          |          | L.N.O.P  | DEMAND   | MULTI    |
|----------|----------|------------|----------|----------|----------|----------|----------|
|          | HWL: ○   | IND        | MASTER   | SLAVE    |          |          |          |
| ●<br>H1P | ●<br>H2P | ○<br>H3P   | ●<br>H4P | ●<br>H5P | ●<br>H6P | ●<br>H7P | ●<br>H8P |

|             |            |               |             |              |
|-------------|------------|---------------|-------------|--------------|
| BS1<br>MODE | BS2<br>SET | BS3<br>RETURN | BS4<br>TEST | BS5<br>RESET |
|-------------|------------|---------------|-------------|--------------|

For changing the set mode

For field setting

For field setting

For test operation

**BS5 RESET** For resetting the address when the wiring is changed or when an additional indoor unit is installed

The figure shows state of the LED indications when the unit is shipped from the factory.

**Check operation procedure**

- Turn the power on for the outdoor unit and the indoor unit.  
Be sure to turn the power on at least 6 hours before operation in order to have power running to the crank case heater.
- Make sure that transmission is normal by checking the LED display on the outdoor unit circuit board (A1P). (If transmission is normal, each LED will be displayed as shown below.)

| LED display<br>(Default status<br>before delivery) |                                | Micro-<br>computer<br>operation<br>monitor<br>HAP | Mode<br>H1P | Ready/<br>Error<br>H2P | Cooling/Heating<br>changeover |                         |                        | Low<br>noise<br>H6P | Demand<br>H7P | Multi<br>H8P |
|--|--------------------------------|---|-------------|------------------------|-------------------------------|-------------------------|------------------------|---------------------|---------------|--------------|
|  |                                |   |             |                        | Individual<br>H3P             | Bulk<br>(master)<br>H4P | Bulk<br>(slave)<br>H5P |                     |               |              |
| Single outdoor<br>unit system                      |                                | ◐   | ●           | ●                      | ○                             | ●                       | ●                      | ●                   | ●             | ●            |
| Multiple<br>outdoor<br>unit<br>system              | Master<br>unit <sup>(a)</sup>  | ◐   | ●           | ●                      | ○                             | ●                       | ●                      | ●                   | ●             | ○            |
|  | Slave<br>unit 1 <sup>(a)</sup> | ◐   | ●           | ●                      | ●                             | ●                       | ●                      | ●                   | ●             | ◐            |
|  | Slave<br>unit 2 <sup>(a)</sup> | ◐   | ●           | ●                      | ●                             | ●                       | ●                      | ●                   | ●             | ●            |

(a) The state of the H8P (multi) LED in a multi-system shows which unit is the master unit (○), slave 1 unit (◐) or slave 2 unit (●).  
Only the master unit is connected to the indoor units with interunit wiring.

## Setting the mode

The set mode can be changed with the **BS1 MODE** button according to the following procedure:

- **For setting mode 1:** Press the **BS1 MODE** button once, the H1P LED is off ●. This mode is not available for heat recovery units.
  - **For setting mode 2:** Press the **BS1 MODE** button for 5 seconds, the H1P LED is on ☀.
- If the H1P LED is blinking ☀ and the **BS1 MODE** button is pushed once, the setting mode will change to setting mode 1.



**Note:** If you get confused in the middle of the setting process, push the **BS1 MODE** button. Then it returns to setting mode 1 (H1P LED is off).

## Setting mode 2

The H1P LED is on.

### Setting procedure

1. Push the **BS2 SET** button according to the required function (A~H). The LED indication that matches the required function is shown below in the field marked  :

#### Possible functions

- A additional refrigerant charging operation.
- B refrigerant recovery operation/vacuuming operation.
- C automatic low noise operation setting at nighttime.
- D low noise operation level setting (L.N.O.P) via the external control adapter.
- E power consumption limitation setting (DEMAND) via the external control adapter.
- F enabling function of the low noise operation level setting (L.N.O.P) and/or power consumption limitation setting (DEMAND) via the external control adapter (DTA104A61/62).
- G high static pressure setting
- H evaporating temperature setting

|   | H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|---|-----|-----|-----|-----|-----|-----|-----|
| A | ○   | ●   | ○   | ●   | ○   | ●   | ●   |
| B | ○   | ●   | ○   | ●   | ○   | ●   | ○   |
| C | ○   | ●   | ○   | ●   | ○   | ○   | ●   |
| D | ○   | ●   | ○   | ○   | ●   | ●   | ○   |
| E | ○   | ●   | ○   | ○   | ○   | ○   | ●   |
| F | ○   | ●   | ●   | ○   | ○   | ●   | ●   |
| G | ○   | ●   | ○   | ●   | ●   | ○   | ●   |
| H | ○   | ●   | ●   | ○   | ●   | ●   | ●   |

2. When the **BS3 RETURN** button is pushed, the current setting is defined.
  3. Push the **BS2 SET** button according to the required setting possibility as shown below in the field marked  .
- 3.1 Possible settings for function A, B, F, and G are ON (ON) or OFF (OFF).

|         | H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|---------|-----|-----|-----|-----|-----|-----|-----|
| ON      | ○   | ●   | ●   | ●   | ●   | ●   | ●   |
| OFF (a) | ○   | ●   | ●   | ●   | ●   | ●   | ●   |

(a) This setting = factory setting

## 3.2 Possible settings for function C

The noise of level 3 < level 2 < level 1 (▲1).

|         | H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|---------|-----|-----|-----|-----|-----|-----|-----|
| OFF (a) | ○   | ●   | ●   | ●   | ●   | ●   | ●   |
| ▲1      | ○   | ●   | ●   | ●   | ●   | ●   | ●   |
| ▲2      | ○   | ●   | ●   | ●   | ●   | ●   | ●   |
| ▲3      | ○   | ●   | ●   | ●   | ●   | ●   | ●   |

(a) This setting = factory setting

## 3.3 Possible settings for function D and E

For function D (L.N.O.P) only: the noise of level 3 < level 2 < level 1 (▲1).

For function E (DEMAND) only: the power consumption of level 1 < level 2 < level 3 (▲3).

|        | H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|--------|-----|-----|-----|-----|-----|-----|-----|
| ▲1     | ○   | ●   | ●   | ●   | ●   | ●   | ●   |
| ▲2 (a) | ○   | ●   | ●   | ●   | ●   | ●   | ●   |
| ▲3     | ○   | ●   | ●   | ●   | ●   | ●   | ●   |

(a) This setting = factory setting

## 3.4 Possible settings for function H

The evaporating temperature level H (high) < level M (medium) < level L (low) (▲L).

|        | H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|--------|-----|-----|-----|-----|-----|-----|-----|
| ▲H     | ○   | ●   | ●   | ●   | ●   | ●   | ●   |
| ▲M (a) | ○   | ●   | ●   | ●   | ●   | ●   | ●   |
| ▲L     | ○   | ●   | ●   | ●   | ●   | ●   | ●   |

(a) This setting = factory setting

4. Push the BS3 RETURN button and the setting is defined.

5. When the BS3 RETURN button is pushed again, the operation starts according to the setting. Refer to the service manual for more details and for other settings.

## Confirmation of the set mode

The following items can be confirmed by setting mode 1 (H1P LED is off)

Check the LED indication in the field marked   .

1. Indication of the present operation state

- ●, normal
- ○, abnormal
- ◐, under preparation or under test operation

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ●   | ●   | ○   | ●   | ●   | ●   | ●   |

2. Indication of low noise operation state L.N.O.P

- ● standard operation (= factory setting)
- ○ L.N.O.P operation

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ●   | ●   | ○   | ●   | ●   | ●   | ●   |

3. Indication of power consumption limitation setting DEMAND

- ● standard operation (= factory setting)
- ○ DEMAND operation

| H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|-----|-----|-----|-----|-----|-----|-----|
| ●   | ●   | ○   | ●   | ●   | ●   | ●   |

## 1.2.6.4 Test operation



**Do not insert fingers, rods or other objects into the air inlet or outlet. When the fan is rotating at high speed, it will cause injury.**



**Do not perform the test operation while working on the indoor units.**

When performing the test operation, not only the outdoor unit, but the connected indoor unit will operate as well. Working on a indoor unit while performing a test operation is dangerous.

- In the test operation, the following checks and judgement will be performed:
  - Check of the stop valve opening
  - Check for wrong wiring
  - Check of refrigerant overcharge
  - Judgement of piping length
- It takes between 40 and 60 minutes to complete the check operation.
- Make sure to carry out the test operation after the first installation. Otherwise, the malfunction code U3 will be displayed on the remote control and normal operation can not be carried out.
- In case of a multi system, check the settings and results on the master unit.
- Abnormalities on indoor units can not be checked for each unit individual. After the test operation is finished, check the indoor units one by one by performing a normal operation using the remote control.



**Note:** A test operation can not be carried out when the outdoor temperature is less than  $-5^{\circ}\text{C}$ .

### Test operation procedure

1. Close all front panels except the front panel of the electric box.
2. Turn ON the power to all outdoor units and the connected indoor units.  
Be sure to turn on the power 6 hours before operation in order to have power running to the crank case heater and to protect the compressor.
3. Make the field setting as described in the paragraph "1.2.6.3 Field setting" on page 181.
4. Press the BS1 MODE button once, and set to the SETTING MODE (H1P LED = OFF).
5. Press and hold the BS4 TEST button down for 5 seconds or more. The unit will start the test operation.
  - The test operation is automatically carried out in cooling mode, the H2P LED will light up and the messages "Test operation" and "Under centralized control" will display on the remote control.
  - It may take 10 minutes to bring the state of the refrigerant uniform before the compressor starts.
  - During the test operation, the refrigerant running sound or the magnetic sound of a solenoid valve may become loud and the LED display may change, but these are not malfunctions.
  - During the test operation, it is not possible to stop the unit operation from a remote control. To abort the operation, press the BS3 RETURN button. The unit will stop after  $\pm 30$  seconds.
6. Close the front panel in order to let it not be the cause of misjudgement.
7. Check the test operation results by the LED display on the outdoor unit.

|                     | H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|---------------------|-----|-----|-----|-----|-----|-----|-----|
| Normal completion   | ●   | ●   | ○   | ●   | ●   | ●   | ●   |
| Abnormal completion | ●   | ○   | ○   | ●   | ●   | ●   | ●   |

8. When the test operation is fully completed, normal operation will be possible after 5 minutes. Otherwise, refer to "Correcting after abnormal completion of the test operation" on page 186 to take actions for correcting the abnormality.

### Correcting after abnormal completion of the test operation

The test operation is only completed if there is no malfunction code displayed on the remote control. In case of a displayed malfunction code, perform the following actions to correct the abnormality:

- Confirm the malfunction code on the remote control

| Installation error  | Error code                 | Remedial action  |
|---|----------------------------|--|
| The stop valve of an outdoor unit is left closed.                                 | E3<br>E4<br>F3<br>F6<br>UF | Open the stop valve.   |
| The phases of the power to the outdoor units are reversed.                        | U1                         | Exchange two of the three phases (L1, L2, L3) to make a positive phase connection.   |
| No power is supplied to an outdoor or indoor unit (including phase interruption). | LC<br>U1<br>U4             | Check if the power wiring for the outdoor units are connected correctly.<br>(If the power wire is not connected to L2 phase, no malfunction display will appear and the compressor will not work.) |
| Incorrect interconnections between units  | UF                         | Check if the refrigerant line piping and the unit wiring are consistent with each other.   |
| Refrigerant overcharge  | E3<br>F6<br>UF             | Recalculate the required amount of refrigerant from the piping length and correct the refrigerant charge level by recovering any excessive refrigerant with a refrigerant recovery machine.        |
| Insufficient refrigerant  | E4<br>F3                   | Check if the additional refrigerant charge has been finished correctly.<br>Recalculate the required amount of refrigerant from the piping length and add an adequate amount of refrigerant.        |

- After correcting the abnormality, press the **BS3 RETURN** button and reset the malfunction code.
- Carry out the test operation again and confirm that the abnormality is properly corrected.

### 1.2.6.5 Service mode operation



**Note:** Do not shut off the power and do not reset the setting of mode 2 when vacuuming or recovering refrigerant. Otherwise the expansion valves will close making it impossible to vacuum the system or to recover the refrigerant.

#### Vacuuming method

At the first installation, this vacuuming is not required. It is required only for repair purposes.

- When the unit is at standstill and under the setting mode 2, set the required function B (refrigerant recovery operation/vacuuming operation) to **ON** (ON).
  - The indoor unit, BS unit and the outdoor unit expansion valves will fully open.
  - The H1P LED is on and the remote control indicates **TEST** (test operation) and (external control) and the operation will be prohibited.
- Evacuate the system with a vacuum pump.
- Press the **BS1 MODE** button and reset the setting mode 2.

#### Refrigerant recovery operation method

by a refrigerant reclaimer

- When the unit is at standstill and under the setting mode 2, set the required function B (refrigerant recovery operation/vacuuming operation) to **ON** (ON).
  - The indoor unit, BS unit and the outdoor unit expansion valves will fully open.
  - The H1P LED is on and the remote control indicates **TEST** (test operation) and (external control) and the operation will be prohibited.
- Recover the refrigerant by a refrigerant reclaimer. For details, see the operation manual delivered with the refrigerant reclaimer.
- Press the **BS1 MODE** button and reset the setting mode 2.

## 1.3 Operation when Power is Turned On

### 1.3.1 When Turning On Power First Time

The unit cannot be run for up to 12 minutes to automatically set the master power and address (indoor-outdoor address, etc.).

#### Status

Outdoor unit

Test lamp H2P .... Blinks

Can also be set during operation described above.

Indoor unit

If ON button is pushed during operation described above, the "UH" malfunction indicator blinks. (Returns to normal when automatic setting is complete.)

### 1.3.2 When Turning On Power the Second Time and Subsequent

Tap the RESET button on the outdoor unit PC board. Operation becomes possible for about 2 minutes. If you do not push the RESET button, the unit cannot be run for up to 10 minutes to automatically set master power.

#### Status

Outdoor unit

Test lamp H2P .... Blinks

Can also be set during operation described above.

Indoor unit

If ON button is pushed during operation described above, the operation lamp lights but the compressor does not operate. (Returns to normal when automatic setting is complete.)

### 1.3.3 When an Indoor Unit or Outdoor Unit has been Added, or Indoor or Outdoor Unit PC Board has been Changed

Be sure to push and hold the RESET button for 5 seconds. If not, the addition cannot be recognized. In this case, the unit cannot be run for up to 12 minutes to automatically set the address (indoor-outdoor address, etc.)

#### Status

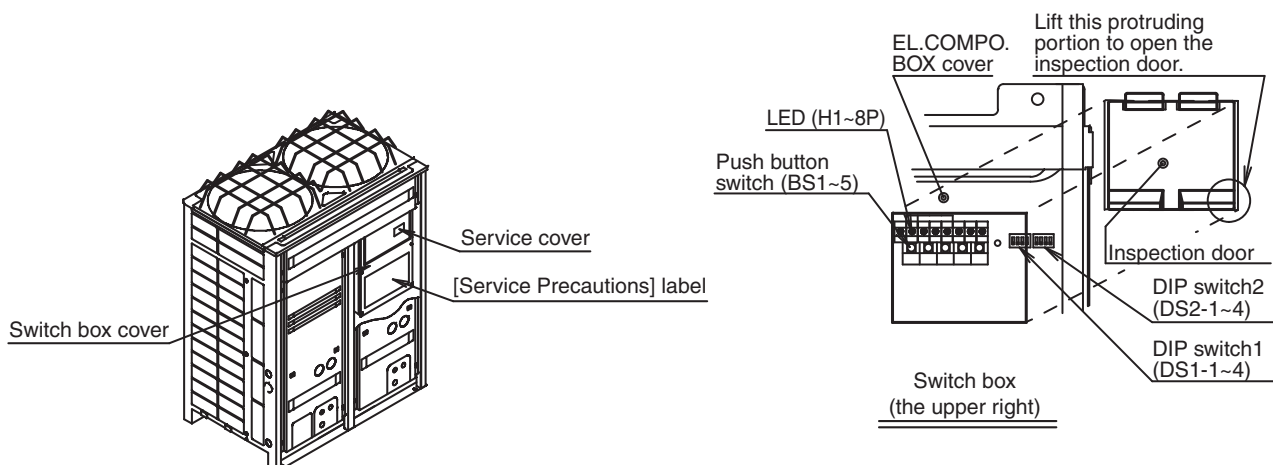
Outdoor unit

Test lamp H2P .... ON

Can also be set during operation described above.

Indoor unit

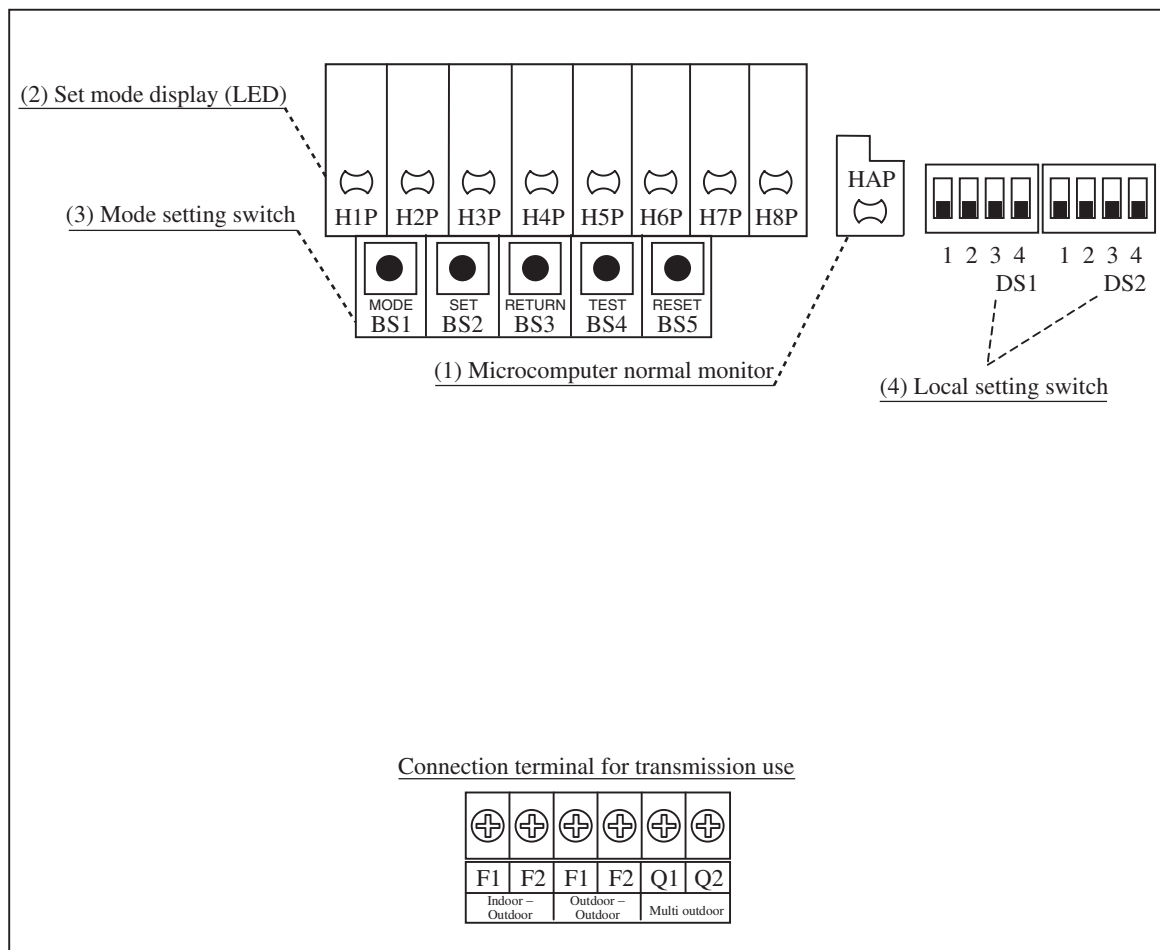
If ON button is pushed during operation described above, the "UH" or "U4" malfunction indicator blinks. (Returns to normal when automatic setting is complete.)



