TECHNICAL & SERVICE MANUAL

CITY MULTI Series Ceiling Suspended R410A/R22

Indoor unit [Model names] [Service Ref.]
PCFY-P15NKMU-E PCFY-P15NKMU-E.TH
PCFY-P24NKMU-E PCFY-P24NKMU-E.TH
PCFY-P30NKMU-E PCFY-P30NKMU-E.TH
PCFY-P36NKMU-E PCFY-P36NKMU-E.TH

Note:
- This manual describes only service data of the indoor units.
- RoHS compliant products have <G> mark on the spec name plate.

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PARTS CATALOG (OCB500)
1 PART NAMES AND FUNCTIONS

● Indoor unit

![Diagram of Indoor unit showing Air outlet, Louver, Vane, Air intake, and Filter (Inside of Air intake).]
Wired remote controller

**Display Section**
- **Day-of-Week**
  - Shows the current day of the week.
- **Time/Timer Display**
  - Shows the current time, unless the simple or Auto Off timer is set. If the simple or Auto Off timer is set, the time to be switched off is shown.
- **“Sensor” indication**
  - Displays when the remote controller sensor is used.
- **“Locked” indicator**
  - Indicates that remote controller buttons have been locked.
- **“Clean The Filter” indicator**
  - To be displayed when it is time to clean the filter.
- **Timer indicators**
  - The indicator comes on if the corresponding timer is set.
- **“Timer is Off” indicator**
  - Indicates that the timer is off.
- **Temperature Setting**
  - Shows the target temperature.
- **“Centrally Controlled” indicator**
  - Indicates that operation from the remote controller has been prohibited by a master controller.
- **“One Hour Only” indicator**
  - Displays if the airflow is set to Low or downward during COOL or DRY mode. (Operation varies according to model.) The indicator goes off in one hour, at which time the airflow direction also changes.
- **Up/Down Air Direction indicator**
  - The indicator shows the direction of the outcoming airflow.
- **Room Temperature display**
  - Shows the room temperature. The room temperature display range is 46–102°F. The display blinks if the temperature is less than 46°F or 102°F or more.
- **Louver display**
  - Indicates the action of the swing louver. Does not appear if the louver is not running.
- **Fan Speed indicator**
  - Shows the selected fan speed.
- **Ventilation indicator**
  - Appears when the unit is running in Ventilation mode.

**Operation Section**
- **Temperature setting buttons**
  - **Down**
  - **Up**
- **Mode button** (Return button)
- **Set Time buttons**
  - **Back**
  - **Ahead**
- **Timer On/Off button** (Set Day button)
- **Filter button** (<Enter> button)
- **Check button** (Clear button)
- **Airflow Up/Down button**
- **Louver button**
  - **Operation button**
  - **To return operation number**
- **Ventilation button**
  - **Operation button**
  - **To go to next operation number**

**Note:**
- "PLEASE WAIT" message
  - This message is displayed for approximately 3 minutes when power is supplied to the indoor unit or when the unit is recovering from a power failure.
- "NOT AVAILABLE" message
  - This message is displayed if an invalid button is pressed (to operate a function that the indoor unit does not have).
  - If a single remote controller is used to operate multiple indoor units simultaneously that are different types, this message will not be displayed as far as any of the indoor units is equipped with the function.

**OCH500**
## 2-1. SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>PCFY-P15NKMU-E</th>
<th>PCFY-P24NKMU-E</th>
<th>PCFY-P30NKMU-E</th>
<th>PCFY-P36NKMU-E</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cooling capacity</strong></td>
<td><strong>kW</strong></td>
<td><strong>kW</strong></td>
<td><strong>kW</strong></td>
<td><strong>kW</strong></td>
</tr>
<tr>
<td>(Nominal)</td>
<td>4.4</td>
<td>7.0</td>
<td>8.8</td>
<td>10.6</td>
</tr>
<tr>
<td><strong>Blu.sh</strong></td>
<td>15,000</td>
<td>24,000</td>
<td>30,000</td>
<td>36,000</td>
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<tr>
<td><strong>Power input</strong></td>
<td>kW</td>
<td>kW</td>
<td>kW</td>
<td>kW</td>
</tr>
<tr>
<td>Current input</td>
<td>0.03</td>
<td>0.04</td>
<td>0.09</td>
<td>0.11</td>
</tr>
<tr>
<td><strong>Heating capacity</strong></td>
<td><strong>kW</strong></td>
<td><strong>kW</strong></td>
<td><strong>kW</strong></td>
<td><strong>kW</strong></td>
</tr>
<tr>
<td>(Nominal)</td>
<td>5.0</td>
<td>7.9</td>
<td>10.0</td>
<td>11.7</td>
</tr>
<tr>
<td><strong>Blu.sh</strong></td>
<td>17,000</td>
<td>27,000</td>
<td>34,000</td>
<td>40,000</td>
</tr>
<tr>
<td><strong>Power input</strong></td>
<td>kW</td>
<td>kW</td>
<td>kW</td>
<td>kW</td>
</tr>
<tr>
<td>Current input</td>
<td>0.03</td>
<td>0.04</td>
<td>0.09</td>
<td>0.11</td>
</tr>
<tr>
<td><strong>External dimensions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H x W x D</td>
<td>mm</td>
<td>230×960×680</td>
<td>230×1280×680</td>
<td>230×1600×680</td>
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<tr>
<td><strong>Net weight</strong></td>
<td>kg</td>
<td>24 (53)</td>
<td>32 (71)</td>
<td>36 (79)</td>
</tr>
<tr>
<td></td>
<td>lb</td>
<td>53</td>
<td>71</td>
<td>79</td>
</tr>
<tr>
<td><strong>FAN</strong></td>
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<td></td>
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<tr>
<td>External</td>
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<td></td>
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<tr>
<td>Pressure</td>
<td>Pa</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Internal</td>
<td>mmH2O</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td><strong>Motor type</strong></td>
<td>DC motor</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Airflow rate</strong></td>
<td>(Low-Mid-Mid-High)</td>
<td>167-183-200-217</td>
<td>233-250-267-300</td>
<td>333-367-417-467</td>
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<tr>
<td></td>
<td>(L/min)</td>
<td>353-388-424-459</td>
<td>494-530-565-636</td>
<td>703-777-883-989</td>
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<tr>
<td><strong>Noise level</strong></td>
<td>(measured in anechoic room)</td>
<td>29-32-34-36</td>
<td>31-33-35-37</td>
<td>34-37-40-43</td>
</tr>
<tr>
<td></td>
<td>dB (A)</td>
<td>35-39-42-44</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Refrigerant control device</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid</td>
<td>mm (in.)</td>
<td>96 (3/8)</td>
<td>96 (3/8)</td>
<td>96 (3/8)</td>
</tr>
<tr>
<td>Gas</td>
<td>mm (in.)</td>
<td>127 (1/2)</td>
<td>158 (5/8)</td>
<td>158 (5/8)</td>
</tr>
<tr>
<td><strong>Field drain pipe size</strong></td>
<td>mm (in.)</td>
<td>26 (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>O.D. 20mm (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Air filter</strong></td>
<td>PP honeycomb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Protection device</strong></td>
<td>Fuse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Refrigerant pipe</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid</td>
<td>mm (in.)</td>
<td>96 (3/8)</td>
<td>96 (3/8)</td>
<td>96 (3/8)</td>
</tr>
<tr>
<td>Gas</td>
<td>mm (in.)</td>
<td>127 (1/2)</td>
<td>158 (5/8)</td>
<td>158 (5/8)</td>
</tr>
<tr>
<td><strong>Pipe length</strong></td>
<td>(Low-Mid-Mid-High)</td>
<td>28.9 (1.6)</td>
<td>28.9 (1.6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>mm (in.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Field drain pipe size</strong></td>
<td>mm (in.)</td>
<td>26 (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>O.D. 20mm (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Optional parts</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Drain pump kit</td>
<td>PAC-SH83DM-E</td>
<td>PAC-SHB43DM-E</td>
<td>PAC-SH84DM-E</td>
<td>PAC-SHB44DM-E</td>
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<tr>
<td>High efficiency filter</td>
<td>PAC-SH88KF-E</td>
<td>PAC-SH89KF-E</td>
<td>PAC-SH89KF-E</td>
<td>PAC-SH90KF-E</td>
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<tr>
<td>External heater adapter</td>
<td>PAC-YU25HT</td>
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<td></td>
<td></td>
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<tr>
<td>i-see Sensor</td>
<td>PAC-SH91MK-E</td>
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<td></td>
<td></td>
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<tr>
<td>Wireless remote controller kit</td>
<td>PAR-SL93B-E</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

