Indoor Unit

<4-way Air Discharge Cassette Type>
MMU-AP0301H, AP0361H, AP0481H
MMU-AP0561H

<2-way Air Discharge Cassette Type>
MMU-AP0071WH, AP0091WH, AP0121WH, AP0151WH, AP0181WH, AP0241WH, AP0271WH, AP0301WH
MMU-AP0481WH (CHINA market only)

<1-way Air Discharge Cassette Type>
MMU-AP0071YH, AP0091YH, AP0121YH, AP0151YH, AP0181YH, AP0241YH

<Concealed Duct Standard Type>
MMD-AP0071BH, AP0091BH, AP0121BH, AP0151BH, AP0181BH, AP0241BH, AP0271BH, AP0301BH, AP0361BH, AP0481BH

<Concealed Duct High Static Pressure Type>
MMD-AP0181H, AP0241H, AP0271H, AP0361H, AP0481H

<Under Ceiling Type>
MMC-AP0151H, AP0181H, AP0241H, MMC-AP0271H, AP0361H, AP0481H

<High Wall Type>
MMK-AP0071H, AP0091H, AP0121H, MMK-AP0151H, AP0181H, AP0241H

<Floor Standing Cabinet Type>
MML-AP0071H, AP0091H, AP0121H, MML-AP0151H, AP0181H, AP0241H

<Floor Standing Concealed Type>
MML-AP0071BH, AP0091BH, AP0121BH, MML-AP0151BH, AP0181BH, AP0241BH

<Floor Standing Type>
MMF-AP0151H, AP0181H, AP0241H, MMF-AP0271H, AP0361H, AP0481H
MMF-AP0561H

Outdoor Unit

Cooling Only Model

<Inverter Unit>
MMY-MAP0501T8, MAP0601T8
MMY-MAP0801T8, MAP1001T8
MMY-MAP1201T8

Heat Pump Model

<Inverter Unit>
MMY-MAP0501HT8, MAP0601HT8
MMY-MAP0801HT8, MAP1001HT8
MMY-MAP1201HT8

Heat Pump Model

<Inverter Unit>
MMY-MAP0501HT7, MAP0601HT7
MMY-MAP0801HT7, MAP1001HT7
MMY-MAP1201HT7
WARNINGS ON REFRIGERANT LEAKAGE

Check of Concentration Limit

The room in which the air conditioner is to be installed requires a design that in the event of refrigerant gas leaking out, its concentration will not exceed a set limit.

The refrigerant R410A which is used in the air conditioner is safe, without the toxicity or combustibility of ammonia, and is not restricted by laws to be imposed which protect the ozone layer. However, since it contains more than air, it poses the risk of suffocation if its concentration should rise excessively. Suffocation from leakage of R410A is almost non-existent. With the recent increase in the number of high concentration buildings, however, the installation of multi air conditioner systems is on the increase because of the need for effective use of floor space, individual control, energy conservation by curtailing heat and carrying power etc.

Most importantly, the multi air conditioner system is able to replenish a large amount of refrigerant compared with conventional individual air conditioners. If a single unit of the multi conditioner system is to be installed in a small room, select a suitable model and installation procedure so that if the refrigerant accidentally leaks out, its concentration does not reach the limit (and in the event of an emergency, measures can be made before injury can occur). In a room where the concentration may exceed the limit, create an opening with adjacent rooms, or install mechanical ventilation combined with a gas leak detection device.

The concentration is as given below.

\[
\frac{\text{Total amount of refrigerant (kg)}}{\text{Min. volume of the indoor unit installed room (m}^3\text{)}} \leq \text{Concentration limit (kg/m}^3\text{)}
\]

The concentration limit of R410A which is used in multi air conditioners is 0.3kg/m³.

NOTE 1:

If there are 2 or more refrigerating systems in a single refrigerating device, the amounts of refrigerant should be as charged in each independent device.

For the amount of charge in this example:

The possible amount of leaked refrigerant gas in rooms A, B and C is 10kg.

The possible amount of leaked refrigerant gas in rooms D, E and F is 15kg.

NOTE 2

The standards for minimum room volume are as follows.

(1) No partition (shaded portion)

(2) When there is an effective opening with the adjacent room for ventilation of leaking refrigerant gas (opening without a door, or an opening 0.15% or larger than the respective floor spaces at the top or bottom of the door).

(3) If an indoor unit is installed in each partitioned room and the refrigerant tubing is interconnected, the smallest room of course becomes the object. But when a mechanical ventilation is installed interlocked with a gas leakage detector in the smallest room where the density limit is exceeded, the volume of the next smallest room becomes the object.

NOTE 3:

The minimum indoor floor area compared with the amount of refrigerant is roughly as follows:

(When the ceiling is 2.7m high)

<table>
<thead>
<tr>
<th>Total amount of refrigerant (kg)</th>
<th>Min. indoor floor area (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 10</td>
<td>5</td>
</tr>
<tr>
<td>10 ≤</td>
<td>10</td>
</tr>
<tr>
<td>20 ≤</td>
<td>15</td>
</tr>
<tr>
<td>30 ≤</td>
<td>20</td>
</tr>
<tr>
<td>40 ≤</td>
<td>25</td>
</tr>
</tbody>
</table>

Range below the density limit of 0.3 kg/m³ (countermeasures not needed)

Range above the density limit of 0.3 kg/m³ (countermeasures needed)
A direct current motor is adopted for indoor fan motor in the Concealed Duct Standard Type air conditioner. Caused from its characteristics, a current limit works on the direct current motor. When replacing the high-performance filter or when opening the service board, be sure to stop the fan. If an above action is executed during the fan operation, the protective control works to stop the unit operation, and the check code “P12” may be issued. However it is not a trouble. When the desired operation has finished, be sure to reset the system to clear “P12” error code using the leak breaker of the indoor unit. Then push the operation stop button of the remote controller to return to the usual operation.

CONTENTS

SAFETY CAUTION ......................................................................................................................... 4

1. OUTLINE ................................................................................................................................. 10

2. WIRING DIAGRAM .................................................................................................................. 13

3. PARTS RATING ........................................................................................................................ 26

4. REFRIGERANT PIPING SYSTEMATIC DRAWING ............................................................... 56

5. COMBINED REFRIGERANT PIPES SYSTEMATIC DRAWING ........................................... 59

6. CONTROL OUTLINE .............................................................................................................. 64

7. APPLIED CONTROL ............................................................................................................... 74

8. TEST OPERATION .................................................................................................................... 88

9. TROUBLESHOOTING ........................................................................................................... 128

10. CONFIGURATION OF CONTROL CIRCUIT ..................................................................... 214

11. BACKUP OPERATIONS (EMERGENCY OPERATION) ......................................................... 228

12. OIL LEVEL JUDGMENT DISPLAY ......................................................................................... 233

13. REFRIGERANT RECOVERY WHEN REPLACING THE COMPRESSOR ............................. 234

14. LEAKAGE/CLOGGING OF OIL-EQUALIZATION CIRCUIT ................................................ 240

15. REPLACING COMPRESSOR .................................................................................................. 242

16. REOLACING METHOD OF PARTS ....................................................................................... 249

17. P.C. BOARD EXCHANGE PROCEDURES .......................................................................... 259
SAFETY CAUTION

The important contents concerned to the safety are described on the product itself and on this Service Manual. Please read this Service Manual after understanding the described items thoroughly in the following contents (Indications/Illustrated marks), and keep them.

[Explanation of indications]

<table>
<thead>
<tr>
<th>Indication</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>! DANGER</td>
<td>Indicates contents assumed that an imminent danger causing a death or serious injury of the repair engineers and the third parties when an incorrect work has been executed.</td>
</tr>
<tr>
<td>! WARNING</td>
<td>Indicates possibilities assumed that a danger causing a death or serious injury of the repair engineers, the third parties, and the users due to troubles of the product after work when an incorrect work has been executed.</td>
</tr>
<tr>
<td>! CAUTION</td>
<td>Indicates contents assumed that an injury or property damage (*) may be caused on the repair engineers, the third parties, and the users due to troubles of the product after work when an incorrect work has been executed.</td>
</tr>
</tbody>
</table>

* Property damage: Enlarged damage concerned to property, furniture, and domestic animal/pet

[Explanation of illustrated marks]

<table>
<thead>
<tr>
<th>Mark</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>☓</td>
<td>Indicates prohibited items (Forbidden items to do) The sentences near an illustrated mark describe the concrete prohibited contents.</td>
</tr>
<tr>
<td>!</td>
<td>Indicates mandatory items (Compulsory items to do) The sentences near an illustrated mark describe the concrete mandatory contents.</td>
</tr>
<tr>
<td>△</td>
<td>Indicates cautions (including danger/warning) The sentences or illustration near or in an illustrated mark describe the concrete cautious contents.</td>
</tr>
</tbody>
</table>

[Confirmation of warning label on the main unit]

Confirm that labels are indicated on the specified positions (Refer to the Parts disassembly diagram (Outdoor unit).) If removing the label during parts replace, stick it as the original.

DANGER

Turn “OFF” the breaker before removing the front panel and cabinet, otherwise an electric shock is caused by high voltage resulted in a death or injury. During operation, a high voltage with 400V or higher of circuit (*) at secondary circuit of the high-voltage transformer is applied. If touching a high voltage with the naked hands or body, an electric shock is caused even if using an electric insulator. (*) : For details, refer to the electric wiring diagram.

Execute discharge between terminals. When removing the front panel or cabinet, execute short-circuit and discharge between high-voltage capacitor terminals. If discharge is not executed, an electric shock is caused by high voltage resulted in a death or injury. After turning off the breaker, high voltage also keeps to apply to the high-voltage capacitor.

Prohibition Do not turn on the breaker under condition that the front panel and cabinet are removed. An electric shock is caused by high voltage resulted in a death or injury.
### WARNING

<table>
<thead>
<tr>
<th>Icon</th>
<th>Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>!</td>
<td>Check earth wires.</td>
</tr>
<tr>
<td>⚠️</td>
<td>Do not modify the products.</td>
</tr>
<tr>
<td>!</td>
<td>Use specified parts.</td>
</tr>
<tr>
<td>⚠️</td>
<td>Do not bring a child close to the equipment.</td>
</tr>
<tr>
<td>⚠️</td>
<td>Insulating measures</td>
</tr>
<tr>
<td>⚠️</td>
<td>No fire</td>
</tr>
<tr>
<td>⚠️</td>
<td>Refrigerant</td>
</tr>
<tr>
<td>⚠️</td>
<td>Assembly/Cabling</td>
</tr>
</tbody>
</table>

#### Before troubleshooting or repair work, check the earth wire is connected to the earth terminals of the main unit, otherwise an electric shock is caused when a leak occurs.
If the earth wire is not correctly connected, contact an electric engineer for rework.

#### Do not modify the products.
Do not also disassemble or modify the parts. It may cause a fire, electric shock or injury.

#### For spare parts, use those specified (✳️).
If unspecified parts are used, a fire or electric shock may be caused.

#### Before troubleshooting or repair work, do not bring a third party (a child, etc.) except the repair engineers close to the equipment.
It causes an injury with tools or disassembled parts.

#### Connect the cut-off lead cables with crimp contact, etc. put the closed end side upward and then apply a water-cut method, otherwise a leak or production of fire is caused at the users’ side.

#### When repairing the refrigerating cycle, take the following measures.

1. Be attentive to fire around the cycle. When using a gas stove, etc. be sure to put out fire before work; otherwise the oil mixed with refrigerant gas may catch fire.
2. Do not use a welder in the closed room. When using it without ventilation, carbon monoxide poisoning may be caused.
3. Do not bring inflammables close to the refrigerant cycle, otherwise fire of the welder may catch the inflammables.

#### Check the used refrigerant name and use tools and materials of the parts which match with it.
For the products which use R410A refrigerant, the refrigerant name is indicated at a position on the outdoor unit where is easy to see. To prevent miss-charging, the route of the service port is changed from one of the former R22.

#### For an air conditioner which uses R410A, never use other refrigerant than R410A.
For an air conditioner which uses other refrigerant (R22, etc.), never use R410A.
If different types of refrigerant are mixed, abnormal high pressure generates in the refrigerating cycle and an injury due to breakage may be caused.

#### Do not charge refrigerant additionally.
If charging refrigerant additionally when refrigerant gas leaks, the refrigerant composition in the refrigerating cycle changes resulted in change of air conditioner characteristics or refrigerant over the specified standard amount is charged and an abnormal high pressure is applied to the inside of the refrigerating cycle resulted in cause of breakage or injury. Therefore if the refrigerant gas leaks, recover the refrigerant in the air conditioner, execute vacuuming, and then newly recharge the specified amount of liquid refrigerant. In this time, never charge the refrigerant over the specified amount.

#### When recharging the refrigerant in the refrigerating cycle, do not mix the refrigerant or air other than R410A into the specified refrigerant.
If air or others is mixed with the refrigerant, abnormal high pressure generates in the refrigerating cycle resulted in cause of injury due to breakage.

#### After installation work, check the refrigerant does not leak.
If the refrigerant gas leaks in the room, poisonous gas generates when gas touches to fire such as fan heater, stove or cocking stove though the refrigerant gas itself is innocuous.

#### Never recover the refrigerant into the outdoor unit.
When the equipment is moved or repaired, be sure to recover the refrigerant with recovering device. The refrigerant cannot be recovered in the outdoor unit; otherwise a serious accident such as breakage or injury is caused.

#### After repair work, surely assemble the disassembled parts, and connect and lead the removed cables as before. Perform the work so that the cabinet or panel does not catch the inner cables.
If incorrect assembly or incorrect cable connection was done, a disaster such as a leak or fire is caused at user’s side.
### WARNING

| ![Insulator check] | After the work has finished, be sure to use an insulation tester set (500V mugger) to check the resistance is 2MΩ or more between the charge section and the non-charge metal section (Earth position). If the resistance value is low, a disaster such as a leak or electric shock is caused at user’s side. |
| ![Ventilation] | When the refrigerant gas leaks during work, execute ventilation. If the refrigerant gas touches to a fire, poisonous gas generates. A case of leakage of the refrigerant and the closed room full with gas is dangerous because a shortage of oxygen occurs. Be sure to execute ventilation. |
| ![Compulsion] | When checking the circuit inevitably under condition of the power-ON, use rubber gloves and others not to touch to the charging section. If touching to the charging section, an electric shock may be caused. |
| ![Compulsion] | When the refrigerant gas leaks, find up the leaked position and repair it surely. If the leaked position cannot be found up and the repair work is interrupted, pump-down and tighten the service valve, otherwise the refrigerant gas may leak into the room. The poisonous gas generates when gas touches to fire such as fan heater, stove or cocking stove though the refrigerant gas itself is innocuous. When installing equipment which includes a large amount of charged refrigerant such as a multi air conditioner in a sub-room, it is necessary that the density does not the limit even if the refrigerant leaks. If the refrigerant leaks and exceeds the limit density, an accident of shortage of oxygen is caused. For the installation/moving/reinstallation work, follow to the Installation Manual. If an incorrect installation is done, a trouble of the refrigerating cycle, water leak, electric shock or fire is caused. |
| ![Check after repair] | After repair work has finished, check there is no trouble. If check is not executed, a fire, electric shock or injury may be caused. For a check, turn off the power breaker. After repair work (installation of front panel and cabinet) has finished, execute a test run to check there is no generation of smoke or abnormal sound. If check is not executed, a fire or an electric shock is caused. Before test run, install the front panel and cabinet. |
| ![Check after reinstallation] | Check the following items after reinstallation. 1) The earth wire is correctly connected. 2) The power cord is not caught in the product. 3) There is no inclination or unsteadiness and the installation is stable. If check is not executed, a fire, an electric shock or an injury is caused. |

### CAUTION

| ![Put on gloves] | Be sure to put on gloves (※) during repair work. If not putting on gloves, an injury may be caused with the parts, etc. (※) Heavy gloves such as work gloves |
| ![Cooling check] | When the power was turned on, start to work after the equipment has been sufficiently cooled. As temperature of the compressor pipes and others became high due to cooling/heating operation, a burn may be caused. |
New Refrigerant (R410A)

This air conditioner adopts a new HFC type refrigerant (R410A) which does not deplete the ozone layer.

1. Safety Caution Concerned to New Refrigerant

The pressure of R410A is high 1.6 times of that of the former refrigerant (R22). Accompanied with change of refrigerant, the refrigerating oil has been also changed. Therefore, be sure that water, dust, the former refrigerant or the former refrigerating oil is not mixed into the refrigerating cycle of the air conditioner with new refrigerant during installation work or service work. If an incorrect work or incorrect service is performed, there is a possibility to cause a serious accident. Use the tools and materials exclusive to R410A to purpose a safe work.

2. Cautions on Installation/Service

(1) Do not mix the other refrigerant or refrigerating oil.
   For the tools exclusive to R410A, shapes of all the joints including the service port differ from those of the former refrigerant in order to prevent mixture of them.

(2) As the use pressure of the new refrigerant is high, use material thickness of the pipe and tools which are specified for R410A.

(3) In the installation time, use clean pipe materials and work with great attention so that water and others do not mix in because pipes are affected by impurities such as water, oxide scales, oil, etc. Use the clean pipes.
   Be sure to brazing with flowing nitrogen gas. (Never use gas other than nitrogen gas.)

(4) For the earth protection, use a vacuum pump for air purge.

(5) R410A refrigerant is azeotropic mixture type refrigerant. Therefore use liquid type to charge the refrigerant.
   (If using gas for charging, composition of the refrigerant changes and then characteristics of the air conditioner change.)

3. Pipe Materials

For the refrigerant pipes, copper pipe and joints are mainly used. It is necessary to select the most appropriate pipes to conform to the standard. Use clean material in which impurities adhere inside of pipe or joint to a minimum.

(1) Copper pipe

   **<Piping>**
   The pipe thickness, flare finishing size, flare nut and others differ according to a refrigerant type.
   When using a long copper pipe for R410A, it is recommended to select “Copper or copper-base pipe without seam” and one with bonded oil amount 40mg/10m or less. Also do not use crushed, deformed, discolored (especially inside) pipes. (Impurities cause clogging of expansion valves and capillary tubes.)

   **<Flare nut>**
   Use the flare nuts which are attached to the air conditioner unit.

(2) Joint

   The flare joint and socket joint are used for joints of the copper pipe. The joints are rarely used for installation of the air conditioner. However clear impurities when using them.
4. Tools

(1) Required Tools for R410A
Mixing of different types of oil may cause a trouble such as generation of sludge, clogging of capillary, etc. Accordingly, the tools to be used are classified into the following three types.

1) Tools exclusive for R410A (Those which cannot be used for conventional refrigerant (R22))
2) Tools exclusive for R410A, but can be also used for conventional refrigerant (R22)
3) Tools commonly used for R410A and for conventional refrigerant (R22)

The table below shows the tools exclusive for R410A and their interchangeability.

---

### Tools exclusive for R410A (The following tools for R410A are required.)

**Tools whose specifications are changed for R410A and their interchangeability**

<table>
<thead>
<tr>
<th>No.</th>
<th>Used tool</th>
<th>Usage</th>
<th>R410A air conditioner installation</th>
<th>Conventional air conditioner installation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Existence of new equipment for R410A</td>
<td>Whether conventional equipment can be used</td>
</tr>
<tr>
<td>①</td>
<td>Flare tool</td>
<td>Pipe flaring</td>
<td>Yes</td>
<td>*(Note 1)</td>
</tr>
<tr>
<td>②</td>
<td>Copper pipe gauge for adjusting projection margin</td>
<td>Flaring by conventional flare tool</td>
<td>Yes</td>
<td>*(Note 1)</td>
</tr>
<tr>
<td>③</td>
<td>Torque wrench</td>
<td>Connection of flare nut</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>④</td>
<td>Gauge manifold</td>
<td>Evacuating, refrigerant charge, run check, etc.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>⑤</td>
<td>Charge hose</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⑥</td>
<td>Vacuum pump adapter</td>
<td>Vacuum evacuating</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>⑦</td>
<td>Electronic balance for refrigerant charging</td>
<td>Refrigerant charge</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>⑧</td>
<td>Refrigerant cylinder</td>
<td>Refrigerant charge</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>⑨</td>
<td>Leakage detector</td>
<td>Gas leakage check</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>⑩</td>
<td>Charging cylinder</td>
<td>Refrigerant charge</td>
<td>*(Note 2)</td>
<td>No</td>
</tr>
</tbody>
</table>

*(Note 1)* When flaring is carried out for R410A using the conventional flare tools, adjustment of projection margin is necessary. For this adjustment, a copper pipe gauge, etc. are necessary.

*(Note 2)* Charging cylinder for R410A is being currently developed.

---

**General tools (Conventional tools can be used.)**

In addition to the above exclusive tools, the following equipments which serve also for R22 are necessary as the general tools.

1) Vacuum pump
   - Use vacuum pump by attaching vacuum pump adapter.
2) Torque wrench
3) Pipe cutter
4) Reamer
5) Pipe bender
6) Level vial
7) Screwdriver (+, −)
8) Spanner or Monkey wrench
9) Hole core drill
10) Hexagon wrench (Opposite side 4mm)
11) Tape measure
12) Metal saw

Also prepare the following equipments for other installation method and run check.

1) Clamp meter
2) Thermometer
3) Insulation resistance tester
4) Electrode
5. Recharge of Refrigerant

When recharge of the refrigerant is required, charge the new refrigerant with the specified amount in the procedure as described below.

Never charge the refrigerant over the specified amount.
Do not charge the additional refrigerant.
If charging refrigerant additionally when refrigerant gas leaks, the refrigerant composition in the refrigerating cycle changes resulted in change of air conditioner characteristics or refrigerant over the specified standard amount is charged and an abnormal high pressure is applied to the inside of the refrigerating cycle resulted in cause of breakage or injury.

1. Never charge the refrigerant over the specified amount.
2. Do not charge the additional refrigerant.
   If charging refrigerant additionally when refrigerant gas leaks, the refrigerant composition in the refrigerating cycle changes resulted in change of air conditioner characteristics or refrigerant over the specified standard amount is charged and an abnormal high pressure is applied to the inside of the refrigerating cycle resulted in cause of breakage or injury.

3. Set the equipment so that liquid refrigerant can be charged.
4. When using a cylinder with siphon pipe, liquid can be charged without inverting the cylinder.

R410A refrigerant is consisted with HFC mixed refrigerant. Therefore if the refrigerant gas is charged, the composition of the charged refrigerant changes and characteristics of the equipment changes.

6. Environment

Use “Vacuum pump method” for an air purge (Discharge of air in the connecting pipe) in installation time.
- Do not discharge flon gas into the air to protect the earth environment.
- Using the vacuum pump method, clear the remained air (Nitrogen, etc.) in the unit. If the air remains, the pressure in the refrigerating cycle becomes abnormally high and an injury and others are caused due to burst.
1. OUTLINE

1-1. Components Lineup in Super Modular Multi Using High-efficiency Refrigerant R410A

Outdoor units

<table>
<thead>
<tr>
<th>Corresponding HP</th>
<th>Model name</th>
<th>Inverter unit</th>
<th>Appearance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>5 HP</td>
<td>6 HP</td>
</tr>
<tr>
<td>HP</td>
<td></td>
<td>MAP0501HT5</td>
<td>MAP0601HT5</td>
</tr>
<tr>
<td>HP</td>
<td></td>
<td>MAP0501HT6</td>
<td>MAP0601HT6</td>
</tr>
<tr>
<td>HP</td>
<td></td>
<td>MAP0501HT7</td>
<td>MAP0601HT7</td>
</tr>
<tr>
<td>HP</td>
<td></td>
<td>MAP0501HT8</td>
<td>MAP0601HT8</td>
</tr>
</tbody>
</table>

Cooling capacity (kW) 14.0 16.0 22.4 28.0 33.5
Heating capacity (kW) 16.0 18.0 25.0 31.5 37.5
No. of connectable indoor units 8 10 13 16 20

Combination of outdoor units

<table>
<thead>
<tr>
<th>Corresponding HP</th>
<th>Combined Model</th>
<th>Cooling capacity (kW)</th>
<th>Heating capacity (kW)</th>
<th>No. of connectable indoor units</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP</td>
<td>BP1401T8</td>
<td>38.4</td>
<td>10 HP 12 HP</td>
<td>23 27</td>
</tr>
<tr>
<td>HP</td>
<td>BP1601T8</td>
<td>42.0</td>
<td>10 HP 12 HP</td>
<td>30 33</td>
</tr>
<tr>
<td>HP</td>
<td>BP1801T8</td>
<td>46.4</td>
<td>10 HP 12 HP</td>
<td>33 37</td>
</tr>
<tr>
<td>HP</td>
<td>BP2001T8</td>
<td>50.8</td>
<td>10 HP 12 HP</td>
<td>37 40</td>
</tr>
<tr>
<td>HP</td>
<td>BP2201T8</td>
<td>55.2</td>
<td>10 HP 12 HP</td>
<td>40 40</td>
</tr>
</tbody>
</table>

Branching joints and headers

<table>
<thead>
<tr>
<th>Model</th>
<th>RBM</th>
<th>Usage</th>
<th>External view</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y-branch joint</td>
<td>BY53-E</td>
<td>Total indoor unit capacity code</td>
<td>Below 6.4</td>
</tr>
<tr>
<td></td>
<td>BY103-E</td>
<td>Total indoor unit capacity code</td>
<td>Over 6.4, below 14.2</td>
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<tr>
<td></td>
<td>BY203-E</td>
<td>Total indoor unit capacity code</td>
<td>Over 14.2, below 25.2</td>
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<tr>
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<td>BY303-E</td>
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<td>Over 25.2</td>
</tr>
<tr>
<td>Branch header</td>
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<td>HY2043-E</td>
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<td></td>
<td>HY1083-E</td>
<td>Max. 8 branches</td>
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<td>HY2083-E</td>
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<td>Total indoor unit capacity code</td>
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<td>T-branch joint</td>
<td>BT13-E</td>
<td>The following 3 types of T joint pipes are collected as 1 set.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Balance pipe (Ø9.5) ×1</td>
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<tr>
<td></td>
<td></td>
<td>• Pipe at liquid side (Corresponded dia. Ø9.5 to Ø22.2) ×1</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>• Pipe at gas side (Corresponded dia. Ø15.9 to Ø38.1) ×1</td>
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* In 1 line after header branch, the maximum total capacity codes 6.0 can be connected.
* The capacity code is indicated as HP equivalent. For details, refer to “Selection of refrigerant pipe”
## Indoor units

<table>
<thead>
<tr>
<th>Type</th>
<th>Appearance</th>
<th>Model name</th>
<th>Capacity rank</th>
<th>Capacity code</th>
<th>Cooling capacity (kW)</th>
<th>Heating capacity (kW)</th>
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<tbody>
<tr>
<td>4-way Air Discharge</td>
<td>[Image]</td>
<td>MMU-AP0091H</td>
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<td>[Image]</td>
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<td>2.5</td>
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<td>5.0</td>
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<td>Standard Type</td>
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<td>9.0</td>
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<td>6.3</td>
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<td>2.5</td>
<td>7.1</td>
<td>8.0</td>
</tr>
</tbody>
</table>

*1) Model built-in with heater will be delivered in Jan. ’04.
*2) Concealed Duct High Static Pressure type models MMD-AP0241H and AP0271H will be delivered in April ’04.
### Remote controller switch

<table>
<thead>
<tr>
<th>Name</th>
<th>Wired remote controller</th>
<th>Simple wired remote controller</th>
<th>Weekly timer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td><img src="image1.png" alt="Wired remote controller" /></td>
<td><img src="image2.png" alt="Simple wired remote controller" /></td>
<td><img src="image3.png" alt="Weekly timer" /></td>
</tr>
<tr>
<td><strong>Model name</strong></td>
<td>RBC-AMT21E</td>
<td>RBC-AS21E</td>
<td>RBC-EXW21E</td>
</tr>
<tr>
<td><strong>Type</strong></td>
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<td></td>
</tr>
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</table>

### Wireless remote controller kit

<table>
<thead>
<tr>
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<th>Wireless remote controller kit</th>
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<tbody>
<tr>
<td><strong>Appearance</strong></td>
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<tr>
<td><strong>Model name</strong></td>
<td>RBC-AX22WU</td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td>Air Discharge Cassette type</td>
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### Central remote controller

<table>
<thead>
<tr>
<th>Name</th>
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<tr>
<td><strong>Appearance</strong></td>
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<tr>
<td><strong>Model name</strong></td>
<td>TCB-SC642TLE</td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td>64 system center controller</td>
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</table>
Model: MMU-AP0151SH, AP0181SH, AP0241SH

### Parts and Color Indication

**Color Indication**
- RED : RED
- WHI : WHITE
- YEL : YELLOW
- BLU : BLUE
- BLK : BLACK
- GRY : GRAY
- PNK : PINK
- ORN : ORANGE
- BRW : BROWN
- GRN : GREEN

### Terminal Blocks and Wiring

1. Indicates the terminal bolt lock, letter. Letter at inside indicates the terminal number.
2. A dotted line and broken line indicate the wiring at side.
3. indicate the control p.c. board.

### Control P.C. Board for Indoor Unit: MCC-1403

- **Network Adapter (Option)**
- **Line Filter**
- **Indoor unit earth screw**
- **Closed-end connector**
- **Power supply single phase 220-240V 50Hz 220V 60Hz**

### Symbol and Parts Name Table

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parts name</th>
</tr>
</thead>
<tbody>
<tr>
<td>FM</td>
<td>Fan motor</td>
</tr>
<tr>
<td>RC</td>
<td>Running capacitor</td>
</tr>
<tr>
<td>TR</td>
<td>Transformer</td>
</tr>
<tr>
<td>LM</td>
<td>Louver motor</td>
</tr>
<tr>
<td>TA</td>
<td>Indoor temp sensor</td>
</tr>
<tr>
<td>TC1, TC2, TCJ</td>
<td>Temp sensor</td>
</tr>
<tr>
<td>RY001</td>
<td>Louver control relay</td>
</tr>
<tr>
<td>RY002</td>
<td>Drain control relay</td>
</tr>
<tr>
<td>RY005-007</td>
<td>Fan motor control relay</td>
</tr>
<tr>
<td>FS</td>
<td>Float switch</td>
</tr>
<tr>
<td>DM</td>
<td>Drain pump motor</td>
</tr>
<tr>
<td>PMV</td>
<td>Pulse motor valve</td>
</tr>
</tbody>
</table>

---

16
2.1.5 Concealed Duct High Static Pressure Type

Model: MMD-AP0181H, AP0241H, AP0271H, AP0361H, AP0481H

Indoor control P.C. board

1. Indicates the terminal block, letter at inside indicates the terminal number.
2. A dotted line and broken line indicate the wiring at site.
3. Indicates the control P.C. board.
4. When attaching a drain pump, exchange CN030 connector with a connector of the float switch.
5. Part is connected to the terminal block.

When exchanging to the outside static pressure necessary at the local site, check the terminal No. and lead color of the fan motor in the below diagram, and then exchange the lead wire indicated by the arrow mark. [Diagram]

6. Pay attention to change static pressure because the outside static pressure of H tap in 50 or 60Hz.

- **Symbol**
  - FM: Fan motor
  - RC: Running capacitor
  - TR: Transformer
  - TA: Indoor temp sensor
  - TC1, TC2, TC: Temp sensor
  - RV005-100: Fan motor control relay
  - RV001: Flap motor control relay
  - RV002: Drain control relay
  - PMF: Pulse Motor valve
  - F: Fuse
  - DC: Drain motor
  - FS: Float switch

- **Parts name**
  - Wired for MMD-AP0481 only (BRN Wire)
  - Sold separately

- **Power supply**
  - Single phase 220-240V 50Hz 220V 60Hz

- **Earth screw**
  - Indoor unit

- **Flow selector unit earth screw**

- **Network adaptor (Option)**

- **Sub P.C board MCC-1520**

- **Motor over heating protection switch**
Model: MMC-AP0151H, AP0181H, AP0241H, AP0271H, AP0361H, AP0481H

2-1-6. Under Ceiling Type

Color Identification:

<table>
<thead>
<tr>
<th>Red</th>
<th>White</th>
<th>Yellow</th>
<th>Black</th>
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</thead>
<tbody>
<tr>
<td>PNL</td>
<td>WHI</td>
<td>YEL</td>
<td>BLK</td>
</tr>
<tr>
<td>ORN</td>
<td>GRN</td>
<td>PINK</td>
<td>GRY</td>
</tr>
</tbody>
</table>

1. Indicates the terminal number with the wire going to.
2. A dotted line and broken line indicate the wiring at site.
3. Indicates the control P.C. board.

Part names:
- Fan motor
- Indoor temp sensor
- Temp sensor
- Louver motor
- Drain control relay
- Drain pump motor
- Float switch

Sold separately:
- PMV
- Flow selector
- Unit earth screw
1. Indicates the terminal block.
2. Letter at inside indicates the terminal number.
3. indicate the control p.c. board.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parts name</th>
</tr>
</thead>
<tbody>
<tr>
<td>FM</td>
<td>Fan motor</td>
</tr>
<tr>
<td>TA</td>
<td>Indoor temp sensor</td>
</tr>
<tr>
<td>TC1, TC2, TCJ</td>
<td>Temp sensor</td>
</tr>
<tr>
<td>PMV</td>
<td>Pulse motor valve</td>
</tr>
<tr>
<td>LM</td>
<td>Louver motor</td>
</tr>
<tr>
<td>RY303</td>
<td>Louver control relay</td>
</tr>
</tbody>
</table>
1. Indicates the terminal block.
   Letter at inside indicates the terminal number.
2. A dotted line and broken line indicate the wiring at side.
3. Indicates the control p.c. board.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parts name</th>
</tr>
</thead>
<tbody>
<tr>
<td>FM</td>
<td>Fan motor</td>
</tr>
<tr>
<td>RC</td>
<td>Running capacitor</td>
</tr>
<tr>
<td>TR</td>
<td>Transformer</td>
</tr>
<tr>
<td>TA</td>
<td>Indoor temp sensor</td>
</tr>
<tr>
<td>TC1,TC2,TCJ</td>
<td>Temp sensor</td>
</tr>
<tr>
<td>RYO01</td>
<td>Louver control relay</td>
</tr>
<tr>
<td>RYO02</td>
<td>Drain control relay</td>
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<tr>
<td>RYO04</td>
<td>Heater control relay</td>
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<td>RYO000-007</td>
<td>Fan motor control relay</td>
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<tr>
<td>PMV</td>
<td>Pulse motor valve</td>
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2-1-10. Floor Standing Type

### Symbol Parts name
- FM: Fan motor
- RC: Running capacitor
- TR: Transformer
- LM: Louver motor
- TA: Indoor temp sensor
- TC1, TC2, TCJ: Temp sensor
- RY001: Louver control relay
- RY002: Drain control relay
- RY005~007: Fan motor control relay
- PMV: Pulse motor valve

1. Indicates the terminal block, letter. Letter at inside indicates the terminal number.
2. A dotted line and broken line indicate the wiring at side.
3. indicate the control p.c. board.

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

### Control P.C. board for Indoor unit MCC-1403

### Power supply circuit
- 220-240V 50Hz
- 220V 60Hz

### Indoor unit
- Earth screw

### Line Filter
- CN01(WHI)
- CN02(BLU)
- CN03(RED)

### Network Adapter (Option)
- CN041(BLU)
- CN042(WHI)

### Sub P.C. board MCC-1520
- CN050(WHI)
- CN051(WHI)

### Power supply unit
- CN061(YEL)
- CN062(YEL)

### Flow selector unit earth screw
3. PARTS RATING

### 3-1. Indoor Unit

#### 4-way Air Discharge Cassette Type

<table>
<thead>
<tr>
<th>Model</th>
<th>MMU-AP</th>
<th>0091H</th>
<th>0121H</th>
<th>0151H</th>
<th>0181H</th>
<th>0241H</th>
<th>0271H</th>
<th>0301H</th>
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<td>Louver motor (panel)</td>
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#### 2-way Air Discharge Cassette Type

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<td>Float switch</td>
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<td>Control P.C. board transformer</td>
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<td>EDM-B40YGTF</td>
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<th>0271WH</th>
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<td>AC 450V, 3µF</td>
<td>AC 450V, 5µF</td>
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<td>AC 450V, 3.5µF</td>
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<tr>
<td>Control P.C. board transformer</td>
<td>TT-13</td>
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<td>Pulse motor</td>
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<tr>
<td>Pulse motor valve</td>
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<td>EDM-B60YGTF-1</td>
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### 1-way Air Discharge Cassette (Compact type) Type

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<td>Drain pump motor</td>
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<td>Pulse motor valve</td>
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### Concealed Duct Standard Type

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### Concealed Duct High Static Pressure Type

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<tr>
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### Under Ceiling Type

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### High Wall Type

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<tr>
<td>Pulse motor valve</td>
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<td>TCJ sensor</td>
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## Floor Standing Cabinet Type

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<tr>
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<tr>
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<td>AC450V, 1.2µF</td>
<td>AC400V, 1.8µF</td>
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## Floor Standing Concealed Type

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<th>0091BH</th>
<th>0121BH</th>
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<td>Fan motor</td>
<td>AF-200-19-4G</td>
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<td>TT-13</td>
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<td>Pulse motor valve</td>
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## Floor Standing Type

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<td>Fan motor</td>
<td>AF-200-37R</td>
<td>AF-200-63T</td>
<td>AF-200-110M-1</td>
<td>AF-200-160H-1</td>
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<td>AC500V, 3µF</td>
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<td>TT-13</td>
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<td>Pulse motor</td>
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<td>Driving motor for vertical flap</td>
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<td>TCJ sensor</td>
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3-2. Outdoor Unit

Cooling Only Model

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<th>Model</th>
<th>MMY-</th>
<th>MAP0501T8</th>
<th>MAP0601T8</th>
<th>MAP0801T8</th>
<th>MAP1001T8</th>
<th>MAP1201T8</th>
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<tbody>
<tr>
<td>Compressor</td>
<td>DA351A3FB-23M</td>
<td>Output: 3.0kW × 2</td>
<td>DA421A3FB-23M</td>
<td>Output: 3.75kW × 2</td>
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<tr>
<td>4-way valve coil (Heat pump only)</td>
<td>VHV-01AJ502C1</td>
<td>AC220-240V 50/60Hz</td>
<td>LB64046</td>
<td>AC220-240V 50/60Hz</td>
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<tr>
<td>Pulse motor valve coil</td>
<td>VPV-MOA0524C0</td>
<td>HAM-MD12TF-3</td>
<td>DC12V</td>
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<tr>
<td>2-way valve coil</td>
<td>VPV-122DQ1</td>
<td>AC220-240V 50/60Hz</td>
<td>SV2, SV3D, SV42</td>
<td>SV3A, SV3B, SV3C, SV3E, SV41, SV5</td>
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<tr>
<td>2-way valve</td>
<td>VPV-303DQ1</td>
<td>SV2, SV3C, SV3D, SV3E</td>
<td>SV3A, SV41, SV42, SV5</td>
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<tr>
<td>2-way valve</td>
<td>VPV-603DQ2</td>
<td>SV3B</td>
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<tr>
<td>High-pressure SW</td>
<td>ACB-JB215</td>
<td>OFF: 3.73MPa, ON: 2.9MPa</td>
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<tr>
<td>Pressure sensor (For high pressure)</td>
<td>150XA4-H3</td>
<td>0.5 to 3.5V / 0 to 0.98MPa</td>
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<td>Pressure sensor (For low pressure)</td>
<td>150XA4-L1</td>
<td>0.5 to 4.3V / 0 to 3.73MPa</td>
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<tr>
<td>Fan motor</td>
<td>MF-230-600-2</td>
<td>DC280V, 600W</td>
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<tr>
<td>Case heater</td>
<td>AC240V, 26W × 3</td>
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<tr>
<td>Compressor case thermo</td>
<td>US-622KXTMQO-SS</td>
<td>OFF: 125°C, ON: 90°C × 2</td>
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Heat Pump Model

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<th>MAP0601HT7</th>
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<th>MAP1001HT7</th>
<th>MAP1201HT7</th>
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<tbody>
<tr>
<td>Compressor</td>
<td>DA351A3FB-22M</td>
<td>Output: 3.0kW × 2</td>
<td>DA421A3FB-22M</td>
<td>Output: 3.7kW × 2</td>
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<tr>
<td>4-way valve coil</td>
<td>VHV</td>
<td>AC200V 50/60Hz</td>
<td>LB64</td>
<td>AC200V 50/60Hz</td>
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<tr>
<td>Pulse motor valve coil</td>
<td>HAM-MD12TF-3</td>
<td>DC12V</td>
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<tr>
<td>2-way valve coil</td>
<td>VPV</td>
<td>AC200V 50/60Hz</td>
<td>SV2, SV3D, SV42, SV3A, SV3B, SV3C, SV3E, SV41, SV5</td>
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<tr>
<td>2-way valve</td>
<td>VPV-122DQ1</td>
<td>SV2, SV3C, SV3D, SV3E</td>
<td>SV3A, SV41, SV42, SV5</td>
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<tr>
<td>2-way valve</td>
<td>VPV-303DQ1</td>
<td>SV3B</td>
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<tr>
<td>High-pressure SW</td>
<td>SCB-JB215</td>
<td>OFF: 3.73MPa, ON: 2.9MPa</td>
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<td>Pressure sensor (For high pressure)</td>
<td>150XA4-H3</td>
<td>0.5 to 3.5V / 0 to 0.98MPa</td>
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<tr>
<td>Fan motor</td>
<td>MF-230-600-2</td>
<td>DC280V, 600W</td>
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<tr>
<td>Case heater</td>
<td>AC200V, 26W × 3</td>
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<tr>
<td>Compressor case thermo</td>
<td>US-622KXTMQO-SS</td>
<td>OFF: 125°C, ON: 90°C × 2</td>
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### 3-3. Outdoor Inverter

#### Cooling Only Model

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<tbody>
<tr>
<td>Power supply terminal block</td>
<td>JXO-3004</td>
<td>AC600V / 30A, 4P</td>
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<tr>
<td>Communication line terminal block</td>
<td>JXO-B2H</td>
<td>AC30V (or DC42V) / 1A, 6P</td>
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<tr>
<td>Reactor</td>
<td>CH-44</td>
<td>1.45mH / 25A</td>
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<tr>
<td>Smoothing condenser (For compressor)</td>
<td>400LRSN 1500M</td>
<td>1500µF / 400V</td>
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<td>Power supply transformer</td>
<td>TT-01-03T</td>
<td>AC230V, 350mA</td>
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<tr>
<td>P.C. board (Noise filter)</td>
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<td>MCC-1366</td>
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<tr>
<td>Line filter (AC)</td>
<td>FKK-240NK-4810US</td>
<td>0.48mH / 30A (MCC-1366 P.C. board)</td>
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<td>P.C. board (Control board)</td>
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<td>MCC-1429</td>
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<td>P.C. board (Power supply board)</td>
<td>IPDU-4T62DA1E</td>
<td>6.2kW MCC-1502</td>
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<td>P.C. board (IPDU for fan)</td>
<td>IPDU-2D16DA1</td>
<td>800W MCC-896, MCC-897</td>
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<td>Power complex module</td>
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<td>Heat exchanger temp. sensor (TE)</td>
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<td>Outside temp. sensor (TO)</td>
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<tr>
<td>Smoothing condenser (For fan)</td>
<td>400LRSN1000M</td>
<td>1000µF / 400V</td>
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#### Heat Pump Model

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<th>MAP0801HT7</th>
<th>MAP1001HT7</th>
<th>MAP1201HT7</th>
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<tbody>
<tr>
<td>Power supply terminal block</td>
<td>JXO-3004</td>
<td>AC600V / 30A, 4P</td>
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<tr>
<td>Communication line terminal block</td>
<td>JXO-B2H</td>
<td>AC30V (or DC42V) / 1A, 6P</td>
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<tr>
<td>Reactor</td>
<td>CH-44</td>
<td>1.45mH / 25A</td>
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<td>1500µF / 400V</td>
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<td>TT-01-03T</td>
<td>AC230V, 350mA</td>
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<tr>
<td>P.C. board (Noise filter)</td>
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<td>MCC-1366</td>
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<td>Line filter (AC)</td>
<td>FKK-240NK-4810US</td>
<td>0.48mH / 30A (MCC-1366 P.C. board)</td>
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<tr>
<td>P.C. board (Control board)</td>
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<td>MCC-1429</td>
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<tr>
<td>P.C. board (Power supply board)</td>
<td>IPDU-4T62DA1E</td>
<td>6.2kW MCC-1502</td>
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<tr>
<td>P.C. board (IPDU for fan)</td>
<td>IPDU-2D16DA1</td>
<td>800W MCC-896, MCC-897</td>
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<tr>
<td>Power complex module</td>
<td>6MBR25UA120</td>
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<td>Pipe temp. sensor (TD)</td>
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<td>Heat exchanger temp. sensor (TE)</td>
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<td>Liquid temp. sensor (TL)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Smoothing condenser (For fan)</td>
<td>400LRSN1000M</td>
<td>1000µF / 400V</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Magnet SW</td>
<td>FC-2S</td>
<td>400V / 38A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermistor</td>
<td>ZPROYCE101A500</td>
<td>100Ω, 13A, 500V</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.4. Parts Layout in Outdoor Unit

- **SV42 valve**
- **SV41 valve**
- **High pressure SW 1**
- **TD1 sensor**
- **High pressure SW 2**
- **TD2 sensor**
- **SV2 valve**
- **SV3D valve**
- **SV3A valve**
- **SV3B valve**
- **SV3C valve**
- **SV3E valve**
- **Low pressure sensor**
- **TS sensor**
- **Check joint (Low pressure)**
- **PMV (Pulse Motor Valve)**
- **4-way valve**
- **TL sensor**
- **High pressure sensor**
- **Check joint (High pressure)**
- **Check joint (Liquid pipe)**
- **Case heater**
- **TE sensor**
- **TO sensor**
- **Front side**
- **Rear side**
- **TK1, TK2 sensor**
- **TK3 sensor**
- **TK4 sensor**
3-5. Name of Each Part

3-5-1. Outdoor Unit

- **Air inlet**
  - They are provided at front, rear, left, and right sides.

- **Fixing leg**

- **Air outlet (Discharge)**
  - Hot air is discharged when cooling operation is performed.
  - Cold air is discharged when heating operation is performed.

- **Power source hole**
- **Refrigerant pipe connecting hole**
  - Connecting valve is included inside here.

3-5-2. Indoor Unit

**[4-way Air Discharge Cassette Type]**

- **Earth screw**
  - It is included in the electric parts box.

- **Clip**
  - The clip is to open/close the air inlet grille.

- **Air outlet/Air outlet flap**
  - Select air blow direction in cooling or heating operation each.

- **2-way discharge/3-way discharge**
  - 2-way discharge or 3-way discharge can be selected according to the shape or arrangement of the room.
  - For details, consult with the dealer which you have purchased the air conditioner.

- **Air filter**
  - Removes dust and trash.
  - (Air filter is provided in the air grille.)

- **Air inlet grille**
  - Air in the room is sucked from here.

**[2-way Air Discharge Cassette Type]**

- **Earth screw**
  - It is included in the electric parts box.

- **Wiress remote controller**
  - Sold separately

- **Air outlet/Air outlet flap**
  - Select air blow direction in cooling or heating operation each.

- **Center panel**

- **Air inlet**
  - Air in the room is sucked from here.

- **Air filter**
  - Removes dust and trash.
  - (Air filter is provided in the center panel.)
[1-way Air Discharge Cassette Type]

**Air outlet/Air outlet flap**
Select air blow direction in cooling or heating operation each.

**Earth screw**
It is included in the electric parts box.

**Air inlet grille**
Air in the room is sucked from here.

**Air filter**
Removes dust and trash.
(Air filter is provided in the air inlet grille.)

---

[Concealed Duct Type]

**Air outlet flange**
Discharge duct is connected.

**Earth screw**
It is included in the electric parts box.

**Air inlet**
Air in the room is sucked from here

**Air filter**
Removes dust and trash.
(Air filter is provided in the air inlet grille.)

---

[Concealed Duct, High Static Pressure Type]

**Air inlet**
Suction duct is connected.

**Air outlet**
Discharge duct is connected.

**Earth screw**
Earth screws are provided in the electric parts box.

---

Wireless remote controller
(Sold separately)
3-6. Parts Name of Remote Controller

Operation section

- Using a remote controller, maximum 8 indoor units can be operated.
- After the operation contents have been once set up, the remote controller can be operated by pushing ON/OFF buttons only.

Display section

In the display example, all indicators are displayed for the explanation.
In reality only, the selected contents are indicated.

- When turning on the leak breaker at the first time, [SET DATA] flashes on the display part of the remote controller. While this display is flashing, the model is being automatically confirmed. Accordingly, wait for a while after [SET DATA] display has disappeared, and then use the remote controller.

1 SET DATA display
Displayed during setup of the timer.

2 Operation mode select display
The selected operation mode is displayed.

3 CHECK display
Displayed while the protective device works or a trouble occurs.

4 Timer time display
Time of the timer is displayed. (When a trouble occurs, the check code is displayed.)

5 Timer SETIN setup display
When pushing the Timer SETIN button, the display of the timer is selected in order of [OFF] \(\rightarrow\) [ON] \(\rightarrow\) No display.

6 Filter display
If “FILTER” is displayed, clean the air filter.

7 TEST run display
Displayed during a test run.

8 Flap position display
Displays flap position.

9 SWING display
Displayed during up/down movement of the flap.

10 Set up temperature display
The selected set up temp. is displayed.

11 Remote controller sensor display
Displayed while the sensor of the remote controller is used.

12 PRE-HEAT display
Displayed when the heating operation starts or defrost operation is carried out.
While this indication is displayed, the indoor fan stops or the mode enters in LOW.

13 No function display
Displayed if there is no function even if the button is pushed.

14 Air volume select display
The selected air volume mode is displayed.

(AUTO) 

(HIGH) 

(MED.) 

(LOW)
Operation section

Push each button to select a desired operation.

- The details of the operation needs to be set up once, afterward, the air conditioner can be used by pushing button only.

1 Air volume select button
Selects the desired air volume mode.

2 Timer set button
TIMER SET button is used when the timer is set up.

3 Check button
The CHECK button is used for the check operation. During normal operation, do not use this button.

4 Fan button
FAN button is used when a fan which is sold on the market or etc. is connected.

- If “No function” is displayed on the remote controller when pushing the FAN button, a fan is not connected.

5 Filter reset button
Resets (Erases) “FILTER display.

6 UNIT and AUTO flap button
UNIT (No function)

7 Operation lamp
Lamp is lit during the operation. Lamp is off when stopped.
Although it flashes when operating the protection device or abnormal time.

8 button
When the button is pushed, the operation starts, and it stops by pushing the button again.
When the operation has stopped, the operation lamp and all the displays disappear.

9 Operation select button
Selects desired operation mode.

10 Set up temperature button
Adjusts the room temperature.
Set the desired set temperature by pushing or .

OPTION:

Remote controller sensor
Usually the TEMP sensor of the indoor unit senses the temperature. The temperature on the surrounding of the remote controller can also be sensed.
For details, contact the dealer from which you have purchased the air conditioner.
3-7. Correct Usage

When you use the air conditioner for the first time or when you change the SET DATA value, follow the procedure below. From the next time, the operation displayed on the remote controller will start by pushing the button only.

Preparation

Turn on the main power switch and/or the leakage breaker.

• When the power supply is turned on, a partition line is displayed on the display part of the remote controller.
• After the power supply is turned on, the remote controller does not accept an operation for approx. 1 minute, but it is not a failure.

**REQUIREMENT**

• While using the air conditioner, operate it only with button without turning off the main power switch and the leak breaker.

1 Push button.
The operation lamp goes on, and the operation starts.

2 Select an operation mode with the “MODE” button.
One push of the button, and the display changes in the order shown on the right.

- In HEAT mode, if the room temperature reaches to the set temperature, the outdoor unit stops and the air flow becomes LOW and the air volume decreases.
- In the defrost mode, the fan stops so that cool air is not discharged and PRE-DEF is displayed.

3 Select air volume with “FAN” button.
One push of the button, and the display changes in the order shown on the right.

- When air volume is “AUTO”, air volume differs according to the room temperature.
- In DRY mode, “AUTO” is displayed and the air volume is LOW.
- In heating operation, if the room temperature is not heated sufficiently with VOLUME “LOW” operation, select “MED.” or “HIGH” operation.

4 Determine the set up temperature by pushing the “TEMP. ” or “TEMP. ” button.

Stop
Push button.
The operation lamp goes off, and the operation stops.
3-8. Automatic Operation (Auto Changeover)

When you set the air conditioner in AUTO mode or switch over from AUTO operation because of some settings change, it will automatically select either cooling, heating, or fan only operation depending on the indoor temperature.

Start

1. **:: button**
   Push this button to start the air conditioner.

2. **Mode select button (MODE)**
   Select Auto.

3. **Temperature button**
   Set the desired temperature.
   - In case of cooling, start the operation after approx. 1 minute.
   - In case of heating, the operation mode is selected in accordance with the room temperature and operation starts after approximately 3 to 5 minutes.
   - When you select the Auto mode, it is unnecessary to set the fan speed. The FAN speed display will show AUTO and the fan speed will be automatically controlled.
   - After the heating operation has stopped, FAN operation may continue for approx. 30 seconds.
   - When the room temperature reaches the set temperature and the outdoor unit stops, the supper low wind is discharged and the air volume decreases excessively. During defrost operation, the fan stops so that cool air is not discharged and “HEAT READY” is displayed.
   - If the Auto mode is uncomfortable, you can select the desired conditions manually.

**NOTE**

When restarting the operation after stop
- When restarting the operation immediately after stop, the air conditioner does not operate for approx. 3 minutes to protect the machine.

Stop

Push **:: button**.
Push this button again to stop the air conditioner.
3-9. TIMER Operation

A type of timer operation can be selected from the following three types.

OFF timer : The operation stops when the time of timer has reached the set time.
Repeat OFF timer : Every time, the operation stops after the set time has passed.
ON timer : The operation starts when the time of timer has reached the set time.

Timer operation

1. Push TIMER SET button.
   • The timer display (type) changes for every push of the button.
   • SET DATA and display flashes.

2. Push to select “SET TIME”.
   For every push of button, the set time increases in the unit of 0.5 hr (30 minutes).
   The maximum set time is 72.0 hr.
   For every push of button, the set time decreases in the unit of 0.5 hr (30 minutes).
   The minimum set time is 0.5 hr.

3. Push SET button.
   • SET DATA display disappears and display goes on.
     (When ON timer is activated, time is displayed, and after time of the timer has been up, displays other than ON disappear.)

Cancel of timer operation

4. Push CL button.
   • TIMER display disappears.

NOTICE

• When the operation stops after the timer reached the preset time, the Repeat OFF timer resumes the operation by pushing button and stops the operation after the time of the timer has reached the set time.
3-10. Re-Installation

**DANGER**

Ask the dealer or an installation professional to re-install the air conditioner to a new place or move it to another place and to observe the following items. If the air conditioner is inappropriately installed by yourself, it may cause electric shock or fire.

Do not install the air conditioner in the following places

- Do not install the air conditioner in any place within 1 m from a TV, stereo, or radio set. If the unit is installed in such place, noise transmitted from the air conditioner affects the operation of these appliances.
- Do not install the air conditioner near a high frequency appliance (sewing machine or massager for business use, etc.), otherwise the air conditioner may malfunction.
- Do not install the air conditioner in a humid or oily place, or in a place where steam, soot, or corrosive gas is generated.
- Do not install the air conditioner in a salty place such as seaside area.
- Do not install the air conditioner in a place where a great deal of machine oil is used.
- Do not install the air conditioner in a place where it is usually exposed to strong wind such as in seaside area or on the roof or upper floor of a building.
- Do not install the air conditioner in a place where sulfureous gas generated such as in a spa.
- Do not install the air conditioner in a vessel or mobile crane. Be careful with noise or vibrations.
- Do not install the air conditioner in a place where noise by outdoor unit or hot air from its air outlet annoys your neighbors.
- Install the air conditioner on a solid and stable foundation so that it prevents transmission of resonating, operation noise and vibration.
- If one indoor unit is operating, some sound may be audible from other indoor units that are not operating.

3-11. Troubles and Causes

**CAUTION**

If any of the following conditions occur, turn off the main power supply switch and immediately contact the dealer:

- The operation lamps flash at short intervals (5 Hz) even though you have tried turning off the power supply and turning on again after 2 or 3 minutes.
- Switch operation does not work properly.
- The main power fuse often blows out, or the circuit breaker is often activated.
- A foreign matter or water fall inside the air conditioner.
- Any other unusual conditions are observed.
3-12. Information

**Confirmation before operation**
- Turn on the power switch 12 hours before starting the operation.
- Check whether earth wire is cut off or disconnected.
- Check the air filter is connected to the indoor unit.

**Heating capacity**
- A heat pump system which absorbs heat from outside of the room and then discharges heat into the room is adopted for heating. If the outside temperature falls, the heating capacity decreases.
- When the outside temperature is too low, it is recommended to use this air conditioner together with other heating equipment.

**Defrost during heating operation**
- In heating operation, if there is frost on the outdoor unit, the operation changes automatically to the defrost operation (Approx. 2 to 10 minutes) to increase the heating efficiency.
- During defrost operation, the fan of the indoor unit stops.

**3-minutes protection**
- When restarting the operation just after the operation has been stopped or the main power switch has turned on, the outdoor unit does not work for approx. 3 minutes in order to protect the air conditioner.

**Power failure**
- If a power failure occurred during operation, all operations stop.
- When the power is returned after a power failure, the operation lamp notifies the power-ON by flashing operation lamp on the remote controller.
- When restarting the operation, push button again.

**Fan rotation in stopped unit**
- In heating operation even in the stopped indoor unit, the fan rotates once for several minutes per approx. an hour when the other indoor unit is operating to protect the air conditioner.

**Protective device (High pressure switch)**
This device stops automatically an operation when excessive force is applied on the air conditioner. If the protective device works, the operation stops and the operation lamp flashes.

When the protective device works, the indication and the check code are displayed on the display section of the remote controller. In the following cases, the protective device may work.

