This Service Manual describes contents of the new High Wall indoor unit. For the outdoor unit, refer to the Manual with FILE NO. A03-009.

The service parts will be supplied by TCTC.
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# 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, and keep them.

## WARNING

<table>
<thead>
<tr>
<th>![Warning Icon]</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Prohibition Icon]</td>
<td>Do not modify the products. Do not also disassemble or modify the parts. It may cause a fire, electric shock or injury.</td>
</tr>
<tr>
<td>![Use Icon]</td>
<td>For spare parts, use those specified (*). If unspecified parts are used, a fire or electric shock may be caused. *: For details, refer to the parts list.</td>
</tr>
<tr>
<td>![Insulating Icon]</td>
<td>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. Please inform the users so that the third party (a child, etc.) does not approach the equipment.</td>
</tr>
<tr>
<td>![No Fire Icon]</td>
<td>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.</td>
</tr>
</tbody>
</table>

## SAFETY CAUTION

- **Check earth wires.**
- **Prohibition of modification.**
- **Use specified parts.**
- **Do not bring a child close to the equipment.**
- **Insulating measures**
- **No fire**

| ![Refrigerant Icon] | 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 gas 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. |
### WARNING

| ![Warning Icon] | 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 Icon] | After the work has finished, be sure to use an insulation tester set (500V mugger) to check the resistance is 2MW 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. |
| ![Warning Icon] | 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. |
| ![Warning Icon] | 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. |
| ![Warning Icon] | 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. |
| ![Warning Icon] | 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. |
| ![Warning Icon] | 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. |
| ![Warning Icon] | 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

| ![Caution Icon] | 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 |
| ![Caution Icon] | 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.)

<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.

1. Recover the refrigerant and check there is no refrigerant in the equipment.
2. Connect the charge hose to the packed valve service ports at gas side, liquid side, and balance side of the outdoor unit.
3. Connect the charge hose to vacuum pump adaptor.
4. Open the packed valves of the balance pipe fully at liquid and gas sides, and then return the valve at gas side a little to the closed side.
5. Open fully PMV of the outdoor unit.
   - Turn on power of the outdoor unit.
   - Turn off power of the outdoor unit within 2 minutes after short-circuiting.
6. Open fully the handle Low of the gauge manifold, and then turn on the power of vacuum pump for vacuuming.
7. When the pressure has lowered until indication of the compound gauge pointed -0.1MPa (-76cmHg), open fully the handle Low and turn off the power of vacuum pump.

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.

4mm-hexagonal wrench is required.

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. CONSTRUCTION VIEWS (EXTERNAL VIEWS)

Model: MMK-AP0072H, AP0092H, AP0122H

Note: All dimensions are in mm.

*(For attached Flow Selector unit of heat recovery model)*
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

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

---

**Wiring Diagram**

- **Fan**
- **Pulse motor**
- **Valve**
- **Louver motor**
- **Heat exchanger**
- **Infrared rays receive and indication parts** (MCC-861)
- **Flow selector Unit** (Sold separately)
- **Power supply**
- **Control P.C.board for indoor unit** (MCC-1510)
- **Option Fan Drive PNL/EMG**
- **Heat exchanger sensor (TC1)**
- **Heat exchanger sensor (TC2)**
- **Thermo sensor (TA)**
- **HBS**
- **Flow Remote controller** (Sold Separately)

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

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**Diagram Details**
- **Control P.C.board for indoor unit** (MCC-1510)
- **Flow selector Unit** (Sold separately)
- **Heat exchanger**
- **Infrared rays receive and indication parts** (MCC-861)
- **Flow Remote controller** (Sold Separately)
3. PARTS RATING

3-1. Parts Rating

<table>
<thead>
<tr>
<th>No.</th>
<th>Parts Name</th>
<th>Type</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fan motor (for indoor)</td>
<td>ICF-340-30</td>
<td>Output (Rated) 30W, 280-340V DC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MF-340-30</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Grille motor</td>
<td>MP24Z</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Thermo. Sensor (TA sensor)</td>
<td>318mm</td>
<td>10kΩ at 25°C</td>
</tr>
<tr>
<td>4</td>
<td>Heat exchanger sensor (TC1 sensor)</td>
<td>Ø4, 600mm</td>
<td>10kΩ at 25°C</td>
</tr>
<tr>
<td>5</td>
<td>Heat exchanger sensor (TC2 sensor)</td>
<td>Ø6, 800mm</td>
<td>10kΩ at 25°C</td>
</tr>
<tr>
<td>6</td>
<td>Heat exchanger sensor (TCJ sensor)</td>
<td>Ø6, 800mm</td>
<td>10kΩ at 25°C</td>
</tr>
</tbody>
</table>

3-2. Name of Each Part

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

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

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

Air outlet/Air outlet flap
Change the direction of the air to be discharged according to cool/heat mode.
3-3. 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.

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] \(\Rightarrow\) [OFF] repeat OFF timer \(\Rightarrow\) [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) [ ]

15 Stand by display
    Displayed when unit cannot start cooling operation because other indoor units are being heating operation.
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 Select a unit No.
Automatic swing or adjust flap angle

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 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.
3-4. 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 temperature difference between set temp. and room temp.
- 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.
3-5. Automatic Operation (Super Heat Recovery Type Only)

When you set the air conditioner in 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 super 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.
3-6. 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 \( \odot \odot \) display flashes.

2. Push \( \odot \odot \) to select “SET TIME”.
   For every push of \( \uparrow \) 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 \( \downarrow \) 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 \( \odot \odot \odot \) 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 \( \odot \odot \odot \) button and stops the operation after the time of the timer has reached the set time.
3-7. 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.

3-8. 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.
3-9. Information

**Confirmation before operation**
- Turn on the power switch 12 hours before starting the operation.
- Make sure whether earth wire is connected.
- Make sure 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.
3-10. 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.

Setup of air direction and swinging

1 Push during operation.
   • The flap moves up and down automatically.
     When a remote controller operates the multiple indoor units, an indoor unit is selected and the air direction can be individually set up.

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

3 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:

[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.

<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.

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.
3-11. 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>Operation</th>
<th>Outdoor Temperature</th>
<th>Room Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling</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>Dry</td>
<td>15°C to 43°C (Max. suction air temp. 46°C)</td>
<td>17°C to 32°C</td>
</tr>
<tr>
<td>Heating</td>
<td>-15°C to 15°C (Wet valve temp.)</td>
<td>15°C to 28°C (Dry valve temp.)</td>
</tr>
</tbody>
</table>

**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.

If air conditioner is used outside of the above conditions, safety protection may work.
3-12. 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.

Cleaning of air filter

- When [FILTER] is displayed on the remote controller, maintain the air filter.
- Clogging of air filter decreases cooling/heating effect.

![FILTER display](image)

**FILTER display**

 Notifies the time to clean the air filter.

**FILTER reset**

Push the FILTER switch after cleaning. “FILTER” display disappears.

**WARNING**

Be sure to turn off the main power switch prior to the maintenance.
- Please do not intend to do the daily maintenance and/or Air Filter cleaning by yourself.
  - Cleaning of the air filter and other parts of the air filter involves dangerous work in high places, so be sure to have a service person do it. Do not attempt it yourself.

**<Daily maintenance>**

- Open the air inlet grille.
  - Lift the air inlet grille up to the horizontal position.
- Take hold of the left and right handles of the air filter and lift it up slightly, then pull downward to take it out from the filter holder.

![Filter holder](image)

**NOTE**

- For cleaning of air filter, use a cleaner or brush clean. If stain is heavy, it is effective to wash the air filter in tepid water mixed with neutral detergent.
- After washing, rinse it well, and dry it in the shade.
- Install again the air filter which has been cleaned.
Return the air filter

- Insert the upper portion of air filter confirming to fit it is right and left edges on the indoor unit until it is firmly set.
- Close the air inlet grille.

If the FILTER lamp on the indoor unit is indicated, press the FILTER button on the remote controller or the TEMPORARY button on the indoor unit to turn off the lamp.

Cleaning the air inlet grille

1. Remove the air inlet grille.
   - Hold the two sides of the air inlet grille and open upwards.
   - Move the center arm to the left and remove the grille.
2. Wash it with water using a soft sponge or towel.
   - (Do not use metallic scrubbing brush or other hard brushes.)
   - Use of such hard objects will cause scratches on the surface of the grille, and the metal coating to peel off.
   - If very dirty, clean the air inlet grille with a neutral detergent for kitchen use, and rinse it off with water.
3. Wipe out water from the air inlet grille and dry it.
4. Fit the left and right arms of the air inlet grille to the shafts on the two sides of the air conditioner and push in completely, and then push in the center arm.
5. Check that the center arm has been completely inserted and close the air inlet grille.
   - Push the arrow locations (Four) at the bottom of the air inlet grille to check whether the grill is completely closed.

Cleaning of main unit / remote controller

- Wipe them with soft and dry cloth.
- A cloth dampened with cold water may be used on the indoor unit if it is very dirty.
- Never use a damp cloth on the main unit and remote controller.
- Do not use a chemically-treated duster for wiping or leave such materials on the unit for long. It may damage or fade the surface of the unit.
- Do not use benzine, thinner, polishing powder, or similar solvents for cleaning. These may cause the plastic surface to crack or deform.
### 3-13. 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 “Pishi!” 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 stopped, 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 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, “Kyururu” 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. |
| **Sound or cool air is output from the stand by indoor unit.** |  |
| **When power of the air conditioner is turned on, “Ticktock” sound is heard.** |  |
| **Operates or stops automatically.** | Is the timer “ON” or “OFF”? |
| **Does not operate.** | 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.) |
| **Air is not cooled or warmed sufficiently.** | 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.) |

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. REFRIGERANTING CYCLE DIAGRAM

![Diagram of refrigerant cycle](image)

<table>
<thead>
<tr>
<th>Functional part name</th>
<th>Functional outline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulse Motor Valve PMV</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>Temp. sensor 1. TA</td>
<td>(Connector CN104 (2P): White)</td>
</tr>
<tr>
<td></td>
<td>1) Detects indoor suction temperature</td>
</tr>
<tr>
<td>2. TC1</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. TC2</td>
<td>(Connector CN101 (2P): Blue)</td>
</tr>
<tr>
<td></td>
<td>1) Controls PMV under cool in heating operation</td>
</tr>
<tr>
<td>4. TCJ</td>
<td>(Connector CN102 (2P): Yellow)</td>
</tr>
<tr>
<td></td>
<td>1) Controls PMV super heat in cooling operation</td>
</tr>
</tbody>
</table>
## 5. CONTROL OUTLINE

### 5-1. Indoor Unit Control Specifications

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Outline of specifications</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| 1   | Power supply is reset | (1) Distinction of outdoor unit: When the power supply is reset, the outdoor units are distinguished, and control is exchanged according to the distinctive results.  
(2) Check code clear: 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. | • Judgment of outdoor unit  
• Exchange of cooling-only unit  
• Exchange of standard model with the flex model |
| 2   | Operation select      | (1) Based upon the operation select command from the remote controller or central controller, the operation mode is selected.  
|     |                       | **Remote controller command** | **Control outline**                                                                 |
|     |                       | STOP                          | Stops air conditioner.                                                                   |
|     |                       | FAN                           | Fan operation                                                                            |
|     |                       | COOL                          | Cooling operation                                                                        |
|     |                       | DRY                           | Dry operation                                                                            |
|     |                       | HEAT                          | Heating operation                                                                        |
|     |                       | AUTO                          | Cooling or HEAT operation mode is automatically selected by Ta and Ts and the unit starts operation. |
|     |                       | (2) Operation command permission mode  
|     |                       | Neither AUTO mode of the standard model nor HEAT mode of Cooling-only model can be selected. When a wireless remote control is used, the mode is notified by the receiving sound Pi, Pi (Twice) and alternative flashing of “)” and “@”. To release the alternative flashing, change the mode on the wireless remote controller. |
| 3   | Room temp. control    | (1) Adjustment range: Set temperature on remote controller (°C)  
|     |                       | **In cooling/drying** | **In heating**                                                                             |
|     |                       | Wired type                   | 18 to 29°C                                                                              | 18 to 29°C                                                                                 |
|     |                       | Wireless type                | 17 to 30°C                                                                              | 17 to 30°C                                                                                 |
|     |                       | (2) From the item code 06, the setup temperature in heating operation can be corrected.  
|     |                       | **Setup data**               |                                                                                          |
|     |                       | Setup temp. correction       | +0°C                                       | +2°C                                         | +4°C                                        | +6°C                                        |
|     |                       | Heating suction temperature shift |                                                                                          |
| 4   | Automatic capacity control | (1) Based upon difference between Ta and Ts, the operation frequency of the outdoor unit varies.  
|     |                       | Ta: Room temperature  
Ts: Setup temperature                                                                 |                                                                                           |
| 5   | Air volume control    | (1) By the command from the remote controller, “HIGH (HH)”, “MED (H)”, or “LOW (L)” “AUTO” operation is executed.  
For the wireless remote controller type, “HH”, “H+”, “H”, “L+”, “L”, or “AUTO” operation is executed.  
(2) While air speed is in AUTO mode, the air speed is changed according to the difference between Ta and Ts. | HH > H+ > H > L+ > L > LL                                                                 |
<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Outline of specifications</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| 6   | Prevention of cold air discharge | (1) In heating operation, the upper limit of the fan tap is set by one with higher temperature of TC2 sensor and TCJ sensor.  
- When B zone has continued for 6 minutes, the operation shifts to C zone.  
- In defrost time, the control point is set to +6°C. | In D and E zones, priority is given to remote controller air speed setup.  
In A and B zones, “” is displayed. |

![Temperature Zones Diagram](image)

**Remarks**

- In D and E zones, priority is given to remote controller air speed setup.
- In A and B zones, “” is displayed.

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Outline of specifications</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| 7   | Freeze prevention control (Low temp. release) | (1) In cooling operation, the air conditioner operates as described below based upon temp. detected by TC1, TC2 and TCJ sensors.  
To prevent the heat exchanger from freezing, the operation stops.  
- When “J” zone is detected for 5 minutes, the forced thermo is OFF.  
- In “K” zone, the timer count is interrupted, and held.  
- When “J” zone is detected, the timer is cleared and the operation returns to the normal operation.  
- When the forced thermo-OFF became S0 with continuance of “J” zone, operation of the indoor fan in LOW (L) mode until it reaches the “J” zone.  
It is reset when the following conditions are satisfied.  
**Reset conditions**  
1) TC1 ≥ 12°C and TC2 ≥ 12°C and TCJ ≥ 12°C  
2) 20 minutes passed after stop. | |

![Temperature Zones Diagram](image)

**Reset conditions**

1) TC1 ≥ 12°C and TC2 ≥ 12°C and TCJ ≥ 12°C  
2) 20 minutes passed after stop.

<table>
<thead>
<tr>
<th>(°C)</th>
<th>P1</th>
<th>TC1</th>
<th>TC2, TCJ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P1</td>
<td>10°C (5°C)</td>
<td>10°C</td>
</tr>
<tr>
<td></td>
<td>Q1</td>
<td>0°C</td>
<td>-14°C</td>
</tr>
</tbody>
</table>

(2) In cooling operation, the air conditioner operates as described below based upon temp. detected by TC2 and TCJ sensors.  
- When “M” zone is detected for 45 minutes, the forced thermo is OFF.  
- In “N” zone, the timer count is interrupted and held.  
- When shifting to “M” zone again, the timer count restarts and continues.  
- If “L” zone is detected, the timer is cleared and the operation returns to normal operation.  
**Reset conditions**  
1) TC1 ≥ 12°C and TC2 ≥ 12°C and TCJ ≥ 12°C  
2) 20 minutes passed after stop.

![Temperature Zones Diagram](image)

**Reset conditions**

1) TC1 ≥ 12°C and TC2 ≥ 12°C and TCJ ≥ 12°C  
2) 20 minutes passed after stop.

<table>
<thead>
<tr>
<th>(°C)</th>
<th>P2</th>
<th>TC2, TCJ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P2</td>
<td>5°C</td>
</tr>
<tr>
<td></td>
<td>Q2</td>
<td>-2.0°C</td>
</tr>
<tr>
<td>No.</td>
<td>Item</td>
<td>Outline of specifications</td>
</tr>
<tr>
<td>-----</td>
<td>------</td>
<td>---------------------------</td>
</tr>
</tbody>
</table>
| 8   | Recovery control for cooling refrigerant and oil | (1) 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 signal of refrigerant recovery or oil recovery is received.  
(2) The indoor fan operates for approx. 1 minute during controlling the recovery or after recovery control has finished. | • Recovery operation is usually executed every 2 hours. |
| 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 signal of refrigerant recovery or oil recovery is received.  
(1) Opens PMV of the indoor unit by the specified opening degree.  
(2) Stops the fan. | • In the indoor unit which cooling 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, Cooling/Heating exchange and the system protective control precede and thermostat is OFF. | |
| 11  | 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. | |
| 12  | Flap control | (1) Flap position setup (Wired type)  
• The flap position can be set up in the following operation range.  