1. Nominal cooling conditions
2. Nominal heating conditions
3. Connect the joint (purchased locally) for R22

**Unit converter**

- m = yd/0.3048
- ft = m/0.3048
- lb = kg/0.4536

*Due to continuing improvement, above specification may be subject to change without notice.*

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**OCH500**
2-2. ELECTRICAL PARTS SPECIFICATIONS

<table>
<thead>
<tr>
<th>Parts name</th>
<th>Symbol</th>
<th>PCFY-P15NKMU-E.TH</th>
<th>PCFY-P24NKMU-E.TH</th>
<th>PCFY-P30NKMU-E.TH</th>
<th>PCFY-P36NKMU-E.TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room temperature thermistor</td>
<td>TH21</td>
<td>Resistance 30°F/15.8kΩ, 50°F/9.6kΩ, 70°F/6.0kΩ, 80°F/4.8kΩ, 90°F/3.9kΩ, 100°F/3.2kΩ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid pipe thermistor</td>
<td>TH22</td>
<td>Resistance 30°F/15.8kΩ, 50°F/9.6kΩ, 70°F/6.0kΩ, 80°F/4.8kΩ, 90°F/3.9kΩ, 100°F/3.2kΩ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas pipe thermistor</td>
<td>TH23</td>
<td>Resistance 30°F/15.8kΩ, 50°F/9.6kΩ, 70°F/6.0kΩ, 80°F/4.8kΩ, 90°F/3.9kΩ, 100°F/3.2kΩ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuse (Indoor controller board)</td>
<td>FUSE</td>
<td>250V 6.3A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fan motor</td>
<td>MF</td>
<td>8-pole OUTPUT 90W</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vane motor</td>
<td>MV</td>
<td>MSBPC20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drain-pump (Option)</td>
<td>DP</td>
<td>INPUT 10.8W 24l/Hr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drain float switch</td>
<td>FS</td>
<td>Open / Short detection DC 5V</td>
<td></td>
<td></td>
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<tr>
<td>Linear expansion valve</td>
<td>LEV</td>
<td>DC12V Stepping motor drive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power supply terminal block</td>
<td>TB2</td>
<td>Port dimension ø3.2 (0~2000 pulse) EFM-40YGM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transmission terminal block</td>
<td>TB5</td>
<td>Port dimension ø3.2 (0~2000 pulse) EFM-40YGM</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>MA remote controller terminal block</td>
<td>TB15</td>
<td>(1, 2) Rated to 250V 10A</td>
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</tr>
</tbody>
</table>

Note: Refer to WIRING DIAGRAM for the supplied voltage.

2-3. SOUND LEVEL

<table>
<thead>
<tr>
<th>PCFY-P•NKMU-E.TH</th>
<th>Sound level at anechoic room: Low-Mid2-Mid1-High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Ref.</td>
<td>Sound level dB (A)</td>
</tr>
<tr>
<td>PCFY-P15NKMU-E.TH</td>
<td>29-32-34-36</td>
</tr>
<tr>
<td>PCFY-P24NKMU-E.TH</td>
<td>31-33-35-37</td>
</tr>
<tr>
<td>PCFY-P30NKMU-E.TH</td>
<td>34-37-40-43</td>
</tr>
<tr>
<td>PCFY-P36NKMU-E.TH</td>
<td>36-39-42-44</td>
</tr>
</tbody>
</table>

* Measured in anechoic room.

* OCH500
2-4. NC CURVES

**PCFY-P15NKMU-E.TH**
- External static pressure: 0Pa
- Power source: 208V, 230V, 60Hz

**PCFY-P24NKMU-E.TH**
- External static pressure: 0Pa
- Power source: 208V, 230V, 60Hz

**PCFY-P30NKMU-E.TH**
- External static pressure: 0Pa
- Power source: 208V, 230V, 60Hz

**PCFY-P36NKMU-E.TH**
- External static pressure: 0Pa
- Power source: 208V, 230V, 60Hz
2-5. FRESH AIR INTAKE AMOUNT & STATIC PRESSURE CHARACTERISTICS

- **PCFY-P15NKMU-E.TH**

  ![Graph showing fresh air intake amount and static pressure characteristics for PCFY-P15NKMU-E.TH](image)

  - **A**: Designed amount of fresh air intake <CMM(CFM)>.
  - **B**: Static pressure loss of fresh air intake duct system with airflow amount Q <Pa(in.W.G.x10^-2)>.
  - **C**: Forced static pressure at air conditioner inlet with airflow amount Q <Pa(in.W.G.x10^-2)>.
  - **D**: Static pressure loss increase amount of fresh air intake duct system for airflow amount Q <Pa(in.W.G.x10^-2)>.
  - **E**: Static pressure of indoor unit with airflow amount Q <Pa(in.W.G.x10^-2)>.
  - **Qa**: Estimated amount of fresh air intake without D <CMM(CFM)>

- **PCFY-P24NKMU-E.TH**

  ![Graph showing fresh air intake amount and static pressure characteristics for PCFY-P24NKMU-E.TH](image)

- **PCFY-P30, 36NKMU-E.TH**

  ![Graph showing fresh air intake amount and static pressure characteristics for PCFY-P30, 36NKMU-E.TH](image)

How to read curves:

- **Q**: Designed amount of fresh air intake <CMM(CFM)>
- **A**: Static pressure loss of fresh air intake duct system with airflow amount Q <Pa(in.W.G.x10^-2)>
- **B**: Forced static pressure at air conditioner inlet with airflow amount Q <Pa(in.W.G.x10^-2)>
- **C**: Static pressure of booster fan with airflow amount Q <Pa(in.W.G.x10^-2)>
- **D**: Static pressure loss increase amount of fresh air intake duct system for airflow amount Q <Pa(in.W.G.x10^-2)>
- **E**: Static pressure of indoor unit with airflow amount Q <Pa(in.W.G.x10^-2)>
- **Qa**: Estimated amount of fresh air intake without D <CMM(CFM)>

OCH500
Drainage

When drain socket is installed

Drainage pipe connection

Refrigerant-pipe connection

Knockout hole for wiring arrangement

NOTES:

1. Use M10 or W3/8 screw for anchor bolt.
2. Please be sure when installing the drain pump (option part), refrigerant pipe will be only upward.