**In cooling operation**
- The suction port or discharge port of the outdoor unit is closed.
- A strong wind continuously blows to the discharge port of the outdoor unit.

**In heating operation**
- Dust or waste adheres excessively to air filter of the indoor unit.
- The discharge port of the indoor unit is closed.

If the protective device works, turn off the main power switch, solve the cause, and then start the operation again.

**Cooling/Heating operation of Super Modular Multi system air conditioner**
- Although each indoor unit can be individually controlled in the Super Modular Multi system air conditioner, the cooling operation and the heating operation cannot be simultaneously performed in the multiple indoor units which are connected to an outdoor unit.
- If the cooling operation and the heating operation are simultaneously performed, the indoor unit which executes cooling operation stops, and on the operation section lights up. On the other hand, the indoor unit which executes heating operation continues running. In a case that the manager of the air conditioner has fixed the operation to cooling or heating, an operation other than that set up is unavailable. If an operation other than that set up is executed, on the operation section lights up and the operation stops.

**Characteristics of heating operation**
- The wind is not out just after starting an operation. The hot wind starts to blow 3 to 5 minutes after (Time differs according to indoor/outdoor temperature.) the indoor heat exchanger has warmed up.
- During operation, the outdoor unit may stop if the outside temperature rises.
3-13. Adjustment of Air Direction

To increase the cooling/heating efficiency, be sure to make proper use of the discharge flap for cooling or heating operation.

As the characteristics of air, cool air collects at lower levels, and hot air collects at higher levels. Set the flap so that air blows out horizontally. If cooling operation is performed with the flap blowing air downwards, the air outlet or surface of the flap will be wet with dew, and dewdrop may fall down.

[4-way Air Discharge Cassette Type]

In cooling operation

• Use the discharge flap with horizontal set point.

• When the air conditioner stops, the flap (adjustment plate of up/down air direction) directs downward automatically.

• When the heating operation is in READY states, the flap (adjustment plate of up/down wind direction) directs upward. The swinging starts after HEAT READY status cleared, SWING is displayed on the remote controller even if the heating operation is in READY status.

How to set up the air direction

1 Push during operation. The air direction changes for every push of the button.

In HEAT operation
Direct the flap (adjustment plate of up/down air direction) downward. If directing at upward, hot air may not come to the foot.

In COOL/DRY operation
Direct the flap (adjustment plate of up/down air direction) upward. If directing it downward, the dew may from on the surface of the air discharge port and may drop down.

How to start swing

2 Push , set the flap (adjustment plate of up/down air direction) direction to the lowest position, and then push again.
SWING is displayed and the up/down wind direction is automatically selected.

How to stop swing

3 Push SWING/WIND again while the flap is swing.
• The flap stops at a position when you push. After then, if pushing , the air direction descends from the highest position.
• In COOL/DRY operation, the flap does not stop as it directs downward. If stopping the flap as it directs downward during swing operation, it stops after moving to the 3rd position from the highest position.

4 Auto flap button
• Push to set up the air direction individually in each indoor unit.

Then the indoor unit No. in a group control is displayed. For the displayed indoor unit, set up the air direction.

• If the unit No. is not displayed, all the indoor units are operated at the same time.
• Every pushing , the display is exchanged as follows:

CAUTION

Set the flap so that air blows out horizontally.
If cooling operation is performed with the flap blowing air downwards, the air outlet or surface of the flap will be wet with dew, and dewdrop may fall down.

To increase the cooling/heating efficiency, be sure to make proper use of the discharge flap for cooling or heating operation.
2-way/3-way air discharge
2-way discharge or 3-way discharge can be selected according to the shape or arrangement of the room. For details, consult with the dealer which you have purchased the air conditioner.

NOTES

• If cooling operation is executed under condition of downward blowing, the cabinet or surface of the horizontal flap gets wet with dew and may drop.
• During heating operation under condition of horizontal blowing, unevenness of temperature may increase in the room.
• Never handle the horizontal flap directly with hands, otherwise a trouble is caused. Use the flap operation switch on the remote controller to change direction of the horizontal flap. The horizontal flap does not stop even if pushing the horizontal flap. Adjusting the stop position, push the switch.

[2-way Air Discharge Cassette Type]

In cooling operation
Use the air outlet flap with horizontal set point.

Heating operation
Use the air outlet flap with downward set point.

Setup of air direction and swinging

1 Push \( \rightarrow \) during operation.
• \( \rightarrow \) is displayed and the air direction is automatically exchanged upward/downward.
  When a remote controller operates the multiple indoor units, an indoor unit is selected and air direction can be individually set up.

2 Push \( \uparrow \) again during swinging of the flap.
• You can stop the flap at the desired position.

3 Auto flap button \( \text{UNIT} \)
• Push \( \text{UNIT} \) to set up the air direction individually in each indoor unit. Then the indoor unit No. in a group control is displayed. For the displayed indoor unit, set up the air direction.
• If the unit No. is not displayed, all the indoor units are operated at the same time.
• Every pushing \( \text{UNIT} \), the display is exchanged as follows:

\[
\begin{array}{c}
\text{No display} \\
\text{Unit No. 1-1} \\
\text{Unit No. 1-2} \\
\text{Unit No. 1-4} \\
\text{Unit No. 1-3}
\end{array}
\]
[1-way Air Discharge Cassette Compact Type]

<Up/Down air direction adjustment>

In cooling operation
In cooling operation, use the air outlet flap with horizontal set point so that cool air diffuses the whole room.

In heating operation
In heating operation, use the air outlet flap with downward set point so that the hot air is spread to the floor.

<Left/Right air direction adjustment>
When you change the blowout direction to left/right, direct the vertical grille inside of the air outlet flap to desired direction.

<Setup of air direction and swing>
Refer to that of 2-way Air Discharge Cassette Type.

[Under Ceiling Type]

<Up/Down air direction adjustment>

In cooling operation
In cooling operation, use the air outlet flap with horizontal set point so that cool air diffuses the whole room.

In heating operation
In heating operation, use the air outlet flap with downward set point so that the hot air is spread to the floor.

<Left/Right air direction adjustment>
When you change the blowout direction to left/right, direct the vertical flap inside of the air outlet flap to desired direction.
[Concealed Duct Standard Type]
When using an air outlet port unit (sold separately), adjust the air direction as follows:

**In cooling operation**
In cooling operation, use the air outlet flap with horizontal set point so that cool air diffuses the whole room.

**In heating operation**
In heating operation, use the air outlet flap with downward set point so that the hot air is spread at the foot.

[High Wall Type]

<Up/Down air direction adjustment>

**In cooling operation**
In cooling operation, use the air outlet flap with horizontal set point so that cool air diffuses the whole room.

**In heating operation**
In heating operation, use the air outlet flap with downward set point so that the hot air is spread to the floor.

<Left/Right air direction adjustment>
When you change the blowout direction to left/right, direct the vertical flap inside of the air outlet flap to desired direction.
[Floor Standing Cabinet Type]

In cooling operation
In cooling operation, use the air outlet flap with horizontal set point so that the cold air diffuses in whole room.

In heating operation (For Heat-pump model only)
In heating operation, use the air outlet flap with downward set point so that the hot air blows at the foot.

[Floor Standing Type]

<Adjustment of air direction upward/downward>

In cooling operation
In cooling operation, move the flap with hands and use it with horizontal air outlet point so that the cold air diffuses in whole room.

In heating operation (For Heat-pump model only)
In heating operation, move the flap with hands and use the air outlet flap with downward set point so that the hot air blows at the foot.

<Adjustment of air direction rightward/leftward>
Lift up the vertical flap lightly, direct it toward the desired direction, and lower it.
In this case, do not use the Swing function.
3-14. Air Conditioner Operations and Performance

3 minutes protection function
3-minutes protection function prevents the air conditioner from starting for initial 3 minutes after the main power switch/circuit breaker is turned on for re-starting the air conditioner.

Power failure
Power failure during operation will stop the unit completely.
• To restart the operation, push the START/STOP button on the remote controller.
• Lightning or a wireless car telephone operating nearby may cause the unit to malfunction. Turn off the main power switch or circuit breaker and then turn them on again. Push the START/STOP button on the remote controller to restart.

Heating characteristics
Preheating operation
The air conditioner will not deliver warm air immediately after it is turned on. Warm air will start to flow out after approximately 5 minutes when the indoor heat exchanger warmed up.

Warm air control (In heating operation)
When the room temperature reaches the set temperature, the fan speed is automatically reduced to prevent to blow cold draft. At this time, the outdoor unit will stop.

Defrosting operation
If the outdoor unit is frosted during the heating operation, defrosting starts automatically (for approximately 2 to 10 minutes) to maintain the heating capacity.
• The fans in both indoor and outdoor units will stop during the defrosting operation.
• During the defrosting operation, the defrosted water will be drained from the bottom plate of the outdoor unit.

Heating capacity
In the heating operation, the heat is absorbed from the outside and brought into the room. This way of heating is called heat pump system. When the outside temperature is too low, it is recommended to use another heating apparatus in combination with the air conditioner.

Attention to snowfall and freeze on the outdoor unit
• In snowy areas, the air inlet and air outlet of the outdoor unit are often covered with snow or frozen up. If snow or freeze on the outdoor unit is left as it is, it may cause machine failure or poor warming.
• In cold areas, pay attention to the drain hose so that it perfectly drains water without water remaining inside for freeze prevention. If water freezes in the drain hose or inside the outdoor unit, it may cause machine failure or poor warming.

Air conditioner operating conditions
For proper performance, operate the air conditioner under the following temperature conditions:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Outdoor temperature</th>
<th>Room temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling operation</td>
<td>−5°C to 43°C</td>
<td>21°C to 32°C (Dry valve temp.), 15°C to 24°C (Wet valve temp.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAUTION Room relative humidity – less than 80%. If the air conditioner operates in excess of this figure, the surface of the air conditioner may cause dewing.</td>
</tr>
<tr>
<td>Dry operation</td>
<td>15°C to 43°C</td>
<td>17°C to 32°C</td>
</tr>
<tr>
<td>Heating operation</td>
<td>−15°C to 15°C</td>
<td>15°C to 28°C (Dry valve temp.)</td>
</tr>
</tbody>
</table>

If air conditioner is used outside of the above conditions, safety protection may work.
3-15. Maintenance

For maintenance, be sure to turn off the main power switch.

**WARNING**

- Please do not intend to do the daily maintenance and/or Air Filter cleaning by yourself.
Otherwise, you may contact with revolving fan or active electricity when you insert your hands into the unit during running of the air conditioners.

**CAUTION**

Do not handle the buttons with wet hands; otherwise an electric shock may be caused.

---

**<Daily maintenance>**

**Cleaning of air filter**

1. If ✏️ is displayed on the remote controller, maintain the air filter.
2. Clogging of the air filter decreases cooling/heating efficiency.
   - After cleaning, push ✏️ button. ✏️ display disappears.

**[4-way Air Discharge Cassette Type]**

- When using an elevator panel, move down the suction port with the elevator remote controller.

1. **Open the suction port.**
   - Slide the clip of the suction port to inside and open the suction port slowly while holding it.

2. **Take out the air filter.**
   - Push the extrusion of the air filter to inside and pull out it to take out the air filter.

3. **Cleaning with water or vacuum cleaner**
   - If dirt is heavy, clean the air filter by tepid water with neutral detergent or water.
   - After cleaning with water, dry the air filter sufficiently in a shade place.

4. **Mount the air filter.**

5. **Close the suction port.**
   - Close the suction port, slide the clip outward, and then fix it surely.

6. **Push ✏️.**
   - ✏️ display disappears.

**Cleaning of oil guard filter**

- Clean the oil guard filter once per 2 weeks.
- Clean the oil guard filter by tepid water with neutral detergent or water.
- After cleaning with water, rinse and dry the oil guard filter sufficiently in a shade place.

**Information**

- The oil guard filter does not surely collect oil soot though it has an excellent endurance against oil soot.
- The cleaning interval for the oil guard filter is calculated under environmental condition of oil soot density 3.5mg/m³.
Adjust cleaning interval according to conditions of adhered oil soot or dirt.
Cleaning of discharge louver

The air outlet flap can be removed to clean if necessary.

1 Remove the air outlet flap.
   • Holding the both ends of the air outlet flap, remove it with sagging the center downward.

2 Clean the air outlet flap with water.
   • If dirt is heavy, clean the air outlet flap by tepid water with neutral detergent or water.

3 Mount the air outlet flap.
   • First push in the one side, and insert the opposite side with sagging the center downward.

Be careful to direction when mounting the louver.
Set the surface with printed mark upward, and mount the flap so that the arrow mark of the printed mark directs outward.

[2-way Air Discharge Cassette Type]
• Hold the center panel and pull it toward you and pull down it slowly downward. (The center panel can move either leftward or rightward. Remove it after confirmation.)

   • Take off the fall-preventing straps at the both sides.
   • Pull down the air filter to take out it.

   [For AP0631, AP0481, and AP0561 types, hold the claw of the air filter and pull down it.]

[1-way Air Discharge Cassette Compact Type]
1. Push [PUSH] at the center and left/right of the suction port to open the suction port.

2. Take out the air filter by lifting up it once and then pull it downward.

   REQUIREMENT
• Insert the air filter of 1-way Air Discharge Cassette Compact Type surely into the specified position.

CAUTION
After cleaning, be sure to attach the fall-preventing straps of the center panel; otherwise an injury is caused by falling.
[Concealed Duct Standard Type]

- Slide [Click] of the suction panel toward arrow direction and then open the panel downward. Turn the lever at the bottom side of the main unit to take out the air filter.

![Concealed Duct Standard Type Diagram]

[Concealed Duct High Static Pressure Type]

- Cleaning method differs according to the mounted air filter type.
- For cleaning method, please contact the dealer.
- The cleaning method differs depending on the type of attached air filter.
- Please ask the constructor or the dealer which you purchased the air conditioner.

<Before cooling season>

Cleaning of drain pan

- For cleaning of the drain pan, contact the dealer. (If the drain pan or drain port is clogged with dust, water is disabled to drain. In some cases, water overflows from the drain pan and it may wet wall or floor. Be sure to clean the drain pan before the cooling season.)

[Under Ceiling Type]

1 Open the suction grille.
   - Hold “knob" of the inlet grille, push it rearward (OPEN), and then open the inlet grille quietly while holding it.

2 Take out the air filter.
   - Push knobs of the air filter to remove the claws of the inlet grille. Remove the air filter by pulling it toward you.

3 Suck dust by a vacuum cleaner or clean with water.
   - When dirt is heavy, it is effective to clean the filter with tepid water with dissolved neutral detergent or cold water.
   - After cleaning the filter with water, dry the filter completely in the shade.

4 Mount the air filter.

5 Close the inlet grille.
   - Close the inlet grille, slide the “knob" toward you, and then fix it surely.

6 Push ( ).
   - display disappears.
[High Wall Type]

**<Air inlet grille>**

Wipe it with a dried soft cloth.
- If dirt of the main unit is not cleaned even if wiped with a dried soft cloth, wipe it completely squeezed cloth which was rinsed with tepid water below 40°C.

**<Air outlet grille/Air outlet flap>**
- If using a metal brush or hard sponge for maintenance of the front panel, the surface is scratched and coating of the front panel may be peeled.
- Use neutral detergent for kitchen to clean a heavy dirt and then rinse the grille or flap with water.

**Suck dust by a vacuum cleaner or clean with water.**
- After cleaning the filter with water, dry the filter completely in the shade.

---

[Floor Standing type]

**Cleaning of drain pan**
- For cleaning of the drain pan, contact the dealer. (If the drain pan or drain port is clogged with dust, water is disabled to drain. In some cases, water overflows from the drain pan and it may wet wall or floor. Be sure to clean the drain pan before the cooling season.)

**<Attachment/detachment of the air filter>**
- Pull the air filter downward and take out toward you.
  
- Insert the air filter into the indoor unit and push in it.

**Suck dust by a vacuum cleaner or clean with water.**
- When dirt is heavy, it is effective to clean the filter with tepid water with dissolved neutral detergent or cold water.
- After cleaning the filter with water, dry the filter completely in the shade.
[Floor Standing Cabinet Type]

Air outlet / Air outlet flap

- Air filter
  Removes dirt or dust.
  (It is included in the inlet grille.)

[Front panel (Lower side)]

- Before you clean the air conditioner, be sure to turn off the circuit breaker or the main power switch.
- Clean the air filter every two weeks. If the air filter is clogged with dust, the performance of the air conditioner will deteriorate.

[Floor Standing Concealed Type]

Air outlet

- Drain receiver (With strainer)

- Clean the drain pan or the drain receiver. If the drain pan or the drain receiver is clogged with dust, water may overflow causing getting wet on the floor.

<How to remove front panel>

- Push down hook of the air filter on the front panel (Lower side)
- Pull the air filter toward you to remove it.

- Air filter
  Removes dirt or dust.
  (It is included in the inlet grille.)

- Front panel (Lower side)

- This model is a concealed type. Therefore conceal other parts than the air outlet and the air filter.
  Be sure not to touch the electric parts box, the surrounding lead wires, the refrigerant pipes, etc. directly with the hands.
Cleaning of the main unit/remote controller

- Wipe them with soft and dry cloth.
- If heavy dirt adheres to the main unit, wipe out it with a cloth dampened with tepid water. For the remote controller, use a dry cloth.
- Do not use benzene, thinner, polishing powder, or similar solvents for cleaning. These may cause a crack or deformation.

<If you do not use the unit for more than 1 month>

- Operate the fan for half a day to dry inside of the main unit sufficiently.
- Turn off the main power switch.
- Clean the air filter and then remount it as before.

<Before cooling season (Concealed Duct High Static Pressure Type)>

Cleaning of drain pan and drain receiver (With strainer)

⚠️ CAUTION

Clean the drain pan and the drain receiver (strainer)
If the drain pan or the drain receiver chokes with dust, water overflows or ceiling or floor gets wet.

 REQUIREMENT
For cleaning of the drain pan or drain receiver, contact the dealer which you purchased the air conditioner.
3-16. How to Use the Air Conditioner Efficiently

To save the charges for electricity and to gain comfortable cooling/heating operation

**Clean the air filter frequently**
- If the air filter is clogged, cooling/heating efficiency decreases.

**Close window or door often**
- Close window or door often so that cool/hot air does not out of the room.

**Do not cool/heat the room excessively**

**WARNING**
Do not expose your body in cool air for a long time; otherwise it causes worse condition or health loss.
- It is unhealthy; especially take care of children or aged persons.
- Recommended set temperature

<table>
<thead>
<tr>
<th>Mode</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cool</td>
<td>26 to 28°C</td>
</tr>
<tr>
<td>Heat</td>
<td>22 to 24°C</td>
</tr>
</tbody>
</table>

**Evenness of room temperature**
- Using a discharge louver, adjust air direction.
  Exposing yourself for a long time in blowing air exerts a bad influence upon your health.
### 3-17. When the Following Symptoms are Found

Check the points described below before asking repair servicing.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause</th>
</tr>
</thead>
</table>
| **Outdoor unit** | • White misty cold air or water is out.  
• Sometimes, noise “Pushu!” is heard.  
• Fan of the outdoor unit stops automatically and performs defrost operation.  
• Solenoid valve works when defrost operation starts or finishes. |
| **Indoor unit** | • “Swish” sound is heard sometimes.  
• Slight “Pishil” sound is heard.  
• Discharge air smells.  
• The operation lamp flashes  
• “STANDBY” indication is lit.  
• When the operation has started, during the operation, or immediately after the operation has started, a sound such as water flows may be heard, and the operation sound may become larger for 2 or 3 minutes immediately after the operation has started. They are flowing sound of refrigerant or draining sound of dehumidifier.  
• This is sound generated when heat exchanger, etc. expand and contract slightly due to change of temperature.  
• Various smell such as one of wall, carpet, clothes, cigarette, or cosmetics adhere to the air conditioner.  
• Flashes when power is turned on again after power failure, or when power switch is turned on.  
• When cooling operation cannot be performed because another indoor unit performs heating operation.  
• When the manager of the air conditioner has fixed the operation to COOL or HEAT, and an operation contrary to the setup operation is performed.  
• When fan operation stopped to prevent discharge of hot air.  
• Since refrigerant is flowed temporarily to prevent stay of oil or refrigerant in the stand by indoor unit, sound of flowing refrigerant, “Kyruru” or “Shaa” may be heard or white steam when other indoor unit operates in HEAT mode, and cold air in COOL mode may be blow-out.  
• Sound is generated when the expansion valve operates when power has been turned on. |
| Operates or stops automatically. | • Is the timer “ON” or “OFF”?  
• Is it a power failure?  
• Is the power switch turned off?  
• Is the power fuse or breaker blown?  
• Has the protective device operated? (The operation lamp goes on.)  
• Is the timer “ON”? (The operation lamp goes on.)  
• Are COOL and HEAT selected simultaneously? (“STANDBY” indication is lit on the display column of the remote controller.)  
• Sound or cool air is output from the standby indoor unit. |
| Does not operate. | • Is the suction port or discharge port of the outdoor unit obstructed?  
• Are any door or window open?  
• Is the air filter clogged with dust?  
• Is discharge louver of the indoor unit set at appropriate position?  
• Is air selection set to “LOW” “MED”, and is the operation mode set to “FAN”?  
• Is the setup temp. the appropriate temperature?  
• Are COOL and HEAT selected simultaneously? (“STANDBY” indication is lit on the display column of the remote controller.) |
| Air is not cooled or warmed sufficiently. | • Is it a power failure?  
• Is the power switch turned off?  
• Is the power fuse or breaker blown?  
• Has the protective device operated? (The operation lamp goes on.)  
• Is the timer “ON”? (The operation lamp goes on.)  
• Are COOL and HEAT selected simultaneously? (“STANDBY” indication is lit on the display column of the remote controller.) |

When the following symptoms are found, stop the operation immediately, turn off the power switch, and contact the dealer which you have purchased the air conditioner.

- Activation of switch is unstable.
- Fuse or breaker is blown periodically.
- Foreign matters or water entered by mistake.
- When if activation cause of the protective device has been removed, the operation is not performed.
- Other unusual status occurred.
4. REFRIGERANT PIPING SYSTEMATIC DRAWING

4-1. Inverter Unit (5, 6, 8, 10, 12HP)

Model: MMY-MAP0501HT, MAP0601HT, MAP0801HT, MAP1001HT, MAP1201HT
### 4-2. Explanation of Functional Parts

<table>
<thead>
<tr>
<th>Functional part name</th>
<th>Functional outline</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solenoid valve</strong></td>
<td></td>
</tr>
</tbody>
</table>
| 1. SV3A              | (Connector CN324: Red)  
  1) Collects oil in the oil tank during OFF time.  
  2) Supplies oil reserved in the oil tank during ON time. |
| 2. SV3B              | (Connector CN313: Blue)  
  1) Returns oil supplied in the balance pipe to the compressor. |
| 3. SV3C              | (Connector CN314: Black)  
  1) Pressurizes oil reserved in the oil tank during ON time. |
| 4. SV3D              | (Connector CN323: White)  
  1) Reserves oil in the oil separator during OFF time, and supplies oil during ON time. |
| 5. SV3E              | (Connector CN323: White)  
  1) Turns on during operation and balances oil between compressors. |
| 6. SV2               | (Connector CN312: White)  
  1) Low pressure release function  
  2) High pressure release function  
  3) Gas balance function during stop time |
| 7. SV4 (n)           | (Start compensation valve of compressor) (Connector CN311: Blue)  
  1) For gas balance start  
  2) High pressure release function  
  3) Low pressure release function |
| 8. SV5               | (Connector CN310: White) (for Heating model only)  
  1) Preventive function for high-pressure rising in heating operation |

**4-way valve**

(Connector CN317: Blue)  
1) Cooling/heating exchange  
2) Reverse defrost

**Pulse motor valve**

PMV1, 2

(Connector CN300, 301: White)  
1) Super heat control function in heating operation  
2) Liquid line shut-down function while follower unit stops  
3) Under-cool adjustment function in cooling operation

**Oil separator**

1) Prevention for rapid decreasing of oil (Decreases oil flowing to the cycle)  
2) Reserve function of surplus oil

**Temp. sensor**

1. TD1, TD2

(TD1: Connector, CN502: White, TD2: Connector, CN503: Pink)  
1) Protection of compressor discharge temp. Used for release

2. TS1

(Connector CN504: White)  
1) Controls super heat in heating operation

3. TE1

(Connector CN505: Green)  
1) Controls defrost in heating operation  
2) Controls outdoor fan in heating operation

4. TK1, TK2, TK3, TK4

(TK1 Connector CN514: Black, TK2 Connector CN515: Green,  
TK3 Connector CN516: Red, TK4 Connector CN523: Yellow)  
1) Judges oil level of the compressor

5. TL

(Connector CN521: White)  
1) Detects under cool in cooling operation

6. TO

(Connector CN507: Yellow)  
1) Detects outside temperature

**Pressure sensor**

1. High pressure sensor

(Connector CN501: Red)  
1) Detects high pressure and controls compressor capacity  
2) Detects high pressure in cooling operation, and controls the fan in low ambient cooling operation

2. Low pressure sensor

(Connector CN500: White)  
1) Detects low pressure in cooling operation and controls compressor capacity  
2) Detects low pressure in heating operation, and controls the super heat

**Heater**

Compressor case heater

(Compressor 1 Connector CN316: White, Compressor 2 Connector CN315: Blue)  
1) Prevents liquid accumulation to compressor

Accumulator case heater

(Connector CN321: Red)  
1) Prevents liquid accumulation to accumulator

**Balance pipe**

1) Oil balancing in each outdoor unit
### 4-3. Indoor Unit

#### Functional part name

<table>
<thead>
<tr>
<th>Functional part name</th>
<th>Functional outline</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Pulse Motor Valve (PMV)</em></td>
<td>(Connector CN082 (6P): Blue)</td>
</tr>
<tr>
<td></td>
<td>1) Controls super heat in cooling operation</td>
</tr>
<tr>
<td></td>
<td>2) Controls under cool in heating operation</td>
</tr>
<tr>
<td></td>
<td>3) Recovers refrigerant oil in cooling operation</td>
</tr>
<tr>
<td></td>
<td>4) Recovers refrigerant oil in heating operation</td>
</tr>
<tr>
<td><em>Temp. sensor</em></td>
<td>(Connector CN104 (2P): Yellow)</td>
</tr>
<tr>
<td>1. <strong>TA</strong></td>
<td>1) Detects indoor suction temperature</td>
</tr>
<tr>
<td>2. <strong>TC1</strong></td>
<td>(Connector CN100 (3P): Brown)</td>
</tr>
<tr>
<td></td>
<td>1) Controls PMV super heat in cooling operation</td>
</tr>
<tr>
<td>3. <strong>TC2</strong></td>
<td>(Connector CN101 (2P): Black)</td>
</tr>
<tr>
<td></td>
<td>1) Controls PMV under cool in heating operation</td>
</tr>
<tr>
<td>4. <strong>TCJ</strong></td>
<td>(Connector CN102 (2P): Red)</td>
</tr>
<tr>
<td></td>
<td>1) Controls PMV super heat in cooling operation</td>
</tr>
<tr>
<td></td>
<td>2) [MMU-AP0071 to AP0121YH only] Controls PMV under cool in heating operation</td>
</tr>
</tbody>
</table>

(OTE) MMU-AP0071YH to AP0121YH type air conditioners have no TC2 sensor.
5. COMBINED REFRIGERANT PIPES SYSTEMATIC DRAWING

5-1. Normal Operation (COOL Mode / DEFROST Mode)

NOTE
An outdoor unit which is connected with indoor/outdoor communication lines is the “Header unit”, and the other unit is called “Follower unit”. (Example: 20HP system)
5-2. Normal Operation (HEAT Mode)

**NOTE**
An outdoor unit which is connected with indoor/outdoor communication lines is the “Header unit”, and the other unit is called “Follower unit”.

(Example: 20HP system)
5-3. Emergent Operation
(Cooling Operation when Center Outdoor Backup)

NOTE
An outdoor unit which is connected with indoor/outdoor communication lines is the “Header unit”, and the other unit is called “Follower unit”.

(Example: 20HP system)
5-4. Emergent Operation
(Heating Operation when Center Outdoor Backup)

NOTE

An outdoor unit which is connected with indoor/outdoor communication lines is the “Header unit”, and the other unit is called “Follower unit”.

(Example: 20HP system)
5-5. Recovery of Refrigerant in Failed Outdoor Unit (In Case of Failure of Follower Unit)

Header unit (MMY-MAP1001H)

Failure

Follower unit (MMY-MAP1001H)

NOTE
An outdoor unit which is connected with indoor/outdoor communication lines is the “Header unit”, and the other unit is called “Follower unit”.

(Example: 20HP system)
### 6. CONTROL OUTLINE

#### 6-1. Indoor Unit

#### 6-1-1. Control Specifications

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Outline of specifications</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power supply is reset.</td>
<td>(1) Distinction of outdoor unit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>When the power supply is reset, the outdoor units are distinguished, and control is exchanged according to the distinctive results.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) Check code clear</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>When the power supply is reset, the check code is also reset once. If an abnormal status which the check code appears after Start/Stop button of the remote controller has been pushed continues, the check code is displayed again on the remote controller.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Operation select</td>
<td>(1) Based upon the operation select command from the remote controller or central controller, the operation mode is selected.</td>
<td>* Concealed duct type air conditioner cannot operate for drying.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Remote controller command</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Control outline</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>STOP</td>
<td>Stops air conditioner.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FAN</td>
<td>Fan operation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COOL</td>
<td>Cooling operation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DRY</td>
<td>Dry operation *</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HEAT</td>
<td>Heating operation</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Room temp. control</td>
<td>(1) Adjustment range</td>
<td>Heating suction temperature shift</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Set temperature on remote controller (°C)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>In cooling/drying</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wired type</td>
<td>18 to 29°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wireless type</td>
<td>18 to 30°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>In heating</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>18 to 29°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>16 to 30°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) From the item code 06, the setup temperature in heating operation can be corrected.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Setup data</td>
<td>0 2 4 6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Setup temp. correction</td>
<td>+0°C +2°C +4°C +6°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Setup at shipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Setup data</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Automatic capacity control</td>
<td>(1) Based upon difference between Ta and Ts, the operation frequency is indicated to the outdoor unit.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Air volume control</td>
<td>(1) By the command from the remote controller, “HIGH (HH)”, “MED (H)”, or “LOW (L)” “AUTO” operation is executed.</td>
<td>HH &gt; H+ &gt; H &gt; L+ &gt; L &gt; LL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) While air speed is in AUTO mode, the air speed is changed according to the difference between Ta and Ts.</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Item</td>
<td>Outline of specifications</td>
<td>Remarks</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>6</td>
<td>Prevention of cold air discharge</td>
<td>(1) In heating operation, the upper limit of the fan tap is set by one with higher temperature of TC2 sensor and TCJ sensor.</td>
<td>• In D and E zones, priority is given to remote controller air speed setup.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- When B zone has continued for 6 minutes, the operation shifts to C zone.</td>
<td>• In A and B zones, “**” is displayed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- In defrost time, the control point is set to +6°C.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="https://example.com/diagram.png" alt="Diagram" /></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Freeze prevention control (Low temp. release)</td>
<td>(1) In cooling operation, the air conditioner operates as described below based upon temp. detected by TC1, TC2 and TCJ sensors.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>To prevent the heat exchanger from freezing, the operation stops.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- When “J” zone is detected for 5 minutes, the command frequency becomes “S0” to the outdoor unit.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- In “K” zone, the timer count is interrupted, and held.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- When “I” zone is detected, the timer is cleared and the operation returns to the normal operation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- When the command frequency became S0 with continuation of “J” zone, operation of the indoor fan in LOW mode until it reaches the “I” zone.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>It is reset when the following conditions are satisfied.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Reset conditions</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1) TC1 ≥ 12°C and TC2 ≥ 12°C and TCJ ≥ 12°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) 20 minutes passed after stop.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="https://example.com/diagram.png" alt="Diagram" /></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) In cooling operation, the air conditioner operates as described below based upon temp. detected by TC2 and TCJ sensors.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- When “M” zone is detected for 45 minutes, the command frequency becomes “S0” to the outdoor unit.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- In “N” zone, the timer count is interrupted and held.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- When shifting to “M” zone again, the timer count restarts and continues.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- If “L” zone is detected, the timer is cleared and the operation returns to normal operation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Reset conditions</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1) TC1 ≥ 12°C and TC2 ≥ 12°C and TCJ ≥ 12°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) 20 minutes passed after stop.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="https://example.com/diagram.png" alt="Diagram" /></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>* In a Model without TC2, TC2 is not judged.</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Item</td>
<td>Outline of specifications</td>
<td>Remarks</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>8</td>
<td>Recovery control for cooling refrigerant and oil</td>
<td>The indoor unit which stops operation, thermostat is OFF, or operates in FAN mode opens PMV of the indoor unit by the specified opening degree when cooling refrigerant or oil recovery signal is received from the outdoor unit.</td>
<td>• Recovery operation is usually executed every 2 hours.</td>
</tr>
</tbody>
</table>
| 9   | Recovery control for heating refrigerant and oil                     | The indoor unit which stops operation, thermostat is OFF, or operates in FAN mode performs the following controls when the heating refrigerant/Oil recovery signal is received from the outdoor unit.  
1) Opens PMV of the indoor unit by the specified opening degree.  
2) Stops the fan.  
3) Only 4-way Air Discharge Cassette type air conditioner rotates the indoor fan with intermittent operation for approx. 1 minute after recovery control.  
4) Only 4-way Air Discharge Cassette type air conditioner rotates the indoor fan with intermittent operation for approx. 1 minute after recovery control as the outdoor unit. | • In the indoor unit which thermostat is OFF, or operates in FAN mode, “△” lamp goes on.  
• Recovery operation is usually executed every 1 hour. |
| 10  | Short intermittent operation compensation control                    | (1) For 5 minutes after the operation has started, the operation is continued even if entering thermostat-OFF condition.  
(2) However, if the thermostat has been turned off by changing the set up temp., the thermostat is OFF with even the above condition. The protective control has priority. |                                                                                                                                 |
| 11  | Drain pump control                                                   | (1) During "COOL" operation (including DRY operation), the drain pump operates.  
(2) While the drain pump operates, if the float switch works, the drain pump continues operation and a check code is displayed.  
(3) While the drain pump stops, if the float switch works, turn off the capacity demand command, stop the operation, and operate the drain pump. If the float switch continues operating for approx. 5 minutes, the operation stops and the check code is displayed.  
(4) In heating operation, if humidifier "provided" is judged, compressor "ON", compressor "ON", fan "ON", and MAX (TC2, TCJ) ≥ 33°C, the drain pump operates. | Check code [P10]  
When CN70 is connected or the item code 40 setup data is 1, the setup becomes humidifier "provided", and the drain pump operates with the left conditions. |
| 12  | Elimination of remaining heat                                        | (1) When the air conditioner stops in the "HEAT" mode, drive the indoor fan with "LOW" mode for approx. 30 seconds.                                                                                                         |                                                                                                                                 |
| 13  | Auto flap control                                                    | (1) When the louver signal has been received from the remote controller, the louver operates if the indoor fan is operating.  
(2) In 4-way Air Discharge Cassette type, the discharge louver automatically directs downward if the operation stops.  
(3) In 4-way Air Discharge Cassette type, the discharge louver directs upward if the heating operation is being prepared. |                                                                                                                                 |
| 14  | Filter sign display (None in wireless type)                        | (1) The operation time of the indoor fan is integrated and stored in memory, and the filter exchange signal is sent to the remote controller to display on the remote controller LCD after the specified time.  
(2) When the filter reset signal is received form the remote controller, time of the integrated timer is cleared. In this time, if the specified time has passed, the measured time is reset and LCD display disappears. |                                                                                                                                 |
<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Outline of specifications</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| 15  | “□” and “◆” display (Operation and heating stand-by) | <Operation standby> .......... Display on remote controller  
(1) • “P05” is one of displays of power wire missing.  
• “P05” of power cable is detected.  
• “COOL/DRY” operation cannot be performed because the other indoor unit is under “HEAT” operation.  
• “HEAT” operation cannot be performed because COOL priority is set (Outdoor I/F P.C. board SW11 1-bit is ON) and the other indoor unit is under “COOL/DRY” operation.  
• “FAN” operation cannot be performed because the system performs “Heat oil/Refrigerant recovery” operation.  
• There is a unit in which indoor overflow “P10” is detected.  
• There is a unit in which interlock alarm “P23” is detected.  

(2) The above indoor units unavailable to operate waits under condition of thermostat OFF.  

<HEAT standby> ................. Display on remote controller  
(1) • HEAT thermostat is OFF.  
• During HEAT operation, the fan rotates with lower air speed than one specified in order to prevent discharge of cold draft or stops. (including case that defrost operation is being performed)  
• “HEAT” operation cannot be performed because COOL priority is set (Outdoor I/F P.C. board SW11 bit 1 is ON) and the other indoor unit is under “COOL/DRY” operation.  

(2) “HEAT standby” is displayed until the above conditions are released. | • “□” goes on. |

16  | Selection of central control mode | (1) The contents which can be changed on the remote controller at indoor unit side can be selected by setup at the central controller side.  
(2) In case of operation from TCC-LINK central controller (TCB-SC642TLE, etc.)  
[Central control mode 1] : Cannot operate  
[Central control mode 2] : Cannot operate, stop, select mode, set up temp.  
[Central control mode 3] : Cannot select mode, set up temp.  
[Central control mode 4] : Cannot select mode  
(3) RBC-AMT21E (Wired remote controller)  
While mode is the central control mode, “CENTRAL” lights on the display part of the remote controller. | If operation is performed from the remote control “CENTRAL CONTROL” mode, the status is notified with receiving sound. |
6-2. Outdoor Unit

6-2-1. Operation Start/Operation End

The compressor, solenoid valve, pulse motor valve (PMV), outdoor fan, etc. are controlled by a command from the indoor controller. The follower outdoor unit starts/stops by a command from the header outdoor unit.

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Operation explanation and applied data, etc.</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| 1   | Pulse Motor Valve (PMV) control | (1) PMV control (using two PMV, 1 and 2)  
1) PMV (Pulse Motor Valve) is controlled between 90 to 1000 pulses during operation.  
2) In cooling operation, PMV opening is controlled based upon detected TL sensor temp. and detected Pd pressure value. (Under-Cool control)  
3) In heating operation, PMV opening is controlled based upon detected TS and TD sensor temp. and detected PS pressure value. (Super-Heat control)  
4) Close fully PMV opening when thermostat is OFF, operation stops and A.C. stops in trouble. | • In heating operation, PMV2 is 0 pulses and PMV may be controlled by PMV1 only with the minimum 45 pulses. |
| 2   | Outdoor fan control | (1) Cooling fan control  
1) Outdoor fan speed (mode) is controlled based upon detected Pd pressure value.  
2) In a specified time when cooling operation started, the center outdoor unit controls the outdoor fan speed based upon detected Pd pressure value. The follower outdoor unit controls the outdoor fan speed (mode) based upon detected TE sensor temp.  
(2) Heating fan control  
1) Outdoor fan speed (mode) is controlled based upon detected TE sensor temp.  
2) If TE > 25°C has been continuously detected for 5 minutes, the operation may stop. In this case, the status is same as one in usual thermostat-OFF, so the operation restarts.  
3) After A.C started, this control is not performed during the specified time after defrost operation and defrost control.  
4) When refrigerant is excessively shortened, START/STOP operation may be repeated by this control.  
(3) Control for follower unit stop  
The fan is driven with lower limit mode to prevent refrigerant accumulation into the outdoor heat exchanger. | When TE temp. (ambient temperature) exceeds 25°C, Heating operation stops. (Over the operation temp. condition of ambient temp.) |
No. | Item | Operation explanation and applied data, etc. | Remarks |
--- | --- | --- | --- |
3 | Capacity control | 1) According to the capacity demand command from the indoor controller, the inverter frequency control of the header and follower units is determined. The header unit sets the start order of the follower unit connected to the system and then starts the operation.  
2) Two compressors in the outdoor unit rotate every stop of compressor and exchanges the start order when the compressor will be ON in the next time.  
3) When two or more follower units are connected, if the system thermostat is OFF, the rotation is judged every compressor-OFF of the follower unit and the start priority order of the follower units in the next start time is exchanged. | • Min. frequency: 26Hz |
4 | Oil level detection control | 1) Based upon the detected temperature of TK1 to TK4 sensors, whether the right amount of oil is included in the compressor case or not is judged. The header unit and follower unit perform this control individually.  
2) From relation between the detected temperature of the operating compressor TK1 or TK2 and detected temperature of TK3, TK4, whether oil level in the compressor case is right or not is judged. If it is insufficient, the control shifts to the oil equation control.  
3) This control is usually performed during operation of the compressor. | • The detection is performed in both cases of operation of a compressor and operation of two compressors.
<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Operation explanation and applied data, etc.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Oil equation control</td>
<td>This control is provided to prevent the oil short in the compressor of each outdoor unit. This control is basically performed by ON/OFF operation of the solenoid valves SV3A, SV3B, SV3C, SV3D. (For the schematic diagram of oil equation control.)&lt;br&gt;(1) Oil equation control&lt;br&gt;This control supplies oil accumulated in the oil tank of each outdoor unit to the outdoor unit in which oil level moved down. This control is performed during compressor-ON of the header unit when oil level judgment result of the header unit shows “Short” or the oil equation demand is issued from the system of even a header unit. In a case of system with a header unit (No follower unit is connected.), this control is not executed.&lt;br&gt;(2) Oil-short protective control&lt;br&gt;If an oil equation control is executed, the protection stops when the status of oil short continues for 30 minutes, and it restarts after 2 minutes and 30 seconds after. After then, if the protection stop is repeated 3 times, an error is determined. (Restart is not performed.) The error code is “H07”.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Refrigerant/Oil recovery control</td>
<td>(1) In cooling operation, this control is executed to regularly recover the refrigerating oil stagnated in gas inter-unit pipe or indoor unit to the outdoor unit when the compressor driving command is weak, and to prevent refrigerant accumulation in the outdoor heat exchanger while low ambient cooling operation is performed. This control is managed by the header outdoor unit.&lt;br&gt;1) Control conditions&lt;br&gt;- Cooling oil recovery control is executed every 2 hours approximately.&lt;br&gt;2) Contents of control&lt;br&gt;- Recovery time continues for approx. 2 or 3 minutes though it differs according to the system capacity.&lt;br&gt;(2) Refrigerant recovery control in heating room&lt;br&gt;During heating operation, this is executed to recover liquid refrigerant stagnated in the stopped indoor unit. It is also used to recover oil in the outdoor heat exchanger in heating overload operation except with defrost condition. This control is managed by the header outdoor unit.&lt;br&gt;1) Heating refrigerant recovery control is executed every an hour approximately.&lt;br&gt;2) Recovery time continues for approx. 2 to 10 minutes though it differs according to the load condition.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Defrost control (Reverse defrost method)</td>
<td>(1) Defrost start condition&lt;br&gt;In heating operation, the operating time is integrated when the detected TE sensor temp was lower than -2°C, and when 25 minutes have passed in the initial time after the compressor started and 55 minutes in the second time and after.&lt;br&gt;(2) Contents of control&lt;br&gt;- If the outdoor units are combined, the defrost operation forcibly continues for 2 minutes if the defrost operation has been once started.&lt;br&gt;(3) Stop conditions of defrost operation&lt;br&gt;- If the outdoor units are combined, the fan drive and compressor inverter frequency may be controlled by Pd pressure during defrost operation.</td>
<td>• During defrosting operation, all the solenoid valves of 4-way are OFF and all compressors are driven.</td>
</tr>
<tr>
<td>No.</td>
<td>Item</td>
<td>Operation explanation and applied data, etc.</td>
<td>Remarks</td>
</tr>
<tr>
<td>-----</td>
<td>------</td>
<td>---------------------------------------------</td>
<td>---------</td>
</tr>
</tbody>
</table>
| 8   | Release control valve  | (1) SV2 gas balance control  
This control is executed to balance the gas when opening SV2 while the compressor is off, in order to decrease the activation load in the next compressor-ON time. This control is individually executed by the header outdoor unit and each follower outdoor unit.  
(2) SV2 high pressure release control  
This control is to control pressure rising in low-frequency operation of the inverter.  
(3) SV2 low pressure release control  
This control is to prevent quick pressure dropping in transient operation. This control is individually executed by the header outdoor unit.  
This control is executed as necessary except during stop time and thermostat-OFF time.  
(4) SV41, 42 low pressure release control  
This control is to prevent low pressure dropping and is individually executed by the header unit and each follower unit.  
This control is executed during defrost operation, heating start pattern control operation, and cooling operation.  
(5) SV5 high pressure release control  
This control is to prevent high pressure rising and is executed for the header unit only. |
| 9   | Compressor stop by high pressure release control | This control is to forcibly stop the compressor in each outdoor unit according to Pd pressure. It is individually executed by the header unit and each follower unit.  
(1) Contents of control  
• The compressor stops when Pd pressure is over 3.5MPa. |
| 10  | Case heater control | The case heater output includes compressor case heater and accumulator case heater. This control is to prevent accumulation of refrigerant in the compressor case by turning of the power of heater while the compressor stops, and it is executed in all the outdoor units.  
If electricity is not turned on for a specified time before the test run after installation, a trouble of the compressor may be caused. When the power has been interrupted for a long time and the operation starts from the status as it was, it is desirable to turn on the power before start of operation as per the test run time.  
This control is used often together with the compressor winding heating control. In this case, the power sound may be heard but it is not a trouble.  
(1) Contents of control  
• Turns on during compressor-OFF  
• Turns off when the detected TO sensor temp is 28°C or higher, and turns on when it is 25°C or lower  
• The operation continues for 10 minutes after compressor-OFF changed to compressor-ON. |
| 11  | IPDU control | IPDU controls the inverter compressor by command frequency, frequency up/down speed, and current release control value from the interface P.C. board.  
The main controls of IPDU control P.C. board are described below.  
(1) Current release control  
The output frequency is controlled by AC input current value which is detected by inputting current sensor (CT) on the control P.C. board to prevent the inverter input current from rising higher than the specified value. |
<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Operation explanation and applied data, etc.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>IPDU control</td>
<td>(2) Heat sink temp detection control</td>
<td>• TH sensor is provided to IPDU1 and 2 each.</td>
</tr>
<tr>
<td></td>
<td>(Continued)</td>
<td>1) This control protects IGBT overheat preventive protection by the thermistor (TH temp) on the compressor driving module in IPDU.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>* For TH temperature, the higher one of IPDU1 temperature and IPDU2 temperature is applied.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3) Over-current protective control</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1) The compressor stops when IPDU control P.C. board detects over-current.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4) Compressor case thermo control</td>
<td>• The case thermostat is usually closed and connected to the interface P.C. board.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1) When the compressor case thermostat works, the compressor stops.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) When the compressor stops, 1 is counted to the error count, and the compressor reactivates after 2 minutes and 30 seconds. After reactivated, the error count is cleared if the operation continues for 10 minutes or more.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) The error is determined with error count 4. The error “H04” is displayed in compressor 1 and “H14” in compressor 2, respectively.</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>High pressure prevention control</td>
<td>(1) High pressure SW control</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The high-pressure SW is usually closed and connected to IPDU.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1) The compressor driver stops when high pressure SW at inverter compressor operates.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) When the compressor driver stops, 1 is counted to the error count, and the compressor driver reactivates after 2 minutes 30 seconds. After reactivated, the error count is cleared if the operation continues for 10 minutes or more.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) The error is determined with error count 4. The error “P04” is displayed.</td>
<td></td>
</tr>
</tbody>
</table>
<Other cautions>

1. Cooling operation in low ambient temperature
   1) When low pressure is lowered, the freeze prevention control by the indoor unit TC sensor may decrease the frequency.
   2) When low pressure is lowered, the cooling capacity control may decrease the frequency.
   3) When discharge temp. sensor value lowers below 60°C, the frequency may be increased over the receive command from the indoor unit.

2. PMV (Pulse Motor Valve) for outdoor unit
   1) When the power is turned on, a tap sound to initialize PMV is heard. If this sound is not heard, PMV operation error is considered. However, this sound may not be heard at a place where outside sound takes precedence.
   2) Do not remove the driving part (Head part) of PMV during operation. It may cause error in opening.
   3) When transporting (replacing) the set, never keep the driving part removed. The valve is closed, and the valve is damaged by sealed liquid compression.
   4) When removing the driving part and attaching it again, push in it securely until a “click” sound can be heard. Then, turn off the power once, and turn on the power again.

<Oil equation control schematic diagram>
7. APPLIED CONTROL

7-1. Indoor Unit

7-1-1. Setup of Selecting Function in Indoor Unit
(Do not forget to Execute Setup by a Wired Remote Controller)

<Procedure> Execute the setup operation while the unit stops.

1. Push [SET], [CL], and [UNIT] buttons simultaneously for 4 seconds or more.
   The firstly displayed unit No. indicates the header indoor unit address in the group control.
   In this time, the fan of the selected indoor unit is turned on.

2. Every pushing [UNIT] button, the indoor unit numbers in the group control are successively displayed. In this time, the fan of the selected indoor unit only is turned on.

3. Specify the item code (DN) using the setup temperature [▲] and [▼] buttons.

4. Select the setup data using the timer time [▲] and [▼] buttons.
   (When selecting the DN code to “33”, change the temperature indication of the unit from “°C” to “°F” on the remote controller.)

5. Push [SET] button. (OK if display goes on.)
   • To change the selected indoor unit, return to procedure 2.
   • To change the item to be set up, return to procedure 3.

6. Pushing [SET] button returns the status to normal stop status.
<table>
<thead>
<tr>
<th>DN</th>
<th>Item</th>
<th>Description</th>
<th>At shipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Filter sign lighting time</td>
<td>0000 : None  0002 : 2500H  0004 : 10000H</td>
<td>0001 : 150H  0003 : 5000H</td>
</tr>
<tr>
<td>02</td>
<td>Dirty state of filter</td>
<td>0000 : Standard (Half of standard time)</td>
<td>0001 : High degree of dirt</td>
</tr>
<tr>
<td>03</td>
<td>Central control address</td>
<td>0001 : No.1 unit  0099 : Unfixed</td>
<td>0064 : No.64 unit</td>
</tr>
<tr>
<td>04</td>
<td>Specific indoor unit priority</td>
<td>0000 : No priority</td>
<td>0001 : Priority</td>
</tr>
<tr>
<td>06</td>
<td>Heating temp shift</td>
<td>0000 : No shift  0002 : +2°C</td>
<td>0001 : +1°C  0010 : +10°C (Up to +6 recommended)</td>
</tr>
<tr>
<td>0d</td>
<td>Existence of automatic cool/heat mode</td>
<td>0000 : Provided</td>
<td>0001 : Not provided</td>
</tr>
<tr>
<td>0F</td>
<td>Cooling only</td>
<td>0000 : Heat pump</td>
<td>0001 : Cooling only (No display of [AUTO] [HEAT])</td>
</tr>
<tr>
<td>10</td>
<td>Type</td>
<td>0000 : 1-way air discharge cassette  0001 : 4-way air discharge cassette</td>
<td>0037</td>
</tr>
<tr>
<td>11</td>
<td>Indoor unit capacity</td>
<td>0000 : Unfixed</td>
<td>0001 to 0034</td>
</tr>
<tr>
<td>12</td>
<td>Line address</td>
<td>0001 : No.1 unit</td>
<td>0030 : No.30 unit</td>
</tr>
<tr>
<td>13</td>
<td>Indoor unit address</td>
<td>0001 : No.1 unit</td>
<td>0064 : No.64 unit</td>
</tr>
<tr>
<td>14</td>
<td>Group address</td>
<td>0000 : Individual  0002 : Follower unit of group</td>
<td>0001 : Header unit of group</td>
</tr>
<tr>
<td>19</td>
<td>Flap type (Adjustment of air direction)</td>
<td>0000 : Not provided  0004 : [4-way Air Discharge Cassette type] and [Under Ceiling type]</td>
<td>0001 : Swing only</td>
</tr>
<tr>
<td>1E</td>
<td>Temp difference of automatic cooling/ heating mode selection</td>
<td>0000 : 0 deg</td>
<td>0001 : 10 deg (For setup temperature, reversal of COOL/HEAT by ± (Data value)/2)</td>
</tr>
<tr>
<td>28</td>
<td>Automatic reset of power failure</td>
<td>0000 : None</td>
<td>0001 : Reset</td>
</tr>
<tr>
<td>29</td>
<td>Operation condition of humidifier</td>
<td>0000 : Usual</td>
<td>0001 : Condition ignored</td>
</tr>
<tr>
<td>2A</td>
<td>Selection of option/ error input (CN70)</td>
<td>0000 : Filter input  0002 : Humidifier input</td>
<td>0001 : Alarm input (Air washer, etc.)</td>
</tr>
<tr>
<td>2E</td>
<td>HA terminal (CN61) select</td>
<td>0000 : Usual</td>
<td>0001 : Leaving-ON prevention control</td>
</tr>
<tr>
<td>30</td>
<td>Automatic elevating grille</td>
<td>0000 : Unavailable (Standard, Oil guard panel)  0001 : Available (Auto grille, Oil guard, Auto grille panel)</td>
<td>0000 : Unavailable</td>
</tr>
<tr>
<td>31</td>
<td>Ventilating fan control</td>
<td>0000 : Available</td>
<td>0001 : Available</td>
</tr>
<tr>
<td>32</td>
<td>TA sensor selection</td>
<td>0000 : Body TA sensor</td>
<td>0001 : Remote controller sensor</td>
</tr>
<tr>
<td>33</td>
<td>Temperature unit select</td>
<td>0000 : °C (at factory shipment)</td>
<td>0001 : °F</td>
</tr>
<tr>
<td>40</td>
<td>Control for humidifier (+ drain pump control)</td>
<td>0000 : None</td>
<td>0001 : Humidifier + Vaporizing system (Pump ON)  0002 : Humidifier + Ultrasonic system (Pump ON after specified time passed) (Unused)  0003 : Humidifier + Natural drain system (Pump OFF)</td>
</tr>
<tr>
<td>5d</td>
<td>High ceiling selection (Air volume selection)</td>
<td>0000 : Standard filter  0001 : Super-long life [Concealed Duct Standard type]  0002 : Standard static pressure (40Pa)  0003 : High static pressure 2 (100Pa)</td>
<td>0001 : High static pressure 1 (70Pa)  0005 : Correspond to quiet sound  0006 : Low static pressure (20Pa)</td>
</tr>
<tr>
<td>60</td>
<td>Timer set (Wired remote controller)</td>
<td>0000 : Available (Operable)</td>
<td>0001 : Unavailable (Operation prohibited)</td>
</tr>
<tr>
<td>62</td>
<td>Smudging-proof control clear</td>
<td>0000 : Clear</td>
<td>0001 : Release communication signal receive</td>
</tr>
<tr>
<td>92</td>
<td>Outside interlock release condition</td>
<td>0000 : Operation stop</td>
<td>0001 : Release communication signal receive</td>
</tr>
</tbody>
</table>

Table: Function selecting item numbers (DN)  
(Items necessary to perform the applied control at the local site are described.)
## TYPE

### Item code [10]

<table>
<thead>
<tr>
<th>Setup data</th>
<th>Type</th>
<th>Abbreviated Model name</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000</td>
<td>1-way Air Discharge Cassette</td>
<td>MMU-AP XXX SH</td>
</tr>
<tr>
<td>0001</td>
<td>4-way Air Discharge Cassette</td>
<td>MMU-AP XXX H</td>
</tr>
<tr>
<td>0002</td>
<td>2-way Air Discharge Cassette</td>
<td>MMU-AP XXX WH</td>
</tr>
<tr>
<td>0003</td>
<td>1-way Air Discharge Cassette (Compact type)</td>
<td>MMU-AP XXX YH</td>
</tr>
<tr>
<td>0004</td>
<td>Concealed Duct Standard</td>
<td>MMD-AP XXX BH</td>
</tr>
<tr>
<td>0006</td>
<td>Concealed Duct High Static Pressure</td>
<td>MMD-AP XXX H</td>
</tr>
<tr>
<td>0007</td>
<td>Under Ceiling</td>
<td>MMC-AP XXX H</td>
</tr>
<tr>
<td>0008</td>
<td>High Wall</td>
<td>MMK-AP XXX H</td>
</tr>
<tr>
<td>0010</td>
<td>Floor Standing Cabinet</td>
<td>MML-AP XXX H</td>
</tr>
<tr>
<td>0011</td>
<td>Floor Standing Concealed</td>
<td>MML-AP XXX BH</td>
</tr>
<tr>
<td>0013</td>
<td>Floor Standing</td>
<td>MMF-AP XXX H</td>
</tr>
<tr>
<td>~</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Indoor unit capacity

### Item code [11]

<table>
<thead>
<tr>
<th>Setup data</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>007</td>
</tr>
<tr>
<td>0003</td>
<td>009</td>
</tr>
<tr>
<td>0005</td>
<td>012</td>
</tr>
<tr>
<td>0007</td>
<td>015</td>
</tr>
<tr>
<td>0009</td>
<td>018</td>
</tr>
<tr>
<td>0011</td>
<td>024</td>
</tr>
<tr>
<td>0012</td>
<td>027</td>
</tr>
<tr>
<td>0013</td>
<td>030</td>
</tr>
<tr>
<td>0015</td>
<td>036</td>
</tr>
<tr>
<td>0017</td>
<td>048</td>
</tr>
<tr>
<td>0018</td>
<td>056</td>
</tr>
<tr>
<td>0021</td>
<td>072</td>
</tr>
<tr>
<td>0023</td>
<td>096</td>
</tr>
<tr>
<td>~</td>
<td></td>
</tr>
</tbody>
</table>
7-1-2. Applied Control in Indoor Unit

Remote location ON/OFF control box (TCB-IFCB-4E)

[Wiring and setup]
- Use the exclusive connector for connection with the indoor control P.C. board.
- In a group control, the system can operate when connecting with any indoor unit (Control P.C. board) in the group. However when taking out the operation/error signal from the other unit, it is necessary to take out from each unit individually.