**Caution** When the 400 volt power supply is applied to "N" phase by mistake, replace Inverter PC board (A2P) and control transformer (T1R, T2R) in switch box together.

## 2. Outdoor Unit PC Board Layout

### Outdoor unit PC board



(V3054)

**(1) Microcomputer normal monitor**

This monitor blinks while in normal operation, and turns on or off when a malfunction occurs.

**(2) Set mode display (LED)**

LEDs display mode according to the setting.

**(3) Mode setting switch**

Used to change mode.

**(4) Local setting switch**

Used to make field settings.

## 3. Field Setting

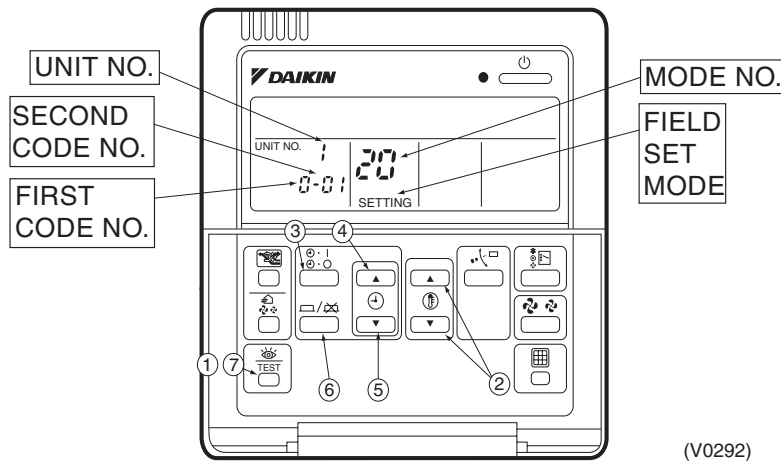
### 3.1 Field Setting from Remote Control

Individual function of indoor unit can be changed from the remote control. At the time of installation or after service inspection / repair, make the local setting in accordance with the following description.








Wrong setting may cause malfunction.

(When optional accessory is mounted on the indoor unit, setting for the indoor unit may be required to change. Refer to information in the option handbook.)

#### 3.1.1 Wired Remote Control <BRC1C61, 62>



(V0292)

1. When in the normal mode, press the “” button for a minimum of four seconds, and the FIELD SET MODE is entered.
2. Select the desired MODE NO. with the “” button (②).
3. During group control, when setting by each indoor unit (mode No. 20, 22 and 23 have been selected), push the “” button (③) and select the INDOOR UNIT NO to be set. (This operation is unnecessary when setting by group.)
4. Push the “” upper button (④) and select FIRST CODE NO.
5. Push the “” lower button (⑤) and select the SECOND CODE NO.
6. Push the “” button (⑥) once and the present settings are SET.
7. Push the “” button (⑦) to return to the NORMAL MODE.

(Example)

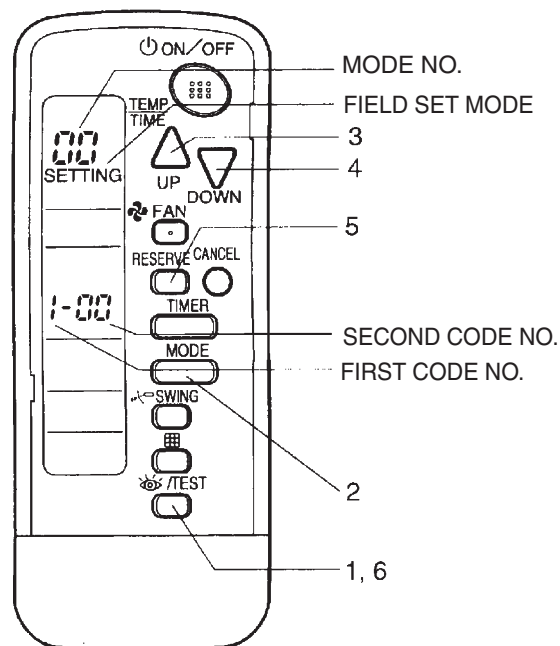
If during group setting and the time to clean air filter is set to FILTER CONTAMINATION, HEAVY, SET MODE NO. to “10” FIRST CODE NO. to “0”, and SECOND CODE NO. to “02”.

### 3.1.2 Infrared Remote Control - Indoor Unit







BRC7C type

BRC7E type

BRC4C type



(V2770)

1. When in the normal mode, push the “” button for 4 seconds or more, and operation then enters the “field set mode.”
2. Select the desired “mode No.” with the “” button.
3. Pushing the “” button, select the first code No.
4. Pushing the “” button, select the second code No.
5. Push the timer “” button and check the settings.
6. Push the “” button to return to the normal mode.

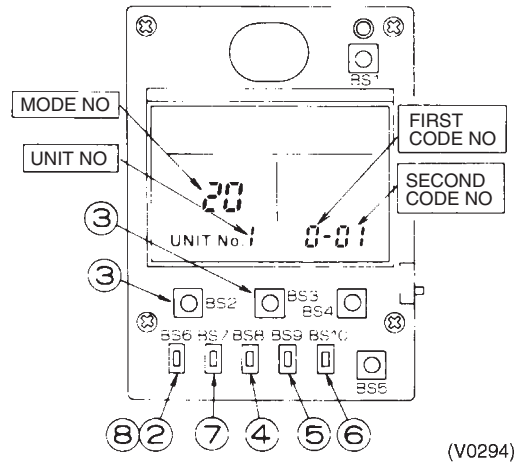
(Example)

When setting the filter sign time to “Filter Dirtiness-High” in all group unit setting, set the Mode No. to “10”, Mode setting No. to “0” and setting position No. to “02”.

### 3.1.3 Simplified Remote Control

BRC2A51

BRC2C51



1. Remove the upper part of remote control.
2. When in the normal mode, press the [BS6] BUTTON (②) (field set), and the FIELD SET MODE is entered.
3. Select the desired MODE No. with the [BS2] BUTTON (③) (temperature setting ▲) and the [BS3] BUTTON (③) (temperature setting ▼).
4. During group control, when setting by each indoor unit (mode No. 20, 22, and 23 have been selected), push the [BS8] (④) BUTTON (unit No.) and select the INDOOR UNIT NO. to be set. (This operation is unnecessary when setting by group.)
5. Push the [BS9] BUTTON (⑤) (set A) and select FIRST CODE NO.
6. Push the [BS10] BUTTON (⑥) (set B) and select SECOND CODE NO.
7. Push the [BS7] BUTTON (⑦) (set/cancel) once and the present settings are SET.
8. Push the [BS6] BUTTON (⑧) (field set) to return to the NORMAL MODE.
9. (Example) If during group setting and the time to clean air filter is set to FILTER CONTAMINATION - HEAVY, SET MODE NO. to "10", FIRST CODE NO. to "0", and SECOND CODE NO. to "02".

### 3.1.4 Setting Contents and Code No. – VRV Indoor unit

| VRV system indoor unit settings | Mode No.<br>Note 2 | Setting Switch No.  | Setting Contents   |                                  | Second Code No. (Note 3)            |                        |                    |                                |                                  |      |                    |      | Details No |
|---------------------------------|--------------------|---|--|----------------------------------|-------------------------------------|------------------------|--------------------|--------------------------------|----------------------------------|------|--------------------|------|------------|
|                                 |                    |   |  |                                  | 01                                  |                        | 02                 |                                | 03                               |      | 04                 |      |            |
| 10(20)                          | 0                  | Filter contamination heavy/light (Setting for display time to clean air filter) (Sets display time to clean air filter to half when there is heavy filter contamination.) | Super long life filter   | Light                            | Approx. 10,000 hrs.                 | Heavy                  | Approx. 5,000 hrs. | —                              | —                                | (1)  |                    |      |            |
|                                 |                    |   | Long life filter   |                                  | Approx. 2,500 hrs.                  |                        | Approx. 1,250 hrs. |                                |                                  |      |                    |      |            |
|                                 |                    |   | Standard filter  |                                  | Approx. 200 hrs.                    |                        | Approx. 100 hrs.   |                                |                                  |      |                    |      |            |
|                                 | 1                  | Long life filter type   |  | Long life filter                 |                                     | Super long life filter |                    | —                              |                                  | —    |                    | (2)  |            |
|                                 | 2                  | Thermostat sensor in remote control   |  | Remote control + Body thermostat |                                     | Only body thermostat   |                    | Only remote control thermostat |                                  | —    |                    | (3)  |            |
|                                 | 3                  | Display time to clean air filter calculation (Set when filter sign is not to be displayed.)   |  | Display                          |                                     | No display             |                    | —                              |                                  | —    |                    | (4)  |            |
|                                 | 12(22)             | 0   | Optional accessories output selection (field selection of output for adapter for wiring) |                                  | Indoor unit turned ON by thermostat |                        | —                  |                                | Operation output                 |      | Malfunction output |      | (5)        |
|                                 |                    | 1   | ON/OFF input from outside (Set when ON/OFF is to be controlled from outside.)            |                                  | Forced OFF                          |                        | ON/OFF control     |                                | External protection device input |      | —                  |      | (6)        |
|                                 |                    | 2   | Thermostat differential changeover (Set when remote sensor is to be used.)               |                                  | 1°C                                 |                        | 0.5°C              |                                | —                                |      | —                  |      | (7)        |
|                                 |                    | 3   | Air flow setting when heating thermostat is OFF  |                                  | LL                                  |                        | Set fan speed      |                                | —                                |      | —                  |      | (8)        |
| 4                               |                    | Automatic mode differential (automatic temperature differential setting for VRV system heat recovery series cool/heat)  |  | 01:0                             | 02:1                                | 03:2                   | 04:3               | 05:4                           | 06:5                             | 07:6 | 08:7               | —    |            |
| 5                               |                    | Power failure automatic reset   |  | Not equipped                     |                                     | Equipped               |                    | —                              |                                  | —    |                    | (9)  |            |
| 6                               |                    | Air flow setting when Cooling thermostat is OFF   |  | LL                               |                                     | Set fan speed          |                    | —                              |                                  | —    |                    | (10) |            |
| 13(23)                          | 0                  | Setting of normal air flow  |  | N                                |                                     | H                      |                    | S                              |                                  | —    |                    | (11) |            |
|                                 | 1                  | Selection of air flow direction (Set when a blocking pad kit has been installed.)   |  | F (4 directions)                 |                                     | T (3 directions)       |                    | W (2 directions)               |                                  | —    |                    | (12) |            |
|                                 | 3                  | Operation of downward flow flap: Yes/No   |  | Equipped                         |                                     | Not equipped           |                    | —                              |                                  | —    |                    | (13) |            |
|                                 | 4                  | Field set air flow position setting   |  | Draft prevention                 |                                     | Standard               |                    | Ceiling Soiling prevention     |                                  | —    |                    | (14) |            |
|                                 | 5                  | Setting of static pressure selection  |  | Standard                         |                                     | High static pressure   |                    | —                              |                                  | —    |                    | (15) |            |
| 15(25)                          | 1                  | Thermostat OFF excess humidity  |  | Not equipped                     |                                     | Equipped               |                    | —                              |                                  | —    |                    | (16) |            |
|                                 | 2                  | Direct duct connection (when the indoor unit and heat reclaim ventilation unit are connected by duct directly.) *Note 6   |  | Not equipped                     |                                     | Equipped               |                    | —                              |                                  | —    |                    | (17) |            |
|                                 | 3                  | Drain pump humidifier interlock selection   |  | Not equipped                     |                                     | Equipped               |                    | —                              |                                  | —    |                    | (18) |            |
|                                 | 5                  | Field set selection for individual ventilation setting by remote control  |  | Not equipped                     |                                     | Equipped               |                    | —                              |                                  | —    |                    | (19) |            |



#### Notes :

- Settings are made simultaneously for the entire group, however, if you select the mode No. inside parentheses, you can also set by each individual unit. Setting changes however cannot be checked except in the individual mode for those in parentheses.
- The mode numbers inside parentheses cannot be used by infrared remote controls, so they cannot be set individually. Setting changes also cannot be checked.
- Marked   are factory set.
- Do not make settings other than those described above. Nothing is displayed for functions the indoor unit is not equipped with.
- "88" may be displayed to indicate the remote control is resetting when returning to the normal mode.
- If the setting mode to "Equipped", heat reclaim ventilation fan conducts the fan residual operation by linking to indoor unit.

### 3.1.5 Applicable Range of Field Setting

|   | Ceiling mounted cassette |               |               |                | Slim<br>concealed<br>ceiling unit | Concealed<br>ceiling unit<br>(small) | Concealed<br>ceiling unit | Concealed<br>ceiling unit<br>(large) | Ceiling<br>suspended<br>unit | Wall<br>mounted<br>unit | Floor<br>standing<br>unit | Concealed<br>floor<br>standing unit |
|---|--------------------------|---------------|---------------|----------------|-----------------------------------|--------------------------------------|---------------------------|--------------------------------------|------------------------------|-------------------------|---------------------------|-------------------------------------|
|   | Roundflow                | 4-way<br>blow | 2-way<br>blow | Corner<br>type |                                   |                                      |                           |                                      |                              |                         |                           |                                     |
|   | FXFQ                     | FXZQ          | FXCQ          | FXKQ           |                                   |                                      |                           |                                      |                              |                         |                           |                                     |
| Filter sign   | ○                        | ○             | ○             | ○              | ○                                 | ○                                    | ○                         | ○                                    | ○                            | ○                       | ○                         | ○                                   |
| Ultra long life<br>filter sign                                  | ○                        | ○             | ○             | —              | —                                 | —                                    | —                         | —                                    | —                            | —                       | —                         | —                                   |
| Remote<br>control<br>thermostat<br>sensor                       | ○                        | ○             | ○             | ○              | ○                                 | ○                                    | ○                         | ○                                    | ○                            | ○                       | ○                         | ○                                   |
| Set fan<br>speed when<br>thermostat<br>OFF                      | ○                        | ○             | ○             | ○              | ○                                 | ○                                    | ○                         | ○                                    | ○                            | ○                       | ○                         | ○                                   |
| Air flow<br>adjustment<br>Ceiling<br>height                     | ○                        | —             | —             | —              | —                                 | —                                    | —                         | —                                    | ○                            | —                       | —                         | —                                   |
| Air flow<br>direction   | ○                        | ○             | —             | —              | —                                 | —                                    | —                         | —                                    | —                            | —                       | —                         | —                                   |
| Air flow<br>direction<br>adjustment<br>(Down flow<br>operation) | —                        | —             | —             | ○              | —                                 | —                                    | —                         | —                                    | —                            | —                       | —                         | —                                   |
| Air flow<br>direction<br>adjustment<br>range                    | ○                        | ○             | ○             | ○              | —                                 | —                                    | —                         | —                                    | —                            | —                       | —                         | —                                   |
| Field set fan<br>speed<br>selection                             | ○                        | —             | —             | —              | ○*1                               | —                                    | —                         | —                                    | ○                            | —                       | —                         | —                                   |
| Discharge<br>air temp.<br>(Cooling)                             | —                        | —             | —             | —              | —                                 | —                                    | —                         | —                                    | —                            | —                       | —                         | —                                   |
| Discharge<br>air temp.<br>(Heating)                             | —                        | —             | —             | —              | —                                 | —                                    | —                         | —                                    | —                            | —                       | —                         | —                                   |

\*1 Static pressure selection

### 3.1.6 Detailed Explanation of Setting Modes

#### (1) Filter Sign Setting

If switching the filter sign ON time, set as given in the table below.

##### Set Time

| Setting             | Filter Specs. | Standard | Long Life  | Ultra Long Life Filter |
|---------------------|---------------|----------|------------|------------------------|
| Contamination Light |               | 200 hrs. | 2,500 hrs. | 10,000 hrs.            |
| Contamination Heavy |               | 100 hrs. | 1,250 hrs. | 5,000 hrs.             |

#### (2) Ultra-Long-Life Filter Sign Setting

When a Ultra-long-life filter is installed, the filter sign timer setting must be changed.

##### Setting Table

| Mode No. | Setting Switch No. | Setting Position No. | Setting                    |
|----------|--------------------|----------------------|----------------------------|
| 10 (20)  | 1                  | 01                   | Long-Life Filter           |
|          |                    | 02                   | Ultra-Long-Life Filter (1) |
|          |                    | 03                   | —                          |

#### (3) Selection of Thermistor

Select the thermistor to control room temperature.

| Mode No. | First Code No. | Second Code No. | Thermistor that controls room temperature   |
|----------|----------------|-----------------|---|
| 10 (20)  | 2              | 01              | Indoor air thermistor for remote control and suction air thermistor for indoor unit |
|          |                | 02              | Suction air thermistor for indoor unit  |
|          |                | 03              | Thermistor for remote control   |

The factory setting for the Second Code No. is "01" and room temperature is controlled by the indoor unit suction air thermistor and remote control thermistor.

When the Second Code No. is set to "02", room temperature is controlled by the suction air thermistor.

When the Second Code No. is set to "03", room temperature is controlled by the remote control thermistor.

#### (4) "Filter Cleaning" Displayed or Not Displayed

Whether or not to display "Filter Cleaning" after operation of certain duration can be selected.

| Mode No. | First Code No. | Second Code No. | "Filter Cleaning" display |
|----------|----------------|-----------------|---------------------------|
| 10 (20)  | 3              | 01              | Display                   |
|          |                | 02              | No display                |

#### (5) Optional Output Switching

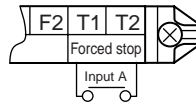
Using this setting, "operation output signal" and "abnormal output signal" can be provided.