In case of wireless remote controller and i-see sensor (Optional Parts)

Emergency operation switch <Cooling>

Emergency operation switch <Heating>

DEFROST/STAND BY lamp

Receiver

Operation lamp

Air outlet

Air intake

Ceiling

NOTES:

1. Use M10 or W3/8 screw for anchor bolt.
2. Please be sure when installing the drain pump (option part), refrigerant pipe will be only upward.
NOTES:
1. Use M10 or W3/8 screw for anchor bolt.
2. Please be sure when installing the drain pump (option parts), refrigerant pipe will be only upward.

DEFROST/STAND BY lamp
Emergency operation switch <Cooling>
Receiver
Operation lamp
Emergency operation switch <Heating>

In case of wireless remote controller and i-see sensor (Optional Parts)

Knockout hole for upper drain pipe arrangement
Knockout hole for fresh air intake Φ3-15/16(Φ100)
Knockout hole for wiring arrangement Φ7/8(Φ22)

Accessory...Drain socket (1(26mm) I.D.)

Drainage pipe connection (1(26mm)I.D.)
Drainage pipe connection (for the left arrangement)
Knockout hole for left drain-piping arrangement
Refrigerant-pipe connection (gas pipe side/flared connection)
Refrigerant-pipe connection (liquid pipe side/flared connection)

Electrical box
Air outlet
Air intake

OCH500
When drain socket is installed:
- Drainage: 9-5/16 (236)

NOTES:
1. Use M10 or 3/8" screw for anchor bolt.
2. Please be sure when installing the drain pump (option parts), refrigerant pipe will be only upward.

In case of rear pipe arrangement, make sure to remove the shaded portions from the independent piece. Then put the independent piece back to its initial position. (the heat exchanger might be clogged because of dust)

In case of wireless remote controller and i-see sensor (optional parts):
- Drain outlet
- Refrigerant-pipe connection (for the left arrangement)
- Knockout hole for upper drain pipe arrangement
- Knockout hole for fresh air intake (Φ3-15/16 (Φ100))
- Knockout hole for wiring arrangement (Φ7/8 (Φ22))
- Accessory: Drain socket (1 (26mm) I.D.)

Emergency operation switch <Heating>
Emergency operation switch <Cooling>
DEFROST/STAND BY lamp
Receiver
Operation lamp
In case of wireless remote controller and i-see sensor (optional parts):
NOTES:
1. At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
2. In case of using MA-Remote controller, please connect to TB15. (Remote controller wire is non-polar.)
3. In case of using M-NET, please connect to TB5. (Transmission line is non-polar.)
4. Symbol [S] of TB5 is the shield wire connection.
5. Symbols used in wiring diagram above are:  terminal block, [ ] connector.
6. The setting of the SW2 dip switches differs in the capacity. For the detail, refer to table 1.
7. Use copper supply wires.
5 REFRIGERANT SYSTEM DIAGRAM

PCFY-P15NKMU-E.TH   PCFY-P24NKMU-E.TH
PCFY-P30NKMU-E.TH   PCFY-P36NKMU-E.TH

--- Refrigerant flow in cooling
--- Refrigerant flow in heating

Gas pipe thermistor TH23
Strainer (#100 mesh)

Liquid pipe thermistor TH22
Flare connection

Heat exchanger
Strainer1 (#50 mesh)
Strainer2 (#100 mesh)

Room temperature thermistor TH21
Linear expansion valve

Gas pipe
Liquid pipe

PCFY-P15NKMU-E.TH   PCFY-P24NKMU-E.TH
PCFY-P30NKMU-E.TH   PCFY-P36NKMU-E.TH

Unit : mm (inch)

<table>
<thead>
<tr>
<th>Item</th>
<th>PCFY-P15NKMU-E.TH</th>
<th>PCFY-P24NKMU-E.TH</th>
<th>PCFY-P30NKMU-E.TH</th>
<th>PCFY-P36NKMU-E.TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas pipe</td>
<td>Ø12.7 (1/2)</td>
<td>Ø15.88 (5/8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid pipe</td>
<td>Ø6.35 (1/4)</td>
<td>Ø9.52 (3/8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OCH500
### INDOOR UNIT CONTROL

#### 6-1. COOL OPERATION

**<How to operate>**

1. Press POWER ON/OFF button.
2. Press the operation MODE button to display COOL.
3. Press the TEMP. button to set the desired temperature.

**NOTE:** The set temperature changes 2°F when the higher or lower button is pressed one time. Cooling 67°F to 87°F.

<table>
<thead>
<tr>
<th>Control modes</th>
<th>Control details</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| 1. Thermoregulating function | 1-1. Thermoregulating function (Function to prevent restarting for 3 minutes)  
   - Room temperature ≥ desired temperature + 2°F → Thermo ON  
   - Room temperature ≤ desired temperature → Thermo OFF | |
| 1-2. Anti-freezing control | Detected condition: When the liquid pipe temp. (TH22) is 32°F or less in 16 minutes from compressors start up, anti-freezing control starts and the thermo OFF.  
   Released condition: The timer which prevents reactivating is set for 3 minutes, and anti-freezing control is cancelled when any one of the following conditions is satisfied.  
   ① Liquid pipe temp. (TH22) turns 50°F or above.  
   ② The condition of the thermo OFF has become complete by thermoregulating, etc.  
   ③ The operation modes became mode other than COOL.  
   ④ The operation stopped. | |
| 2. Fan | By the remote controller setting (switch of 4 speeds+Auto) | |

**Type**  | **Fan speed notch**  
--- | ---  
4 speeds + Auto type | [Low], [Med2], [Med1], [High], [Auto]

When [Auto] is set, fan speed is changed depending on the value of: Room temperature - Desired temperature
### Control modes and Control details

<table>
<thead>
<tr>
<th>Control modes</th>
<th>Control details</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| 3. Drain pump | 3-1. Drain pump control  
- Drain pump is always ON during the COOL and DRY mode operation. (Regardless of the thermo ON/OFF)  
- When the operation mode has changed from the COOL or DRY to the others (including Stop), the drain pump will be kept on for 3 minutes, then turns OFF. | |
|               | Float switch control  
- Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF.  
  In the water: Detected that the float switch is ON for 15 seconds.  
  In the air: Detected that the float switch is OFF for 15 seconds. | |
| 4. Vane (up/down vane change) | (1) Initial setting: Start at COOL mode and horizontal vane.  
(2) Vane position:  
Horizontal → Downward A → Downward B → Downward C → Downward D → Swing → Auto  
Color key: Green (in the water), Red (in the air).  
(3) Restriction of the downward vane setting  
When setting the downward vane A, B, C or D in [Med1], [Med2], [Low] or [Auto] of the fan speed notch, the vane changes to horizontal position after 1 hour have passed. | “ONLY 1 Hr” appears on the wired remote controller. |

---

**Diagram:**

- **ON**  
  - In the water: 15 sec.  
  - In the air: 15 sec.  
  - Error postponement: 1 min. 30 sec.  
  - Drain pump abnormal: 1 min. 30 sec.