(1) Control items
1) Start/Stop input signal: Operation start/stop in unit
2) Operation signal: Output during normal operation
3) Error signal: Output during alarm (Serial communication error or indoor/outdoor protective device) operation

(2) Wiring diagram using remote control interface (TCB-IFCB-4E)
Input IFCB-4E: No voltage ON/OFF serial signal
Output No voltage contact for operation, compressor (thermostat ON), error display
Contact capacity: Below Max. AC240V 1A

Indoor control P.C. board

Start/Stop input
COM (GND)
Remote controller prohibition/clear input
Operation signal output
COM (+12V)
Error signal output

ON side
Start signal input

OFF side
Stop signal input
COM
Operation signal output
Error signal output

Power supply 230V
■ Ventilating fan control from remote controller

[Function]
- The start/stop operation can be operated from the wired remote controller when air to air heat exchanger or ventilating fan is installed in the system.
- The fan can be operated even if the indoor unit is not operating.
- Use a fan which can receive the no-voltage A contact as an outside input signal.
- In a group control, the units are collectively operated and they can not be individually operated.

(1) Operation
Handle a wired remote controller in the following procedure.
- Use the wired remote controller during stop of the system.
- Be sure to set up the wired remote controller to the header unit. (Same in group control)
- In a group control, if the wired remote controller is set up to the header unit, both header and follower units are simultaneously operable.

1 Push concurrently \text{SET} + \text{CL} + \text{ } buttons for 4 seconds or more.
The unit No. displayed firstly indicates the header indoor unit address in the group control.
In this time, the fan of the selected indoor unit turns on.

2 Every pushing \text{UNIT} button, the indoor unit numbers in group control are displayed successively.
In this time, the fan of the selected indoor unit only turns on.

3 Using the setup temp \text{ } or \text{ } button, specify the item code \text{31}.

4 Using the timer time \text{ } or \text{ } button, select the setup data. (At shipment: \text{0000})
The setup data are as follows:

<table>
<thead>
<tr>
<th>Setup data</th>
<th>Handling of operation of air to air heat exchanger or ventilating fan</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000</td>
<td>Unavailable (At shipment)</td>
</tr>
<tr>
<td>0001</td>
<td>Available</td>
</tr>
</tbody>
</table>

5 Push \text{SET} button. (OK if display goes on.)
- To change the selected indoor unit, go to the procedure 2).
- To change the item to be set up, go to the procedure 3).

6 Pushing \text{ } returns the status to the usual stop status.

(2) Wiring

- 4-way Air Discharge Cassette type
- Concealed Duct Standard type
- Under Ceiling type
- High Wall type
- Corresponds up to a relay in which rated current of the operation coil is approx. 75mA
- Other type models:
  - Correspond up to a relay in which rated current of the operation coil is approx. 16mA (Does not correspond to a terminal block type relay on the market.)

\text{Note) Determine the cable length between the indoor control P.C. board and the relay within 2m.}
Leaving-ON prevention control

[Function]
- This function controls the indoor units individually. It is connected with cable to the control P.C. board of the indoor unit.
- In a group control, it is connected with cable to the indoor unit (Control P.C. board), and the item code \( G6E \) is set to the connected indoor unit.
- It is used when the start operation from outside if unnecessary but the stop operation is necessary.
- Using a card switch box, card lock, etc, the forgotten-OFF of the indoor unit can be protected.
- When inserting a card, start/stop operation from the remote controller is allowed.
- When taking out a card, the system stops if the indoor unit is operating and start/stop operation from the remote controller is forbidden.

(1) Control items
1) Outside contact ON : The start/stop operation from the remote controller is allowed. (Status that card is inserted in the card switch box)
2) Outside contact OFF : If the indoor unit is operating, it is stopped forcedly. (Start/Stop prohibited to remote controller) (Status that card is taken out from the card switch box)

When the card switch box does not perform the above contact operation, convert it using a relay with b contact.

(2) Operation
Handle the wired remote controller switch in the following procedure.
- Use the wired remote controller switch during stop of the system.

1) Push concurrently \( \text{SET} + CL + \text{button} \) for 4 seconds or more.
2) Using the setup temp \( \text{ or } \) button, specify the item code \( G6E \).
3) Using the timer time \( \text{ or } \) button, set \( G60 \) to the setup data.
4) Push \( \text{SET} \) button.
5) Push \( \text{button} \). (The status returns to the usual stop status.)

(3) Wiring

Power peak-cut from indoor unit
When the relay is turned on, a forced thermostat-OFF operation starts.
7-2. Outdoor Unit

7-2-1. Applied Control in Outdoor Unit

The following functions become available by setting the switches on the outdoor interface P.C. board.

<table>
<thead>
<tr>
<th>No.</th>
<th>Function</th>
<th>Switch No.</th>
<th>Bit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Outdoor fan high static pressure shift</td>
<td>SW10</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Cooling priority, Heating priority control</td>
<td>SW11</td>
<td>1, 2</td>
</tr>
</tbody>
</table>

*Interface P.C. board of outdoor unit*

*Switch position magnified drawing*
7-2-1-1. Outdoor fan High Static Pressure Shift

■ Usage/Features
This function is set when connecting a duct to discharge port of the outdoor unit.

■ Setup
Turn “Bit 2” of the Dip switch [SW10] on the interface P.C. board of the outdoor unit to ON side. For the outdoor units which are connected with the ducts, set this function regardless of the header unit or follower unit.

■ Specifications
Increase No. of rotations of the propeller fan of the outdoor fan so that a duct with the maximum outside static pressure 35Pa (3.5mmAq) can be installed. If installing a discharge duct (Below 35Pa (3.5mmAq)) exceeding the duct resistance 15Pa (1.5mmAq), execute this setup.
Discharge air volume in each outdoor unit is described in the following table.

<table>
<thead>
<tr>
<th>Capacity rank (MMY-MAP)</th>
<th>0501, 0601 type</th>
<th>0801 type</th>
<th>1001, 1201 type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard air volume of outdoor unit (m³/min.)</td>
<td>150</td>
<td>165</td>
<td>175</td>
</tr>
</tbody>
</table>

7-2-1-2. Cooling Priority, Heating Priority Control

■ Usage/Features
Cooling priority or heating priority can be selected.
There are the following four patterns in selecting setup of the priority mode. Select a priority mode based upon the demand of the destination to be installed.

■ Setup
(Note) In “Specific indoor unit priority” mode only, it is necessary to set up an indoor unit only which you desire to give priority.

1. Outdoor unit (Header unit only) setup

<table>
<thead>
<tr>
<th>SW11</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bit 1</strong></td>
<td><strong>Bit 2</strong></td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>ON</td>
<td>ON</td>
</tr>
</tbody>
</table>
2. Indoor unit setup in “Specific indoor unit priority” mode

The setup can be changed during stop of operation. (Be sure to stop the system.)

![Diagram of remote controller and indoor unit]

**Procedure**

<table>
<thead>
<tr>
<th>Operation contents</th>
</tr>
</thead>
</table>
| **1** When pushing [SET + CL] buttons at the same time for 4 seconds or more, as shown in the figure, the display section flashes after a while confirm the displayed item code is [ ].
- When the item code is one other than [ ], push [ ] button to eliminate the display and then repeat the procedure from the first step. (The remote controller operation is not accepted approx. 1 minute after pushing [ ] button.)
- (In a group control, the indoor unit with number displayed firstly is set to the header unit.)

| **2** Every pushing [UNIT], the indoor unit numbers in the group control are successively displayed. Select the indoor unit of which setup is to be changed. In this time, as the fan and louver of the selected indoor unit operate, the position of the indoor unit of which setup is to be changed can be confirmed. |

| **3** Using the setup temperature [ ] and [ ] buttons, specify the item code [ ]. |

| **4** Using the timer time [ ] and [ ] buttons, select the setup data [ ].
- Priority: . No priority: . |

| **5** Push [SET] button. In this time, the setup operation finishes when the display changes from flashing to lighting. |

| **6** After setup operation has finished, push [ ] button. (Setup is determined.) When pushing [ ] button, the display disappears and the status returns to the usual stop status. (The remote controller operation is not accepted for approx. 1 minute.) |

**(NOTE)**

Only one indoor unit can be set to “Priority”. If the multiple indoor units are accidentally set to “Priority”, an error code (L05 or L06: Duplicated indoor unit priority) is displayed.

To the unit displaying “L05”, [0001 (Priority)] is setup. Separate a unit which you will give priority from the other indoor units, and return the setup data of the other indoor units to [0000 (No priority)].

**Error code**

<table>
<thead>
<tr>
<th>Error code</th>
<th>Error contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>L05</td>
<td>Indoor unit priority duplication ([ ] is set up.)</td>
</tr>
<tr>
<td>L06</td>
<td>Indoor unit priority duplication ([ ] is set up.)</td>
</tr>
</tbody>
</table>
7-2-2. Applied Control in Outdoor Unit

The following functions become available by using a control P.C. board sold separately. Set up the switches or the header outdoor unit (U1).

<table>
<thead>
<tr>
<th>No.</th>
<th>Function</th>
<th>Switch No.</th>
<th>Bit</th>
<th>Connector No.</th>
<th>Used control P.C. board</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power peak-cut control (Standard)</td>
<td>SW07</td>
<td>1</td>
<td>CN513</td>
<td>TCB-PCDM2E</td>
</tr>
<tr>
<td>2</td>
<td>Power peak-cut control (Expansion)</td>
<td>SW07</td>
<td>1,2</td>
<td>CN513</td>
<td>TCB-PCDM2E</td>
</tr>
<tr>
<td>3</td>
<td>Snowfall fan control</td>
<td>—</td>
<td>—</td>
<td>CN509</td>
<td>TCB-PCMO2E</td>
</tr>
<tr>
<td>4</td>
<td>External master ON/OFF control</td>
<td>—</td>
<td>—</td>
<td>CN512</td>
<td>TCB-PCMO2E</td>
</tr>
<tr>
<td>5</td>
<td>Night operation control</td>
<td>—</td>
<td>—</td>
<td>CN508</td>
<td>TCB-PCMO2E</td>
</tr>
<tr>
<td>6</td>
<td>Operation mode selection control</td>
<td>—</td>
<td>—</td>
<td>CN510</td>
<td>TCB-PCMO2E</td>
</tr>
</tbody>
</table>

<Outdoor unit interface P.C. board>  
<Connector position magnified drawing>

<table>
<thead>
<tr>
<th>Bit</th>
<th>For power peak-cut control selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>For power peak-cut control (expansion) selection</td>
</tr>
</tbody>
</table>

<Switch position magnified drawing>
7-2-2-1. Power Peak-cut Control (Standard)

**Operation**
The upper limit capacity of the outdoor unit is restricted based on the demand request signal from outside.

- **L1** : Display lamp during power peak-cut control
- **SW1** : Power peak-cut ON switch (ON during demand, OFF in normal time) *1
- **SW2** : Power peak-cut OFF switch (OFF during demand, ON in normal time) *1

*1 Input signals of SW1 and SW2 are acceptable even if they are longer than pulse input (100mm.sec.) or serially made. However, do not turn on SW1 and SW2 simultaneously.

* Be sure to prepare a contact for each terminal.

**Relay contact capacity of “operation” port**
Below AC240V 1A (COSØ = 100%)
Below DC24V 2A (Non-inductive load)

**Note**
When connecting non-inductive load such as relay coil to L1 load, insert the noise surge absorber CR (In case of AC) or counter electromotive-proof diode (In case of DC) into the bypass circuit.

Power peak-cut control board: TCB-PCDM2E
Outdoor unit destination to be connected becomes the header outdoor unit (U1).

**Setup when Power peak-cut control requested**

<table>
<thead>
<tr>
<th>Power peak-cut control board (TCB-PCDM2E)</th>
<th>SW07: Bit 1 OFF</th>
<th>SW07: Bit 1 ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power peak-cut ON signal is input.</td>
<td>0% (Forced stop)</td>
<td>Capacity 60% (Upper limit restriction)</td>
</tr>
<tr>
<td>Power peak-cut OFF signal is input.</td>
<td>100% (Usual operation)</td>
<td>100% (Usual operation)</td>
</tr>
</tbody>
</table>

<Setup positions of header outdoor unit interface P.C. board>

<Connector position magnified drawing>

<Switch position magnified drawing>
7-2-2-2. Power Peak-cut Control (Expansion)

**Operation**
The upper limit capacity of the outdoor unit is restricted based on the demand request signal from outside.

- **L1**: Display lamp during Power peak-cut control
- **SW1**: Power peak-cut ON switch *1
- **SW2**: Power peak-cut OFF switch *1

*1 Input signals of SW1 and SW2 are acceptable even if they are upper than pulse input (100mm. sec.) or serially made.

- Be sure to prepare a contact for each terminal.

**Relay contact capacity of “operation” port**

- Below AC240V 1A (COSØ = 100%)
- Below DC24V 2A (Non-inductive load)

**Note** When connecting non-inductive load such as relay coil to L1 load, insert the noise surge absorber CR (In case of AC) or counter electromotive-proof diode (In case of DC) into the bypass circuit.

Power peak-cut control board: TCB-PCDM2E
Outdoor unit destination to be connected becomes the header outdoor unit (U1).

### Setup at power peak-cut control (expansion) request

<table>
<thead>
<tr>
<th>Control lamp</th>
<th>Outside power peak-cut request</th>
<th>Power Peak-cut request</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1: OFF</td>
<td>SW1: OFF SW2: OFF</td>
<td>I/F SW07, Bit 1</td>
</tr>
<tr>
<td>ON</td>
<td>ON OFF</td>
<td>OFF time</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>100% (Normal operation)</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>85% (Upper limit restriction)</td>
</tr>
<tr>
<td>ON</td>
<td>ON</td>
<td>75% (Upper limit restriction)</td>
</tr>
<tr>
<td>ON</td>
<td>ON</td>
<td>60% (Upper limit restriction)</td>
</tr>
<tr>
<td>ON</td>
<td>ON</td>
<td>50% (Upper limit restriction)</td>
</tr>
</tbody>
</table>

**<Setup positions of header outdoor unit interface P.C. board>**

**<Connector position magnified drawing>**

**<Switch position magnified drawing>**

---

85
7-2-2-3. Snowfall Fan Control

**Operation**
The outdoor unit fan operates by the Snowfall signal from outside.

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Input signal</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>COOL (SMC)</td>
<td>ON</td>
<td>Snowfall fan control (Operates outdoor unit fan.)</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>Usual operation (Releases control.)</td>
</tr>
</tbody>
</table>

The control contents are accepted during leading and trailing of the input signal.
(The status of leading and trailing should be held for 100mm. sec. or more.)

External master ON/OFF control board : TCB-PCM02E
Outdoor unit destination to be connected becomes the header outdoor unit (U1).

SMC: Cooling Mode Select (switch)

---

7-2-2-4. External master ON/OFF control

**Operation**
The outdoor unit starts or stops the system.

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Input signal</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>COOL (SMC)</td>
<td>ON</td>
<td>Starts collectively indoor units.</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>Stops collectively indoor units.</td>
</tr>
</tbody>
</table>

The control contents are accepted during trailing of the input signal.
(The status of trailing should be held for 100mm. sec. or more.)

**NOTES**
1) Do not turn on COOL and HEAT terminals concurrently.
2) Be sure to prepare a contact for each terminal.
   Outside signal: No voltage pulse contact

External master ON/OFF control board : TCB-PCM02E
Outdoor unit destination to be connected becomes the header outdoor unit (U1).

SMH: Heating Mode Select (switch)
7-2-2-5. Night Operation Control

**Operation**

The noise decreases in the night.

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Input signal</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>COOL (SMC)</td>
<td>ON</td>
<td>Night (sound reduction) operation control</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>Usual operation</td>
</tr>
</tbody>
</table>

The control contents are accepted during leading and trailing of the input signal. (The status of leading and trailing should be held for 100mm. sec. or more.)

Capacity criterion during night operation control

Capacity during control indicates values as described in the following table.

<table>
<thead>
<tr>
<th>Night operation sound reduction dB (A)</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>COOL</td>
</tr>
<tr>
<td>1201 type</td>
<td>50</td>
</tr>
<tr>
<td>1001 type</td>
<td>50</td>
</tr>
<tr>
<td>0801 type</td>
<td>50</td>
</tr>
<tr>
<td>0601 type</td>
<td>50</td>
</tr>
<tr>
<td>0501 type</td>
<td>50</td>
</tr>
</tbody>
</table>

(Against Max. capacity)

External master ON/OFF control board : TCB-PCM02E
Outdoor unit destination to be connected becomes the header outdoor unit (U1).

7-2-2-6. Operation Mode Selection Control

**Operation**

SMC: COOL mode specification input switch
SMH: HEAT mode specification input switch

This control can be operated with the operation mode which is permitted by SMC or SMH.

The indoor unit operating by operation mode without permission is as follows:

1) Display on remote controller
   “Mode select controlled” goes on.

2) Indoor fan
   In FAN mode: Fan normally operates.
   In COOL mode: Fan normally operates.
   In HEAT mode: Fan operates with ultra low speed.

   * Be sure to prepare a contact for each contact terminal.
   Outside signal: No voltage serial contact

External master ON/OFF control board : TCB-PCM02E
Outdoor unit destination to be connected becomes the header outdoor unit (U1).
8. TEST OPERATION

8-1. Procedure and Summary of Test Operation

A test operation is executed in the following procedure. When a trouble or an error occurs in each step, remove causes of a trouble or an error referring to the section “9. Troubleshooting”.

Check before test operation

- Check the basic items, mainly the installation work.
  Be sure to enter the check results in the check list 1 and 2.

Check the main power supply is turned on.

- It is the check after the power has been turned on.
  Check the refrigerant circuit system is normally turned on.

Set up the addresses.

- Start the address setup in the outdoor/indoor units.
  (NOTE) The operation does not start by only power-ON.

Test operation

- Carry out a test operation.
  Check air blowing and cooling/heating operation in the indoor unit.

END

8-2. Check Items before Test Operation

Prior to the test operation, check the following items so that there is no trouble in the installation work.

<Main check items for electric wiring>

The communication system differs from that of R22 or R407 refrigerant “Modular Multi system” air conditioner.

Check again cautious points on wiring.

1. In case that a center control system is not connected:

<table>
<thead>
<tr>
<th>No.</th>
<th>Main check items</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Are indoor and outdoor communication lines of the header unit connected to U1/U2 terminals?</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Is the relay connector between U1/U2 terminal and U3/U4 terminal removed? (Set up at shipment from the factory)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Is the communication line between outdoor and indoor units connected to U5/U6 terminal?</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Is the terminal resistance (SW30-2) on the interface P.C. board of the header unit turned on? (Set up at shipment from the factory)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Is the end terminal of the shield cable grounded?</td>
<td></td>
</tr>
</tbody>
</table>

NOTE) The above figure does not show all the electric cables.

For details, refer to the installation manuals for outdoor unit, indoor unit, remote controller, or optional devices.
2. In case that a central control system is connected (Before address setup)

### Main check items

<table>
<thead>
<tr>
<th>No.</th>
<th>Main check items</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>Are indoor and outdoor communication lines of the header unit connected to U1/U2 terminals?</td>
<td></td>
</tr>
<tr>
<td>②</td>
<td>Is the relay connector between U1/U2 terminal and U3/U4 terminal removed?</td>
<td>(Set up at shipment from the factory) (Before address setup, remove the relay connector.)</td>
</tr>
<tr>
<td>③</td>
<td>Is the communication line between outdoor and indoor units connected to U5/U6 terminal?</td>
<td></td>
</tr>
<tr>
<td>④</td>
<td>Is the communication line of the central control system connected to the header unit U3/U4 terminals of each refrigerant line?</td>
<td>(The communication line of the central control system may be connected to the communication lines of the indoor/outdoor communication lines.)</td>
</tr>
<tr>
<td>⑤</td>
<td>Is the terminal resistance (SW30-2) on the interface P.C. board of the header unit turned on?</td>
<td>(Set up at shipment from the factory) (After address setup, turn off SW30-2 of the header unit except the smallest unit after check of trial operation.)</td>
</tr>
<tr>
<td>⑥</td>
<td>Is the end terminal of the shield cable grounded?</td>
<td></td>
</tr>
<tr>
<td>⑦</td>
<td>When the refrigerant line and the central control system of the custom air conditioner are connected:</td>
<td>Are TCC-LINK adaptors correctly connected?</td>
</tr>
<tr>
<td></td>
<td>→ Are TCC-LINK adaptors correctly connected?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>→ When the digital inverter air conditioner operates with group operation, twin, or triple operation, are the adopters connected to the header unit of the indoor unit?</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE** The above figure does not show all the electric cables.

For details, refer to the installation manuals for outdoor unit, indoor unit, remote controller, or optional devices.
<Check list 1>
• Using the “Check list 1”, check there is no trouble in the installation work.

| Is capacity of the leak breaker appropriate? | Outdoor total capacity | A | Header unit (A) | A | Indoor unit | A |
| Is diameter of the power cable correct? | | | Header unit (A) | mm² | Indoor unit | mm² |
| Is control communication line correct? | | | Indoor –outdoor connection terminals (U1, U2) | | |
| Is power of indoor units supplied collectively? | | | Outdoor–outdoor connection terminals (U5, U6) | |
| Is earth grounded | | | Central control system connection terminals (U3, U4) | |
| Is insulation good? | | | | |
| Is the main power voltage good? | V | | | |
| Is diameter of connecting pipe correct? | | | | |
| Is the branch kit correct? | | | | |
| Is drain water of the indoor unit arranged so that it flows without accumulation? | | | | |
| Is thermal insulation of pipes good? (Connecting pipes, Branch kit) | | | | |
| Is not short-circuit of discharge air in indoor/outdoor units? | | | | |
| After airtight test for pipes, are vacuuming and adding of refrigerant executed? | Gas side | Liquid side | Balance side |
| Are valves of all the outdoor units fully opened? | Header unit (A) | | | |
| | Follower unit (B) | | | |
| | Follower unit (C) | | | |
| | Follower unit (D) | | | |
• Check the additional amount of refrigerant.

<Check list 2>

Calculate the additional amount of refrigerant from the additional amount of refrigerant (A) by the pipe diameter at liquid side and the pipe length to be connected and the corrective amount of refrigerant (C) by the system capacity.

\[
\text{Additional amount of refrigerant} = \text{Actual liquid pipe length} \times \text{Additional amount of refrigerant per liquid pipe 1m} + \text{Corrective amount of refrigerant by system capacity (C)}
\]

Firstly enter the total length for each liquid pipe in the following table, and then calculate the additional amount of refrigerant by pipe length.

<Additional amount of refrigerant by pipe length>

<table>
<thead>
<tr>
<th>Pipe dia at liquid side</th>
<th>Standard amount of refrigerant kg/m</th>
<th>Total pipe length at each liquid side</th>
<th>Additional amount of refrigerant pipe dia at each liquid side kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø6.4</td>
<td>0.025 ( \times )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø9.5</td>
<td>0.055 ( \times )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø12.7</td>
<td>0.105 ( \times )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø15.9</td>
<td>0.160 ( \times )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø19.0</td>
<td>0.250 ( \times )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø22.2</td>
<td>0.3505 ( \times )</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional amount of refrigerant by pipe length (A) kg

Next, refer to the following table for the corrective amount of refrigerant (C) by system capacity.

<Corrective amount of refrigerant by system capacity>

<table>
<thead>
<tr>
<th>System horse power HP</th>
<th>Normal type</th>
<th>System horse power HP</th>
<th>Normal type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unit 1</td>
<td>Unit 2</td>
<td>Unit 3</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>8</td>
<td>1.5</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>10</td>
<td>2.5</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>12</td>
<td>3.5</td>
</tr>
<tr>
<td>14</td>
<td>8</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>16</td>
<td>8</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>10</td>
<td>10</td>
<td>3.0</td>
</tr>
<tr>
<td>22</td>
<td>8</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>22</td>
<td>12</td>
<td>10</td>
<td>5.0</td>
</tr>
<tr>
<td>24</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>24</td>
<td>12</td>
<td>12</td>
<td>7.0</td>
</tr>
<tr>
<td>26</td>
<td>10</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

Lastly add the additional amount of refrigerant by pipe length (A) to the corrective amount of refrigerant by system capacity (C). It is the final additional amount of refrigerant.

As the result, If minus sign is indicated, do not add the refrigerant (=0kg).

<Additional amount of refrigerant>

<table>
<thead>
<tr>
<th>Additional amount of refrigerant by pipe length (A)</th>
<th>kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrective amount of refrigerant by system HP (C)</td>
<td>kg</td>
</tr>
<tr>
<td>Additional amount of refrigerant</td>
<td>kg</td>
</tr>
</tbody>
</table>
8-3. Check at Main Power-ON

After turning on the main power of the indoor units and outdoor unit in the refrigerant line to be executed with a test operation, check the following items in each outdoor and indoor unit.

(After turning on the main power, be sure to check in order of indoor unit → outdoor unit.)

<Check on outdoor unit>

1. Check that all the rotary switches, SW01, SW02, and SW03 on the interface P.C. board of the header unit are set up to “1”.
2. If other error code is displayed on 7-segment [B], remove the cause of trouble referring to “9. Troubleshooting”.
3. **Check that [L08] is displayed on 7-segment display [B]** on the interface P.C. board of the header unit.
   (L08: Indoor address unset up)
   (If the address setup operation has already finished in service time, etc, the above check code is not displayed, and only [U1] is displayed on 7-segment display [A].)

<Check on indoor unit>

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

   ![Normal status](image1)
   ![Abnormal status](image2)

   If a frame is not displayed as shown in the above right figure, the power of the remote controller is not normally turned on. Therefore check the following items.
   - Check power supply of indoor unit.
   - Check cabling between indoor unit and remote controller.
   - Check whether there is cutoff of cable around the indoor control P.C. board or not, and check connection failure of connectors.
   - Check failure of transformer for the indoor microcomputer.
   - Check indoor control P.C. board failure.
8-4. Address Setup
After power-ON, set up the indoor address from the interface P.C. board of the header unit.  
(The address setup operation cannot be performed by power-ON only.)

8-4-1. Cautions
1. It requires approx. 5 minutes usually for 1 line to automatically set up address.  
   However in some cases, it may require maximum 10 minutes.
2. It is unnecessary to operate the air conditioner for address setup.
3. Manual address setup is also available besides automatic setup.  
   Automatic address: Setup from SW15 on the interface P.C. board of the header unit  
   Manual address: Setup from the weird remote controller.  
   (For details, refer to section “8-4-3. Address setup procedure”)

8-4-2. Address Setup and Check Procedure

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Item</th>
<th>Operation and check contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Indoor unit power-ON</td>
<td>Turn on power of indoor unit in refrigerant line to which address is set up.</td>
</tr>
<tr>
<td>2</td>
<td>Outdoor unit power-ON</td>
<td>Turn on power of all the outdoor units in refrigerant line to which address is set up.</td>
</tr>
<tr>
<td>3</td>
<td>7-segment display check</td>
<td>Check that [L08] is displayed on 7-segment display [B] on the interface P.C. board of the header unit in the system to which address is set up.</td>
</tr>
</tbody>
</table>
| 4         | Address setup start | Confirm the corresponding items in “8-4-3 Address setup procedure”, and then set up address according to the operation procedure.  
   (Be sure that the setup operation may differ in group control or central control.)  
   Note) Address cannot be set up if switches are not operated. |
| 5         | Display check after setup | • After address setup, [U1] is displayed in 7-segment display section.  
   • For follower outdoor units, [U2] to [U4] are displayed in 7-segment display [A].  
   • If an error code is displayed in 7-segment display [B], remove the cause of trouble referring to “9. Troubleshooting”. |

6. System information check after setup
Using 7-segment display function, check the system information of the scheduled system.  
(This check is executed on the interface P.C. board of the header unit.)

<table>
<thead>
<tr>
<th>Rotary switch setup</th>
<th>7-segment display</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW01</td>
<td>SW02</td>
</tr>
<tr>
<td>System capacity</td>
<td>1</td>
</tr>
<tr>
<td>No. of connected outdoor units</td>
<td>1</td>
</tr>
<tr>
<td>No. of connected indoor units</td>
<td>1</td>
</tr>
</tbody>
</table>

After the above checks, return rotary switches SW01, SW02, SW03 to 1/1/1.
8-4-3. Address Setup Procedure

In this air conditioner, it is required to set up address to the indoor unit before starting operation. Set up the address according to the following setup procedure.

**CAUTIONS**

1. Set up address after wiring work.
2. Be sure to turn on the power in order of indoor unit → outdoor unit. If turning on the power in the reverse order, a check code [E19] (Error of No. of header units) is output. When a check code is output, turn on the power again.
3. It requires maximum 10 minutes (Usually, approx. 5 minutes) to set up automatically an address to 1 line.
4. To set up an address automatically, the setup at outdoor side is necessary. (Address setup cannot be performed by power-ON only.)
5. To set up an address, it is unnecessary to operate the air conditioner.
6. Manual address setup is also available besides automatic setup.
   - Automatic address : Setup from SW15 on the interface P.C. board of the header unit
   - Manual address : Setup from the weird remote controller
   - It is temporarily necessary to set the indoor unit and wired to 1 : 1. (In group operation and in time without remote controller)

### Automatic Address Setup

**Without central control** : To the address setup procedure 1

**With central control** : To the address setup procedure 2

(However, go to the procedure 1 when the central control is performed in a single refrigerant line.)

<table>
<thead>
<tr>
<th>(Example)</th>
<th>In case of central control in a single refrigerant line</th>
<th>In case of central control over refrigerant lines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address setup procedure</td>
<td>To procedure 1</td>
<td>To procedure 2</td>
</tr>
<tr>
<td>Cable systematic diagram</td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image.png" alt="Diagram" /></td>
<td><img src="image.png" alt="Diagram" /></td>
<td><img src="image.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

**Address setup procedure 1**

1. Turn on power of indoor/outdoor units. *(In order of indoor → Outdoor)*
2. After approx. 1 minute, check that **U. 1. L08 (U. 1. flash)** is displayed in 7-segment display section on the interface P.C. board of the header unit.
3. Push SW15 and start setup the automatic address. *(Max. 10 minutes for 1 line (Usually, approx. 5 minutes))*
4. When the count **[Auto 1 → Auto 2 → Auto 3]** is displayed in 7-segment display section, and it changes from **[U. 1. - - - (U. 1. flash)]** to **[U. 1. - - - (U. 1. light)]**, the setup finished.
5. When perform a central control, connect a relay connector between [U1, U2] and [U3, U4] terminals in the header unit.
When a group control is performed over the multiple refrigerant lines, be sure to turn on the power supplies of all the indoor units connected in a group in the time of address setup.

If turning on the power for each refrigerant line to set up address, a header indoor unit is set for each line. Therefore, an alarm code “L03” (Duplicated indoor header units) is output in operation after address setup. In this case, change the group address from the wired remote controller for only one header unit is set up.

### Address setup procedure 2

1. Using SW13 and 14 on the interface P.C. board of the header unit in each system, set up the system address for each system.
   (At shipment from factory: Set to Address 1)

**Note** Be careful not to duplicate with other refrigerant line.

#### System address switch on outdoor interface P.C. board

<table>
<thead>
<tr>
<th>System address</th>
<th>SW13</th>
<th>SW14</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>2</td>
<td>x</td>
<td>o</td>
</tr>
<tr>
<td>3</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>4</td>
<td>x</td>
<td>o</td>
</tr>
<tr>
<td>5</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>6</td>
<td>x</td>
<td>o</td>
</tr>
<tr>
<td>7</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>8</td>
<td>x</td>
<td>o</td>
</tr>
<tr>
<td>9</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>10</td>
<td>x</td>
<td>o</td>
</tr>
<tr>
<td>11</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>12</td>
<td>x</td>
<td>o</td>
</tr>
<tr>
<td>13</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>14</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

: Is not used for setup of system address. (Do not change setup.)

2. Check that the relay connectors between [U1U2] and [U3U4] terminals are come out in all the header units to which the central control is connected.
   (At shipment from factory: No connection of connector)

3. Turn on power of indoor/outdoor.
   **(In order of indoor → outdoor)**

4. After approx. 1 minute, check that 7-segment display is U.1.L08 (U.1. flash) on the interface P.C. board of the header unit.

5. **Push SW15 and start setup the automatic address.**
   (Max. 10 minutes for 1 line (Usually, approx. 5 minutes))

6. When the count [Auto 1 → Auto 2 → Auto 3] is displayed in 7-segment display section, and it changes from U.1. - - - (U.1. flash) to U.1. - - - (U.1. light), the setup finished.

7. Procedure 4. to 6. are repeated in other refrigerant lines.
8. How to set up resistance of the end terminal
   When all the address setups have finished in the same refrigerant circuit system, put the resistance of the end terminals in the same central control line into one.
   
   - Remain only SW03-2 of the header outdoor unit with the least circuit system address number as it is ON. (With end terminal resistance)
   
   - Set up SW03-2 of the other header outdoor units to OFF. (Without end terminal resistance)

9. Connect the relay connector between [U1U2] and [U3U4] of the header unit for each refrigerant line.

10. Then set up the central control address.
    (For the central control address setup, refer to the Installation manual of the central control devices.)

<table>
<thead>
<tr>
<th>Before address setup</th>
<th>During setup of address</th>
<th>After address setup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Header unit</td>
<td>Follower unit</td>
<td>Relay connector</td>
</tr>
<tr>
<td>Individual</td>
<td>Group</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SW13, 14 (Line address)</th>
<th>Header unit</th>
<th>Follower unit</th>
<th>Header unit</th>
<th>Follower unit</th>
<th>Header unit</th>
<th>Setup at shipment from factory</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW30-2</td>
<td>1</td>
<td>(Setup is unnecessary.)</td>
<td>2</td>
<td>(Setup is unnecessary.)</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Terminal-end resistance of indoor/outdoor communication line</td>
<td>ON</td>
<td>(Setup is unnecessary.)</td>
<td>OFF after address setup</td>
<td>(Setup is unnecessary.)</td>
<td>OFF after address setup</td>
<td>ON</td>
</tr>
<tr>
<td>Relay connector</td>
<td>Connect short after address setup</td>
<td>Open</td>
<td>Connect short after address setup</td>
<td>Open</td>
<td>Connect short after address setup</td>
<td>Open</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indoor side (Automatic setup)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line address</td>
</tr>
<tr>
<td>Indoor unit address</td>
</tr>
<tr>
<td>Group address</td>
</tr>
</tbody>
</table>

**Point**

Never connect a relay connector until address setup for all the refrigerant lines finishes; otherwise address cannot be correctly set up.
Manual address setup from remote controller

In case to decide an address of the indoor unit prior to finish of indoor cabling work and unpracticed outdoor cabling work (Manual setup from remote controller)

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

Turn on the power.

1. Push simultaneously \( \text{SET} + \text{CL} + \) buttons for 4 seconds or more.
   LCD changes to flashing.
   (Line address)

2. Using the setup temp. \( \uparrow / \downarrow \) buttons, set \( i^2 \) to the item code.
   (Match it with the line address on the interface P.C. board of the header unit in the identical refrigerant line.)

3. Using the timer time \( \uparrow / \downarrow \) buttons, set up the line address.
   (Indoor address)

4. Push \( \text{SET} \) button.
   (OK when display goes on.)

5. Using the setup temp. \( \uparrow / \downarrow \) buttons, set \( i^3 \) to the item code.

6. Using the timer time \( \uparrow / \downarrow \) buttons, set up the indoor address.

7. Push \( \text{SET} \) button.
   (OK when display goes on.)

8. Using the setup temp. \( \uparrow / \downarrow \) buttons, set \( i^4 \) to the item code.

9. Using the timer time \( \uparrow / \downarrow \) buttons, set Individual = 0000, Header unit = 0001, Follower unit = 0002.

10. Push \( \text{SET} \) button.
    (OK when display goes on.)

11. Push \( \) button.
    Setup operation finished.
    (Status returns to normal stop status.)

(Wiring example in 2 lines)

In the above example, under condition of no inter-unit wire of the remote controller, set the address after individual connecting of the wired remote controller.

Group address
Individual : 0000
Center unit : 0001
Terminal unit : 0002


case of group control

Operation procedure
1 → 2 → 3 → 4 → 5 → 6 →
7 → 8 → 9 → 10 → 11 End

(Data Item code
Outdoor

#1

Indoor

Line address → 1
Indoor address → 1
Group address → 1

Remote controller
Header

#2

Indoor

1 1 2 2
Indoor

1 3 1 2
Indoor

2 2 2 2

Terminal

In case of group control

Group address
Individual : 0000
Center unit : 0001
Terminal unit : 0002

1 In case of group control

4, 7, 10

3, 6, 9

2, 5, 8

In the above example, under condition of no inter-unit wire of the remote controller, set the address after individual connecting of the wired remote controller.

In case to decide an address of the indoor unit prior to finish of indoor cabling work and unpracticed outdoor cabling work (Manual setup from remote controller)
Note 1)
When setting the line address from the remote controller, do not use address 29 and 30.
The address 29 and 30 cannot be set up in the outdoor unit. Therefore if they are incorrectly set up, a check code [E04] (Indoor/outdoor communication circuit error) is output.

Confirmation of indoor unit address and position by using the remote controller

[Confirmation of indoor unit address and the position]

1. When you want to know the indoor address though position of the indoor unit itself can be recognized;
   <Procedure> (Operation while the air conditioner operates)
   1 If it stops, push button.  
   2 Push button.  
      The unit NO is displayed on the LCD.  
      (Disappears after several seconds) The displayed unit No indicates the line address and indoor address. (If there is other indoor unit connected to the same remote controller (Group control unit), other unit No is displayed every pushing button.)

2. When you want to know position of the indoor unit using the address
   • To confirm the unit numbers in a group control;
   <Procedure> (Operation while the air conditioner stops)
   The indoor unit numbers in a group control are successively displayed, and the corresponding indoor fan is turned on. (Operation while the air conditioner stops)
   1 Push buttons simultaneously for 4 seconds or more.  
      • Unit No is displayed.  
      • The fans of all the indoor units in a group control are turned on.  
   2 Every pushing button, the indoor unit numbers in the group control are successively displayed.  
      • The firstly displayed unit No indicates the address of the header unit.  
      • Only fan of the selected indoor unit is turned on.  
   3 Push button to finish the procedure.  
      All the indoor units in group control stop.
To confirm all the unit numbers from an arbitrary wired remote controller:

<Procedure> (Operation while the air conditioner stops)
The indoor unit No and position in the same refrigerant piping can be confirmed. An outdoor unit is selected, the indoor unit numbers in the same refrigerant piping are successively displayed, and then its indoor unit fan is turned on.

1 Push the timer time \( \downarrow \) + \( \uparrow \) buttons simultaneously for 4 seconds or more.
   Firstly, the line 1, item code \( RCL \) (Address Change) is displayed. (Select outdoor unit.)

2 Using \( UNIT + \) buttons, select the line address.

3 Using \( SET \) button, determine the selected line address.
   • The indoor unit address, which is connected to the refrigerant pipe of the selected outdoor unit is displayed and the fan is turned on.

4 Every pushing \( UNIT \) button, the indoor unit numbers in the identical pipe are successively displayed.
   • Only fan of the selected indoor unit operates.

[To select another line address]

5 Push \( CL \) button to return to procedure 2).
   • The indoor address of another line can be successively confirmed.

6 Push \( \) button to finish the procedure.

Change of indoor address from remote controller

Change of indoor address from wired remote controller

• To change the indoor address in individual operation (Wired remote controller : Indoor unit = 1 : 1) or group control (When the setup operation with automatic address has finished, this change is available.)

<Procedure> (Operation while air conditioner stops)

1 Push simultaneously \( SET \) + \( CL \) + \( \) buttons for 4 seconds or more.
   (The firstly displayed unit No indicates the header unit in group control.)

2 In group control, select an indoor unit No to be changed by \( UNIT \) button.
   (The fan of the selected indoor unit is turned on.)

3 Using the setup temp. \( \uparrow \) / \( \downarrow \) buttons, set \( f \) to the item code.

4 Using the timer time \( \uparrow \) / \( \downarrow \) buttons, change the displayed setup data to a data which you want to change.

5 Push \( SET \) button.

6 Using the \( UNIT \) button, select the unit No. to be changed at the next time. Repeat the procedure 4 to 6 and change the indoor address so that it is not duplicated.

7 After the above change, push \( UNIT \) button to confirm the changed contents.

8 If it is acceptable, push \( \) button to finish confirmation.
To change all the indoor addresses from an arbitrary wired remote controller;
(When the setup operation with automatic address has finished, this change is available.)

Contents: Using an arbitrary wired remote controller, the indoor unit address can be changed for each same refrigerant piping line

- Change the address in the address check/change mode.

<Procedure> (Operation while air conditioner stops)

1. Push the timer time \( \downarrow \) + \( \uparrow \) buttons simultaneously for 4 seconds or more.
   Firstly, the line 1, item code \( R/C \) (Address Change) is displayed.

2. Using AN UNIT + \( \uparrow \) buttons, select the line address.

3. Push SET button.
   - The indoor unit address, which is connected to the refrigerant pipe of the selected outdoor unit is displayed and the fan is turned on.
     First the current indoor address is displayed on the setup data. (Line address is not displayed.)

4. The indoor address of the setup data moves up/down by the timer time \( \uparrow \) / \( \downarrow \) buttons.
   Change the setup data to a new address.

5. Push SET button to determine the setup data.

6. Every pushing UNIT button, the indoor unit numbers in the identical pipe are successively displayed. Only fan of the selected indoor unit operates.
   Repeat the procedure 4 to 6 and change all the indoor addresses so that they are not duplicated.

7. Push SET button.
   (All the displays on LCD go on.)

8. Push \( \text{\textbf{button}} \) to finish the procedure.

Here, if the unit No is not called up, the outdoor unit in this line does not exist.
Push \( \text{CL button} \), and then select a line according to procedure 2.

Operation procedure
1 \( \rightarrow \) 2 \( \rightarrow \) 3 \( \rightarrow \) 4 \( \rightarrow \)
5 \( \rightarrow \) 6 \( \rightarrow \) 7 \( \rightarrow \) 8 End
Clearance of address (Return to status (Address undecided) at shipment from factory)

Method 1
An address is individually cleared from a wired remote controller.
“0099” is set up to line address, indoor address, and group address data from the remote controller.
(For the setup procedure, refer to the abovementioned address setup from the remote controller.)

Method 2
Clear the indoor addresses in the same refrigerant line from the outdoor unit.
1. Turn off the power of the refrigerant line to be returned to the status at shipment, and change the header unit to the following status.
   1) Remove the relay connector between [U1U2] and [U3U4].
      (If it has been already removed, leave it as it is.)
   2) Turn on SW30-2 on the interface P.C. board of the header unit if it is ON.
      (If it has been already ON, leave it as it is.)

2. Turn on the indoor/outdoor power of which address is to be cleared. After approx. 1 minute, check that “U.1.- - -” is displayed, and then execute the following operation on the interface P.C. board of the header unit of which address is to be cleared in the refrigerant line.

<table>
<thead>
<tr>
<th>SW01</th>
<th>SW02</th>
<th>SW03</th>
<th>SW04</th>
<th>Address which can be cleared</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>2</td>
<td>After checking that “A.d.bus” is displayed on 7-degment display, and then push SW04 for 5 seconds or more.</td>
<td>Line + Indoor + Group address</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
<td>After checking that “A.d.nEt” is displayed on 7-degment display, and then push SW04 for 5 seconds or more.</td>
<td>Central address</td>
</tr>
</tbody>
</table>

3. After “A.d. c.L.” has been displayed on 7-degment display, return SW01/SW02/SW03 to 1/1/1.
4. When the address clearing has correctly finished, “U.1.L08” is displayed on 7-degment display after a while.
   If “A.d. n.G.” is displayed on 7-degment display, there is a possibility which is connected with the other refrigerant line. Check again the relay connector between [U1U2] and [U3U4] terminals.
   **NOTE** Be careful that the other refrigerant line address may be also cleared if clearing operation is not correctly executed.
5. After clearing of the address, set up an address again.
In case of increase the address-undefined indoor units (Extension, etc.)

If set up the indoor address of which address is undefined accompanied with extension of indoor units, replacement of P.C. board, etc, follow to the methods below.

Method 1
Set up an address individually from a wired remote controller.
(Line address, Indoor address, Group address, Central address)
For the setup method, refer to the above “Manual address setup from remote controller”.

Method 2
Set up an address from the outdoor unit.
* Leave the address of the unit of which address has been already set up as it is.
  Set up an address only to the unit of which address is undefined.
The addresses are allocated from the low number.

Setup procedure
Arrange the outdoor header units in the refrigerant line to which indoor units are added. (Figure below)
1. Remove the relay connector between [U1U2] and [U3U4].
2. Turn on SW30-2 on the interface P.C. board at outdoor header unit side if it is ON.
   * Turn off the power, and then execute the operation.
3. Turn on the indoor/outdoor power of which address is to be set up. After approx. 1 minute, check that “U.1. - - -” is displayed on 7-segment display.
4. Execute the following operation on the interface P.C. board of the header unit.

<table>
<thead>
<tr>
<th>SW01</th>
<th>SW02</th>
<th>SW03</th>
<th>SW04</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>14</td>
<td>2</td>
<td>After checking that “In.At” is displayed on 7-segment display, and then push SW04 for 5 seconds or more.</td>
</tr>
</tbody>
</table>

“AUTO1” → “AUTO2” → “AUTO3” … is counted and displayed on 7-segment display.
5. When “U.1. - - -” is displayed on 7-segment display, the setup operation finished.
   Turn off the indoor/outdoor power.
6. Return the following setup as before.
   • Relay connector
   • SW30-2
   • SW01, 02, 03
8-4-4. Check after Address Setup When Central Control System is Connected

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

<table>
<thead>
<tr>
<th>Main check items</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay connector</td>
<td></td>
</tr>
<tr>
<td>1) Is relay connector of the header unit connected after address setup?</td>
<td></td>
</tr>
<tr>
<td>2) Is relay connector of the follower unit removed?</td>
<td></td>
</tr>
<tr>
<td>Terminal resistance</td>
<td></td>
</tr>
<tr>
<td>3) Is the end resistance (SW03-2) of the header unit with the least address number (in the central control line) turned on? (Setup is unnecessary for follower unit.)</td>
<td></td>
</tr>
<tr>
<td>4) Are the terminal resistance (SW30-2) of the header units in except the line of which central control line address is the smallest turned off? (Setup is unnecessary for follower unit.)</td>
<td></td>
</tr>
<tr>
<td>Line address</td>
<td></td>
</tr>
<tr>
<td>5) Are not addresses in the line address (SW13, SW14) duplicated in each refrigerant line?</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE** The above table does not describe all the electric cabling. For details, refer to each installation manual for outdoor unit, indoor unit, remote controller, and optional devices.
8-5. Troubleshooting in Test Operation

If the phenomena appear, such as a check code is output or the remote controller is not accepted in power-ON after cabling work or in address setup operation, the following causes are considered.

8-5-1. A check Code is Displayed on the Remote Controller

<table>
<thead>
<tr>
<th>Check code displayed on remote controller</th>
<th>Center unit 7-segment display</th>
<th>Cause</th>
<th>Countermeasures</th>
</tr>
</thead>
<tbody>
<tr>
<td>E04</td>
<td>E19-00</td>
<td>Outdoor power is formerly turned on.</td>
<td>Turn on the power again. (In order of Indoor → Outdoor)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>There is none of outdoor terminal resistance, or there are two or more resistances. (After address setup)</td>
<td>Check SW30 bit 2 of the header unit. No connection between multiple refrigerant lines: SW30 bit 20N Connection between multiple refrigerant lines: SW30 bit 2 of the connected header unit is turned on only in one line.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>After address was decided, all the indoor units do not correctly response after power-ON in outdoor unit.</td>
<td>Check and modifies disconnection of indoor/outdoor communication line. (Communication line between center unit and the leading indoor unit) Check influence of communication noise.</td>
</tr>
<tr>
<td>L08</td>
<td></td>
<td>Address setup error  • Only line addresses of the connected indoor units are undefined.  • The outdoor line address and the line addresses in all indoor units do not match.  • The indoor addresses are duplicated. (Units except those displaying E04 are duplicated.)  • A header unit is not set up in a group. (Except group displaying E04)</td>
<td>Set up address again.</td>
</tr>
<tr>
<td>E08-XX</td>
<td></td>
<td>Duplication of indoor addresses. (Address No in which sub-code of the check code are duplicated)</td>
<td>Set up address again.</td>
</tr>
<tr>
<td>E07</td>
<td></td>
<td>There is none of outdoor terminal resistance, or there are two or more resistances. (After address setup, when terminal resistance setup is changed after power-ON.)</td>
<td>Check SW30 bit 2 of the header unit. No connection between multiple refrigerant lines: SW30 bit 20N Connection between multiple refrigerant lines: SW30 bit 2 of the connected header unit is turned on only in one line.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transmission circuit error at interface side (P.C. board failure)</td>
<td>Replace the interface P.C. board.</td>
</tr>
<tr>
<td>E06</td>
<td></td>
<td>After address setup, communication from all the indoor units interrupted under condition that a normal operation can be performed.</td>
<td>Check and correct disconnection of indoor/outdoor communication line. (Communication line between header unit and the leading indoor unit) Check influence of communication noise.</td>
</tr>
<tr>
<td>E16</td>
<td>E16-XX</td>
<td>Exceeded No of connected indoor units or exceeded capacity.</td>
<td>Adjust No of connected indoor units or capacity.</td>
</tr>
<tr>
<td>E25</td>
<td>E25</td>
<td>Duplication of outdoor addresses. (Only when outdoor address was manually set up)</td>
<td>Do not use a manual setup for outdoor address.</td>
</tr>
<tr>
<td>E26</td>
<td>E26-XX</td>
<td>No. of connected outdoor units decreased.  • When setting outdoor backup  • The power of follower unit is not turned on.</td>
<td>Correct of cause of error occurrence  • If it occurred when setting backup, clear the error after setup finish.  • If the power of follower unit is not turned on, turn on the power.</td>
</tr>
<tr>
<td>L04</td>
<td>L04</td>
<td>Duplication of outdoor line addresses  • Line address setup error, occurred after connection between U1, U2 and U3, U4 connectors</td>
<td>Modify line address setup of the header unit between lines. (Set up SW 13 and 14 on the interface P.C. board.)</td>
</tr>
<tr>
<td>L05 (*)</td>
<td>L06</td>
<td>Duplicated of indoor units with priority</td>
<td>Set up priority to only one indoor unit.</td>
</tr>
<tr>
<td>L06</td>
<td></td>
<td>There are two or more indoor units set up with priority.</td>
<td></td>
</tr>
<tr>
<td>L08</td>
<td>L08</td>
<td>Address setup error  • Only indoor addresses of all the connected indoor units are undefined.</td>
<td>Set up address again.</td>
</tr>
</tbody>
</table>

(*) [L05]: Displayed on the indoor unit set up with priority  
[L06]: Displayed on the indoor unit except one set up with priority
8-5-2. Operation from remote controller is not accepted and a check code is displayed on 7-segment display of the interface P.C. board of the header unit.

<table>
<thead>
<tr>
<th>Remote controller status</th>
<th>7-segment display of center unit</th>
<th>Cause</th>
<th>Countermeasures</th>
</tr>
</thead>
<tbody>
<tr>
<td>No response</td>
<td>L08 (Line addresses and indoor addresses of all the connected indoor units are unset.)</td>
<td>Set up addresses.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E19-00 (Indoor unit power is not turned on.)</td>
<td>Turn on the power.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E19-02 (When connecting indoor/outdoor communication line between outdoor units under condition of connected communication line between outdoor units)</td>
<td>Correct cabling.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E20-01 (Address setup is performed with connecting indoor/outdoor communication line between outdoor units)</td>
<td>Correct cabling.</td>
<td></td>
</tr>
</tbody>
</table>

8-5-3. There is no display of a check code on 7-segment display on the interface P.C. board of the header unit though there is indoor unit which does not accept the operation from the remote controller.

<table>
<thead>
<tr>
<th>Remote controller status</th>
<th>7-segment display of center unit</th>
<th>Cause</th>
<th>Countermeasures</th>
</tr>
</thead>
<tbody>
<tr>
<td>No response</td>
<td>None (Communication line is not connected between indoor and outdoor.)</td>
<td>Modify cabling.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None (Line and indoor addresses are unset.)</td>
<td>Set up address.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None (The power of the header unit of the group is not turned on in indoor group control.)</td>
<td>Turn on the power.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None (Group address is set up to follower unit in the individual control.)</td>
<td>Set [0] to group address in case of individual control.</td>
<td></td>
</tr>
<tr>
<td>No display on remote controller (No line is output.)</td>
<td>None (The power is not turned on.)</td>
<td>Turn on the power.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None (Remote controller is not connected with cable.)</td>
<td>Correct cabling.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None (Miscabling of remote controller)</td>
<td>Correct cabling.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None (Remote controller communication circuit error)</td>
<td>Remove FASTON terminal connected to remote controller terminals (A/B), and check the voltage. If voltage is not applied, replace P.C. board. (15 to 18V usually).</td>
<td></td>
</tr>
</tbody>
</table>

8-5-4. In check for No. of connected outdoor units and connected indoor units after address setup, diminished No. of connected units displayed.

<table>
<thead>
<tr>
<th>Status</th>
<th>Cause</th>
<th>Countermeasures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of connected outdoor units is short.</td>
<td>Miswiring of communication line between outdoor units or unconnected cable</td>
<td>After modification of wiring, set up address again and check No. of the connected outdoor units.</td>
</tr>
<tr>
<td>Number of connected indoor units is short.</td>
<td>Miswiring of communication line between indoor units or unconnected cable</td>
<td>After modification of wiring, set up address again and check No. of the connected indoor units.</td>
</tr>
<tr>
<td>Number of outdoor units connected to group is short in group operation from remote controller.</td>
<td>Remote controller is not connected with cable.</td>
<td>Using the main remote controller connected to a group, start a test operation, specify the unit which does not operate (Unit unconnected to group), and then check cabling.</td>
</tr>
<tr>
<td></td>
<td>Remote controller communication circuit error</td>
<td>Using the main remote controller connected to a group, start a test operation, specify the unit which does not operate (Unit unconnected to group), Remove Fasten receptacle connected to remote controller terminals (A/B), and check the voltage. If voltage is not applied, replace P.C. board. (15 to 18V in normal time)</td>
</tr>
</tbody>
</table>
<Miswiring example>

(Fig. 1)

<table>
<thead>
<tr>
<th>Remote controller status</th>
<th>Header unit 7-segment display</th>
<th>Miswiring example</th>
</tr>
</thead>
<tbody>
<tr>
<td>No response</td>
<td>E19-00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Fig. 2)

<table>
<thead>
<tr>
<th>Remote controller status</th>
<th>Header unit 7-segment display</th>
<th>Miswiring example</th>
</tr>
</thead>
<tbody>
<tr>
<td>No response</td>
<td>E19-02</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Fig. 3)

<table>
<thead>
<tr>
<th>Remote controller status</th>
<th>Header unit 7-segment display</th>
<th>Miswiring example</th>
</tr>
</thead>
<tbody>
<tr>
<td>No response</td>
<td>E20-01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Fig. 4)

<table>
<thead>
<tr>
<th>Status</th>
<th>Miswiring example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of connected outdoor units is short.</td>
<td></td>
</tr>
</tbody>
</table>

(Fig. 5)

<table>
<thead>
<tr>
<th>Status</th>
<th>Miswiring example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of connected outdoor units is short.</td>
<td></td>
</tr>
</tbody>
</table>
8-6. Test Operation Check

8-6-1. Fan Check

When an error code has been displayed on the remote controller, remove the error cause referring to “Check code and check position displayed on remote controller and outdoor unit”.

Check indoor fan, fan motor, and fan circuit.

Check positions around the fan.

Check all indoor unit in turn.

8-6-2. Cooling/Heating Test Operation Check

The cooling/heating test operation check can be performed on both remote controller and outdoor interface P.C. board.

1. Test operation start/stop operation
   <Test operation from remote controller>

   **Wired remote controller**: Refer to the lower items in “Test operation” of wired remote controller.
   **Wireless remote controller**: Refer to the lower items in “Test operation” of wireless remote controller.

   **Wired remote controller**

   1 When pushing button for 4 seconds or more, [TEST] is displayed in the display section and the mode enters in test operation mode.

   2 Push button.

   3 Using button, select an operation mode [COOL] or [HEAT].
      • Do not use operation mode other than [COOL] or [HEAT].
      • Temperature adjustment is unavailable during test operation.
      • Error is detected as usual.

   4 When the test operation has finished, push button to stop the operation.
      (The same display as that in procedure 1) appears in the display section.

   5 Push button to clear the test operation mode.
      ([TEST] display in the display section disappears and the status returns to the normal stop status.)
Wireless remote controller (Except 4-way Air Discharge Cassette type and Under Ceiling type)

1. Remove a screw which fixes the serial plate of the receiver part on the wireless remote controller. Remove the nameplate of the receiver section by inserting a minus screwdriver, etc. into the notch at the bottom of the plate, and set the Dip switch to [TEST RUN ON].

2. Execute a test operation with button on the wireless remote controller.
   - 1, 2, and LED flash during test operation.
   - Under status of [TEST RUN ON], the temperature adjustment from the wireless remote controller is invalid. Do not use this method in the operation other than test operation because the equipment is damaged.

3. Use either COOL or HEAT operation mode for a test operation.
   * The outdoor unit does not operate approx. 3 minutes after power-ON and operation stop.

4. After the test operation finished, stop the air conditioner from the wireless remote controller, and return Dip switch of the sensor section as before. (A 60-minutes timer clearing function is attached to the sensor section in order to prevent a continuous test operation.)

Wireless remote controller (4-way Air Discharge Cassette type)

1. Turn off power of the air conditioner. Remove the adjust corner cap attached with sensor section from the ceiling panel. For removing method, follow to the installation manual attached to the ceiling panel. (Be careful to handle the sensor section because cables are connected to the sensor section.) Remove the sensor cover from the adjust corner cap. (1 screw)

2. Change Bit [1: TEST] of the switch [S003] on the sensor P.C. board from OFF to ON. Mount the sensor cover and attach the adjust corner cap with sensors to the ceiling panel. Turn on power of the air conditioner.