**In cooling/dry operation**  

**In heating/fan operation**  

• In group operation, the flap positions can be set up collectively or individually.  
(2) Swing setup  
• The swinging position can be moved in the following operation range.  

**All modes**  

• In group operation, the swinging positions can be set up collectively or individually.  
(3) Fix set up (Wireless type)  
Keep pressing or pressing briefly the FIX button to move the flap in the desired direction.  
Operating angle of flap will be different during cooling, dry and heating operation.  
(4) When the unit stops, the flap automatically closes.  
(5) While the heating operation is ready, the flap automatically moves upward. | |
| 13  | Filter sign display (None in wireless type)  
* Provided in the separately laid type TCB-AX21E. | (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. (150H)  
(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. | |
### Outline of specifications

#### <Operation standby> Display on wired type

1. “P05” is one of displays of power wire missing and when it’s 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 bit 1 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.

### 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

Display at RBC-AMT21E (wired remote controller) side
- While mode is the central control mode, “CENTRAL” lights on the display part of the remote controller.

Display at Wireless type side
- While the central control mode is set up, the contents possible to be operated are same though the display lamp does not change. An operation executed from the wireless remote controller in Central control mode is notified by the receiving sounds Pi, Pi, Pi, Pi, Pi (Five times).
<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Outline of specifications</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Hi POWER operation (Wireless remote control specific operations)</td>
<td>When you press the Hi POWER button during cooling, heating or A operation, the air conditioner will start the following operation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Cooling operation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Performs the cooling operation at 1°C lower than the setting temperature.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Only when the fan speed before the Hi POWER operation is not high, the fan speed will be increased.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Heating operation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Performs the heating operation at 2°C higher than the setting temperature.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Only when the fan speed before the Hi POWER operation is not high, the fan speed will be increased.</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>ECO timer operation (Wireless remote control specific operations)</td>
<td>When you press the ECO button during cooling, heating or A operation, the air conditioner will start the following operation. The fan speed display will indicate AUTO and low speed will be used.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Cooling operation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>In the operation suppression zone, where capacity is kept to the minimum, overcooling is prevented by raising the temperature setting by 1°C after 1 hour and by 2°C after 2 hours of operation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The room temperature is thus regulated between the operation suppression zone and the set temperature.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Heating operation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>In the operation suppression zone, where capacity is kept to the minimum, overheating is prevented by lowering the temperature setting by 1°C after 1 hour and by 2°C after 2 hours of operation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The room temperature is thus regulated between the set temperature and the operation suppression zone.</td>
<td></td>
</tr>
</tbody>
</table>

![Diagram of Operation Suppression Zone](image_url)
<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Outline of specifications</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>MEMORY operation</td>
<td>Start the air conditioner in the operation mode which you want the remote control to memorize.</td>
<td>(1) Press this button briefly to standby memorizing the setting.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>All the icons currently displayed except for the clock display and mark flashes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(2) Press and hold the MEMO button for more than 3 seconds while the display flashes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The mark is indicated and the setting is memorized.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• If you do not press the MEMO button within 3 seconds or if you press another button, the MEMORY setting is cancelled.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Operation modes which can be memorized with the MEMO button are MODE, Temperature, FAN, TIMER and Hi POWER.</td>
</tr>
<tr>
<td>19</td>
<td>PRESET operation</td>
<td>To operate the air conditioner with the setting memorized by the MEMO button.</td>
<td>(1) Press the PRESET button. The setting memorized with the MEMO button will be indicated and the air conditioner operates with regards to the setting.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• The lamp (green) on the display panel of the indoor unit goes on, and operation starts after approximately 3 minutes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Initial setting:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MODE : AUTO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Temperature : 22</td>
</tr>
</tbody>
</table>

FILE NO. SVM-05052
6. APPLIED CONTROL

6-1. Indoor Unit

6-1-1. Setup of Selecting Function in Indoor Unit
(Be sure to Execute Setup by a Wired Remote Controller)

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

1 Push SET, CL, and 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 button returns the status to normal stop status.
Table: Function selecting item numbers (DN)
(Items necessary to perform the applied control at the local site are described.)

<table>
<thead>
<tr>
<th>DN</th>
<th>Item Description</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</td>
</tr>
<tr>
<td>02</td>
<td>Dirty state of filter</td>
<td>0000 : Standard, 0001 : High degree of dirt (Half of standard time)</td>
<td>0000 : Standard</td>
</tr>
<tr>
<td>03</td>
<td>Central control address</td>
<td>0001 : No.1 unit to 0099 : Unfixed, 0064 : No.64 unit</td>
<td>0099 : Unfixed</td>
</tr>
<tr>
<td>04</td>
<td>Specific indoor unit priority</td>
<td>0000 : No priority, 0001 : Priority</td>
<td>0000 : No 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, 0001 : Not provided (Automatic selection from connected outdoor unit)</td>
<td>0001 : Not provided</td>
</tr>
<tr>
<td>0F</td>
<td>Cooling only</td>
<td>0000 : Heat pump, 0001 : Cooling only (No display of [AUTO] [HEAT])</td>
<td>0000 : Heat pump</td>
</tr>
<tr>
<td>10</td>
<td>Type</td>
<td>0000 : (1-way air discharge cassette), 0001 : (4-way air discharge cassette) to 0037, 0008 : High Wall</td>
<td>0008 : High Wall</td>
</tr>
<tr>
<td>11</td>
<td>Indoor unit capacity</td>
<td>0000 : Unfixed, 0001 : No.1 to 0034 unit</td>
<td>According to capacity type</td>
</tr>
<tr>
<td>12</td>
<td>Line address</td>
<td>0001 : No.1 unit to 0030 : No.30 unit</td>
<td>0099 : Unfixed</td>
</tr>
<tr>
<td>13</td>
<td>Indoor unit address</td>
<td>0001 : No.1 unit to 0064 : No.64 unit</td>
<td>0099 : Unfixed</td>
</tr>
<tr>
<td>14</td>
<td>Group address</td>
<td>0000 : Individual, 0002 : Follower unit of group, 0001 : Header unit of group</td>
<td>0099 : Unfixed</td>
</tr>
<tr>
<td>1E</td>
<td>Temp difference of automatic cooling/heating mode selection COOL → HEAT, HEAT → COOL</td>
<td>0000 : 0 deg, 0001 : +1°C, 0010 : +10°C (Data value/2)</td>
<td>0003 : 3 deg (Ts±1.5)</td>
</tr>
<tr>
<td>28</td>
<td>Automatic restart of power failure</td>
<td>0000 : None, 0001 : Reset</td>
<td>0000 : None</td>
</tr>
<tr>
<td>2A</td>
<td>Selection of option/error input (CN80)</td>
<td>0000 : Filter input, 0001 : Alarm input (Air washer, etc.), 0002 : Outside error input</td>
<td>0002 : Outside error input (Interlock)</td>
</tr>
<tr>
<td>2E</td>
<td>HA terminal (CN61) select</td>
<td>0000 : Usual, 0001 : Leaving-ON prevention control</td>
<td>0000 : Usual (HA terminal)</td>
</tr>
<tr>
<td>32</td>
<td>TA sensor selection</td>
<td>0000 : Body TA sensor, 0001 : Remote controller sensor</td>
<td>0000 : Body TA sensor</td>
</tr>
<tr>
<td>33</td>
<td>Temperature unit select</td>
<td>0000 : °C (at factory shipment), 0001 : °F</td>
<td>0000 : °C</td>
</tr>
<tr>
<td>60</td>
<td>Timer set (Wired remote controller)</td>
<td>0000 : Available (Operable), 0001 : Unavailable (Operation prohibited)</td>
<td>0000 : Available</td>
</tr>
<tr>
<td>69</td>
<td>Flap selection of cooling</td>
<td>0000 : Standard, 0001 : Permission of blowing downward</td>
<td>0000 : Standard</td>
</tr>
</tbody>
</table>
6-1-2. 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, error display
Contact capacity: Below Max. AC240V 0.5A
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 [SET] + [CL] + [ ] 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 [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 [▲] or [▼] button, specify the item code 31.

4 Using the timer time [▲] or [▼] button, select the setup data. (At shipment: 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 [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 [ ] returns the status to the usual stop status.

(2) Wiring

Corresponds up to a relay in which rated current of the operation coil is approx. 75mA

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 [SET] + [CL] + [ ] buttons for 4 seconds or more.
2 Using the setup temp [▲] or [▼] button, specify the item code /G32/G45.
3 Using the timer time [▲] or [▼] button, set /G30/G30/G30/G31 to the setup data.
4 Push [SET] button.
5 Push [ ] button. (The status returns to the usual stop status.)

(3) Wiring

Note) Determine the cable length between the indoor control P.C. board and the relay within 2m.

■ Power peak-cut from indoor unit
When the relay is turned on, a forced thermostat-OFF operation starts.
## Wall-Type P.C. Board Optional Switch/Connector Specifications

<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>Terminator resistor provided/Not provided</td>
<td>SW01</td>
<td>Bit 1</td>
<td>OFF: No terminator resistor. ON: Terminator resistor provided</td>
<td>Setup at shipment OFF: No terminator resistor. Only 1 unit is ON during central control by custom only.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bit 2</td>
<td>OFF: Remote controller A. ON: Remote controller B</td>
<td>Setup at shipment OFF: Remote controller A</td>
</tr>
<tr>
<td>Fan output</td>
<td>CN32</td>
<td>1</td>
<td>DC12V</td>
<td>Setup at shipment: Linked operation of ON with operation of indoor unit and OFF with stop</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Output</td>
<td>* The setup of single operation by FAN button on remote controller is executed from remote controller. (DN = 31)</td>
</tr>
<tr>
<td>HA</td>
<td>CN61</td>
<td>1</td>
<td>Start/Stop input</td>
<td>HA Start/Stop input (J01: Provided/Not provided = Pulse (At shipment from factory)/Static input switch)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>0V (COM)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Handy prohibition input</td>
<td>Operation stop of handy 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 (Answer back of HA)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>DC12V (COM)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>Alarm output</td>
<td>ON during output of alarm</td>
</tr>
<tr>
<td>Optional output</td>
<td>CN60</td>
<td>1</td>
<td>DC12V (COM)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Defrost output</td>
<td>ON during defrosting of outdoor unit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Thermo-ON output</td>
<td>ON when Real thermo. ON (Comp. ON)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>Cooling output</td>
<td>ON when operation mode is cooling line (Cool, Dry, Cooling/Heating AUTO cooling)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>Heating output</td>
<td>ON when operation mode is heating line (Heat, Cooling/Heating AUTO heating)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>Fan output</td>
<td>ON when indoor fan is ON</td>
</tr>
<tr>
<td>Outside error input</td>
<td>CN80</td>
<td>1</td>
<td>DC12V (COM)</td>
<td>At shipment from factory, the error code “L30” generates and optional error input to stop operation forcedly (DN:2A = 1) is controlled (Display of protection for devices attached to outside) by setup of outside error input (DN:2A = 2) for 1 minute.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>DC12V (COM)</td>
<td>* Optional error input control is set up on the remote controller.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Filter/Option/Outside error input</td>
<td></td>
</tr>
<tr>
<td>CHK</td>
<td>CN71</td>
<td>1</td>
<td>Check mode input</td>
<td>This check is used for operation check of indoor unit. (The specified operation such as indoor fan “H”, drain pump ON, etc. is executed without communication with outdoor unit or remote controller.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>0V</td>
<td></td>
</tr>
<tr>
<td>DISP</td>
<td>CN72</td>
<td>1</td>
<td>Display mode input</td>
<td>Display mode, communication is enabled by indoor unit and remote controller only. (When power supply is turned on.)</td>
</tr>
<tr>
<td>Display mode</td>
<td></td>
<td>2</td>
<td>0V</td>
<td></td>
</tr>
<tr>
<td>EXCT</td>
<td>CN73</td>
<td>1</td>
<td>Demand input</td>
<td>Indoor unit forced thermo-OFF operation</td>
</tr>
<tr>
<td>Demand</td>
<td></td>
<td>2</td>
<td>0V</td>
<td></td>
</tr>
</tbody>
</table>
7. TROUBLESHOOTING

7-1. 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.)

2. Troubleshooting procedure

When a trouble occurred, advance the check operation in the following procedure.

<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>

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.
7-2. 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.