- **OFF**  
  - In the water: 15 sec.  
  - In the air: 15 sec.  
  - Error postponement: 1 min. 30 sec.
6-2. DRY OPERATION

<table>
<thead>
<tr>
<th>Control modes</th>
<th>Control details</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Thermo regulating function</td>
<td>1-1. Thermo regulating function (Function to prevent restarting for 3 minutes)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Setting the Dry thermo by the thermo regulating signal and the room</td>
<td></td>
</tr>
<tr>
<td></td>
<td>temperature (TH21).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dry thermo ON  Room temperature ≥ desired temperature + 2°F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dry thermo OFF  Room temperature ≥ desired temperature</td>
<td></td>
</tr>
<tr>
<td>Room temperature</td>
<td>3 min. passed since starting operation</td>
<td></td>
</tr>
<tr>
<td>Over 64°F</td>
<td>Thermo regulating signal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Room temperature (T1)</td>
<td></td>
</tr>
<tr>
<td>Dry thermo ON</td>
<td>T1 ≥ 83°F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>83°F &gt; T1 ≥ 79°F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>79°F &gt; T1 ≥ 75°F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>75°F &gt; T1</td>
<td></td>
</tr>
<tr>
<td>Dry thermo OFF</td>
<td>Unconditional</td>
<td></td>
</tr>
<tr>
<td>Less than 64°F</td>
<td>Dry thermo OFF</td>
<td></td>
</tr>
</tbody>
</table>

1-2. Freeze prevention control
No control function

2. Fan
Indoor fan operation controlled depending on the compressor conditions.

<table>
<thead>
<tr>
<th>Dry thermo</th>
<th>Fan speed notch</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>[Low]</td>
</tr>
<tr>
<td>OFF</td>
<td>Excluding the following Stop</td>
</tr>
<tr>
<td></td>
<td>Room temp. &lt; 64°F [Low]</td>
</tr>
</tbody>
</table>

Note: Remote controller setting is not acceptable.

3. Drain pump
Same control as COOL operation

4. Vane (up/down vane change)
Same control as COOL operation

<How to operate>
1. Press POWER ON/OFF button.
2. Press the operation MODE button to display DRY.
3. Press the TEMP. button to set the desired temperature.

NOTE: The set temperature changes 2°F when the or button is pressed one time. Dry 67 to 87°F
### 6-3. FAN OPERATION

**<How to operate>**
- Press POWER ON/OFF button.
- Press the operation MODE button to display FAN.

<table>
<thead>
<tr>
<th>Control modes</th>
<th>Control details</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fan</td>
<td>Set by remote controller.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Type</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Fan speed notch</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 speeds + Auto type Low, Med2, Med1, High, Auto</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When [Auto] is set, fan speed becomes [Low].</td>
<td></td>
</tr>
<tr>
<td>2. Drain pump</td>
<td>2-1. Drain pump control</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The drain pump turns ON for the specified amount of time when any of the following conditions is met:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- ON for 3 minutes after the operation mode is switched from COOL or DRY to another operation mode (FAN).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- ON for 6 minutes after the float switch is submerged in the water when the float switch control judges the sensor is in the water.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-2. Float switch control</td>
<td>Same control as COOL operation</td>
</tr>
<tr>
<td></td>
<td>- Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- In the water : Detected that the float switch is ON for 15 seconds.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- In the air   : Detected that the float switch is OFF for 15 seconds.</td>
<td></td>
</tr>
<tr>
<td>3. Vane (up/down vane change)</td>
<td>Same as the control performed during the COOL operation, but with no restriction on the vane’s downward blow setting</td>
<td></td>
</tr>
</tbody>
</table>
### 6-4. HEAT OPERATION

**<How to operate>**
1. Press POWER ON/OFF button.
2. Press the operation MODE button to display HEAT.
3. Press the TEMP. button to set the desired temperature.

**NOTE:** The set temperature changes 2°F when the or button is pressed one time. Heating 63 to 83°F.

**<Display in HEAT operation>**
- **[DEFROST]**: The [DEFROST] symbol is only displayed during the defrost operation.
- **[STANDBY]**: The [STANDBY] symbol is only displayed during the hot adjust mode.

<table>
<thead>
<tr>
<th>Control modes</th>
<th>Control details</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Thermoregulating function</td>
<td>1-1. Thermoregulating function (Function to prevent restarting for 3 minutes)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Room temperature ≦ desired temperature -2°F -- Thermo ON</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Room temperature ≦ desired temperature -- Thermo OFF</td>
<td></td>
</tr>
<tr>
<td>2. Fan</td>
<td>By the remote controller setting (switch of 4 speeds+Auto)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type Fan speed notch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 speeds + Auto type [Low], [Med2], [Med1], [High], [Auto]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When [Auto] is set, fan speed is changed depending on the value of:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Desired temperature - Room temperature</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Give priority to under-mentioned controlled mode</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-1. Hot adjust mode</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-2. Residual heat exclusion mode</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-3. Thermo OFF mode (When the compressor off by the thermoregulating)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-4. Cool air prevention mode (Defrosting mode)</td>
<td></td>
</tr>
</tbody>
</table>

#### 2-1. Hot adjust mode
- The fan controller becomes the hot adjuster mode for the following conditions.
  1. When starting the HEAT operation
  2. When the thermoregulating function changes from OFF to ON.
  3. When release the HEAT defrosting operation

![Diagram](https://via.placeholder.com/150)

- A: Hot adjust mode starts.
- B: 5 minutes have passed since the condition A or the indoor liquid pipe temperature turned 95°F or more.
- C: 2 minutes have passed since the condition B. (Terminating the hot adjust mode)

#### 2-2. Residual heat exclusion mode
- When the condition changes the auxiliary heater ON to OFF (thermoregulating or operation stop, etc), the indoor fan operates in [Low] mode for 1 minute.