3. Push button of the wireless remote controller, and select an operation mode [COOL] or [HEAT] with button. (All the display lamps of the wireless remote controller sensor section flash during the test operation.)
   - Do not use operation mode other than [COOL] or [HEAT].
   - Error is detected as usual.

4. When the test operation has finished, push button to stop the operation.

5. Turn off power of the air conditioner.
   - Change Bit [1] of the switch [S003] on the sensor P.C. board from ON to OFF. Attach the adjust corner cap with sensors to the ceiling panel.

<Test operation from outdoor unit>
Refer to “8-7-2. Function of Start/Stop the Indoor Unit from Outdoor Unit” in “8-7. Service Support Function”.

NOTE) The test operation returns to the normal operation after 60 minutes have passed.
In case of wireless remote controller

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Turn on power of the air conditioner. The operation is not accepted for 5 minutes when power has been turned on at first time after installation, and 1 minute when power has been turned on at the next time and after. After the specified time has passed, perform a test operation.</td>
</tr>
<tr>
<td>3</td>
<td><strong>Test cooling operation</strong></td>
</tr>
<tr>
<td>4</td>
<td>After checking the receiving sound “Pi”, immediately push [Temperature set] button to set to [19°C].</td>
</tr>
<tr>
<td>5</td>
<td>After checking the receiving sound “Pi”, immediately push [Temperature set] button to set to [18°C].</td>
</tr>
<tr>
<td>6</td>
<td>Then repeat the procedure 4 → 5 → 4 → 5.</td>
</tr>
<tr>
<td>7</td>
<td>After approx. 10 seconds, all the display lamps on the sensor part of wireless remote controller, [Operation] (Green), [Timer] (Green), and [Ready] (Yellow) flash and the air conditioner starts operation. If the lamps do not flash, repeat the procedure 2 and after.</td>
</tr>
</tbody>
</table>

<Outline of test operation from the wireless remote controller>

Test cooling operation:
Start → 18°C → 19°C → 18°C → 19°C → 18°C → 19°C → 18°C → 19°C → 18°C → (Test operation) → Stop

Test heating operation:
Start → 30°C → 29°C → 30°C → 29°C → 30°C → 29°C → 30°C → (Test operation) → Stop

Be sure to set the air speed to [High]
2. Test operation

START

Test operation for one indoor unit

YES

Operation start

YES

Is cold air or hot air discharged?

YES

Is air circulation good?

YES

Refer to “Test operation procedure” of indoor remote controller.

The operation does not start approx. 3 minutes after power-ON or operation stop.

(NOTE)

After power-ON, it may require Max. 10 minutes to start the operation due to the initial communication of the system.

Is the temperature difference between suction and discharge good?

NO

Is the operating voltage correct? (Rated voltage ±10%)

NO

YES

Check operation status of the compressor.

Check direction of the flap.

Execute a test operation using “Function of start/stop the indoor unit from outdoor unit” in “Service support function”.

NOTE 1

Is the temperature difference between suction and discharge good?

NO

YES

Check operating current normal?

NO

Yes

Check power voltage of the main power supply.

Check cable size of the power supply.

NOTE 2

Is the operating current normal?

NO

YES

Check temperature load in indoor/outdoor.

Check pipe length and refrigerant amount.

Check operating Hz of compressor.

Check abnormal sound in outdoor unit.

Abnormal sound, etc of compressor and others

NOTE 3

Is the operating pressure normal?

NO

YES

Normal
(NOTE 1) Criterion for difference between suction and discharge temperature

1. Cooling
After operation for minimum 30 minutes with [COOL] mode, if there is the dry bulb temperature difference
   Temperature difference: 8°C or more between suction and discharge air of the indoor unit.
   (In Max-Hz operation)

2. Heating
After operation for minimum 30 minutes with [HEAT] mode, if there is the dry bulb temperature difference
   Temperature difference: 15°C or more between suction and discharge air of the indoor unit.
   (In Max-Hz operation)
   * Consider that the temperature difference temperature difference may diminish in cases of system in which
     the connected indoor capacity exceeds 100%, a long pipe length, a large difference.

(NOTE 2) Criterion for operating power current

For a test operation (All the indoor units operate), it is normal when the power current is under the
following values.

<table>
<thead>
<tr>
<th>Outdoor unit</th>
<th>5HP</th>
<th>6HP</th>
<th>8HP</th>
<th>10HP</th>
<th>12HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current value</td>
<td>14</td>
<td>14</td>
<td>18</td>
<td>21</td>
<td>22</td>
</tr>
</tbody>
</table>

(Unit: A)

(NOTE 3) Criterion for cycle status

1. Refrigerating cycle under standard condition
   The refrigerating cycle under standard cooling and heating condition is as follows:

<table>
<thead>
<tr>
<th>Pressure (MPa)</th>
<th>10HP MMY-MAP1001H</th>
<th>5HP MMY-MAP0501H</th>
</tr>
</thead>
<tbody>
<tr>
<td>High (Pd)</td>
<td>3.1</td>
<td>2.8</td>
</tr>
<tr>
<td>Low (Ps)</td>
<td>0.8</td>
<td>0.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pipe surface temp (°C)</th>
<th>Discharge (TD)</th>
<th>Suction (TS1)</th>
<th>Indoor heat exchanger (TC)</th>
<th>Outdoor heat exchanger (TE1)</th>
<th>Liquid temp (TL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>86</td>
<td>6</td>
<td>8</td>
<td>43</td>
<td>36</td>
</tr>
<tr>
<td>Low</td>
<td>90</td>
<td>3</td>
<td>9</td>
<td>41</td>
<td>36</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of compressor rotations (rps)</th>
<th>Compressor 1</th>
<th>Compressor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor</td>
<td>27/19</td>
<td>20/--</td>
</tr>
<tr>
<td>Outdoor</td>
<td>35/--</td>
<td>7/6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Air temp condition (DB/WB) (°C)</th>
<th>10HP MMY-MAP1001H</th>
<th>5HP MMY-MAP0501H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor</td>
<td>27/19</td>
<td>20/--</td>
</tr>
<tr>
<td>Outdoor</td>
<td>35/--</td>
<td>7/6</td>
</tr>
</tbody>
</table>

* This compressor is driven with 4-pole motor. The value of the compressor frequency (Hz) measured by a clamp meter is
two times of the rotation count (rps) of the compressor.
* This data is the cycle data under condition of the standard pipe length and two 4-way Air Discharge Cassette type air
  conditioners connected. Data changes according to installed pipe length, combination of indoor units, or connected
  indoor capacity.
* For a compressor, the left side is 1 and the right side is 2 viewed from the front side.
  Even if two compressors operate, the frequency difference may be a little set as measures against resonance.
* The temperature of indoor heat exchanger (TC) indicates TCJ sensor temperature in cooling time, and TC2 sensor
  temperature in heating time respectively.

2. Criterion for operating pressure
   General criterion is as follows:

<table>
<thead>
<tr>
<th>Cooling</th>
<th>High pressure : 2.0 to 3.2MPa</th>
<th>Indoor : 18 to 32°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low pressure : 0.5 to 0.9MPa</td>
<td>Outdoor : 25 to 35°C</td>
</tr>
<tr>
<td>Heating</td>
<td>High pressure : 2.5 to 3.3MPa</td>
<td>Indoor : 15 to 25°C</td>
</tr>
<tr>
<td></td>
<td>Low pressure : 0.5 to 0.7MPa</td>
<td>Outdoor : 5 to 10°C</td>
</tr>
</tbody>
</table>

When all the units operate in cooling mode
When all the units operate in heating mode

Using the rotary switch on the outdoor unit I/F, the operating pressure, cycle temperature, and compressor rotation
count can be checked on 7-segment display.
Refer to “Outdoor refrigerant circuit system data display” and “Indoor cycle data display” in Section 9. Troubleshooting.
8-7. Service Support Function

8-7-1. Check Function for Connecting of Refrigerant and Control Lines

This function is provided to check misconnection of the refrigerant pipes and the control transmission line (Wiring over lines) between indoor unit and outdoor unit by using the switch on the interface P.C. board of the header unit.

However, be sure to check the following items prior to execute this check function.

1. This check function does not work when a group operation by remote controller is performed and it is used over outdoor units.
2. When using this check system, be sure to check for each 1 line in the unit of outdoor unit. If checking the multiple lines at the same time, misjudgment may be caused.

<Check procedure>

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

System capacity check
Set the rotary switch SW01, SW02, and SW03 on the interface P.C. board of the header unit to [1], [2] and [3] respectively. Then the system capacity is displayed on 7-segment display [A]. Check that this display surely matches with the expected system capacity.

(7-segment display)

<table>
<thead>
<tr>
<th>[A]</th>
<th>[B]</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP</td>
<td></td>
</tr>
</tbody>
</table>

System Horse power

Check No. of outdoor units
Set the rotary switch SW01, SW02, and SW03 on the interface P.C. board of the header unit to [1], [3] and [3] respectively. Then No. of outdoor units connected to the system is displayed on 7-segment display [A]. Check that this display surely matches with the expected No. of outdoor units.

(7-segment display)

<table>
<thead>
<tr>
<th>[A]</th>
<th>[B]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[C]</td>
</tr>
</tbody>
</table>

Check No. of indoor units
Set the rotary switch SW01, SW02, and SW03 on the interface P.C. board of the header unit to [1], [4] and [3] respectively. Then No. of indoor units connected to the system is displayed on 7-segment display [A]. Check that this display surely matches with the expected No. of indoor units.

(7-segment display)

<table>
<thead>
<tr>
<th>[A]</th>
<th>[B]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[P]</td>
</tr>
</tbody>
</table>

Operation mode setup
According to the indoor temperature, select one of the following items for setup of the rotary switches on the interface P.C. board of the header unit.

Cooling: SW01=2, SW02=1, SW03=1
Heating: SW01=2, SW02=2, SW03=1

(7-segment display)

[JC]
[ ]
[ ]

Outdoor temperature

<table>
<thead>
<tr>
<th>[SW02 to [2] (Heating)]</th>
<th>[SW02 to [1] (Cooling)]</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>18</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>-10</td>
<td>43</td>
</tr>
</tbody>
</table>
Operation start
Push the push-switch SW04 on the interface P.C. board of the header unit for 2 seconds or more. The operation starts. Check that cooling is [CC] and heating is [HH] on 7-segment display [B].

(7-segment display)

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

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

(7-segment display)

[A]  [B]
[   ]  [  ##P  ]
↑  ↑
C or H No. of misconnected indoor units

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

(7-segment display)

[A]  [B]
[   ]  [  ##  ]
↑  ↑
C or H Address display of misconnected indoor unit

After check, set each rotary switch SW01, SW02, SW03 to 1/1/1.

(7-segment display)

[A]  [B]
[U1]  [   ]
8-7-2. Function to Start/Stop (ON/OFF) Indoor Unit from Outdoor Unit

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

<table>
<thead>
<tr>
<th>No.</th>
<th>Function</th>
<th>Outline</th>
<th>Setup/Release</th>
<th>7-segment display</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cooling test operation</td>
<td>Changes the mode of all the connected indoor units collectively to cooling test operation. Note) Control operation same as usual test operation from remote control is performed.</td>
<td>[Setup] Push SW04 for 2 seconds or more with SW01 &quot;2&quot;, SW02&quot;2&quot;, SW03 &quot;1&quot;. [Release] Return SW01, SW02, SW03 to &quot;1&quot;.</td>
<td>Section A [ C ] Section B [ C–C ]</td>
</tr>
<tr>
<td>2</td>
<td>Heating test operation</td>
<td>Changes the mode of all the connected indoor units collectively to heating test operation. Note) Control operation same as usual test operation from remote control is performed.</td>
<td>[Setup] Push SW04 for 2 seconds or more with SW01&quot;2&quot;, SW02&quot;6&quot;, SW03&quot;1&quot;. [Release] Return SW01, SW02, SW03 to &quot;1&quot;.</td>
<td>Section A [ H ] Section B [ H–H ]</td>
</tr>
<tr>
<td>3</td>
<td>Batch start</td>
<td>Starts all the connected indoor units collectively. Note) The contents follow to the setup of remote controller.</td>
<td>[Setup] Push SW04 for 2 seconds or more with SW01&quot;2&quot;, SW02&quot;7&quot;, SW03&quot;1&quot;. [Release] Return SW01, SW02, SW03 to &quot;1&quot;.</td>
<td>Section A [ CH ] Section B [ 11 ] [ 11 ] is displayed on Section B for 5 seconds.</td>
</tr>
<tr>
<td>4</td>
<td>Batch stop</td>
<td>Stops all the connected indoor units collectively.</td>
<td>[Setup] Push SW05 for 2 seconds or more with SW01&quot;2&quot;, SW02&quot;7&quot;, SW03&quot;1&quot;. [Release] Return SW01, SW02, SW03 to &quot;1&quot;.</td>
<td>Section A [ CH ] Section B [ 00 ] [ 00 ] is displayed on Section B for 5 seconds.</td>
</tr>
<tr>
<td>5</td>
<td>Individual start</td>
<td>Starts the specified indoor unit. Notes) • The contents follow to the setup of remote controller. • The other indoor units keep the status as they are.</td>
<td>[Setup] Push SW04 for 2 seconds or more set SW01 &quot;16&quot; and set SW02 and SW03 to address No. (1 to 64) to be started. [Release] Return SW01, SW02, SW03 to &quot;1&quot;.</td>
<td>Section A [ ] Section B [ ] Section A: Displays the corresponding indoor address. Section B: Displays [ 11 ] for 5 seconds from operation-ON.</td>
</tr>
<tr>
<td>6</td>
<td>Individual stop</td>
<td>Stops the specified indoor unit. Note) The other indoor units keep the status as they are.</td>
<td>[Setup] Push SW05 for 2 seconds or more set SW01 &quot;16&quot; and set SW02 and SW03 to address No. (1 to 64) to be stopped. [Release] Return SW01, SW02, SW03 to &quot;1&quot;.</td>
<td>Section A [ ] Section B [ ] Section A: Displays the corresponding indoor address. Section B: Displays [ 00 ] for 5 seconds from operation-OFF.</td>
</tr>
<tr>
<td>7</td>
<td>Individual test operation</td>
<td>Operates the specified indoor unit. Note) The other indoor units keep the status as they are.</td>
<td>[Setup] Push SW04 for 10 seconds or more set SW01 &quot;16&quot; and set SW02 and SW03 to address No. (1 to 64) to be operated. [Release] Return SW01, SW02, SW03 to &quot;1&quot;.</td>
<td>Section A [ ] Section B [ ] Section A: Displays the corresponding indoor address. Section B: Displays [ FF ] for 5 seconds from test operation-ON.</td>
</tr>
</tbody>
</table>

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

NOTE 2) The above controls are not used during abnormal stop.
1. Cooling test operation function

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

<Operation procedure>

![Diagram showing switch positions]

**Power ON**

---

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

Set SW01 on the interface P.C. board of the header unit to [2], Sw02 to [5], and SW03 to [1] respectively. ([C  ] is displayed on 7-segment display [A].)

Push SW04 on the interface P.C. board of the header unit for 2 seconds or more.

[TEST] is displayed on the remote controller of the indoor unit to be operated.

Check that “– C” is displayed on 7-segment display [A] and [B] on the interface P.C. board of the header unit.

Return SW01, SW02, SW03 on the interface P.C. board of the header unit to [1], [1], [1] respectively or push the push-switch SW05 for 2 seconds or more.

---

2. Heating test operation function

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

<Operation procedure>

![Diagram showing switch positions]

**Power ON**

---

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

Set SW01 on the interface P.C. board of the header unit to [2], Sw02 to [6], and SW03 to [1] respectively. ([H  ] is displayed on 7-segment display [A].)

Push SW04 on the interface P.C. board of the header unit for 2 seconds or more.

[TEST] is displayed on the remote controller of the indoor unit to be operated.

Check that “– H” is displayed on 7-segment display [A] and [H] on the interface P.C. board of the header unit.

Return SW01, SW02, SW03 on the interface P.C. board of the header unit to [1], [1], [1] respectively or push the push-switch SW05 for 2 seconds or more.

---

NOTE) The test operation returns to the normal operation after 60 minutes.
3. Batch start/stop (ON/OFF) function

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

<Operation procedure>

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

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

  - The unit which is not given with priority by heating priority control, cooling priority control, and selection of cooling or heating mode is not operated.

  - In this case, or is displayed on the remote controller.

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

- **Set on the interface P.C. board of the header unit SW01 to [2], Sw02 to [7], and SW03 to [1] respectively. (CH ] is displayed on 7-segment display [A].)

- **Push SW04 on the interface P.C. board of the header unit for 2 seconds or more.**
  - Start

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

- **The indoor unit to be started operates.**

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

- **After test operation, return the rotary switches SW01, SW02, and SW03 on the interface P.C. board of the header unit to [1], [1], [1] respectively.**
  - End
4. Individual start/stop (ON/OFF) individual test operation function

This function is provided to start/stop (ON/OFF) individually each indoor unit connected to the same system by using switches on the interface board of the header unit.

Set SW01 [16] and set SW02, SW03 to indoor address No. (1 to 64) to be started (Refer to the following table*) - only the setup indoor unit starts operation.

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

<Operation procedure>

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

<table>
<thead>
<tr>
<th>SW01</th>
<th>SW02</th>
<th>SW03</th>
<th>Units to be operated</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>1 to 16</td>
<td>1</td>
<td>Address 1 to Address 16</td>
</tr>
<tr>
<td>16</td>
<td>1 to 16</td>
<td>2</td>
<td>Address 17 to Address 32</td>
</tr>
<tr>
<td>16</td>
<td>1 to 16</td>
<td>3</td>
<td>Address 33 to Address 48</td>
</tr>
<tr>
<td>16</td>
<td>1 to 16</td>
<td>4</td>
<td>Address 49 to Address 64</td>
</tr>
</tbody>
</table>

*In individual start/stop

For individual test operation, [ FF] is displayed.
8-7-3. Error Clearing Function

1. Clearing from the main remote controller

[Error clearing in outdoor unit]
Error of the outdoor unit is cleared by the unit of one refrigerant circuit system to which the indoor units operated by the remote controller. (Error of the indoor unit is not cleared.)
For clearing errors, the service monitor function of the remote controller is used.

<Method>

1. Change the mode to service monitor mode by pushing \text{CL} + \text{[} buttons simultaneously for 4 seconds or more.

2. Using \text{T} / \text{V} buttons, set “FF” to item code.
   The display in Section A in the following figure is counted with interval of 5 seconds as “\text{0005}” → “\text{0004}” → “\text{0003}” → “\text{0002}” → “\text{0001}” → “\text{0000}”.
   When the count arrives “\text{0000}”, the error is cleared.
   * However, counting from “\text{0005}” is repeated on the display.

3. When \text{[} button is pushed, the status returns to the normal status.

Operation procedure
1 → 2 → 3
The status returns to the normal status.

[Error clearing in indoor unit]
Error in the indoor unit is cleared by \text{[} button on the remote controller.
(Only error of the indoor unit connected with operating remote controller is cleared.)
2. Clearing from the interface P.C. board

Using the switches on the interface P.C. board, this function is to clear the currently detected error for each refrigerant circuit system without resetting the power supply.

(→ Restart of error detection)
Errors in both outdoor and indoor units are once cleared.

<table>
<thead>
<tr>
<th>(7-segment display)</th>
<th>[A]</th>
<th>[B]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[ E r ]</td>
<td></td>
</tr>
</tbody>
</table>

Set the rotary switches on the interface P.C. board of the header unit to the following setting.

SW01=2  SW02=16  SW03=1

Push the push-switch SW04 on the interface P.C. board of the header unit for 5 seconds or more.

[ C L] is displayed in 7-segment display [B] on the P.C. board (for 5 seconds), and the error is completely cleared.

3. Clearing of error check code by power reset

This function is provided to clear error in a refrigerant circuit system by resetting the power of all the outdoor and the indoor units.

(→ Restart of error detection)
As same as the clearing method on the interface P.C. board, errors of both the outdoor and the indoor units are once cleared.

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

NOTE) After power reset, it requires usually 3 minutes to power-on due to the initial communication of the system. In same cases, it requires Max. 10 minutes.
8-7-4. Remote Controller Distinction Function

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

<Distinction procedure>

1. Power ON
   - Be sure to turn on the power of the indoor unit prior to the power of the outdoor unit.

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

3. Operation
   - (7-segment display)
   - [A] [B]
   - [A 1 ] [ ]

4. Push the push-switch SW04 on the interface P.C. board of the header unit for 2 seconds or more.

5. (7-segment display)
   - [A] [A]
   - [A 1 ] [FF]

6. Check the connected remote controller.

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

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

7-segment display [A] 7-segment display [B]
8-7-5. Pulse Motor Valve (PMV) Forced Open/Close Function in Indoor Unit

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

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

<Operation>

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

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

[Clear]
After 2 minutes (1 minutes for “Close fully”) passed when setup has finished, the opening automatically returns to the normal opening.

8-7-6. Pulse Motor Valve (PMV) Forced Open Fully/Close fully Function in Outdoor Unit

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

[Open fully]
Short-circuit for CN30 on the outdoor interface P.C. board.

[Close fully]
Short-circuit for CN31 on the outdoor interface P.C. board.

[Clear]
After 2 minutes, the opening returns to the normal opening.
Be sure to remove the short-circuited (as short pin, etc.) after confirmation.
8-7-7. Solenoid Valve Forced Open/Close Function in Outdoor Unit

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

[Operation]

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

(ON/OFF output pattern of each solenoid valve is as below.)

NOTE 1) Display in 7-segment display [B] is exchanged just when the number of SW02 has been changed, on the other hand, the solenoid valve output is exchanged when SW02 has kept with the same number for 5 seconds or more.

NOTE 2) The mark [〇] in the table indicates the corresponding solenoid valve is forcedly turned on.

NOTE 3) The mark [—] in the table indicates ON/OFF of the solenoid valve is controlled based upon the specifications of the air conditioner.

NOTE 4) The mark [●] in the table indicates the corresponding solenoid valve is forcedly turned off with this operation.

NOTE 5) The case heater outputs heat air for both compressor and accumulator heaters.

<table>
<thead>
<tr>
<th>SW02</th>
<th>7-segment display [B]</th>
<th>Operation pattern of solenoid valve</th>
<th>Case heater output relay</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>[  5  ]</td>
<td>—  O   —  —  —  —  —  —  —  —  ○</td>
<td>○</td>
</tr>
<tr>
<td>3</td>
<td>[  4— ]</td>
<td>—  —  O  O  —  —  —  —  —  —  ○</td>
<td>○</td>
</tr>
<tr>
<td>4</td>
<td>[  3A ]</td>
<td>—  —  —  —  —  —  —  —  —  —  ○</td>
<td>○</td>
</tr>
<tr>
<td>5</td>
<td>[  3b ]</td>
<td>—  —  —  —  —  —  —  —  —  —  ○</td>
<td>○</td>
</tr>
<tr>
<td>6</td>
<td>[  3C ]</td>
<td>—  —  —  —  —  —  —  —  —  —  ○</td>
<td>○</td>
</tr>
<tr>
<td>7</td>
<td>[  3d ]</td>
<td>—  —  —  —  —  —  —  —  —  —  ○</td>
<td>○</td>
</tr>
<tr>
<td>8</td>
<td>[  3E ]</td>
<td>—  —  —  —  —  —  —  —  —  —  ○</td>
<td>○</td>
</tr>
<tr>
<td>9</td>
<td>[  3— ]</td>
<td>—  —  —  —  —  —  —  —  —  —  ○</td>
<td>○</td>
</tr>
<tr>
<td>10 to 15</td>
<td>[ ALL ]</td>
<td>O  O  O  O  O  O  O  O  O  O</td>
<td>○</td>
</tr>
</tbody>
</table>

[Clear]

Return numbers of SW01, SW02, and SW03 on the interface P.C. board to [1/1/1] each.

NOTE) As this function is not based on the specified general control, be sure to release this mode after operation.
8-7-8. Fan Operation Check in Outdoor Unit

This function is provided to check the fan operation on the interface P.C. board in the outdoor unit. The frequency of the fan speed can be controlled.

Therefore utilize this function to check the operation or abnormal sound in the fan system.

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

[Operation]
1. Set the switch on the interface P.C. board of the outdoor unit SW01 to [2], SW02 to [1], SW03 to [4].
2. When [F.d] is displayed in 7-segment display [A], keep pushing the switch SW04 for 2 seconds or more.
3. From when fan step [31] is displayed in 7-segment display [B], the fan starts operation. (Max. step operation)
4. After then, 7-segment display [B] and the fan step are changed by changing the setup number of the switches SW02 and SW03.
   (Output pattern of the fan is as follows.)

<table>
<thead>
<tr>
<th>SW01</th>
<th>SW02</th>
<th>SW03</th>
<th>7-segment display [B]</th>
<th>Fan step</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>4</td>
<td>[ 31 ]</td>
<td>31</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>[ 30 ]</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>[ 29 ]</td>
<td>29</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>[ 28 ]</td>
<td>28</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>[ 27 ]</td>
<td>27</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>[ 26 ]</td>
<td>26</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>[ 25 ]</td>
<td>25</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td></td>
<td>[ 24 ]</td>
<td>24</td>
</tr>
<tr>
<td>9</td>
<td>4</td>
<td></td>
<td>[ 23 ]</td>
<td>23</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td></td>
<td>[ 22 ]</td>
<td>22</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td>[ 21 ]</td>
<td>21</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td>[ 20 ]</td>
<td>20</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td>[ 19 ]</td>
<td>19</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td>[ 18 ]</td>
<td>18</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td>[ 17 ]</td>
<td>17</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td>[ 16 ]</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SW01</th>
<th>SW02</th>
<th>SW03</th>
<th>7-segment display [B]</th>
<th>Fan step</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td></td>
<td>[ 15 ]</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>[ 14 ]</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>[ 13 ]</td>
<td>13</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>[ 12 ]</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>[ 10 ]</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>[  9  ]</td>
<td>9</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td></td>
<td>[  8  ]</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>5</td>
<td></td>
<td>[  7  ]</td>
<td>7</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
<td></td>
<td>[  6  ]</td>
<td>6</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td>[  5  ]</td>
<td>5</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td>[  4  ]</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td>[  3  ]</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td>[  2  ]</td>
<td>2</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td>[  1  ]</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td>[  0  ]</td>
<td>0</td>
</tr>
</tbody>
</table>

[Clear]
This function is cleared by one of the following operations.
1. When SW01 setting number was changed to other number.
2. Push-switch SW05 was pushed for 2 seconds or more.
8-7-9. Abnormal Outdoor Unit Discrimination Method
<By Fan Operating Function>
This function is provided to forcibly operate the fan of the outdoor unit in which an error occurred or the fan of
the normal outdoor unit by the switch operation on the interface P.C. board in the header unit.
To specify which one of the follower units connected to the system was faulty, use this function for the system
stop due to a follower unit fault (Check code [E28]).

[Operation]

<In case to operate the fan in the erroneous outdoor unit only>
1. Check all the switches, SW01, SW02, and SW03 on the interface P.C. board in the header unit are set to [1].

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

   Outdoor unit No.  Error code display

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

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

[Clear]
Push the push-switch SW05 on the interface P.C. board in the header unit for 2 seconds or more.
The outdoor fan which was operated stops.
* Check [U. 1] is displayed on 7-segment display [A], and then finish the work.
8-7-10. Manual Adjustment Function of Outside Temp (TO) Sensor

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

[Operation]
1. Set the rotary switches on the interface P.C. board to numbers as follows.
   - 7-segment display: [to]

<table>
<thead>
<tr>
<th>SW01</th>
<th>SW02</th>
<th>7-segment display [B]</th>
<th>TO sensor value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>[ 10 ]</td>
<td>10°C</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>[ 15 ]</td>
<td>15°C</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>[ 20 ]</td>
<td>20°C</td>
</tr>
<tr>
<td>5</td>
<td>30</td>
<td>[ 30 ]</td>
<td>30°C</td>
</tr>
<tr>
<td>6</td>
<td>35</td>
<td>[ 35 ]</td>
<td>35°C</td>
</tr>
<tr>
<td>7</td>
<td>40</td>
<td>[ 40 ]</td>
<td>40°C</td>
</tr>
<tr>
<td>8</td>
<td>43</td>
<td>[ 43 ]</td>
<td>43°C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SW01</th>
<th>SW02</th>
<th>7-segment display [B]</th>
<th>TO sensor value</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>45</td>
<td>[ 45 ]</td>
<td>45°C</td>
</tr>
<tr>
<td>10</td>
<td>−15</td>
<td>[ −15 ]</td>
<td>−15°C</td>
</tr>
<tr>
<td>11</td>
<td>−10</td>
<td>[ −10 ]</td>
<td>−10°C</td>
</tr>
<tr>
<td>12</td>
<td>−5</td>
<td>[  −5 ]</td>
<td>−5°C</td>
</tr>
<tr>
<td>13</td>
<td>0</td>
<td>[   0 ]</td>
<td>0°C</td>
</tr>
<tr>
<td>14</td>
<td>2</td>
<td>[   2 ]</td>
<td>2°C</td>
</tr>
<tr>
<td>15</td>
<td>5</td>
<td>[   5 ]</td>
<td>5°C</td>
</tr>
<tr>
<td>16</td>
<td>7</td>
<td>[   7 ]</td>
<td>7°C</td>
</tr>
</tbody>
</table>

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

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

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

[CLEAR]
Return numbers of SW01, SW02, and SW03 on the interface P.C. board in the outdoor unit to [1/1/1] each.

<Service support function list>

<table>
<thead>
<tr>
<th>SW01</th>
<th>SW02</th>
<th>SW03</th>
<th>7-segment display [A]</th>
<th>Function contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>1</td>
<td>[J  C ]</td>
<td>Refrigerant circuit and control communication line check function (Cooling operation)</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>2</td>
<td>[J  H ]</td>
<td>Refrigerant circuit and control communication line check function (Heating operation)</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>3</td>
<td>[ P ]</td>
<td>Indoor PMV forced full open function</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>4</td>
<td>[ A 1 ]</td>
<td>Indoor remote controller discriminating function</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>5</td>
<td>[ C ]</td>
<td>Cooling test operation function</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>6</td>
<td>[ H ]</td>
<td>Heating test operation function</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>7</td>
<td>[ C H ]</td>
<td>Indoor collective start/stop (ON/OFF) function</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>11</td>
<td>[ r d ]</td>
<td>Outdoor refrigerant recovery operation function (Pump down function)</td>
</tr>
<tr>
<td>2</td>
<td>1 to 16</td>
<td>11</td>
<td>[ E r ]</td>
<td>Error clear function</td>
</tr>
<tr>
<td>2</td>
<td>1 to 16</td>
<td>3</td>
<td>[ H r ]</td>
<td>Solenoid valve forced open/close function</td>
</tr>
<tr>
<td>2</td>
<td>1 to 16</td>
<td>4</td>
<td>[ F d ]</td>
<td>Fan forced operation function</td>
</tr>
<tr>
<td>2</td>
<td>1 to 16</td>
<td>15</td>
<td>[ t o ]</td>
<td>Outside temp sensor manual adjustment function</td>
</tr>
</tbody>
</table>

| 16   | 1 to 16 | 1 | [0 1] to [1 6]        | Indoor No. 1 to 16 unit |
| 16   | 1 to 16 | 2 | [1 7] to [3 2]        | Indoor No.17 to 32 unit |
| 16   | 1 to 16 | 3 | [3 3] to [4 8]        | Indoor No.33 to 48 unit |
| 16   | 1 to 16 | 4 | [4 9] to [6 4]        | Indoor No.49 to 64 unit |
| SW01 | SW-2 | SW03 | 7-segment display [A/B] | Function contents |
| 1    | 1    | 1    | [U 1 ]                | Follower unit error / Corresponding unit fan operation function |
8-7-11. Indoor Fan Operation Check Function

This function is provided to check operation of single indoor unit without using communication with the remote controller or outdoor unit. This function can be used regardless of operating or stopping of the system. However, if this function is used for a long time, a trouble of the air conditioner may be caused. Therefore using of this function should be restricted to several minutes.

[Operation]
1. Short-circuit CHK pin (CN71 on the indoor P.C. board).
   If short-circuiting DISP pin (CN72 on the indoor P.C. board) while short-circuiting CHK pin (CN71 on the indoor P.C. board), the indoor PMV only becomes the minimum opening (30 pulse). When opening DISP pin, it becomes the maximum opening again.

[Clear]
Open CHK pin. If the system is operating, it stops once but automatically restart after several minutes.

* For the details of CHK pin (CN71 on indoor P.C. board) and DISP pin (CN72 on indoor P.C. board), refer to 11. Control circuit configuration, Indoor unit 2, Indoor P.C. board MCC-1402 and MCC-1403.

8-7-12. Indoor Fan Only Operating Mode

When operating an air conditioner with indoor units and remote controller only in fan operation etc., this function can be used. A group operation is also available.

[Operation]
1) Short circuit DISP pin (CN72 on the indoor P.C. board). However, if CHK pin (CN71 on the indoor P.C. board) has been previously short circuited, this function is unavailable.
2) In a group operation, set up a group as usual.
3) While DISP pin is short circuited, all the sensor error judgment operation and communication with the outdoor unit are not performed. PMV is fixed to the Max. opening.

[Clear]
Open DISP pin.
8-7-13. Monitor Function of Remote Controller Switch

When using a remote controller with the model name RBC-ATM21E, the following monitor functions can be used.

<Calling of display screen>

[Contents]

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

[Procedure]

1 Push \[CL+\] buttons simultaneously for 4 seconds or more to call up the service monitor mode. The service monitor goes on, and temperature of the item code \[00\] is firstly displayed.

2 Push the temperature setup \[\uparrow/\downarrow\] buttons to select the item number (Item code) to be monitored. For displayed codes, refer to the table below.

3 Push \[UNIT\] button to change the item to one to be monitored. Then monitor the indoor unit and sensor temperature or operation status in the corresponding refrigerant line.

4 Pushing \[\uparrow\] button returns the display to the normal display.

<table>
<thead>
<tr>
<th>Item code</th>
<th>Data name</th>
<th>Unit</th>
<th>Display format</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Room temp (During control)</td>
<td>°C</td>
<td>x 1</td>
</tr>
<tr>
<td>01</td>
<td>Room temp (Remote controller)</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Indoor suction temp (TA)</td>
<td>°C</td>
<td>x 1</td>
</tr>
<tr>
<td>03</td>
<td>Indoor coil temp (TCJ)</td>
<td>°C</td>
<td>x 1</td>
</tr>
<tr>
<td>04</td>
<td>Indoor coil temp (TC2)</td>
<td>°C</td>
<td>x 1</td>
</tr>
<tr>
<td>05</td>
<td>Indoor coil temp (TC1)</td>
<td>°C</td>
<td>x 1</td>
</tr>
<tr>
<td>06</td>
<td>Indoor discharge temp (T1) (NOTE 1)</td>
<td>°C</td>
<td>x 1</td>
</tr>
<tr>
<td>08</td>
<td>Indoor PMV opening</td>
<td>pulse</td>
<td>x 1/10</td>
</tr>
<tr>
<td>0A</td>
<td>No. of connected indoor units</td>
<td>unit</td>
<td></td>
</tr>
<tr>
<td>0b</td>
<td>Total HP of connected indoor units</td>
<td>HP</td>
<td>x 10</td>
</tr>
<tr>
<td>0C</td>
<td>No. of connected indoor units</td>
<td>unit</td>
<td></td>
</tr>
<tr>
<td>0d</td>
<td>Total HP of indoor units</td>
<td>HP</td>
<td>x 10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item code</th>
<th>Data name</th>
<th>Unit</th>
<th>Display format</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Compressor 1 discharge temp (Td1)</td>
<td>°C</td>
<td>x 1</td>
</tr>
<tr>
<td>11</td>
<td>Compressor 2 discharge temp (Td2)</td>
<td>°C</td>
<td>x 1</td>
</tr>
<tr>
<td>12</td>
<td>High-pressure sensor detention pressure (Pd)</td>
<td>MPa</td>
<td>x 100</td>
</tr>
<tr>
<td>13</td>
<td>Low-pressure sensor detention pressure (Ps)</td>
<td>MPa</td>
<td>x 100</td>
</tr>
<tr>
<td>14</td>
<td>Suction temp (TS)</td>
<td>°C</td>
<td>x 1</td>
</tr>
<tr>
<td>15</td>
<td>Outdoor heat exchanger temp (TE)</td>
<td>°C</td>
<td>x 1</td>
</tr>
<tr>
<td>16</td>
<td>Temp at liquid side (TL)</td>
<td>°C</td>
<td>x 1</td>
</tr>
<tr>
<td>17</td>
<td>Outside ambient temp (TO)</td>
<td>°C</td>
<td>x 1</td>
</tr>
<tr>
<td>18</td>
<td>Low-pressure saturation temp (TU)</td>
<td>°C</td>
<td>x 1</td>
</tr>
<tr>
<td>19</td>
<td>Compressor 1 current (I1)</td>
<td>A</td>
<td>x 10</td>
</tr>
<tr>
<td>1A</td>
<td>Compressor 2 current (I2)</td>
<td>A</td>
<td>x 10</td>
</tr>
<tr>
<td>1b</td>
<td>PMV1 + 2 opening</td>
<td>pulse</td>
<td>x 1/10</td>
</tr>
<tr>
<td>1d</td>
<td>Compressor 1, 2 ON/OFF</td>
<td>—</td>
<td>(NOTE 3)</td>
</tr>
<tr>
<td>1E</td>
<td>Outdoor fan mode</td>
<td>—</td>
<td>0 to 31</td>
</tr>
<tr>
<td>1F</td>
<td>Outdoor unit HP</td>
<td>HP</td>
<td>x 1</td>
</tr>
</tbody>
</table>

(NOTE 1) Only a part of indoor unit types is installed with the discharge temperature sensor. This temperature is not displayed for other types.

(NOTE 2) When the units are connected to a group, data of the header indoor unit only can be displayed.

(NOTE 3) 01 : Compressor 1 only is ON.
10 : Compressor 2 only is ON.
11 : Both compressor 1 and 2 are ON.

(NOTE 4) For item code, an example of the header unit is described.

(NOTE 5) The upper digit of the item code indicates the outdoor unit No.
1 : Header unit (A)
2 : Follower unit (B)
3 : Follower unit (C)
4 : Follower unit (D)
9. TROUBLESHOOTING

9-1. Troubleshooting Summary

1. Before troubleshooting
   1) Applied models
      All Super Module Multi-system type models
      (Indoor unit: MMX-APXXX, Outdoor unit: MMY-MAPXXX)
   2) Required tools / measuring devices
      • Screwdrivers (Philips, Minus), spanner, radio pinchers, nipper, push pin for reset switch, etc.
      • Tester, thermometer, pressure gauge, etc.
   3) Confirmation before check (The following items are not troubles.)

<table>
<thead>
<tr>
<th>No.</th>
<th>Operation</th>
<th>Check items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Compressor does not operate.</td>
<td>• Is not delayed for 3 minutes? (3 minutes after compressor-OFF)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Is not thermostat OFF?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Is not the fan operating or timer?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Is not the system initially communicating?</td>
</tr>
<tr>
<td>2</td>
<td>Indoor fan does not work.</td>
<td>• Is not the cold draft prevention being controlled in heating operation?</td>
</tr>
<tr>
<td>3</td>
<td>Outdoor fan does not rotate, or fan speed changes.</td>
<td>• Is not low cooling operation being controlled?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Is not a defrost operation being performed?</td>
</tr>
<tr>
<td>4</td>
<td>Indoor fan does not stop.</td>
<td>• Is not after-heat elimination operation being controlled after heating operation?</td>
</tr>
<tr>
<td>5</td>
<td>Start/stop operation on remote controller is unavailable.</td>
<td>• Is not auxiliary unit or remote control being operated?</td>
</tr>
<tr>
<td>6</td>
<td>———</td>
<td>• Is connecting wire of indoor unit or remote controller correct?</td>
</tr>
</tbody>
</table>

2. Troubleshooting procedure
When a trouble occurred, advance the check operation in the following procedure.

NOTE) While a check operation is performed, a malfunction of the microprocessor may be caused due to condition of the power supply or the external noise. If there is any noise source, change wires of the remote controller and signal wires to shield wires.
9-2. Check Method

On the remote controller (Main remote controller, Central control remote controller) and the interface P.C. board of the outdoor unit, a check display LCD (Remote controller) or 7-segment display (on the outdoor interface P.C. board) to display the operation is provided. Therefore the operation status can be known. Using this self-diagnosis function, a trouble or position with trouble of the air conditioner can be found as shown in the table below.

Check code list

The following list shows each check code. Find the check contents from the list according to part to be checked.
- In case of check from indoor remote controller: See “Main remote controller display” in the list.
- In case of check from outdoor unit: See “Outdoor 7-segment display” in the list.
- In case of check from AI-NET central control remote controller: See “AI-NET central control display” in the list.
- In case of check from indoor unit with wireless remote controller: See “Sensor block display of receiving unit” in the list.

<table>
<thead>
<tr>
<th>Check code</th>
<th>Main remote controller display</th>
<th>Outdoor 7-segment display</th>
<th>Al-NET central control display</th>
<th>Sensor block display of receiving unit</th>
<th>Check code name</th>
<th>Judging device</th>
</tr>
</thead>
<tbody>
<tr>
<td>E01</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Communication error between indoor and remote controller (Detected at remote controller side)</td>
<td>Remote controller</td>
</tr>
<tr>
<td>E02</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>90</td>
<td>Communication error between indoor and remote controller (Detected at indoor side)</td>
<td>Indoor</td>
</tr>
<tr>
<td>E03</td>
<td>—</td>
<td>—</td>
<td>97</td>
<td>—</td>
<td>Communication error in indoor P.C.B (Detected at indoor side)</td>
<td>Indoor</td>
</tr>
<tr>
<td>E04</td>
<td>—</td>
<td>—</td>
<td>04</td>
<td>—</td>
<td>Communication error in indoor and outdoor (Detected at indoor side)</td>
<td>Indoor</td>
</tr>
<tr>
<td>E05</td>
<td>No. of indoor units in which sensor has been normally received</td>
<td>04</td>
<td>—</td>
<td>4</td>
<td>Decrease of No. of indoor units</td>
<td>I/F</td>
</tr>
<tr>
<td>E07</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>12</td>
<td>Communication circuit error in indoor and outdoor (Detected at outdoor side)</td>
<td>I/F</td>
</tr>
<tr>
<td>E08</td>
<td>Duplicated indoor addresses</td>
<td>96</td>
<td>96</td>
<td>4</td>
<td>Duplicated indoor addresses</td>
<td>Indoor / I/F</td>
</tr>
<tr>
<td>E09</td>
<td>—</td>
<td>—</td>
<td>99</td>
<td>4</td>
<td>Duplicated master remote controllers</td>
<td>Remote controller</td>
</tr>
<tr>
<td>E10</td>
<td>—</td>
<td>—</td>
<td>CF</td>
<td>4</td>
<td>Communication error in indoor P.C.B (Detected at Indoor)</td>
<td>Indoor</td>
</tr>
<tr>
<td>E12</td>
<td>01: Indoor/Outdoor communication</td>
<td>42</td>
<td>42</td>
<td>4</td>
<td>Automatic address start error</td>
<td>I/F</td>
</tr>
<tr>
<td>E15</td>
<td>—</td>
<td>—</td>
<td>42</td>
<td>4</td>
<td>No indoor automatic address</td>
<td>I/F</td>
</tr>
<tr>
<td>E16</td>
<td>00: Capacity over 01: No. of connected units</td>
<td>89</td>
<td>89</td>
<td>4</td>
<td>No. of connected indoor units / Capacity over</td>
<td>I/F</td>
</tr>
<tr>
<td>E18</td>
<td>—</td>
<td>—</td>
<td>97, 99</td>
<td>4</td>
<td>Communication error between indoor header and follower units</td>
<td>Indoor</td>
</tr>
<tr>
<td>E19</td>
<td>00: No header unit 02: Two or more header units</td>
<td>96</td>
<td>96</td>
<td>4</td>
<td>Outdoor header units quantity error</td>
<td>Indoor</td>
</tr>
<tr>
<td>E20</td>
<td>01: Outdoor of other line connected 02: Indoor of other line connected</td>
<td>42</td>
<td>42</td>
<td>4</td>
<td>Other line connected during automatic address</td>
<td>I/F</td>
</tr>
<tr>
<td>E23</td>
<td>—</td>
<td>—</td>
<td>15</td>
<td>4</td>
<td>Sending error in communication between outdoor units</td>
<td>I/F</td>
</tr>
<tr>
<td>E25</td>
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<td>15</td>
<td>4</td>
<td>Duplicated follower outdoor addresses</td>
<td>I/F</td>
</tr>
<tr>
<td>E26</td>
<td>No. of outdoor units which received signal normally</td>
<td>15</td>
<td>15</td>
<td>4</td>
<td>Decrease of No. of connected outdoor units</td>
<td>I/F</td>
</tr>
<tr>
<td>E28</td>
<td>Detected outdoor unit number</td>
<td>d2</td>
<td>d2</td>
<td>4</td>
<td>Follower outdoor error</td>
<td>I/F</td>
</tr>
<tr>
<td>E31</td>
<td>01: IPDU1 error 02: IPDU2 error 03: IPDU1, 2 error 04: Fan IPDU error 05: IPDU + Fan IPDU error 06: IPDU2 + Fan IPDU error 07: All IPDU error</td>
<td>CF</td>
<td>CF</td>
<td>4</td>
<td>IPDU communication error</td>
<td>I/F</td>
</tr>
</tbody>
</table>

IPDU: Intelligent Power Drive Unit
○: Lighting, •: Flashing, ●: Goes off
ALT.: Flashing is alternately when there are two flashing LED.
SIM: Simultaneous flashing when there are two flashing LED.
<table>
<thead>
<tr>
<th>Main remote controller display</th>
<th>Outdoor 7-segment display</th>
<th>AI-NET central control display</th>
<th>Sensor block display of receiving unit</th>
<th>Check code name</th>
<th>Judging device</th>
</tr>
</thead>
<tbody>
<tr>
<td>F01  — —</td>
<td>OF</td>
<td>ALT</td>
<td>Indoor TCJ sensor error</td>
<td>Indoor</td>
<td></td>
</tr>
<tr>
<td>F02  — —</td>
<td>Od</td>
<td>ALT</td>
<td>Indoor TC2 sensor error</td>
<td>Indoor</td>
<td></td>
</tr>
<tr>
<td>F03  — —</td>
<td>93</td>
<td>ALT</td>
<td>Indoor TC1 sensor error</td>
<td>Indoor</td>
<td></td>
</tr>
<tr>
<td>F04  F04 —</td>
<td>19</td>
<td>ALT</td>
<td>TD1 sensor error</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>F05  F05 —</td>
<td>A1</td>
<td>ALT</td>
<td>TD2 sensor error</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>F06  F06 —</td>
<td>18</td>
<td>ALT</td>
<td>TE1 sensor error</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>F07  F07 —</td>
<td>18</td>
<td>ALT</td>
<td>TL sensor error</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>F08  F08 —</td>
<td>1b</td>
<td>ALT</td>
<td>TO sensor error</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>F10  — —</td>
<td>OC</td>
<td>ALT</td>
<td>Indoor TA sensor error</td>
<td>Indoor</td>
<td></td>
</tr>
<tr>
<td>F12  F12 —</td>
<td>A2</td>
<td>ALT</td>
<td>TS1 sensor error</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>F13  F13 01: Comp. 1 side 02: Comp. 2 side</td>
<td>43</td>
<td>ALT</td>
<td>TH sensor error</td>
<td>IPDU</td>
<td></td>
</tr>
<tr>
<td>F15  F15 —</td>
<td>18</td>
<td>ALT</td>
<td>Outdoor temp sensor misconnecting (TE, TL)</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>F16  F16 —</td>
<td>43</td>
<td>ALT</td>
<td>Outdoor pressure sensor misconnecting (Pd, Ps)</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>F23  F23 —</td>
<td>43</td>
<td>ALT</td>
<td>Ps sensor error</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>F24  F24 —</td>
<td>43</td>
<td>ALT</td>
<td>Pd sensor error</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>F29  — —</td>
<td>12</td>
<td>SIM</td>
<td>Indoor other error</td>
<td>Indoor</td>
<td></td>
</tr>
<tr>
<td>F31  F31 —</td>
<td>1C</td>
<td>SIM</td>
<td>Outdoor EEPROM error</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>H01  H01 01: Comp. 1 side 02: Comp. 2 side</td>
<td>IF</td>
<td>Compressor break down</td>
<td>IPDU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H02  H02 01: Comp. 1 side 02: Comp. 2 side</td>
<td>1d</td>
<td>Magnet switch error</td>
<td>MG-SW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H03  H03 01: Comp. 1 side 02: Comp. 2 side</td>
<td>17</td>
<td>Current detect circuit system error</td>
<td>IPDU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H04  H04 —</td>
<td>44</td>
<td>Comp 1 case thermo operation</td>
<td>IF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H06  H06 —</td>
<td>20</td>
<td>Low pressure protective operation</td>
<td>IF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H07  H07 —</td>
<td>d7</td>
<td>Oil level down protective operation</td>
<td>IF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H08  H08 01: TK1 sensor error 02: TK2 sensor error 03: TK3 sensor error 04: TK4 sensor error</td>
<td>d4</td>
<td>Oil level detect temp sensor error</td>
<td>IF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H14  H14 —</td>
<td>44</td>
<td>Comp 2 case thermo operation</td>
<td>IF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H16  H16 01: TK1 oil circuit system error 02: TK2 oil circuit system error 03: TK3 oil circuit system error 04: TK4 oil circuit system error</td>
<td>d7</td>
<td>Oil level detective circuit error</td>
<td>IF</td>
<td>MG-SW</td>
<td></td>
</tr>
<tr>
<td>L03  L03 —</td>
<td>96</td>
<td>SIM</td>
<td>Duplicated indoor header units</td>
<td>Indoor</td>
<td></td>
</tr>
<tr>
<td>L04  L04 —</td>
<td>96</td>
<td>SIM</td>
<td>Duplicated outdoor line addresses</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>L05  L05 —</td>
<td>96</td>
<td>SIM</td>
<td>Duplicated indoor units with priority (Displayed on indoor unit with priority)</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>L06  L06 —</td>
<td>96</td>
<td>SIM</td>
<td>Duplicated indoor units with priority (Displayed in unit other than indoor unit with priority)</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>L07  — —</td>
<td>99</td>
<td>SIM</td>
<td>Group line in individual indoor unit</td>
<td>Indoor</td>
<td></td>
</tr>
<tr>
<td>L08  L08 —</td>
<td>99</td>
<td>SIM</td>
<td>Indoor group/Address unset</td>
<td>Indoor</td>
<td></td>
</tr>
<tr>
<td>L09  — —</td>
<td>46</td>
<td>SIM</td>
<td>Indoor capacity unset</td>
<td>Indoor</td>
<td></td>
</tr>
<tr>
<td>L10  L10 —</td>
<td>88</td>
<td>SIM</td>
<td>Indoor capacity unset</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>L20  — —</td>
<td>98</td>
<td>SIM</td>
<td>Duplicated central control addresses</td>
<td>AI-NET</td>
<td></td>
</tr>
<tr>
<td>L28  L28 —</td>
<td>46</td>
<td>SIM</td>
<td>Over No. of connected outdoor units</td>
<td>IF</td>
<td></td>
</tr>
<tr>
<td>L29  L29 01: IPDU1 error 02: IPDU2 error 03: IPDU3 error 04: Fan IPDU error 05: IPDU1 + Fan IPDU error 06: IPDU2 + Fan IPDU error 07: All IPDU error</td>
<td>CF</td>
<td>No. of IPDU error</td>
<td>IF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L30  L30 — detected indoor address</td>
<td>b6</td>
<td>SIM</td>
<td>Auxiliary interlock in indoor unit</td>
<td>Indoor</td>
<td></td>
</tr>
<tr>
<td>L31  — L31 —</td>
<td>—</td>
<td>IC error</td>
<td></td>
<td>IF</td>
<td></td>
</tr>
</tbody>
</table>
### Error detected by TCC-LINK central control device

<table>
<thead>
<tr>
<th>Central control device indication</th>
<th>Check code</th>
<th>Wireless remote controller</th>
<th>Check code name</th>
<th>Judging device</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Outdoor 7-segment display</td>
<td>AI-NET central control display</td>
<td>Sensor block display of receiving unit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Auxiliary code</td>
<td>Operation</td>
<td>Timer</td>
<td>Ready</td>
</tr>
<tr>
<td>C05</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<tr>
<td>C06</td>
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<tr>
<td>C12</td>
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<tr>
<td>C03</td>
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<table>
<thead>
<tr>
<th>Check code</th>
<th>Wireless remote controller</th>
<th>Check code name</th>
<th>Judging device</th>
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<tbody>
<tr>
<td>P01 —</td>
<td>11</td>
<td>Indoor fan motor error</td>
<td>Indoor</td>
</tr>
<tr>
<td>P03 P03 —</td>
<td>1E</td>
<td>Discharge temp TD1 error</td>
<td>l/F</td>
</tr>
<tr>
<td>P04 P04 01: Comp. 1 side</td>
<td>21</td>
<td>High-pressure SW detection error</td>
<td>IPDU</td>
</tr>
<tr>
<td>02: Comp. 2 side</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P05 P05 01: Phase-missing</td>
<td>AF</td>
<td>Phase-missing detection / Phase</td>
<td>l/F</td>
</tr>
<tr>
<td>detection 02: Phase order</td>
<td></td>
<td>order error</td>
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</tr>
<tr>
<td>error</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P07 P07 01: Comp. 1 side</td>
<td>1C</td>
<td>Heat sink overheat error</td>
<td>IPDU</td>
</tr>
<tr>
<td>02: Comp. 2 side</td>
<td></td>
<td></td>
<td>l/F</td>
</tr>
<tr>
<td>P10 P10 —</td>
<td>Ob</td>
<td>Indoor overflow error</td>
<td>Indoor</td>
</tr>
<tr>
<td>P12 —</td>
<td>11</td>
<td>Indoor fan motor error</td>
<td>Indoor</td>
</tr>
<tr>
<td>P13 P13 —</td>
<td>47</td>
<td>Outdoor liquid back detection</td>
<td>l/F</td>
</tr>
<tr>
<td>P15 P15 01: TS condition</td>
<td>AE</td>
<td>Gas leak detection</td>
<td>l/F</td>
</tr>
<tr>
<td>02: TD condition</td>
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</tr>
<tr>
<td>P17 P17 —</td>
<td>bb</td>
<td>Discharge temp TD2 error</td>
<td>l/F</td>
</tr>
<tr>
<td>P19 P19 —</td>
<td>08</td>
<td>4-way valve inverse error</td>
<td>l/F</td>
</tr>
<tr>
<td>P20 P20 —</td>
<td>22</td>
<td>High-pressure protective operation</td>
<td>l/F</td>
</tr>
<tr>
<td>P22 P22 01: IGBT short</td>
<td>1A</td>
<td>Outdoor fan IPDU error</td>
<td>Fan</td>
</tr>
<tr>
<td>1: Fan motor position</td>
<td></td>
<td></td>
<td>IPDU</td>
</tr>
<tr>
<td>detective circuit error</td>
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<td></td>
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</tr>
<tr>
<td>2: Fan motor trouble</td>
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</tr>
<tr>
<td>C: TH sensor temp. error</td>
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<td></td>
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<tr>
<td>(Heat sink overheat)</td>
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<tr>
<td>D: TH sensor error</td>
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<td></td>
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<tr>
<td>E: Vdc output error</td>
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<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P26 P26 01: Comp. 1 side</td>
<td>14</td>
<td>G-TR short protection error</td>
<td>IPDU</td>
</tr>
<tr>
<td>02: Comp. 2 side</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P29 P29 01: Comp. 1 side</td>
<td>16</td>
<td>Comp position detective circuit</td>
<td>IPDU</td>
</tr>
<tr>
<td>02: Comp. 2 side</td>
<td></td>
<td>system error</td>
<td></td>
</tr>
<tr>
<td>P31 —</td>
<td>47</td>
<td>Other indoor unit error (Group</td>
<td>Indoor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>follower unit error)</td>
<td></td>
</tr>
<tr>
<td>—</td>
<td>b7</td>
<td>By alarm device</td>
<td>Al-NET</td>
</tr>
<tr>
<td>—</td>
<td>97</td>
<td>Error in indoor group</td>
<td>Al-NET</td>
</tr>
<tr>
<td>—</td>
<td>99</td>
<td>AI-NET communication system error</td>
<td>Al-NET</td>
</tr>
<tr>
<td>—</td>
<td>—</td>
<td>Duplicated network adaptors</td>
<td>Al-NET</td>
</tr>
</tbody>
</table>

**Check code name**

- **Indoor**: Indoor unit
- **l/F**: Local forcible
- **IPDU**: Indoor unit pressure detection unit
- **Fan**: Fan unit
- **AI-NET**: AI-NET central control device
- **L20**: Display indicates L20.
New check code

1. Difference between the TCC LINK and AI-NET check code
   The displaying method of the check code changes in this model and after.

<table>
<thead>
<tr>
<th></th>
<th>AI-NET check code</th>
<th>TCC Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used characters</td>
<td>Hexadecimal notation, 2 digits</td>
<td>Alphabet + Decimal notation, 2 digits</td>
</tr>
<tr>
<td>Characteristics of code classification</td>
<td>Few classification of communication/incorrect setup system</td>
<td>Many classification of communication/incorrect setup system</td>
</tr>
<tr>
<td>Block display</td>
<td>Indoor P.C. board, Outdoor P.C. board, Cycle, Communication</td>
<td>Communication/Incorrect setup (4 ways), Indoor protection, Outdoor protection, Sensor, Compressor protection, etc.</td>
</tr>
</tbody>
</table>

< Display in wired remote controller >
-  \([\text{A}]\) goes on.
-  \([\text{UNIT No.}]\) + Check code + Operation lamp (Green) flash

<Display on sensor part in wireless remote controller>
-  Block display of combination of \([\text{U}]\) \([\text{C}]\) \([\text{E}]\)

<Display on 7-segment in outdoor unit>
-  Unit No. and check code are displayed.
-  In a case of error with auxiliary code, the check code and the auxiliary code are displayed alternately.