Output signal is output between terminals K1 and K2 of "customized wiring adapter," an optional accessory.

| Mode No. | First Code No. | Second Code No. | Remarks   |
|----------|----------------|-----------------|---|
| 12 (22)  | 0              | 01              | Indoor unit thermostat ON/OFF signal is provided.                                   |
|          |                | 03              | Output linked with "Start/Stop" of remote control is provided.                      |
|          |                | 04              | In case of "Malfunction Display" appears on the remote control, output is provided. |

**(6) External ON/OFF input**

This input is used for "ON / OFF operation" and "Protection device input" from the outside. The input is performed from the T1-T1 terminal of the operation terminal block (X1A) in the electric component box.

**Setting Table**

| Mode No. | Setting Switch No. | Setting Position No. | Operation by input of the signal A   |
|----------|--------------------|----------------------|--|
| 12 (22)  | 1                  | 01                   | ON: Forced stop (prohibition of using the remote control)<br>OFF: Permission of using the remote control               |
|          |                    | 02                   | OFF → ON: Permission of operation<br>ON → OFF: Stop  |
|          |                    | 03                   | ON: Operation<br>OFF: The system stops, then the applicable unit indicates "A0". The other indoor units indicate "U9". |

**(7) Thermostat Switching**

Differential value during thermostat ON/OFF control can be changed. (For details, refer to "6.4 Thermostat Control while in Normal Operation" on page 137.)

| Mode No. | First Code No. | Second Code No. | Differential value |
|----------|----------------|-----------------|--------------------|
| 12(22)   | 2              | 01              | 1°C                |
|          |                | 02              | 0.5°C              |

**(8) Air Flow Setting When Heating Thermostat is OFF**

This setting is used to set air flow when heating thermostat is OFF.

- \* When thermostat OFF air flow volume up mode is used, careful consideration is required before deciding installation location. During heating operation, this setting takes precedence over "(7) Fan Stop When Thermostat is OFF."

| Mode No. | First Code No. | Second Code No. | Contents        |
|----------|----------------|-----------------|-----------------|
| 12 (22)  | 3              | 01              | LL air flow     |
|          |                | 02              | Preset air flow |

**(9) Setting of operation mode to "AUTO"**

This setting makes it possible to change differential values for mode selection while in automatic operation mode.

| Mode No. | Setting switch No. | Setting position No. |     |     |     |     |     |     |     |
|----------|--------------------|----------------------|-----|-----|-----|-----|-----|-----|-----|
|          |                    | 01                   | 02  | 03  | 04  | 05  | 06  | 07  | 08  |
| 12 (22)  | 4                  | 0°C                  | 1°C | 2°C | 3°C | 4°C | 5°C | 6°C | 7°C |

The automatic operation mode setting is made by the use of the "Operation Mode Selector" button.

**(10) Auto Restart after Power Failure Reset**

For the air conditioners with no setting for the function (same as factory setting), the units will be left in the stop condition when the power supply is reset automatically after power failure reset or the main power supply is turned on again after once turned off. However, for the air conditioners with the setting, the units may start automatically after power failure reset or the main power supply turned on again (return to the same operation condition as that of before power failure).

For the above reasons, when the unit is set enabling to utilize "Auto restart function after power failure reset", utmost care should be paid for the occurrence of the following situation.



- Caution**
- 1. The air conditioner starts operation suddenly after power failure reset or the main power supply turned on again. Consequently, the user might be surprised (with question for the reason why).**
  - 2. In the service work, for example, turning off the main power switch during the unit is in operation, and turning on the switch again after the work is completed start the unit operation (the fan rotates).**

**(11) Air Flow When Cooling Thermostat is OFF**

This is used to set air flow to "LL air flow" when cooling thermostat is OFF.

| Mode No. | First Code No. | Second Code No. | Contents        |
|----------|----------------|-----------------|-----------------|
| 12 (22)  | 6              | 01              | LL air flow     |
|          |                | 02              | Preset air flow |

**(12) Setting of Normal Air Flow**

Make the following setting according to the ceiling height. The setting position No. is set to "01" at the factory.

■ **In the Case of FXAQ, FXHQ**

| Mode No. | Setting Switch No. | Setting Position No. | Setting                            |
|----------|--------------------|----------------------|------------------------------------|
| 13(23)   | 0                  | 01                   | Wall-mounted type: Standard        |
|          |                    | 02                   | Wall-mounted type: Slight increase |
|          |                    | 03                   | Wall-mounted type: Normal increase |

■ **In the Case of FXFQ25~80**

| Mode No. | First code No. | Second code No. | Setting            | Ceiling height   |                  |                  |
|----------|----------------|-----------------|--------------------|------------------|------------------|------------------|
|          |                |                 |                    | 4-way Outlets    | 3-way Outlets    | 2-way Outlets    |
| 13 (23)  | 0              | 01              | Standard (N)       | Lower than 2.7 m | Lower than 3.0 m | Lower than 3.5 m |
|          |                | 02              | High Ceiling (H)   | Lower than 3.0 m | Lower than 3.3 m | Lower than 3.8 m |
|          |                | 03              | Higher Ceiling (S) | Lower than 3.5 m | Lower than 3.5 m | —                |

■ **In the Case of FXFQ100~125**

| Mode No. | First code No. | Second code No. | Setting            | Ceiling height   |                  |                  |
|----------|----------------|-----------------|--------------------|------------------|------------------|------------------|
|          |                |                 |                    | 4-way Outlets    | 3-way Outlets    | 2-way Outlets    |
| 13 (23)  | 0              | 01              | Standard (N)       | Lower than 3.2 m | Lower than 3.6 m | Lower than 4.2 m |
|          |                | 02              | High Ceiling (H)   | Lower than 3.6 m | Lower than 4.0 m | Lower than 4.2 m |
|          |                | 03              | Higher Ceiling (S) | Lower than 4.2 m | Lower than 4.2 m | —                |

**(13) Air Flow Direction Setting**

Set the air flow direction of indoor units as given in the table below. (Set when optional air outlet blocking pad has been installed.) The second code No. is factory set to "01."

**Setting Table**

| Mode No. | First Code No. | Second Code No. | Setting                  |
|----------|----------------|-----------------|--------------------------|
| 13 (23)  | 1              | 01              | F : 4-direction air flow |
|          |                | 02              | T : 3-direction air flow |
|          |                | 03              | W : 2-direction air flow |

**(14) Operation of Downward Flow Flap: Yes/No**

Only the model FXKQ has the function.

When only the front-flow is used, sets yes/no of the swing flap operation of down-flow.

**Setting Table**

| Mode No. | First Code No. | Second Code No. | Setting                  |
|----------|----------------|-----------------|--------------------------|
| 13 (23)  | 3              | 01              | Down-flow operation: Yes |
|          |                | 02              | Down-flow operation: No  |

**(15) Setting of Air Flow Direction Adjustment Range**

Make the following air flow direction setting according to the respective purpose.



(S2537)

**Setting Table**

| Mode No. | First Code No. | Second Code No. | Setting                               |
|----------|----------------|-----------------|---------------------------------------|
| 13 (23)  | 4              | 01              | Upward (Draft prevention)             |
|          |                | 02              | Standard                              |
|          |                | 03              | Downward (Ceiling soiling prevention) |

\* Some indoor unit models are not equipped with draft prevention (upward) function.

**(16) Setting of the Static Pressure Selection (for FXDQ model)**

| Model No. | First Code No. | Second Code No. | External static pressure    |
|-----------|----------------|-----------------|-----------------------------|
| 13 (23)   | 5              | 01              | Standard (15Pa)             |
|           |                | 02              | High static pressure (44Pa) |

**(17) Humidification When Heating Thermostat is OFF**

Setting to "Humidification Setting" turns ON the humidifier if suction temperature is 20°C or above and turns OFF the humidifier if suction temperature is 18°C or below when the heating thermostat is OFF.

| Mode No. | First Code No. | Second Code No. | Setting               |
|----------|----------------|-----------------|-----------------------|
| 15 (25)  | 1              | 01              | —                     |
|          |                | 02              | Setting of humidifier |

**(18) Setting of Direct Duct Connection**

This is used when "fresh air intake kit equipped with fan" is connected. The indoor fan carries out residual operation for one minute after the thermostat is stopped. (For the purpose of preventing dust on the air filter from falling off.)

| Mode No. | First Code No. | Second Code No. | Contents                                      |
|----------|----------------|-----------------|---|
| 15 (25)  | 2              | 01              | Without direct duct connection                |
|          |                | 02              | With direct duct connection equipped with fan |

**(19) Interlocked Operation between Humidifier and Drain Pump**

This is used to interlock the humidifier with the drain pump. When water is drained out of the unit, this setting is unnecessary.

| Mode No. | First Code No. | Second Code No. | Contents  |
|----------|----------------|-----------------|---|
| 15 (25)  | 3              | 01              | Individual operation of humidifier                      |
|          |                | 02              | Interlocked operation between humidifier and drain pump |

**(20) Individual Setting of Ventilation**

This is set to perform individual operation of heat reclaim ventilation using the remote control/central unit when heat reclaim ventilation is built in.  
(Switch only when heat reclaim ventilation is built in.)






| Mode No. | First Code No. | Second Code No. | Contents                            |
|----------|----------------|-----------------|-------------------------------------|
| 15 (25)  | 5              | 01              | —                                   |
|          |                | 02              | Individual operation of ventilation |

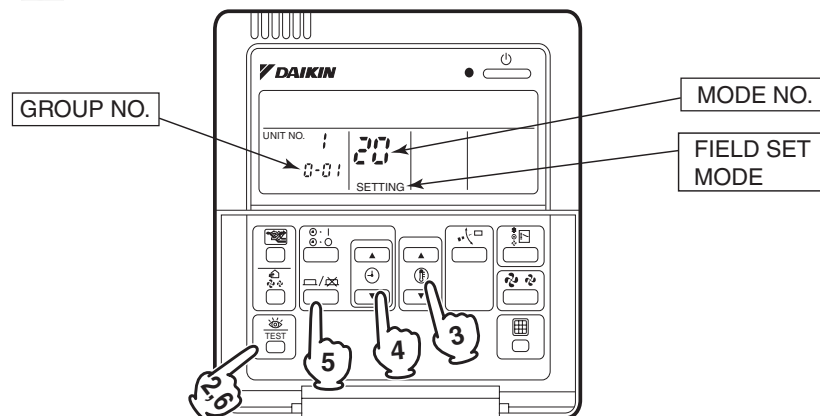
### 3.1.7 Centralized Control Group No. Setting

#### BRC1C Type

In order to conduct the central remote control using the central remote control and the unified ON/OFF controller, Group No. settings should be made by group using the operating remote control.

Make Group No. settings for central remote control using the operating remote control.

1. While in normal mode, press and hold the “” switch for a period of four seconds or more to set the system to “Field Setting Mode”.
2. Select the MODE No. “00” with the “” button.
3. Use the “” button to select the group No. for each group.  
(Group numbers increase in the order of 1-00, 1-01, ... 1-15, 2-00, ... 4-15.)
4. Press “” to set the selected group No.
5. Press “” to return to the NORMAL MODE.



#### Note:

- For infrared remote control, see the following.
- For setting group No. of HRV and wiring adapter for other air conditioners, etc., refer to the instruction manual attached.

#### NOTICE







Enter the group No. and installation place of the indoor unit into the attached installation table. Be sure to keep the installation table with the operation manual for maintenance.

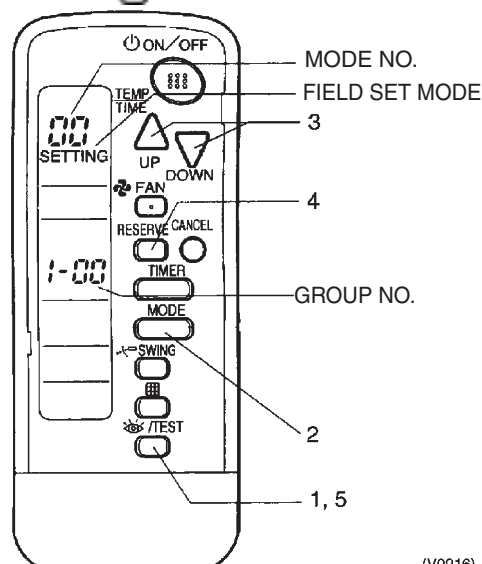
#### BRC7C Type

#### BRC7E Type

#### BRC4C Type

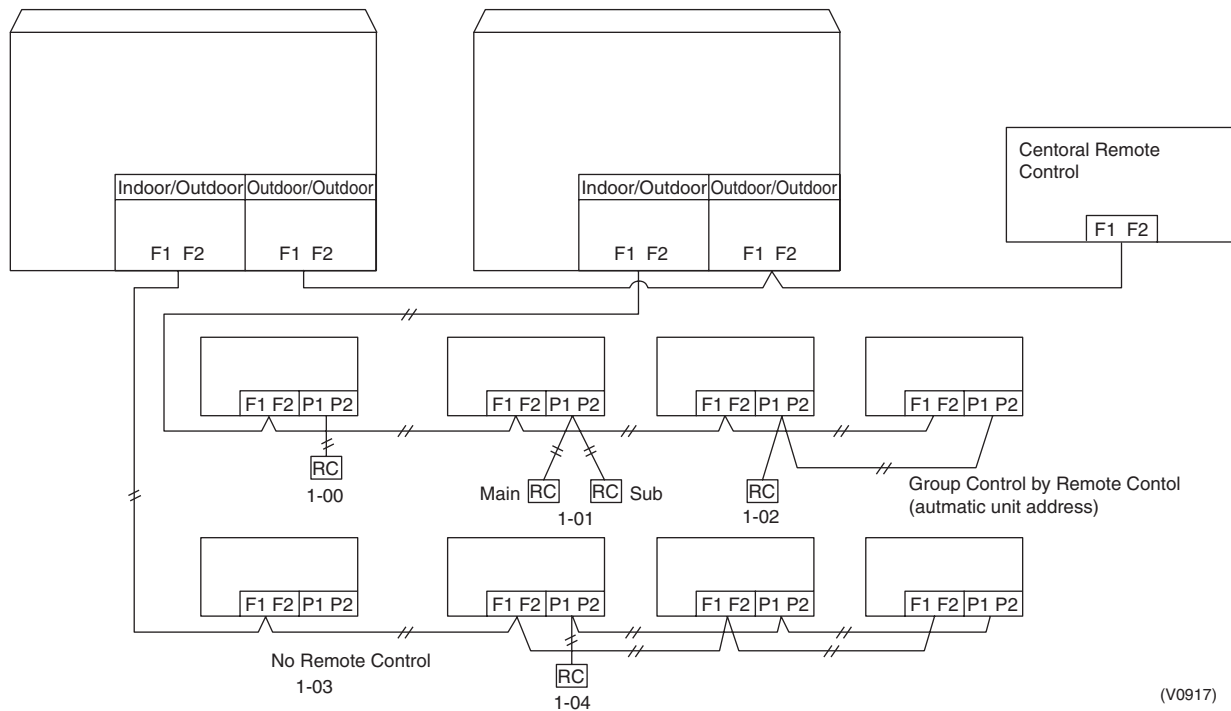
- Group No. setting by infrared remote control for centralized control

1. When in the normal mode, push “” button for 4 seconds or more, and operation then enters the “field set mode.”
2. Set mode No. “00” with “” button.
3. Set the group No. for each group with “” “” button (advance/backward).
4. Enter the selected group numbers by pushing “” button.
5. Push “” button and return to the normal mode.



(V0916)

## Group No. Setting Example



**Caution** When turning the power supply on, the unit may often not accept any operation while "88" is displaying after all indications were displayed once for about 1 minute on the liquid crystal display. This is not an operative fault.

### 3.1.8 Setting of Operation Control Mode from Remote Control (Local Setting)

The operation control mode is compatible with a variety of controls and operations by limiting the functions of the operation remote control. Furthermore, operations such as remote control ON/OFF can be limited in accordance with the combination conditions. (Refer to information in the next page.)

Central remote control is normally available for operations. (Except when centralized monitor is connected)

### 3.1.9 Contents of Control Modes

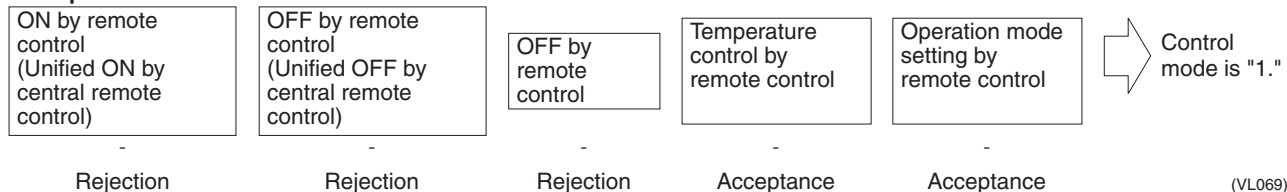
Twenty modes consisting of combinations of the following five operation modes with temperature and operation mode setting by remote control can be set and displayed by operation modes 0 through 19.

- ◆ ON/OFF control impossible by remote control  
Used when you want to turn on/off by central remote control only.  
(Cannot be turned on/off by remote control.)
- ◆ OFF control only possible by remote control  
Used when you want to turn on by central remote control only, and off by remote control only.
- ◆ Centralized  
Used when you want to turn on by central remote control only, and turn on/off freely by remote control during set time.
- ◆ Individual  
Used when you want to turn on/off by both central remote control and remote control.
- ◆ Timer operation possible by remote control  
Used when you want to turn on/off by remote control during set time and you do not want to start operation by central remote control when time of system start is programmed.

## How to Select Operation Mode

Whether operation by remote control will be possible or not for turning on/off, controlling temperature or setting operation mode is selected and decided by the operation mode given on the right edge of the table below.