*This control is same for the model without auxiliary heater.*

To be continued on the next page.
### Control modes

<table>
<thead>
<tr>
<th>Control modes</th>
<th>Control details</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Fan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-3. Thermo OFF mode</td>
<td>When the thermoregulating function changes to OFF, the indoor fan operates in [Extra low].</td>
<td></td>
</tr>
<tr>
<td>2-4. Heat defrosting mode</td>
<td>The indoor fan stops.</td>
<td></td>
</tr>
<tr>
<td>3. Drain pump</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 3-1. Drain pump control | The drain pump turns ON for the specified amount of time when any of the following conditions is met:  
  1. ON for 3 minutes after the operation mode is switched from COOL or DRY to another operation mode (FAN).  
  2. ON for 6 minutes after the float switch is submerged in the water when the float switch control judges the sensor is in the water. |         |
| 3-2. Float switch control |  
  • Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF.  
  In the water: Detected that the float switch is ON for 15 seconds.  
  In the air: Detected that the float switch is OFF for 15 seconds. | Same control as COOL operation |
| 4. Vane control (Up/down vane change) | (1) Initial setting: OFF → HEAT→[last setting]  
  When the last setting is [Swing] → [Downward D]  
  When changing the mode from exception of HEAT to HEAT operation  
  → [Downward D]  
  (2) Vane position:  
  Horizontal → Downward A → Downward B → Downward C → Downward D → Swing → Auto  
  → |  
|           | (3) Restriction of vane position |         |
|           | 1. The vane is horizontally fixed for the following modes.  
  (The control by the remote controller is temporally invalidated and control by the unit.)  
  • Thermo OFF  
  • Hot adjust [Extra low] mode  
  • Heat defrost mode |         |
6-5. AUTO OPERATION [AUTOMATIC COOL/HEAT CHANGE OVER OPERATION]

Control modes | Control details | Remarks
---|---|---
1. Initial value of operation mode | HEAT mode for room temperature < Desired temperature  
COOL mode for room temperature ≥ Desired temperature |  

2. Mode change |  
(1) HEAT mode → COOL mode  
Room temperature ≥ Desired temperature + 3°F. or 3 min. has passed  
(2) COOL mode → HEAT mode  
Room temperature ≤ Desired temperature - 3°F. or 3 min. has passed |  

3. COOL mode | Same control as cool operation |  
4. HEAT mode | Same control as heat operation |  

6-6. WHEN UNIT IS STOPPED

Control modes | Control details | Remarks
---|---|---
1. Drain pump |  
1-1. Drain pump control  
The drain pump turns ON for the specified amount of time when any of the following conditions is met:  
Ⅰ. ON for 3 minutes after the operation mode is switched from COOL or DRY to another operation mode (FAN).  
Ⅱ. ON for 6 minutes after the float switch is submerged in the water when the float switch control judges the sensor is in the water.  
1-2. Float switch control  
• Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF.  
In the water : Detected that the float switch is ON for 15 seconds.  
In the air : Detected that the float switch is OFF for 15 seconds. | Same control as COOL operation
## 7 TROUBLESHOOTING

### 7-1. HOW TO CHECK THE PARTS

<table>
<thead>
<tr>
<th>Parts name</th>
<th>Check points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room temperature thermistor (TH21)</td>
<td>Disconnect the connector then measure the resistance with a tester. (At the ambient temperature 50°F~86°F)</td>
</tr>
<tr>
<td>Liquid pipe thermistor (TH22)</td>
<td></td>
</tr>
<tr>
<td>Gas pipe thermistor (TH23)</td>
<td></td>
</tr>
<tr>
<td>Vane motor (MV)</td>
<td>Measure the resistance between the terminals with a tester. (At the ambient temperature of 68°F~86°F)</td>
</tr>
<tr>
<td>Drain pump (DP) (Option)</td>
<td>Measure the resistance between the terminals with a tester. (Winding temperature 68°F)</td>
</tr>
<tr>
<td>Drain float switch (FS) (Option)</td>
<td>Measure the resistance between the terminals with a tester.</td>
</tr>
<tr>
<td>i-see sensor (Option)</td>
<td>i-see sensor rotates then pull out the connector of motor for i-see sensor.</td>
</tr>
<tr>
<td>Vane motor for i-see sensor (Option)</td>
<td>Measure the resistance between the terminals with a tester. (At the ambient temperature of 68°F~86°F)</td>
</tr>
<tr>
<td>Linear expansion valve (LEV)</td>
<td>Disconnect the connector then measure the resistance with a tester.</td>
</tr>
</tbody>
</table>

### Diagrams and Notes
- **Room temperature thermistor**: Disconnect the connector then measure the resistance with a tester. (At the ambient temperature 50°F~86°F)
- **Liquid pipe thermistor** and **Gas pipe thermistor**: Check for open or short.
- **Vane motor (MV)**: Check for open or short.
- **Drain pump (DP) (Option)**: Check for 300Ω.
- **Drain float switch (FS) (Option)**: Check for 290Ω.
- **i-see sensor (Option)**: Check for open or short.
- **Vane motor for i-see sensor (Option)**: Check for 250Ω.
- **Linear expansion valve (LEV)**: Refer to 7-1-2.
7-1-1. Thermistor

**<Thermistor characteristic graph>**

<table>
<thead>
<tr>
<th>Thermistor for lower temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room temperature thermistor (TH21)</td>
</tr>
<tr>
<td>Liquid pipe temperature thermistor (TH22)</td>
</tr>
<tr>
<td>Gas pipe temperature thermistor (TH23)</td>
</tr>
</tbody>
</table>

Thermistor $R_0=15\,\text{k}\Omega \pm 3\%$
Fixed number of $B=3480 \pm 2\%$

$$R_t=15\exp\left(\frac{3480(\frac{1}{273+(t-32)/1.8}-\frac{1}{273})}{1}\right)$$

- 30°F: 15.8kΩ
- 50°F: 9.6kΩ
- 70°F: 6.0kΩ
- 80°F: 4.8kΩ
- 90°F: 3.9kΩ
- 100°F: 3.2kΩ

7-1-2. Linear expansion valve

- Operation summary of the linear expansion valve
  - Linear expansion valve open/close through stepping motor after receiving the pulse signal from the indoor controller board.
  - Valve position can be changed in proportion to the number of pulse signals.

**<Connection between the indoor controller board and the linear expansion valve>**
<Output pulse signal and the valve operation>

<table>
<thead>
<tr>
<th>Output (Phase)</th>
<th>Output</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Φ1</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>Φ2</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>Φ3</td>
<td>OFF</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>Φ4</td>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
</tbody>
</table>

Closings a valve: 1 → 2 → 3 → 4 → 1
Opening a valve: 4 → 3 → 2 → 1 → 4
The output pulse shifts in above order.

Note:
- When linear expansion valve operation stops, all output phase become OFF.
- At phase interruption or when phase does not shift in order, motor does not rotate smoothly and motor will lock and vibrate.
- When the switch is turned on, 2200 pulse closing valve signal will be sent till it goes to point Φ in order to define the valve position.
- When the valve moves smoothly, there is no sound or vibration occurring from the linear expansion valves, however, when the pulse number moves from Φ to Φ or when the valve is locked, more sound can be heard than in a normal situation.
- Sound can be detected by placing the ear against the screw driver handle while putting the screw driver tip to the linear expansion valve.

