Hybrid Flex Inverter System

2. TROUBLE SHOOTING

MAY. 2010 (Ver.01)
## TENTATIVE

### 2. TROUBLESHOOTING

#### 2-1 NORMAL OPERATION

##### 2-1-1 Normal status for Indoor Unit Display

<table>
<thead>
<tr>
<th>Indication type</th>
<th>Indication Lamp</th>
<th>Flashing Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>Operation LED</td>
<td>Continuous lighting</td>
</tr>
<tr>
<td>Timer</td>
<td>Timer LED</td>
<td>Continuous lighting</td>
</tr>
<tr>
<td>Filter Sign</td>
<td>Economy LED</td>
<td><img src="image" alt="Filter Sign Flashing Pattern" /></td>
</tr>
<tr>
<td>Power Failure</td>
<td>Operation LED</td>
<td><img src="image" alt="Power Failure Flashing Pattern" /></td>
</tr>
<tr>
<td></td>
<td>Timer LED</td>
<td><img src="image" alt="Power Failure Flashing Pattern" /></td>
</tr>
<tr>
<td>Test Operation</td>
<td>Operation LED</td>
<td><img src="image" alt="Test Operation Flashing Pattern" /></td>
</tr>
<tr>
<td>Compulsion Cooling</td>
<td>Timer LED</td>
<td><img src="image" alt="Compulsion Cooling Flashing Pattern" /></td>
</tr>
<tr>
<td>Ability Measurement Mode</td>
<td>Operation LED</td>
<td><img src="image" alt="Ability Measurement Mode Flashing Pattern" /></td>
</tr>
<tr>
<td></td>
<td>Economy LED</td>
<td><img src="image" alt="Ability Measurement Mode Flashing Pattern" /></td>
</tr>
<tr>
<td>Defrosting</td>
<td>Operation LED</td>
<td><img src="image" alt="Defrosting Flashing Pattern" /></td>
</tr>
<tr>
<td>Oil Recovery</td>
<td>Operation LED</td>
<td><img src="image" alt="Oil Recovery Flashing Pattern" /></td>
</tr>
<tr>
<td>Mode Mismatch</td>
<td>Operation LED</td>
<td><img src="image" alt="Mode Mismatch Flashing Pattern" /></td>
</tr>
<tr>
<td>Maintenance Mode</td>
<td>Operation LED</td>
<td><img src="image" alt="Maintenance Mode Flashing Pattern" /></td>
</tr>
<tr>
<td></td>
<td>Timer LED</td>
<td><img src="image" alt="Maintenance Mode Flashing Pattern" /></td>
</tr>
<tr>
<td></td>
<td>Economy LED</td>
<td><img src="image" alt="Maintenance Mode Flashing Pattern" /></td>
</tr>
</tbody>
</table>
2-1-2 Normal status for Outdoor Unit Display

<table>
<thead>
<tr>
<th>Indication type</th>
<th>7 Segment LED Pattern</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idling(stop)</td>
<td>Blank</td>
<td></td>
</tr>
<tr>
<td>Cooling Mode</td>
<td>&quot;C&quot; &quot;O&quot; &quot;O&quot; &quot;L&quot;</td>
<td>During Cooling Mode</td>
</tr>
<tr>
<td>Heating Mode</td>
<td>&quot;H&quot; &quot;E&quot; &quot;A&quot; &quot;T&quot;</td>
<td>During Heating Mode</td>
</tr>
<tr>
<td>Oil Recovery Operation</td>
<td>&quot;O&quot; &quot;I&quot; &quot;L&quot; &quot;E&quot; &quot;C&quot; &quot;O&quot; &quot;V&quot; &quot;E&quot; &quot;R&quot; &quot;Y&quot;</td>
<td>During Oil Recovery Operation</td>
</tr>
<tr>
<td>Defrost Operation</td>
<td>&quot;D&quot; &quot;E&quot; &quot;F&quot;</td>
<td>During Defrost Operation</td>
</tr>
<tr>
<td>Power Saving Operation</td>
<td>&quot;P&quot; &quot;C&quot;</td>
<td>During Power Saving Operation</td>
</tr>
<tr>
<td>Low Noise Operation</td>
<td>&quot;L&quot; &quot;O&quot; &quot;W&quot; &quot;N&quot; &quot;O&quot; &quot;I&quot; &quot;S&quot; &quot;E&quot;</td>
<td>During Low Noise Operation</td>
</tr>
</tbody>
</table>