### Example

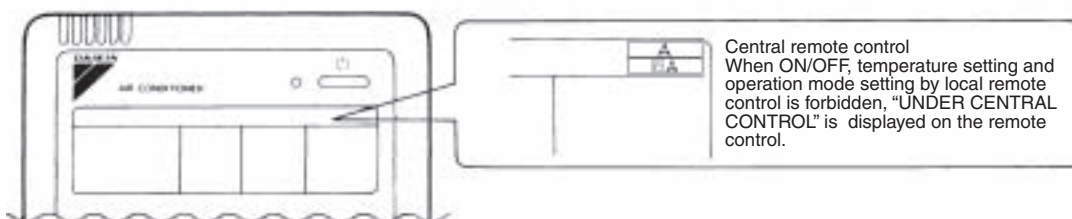


| Control mode                                | Control by remote control   |   |                     |                     |                        | Control mode         |                      |            |            |   |
|---|---|---|---------------------|---------------------|------------------------|----------------------|----------------------|------------|------------|---|
|   | Operation   |   | OFF                 | Temperature control | Operation mode setting |                      |                      |            |            |   |
|   | Unified operation, individual operation by central remote control, or operation controlled by timer | Unified OFF, individual stop by central remote control, or timer stop |                     |                     |                        |                      |                      |            |            |   |
| ON/OFF control impossible by remote control | Rejection (Example)   | Rejection (Example)   | Rejection (Example) | Rejection (Example) | Rejection              | Acceptance           | 0                    |            |            |   |
|   |   |   |                     |                     |                        | Rejection            | 10                   |            |            |   |
|   |   |   |                     |                     |                        | Acceptance (Example) | Acceptance (Example) | 1(Example) |            |   |
|   |   |   |                     |                     |                        |                      | Rejection            | 11         |            |   |
| OFF control only possible by remote control | Acceptance  | Rejection (Example)   | Acceptance          | Rejection           | Acceptance             | 2                    |                      |            |            |   |
|   |   |   |                     |                     |                        | Rejection            | 12                   |            |            |   |
|   |   |   |                     |                     |                        | Acceptance           | 3                    |            |            |   |
|   |   |   |                     |                     |                        | Rejection            | 13                   |            |            |   |
| Centralized                                 |   |   |                     |                     | Acceptance             | Acceptance           | Rejection            | Acceptance | 4          |   |
|   |   |   |                     |                     |                        |                      |                      | Rejection  | 14         |   |
|   |   |   |                     |                     |                        |                      |                      | Acceptance | Acceptance | 5 |
|   |   |   |                     |                     |                        |                      |                      | Rejection  | 15         |   |
| Individual                                  | Acceptance  | Acceptance  | Acceptance          | Rejection           | Acceptance             | 6                    |                      |            |            |   |
|   |   |   |                     |                     | Rejection              | 16                   |                      |            |            |   |
|   |   |   |                     |                     | Acceptance             | Acceptance           | 7 *1                 |            |            |   |
|   |   |   |                     |                     | Rejection              | 17                   |                      |            |            |   |
| Timer operation possible by remote control  | Acceptance (During timer at ON position only)   | Acceptance (During timer at ON position only)                         | Acceptance          | Rejection           | Acceptance             | 8                    |                      |            |            |   |
|   |   |   |                     |                     | Rejection              | 18                   |                      |            |            |   |
|   |   |   |                     |                     | Acceptance             | Acceptance           | 9                    |            |            |   |
|   |   |   |                     |                     | Rejection              | 19                   |                      |            |            |   |

Do not select "timer operation possible by remote control" if not using a remote control.

Operation by timer is impossible in this case.

\*1. Factory setting



## 3.2 Field Setting from Outdoor Unit

### 3.2.1 Field Setting from Outdoor Unit

#### ■ List of Field Setting Items

This following section indicates the list of field setting items. For the lists of dip switch contents, Setting mode 1, and Setting mode 2, refer to information in tables shown on the following page onward.

For setting items of (\*1), refer to detailed information provided on page 205 onward.

| Setting item     |   |   | Content and objective of setting   | Overview of setting procedure   | Reference page |
|------------------|---|---|--|---|----------------|
| Function setting | 2 | Setting of low noise operation (*1)   | A. Use external input to step down the upper limit of the fan (factory set to Step 8), providing low noise level.<br>(1) Mode 1: Step 5 or lower<br>(2) Mode 2: Step 4 or lower<br>(3) Mode 3: Step 3 or lower   | ■ Use the "External control adapter for outdoor unit".<br>Set to "External control adapter for outdoor unit" with No. 12 of "Setting mode 2" and select the mode with No. 25.<br>If necessary, set the "Capacity priority setting" to ON with No. 29. | 218~224        |
|                  |   |   | B. The low noise operation aforementioned is enabled in nighttime automatic low noise operation mode.<br>Start time: Possible to select in the range of 20:00 to 24:00 hours.<br>End time: Possible to select in the range of 06:00 to 08:00 hours.<br>(Use the said time as a guide since the start time and the end time are estimated according to outdoor temperatures.) | ■ Make this setting while in "Setting mode 2".<br>Select a mode with No. 22 of "Setting mode 2".<br>Select the start time with No. 26 and the end time with No. 27.<br>If necessary, set the "Capacity priority setting" to ON with No. 29.           | 218~224        |
|                  | 3 | Setting of demand operation (*1)  | ■ Used to place limits on the compressor operating frequency to control the upper limit of power consumption.<br>(1) Mode 1 of Demand 1: 60% or less of rating<br>(2) Mode 2 of Demand 1: 70% or less of rating<br>(3) Mode 3 of Demand 1: 80% or less of rating<br>(4) Demand 2: 40% or less of rating  | ■ For setting with the use of "external control adapter":<br>Set the system to "External control adapter for outdoor unit" with No. 12 of "Setting mode 2" and select the mode with No. 30.   | 218~224        |
|                  |   |   |  | ■ For setting only in "Setting mode 2":<br>Set the system to Normal demand mode with No. 32 of "Setting mode 2" and select the mode with No. 30.  | 218~224        |
|                  | 4 | Setting of AirNet address   | ■ Used to make address setting with AirNet connected.  | ■ Set the AirNet to an intended address using binary numbers with No. 13 of "Setting mode 2".   | 211~214        |
|                  | 6 | Setting of high static pressure   | ■ Make this setting to operate a system with diffuser duct while in high static pressure mode. (Use this setting mode when shields are installed on upper floors or balconies.)<br>* In order to mount the diffuser duct, remove the cover from the outdoor unit fan.  | ■ Set No. 18 of "Setting mode 2" to ON.   | 211~214        |
|                  | 7 | Prevention of minute heating operation by heating thermostat OFF unit or non-heating-operation unit | ■ Make this setting to prevent a rise in room temperature due to minute heating capacity generated by heating thermostat OFF unit or non-heating-operation unit while in heating operation.  | ■ Set the Setting item No. 41 of "Setting mode 2" to heating thermostat OFF unit or non-heating-operation unit.<br>(Overseas unit: Default set to "ON")   | 211~214        |
|                  | 8 | Setting of BS Cool-Heat selection control time  | ■ Make this setting to shorten the BS Cool-Heat selection control time.  | ■ Set the Setting item No. 42 of "Setting mode 2" to "ON".  | 211~214        |

| Setting item    |    | Content and objective of setting   | Overview of setting procedure   | Reference page |
|-----------------|----|--|---|----------------|
| Service setting | 1  | Indoor unit fan forced H operation<br>■ Used to operate the indoor unit in the stopped state in forced H operation mode.   | ■ Set No. 5 of "Setting mode 2" to indoor unit forced fan H.  | 211~214        |
|                 | 2  | Indoor unit forced operation<br>■ Used to operate the indoor unit in forced operation mode.  | ■ Set No. 6 of "Setting mode 2" to indoor unit forced operation mode.   | 211~214        |
|                 | 3  | Change of targeted evaporating temperature (in cooling)<br>■ In cooling operation, used to change the targeted evaporating temperature for compressor capacity control.  | ■ Select high side or low side with No. 8 of "Setting mode 2".  | 211~214        |
|                 | 4  | Change of targeted condensing temperature (in heating)<br>■ In heating operation, used to change the targeted condensing temperature for compressor capacity control.  | ■ Select high side or low side with No. 9 of "Setting mode 2".  | 211~214        |
|                 | 5  | Setting of defrost selection<br>■ Used to change a temperature at which the defrost operation is initiated, thus making the initiation easy or hard.   | ■ Select fast side or slow side with No. 10 of "Setting mode 2".  | 211~214        |
|                 | 6  | Setting of sequential startup<br>■ Used to start units not in sequence but simultaneously.   | ■ Set No. 11 of "Setting mode 2" to NONE.   | 211~214        |
|                 | 7  | Emergency operation (*1)<br>■ If the compressor has a failure, used to prohibit the operation of outdoor unit(s) concerned and to conduct emergency operation of the system only with operable or outdoor unit(s).   | ■ Make this setting while in "Setting mode 2".<br>For system with multiple outdoor units: Set with No. 38, 39, or 40. | 224, 227       |
|                 | 8  | Additional refrigerant charging(*1)<br>■ If a necessary amount of refrigerant cannot be charged due to the stop of outdoor unit, operate the outdoor unit and then refill refrigerant.   | ■ Set No. 20 of "Setting mode 2" to ON and then charge refrigerant.   | 160~169        |
|                 | 9  | Refrigerant recovery mode (*1)<br>■ Used to recover refrigerant on site. With operations of indoor and outdoor units prohibited, open the outdoor/indoor expansion valve fully while indoor/outdoor operation is prohibited and turn ON some of the solenoid valves. | ■ Set No. 21 of "Setting mode 2" to ON.   | 223            |
|                 | 10 | Vacuuming mode (*1)<br>■ Used to conduct vacuuming on site. Open the outdoor/indoor expansion valve fully while indoor/outdoor operation is prohibited and turn ON some of the solenoid valves. Use a vacuum pump to conduct vacuuming.                              | ■ Set No. 21 of "Setting mode 2" to ON.   | 223            |
|                 | 11 | ENECUT test operation<br>■ Used to forcedly turn ON the ENECUT. (Be noted this mode is not functional with the indoor unit remote control turned ON.)  | ■ Set No. 24 of "Setting mode 2" to ON.   | 211~214        |
|                 | 12 | Power transistor check mode<br>■ Used for the troubleshooting of DC compressors. Inverter waveform output makes it possible to judge whether a malfunction results from the compressor or the PC board.  | ■ Set No. 28 of "Setting mode 2" to ON.   | 211~214        |
|                 | 13 | Setting of model with spare PC board<br>■ In order to replace the PC board by a spare one, be sure to make model setting.  | ■ For this setting, set the DS2-2, -3, and -4 switches on the PC board to the model concerned.                        | 204~207        |

For setting items of (\*1), refer to detailed information provided on page 211 onward.

### 3.2.2 Setting by Dip Switches

#### (1) Factory setting of initial PC board.

Do not make any changes in all factory settings of the DIP switches on the control PC board.



#### Setting at replacement by spare PC board

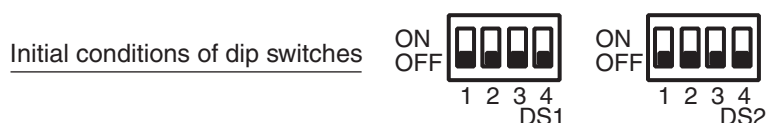


#### Caution

#### DIP switch Setting after changing the main PC board(A1P) to spare parts PC board

After the replacement by the spare PC board, be sure to make settings shown below.

When you change the main PC board(A1P) to spare parts PC board, please carry out the following setting.

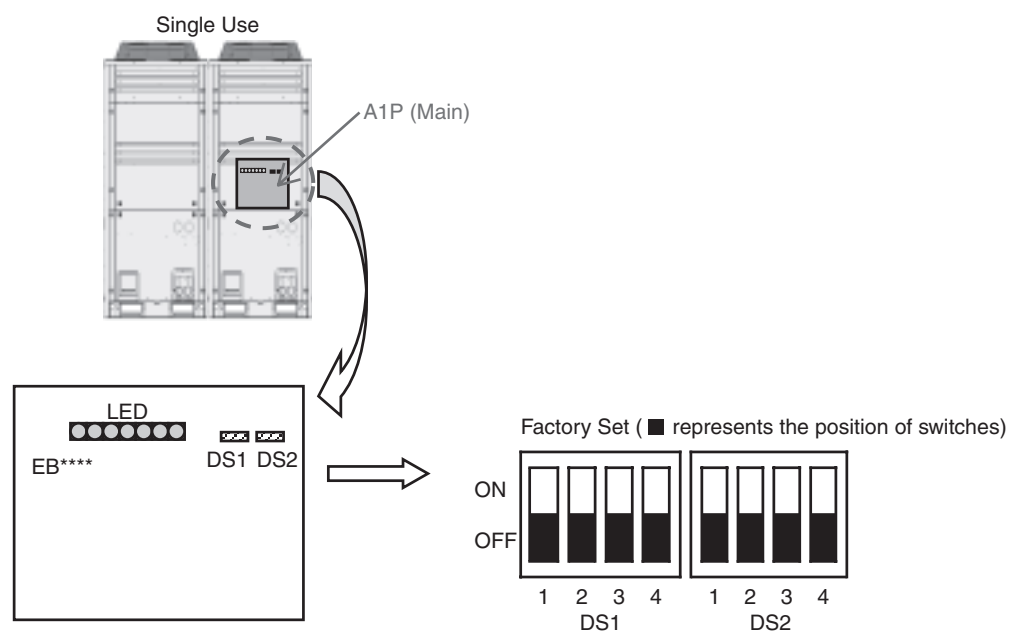












#### DIP Switch Detail

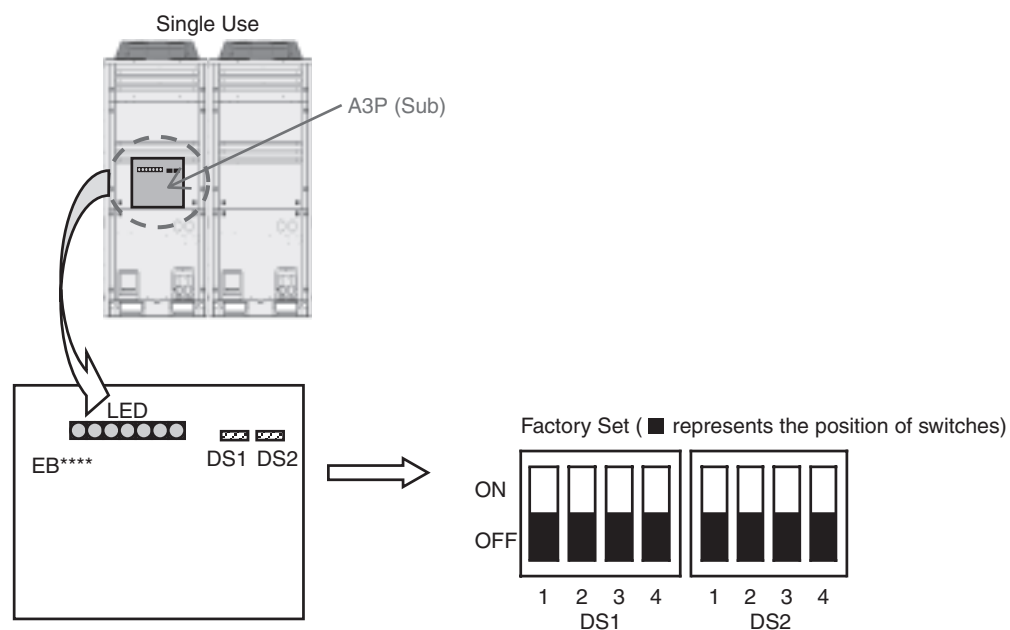
| DS No.                       | Item                           | Contents  |  |                  |                |                  |
|------------------------------|--------------------------------|---|--|------------------|----------------|------------------|
| DS1-2                        | Power supply specification     | ON  | 200V class (220V)  |                  |                |                  |
|                              |                                | OFF (Factory setting of spare PC board)   | 400V class (380V)  |                  |                |                  |
| DS1-3<br>Except Multiple use | Cooling only/Heat-pump setting | ON  | Cooling only setting   |                  |                |                  |
|                              |                                | OFF (Factory setting of spare PC board)   | Heat pump setting  |                  |                |                  |
| DS1-4                        | Unit allocation setting        | ON  | Make the following settings according to allocation of unit. (All models are set to OFF at factory.) |                  |                |                  |
| DS2-1                        |                                |   | Multiple use Single use (Main)   | Single use (sab) | Domestic Japan | Overseas General |
|                              |                                |   | DS1-4  | DS1-3            | OFF            | OFF              |
|                              |                                |   | DS2-1  | DS1-4            | OFF            | ON               |
| DS2-2                        | Model setting                  | Make the settings according to models of outdoor units. (All models are set to OFF at factory.)<br>* Refer to following pages for setting detail. |  |                  |                |                  |
| DS2-3                        |                                |   |  |                  |                |                  |
| DS2-4                        |                                |   |  |                  |                |                  |

- \* For detail of the setting procedure, refer to information on the following pages.  
While the PC board assembly is replaced, the "U3" malfunction (Test run not carried out yet) code is displayed. In this case, carry out the test run again.  
If the "PJ", "UA", or "U7" malfunction code is displayed, recheck for DIP switch settings.  
After the completion of rechecking for the settings, turn ON the power supply again.

“Detail of DS1-1~4, DS2-1~4 setting”

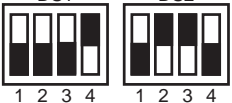
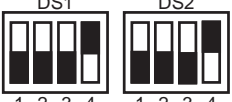
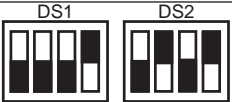
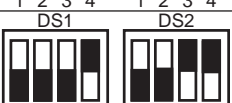
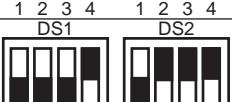


| Allocation | Application model                 | Setting method (■ represents the position of switches)  |                                   |
|------------|-----------------------------------|---|-----------------------------------|
| For Europe | HEAT RECOVERY(8HP)<br>REYQ8PY1B   | ON     | Set DS1-4 and DS2-3 to ON.        |
|            | HEAT RECOVERY(10HP)<br>REYQ10PY1B | ON   | Set DS1-4 to ON.                  |
|            | HEAT RECOVERY(12HP)<br>REYQ12PY1B | ON   | Set DS1-4 and DS2-2 to ON.        |
|            | HEAT RECOVERY(14HP)<br>REYQ14PY1B | ON   | Set DS1-3, DS1-4 and DS2-2 to ON. |
|            | HEAT RECOVERY(16HP)<br>REYQ16PY1B | ON   | Set DS1-3, DS1-4 and DS2-3 to ON. |



| Allocation | Application model                 | Setting method ( ■ represents the position of switches) |                                   |
|------------|-----------------------------------|---|-----------------------------------|
| For Europe | HEAT RECOVERY(8HP)<br>REYQ8PY1B   | ON  | Set DS1-3 and DS2-2 to ON.        |
|            | HEAT RECOVERY(10HP)<br>REYQ10PY1B | ON  | Set DS1-3 and DS2-2 to ON.        |
|            | HEAT RECOVERY(12HP)<br>REYQ12PY1B | ON  | Set DS1-3 and DS2-2 to ON.        |
|            | HEAT RECOVERY(14HP)<br>REYQ14PY1B | ON  | Set DS1-3, DS2-1 and DS2-4 to ON. |
|            | HEAT RECOVERY(16HP)<br>REYQ16PY1B | ON  | Set DS1-3, DS2-1 and DS2-3 to ON. |

## Multiple Type

| Allocation | Application model                 | Setting method ( ■ represents the position of switches)                               |  |
|------------|-----------------------------------|---|--|
| For Europe | HEAT RECOVERY(8HP)<br>REMQ8PY1B   | ON  | Set DS1-4, DS2-2 and DS2-3 to ON.        |
|            | HEAT RECOVERY(10HP)<br>REMQ10PY1B | ON  | Set DS1-4 and DS2-4 to ON.               |
|            | HEAT RECOVERY(12HP)<br>REMQ12PY1B | ON  | Set DS1-4, DS2-2 and DS2-4 to ON.        |
|            | HEAT RECOVERY(14HP)<br>REMQ14PY1B | ON  | Set DS1-4, DS2-3 and DS2-4 to ON.        |
|            | HEAT RECOVERY(16HP)<br>REMQ16PY1B | ON  | Set DS1-4, DS2-2, DS2-3 and DS2-4 to ON. |

### 3.2.3 Setting by Push Button Switches

The following settings are made by push button switches on PC board.