7-2-1. 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 Al-NET central control remote controller: See “Al-NET central control display” in the list.
- However connection with Al-NET central control is disabled for the wall type (2 series).
- 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>04</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>01</td>
<td>Sending error of remote controller</td>
<td>Remote controller</td>
</tr>
<tr>
<td>E03</td>
<td>—</td>
<td>—</td>
<td>97</td>
<td>02</td>
<td>Communication error between indoor and remote controller (Detected at indoor side)</td>
<td>Indoor</td>
</tr>
<tr>
<td>E04</td>
<td>—</td>
<td>—</td>
<td>04</td>
<td>00</td>
<td>Communication circuit error between indoor and outdoor (Detected at indoor side)</td>
<td>Indoor</td>
</tr>
<tr>
<td>E05</td>
<td>E06</td>
<td>No of indoor units in which sensor has been normally received</td>
<td>04</td>
<td>01</td>
<td>Decrease of No. of indoor units</td>
<td>I/F</td>
</tr>
<tr>
<td>E06</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>02</td>
<td>Communication circuit error of indoor and outdoor (Detected at outdoor side)</td>
<td>I/F</td>
</tr>
<tr>
<td>E07</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>03</td>
<td>Duplicated indoor addresses</td>
<td>Indoor / I/F</td>
</tr>
<tr>
<td>E08</td>
<td>E08</td>
<td>Duplicated indoor addresses</td>
<td>96</td>
<td>00</td>
<td>Duplicated master remote controllers</td>
<td>Remote controller</td>
</tr>
<tr>
<td>E09</td>
<td>—</td>
<td>—</td>
<td>99</td>
<td>01</td>
<td>Automatic address start error</td>
<td>I/F</td>
</tr>
<tr>
<td>E10</td>
<td>E12</td>
<td>01: Indoor/Outdoor communication 02: Communication between outdoor units</td>
<td>42</td>
<td>02</td>
<td>No indoor automatic address</td>
<td>I/F</td>
</tr>
<tr>
<td>E11</td>
<td>E15</td>
<td>00: Capacity over 01: No. of connected units</td>
<td>89</td>
<td>03</td>
<td>No of connected indoor units / Capacity over</td>
<td>I/F</td>
</tr>
<tr>
<td>E12</td>
<td>E16</td>
<td>—</td>
<td>97, 99</td>
<td>04</td>
<td>Communication error between indoor header and follower units</td>
<td>Indoor</td>
</tr>
<tr>
<td>E13</td>
<td>E19</td>
<td>00: No header unit 02: Two or more header units</td>
<td>96</td>
<td>05</td>
<td>Outdoor header units quantity error</td>
<td>I/F</td>
</tr>
<tr>
<td>E14</td>
<td>E20</td>
<td>01: Outdoor of other line connected 02: Indoor of other line connected</td>
<td>42</td>
<td>06</td>
<td>Other line connected during automatic address</td>
<td>I/F</td>
</tr>
<tr>
<td>E15</td>
<td>E21</td>
<td>—</td>
<td>15</td>
<td>07</td>
<td>Sending error in communication between outdoor units</td>
<td>I/F</td>
</tr>
<tr>
<td>E16</td>
<td>E22</td>
<td>—</td>
<td>15</td>
<td>08</td>
<td>Duplicated follower outdoor addresses</td>
<td>I/F</td>
</tr>
<tr>
<td>E17</td>
<td>E23</td>
<td>—</td>
<td>15</td>
<td>09</td>
<td>Decrease of No. of connected outdoor units</td>
<td>I/F</td>
</tr>
<tr>
<td>E18</td>
<td>E24</td>
<td>—</td>
<td>15</td>
<td>10</td>
<td>Follower outdoor error</td>
<td>I/F</td>
</tr>
<tr>
<td>E19</td>
<td>E25</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>01</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></td>
<td>Sub code</td>
<td>Ready</td>
<td>Timer</td>
<td>Operator</td>
<td>Flash</td>
</tr>
<tr>
<td>F01</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>F02</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>F03</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>F04</td>
<td>F04</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>F05</td>
<td>F05</td>
<td>—</td>
<td>—</td>
<td>A1</td>
<td>—</td>
</tr>
<tr>
<td>F06</td>
<td>F06</td>
<td>—</td>
<td>—</td>
<td>18</td>
<td>—</td>
</tr>
<tr>
<td>F07</td>
<td>F07</td>
<td>—</td>
<td>—</td>
<td>18</td>
<td>—</td>
</tr>
<tr>
<td>F08</td>
<td>F08</td>
<td>—</td>
<td>—</td>
<td>1b</td>
<td>—</td>
</tr>
<tr>
<td>F10</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>OC</td>
<td>—</td>
</tr>
<tr>
<td>F12</td>
<td>F12</td>
<td>—</td>
<td>—</td>
<td>A2</td>
<td>—</td>
</tr>
<tr>
<td>F13</td>
<td>F13</td>
<td>01: Comp. 1 side 02: Comp. 2 side</td>
<td>43</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>F15</td>
<td>F15</td>
<td>—</td>
<td>—</td>
<td>18</td>
<td>—</td>
</tr>
<tr>
<td>F16</td>
<td>F16</td>
<td>—</td>
<td>—</td>
<td>43</td>
<td>—</td>
</tr>
<tr>
<td>F23</td>
<td>F23</td>
<td>—</td>
<td>—</td>
<td>43</td>
<td>—</td>
</tr>
<tr>
<td>F24</td>
<td>F24</td>
<td>—</td>
<td>—</td>
<td>43</td>
<td>—</td>
</tr>
<tr>
<td>F29</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>12</td>
<td>—</td>
</tr>
<tr>
<td>F31</td>
<td>F31</td>
<td>01: Comp. 1 side 02: Comp. 2 side</td>
<td>1C</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>H01</td>
<td>H01</td>
<td>01: Comp. 1 side 02: Comp. 2 side</td>
<td>1F</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>H02</td>
<td>H02</td>
<td>01: Comp. 1 side 02: Comp. 2 side</td>
<td>1d</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>H03</td>
<td>H03</td>
<td>01: Comp. 1 side 02: Comp. 2 side</td>
<td>17</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>H04</td>
<td>H04</td>
<td>—</td>
<td>—</td>
<td>44</td>
<td>—</td>
</tr>
<tr>
<td>H06</td>
<td>H06</td>
<td>—</td>
<td>—</td>
<td>20</td>
<td>—</td>
</tr>
<tr>
<td>H07</td>
<td>H07</td>
<td>—</td>
<td>—</td>
<td>d7</td>
<td>—</td>
</tr>
<tr>
<td>H08</td>
<td>H08</td>
<td>01: TK1 sensor error 02: TK2 sensor error 03: TK3 sensor error 04: TK4 sensor error</td>
<td>d4</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>H14</td>
<td>H14</td>
<td>—</td>
<td>—</td>
<td>44</td>
<td>—</td>
</tr>
<tr>
<td>H16</td>
<td>H16</td>
<td>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>●</td>
<td>●</td>
</tr>
<tr>
<td>L03</td>
<td>L03</td>
<td>—</td>
<td>—</td>
<td>96</td>
<td>—</td>
</tr>
<tr>
<td>L04</td>
<td>L04</td>
<td>—</td>
<td>—</td>
<td>96</td>
<td>—</td>
</tr>
<tr>
<td>L05</td>
<td>L05</td>
<td>—</td>
<td>—</td>
<td>96</td>
<td>—</td>
</tr>
<tr>
<td>L06</td>
<td>L06</td>
<td>No. of indoor units with priority</td>
<td>96</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>L07</td>
<td>L07</td>
<td>—</td>
<td>—</td>
<td>99</td>
<td>—</td>
</tr>
<tr>
<td>L08</td>
<td>L08</td>
<td>—</td>
<td>—</td>
<td>99</td>
<td>—</td>
</tr>
<tr>
<td>L09</td>
<td>L09</td>
<td>—</td>
<td>—</td>
<td>46</td>
<td>—</td>
</tr>
<tr>
<td>L10</td>
<td>L10</td>
<td>—</td>
<td>—</td>
<td>88</td>
<td>—</td>
</tr>
<tr>
<td>L20</td>
<td>L20</td>
<td>—</td>
<td>—</td>
<td>98</td>
<td>—</td>
</tr>
<tr>
<td>L28</td>
<td>L28</td>
<td>—</td>
<td>—</td>
<td>46</td>
<td>—</td>
</tr>
<tr>
<td>L29</td>
<td>L29</td>
<td>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>●</td>
<td>○</td>
</tr>
<tr>
<td>L30</td>
<td>L30</td>
<td>Detected indoor address</td>
<td>b6</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>L31</td>
<td>L31</td>
<td>—</td>
<td>—</td>
<td>—</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></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C05</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Sending error in TCC-LINK central control device</td>
</tr>
<tr>
<td>C06</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Receiving error in TCC-LINK central control device</td>
</tr>
<tr>
<td>C12</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Batch alarm of general-purpose equipment control interface</td>
</tr>
<tr>
<td>C30</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Group control follower unit error</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Duplicated central control addresses</td>
</tr>
</tbody>
</table>
7-2-2. 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>Used characters</th>
<th>AI-NET check code</th>
<th>TCC Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics of code classification</td>
<td>Hexadecimal notation, 2 digits</td>
<td>Alphabet + Decimal notation, 2 digits</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 >
- [A] goes on.
- [UNIT No.] + Check code + Operation lamp (Green) flash

< Display on sensor part in wireless remote controller >
- Block display of combination of [(D), (C), (B)]

< 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.

<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>

7-3. Troubleshooting by Check Display on Remote Controller

7-3-1. 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>
<tbody>
<tr>
<td>1</td>
<td>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.</td>
</tr>
<tr>
<td>2</td>
<td>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). <strong>CAUTION</strong> Do not push [CL] button because all the error histories of the indoor unit will be deleted.</td>
</tr>
<tr>
<td>3</td>
<td>After confirmation, push [ ] button to return to the usual display.</td>
</tr>
</tbody>
</table>
7-3-2. In Case of TCC-LINK Central Control Remote Controller (TCB-SC642TLE)

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 \( \text{SELECT} \) and \( \text{SET} \) buttons in succession for 4 seconds or more.
2) SERVICE CHECK \( \text{SELECT} \) 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 \( \text{UP} / \text{DOWN} \) to select Item code (01 to 04).
5) To confirm the alarm in the other group, push \( \text{ZONE} \) and \( \text{GROUP} \) to select the group number
   Do not push \( \text{CL} \) button because all the alarm histories of the currently selected group are deleted.
6) To finish the service check, push \( \text{SELECT} \) button.
### 7-4. Check Code and Check Position Displayed on the Remote Controller and Outdoor Unit (7-Segment Display of Interface)

<table>
<thead>
<tr>
<th>Main 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>Check code</td>
<td>Outdoor 7-segment display</td>
<td>AI-NET central control remote controller</td>
<td>Check code</td>
<td>Sub-code</td>
<td></td>
</tr>
<tr>
<td>E01</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Remote controller</td>
<td>Communication error between indoor and remote controller. (Detected at remote controller side)</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Corresponding unit only stops.</td>
</tr>
<tr>
<td>E02</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Remote controller</td>
<td>Remote controller sending error</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Corresponding unit only stops.</td>
</tr>
<tr>
<td>E03</td>
<td>—</td>
<td>—</td>
<td>97</td>
<td>Indoor unit</td>
<td>Communication error between indoor and remote controller (Detected at indoor side)</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Corresponding unit only stops.</td>
</tr>
<tr>
<td>E04</td>
<td>—</td>
<td>—</td>
<td>4</td>
<td>Indoor unit</td>
<td>Indoor/outdoor communication circuit error (Detected at indoor side)</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Corresponding unit only stops.</td>
</tr>
<tr>
<td>E06</td>
<td>E06</td>
<td>No. of indoor units which received signal normally</td>
<td>4</td>
<td>I/F</td>
<td>Decreased number of indoor units</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>I/F</td>
<td>All stop</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>I/F</td>
<td>All stop</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>I/F</td>
<td>All stop</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>I/F</td>
<td>All stop</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>I/F</td>
<td>All stop</td>
</tr>
<tr>
<td>E07</td>
<td>E07</td>
<td>—</td>
<td>—</td>
<td>I/F</td>
<td>Indoor/outdoor communication circuit error (Detected at outdoor side)</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>I/F</td>
<td>All stop</td>
</tr>
<tr>
<td>E08</td>
<td>E08</td>
<td>Duplicated indoor addresses</td>
<td>96</td>
<td>Indoor I/F</td>
<td>Duplicated indoor addresses</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>I/F</td>
<td>All stop</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>I/F</td>
<td>All stop</td>
</tr>
<tr>
<td>E09</td>
<td>—</td>
<td>—</td>
<td>99</td>
<td>Remote controller</td>
<td>Duplicated master remote controllers</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<td>—</td>
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<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Main remote controller</td>
<td>Outdoor 7-segment display</td>
<td>AI-NET central control remote controller</td>
<td>Check code</td>
<td>Sub-code</td>
<td>Detected position</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------</td>
<td>-----------------------------------------</td>
<td>------------</td>
<td>----------</td>
<td>------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>E12</td>
<td>E12</td>
<td>01: Indoor/outdoor communication</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>E15</td>
<td>E15</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>E16</td>
<td>E16</td>
<td>00: Capacity over No. of connected indoor units</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>E18</td>
<td>—</td>
<td>97, 99 Indoor unit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>E19</td>
<td>E19</td>
<td>00: No header unit 02: Two or more header units</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>E20</td>
<td>E20</td>
<td>01: Connection of outdoor of other line 02: Connection of indoor of other line</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>E23</td>
<td>E23</td>
<td>—</td>
</tr>
</tbody>
</table>

**FILE NO. SVM-05052**
<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</th>
<th>Sub-code</th>
<th>Detected position</th>
<th>Check code name</th>
<th>Status</th>
<th>Error detection condition</th>
<th>Check item (position)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>E25</td>
<td>E25</td>
<td>—</td>
<td>15</td>
<td>I/F</td>
<td>Duplicated outdoor follower address setup</td>
<td>All stop</td>
<td>Outdoor addresses manually set up are duplicated.</td>
<td>Do not set up the outdoor address manually.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| E26                    | E26                       | No. of normally received outdoor units   | 15         | I/F     | 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                    | E28                       | No. of detected outdoor units            | d2         | I/F     | Outdoor follower unit error          | All stop       | Outdoor header unit received error code from outdoor follower unit. | * Check the check code of outdoor follower unit. |
| E31                    | E31                       | 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 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 unit | Indoor TCJ sensor error | Corresponding unit only stops. | Resistance value of sensor is infinite or zero. (Open/Short) | * Check connection/wiring of TCJ sensor connector.  
* Check characteristics of TCJ sensor resistance value.  
* Check indoor P.C. board error. |
| F02                    | —                         | —                                        | Od         | Indoor unit | Indoor TC2 sensor error | Corresponding unit only stops. | Resistance value of sensor is infinite or zero (Open/Short). | * Check connection/wiring of TC2 sensor connector.  
* Check characteristics of TC2 sensor resistance value.  
* Check indoor P.C. board error. |
| F03                    | —                         | —                                        | 93         | Indoor unit | Indoor TC1 sensor error | Corresponding unit only stops. | Resistance value of sensor is infinite or zero (Open/Short). | * Check connection/wiring of TC1 sensor connector.  
* Check characteristics of TC1 sensor resistance value.  
* Check indoor P.C. board error. |
| F04                    | F04                       | —                                        | 19         | I/F     | 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                    | F05                       | —                                        | A1         | I/F     | 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                    | F06                       | —                                        | 18         | I/F     | 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. |

---

**<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.
<table>
<thead>
<tr>
<th>Check code</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 F07</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. Check characteristics of TL sensor resistance value. Check outdoor P.C. board (IF) error.</td>
</tr>
<tr>
<td>F08 F08</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. Check characteristics of TO sensor resistance value. Check outdoor P.C. board (IF) error.</td>
</tr>
<tr>
<td>F10</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/wiring of TA sensor connector. Check characteristics of TA sensor resistance value. Check indoor P.C. board error.</td>
</tr>
<tr>
<td>F12 F12</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. Check characteristics of TS1 sensor resistance value. Check outdoor P.C. board (IF) error.</td>
</tr>
<tr>
<td>F13 F13 01: Compressor 1 side 02: Compressor 2 side</td>
<td>TH sensor error</td>
<td>All stop</td>
<td>Resistance value of sensor is infinite or zero (Open/Short).</td>
<td>IGBT built-in temp sensor error → Exchange IPDU P.C. board.</td>
</tr>
<tr>
<td>F15 F15</td>
<td>Outdoor temp sensor miscabling (TE1, TL)</td>
<td>All stop 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. Check characteristics of TE1 and TL sensor resistance value. Check outdoor P.C. board (IF) error.</td>
<td></td>
</tr>
<tr>
<td>F16 F16</td>
<td>Outdoor pressure sensor miscabling (Pd, Ps)</td>
<td>All stop 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. Check connection of low-pressure Ps sensor connector. Check pressure sensors Pd and Ps error. Check outdoor P.C. board (IF) error. Check compression error of compressor.</td>
<td></td>
</tr>
<tr>
<td>F23 F23</td>
<td>Ps sensor error</td>
<td>All stop Output voltage of Ps sensor was zero.</td>
<td>Misconnection of Ps sensor and Pd sensor connectors Check connection of Ps sensor connector. Check Pd sensor error. Check compression error of compressor. Check 4-way valve error. Check outdoor P.C. board (IF) error. Check SV4 circuit error.</td>
<td></td>
</tr>
<tr>
<td>F24 F24</td>
<td>Pd sensor error</td>
<td>All stop Output voltage of Pd sensor was zero. (Sensor Open) Pd &gt; 4.15MPa during stop of compressor</td>
<td>Check connection of Pd sensor connector. Check Pd sensor error. Check outdoor P.C. board (IF) error.</td>
<td></td>
</tr>
<tr>
<td>F29</td>
<td>Indoor other error</td>
<td>Corresponding unit only stops. Indoor P.C. board did not operate normally.</td>
<td>Check indoor P.C. board error (EEPROM error).</td>
<td></td>
</tr>
<tr>
<td>F31 F31</td>
<td>Outdoor EEPROM error</td>
<td>All stop (+1) Outdoor P.C. board (IF) did not operate normally.</td>
<td>Check power voltage. Check power noise. Check outdoor P.C. board (IF) error.</td>
<td></td>
</tr>
<tr>
<td>H01 H01 01: Compressor 1 side 02: Compressor 2 side</td>
<td>Compressor breakdown</td>
<td>All stop Inverter current detection circuit detected over-current and stopped.</td>
<td>Check power voltage (AC220–240V ± 10%). Check compressor error. Check cause of abnormal overload operation. Check outdoor P.C. board (IF) error.</td>
<td></td>
</tr>
</tbody>
</table>