2. Special mention
   1) If this model is connected to AI-NET by network adaptor, the different check codes are displayed on the main remote controller (New check code display on new remote controller) and AI-NET central control remote controller (AI-NET check code display on AI-NET central control remote controller).
      Example) Indoor TA sensor error

2) The check code of the remote controller is displayed only while the air conditioner is operating (Remote controller start button ON). When the air conditioner stopped and the error has been cleared, the check code display on the remote controller also disappears. However, if the error continues after stop of the operation, the check code is immediately displayed with restarting of the operation.

```
<table>
<thead>
<tr>
<th>Display</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Unused</td>
</tr>
<tr>
<td>C</td>
<td>Central control system error</td>
</tr>
<tr>
<td>E</td>
<td>Communication system error</td>
</tr>
<tr>
<td>F</td>
<td>Each sensor error (Failure)</td>
</tr>
<tr>
<td>H</td>
<td>Compressor protective system error</td>
</tr>
<tr>
<td>J</td>
<td>Unused</td>
</tr>
<tr>
<td>L</td>
<td>Setup error, Other errors</td>
</tr>
<tr>
<td>P</td>
<td>Protective device operation</td>
</tr>
</tbody>
</table>
```
9-3. Troubleshooting by Check Display on Remote Controller

In case of main remote controller (RBC-AMT21E)

1. Confirmation and check
   When a trouble occurred on the air conditioner, the check code and the indoor unit No. are displayed on the display section of the remote controller.
   The check code is displayed while the air conditioner operates.
   If the display disappeared, operate the air conditioner and check the error based upon the following “Confirmation of error history”.

2. Confirmation of error history
   When a trouble occurred on the air conditioner, the error history can be confirmed with the following procedure.
   (Up to 4 error histories are stored in memory.)
   This history can be confirmed from either operating status or stop status.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1         | When pushing [SET] and [ ] buttons simultaneously for 4 seconds or more, the below display appears. If [Service Check] is displayed, the mode enters in the error history mode.  
• [01: Error history order] is displayed in code number window.  
• [Check Code] is displayed in check code window.  
• [Indoor unit address with error] is displayed in UNIT No. |
| 2         | Every pushing temp. set [ ] / [ ] buttons, the error histories stored in the memory are displayed in order.  
The numbers in item code indicates item code [01] (Latest) to [04] (Oldest).  
[CAUTION] Do not push [CL] button because all the error histories of the indoor unit will be deleted. |
| 3         | After confirmation, push [ ] button to return to the usual display. |
1. **Confirmation and check**

When a trouble occurred on the air conditioner, the check code and the indoor unit No. are displayed on the display section of the remote controller.

The check code is displayed while the air conditioner operates.

If the display disappeared, operate the air conditioner and check the error based upon the following "Confirmation of error history".

2. **Confirmation of error history**

When a trouble occurred on the air conditioner, the error history can be confirmed with the following procedure. (Up to 4 error histories are stored in memory.)

This history can be confirmed from either operating or stop.

1) Push **ES** and **SET** buttons in succession for 4 seconds or more.

2) SERVICE CHECK **ES** goes on and Item code 01 goes on.

3) When selecting (flash) the group number if there is the alarm history, the UNIT number and the latest alarm history are displayed alternately.

* In this time, the temperature cannot be set up.

4) To confirm the alarm history other than the latest one, push temp. set **/** to select Item code (01 to 04).

5) To confirm the alarm in the other group, push **ZONE** and to select the group number.

Do not push **CL** button because all the alarm histories of the currently selected group are deleted.

6) To finish the service check, push **ES** button.
In case of AI-NET central control remote controller

1. Operation for CHECK display

When pushing the CHECK switch, the indoor unit No. (Network address No.) including the check data is displayed in the UNIT No. display section, and the check code is displayed in the set up temp. display section.

- **CHECK switch**
  - Push for 0.5 seconds to display CHECK code.
  - Push for 3 seconds to reset indoor microprocessor. (While indoor microprocessor is locked by ALL STOP alarm)
  - Push for 10 seconds to clear check data.

- **RESET switch**
  - Push the switch in the hole with pin. The remote controller resets initialized. (All data is cleared.)

2. Reading of CHECK monitor display

**<7 segment display>**

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
</table>

Hexadecimal notation

**<Display on CHECK monitor>**

Unit line No. (Network address No.)

Check code detected at first

Check code detected at last

**<CHECK data>**

(Example)

In No.1 unit, first the interconnection wire (bus communication line) of indoor/outdoor has failed. Next, the room temp. sensor is defective.

For No.16 unit, the high pressure switch at the inverter unit side operates.
## 9-4. Check Code and Check Position Displayed on the Remote Controller and Outdoor Unit (7-Segment Display of Interface)

<table>
<thead>
<tr>
<th>Check code</th>
<th>Outdoor 7-segment display</th>
<th>AI-NET central control remote controller</th>
<th>Detected position</th>
<th>Check code name</th>
<th>Status</th>
<th>Error detection condition</th>
<th>Check item (position)</th>
</tr>
</thead>
</table>
| E01        | —                         | —                                        | Remote controller | Communication error between indoor and remote controller (Detected at remote controller side) | Corresponding unit only stops. | Communication interrupted between indoor P.C. board and remote controller. | • Check remote controller inter-unit cable (A/B).  
  • Check disconnection, connector contact error.  
  • Check indoor power supply.  
  • Check indoor P.C. board error.  
  • Check remote controller address setup. (When two remote controllers operate)  
  • Check remote controller P.C. board. |
| E02        | —                         | —                                        | Remote controller | Remote controller sending error | Corresponding unit only stops. | Signal could not be sent from remote controller to indoor unit. | • Check the communication wire of remote controller: Exchange remote controller. |
| E03        | —                         | 97                                       | Indoor unit       | Communication error between indoor and remote controller (Detected at indoor side) | Corresponding unit only stops. | No communication from remote controller (including wireless) and communication adaptors. | • Check remote controller and communication adaptors wiring. |
| E04        | —                         | 4                                        | Indoor unit       | Indoor/outdoor communication circuit error (Detected at indoor side) | Corresponding unit only stops. | Indoor unit does not receive communication from outdoor unit. | • Check power-ON order of indoor/outdoor.  
  • Check indoor address setup.  
  • Check inter-unit cabling between indoor and outdoor.  
  • Check outdoor end terminal resistance setup (SW30-2). |
| E06        | E06                       | 4                                        | I/F               | Decreased number of indoor units | All stop | When signal is not sent for a certain period from the indoor unit which has been used to send signals, [E06] is normally displayed. | • Check the power supply of indoor unit. (Power-ON)  
  • Check connection of communication line between indoor and outdoor.  
  • Check connector connection for communication in indoor P.C. board.  
  • Check connector connection for communication in outdoor P.C. board.  
  • Check indoor P.C. board failure.  
  • Check outdoor P.C. board (I/F) failure. |
| —          | E07                       | —                                        | I/F               | Indoor/outdoor communication circuit error (Detected at outdoor side) | All stop | Transmission from outdoor to indoor cannot continue for 30 seconds. | • Check outdoor end terminal resistance setup (SW30-2).  
  • Check the communication connection between indoor and outdoor. |
| E08        | E08                       | 96                                       | Indoor I/F        | Duplicated indoor addresses | All stop | Multiple indoor unit address setup are duplicated. | • Check indoor address.  
  • Check the change of remote controller connection (Group / individual) after setup of indoor address. |
| E09        | —                         | 99                                       | Remote controller | Duplicated master remote controllers | Corresponding unit only stops. | In 2-remote controller control (including wireless), both are setup as master (Header indoor unit stops and other indoor unit is operating.) | • Check remote controller setup.  
  • Check remote controller P.C. board. |
<p>| E10        | —                         | CF                                       | Indoor unit       | Communication error between indoor P.C. board assembly | Corresponding unit only stops. | There is any trouble in power line. | • Indoor P.C. board failure |</p>
<table>
<thead>
<tr>
<th>Check code</th>
<th>Outdoor 7-segment display</th>
<th>Detected position</th>
<th>AI-NET central control remote controller</th>
<th>Check code name</th>
<th>Status</th>
<th>Error detection condition</th>
<th>Check item (position)</th>
</tr>
</thead>
</table>
| E12 E12     | 01: Indoor/outdoor communication 02: Between outdoors communication | 42 I/F | Automatic address start error           | All stop                                 | • When indoor automatic address started, other refrigerant circuit system was setting automatic address.  
• When outdoor automatic address started, indoor automatic address was executed. | - Setup the address again after disconnecting communication connection with other refrigerant circuit system. |
| E15 E15     | —                         | 42 I/F | No corresponding indoor unit during automatic address | All stop                                 | Indoor unit is not found when indoor automatic address start was set up. | - Check the communication line connection between indoor and outdoor.  
• Check the electric power line error in indoor.  
• Check the noise of surrounding devices.  
• Power failure  
• Check indoor P.C. board error. |
| E16 E16     | 00: Capacity over 01 to: No. of connected units | 89 I/F | No. of connected indoor units / Capacity over | All stop                                 | • Total capacity of indoor units exceeded 135% of total outdoor capacity.  
• No. of connected indoor units are more than 48 units.  
[Note] If this code appears after backup setup of outdoor unit trouble, set up “No capacity-over detection”.  
</Setup method of “No capacity-over detection”>. Turn on SW09/Bit 2 on I/F P.C. board of outdoor header unit. | • Check the connection capacity of indoor unit.  
• Check the HP capacity of indoor unit.  
• Check the indoor/outdoor capacity setup  
• Check the No. of connected indoor units.  
• Check the outdoor I/F P.C. board error |
| E18 —       | —                         | 97, 99 Indoor unit | Communication error between indoor header and follower units | Corresponding unit only stops. | Regular communication between indoor header and follower units. | - Check cable of the remote controller.  
• Check power cabling of indoor.  
• Check P.C. board of indoor. |
| E19 E19     | 00: No header unit 02: Two or more header units | 96 I/F | Outdoor header unit quantity error      | All stop                                 | • There are multiple outdoor header units in 1 line.  
• There is none of outdoor header unit in 1 line.  
The outdoor unit connected with communication cable between indoor and outdoor (U1.U2) is the outdoor header unit.  
• Check connection of communication line between indoor and outdoor.  
• Check outdoor P.C. board(I/F) error. | - Check cable of the remote controller.  
• Check power cabling of indoor.  
• Check P.C. board of indoor. |
| E20 E20     | 01: Connection of outdoor of other line 02: Connection of indoor of other line | 42 I/F | Other line unit connected during automatic address | All stop                                 | Unit of other line was connected when indoor automatic address started.  
Separate the cable between lines according to automatic address setup method in “Address setup”. | - Check the power of outdoor unit. (Is the power turned on?)  
• Check connection of communication wire or disconnection between outdoor units.  
• Check the connector for communication on outdoor P.C. board.  
• Check outdoor P.C. board(I/F) error.  
• Check the end terminal resistance setup for communication between outdoor units. |
| E23 E23     | —                         | 15 I/F | Communication sending error between outdoor units | All stop                                 | Transmission of other outdoor unit was unavailable for 30 seconds or more. | • Check the power of outdoor unit. (Is the power turned on?)  
• Check connection of communication wire or disconnection between outdoor units.  
• Check the connector for communication on outdoor P.C. board.  
• Check outdoor P.C. board(I/F) error.  
• Check the end terminal resistance setup for communication between outdoor units. |
<table>
<thead>
<tr>
<th>Check code</th>
<th>Detected position</th>
<th>Check code name</th>
<th>Status</th>
<th>Error detection condition</th>
<th>Check item (position)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E25</td>
<td>15</td>
<td>Duplicated outdoor follower address setup</td>
<td>All stop</td>
<td>Outdoor addresses manually set up are duplicated.</td>
<td>Note) Do not set up the outdoor address manually.</td>
</tr>
</tbody>
</table>
| E26        | 15               | Decreased number of connected outdoor units | All stop | The signal was not returned for constant from the outdoor unit which was receiving signal. | • Outdoor is performing backup.  
• Check the power of outdoor unit. (Is the power turned on?)  
• Check connection of inter-unit wire or disconnection between outdoor units.  
• Check the connector connection for communication on outdoor P.C. board.  
• Check outdoor P.C. board (I/F) error. |
| E28        | d2               | Outdoor follower unit error | All stop | Outdoor header unit received error code from outdoor follower unit. | • Check the check code of outdoor follower unit. <Convenient functions>  
When pushing SW04 for 1 second or more under condition that [E28] is displayed on 7-segment display of outdoor header unit, the fan of outdoor unit which stopped abnormally starts rotating.  
If pushing SW04 and SW05 simultaneously, the fan of normal outdoor unit operates.  
When pushing SW05 singly, the operation of fan is cleared. |
| E31        | CF               | IPDU communication error | All stop | Communication of each IPDU (P.C. board) in inverter box interrupted. | • Check connection of communication connector and disconnection between IPDU and I/F P.C. board.  
• Check outdoor P.C. board (I/F, IPDU, Fan IPDU) error.  
• Check external noise.  
• Check power supply P.C. board for fan error. |
| F01        | OF               | Indoor TCJ sensor error | Corresponding unit only stops. | Resistance value of sensor is infinite or zero (Open/Short). | • Check connection/cabling of TCJ sensor connector.  
• Check characteristics of TCJ sensor resistance value.  
• Check indoor P.C. board error. |
| F02        | Od               | Indoor TC2 sensor error | Corresponding unit only stops. | Resistance value of sensor is infinite or zero (Open/Short). | • Check connection/cabling of TC2 sensor connector.  
• Check characteristics of TC2 sensor resistance value.  
• Check indoor P.C. board error. |
| F03        | 93               | Indoor TC1 sensor error | Corresponding unit only stops. | Resistance value of sensor is infinite or zero (Open/Short). | • Check connection/cabling of TC1 sensor connector.  
• Check characteristics of TC1 sensor resistance value.  
• Check indoor P.C. board error. |
| F04        | 19               | TD1 sensor error | All stop | Resistance value of sensor is infinite or zero (Open/Short). | • Check connection of TD1 sensor connector.  
• Check characteristics of TD1 sensor resistance value.  
• Check outdoor P.C. board (I/F) error. |
| F05        | A1               | TD2 sensor error | All stop | Resistance value of sensor is infinite or zero (Open/Short). | • Check connection of TD2 sensor connector.  
• Check characteristics of TD2 sensor resistance value.  
• Check outdoor P.C. board (I/F) error. |
| F06        | 18               | TE1 sensor error | All stop | Resistance value of sensor is infinite or zero (Open/Short). | • Check connection of TE1 sensor connector.  
• Check characteristics of TE1 sensor resistance value.  
• Check outdoor P.C. board (I/F) error. |
<table>
<thead>
<tr>
<th>Check code</th>
<th>Outdoor 7-segment display</th>
<th>Detected position</th>
<th>Check code name</th>
<th>Status</th>
<th>Error detection condition</th>
<th>Check item (position)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F07</td>
<td>F07</td>
<td>—</td>
<td>TL sensor error</td>
<td>All stop</td>
<td>Resistance value of sensor is infinite or zero (Open/Short).</td>
<td>Check connection of TL sensor connector.</td>
</tr>
<tr>
<td>F08</td>
<td>F08</td>
<td>—</td>
<td>TO sensor error</td>
<td>All stop</td>
<td>Resistance value of sensor is infinite or zero (Open/Short).</td>
<td>Check connection of TO sensor connector.</td>
</tr>
<tr>
<td>F10</td>
<td>—</td>
<td>OC</td>
<td>Indoor TA sensor error</td>
<td>Corresponding unit only stops.</td>
<td>Resistance value of sensor is infinite or zero (Open/Short).</td>
<td>Check connection/cabling of TA sensor connector.</td>
</tr>
<tr>
<td>F12</td>
<td>F12</td>
<td>A2</td>
<td>TS1 sensor error</td>
<td>All stop</td>
<td>Resistance value of sensor is infinite or zero (Open/Short).</td>
<td>Check connection of TS1 sensor connector.</td>
</tr>
<tr>
<td>F13</td>
<td>F13</td>
<td>01: Compressor 1 side 02: Compressor 2 side</td>
<td>IPDU</td>
<td>TH sensor error</td>
<td>All stop</td>
<td>Resistance value of sensor is infinite or zero (Open/Short).</td>
</tr>
<tr>
<td>F15</td>
<td>F15</td>
<td>—</td>
<td>Outdoor temp sensor miscabling (TE1, TL)</td>
<td>All stop</td>
<td>During operation of compressor in HEAT mode, the TE1 detection temp was higher than that of TL by the specified value continued for 3 minutes or more.</td>
<td>Check installation of TE1 sensor and TL sensor.</td>
</tr>
<tr>
<td>F16</td>
<td>F16</td>
<td>—</td>
<td>Outdoor pressure sensor miscabling (Pd, Ps)</td>
<td>All stop</td>
<td>High-pressure Pd sensor and low-pressure Ps sensor were exchanged, or output voltages of both sensors are zero.</td>
<td>Check connection of high-pressure Pd sensor connector.</td>
</tr>
<tr>
<td>F23</td>
<td>F23</td>
<td>—</td>
<td>Ps sensor error</td>
<td>All stop</td>
<td>Output voltage of Ps sensor was zero.</td>
<td>Misconnection of Ps sensor and Pd sensor connectors → Exchange Pd sensor connector.</td>
</tr>
<tr>
<td>F24</td>
<td>F24</td>
<td>—</td>
<td>Pd sensor error</td>
<td>All stop</td>
<td>Output voltage of Pd sensor was zero. (Sensor Open)</td>
<td>Check connection of Pd sensor connector.</td>
</tr>
<tr>
<td>F29</td>
<td>—</td>
<td>12</td>
<td>Indoor other error</td>
<td>Corresponding unit only stops.</td>
<td>Indoor P.C. board did not operate normally.</td>
<td>Check indoor P.C. board error (EEPROM error).</td>
</tr>
<tr>
<td>F31</td>
<td>F31</td>
<td>—</td>
<td>Outdoor EEPROM error</td>
<td>All stop (+1)</td>
<td>Outdoor P.C. board (I/F) did not operate normally.</td>
<td>Check power voltage.</td>
</tr>
<tr>
<td>H01</td>
<td>H01</td>
<td>01: Compressor 1 side 02: Compressor 2 side</td>
<td>IPDU</td>
<td>Compressor breakdown</td>
<td>All stop</td>
<td>Inverter current detection circuit detected over-current and stopped.</td>
</tr>
</tbody>
</table>

(●1) All stop only in case of the header unit The follower unit continues operation.
<table>
<thead>
<tr>
<th>Check code</th>
<th>Outdoor 7-segment display</th>
<th>AI-NET central control remote controller</th>
<th>Check code name</th>
<th>Status</th>
<th>Error detection condition</th>
<th>Check item (position)</th>
</tr>
</thead>
</table>
| H02        | H02                      | 01: Compressor 1 side 02: Compressor 2 side | 1d IPDU         | All stop | Over-current was detected several seconds after header compressor had started. | • Check compressor error.  
• Check power voltage. (AC380 –10%, 415V +10%).  
• Check cable of compressor and phase-missing.  
• Check connector/terminal connection on IPDU P.C. board.  
• Check conduction of case heater. (Check activation error due to liquid stagnation in compressor.)  
• Check outdoor P.C. board (IPDU) error.  
• Check outdoor MG-SW or OCR. |
| H03        | H03                      | 01: Compressor 1 side 02: Compressor 2 side | 17 IPDU         | All stop | While header compressor stopped, current flowed more than the specified current and was detected. | • Check cabling of current detection circuit system.  
• Check outdoor P.C. board (IPDU) error. |
| H04        | H04                      | —                                        | 44 I/F          | All stop | Compressor 1 case thermo-stat performed protective operation. | • Check compressor 1 case thermo circuit. (Connector, cable, P.C. board)  
• Check full opening of service valve. (Gas and liquid side)  
• Check outdoor PMV clogging. (PMV1, 2)  
• Check SV41 circuit leakage.  
• Check miscabling/misinstallation of SV41 and SV42.  
• Check valve open status of indoor PMV.  
• Check compressor error.  
• Check 4-way valve error.  
• Check refrigerant shortage. |
| H06        | H06                      | —                                        | 20 I/F          | All stop | Low-pressure Ps detected operation lower than 0.02MPa. | • Check full opening of service valve. (Gas and liquid side)  
• Check outdoor PMV clogging. (PMV1, 2)  
• Check SV41 circuit and SV42 circuit error.  
• Check low-pressure Ps sensor error.  
• Check indoor air filter clogging.  
• Check valve open of indoor PMV.  
• Check refrigerant pipe clogging. (In heating mode)  
• Check refrigerant shortage. |
| H07        | H07                      | —                                        | d7 I/F          | All stop | The operating compressor detected oil shortage continuously for 2 hours. | • Check all the outdoor units in the corresponding line.>  
• Check full opening of service valve of balance pipe.  
• Check connection and installation of TK1, TK2, TK3, and TK4 sensors.  
• Check characteristics of TK1, TK2, TK3, and TK4 resistance values.  
• Check gas leak and oil leak in the same line.  
• Check refrigerant stagnation in compressor.  
• Check error of SV3A, SV3B, SV3C, SV3D, and SV3E valves.  
• Check clogging of oil separator oil return circuit.  
• Check clogging of oil-equation circuit. |

MG-SW : Magnet Switch  
OCR : Over-current Relay
<table>
<thead>
<tr>
<th>Main remote controller</th>
<th>Outdoor 7-segment display</th>
<th>AI-NET central control remote controller</th>
<th>Check code name</th>
<th>Status</th>
<th>Error detection condition</th>
<th>Check item (position)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H08</td>
<td>H08</td>
<td></td>
<td>Oil level detector temp sensor error</td>
<td>All stop</td>
<td>Resistance value of sensor is infinite or zero (Open/Short)</td>
<td>Check connection of TK1 sensor connector. Check characteristics of TK1 sensor resistance value. Check outdoor P.C. board (I/F) error.</td>
</tr>
<tr>
<td>H14</td>
<td>H14</td>
<td></td>
<td>Compressor 2 case thermo operation</td>
<td>All stop</td>
<td>Resistance value of sensor is infinite or zero (Open/Short)</td>
<td>Check connection of TK2 sensor connector. Check characteristics of TK2 sensor resistance value. Check outdoor P.C. board (I/F) error.</td>
</tr>
<tr>
<td>H16</td>
<td>H16</td>
<td></td>
<td>Oil level detector circuit system error MG-SW error OCR operation</td>
<td>All stop</td>
<td>Temperature change of TK1 could not be detected though compressor 1 started the operation.</td>
<td>Check TK1 sensor coming-off. Check characteristics of TK1 sensor resistance value. Check TK1, TK2, TK3, and TK4 misconnection. Check operation error of SV3E valve. Check capillary clogging of oil-equalization circuit and operation error of stop valve. Check refrigerant stagnation in compressor. Check MG-SW or OCR.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Temperature change of TK2 could not be detected though compressor 2 started the operation.</td>
<td>Check TK2 sensor coming-off. Check characteristics of TK2 sensor resistance value. Check TK1, TK2, TK3, and TK4 misconnection. Check operation error of SV3E valve. Check capillary clogging of oil-equalization circuit and check stop valve operation. Check refrigerant stagnation in compressor shell. Check MG-SW or OCR.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Temperature change of TK3 could not be detected though compressor started the operation.</td>
<td>Check TK3 sensor coming-off. Check characteristics of TK3 sensor resistance value. Check TK1, TK2, TK3, and TK4 misconnection. Check SV3E valve operation. Check capillary clogging of oil equalization circuit and check valve operation. Check refrigerant stagnation in compressor shell. Check MG-SW or OCR.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Temperature change of TK4 could not be detected though compressor started the operation, or the difference from other TK sensor changed for a constant time only within the specified range.</td>
<td>Check TK4 sensor coming-off. Check characteristics of TK4 sensor resistance value. Check TK1, TK2, TK3, and TK4 misconnection. Check SV3E valve operation. Check capillary clogging of oil-equalization circuit and check valve operation. Check refrigerant stagnation in compressor shell. Check MG-SW or OCR.</td>
</tr>
</tbody>
</table>

MG-SW : Magnet Switch
OCR : Over-current Relay
<table>
<thead>
<tr>
<th>Main remote controller</th>
<th>Outdoor 7-segment display</th>
<th>AI-NET central control remote controller</th>
<th>Detected position</th>
<th>Check code name</th>
<th>Status</th>
<th>Error detection condition</th>
<th>Check item (position)</th>
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</thead>
</table>
| L03                    | —                         | —                                       | 96                | Indoor | Duplicated indoor center units | Corresponding unit only stops. | • Check indoor address.  
• Check the change of remote controller connection (Group/individual) after indoor address setup. |
| L04                    | L04                       | —                                       | 96                | I/F   | Duplicated outdoor line address | All stop | Line address setup is duplicated against the outdoor unit in different refrigerant pipe system. | • Check line address. |
| L05                    | —                         | —                                       | 96                | I/F   | Duplicated indoor units with priority (Displayed on indoor unit with priority) | All stop | Indoor units with priority were duplicated. | • Check display of indoor unit with priority. |
| L06                    | L06                       | No. of indoor units with priority        | 96                | I/F   | Duplicated indoor units with priority (Displayed on the unit other than indoor unit with priority) | All stop | Indoor units with priority were duplicated. | • Check display of indoor unit with priority and outdoor unit. |
| L07                    | —                         | —                                       | 99                | Indoor | Group line in individual indoor unit. | Corresponding unit only stops. | At least one indoor unit connected to a group existed in the individual indoor units. | • Check indoor address. |
| L08                    | L08                       | —                                       | 99                | Indoor | Indoor group / address unset | Corresponding unit only stops. | Address was not yet set up. | • Check indoor address.  
Note) After installation, this code is displayed when the power is firstly turned on. |
| L09                    | —                         | —                                       | 46                | Indoor | Indoor capacity unset | Corresponding unit only stops. | Indoor unit capacity was unset. | Set up indoor capacity. (DN=11) |
| L10                    | L10                       | —                                       | 88                | I/F   | Outdoor capacity unset | All stop | On the I/F P.C. board for service, jumper line was not cut according to the model. | Check model setup on outdoor I/F P.C. board A’ssy for service. |
| L20                    | —                         | —                                       | 98                | AI-NET, Indoor | Duplicated central control addresses | All stop | Duplicated central control addresses | • Check central control address.  
• Check network adaptor P.C. board. (In case of AI-NET) |
| L28                    | L28                       | —                                       | 46                | I/F   | Quantity over of connected outdoor units | All stop | There were more than four outdoor units. | • Check No. of connected outdoor units. (Max. 4 units per 1 system)  
• Check communication line between outdoor units.  
• Check outdoor P.C. board (I/F) error. |
| L29                    | L29                       | 01: IPDU1 error  
02: IPDU2 error  
03: IPDU1, 2 errors  
04: Fan IPDU error  
05: IPDU1 + Fan IPDU error  
06: IPDU2 + Fan IPDU error  
07: All IPDU error or communication error between IPDU and I/F P.C. board, or outdoor I/F P.C. board error | CF    | I/F   | IPDU quantity error | All stop | No. of IPDU units detected when power was turned on were less. | • Check model setup for outdoor I/F service P.C. board.  
• Check connection of UART communication connector.  
• Check IPDU, Fan IPDU, and I/F P.C. board error.  
Note) UART: Universal Asynchronous Receiver Transmitter |
<table>
<thead>
<tr>
<th>Check code</th>
<th>Outdoor 7-segment display</th>
<th>AI-NET central control remote controller</th>
<th>Detected position</th>
<th>Check code name</th>
<th>Status</th>
<th>Error detection condition</th>
<th>Check item (position)</th>
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<tbody>
<tr>
<td>L30</td>
<td>L30</td>
<td>—</td>
<td>Indoor</td>
<td>Interlock in indoor unit from outside</td>
<td>Corresponding unit only stops.</td>
<td>• Outside error input terminal Detected signal to (CN80) for more 1 minute</td>
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<td>L31</td>
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<td>I/F</td>
<td>Extended IC (Integrated Circuit) error</td>
<td>Operation continues.</td>
<td>PC, board (I/F) parts error</td>
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<td>P01</td>
<td>—</td>
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<td>Indoor</td>
<td>Indoor fan motor error</td>
<td>Corresponding unit only stops.</td>
<td>• Check the lock of fan motor (AC fan).</td>
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<td>P03</td>
<td>P03</td>
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<td>Indoor</td>
<td>Discharge temp TD1 error</td>
<td>All stop</td>
<td>Discharge temp (TD1) exceeded 115°C.</td>
<td>• Check full opening of outdoor service valves (Gas side, Liquid side).</td>
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<td>P04</td>
<td>P04</td>
<td>01: Compressor 1 side 02: Compressor 2 side</td>
<td>Indoor</td>
<td>Actuation of high-pressure SW</td>
<td>All stop</td>
<td>High-pressure SW actuated.</td>
<td>• Check Pd pressure sensor error.</td>
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<td>P05</td>
<td>P05</td>
<td>01: Power supply open phase 02: Power supply negative phase</td>
<td>Indoor</td>
<td>Open phase negative phase</td>
<td>All stop</td>
<td>• Open phase was detected when the power turned on.</td>
<td>• Check outdoor power line.</td>
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<td>Main remote controller</td>
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<td>P07</td>
<td>P07</td>
<td>01: Compressor 1 side 02: Compressor 2 side</td>
<td>1C</td>
<td>IPDU I/F</td>
<td>Heat sink overheating error</td>
<td>All stop</td>
<td>IGBT built-in temp sensor (TH) was overheated.</td>
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<td>Check power voltage.</td>
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<td>Check outdoor fan system error.</td>
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<td>Check clogging of heat sink cooling duct.</td>
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<td>Check fixation between IGBT and heat sink.</td>
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<td>Check IPDU error.(IGBT built-in temp sensor (TH) error)</td>
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<td>P10</td>
<td>P10</td>
<td>Indoor address with trouble</td>
<td>Ob</td>
<td>Indoor</td>
<td>Indoor overflow error</td>
<td>All stop</td>
<td>▪ Float switch operated.</td>
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<td>▪ Float switch circuit disconnected or the connector came off.</td>
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<td>Check the float switch connector.</td>
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<td>Check operation of drain pump unit.</td>
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<td>Check the drain pump circuit.</td>
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<td>Check clogging of drain pipe.</td>
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<td>Check indoor P.C. board error.</td>
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<td>P12</td>
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<td>11</td>
<td>Indoor</td>
<td>Indoor fan motor error</td>
<td>Corresponding unit only stops.</td>
<td>▪ The value of motor speed deviated from target value was detected for certain time.</td>
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<td>▪ Over-current protection operated.</td>
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<td>Check connection of fan connector and wiring.</td>
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<td>Check fan motor error.</td>
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<td>Check influence of outside air control.</td>
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<td>Check indoor type code (DN=10) and the capacity code (DN=11).</td>
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<td>P13</td>
<td>P13</td>
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<td>47</td>
<td>I/F</td>
<td>Outdoor liquid back detection error</td>
<td>All stop</td>
<td>▪ In cooling&gt; While the system is operating in COOL mode, a high pressure value was detected in follower unit in which compressor did not operate.</td>
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<td>▪ In heating&gt; While the system is operating in HEAT mode, outdoor PMV of which opening degree was 100p or less for a certain time.</td>
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<td>Check full close operation of outdoor PMV (1, 2).</td>
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<td>Check Pd and Ps sensor error.</td>
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<td>Check clogging of SV2 circuit.</td>
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<td>Check clogging of balance pipe.</td>
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<td>Check clogging of SV3B circuit.</td>
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<td>Check outdoor P.C. board (I/F) error.</td>
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<td>Check capillary clogging of oil return circuit from oil separator.</td>
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<td>Check leakage of check valve of the main discharge pipe.</td>
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<td>P15</td>
<td>P15</td>
<td>01: TS condition</td>
<td>AE</td>
<td>I/F</td>
<td>Gas leak detection (TS1 condition)</td>
<td>All stop</td>
<td>▪ In cooling&lt; Judgment standard temperature &gt; Suction temp exceeded the judgment standard temp for 10 minutes or more.</td>
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<td>▪ TS error judgment standard temperature &gt; In cooling operation: 60°C or higher In heating operation: 40°C or higher</td>
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<td>Check refrigerant shortage.</td>
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<td>Check full open of outdoor service valves (gas side, liquid side).</td>
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<td>Check outdoor PMV clogging (PMV1, 2).</td>
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<td>Check characteristics of TS1 sensor resistance value.</td>
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<td>Check 4-way valve error.</td>
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<td>Check leakage of SV4 circuit.</td>
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<td>Check characteristics of TD1, TD2 sensor resistance value.</td>
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<td>Check indoor air filter clogging.</td>
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<td>Check SV4 circuit (Valve leakage, misinstallation)</td>
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<td>Check 4-way valve error.</td>
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<td>Check leakage of SV42 circuit.</td>
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<td>Check code</td>
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<td>Check code name</td>
<td>Status</td>
<td>Error detection condition</td>
<td>Check item (position)</td>
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<td>All stop</td>
<td>Pd sensor detected 3.6MPa or more.</td>
<td>• Check Pd pressure sensor error.</td>
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<td>• Check full opening of service valves (Gas side, Liquid side).</td>
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<td>• Check clogging of outdoor PMV (PMV1,2).</td>
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<td>• Check clogging of indoor/outdoor heat exchangers.</td>
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<td>• Check air short-circuiting in outdoor unit.</td>
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<td>• Check outdoor PC board (I/F) error.</td>
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<td>• Check indoor fan system error. (Cause of air volume decrease)</td>
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<td>• Check valve opening of indoor PMV.</td>
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<td>• Check miscabling of communication line between indoor and outdoor.</td>
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<td>• Check operation error of check valve of discharge pipe.</td>
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<td>• Check refrigerant overcharge.</td>
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<td>0: IGBT shortage</td>
<td>1A</td>
<td>FAN-IPDU</td>
<td>All stop</td>
<td>(Sub-code: 0) Short-circuit current was detected at start time.</td>
<td>• Check fan motor. (Interphase short-circuit)</td>
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<td>1: Position detection circuit error</td>
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<td>Short-circuit current was detected when checking IGBT short-circuit before start time.</td>
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### Additional Notes
- **Check code**: Specific codes used for monitoring and error detection.
- **Outdoor 7-segment display**: Displays error codes.
- **AI-NET remote controller**: Connected device for remote monitoring.
- **Detected position**: Specific components monitored for errors.
- **Check code name**: Descriptive term for error condition.
- **Status**: Indication of system status.
- **Error detection condition**: Conditions under which errors are detected.
- **Check item (position)**: Areas to check for error resolution.
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<th>Main remote controller</th>
<th>Outdoor 7-segment display</th>
<th>AI-NET central control remote controller</th>
<th>Detected position</th>
<th>Check code name</th>
<th>Status</th>
<th>Error detection condition</th>
<th>Check item (position)</th>
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</table>
| P26                    | P26                      | 01: Compressor 1 side 02: Compressor 2 side | 14                | IPDU           | All stop | Instantaneous over-current was detected when compressor started. | • Check connector connection and wiring on IPDU P.C. board.  
• Check compressor error and defect of compressor coil.  
• Check outdoor P.C. board (IPDU) error. |
| P29                    | P29                      | 01: Compressor 1 side 02: Compressor 2 side | 16                | IPDU           | All stop | Position was not normally detected. | • Check connector connection and wiring.  
• Check compressor error and defect of compressor coil.  
• Check P.C. board (IPDU) error. |
| P31                    | —                        | —                                       | 47                | Indoor         | Corresponding unit only stops. E07/L07/L03/L08 was detected when other indoor unit in the group was defective. | • Check indoor P.C. board. |
### Error detected by TCC-LINK central control device

<table>
<thead>
<tr>
<th>Display on central control device</th>
<th>Check code</th>
<th>Detected position</th>
<th>Check code name</th>
<th>Status</th>
<th>Error detection condition</th>
<th>Check item (position)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor 7-segment display</td>
<td>C05</td>
<td>—</td>
<td>TCC-LINK</td>
<td>Operation continued.</td>
<td>Signal is not transmit from central control device.</td>
<td><em>Check central control device error.</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>—</td>
<td>TCC-LINK</td>
<td>Operation continued.</td>
<td>Signal is not received from central control device.</td>
<td><em>Check communication line error of central control device.</em></td>
</tr>
<tr>
<td></td>
<td>C06</td>
<td>—</td>
<td>General-purpose device I/F</td>
<td>Operation continued.</td>
<td>Error was input in general-purpose control devices.</td>
<td><em>Check setup of end terminal resistance.</em></td>
</tr>
<tr>
<td></td>
<td>C12</td>
<td>—</td>
<td>Interface batch alarm of general-purpose control devices</td>
<td>Operation continued.</td>
<td>Error was input in general-purpose control devices.</td>
<td><em>Check the power of connecting destination connected device.</em></td>
</tr>
<tr>
<td>P30</td>
<td>—</td>
<td>—</td>
<td>Outdoor 7-segment display</td>
<td>Operation continued.</td>
<td>Central control addresses were duplicated.</td>
<td><em>Check the address setup.</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TCC-LINK</td>
<td>Operation continued.</td>
<td>An error occurred in follower unit of the group control.</td>
<td><em>Check the check code of the unit with alarm.</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Follower unit error of group control</td>
<td>Operation continued.</td>
<td>An error occurred in follower unit of the group control. (P30 is displayed only on the central control remote controller.)</td>
<td></td>
</tr>
</tbody>
</table>

(L20 is displayed.)

### Error detected by AI-NET central control device

<table>
<thead>
<tr>
<th>Main remote controller</th>
<th>Check code</th>
<th>Outdoor 7-segment display</th>
<th>AI-NET central control remote controller</th>
<th>Detected position</th>
<th>Check code name</th>
<th>Status</th>
<th>Error detection condition</th>
<th>Check item (position)</th>
</tr>
</thead>
<tbody>
<tr>
<td>—</td>
<td>97</td>
<td>—</td>
<td>AI-NET</td>
<td>Operation continued.</td>
<td>AI-NET communication system error</td>
<td>E07/L07/L03/L08 was detected when other indoor unit in the group was defective.</td>
<td>*Check multiple network adaptors.</td>
<td></td>
</tr>
<tr>
<td>—</td>
<td>99</td>
<td>—</td>
<td>AI-NET</td>
<td>Operation continued.</td>
<td>Duplicated network adaptors</td>
<td>Multiple network adaptors were connected to communication line of remote controller. (Detected at central controller side)</td>
<td><em>Check wire and miscabling of remote controller: Only one network adaptor can be connected to communication line of remote controller.</em></td>
<td></td>
</tr>
<tr>
<td>—</td>
<td>b7</td>
<td>—</td>
<td>AI-NET</td>
<td>Operation continued.</td>
<td>Error in indoor group</td>
<td>Error of follower unit in the group</td>
<td><em>Check network adaptor P.C. board.</em></td>
<td></td>
</tr>
</tbody>
</table>

* These errors are concerned to communication of remote controllers (A, B) and central system [AI-NET X, Y], and the main remote controller displays [E01], [E02], [E03], [E09], or [E18] in some cases and displays none in other cases according to the contents.
Cautions when servicing for compressor

1. Removing wires of both compressors check output of the inverter as described below.

How to check inverter output

1. Turn off the power supply.
2. Remove the compressor lead cables from the compressors.
   (Be sure to remove lead cables of both compressors.)
3. Turn on the power supply and start cooling or heating operation.
   In this time, pay attention to touch the fasten receptacle terminal lug of the compressor leads so that they do not contact with other fasten receptacle terminal lug or other position (unit cabinet, etc.).
4. Check output voltage of compressor lead cable at inverter side.
   When the output voltage does not satisfy the criteria in the following table, replace IPDU P.C. board.

<table>
<thead>
<tr>
<th>No.</th>
<th>Measured position</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Between Red and White</td>
<td>400 V to 650 V</td>
</tr>
<tr>
<td>2</td>
<td>Between White and Black</td>
<td>400 V to 650 V</td>
</tr>
<tr>
<td>3</td>
<td>Between Black and Red</td>
<td>400 V to 650 V</td>
</tr>
</tbody>
</table>

* After checking the output, when connecting the compressor lead again to the compressor terminal, check surely there is no distortion on the fasten terminal lug. If it is loosened, caulk it with pinchers, etc and then connect lead to the terminal.

How to check resistance of compressor winding

1. Turn off the power supply.
2. Remove the compressor lead cables from the compressors.
   In each compressor, check the winding resistance between phases and resistance of the outdoor cabinet using a tester.
   • Is not it earthed?
     → Normal if 10MΩ or more are measured
   • Is not shorted between windings?
     → Normal if 0.7Ω to 0.9Ω are measured (Use a precise digital tester.)

How to check the external fan motor

1. Turn off the power supply.
2. Take off three connectors (U.V.W) from the external fan IPDU P.C. board.
3. Turn the fan with hands. If the fan does not turn, it is a fan motor error (Lock). Replace the fan motor.
   If the fan turns, measure the winding resistance between the phases of the connector (Motor winding) with a tester. If 13 to 33Ω are measured, it is normal. (Use a digital tester.)
### 9-5. Diagnosis Procedure for Each Check Code

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
</table>
| [E01] / [-]        | Communication error between indoor and remote controller (Detected at remote controller side) | 1. Remote controller inter-unit cable error  
2. Indoor power error  
3. Indoor P.C. board error  
4. Remote controller address setup error  
5. Remote controller P.C. board error |

**Diagram:**

1. **Is the inter-unit cable of remote controllers (A/B) normal?**  
   - **NO** → Correct inter-unit cable of remote controller.  
   - **YES** → **Is there no disconnection or connector contact error on harness out of terminal block of indoor unit?**  
     - **YES** → Correct connector connection and check circuit cabling.  
     - **NO** → **Is a group control operation?**  
       - **YES** → **Is power of each indoor unit turned on?**  
         - **NO** → Check power connection status of indoor unit. (Turn on power again.)  
         - **YES** → **Is power applied to remote controller?**  
           - **NO** → Check indoor P.C. board. Defect → Replace  
           - **YES** → **Is setup of two remote controllers without main remote controller?**  
             - **YES** → Change one to main/other to sub. (Remote controller address connector)  
             - **NO** → **Check remote controller P.C. board. Defect → Replace**

2. **Is power of each indoor unit turned on?**  
   - **NO** → Check power connection status of indoor unit. (Turn on power again.)  
   - **YES** → **Is power applied to remote controller?**  
     - **NO** → Check indoor P.C. board. Defect → Replace  
     - **YES** → **Is setup of two remote controllers without main remote controller?**  
       - **YES** → Change one to main/other to sub. (Remote controller address connector)  
       - **NO** → **Check remote controller P.C. board. Defect → Replace**
<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[E02] / [-]</td>
<td>Remote controller sending error</td>
<td>Signal could not be sent to indoor unit. Check the communication wire of the remote controller.</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* It is not displayed on 7-segment display of the central control controller.

---

**Flowchart**

1. Is communication cabling between remote controller and indoor unit correct?
   - **YES**: Correct the communication cabling.
   - **NO**: Send circuit error inside of the remote controller → Replace remote controller.

---

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[E03] / [97]</td>
<td>Communication error between indoor and remote controller (Detected at indoor side)</td>
<td>No communication from remote controller and communication adaptor</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This error is detected when the indoor unit cannot receive a signal from the remote controller. Check communication cables of the remote controllers A and B. As communication is impossible, this check code [E03] is not displayed on the main remote controller. It is displayed on TCC-LINK central controller.
Check code: [E04] / [04]
(d07 / AI-NET)

Check code name: Indoor/Outdoor communication circuit error (Detected at indoor side)

Cause of operation:
1. Power of outdoor unit was firstly turned on.
2. Connection error of communication line between indoor and outdoor.
3. End terminal resistance setup error on communication between indoor and outdoor.
4. Address setup error.

Diagram:

1. Was power turned on in order of indoor unit → outdoor unit?
   - NO: Turn on power again in order of indoor unit → outdoor unit.
   - YES: Proceed to the next step.

2. Is connection (U1/U2 terminals) of indoor/outdoor inter-unit cable normal?
   - NO: Correct inter-unit cable.
   - YES: Proceed to the next step.

3. Is connector connection from U1/U2 terminals of indoor/outdoor inter-unit cable normal?
   - NO: Correct connector connection.
   - YES: Proceed to the next step.

4. Is the end terminal resistance setup of outdoor unit normal?
   - NO: Correct the end terminal resistance setup.
   - YES: Proceed to the next step.

5. Is address setup correct?
   - NO: Set up address again.
   - YES: Proceed to the next step.

6. Is power applied to fuse (F03) on indoor P.C. board?
   - NO: Check connection of inter-unit cable between indoor and outdoor is correct, and then connect communication line connector on indoor P.C. board (CN40) to CN44 (EMG).
   - YES: Proceed to the next step.

7. Is there no noise, etc?
   - NO: Check noise, etc, and eliminate it if any.
   - YES: Check indoor P.C. board. Defect → Replace.

For details, refer to “Troubleshooting in test operation”.

151
### Check code

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[E06] / [04]</td>
<td>Decreased number of indoor units</td>
<td>1. Communication lines (U1, U2) connection error between indoor and outdoor</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td>2. Connector connection error of communication for indoor P.C. board</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Connector connection error of communication for outdoor I/F board</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Power supply of indoor unit (Is power turned on?)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

**Diagram:**

- Is there no miscabling/disconnection on communication line between indoor and outdoor?
  - YES: Correct communication line.
  - NO: Is connection of CN40 connector on indoor P.C. board normal?
    - NO: Correct cabling of cable connector.
    - YES: Is connection of CN01 connector on outdoor I/F P.C. board normal?
      - NO: Turn on power of indoor unit.
      - YES: Is power of indoor turned on?
        - NO: Did a power failure occur?
          - NO: Clear the check code.
          - YES: Is there no noise, etc?
            - YES: Check noise, etc. and eliminate it if any.
            - NO: Check indoor P.C. board. Defect → Replace

**NOTE**

1. When signal is not sent for a certain period from the indoor unit which has used to send signals normally, [E06] is displayed.
Check code | Check code name | Cause of operation
--- | --- | ---
[E07] / [-] (d07 / AI-NET) | Indoor/Outdoor communication circuit error (Detected at outdoor side) | 1. Indoor/outdoor communication end terminal resistance setup error 2. Indoor/outdoor communication connection error

- Is setup of end terminal resistance of outdoor unit normal? 
  - NO: Correct setup of end terminal resistance.
  - YES: Check inter-unit cable (U1, U2) between indoor and outdoor short-circuited?
    - NO: Correct short-circuit.
    - YES: Is connection of inter-unit cable between indoor and outdoor correct?
      - YES: Correct communication line.
      - NO: Is there no error on power cable to outdoor unit?
        - NO: Correct power cable.
        - YES: Is there noise source?
          - NO: Eliminate noise.
          - YES: Outdoor I/F P.C. board failure → Replace

*Check conduction with tester.*

- Is F400 (fuse) on I/F P.C. board opened? 
  - NO: Is there error on power cable to outdoor unit?
    - NO: Correct power cable.
    - YES: Outdoor I/F P.C. board failure

Turn on power to start operation.
### Check code

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[E08] / [96]</td>
<td>Duplicated indoor addresses</td>
<td>Indoor addresses are duplicated.</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sub-code: Duplicated indoor address**

Using a main remote controller (RBC-AMT21E), check the setup item codes (DN code) 12, 13, and 14. When there is no address duplication, check to the following flowchart.

![Flowchart](image-url)
Is there any trouble on power line?

- **YES**
  - Correct setup of remote controllers as a master: a other. (Remote controller address connector)
  
  - Check remote controller P.C. board. Failure → Replace

- **NO**
  - Check power voltage on line. Eliminate noise, etc.
  
  - Check indoor control P.C. board. Failure → Replace

---

**Check code**

| [E09] / [99] (d07 / AI-NET) | Duplicated master remote controller | Setup of master remote controller is duplicated. |

**Check code**


**Check code**

| [E12] / [42] (d07 / AI-NET) | Automatic address start error | 1. When indoor automatic address started, other refrigerant circuit system was setting automatic address.  
2. When outdoor automatic address started, the indoor automatic address was being set. (Sub-code: 02) |

**Sub-code:** 01: Communication between indoor and outdoor  02: Communication between outdoor units

Are U1, U2, U3, and U4 connectors connected?

- **NO**
  - Disconnect connector connection of U1, U2, U3, and U4.
  
  - Turn on power of outdoor unit again.
  
  - Set up address again. (Refer to “Address setup procedure”.)

- **YES**
  - Check code name
  - Check code name
  - Check code name
<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
</table>
2. Indoor power system error  
3. Noise from surrounding devices  
4. Power failure  
5. Indoor P.C. board error |

![Flowchart Diagram]

- **Is communication line between indoor and outdoor normal?**
  - NO: Correct communication line.
  - YES: Proceed to next step.

- **Is connection of CN40 connector on indoor P.C. board correct?**
  - NO: Correct connection of connector.
  - YES: Proceed to next step.

- **Is connection of CN01 connector on I/F P.C. board of header outdoor unit correct?**
  - NO: Correct connection of connector.
  - YES: Proceed to next step.

- **Is there any connection error of power cable?**
  - YES: Correct power cable.
  - NO: Proceed to next step.

- **Did a power failure occur?**
  - YES: Set up address again after resetting power supply.
  - NO: Proceed to next step.

- **Is there no noise source?**
  - YES: Eliminate noise.
  - NO: Set up address again after resetting power supply.
Check code: [E16] / [89]  
(d07 / AI-NET)  
**Connected indoor units capacity over**

<table>
<thead>
<tr>
<th>Sub-code: 00 : Capacity over 49 to 64 of connected units</th>
</tr>
</thead>
</table>

- **Is backup operation of outdoor unit being set up?**
  - YES: Perform setup of no detection for capacity over. (**)  
  - NO:  
    - **Is No. of connected indoor units correct?**
      - NO: Excessive indoor units are connected. Correct miscabling.  
      - YES:  
        - **Is setup of indoor unit HP correct?**
          - YES: Correct HP setup.  
          - NO: Set capacity of connected indoor units within 135% of outdoor units.  
        - **Is total capacity of connected indoor units within 135%?**
          - NO:  
            - **For a service P.C. board, check outdoor HP setup. (Set up jumper 9, 10, 11, and 12.)**
              - OK: Set up outdoor HP. (Refer "How to exchange interface P.C. board").  
              - NG: Check outdoor interface P.C. board A'ssy.
          - YES:  

(**1) Setup of no detection of capacity over**

Turn SW09 Bit 2 on I/F P.C. board of header outdoor unit to ON. (Usually OFF)
<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[E18] / [97/99] (d07 / AI-NET)</td>
<td>Communication error between indoor header and follower</td>
<td>Regular communication between indoor header and follower is unavailable.</td>
</tr>
</tbody>
</table>

Are remote controller inter-unit cables (A/B) normal?  

- **YES**: Correct remote controller inter-unit wire.  
- **NO**: Is there any disconnection of connector or wiring from terminal block of indoor unit?  
  
  - **YES**: Correct connection of connector. Check circuit wire.  
  - **NO**: Is a group control operation?  
    
    - **YES**: Are powers of all indoor units turned on?  
      
      - **NO**: Check power connection status of indoor unit.  
      - **YES**: Check indoor address.  
      
      Correct indoor address.  

Correct indoor address.
<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. Outdoor I/F P.C. board error</td>
</tr>
</tbody>
</table>

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

Are not communication lines (U1, U2) between indoor and outdoor connected to multiple outdoor units?  

- **YES**  
  Connect communication line between indoor and outdoor to one unit per 1 system.

- **NO**  
  Connect communication line between indoor and outdoor.

Is communication line between indoor and outdoor connected to one unit per 1 system?  

- **YES**  
  Check I/F board.

- **NO**  
  Connect communication line between indoor and outdoor.

**Reference**  
An outdoor unit connected with communication wires (U1, U2) between indoor and outdoor is the header unit.