2-1-3. Normal status for Branch Box Display

<table>
<thead>
<tr>
<th>Green</th>
<th>Red</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED401</td>
<td>LED402</td>
<td>LED403</td>
</tr>
<tr>
<td>●</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

● : Lit
○ : Unlit
## 2-2-1 Error status for Indoor Unit Display

Please refer the flashing pattern as follows.

Indoor Unit : AS*G07 - 12LAC, AS*G18 - 24LAT, AU*G09 - 18LAL, AR*G09 - 24LATU

The OPERATION, TIMER, ECONOMY lamps operate as follows according to the error contents.

<table>
<thead>
<tr>
<th>Error Contents</th>
<th>Operation LED</th>
<th>Timer LED</th>
<th>Economy LED</th>
<th>Trouble shooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial Communication Error</td>
<td>1 times flash</td>
<td>1 times flash</td>
<td>Continuous flash</td>
<td>1, 2</td>
</tr>
<tr>
<td>Wired Remote Controller Communication Error</td>
<td>1 times flash</td>
<td>2 times flash</td>
<td>Continuous flash</td>
<td>3</td>
</tr>
<tr>
<td>Check Run Unfinished</td>
<td>1 times flash</td>
<td>5 times flash</td>
<td>Continuous flash</td>
<td>4</td>
</tr>
<tr>
<td>Number of Wires and Pipes Error</td>
<td>2 times flash</td>
<td>1 times flash</td>
<td>Continuous flash</td>
<td>5</td>
</tr>
<tr>
<td>Indoor Unit Capacity Error</td>
<td>2 times flash</td>
<td>2 times flash</td>
<td>Continuous flash</td>
<td>6</td>
</tr>
<tr>
<td>Connected Combination Error</td>
<td>2 times flash</td>
<td>3 times flash</td>
<td>Continuous flash</td>
<td>7, 8</td>
</tr>
<tr>
<td>Number of Indoor Units Error</td>
<td>2 times flash</td>
<td>4 times flash</td>
<td>Continuous flash</td>
<td>9</td>
</tr>
<tr>
<td>Number of Branch boxes Error</td>
<td>2 times flash</td>
<td>5 times flash</td>
<td>Continuous flash</td>
<td></td>
</tr>
<tr>
<td>Indoor Unit Model Information Error</td>
<td>3 times flash</td>
<td>2 times flash</td>
<td>Continuous flash</td>
<td></td>
</tr>
<tr>
<td>EEPROM Access Abnormal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual Auto Switch Error</td>
<td>3 times flash</td>
<td>5 times flash</td>
<td>Continuous flash</td>
<td>10</td>
</tr>
<tr>
<td>Indoor Room Thermistor Error</td>
<td>4 times flash</td>
<td>1 times flash</td>
<td>Continuous flash</td>
<td>11</td>
</tr>
<tr>
<td>Indoor Heat Ex. Thermistor Error</td>
<td>4 times flash</td>
<td>2 times flash</td>
<td>Continuous flash</td>
<td>12</td>
</tr>
<tr>
<td>Indoor Unit Fan Motor Error</td>
<td>5 times flash</td>
<td>1 times flash</td>
<td>Continuous flash</td>
<td>13</td>
</tr>
<tr>
<td>Drainage Error</td>
<td>5 times flash</td>
<td>3 times flash</td>
<td>Continuous flash</td>
<td>14</td>
</tr>
<tr>
<td>Outdoor Unit Model Information Error</td>
<td>6 times flash</td>
<td>2 times flash</td>
<td>Continuous flash</td>
<td>15</td>
</tr>
<tr>
<td>Inverter Error</td>
<td>6 times flash</td>
<td>3 times flash</td>
<td>Continuous flash</td>
<td>16</td>
</tr>
<tr>
<td>A. F. Voltage Error</td>
<td>6 times flash</td>
<td>4 times flash</td>
<td>Continuous flash</td>
<td>17</td>
</tr>
<tr>
<td>I.P.M. Error</td>
<td>6 times flash</td>
<td>5 times flash</td>
<td>Continuous flash</td>
<td>18</td>
</tr>
<tr>
<td>Display P.C.B. Communication Error</td>
<td>6 times flash</td>
<td>10 times flash</td>
<td>Continuous flash</td>
<td>19</td>
</tr>
<tr>
<td>Discharge Thermistor Error</td>
<td>7 times flash</td>
<td>1 times flash</td>
<td>Continuous flash</td>
<td>20</td>
</tr>
<tr>
<td>Compressor Thermistor Error</td>
<td>7 times flash</td>
<td>2 times flash</td>
<td>Continuous flash</td>
<td>21</td>
</tr>
<tr>
<td>Heat Ex. Liquid Outlet Thermistor Error</td>
<td>7 times flash</td>
<td>3 times flash</td>
<td>Continuous flash</td>
<td>22</td>
</tr>
<tr>
<td>Outdoor Thermistor Error</td>
<td>7 times flash</td>
<td>4 times flash</td>
<td>Continuous flash</td>
<td>23</td>
</tr>
<tr>
<td>Suction Gas Thermistor Error</td>
<td>7 times flash</td>
<td>5 times flash</td>
<td>Continuous flash</td>
<td>24</td>
</tr>
<tr>
<td>Heat Sink Thermistor Error</td>
<td>7 times flash</td>
<td>7 times flash</td>
<td>Continuous flash</td>
<td>25</td>
</tr>
</tbody>
</table>
## Error Indication Flashing Pattern