(●) All stop only in case of the header unit The follower unit continues operation.
<table>
<thead>
<tr>
<th>Check code</th>
<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>
</tr>
</thead>
<tbody>
<tr>
<td>H02</td>
<td>01: Compressor 1 side</td>
<td>02: Compressor 2 side</td>
<td>1d</td>
<td>IPDU</td>
<td>Compressor error (lock) MG-SW error OCR operation</td>
<td>All stop</td>
<td>Over-current was detected several seconds after header compressor had started.</td>
<td>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.</td>
</tr>
<tr>
<td>H03</td>
<td>01: Compressor 1 side</td>
<td>02: Compressor 2 side</td>
<td>17</td>
<td>IPDU</td>
<td>Current detection circuit system error</td>
<td>All stop</td>
<td>While header compressor stopped, current flowed more than the specified current and was detected.</td>
<td>Check wiring of current detection circuit system. Check outdoor P.C. board (IPDU) error.</td>
</tr>
<tr>
<td>H04</td>
<td>—</td>
<td>—</td>
<td>44</td>
<td>I/F</td>
<td>Compressor 1 case thermo operation</td>
<td>All stop</td>
<td>Compressor 1 case thermostat performed protective operation.</td>
<td>Compressor 1 case thermo circuit. (Connector, wire, 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.</td>
</tr>
<tr>
<td>H06</td>
<td>—</td>
<td>—</td>
<td>20</td>
<td>I/F</td>
<td>Low-pressure protective operation</td>
<td>All stop</td>
<td>Low-pressure Ps detected operation lower than 0.02MPa.</td>
<td>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. Check outdoor fan operation. (In heating mode) Check refrigerant shortage.</td>
</tr>
<tr>
<td>H07</td>
<td>—</td>
<td>—</td>
<td>d7</td>
<td>I/F</td>
<td>Protection for oil level drop detection</td>
<td>All stop</td>
<td>The operating compressor detected oil shortage continuously for 2 hours.</td>
<td>&lt;Check all the outdoor units in the corresponding line.&gt; 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.</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</th>
<th>Sub-code</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></td>
<td></td>
<td></td>
<td>H08</td>
<td>H08</td>
<td>Oil level detective 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></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Compressor 2 case thermostat operated.</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></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Oil level detective circuit system error</td>
<td>All stop</td>
<td>• Resistance value of sensor is infinite or zero. (Open/Short)</td>
<td>• Check connection of TK3 sensor connector. • Check characteristics of TK3 sensor resistance value. • Check outdoor P.C. board (I/F) error.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Oil level detective circuit system error</td>
<td>All stop</td>
<td>• Resistance value of sensor is infinite or zero. (Open/Short)</td>
<td>• Check connection of TK4 sensor connector. • Check characteristics of TK4 sensor resistance value. • Check outdoor P.C. board (I/F) error.</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>Check code name</th>
<th>Status</th>
<th>Error detection condition</th>
<th>Check item (position)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L03</td>
<td>—</td>
<td>96</td>
<td>Indoor</td>
<td>Duplicated indoor center units</td>
<td>Corresponding unit only stops.</td>
<td>Corresponding unit only stops.</td>
</tr>
<tr>
<td>L04</td>
<td>L04</td>
<td>96</td>
<td>I/F</td>
<td>Duplicated outdoor line address</td>
<td>All stop</td>
<td>Line address setup is duplicated against the outdoor unit in different refrigerant pipe system.</td>
</tr>
<tr>
<td>L05</td>
<td>—</td>
<td>96</td>
<td>I/F</td>
<td>Duplicated indoor units with priority (Displayed on indoor unit with priority)</td>
<td>All stop</td>
<td>Indoor units with priority were duplicated.</td>
</tr>
<tr>
<td>L06</td>
<td>L06</td>
<td>96</td>
<td>I/F</td>
<td>Duplicated indoor units with priority (Displayed on the unit other than indoor unit with priority)</td>
<td>All stop</td>
<td>Indoor units with priority were duplicated.</td>
</tr>
<tr>
<td>L07</td>
<td>—</td>
<td>99</td>
<td>Indoor</td>
<td>Group line in individual indoor unit.</td>
<td>Corresponding unit only stops.</td>
<td>Corresponding unit only stops.</td>
</tr>
<tr>
<td>L08</td>
<td>L08</td>
<td>99</td>
<td>Indoor</td>
<td>Indoor group / address unset</td>
<td>Corresponding unit only stops.</td>
<td>Address was not yet set up.</td>
</tr>
<tr>
<td>L09</td>
<td>—</td>
<td>46</td>
<td>Indoor</td>
<td>Indoor capacity unset</td>
<td>Corresponding unit only stops.</td>
<td>Indoor unit capacity was unset.</td>
</tr>
<tr>
<td>L10</td>
<td>L10</td>
<td>88</td>
<td>I/F</td>
<td>Outdoor capacity unset</td>
<td>All stop</td>
<td>On the I/F P.C. board for service, jumper line was not cut according to the model.</td>
</tr>
<tr>
<td>L20</td>
<td>—</td>
<td>98</td>
<td>AI-NET, Indoor</td>
<td>Duplicated central control addresses</td>
<td>All stop</td>
<td>Duplicated central control addresses</td>
</tr>
<tr>
<td>L28</td>
<td>L28</td>
<td>46</td>
<td>I/F</td>
<td>Quantity over of connected outdoor units</td>
<td>All stop</td>
<td>There were more than four outdoor units.</td>
</tr>
<tr>
<td>L29</td>
<td>L29</td>
<td>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</td>
<td>CF I/F</td>
<td>IPDU quantity error</td>
<td>All stop</td>
<td>No. of IPDU units detected when power was turned on were less.</td>
</tr>
</tbody>
</table>

**Note:** After installation, this code is displayed when the power is firstly turned on.

- Check indoor address.
- Check the change of remote controller connection (Group/individual) after indoor address setup.
- Check line address.
- Check display of indoor unit with priority.
- Check display of indoor unit with priority and outdoor unit.
- Check indoor address.
- Check indoor address.
- After installation, this code is displayed when the power is firstly turned on.
- Set up indoor capacity. (DN=11)
- Check model setup on outdoor I/F P.C. board Assy for service.
- Check central control address.
- Check network adaptor P.C. board. (In case of AI-NET)
- 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.
- 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.
- UART: Universal Asynchronous Receiver Transmitter
<table>
<thead>
<tr>
<th>Main remote controller</th>
<th>Outdoor 7-segment display</th>
<th>Al-NET central control</th>
<th>Detected position</th>
<th>Check code</th>
<th>Sub-code</th>
<th>Check code name</th>
<th>Status</th>
<th>Error detection condition</th>
<th>Check item (position)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L30</td>
<td>L30</td>
<td>Indoor</td>
<td>Indoor</td>
<td>b6</td>
<td></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 than 1 minute</td>
<td>• Outside device is connected to connector (CN80): 1) Check outside device error. 2) Check indoor PC board error. • Outside device is not connected to connector (CN80): 1) Check outdoor PC board error.</td>
</tr>
<tr>
<td>—</td>
<td>L31</td>
<td>—</td>
<td>Indoor</td>
<td>I/F</td>
<td></td>
<td>Extended IC (Integrated Circuit) error</td>
<td>Operation continues.</td>
<td>PC board (IF) parts error</td>
<td>Check indoor (IF) PC board.</td>
</tr>
<tr>
<td>P01</td>
<td>—</td>
<td>—</td>
<td>Indoor</td>
<td>1</td>
<td>G0</td>
<td>Indoor fan motor error</td>
<td>Corresponding unit only stops.</td>
<td></td>
<td>• Check the lock of fan motor (AC fan).  • Check wiring.</td>
</tr>
<tr>
<td>P03</td>
<td>P03</td>
<td>—</td>
<td>Indoor</td>
<td>1E</td>
<td>G0</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).  • Check clogging of outdoor PMV (PMV1,2)  • Check characteristics of TD1 sensor resistance value.  • Check refrigerant shortage.  • Check 4-way valve error.  • Check leakage of SV41 circuit.  • Check SV4 circuit. (Misingibing and misinstallation of SV41 and SV42)</td>
</tr>
<tr>
<td>P04</td>
<td>P04</td>
<td>01: Compressor 1 side 02: Compressor 2 side</td>
<td>Indoor</td>
<td>21</td>
<td>G0</td>
<td>Actuation of high-pressure SW</td>
<td>All stop</td>
<td>High-pressure SW actuated.</td>
<td>• Check Pd pressure sensor error.  • Check full opening of outdoor service valves (Gas side, Liquid side).  • Check outdoor fan error.  • Check outdoor fan motor error.  • Check clogging of outdoor PMV (PMV1,2)  • Check clogging of indoor/outdoor heat exchangers.  • Check short-circuiting of outdoor suction/discharge air.  • Check clogging of SV2 circuit.  • Check outdoor PC board (IF) error.  • Check indoor fan system error. (Cause of air volume decrease)  • Check opening of indoor PMV.  • Check miswiring of communication line between indoor and outdoor.  • Check operation error of check valve of discharge pipe.  • Check SV4 valve circuit.  • Check SV5 valve circuit.  • Check refrigerant overcharge.</td>
</tr>
<tr>
<td>P05</td>
<td>P05</td>
<td>01: Power supply open phase 02: Power supply negative phase</td>
<td>Indoor</td>
<td>AF</td>
<td></td>
<td>Open phase negative phase</td>
<td>All stop</td>
<td>• Open phase was detected when the power turned on.  • Negative phase was detected when the power turned on.</td>
<td>• Check outdoor power line.  • Check outdoor PC board (IF) error.</td>
</tr>
<tr>
<td>Check code</td>
<td>Outdoor 7-segment display</td>
<td>P07</td>
<td>P12</td>
<td>P13</td>
<td>P15</td>
<td>P17</td>
<td>P19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Main remote controller</td>
<td>AI-NET central controller</td>
<td>P07</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Detected outdoor unit No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check code</td>
<td>Check code</td>
<td>Sub-code</td>
<td>Detected position</td>
<td>Check code name</td>
<td>Error detection condition</td>
<td>Status</td>
<td>Error detection condition</td>
<td>Check item (position)</td>
<td></td>
</tr>
<tr>
<td>P07</td>
<td>01: Compressor 1 side</td>
<td>02: Compressor 2 side</td>
<td>1C</td>
<td>IPDU I/F</td>
<td>Heat sink overheat error</td>
<td>All stop</td>
<td>IGBT built-in temp sensor (TH) was overheated.</td>
<td>• Check power voltage. • Check outdoor fan system error. • Check clogging of heat sink cooling duct. • Check leakage of refrigeration cycle. (Check screwing and contact.) • Check IPDU error. (IGBT built-in temp sensor (TH) error)</td>
<td></td>
</tr>
<tr>
<td>P12</td>
<td>—</td>
<td>—</td>
<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. • Over-current protection operated.</td>
<td>• Check connection of fan connector and wiring. • Check indoor P.C. board error. • Check influence of outside air control. • Check indoor type code (DN=10) and the capacity code (DN=11).</td>
<td></td>
</tr>
<tr>
<td>P13</td>
<td>—</td>
<td>—</td>
<td>47</td>
<td>I/F</td>
<td>Outdoor liquid back detection error</td>
<td>All stop</td>
<td>&lt;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. &lt;In heating&gt; While the system is operating in HEAT mode, outdoor PMV of which opening degree was 100° or less for a certain time.</td>
<td>• Check full close operation of outdoor PMV (1, 2). • Check Pd and Ps sensor error. • Check clogging of SV2 circuit. • Check clogging of balance pipe. • Check clogging of SV3B circuit. • Check outdoor P.C. board (I/F) error. • Check capillary clogging of oil return circuit from oil separator. • Check leakage of check valve of the main discharge pipe.</td>
<td></td>
</tr>
<tr>
<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>Discharge temperature TD1 or TD2 was continuously 108°C or higher for 10 minutes.</td>
<td>&lt;TS error judgment standard temperature&gt; In cooling operation: 60°C or higher In heating operation: 40°C or higher</td>
<td>• Check refrigerant shortage. • Check full open of outdoor service valves (gas side, liquid side). • Check outdoor PMV clogging (PMV1, 2). • Check characteristics of TS1 sensor resistance value. • Check 4-way valve error. • Check leakage of SV4 circuit.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>02: TD condition</td>
<td>AE</td>
<td>I/F</td>
<td>Gas leak detection (TD condition)</td>
<td>All stop</td>
<td>Discharge temperature TD1 or TD2 was continuously 108°C or higher for 10 minutes.</td>
<td>• Check refrigerant shortage. • Check outdoor PMV clogging (PMV1, 2). • Check characteristics of TD1, TD2 sensor resistance value. • Check indoor air filter clogging. • Check pipe clogging. • Check SV4 circuit (Valve leakage, misinstallation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P17</td>
<td>—</td>
<td>bb</td>
<td>I/F</td>
<td>Discharge temp TD2 error</td>
<td>All stop</td>
<td>Discharge temperature (TD2) exceeded 115°C.</td>
<td>• Check full opening of outdoor service valves (gas side, liquid side). • Check clogging of outdoor PMV (PMV1, 2). • Check characteristics of TD2 sensor resistance value. • Check 4-way valve error. • Check leakage of SV4 circuit. • Check SV4 circuit. (Misconnection and misinstallation of SV41 and SV42)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P19</td>
<td>Detected outdoor unit No.</td>
<td>8</td>
<td>I/F</td>
<td>4-way valve operation error</td>
<td>All stop</td>
<td>When abnormal refrigerating cycle data was detected in heating</td>
<td>• Error of 4-way valve error • Check coil error and connector connection of 4-way valve. • Check characteristics of TS1/TE1 sensor resistance value. • Check characteristics of Pd, Ps pressure sensor output voltage. • Check misconnection of TE1 and TL sensors.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check code</td>
<td>Outdoor 7-segment display</td>
<td>AI-NET central controller</td>
<td>Detected position</td>
<td>Check code name</td>
<td>Status</td>
<td>Error detection condition</td>
<td>Check item (position)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
| P20 P20    | 22                       | I/F                      | High-pressure protective operation | All stop | Pd sensor detected 3.6MPa or more. | • Check Pd pressure sensor error.  
• Check full opening of service valves (Gas side, Liquid side).  
• Check outdoor fan error.  
• Check outdoor fan motor error.  
• Check clogging of outdoor PMV (PMV1.2)  
• Check clogging of indoor/outdoor heat exchangers.  
• Check air short-circuiting in outdoor unit.  
• Check clogging of SV2 circuit.  
• Check outdoor P.C. board (I/F) error.  
• Check indoor fan system error.  
(Cause of air volume decrease)  
• Check valve opening of indoor PMV.  
• Check miswiring of communication line between indoor and outdoor.  
• Check operation error of check valve of discharge pipe.  
• Check circuit of gas balance SV4 valve.  
• Check circuit of SV5 valve.  
• Check refrigerant overcharge. |
| P22 P22    | 1A                       | FAN-IPDU                 | Outdoor fan IPDU error | All stop | (Sub-code: 0)  
• Short-circuit current was detected at start time.  
• Short-circuit current was detected when checking IGBT short-circuit before start time. | • Check fan motor. (Interphase short-circuit)  
• Check fan IPDU error. |
|            |                          |                          |                   | (Sub-code: 1)  
• The standard value of detection circuit of fan IPDU current fluctuated at start time. | • Check fan IPDU error. |
|            |                          |                          |                   | (Sub-code: 3)  
• Abnormal current was detected within 30 seconds after start time. | • Check fan motor. (Lock, phase missing)  
• Check cause of abnormal overload at start time.  
• Check connection of connector to fan motor. |
|            |                          |                          |                   | (Sub-code: 4)  
• Short-circuit current was detected when 2 seconds or more passed after start time.  
• Over-current was detected when 30 seconds or more passed after start time. | • Check power supply voltage.  
• Check fan IPDU error. |
|            |                          |                          |                   | (Sub-code: C)  
• Heat sink sensor (TH) of fan IPDU detected 95°C error. | • Check outdoor fan system.  
• Check fan IPDU error.  
• Check fixation between fan IPDU and heat sink. |
|            |                          |                          |                   | (Sub-code: D)  
• Heat sink sensor (TH) of fan IPDU detected short-circuiting or open. | • Check fan IPDU error. |
|            |                          |                          |                   | (Sub-code: E)  
• Input power supply voltage of the fan IPDU over the setup value was detected.  
• Input power supply terminal of the fan IPDU was unconnected.  
• Power supply P.C. board error of the fan IPDU | • Check input power supply voltage of the fan IPDU.  
• Check power supply P.C. board error of the fan IPDU.  
• Check error of external electrolytic condenser. |
<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>Check code</th>
<th>Sub-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></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P26</td>
<td>P26</td>
<td>01: Compressor 1 side</td>
<td></td>
<td>02: Compressor 2 side</td>
<td>14</td>
<td>IPDU</td>
<td>G-Tr short-circuit protection error</td>
<td>All stop</td>
<td>Instantaneous over-current was detected when compressor started.</td>
<td>• 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.</td>
</tr>
<tr>
<td>P29</td>
<td>P29</td>
<td>01: Compressor 1 side</td>
<td></td>
<td>02: Compressor 2 side</td>
<td>16</td>
<td>IPDU</td>
<td>Compressor position detection circuit error</td>
<td>All stop</td>
<td>Position was not normally detected.</td>
<td>• Check connector connection and wiring. • Check compressor error and defect of compressor coil. • Check P.C. board (IPDU) error.</td>
</tr>
<tr>
<td>P31</td>
<td>—</td>
<td>—</td>
<td></td>
<td>—</td>
<td>47</td>
<td>Indoor</td>
<td>Other indoor error (Group follower unit error)</td>
<td>Corresponding unit only stops.</td>
<td>E07/L07/L03/L08 was detected when other indoor unit in the group was defective.</td>
<td>• Check indoor P.C. board.</td>
</tr>
</tbody>
</table>
### Error detected by TCC-LINK central control device

<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>
| C05        | —                         | —                                        | —                 | TCC-LINK       | Operation continued | Signal is not transmit from central control device. | • Check central control device error.  
• Check communication line error of central control device.  
• Check setup of end terminal resistance. |
| C06        | —                         | —                                        | —                 | TCC-LINK       | Operation continued | Signal is not received from central control device. | • Check central control device error.  
• Check communication line error of central control device.  
• Check setup of end terminal resistance.  
• Check the power of connecting destination connected device.  
• Check P.C board error of the connected device. |
| C12        | —                         | —                                        | General-purpose device I/F | Interface batch alarm of general-purpose control devices | Operation continued | Error was input in general-purpose control device control interface. | • Check error input. |
| P30        | Differs according to error contents of the with alarm | —                                        | —                 | TCC-LINK       | Operation continued | An error occurred in follower unit of the group control. ([P30] is displayed only on the central control remote controller.) | • Check the check code of the unit with alarm. |

(L20 is displayed.)  
Duplicated central control address  
Central control addresses were duplicated.  
• Check the address setup.