Trouble shooting

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Check points</th>
<th>Countermeasures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation circuit failure of the micro processor</td>
<td>Disconnect the connector on the controller board, then connect LED for checking. When power is turned on, pulse signals will be output for 10 seconds. There must be some defects in the operation circuit if the LED does not light while the signals are output or keeps lighting even after the signals stop.</td>
<td>Exchange the indoor controller board at drive circuit failure.</td>
</tr>
<tr>
<td>Linear expansion valve mechanism is locked.</td>
<td>Motor will idle and make a ticking noise when the motor is operated while the linear expansion valve is locked. This ticking sound is the sign of the abnormality.</td>
<td>Exchange the linear expansion valve.</td>
</tr>
<tr>
<td>Short or breakage of the motor coil of the linear expansion valve</td>
<td>Measure the resistance between each coil (white-red, yellow-brown, orange-red, blue-brown) using a tester. It is normal if the resistance is in the range of 2000 ±10%.</td>
<td>Exchange the linear expansion valve.</td>
</tr>
<tr>
<td>Valve does not close completely.</td>
<td>To check the linear expansion valve, operate the indoor unit in fan mode and at the same time operate other indoor units in cooling mode, then check the pipe temperature (liquid pipe temperature) of the indoor unit by the outdoor multi controller board operation monitor. During fan operation, linear expansion valve is closed completely and if there is any leaking, detecting temperature of the thermometer will go lower. If the detected temperature is much lower than the temperature indicated in the remote controller, it means the valve is not closed all the way. It is not necessary to exchange the linear expansion valve, if the leakage is small and not affecting normal operation.</td>
<td>If large amount of refrigerant is leaked, exchange the linear expansion valve.</td>
</tr>
<tr>
<td>Wrong connection of the connector or contact failure</td>
<td>Check the color of lead wire and missing terminal of the connector.</td>
<td>Disconnect the connector at the controller board, then check the continuity.</td>
</tr>
</tbody>
</table>

OCH500
7-1-3. DC Fan motor (fan motor/indoor controller circuit board)

Check method of DC fan motor (fan motor/indoor controller circuit board)

Notes
- High voltage is applied to the connector (CNMF) for the fan motor. Pay attention to the service.
- Do not pull out the connector (CNMF) for the motor with the power supply on.
- (It causes trouble of the indoor controller circuit board and fan motor.)

Self check
Symptom: The indoor fan cannot turn around.

Wiring contact check
Contact of fan motor connector (CNMF)

- Is there contact failure?
  - Yes → Wiring recovery
  - No

Power supply check (Remove the connector (CNMF))
Measure the voltage in the indoor controller circuit board.
TEST POINT 1: Vcc (between 1 (+) and 4 (-) of the fan connector): Vcc DC294~325V
TEST POINT 2: Vcc (between 5 (+) and 4 (-) of the fan connector): Vcc DC15V

- Is the voltage normal?
  - No → Indoor controller board fuse check
  - Yes

Sensor signal check
Measure the voltage between CNMF 1 and 2 and DC 0V and DC 15V in the indoor controller circuit board.

- Does the voltage repeat DC 0V and DC 15V?
  - No
  - Yes → Replace indoor controller board

Check the operation
END
### 7-2. FUNCTION OF DIP SWITCH

<table>
<thead>
<tr>
<th>Switch Pole</th>
<th>Function</th>
<th>Operation by switch</th>
<th>Effective timing</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW1 Function setting</td>
<td>1</td>
<td>Thermostat &lt;Room temperature detection&gt; position</td>
<td>Built-in remote controller</td>
<td>Indoor unit</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Filter clogging detection</td>
<td>Provided</td>
<td>Not provided</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Filter cleaning</td>
<td>2,500 hr</td>
<td>100 hr</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Fresh air intake</td>
<td>Effective</td>
<td>Not effective</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Switching remote display</td>
<td>Thermo ON signal display</td>
<td>Indicating fan operation</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Humidifier control</td>
<td>Always operated while the heat is ON</td>
<td>Operated depends on the condition</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Airflow set in case of heating mode</td>
<td>Low</td>
<td>Extra low</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Setting air flow</td>
<td>Depends on SW1-7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Auto restart function</td>
<td>Effective</td>
<td>Not effective</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Power ON/OFF by breaker</td>
<td>Effective</td>
<td>Not effective</td>
</tr>
<tr>
<td>SW2 Capacity code setting</td>
<td>1~6</td>
<td>Capacity SW2</td>
<td>Capacity SW2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>P15</td>
<td>P24</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>P30</td>
<td>P36</td>
<td></td>
</tr>
</tbody>
</table>

Note:
1. Fan operation at heating mode
2. Thermo ON operation at heating mode
3. Set while the unit is off.
4. Set for each capacity.

| SW3 Function setting | 1 | Heat pump/Cooling only | Cooling only | Heat pump |
| | 2 | Louver | Available | Not available |
| | 3 | Vane | Available | Not available |
| | 4 | Vane swing function in heating (wave-flow) | Available | Not available |
| | 5 | Vane horizontal angle | Second setting | First setting |
| | 6 | Vane cooling limit angle setting | Horizontal | Setting A,B,C,D |
| | 7 | Changing the opening of linear expansion valve | Effective | Not effective |
| | 8 | 4-deg up (Heating mode) | Not effective | Effective |
| | 9 | Superheat setting temperature | — | — |
| | 10 | Sub cool setting temperature | — | — |

Note:
1. Please do not use SW3-9 and SW3-10.
2. Each angle can be used only 1 hour when fan speed setting Low and Middle 1,2

| SW4 Model Selection | 1~5 | In case of replacing the indoor controller board, make sure to set the switch to the initial setting, which is shown below. |
| | | Before power supply ON |

Note:
1. SW3-6
### Switch Setting

<table>
<thead>
<tr>
<th><strong>Switch</strong></th>
<th><strong>Pole</strong></th>
<th><strong>Operation by switch</strong></th>
<th><strong>Effective timing</strong></th>
<th><strong>Remarks</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>SWA</td>
<td>1~3</td>
<td>* Ceiling height can be changed depending on SWA setting.</td>
<td>Under operation or suspension</td>
<td>Address board 3 2 1</td>
</tr>
<tr>
<td><strong>Ceiling height selector</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&lt;Initial setting&gt;</td>
<td></td>
</tr>
<tr>
<td>SWC</td>
<td>2</td>
<td>* In this model it is not necessary to change SWC to the option side.</td>
<td></td>
<td>Address board 2 1 0</td>
</tr>
<tr>
<td><strong>Option selector</strong></td>
<td></td>
<td></td>
<td>&lt;Initial setting&gt;</td>
<td></td>
</tr>
<tr>
<td>SW11</td>
<td></td>
<td>How to set address Example : If address is “3”, remain SW12 (for over 10) at “0”, and match SW11 (for 1 to 9) with “3”.</td>
<td>Before power supply ON</td>
<td>Address board 2 1 0</td>
</tr>
<tr>
<td><strong>1s digit address setting</strong></td>
<td></td>
<td></td>
<td>&lt;Initial setting&gt; SW12 SW11</td>
<td></td>
</tr>
<tr>
<td>SW12</td>
<td></td>
<td>How to set branch number SW14 (Series R2 only) Match the indoor unit’s refrigerant pipe with the BC controller’s end connection number. Remain other than series R2 at “0”.</td>
<td></td>
<td>Address board 2 1 0</td>
</tr>
<tr>
<td><strong>10ths digit address setting</strong></td>
<td></td>
<td></td>
<td>&lt;Initial setting&gt; SW14</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**
- Address can be set while the unit is stopped.
- In this model it is not necessary to change SWC to the option side.
• To operate each indoor unit by each remote controller when installed 2 indoor units or more near, Pair No. setting is necessary.
  ① Pair No. setting is available with the 4 patterns (Setting patterns A to D).
  ② Make setting for J41, J42 of indoor controller board and the Pair No. of wireless remote controller.
• You may not set it when operating it by 1 remote controller.
  ① Setting for indoor unit
    Jumper wire J41, J42 on the indoor controller board are cut according to the table below.
  ② Wireless remote controller pair number:

Setting operation
1. Press the SET button (using a pointed implement). Check that the remote controller's display has stopped before continuing.
   MODEL SELECT flashes, and the model No. (3 digits) appears (steadily-lit).
2. Press the MINUTE button twice. The pair number appears flashing.
3. Press the temperature buttons to select the pair number to set.
4. Press the SET button (using a pointed implement). The set pair number is displayed (steadily-lit) for 3 seconds, then disappears.