In case of multi-outdoor unit system, various items should be set with the master unit.  
(Setting with the slave unit is disabled.)

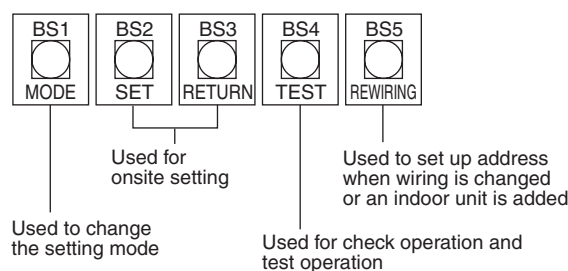
The master unit and slave unit can be discriminated with the LED display as shown below.

LED display

|                               |         | MODE<br>H1P | TEST<br>H2P | COOL/HEAT select |               |              | Low<br>noise<br>H6P | Demand<br>H7P | Multi;<br>H8P |
|-------------------------------|---------|-------------|-------------|------------------|---------------|--------------|---------------------|---------------|---------------|
|                               |         |             |             | IND<br>H3P       | MASTER<br>H4P | SLAVE<br>H5P |                     |               |               |
| Single-outdoor-unit<br>system |         | ●           | ●           | ○                | ●             | ●            | ●                   | ●             | ●             |
| Outdoor-<br>multi<br>system   | Master  | ●           | ●           | ○                | ●             | ●            | ●                   | ●             | ○             |
|                               | Slave 1 | ●           | ●           | ●                | ●             | ●            | ●                   | ●             | ◐             |
|                               | Slave 2 | ●           | ●           | ●                | ●             | ●            | ●                   | ●             | ●             |

(Factory setting)

Pushbutton switches



There are the following three setting modes.

① **Setting mode 1 (H1P off)**

Initial status (when normal) : Used to select the cool/heat setting. Also indicates during “abnormal”, “low noise control” and “demand control”.

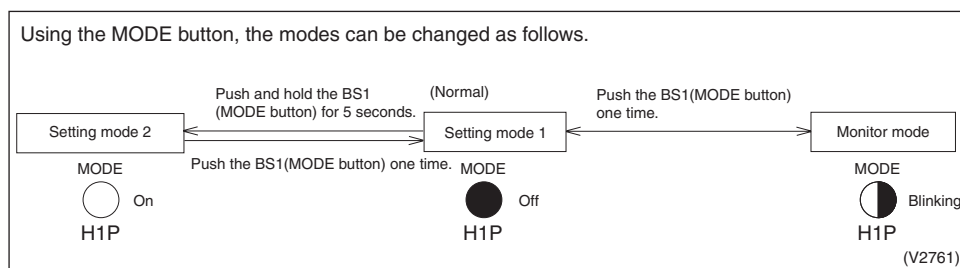
② **Setting mode 2 (H1P on)**

Used to modify the operating status and to set program addresses, etc. Usually used in servicing the system.

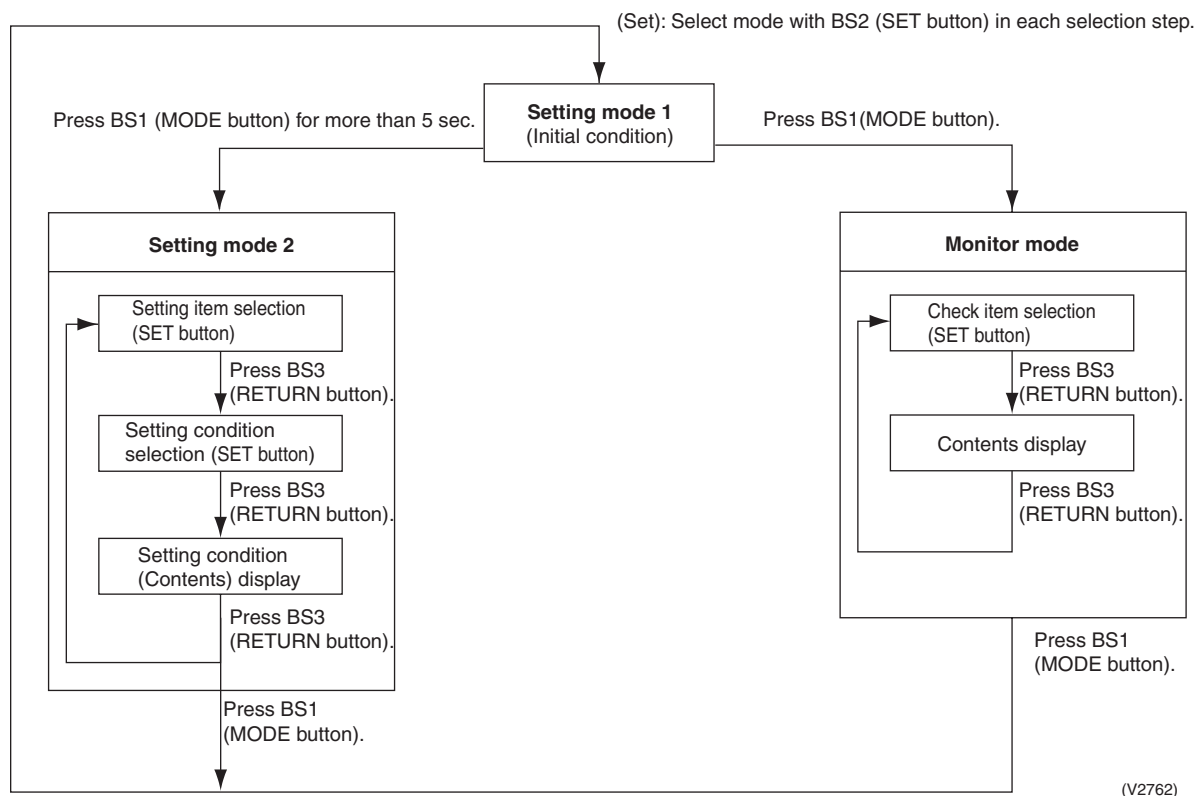
③ **Monitor mode (H1P blinks)**

Used to check the program made in Setting mode 2.

■ **Mode changing procedure 1**



### ■ Mode changing procedure 2



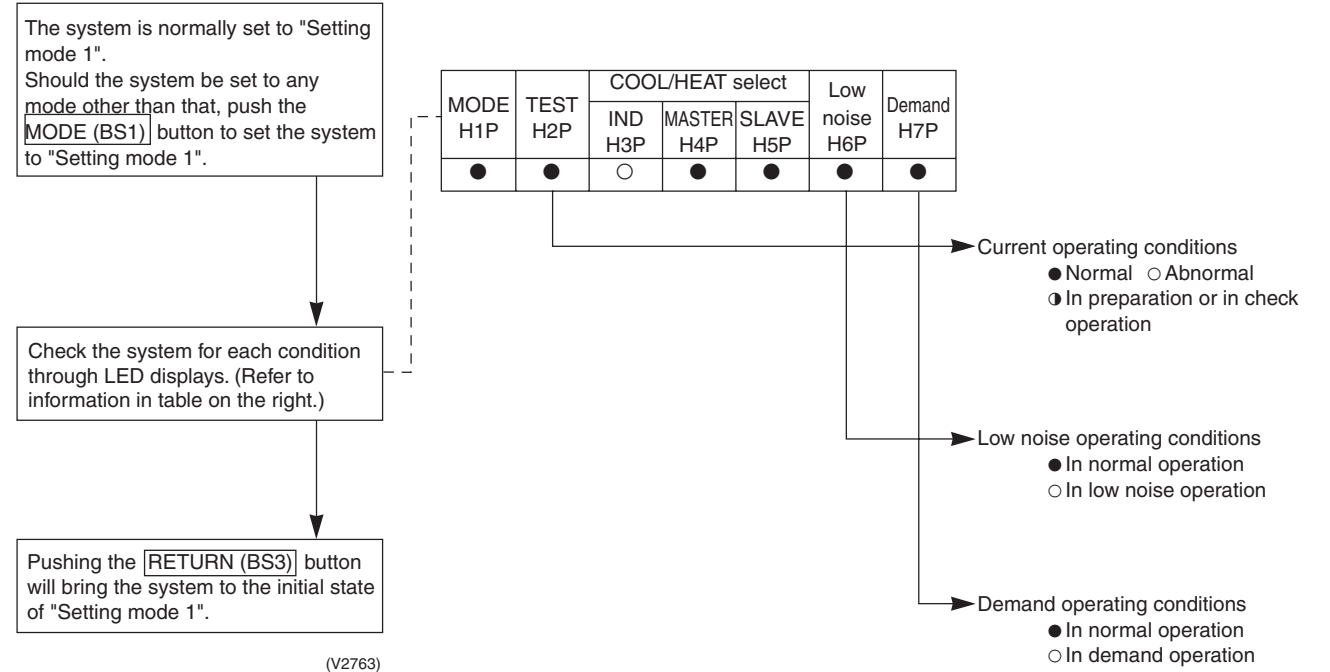
a. “Setting mode 1”

This mode is used to set and check the following items.

Check items ..... The following items can be checked.

- (1) Current operating conditions (Normal / Abnormal / In check operation)
- (2) Low noise operating conditions (In normal operation / In low noise operation)
- (3) Demand operating conditions (In normal operation / In demand operation)

Procedure for checking check items



## b. “Setting mode 2”

Push and hold the **MODE (BS1)** button for 5 seconds and set to “Setting mode 2”.

### <Selection of setting items>

Push the **SET (BS2)** button and set the LED display to a setting item shown in the table on the right.  
?  
Push the **RETURN (BS3)** button and decide the item. (The present setting condition is blinked.)

### <Selection of setting conditions>

Push the **SET (BS2)** button and set to the setting condition you want.  
?  
Push the **RETURN (BS3)** button and decide the condition.

Push the **RETURN (BS3)** button and set to the initial status of “Setting mode 2”.

\* If you become unsure of how to proceed, push the **MODE (BS1)** button and return to setting mode 1.

(V2764)

| No. | Setting item  | Description  |
|-----|---|--|
| 0   | Digital pressure gauge kit display  | Used to make setting of contents to display on the digital pressure gauges (e.g. pressure sensors and temperature sensors)   |
| 1   | Cool/heat unified address   | Sets address for cool/heat unified operation.  |
| 2   | Low noise/demand address  | Address for low noise/demand operation   |
| 3   | Test operation settings   | Used to conduct test operation without making changes to the PC board and replacing the refrigerant, after the completion of maintenance.  |
| 5   | Indoor unit forced fan H  | Allows forced operation of indoor unit fan while unit is stopped. (H tap)  |
| 6   | Indoor unit forced operation  | Allows forced operation of indoor unit. (Forced thermostat ON)   |
| 8   | Te setting  | Target evaporation temperature for cooling   |
| 9   | Tc setting  | Target condensation temperature for heating  |
| 10  | Defrost changeover setting  | Changes the temperature condition for defrost and sets to quick defrost or slow defrost.   |
| 11  | Sequential operation setting  | Sets sequential operation (Factory set to ON)  |
| 12  | External low noise setting / Demand setting                                   | Reception of external low noise or demand signal   |
| 13  | AIRNET address  | Set address for AIRNET.  |
| 18  | High static pressure setting  | Make this setting in the case of operating in high static pressure mode with diffuser duct mounted. (In order to mount the diffuser duct, remove the cover from the outdoor unit fan.)                       |
| 20  | Additional refrigerant charge operation setting                               | Carries out additional refrigerant charge operation.   |
| 21  | Refrigerant recovery/ vacuuming mode setting                                  | Sets to refrigerant recovery or vacuuming mode.  |
| 22  | Night-time low noise setting  | Sets automatic nighttime low noise operation in a simple way. The operating time is based on “Starting set” and “Ending set”.  |
| 24  | ENECUT test operation   | Used to forcibly turn ON the ENECUT. (Be noted that the ENECUT is only functional with outdoor unit in the stopped state - Japanese domestic model only.)  |
| 25  | Setting of external low noise level   | Sets low noise level when the low noise signal is input from outside.  |
| 26  | Night-time low noise operation start setting                                  | Sets starting time of nighttime low noise operation. (Night-time low noise setting is also required.)  |
| 27  | Night-time low noise operation end setting                                    | Sets ending time of nighttime low noise operation. (Night-time low noise setting is also required.)  |
| 28  | Power transistor check mode<br>*Check after disconnection of compressor wires | Used for trouble diagnosis of DC compressor. Since the waveform of inverter is output without wiring to the compressor, it is convenient to probe whether the trouble comes from the compressor or PC board. |
| 29  | Capacity precedence setting   | If the capacity control is required, the low noise control is automatically released by this setting during carrying out low noise operation and nighttime low noise operation.                              |
| 30  | Demand setting 1  | Changes target value of power consumption when demand control 1 is input.  |
| 32  | Normal demand setting   | Normally enables demand control 1 without external input. (Effective to prevent a problem that circuit breaker of small capacity is shut down due to large load.)  |

| No. | Setting item  | Description  |
|-----|---|--|
| 38  | Emergency operation<br>(Setting for the unit 1 operation prohibition in multi-outdoor-unit system)  | Used to temporarily prohibit the applicable outdoor unit from operating should there be any faulty part in multi-outdoor-unit system. Since the comfortable environment is extremely impaired, prompt replacement of the part is required.   |
| 39  | Emergency operation<br>(Setting for the unit 2 operation prohibition in multi-outdoor-unit system)  |  |
| 40  | Emergency operation<br>(Setting for the unit 3 operation prohibition in multi-outdoor-unit system)  |  |
| 41  | Prevention of minute heating operation by heating thermostat OFF unit or non-heating-operation unit | Make this setting to shorten the BS Cool-Heat selection control time.<br>However, make the setting, pay careful attention to the following: <ul style="list-style-type: none"> <li>• If the refrigerant piping between each BS unit connected to outdoor unit and indoor unit is not more than 10 m in length, this setting will be enabled.</li> <li>• If the refrigerant piping between BS unit and indoor unit is long in length, refrigerant passing sounds may become louder at the time of BS Cool-Heat selection.</li> <li>• This setting shortens the Cool-Heat selection time of all BS units provided in the same refrigerant system.</li> </ul>   |
| 42  | Setting of BS Cool-Heat selection control time  | Make this setting to prevent a rise in room temperature due to minute heating capacity generated by heating thermostat OFF unit or non-heating-operation unit while in heating operation. <ul style="list-style-type: none"> <li>• Used to prevent minute heating operation by setting the BS unit to COOL while in heating thermostat OFF or non-heating-operation mode.</li> <li>• With the BS unit set to default, enabling the minute heating prevention setting of outdoor unit will enable the minute heating prevention setting of all BS units connected to the outdoor unit. (BS unit default setting)</li> <li>• To make this setting by BS unit, make a change to the minute heating prevention setting of the BS unit. (In this case, enable the outdoor unit setting.)</li> </ul> |
| 51  | Set-up of master and slave units for multi outdoor units  | Set up master and slave units for multi-connection outdoor units.<br>After setting up, press the <b>BS5 (REWIRING)</b> button for 5 seconds or more.   |

↑ The numbers in the "No." column represent the number of times to press the SET (BS2) button.

| No. | Setting item display                              |                       |                                  |                                  |                                  |                                  |                                  |                                  | Setting condition display  |
|-----|---|-----------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|--|
|     | Setting item                                      | MODE H1P              | TEST H2P                         | C/H selection                    |                                  |                                  | Low noise H6P                    | Demand H7P                       |  |
|     |   |                       |                                  | IND H3P                          | Master H4P                       | Slave H5P                        |                                  |                                  | * Factory set  |
| 0   | Digital pressure gauge kit display                | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | Address 0 <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> *<br>Binary number 1 <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/><br>(4 digits) ~<br>15 <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>  |
| 1   | Cool / Heat Unified address                       | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | Address 0 <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> *<br>Binary number 1 <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/><br>(6 digits) ~<br>31 <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>   |
| 2   | Low noise/demand address                          | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | Address 0 <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> *<br>Binary number 1 <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/><br>(6 digits) ~<br>31 <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>   |
| 3   | Test operation                                    | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | Test operation: OFF <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> *<br>Test operation: ON <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/>  |
| 5   | Indoor forced fan H                               | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | Normal operation <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> *<br>Indoor forced fan H <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/>  |
| 6   | Indoor forced operation                           | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | Normal operation <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> *<br>Indoor forced operation <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/>  |
| 8   | Te setting  | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | Low (Level L) <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/><br>Normal (Level M) <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> *<br>High <sup>①</sup> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/><br>High <sup>②</sup> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/><br>High <sup>③</sup> (Level H) <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/><br>High <sup>④</sup> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/><br>High <sup>⑤</sup> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> |
| 9   | Tc setting  | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | Low <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/><br>Normal (factory setting) <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> *<br>High <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/>   |
| 10  | Defrost changeover setting                        | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | Slow defrost <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/><br>Normal (factory setting) <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> *<br>Quick defrost <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/>   |
| 11  | Sequential operation setting                      | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | OFF <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/><br>ON <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> *   |
| 12  | External low noise/demand setting                 | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input checked="" type="radio"/> | External low noise/demand: NO <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> *<br>External low noise/demand: YES <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/>   |
| 13  | Airnet address                                    | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | Address 0 <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> *<br>Binary number 1 <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/><br>(6 digits) ~<br>63 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>  |
| 18  | High static pressure setting                      | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | High static pressure setting: OFF <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> *<br>High static pressure setting: ON <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/>   |
| 20  | Additional refrigerant charging operation setting | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input checked="" type="radio"/> | Refrigerant charging: OFF <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> *<br>Refrigerant charging: ON <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/>   |
| 21  | Refrigerant recovery/vacuuuming mode setting      | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | Refrigerant recovery / vacuuming: OFF <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> *<br>Refrigerant recovery / vacuuming: ON <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/>   |
| 22  | Night-time low noise setting                      | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | OFF <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> *<br>Level 1 (outdoor fan with 6 step or lower) <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/><br>Level 2 (outdoor fan with 5 step or lower) <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/><br>Level 3 (outdoor fan with 4 step or lower) <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/>   |