### Error detected by AI-NET central control device

<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>
| —          | —                         | —                                        | 97                | AI-NET         | Operation continued | E07/L07/L03/L08 was detected when other indoor unit in the group was defective. | • Check multiple network adaptors.  
• Check wire and miswiring of remote controller: Only one network adaptor can be connected to communication line of remote controller. |
| —          | —                         | —                                        | 99                | Duplicated network adaptors | Operation continued | Multiple network adaptors were connected to communication line of remote controller. (Detected at central controller side) | • Check communication line, miswiring, and power of indoor unit.  
• Check network adaptor P.C. board.  
• Check the central controller (Central control remote controller, etc.) |
| —          | —                         | —                                        | b7                | AI-NET         | Operation continued | Error of follower unit in the group | • Check follower unit in the group. |

∗ 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.
7-4-1. Cautions When Servicing for Compressor

1. Removing wires of both compressors check output of the inverter as described below.

7-4-2. 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.

7-4-3. 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.)

7-4-4. 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.)
### 7-5. 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] / [–](Current code / AI-NET) | 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 |

**Is the inter-unit cable of remote controllers (A/B) normal?**  
**NO**  
**YES**  
- Correct inter-unit cable of remote controller.

**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

**NO**  
- Is the inter-unit cable of remote controllers (A/B) normal?  
  **NO**  
  - 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
**Check code** | **Check code name** | **Cause of operation**
---|---|---
[E02] / [-] (Current code / AI-NET) | Remote controller sending error | Signal could not be sent to indoor unit. Check the communication wire of the remote controller.

* It is not displayed on 7-segment display of the central control controller.

---

**Check code** | **Check code name** | **Cause of operation**
---|---|---
[E03] / [97] (Current code / AI-NET) | Communication error between indoor and remote controller (Detected at indoor side) | No communication from remote controller and communication adaptor

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

<table>
<thead>
<tr>
<th>[E04] / [04]</th>
<th>Indoor/Outdoor communication circuit error (Detected at indoor side)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Current code / AI-NET)</td>
<td>1. Power of outdoor unit was firstly turned on.</td>
</tr>
<tr>
<td></td>
<td>2. Connection error of communication line between indoor and outdoor</td>
</tr>
<tr>
<td></td>
<td>3. End terminal resistance setup error on communication between indoor and outdoor</td>
</tr>
<tr>
<td></td>
<td>4. Address setup error</td>
</tr>
<tr>
<td></td>
<td>5. Switch setup error of wall type P.C. board</td>
</tr>
</tbody>
</table>

### Check code name

- Indoor/Outdoor communication circuit error

### Cause of operation

- Was power turned on in order of indoor unit ® outdoor unit?
  - NO: Turn on power again in order of indoor unit → outdoor unit.
  - YES: Next step.

- Is connection (U1/U2 terminals) of indoor/outdoor inter-unit cable normal?
  - NO: Correct inter-unit cable.
  - YES: Next step.

- Is connector connection from U1/U2 terminals of indoor/outdoor inter-unit cable normal?
  - NO: Correct connector connection.
  - YES: Next step.

- Is setup of the model SELECT SW (SW02) on wall type P.C. board of normal?
  - NO: Correct switch setup.
  - YES: Next step.

- Is the end terminal resistance setup of outdoor unit normal?
  - NO: Correct the end terminal resistance setup.
  - YES: Next step.

- Is address setup correct?
  - NO: Set up address again.
  - YES: Next step.

- Is power applied to fuse (F03) on indoor P.C. board?
  - NO: Correct switch setup.
  - YES: Next step.

- Is there no noise, etc?
  - 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: Check noise, etc, and eliminate it if any.

For details, refer to “Troubleshooting in test operation”.

---

**Check indoor P.C. board.**

Defect → Replace
<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
</table>
| [E06] / [04] (Current code7 / AI-NET) | Decreased number of indoor units | 1. Communication lines (U1, U2) connection error between indoor and outdoor  
2. Connector connection error of communication for indoor P.C. board  
3. Connector connection error of communication for outdoor I/F board  
4. Power supply of indoor unit (Is power turned on?) |

**Sub-code:** No. of indoor units which received signals normally

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: [E07] / [-]  
(Current code / AI-NET)  

Check code name: Indoor/Outdoor communication circuit error  
(Detected at outdoor side)  

Cause of operation:  
1. Indoor/outdoor communication end terminal resistance setup error  
2. Indoor/outdoor communication connection error  

---  

1. Is setup of end terminal resistance of outdoor unit normal?  
   - NO: Correct setup of end terminal resistance.  
   - YES:  
     1. Is inter-unit cable (U1, U2) between indoor and outdoor short-circuited?  
        - NO: Correct setup of end terminal resistance.  
        - YES: Correct short-circuit.  
      
2. Is connection of inter-unit cable between indoor and outdoor correct?  
   - YES: Correct communication line.  
   - NO:  
     1. Is there no error on power cable to outdoor unit?  
        - NO: Correct power cable.  
        - YES:  
          1. Is there noise source?  
             - NO: Eliminate noise.  
             - YES: I/F P.C. board failure. However, an emergent operation is available by inserting connector to be connected to CN01 to CN33.  
      
3. Is F400 (fuse) on I/F P.C. board opened?  
   - NO:  
   - YES: * Check conduction with tester.  
     1. Turn on power to start operation.
**Check code** | **Check code name** | **Cause of operation**
---|---|---
[E08] / [96]  
(Current code / AI-NET) | **Duplicated indoor addresses** | 1. Indoor addresses are duplicated.  
2. Switch setup error of wall type P.C. board

**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.

**Check code** | **Check code name** | **Cause of operation**
---|---|---
[E09] / [99]  
(Current code / AI-NET) | **Duplicated master remote controller** | Setup of master remote controller is duplicated.
### Check code [E12] / [42] (Current code / AI-NET)

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Automatic address start error</strong></td>
<td>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)</td>
</tr>
</tbody>
</table>

### Sub-code: 01: Communication between indoor and outdoor  02: Communication between outdoor units

1. Are U1, U2, U3, and U4 connectors connected?
   - **NO**
   - **YES**

2. Disconnect connector connection of U1, U2, U3, and U4.
   - **NO**
   - **YES**

3. Turn on power of outdoor unit again.
4. Set up address again. (Refer to “Address setup procedure”.)

### Check code [E15] / [42] (Current code / AI-NET)

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No corresponding indoor unit during automatic address</strong></td>
<td>1. Communication line connection error between indoor and outdoor. 2. Indoor power system error 3. Noise from surrounding devices 4. Power failure 5. Indoor P.C. board error</td>
</tr>
</tbody>
</table>

### Sub-code: 01: Communication between indoor and outdoor

1. Is communication line between indoor and outdoor normal?
   - **NO**
   - **YES**

2. Is connection of CN40 connector on indoor P.C. board correct?
   - **NO**
   - **YES**

3. Is connection of CN01 connector on I/F P.C. board of header outdoor unit correct?
   - **NO**
   - **YES**

4. Is there any connection error of power cable?
   - **YES**
   - **NO**

5. Did a power failure occur?
   - **YES**
   - **NO**

6. Is there no noise source?
   - **YES**
   - **NO**

7. Correct power cable.
8. Set up address again after resetting power supply.
10. Correct communication line.
11. Correct connection of connector.
13. Correct connection of connector.

**FILE NO. SVM-05052**
**Check code** | **Check code name** | **Cause of operation**
--- | --- | ---
[E16] / [89] (Current code / AI-NET) | **Connected indoor units capacity over** | 1. There are 48 or more connected indoor units.  
2. Capacity over of total connected indoor units.  
3. Incorrect setup of indoor/outdoor capacity

**Sub-code**: 00 : Capacity over 49 to 64 of connected units

---

1. **Is backup operation of outdoor unit being set up?**
   - YES: Perform setup of no detection for capacity over. (**1**)  
   - NO: **Is No. of connected indoor units correct?**
     - YES: Correct HP setup.  
     - NO: Excessive indoor units are connected. Correct miscabling.

2. **Is setup of indoor unit HP correct?**
   - YES: **Is total capacity of connected indoor units within 135%?**
     - YES: Set capacity of connected indoor units within 135% of outdoor units.  
     - NO: Check outdoor interface P.C. board A'ssy.
   - 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.

---

**(**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>
</table>
| [E18] / [97/99]  | Communication error between indoor header and follower | 1. Regular communication between indoor header and follower is unavailable.  
                        | (Current code / AI-NET)                     | 2. Switch setup error of wall type P.C. board                                      |

- Are remote controller inter-unit cables (A/B) normal?  
  - NO: Correct remote controller inter-unit wire.  
  - YES:  
    - Is there any disconnection of connector or wiring from terminal block of indoor unit?  
      - NO:  
        - Is a group control operation?  
          - NO:  
            - Are powers of all indoor units turned on?  
              - NO: Check power connection status of indoor unit.  
              - YES:  
                - Is setup of the model SELECT SW (SW02) on wall type P.C. board of normal?  
                  - NO: Correct switch setup.  
                  - YES: Check indoor address.  
        - YES: Check indoor address.  
      - YES: Correct connection of connector. Check circuit wire.

- YES:  
  - Correct switch setup.

- FILE NO. SVM-05052
## Check Code: [E19] / [96] (Current code / AI-NET)

### Header outdoor units quantity error

- **Check code name**: Header outdoor units quantity error
- **Cause of operation**
  1. Misconnection of inter-unit cable between indoor and outdoor
  2. Outdoor I/F P.C. board error

### Sub-code:
- 00: No header unit
- 02: Two or more header units

**Reference**

- An outdoor unit connected with communication wires (U1, U2) between indoor and outdoor is the header unit.

### Diagram

1. **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**: Is communication line between indoor and outdoor connected to one unit per 1 system?
     - **NO**: Connect communication line between indoor and outdoor.
     - **YES**: Check I/F board.

### Check Code: [E20] / [42] (Current code / AI-NET)

- **Check code name**: Unit connected to other line during automatic address
- **Cause of operation**
  - When starting automatic indoor address, a device in other line is connected

### Sub-code:
- 01: Connection of outdoor in other line
- 02: Connection of indoor unit in other line

**Reference**

- 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>
</table>
| [E23] / [15] (Current code / AI-NET) | Communication sending error between outdoor units | 1. Inter-unit cable connection error between outdoor units  
2. Communication connector connection error between outdoor units, I/F P.C. board error  
3. End terminal resistance setup error between outdoor units |

- Is there no miscabling or disconnection on communication line between outdoor units? 
  - YES: Correct communication line.  
  - NO: Is connection of CN03 connector on outdoor I/F P.C. board normal? 
    - NO: Correct cabling of cable connector.  
    - YES: Is not main power of outdoor unit turned off? 
      - NO: Is the end terminal resistance between outdoor units turned on? (SW30 Bit 1) 
        - NO: Turn the end terminal resistance to ON.  
        - YES: Did power failure occur? 
          - YES: Clear check code.  
          - NO: Is there no noise source, etc? 
            - NO: Check outdoor I/F P.C. board. Defect → Replace  
            - YES: Check and eliminate noise, etc
**Check code** | **Check code name** | **Cause of operation**
---|---|---
[E25] / [15] (Current code / AI-NET) | Duplicated follower outdoor address setup | Addresses are duplicated by manual setup of outdoor address

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>
</table>

**Sub-code**: No. of outdoor units which received signals normally

---

**Check** outdoor unit setting backup?

- **YES**
  - Clear the error, and then start operation. (**1**)
- **NO**

- **Is main power of follower unit turned on?**
  - **NO**
    - Turn on the main power supply.
  - **YES**

- **Is communication line between outdoor units connected normally?**
  - **NO**
    - Correct connection of communication line.
  - **YES**

- **Is communication connector (CN03) between follower outdoor units connected?**
  - **NO**
  - **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])
## Follower outdoor unit error

### Cause of operation

- Follower outdoor error

### 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.

### IPDU communication error

#### Cause of operation

1. Connection error of communication line between IPDU and I/F P.C. board
2. I/F P.C. board error
3. IPDU P.C. board error
4. External noise

#### 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.

### Diagnosis Procedure

1. **Is communication connector between IPDU and I/F P.C. board connected?**
   - **NO**: Correct connection of connector.
   - **YES**: Continue.

2. **Is there no disconnection on communication line between IPDU and I/F P.C. board?**
   - **YES**: Replace communication line.
   - **NO**: Continue.

3. **Is there voltage deflection between 4 and 5 pin of CN600 on I/F P.C. board?**
   - **NO**: I/F P.C. board error
   - **YES**: Continue.

4. **Is there voltage deflection between 3 and 5 pin of CN600 on I/F P.C. board?**
   - **NO**: I/F P.C. board error
   - **YES**: All IPDU (No.1, No.2) and three fan IPDU do not return communication.

Replace defective IPDU P.C. board.
### Indoor TCJ sensor error

<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>
</tbody>
</table>

- **Check code name**
  - Indoor TCJ sensor error
- **Cause of operation**
  - TCJ sensor Open/Short

#### Decision Tree

1. **Is TCJ sensor connector (CN102: Yellow) on indoor P.C. board normally connected?**
   - **NO**: Correct connection of connector.
   - **YES**: Are characteristics of TCJ sensor resistance value normal?
     - **NO**: Replace TCJ sensor.
     - **YES**: Check indoor main P.C. board. Defect → Replace

#### Notes
- *Indoor unit temperature sensor characteristics
  - See Characteristics-2.

### Indoor TC2 sensor error

<table>
<thead>
<tr>
<th>Check code</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[F02] / [0d]</td>
<td>Indoor TC2 sensor error</td>
<td>TC2 sensor Open/Short</td>
</tr>
</tbody>
</table>

- **Check code name**
  - Indoor TC2 sensor error
- **Cause of operation**
  - TC2 sensor Open/Short

#### Decision Tree

1. **Is TC2 sensor connector (CN101: Blue) on indoor P.C. board normally connected?**
   - **NO**: Correct connection of connector.
   - **YES**: Are characteristics of TC2 sensor resistance value normal?
     - **NO**: Replace TC2 sensor.
     - **YES**: Check indoor main P.C. board. Defect → Replace

#### Notes
- *Indoor unit temperature sensor characteristics
  - See Characteristics-2.
Check code | Check code name | Cause of operation
---|---|---
[F03] / [93] (Current code / AI-NET) | Indoor TC1 sensor error | TC1 sensor Open/Short

- Is TC1 sensor connector (CN100: Brown) on indoor P.C. board normally connected? NO → Correct connection of connector.
- Are characteristics of TC1 sensor resistance value normal? NO → Replace TC1 sensor.
- Yes → Check indoor main P.C. board. Defect → Replace

Check code | Check code name | Cause of operation
---|---|---
[F04] / [19] (Current code / AI-NET) | TD1 sensor error | TD1 sensor Open/Short

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.

Check code | Check code name | Cause of operation
---|---|---
[F05] / [A1] (Current code / AI-NET) | TD2 sensor error | TD2 sensor Open/Short

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.

Check code | Check code name | Cause of operation
---|---|---
[F06] / [18] (Current code / AI-NET) | TE1 sensor error | TE1 sensor Open/Short

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.
<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>(Current code / 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>(Current code / 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>(Current code / 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, White) 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>(Current code / 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.
### TH sensor error

**Cause of operation:**
- 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.

### Outdoor temp sensor miscabling

**Check code name:**
- [F15] / [18] (Current code / AI-NET)

**Cause of operation:**
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

**Check code name:**
- Outdoor temp sensor miscabling
  - (TE1, TL)

#### Diagram:

- Are installed positions of TE1 sensor and TL sensor correct?
  - NO: Correct installed positions of TE1 sensor and TL sensor.
  - YES: 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?
  - NO: Correct connection of connectors.
  - YES: Correct connection of connectors.

- Are resistance characteristics of TL sensor and TE1 sensor normal?
  - NO: Correct connection of connectors.
  - YES: Correct connection of connectors.