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[E20] / [42]</td>
<td>Unit connected to other line during automatic address</td>
<td>When starting automatic indoor address, a device in other line is connected.</td>
</tr>
</tbody>
</table>

**Sub-code:** 01: Connection of outdoor in other line  02: Connection of indoor unit in other line

Separate the wire between lines according to address setup method.
<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[E23] / [15]</td>
<td>Communication sending error between outdoor units</td>
<td>1. Inter-unit cable connection error between outdoor units</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td>2. Communication connector connection error between outdoor units, I/F P.C. board error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. End terminal resistance setup error between outdoor units</td>
</tr>
</tbody>
</table>

```
<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there no miscabling or disconnection on communication line between outdoor units?</td>
<td>YES</td>
<td>Correct communication line.</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>Is connection of CN03 connector on outdoor I/F P.C. board normal?</td>
<td>NO</td>
<td>Correct cabling of cable connector.</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Is not main power of outdoor unit turned off?</td>
<td>YES</td>
<td>Turn on main power of outdoor unit.</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>Is the end terminal resistance between outdoor units turned on?</td>
<td>NO</td>
<td>Turn the end terminal resistance to ON.</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Did power failure occur?</td>
<td>YES</td>
<td>Clear check code.</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>Is there no noise source, etc?</td>
<td>YES</td>
<td>Check and eliminate noise, etc</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>Check outdoor I/F P.C. board. Defect → Replace</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```
### Check code

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[E25] / [15]</td>
<td>Duplicated follower outdoor address setup</td>
<td>Addresses are duplicated by manual setup of outdoor address</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Do not set up outdoor address manually.

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td>2. Outdoor power error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Communication line connection error between outdoor units</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Connector connection error for communication</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Outdoor I/F P.C. board error</td>
</tr>
</tbody>
</table>

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

---

**Is outdoor unit setting backup?**

- **YES**
  - Clear the error, and then start operation. (*1)

- **NO**
  - **Is main power of follower unit turned on?**
    - **NO**
      - **Is communication line between outdoor units connected normally?**
        - **NO**
          - **Is communication connector (CN03) between follower outdoor units connected?**
            - **NO**
              - **Check I/F P.C. board.**
            - **YES**
              - **Correct connector connection.**
          - **YES**
            - **Correct connection of communication line.**
        - **YES**
          - **Turn on the main power supply.**
    - **YES**
      - **Check I/F P.C. board.**

(*1) **How to clear the error**

Set SW01/SW02/SW03 on I/F P.C. board of header unit to 2/16/1, and push SW04 for 5 seconds or more.

(7-segment display: [Er.] [CL])
### Check code [E28] / [d2] (d07 / AI-NET)

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[E28] / [d2] (d07 / AI-NET)</td>
<td>Follower outdoor unit error</td>
<td>Follower outdoor error</td>
</tr>
</tbody>
</table>

**Sub-code:** Detected outdoor unit No.

An error occurred on the follower unit. Check the check code of follower unit on 7-segment display on I/F P.C. board of follower unit, and then check according to Diagnose procedure for each check code.

(How to specify the follower outdoor unit in which error occurred)

If pushing SW04 for 1 second or more under condition that [E28] is displayed on 7-segment display of the header unit, the fan of the outdoor which stopped due to occurrence of error starts rotating. When pushing SW05 singly, the fan operation is cleared.

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
</table>

**Sub-code:**

01: IPDU1 error 02: IPDU2 error 03: IPDU1, 2 error 04: Fan IPDU error 05: IPDU1, fan IPDU error 06: IPDU2, fan IPDU error 07: All IPDU error or communication line error between IPDU-I/F P.C. boards, or outdoor I/F P.C. board error

* If the fan IPDU is abnormal, be sure to check the voltage output on the fan power supply P.C. board.

- Is communication connector between IPDU and I/F P.C. board connected? **NO** → Correct connection of connector.
- **YES**

- Is there no disconnection on communication line between IPDU and I/F P.C. board? **YES** → Replace communication line.
- **NO**

- Is there voltage deflection between 4 and 5 pin of CN600 on I/F P.C. board? **NO** → I/F P.C. board error (Measurement with tester: DC0 to 5V, 5 pins GND)
- **YES**

- Is there voltage deflection between 3 and 5 pin of CN600 on I/F P.C. board? **NO** → I/F P.C. board error (Measurement with tester: DC0 to 5V, 5 pins GND)
- **YES**

Replace defective IPDU P.C. board.

All IPDU (No.1, No.2) and three fan IPDU do not return communication.
### Check code

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[F01] / [0F]</td>
<td>Indoor TCJ sensor error</td>
<td>TCJ sensor Open/Short</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Indoor TCJ sensor error

- **Check code name**: Indoor TCJ sensor error
- **Check code**: [F01] / [0F] (d07 / AI-NET)
- **Cause of operation**: TCJ sensor Open/Short

#### Diagram

1. **Is TCJ sensor connector (CN102: Red) on indoor P.C. board normally connected?**
   - **NO**: Correct connection of connector.
   - **YES**: Are characteristics of TCJ sensor resistance value normal?

2. **Are characteristics of TCJ sensor resistance value normal?**
   - **NO**: Replace TCJ sensor.
   - **YES**: Check indoor main P.C. board. Defect → Replace

### Check code

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[F02] / [Od]</td>
<td>Indoor TC2 sensor error</td>
<td>TC2 sensor Open/Short</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Indoor TC2 sensor error

- **Check code name**: Indoor TC2 sensor error
- **Check code**: [F02] / [Od] (d07 / AI-NET)
- **Cause of operation**: TC2 sensor Open/Short

#### Diagram

1. **Is TC2 sensor connector (CN101: Black) on indoor P.C. board normally connected?**
   - **NO**: Correct connection of connector.
   - **YES**: Are characteristics of TC2 sensor resistance value normal?

2. **Are characteristics of TC2 sensor resistance value normal?**
   - **NO**: Replace TC2 sensor.
   - **YES**: Check indoor main P.C. board. Defect → Replace

*Indoor unit temperature sensor characteristics
See Characteristics-2.*
### Check Code Table

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>[F03] / [93]</strong></td>
<td><em>Indoor TC1 sensor error</em></td>
<td>TC1 sensor Open/Short</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>[F04] / [19]</strong></td>
<td><em>TD1 sensor error</em></td>
<td>TD1 sensor Open/Short</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This error code means detection of Open/Short of TD1 sensor. Check disconnection of circuit for connection of connector (TD1 sensor: CN502, White) and characteristics of sensor resistance value. (Refer to Outdoor unit temperature sensor characteristics.)
If sensor is normal, replace outdoor I/F P.C. board.

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>[F05] / [A1]</strong></td>
<td><em>TD2 sensor error</em></td>
<td>TD2 sensor Open/Short</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This error code means detection of Open/Short of TD2 sensor. Check disconnection of circuit for connection of connector (TD2 sensor: CN503, Pink) and characteristics of sensor resistance value. (Refer to Outdoor unit temperature sensor characteristics.)
If sensor is normal, replace outdoor I/F P.C. board.

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>[F06] / [18]</strong></td>
<td><em>TE1 sensor error</em></td>
<td>TE1 sensor Open/Short</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This error code means detection of Open/Short of TE1 sensor. Check disconnection of circuit for connection of connector (TE1 sensor: CN505, Green) and characteristics of sensor resistance value. (Refer to Outdoor unit temperature sensor characteristics.)
If sensor is normal, replace outdoor I/F P.C. board.

---

**Flowchart:**

1. **Is TC1 sensor connector (CN100: Brown) on indoor P.C. board normally connected?**
   - **NO** → Correct connection of connector.
   - **YES** →
     - **Are characteristics of TC1 sensor resistance value normal?**
       - **NO** → Replace TC1 sensor.
       - **YES** → Check indoor main P.C. board.
         - Defect → Replace

2. **Is TC1 sensor connector (CN100: Brown) on indoor P.C. board normally connected?**
   - **NO** → Correct connection of connector.
   - **YES** →
     - **Are characteristics of TC1 sensor resistance value normal?**
       - **NO** → Replace TC1 sensor.
       - **YES** → Check indoor main P.C. board.
         - Defect → Replace

3. **Check indoor main P.C. board.**
   - Defect → Replace

---

**Check Indoor Main P.C. Board:**

1. **Is TC1 sensor connector (CN100: Brown) on indoor P.C. board normally connected?**
   - **YES** → Check indoor main P.C. board.
   - **NO** → Correct connection of connector.

2. **Are characteristics of TC1 sensor resistance value normal?**
   - **YES** → Check indoor main P.C. board.
   - **NO** → Replace TC1 sensor.

---

**Indoor Unit Temperature Sensor Characteristics:**

See Characteristics-2.
<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[F07] / [18]</td>
<td>TL sensor error</td>
<td>TL sensor Open/Short</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This error code means detection of Open/Short of TL sensor. Check disconnection of circuit for connection of connector (TL sensor: CN521, White) and characteristics of sensor resistance value. (Refer to Outdoor unit temperature sensor characteristics.) If sensor is normal, replace outdoor I/F P.C. board.

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[F08] / [1b]</td>
<td>TO sensor error</td>
<td>TO sensor Open/Short</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This error code means detection of Open/Short of TO sensor. Check disconnection of circuit for connection of connector (TO sensor: CN507, Yellow) and characteristics of sensor resistance value. (Refer to Outdoor unit temperature sensor characteristics.) If sensor is normal, replace outdoor I/F P.C. board.

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[F10] / [0C]</td>
<td>Indoor TA sensor error</td>
<td>TA sensor Open/Short</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This error code means detection of Open/Short of TA sensor. Check disconnection of circuit for connection of connector (TA sensor: CN104, Yellow) and characteristics of sensor resistance value. (Refer to Outdoor unit temperature sensor characteristics.) If sensor is normal, replace indoor P.C. board.

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[F12] / [A2]</td>
<td>TS1 sensor error</td>
<td>TS1 sensor Open/Short</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This error code means detection of Open/Short of TS1 sensor. Check disconnection of circuit for connection of connector (TS1 sensor: CN504, White) and characteristics of sensor resistance value. (Refer to Outdoor unit temperature sensor characteristics.) If sensor is normal, replace outdoor I/F P.C. board.
### Check code name

| [F13] / [43] (d07 / AI-NET) | TH sensor error | IGBT built-in sensor error in A3-IPDU |

**Sub-code:** 01: Compressor 1 side 02: Compressor 2 side

This error code means IGBT built-in temperature sensor error. Check connection of connectors CN06 on IPDU P.C. board and CN600 on I/F P.C. board. If sensor is normal, replace IPDU P.C. board.

### Check code name

| [F15] / [18] (d07 / AI-NET) | Outdoor temp sensor miscabling (TE1, TL) | 1. Misinstallation and misconnection of TE1 sensor and TL sensor  
2. Resistance characteristics error of TE1 sensor and TL sensor  
3. Outdoor P.C. board (I/F) error |

- Are installed positions of TE1 sensor and TL sensor correct?  
  - YES: Correct installed positions of TE1 sensor and TL sensor.  
  - NO: Outdoor I/F P.C. board  
    - TE1 sensor : CN505, Green  
    - TL sensor : CN521, White

- Are connection of TE1 sensor connector and TL sensor connector normal?  
  - YES: Correct connection of connectors.  
  - NO: Correct connection of connectors.

- Are resistance characteristics of TL sensor and TE1 sensor normal?  
  - YES: Correct connection of connectors.  
  - NO: Outdoor unit temperature sensor characteristics  
    - See TE1 sensor : Characteristics-5  
    - See TL sensor : Characteristics-2.

- Check outdoor I/F P.C. board. Defect → Replace

* TE1 sensor : Outdoor heat exchanger temp sensor  
  TL sensor : Temp sensor between liquid tanks of outdoor PMV1/2
Check outdoor I/F P.C. board. 
Defect \(\rightarrow\) Replace
### Ps sensor error

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[F23] / [43]</td>
<td>Output voltage error of Ps sensor</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
</tr>
</tbody>
</table>

#### Flowchart:

- **Is connection of Ps sensor connector correct?**
  - **NO**: Correct connection of connector.
  - **YES**: Connector: CN500, White

- **Are output voltage characteristics of Ps sensor normal?**
  - **NO**: Sensor error
  - **YES**:*
    - 1. Pressure (Check joint) by pressure gauge
    - 2. Pressure display on 7-segment display
    - 3. Output voltage of I/F P.C. board
      - If 1 and 2, 3 are different, an error of pressure sensor itself is considered.
      - If 2 and 3 are different, check interface P.C. board.

- **Is there no leakage from SV4 valve?**
  - **NO**: Is not refrigerant by passed from discharge to suction of 4-way valve?
  - **YES**: Check 4-way valve.
  - **NO**: Replace SV4 valve.

#### Pd sensor error

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[F24] / [43]</td>
<td>Output voltage error of Pd sensor</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
</tr>
</tbody>
</table>

It is output voltage error of Pd sensor. Check disconnection of connection of connector (Pd sensor: CN501) circuit and output voltage of sensor.

If the sensor is normal, replace outdoor I/F P.C. board.
<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
</table>
| [F29] / [12]  | Indoor other error | Indoor P.C. board error  
              |                 | EEROM error       |
| (d07 / AI-NET) | Indoor P.C. board error |

This error is detected during operation of air conditioner of IC10 non-volatile memory (EEPROM) on indoor unit P.C. board. Replace service P.C. board.

* If EEPROM was not inserted when power was turned on or it is absolutely impossible to read/write EEPROM data, the automatic address mode is repeated. In this case, [97 error] is displayed on AI-NET central controller.

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
</table>
| [F31] / [1C]  | Outdoor EEPROM error | 1. Outdoor unit power error (Voltage, noise, etc.)  
              |                 | 2. Outdoor I/F P.C. board error |
| (d07 / AI-NET) | Outdoor EEPROM error |

Is there any trouble of outdoor unit power supply?

YES

Check power voltage and line.
Correct power line.
Check external noise, etc.

NO

Check I/F P.C. board.
### Check code name

<table>
<thead>
<tr>
<th>[H01] / [1F]</th>
<th>Compressor breakdown</th>
</tr>
</thead>
</table>
| (d07 / AI-NET) | 1. Outdoor unit power line error  
2. Compressor circuit system error  
3. Compressor error  
4. Cause of abnormal overload operation  
5. IPDU P.C. board error |

**Sub-code:** 01: Compressor 1 side  02: Compressor 2 side

<table>
<thead>
<tr>
<th><strong>Check code name</strong></th>
<th><strong>Check code name</strong></th>
<th><strong>Cause of operation</strong></th>
</tr>
</thead>
</table>
| [H01] / [1F]       | Compressor breakdown | 1. Outdoor unit power line error  
2. Compressor circuit system error  
3. Compressor error  
4. Cause of abnormal overload operation  
5. IPDU P.C. board error |

#### Is power voltage of outdoor unit normal?

- **YES**: 380 – 415V ± 10%

#### Does voltage drop occur when other compressor starts?

- **YES**: Correct power line.

#### Is connection of wiring or connection of connector on IPDU P.C. board normal?

- **NO**: Correct connector connection or wiring.

#### Is winding resistance between phases of corresponding compressor normal? *(Note 1)*

- **NO**: Compressor error  
  (Motor burning, etc.)

#### Is not it an abnormal overload?

- **YES**: Correct cause of overload.

#### Take off lead cable of compressor.

1. Check resistance between windings:  
   It is normal if there are 0.7Ω to 0.9Ω.  
2. Check insulation between outdoor cabinet and terminal:  
   It is normal if there are 10MΩ or more.

#### Note 1

- After checking the output, when connecting the compressor lead again to the compressor terminal, check surely there is no distortion on the Fasten receptacle terminal.  
  If it is loosened, caulk it with pinchers, etc and then connect lead to the terminal firmly.

#### Details of compressor power connecting section
Check code name | Sub-code: 01: Compressor 1 side 02: Compressor 2 side
--- | ---
[H02] / [1d] (d07 / AI-NET) | Compressor error (Lock)

## Cause of operation
1. Outdoor unit power line error
2. Compressor circuit system error
3. Compressor error
4. Refrigerant stagnation in compressor shell
5. IPDU P.C. board error

### Sub-code:
- 01: Compressor 1 side
- 02: Compressor 2 side

---

Is power voltage of outdoor unit normal? *1

- NO
- YES

*1 380–415V ± 10%

Does voltage drop occur when other compressor starts?

- YES
- NO

Does OCR of MG-SW operate?

- YES
- NO

Is wiring or connector connection on IPDU P.C. board normal?

- NO
- YES

Is not it an abnormal overload?

- YES
- NO

Is there no refrigerant stagnation in compressor shell?

- YES
- NO

Is case heater output normal?

- YES
- NO

Correct power line.

Correct cause of overload.

Correct refrigerant stagnation in compressor shell.

Operation starts.

Check case heater.

Compressor error

---

*2 Check the following items mainly:
1. Existence of abnormal sound and abnormal vibration during operation or starting
2. Abnormal overheating of case during operation or stop time (Never touch with hands.)
3. Current of compressor lead during operation or starting time (No varied change of current) change

*3 If OCR operates even after manual reset of OCR, check whether the wiring to the current sensor (TO2) of Comp-IPDU is correct or not.
Check code name | Check code name | Cause of operation
---|---|---
[H03] / [17] (d07 / AI-NET) | Current detective circuit system error | 1. Cabling or connector connection error on IPDU P.C. board  
2. IPDU P.C. board error

Sub-code: 01: Compressor 1 side  02: Compressor 2 side

Wiring or connector connection on IPDU P.C. board normal?  

- NO: Correct connector connection or cabling.  
- YES: Check IPDU P.C. board.
## Check code name

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
</table>
| [H04] / [44]  | Compressor 1 case thermo operation | 1. Case thermo circuit error  
2. I/F P.C. board error  
3. Service valve closed  
4. Outdoor PMV clogging  
5. SV4 valve leak, Coil misinstallation  
6. 4-way valve error  
7. Compressor error  
8. Refrigerant shortage |
| (d07 / AI-NET) | | |
| [H14] / [44]  | Compressor 2 case thermo operation |  |
| (d07 / AI-NET) | | |

---

### Is case thermo circuit normal? (Note 1)
- 1. Connector connection
- 2. Cabling
- 3. I/F P.C. board

**NO**
- Repair case thermo circuit.

**YES**
- Are service valves of gas pipe and liquid pipe of outdoor unit fully opened?

**NO**
- Open service valves fully.

**YES**
- Are outdoor PMV1/2 normal?
- 1. Connector connection
- 2. Cabling
- 3. Coil
- 4. Valve body
- 5. I/F P.C. board

**NO**
- Repair outdoor PMV.

**YES**
- Operation starts.

### Are SV41 and Valve circuits normal? (Note 1)
- 1. Misinstallation installation and connector connection of SV41 and SV42
- 2. Leakage from SV41, 42 circuit

**NO**
- Correct SV4 valve circuits.

**YES**
- Does not refrigerant bypass from discharge of suction through 4-way valve?

**YES**
- Check 4-way valve.

**NO**
- Is compressor normal? (Note 2)

**NO**
- Compressor error

**YES**
- Refrigerant shortage, clogging, pipe breakage

(Note 2)
Check the following items mainly.
1. Existence of abnormal sound and abnormal vibration during operation at start time
2. Abnormal overheat of case during operation or stop (Never touch with hands.)
3. Current of compressor lead during operation or starting (No rapid current change)

(After checking there is no slogging or pipe breakage, charge refrigerant again.)
Check code name | Check code name | Cause of operation
---|---|---
[H06] / [20] (d07 / AI-NET) | Low-pressure protective operation | 1. Service valve close
2. Ps sensor error
3. SV2, SV4 circuit error
4. Miscabling of communication between indoor and outdoor
5. Indoor/outdoor fan and condenser error
6. Indoor/outdoor PMV clogging
7. Indoor/outdoor heat exchanger clogging
8. Refrigerant shortage

Are service valves of gas and liquid pipe of outdoor unit fully opened? NO → Open service valves fully.
YES → Are characteristics of low-pressure sensor normal? NO
YES → Are SV2 and SV4 circuits normal? NO
YES → Is not indoor unit with different circuit connected? NO
YES → In cooling season, go to (A)
In heating season, go to (B)

(A) Cooling

Does indoor fan normally operate in cooling season? NO → Are following items concerned to indoor fan motor normal?
YES → Cleaning

Cleaning YES → Is there clogging of indoor air filter or heat exchanger?
NO → Is indoor PMV normal?
YES → Refrigerant shortage or clogging or pipe deformed

(B) Heating

Is outdoor fan normally operated in heating season? NO → Is indoor fan system normal?
YES → Is indoor fan system normal?

Is there clogging of outdoor heat exchanger? NO → Refrigerant shortage, clogging, pipe deformed
YES → Cleaning

Cleaning YES → Is there clogging of outdoor PMV normal?
NO → Is indoor PMV normal?
YES → Refrigerant shortage or clogging or pipe deformed

---

* 1. Pressure by pressure gauge (Check joint)
2. Pressure display on 7-segment display
3. Output voltage of I/F P.C. board
   If 1 and 2 are different, an error of pressure sensor error is considered.
   If 2 and 3 are different, check I/F P.C. board.

Correct SV2 and SV4 circuits.
Correct cabling.
Exchange low-pressure sensor.
Check miscabling, misinstallation and connector connection.
Check indoor P.C. board. Failure → Replace
Check outdoor I/F P.C. board. Failure → Replace

Repair faulty parts.
Repair faulty parts.
Replace PMV body.
Repair faulty parts.
### Check code name

<table>
<thead>
<tr>
<th>[H07] / [d7]</th>
<th>Oil level down detection protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>(d07 / AI-NET)</td>
<td>[H07] / [d7]</td>
</tr>
</tbody>
</table>

### Cause of operation
1. Valves of balance pipes closed.
2. Miscabling or misinstallation of TK1 to TK4 sensors
3. TK1 to TK4 sensor error
4. Gas leak or oil leak of all outdoor units
5. Refrigeration stagnation of compressor case
6. SV3A, 3B, 3D, 3C, 3E valve error
7. Clogging of oil return circuit from oil separator
8. Clogging of oil-equation circuit system

---

<table>
<thead>
<tr>
<th>Are balance pipe valves of all outdoor units in same line fully opened?</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are TK1, TK2, TK3, and TK4 sensors of the error-detected unit correctly connected?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Are characteristics of TK1 to TK4 of error-detected unit normal?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Check gas leak of all outdoor units in the same line and check soaked oil.</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Check refrigerant stagnation in compressor.</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Correct refrigerant stagnation in compressor, reset power supply, and start the operation.</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Check oil level judgment of each unit.</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>7-segment display with SW01/02/03=1/15/1</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Are all oil levels correct?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Clear cause of stagnation.</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

### Reference
- **Are characteristics of TK1 to TK4 of error-detected unit normal?**
  - YES
  - Sensor error → Replace
  - NO
  - Specify gas leak position and repair it. (Recharging, refill oil)
- **Check refrigerant stagnation in compressor.**
  - YES
  - Replace faulty part.
  - NO
  - No leakage or clogging
  - CHECKING
  - (*1) Check leakage of valves (SV3A, SV3C) and clogging (SV3B, SV3E).
  - (*2) Check clogging of oil return circuit from oil separator. (Capillary tube, strainer) Check clogging of SV3D valve.
  - (*3) Check clogging of solenoid valves (SV3A, SV3C) of all outdoor units in the same line.
  - (*4) Check clogging of oil equalization circuit.
- **Clear cause of stagnation.**
  - Indoor/outdoor PMV error
  - (Cause of refrigerant stagnation), discharge check valve error, etc.

(Reference) When refrigerant stagnates in compressor shell, the oil level shortage may be judged.
In some cases, it may be difficult to check the leakage of clogging in the following condition of refrigerant stagnation in low ambient temperature condition. In this case, take a longer operating time prior to check. (Criterion: Discharge temperature of TD1 and TD2 are 60°C or higher)

(*1)

a) Leakage check for SV3A valve (For multiple outdoor unit system)
   - Turn off the power supply, take off connector of SV3A valve, and then start a test operation after power-ON.
   - Check the temperature change at secondary side of SV3A valve during operation. (① in the figure.) → If temperature is raised, it is a leakage of SV3A valve. Replace SV3A valve.

b) Leakage check for SV3C valve
   - Turn off the power supply, take off connector of SV3C valve, and then start a test operation after power-ON.
   - After operation for several minutes, check temperature at secondary side of SV3C valve. (② in the figure.) → If temperature is high (equivalent to discharge temperature TD), it is a leakage of SV3C valve. Replace SV3C valve.
   (Even if there is leakage from SV3C valve does not occur, temperature of SV3C valve at secondary side rises during operation. When the checked temperature is equivalent to TD temperature, it is a leakage of SV3C valve. Replace SV3C valve.)

c) Clogging check for SV3B valve (For multiple outdoor unit system)
   - While outdoor unit is operated, set up SW01/02/03 = [2] [1] [3] to 7-segment display [Hr] [2], and push SW04 for 2 seconds or more.
   - Set up SW02 = [9], and turn on SV3A, SV3B, SV3C valves. (7-segment display [Hr] [3–])
   - While outdoor unit is operating, check temperature change at secondary side of SV3B valve. (③ in the figure.) → If temperature does not rise (equivalent to suction temperature), it is a clogging of SV3B valve. Replace SV3B valve.

d) Clogging for SV3E valve
   Reset the power supply.
   ⬇️
   Referring to “Valve forced open/close function” of the outdoor unit, check ON/OFF operation (Sound, coil surface temp up) of SV3E valve is performed.
   ⬇️
   Start test operation in COOL or HEAT mode.
   ⬇️
   After operation for several minutes, check the pipe temperature at the secondary side of SV3E valve whether temperature changes or not. If it is equivalent to outside temperature, clogging of SV3E is considered. (④ in the figure.)

(Reference)
If SV3E valve is clogged, temperature of all TK1, TK2, TK3, and TK4 do not change.

(*2) Clogging check for SV3D valve of oil return circuit from oil separator

a) Oil return circuit
   - While outdoor unit is operating, check temperature (secondary side of capillary) on oil return circuit. (⑤ in the figure.) → If temperature is low equivalent to suction temperature), a clogging of strainer of oil return circuit or capillary is considered. Repair the clogged part.

b) Clogging check for SV3D valve
   - While outdoor unit is operating, set up SW01/02/03 = [2] [1] [3] to 7-segment display [Hr] [2], and push SW04 for 2 seconds or more.
   - Set up SW02 = [6], and turn on SV3D valve. (7-segment display [Hr] [3d])
   - If temperature is low at secondary side of the valve or it does not change, clogging of valve, capillary, or strainer is considered. (⑥ in the figure.)
(*3) Check for solenoid valve of outdoor unit (For multiple outdoor unit system)

a) Clogging check for SV3A valve

- While outdoor unit is operating, set up SW01/02/03 = [2] [1] [3] to 7-segment display [Hr] [2], and push SW04 for 2 seconds or more.
- Set up SW02 = [4], and turn on SV3A valve. (7-segment display [Hr] [3A])
- If temperature is low at secondary side of the valve or it does not change, clogging of valve or check valve is considered. (① in the figure.)

b) Leakage check for SV3C valve

- While outdoor unit is operating, set up SW01/02/03 = [2] [1] [3] to 7-segment display [Hr] [2], and push SW04 for 2 seconds or more.
- Set up SW02 = [6], and turn on SV3C valve. (7-segment display [Hr] [3C])
- If temperature does not change (up), clogging of valve or strainer is considered. (② in the figure.)

(*4)

a) Clogging check for oil-equalization circuit

- Drive the outdoor unit. (Drive both compressors in the unit.)
- After driving for 10 minutes, check temperature of TK1 and TK2 sensors and temperature of oil-equalization circuit capillary (② in the figure) were raised.

(Criterion)

TK1, TK2=Td1, Td2 temperature – Approx. 10 to 30°C
Oil-equalization capillary tubes should be higher sufficiently than outside air temperature and suction temperature.
- If temperature is low, a malfunction of capillary, strainer, or check valve is considered. Repair the defective parts.
The detected error is an oil level detective temperature sensor error. Check disconnection of the wiring and resistance value of the sensor. If the sensors are normal, replace the outdoor I/F P.C. board.

**Check code name**

<table>
<thead>
<tr>
<th>[H08] / [d4] (d07 / AI-NET)</th>
<th>[H16] / [d7] (d07 / AI-NET)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oil level detective temperature sensor error</strong></td>
<td><strong>TK1 temperature detective circuit error (Sub-code: 01)</strong></td>
</tr>
</tbody>
</table>

**Cause of operation**

- TK1 to TK4 sensor Open/Short

**Sub-code:** 01: TK1 sensor error  02: TK2 sensor error  03: TK3 sensor error  04: TK4 sensor error

**Circuit**

<table>
<thead>
<tr>
<th>Circuit</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>TK1</td>
<td>CN514 (Black)</td>
</tr>
<tr>
<td>TK2</td>
<td>CN515 (Green)</td>
</tr>
<tr>
<td>TK3</td>
<td>CN516 (Red)</td>
</tr>
<tr>
<td>TK4</td>
<td>CN523 (Yellow)</td>
</tr>
</tbody>
</table>

---

**Check code name**

<table>
<thead>
<tr>
<th>[H08] / [d4] (d07 / AI-NET)</th>
<th>[H16] / [d7] (d07 / AI-NET)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oil level detective temperature sensor error</strong></td>
<td><strong>TK1 temperature detective circuit error (Sub-code: 01)</strong></td>
</tr>
</tbody>
</table>

**Cause of operation**

1. Coming-of of TK1 sensor, miscabling, characteristics error of resistance value
2. Oil-equalization circuit error (Check valve, capillary clogging, strainer clogging)
3. Refrigerant stagnation in case of compressor shell

**Check the clogging of SV3E valve.**

(Note 1) Refer to item [H07] error.
<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
</table>
| [H16] / [d7]  | Oil level detective circuit system error (Sub-code: 02) | 1. Detachment of TK2 sensor, miscabling, characteristics error of resistance value  
2. Oil-equalization circuit error (Check valve, capillary clogging, strainer clogging)  
3. Refrigerant stagnation in compressor shell |

**Check code name**  
[H16] / [d7]  
(d07 / AI-NET) | **Check code name** | **Cause of operation** |

- **Is not TK2 sensor detached?**  
  - YES: Correct installation of sensor.  
  - NO: Correct miscabling/misinstallation.  
    - TK1: CN514  
    - TK2: CN515  
    - TK3: CN516  
    - TK4: CN523  

- **Is there no miscabling or misinstallation on TK1/TK2/TK3/TK4 sensors?**  
  - YES: Sensor error  
  - NO: **Are characteristics of TK2 sensor resistance value normal?**  
    - NO: Sensor error  
    - YES: **Does OCR of MG-SW operate?**  
      - YES: Reset OCR manually (*2)  
      - NO: After power reset  
        - Start a test operation in COOL or HEAT mode.  
        - TK2 sensor temp is displayed on 7-segment display with SW01/02/03=[1] [12] [2].  
        - Check TK2 sensor temp approx. 10 minutes after compressor 2 has operated.  
        - If low temperature continues (approximately outside temp) or temperature does not almost change, a clogging of strainer of oil-equalization circuit, clogging of capillary, or malfunction of check valve is considered.  

- **Check the clogging of SV3E valve.**  
  - Error: Replace clogging part.  
  - No error: Replace SV3E valve.  

  (*1) Refer to item [H07] error.

- **Replace SV3E valve.**  

(*2) If OCR operates even after manual reset of OCR, check whether the wiring to the current sensor (TO2) of Comp-IPDU is correct or not.
Check code name | Check code name | Cause of operation
---|---|---
[H16] / [d7] (d07 / AI-NET) | TK3 temperature detective circuit error (Sub-code: 03) | 1. Detachment of TK3 sensor, miscabling, characteristics error of resistance value 2. Error of SV3C valve circuit periphery (Check capillary clogging, strainer clogging) 3. Refrigerant stagnation in compressor shell

Is not TK3 sensor come off?  
YES  
Correct installation of sensor.  
NO  
Is there no miscabling or misinstallation on TK1/TK2/TK3/TK4 sensors?  
YES  
Correct miscabling/misinstallation.  
TK1: CN514  
TK2: CN515  
TK3: CN516  
TK4: CN523  
NO  
Are characteristics of TK3 sensor resistance value normal?  
NO  
Sensor error → Replace  
YES  
After power reset, check capillary choke of SV3C valve bypass.

Start a test operation in COOL or HEAT mode.  
TK3 sensor temp is displayed on 7-segment display with SW01/02/03=1132.  
Check TK3 sensor temp approx. 10 minutes after compressor 2 has operated. If low temperature continues (approximately outside temp) or temperature does not almost change, a clogging of parallel capillary is considered.

No error  
Check the clogging of SV3E valve.  
(Note 1)  
Error  
(Note 1) Refer to item [H07] error.  
No error  
Replace clogged part (Capillary).  
Replace SV3E valve.

Check I/F P.C. board
Check code name | Check code name | Cause of operation
---|---|---
[H16] / [d7] (d07 / AI-NET) | TK4 temperature detective circuit error (Sub-code: 04) | 1. Detachment of TK4 sensor, miscabling, characteristics error of resistance value
2. Check clogging and malfunction of SV3E valve circuit.
3. Oil-equalization circuit error (Check capillary clogging, strainer clogging)
4. Refrigerant stagnation in compressor shell

Is not TK4 sensor detached? YES → Correct installation of sensor.

NO → Is there no miscabling or misinstallation on TK1/TK2/TK3/TK4 sensors? YES → Correct miscabling/misinstallation.

TK1: CN514
TK2: CN515
TK3: CN516
TK4: CN523

NO → Are characteristics of TK4 sensor resistance value normal? YES → Sensor error → Replace

NO → Does OCR of MG-SW operate? YES → Reset OCR manually.*2

NO → Check the clogging of SV3E valve.*1

No error → Check I/F P.C. board

Error → Replace SV3E valve.

*1 Refer to item [H07] error.
*2 If OCR operates even after manual reset of OCR, check whether the wiring to the current sensor (TO2) of Comp-IPDU is correct or not.
Check code name | Check code name | Cause of operation |
--- | --- | --- |
[L03] / [96] (d07 / AI-NET) | Duplicated indoor header units | There were two or more indoor header units in some remote controller group control. |

1) Check the connection changing of the remote controller after the connection has been changed.
2) If the group configuration and address are normal when power has been turned on, the mode automatically shifts to address setup mode. (Re-setup of address) → Refer to “Address setup”.

Check code name | Check code name | Cause of operation |
--- | --- | --- |
[L04] / [96] (d07 / AI-NET) | Duplicated setup of outdoor line address | Outdoor line addresses are duplicated. |

Is there duplicated line address setup? YES

Are communication cable connections of [U1.U2], [U3.U4], and [U5, U6] normal? NO

Correct the line address setup.

Correct the cable connection.

Check outdoor I/F P.C. board. Failure → Replace

YES

YES

Re-set up the address. (Refer to “Address setup”.)

Check code name | Check code name | Cause of operation |
--- | --- | --- |
[L05] / [96] (d07 / AI-NET) | Duplicated indoor units with priority (Displayed on indoor unit with priority) | 1. Two or more prior indoor units exist. |

This check code is displayed on the set indoor unit when setup of indoor unit with priority is duplicated.

• Priority setup with two or more units is not available. Choose one prior unit in one refrigerant circuit system.
<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[L06] / [96]</td>
<td>Duplicated indoor units with priority</td>
<td>Two or more indoor units with priority are duplicated.</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td>(Displayed on the indoor unit other than one with priority and on the outdoor unit)</td>
<td></td>
</tr>
</tbody>
</table>

**Sub-code:** No. of indoor units with priority

When indoor unit with priority is duplicated, this check code is displayed on the unit other than the setup indoor unit and outdoor unit.
- As only one indoor unit with priority is valid, change the setup.

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[L07] / [99]</td>
<td>Group line in individual indoor unit</td>
<td>The group line is connected in the individual indoor unit.</td>
</tr>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Diagram:**

- Is there group cabling?
  - YES: Check setup item code DN 12, 13, and 14 addresses.
  - NO: Check indoor P.C. board. Failure → Replace

- There is individual indoor unit.
  - YES: Correct indoor group address.
  - NO: Check setup item code DN 12, 13, and 14 addresses.

**Check code names:**
- DN12: Line address
- DN13: Indoor address
- DN14: Group address
### [L08] / [99]*

**Check code name**: Indoor group / address unset

**Cause of operation**: Indoor address unset

---

**Are powers of all the indoor units turned on?**

- **NO**
  - Turn on the power of indoor units.

- **YES**
  - Disconnect connectors between [U1, U2] and [U3, U4].
  - Clear addresses. (Refer to “Address clear”.)
  - Re-execute address setup. (Refer to “Address setup”.)

**Note** This code is displayed when the power is turned on at the first time after installation. (Because the address is not yet set up)

---

### [L09] / [46]

**Check code name**: Indoor capacity unset

**Cause of operation**: Indoor capacity unset

---

**Are capacity setups of indoor units unset?**

- **YES**
  - Set up capacity data of indoor unit. (Setup item code (DN) = 11)

- **NO**
  - Check indoor P.C. board. Defect → Replace
<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[L10] / [88] (d07 / AI-NET)</td>
<td>Outdoor capacity unset</td>
<td>On the outdoor IF P.C. board for service, the model selecting jumper has not been set up so as to match with the model.</td>
</tr>
</tbody>
</table>

I/F P.C. board A’assy service for the outdoor unit is common to this series. A setup for model selection different from that for P.C. board with trouble is necessary. Set up a model based upon the P.C. board A’assy exchange procedure.

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[L20] / [98] (d07 / AI-NET)</td>
<td>Duplicated central control addresses</td>
<td>Central control addresses are duplicated.</td>
</tr>
</tbody>
</table>

Are not two or more central control system identical network addresses connected?

- YES: Correct the network address of the central control system.
- NO: Check the network adaptor on the indoor P.C. board.

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[L28] / [46] (d07 / AI-NET)</td>
<td>Quantity over of connected outdoor units</td>
<td>1. Quantity over of connected outdoor units. 2. Connection error of communication line between outdoor units 3. Outdoor I/F P.C. board error</td>
</tr>
</tbody>
</table>

Is the number of the connected outdoor units 4 or less?

- YES: Max. 4 outdoor units are connectable for one system.
- NO: Is the communication line between outdoor units correctly connected?

- NO: Correct connection of the communication line.
- YES: Check I/F P.C. board.
<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
</table>
| [L29] / [CF]  | IPDU quantity error | 1. Incorrect model setup in service for I/F P.C. board  
| (d07 / AI-NET) | | 2. Communication error between IPDU, fan IPDU and I/F  
| | | 3. IPDU, fan IPDU, I/F P.C. board error |

**Sub-code:**
- 01: IPDU1 error
- 02: IPDU2 error
- 03: IPDU1, 2 error
- 04: Fan IPDU error
- 05: IPDU1, fan IPDU error
- 06: IPDU2, fan IPDU error
- 07: All IPDU error or disconnection of communication line between IPDU-I/F P.C. board or outdoor I/F P.C. board error

---

- Is jumper setup of outdoor I/F P.C. board correct? (Jumpers 7, 8, 9 ON)
  - NO: Correct connection of connector.
  - YES: Replace communication line.

- Is there no disconnection of communication line between IPDU and I/F P.C. board?
  - NO:
    - Is there voltage fluctuation between 4 and 5 pins of CN600 on I/F P.C. board? (Measurement by tester: DC0 to 5V, 5 pin GND)
      - NO: I/F P.C. board error
      - YES: Is there voltage fluctuation between 3 and 5 pins of CN600 on I/F P.C. board? (Measurement by tester: DC0 to 5V, 5 pin GND)
        - NO: I/F P.C. board error
        - YES: Both IPDU (No.1, No.2) and fan IPDU did not return the communication.
  - YES: Correct connection of connector.

- Replace IPDU P.C. board with trouble.
### Check code name

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[L30] / [b6]</td>
<td>Interlock in indoor unit from outside</td>
<td>Outside error was input.</td>
</tr>
</tbody>
</table>


1. **Is outside device connected to connector CN80?**
   - **NO** → Check indoor P.C. board. Failure → Replace
   - **YES** → **NO** → Check outside device. Failure → Replace
   - **YES** → Check cause of the operation.

### Check code name

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[L31] / [-]</td>
<td>Extended IC error</td>
<td>1. Outdoor unit power error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Outdoor I/F P.C. board error</td>
</tr>
</tbody>
</table>

#### Flowchart for [L31] / [-]

1. **Is there any trouble of outdoor unit power supply?**
   - **YES** → Check power voltage and line. Check auxiliary noise, etc.
   - **NO** → Check outdoor I/F P.C. board.

### Check code name

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. Check fan motor.</td>
</tr>
</tbody>
</table>

* For the models installed with AC fan motor only


1. **Is there no connection error or disconnection of CN076 connector?**
   - **YES** → Correct cabling circuit for the connector connection.
   - **NO** → **YES** → Replace fan motor.
   - **NO** → Check indoor P.C. board. Failure → Replace
<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
</table>
| [PO3] / [1E]   | Discharge temp TD1 error | 1. Service valve of outdoor unit closed  
2. Outdoor PMV error  
3. TD sensor error  
4. Refrigerant shortage, clogging of refrigerant circuit system  
5. 4-way valve error  
6. SV4 circuit leakage, misinstallation |

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are service valve of gas and liquid sides fully opened?</td>
<td>NO</td>
<td>Open service valve fully.</td>
</tr>
<tr>
<td>YES</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Is outdoor PMV normal?  
1. Connector connection  
2. Cabling  
3. Coil  
4. Valve body  
5. Outdoor I/F P.C. board | NO | Repair outdoor PMV.  
* Connector CN300, 301 White |
| YES | | |
| Are characteristics of TD1 sensor resistance normal? | NO | Replace TD1 sensor.  
* Refer to Outdoor unit temperature sensor characteristics-4. |
| YES | | |
| Does not discharge refrigerant gas bypass to suction side through 4-way valve? | NO | Check 4-way valve. |
| YES | | |
| SV4 circuit  
1. Are not SV41 and SV42 valve coils installed reversely?  
2. Is there no leakage through SV41 circuit? | NO | Correct installation of valve coil, or replace SV41 valve. |
| YES | | |
| Are not indoor units of different refrigerant circuit connected? | NO | Correct wiring  
(Check with miswiring check function of outdoor unit.) |
| YES | | |
| Refrigerant shortage, clogging, pipe breakage | (Check there is no pipe breakage, and then recharge the refrigerant.) |
### Check code name

<table>
<thead>
<tr>
<th>[P04] / [21]</th>
<th>Actuation of high-pressure SW</th>
</tr>
</thead>
<tbody>
<tr>
<td>(d07 / AI-NET)</td>
<td></td>
</tr>
</tbody>
</table>

### Cause of operation

1. High-pressure SW error
2. Service valve closed
3. Pd sensor error
4. Indoor/outdoor fan error
5. Indoor/outdoor PMV choke
6. Indoor/outdoor heat exchanger clogging, air short circuit
7. SV2 circuit error
8. SV4 circuit error
9. SV5 circuit error
10. Discharge line check valve malfunction
11. Refrigerant overcharge

---

**Sub-code:** 01: Compressor 1 side  02: Compressor 2 side

**Note:** High-pressure SW is normally closed. (B contact)

---

### Diagram

1. **Does high-pressure SW operate?**
   - NO → **Is circuit cabling normal?**
   - NO → **Check and correct cabling.**
   - YES → **Are parts of high-pressure SW normal?**
     - NO → **Reset power supply, and start a test operation corresponded to the season.**
     - YES → **Is service valve fully opened?**
       - NO → **Check I/F P.C. board.**
         - Failure → Replace
       - YES → **Cooling → To B**
         - Heating → To C
   - YES → **Are characteristics of high-pressure sensor normal?**
     - NO → **Replace the high-pressure sensor.**
     - YES → **B) Cooling operation**
       - **Does cooling outdoor fan normally operate?**
         - NO → **Is there no crack or coming-off of fan?**
           - NO → **Repair faulty parts.**
             - Connector connection, fan IPDU, fan motor, wiring
           - YES → **Eliminate the interfered causes.**
         - YES → **Is there a cause to interfere operation of heat exchanger of outdoor unit?**
           1. Heat exchanger clogging
           2. Air short circuit
         - NO → **Is SV2 circuit normal?**
           - NO → **Repair SV2 circuit.**
             (Coil error, clogging, disconnection of wiring, etc.)
           - YES → **A**
Refrigerant overcharge, clogging, pipe breakage, abnormal overload condition

Check indoor P.C. board.
Failure → Replace

Replace TC2 or TCJ sensor.

Check indoor P.C. board. Failure → Replace

Replace PMV body.

A
Is SV4 circuit normal?
YES
NO
Refrigerant overcharge, clogging, pipe breakage, abnormal overload condition

Repair SV4 circuit. Coil error, clogging, disconnection of wiring, etc.

Heating operation

Does heating indoor fan normally operate?
YES
NO

Is indoor PMV normal?
YES
NO
Is connector connection, coil normal?
YES
NO
Repair faulty parts.

Is there a cause to interfere operation of indoor heat exchanger?
1 Air filter clogging
2 Heat exchanger clogging
3 Air short circuit

YES
NO
Eliminate the interfered causes.

Repair faulty position. Connector connection, cabling, coil installation, clogging, etc

Is SV5 circuit normal?
YES
NO
Are not indoor units of different refrigerant circuit connected?
YES
NO
Check and correct the cabling.

Are connector connection, heat exchanger, fan, and fan motor normal?
YES
NO
Are characteristics of TC2 and TCJ sensor resistance value normal?
YES
NO

C

B

Is there clogging of valve?
YES
NO

(Check with miscabling check function of outdoor unit.)
### [P05] / [AF]
\[(d07 / AI-NET)\]

**Check code name**

- Open phase, negative phase

**Cause of operation**

1. Power supply open phase
2. Power supply negative phase

*Check the phase power line of outdoor unit.*
*Check error of outdoor I/F P.C. board.*
*Check there is no looseness, etc of terminal.*

### [P07] / [1C]
\[(d07 / AI-NET)\]

**Check code name**

- Heat sink overheat error

**Cause of operation**

1. Power voltage error
2. Outdoor fan system error
3. Heat sink installation error
4. Clogging of heat sink cooling duct
5. IPDU P.C. board error (TH sensor error)

**Sub-code:**
- 01: Compressor 1 side
- 02: Compressor 2 side

---

**Flowchart**

- **Is power voltage normal?**
  - **NO**
  - Correct power line.
  - **YES**

  - **Is wiring of IPDU normal?**
    - **NO**
    - Correct wiring such as cable to compressor or connector connection.
    - **YES**

  - **Is indoor fan normal?**
    - **NO**
    - Check fan and fan motor.
    - **YES**

  - **Is screw between IPDU and heat sink loosened?**
    - **YES**
    - Tighten screws.
    - **NO**

  - **Is there no clogging of heat sink cooling duct?**
    - **YES**
    - Correct clogging.
    - **NO**

- **Check IPDU P.C. board.**

---

* 380–415V ± 10%
Check code name | Check code name | Cause of operation
--- | --- | ---

**Sub-code:** Indoor address with trouble

- Is float SW connector (Indoor control P.C. board CN34) connected normally?
  - NO → Correct connector connection.
  - YES → Does float SW operate?
    - NO → Is wiring normal?
    - NO → Check indoor P.C. board. Failure → Replace
    - YES → Check indoor P.C. board. Failure → Replace
  - YES → Does drain pump operate?
    - NO → Is power supply to drain pump normal?
    - NO → Check indoor P.C. board. Failure → Replace
    - YES → Replace drain pump, and check cabling.
  - YES → Check drain pipe, etc.

- Check there is 380–415V voltage of 1-3 pin of CN68 on indoor P.C. board.

Indoor fan motor error

Cause of operation:
1. Cabling error of fan motor connector
2. Fan motor error
3. Indoor P.C. board error

Turn off power supply. * Detectable in model with DC fan motor (4-way Air Discharge Cassette, or Concealed Duct Standard type)

Is there connection error or disconnection on connector CN333, CN334 of indoor P.C. board (MCC-1402)?

YES
Correct connector connection.

NO

Remove connectors CN333 and CN334 on indoor P.C. board (MCC-1402).

Does fan turn without trouble when turning it with hands?

NO
Replace indoor fan motor.

YES

Is resistance value between each phase at motor side of fan motor connector CN333 on indoor P.C. board (MCC-1402) correct? *1

YES

*1 Is not winding 1 (Red lead) to 3 (White lead), 3 (White lead) to 5 (Black lead), 5 (Black lead) to 1 (Red lead) opened/shorted? → Resistance value should satisfy the follows.
- 4-way Air Discharge Cassette type
  MMU-AP0091H, AP0301 → Approx. 70 to 100Ω
  MMU-AP0361H, AP0561 → Approx. 35 to 50Ω
- Concealed Duct Standard type
  15 to 35Ω
- Is not grounded between cabinet and 1, 3, 5? → Should be 10Ω or more

NO
Replace indoor fan motor.

Is resistance value at motor side of fan motor connector CN334 on indoor P.C. board (MCC-1402) correct? *2

YES *2

Check resistance value of fan motor position detective circuit.
- Is not winding 1 (Yellow lead) to 4 (Pink lead) opened/shorted? → Resistance should be 5 to 20kΩ

NO
Replace indoor fan motor.

NO
Replace indoor fan motor.

YES

Is output of indoor fan motor position detective signal correct? *3

YES *3

Check fan motor position detective signal.
- Measure voltage with tester between CN334 1 and 5 on indoor P.C. board (MCC-1402) under condition of CN333 and CN334 installed and power-ON.
  → Turn fan slowly with hands so that pin voltage fluctuates between 0 and 5V.
- Between 4 and 5: 5V

Replace indoor fan motor.

NO
Replace indoor fan motor.
### Check Code Name

**[P13] / [47]**

- (d07 / AI-NET)

### Check Code Name

**Outdoor Liquid Back Detection Error**

- 1. PMV1/PMV2 error
- 2. Pd sensor, Ps sensor error
- 3. Clogging of SV2 circuit
- 4. Clogging of SV3B circuit, balance pipe
- 5. Leakage of main discharge pipe
- 6. Outdoor I/F P.C. board error

### Diagram

```
Are connections of outdoor PMV1/PMV2 connectors correct?
YES -> Correct connector connection. (CN300, CN301)
NO -> PMV error

Are operations of outdoor PMV1/PMV2 normal?
YES -> Correct connector connection. (CV2: CN302)
NO -> Pd sensor/Ps sensor error

Are characteristics of Pd sensor/Ps sensor output voltage normal?
YES -> Open fully balance pipe service valves of all units.
NO -> Correct connector connection. (CV2: CN302)

Is SV2 valve coil correctly connected?
YES -> Replace clogging parts.
NO -> Open fully balance pipe service valves of all units.

Is there no clogging of SV3B valve?
YES -> Replace clogging parts.
NO -> Replace clogging parts.

Is there no clogging of SV3B valve of a unit other than unit with error?
YES -> Replace check valve of main discharge pipe.
NO -> Check I/F P.C. board.