| No. | Setting item display  |                       |                                  |                                  |                                  |                                  |                                  |                                  | Setting condition display   |
|-----|---|-----------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|---|
|     | Setting item  | MODE H1P              | TEST H2P                         | C/H selection                    |                                  |                                  | Low noise H6P                    | Demand H7P                       |   |
|     |   |                       |                                  | IND H3P                          | Master H4P                       | Slave H5P                        |                                  |                                  | * Factory set   |
| 24  | ENECUT test operation (Domestic Japan only)   | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | ENECUT output OFF <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>ENECUT output forced ON <input type="radio"/> ● ● ● ● ● ● ● ● ● ●  |
| 25  | Low noise setting   | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | Level 1 (outdoor fan with 6 step or lower) <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>Level 2 (outdoor fan with 5 step or lower) <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>Level 3 (outdoor fan with 4 step or lower) <input type="radio"/> ● ● ● ● ● ● ● ● ● ●                    |
| 26  | Night-time low noise operation start setting  | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | About 20:00 <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>About 22:00 (factory setting) <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>About 24:00 <input type="radio"/> ● ● ● ● ● ● ● ● ● ●   |
| 27  | Night-time low noise operation end setting  | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | About 6:00 <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>About 7:00 <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>About 8:00 (factory setting) <input type="radio"/> ● ● ● ● ● ● ● ● ● ●  |
| 28  | Power transistor check mode   | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input checked="" type="radio"/> | OFF <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>ON <input type="radio"/> ● ● ● ● ● ● ● ● ● ●   |
| 29  | Capacity precedence setting   | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | OFF <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>ON <input type="radio"/> ● ● ● ● ● ● ● ● ● ●   |
| 30  | Demand setting 1  | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | 60 % demand <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>70 % demand <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>80 % demand <input type="radio"/> ● ● ● ● ● ● ● ● ● ●   |
| 32  | Normal demand setting   | <input type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | OFF <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>Demand 1 <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>Demand 2 <input type="radio"/> ● ● ● ● ● ● ● ● ● ●   |
| 38  | Emergency operation (Master unit is inhibited to operate.)  | <input type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | OFF <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>Master unit operation: Inhibited <input type="radio"/> ● ● ● ● ● ● ● ● ● ●   |
| 39  | Emergency operation (Slave unit 1 is inhibited to operate.)   | <input type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | OFF <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>Slave unit 1 operation: Inhibited <input type="radio"/> ● ● ● ● ● ● ● ● ● ●  |
| 40  | Emergency operation (Slave unit 2 is inhibited to operate.)   | <input type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | OFF <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>Slave unit 2 operation: Inhibited <input type="radio"/> ● ● ● ● ● ● ● ● ● ●  |
| 41  | Prevention of minute heating operation by heating thermostat OFF unit or non-heating-operation unit | <input type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | OFF <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>Non-heating-operation unit <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>Heating thermostat OFF unit <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>Non-heating-operation + Thermostat OFF unit <input type="radio"/> ● ● ● ● ● ● ● ● ● ● |
| 42  | Setting of BS Cool-Heat selection control time  | <input type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input checked="" type="radio"/> | 6 min. <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>4 min. <input type="radio"/> ● ● ● ● ● ● ● ● ● ●  |
| 51  | Master-slave set-up for multi outdoor units   | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | Automatic judgment <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>Master <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>Slave 1 <input type="radio"/> ● ● ● ● ● ● ● ● ● ●<br>Slave 2 <input type="radio"/> ● ● ● ● ● ● ● ● ● ●  |

↑ The numbers in the "No." column represent the number of times to press the SET (BS2) button.

### c. Monitor mode

To enter the monitor mode, push the **MODE (BS1)** button when in "Setting mode 1".

#### <Selection of setting item>

Push the **SET (BS2)** button and set the LED display to a setting item.

#### <Confirmation on setting contents>

Push the **RETURN (BS3)** button to display different data of set items.

Push the **RETURN (BS3)** button and switches to the initial status of "Monitor mode".

\* Push the **MODE (BS1)** button and returns to "Setting mode 1".

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| No. | Setting item                                  | LED display |     |     |     |     |     |     | Data display                              |
|-----|---|-------------|-----|-----|-----|-----|-----|-----|---|
|     |   | H1P         | H2P | H3P | H4P | H5P | H6P | H7P |   |
| 0   | Various settings                              | ●           | ●   | ●   | ●   | ●   | ●   | ●   | Lower 4 digits                            |
| 1   | C/H unified address                           | ●           | ●   | ●   | ●   | ●   | ●   | ○   | Lower 6 digits                            |
| 2   | Low noise/demand address                      | ●           | ●   | ●   | ●   | ●   | ○   | ●   |   |
| 3   | Not used                                      | ●           | ●   | ●   | ●   | ●   | ○   | ○   |   |
| 4   | Airnet address                                | ●           | ●   | ●   | ●   | ○   | ●   | ●   |   |
| 5   | Number of connected indoor units *1           | ●           | ●   | ●   | ●   | ○   | ●   | ○   |   |
| 6   | Number of connected BS units *2               | ●           | ●   | ●   | ●   | ○   | ○   | ●   |   |
| 7   | Number of connected zone units (Fixed to "0") | ●           | ●   | ●   | ●   | ○   | ○   | ○   | Lower 4 digits: upper                     |
| 8   | Number of outdoor units *3                    | ●           | ●   | ●   | ○   | ●   | ●   | ●   |   |
| 9   | Number of BS units *4                         | ●           | ●   | ●   | ○   | ●   | ●   | ○   | Lower 4 digits: lower                     |
| 10  | Number of BS units *4                         | ●           | ●   | ●   | ○   | ●   | ○   | ●   | Lower 6 digits                            |
| 11  | Number of zone units                          | ●           | ●   | ●   | ○   | ●   | ○   | ○   | Lower 4 digits: upper                     |
| 12  | Number of terminal units *5                   | ●           | ●   | ●   | ○   | ○   | ●   | ●   | Lower 4 digits: lower                     |
| 13  | Number of terminal units *5                   | ●           | ●   | ●   | ○   | ○   | ●   | ○   | Malfunction code table<br>Refer page 226. |
| 14  | Contents of malfunction (the latest)          | ●           | ●   | ●   | ○   | ○   | ○   | ●   |   |
| 15  | Contents of malfunction (1 cycle before)      | ●           | ●   | ●   | ○   | ○   | ○   | ○   |   |
| 16  | Contents of malfunction (2 cycle before)      | ●           | ●   | ○   | ●   | ●   | ●   | ●   |   |
| 20  | Contents of retry (the latest)                | ●           | ●   | ○   | ●   | ○   | ●   | ●   |   |
| 21  | Contents of retry (1 cycle before)            | ●           | ●   | ○   | ●   | ○   | ●   | ○   | Lower 6 digits                            |
| 22  | Contents of retry (2 cycle before)            | ●           | ●   | ○   | ●   | ○   | ○   | ●   |   |
| 25  | Number of multi connection outdoor units      | ●           | ●   | ○   | ○   | ●   | ●   | ○   |   |

The numbers in the "No." column represent the number of times to press the SET (BS2) button.

#### \*1: Number of connected indoor units

Used to make setting of the number of indoor units connected to an outdoor unit.

#### \*2: Number of connected BS units

Used to make setting of the number of BS units connected to an outdoor unit.

#### \*3: Number of outdoor units

Used to make setting of the number of outdoor units connected to DIII-NET that is one of the communication lines.

#### \*4: Number of BS units

Used to make setting of the number of BS units connected to DIII-NET that is one of the communication lines.

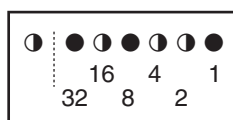
#### \*5: Number of terminal units

Used to make setting of the number of indoor units connected to DIII-NET that is one of the communication lines.  
(Only available for VRV indoor units)

**Setting item 0 Display contents of “Number of units for various settings”**

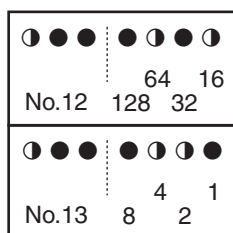
|  |        |   |   |   |   |   |   |   |
|--|--------|---|---|---|---|---|---|---|
| EMG operation /<br>backup operation<br>setting | ON     | ● | ● | ● | ○ | ● | ● | ● |
|  | OFF    | ○ | ● | ● | ● | ● | ● | ● |
| Defrost select setting                         | Short  | ○ | ● | ● | ● | ○ | ● | ● |
|  | Medium | ○ | ● | ● | ● | ○ | ● | ● |
|  | Long   | ○ | ● | ● | ● | ● | ● | ● |
| Te setting                                     | L      | ○ | ● | ● | ● | ● | ● | ● |
|  | M      | ○ | ● | ● | ● | ● | ○ | ● |
|  | H ①~⑤  | ○ | ● | ● | ● | ● | ○ | ● |
| Tc setting                                     | L      | ○ | ● | ● | ● | ● | ● | ● |
|  | M      | ○ | ● | ● | ● | ● | ● | ○ |
|  | H      | ○ | ● | ● | ● | ● | ● | ○ |

★ Data such as addresses and number of units is expressed as binary numbers; the two ways of expressing are as follows:



The No. 1 cool/heat unified address is expressed as a binary number consisting of the lower 6 digits. (0 - 63)

In ① the address is 010110 (binary number), which translates to  $16 + 4 + 2 = 22$  (base 10 number). In other words, the address is 22.



The number of terminal blocks for No. 12 and 13 is expressed as an 8-digit binary number, which is the combination of four upper, and four lower digits for No. 12 and 13 respectively. (0 - 128)

In ② the address for No. 12 is 0101, the address for No. 13 is 0110, and the combination of the two is 01010110 (binary number), which translates to  $64 + 16 + 4 + 2 = 86$  (base 10 number). In other words, the number of terminal block is 86.

★ See the preceding page for a list of data, etc. for No. 0 - 25.

### 3.2.4 Cool / Heat Mode Switching

#### Set Cool/Heat Separately for Each BS Unit by Cool/Heat Selector.

Set remote control change over switch (SS1, SS2) as following:

- When using COOL/HEAT selector, turn this switch to the BS side.



NOTE: This setting must be completed before turning power supply ON.

When using cool/heat selector, connect to the terminal A, B and C on the EC of the electric parts box.

#### EXAMPLE OF TRANSMISSION LINE CONNECTION

- Example of connecting transmission wiring.  
Connect the transmission wirings as shown in the Fig. 1.

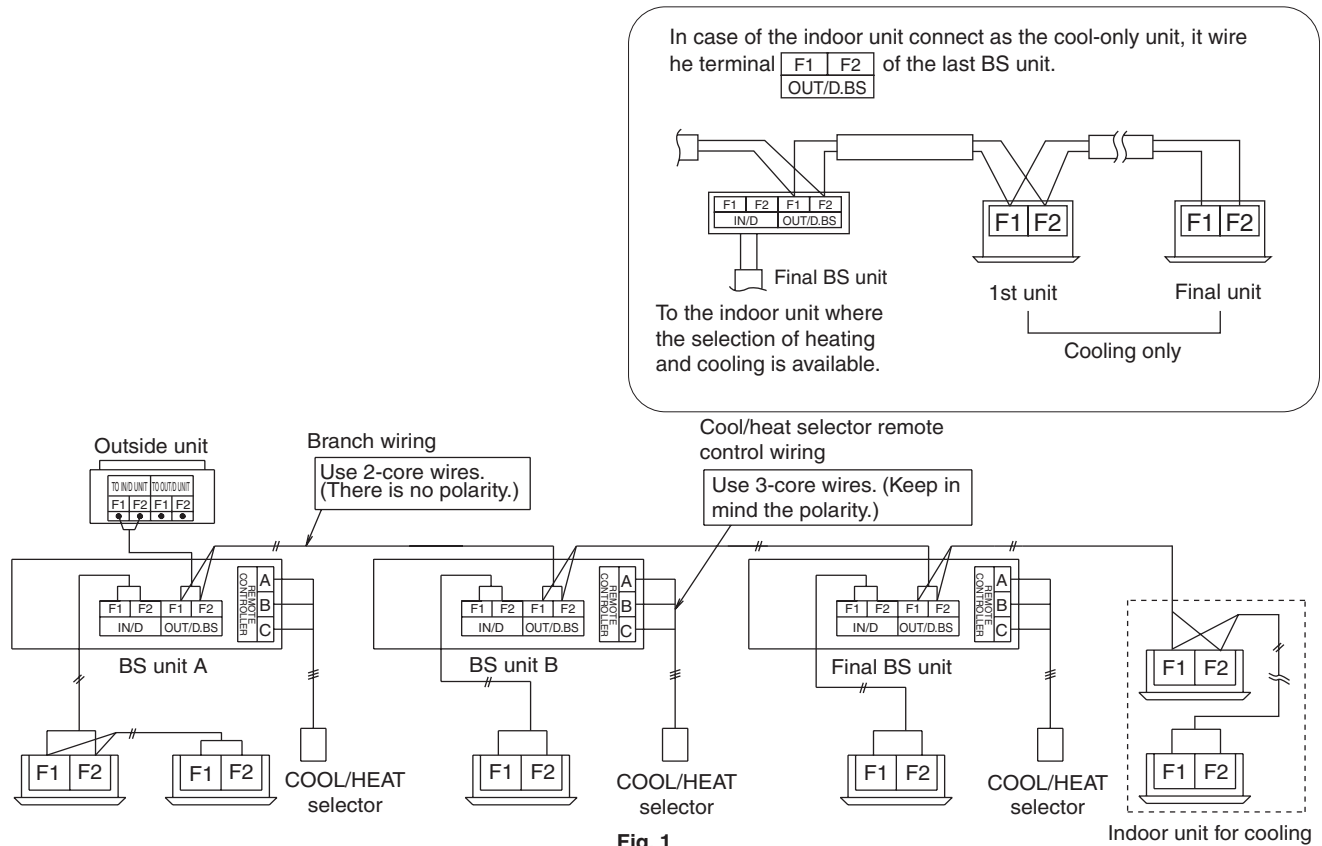


Fig. 1

### 3.2.5 Setting of Low Noise Operation and Demand Operation

#### Setting of Low Noise Operation

By connecting the external contact input to the low noise input of the outdoor unit external control adaptor (optional), you can lower operating noise.

| Setting | Content                                      |
|---------|--|
| Level 1 | Set the outdoor unit fan to Step 5 or lower. |
| Level 2 | Set the outdoor unit fan to Step 4 or lower. |
| Level 3 | Set the outdoor unit fan to Step 3 or lower. |

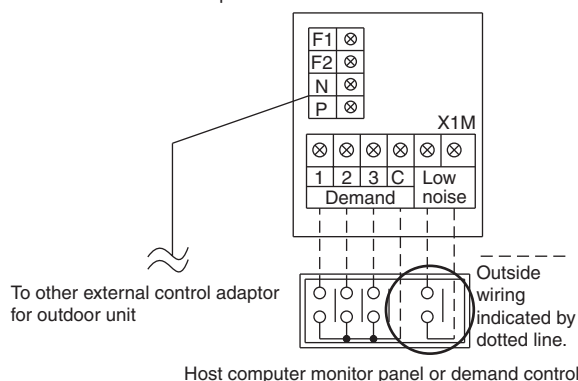
#### A. When the low noise operation is carried out by external instructions (with the use of the external control adaptor for outdoor unit)

1. Connect the external adapter for the outdoor unit, and then connect the external input wiring to the low-noise operation input terminal on the terminal block (X1M). (Refer to the figure shown below.)
2. While in "Setting mode 2", set the setting condition for set item No. 12 (Setting of external low noise/demand operation) to "YES".
3. If necessary, while in "Setting mode 2", select the setting condition (i.e., "Level 1", "Level 2", or "Level 3") for set item No. 25 (Setting of external low noise level).
4. If necessary, while in "Setting mode 2", set the setting condition for the set item No. 29 (Setting of capacity precedence) to "ON".  
(If the condition is set to "ON", when the air-conditioning load reaches a high level, the low noise operation command will be ignored to put the system into normal operation mode.)

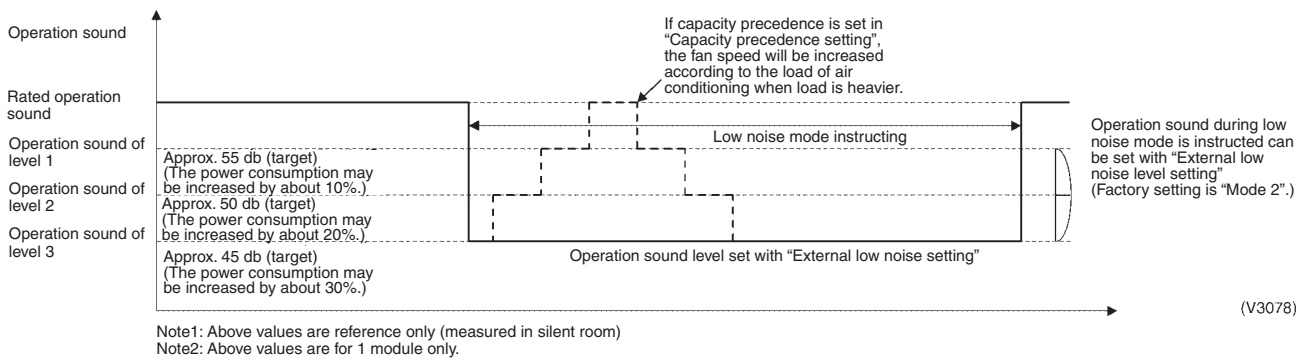
#### B. When the low noise operation is carried out automatically at night (The external control adaptor for outdoor unit is not required)

1. While in "Setting mode 2", select the setting condition (i.e., "Level 1", "Level 2", or "Level 3") for set item No. 22 (Setting of nighttime low noise level).
2. If necessary, while in "Setting mode 2", select the setting condition (i.e., "20:00", "22:00", or "24:00") for set item No. 26 (Setting of start time of nighttime low noise operation).  
(Use the start time as a guide since it is estimated according to outdoor temperatures.)
3. If necessary, while in "Setting mode 2", select the setting condition (i.e., "06:00", "07:00", or "08:00") for set item No. 27 (Setting of end time of nighttime low noise operation).  
(Use the end time as a guide since it is estimated according to outdoor temperatures.)
4. If necessary, while in "Setting mode 2", set the setting condition for set item No. 29 (Setting of capacity precedence) to "ON".  
(If the condition is set to "ON", when the air-conditioning load reaches a high level, the system will be put into normal operation mode even during nighttime.)