<table>
<thead>
<tr>
<th>Setting pattern</th>
<th>Indoor controller Jumper wire</th>
<th>Pair No. of wireless remote controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Cut</td>
<td>0</td>
</tr>
<tr>
<td>B</td>
<td>Cut</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>Cut</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>Cut</td>
<td>3</td>
</tr>
</tbody>
</table>

* Pair No. 4-9 of wireless remote controller is setting pattern D.

### J41, J42 Wireless remote controller Pair No.

<table>
<thead>
<tr>
<th>Switch</th>
<th>Operation by switch</th>
<th>Effective timing</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWE</td>
<td>Drain pump and fan are activated simultaneously after the connector SWE is set to ON and turn on the power.</td>
<td>&lt;Initial setting&gt;</td>
<td>Under operation</td>
</tr>
</tbody>
</table>
7-3. TEST POINT DIAGRAM
7-3-1. Indoor controller board

**PCFY-P15NKMU-E.TH**  **PCFY-P24NKMU-E.TH**  **PCFY-P30NKMU-E.TH**  **PCFY-P36NKMU-E.TH**

- **CN60**: Linear expansion valve (LEV) output
  - 12VDC pulse output
- **CN4Y**: i-see sensor
- **CN52**: Remote indicator
- **CN51**: Centrally control
  - (a): Control signal
  - 13VDC pulse input (+)
  - (b): Operation indicator
  - 13VDC (+)
  - (c): Malfunction indicator
  - 13VDC (+)
- **CN44**: Pipe temperature thermistor
  - (a): Liquid (TH22)
  - (b): Gas (TH23)
- **CN4F**: Drain float switch (FS)
- **CN20**: Room temperature thermistor (TH21)
- **CN27**: Damper signal output
  - 12VDC (+)
- **CN90**: Connect to the wireless remote controller board (W.B)
- **LED1**: Main power supply
  - (Indoor unit: 208-230V)
- **CNMF**: Connect to the fan motor (MF)
  - (a): DC18V-32V
  - (b): DC15V
  - (c): DC0-6V
  - (d): DC0 or DC15V (Stop)
  - DC7.5V (Operation)
  - (12VDC pulse)
- **CNP**: Drain pump output (DP)
  - (a): 208-230VAC
- **CN8Y**: i-see sensor motor output
  - 12VDC pulse output
- **CN3A**: Connect to the terminal block (TB15)
  - (MA: Remote controller connecting wire)
  - (a): 0-8.7-13V DC (Pin(+) (+))
- **CNV**: Vanee motor output
  - 12VDC pulse
- **CN32**: Remote switch
- **Jumper wire J41, J42**: Pair No. setting for wireless remote controller
- **LED2**: Power supply for MA-Remote controller
- **SW3**: Function setting
- **SW4**: Model selection
- **SWE**: Test run (Drain pump)
- **SW2**: Capacity setting
- **CN2M**: Connect to the terminal block (TB5)
  - (MA: Remote controller connecting wire)
  - 24-38VDC (non-polar)
- **CND**: Power supply for indoor controller board
  - (a): 208-230VAC
- **FUSE**: 6.3A 250V

---

**OCH500**
7-3-2. Address board
PCFY-P15NKMU-E.TH
PCFY-P24NKMU-E.TH
PCFY-P30NKMU-E.TH
PCFY-P36NKMU-E.TH
8 DISASSEMBLY PROCEDURE

OPERATING PROCEDURE

1. Removing the air intake grille
   (1) Slide the air intake grille holding knobs (at 2 or 3 locations) to the rear to open the air intake grille. (See Figure 1)
   (2) While the air intake grille left open, push the stoppers on the rear hinges (at 2 or 3 locations) to pull out the air intake grille. (See Figure 2)

2. Removing the indoor controller board and the electrical box
   (1) Remove the air intake grille. (See Figure 1,2)
   (2) Remove the screw from the beam and remove the beam. (See Photo 1)
   (3) Remove 2 screws from the electrical cover, and remove the electrical cover.
   (4) Remove 2 screws from the electrical box and pull the electrical box downward. Temporarily secure the electrical box using 2 hooks in the back of electrical box.
   (5) Disconnect the connectors on the indoor controller board.

   [Removing the electrical box]
   (6) Disconnect the wires from the terminal blocks and pull out the electrical box. (See Photo 2)

   [Removing the indoor controller board]
   (6) Remove the 6 supports from the indoor controller board and remove the indoor controller board. (See Photo 3)

PHOTOS & ILLUSTRATIONS

Figure 1

Photo 1

Figure 2

Photo 2

Photo 3
### OPERATING PROCEDURE

3. Removing the room temperature thermistor (TH21)
   (1) Remove the air intake grille. (See Figure 1,2)
   (2) Remove the screw from the beam and remove the beam. (See Photo 1)
   (3) Remove 2 screws from the electrical cover, and remove the electrical cover.
   (4) Remove 2 screws from the electrical box and pull the electrical box downward. Temporarily secure the electrical box using 2 hooks in the back of electrical box.
   (5) Disconnect the connector CN20 (red) from the indoor controller board.
   (6) Remove the sensor holder from the electrical box and remove the thermistor form the holder.

4. Removing the fan motor and right side fan
   (1) Remove the air intake grille. (See Figure 1,2)
   (2) Remove the screw from the beam and remove the beam. (See Photo 1)
   (3) Remove 2 screws from the electrical cover, and remove the electrical cover.
   (4) Remove 2 screws from the electrical box and pull the electrical box downward.
   (5) Temporarily secure the electrical box using 2 hooks in the back of electrical box.
   (6) Remove the lower casing while pressing the 4 catches of the casing (right side of the fan motor). (See Photo 6)
   (7) Loosen the 2 set screws (2 hexagon set screws) of connecting joint and slide the fan motor to the left. (See Photo 5)
   (8) Remove the screw for motor earth wire. (See Photo 5)
   (9) Remove the motor piece (left and right, each 1 screw). (See Photo 5)
   (10) Remove the fan motor and right side fan together.
   (11) Loosen the set screw (hexagon set screw) of fan and remove the fan from the shaft. (See Photo 7,8)