- 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 code name: [F16] / [43]  
(Current code / AI-NET)

**Outdoor pressure sensor miscabling (Pd, Ps)**

<table>
<thead>
<tr>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. High-pressure Pd sensor and low-pressure sensor Ps are exchanged.</td>
</tr>
<tr>
<td>2. Output voltage of each sensor is zero.</td>
</tr>
</tbody>
</table>

- Are connection of Pd sensor and Ps sensor connectors correct?  
  - YES: **Correct connection of connectors.**  
    - Pd sensor: CN501, Red  
    - Ps sensor: CN500, White  
  - NO: **Sensor error → Replace**

- Are output voltage characteristics of Pd sensor and Ps sensor normal?  
  - 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.  
  - NO: **Check compressor.**

- Are Pd/Ps output values Pd>Ps during compressor operation?  
  - YES:  
    - * Value can be confirmed by 7-segment display function on outdoor I/F P.C. board.  
      Pd SW01/02/03=1/1/2  
      Ps SW01/02/03=1/2/2  
  - NO: **Check outdoor I/F P.C. board.**  
    Defect → Replace
### 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>[F23] / [43]</td>
<td>Ps sensor error</td>
<td>Output voltage error of Ps sensor</td>
</tr>
</tbody>
</table>

#### Ps sensor error

- **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: Check 4-way valve.

<table>
<thead>
<tr>
<th>Is there no leakage from SV4 valve?</th>
<th>Is not refrigerant by passed from discharge to suction of 4-way valve?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>CHECKER</td>
<td>Replace SV4 valve.</td>
</tr>
<tr>
<td>CHECKER</td>
<td>Check compressor.</td>
</tr>
</tbody>
</table>

#### Pd sensor error

- **Check code name**
  - [F24] / [43] (Current code / AI-NET)

- **Check code name**
  - Pd sensor error

- **Cause of operation**
  - Output voltage error of Pd sensor

- If the sensor is normal, replace outdoor I/F P.C. board.
Check code name | Check code name | Cause of operation
---|---|---
[F29] / [12] (Current code / AI-NET) | Indoor other error | Indoor P.C. board error
| | | EEROM 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.

![Diagram](image)

Check code name | Check code name | Cause of operation
---|---|---
[F31] / [1C] (Current code / AI-NET) | Outdoor EEPROM error | 1. Outdoor unit power error (Voltage, noise, etc.)
| | | 2. Outdoor I/F P.C. board 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: [H01] / [1F]
(Current code / AI-NET)

Compressor breakdown

<table>
<thead>
<tr>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Outdoor unit power line error</td>
</tr>
<tr>
<td>2. Compressor circuit system error</td>
</tr>
<tr>
<td>3. Compressor error</td>
</tr>
<tr>
<td>4. Cause of abnormal overload operation</td>
</tr>
<tr>
<td>5. IPDU P.C. board error</td>
</tr>
</tbody>
</table>

Sub-code: 01: Compressor 1 side  02: Compressor 2 side

Is power voltage of outdoor unit normal?

- YES
  - 380 – 415V ± 10%
  
Is voltage drop occur when other compressor starts?

- YES
  - Correct power line.

- NO
  
Is connection of wiring or connection of connector on IPDU P.C. board normal?

- NO
  - Correct connector connection or wiring.

- YES
  
Is winding resistance between phases of corresponding compressor normal? (Note 1)

- NO
  - Compressor error (Motor burning, etc.)

- YES
  
Is not it an abnormal overload?

- YES
  - Correct cause of overload.

- NO
  
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.

Check IPDU P.C. board.

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 | Check code name | Cause of operation
---|---|---
[H02] / [1d] (Current code / AI-NET) | Compressor error (Lock) | 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
- Does voltage drop occur when other compressor starts?
  - NO
  - YES
- Does OCR of MG-SW operate?
  - NO
  - YES
- Is wiring or connector connection on IPDU P.C. board normal?
  - NO
  - YES
- Is not it an abnormal overload?
  - NO
  - YES
- Is there no refrigerant stagnation in compressor shell?
  - NO
  - YES
- Is case heater output normal?
  - NO
  - YES
- Operation starts.
- Check case heater.
- Is compressor normal? *2
  - NO
  - YES
- Check IPDU P.C. board.

*2 Check the following items mainly.
1. Existence of abnormal sound and abnormal vibration during operation or starting
2. Abnormal overheat 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.
<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[H03] / [17] (Current code / AI-NET)</td>
<td><strong>Current detective circuit system error</strong></td>
<td>1. Cabling or connector connection error on IPDU P.C. board</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. IPDU P.C. board error</td>
</tr>
</tbody>
</table>

**Sub-code:** 01: Compressor 1 side 02: Compressor 2 side

**Diagram:**

- **Wiring or connector connection on IPDU P.C. board normal?**
  - **NO**
    - **Correct connector connection or cabling.**
  - **YES**
    - **Check IPDU 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>[H14] / [44] (Current code / AI-NET)</td>
<td>Compressor 2 case thermo operation</td>
<td>2. I/F P.C. board error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Service valve closed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Outdoor PMV clogging</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. SV4 valve leak, Coil misinstallation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. 4-way valve error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Compressor error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Refrigerant shortage</td>
</tr>
</tbody>
</table>

---

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

---

**Is case thermo circuit normal?**
1. Connector connection
2. Cabling
3. I/F P.C. board

(Note 1)
1. Case thermo is usually closed.
2. Operation temperature of case thermo is 120˚C.

**Are service valves of gas pipe and liquid pipe of outdoor unit fully opened?**

**Are outdoor PMV1/2 normal?**
1. Connector connection
2. Cabling
3. Coil
4. Valve body
5. I/F P.C. board

**Are SV41 and Valve circuits normal?**
1. Misinstallation installation and connector connection of SV41 and SV42
2. Leakage from SV41, 42 circuit

SV4 valve: Connector CN311, Blue

**Does not refrigerant bypass from discharge of suction through 4-way valve?**

---

**Is compressor normal?**

(Note 2)
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)

Refrigerant shortage, clogging, pipe breakage

(After checking there is no slogging or pipe breakage, charge refrigerant again.)

---

FILE NO. SVM-05052
Check code name | Low-pressure protective operation | Cause of operation
---|---|---

Are service valves of gas and liquid pipe of outdoor unit fully opened? NO → Open service valves fully.

Are characteristics of low-pressure sensor normal? NO → Exchange low-pressure sensor.

Are SV2 and SV4 circuits normal? NO → Correct SV2 and SV4 circuits.

Is not indoor unit with different circuit connected? NO → Correct cabling.

In cooling season, go to (A) In heating season, go to (B)

(A) Cooling

Does indoor fan normally operate in cooling season? NO → Repair faulty parts.

Cleaning YES → Check indoor P.C. board. Failure → Replace

Is there clogging of indoor air filter or heat exchanger? NO → Repair faulty parts.

Is indoor PMV normal? NO → Replace PMV body.

Refrigerant shortage or clogging or pipe deformed

(B) Heating

Is outdoor fan normally operated in heating season? NO → Check outdoor P.C. board. Failure → Replace

Cleaning YES → Repair faulty parts.

Is there clogging of outdoor heat exchanger? NO → Refrigerant shortage, clogging, pipe deformed

Is outdoor PMV normal? NO

Are following items concerned to indoor fan motor normal? YES


Is connector connection or coil normal? NO

Is there clogging on whole valve? YES → Replace PMV body.

NO

Is indoor fan system normal? NO

• Fan crack  • Fan coming-off

YES

Repair faulty parts.

Refrigerant shortage, clogging, pipe deformed
**Check code name**: [H07] / [d7]  
(Current code / AI-NET)

**Check code name**: Oil level down detection protection

**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. Refrigerant 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

---

**Check clogging of oil return circuit from oil separator. (Capillary tube, strainer)**

**Check clogging of SV3D valve.**

---

**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.
Check code name: [H08] / [d4] (Current code / AI-NET)  
Oil level detective temperature sensor error  
TK1 to TK4 sensor Open/Short

**Sub-code:** 01: TK1 sensor error  02: TK2 sensor error  03: TK3 sensor error  04: TK4 sensor error

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.

<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: [H16] / [d7] (Current code / AI-NET)  
TK1 temperature detective circuit error (Sub-code: 01)

1. Coming-off 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

**Diagram:**
- Compressor 1
- Capillary tube
- Strainer
- Oil tank
- TK1

**Flowchart:**
- Is not TK1 sensor detached?  
  NO: Correct installation of sensor.  
  YES: Is there no miscabling or misinstallation on TK1/TK2/TK3/TK4 sensors?  
    - YES: Characteristics-4  
      NO: Are characteristics of TK1 sensor resistance value normal?  
        - NO: Outdoor unit temp sensor characteristics-4  
          YES: Start a test operation in COOL or HEAT mode.  
          TK1 sensor temp is displayed on 7-segment display with SW01/02/03=112.  
          Check TK1 sensor temp approx. 10 minutes after compressor 1 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 tube, or malfunction of check valve is considered.  
          Error: Check the clogging of SV3E valve.  
          (Note 1) Refer to item [H07] error.  
          No error: Check I/F P.C. board  
          Replace SV3E valve.  
        - YES: Correct miscabling/misinstallation.  
          TK1: CN514  
          TK2: CN515  
          TK3: CN516  
          TK4: CN523  
      Error: Sensor error  
    - NO: Characteristics-4  
      YES: Replace clogged part.  
      Error: Replace SV3E valve.
Check code name | Oil level detective circuit system error (Sub-code: 02) | Cause of operation
--- | --- | ---

**Flowchart:**

- **Is not TK2 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 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.
          - Error: Replace clogging part.
        - No error: **Check the clogging of SV3E valve.**
          - Error: *1 Refer to item [H07] error.
          - No error: **Check I/F P.C. board**
            - Error: Replace SV3E valve.

*1 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] (Current code / 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.
NO →

Are characteristics of TK3 sensor resistance value normal? YES → After power reset, check capillary choke of SV3C valve bypass.
NO →

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 → Replace clogged part (Capillary).
No error →

(Note 1) Refer to item [H07] error.

Replace SV3E valve.
<table>
<thead>
<tr>
<th>Check code name</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>[H16] / [d7]</strong></td>
</tr>
<tr>
<td>(Current code / AI-NET)</td>
</tr>
</tbody>
</table>

**TK4 temperature detective circuit error**
(Sub-code: 04)

<table>
<thead>
<tr>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Detachment of TK4 sensor, miscabling, characteristics error of resistance value</td>
</tr>
<tr>
<td>2. Check clogging and malfunction of SV3E valve circuit.</td>
</tr>
<tr>
<td>3. Oil-equalization circuit error (Check capillary clogging, strainer clogging)</td>
</tr>
<tr>
<td>4. Refrigerant stagnation in compressor shell</td>
</tr>
</tbody>
</table>

---

**Flowchart: TK4 temperature detective circuit error (Sub-code: 04)**

1. **Is not TK4 sensor detached?**
   - YES: Correct installation of sensor.
   - NO: Is there no miscabling or misinstallation on TK1/TK2/TK3/TK4 sensors?

2. **Is there no miscabling or misinstallation on TK1/TK2/TK3/TK4 sensors?**
   - YES: Correct miscabling/misinstallation.
   - NO: Are characteristics of TK4 sensor resistance value normal?

3. **Are characteristics of TK4 sensor resistance value normal?**
   - YES: Does OCR of MG-SW operate?
   - NO: Replace SV3E valve.

4. **Does OCR of MG-SW operate?**
   - YES: Check the clogging of SV3E valve. (*1)
   - NO: Check the clogging of 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: Duplicated indoor header units

**Cause of operation:** 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: Duplicated setup of outdoor line address

**Cause of operation:** Outdoor line addresses are duplicated.

- **[L04] / [96]**
- **(Current code / AI-NET)**

<table>
<thead>
<tr>
<th>Decision Path</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there duplicated line address setup?</td>
<td>YES → Correct the line address setup.</td>
</tr>
<tr>
<td></td>
<td>NO → Correct the cable connection.</td>
</tr>
<tr>
<td>Are communication cable connections of [U1.U2], [U3.U4], and [U5, U6] normal?</td>
<td>YES → Check outdoor I/F P.C. board. Failure → Replace</td>
</tr>
<tr>
<td></td>
<td>NO → Re-set up the address. (Refer to “Address setup”.)</td>
</tr>
</tbody>
</table>

### Check code name: Duplicated indoor units with priority

**Cause of operation:** 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>Decision Path</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>YES → Correct the line address setup.</td>
</tr>
<tr>
<td></td>
<td>NO → Correct the cable connection.</td>
</tr>
<tr>
<td></td>
<td>YES → Check outdoor I/F P.C. board. Failure → Replace</td>
</tr>
<tr>
<td></td>
<td>NO → Re-set up the address. (Refer to “Address setup”).</td>
</tr>
</tbody>
</table>
**Check code name** | **Cause of operation**
--- | ---
[L06] / [96] (Current code / AI-NET) | Duplicated indoor units with priority (Displayed on the indoor unit other than one with priority and on the outdoor unit) | Two or more indoor units with priority are duplicated.

**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.

---

**Check code name** | **Cause of operation**
--- | ---
[L07] / [99] (Current code / AI-NET) | Group line in individual indoor unit | The group line is connected in the individual indoor unit.

**Check setup item code**

- **DN 12, 13, and 14 addresses.**
  - **DN12:** Line address
  - **DN13:** Indoor address
  - **DN14:** Group address

**Is there group cabling?**

- **YES**
  - **Check indoor P.C. board.**
    - **Failure → Replace**
  - **NO**
  - **Correct indoor group address.**

- **NO**
  - **There is individual indoor unit.**
    - **YES**
    - **Correct indoor group address.**
    - **NO**

**Check code name** | **Check code name** | **Cause of operation**
---|---|---
[L08] / [99]* | Indoor group / address unset | Indoor address unset

---

**Check code name** | **Check code name** | **Cause of operation**
---|---|---
[L09] / [46] | Indoor capacity unset | Indoor capacity unset

---

- **Are powers of all the indoor units turned on?**
  - **YES:** Turn on the power of indoor units.
  - **NO:** 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)

---

- **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
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>[L10] / [88]</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>

<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]</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]</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?

NO → Max. 4 outdoor units are connectable for one system.

YES → Correct connection of the communication line.

Is the communication line between outdoor units correctly connected?

NO → Correct connection of the communication line.

YES → Check I/F P.C. board.
### Check code name

<table>
<thead>
<tr>
<th>[L29] / [CF]</th>
<th>IPDU quantity error</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Current code / AI-NET)</td>
<td></td>
</tr>
</tbody>
</table>

#### Cause of operation
1. Incorrect model setup in service for I/F P.C. board
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?**

- **NO**: Correct connection of connector.
- **YES**: Is communication connector between IPDU and I/F P.C. board connected?

**Is communication connector between IPDU and I/F P.C. board connected?**

- **YES**: Correct connection of connector.
- **NO**: Is there no disconnection of communication line between IPDU and I/F P.C. board?

**Is there no disconnection of communication line between IPDU and I/F P.C. board?**

- **YES**: Replace communication line.
- **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.

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] (Current code / AI-NET)</td>
<td>Interlock in indoor unit from outside</td>
<td>Outside error was input.</td>
</tr>
</tbody>
</table>

#### Diagram

1. **Is outside device connected to connector CN80?**
   - **NO** → Check indoor P.C. board. Failure → Replace
   - **YES** → **Does outside device correctly operate?**
     - **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>
</table>
| [L31] / [–] (Current code / AI-NET) | Extended IC error | 1. Outdoor unit power error  
2. Outdoor I/F P.C. board error |

#### Diagram

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 | Cause of operation
---|---
[P03] / [1E] (Current code / AI-NET) | 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

---

1. Check code name: Discharge temp TD1 error
2. Cause of operation:
   - 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

---

**Diagram:**

1. Are service valve of gas and liquid sides fully opened?
   - NO: Open service valve fully.
   - YES:
     1. Is outdoor PMV normal?
        - NO: Repair outdoor PMV.
        - YES:
          1. Are characteristics of TD1 sensor resistance normal?
             - NO: Replace TD1 sensor.
             - YES:
               1. Does not discharge refrigerant gas bypass to suction side through 4-way valve?
                  - NO: Check 4-way valve.
                  - YES:
                    1. SV4 circuit
                       1. Are not SV41 and SV42 valve coils installed reversely?
                          - NO: Correct installation of valve coil, or replace SV41 valve.
                          - YES:
                            1. Are not indoor units of different refrigerant circuit connected?
                               - NO: Correct wiring
                               - YES: Refrigerant shortage, clogging, pipe breakage

(Refer to Outdoor unit temperature sensor characteristics-4.)