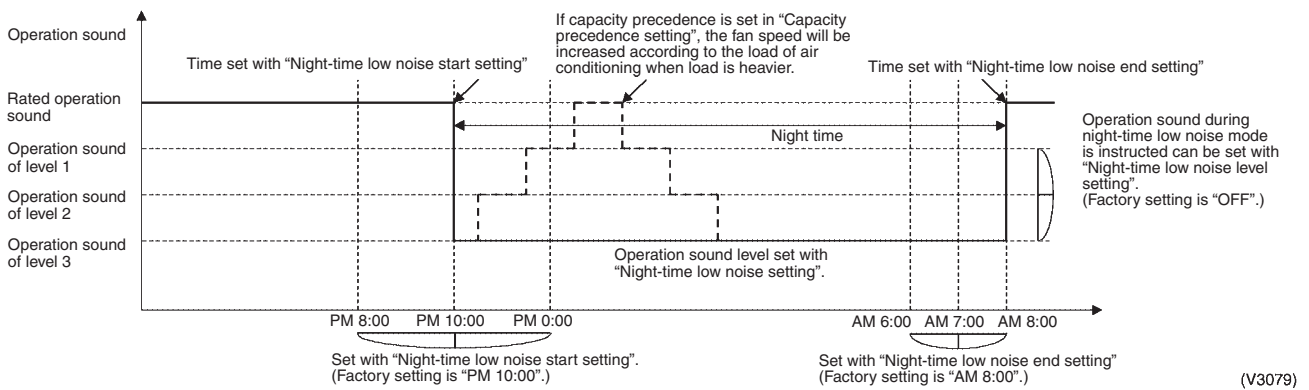
If carrying out demand or low-noise input, connect the terminals of the external control adaptor for outdoor unit as shown below.



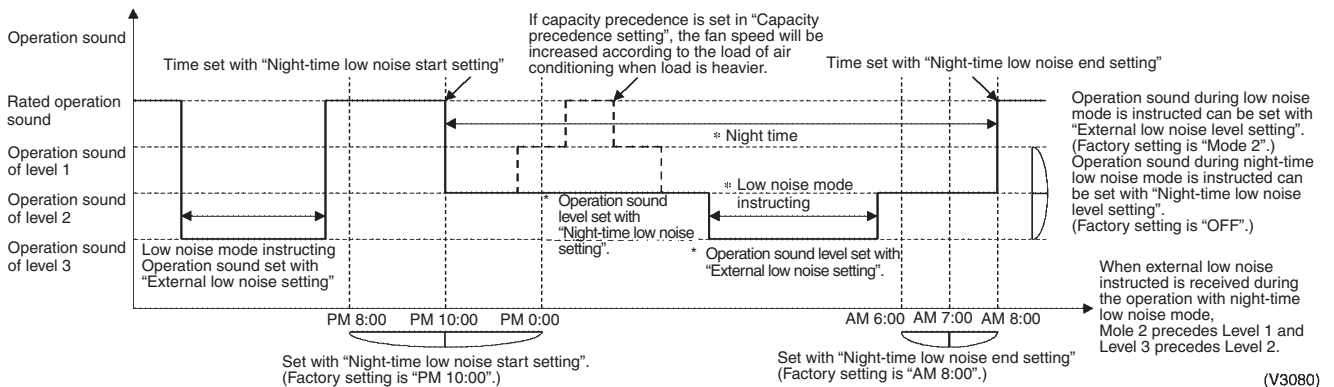
## Image of operation in the case of A



## Image of operation in the case of B



## Image of operation in the case of A and B



## Setting of Demand Operation

By connecting the external contact input to the demand input of the outdoor unit external control adapter (optional), the power consumption of unit operation can be saved suppressing the compressor operating condition.

| Description of setting |           |  | Setting procedure   |   |
|------------------------|-----------|--|---|---|
| Setting item           | Condition | Description  | External control adapter  | Outdoor unit PC board   |
| Demand 1               | Level 1   | Operate with power of approx. 60% or less of the rating. | Short-circuit between "1" and "C" of the terminal block (TeS1). | Set the setting item No. 32 to "Demand 1" and the setting item No. 30 to "Level 1". |
|                        | Level 2   | Operate with power of approx. 70% or less of the rating. |   | Set the setting item No. 32 to "Demand 1" and the setting item No. 30 to "Level 2". |
|                        | Level 3   | Operate with power of approx. 80% or less of the rating. |   | Set the setting item No. 32 to "Demand1" and the setting item No. 30 to "Level 3".  |
| Demand 2               | —         | Operate with power of approx. 40% or less of the rating. | Short-circuit between "2" and "C".                              | Set the setting item No. 32 to "Demand 2".  |
| Demand 3               | —         | Operate with forced thermostat OFF                       | Short-circuit between "3" and "C".                              | —   |

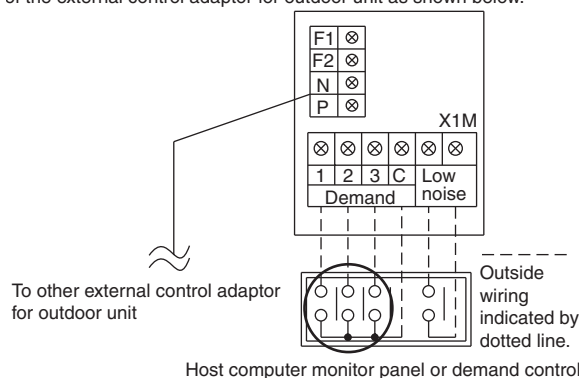
### A. When the demand operation is carried out by external instructions (with the use of the external control adapter for outdoor unit).

1. Connect the external adapter of the outdoor unit, and then connect the external input wiring to the low-noise operation input terminal on the terminal block (X1M). (Refer to the figure shown below.)
2. While in "Setting mode 2", set the setting condition for set item No. 12 (Setting of external low noise/demand operation) to "YES".
3. If necessary, while in "Setting mode 2", select the set item No. 30 (Setting of Demand 1 level) and then set the setting condition to targeted mode.

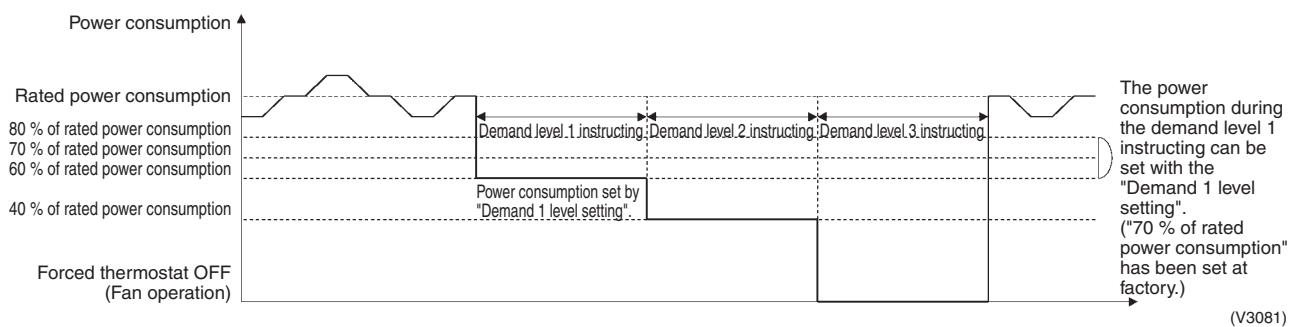
### B. When the Normal demand operation is carried out. (Use of the external control adapter for outdoor unit is not required.)

1. While in "Setting mode 2", make setting of the set item No. 32 (Setting of constant demand) to "ON".
2. While in "Setting mode 2", select the set item No. 30 (Setting of Demand 1 level) and then set the setting condition to targeted mode.

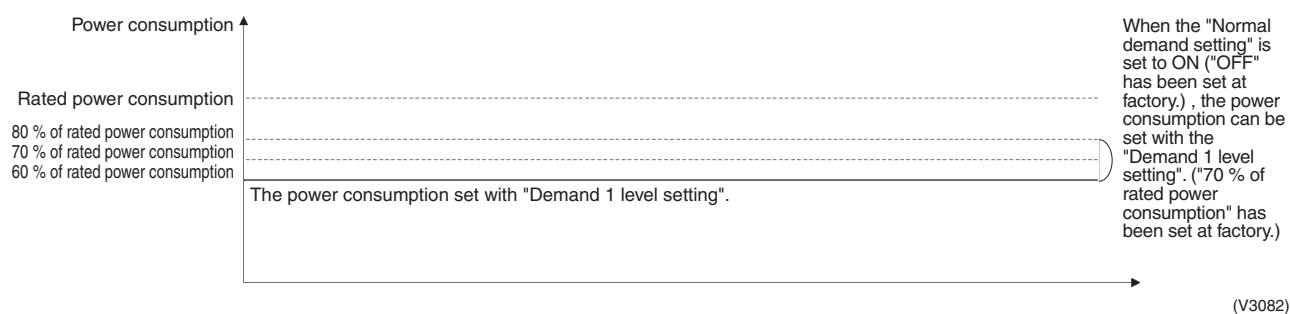
If carrying out demand or low-noise input, connect the terminals of the external control adaptor for outdoor unit as shown below.



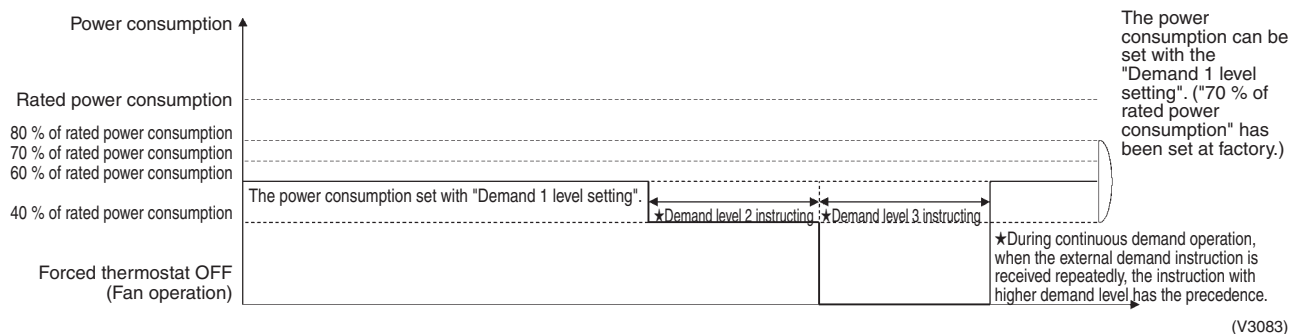
## Image of operation in the case of A



## Image of operation in the case of B



## Image of operation in the case of A and B



## Detailed Setting Procedure of Low Noise Operation and Demand Control

### 1. Setting mode 1 (H1P off)

- ① In setting mode 2, push the BS1 (MODE button) one time. → Setting mode 2 is entered and H1P lights.

During the setting mode 1 is displayed, "In low noise operation" and "In demand control" are displayed.

### 2. Setting mode 2 (H1P on)

- ① In setting 1, push and hold the BS1 (MODE button) for more than 5 seconds. → Setting mode 2 is entered and H1P lights.
- ② Push the BS2 (SET button) several times and match the LED display with the Setting No. you want.
- ③ Push the BS3 (RETURN button) one time, and the present setting content is displayed. → Push the BS2 (SET button) several times and match the LED display with the setting content (as shown below) you want.
- ④ Push the BS3 (RETURN button) two times. → Returns to ①.
- ⑤ Push the BS1 (MODE button) one time. → Returns to the setting mode 1 and turns H1P off.

○: ON ●: OFF ◐: Blink

| ①           |                                     |                        |     |     |     |     |     |     | ②                      |     |     |     |     |     |     |   | ③   |     |     |     |     |     |     |   |   |   |   |   |   |
|-------------|-------------------------------------|------------------------|-----|-----|-----|-----|-----|-----|------------------------|-----|-----|-----|-----|-----|-----|---|---|-----|-----|-----|-----|-----|-----|---|---|---|---|---|---|
| Setting No. | Setting contents                    | Setting No. indication |     |     |     |     |     |     | Setting No. indication |     |     |     |     |     |     | Setting contents                                  | Setting contents indication (Initial setting) |     |     |     |     |     |     |   |   |   |   |   |   |
|             |                                     | H1P                    | H2P | H3P | H4P | H5P | H6P | H7P | H1P                    | H2P | H3P | H4P | H5P | H6P | H7P |   | H1P   | H2P | H3P | H4P | H5P | H6P | H7P |   |   |   |   |   |   |
| 12          | External low noise / Demand setting | ○                      | ●   | ●   | ●   | ●   | ●   | ●   | ○                      | ●   | ●   | ○   | ○   | ●   | ●   | NO (Factory setting)                              | ○   | ●   | ●   | ●   | ●   | ●   | ●   |   |   |   |   |   |   |
|             |                                     |                        |     |     |     |     |     |     |                        |     |     |     |     |     |     |   |   |     |     |     |     | YES | ○   | ● | ● | ● | ● | ○ | ● |
| 22          | Night-time low noise setting        |                        |     |     |     |     |     |     | ○                      | ●   | ○   | ●   | ○   | ○   | ●   | OFF (Factory setting)                             | ○   | ●   | ●   | ●   | ●   | ●   | ●   | ○ | ● | ● | ● | ● | ● |
|             |                                     |                        |     |     |     |     |     |     |                        |     |     |     |     |     |     | Mode 1  | ○   | ●   | ●   | ●   | ●   | ●   | ●   | ○ | ● | ● | ○ | ● |   |
|             |                                     |                        |     |     |     |     |     |     |                        |     |     |     |     |     |     | Mode 2  | ○   | ●   | ●   | ●   | ●   | ●   | ○   | ● | ● | ○ | ● |   |   |
|             |                                     |                        |     |     |     |     |     |     |                        |     |     |     |     |     |     | Mode 3  | ○   | ●   | ●   | ●   | ●   | ●   | ○   | ● | ○ | ○ |   |   |   |
| 25          | External low noise setting          |                        |     |     |     |     |     |     | ○                      | ●   | ○   | ○   | ●   | ●   | ○   | Mode 1  | ○   | ●   | ●   | ●   | ●   | ●   | ○   | ○ | ● | ● | ○ | ○ |   |
|             |                                     |                        |     |     |     |     |     |     |                        |     |     |     |     |     |     | Mode 2 (Factory setting)                          | ○   | ●   | ●   | ●   | ●   | ○   | ○   | ● |   |   |   |   |   |
|             |                                     |                        |     |     |     |     |     |     |                        |     |     |     |     |     |     | Mode 3  | ○   | ●   | ●   | ●   | ○   | ●   | ●   | ○ | ○ |   |   |   |   |
| 26          | Night-time low noise start setting  |                        |     |     |     |     |     |     | ○                      | ●   | ○   | ○   | ●   | ○   | ●   | PM 8:00   | ○   | ●   | ●   | ●   | ●   | ●   | ○   | ○ | ● | ● | ○ |   |   |
|             |                                     |                        |     |     |     |     |     |     |                        |     |     |     |     |     |     | PM 10:00 (Factory setting)                        | ○   | ●   | ●   | ●   | ●   | ○   | ○   | ● |   |   |   |   |   |
|             |                                     |                        |     |     |     |     |     |     |                        |     |     |     |     |     |     | PM 0:00   | ○   | ●   | ●   | ●   | ○   | ●   | ●   | ○ | ○ |   |   |   |   |
| 27          | Night-time low noise end setting    |                        |     |     |     |     |     |     | ○                      | ●   | ○   | ○   | ●   | ○   | ○   | AM 6:00   | ○   | ●   | ●   | ●   | ●   | ●   | ○   | ○ | ● | ● | ○ |   |   |
|             |                                     |                        |     |     |     |     |     |     |                        |     |     |     |     |     |     | AM 7:00   | ○   | ●   | ●   | ●   | ●   | ○   | ○   | ● |   |   |   |   |   |
|             |                                     |                        |     |     |     |     |     |     |                        |     |     |     |     |     |     | AM 8:00 (Factory setting)                         | ○   | ●   | ●   | ●   | ○   | ●   | ●   | ○ | ○ |   |   |   |   |
| 29          | Capacity precedence setting         |                        |     |     |     |     |     |     | ○                      | ●   | ○   | ○   | ○   | ●   | ○   | Low noise precedence (Factory setting)            | ○   | ●   | ●   | ●   | ●   | ○   | ○   | ○ | ● | ● | ○ |   |   |
|             |                                     |                        |     |     |     |     |     |     |                        |     |     |     |     |     |     | Capacity precedence                               | ○   | ●   | ●   | ●   | ●   | ○   | ○   | ● |   |   |   |   |   |
| 30          | Demand setting 1                    |                        |     |     |     |     |     |     | ○                      | ●   | ○   | ○   | ○   | ○   | ●   | 60 % of rated power consumption                   | ○   | ●   | ●   | ●   | ●   | ●   | ○   | ○ | ● | ● | ○ |   |   |
|             |                                     |                        |     |     |     |     |     |     |                        |     |     |     |     |     |     | 70 % of rated power consumption (Factory setting) | ○   | ●   | ●   | ●   | ●   | ○   | ○   | ● |   |   |   |   |   |
|             |                                     |                        |     |     |     |     |     |     |                        |     |     |     |     |     |     | 80 % of rated power consumption                   | ○   | ●   | ●   | ●   | ○   | ●   | ●   | ○ | ○ |   |   |   |   |
| 32          | Normal demand setting               |                        |     |     |     |     |     |     | ○                      | ●   | ●   | ●   | ●   | ●   | ●   | OFF (Factory setting)                             | ○   | ●   | ●   | ●   | ●   | ○   | ○   | ○ | ● | ● | ○ |   |   |
|             |                                     |                        |     |     |     |     |     |     |                        |     |     |     |     |     |     | ON  | ○   | ●   | ●   | ●   | ●   | ○   | ○   | ● |   |   |   |   |   |

Setting mode indication section

Setting No. indication section

Set contents indication section

### 3.2.6 Setting of Refrigerant Recovery Mode

When carrying out the refrigerant collection on site, fully open the respective expansion valve of indoor and outdoor units.

All indoor and outdoor unit's operation are prohibited.

#### [Operation procedure]

- ① In **setting mode 2** with units in stop mode, set "Refrigerant Recovery / Vacuuming mode" to ON. The respective expansion valve of indoor and outdoor units are fully opened. (H2P turns to display "TEST OPERATION" (blinks), "TEST OPERATION" and "UNDER CENTRALIZED CONTROL" are displayed on the remote control, and the all indoor / outdoor unit operation is prohibited.

After setting, do not cancel "Setting Mode 2" until completion of refrigerant recovery operation.

- ② Collect the refrigerant using a refrigerant recovery unit. (See the instruction attached to the refrigerant recovery unit for more detail.)

- ③ Press Mode button "BS1" once and reset "Setting Mode 2".

### 3.2.7 Setting of Vacuuming Mode

In order to perform vacuuming operation at site, fully open the expansion valves of indoor and outdoor units and turn on some solenoid valves.

#### [Operating procedure]

- ① With **Setting Mode 2** while the unit stops, set "Refrigerant recovery / Vacuuming mode" to ON. The expansion valves of indoor and outdoor units fully open and some of solenoid valves open.