### PHOTOS & ILLUSTRATIONS

<table>
<thead>
<tr>
<th>Photo 4</th>
<th>Room temperature thermistor (TH21)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Casing</td>
</tr>
<tr>
<td></td>
<td>Room temperature thermistor (TH21)</td>
</tr>
<tr>
<td></td>
<td>Electrical box</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5</th>
<th>Motor piece fixing screws</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Connecting joint</td>
</tr>
<tr>
<td></td>
<td>Fan motor</td>
</tr>
<tr>
<td></td>
<td>Motor earth wire fixing screw</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 6</th>
<th>Casing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Catch</td>
</tr>
<tr>
<td></td>
<td>Casing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 7</th>
<th>Hole for driver</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Catch</td>
</tr>
</tbody>
</table>

Photo 8

Hexagon set screw
### OPERATING PROCEDURE

#### 5. Removing the fan (3 connection)
1. Remove the air intake grille. (See Figure 1,2)
2. Remove the screw from the beam and remove the beam. (See Photo 1)
3. Remove 2 screws from the electrical cover, and remove the electrical cover.
4. Remove 2 screws from the electrical box and pull the electrical box downward. Temporarily secure the electrical box using 2 hooks in the back of electrical box.
5. Remove 2 screws from the left side beam and remove the beam. (See Photo 9)
6. Loosen 2 set screws (2 hexagon set screws) of connecting joint. (See Photo 5)
7. Remove 3 lower casings while pressing each 4 catches of the casing. (See Photo 6)
8. Remove the 4 screws from the bearing support. (See Photo 10)
9. Slide the connecting joint to the left and remove the fans and shaft together. (See Photo 11)
10. Remove the fan from the shaft. (See Photo 7,8)

#### 6. Removing the side panel
1. Remove the air intake grille. (See Figure 1,2)
2. Remove the screw from the side panel, and remove the side panel by sliding the panel to the front.
3. Unhook the side panel support hanger, and then slide the side panel forward to remove it.

### PHOTOS & ILLUSTRATIONS

#### Photo 9
![Photo 9](beam)

#### Photo 10
![Photo 10](bearing_support)

#### Photo 11
![Photo 11](fan_3_connection)

#### Figure 3
![Figure 3](side_panel)
<table>
<thead>
<tr>
<th>OPERATING PROCEDURE</th>
<th>PHOTOS &amp; ILLUSTRATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>7. Removing the vane motor</strong></td>
<td><img src="image1.png" alt="Photo 12" /></td>
</tr>
<tr>
<td>(1) Remove the air intake. (See Figure 1,2)</td>
<td>Vane motor and cover</td>
</tr>
<tr>
<td>(2) Remove the right side panel. (See Figure 3)</td>
<td>Connector</td>
</tr>
<tr>
<td>(3) Remove the connector of vane motor.</td>
<td>Screws</td>
</tr>
<tr>
<td>(4) Remove 2 screws of vane motor cover, then remove vane motor.</td>
<td></td>
</tr>
<tr>
<td><strong>8. Removing the under panel</strong></td>
<td><img src="image2.png" alt="Photo 13" /></td>
</tr>
<tr>
<td>(1) Remove the air intake grille. (See Figure 1,2)</td>
<td>Under panel fixing screws</td>
</tr>
<tr>
<td>(2) Remove the left and right side panels. (See Figure 3)</td>
<td></td>
</tr>
<tr>
<td>(3) Remove the beam. (See Photo 1)</td>
<td></td>
</tr>
<tr>
<td>(4) Remove the electrical cover. (See Photo 1)</td>
<td></td>
</tr>
<tr>
<td>(5) Pull the electrical box downward. (See Photo 2)</td>
<td>Disconnect the connector CNB from the PCB for wireless remote controller and remove the clamp and strap for wires.</td>
</tr>
<tr>
<td>(6) (Wireless remote controller receiver type only)</td>
<td></td>
</tr>
<tr>
<td><strong>9. Removing the drain pan</strong></td>
<td><img src="image3.png" alt="Photo 14" /></td>
</tr>
<tr>
<td>(1) Remove the air intake grille. (See Figure 1,2)</td>
<td>Pipe cover fixing screws</td>
</tr>
<tr>
<td>(2) Remove the side panel (right and left). (See Figure 3)</td>
<td></td>
</tr>
<tr>
<td>(3) Remove the under panel. (See Photo 13)</td>
<td></td>
</tr>
<tr>
<td>(4) Remove 2 screws of the right and left side drain pan. (See Photo 14)</td>
<td>Remove the screws of the right and left side drain pan. (See Photo 14)</td>
</tr>
<tr>
<td>(4) Remove 2 insulations in centre of the drain pan, and after removing 2 screws with washer, remove the drain pan. (See Photo 15,16)</td>
<td>Remove 2 insulations in centre of the drain pan, and after removing 2 screws with washer, remove the drain pan. (See Photo 15,16)</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td></td>
</tr>
<tr>
<td>Please be aware that there might be some drainage left in the drain pan when you remove the drain pan.</td>
<td></td>
</tr>
</tbody>
</table>

![Photo 15](image4.png) | ![Photo 16](image5.png)
10. Removing the pipe thermistors/Liquid (TH22) and Gas (TH23)
   (1) Remove the air intake grille. (See Figure 1,2)
   (2) Remove the left and right side panels. (See Figure 3)
   (3) Remove the under panel. (See Photo 13)
   (4) Remove the drain pan. (See Photo 14, 15, 16)
   (5) Disconnect the connector CN44 (white) from the indoor controller board.
   (6) Remove 6 screws from the pipe cover and remove the pipe cover. (See Photo 17)
   (7) Remove the fastener for wires and remove the thermistors (liquid and gas) from each holder. (See Photo 18)

11. Removing the guide vane
   (1) Remove the intake grille. (See Figure 1,2)
   (2) Remove the side panel (right and left). (See Figure 3)
   (3) Remove the under panel. (See Photo 13)
   (4) Remove the drain pan. (See Photo 14, 15, 16)
   (5) Remove the screw from the guide vane, then remove the guide vane.

12. Removing the Auto vane
   (1) Remove the intake grille. (See Figure 1,2)
   (2) Remove the right side panel. (See Figure 3)
   (3) Remove the vane motor and cover. (See Photo 12)
   (4) Slide the auto vane to the vane motor side.
   (5) Remove 2 axes from each vane support pushing the vane support to the vane sleeve side.
### OPERATING PROCEDURE

13. Removing the heat exchanger and LEV

1. Remove the air intake grille. (See Figure 1, 2)
2. Remove the beam. (See Photo 1)
3. Remove the electrical cover. (See Photo 1)
4. Pull the electrical box downward. (See Photo 2)
5. Disconnect the connector CN60 (white) from the indoor controller board.
6. Remove the left and right side panels. (See Figure 3)
7. Remove the under panel. (See Photo 13)
8. Remove the drain pan. (See Photo 14, 15, 16)
9. Remove the pipe cover. (See Photo 17)
10. Remove the pipe thermistors (TH22 and TH23) from each holder. (See Photo 18)
11. Remove the pipe band fixing screw and remove the pipe band. (See Photo 21)
12. Remove 3 screws from the heat exchanger and remove the heat exchanger with LEV.

### PHOTOS & ILLUSTRATIONS

**Photo 21**

![Photo 21](image1)

**Photo 22**

![Photo 22](image2)