(Connect there is no pipe breakage, and then recharge the refrigerant.)
Check code name | Actuation of high-pressure SW | Cause of operation
---|---|---
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)

**FILE NO. SVM-05052**
Refrigerant overcharge, clogging, pipe breakage, abnormal overload condition

Heating operation

Is SV4 circuit normal?

- NO: Repair SV4 circuit.
  - Coil error, clogging, disconnection of wiring, etc.

- YES: Check indoor P.C. board.

Is indoor PMV normal?

- NO: Repair faulty parts.

- YES: Does heating indoor fan normally operate?

  - NO: Repair faulty parts.

  - YES: Are connector connection, heat exchanger, fan, and fan motor normal?

    - NO: Repair faulty parts.

    - YES: Are characteristics of TC2 and TCJ sensor resistance value normal?

      - NO: Replace TC2 or TCJ sensor.

      - YES: Is there a cause to interfere operation of indoor heat exchanger?

        - NO: Is SV5 circuit normal?

          - NO: Are not indoor units of different refrigerant circuit connected?

            - NO: Refrigerant overcharge, clogging, pipe breakage, abnormal overload condition

            - YES: (Check with miscabling check function of outdoor unit.)

          - YES: Repair faulty position.

            Connector connection, cabling, coil installation, clogging, etc

          - YES: Check and correct the cabling.

Is there a cause to interfere operation of indoor heat exchanger?

- NO: Eliminate the interfered causes.

- YES: Repair SV4 circuit.

Are there connector connection, coil normal?

- NO: Repair faulty parts.

- YES: Is there clogging of valve?

  - NO: Replace PMV body.

  - YES: Check indoor P.C. board.

    Failure → Replace

Are connector connection, coil normal?

- NO: Repair faulty parts.

- YES: Repair SV4 circuit.

Is there a cause to interfere operation of indoor heat exchanger?

- 1: Air filter clogging

- 2: Heat exchanger clogging

- 3: Air short circuit

Are characteristics of TC2 and TCJ sensor resistance value normal?
Check code name | Check code name | Cause of operation
--- | --- | ---

- 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.

Check code name | Check code name | Cause of operation
--- | --- | ---

**Sub-code:** 01: Compressor 1 side 02: Compressor 2 side

- **Is power voltage normal?**
  - NO
  - YES

- **Is wiring of IPDU normal?**
  - NO
  - YES

- **Is indoor fan normal?**
  - NO
  - YES

- **Is screw between IPDU and heat sink loosened?**
  - YES
  - NO

- **Is there no clogging of heat sink cooling duct?**
  - YES
  - NO

Check IPDU P.C. board.

Correct power line.

Correct wiring such as cable to compressor or connector connection.

Check fan and fan motor.

Tighten screws.

Correct clogging.
<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. Fan motor error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Indoor P.C. board error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Cross-flow fan bearing error</td>
</tr>
</tbody>
</table>

Turn off breaker once.

Turn on breaker after approx. 10 seconds.

Does fan stop under condition of operation stop?

![Decision tree diagram](image_url)

Start cooling operation with LOW setup

Does fan rotate?

![Decision tree diagram](image_url)

Change setup of cooling wind to HIGH.

(Motor connection status)

Is voltage more than DC1V supplied between $5^+$ and $3^-$ of motor connector (CN210)?

![Decision tree diagram](image_url)

Is voltage more than DC280V supplied between $4^+$ and $3^-$ of motor connector (CN210)?

![Decision tree diagram](image_url)

Is voltage more than DC1V supplied between $6^+$ and $3^-$ of motor connector (CN210) when turning on the motor (except heating mode) from remote controller?

(Fan motor is normal.)

Replace indoor main P.C. board (MCC-1510).
Check code name | Check code name | Cause of operation
---|---|---

Are connections of outdoor PMV1/PMV2 connectors correct? NO → Correct connector connection. (CN300, CN301)
YES

Are operations of outdoor PMV1/PMV2 normal? NO → PMV error
YES

Are characteristics of Pd sensor/Ps sensor output voltage normal? NO → Pd sensor/Ps sensor error
YES

Is SV2 valve coil correctly connected? NO → Correct connector connection. (CV2: CN302)
YES

Are balance pipe service valves of all units fully opened? NO → Open fully balance pipe service valves of all units.
YES

Is there no clogging of SV3B valve? NO → Replace clogging parts.
YES

Is there no clogging of SV3B valve of a unit other than unit with error? NO → Replace clogging parts.
YES

Is there no leakage of check valve of main discharge pipe in follower units in which compressors are driven in cooling operation? NO → Replace check valve of main discharge pipe.
YES

Check I/F P.C. board.
Check code name | Check code name | Cause of operation
--- | --- | ---

Are service valves at gas and liquid side fully opened? NO → Open service valves fully.

YES →

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.

* Connectors CN300, 301 White

YES →

Are characteristics of TS1 sensor resistance normal?

NO → Replace TS1 sensor.

* Refer to outdoor temp sensor characteristics-2

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.

* Col, valve body, disconnection of cable, etc

YES → Refrigerant shortage, clogging, pipe breakage.

(Check there is no clogging and pipe breakage, and then recharge refrigerant.)
### Check code name

- **[P15] / [AE]**
  - (Current code / AI-NET)

### Gas leak detection

#### TD condition (Sub-code: 02)

<table>
<thead>
<tr>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Outdoor unit service valve closed</td>
</tr>
<tr>
<td>2. Outdoor PMV error</td>
</tr>
<tr>
<td>3. TD sensor error</td>
</tr>
<tr>
<td>4. SV4 circuit error</td>
</tr>
<tr>
<td>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**
  - Repair SV41 and SV42 circuits.
  - (Coil, valve body, coil installation, disconnection of cable, etc.)
- **YES**

#### Are not indoor units in different refrigerant circuit connected?

- **NO**
  - Correct cabling.
- **YES**

### Refrigerant shortage, clogging, pipe breakage.

*Check there is no clogging and pipe breakage, and then recharge refrigerant.*
**Check code name**

[P17] / [bb]

(Current code / 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:**

1. Are service valves of gas and liquid sides fully opened?
   - NO: Open service valves fully.
   - YES: Proceed to next step.

2. Is outdoor PMV normal?
   - NO: Repair outdoor PMV.
   - YES: Proceed to next step.

3. Are characteristics of TD2 sensor resistance normal?
   - NO: Replace TD2 sensor.
   - YES: Proceed to next step.

4. Does not discharge refrigerant gas bypass to suction side through 4-way valve?
   - NO: Check 4-way valve.
   - YES: Proceed to next step.

5. SV4 circuit
   - NO: Correct installation of valve coil. Replace SV42 valve.
   - YES: Proceed to next step.

6. Is not an indoor unit of different refrigerant line connected?
   - NO: Correct cabling.
   - YES: Refrigerant shortage, clogging, pipe breakage.

(Special notes:)

- Connectors CN300, 301 White
- Refer to outdoor unit temperature sensor characteristics-4.
- Check there is no pipe breakage, and then recharge refrigerant.)
Check code name | Cause of operation |
---|---|
[P19] / [08] (Current code / 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.

---

<table>
<thead>
<tr>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Is 4-way valve coil connector connected?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
</tr>
<tr>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Are TS1, TE1, Pd, Ps sensor connectors connected?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
</tr>
<tr>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Are characteristics of resistance value of TS1 and TE1 sensors normal?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
</tr>
<tr>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Are output voltage characteristics of Pd and Ps sensors normal?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
</tr>
<tr>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Are connection and installation of TE1 and TL sensors correct?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
</tr>
<tr>
<td>YES</td>
</tr>
</tbody>
</table>

Reset the power supply and start heating test operation.

<table>
<thead>
<tr>
<th>Does 4-way valve operate?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
</tr>
<tr>
<td>YES</td>
</tr>
</tbody>
</table>

*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)  

---

<table>
<thead>
<tr>
<th>Correct connector connection. (4-way valve coil: CN317)</th>
</tr>
</thead>
</table>

| Correct connector connection.  
TS1 sensor: CN504  
TE1 sensor: CN505  
Pd sensor: CN501  
Ps sensor: CN500 |
|---|

<table>
<thead>
<tr>
<th>Replace sensor.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Replace sensor.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Correct connection and installation.</th>
</tr>
</thead>
</table>

---

FILE NO. SVM-05052
Check code name: [P20] / [22]  
(Current code / AI-NET)

High-pressure protective operation

<table>
<thead>
<tr>
<th>Cause of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pd sensor error</td>
</tr>
<tr>
<td>2. Service valve closed.</td>
</tr>
<tr>
<td>3. Indoor/outdoor fan error</td>
</tr>
<tr>
<td>4. Indoor/outdoor PMV clogging</td>
</tr>
<tr>
<td>5. Indoor/outdoor heat exchanger clogging</td>
</tr>
<tr>
<td>6. SV2 circuit error</td>
</tr>
<tr>
<td>7. SV4 circuit error</td>
</tr>
<tr>
<td>8. SV5 circuit error</td>
</tr>
<tr>
<td>9. Outdoor I/F P.C. board error</td>
</tr>
<tr>
<td>10. Operation error of check valve of main discharge pipe</td>
</tr>
<tr>
<td>11. Refrigerant overcharge</td>
</tr>
</tbody>
</table>

Are service valves fully opened?  
NO → Open service valves fully.

Are characteristics of high-pressure sensor normal?  
NO → Check parts. Failure → Replace

Are there any causes to interfere operation of heat exchanger of outdoor unit?  
YES → Correct faulty position.  
NO → Correct faulty parts.

Does cooling outdoor fan normally operate?  
NO → Correct faulty parts.  
YES → (Connector connection, fan IPDU, fan motor, cabling)

Is there no fan crack or coming-off?  
NO → Correct faulty parts.  
YES → (Connector connection wiring, coil mounting, valve clogging, etc)

Is outdoor PMV normal?  
NO → Correct faulty position.  
YES → (Connector connection wiring, coil mounting, valve clogging, etc)

Is there a cause to interfere operation of heat exchanger of outdoor unit?  
YES → Eliminate the interfered causes.  
NO → Repair SV2 circuit.  

Is SV2 circuit normal?  
NO → Repair SV2 circuit.  
YES → Repair SV4 circuit.

Is SV4 circuit normal?  
NO → Repair check valve. Replace  
YES → Repair check valve.  

Refrigerant overcharge, clogging, pipe breakage, abnormal overload condition
1. Air filter clogging
2. Heat exchanger clogging
3. Air short circuit

Coil error, choke, disconnection of cable, etc.

Check with miscabling check function of outdoor unit.

Refrigerant overcharge, clogging, pipe breakage, abnormal overload condition
**Check code name** | **Check code name** | **Cause of operation**
---|---|---
[P22] / [1A] (Current code / AI-NET) | Outdoor fan IPDU error | 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

---

Are cable connector connection on fan IPDU and power P.C. board A'ssy 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.

YES →

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 | Check code name | Cause of operation
---|---|---
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.
<table>
<thead>
<tr>
<th>Check code name</th>
<th>Check code name</th>
<th>Cause of operation</th>
</tr>
</thead>
</table>
2. Compressor error  
3. IPDU P.C. board error |

**Sub-code:** 01: Compressor 1 side  
02: Compressor 2 side

### Decision Tree

- **Are connector connection and wiring normal?**
  - **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**

### Additional Information

<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]</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.
Check code name | Check code name | Cause of operation
--- | --- | ---
[–] / [97] (Current code / AI-NET) | AI-NET communication line error | AI-NET communication line error

Are AI-NET X and Y communication lines normal?

YES → Correct communication line.

NO → 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 → Are remote controller communication lines (A, B) normal?

YES → Is there no connection error of power line?

YES → Correct power line.

NO → Is not main power supply turned on?

YES → Turn on the main power supply.

NO → Did a block-out occur?

YES → Clear check code.

NO → Is the network address changed by main remote controller?

YES → Is there no noise etc.?

YES → Eliminate noise, etc.

NO → Can be other indoor units normally controlled from AI-NET central remote controller, or is the operation status of indoor unit reflected?

YES → 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 indoor P.C. board. Failure → Replace

NO → Unavailable (Others are same.)

Check central controller. Failure → Replace
7-5-1. Indoor Unit

- Temperature sensor characteristics

![Characteristic-1](Indoor TA sensor)

![Characteristic-2](Indoor TC1, TC2, TCJ sensors)
8. CONFIGURATION OF CONTROL CIRCUIT

8-1. Indoor Controller Block Diagram

8-1-1. Case of Main (Sub) Remote Controller Connected

Max. 8 units are connectable.
*1 In group connection, mount the central control remote controller to group header unit.
*2 Connection of weekly timer to sub remote controller is unavailable.
8-1-2. Case of Wireless Remote Controller Kit Connected

Max. 8 units are connectable.

*1 In group connection, mount the central control remote controller to group header unit.
9. HOW TO REPLACE MAIN PARTS

9-1. Indoor Unit

<table>
<thead>
<tr>
<th>No.</th>
<th>Part name</th>
<th>Procedure</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| ①  | Front panel                      | 1) Stop operation of the air conditioner, and then pull out the power supply plug from the plug socket.  
2) Open the suction grille, and then take off fixing screws of the front panel (4 pcs.).  
3) Push the electric parts box with right thumb while pulling the both sides of the front panel. |         |
|     |                                  | **<Attachment of front panel>**  
1) Hang the hooking claws of the upper surface of the front panel (4 positions) to the rear plate, and then push a position at the center of the lower part of the discharge port.  
2) Tighten 4 screws.  
* When hooking or pushing is insufficient, dewdrop or abnormal sound may be caused. |         |
| ②  | Electric parts assembly          | 1) Perform work of item ①.  
2) Take off fixing screws (2 pcs) of PMV cover, and then remove PMV cover.  
3) Remove binding band (2 positions) fixing the sensor lead wires.  
(When mounting electric parts, fix the sensor lead wires again with bundling band.  
Put bundling band on the positions as before and fasten wires.)  
4) Pull out TC1, TC2, TCJ sensors from sensor holder of hear exchanger.  
(Pay attention to mounting positions of each sensor when reassembling of electric parts. Be sure to apply marking, etc to TC2 and TCJ sensors before removing because their shapes are reassembled.)  
5) Take off LED base fixing screw (1 pc) and remove LED base.  
6) Remove terminal block cover, and then remove fan motor connector (5P), louver motor connector (5P), and PMV motor connector (6P) from microcomputer assembly.  
7) Take off fixing screws (2 pcs) of electric parts box, pull out slightly the electric parts box toward you, and then remove drain guide.  
8) Take off earth screws attached to end board of the heat exchanger.  
9) Pull off the electric parts box toward you.  
**<Caution in reassembling>**  
When mounting the electric parts box to the main unit, follow the reverse procedure of removing. Return sensors and lead wires to the original positions according to the diagram. |         |
<table>
<thead>
<tr>
<th>No.</th>
<th>Part name</th>
<th>Procedure</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| 3   | PMV motor         | **<Caution in works>** Use spanners to remove PMV motor. As the pipes are deformed, do not use monkey spanners. When there is 100 to the ceiling, use a spanner below mm.)**  
  1) Perform work of item ①.  
  2) Take off fixing screws (2 pcs) of PMV cover, and then remove PMV cover.  
  3) Remove connector (6P, Blue) for PMV motor from the electric parts box.  
  4) Take off bundling band of PMV motor lead wires.  
  5) Using a spanner, remove PMV motor.  
**<Caution in reassembling>** Draw out lead wires of PMV motor from positions same to original positions before removing. | Screw at PMV main unit side (14mm spanner)  
Screw at PMV motor side (19mm spanner)  
**Ground lead wire**  
**P.M.V. lead wire** |
| 4   | Horizontal grille | 1) Remove shaft of the horizontal grille from the rear plate.  
(First remove the left shaft, and then remove the other shafts while sliding the horizontal grille leftward.) | **Bind band**  
**Max. 150**  
**Max. 160**  
**P.M.V. lead wire** |
<table>
<thead>
<tr>
<th>No.</th>
<th>Part name</th>
<th>Procedure</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| 5   | Heat exchanger| 1) Perform work of item 2.  
2) Remove the pipe holder from the rear side of the main unit.  
3) Take off fixing screws (2 pcs.) at the left side of the end plate of the heat exchanger.  
4) Take off fixing screws (2 pcs.) at the right side of the heat exchanger. |         |

| 6   | Bearing       | 1) Perform works of items ①, ⑧-4), and ⑧-5), and then remove bearing from the bearing base.  
**<Caution to reassembly>**  
In case of shooting-out of bearing part from the housing, push into the specified position and incorporate in the main unit. |         |
<table>
<thead>
<tr>
<th>No.</th>
<th>Part name</th>
<th>Procedure</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Fan motor</td>
<td>1) Perform work of item ②.</td>
<td>Assemble the fan motor as shown below.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Perform work of item ④.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) Loosen the set screw of the cross-flow fan from the discharge port.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4) Take off fixing screws (2 pcs) to remove the motor band (Right).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5) Pull out the fan motor outward.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Cross-flow fan</td>
<td>1) Perform works of items ② and ③.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Take off fixing screws (2 pcs.) at the left side of the end plate of</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>the heat exchanger, and then take off fixing screws (2 pcs.) of the</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>bearing base.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) Make the left side of the heat exchanger float slightly, and then</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>remove the bearing base.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4) Loosen set screw of the cross-flow fan from the discharge port.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5) Take off fixing screws (2 pcs.) to remove the motor band (Right).</td>
<td></td>
</tr>
</tbody>
</table>

Remarks: Assemble the fan motor as shown below. 