(H2P blinks to indicate the test operation, and the remote control displays "Test Operation" and "Under centralized control", thus prohibiting operation.)

After setting, do not cancel "Setting Mode 2" until completion of Vacuuming operation.

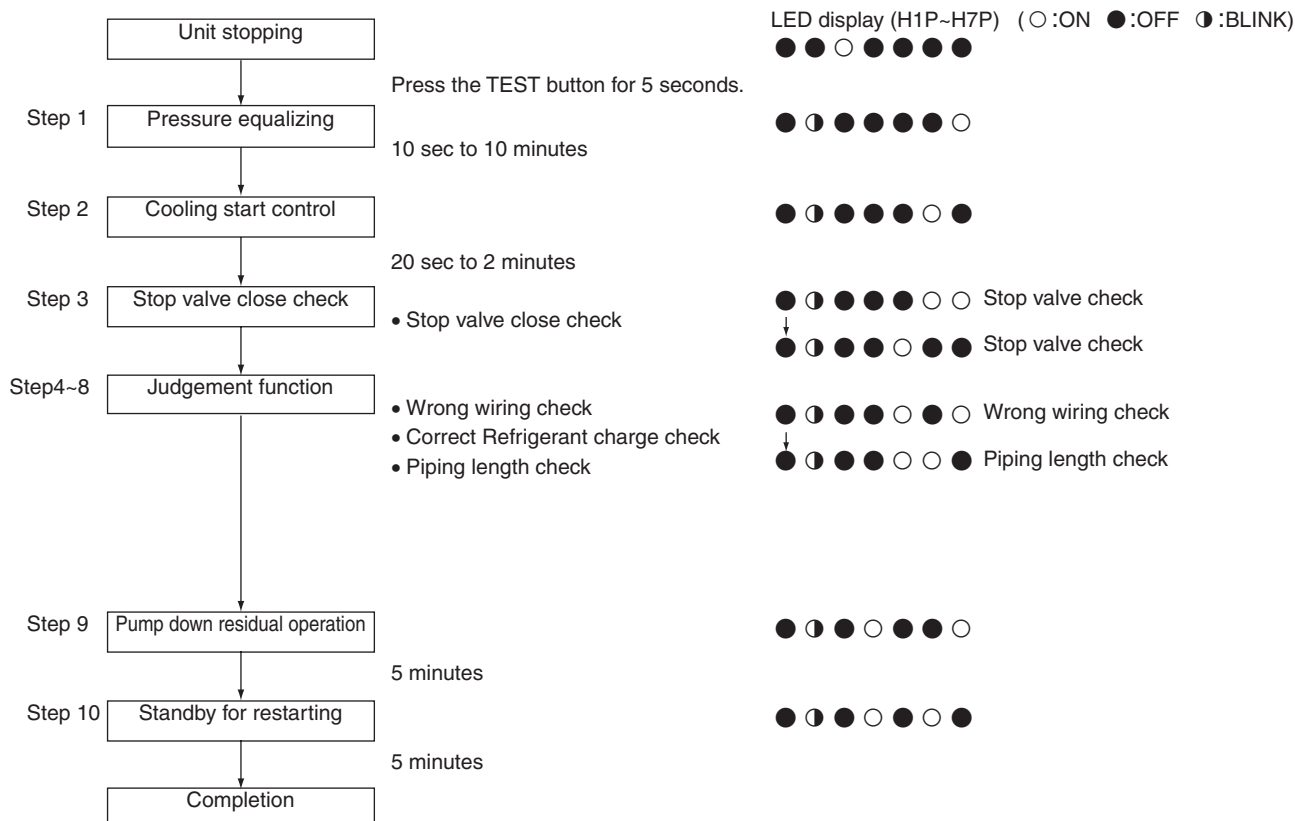
- ② Use the vacuum pump to perform vacuuming operation.

- ③ Press Mode button "BS1" once and reset "Setting Mode 2".

### 3.2.8 Check Operation Detail

#### CHECK OPERATION FUNCTION

(Press the MODE button BS1 once and set to SETTING MODE 1 (H1P: OFF))



### 3.2.9 Emergency Operation

If any of the compressors goes wrong, disable the relevant compressor or the relevant outdoor unit from operating, and then conduct emergency operation only with operational compressors or outdoor units.

There are two ways of conducting the Emergency operation : ① with remote control reset and ② by setting outdoor unit PC board.

| Operating method \ Applicable model | ① Emergency operation with remote control reset (Auto backup operation) | ② Emergency operation with outdoor unit PC board setting (Manual backup operation) |
|-------------------------------------|---|--|
| REYQ8 to 16PY1                      | —   | Backup operation by the compressor   |
| REYQ18 to 48PY1                     | Backup operation by the indoor unit                                     | Backup operation by the outdoor unit   |

#### ① Emergency operation with remote control reset

On the multi outdoor unit system, if any of the outdoor unit line causes a malfunction (in this case, the system will stop and the relevant malfunction code will be displayed on the indoor remote control), disable only the relevant outdoor unit from operating for a 8 hours using the indoor remote control, and then conduct emergency operation with operational outdoor units.

#### [Emergency operation method]

- Reset the remote control (i.e., press the **RUN/STOP** button on the remote control for 4 seconds or more) when the outdoor unit stops because of malfunction state.

#### [Details of operation]

- Automatically disable the defective outdoor unit from operating, and then operate other outdoor units.
- The following section shows malfunction codes on which this emergency operation is possible.

E3, E4, E5, E7 (\*1)  
F3  
H7 (\*1), H9  
J2, J3, J5, J6, J7, J9, JA, JC  
L3, L4, L5, L8, L9, LC  
U2, UJ

\*1:When malfunction codes E7 and H7 are shown, the possibility of emergency operation is decided as follows.

#### While in heating or cooling-heating concurrent operation

- One out of three connected outdoor units malfunctions.→Emergency operation is possible.
- Two out of three connected outdoor units malfunction.→Emergency operation is not possible.
- One out of two connected outdoor units malfunctions.→Emergency operation is not possible.

#### ② Emergency operation by setting outdoor unit PC board

In malfunction stop state of the outdoor unit due to defective compressor, by setting the relevant compressor or relevant outdoor unit to "Disabling operation setting", the emergency operation is conducted with operational compressors or outdoor units.

#### <REYQ8 to 16PY1>

- Disabling the compressor 1 (on the right side) from operating:  
Set No. 38 of setting mode 2 to "Disable-compressor-1 operation".

LED display (○ : ON, ● : OFF, ◐ : Blink)

| (Step)   | H1P-----H7P                     |
|--|---------------------------------|
| (1) Press and hold the PAGE button (BS1) for 5 sec. or more. | ○ ● ● ● ● ● ●                   |
| (2) Press the OPERATE button (BS2) 38 times.                 | ○ ○ ● ● ○ ○ ●                   |
| (3) Press the CHECK button (BS3) once.                       | ○ ● ● ● ● ● ◐ (Factory setting) |
| (4) Press the OPERATE button (BS2) once.                     | ○ ● ● ● ● ● ●                   |
| (5) Press the CHECK button (BS3) twice.                      | ○ ● ● ● ● ● ●                   |
| (6) Press the PAGE button (BS1) once.                        | ● ● ○ ● ● ● ●                   |

- Disabling the compressor 2 (on the left side) from operating:  
Set No. 39 of setting mode 2 to "Disable-compressor-2 operation".

|  |  | LED display (○: ON, ●: OFF, ◐: Blink) |
|--|--|---------------------------------------|
| (Step)   |  | H1P-----H7P                           |
| (1) Press the PAGE button (BS1) for 5 seconds or more. |  | ○ ● ● ● ● ● ●                         |
| (2) Press the OPERATE button (BS2) 39 times.           |  | ○ ○ ● ● ○ ○ ○                         |
| (3) Press the CHECK button (BS3) once.                 |  | ○ ● ● ● ● ● ◐ (Factory setting)       |
| (4) Press the OPERATE button (BS2) once.               |  | ○ ● ● ● ● ◐ ●                         |
| (5) Press the CHECK button (BS3) twice.                |  | ○ ● ● ● ● ● ●                         |
| (6) Press the PAGE button (BS1) once.                  |  | ● ● ○ ● ● ● ●                         |

#### <REYQ18 to 48PY1>

Make disable-operation setting by each outdoor unit.

Make the following setting on the outdoor unit 1. (If this setting is made on an outdoor unit other than the outdoor unit 2, the setting will become invalid.)

- \* It is possible to tell the outdoor units 1, 2, and 3 according the LED displays shown below.

|                 |               | LED display (○: ON, ●: OFF, ◐: Blink) |
|-----------------|---------------|---------------------------------------|
|                 |               | H1P-----H7P H8P                       |
| Outdoor unit 1: | ● ● ○ ● ● ● ● | ○                                     |
| Outdoor unit 2: | ● ● ● ● ● ● ● | ◐                                     |
| Outdoor unit 3: | ● ● ● ● ● ● ● | ● (Factory setting)                   |

- Disabling the outdoor unit 1 to operate:  
Set No. 38 of setting mode 2 to "Disable outdoor unit 1 operation".

|  |  | LED display (○: ON, ●: OFF, ◐: Blink) |
|--|--|---------------------------------------|
| (Step)   |  | H1P-----H7P                           |
| (1) Press and hold the PAGE button (BS1) for 5 sec. or more. |  | ○ ● ● ● ● ● ●                         |
| (2) Press the OPERATE button (BS2) 38 times.                 |  | ○ ○ ● ● ○ ○ ●                         |
| (3) Press the CHECK button (BS3) once.                       |  | ○ ● ● ● ● ● ◐ (Factory setting)       |
| (4) Press the OPERATE button (BS2) once.                     |  | ○ ● ● ● ● ◐ ●                         |
| (5) Press the CHECK button (BS3) twice.                      |  | ○ ● ● ● ● ● ●                         |
| (6) Press the PAGE button (BS1) once.                        |  | ● ● ○ ● ● ● ●                         |

- Disabling the outdoor unit 2 from operating:  
Set No. 39 of setting mode 2 to "Disable-outdoor-unit-2 operation".

|  |  | LED display (○: ON, ●: OFF, ◐: Blink) |
|--|--|---------------------------------------|
| (Step)   |  | H1P-----H7P                           |
| (1) Press the PAGE button (BS1) for 5 seconds or more. |  | ○ ● ● ● ● ● ●                         |
| (2) Press the OPERATE button (BS2) 39 times.           |  | ○ ○ ● ● ○ ○ ○                         |
| (3) Press the CHECK button (BS3) once.                 |  | ○ ● ● ● ● ● ◐ (Factory setting)       |
| (4) Press the OPERATE button (BS2) once.               |  | ○ ● ● ● ● ◐ ●                         |
| (5) Press the CHECK button (BS3) twice.                |  | ○ ● ● ● ● ● ●                         |
| (6) Press the PAGE button (BS1) once.                  |  | ● ● ○ ● ● ● ●                         |

- Disabling the outdoor unit 3 from operating:  
Set No. 40 of setting mode 2 to "Disable-outdoor-unit-1 operation".

|  |  | LED display (○: ON, ●: OFF, ◐: Blink) |
|--|--|---------------------------------------|
| (Step)   |  | H1P-----H7P                           |
| (1) Press the PAGE button (BS1) for 5 seconds or more. |  | ○ ● ● ● ● ● ●                         |
| (2) Press the OPERATE button (BS2) 40 times.           |  | ○ ○ ● ○ ● ● ●                         |
| (3) Press the CHECK button (BS3) once.                 |  | ○ ● ● ● ● ● ◐ (Factory setting)       |
| (4) Press the OPERATE button (BS2) once.               |  | ○ ● ● ● ● ◐ ●                         |
| (5) Press the CHECK button (BS3) twice.                |  | ○ ● ● ● ● ● ●                         |
| (6) Press the PAGE button (BS1) once.                  |  | ● ● ○ ● ● ● ●                         |

**[Cancel of Emergency Operation]**

To cancel the emergency operation, conduct the following setting. (Return to Factory setting.)

**<REYQ8 to 16PY1>**

○ Cancel disabling the compressor 1 (on the right side) from operating:

Set No. 38 "Disable-compressor-1 operation" of setting mode 2 to "OFF".

|        |  | LED display (○: ON, ●: OFF, ◐: Blink) |
|--------|--|---------------------------------------|
| (Step) |  | H1P-----H7P                           |
| (1)    | Press and hold the PAGE button (BS1) for 5 sec. or more. | ○ ● ● ● ● ● ●                         |
| (2)    | Press the OPERATE button (BS2) 38 times.                 | ○ ○ ● ● ○ ○ ●                         |
| (3)    | Press the CHECK button (BS3) once.                       | ○ ● ● ● ● ◐ ●                         |
| (4)    | Press the OPERATE button (BS2) once.                     | ○ ● ● ● ● ● ◐ (Factory setting)       |
| (5)    | Press the CHECK button (BS3) twice.                      | ○ ● ● ● ● ● ●                         |
| (6)    | Press the PAGE button (BS1) once.                        | ● ● ○ ● ● ● ●                         |

○ Cancel disabling the compressor 2 (on the left side) from operating:

Set No. 39 "Disable-compressor-2 operation" of setting mode 2 to "OFF".

|        |  | LED display (○: ON, ●: OFF, ◐: Blink) |
|--------|--|---------------------------------------|
| (Step) |  | H1P-----H7P                           |
| (1)    | Press the PAGE button (BS1) for 5 seconds or more. | ○ ● ● ● ● ● ●                         |
| (2)    | Press the OPERATE button (BS2) 39 times.           | ○ ○ ● ● ○ ○ ●                         |
| (3)    | Press the CHECK button (BS3) once.                 | ○ ● ● ● ● ◐ ●                         |
| (4)    | Press the OPERATE button (BS2) once.               | ○ ● ● ● ● ● ◐ (Factory setting)       |
| (5)    | Press the CHECK button (BS3) twice.                | ○ ● ● ● ● ● ●                         |
| (6)    | Press the PAGE button (BS1) once.                  | ● ● ○ ● ● ● ●                         |

**<REYQ18 to 48PY1>**

Cancel the disable-operation setting by each outdoor unit.

Make the following setting on the outdoor unit 1. (If this setting is made on an outdoor unit other than the outdoor unit 2, the setting will become invalid.)

\*It is possible to tell the outdoor units 1, 2, and 3 according to the LED displays shown below.

|                 |  | LED display (○: ON, ●: OFF, ◐: Blink) |
|-----------------|--|---------------------------------------|
|                 |  | H1P-----H7P H8P                       |
| Outdoor unit 1: |  | ● ● ○ ● ● ● ● ○                       |
| Outdoor unit 2: |  | ● ● ● ● ● ● ● ◐                       |
| Outdoor unit 3: |  | ● ● ● ● ● ● ● ● (Factory setting)     |

○ Cancel disabling the outdoor unit 1 from operating:

Set No. 38 "Disable outdoor unit 1 operation" of setting mode 2 to "OFF".

|        |  | LED display (○: ON, ●: OFF, ◐: Blink) |
|--------|--|---------------------------------------|
| (Step) |  | H1P-----H7P                           |
| (1)    | Press and hold the PAGE button (BS1) for 5 sec. or more. | ○ ● ● ● ● ● ●                         |
| (2)    | Press the OPERATE button (BS2) 38 times.                 | ○ ○ ● ● ○ ○ ●                         |
| (3)    | Press the CHECK button (BS3) once.                       | ○ ● ● ● ● ◐ ●                         |
| (4)    | Press the OPERATE button (BS2) once.                     | ○ ● ● ● ● ● ◐ (Factory setting)       |
| (5)    | Press the CHECK button (BS3) twice.                      | ○ ● ● ● ● ● ●                         |
| (6)    | Press the PAGE button (BS1) once.                        | ● ● ○ ● ● ● ●                         |

○ Cancel disabling the outdoor unit 2 from operating:

Set No. 39 "Disable-outdoor-unit-2 operation" of setting mode 2 to "OFF".

| (Step)   | LED display (○: ON, ●: OFF, ◐: Blink)<br>H1P-----H7P |
|--|--|
| (1) Press the PAGE button (BS1) for 5 seconds or more. | ○ ● ● ● ● ● ●  |
| (2) Press the OPERATE button (BS2) 39 times.           | ○ ○ ● ● ○ ○ ○  |
| (3) Press the CHECK button (BS3) once.                 | ○ ● ● ● ● ● ●  |
| (4) Press the OPERATE button (BS2) once.               | ○ ● ● ● ● ● ● (Factory setting)                      |
| (5) Press the CHECK button (BS3) twice.                | ○ ● ● ● ● ● ●  |
| (6) Press the PAGE button (BS1) once.                  | ● ● ○ ● ● ● ●  |

○ Cancel disabling the outdoor unit 3 from operating:

Set No. 40 "Disable-outdoor-unit-3 operation" of setting mode 2 to "OFF".

| (Step)   | LED display (○: ON, ●: OFF, ◐: Blink)<br>H1P-----H7P |
|--|--|
| (1) Press the PAGE button (BS1) for 5 seconds or more. | ○ ● ● ● ● ● ●  |
| (2) Press the OPERATE button (BS2) 40 times.           | ○ ○ ● ○ ● ● ●  |
| (3) Press the CHECK button (BS3) once.                 | ○ ● ● ● ● ● ●  |
| (4) Press the OPERATE button (BS2) once.               | ○ ● ● ● ● ● ● (Factory setting)                      |
| (5) Press the CHECK button (BS3) twice.                | ○ ● ● ● ● ● ●  |
| (6) Press the PAGE button (BS1) once.                  | ● ● ○ ● ● ● ●  |

### 3.2.10 Prevention of Small Heating in Non-operating Unit

In heating operation, this setting is made to prevent room temperature from rising due to small heating capacity generated in the unit with its heating thermostat OFF or in the unit with its heating operation stopped.

- By switching the BS units to cooling when the system turns OFF the heating thermostat or stops heating operation, small heating is prevented.
- By enabling the small heating prevention setting of the outdoor unit, prevention of micro heating of all BS units connected to the outdoor unit is enabled. (Default setting of BS unit)
- Setting by BS unit is enabled by changing the micro heating prevention setting of every BS unit. (In this case, enable the outdoor unit setting.)

### 3.2.11 Reduction of Cooling/Heating Selection Time of BS Units

Make this setting to reduce selection time between cooling and heating of the BS units, with careful attention paid to the following points.

- This setting is only enabled in case the refrigerant piping length between every BS unit connected to the outdoor unit and the indoor unit is not more than 10 m. (Refer to the figure shown below:  $(a) \leq 10$  m and  $(b)+(c) \leq 10$  m and ...)
- In case the refrigerant piping length between the BS units and the indoor units is long, refrigerant passing sounds may become louder when the BS unit selects operation mode between cooling and heating.
- This setting reduces the operation mode selection time in all the BS units within the same refrigerant circuit.