Is there no leakage of check valve of main discharge pipe in follower units in which compressors are driven in cooling operation?
YES -> Replace check valve of main discharge pipe.
NO -> Check I/F P.C. board.
```
Check code name | Check code name | Cause of operation
---|---|---
[P15] / [AE] (d07 / AI-NET) | Gas leak detection TS condition (Sub-code: 01) | 1. Outdoor unit service valve closed  
2. Outdoor PMV error  
3. TS1 sensor error  
4. Refrigerant shortage, clogging refrigerant circuit  
5. 4-way valve error  
6. SV4 circuit error

Are service valves at gas and liquid side fully opened?  
| NO | Open service valves fully.  
| YES | Is outdoor PMV normal?  
| NO | Repair outdoor PMV.  
| YES | Are characteristics of TS1 sensor resistance normal?  
| NO | Replace TS1 sensor.  
| YES | Does not discharge refrigerant gas bypass to suction side through 4-way valve?  
| YES | Check and replace 4-way valve and coil.  
| NO | Is there no leakage of SV41 and 42 valve circuits?  
| NO | Repair SV41 and SV42 circuits.  
| YES | Refrigerant shortage, clogging, pipe breakage.  

* Connectors CN300, 301 White  
* Refer to outdoor temp sensor characteristics-2  
(Check there is no clogging and pipe breakage, and then recharge refrigerant.)
<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[P15] / [AE] (d07 / AI-NET)</td>
<td><strong>Gas leak detection</strong>&lt;br&gt;<strong>TD condition (Sub-code: 02)</strong></td>
<td>1. Outdoor unit service valve closed&lt;br&gt;2. Outdoor PMV error&lt;br&gt;3. TD sensor error&lt;br&gt;4. SV4 circuit error&lt;br&gt;5. Refrigerant shortage, clogging refrigerant circuit</td>
</tr>
</tbody>
</table>

**Are service valves of gas and liquid sides fully opened?**

- **NO**
  - Open service valves fully.
- **YES**

**Is outdoor PMV normal?**
- **NO**
  - **Connectors CN300, 301 White**
  - Repair outdoor PMV.
- **YES**

**Are characteristics of TD1, TD2 sensor resistance normal?**
- **NO**
  - **Refer to outdoor temp sensor characteristics-4**
  - Replace TD1 or TD2 sensor.
- **YES**

**Is SV4 valve circuit normal?**
- **NO**
  - **Coil, valve body, coil installation, disconnection of cable, etc.**
  - Repair SV41 and SV42 circuits.
- **YES**

**Are not indoor units in different refrigerant circuit connected?**
- **NO**
  - Correct cabling.
- **YES**

Refrigerant shortage, clogging, pipe breakage.

(Notice to check there is no clogging and pipe breakage, and then recharge refrigerant.)
### Check code name

| [P17] / [bb] (d07 / AI-NET) | Discharge temp TD2 error |

### Cause of operation
1. Outdoor unit service valve closed
2. Outdoor PMV error
3. TD sensor error
4. Refrigerant shortage, clogging of refrigerant circuit
5. 4-way valve error
6. SV4 circuit leakage, misinstallation

---

**Diagram Flowchart**

1. **Check code name**
   - [P17] / [bb] (d07 / AI-NET)
   - Discharge temp TD2 error

2. **Are service valves of gas and liquid sides fully opened?**
   - **NO** → Open service valves fully.
   - **YES**

3. **Is outdoor PMV normal?**
   - **NO** → Repair outdoor PMV.
   - **YES**

4. **Are characteristics of TD2 sensor resistance normal?**
   - **NO** → Replace TD2 sensor.
   - **YES**

5. **Does not discharge refrigerant gas bypass to suction side through 4-way valve?**
   - **NO** → Check 4-way valve.
   - **YES**

6. **SV4 circuit**
   - **NO** → Correct installation of valve coil. Replace SV42 valve.
   - **YES**

7. **Is not an indoor unit of different refrigerant line connected?**
   - **NO** → Check with miscabling check function of outdoor unit.
   - **YES**

---

**Notes**
- Connectors CN300, 301 White
- Refer to outdoor unit temperature sensor characteristics-4.

---

**Refrigerant shortage, clogging, pipe breakage.**

**Check there is no pipe breakage, and then recharge refrigerant.**
Check code name: [P19] / [08] (d07 / AI-NET)

4-way valve operation error

<table>
<thead>
<tr>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 4-way valve error</td>
</tr>
<tr>
<td>2. TS1 sensor/TE1 sensor error</td>
</tr>
<tr>
<td>3. Pd sensor/Ps sensor error</td>
</tr>
<tr>
<td>4. TE sensor/TL sensor misconnection</td>
</tr>
</tbody>
</table>

Sub-code: Detected outdoor unit No.

Diagram:

1. **Is 4-way valve coil connector connected?**
   - **YES**
     - Correct connector connection. (4-way valve coil: CN317)
   - **NO**
     - Go to the next step.

2. **Are TS1, TE1, Pd, Ps sensor connectors connected?**
   - **YES**
     - Correct connector connection. TS1 sensor: CN504, TE1 sensor: CN505, Pd sensor: CN501, Ps sensor: CN500
   - **NO**
     - Go to the next step.

3. **Are characteristics of resistance value of TS1 and TE1 sensors normal?**
   - **YES**
     - Correct connection and installation.
   - **NO**
     - Replace sensor.

4. **Are output voltage characteristics of Pd and Ps sensors normal?**
   - **YES**
     - Correct connection and installation.
   - **NO**
     - Replace sensor.

5. **Are connection and installation of TE1 and TL sensors correct?**
   - **YES**
     - Reset the power supply and start heating test operation.
   - **NO**
     - Go to the next step.

6. **Does 4-way valve operate?**
   - **YES**
     - **Does not discharge refrigerant gas bypass to suction side through 4-way valve?**
       - **YES**
         - Check 4-way valve.
       - **NO**
         - If an error did not occur in test operation, restart the operation.
   - **NO**
     - 4-way valve error

*1 Check TS and TE temperature of the outdoor unit which compressors is operated.

(I/F) SW01=[1], SW02=[6], SW03=[2] → TS sensor temperature
SW01=[1], SW02=[7], SW03=[2] → TE sensor temperature

<Judgment criteria>

- **TE sensor**: Normal if TE ≤ 20°C except summer season (Outside temp 20°C or lower)
- **TS sensor**: Normal if TS ≤ 40°C except summer season (Outside temp 20°C or lower)
Check code name: [P20] / [22] (d07 / AI-NET)

**High-pressure protective operation**

- 1. Pd sensor error
- 2. Service valve closed.
- 3. Indoor/outdoor fan error
- 4. Indoor/outdoor PMV clogging
- 5. Indoor/outdoor heat exchanger clogging
- 6. SV2 circuit error
- 7. SV4 circuit error
- 8. SV5 circuit error
- 9. Outdoor I/F P.C. board error
- 10. Operation error of check valve of main discharge pipe
- 11. Refrigerant overcharge

**Are service valves fully opened?**
- NO → Open service valves fully.
- YES →

**Are characteristics of high-pressure sensor normal?**
- NO → Check parts. Failure → Replace
- YES →

**Reset power supply, and start a test operation corresponded to the season.**

**Cooling** → To (B)
**Heating** → To (C)

- 1. Pressure by pressure gauge (Check joint)
- 2. Pressure display on 7-segment display
- 3. Output voltage of I/F P.C. board

  If 1 and 2, 3 are different, an error of pressure sensor is considered.
  If 2 and 3 are different, check I/F P.C. board.

**Is there no fan crack or coming-off?**
- NO →
- YES → Correct faulty parts.

**Cooling**

**Is outdoor PMV normal?**
- YES →
- NO → Correct faulty position.

**Cooling operation**

**Is outdoor PMV normal?**
- YES →
- NO → Correct faulty position.

**Does cooling outdoor fan normally operate?**
- YES → Correct faulty parts.
- NO → (Connector connection, fan IPDU, fan motor, cabling)

**Is there no fan crack or coming-off?**
- YES → Correct faulty parts.
- NO →

**Is there a cause to interfere operation of heat exchanger of outdoor unit?**
- YES → Eliminate the interfered causes.
- NO → Repair SV2 circuit.

**Is there a cause to interfere operation of heat exchanger of outdoor unit?**
- YES → Eliminate the interfered causes.
- NO → Repair SV4 circuit.

**Is a check valve of main discharge pipe normally operate?**
- YES → Refrigerant overcharge, clogging, pipe breakage, abnormal overload condition
- NO → Repair check valve. → Replace
Heating operation

Does heating indoor fan normally operate? NO

Is indoor PMV normal? NO

Is connector connection of indoor heat exchanger fan or fan motor normal? YES

Repair faulty parts.

NO

Are characteristics of sensor TC2 and TCJ resistance normal? NO

Replace TC2 or TCJ sensor.

YES

Repair faulty parts.

Is there a clogging? NO

Check indoor P.C. board. Faulty → Replace

YES

Replace PMV body

Is check valve of main discharge pipe normal? NO

Repair check valve. → Replace

YES

Is there a cause to interfere operation of heat exchanger of indoor unit? NO

YES

Eliminate the interfered causes.

1. Air filter clogging
2. Heat exchanger clogging
3. Air short circuit

Is SV5 circuit normal? NO

Repair SV5 circuit.

YES

Are not indoor units of different refrigerant circuit connected? NO

(Not connected)

Check with miscabling check function of outdoor unit.

YES

Refrigerant overcharge, clogging, pipe breakage, abnormal overload condition
### Check Code Name: [P22] / [1A]

Outdoor Fan IPDU Error

#### Cause of Operation
1. Fan lock
2. Fan IPDU P.C. board error
3. Overload cause
4. External cause such as blast
5. Fan IPDU power P.C. board error

#### Sub-code:
- 0*: IGBT short circuit
- 3*: Motor lock error
- C*: TH sensor error (Heat sink overheat)
- E*: Vdc error
- 1*: Position detect circuit error
- 4*: Motor current error detected
- D*: TH sensor error

#### Diagram:

1. **Are cable connector connection on fan IPDU and power P.C. board A’assy normal?**
   - **NO** → Correct cable connector connection.
   - **YES**
     - **Is not outdoor fan motor locked?**
       - **YES** → Replace motor.
       - **NO** →
         - **Is there no loosening on fixation between fan IPDU and heat sink?**
           - **YES** → Retightening of screws, etc.
           - **NO** →
             - **Is sub-code of outdoor I/F P.C. board [0d]?**
               - **YES** → Replace fan IPDU.
               - **NO** →
                 - **Is there no problem such as stuffing or blast blowing to discharge port of outdoor fan?**
                   - **YES** → Correct cause of overload.
                   - **NO** → Check fan IPDU.
### Check code name

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Cause of operation</th>
</tr>
</thead>
</table>
2. IPDU error/Cable connection error  
3. Compressor error  
4. IPDU P.C. board error |

**Sub-code:** 01: Compressor 1 side  02: Compressor 2 side

---

- **Is power voltage of outdoor unit normal?**
  - NO: Correct power line.
  - YES: 
    - **Is wire connector connection on IPDU P.C. board normal?**
      - NO: Correct connection of wire connector.
      - YES: 
        - **Is there no fusing of AC30A fuse?**
          - YES: Replace fuse and IPDU P.C. board.
          - NO: 
            - **Is compressor normal?**
              - NO: Replace compressor.
              - YES: 
                - **Is smoothing condenser normal? (1500µF, 350V)**
                  - NO: Check capacity coming-out/external appearance.
                  - YES: Replace IPDU P.C. board.
### Cause of Operation

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
</table>
| [P29] / [16] (d07 / AI-NET) | Compressor position detective circuit error | 1) Cable/connector connection error  
2) Compressor error  
3) IPDU P.C. board error |

### Sub-code:

- **01**: Compressor 1 side  
- **02**: Compressor 2 side

#### Are connector connection and wiring normal?

- **NO**  
  - Check and correct circuit and cables such as cabling to compressor, etc.
- **YES**

#### Is not grounded?

- **YES**  
  - Compressor error → Replace
- **NO**

#### Is not winding shorted? (Is winding resistance 0.6 to 1.2Ω?)

- **YES**  
  - Compressor error → Replace
- **NO**

#### Is not winding opened?

- **YES**  
  - Compressor error → Replace
- **NO**

**Check IPDU P.C. board. Failure → Replace**

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[P31] / [47] (d07 / AI-NET)</td>
<td>Other indoor error (Group follower unit error)</td>
<td>Other indoor unit in the group is abnormal.</td>
</tr>
</tbody>
</table>

When the header unit of the group detected [E03, L03, L07, L08 error], the follower unit of the group displays [P31] error and stops. There are no check code display and alarm record of the main remote controller.
<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[-] / [97]</td>
<td>AI-NET communication line error</td>
<td>AI-NET communication line error</td>
</tr>
</tbody>
</table>

- Are AI-NET X and Y communication lines normal?  
  - YES  
  - NO  
    - Correct communication line.

- Are connections of CN01, CN02, and CN03 connectors on network adaptor P.C. board (MCC-1401) and CN309 and CN41 connectors on indoor P.C. board normal?  
  - YES  
  - NO  
    - Correct connection of connectors.

- Are remote controller communication lines (A, B) normal?  
  - YES  
    - Check connection of A, B terminal. Correct communication line of remote controller.
  - NO  
    - Correct connection of A, B terminal. Correct communication line of remote controller.

- Is there no connection error of power line?  
  - YES  
    - Correct power line.
  - NO  
    - Turn on the main power supply.

- Is not main power supply turned on?  
  - YES  
    - Turn on the main power supply.
  - NO  
    - Clear check code.

- Did a block-out occur?  
  - YES  
    - Clear check code.
  - NO  
    - Check central controller.

- Is the network address changed by main remote controller?  
  - YES  
    - Clear check code.
  - NO  
    - Is there no noise etc.?  
      - YES  
        - Eliminate noise, etc.
      - NO  
        - Check central controller. Failure → Replace

- Can be other indoor units normally controlled from AI-NET central remote controller, or is the operation status of indoor unit reflected?  
  - YES  
    - Check central controller. Failure → Replace
  - NO  
    - Check indoor P.C. board. Failure → Replace

- Does the network adaptor P.C. board LED (D01) turn on?  
  - YES  
    - Check power transformer of the network adaptor P.C. board (MCC-1401). Failure → Replace
  - NO  
    - Check power transformer of the network adaptor P.C. board (MCC-1401). Failure → Replace
9-6. 7-Segment Display Function

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

On the interface control P.C. board, 7-segment LED to check the operating status is provided on the control P.C. board.

The displayed contents are changed by combining the setup numbers of the rotary switches (SW01, SW02, and SW03) on P.C. board.

![Diagram of 7-segment display and interface board]

◆ Check procedure in case of stop with trouble

When the system stopped due to a trouble of the outdoor unit, execute a check in the following procedure.

1. Open the panel of the outdoor unit, and then check the 7-segment display.
   The check code is displayed at the right side of 7-segment display B.

   - [U1] [O.OO] (O.OO: Check code)

   * Switch setup when confirming the check code: SW01 [1], SW02 [1], SW03 [1]

   However the check code [O.OO] is displayed for 3 seconds and the sub-code [O.OO] for 1 second are alternately displayed if an sub-code is provided.

2. Confirm the check code, and then conduct the check operation based on the procedure of each check code diagnosis.

3. [U1] [E28] on 7-segment display means a trouble on the follower unit.

   Push the push-switch SW04 on the header unit for several seconds.
   As only the fan of the outdoor unit with a trouble drives, open the panel of the corresponding unit, and then confirm the check code displayed with 7-segment.

4. Perform the check operation based on the procedure of each check code diagnosis.

How to read the check monitor

<7-segment display>
### 1. Data display of system information (Displayed on the header outdoor unit only)

<table>
<thead>
<tr>
<th>SW01</th>
<th>SW02</th>
<th>SW03</th>
<th>Display contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1</td>
<td>3</td>
<td>Refrigerant name</td>
<td>Displays refrigerant name.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A: Model with refrigerant R410A r4 10A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B: Model with refrigerant R407C r4 07C</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>System capacity</td>
<td>A: [5] to [48] : 5 to 48HP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B: [HP]</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>No. of outdoor units</td>
<td>A: [1] to [4] : 1 to 4 units</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B: [P]</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>No. of connected indoor units/ No. of units with cooling thermo ON</td>
<td>A: [0] to [48] : 0 to 48 units (No. of connected units)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B: [C0] to [C48] : 0 to 48 units (No. of units with cooling thermo ON)</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>No. of connected indoor units/ No. of units with heating thermo ON</td>
<td>A: [0] to [48] : 0 to 48 units (No. of connected units)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B: [H0] to [H48] : 0 to 48 units (No. of units with heating thermo ON)</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Compressor command correction amount</td>
<td>A: Data is displayed with hexadecimal notation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B:</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Release control</td>
<td>A: Normal time : [r], During release control: [r1]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B:</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Oil-equalization control</td>
<td>A: Normal time : [oil-0]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B: During oil equation : [oil-1]</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Oil-equalization request</td>
<td>A: Displays with segment LED lighting pattern</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B:</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Refrigerant/oil recovery operation</td>
<td>A: During sending of cooling refrigerant oil recovery signal : [C1]. Normal time : [C]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B: During sending of heating refrigerant oil recovery signal : [H1]. Normal time : [H]</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Automatic address</td>
<td>A: [Ad]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B: Automatic addressing : [FF], Normal time : [ ]</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Demand operation</td>
<td>A: [dU]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B: Normal time : [ ]. In 50% to 90% : [50 to 90] When controlling by communication line input : [E50 to E90]</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>Optional control (P.C. board input)</td>
<td>Displays optioned control status</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A: Operation mode selection : In heating with priority (Normal) h.* s.* s.* s.*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B: Batch start/stop : Normal s.* s.* s.* s.*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>Option control (BUS line input)</td>
<td>Same as above</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Unused</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td>A: —</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B: —</td>
</tr>
</tbody>
</table>

* mark: Indicates none on display
## 2. Data display of outdoor unit information (Displayed on each outdoor unit)

<table>
<thead>
<tr>
<th>SW01</th>
<th>SW02</th>
<th>SW03</th>
<th>Display contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td><strong>Error data</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>A</strong> Displays outdoor unit number: [U1] to [U4]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>B</strong> Displays check code (Latest code only is displayed.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>There is no check code: [-- --]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>There is sub-code: Check code [* * *] for 3 seconds, sub-code [-- --] for 1 second alternately</td>
</tr>
</tbody>
</table>

<SW04> push function: Fan of unit with error only drives. 7-segment A: [E1]
<SW04 + SW05> push function: Fan of normal unit only drives. 7-segment A: [E0]
<SW05> push function: Interruption of fan operation function

| 2    |      |      |               |
|      |      |      | **—**          |
|      |      |      | **—**          |
| 3    |      |      | **Operation mode** |
|      |      |      | **A** Stop: [ ] |
|      |      |      | Normal cooling: [C], Normal heating: [H], Normal defrost: [J] |
|      |      |      | **B**          |

| 4    |      |      | **Outdoor unit HP** |
|      |      |      | **A** 5HP: [5], 6HP: [6], 8HP: [8], 10HP: [10], 12HP: [12] |
|      |      |      | **B** [HP] |

| 5    |      |      | **Compressor operation command** |
|      |      |      | **A** No.1 compressor operation command is displayed. Data display with Hexadecimal notation: [00 to FF] |
|      |      |      | **B** No.2 compressor operation command is displayed. Data display with Hexadecimal notation: [00 to FF] |

<SW04> push function: Inverter frequency is exchanged to decimal notation. 7-segment display (A/B): [* * ] [* * H] (Normal display by pushing <SW05>)

| 6    |      |      | **Outdoor fan step** |
|      |      |      | **A** [FP] |
|      |      |      | **B** Step 0 to 31: [0 to 31] |

| 7    |      |      | **Compressor backup** |
|      |      |      | **A** Displays No.1 compressor setup status Normal: [], Backup setup: [C1] |
|      |      |      | **B** Displays No.2 compressor setup status Normal: [], Backup setup: [C2] |

| 8    |      |      | **—** |
|      |      |      | **—** |

| 9    |      |      | **Control valve output data** |
|      |      |      | Displays control output status of solenoid valve |
|      |      |      | **A** | **B** |
|      |      |      | 4-way valve: ON | H. 1
|      |      |      | 4-way valve: OFF | H. 0
|      |      |      | SV2: ON / SV5: OFF | 2.1
|      |      |      | SV2: OFF / SV5: ON | 2.0
|      |      |      | SV3A: ON / SV3B: OFF / SV3C: OFF / SV3D: OFF | 3.1
|      |      |      | SV3A: OFF / SV3B: ON / SV3C: OFF / SV3D: OFF | 3.0
|      |      |      | SV3A: OFF / SV3B: OFF / SV3C: ON / SV3D: OFF | 3.0
|      |      |      | SV3A: OFF / SV3B: OFF / SV3C: OFF / SV3D: ON | 3.0
|      |      |      | SV41: ON / SV42: OFF | 4...
|      |      |      | SV41: OFF / SV42: ON | 4...
|      |      |      | **—** |
|      |      |      | **—** |

| 10   |      |      | **PMV1/PMV2 opening** |
|      |      |      | Displays opening data (Decimal) (Total opening) |
|      |      |      | **A** | **B** |
|      |      |      | **—** |

| 11   |      |      | **Oil level judgment status** |
|      |      |      | **A** [oL] |
|      |      |      | **B** Initial display: [⋯ ⋯ ⋯ ⋯]. Oil level judgment result: [A. #. ∗] |
|      |      |      | Judgment result of compressor 1 in [#], compressor 2 in [*] (0: Normal, 1, 2: Shortage) is displayed. |

207
3. Data display of outdoor cycle (Displayed on each outdoor unit)

<table>
<thead>
<tr>
<th>SW01</th>
<th>SW02</th>
<th>SW03</th>
<th>Display contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
<td>Pd pressure data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pd pressure (MPa) is displayed with decimal data.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(MPa: Approx. 1/10 value of kg/cm²G: data)</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>Ps pressure data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ps pressure (MPa) is displayed with decimal data.</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>PL pressure conversion data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Estimated pressure of liquid line (MPa) is displayed with decimal data.</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>TD1 sensor data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Temperature sensor data (°C) is displayed with decimal notation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Symbol: t d 1</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>TD2 sensor data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Symbol: t d 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Data: * * * *</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>TS sensor data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Data: * * * *</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>TE sensor data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Symbol: t E</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>——</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td>Symbol: t L</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td>Symbol: t o</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td>TK1 sensor data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Symbol: F 1</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td>TK2 sensor data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Symbol: F 2</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td>TK3 sensor data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Symbol: F 3</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td>TK4 sensor data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Symbol: F 4</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td>——</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td>——</td>
</tr>
</tbody>
</table>

4. Data display of outdoor cycle (Displayed on the header unit)

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

<table>
<thead>
<tr>
<th>SW01</th>
<th>SW02</th>
<th>SW03</th>
<th>Display contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>1 to 3</td>
<td>Error data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A [U. *] = SW03 setup number + 1 number (Outdoor unit number U2 to U4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B Check code is displayed. (Latest check code only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No check code: [-- --]</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>Installed compressor type</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A [U. *] = SW03 setup number + 1 number (Outdoor unit number U2 to U4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>Outdoor unit capacity</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A [U. *] = SW03 setup number + 1 number (Outdoor unit number U2 to U4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B 8HP: [······ 8], 10HP: [····· 1 0], 5 to 12HP</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>Compressor operation command</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A [U. *] = SW03 setup number + 1 number (Outdoor unit number U2 to U4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B No.1 compressor ON: [C10], No.2 compressor ON: [C01]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>For unconnected compressor, “*” is displayed.</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>Fan operation mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A [U. *] = SW03 setup number + 1 number (Outdoor unit number U2 to U4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B Stop time: [F 0 0 0], Mode 31: [F 3 1]</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>Release signal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A [U. *] = SW03 setup number + 1 number (Outdoor unit number U2 to U4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B Normal time: [r ······]. Release received: [r ······]</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>Oil level judgment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A [U. *] = SW03 setup number + 1 number (Outdoor unit number U2 to U4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B Normal time: [······ ····]. Oil shortage: [······ L]</td>
</tr>
</tbody>
</table>

NOTE) The follower unit is setup by changing SW03.

<table>
<thead>
<tr>
<th>SW03</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-segment display A</td>
<td>U2</td>
<td>U3</td>
<td>U4</td>
</tr>
</tbody>
</table>
5. Data display of indoor unit information (Displayed on the header unit only)

<table>
<thead>
<tr>
<th>SW01</th>
<th>SW02</th>
<th>SW03</th>
<th>Display contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1 to 16</td>
<td>1 to 3</td>
<td>Receiving status of indoor BUS communication B Receiving time: [⋯ ⋯ 1], Not received: [⋯ ⋯ ⋯]</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>Indoor check code B No check code: [−−−]</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>Indoor capacity (HP) horse power B 0.2, 0.5, 0.8, ⋯ 1, 1.2, 1.7, ⋯ 2, 2.5, ⋯ 3, 3.2, ⋯ 4, ⋯ 5, ⋯ 6, ⋯ 8, 1 0, 1 6, 2 0</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>Indoor request command (S code) B Data is displayed with Hexadecimal notation [⋯ ⋯ 0 to ⋯ ⋯ F] : Heating</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>Indoor PMV opening data B Data is displayed with Hexadecimal notation</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td>Indoor TA sensor data B Data is displayed with Hexadecimal notation</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td>Indoor TF sensor data B Data is displayed with Hexadecimal notation</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td>Indoor TCJ sensor data B Data is displayed with Hexadecimal notation</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td>Indoor TC1 sensor data B Data is displayed with Hexadecimal notation</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td>Indoor TC2 sensor data B Data is displayed with Hexadecimal notation</td>
</tr>
</tbody>
</table>

**NOTE** Indoor address No. is chosen by changing SW02 and SW03.

<table>
<thead>
<tr>
<th>SW03</th>
<th>SW02</th>
<th>Indoor address</th>
<th>7-segment display A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 to 16</td>
<td>SW02 setup number</td>
<td>[01] to [16]</td>
</tr>
<tr>
<td>2</td>
<td>1 to 16</td>
<td>SW02 setup number + 16</td>
<td>[17] to [32]</td>
</tr>
<tr>
<td>3</td>
<td>1 to 16</td>
<td>SW02 setup number + 32</td>
<td>[33] to [48]</td>
</tr>
</tbody>
</table>

6. Outdoor EEPROM write-in error code display (Displayed on the header unit only)

* The latest error code written in EEPROM of each outdoor unit is displayed.
  (It is used when confirming the error code after power supply has been reset.)

Set SW01 to 03 as shown in the following table, and the push SW04 for 5 seconds or more to display an error code.

<table>
<thead>
<tr>
<th>SW01</th>
<th>SW02</th>
<th>SW03</th>
<th>Display contents</th>
<th>7-segment display</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>16</td>
<td>The latest error code of the header unit 1 (U1) E. r</td>
<td>1. − −</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td></td>
<td>The latest error code of the follower unit 1 (U2) E. r</td>
<td>2. − −</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td></td>
<td>The latest error code of the follower unit 2 (U3) E. r</td>
<td>3. − −</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td></td>
<td>The latest error code of the follower unit 3 (U4) E. r</td>
<td>4. − −</td>
</tr>
</tbody>
</table>
9-7. Sensor Characteristics

9-7-1. Outdoor Unit

- Temperature sensor characteristics

[Diagrams showing temperature and resistance characteristics for different sensors]
Pressure sensor characteristics

I/O cable connection table

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>High pressure side (Pd)</th>
<th>Low pressure side (Ps)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Input/Output name</td>
<td>Lead wire color</td>
</tr>
<tr>
<td>1</td>
<td>OUTPUT</td>
<td>White</td>
</tr>
<tr>
<td>2</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
<td>Black</td>
</tr>
<tr>
<td>4</td>
<td>+5V</td>
<td>Red</td>
</tr>
</tbody>
</table>

Output voltage — Pressure

<table>
<thead>
<tr>
<th>High pressure side (Pd)</th>
<th>Low pressure side (Ps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 to 3.9 V DC</td>
<td>0.5 to 3.5 V DC</td>
</tr>
<tr>
<td>0 to 3.33 MPa</td>
<td>0 to 0.98 MPa</td>
</tr>
</tbody>
</table>

9-7-2. Indoor Unit

Temperature sensor characteristics

Characteristic-1
Indoor TA sensor

Characteristic-2
Indoor TC1, TC2, TCJ sensors
9-8. Pressure Sensor Output Check
9-8-1. Outdoor Unit
n Pd sensor characteristics
0 to 4.41MPa (0.5 to 5V output with 0 to 4.41MPa)
Voltage check between CN501  and  pins on the outdoor unit I/F P.C. board (Tester – rod at  pin side)
Pd

Pd

VOLT

(MPa) (kg/cm²)

0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.18
0.20
0.22
0.23
0.25
0.27
0.29
0.31
0.33
0.35
0.37
0.39
0.41
0.43
0.45
0.47
0.49
0.51
0.53
0.55
0.57
0.59
0.61
0.63
0.65
0.66
0.68
0.70
0.72
0.74
0.76
0.78
0.80
0.82
0.84
0.86
0.88
0.90
0.92
0.94
0.96
0.98

0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.01
0.03
0.05
0.07
0.08
0.10
0.12
0.14
0.16
0.18
0.20
0.22
0.24
0.26
0.28
0.30
0.31
0.33
0.35
0.37
0.39
0.41
0.43
0.45
0.47

0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
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0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.1
0.3
0.5
0.7
0.9
1.1
1.3
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
4.2
4.4
4.6
4.8

VOLT
1.00
1.02
1.04
1.06
1.07
1.09
1.11
1.13
1.15
1.17
1.19
1.21
1.23
1.25
1.27
1.29
1.31
1.33
1.35
1.37
1.39
1.41
1.43
1.45
1.47
1.48
1.50
1.52
1.54
1.56
1.58
1.60
1.62
1.64
1.66
1.68
1.70
1.72
1.74
1.76
1.78
1.80
1.82
1.84
1.86
1.88
1.90
1.91
1.93
1.95
1.97

Pd

Pd

Pd

Pd

(MPa) (kg/cm²)

VOLT

(MPa) (kg/cm²)

0.49
0.51
0.53
0.54
0.56
0.58
0.60
0.62
0.64
0.66
0.68
0.70
0.72
0.74
0.76
0.77
0.79
0.81
0.83
0.85
0.87
0.89
0.91
0.93
0.95
0.97
0.99
1.00
1.02
1.04
1.06
1.08
1.10
1.12
1.14
1.16
1.18
1.20
1.21
1.23
1.25
1.27
1.29
1.31
1.33
1.35
1.37
1.39
1.41
1.43
1.44

1.99
2.01
2.03
2.05
2.07
2.09
2.11
2.13
2.15
2.17
2.19
2.21
2.23
2.25
2.27
2.29
2.31
2.32
2.34
2.36
2.38
2.40
2.42
2.44
2.46
2.48
2.50
2.52
2.54
2.56
2.58
2.60
2.62
2.64
2.66
2.68
2.70
2.72
2.73
2.75
2.77
2.79
2.81
2.83
2.85
2.87
2.89
2.91
2.93
2.95
2.97

1.46
1.48
1.50
1.52
1.54
1.56
1.58
1.60
1.62
1.64
1.66
1.67
1.69
1.71
1.73
1.75
1.77
1.79
1.81
1.83
1.85
1.87
1.89
1.90
1.92
1.94
1.96
1.98
2.00
2.02
2.04
2.06
2.08
1.10
2.12
2.13
2.15
2.17
2.19
2.21
2.23
2.25
2.27
2.29
2.31
2.33
2.35
2.36
2.38
2.40
2.42

5.0
5.2
5.4
5.5
5.7
5.9
6.1
6.3
6.5
6.7
6.9
7.1
7.3
7.5
7.7
7.9
8.1
8.3
8.5
8.7
8.9
9.1
9.3
9.5
9.6
9.8
10.0
10.2
10.4
10.6
10.8
11.0
11.2
11.4
11.6
11.8
12.0
12.2
12.4
12.6
12.8
13.0
13.2
13.4
13.6
13.8
13.9
14.1
14.3
14.5
14.7

212

14.9
15.1
15.3
15.5
15.7
15.9
16.1
16.3
16.5
16.7
16.9
17.1
17.3
17.5
17.7
17.9
18.0
18.2
18.4
18.6
18.8
19.0
19.2
19.4
19.6
19.8
20.0
20.2
20.4
20.6
20.8
21.0
21.2
21.4
21.6
21.8
22.0
22.2
22.3
22.5
22.7
22.9
23.1
23.3
23.5
23.7
23.9
24.1
24.3
24.5
24.7

VOLT
2.99
3.01
3.03
3.05
3.07
3.09
3.11
3.13
3.15
3.16
3.18
3.20
3.22
3.24
3.26
3.28
3.30
3.32
3.34
3.36
3.38
3.40
3.42
3.44
3.46
3.48
3.50
3.52
3.54
3.56
3.57
3.59
3.61
3.63
3.65
3.67
3.69
3.71
3.73
3.75
3.77
3.79
3.81
3.83
3.85
3.87
3.89
3.91
3.93
3.95
3.97

Pd

Pd

(MPa) (kg/cm²)

2.44
2.46
2.48
2.50
2.52
2.54
2.56
2.57
2.59
2.61
2.63
2.65
2.67
2.69
2.71
2.73
2.75
2.77
2.79
2.80
2.82
2.84
2.86
2.88
2.90
2.92
2.94
2.96
2.98
3.00
3.02
3.03
3.05
3.07
3.09
3.11
3.13
3.15
3.17
3.19
3.21
3.23
3.25
3.26
3.28
3.30
3.32
3.34
3.36
3.38
3.40

24.9
25.1
25.3
25.5
25.7
25.9
26.1
26.3
26.4
26.6
26.8
27.0
27.2
27.4
27.6
27.8
28.0
28.2
28.4
28.6
28.8
29.0
29.2
29.4
29.6
29.8
30.0
30.2
3.04
30.5
30.7
30.9
31.1
31.3
31.5
31.7
31.9
32.1
32.3
32.5
32.7
32.9
33.1
33.3
33.5
33.7
33.9
34.1
34.3
34.5
34.7

Pd

Pd

VOLT

(MPa) (kg/cm²)

3.98
4.00
4.02
4.04
4.06
4.08
4.10
4.12
4.14
4.16
4.18
4.20
4.22
4.24
4.26
4.28
4.30
4.32
4.24
4.36
4.38
4.40
4.41
4.43
4.45
4.47
4.49
4.51
4.53
4.55
4.57
4.59
4.61
4.63
4.65
4.67
4.69
4.71
4.73
4.75
4.77
4.79
4.81
4.82
4.84
4.86
4.88
4.90
4.92
4.94
4.96
4.98

3.42
3.44
3.45
5.48
3.49
3.51
3.53
3.55
3.57
3.59
3.61
3.63
3.65
3.67
3.69
3.70
3.72
3.74
3.76
3.78
3.80
3.82
3.84
3.86
3.88
3.90
3.92
3.93
3.95
3.97
3.99
4.01
4.03
4.05
4.07
4.09
4.11
4.13
4.15
4.16
4.18
4.20
4.22
4.24
4.26
4.28
4.30
4.32
4.34
4.36
4.38
4.39

34.8
35.0
35.2
35.4
35.6
35.8
36.0
36.2
36.4
36.6
36.8
37.0
37.2
37.4
37.6
37.8
38.0
38.2
38.4
38.6
38.8
38.9
39.1
39.3
39.5
39.7
39.9
40.1
40.3
40.5
40.7
40.9
41.1
41.3
41.5
41.7
41.9
42.1
42.3
42.5
42.7
42.9
43.0
43.2
43.4
43.6
43.8
44.0
44.2
44.4
44.6
44.8


### 9-8-2. Outdoor Unit

#### Ps sensor characteristics

0 to 4.41 MPa (0.5 to 5V output with 0 to 4.41 MPa)
Voltage check between CN500 ② and ③ pins on the outdoor unit I/F P.C. board (Tester ③ rod at ③ pin side)

| VOLT (MPa) | Pd (kg/cm²) | VOLT (MPa) | Pd (kg/cm²) | VOLT (MPa) | Pd (kg/cm²) | VOLT (MPa) | Pd (kg/cm²) | VOLT (MPa) | Pd (kg/cm²) |
10. CONFIGURATION OF CONTROL CIRCUIT

10-1. Indoor Unit

10-1-1. Indoor Controller Block Diagram

- Connection of main (Sub) remote controller
- Weekly timer
- Under ceiling type, high wall type, 4-way Air Discharge Cassette Type, Concealed Duct Standard Type.

Max. 8 units are connectable.

1. Connection of main (Sub) unit.
2. The weekly timer cannot be controlled to one sub remote controller.
3. Under ceiling type, high wall type, 4-way Air Discharge Cassette Type, Concealed Duct Standard Type.
4. Same for high wall separate sold parts for under ceiling.

Note: Max. 8 units are connectable.
2-way Air Discharge Cassette Type, 1-way Air Discharge Cassette Type,
Concealed Duct High Static Pressure Type, Floor Standing Cabinet Type,
Floor Standing Concealed Type, Floor Standing Type

- Display
- Function setup
- Display
- LCD
- CPU
- Remote controller communication circuit
- CPU
- H8/3039
- Driver
- Remote controller communication circuit
- Key switch
- Power circuit
- Transformer
- Secondary battery
- Same as left *2
- \[\text{Max. 8 units are connectable.} \] *1
- \[1 \text{ However in a case that the network adaptor is installed when 2 main (sub) remote controllers are connected, maximum 7 units are connectable.} \]
- \[2 \text{ The network adaptor is installed to only one unit.} \]
- \[3 \text{ The weekly timer cannot be connected to the sub remote controller.} \]
- \[4 \text{ Nome for concealed duct, Floor standing cabinet, Floor standing concealed} \]
- \[5 \text{ Nome for concealed duct, Floor standing cabinet, Floor standing concealed, Floor standing} \]
- \[6 \text{ Nome for 1-way discharge cassette YH type.} \]
2. Connection of wireless remote controller kit

- **4-way Air Discharge Cassette Type, Concealed Duct Standard Type, Under Ceiling Type, High Wall Type**

**Remote controller communication circuit**

**CPU** H8/3039

**Driver**

**Remote controller**

**Network adaptor (Option)**

**Indoor control P.C. board (MCC-1402)**

**Remote controller communication circuit**

**Power**

- Transformer
- Switch setup

**Remote controller**

- Communication circuit
- Circuit setup

**CPU**

- H8/3039

**Driver**

**Power circuit**

**Outdoor unit**

**Power supply**

- 1Ø 200-240V, 50Hz
- 1Ø 220V, 60Hz

**AC synchronous signal input circuit**

- PMV
- Louver motor
- Drain pump
- Indoor fan motor

**Indoor/Outdoor communication circuit**

**Power circuit**

- Buzzer
- Sensor

**AI-NET**

**Communication circuit**

**CPU**

- TMP88CH47FG (TMP88PH47FG)

**Fan motor control circuit**

**Start**

- Alarm
- Ready
- Thermostat ON
- COOL
- HEAT
- FAN

**HA**

**BUS communication circuit**

**Power circuit**

**Max. 8 units are connectable.**

- *1 However in a case that the network adaptor is installed when 2 wireless remote controller kits are connected, maximum 7 units are connectable.

- *2 The network adaptor is installed to only

- *3 Nome for high wall separate sold parts for under ceiling.

One unit.
3. Connection of both main (sub) remote controller and wireless remote controller kit

Under Ceiling Type, High Wall Type,

4-Way Air Discharge Cassette Type, Concealed Duct Standard Type,

Remote controller communication circuit

Remote controller communication circuit

Emergent operation SW

Function setup SW

CPU

H8/3039

Driver

Remote controller communication circuit

Power circuit

Transformer

Switch setup

Same as left

*2

Same as left

*2

Max. 8 units are connectable. *1

*1 However in a case that the network adaptor is installed, maximum 7 units are connectable.

*2 The network adaptor is installed to only one unit.

*3 The weekly timer cannot be connected to the sub remote controller.

*4 None for high wall separate sold parts for under ceiling.
Max. 8 units are connectable. *1
*1 However in a case that the network adaptor is installed, maximum 7 units are connectable.

*2 The network adaptor is installed to only one unit.

*3 The weekly timer cannot be connected to the sub remote controller.

*4 Name for concealed duct, Floor standing cabinet, Floor standing concealed

*5 Name for concealed duct.

*6 Name for 1-way discharge cassette YH type.
**MCC-1403**

2-way Air Discharge Cassette Type, 1-way Air Discharge Cassette Type, Concealed Duct High Static Pressure Type, Floor Standing Cabinet Type, Floor Standing Concealed Type, Floor Standing Type

- **Power transformer (Primary side)** (AC200V)
- **Power transformer (Secondary side)** (AC11V, 14V, 20V)
- **Microcomputer operation LED**
- **EEPROM**
- **Indoor/Outdoor communication (Spare)**
- **Indoor/Outdoor communication (Also used for communication of the central control system)**
- **Remote controller power supply LED**
- **Optional output**
- **HA (T10)**
- **Optional output**
- **Remote controller inter-unit wire**
- **Used for servicing**

- **EXCT**
- **AC fan output**
- **TA sensor**
- **Outside error input**
- **TCI sensor**
- **TC2 sensor**
- **TCJ sensor**
- **DISP**

- **Filter/Option error input**
- **Float SW**

- **Short plug is inserted in Concealed Duct High Static Pressure type, Floor standing cabinet type, Floor standing type, Floor standing concealed type.**

- **2-way Air discharge cassette, 1-way Air discharge cassette, Floor standing only.**
MCC-1520
<2-way Air Discharge Cassette Type, 1-way Air Discharge Cassette Type, Concealed Duct High Static Pressure Type, Floor Standing Cabinet Type, Floor Standing Concealed Type, Floor Standing Type>
### 10-1-3. Optional Connector Specifications of Indoor P.C. Board

<table>
<thead>
<tr>
<th>Function</th>
<th>Connector No.</th>
<th>Pin No.</th>
<th>Specifications</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humidifier output</td>
<td>CN66</td>
<td>①</td>
<td>DC12V</td>
<td>In heating, thermo ON, Fan ON, Humidifier output ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td>②</td>
<td>Output</td>
<td>* Humidifier provided, Drain pump ON is set up by CN70 short-circuit or from remote controller. (DN=40)</td>
</tr>
<tr>
<td>Fan output</td>
<td>CN32</td>
<td>①</td>
<td>DC12V</td>
<td>Shipment setup; ON with indoor unit operation and OFF with stop are linked.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>②</td>
<td>Output</td>
<td>* Single operation by FAN button on remote controller is set up from remote controller (DN=31)</td>
</tr>
<tr>
<td></td>
<td>CN61</td>
<td>①</td>
<td>ON/OFF input</td>
<td>HA ON/OFF input</td>
</tr>
<tr>
<td></td>
<td></td>
<td>②</td>
<td>0V (COM)</td>
<td>(J01: YES/NO=Pulse (At shipment) / Static input select)</td>
</tr>
<tr>
<td></td>
<td>CN61</td>
<td>③</td>
<td>Main prohibition input</td>
<td>Operation stop of main remote controller is permitted / prohibited by input.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>④</td>
<td>Operation output</td>
<td>ON during operation (Answerback of HA)</td>
</tr>
<tr>
<td></td>
<td>CN60</td>
<td>①</td>
<td>DC12V (COM)</td>
<td>HA ON/OFF input</td>
</tr>
<tr>
<td></td>
<td></td>
<td>②</td>
<td>Defrost output</td>
<td>HA ON/OFF input</td>
</tr>
<tr>
<td></td>
<td></td>
<td>③</td>
<td>Thermo ON output</td>
<td>HA ON/OFF input</td>
</tr>
<tr>
<td></td>
<td></td>
<td>④</td>
<td>COOL output</td>
<td>HA ON/OFF input</td>
</tr>
<tr>
<td></td>
<td></td>
<td>⑤</td>
<td>HEAT output</td>
<td>HA ON/OFF input</td>
</tr>
<tr>
<td></td>
<td></td>
<td>⑥</td>
<td>Fan output</td>
<td>HA ON/OFF input</td>
</tr>
<tr>
<td>Outside error input</td>
<td>CN80</td>
<td>①</td>
<td>DC12V (COM)</td>
<td>Generate check code “L30” (for 1 minute continuously) to stop forcedly the operation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>②</td>
<td>DC12V (COM)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>③</td>
<td>Outside error input</td>
<td></td>
</tr>
<tr>
<td>CHK operation check</td>
<td>CN71</td>
<td>①</td>
<td>Check mode input</td>
<td>Used for indoor operation check. (Outdoor does not communicate with remote controller, and outputs specified operation such as indoor fan “H”, drain pump ON, etc.)</td>
</tr>
<tr>
<td>DISP exhibition mode</td>
<td>CN72</td>
<td>①</td>
<td>Display mode input</td>
<td>Exhibition mode enables to communicate by indoor unit and remote controller only. (When power has been turned on.) Timer short (Usual)</td>
</tr>
<tr>
<td>EXCT demand</td>
<td>CN73</td>
<td>①</td>
<td>Demand input</td>
<td>Indoor unit forced thermostat OFF operation</td>
</tr>
</tbody>
</table>
10-2. Outdoor unit

Positions to be checked on the interface P.C. board (MCC-1429)
Inverter P.C. board (MCC-1502)

- **Power supply input (AC400V)**
- **Input current sensor**
- **Compressor output**
- **Reactor 1** (IPDU1 only is connected.)
- **Reactor 2** (IPDU2 only is connected.)
- **Connection between IPDU1 and 2**
- **Electrolytic condenser (+, -)**
- **DC330V output (IPDU1 only is connected.)**
- **DC330V input**
- **Communication between I/F and Comp. IPDU**
- **Compressor output**
- **AC230V input**
- **Input current sensor**
- **Input current sensor**
- **Power supply input (AC400V)**

**Components and Connections**:
- **+12V**
- **GND**
- **+5V**
- **Compressor output**
- **Connection between IPDU1 and 2**
- **Electrolytic condenser (+, -)**
- **DC330V output (IPDU1 only is connected.)**
- **DC330V input**
- **Communication between I/F and Comp. IPDU**
- **Reactor 1** (IPDU1 only is connected.)
- **Reactor 2** (IPDU2 only is connected.)
- **Power supply input (AC400V)**
- **Input current sensor**
- **Compressor output**
Power P.C. board for fan (MCC-1439)

AC230V input

+12V

GND

Electrolytic condenser

Communication between I/F and fan IPDU

Judgement

+12V terminal

+7V terminal

Communication between fan IPDU

DC330V output
(For Comp. IPDU)

CN500
DC330V output for fan IPDU
(Judgement: DC 180–370V)
### 10-2-1. Outdoor Interface P.C. Board

**<Dip switch function exchange setup list>**

<table>
<thead>
<tr>
<th>Part type</th>
<th>Exchange contents</th>
<th>Initial setup at shipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW01</td>
<td>Display / Operation switch (1)</td>
<td>For 7-segment display / service operation [1]</td>
</tr>
<tr>
<td>SW02</td>
<td>Display / Operation switch (2)</td>
<td>For 7-segment display / service operation [1]</td>
</tr>
<tr>
<td>SW03</td>
<td>Display / Operation switch (3)</td>
<td>For 7-segment display / service operation [1]</td>
</tr>
<tr>
<td>SW04</td>
<td>Push SW</td>
<td>For service [Operation/Stop]</td>
</tr>
<tr>
<td>SW05</td>
<td>Push SW</td>
<td>For service [Stop/End]</td>
</tr>
</tbody>
</table>

#### SW06 SW 4bit

<table>
<thead>
<tr>
<th>Bit 1</th>
<th>Backup setup (Based on the following setup)</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bit 2</td>
<td>Bit 4 Bit 3 Bit 2 Bit 1</td>
<td>OFF</td>
</tr>
<tr>
<td>Bit 3</td>
<td>OFF OFF OFF OFF Normal</td>
<td>OFF</td>
</tr>
<tr>
<td>Bit 4</td>
<td>ON OFF No.1 COMP backup</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>ON OFF No.2 COMP backup</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>ON ON Outdoor backup during cooling season</td>
<td>OFF</td>
</tr>
</tbody>
</table>

#### SW07 SW 4bit

<table>
<thead>
<tr>
<th>Bit 1</th>
<th>Demand control exchange</th>
<th>OFF: 0 – 100%, ON: Middle – 100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bit 2</td>
<td>Extended control demand function (For 4-steps exchange)</td>
<td>OFF</td>
</tr>
<tr>
<td>Bit 3</td>
<td>For clean converter</td>
<td>OFF: Normal (unconnected), ON: Connected</td>
</tr>
<tr>
<td>Bit 4</td>
<td>—</td>
<td>OFF</td>
</tr>
</tbody>
</table>

#### SW09 SW 4bit

**Header unit**

<table>
<thead>
<tr>
<th>Bit 1</th>
<th>Outdoor address setup exchange</th>
<th>OFF: Auto setup (Normal), ON: Manual setup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bit 2</td>
<td>Judge indoor capacity over</td>
<td>OFF: YES (Normal), ON: NO</td>
</tr>
<tr>
<td>Bit 3</td>
<td>Correction of installed pipe size (For outdoor expansion)</td>
<td>OFF</td>
</tr>
<tr>
<td>Bit 4</td>
<td>Judge abnormal No. of connected indoor units</td>
<td>OFF: No error judgment, ON: Error</td>
</tr>
</tbody>
</table>

**Follower unit**

<table>
<thead>
<tr>
<th>Bit 1</th>
<th>—</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bit 2</td>
<td>—</td>
<td>OFF</td>
</tr>
<tr>
<td>Bit 3</td>
<td>—</td>
<td>OFF</td>
</tr>
<tr>
<td>Bit 4</td>
<td>Display of start priority No.</td>
<td>OFF: Outdoor unit No. [U.#] (#: 2 to 4) ON: Outdoor start order No. [Y.#] (#: 2 to 4)</td>
</tr>
</tbody>
</table>

#### SW10 SW 4bit

<table>
<thead>
<tr>
<th>Bit 1</th>
<th>Outdoor fan high-static pressure operation</th>
<th>OFF: Normal, ON: High-static pressure operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bit 2</td>
<td>For low-noise operation</td>
<td>OFF: Normal, ON: INV frequency upper limit restriction</td>
</tr>
<tr>
<td>Bit 3</td>
<td>For low-noise operation</td>
<td>OFF: Normal, ON: Fan rpm upper limit restriction</td>
</tr>
<tr>
<td>Bit 4</td>
<td>Set up priority of cool/heat (Based on following setup)</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>Bit 2 Bit 1</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>OFF OFF Priority on heating</td>
<td>ON: System stop, ON: System operation continues</td>
</tr>
<tr>
<td></td>
<td>OFF ON Priority on cooling</td>
<td>ON: System stop, ON: System operation continues</td>
</tr>
<tr>
<td></td>
<td>ON OFF Priority on No. of operating units</td>
<td>ON: System stop, ON: System operation continues</td>
</tr>
<tr>
<td></td>
<td>ON ON Priority on specific indoor unit</td>
<td>ON: System stop, ON: System operation continues</td>
</tr>
</tbody>
</table>

#### SW11 SW 4bit

<table>
<thead>
<tr>
<th>Bit 1</th>
<th>—</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bit 2</td>
<td>—</td>
<td>OFF</td>
</tr>
<tr>
<td>Bit 3</td>
<td>—</td>
<td>OFF</td>
</tr>
<tr>
<td>Bit 4</td>
<td>Operation when indoor overflow detected</td>
<td>OFF: System stop, ON: System operation continues</td>
</tr>
</tbody>
</table>

#### SW12 SW 4bit

<table>
<thead>
<tr>
<th>Bit 1</th>
<th>—</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bit 2</td>
<td>—</td>
<td>OFF</td>
</tr>
<tr>
<td>Bit 3</td>
<td>—</td>
<td>OFF</td>
</tr>
<tr>
<td>Bit 4</td>
<td>—</td>
<td>OFF</td>
</tr>
</tbody>
</table>

#### SW13 SW 4bit

<table>
<thead>
<tr>
<th>Bit 1</th>
<th>—</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bit 2</td>
<td>—</td>
<td>OFF</td>
</tr>
<tr>
<td>Bit 3</td>
<td>—</td>
<td>OFF</td>
</tr>
<tr>
<td>Bit 4</td>
<td>Line address setup</td>
<td>OFF</td>
</tr>
</tbody>
</table>

#### SW14 SW 4bit

<table>
<thead>
<tr>
<th>Bit 1, 2, 3, 4</th>
<th>Line address setup</th>
<th>Refer to item “Address setup procedure”</th>
</tr>
</thead>
</table>

#### SW30 SW 2bit

<table>
<thead>
<tr>
<th>Bit 1</th>
<th>End terminal resistance of communication between outdoor units</th>
<th>OFF: No end terminal resistance, ON: Exists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bit 2</td>
<td>End terminal resistance of communication between outdoor units</td>
<td>OFF: No end terminal resistance, ON: Exists</td>
</tr>
</tbody>
</table>

#### CN30 Check connector

Manual full opening setup of PMV | Opened: Normal, Short: Opened fully |

#### CN31 Check connector

Manual full closing setup of PMV | Opened: Normal, Short: Opened fully |

#### CN32 Check connector

Check for assembly line in factory. | Opened: Normal, Short: Check mode |

* The outdoor unit connected with indoor/outdoor communication line becomes automatically the header unit. The setup is unnecessary to be manually changed.
11. BACKUP OPERATIONS (EMERGENCY OPERATION)

When a trouble occurred at an outdoor unit or at one of the compressors in outdoor unit, the troubled unit or troubled compressor stops and a backup operation (emergency operation) is available by other outdoor units and the compressors. Set up a backup operation following to the procedure below.

11-1. Before Backup Operation

Method of the backup operation differs by the contents of the trouble. Refer to the following table.

<table>
<thead>
<tr>
<th>Trouble contents</th>
<th>Backup operation method</th>
<th>Setup procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>When a trouble occurred on one of the compressors in the same unit (Note 1)</td>
<td>Compressor backup</td>
<td>To item 2</td>
</tr>
<tr>
<td>When troubles occurred on the both compressors in the same unit</td>
<td>Outdoor unit backup or outdoor unit backup during cooling season (Note 2)</td>
<td>To item 3 or item 4</td>
</tr>
<tr>
<td>Trouble of compressor coil (Such as defect of compressor coil)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When a trouble occurred on refrigerating system parts, fan system parts, or electric system parts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When a trouble occurred on temperature sensor or pressure sensor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Note 1) When a trouble of compressor coil, etc occurred, deterioration of the oil is heavy. Therefore do not perform a backup operation; otherwise a trouble of the other outdoor units may be caused.

(Note 2) The outdoor unit to be processed with a backup operation should be restricted to one unit in the system of 1 system.

11-2. Compressor Backup Setup

<Outline>
When a trouble occurred on one of the two compressors, follow the procedure below if it is necessary to perform a backup operation by the other normal compressor.

<Work procedure>
1. Turn off the main power supplies of all the units connected to the system.
2. Set up the switch SW06 on the interface P.C. board of the outdoor unit with failure compressor as shown below.