Drawing port of fan motor lead wires should be this position. 
(Determine the lead drawing port position so that motor band (Right) does not come to contact with fan motor drawing port.) 

Draw out fan motor lead wire from here.

* Remove set screw from gap of thermal insulator.
<table>
<thead>
<tr>
<th>No.</th>
<th>Part name</th>
<th>Procedure</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Cross-flow fan</td>
<td>6) Slide the fan motor rightward to remove it.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7) Take off fixing screws (2 pcs.) from fixing support at right side of the heat exchanger.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8) Lift up the left side of the heat exchanger toward you, and then remove the cross-flow fan.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>&lt;Caution to reassembling&gt;</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>a) When assembling the bearing base, check the drain pipe is surely incorporated to the rear plate. (Otherwise water leak may be caused.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) When assembling the fan motor, remove fan motor rubber (shaft center side), mount it in the position in the following figure, and then mount the fan motor.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mount the cross-flow fan so that the right end of joint which is first one from right of the cross-flow fan is set at position 70.5mm apart from wall of the rear side of the main unit.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mount the cross-flow fan so that D-cut part at the center comes to the mounting hole of set screw.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Determine the position of fan motor as shown in the figure for mounting. (Perform work of item 7.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>c) When attaching motor band (Right), perform work of item b), set the hooking claws (2 positions) of the motor band (Right) in the main unit, and then perform reverse procedure of item 6).</td>
<td></td>
</tr>
</tbody>
</table>
10. REPLACEMENT OF SERVICE INDOOR P.C. BOARD

<table>
<thead>
<tr>
<th>Model type</th>
<th>P.C. board model</th>
<th>Label display on P.C. board</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMK-AP*** 2H series</td>
<td>MCC-1510</td>
<td>04DD M01</td>
</tr>
</tbody>
</table>

[Requirement when replacing the service indoor P.C. board assembly]

In the non-volatile memory (Hereinafter said EEPROM, IC10) installed on the indoor P.C. board before replacement, the type and capacity code exclusive to the corresponding model have been stored at shipment from the factory and the important setup data such as refrigerant line /indoor unit /group address in (AUTO/MANUAL) mode have been stored at installation. Replace the service indoor P.C. board assembly according to the following procedure.

After replacement, make sure that the indoor unit address is set correctly and also the refrigerant cycle is working correctly by test operation.

<Replacement procedure>

**CASE 1**
Before replacement, power of the indoor unit can be turned on and the setup data can be readout by the wired remote controller.

1. Push SET, CL and buttons of the remote controller at the same time for 4 seconds or more.  
   (Corresponded with No. in Remote controller as shown below picture)

   ![Image of remote controller buttons](image)

   * When group operation, the header indoor unit address is displayed at the first time. In this time, the item code (DN) is displayed. The fan of the second indoor unit operates and the flap starts swinging if any.

2. Readout of the setup data from EEPROM
   (Data in EEPROM contents, which have been changed at the local site, are read out together with data in EEPROM set at shipment from the factory.)

3. Replace service P.C. board & power ON

4. Write the read data to EEPROM

5. Power reset

(Case in group operation, reset the power for all indoor units which are connected to the remote controller.)

**CASE 2**
Before replacement, the setup data can not be read out by the wired remote controller.

1. Replace service P.C. board & power ON

2. Write the data such as “option input selection” setup to EEPROM

   (According to the customers’ information)

3. Power reset

**1** Readout of the setup data from EEPROM
(Data in EEPROM contents, which have been changed at the local site, are read out together with data in EEPROM set at shipment from the factory.)
2. Every pushing [UNIT] button, the indoor unit address in the group are displayed successively. Specify the indoor unit No. to be replaced.

3. Using the set temperature / buttons, the item code (DN) can be moved up and down one by one.

4. First change the item code (DN) from 10 to 9. (Setting of filter sign lighting time) Make a note of the set data displayed in this time.

5. Next change the item code (DN) using the set temperature / buttons. Also make a note of the set data.

6. Repeat item 5. and made a note of the important set data as shown in the below table. * 9 to 8 are provided in the item code (DN). On the way of operation, DN No. may skip.

7. After finishing making a note, push button to return to the usual stop status. (Approx. 1 minute is required to be able to use the remote controller.)

Minimum requirements for item code

<table>
<thead>
<tr>
<th>DN</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Indoor unit capacity</td>
</tr>
<tr>
<td>12</td>
<td>Refrigerant line address</td>
</tr>
<tr>
<td>13</td>
<td>Indoor unit address</td>
</tr>
<tr>
<td>14</td>
<td>Group address</td>
</tr>
</tbody>
</table>

Capacity of the indoor unit is necessary to set the revolutions of the fan.

2 Replacement of service P.C. board

1. Replace the P.C. board with a service P.C. board.

   In this time, setting of jumper line (cut) or setting of DIP switch on the former P.C. board should be reflected on the service P.C. board. Refer to the following table about DIP switch setting and drawing of P.C. board parts layout.

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 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 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 3.

         * When the above methods cannot be used, follow at the Case 2 below.
C) In case that power of the indoor units cannot be turned in 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 3.
      * After /G72 operation has finished, be sure to return the temporarily removed group wire or CN41 connector to the original connection.

   (Case 1)

   (Case 2)

   P.C. board parts layout drawing

   <MCC-1510>

Method of DIP switch setting

<table>
<thead>
<tr>
<th></th>
<th>Selected content</th>
<th>MMK-AP**2H series</th>
<th>At shipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW01</td>
<td>Bit 1 Terminator resistor (for central control)</td>
<td>※1</td>
<td>OFF (Without terminator)</td>
</tr>
<tr>
<td></td>
<td>Bit 2 Remote controller A/B selection</td>
<td>※1</td>
<td>OFF (A selection)</td>
</tr>
<tr>
<td>SW02</td>
<td>Bit 1 Custom / Multi model selection</td>
<td>ON</td>
<td>ON (Multi model)</td>
</tr>
<tr>
<td></td>
<td>Bit 2 No use</td>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

※1 : Match to set up contents of P.C. board before replacement.
写作设置内容到EEPROM

（The contents of EEPROM installed on the service P.C. board have been set up at shipment from the factory.）

1. Push [SET], [CL] and [ ] buttons of the remote controller at the same time for 4 seconds or more. 1

   (Corresponded with No. in Remote controller as shown below picture) (The UNIT No. is displayed.)

   In this time, the item code (DN) is displayed. The fan of the indoor unit operates and the flap starts swinging if any.

2. Using the set temperature buttons, the item code (DN) can be moved up and down one by one. 2

3. First set the capacity of the indoor unit.

   (Setting the capacity writes the data at shipment from the factory in EEPROM.)

   1) Using the set temperature buttons, set to the item code (DN). 2

   2) Using the timer time buttons, set the capacity. 3

   (For example, 0005 for MMK-AP0122H) Refer to the attached table.

3) Push [SET] button. (OK when the display goes on.) 4

4) Push button to return to usual stop status. 5

   (Approx. 1 minute is required to start handling of the remote controller.)

4. Next write the contents that have been written at the installation such as the address data into EEPROM.

   Repeat the above procedure 1.

5. Using the set temperature buttons, set to the item code (DN). 2

   (Setup of lighting time of filter sign)

6. The contents of the displayed setup data in this time should be agreed with the contents in the previous memorandum in 1.

   1) If data disagree, change the displayed setup data to that in the previous memorandum by the timer time buttons, and then push [SET] button. (OK when the display goes on.)

   2) There is nothing to do when data agrees.

7. Using the set temperature buttons, change the item code (DN).

   As same as the above 6., check the contents of the setup data and then change them to data contents in the previous memorandum in 1.

8. Then repeat the procedure 6. and 7.

9. After completion of setup, push [ ] button to return the status to the usual stop status. 5

   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.

   (Approx. 1 minute is required to be able to use of the remote controller.)

* to are provided in the item code (DN).

   On the way of operation, DN No. may skip.

   When data has been changed by mistake and [SET] button has been pushed, the data can be returned to the data before change by pushing [CL] button if the item code (DN) was not yet changed.
### Item code table (Please record the objective unit data at field)

<table>
<thead>
<tr>
<th>DN</th>
<th>Item</th>
<th>Memo</th>
<th>At shipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Filter sign lighting time</td>
<td>0001: 150 hour</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Dirty state of filter</td>
<td>0000: Standard</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Central control address</td>
<td>0099: Unfixed</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Heating suction temp shift</td>
<td>0002: +2°C</td>
<td></td>
</tr>
<tr>
<td>0C</td>
<td>PRE-DEF indication selection</td>
<td>0000: Standard</td>
<td></td>
</tr>
<tr>
<td>0d</td>
<td>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</td>
<td>Cooling only</td>
<td>0000: Heat pump</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Type</td>
<td>Be sure to set as 0008</td>
<td>0008: High wall type</td>
</tr>
<tr>
<td>11</td>
<td>Indoor unit capacity (See below table)</td>
<td>According to capacity type</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Refrigerant line address</td>
<td>0099: Unfixed</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Indoor unit address</td>
<td>0099: Unfixed</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Group address</td>
<td>0099: Unfixed</td>
<td></td>
</tr>
<tr>
<td>1E</td>
<td>Temp difference of automatic cooling/</td>
<td>0003: 3deg (Ts ± 1.5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>heating selecting control points</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Automatic restart from power cut</td>
<td>0000: None</td>
<td></td>
</tr>
<tr>
<td>2A</td>
<td>Option input selection (CN80)</td>
<td>0002: External emergency input</td>
<td></td>
</tr>
<tr>
<td>2b</td>
<td>Thermo output selection (T10 ③)</td>
<td>0000: Thermo ON</td>
<td></td>
</tr>
<tr>
<td>2E</td>
<td>Input selection (T10 ①)</td>
<td>0000: Operation input</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Sensor selection</td>
<td>0000: Available</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>Timer set (Wired remote controller)</td>
<td>0000: Available</td>
<td></td>
</tr>
<tr>
<td>69</td>
<td>Flap selection of cooling</td>
<td>0000: Standard</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>0000*</td>
<td>Invalid</td>
</tr>
<tr>
<td>0001</td>
<td>MMK-AP0072H</td>
</tr>
<tr>
<td>0003</td>
<td>MMK-AP0092H</td>
</tr>
<tr>
<td>0005</td>
<td>MMK-AP0122H</td>
</tr>
</tbody>
</table>

* Initial value of EEPROM installed on the supplied service P.C. board
## 11. EXPLODED VIEWS AND PARTS LIST

<table>
<thead>
<tr>
<th>Location No.</th>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>201</td>
<td>43T00421</td>
<td>Front Panel Ass’y</td>
</tr>
<tr>
<td>202</td>
<td>43T09370</td>
<td>Suction Grille</td>
</tr>
<tr>
<td>203</td>
<td>43T03326</td>
<td>Back Body Ass’y</td>
</tr>
<tr>
<td>204</td>
<td>43T80301</td>
<td>Air Filter</td>
</tr>
<tr>
<td>205</td>
<td>43T09371</td>
<td>Horizontal Louver</td>
</tr>
<tr>
<td>206</td>
<td>43T70308</td>
<td>Drain Hose Ass’y</td>
</tr>
<tr>
<td>207</td>
<td>43T79301</td>
<td>Cap-Drain</td>
</tr>
<tr>
<td>208</td>
<td>43T21321</td>
<td>Motor, Stepping, MP24Z, DC12V</td>
</tr>
<tr>
<td>209</td>
<td>43T44370</td>
<td>Refrigeration Ass’y</td>
</tr>
<tr>
<td>210</td>
<td>43T44371</td>
<td>Distributor Ass’y</td>
</tr>
<tr>
<td>211</td>
<td>43T47340</td>
<td>Pipe Delivery</td>
</tr>
<tr>
<td>212</td>
<td>43T47341</td>
<td>Pipe Suction</td>
</tr>
<tr>
<td>214</td>
<td>43T11301</td>
<td>Pipe Shield</td>
</tr>
<tr>
<td>215</td>
<td>43T21354</td>
<td>Motor, P.M.V.</td>
</tr>
<tr>
<td>216</td>
<td>43T44370</td>
<td>Refrigeration Ass’y</td>
</tr>
<tr>
<td>217</td>
<td>43T19003</td>
<td>Fix-P-Sensor</td>
</tr>
<tr>
<td>218</td>
<td>43T19321</td>
<td>Holder sensor</td>
</tr>
<tr>
<td>219</td>
<td>43T49317</td>
<td>Rubber Seal Evaporator</td>
</tr>
<tr>
<td>220</td>
<td>43T49006</td>
<td>Holder for Plate</td>
</tr>
<tr>
<td>221</td>
<td>43T22002</td>
<td>ASM-M-Bearing</td>
</tr>
<tr>
<td>222</td>
<td>43T39314</td>
<td>Base Bearing Ass’y</td>
</tr>
<tr>
<td>223</td>
<td>43T20302</td>
<td>Fan, Cross Flow</td>
</tr>
<tr>
<td>224</td>
<td>43T21344</td>
<td>Fan Motor, MF-340-30-1</td>
</tr>
<tr>
<td>225</td>
<td>43T39315</td>
<td>Band Motor, Left</td>
</tr>
<tr>
<td>226</td>
<td>43T39303</td>
<td>Band Motor, Right</td>
</tr>
<tr>
<td>227</td>
<td>43T82301</td>
<td>Plate, Installation</td>
</tr>
<tr>
<td>228</td>
<td>43T69309</td>
<td>Wireless Remote Controller, WH-H2UE</td>
</tr>
<tr>
<td>229</td>
<td>43T83003</td>
<td>Holder, Remote Controller</td>
</tr>
<tr>
<td>230</td>
<td>43T85497</td>
<td>Owner’s Manual</td>
</tr>
<tr>
<td>231</td>
<td>43T62318</td>
<td>Terminal Cover</td>
</tr>
<tr>
<td>232</td>
<td>43T07303</td>
<td>Holder Pipe</td>
</tr>
<tr>
<td>233</td>
<td>43T62319</td>
<td>Cover, P.M.V. Ass’y</td>
</tr>
</tbody>
</table>

**NOTE:**
These service parts are supplied by TCTC.
TCTC: TOSHIBA CARRIER Thailand Co.
<table>
<thead>
<tr>
<th>Location No.</th>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>401</td>
<td>43T60001</td>
<td>Terminal, 15A, 250V</td>
</tr>
<tr>
<td>402</td>
<td>43T60002</td>
<td>Terminal Block, 3P, 15A, 250V</td>
</tr>
<tr>
<td>403</td>
<td>43T60362</td>
<td>Terminal</td>
</tr>
<tr>
<td>404</td>
<td>43T50312</td>
<td>Sensor; Heat Exchanger</td>
</tr>
<tr>
<td>405</td>
<td>43T50303</td>
<td>Temperature sensor</td>
</tr>
<tr>
<td>406</td>
<td>43T50313</td>
<td>Sensor; Thermostat</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location No.</th>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>407</td>
<td>43T69428</td>
<td>P.C. Board</td>
</tr>
<tr>
<td>408</td>
<td>43T69429</td>
<td>Display Unit</td>
</tr>
<tr>
<td>409</td>
<td>43T62003</td>
<td>Cord Clamp</td>
</tr>
<tr>
<td>410</td>
<td>43T61301</td>
<td>Cover-Parts-E</td>
</tr>
<tr>
<td>411</td>
<td>43T62315</td>
<td>Cover-Connect-P</td>
</tr>
<tr>
<td>412</td>
<td>43T72307</td>
<td>Drain Guide</td>
</tr>
</tbody>
</table>