```
<table>
<thead>
<tr>
<th>SW06</th>
<th>Bit 1</th>
<th>Bit 2</th>
<th>Bit 3</th>
<th>Bit 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial setup at shipment from factory</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>No.1 compressor (Left side) is defective.</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>No.2 compressor (Right front side) is defective.</td>
<td>OFF</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>
```

3. Turn on the main power supplies of all the units connected to the system.

Then setup operation for the compressor backup finishes.
11-3. Outdoor Unit Backup Setup

<Outline>
Against a case that a trouble occurs on the outdoor unit, backup operation can be set up to either header unit or follower unit. For the multiple outdoor unit system (Failure of compressor coil), perform an outdoor unit backup operation if the following error modes occurred.
• Trouble on compressor
• Trouble on pressure sensor (Pd, Ps) /temperature sensor (TD1, TD2, TS1, TE1, TK1, TK2, TK3, TK4, TL)

Note: Backup of the outdoor unit should be restricted to one unit in one system.

11-3-1. In case of Trouble on Follower Outdoor Unit
(Backup setup for follower outdoor unit)

<Work procedure>
1. Turn off the main power supplies of all the units connected to the system.

[Setup for outdoor unit with trouble]
2. Close fully the gas side service valve of the unit with trouble.
3. Leave service valve of the balance pipe of the liquid pipe opened. (To prevent refrigerant stagnation in the unit)
   However close fully service valve of the liquid pipe when there is PMC leakage in outdoor unit (PMV does not close.).
4. <In case of trouble on the compressor or electric parts system (Compressor, electric system parts, I/F P.C. board, IPDU P.C. board)>
   After then, keep OFF for the main power supply of the unit with trouble.
   <In case of trouble on the refrigerant circuit parts system (Pressure sensor, temperature sensor, refrigerant circuit parts, fan system parts)>
   Remove the communication (BUS2) connector [CN03] between outdoor units on the interface P.C. board.

[Setup for header unit]
5. Turn on Bit 2 of the Dip SW09 on the interface P.C. board of the header unit.
   (Setup not to detect the indoor capacity over)
6. Turn on the power supplies of all the units other than the unit with trouble.
   As for power supply of the unit with trouble, follow the procedure below.
   <In case of trouble on the compressor or electric parts system (Compressor, electric system parts, I/F P.C. board, IPDU P.C. board)>
   Keep OFF for the main power supply of the unit.
   <In case of trouble on the refrigerant circuit parts system (Pressure sensor, temperature sensor, refrigerant circuit parts, fan system parts)>
   Turn on the power supply to protect the compressor. (Case heater ON)
   (Although [E19] (Outdoor header unit quantity error) is displayed on 7-segment display after turning on the power supply of the unit, it is not a problem because it is only interruption of communication with the header unit.)
[Setup for the header unit]

7. Error clear is set up from the header unit.
   1) Check [U1] [E26] (Decrease of No. of connected outdoor units) is displayed on 7-segment display under condition that the rotary switches SW01/02/03 are set to 1/1/1 on the interface P.C. board.
   2) Set the rotary switches SW01/02/03 on the interface P.C. board to 2/16/1, and then push the push SW04 for 5 seconds or more after [Er] [ ] have been displayed on 7-segment display.
   3) [Er] [ CL] are displayed on 7-segment display. (Error clear completes.)
   4) Return SW01/02/03 to 1/1/1. (It is normal if [U1] [ -- -- ] are displayed.)

All the backup setup for the header unit has completed. Check the operation.

11-3-2. In Case of Trouble on Header Unit (Backup setup for header unit)

<Work procedure>
1. Turn off the main power supplies of all the units connected to the system.

[Setup for outdoor unit with trouble]
2. Close fully the gas side service valve of the unit with trouble.
3. Leave service valve of the balance pipe and the liquid pipe fully opened. (To prevent refrigerant stagnation in the unit)
   However close fully service valve of the liquid pipe when there is PMV leakage in outdoor unit (When PMV can not be closed fully)
4. <In case of trouble on the compressor or electric parts system (Compressor, electric system parts, I/F P.C. board, IPDU P.C. board)>
   After then, keep OFF for the main power supply of the unit with trouble.
   <In case of trouble on the cycle parts system (Pressure sensor, temperature sensor, refrigerant circuit parts, fan system parts)>
   Remove the communication (Refrigerant circuit) connector [CN03] between outdoor units on the interface P.C. board.

[Selection of header unit]
5. Select a header unit among the follower units based upon the following criteria.
   • If only one follower unit is connected, select it as the header unit.
   • When two or more follower units are connected, select an outdoor unit nearest to the header unit as the header unit.
[Setup for the unit selected as the header unit]
6. Match the setup of SW13 and SW14 on the interface P.C. board with SW setup of the unit with trouble. (Refrigerant system address setup)
7. Turn on Bit 2 of SW09 on the interface P.C. board. (Setup not to detect the indoor capacity over)
8. Match the setup of SW30 Bit 1 and 2 on the interface P.C. board with SW setup of the unit with trouble. (Setup for end terminal resistance of communication)

[Connection change of the communication line]
9. Change the communication line between outdoor and indoor from [U1, U2] terminal of the header unit with trouble to [U1/U2] of the unit selected as the header unit.
10. If a central control device is connected, connect the communication line [U3/U4] of the central control system to the communication line [U3/U4] terminal of the unit selected as the header unit, and connect a relay connector between [U1/U2] and [U3/U4] terminals.

11. Turn on the power supplies of each outdoor unit.
   Turn on the main power supplies of all the units other than the unit with trouble. As for power supply of the unit with trouble, follow the procedure below.
   Leave the main power supply of the unit with trouble as it is.
   <In case of trouble on the compressor or electric parts system (Compressor, electric system parts, I/F P.C. board, IPDU P.C. board)> Keep OFF for the main power supply of the unit.
   < In case of trouble on the refrigerant circuit parts system (Pressure sensor, temperature sensor, refrigerant circuit parts, fan system parts)> Turn on the main power supply to protect the compressor. (Case heater ON) (Although [E19] (Outdoor header unit quantity error) is displayed on 7-segment display after turning on the power supply of the unit, it is not a problem because it is only interruption of communication with the header unit.)

Then all the backup setup for the header unit has finished. Check the operation.
11-4. Backup Setup for Outdoor Unit during Cooling Season

<Outline>
Restricted to a case unnecessary to operate the air system in HEAT mode in cooling season, etc, this function enables the backup operation to operate quickly by omitting various setups even when the header unit or follower unit has malfunctioned. This backup operation is same as that of the abovementioned “Outdoor Unit Backup Setup” except that it cannot operate in HEAT mode.

Note 1) When this function is set up, a heating operation is unavailable. (HEAT mode cannot be selected on the remote controller.)

Note 2) If a trouble occurred on the interface P.C. board or the electric cycle system, the backup operation cannot be performed by this setup. In this case, execute the abovementioned “Outdoor Unit Backup Setup”.

<Work procedure>
1. Turn off the main power supplies of all the units connected to the system.

[Setup for outdoor unit with trouble]
(The following procedure is common even if the outdoor unit with trouble is the header or follower unit.)
2. Turn on both Bit 1 and 2 of the SW06 on the interface P.C. board.
3. Close fully the service valve of the liquid pipe when there is leakage of outdoor PMV (PMV does not close.).
4. Turn on the main power supplies of all the units connected to the system.
   If the trouble is a compressor insulation error and others, remove the wiring to the compressor before turning on the power supply.

Then, the backup setup for the outdoor unit in cooling season has finished.

Turn on Bit 1 and Bit 2 of Dip SW06.
12. OIL LEVEL JUDGMENT DISPLAY

The judgment result of the current oil level of the compressor can be confirmed by the switch setup on the interface P.C. board of the outdoor unit.

Confirm the result in the following procedure.

1. Operation procedure

1) Start the operation.

2) Set up the switches on the interface P.C. board of the outdoor unit of which judgment result of oil level is to be confirmed as shown below.

\[
SW01/SW02/SW03 = 1/16/1
\]

3) The judgment result of the oil level is displayed on 7-segment display.

**7-segment display [oL] [A00]**

The right 3 digits indicate the judgment result. The judgment results of the oil level in compressor 1 and compressor 2 are displayed.

(Example: A ○ □ = ○ : Oil level result of compressor 1, □ : Oil level result of compressor 2)

**Display example**

7-segment display 

\[\text{[oL]} \ [\text{A00}] \]

: Oil level is appropriate in compressor 1 and 2.

\[\text{[oL]} \ [\text{A01}] \]

: Oil level is appropriate in compressor 1, and shortage in compressor 2

\[\text{[oL]} \ [\text{A20}] \]

: Oil shortage in compressor 1, and appropriate in compressor 2

Judgment result in compressor 2

Judgment result in compressor 1

For the contents of judgment result, refer to the following table.)

<table>
<thead>
<tr>
<th>Judgment result of oil level</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Appropriate Oil level inside of the compressor is appropriate.</td>
</tr>
<tr>
<td>1</td>
<td>Shortage Shortage of oil level in the compressor (Both A1 and A2 indicate shortage.) If this judgment continues, the system stops for protection.</td>
</tr>
<tr>
<td>A</td>
<td>TK1 circuit error TK1 circuit error is considered. If this judgment continues, the system stops for protection.</td>
</tr>
<tr>
<td>B</td>
<td>TK2 circuit error TK2 circuit error is considered. If this judgment continues, the system stops for protection.</td>
</tr>
<tr>
<td>C</td>
<td>TK3 circuit error TK3 circuit error is considered. If this judgment continues, the system stops for protection.</td>
</tr>
<tr>
<td>D</td>
<td>TK4 circuit error TK4 circuit error is considered. If this judgment continues, the system stops for protection.</td>
</tr>
</tbody>
</table>

4) After confirmation, return SW01/SW02/SW03 to (1/1/1).
13. REFRIGERANT RECOVERY
WHEN REPLACING THE COMPRESSOR

13-1. Refrigerant Recovery in the Troubled Outdoor Unit

A pump-down function if prepared to this system. For multiple outdoor unit system, execute pump-down by using the normal outdoor units and refrigerant can be recovered from the outdoor unit to be repaired.

13-1-1. Before Refrigerant Recovery Operation

Pay attention to the following items during pump-down operation.

Note 1) The refrigerant recovery rate changes with the outside temperature, etc. in the pump-down operation. When the pump-down operation has finished, be sure to recover the remaining gas using a recovery device and measure the recovered refrigerant amount. (Executing pump-down operation when pump-down operation is operated with heating accumulator of the outdoor unit to be repaired improves refrigerant recovery rate.)

Note 2) After this work, the system cannot operate until the defective outdoor unit has been repaired. (As the operation becomes refrigerant overcharge operation, a continuous operation is unavailable.)

Note 3) While both outdoor pulse motor valves are closed (cannot open the valves), the refrigerant in the heat exchanger cannot be recovered. If executing welding after pump-down operation, recover the refrigerant in the heat exchanger before work.

13-1-2. Refrigerant Recovery Procedure

(In case of no backup operation for outdoor unit)

<Work procedure>

Turn on the power supply of the system, and stop status of system operation. If a trouble is an insulation error of the compressor, remove wiring to the compressor before turning on the power supply.

[Setup for the outdoor unit with trouble]

1. Using a charge hose, connect the check joint of the liquid pipe and the check joint at low-pressure side, and then purge the air in the hose. (To recover refrigerant in the heat exchanger and the liquid tank)
2. Close fully the service valve of the liquid pipe of the outdoor unit with trouble. (Keep service valve of the gas pipe and the balance pipe opened.)
3. If it is considered that the oil has deteriorated due to trouble of the compressor, take off SV3A valve connector of the outdoor unit with trouble so that the deteriorated oil does not flow in the other outdoor units.
4. Set the rotary SW01/02/03 to 2/11/1 on the interface P.C. board of the troubled outdoor unit and then push SW04 for 5 seconds or more after [rd] [ ] have been displayed on 7-segment display section.
5. [rd] [ FF] have been displayed on 7-segment display, and then a pump-down operation starts.

* When interrupting the operation, turn off the power supplies of all the outdoor units or push SW05 on the interface P.C. board.
6. Close fully the service valve of the gas pipe of the troubled outdoor unit approx. 10 minutes after the system has started.
7. Push the push SW04 of the troubled outdoor unit in order to display the pressure data (MPa).
   (Every pushing SW04, the displayed data changes successively.)

**Display Example**

<table>
<thead>
<tr>
<th>[rd] [ .11]</th>
<th>[Pd] [1.20]</th>
<th>[Ps] [1.20]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial display</td>
<td>High pressure</td>
<td>Low pressure</td>
</tr>
</tbody>
</table>

**[Selection of outdoor unit for pressure adjustment]**

8. For the outdoor units which are operating with pump-down mode, the outdoor unit having the least unit number is selected as the outdoor unit for adjustment of pressure.

**Unit No.**

While SW01/02/03 are set to 1/1/1, the number displayed on 7-segment display indicates the unit No.

([U#] [ – – ]: # indicates the unit No.)

**[Selection for outdoor units other than unit for adjustment of pressure and troubled unit]**

9. Keep only the service valve of balance pipe of the unit for pressure adjustment and the troubled unit fully opened, and close fully the service valves of other outdoor unit balance pipes.

**[Setup for outdoor unit for adjustment of pressure]**

10. Set up the rotary SW01/02/03 to 1/2/2 on the interface P.C. board of the outdoor unit for adjustment of pressure.
11. As the low-pressure data is displayed on 7-segment display section, close the service valves of the gas pipe slowly by confirming by confirming the pressure data, and then adjust so that the pressure becomes around 0.12MPa.
12. When the low-pressure of the troubled outdoor unit has become almost same as that of the unit for pressure adjustment, close fully the service valve of the gas pipe of the unit for pressure adjustment after operation for a while.

**[Setup for the troubled outdoor unit]**

13. When the low-pressure of the troubled outdoor unit becomes below 0.10MPa, close fully service valve of the balance pipe and then push SW05 on the interface P.C. board to finish the pump-down operation.
14. Turn off the power supplies of all the outdoor units, and use a refrigerant recovery device to recover the remaining refrigerant in the outdoor unit which the pump-down operation has completed. Be sure to measure the recovered refrigerant amount. (It is because addition of refrigerant corresponding to recovered amount is necessary after repair.)

All of the refrigerant recovery work has finished.
(Backup operation of the outdoor unit is being executed)

<Outline>
When the power supply of the outdoor unit cannot be turned on under condition that a backup operation is set up for the troubled outdoor unit, correct refrigerant recovery procedure is different. Try to recover refrigerant in the following procedure.

However in the case of outdoor backup operation in cooling season or the troubled unit ON during outdoor backup operation, recover the refrigerant in the work procedure in which the abovementioned “Outdoor Unit Backup Setup” is not performed.

If the backup for the outdoor unit is set up under condition that the troubled unit is turned on, return the communication connector [CN03] between outdoor units on the interface P.C. board of the corresponding unit to the original status, reset the power supply, and then start the recovery operation in the above work procedure.

Note) If the power of the troubled unit cannot be turned on, the solenoid valve PMV of the unit cannot be turned on. Therefore the refrigerant recovery amount decreases compared with the usual pump-down operation.

Using a refrigerant recovery device, recover the remaining gas in the unit and measure the recovered amount.

<Work procedure>

[Setup for the troubled outdoor unit]
1. Using a gauge manifold, connect the check joint of the liquid pipe and the low-pressure side, and then purge air in the hose. (To recover refrigerant in the heat exchanger and the liquid tank)
2. Close fully the service valve of the liquid pipe of the outdoor unit with trouble. (Keep service valve of the gas pipe and the balance pipe opened.)

[Setup for the unit selected as header unit]
3. Set up the rotary SW01/02/03 to 2/5/1 on the interface P.C. board of the header outdoor unit, and push the push SW04 for 5 seconds or more after [C. ] [ ] have been displayed on 7-segment display section.
4. The system operates in the test cooling operation after [C. ] [ – C] have been displayed on 7-segment display section.
5. Set up the rotary SW01/02/03 to 1/2/2 on the interface P.C. board of the header outdoor unit to display the low-pressure data (MPa) on 7-segment display section.

6. Close fully the service valve of the gas pipe on the troubled outdoor unit approx. 10 minutes after the system has started.

[Setup for outdoor unit for adjustment of pressure]
7. Select the header unit as the unit for pressure adjustment.

[Setup for outdoor units other than header unit and troubled unit]
8. Keep only the balance pipes of the header unit and the troubled outdoor unit fully opened, and close fully the service valves of other outdoor unit balance pipes.
[Setup for header unit]
9. As the low-pressure data is displayed on 7-segment display section, close the service valves of the gas pipe gradually with confirming the pressure data, and then adjust so that the pressure becomes around 0.12MPa or equivalent.
10. When the manifold gauge pressure of the troubled outdoor unit has become almost same as with low pressure of the header unit, close fully the service valve of the gas pipe of the unit for pressure adjustment after operation for a while.

[Setup for the defective outdoor unit]
11. When the manifold gauge pressure of the troubled outdoor unit becomes below 0.10MPa, close fully packed valve of the balance pipe and then push SW05 on the interface P.C. board to finish the pump-down operation.
12. Turn off the main power supplies of all the outdoor units, and use a refrigerant recovery device to recover the remaining refrigerant in the outdoor unit which the pump-down operation has completed. Be sure to measure the recovered refrigerant amount. (It is because addition of refrigerant corresponding to recovered amount is necessary after repair.)
13-2. How to Operate the System during Repairing of the Defective Outdoor Unit

<Work procedure>
1. Follow to the abovementioned “13-1. Refrigerant Recovery in the Troubled Outdoor Unit”.
2. Next, recover the refrigerant in the system by using a recovery device, etc.
   The refrigerant amount to be recovered is determined based upon the capacity of the troubled outdoor unit.
   (See the following table.)

   Example) In a case of backup for 10HP-outdoor unit in 30HP system:
   in the original system HP (30HP system) = 37.5kg
   Refrigerant amount in system HP (20HP system) after backup = 28.0kg
   Refrigerant amount to be recovered = 37.5 – 28.0 = 9.5kg

3. For the unit which refrigerant has been recovered, execute “Outdoor Unit Backup Setup” in another section.
   All the work has finished.

<table>
<thead>
<tr>
<th>System HP</th>
<th>Combination of outdoor units</th>
<th>Refrigerant amount (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>5</td>
<td>8.5</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>8.5</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>14.0</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>15.0</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>16.0</td>
</tr>
<tr>
<td>14</td>
<td>8, 6</td>
<td>21.0</td>
</tr>
<tr>
<td>16</td>
<td>8, 8</td>
<td>25.0</td>
</tr>
<tr>
<td>18</td>
<td>10, 8</td>
<td>25.0</td>
</tr>
<tr>
<td>20</td>
<td>10, 10</td>
<td>28.0</td>
</tr>
<tr>
<td>22</td>
<td>8, 8, 6</td>
<td>33.5</td>
</tr>
<tr>
<td></td>
<td>12, 10</td>
<td>30.0</td>
</tr>
<tr>
<td>24</td>
<td>8, 8, 8</td>
<td>33.5</td>
</tr>
<tr>
<td></td>
<td>12, 12</td>
<td>32.0</td>
</tr>
<tr>
<td>26</td>
<td>10, 8, 8</td>
<td>33.5</td>
</tr>
<tr>
<td>28</td>
<td>10, 10, 8</td>
<td>35.0</td>
</tr>
<tr>
<td>30</td>
<td>10, 10, 10</td>
<td>37.5</td>
</tr>
<tr>
<td>32</td>
<td>8, 8, 8, 8</td>
<td>44.0</td>
</tr>
<tr>
<td></td>
<td>12, 10, 10</td>
<td>38.5</td>
</tr>
<tr>
<td>34</td>
<td>10, 8, 8, 8</td>
<td>44.0</td>
</tr>
<tr>
<td></td>
<td>12, 12, 10</td>
<td>40.0</td>
</tr>
<tr>
<td>36</td>
<td>10, 10, 8, 8</td>
<td>44.0</td>
</tr>
<tr>
<td></td>
<td>12, 12, 12</td>
<td>41.5</td>
</tr>
<tr>
<td>38</td>
<td>10, 10, 10, 8</td>
<td>44.0</td>
</tr>
<tr>
<td>40</td>
<td>10, 10, 10, 10</td>
<td>45.0</td>
</tr>
<tr>
<td>42</td>
<td>12, 10, 10, 10</td>
<td>46.0</td>
</tr>
<tr>
<td>44</td>
<td>12, 12, 10, 10</td>
<td>48.0</td>
</tr>
<tr>
<td>46</td>
<td>12, 12, 12, 10</td>
<td>50.0</td>
</tr>
<tr>
<td>48</td>
<td>12, 12, 12, 12, 12</td>
<td>52.0</td>
</tr>
</tbody>
</table>
13-3. Process after Repair

After completion of the repair work, perform vacuuming in the outdoor unit in the following procedure.

<Work procedure>

1. Short CN30 on the interface P.C. board of the outdoor unit which repair work has completed, to open PMV fully.
   
   NOTE) The full opening operation of PMV by CN30 short-circuiting returns to full closing after 2 minutes. To continue full-opening status, turn off the power supply of the outdoor unit within 2 minutes after CN30 short-circuiting.

2. Be sure to perform vacuuming from the following three check joints.
   (Liquid pipe, discharge pipe, and suction pipe)
14. LEAKAGE/CLOGGING OF OIL-EQUALIZATION CIRCUIT

Check code list for leakage, clogging of outdoor refrigerant circuit and oil circuit parts

<Trouble with clogging>

<table>
<thead>
<tr>
<th>Part name</th>
<th>Position with trouble</th>
<th>Unit issuing check code</th>
<th>Check code to be detected</th>
<th>Phenomena (Corresponding unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor PMV</td>
<td>A</td>
<td>Corresponding unit</td>
<td>High-pressure protective operation</td>
<td>P20 H06 P03 P17 High-pressure up Low-pressure down Discharge temp. up</td>
</tr>
<tr>
<td>Check valve of main discharge pipe collective section</td>
<td>B</td>
<td>Corresponding unit</td>
<td>High-pressure protective operation</td>
<td>P20 P04-XX Abnormal high-pressure up</td>
</tr>
<tr>
<td>Check valve of discharge pipe</td>
<td>C</td>
<td>Corresponding unit</td>
<td>High-pressure SW system error</td>
<td>P04-XX Abnormal high-pressure up</td>
</tr>
<tr>
<td>Check valve of oil-equalization circuit Capillary Strainer</td>
<td>D</td>
<td>Corresponding unit</td>
<td>Oil level detective circuit error</td>
<td>H16-XX H07 Oil-equalization circuit error or oil-shortage judgment</td>
</tr>
<tr>
<td>SV3A valve</td>
<td>E</td>
<td>Other connected unit</td>
<td>Oil level down error</td>
<td>H07 Excessive oil amount</td>
</tr>
<tr>
<td>SV3B valve</td>
<td>F</td>
<td>Corresponding unit</td>
<td>Oil level down error</td>
<td>H07 Shortage of oil amount</td>
</tr>
<tr>
<td>SV3C valve</td>
<td>G</td>
<td>Other connected unit</td>
<td>Oil level down error</td>
<td>H07 Excessive oil amount</td>
</tr>
<tr>
<td>SV3D valve SV3D valve circuit capillary Strainer</td>
<td>H</td>
<td>Corresponding unit</td>
<td>Oil level down error</td>
<td>H07 Shortage of oil amount</td>
</tr>
<tr>
<td>SV3E valve</td>
<td>I</td>
<td>Corresponding unit</td>
<td>Oil level detective circuit error</td>
<td>H16-04 H07 Oil-equalization circuit error Judgment of shortage Shortage of oil amount</td>
</tr>
<tr>
<td>Oil return capillary</td>
<td>J</td>
<td>Corresponding unit</td>
<td>Oil level down error</td>
<td>H07 Shortage of oil amount</td>
</tr>
<tr>
<td>SV3C bypass capillary</td>
<td>K</td>
<td>Corresponding unit</td>
<td>Oil level detective circuit error</td>
<td>H16-03 Oil-equalization circuit error</td>
</tr>
</tbody>
</table>

<Trouble with leakage>

<table>
<thead>
<tr>
<th>Part name</th>
<th>Position with trouble</th>
<th>Unit issuing check code</th>
<th>Check code to be detected</th>
<th>Phenomena (Corresponding unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor PMV</td>
<td>A</td>
<td>Corresponding unit</td>
<td>Outdoor liquid back error</td>
<td>P13 H07 Refrigerant stagnation Oil level down error</td>
</tr>
<tr>
<td>Check valve of main discharge pipe collective section</td>
<td>B</td>
<td>Corresponding unit</td>
<td>Compressor breakdown</td>
<td>H07 H01-XX H02-XX Refrigerant stagnation Compressor error (Lock)</td>
</tr>
<tr>
<td>Check valve of discharge pipe</td>
<td>C</td>
<td>Corresponding unit</td>
<td>Compressor breakdown</td>
<td>H07 H01-XX H02-XX Refrigerant stagnation Compressor error (Lock)</td>
</tr>
<tr>
<td>Check valve of oil-equalization circuit</td>
<td>D</td>
<td>Corresponding unit</td>
<td>Oil level down error</td>
<td>H07 Excessive oil amount (Leaked side) Shortage of oil amount (Normal side)</td>
</tr>
<tr>
<td>SV3A valve</td>
<td>E</td>
<td>Corresponding unit</td>
<td>Oil level down error</td>
<td>H07 Shortage of oil amount</td>
</tr>
<tr>
<td>SV3C valve</td>
<td>G</td>
<td>Corresponding unit</td>
<td>Oil level down error</td>
<td>H07 Judgment of oil shortage</td>
</tr>
</tbody>
</table>

NOTE) XX: Error on sub-code
15. REPLACING COMPRESSOR

15-1. Compressor Replacing Procedure (Outline)

START

Is the outdoor unit a single system?

NO
Open PMV of the troubled unit manually. (Short CN30 on I/F P.C. board, and turn off the power supply.), and recover refrigerant by refrigerant recovery device. (NOTE)

YES
Using refrigerant recovery method at replacing of compressor, recover the refrigerant.

Turn off power of the troubled outdoor unit.

Take off the troubled compressor.

Measure oil amount of the troubled compressor.

Check oil color of the troubled compressor. ASTM: Is 4 or more?

Judge the oil status based on the oil color, and then decide to exchange the troubled compressor only or both compressors.

NO
Exchange the troubled compressor only.

YES
Replace both troubled compressor and normal compressor.

Measure oil amount of the normal compressor.

Adjust oil amount based upon the measured oil amount.

Install two compressors.

Check leakage of the troubled outdoor unit.

Vacuuming for the troubled outdoor unit.

Charge the refrigerant.

END

WARNING

Never recover the refrigerant into outdoor unit.

Be sure to use a refrigerant recovery device for refrigerant recovery in reinstallation or repair work. Recovery into outdoor unit is unavailable; otherwise a serious accident such as rupture or injury will be caused.

NOTE) Full opening operation of PMV by CN30 short-circuiting returns full closing when 2 minutes passed. To continue full-opening status, turn off power of the outdoor unit within 2 minutes.

* This flowchart is the standard one of compressor replacing. Various cases are considered at each field
Replace the compressors based on the following conditions of judgment.
1. Oil of 1900cc is charged in a compressor for service.
2. Oil amount is 3800cc in an outdoor unit at shipment.
3. When a compressor is removed, it usually includes oil with 800 to 1400cc.
   Oil separator usually holds oil with 0 to 1000cc.
15-2. Replacing Compressor

Concept of exchange
When exchanging the compressor, extract oil from the defective compressor and decide to exchange the defective compressor or two compressors based upon the limit sample. (If oil color ASTM is 4.0 or more, both compressors should be replaced.)

⚠️ CAUTION ⚠️
A compressor weighs 20kg or more. The two personnel should work for a compressor.

<Removal of defective compressor>
- Turn off power of the troubled outdoor unit.
- Take off the front panel. (M5 × 7)
- Take off cover of the electric parts box. (M4 × 2)
- Take off the screws (M5 × 2) fixing the electric parts box to the outdoor unit.
- Take off claw for temporary hooking from the lower part of the electric parts box.
  (NOTE) Pay attention that the electric parts box may fall out due to the center of gravity.
- Take off the hooks from the upper part of the electric parts box and move it to the valve side.
  (NOTE) If installed status of the moved electric parts box is unstable, it may fall down. When the electric parts box is unstable, take off all the cables inside of the electric parts box, and then remove the entire electric parts box completely.
- Remove the lower duct. (M4 × 4)
- Take off the sound-insulation mat.
- Remove the crank case heater.
- Take off the terminal cover of the compressor, the wiring to the compressor, and the case thermostat unit.
  (NOTE) Be sure to apply insulate to the removed cable terminals with insulating tape, etc. To exchange the compressor, remove cables of the compressor only.
- Remove the discharge pipe, suction pipe, and oil-equation pipe.
- Take off the hexagonal bolts fixing the compressor.
  (One side of hexagon: 13mm × 2 pcs. a compressor)
  (NOTE) Only two hexagonal bolts are provided to a compressor, but it is not lack.
- Remove the compressor.

<Measurement of oil amount in the defective compressor>
- Put the troubled compressor on a scale and measure oil amount.
  Oil amount of the troubled compressor:
  \[ A \text{ [cc]} = (\text{Removed compressor mass (kg)} - 23.5) \times 1042 \]
  (Specific gravity of oil: 1042 [cc/kg])
  (NOTE)
  - When the compressor holds no oil, the compressor mass is 23.5kg.

⚠️ WARNING ⚠️
Be careful that oil in the pipe may emit fire when broiling the welded point with a burner.
<Color check for oil of the defective compressor>

• Lay down the troubled compressor, extract a little amount of oil from the oil-equalization pipe, and then check the oil color based on the oil color sample.
• Determine No. of compressor to be replaced by checking oil color.
  • ASTM: Below 4 → Replace the troubled compressor only.
  • ASTM: Above 4 → Replace the troubled compressor and the normal compressor.

[In case of replacing of troubled compressor only]

<Adjustment of oil amount in the service compressor> (Oil amount 1900cc at shipment)

• Adjust oil amount from oil amount of defective compressor: A [cc] by following to the contents below.

1. In case of oil amount of the troubled compressor: A [cc] is \(0 \leq A < 1000\)
   1) Adjust oil amount in the service compressor to 1000cc.
   (Lay down the service compressor, and then extract oil by 900 [cc] from the oil-equalization pipe.)
   (NOTE)
   • Do not extract oil over 900 [cc] because a trouble may be caused on the compressor.
   • If oil amount of the troubled compressor is below 500cc, a trouble on the oil-equalization circuit, etc is considered. Check the compressor based upon “15-3. Check procedure search the cause of compressor oil shortage”.

2. In case of oil amount of the troubled compressor: A [cc] is \(1000 \leq A < 1900\)
   1) Adjust oil amount in the service compressor to A cc.
   (Lay down the service compressor and then extract oil by \((1900 - A)\) [cc] from the oil-equalization pipe.)
3. In case of oil amount of the troubled compressor: A [cc] is \(1900 \leq A\)
   1) Adjust oil amount in the service compressor to A cc.
   (Insert a hose into the discharge pipe or oil-equalization pipe of the service compressor, and then add oil by \((A - 1900)\) [cc] using a funnel or so on.)
[In case of replacing of both troubled and normal compressors]

<Removal of normal compressor>
- Remove the normal compressor same as the case to remove the troubled compressor.
  (NOTE)
  - Be sure to apply insulation to the removed cable terminals with insulating tape, etc.

[WARNING]
Be careful that oil in the pipe may emit fire when broiling the welded point with a burner.

<Measurement of oil amount in the normal compressor>
- As same as measurement of oil amount in the troubled compressor, put the compressor on a scale and measure oil amount.
  Oil amount of the normal compressor: \( B \ [\text{cc}] = (\text{Removed compressor mass (kg)} - 23.5) \times 1042 \)  
  (Specific gravity of oil: 1042 [cc/kg])
  (NOTE)
  - When the compressor holds no oil, the compressor mass is 23.5kg.

<Adjustment of oil amount in the service compressor>
- Adjust oil amount by the contents below:
  Based on oil amount of troubled compressor: \( A \ [\text{cc}] \) and oil amount of normal compressor: \( B \ [\text{cc}] \)

1. In case of the total oil amount of the compressors: \( A + B \ [\text{cc}] \) is \( 0 \leq A + B < 2000 \)
   1) Adjust oil amount in the two service compressors to 1000cc each. (Total: 2000cc)
      - Lay down the two service compressors, and then extract oil by 900 [cc] from each oil-equalization pipe.
      (NOTE)
      - Do not extract oil over 900 [cc] because a trouble may be caused on the compressor.
      - If oil amount of the troubled compressor is below 500cc, a trouble on the oil-equalization circuit, etc is considered. Check the compressor based upon "15-3. Check procedure search the cause of compressor oil shortage".

2. In case of total oil amount: \( A + B \ [\text{cc}] \) is \( 2000 \leq A + B < 3800 \)
   1) Adjust oil amount in the two service compressors to \( \frac{A + B}{2} \ [\text{cc}] \) each.
      - Lay down the two service compressors and then extract oil by \( \frac{3800 - (A + B)}{2} \ [\text{cc}] \) from each oil-equalization pipe.

3. In case of total oil amount of the compressors: \( A + B \ [\text{cc}] \) is \( 3800 \leq A \)
   1) Adjust oil amount in the two service compressors to \( \frac{A + B}{2} \ [\text{cc}] \) each.
      (Insert a hose into the discharge pipe or oil-equalization pipe of the service compressor, and then add oil by \( \left( \frac{A + B}{2} - 1900 \right) \ [\text{cc}] \) using a funnel or so on.)
<Installation of compressor>
• Install the compressor in the reverse procedure of removal.
• When removing the compressor, Fasten receptacle terminals of the compressor may be loosened. Prior to the installation, caulk a little to them with radio pinchers, reinsert them into the compressor, and then check there is no looseness.
  (NOTES)
• Only two hexagonal bolts are provided to a compressor, but it is not lacking.
• The tightening torque of the hexagonal bolt to fix the compressor is 200kg/cm.
• If oil has been extracted from the accumulator, braze the cutoff pipe after pinching.

<Vacuuming>
(In case of single outdoor system>
• Connect vacuum pump to the valve charge ports of the liquid and gas pipes and the check joint at high-pressure side, and then drive the vacuum pump.
• Vacuum until the vacuum low-pressure gauge indicates 1 (mmHg).
  (NOTE)
• Before vacuuming, open PMV fully. Vacuuming may not be executed for the heat exchanger of the outdoor unit under condition of PMV closed.
(In case of multiple outdoor units system)
• In case of conducting the refrigerant recovery at replacing the compressor, perform vacuuming as 13-3. Process after repair.

<Full opening of PMV>
• Turn on power of the outdoor unit.
• Short CN30 on I/F P.C. board of the outdoor unit.
• Turn off power of the outdoor unit within 2 minutes after short-circuiting.

<Refrigerant charging>
• Add the same amount of refrigerant as the remaining refrigerant refrigerant from the charge port of the service valve at liquid side.
15-3. Check Procedure to Search the Cause of Compressor Oil Shortage

Are balance pipes of all the outdoor units in the same refrigerant circuit opened fully?

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPEN valve of the balance pipe fully.</td>
<td></td>
</tr>
</tbody>
</table>

Is there no coming-off, miscabling, or incorrect installation on sensors of the unit of which compressor has been replaced?

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct miscabling or incorrect installation at sensor installation: TK1: CN514/TK2: CN515 TK3: CN516/TK4: CN523</td>
<td>Sensor error → Exchange</td>
</tr>
</tbody>
</table>

Is TK1, TK2, TK3 or TK4 sensor characteristics of the unit of which compressor has been replaced correct?

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check oil-equalization circuit in the following procedure under condition that the compressor is removed.</td>
<td></td>
</tr>
</tbody>
</table>

Check items and procedure for the oil-equalization circuit under condition that the compressor is removed

<table>
<thead>
<tr>
<th>Check items</th>
<th>Position</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor PMV leakage</td>
<td>A B</td>
<td>1) Press nitrogen gas in from check joint of liquid pipe, and check pressure at check joint of discharge pipe. If pressure of check joint of discharge pipe becomes high, leakages from outdoor PMV and check valve of main discharge pipe are considered. Exchange the parts.</td>
</tr>
<tr>
<td>Check valve leakage of main discharge pipe</td>
<td></td>
<td>2) If the pressure up is not found, open outdoor PMV fully and recheck pressure. If pressure of check joint of discharge pipe becomes high, leakage from check valve of main discharge pipe is considered. Exchange the parts.</td>
</tr>
<tr>
<td>Check valve leakage of discharge pipe</td>
<td>C</td>
<td>3) When gas leaks from welded part of oil-equalization pipe where compressor has been removed under condition that nitrogen gas is pressed in from check joint of main discharge pipe, leakage from check valve of main discharge pipe is considered. Exchange the parts.</td>
</tr>
<tr>
<td>Check valve leakage of oil-equalization circuit</td>
<td>D</td>
<td>4) When gas leaks from welded part of oil-equalization pipe where compressor has been removed under condition that nitrogen gas is pressed in from check joint of discharge pipe, leakage from check valve of oil-equalization circuit is considered. Exchange the parts.</td>
</tr>
<tr>
<td>SV3A valve leakage</td>
<td>E F</td>
<td>5) Open SV3B valve manually under condition that nitrogen gas is pressed in from check joint of discharge pipe. When gas leaks from welded part of suction pipe when compressor has been removed, SV3A valve leakage is considered. Exchange the parts. Next, open SV3A valve and SV3B valve manually. If gas leaks from welded part of suction pipe where compressor has been removed, SV3A valve leakage is considered. Exchange the parts.</td>
</tr>
<tr>
<td>SV3B valve clogging</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SV3E valve clogging, Clogging of oil-return capillary</td>
<td>G H</td>
<td>6) Open SV3E valve manually under condition that nitrogen gas is pressed in from check joint of discharge pipe. When gas does not output from welded part of suction pipe where compressor has been removed, there is clogging at SV3E valve or oil-return capillary. Exchange the parts.</td>
</tr>
<tr>
<td>SV3D valve capillary clogging, Clogging of oil-return capillary</td>
<td>I H</td>
<td>7) Open SV3D valve manually under condition that nitrogen gas is pressed in from check joint of discharge pipe. When gas does not output from welded part of suction pipe where compressor has been removed, there is clogging at SV3D valve or oil-return capillary. Exchange the parts.</td>
</tr>
</tbody>
</table>
## 16. REPLACING METHOD OF PARTS

<table>
<thead>
<tr>
<th>No.</th>
<th>Part to be exchanged</th>
<th>Work procedure</th>
<th>Remarks</th>
</tr>
</thead>
</table>

### 1. Cabinet

**REQUIREMENT**

Put on gloves during working; otherwise an injury may be caused by parts, etc.

**<Disassembling>**

1) Stop operation of the air conditioner, and then turn off the switch of the breaker.

2) Take off screws of the discharge cabinet. (M5 × 10, 4 pcs.)

3) Take off screws (Front/rear at lower side) of the cabinet. (M5 × 10, 7 pcs. each)

4) Take off screws of the service panel. (M5 × 10, 3 pcs.)

5) Take off screws (Front/rear sides) of the suction cabinet. (M5 × 10, 4 pcs. each) (M4 × 10, 2 pcs. each)

6) Take off screws (Right/left sides) of the side panel. (M5 × 10, 4 pcs. each)

**<Reassembly>**

Reassemble the cabinet in the reverse procedure (6 → 1) of the above “Disassembling”. However be sure to the following points when assembling the discharge cabinet.

**• Cautions when assembling the discharge cabinet**

Fit the claws ∗ (6 positions) inside of the discharge cabinet surely. (If the claws come off, a vibrating noise may generate.)

### 2. Propeller fan motor

**REQUIREMENT**

Put on gloves during working; otherwise an injury may be caused by parts, etc.

**<Disassembling>**

1) Stop operation of the air conditioner, and then turn off the switch of the breaker.

2) Take off screws of the discharge cabinet. (M5 × 16, 4 pcs.)
<table>
<thead>
<tr>
<th>No.</th>
<th>Part to be exchanged</th>
<th>Work procedure</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Propeller fan motor</td>
<td>3) Take off flange nut fixing the fan motor and propeller fan. (To tighten the nut, turn it clockwise.)&lt;br&gt;4) Take off the square washer. &lt;br&gt;5) Take off the propeller fan. <strong>NOTE</strong> Pull it straight upward.&lt;br&gt;   If it is pulled forcibly, it cannot be taken off. &lt;br&gt;6) Remove the connectors (2 positions) from IPDU P.C. board of the inverter fan, and then pull out the fan motor lead upward. &lt;br&gt;7) Take off the fixing screws (4 pcs.) of the fan motor.</td>
<td><img src="image1.png" alt="3) Flange nut" /> <img src="image2.png" alt="4) Square washer" /> <img src="image3.png" alt="6) Screws (4 positions)" /> <img src="image4.png" alt="7) Screws (4 positions)" /> <img src="image5.png" alt="Route of fan motor lead" /> <img src="image6.png" alt="Detailed photo of connector" /> <img src="image7.png" alt="Signal line" /> <img src="image8.png" alt="Power line" /></td>
</tr>
</tbody>
</table>

**Cautions when exchange/reassembling the fan motor**

1) Matching D-cut surface of the fan motor shaft with ▲ mark of the fan, insert the propeller fan. (If tightening D-cut surface as it is out of place, the propeller fan melts due to friction heat resulted in falling-off.)

2) Be sure to attach the square washer. (Abnormal sound or abnormal vibration may generate.)

3) Tighten the flange nut with 15N•m (153kg•cm).

4) Insert hooking claws of the discharge cabinet securely into the claw holes of the cabinet. (Refer to photo in the previous page; 3 positions each at front and rear sides, total 6 positions)
<table>
<thead>
<tr>
<th>No.</th>
<th>Part to be exchanged</th>
<th>Work procedure</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Heat exchanger</td>
<td><strong>REQUIREMENT</strong>&lt;br&gt;Put on gloves during working; otherwise an injury may be caused by parts, etc.</td>
<td><img src="draw.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

Before work, be sure to recover the refrigerant into a cylinder or the other linked unit so that there is no refrigerant in the outdoor unit.

- **Disassembling (Example):**
  **Heat exchanger (Right)**

1) Remove the cabinet.
2) Remove the motor base. (M5 × 10, 4 pcs.)
3) Remove the motor base bracket.<br>(M5 × 10, 5 pcs.)
4) Take off screws of the heat exchanger fixing board. (M5 × 10, 6 pcs.)
5) Take off screws of the support.<br>(M5 × 10, 3 pcs. × 2)
6) Take off screws of waterproof board.<br>(M4 × 10, 3 pcs.)
7) Remove brazing section of the connected pipe (4 positions).
8) Take off screws of the support at rear side, and then pull out the heat exchanger.<br>(M5 × 10, 2 pcs.)

Draw out it backward.<br>(Draw out forward in case of left side of the heat exchanger.)
<table>
<thead>
<tr>
<th>No.</th>
<th>Part to be exchanged</th>
<th>Work procedure</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>HeInverter assembly</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Removal of box</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REQUIREMENT**

Put on gloves during working; otherwise an injury may be caused by parts, etc.

1) Stop operation of the air conditioner, and then turn off switch of the breaker.

2) Take off the inverter cover.  
   (M4 × 10, 2 pcs.)

3) Take off screws fixing the box.  
   (1 pc. each at upper and lower sides.)

4) Push down lightly the fixing claw at lower side to take off the claw.  
   (Lower part of the box is out forward.)

5) Take off hooking claw at upper side while holding the ceiling board with both hands.

---

**<Reassembly and cautions>**

1) Hook the upper claw.

2) Push in the lower part.  
   Be sure to check there is no pinching of cable at the corners of the rear side.

3) Tighten the fixing screws at upper and lower sides.  
   (1 pc. each at upper/lower part)

---

2) When pushing in the lower part, be sure to check there is no thinness of cable.
<table>
<thead>
<tr>
<th>№</th>
<th>Part to be exchanged</th>
<th>Work procedure</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Inverter assembly</td>
<td>• Removal of P.C. board and electric parts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Noise filter P.C. board</td>
<td>1) Stop operation, and then turn off switch of the breaker.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Interface P.C. board</td>
<td>2) Take off cables, and then remove the P.C. board from the card edge spacer at the corner.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;Exchange of service P.C. board&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>For the interface P.C. board, it is necessary to set up jumper line, etc for each model.</td>
<td>Refer to “Exchange procedure of interface P.C. board”.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. IPDU P.C. board</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;Exchange of service P.C. board&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>For the IPDU P.C. board, it is necessary to set up jumper line, etc for each model.</td>
<td>Refer to “Exchange procedure of IPDU P.C. board”.</td>
</tr>
<tr>
<td></td>
<td>4. IPDU P.C. board for fan</td>
<td>1) Stop operation, and then turn off switch of the breaker.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Take off cables.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) Take off the heat sink (Radiator plate) fixing screws.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>* (M4 × 16, 2 pcs.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4) Remove P.C. board from the card edge spacer at the corners.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Heat sink fixing screw, compressor lead cables (U, V, W), etc. M4 screw tightening torque (1.47±0.1N•m)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;Exchange of service P.C. board&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>For the IPDU P.C. board, it is necessary to set up jumper line, etc for each model.</td>
<td>Refer to “Exchange procedure of IPDU P.C. board”.</td>
</tr>
<tr>
<td>№</td>
<td>Part to be exchanged</td>
<td>Work procedure</td>
<td>Remarks</td>
</tr>
<tr>
<td>----</td>
<td>---------------------</td>
<td>----------------</td>
<td>---------</td>
</tr>
<tr>
<td>5</td>
<td>Inverter assembly</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Removal of P.C.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>board and electric</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>parts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Reactor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Transformer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Electrolytic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>condenser</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REQUIREMENT**

Put on gloves during working; otherwise an injury may be caused by parts, etc.

1) Stop operation, and then turn off switch of the breaker.

2) Take off screws (3 positions) of the terminal block installation board.

3) Take off the fixing screws of each part, and then remove the cables.*

* 7. Cautions when removing the electrolytic condenser

1) As the natural discharge by the electrolytic condenser may be unavailable and voltage may remain in some cases due to trouble conditions, be sure to perform discharge of the condenser.

2) Using resistance for discharge (100Ω/40W or equivalent) or (plug of) the soldering iron, make continuity and discharge between (+) and (−) poles. (This electrolytic condenser has a large capacity. Therefore it is dangerous to make discharge by shortening between (+) and (−) poles because big sparks generate.)

**Remarks**

Reactor, transformer, and electrolytic condenser are stored at the rear side of the terminal block.
<table>
<thead>
<tr>
<th>No.</th>
<th>Part to be exchanged</th>
<th>Work procedure</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Pressure sensor positions of 2-way valve coil</td>
<td><img src="image1" alt="Diagram" /></td>
<td>&lt;Front side of air conditioner&gt;</td>
</tr>
<tr>
<td>7</td>
<td>Temperature sensor positions and identification</td>
<td><img src="image2" alt="Diagram" /></td>
<td></td>
</tr>
<tr>
<td>№</td>
<td>Part to be exchanged</td>
<td>Work procedure</td>
<td>Remarks</td>
</tr>
<tr>
<td>----</td>
<td>---------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>7</td>
<td>Temperature sensor positions and identification</td>
<td>&lt;Rear side of air conditioner&gt;</td>
<td><img src="image1.png" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>TK sensor (White)</strong></td>
<td><img src="image2.png" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>TK1 sensor (Black)</strong></td>
<td><img src="image3.png" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>TK2 sensor (Blue)</strong></td>
<td><img src="image4.png" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>TK4 sensor (Green)</strong></td>
<td><img src="image5.png" alt="Diagram" /></td>
</tr>
<tr>
<td>8</td>
<td>Attachment/detachment of pipe fixing rubber</td>
<td>In this air conditioner, (segmentation system) eyeglass rubber and SUS fix band are adopted for fixing the vibration system as one measures to improve the reliability.</td>
<td><img src="image6.png" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Used positions of SUS fixing band: Total 5 positions</strong></td>
<td><img src="image7.png" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MAP1201H, 1001H, 0801H: Ø8.0 ↔ Ø25.4</td>
<td><img src="image8.png" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MAP0601H, 0501H: Ø8.0 ↔ Ø19.05 between SE3E valve and suction pipe</td>
<td><img src="image9.png" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ø8.0 ↔ Ø19.05 between SV42 valve and suction pipe</td>
<td><img src="image10.png" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ø8.0 ↔ Ø19.05 between SV41 valve and suction pipe</td>
<td><img src="image11.png" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ø6.35 ↔ Ø15.88 between SV3C valve and discharge pipe</td>
<td><img src="image12.png" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ø6.35 ↔ Ø15.88 between SV2 valve and discharge pipe</td>
<td><img src="image13.png" alt="Diagram" /></td>
</tr>
<tr>
<td>No.</td>
<td>Part to be exchanged</td>
<td>Work procedure</td>
<td>Remarks</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 8   | Attachment/detachment of pipe fixing rubber              | **REQUIREMENT**

Put on gloves during working; otherwise an injury may be caused by parts, etc.

**<Disassembling>**

1) Hold the both ends (longitudinal direction) of the rubber lightly, and then make a margin between SUS band and fixing rubber.

2) Pushing in the claw side of SUS band with fingers, the claw comes off from the square hole.

**<Assembly>**

1) The fixing rubber is a segmentation system due to freedom degree of combination. Therefore, for assembly, it is recommended to fit both pipes including the fixing rubber after passing the rubber through the pipes separately. In this time, check both slit direct the same direction.

2) Align the claw side of SUS band to slit side of the rubber for assembly. (Assembly in reverse direction is also available, but the work performance decreases.)

3) Attach the band so that a clearance does not generate between SUS band and fixing rubber. Especially pay attention not to generate a clearance at part of the hair pin side of the band.

4) Fit the root of claw to the rubber lightly, push R part at square hole side toward the arrow mark, and then hook the claw to the square hole.
   (If it is not hooked, recheck 3) there is no clearance between band and rubber.)

**Align direction of the slits, and then attach to each pipe.**

1) Matching the claws, slide them.

2) Align the claw to slit side of the rubber.

3) Push the band against rubber without clearance.

4) Slide it.

5) Push claw side against the rubber.

6) Compress rubber and make margin.

Push in the band toward arrow mark.
<table>
<thead>
<tr>
<th>No.</th>
<th>Part to be exchanged</th>
<th>Work procedure</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Exchange of accumulator</td>
<td>REQUIREMENT Put on gloves during working; otherwise an injury may be caused by parts, etc.</td>
<td></td>
</tr>
</tbody>
</table>

Before work, be sure to recover the refrigerant into a cylinder or the other linked unit so that there is no refrigerant in the outdoor unit.

1) Remove the lower cabinet (rear side).

2) Take off fixing screws (M6 × 3 pcs.) for accumulator leg ⇔ base board.

3) Remove the accumulator fixing board * ⇔ fixing screws of accumulator (M6 × 2 pcs.)
   * The accumulator fixing board is fixed to the middle partition board.
   (Take off the screws only which fix to the accumulator unit.)

4) Remove the pipe (brazing part) connected to SV2 valve.

5) Remove the discharge cabinet, fan, and motor base.

6) Take off the accumulator cover ⇔ fixing screws (M5 × 4 pcs.) of the middle partition board, and then pull out it upward.

7) Using a pipe cutter, cut off entrance/exit pipe of accumulator at the specified position. (For the cut-off position, refer to the Manual attached to the repair parts.)

8) Pull out the accumulator upward.

---

![Diagram](image_url)
17. P.C. BOARD EXCHANGE PROCEDURES

17-1. Indoor Unit

17-1-1. Exchange of P.C. Board for Indoor Service

<table>
<thead>
<tr>
<th>Part code</th>
<th>Model type</th>
<th>P.C. board model</th>
<th>Label display on P.C. board</th>
</tr>
</thead>
<tbody>
<tr>
<td>431-6V-207</td>
<td>MMU-AP ** 1WH series MMU-AP ** 1H series MMU-AP ** 1YH series MMU-AP ** 1SH series MML-AP ** 1H series MML-AP ** 1BH series MMF-AP ** 1H series</td>
<td>MCC-1403</td>
<td>03RD M01</td>
</tr>
<tr>
<td>431-6V-210</td>
<td>MMU-AP ** 1BH series</td>
<td>MCC-1402</td>
<td>03DD M02</td>
</tr>
<tr>
<td>431-6V-225</td>
<td>MMU-AP ** 1H series MMC-AP ** 1H series MMK-AP ** 1H series</td>
<td>MCC-1402</td>
<td>03DD M03</td>
</tr>
</tbody>
</table>

Requirement at exchange of P.C. board assembly for indoor service

Before exchange, in the fixed memory (hereinafter EEPROM, IC10) installed on the indoor P.C. board, the type exclusive to the model and the capacity code are stored at shipment from the factory. The important setup data such as line/indoor/group address which are set up (Auto/Manual) or high ceiling exchange setup at installation time, respectively.

Proceed with exchange of P.C. board assembly for indoor service in the following procedure.

After exchange work, check again the setup for indoor unit No. or group header/follower units to confirm whether the setup contents are correct or not, and then check also the refrigerant circuit system by a test operation, etc.

<Exchange procedure>

**Method 1**

Before exchange, it is possible to turn on power of the indoor unit and read out the setup contents from the wired remote controller.

Readout of EEPROM data: **Procedure 1**

Exchange of P.C. board for service & power ON: **Procedure 2**

Writing-in of the readout EEPROM data: **Procedure 3**

Power supply reset (All the indoor units connected to the remote controller in case of group operation control)
**Method 2**

Before exchange, it is impossible to read out the setup contents due to EEPROM error.

Exchange of P.C. board for service & power ON: Procedure 2

↓

Writing-in of the setup data such as the model name, capacity code, indoor unit address high ceiling setup, connection setup of option, etc to EEPROM based upon customer's information: Procedure 3

↓

Power supply reset (All the indoor units connected to the remote controller in case of group operation control)

---

**Procedure 1 : Readout setup contents from EEPROM**

(Content of EEPROM with setup changed at local site include setup at shipment from the factory are read out.)

1. Push [SET] + [CL] + [+] buttons simultaneously for 4 seconds or more. **1**
   - *In a group operation control, the firstly displayed unit No. indicates the header indoor unit No.*
   - In this case, /G3 is displayed in the item code (DN). The fan of the selected indoor unit operates, and also starts swinging in a model with flap.

2. Every pushing [UNIT], the indoor unit Nos. in the group control are displayed successively. **2**
   - Specify the indoor unit No. to be exchanged.
   - *The fan of the selected indoor unit operates, and also starts swinging in a model with flap.*

3. Using temperature setup [▲] / [▼] buttons, the item code (DN) can be moved up/down one by one. **3**
   - *First change the item code (DN) from /G3 to /G1. (Setup of filter sign lighting time)*
   - In this time, make a note of contents of the displayed setup data.

4. In the next time, change the item code (DN) using [▲] / [▼] buttons.
   - Make a note of contents of the setup data as same as the above.

5. Then repeat item 5., and make a note of contents of the important setup data as indicated in the attached table (Example).
   - *The item code (DN) is consisted with /G1 to /R1. DN No. may jump on the way.*

6. When noting has finished, push [button to return to the normal stop status. **6**
   - (It requires approx. 1 minute to operate the remote controller.)

---

**Item code necessary at minimum**

<table>
<thead>
<tr>
<th>DN</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Type</td>
</tr>
<tr>
<td>11</td>
<td>Indoor unit capacity</td>
</tr>
<tr>
<td>12</td>
<td>Line address</td>
</tr>
<tr>
<td>13</td>
<td>Indoor address</td>
</tr>
<tr>
<td>14</td>
<td>Group address</td>
</tr>
</tbody>
</table>

*Type and capacity of the indoor unit are necessary to set up the revolution frequency of the fan.*

---

<Remote controller operation diagram>
Procedure 2 : Exchange of P.C. board for service

1. Exchange P.C. board with a P.C. board for service.
   In this time, the jumper line (cut) setup or the (short-circuit) connecting connector setup on the previous P.C. board should be reflected on P.C. board for service. (See the blow figures.)

2. It is necessary to set Indoor unit to be exchanged : Remote controller = 1 : 1
   Based upon the system configuration, turn on power of the indoor unit with one of the following items.
   1) Single (Individual) operation
      Turn on power of the indoor units and proceed to Procedure 3.
   2) Group operation
      A) In case that power of the exchanged indoor unit only can be turned on
         Turn on power of the exchanged indoor unit only and proceed to Procedure 3.
      B) In case that power of the indoor units cannot be turned on individually (Case 1)
         a) Remove temporarily the group wire connected to the terminal blocks A and B of the exchanged indoor unit.
         b) After connecting the remote controller wire only to the removed terminal block, turn on power of the indoor units and proceed to Procedure 3.
   * When the above methods cannot be used, follow to the two cases below.
   C) In case that power of the indoor units cannot be turned on individually (Case 2)
      a) Remove all CN41 connectors of the indoor units in the same group except those of the exchanged indoor unit.
      b) Turn on power of the indoor units and proceed to Procedure 3.
   * After Procedure 3 operation has finished, be sure to return the temporarily removed group wire or CN41 connector to the original connection.

(MCC-1402) (MCC-1403) CN41JP1
From the left
CN112,111,110
When short-circuited plug is mounted to P.C. board before change, re-mount the short-circuited plug as previously.

(Case 1)

Remove the group wire of the terminal blocks A and B of the changed indoor unit, and then install the remote controller only.

Remove CN41 connectors of the indoor units other than the units to be changed in the same group.
Procedure 3 : Writing-in of setup contents to EEPROM

(The EEPROM contents which are installed on the service P.C. board have been set up at shipment from the factory.)

1. Push \( \text{SET} + \text{CL} + \) buttons simultaneously for 4 seconds or more. \( \text{1} \)
   (\( \text{w} \) is displayed in the UNIT No box.)
   In this time, \( \text{w} \) is displayed in the item code (DN). The fan of the indoor unit operates, and also starts swinging in a model with flap.

2. Using temperature setup \( \uparrow / \downarrow \) buttons, the item code (DN) can be moved one step up 1 or down one by one. \( \text{3} \)

3. First set up the type and capacity code of the indoor unit.
   (The data at shipment from the factory is written in EEPROM by changing the type and capacity code.)
   1) Set \( \text{w} \) to the item code (DN). (As before)
   2) Using the timer time \( \uparrow / \downarrow \) buttons, set up the type. \( \text{4} \)
      (For example, 0001 indicates 4-way Air Discharge Cassette type.): Refer to the attached table.
   3) Push \( \text{SET} \) button. (OK if display goes on.) \( \text{5} \)
   4) Using temperature setup \( \uparrow / \downarrow \) buttons, set \( \text{w} \) to the item code (DN).
   5) Using the timer time \( \uparrow / \downarrow \) buttons, set up the capacity code.
      (For example, 0012 indicates 80 class.): Refer to the attached table.
   6) Push \( \text{SET} \) button. (OK if display goes on.)
   7) Push \( \text{CL} \) button to return to the normal stop status.

4. In the next, the contents such as address setup, which were set up at the local site after installation are written in EEPROM. Execute again the operation in the above item 1).

5. Using temperature setup \( \uparrow / \downarrow \) buttons, set \( \text{w} \) to the item code (DN).
   (Lighting time setup for filter sign)

6. Compare the contents of the setup data which is displayed in this time with contents noted in a memo in Procedure 1 and customer’s information.
   1) If data is incorrect, change it using the timer time \( \uparrow / \downarrow \) buttons so that it matches with contents noted in a memo, and then push \( \text{SET} \) button. (OK if display goes on.)
   2) Do nothing if data is same as those in the memo.

7. Using temperature setup \( \uparrow / \downarrow \) buttons, change the item code (DN).
   Check also the contents of the setup data and then change them it to those in the memo.

8. Then repeat operations in items 6. and 7.

9. After setup operation, push \( \text{CL} \) button to return to the normal stop status. \( \text{6} \)
   In a group operation, turn off the power supply once, return the group wires between indoor units and CN41 connectors as before, and then turn on power of all the indoor units.
   (It requires approx. 1 minute to operate the remote controller.)
   \* The item code (DN) is consisted with \( \text{w} \) to \( \text{w} \). DN No. may jump on the way.
   Even if pushing \( \text{SET} \) button after changing the data incorrectly, the data can be returned to one before change by pushing \( \text{CL} \) button before changing the item code (DN).

<EEPROM layout>

EEPROM (IC10) is attached to IC socket. To remove it, use a pair of tweezers, etc. To attach EEPROM, arrange the direction as shown in the following figures.

\* In exchanging time, pay attention not to bend the lead wire of IC.
<Make a note of the setup contents. (Item code list (Example))>

<table>
<thead>
<tr>
<th>Item</th>
<th>Memo</th>
<th>Setup at shipment from factory</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 Filter sign lighting time</td>
<td>According to type</td>
<td></td>
</tr>
<tr>
<td>02 Dirty condition of filter</td>
<td>0000: Standard</td>
<td></td>
</tr>
<tr>
<td>03 Central control address</td>
<td>0099: Undefined</td>
<td></td>
</tr>
<tr>
<td>06 Heating inlet temp. shift</td>
<td>0002: +2°C (Floor standing: 0)</td>
<td></td>
</tr>
<tr>
<td>0d Cooling Auto mode existence</td>
<td>0001: No auto mode cooling/heating</td>
<td>(Automatic selection by connected outdoor unit)</td>
</tr>
<tr>
<td>0F Cooling only/Heat pump select</td>
<td>0000: Heat pump</td>
<td></td>
</tr>
<tr>
<td>10 Type</td>
<td>According to model type</td>
<td></td>
</tr>
<tr>
<td>11 Indoor unit capacity</td>
<td>According to capacity code</td>
<td></td>
</tr>
<tr>
<td>12 Line address</td>
<td>0099: Undefined</td>
<td></td>
</tr>
<tr>
<td>13 Indoor unit address</td>
<td>0099: Undefined</td>
<td></td>
</tr>
<tr>
<td>14 Group address</td>
<td>0099: Undefined</td>
<td></td>
</tr>
<tr>
<td>19 Flap type (Air direction adjustment)</td>
<td>According to type</td>
<td></td>
</tr>
<tr>
<td>1E Temp. width between cooling and heating</td>
<td>0003: 3 deg (Ts ± 1.5)</td>
<td></td>
</tr>
<tr>
<td>28 Automatic restart from power failure</td>
<td>0000: None</td>
<td></td>
</tr>
<tr>
<td>2A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2E HA terminal (T10) selection</td>
<td>0000: Normal</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32 Sensor select</td>
<td>0000: Body sensor</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5d High ceiling selection</td>
<td>0000: Standard</td>
<td></td>
</tr>
<tr>
<td>60 Timer setup (Wired remote controller)</td>
<td>0000: Possible</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Item code [10]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setup data</td>
<td>Type</td>
</tr>
<tr>
<td>0000</td>
<td>1-way Air Discharge Cassette</td>
</tr>
<tr>
<td>0001</td>
<td>4-way Air Discharge Cassette</td>
</tr>
<tr>
<td>0002</td>
<td>2-way Air Discharge Cassette</td>
</tr>
<tr>
<td>0003</td>
<td>1-way Air Discharge Cassette (Compact type)</td>
</tr>
<tr>
<td>0004</td>
<td>Concealed Duct Standard</td>
</tr>
<tr>
<td>0005</td>
<td>—</td>
</tr>
<tr>
<td>0006</td>
<td>Concealed Duct High Static Pressure</td>
</tr>
<tr>
<td>0007</td>
<td>Under Ceiling</td>
</tr>
<tr>
<td>0008</td>
<td>High Wall</td>
</tr>
<tr>
<td>0009</td>
<td>—</td>
</tr>
<tr>
<td>0010</td>
<td>Floor Standing Cabinet</td>
</tr>
<tr>
<td>0011</td>
<td>Floor Standing Concealed</td>
</tr>
<tr>
<td>0012</td>
<td>Floor Standing (Below 6HP)</td>
</tr>
<tr>
<td>0013</td>
<td>—</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indoor unit capacity</th>
<th>Item code [11]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setup data</td>
<td>Model</td>
</tr>
<tr>
<td>0000</td>
<td>Invalid</td>
</tr>
<tr>
<td>0001</td>
<td>0071 type</td>
</tr>
<tr>
<td>0002</td>
<td>—</td>
</tr>
<tr>
<td>0003</td>
<td>0091 type</td>
</tr>
<tr>
<td>0004</td>
<td>—</td>
</tr>
<tr>
<td>0005</td>
<td>0121 type</td>
</tr>
<tr>
<td>0006</td>
<td>—</td>
</tr>
<tr>
<td>0007</td>
<td>0151 type</td>
</tr>
<tr>
<td>0008</td>
<td>—</td>
</tr>
<tr>
<td>0009</td>
<td>0181 type</td>
</tr>
<tr>
<td>0010</td>
<td>—</td>
</tr>
<tr>
<td>0011</td>
<td>0241 type</td>
</tr>
<tr>
<td>0012</td>
<td>—</td>
</tr>
<tr>
<td>0013</td>
<td>—</td>
</tr>
<tr>
<td>0014</td>
<td>0271 type</td>
</tr>
<tr>
<td>0015</td>
<td>0301 type</td>
</tr>
</tbody>
</table>

* The initial setup value of EEPROM installed on the service P.C. board
17-2. Outdoor Unit

17-2-1. Cautions in Service for Compressor

1. When checking the inverter output, remove the both wires of the compressor as follows.

17-2-2. How to Check Inverter Output

1. Turn off the power supply.
2. Remove the compressor lead from the compressor. (Be sure to remove lead wires of both compressors.)
3. Turn on the power supply and drive the air conditioner in cool or heat mode. In this case, be careful so that a fasten terminal of the compressor lead does not come to contact with other fasten terminal or you don’t touch other parts (Set cabinet).
4. Check the output voltage of the compressor lead at the inverter side.
   If the result is not accepted by the following criteria, replace IPDU P.C. board.

<table>
<thead>
<tr>
<th>No.</th>
<th>Measuring position</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Between Red and White</td>
<td>360V to 520V</td>
</tr>
<tr>
<td>2</td>
<td>Between White and Black</td>
<td>360V to 520V</td>
</tr>
<tr>
<td>3</td>
<td>Between Black and Red</td>
<td>360V to 520V</td>
</tr>
</tbody>
</table>

* After check of output, sufficiently check there is no distortion on the fasten terminals when reconnecting the compressor lead to the compressor terminals. If any distortion is found, caulk the fasten terminal with pliers, etc. and then connect it.

<How to check resistance or compressor winding>

1. Turn off the power supply.
2. Remove the compressor lead from the compressor.
3. Using a tester, check the winding resistance between each phases of each compressor and resistance of the outdoor cabinet.
   - Is not grounded?
     → It is normal if there are 10MΩ or more.
   - Is not short-circuited between windings?
     → It is normal if there are 0.1Ω to 0.3Ω. (Use a precise digital tester.)

17-2-3. How to Check Outdoor Fan Motor

1. Turn off the power supply.
2. Remove three fasten terminals (U, V, W) of the fan motor from IPDU P.C. board for the outdoor fan.
3. Turn the fan with hands. If it is not turned, a fan motor error (Lock) is considered. Replace the fan motor with a new one. When it is turned, measure the winding resistance between each phases of the fasten terminal (motor winding) with a tester. It is normal if the winding resistance between phases are 13 to 33Ω.
   (Use a precise digital tester.)

<table>
<thead>
<tr>
<th>Part name</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor fan motor</td>
<td>Measure resistance of each winding with a tester.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Position</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red-White</td>
<td>13~33Ω</td>
</tr>
<tr>
<td>Black-Red</td>
<td>13~33Ω</td>
</tr>
<tr>
<td>White-Black</td>
<td>13~33Ω</td>
</tr>
</tbody>
</table>

(Normal temp.)
17-2-4. How to Check Fan Power Supply P.C. Board and Fan IPDU

The fan power supply P.C. board supplies DC power. It supplies DC280V for the fan IPDU, and DC12V and DC7V for the control power supply respectively. If the control power is not supplied, a communication error (Error code [E31]) is out.

1. How to check fan power supply P.C. board (MCC-1439)
   As shown in the following table, measure the voltage of the check positions with a digital tester.

<table>
<thead>
<tr>
<th>No.</th>
<th>Check item</th>
<th>Check position</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DC280V output</td>
<td>Between CN500 ① and ③</td>
<td>DC260 to DC340V</td>
</tr>
<tr>
<td>2</td>
<td>Control power voltage</td>
<td>Between CN500 ① and ⑤</td>
<td>DC12V</td>
</tr>
<tr>
<td>3</td>
<td>Control power voltage</td>
<td>Between CN500 ② and ⑤</td>
<td>DC7V</td>
</tr>
</tbody>
</table>

2. How to check fan IPDU
   1. Check that the lead wires are correctly inserted into 250 fasten terminal of DC280V input and into the communication connector (CN01).
   2. After then replace the fan IPDU if an abnormality is recognized.
17-2-5. Interface Board Replacement Procedure Manual

This service board is commonly installed in different models before shipment. If the board assembly is to be replaced, check the displayed inspection contents and replace the board properly in accordance with the model, following this procedure manual.

<Replacement steps>

1. Turn off the power supply of the outdoor control unit (Turn off the power supply of the outdoor unit).
2. Remove all of the connector and fasten and screw terminals connected to the interface board (Remove the connector and fasten terminals by holding them).
3. Remove the interface board from the six card edge spacers.
4. Disconnect the jumper wires of the service board, as instructed in the table below. The jumper setting differs from the one before replacement. If the model is not specified, inspection code “L10” is displayed and the equipment will not operate.

<table>
<thead>
<tr>
<th>No.</th>
<th>Model name</th>
<th>J09</th>
<th>J10</th>
<th>J11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MMY-MAP0501H8-INV</td>
<td>Disconnect</td>
<td>Leave intact</td>
<td>Disconnect</td>
</tr>
<tr>
<td></td>
<td>MMY-MAP0501H7-INV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>MMY-MAP0601H8-INV</td>
<td>Leave intact</td>
<td>Leave intact</td>
<td>Disconnect</td>
</tr>
<tr>
<td></td>
<td>MMY-MAP0601H7-INV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>MMY-MAP0801H8-INV</td>
<td>Disconnect</td>
<td>Disconnect</td>
<td>Leave intact</td>
</tr>
<tr>
<td></td>
<td>MMY-MAP0801H7-INV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>MMY-MAP1001H8-INV</td>
<td>Leave intact</td>
<td>Disconnect</td>
<td>Leave intact</td>
</tr>
<tr>
<td></td>
<td>MMY-MAP1001H7-INV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>MMY-MAP1201H8-INV</td>
<td>Disconnect</td>
<td>Leave intact</td>
<td>Leave intact</td>
</tr>
<tr>
<td></td>
<td>MMY-MAP1201H7-INV</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Set dip switch settings of the service board to the switch settings before replacement.

<table>
<thead>
<tr>
<th>Dip Switch</th>
<th>Setting contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW07</td>
<td>Demand setting</td>
</tr>
<tr>
<td>SW10</td>
<td>Outdoor fan high static pressure setting, etc.</td>
</tr>
<tr>
<td>SW11</td>
<td>Cooling/Heating priority setting, etc.</td>
</tr>
<tr>
<td>SW13</td>
<td>System address setting</td>
</tr>
<tr>
<td>SW14</td>
<td>Termination resistance setting</td>
</tr>
<tr>
<td>SW30</td>
<td>Terminating resistance setting</td>
</tr>
</tbody>
</table>

6. After setting the jumper wires of the service board, install the service board in the outdoor control unit (Confirm that it is securely fixed to the card edge spacers.)
7. Connect the connector and fasten terminals (Confirm that they are correctly and securely inserted).
8. If a component part on the board is bent during board replacement, adjust it manually not to contact other parts.
9. Install the cover then turn on the power supply. Check the operation.

This service board is commonly installed in different models before shipment. If the board assembly is to be replaced, replace it properly in accordance with the model, following this procedure manual.

<Replacement steps>

1. Turn off the power supply of the outdoor control unit (Turn off the power supply of the outdoor unit).
2. Confirm that the charged voltage of the condenser has been fully discharged. (Confirm that the voltage between CN13 and CN15 is 0V).
3. Remove all of the connector and fasten and screw terminals connected to the A3-IPDU board (Remove the connector and fasten terminals by holding them).
4. Remove 2 screws that fix the IGBT (Q200) of the Comp-IPDU board to the heat sink.
5. Remove the Comp-IPDU board from the four card edge spacers.
6. Set the dip Switch (SW801) of the Comp-IPDU board, as instructed in the table below.
   If the model is not specified, inspection “L29” is displayed and the equipment will not operate.

<table>
<thead>
<tr>
<th>Comp-IPDU No.</th>
<th>SW801</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bit 1</td>
</tr>
<tr>
<td>JAt shipment</td>
<td>ON</td>
</tr>
<tr>
<td>No.1</td>
<td>ON</td>
</tr>
<tr>
<td>No.2</td>
<td>ON</td>
</tr>
</tbody>
</table>

7. After setting the dip Switch of the service board, apply silicone grease evenly onto the IGBT and install it in the outdoor control unit (Confirm that it is securely fixed to the card edge spacers).
8. Fix the IGBT of the Comp-IPDU board to the heat sink with two screws.
9. serted).
10. If a component part on the board is bent during board replacement, adjust it manually not to contact other parts.
11. Install the cover then turn on the power supply. Check the operation.
17-2-7. Notice for Wiring

Wiring for service shall be done according to the wiring diagram. Special caution is needed for reactor, which has different connecting points on COMP-IPDU1 and COMP-IPDU2.

The electrolytic capacitors in this panel are charged to 660 volts D.C.

Before servicing, turn off the power supply and allow the capacitor to discharge for at least 10 minutes. (Purpose: Discharge the capacitor)

Discharge to a safe level 10 volts D.C. or LESS. Test with a D.C. Voltmeter as shown.

COMP-IPDU No. 1 and COMP-IPDU No.2 have the same electric potential, but both voltages shall be measured.

Never discharge the capacitor terminals with any metal implement. Personal injury or equipment damage may result.
<Inverter Assembly Configuration>

- Fan IPDU
- Power supply P.C. board for fan
- Noise filter
- Over-current relay
- BUS terminal block
- Magnet SW
- IPDU1
- IPDU2
- Interface P.C. board
- Power supply terminal block