### Example: Indoor Unit Main PCB Error (Operation LED: 3 times, Timer LED: 2 times)

<table>
<thead>
<tr>
<th>Error Contents</th>
<th>Operation LED</th>
<th>Timer LED</th>
<th>Economy LED</th>
<th>Trouble shooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Cool Heat Ex.Gas Inlet Thermistor Error</td>
<td>8 times flash</td>
<td>2 times flash</td>
<td>Continuous flash</td>
<td>26, 27</td>
</tr>
<tr>
<td>Sub-Cool Heat Ex.Gas Outlet Thermistor Error</td>
<td>8 times flash</td>
<td>3 times flash</td>
<td>Continuous flash</td>
<td>28</td>
</tr>
<tr>
<td>Liquid Pipe Thermistor Error</td>
<td>8 times flash</td>
<td>4 times flash</td>
<td>Continuous flash</td>
<td>29</td>
</tr>
<tr>
<td>Current Sensor Error</td>
<td>8 times flash</td>
<td>6 times flash</td>
<td>Continuous flash</td>
<td>30, 31, 32</td>
</tr>
<tr>
<td>Discharge Pressure Sensor Error</td>
<td>8 times flash</td>
<td>6 times flash</td>
<td>Continuous flash</td>
<td></td>
</tr>
<tr>
<td>Suction Pressure Sensor Error</td>
<td>6 times flash</td>
<td>6 times flash</td>
<td>Continuous flash</td>
<td></td>
</tr>
<tr>
<td>High Pressure Switch Error</td>
<td>6 times flash</td>
<td>6 times flash</td>
<td>Continuous flash</td>
<td></td>
</tr>
<tr>
<td>Over Current Error</td>
<td>9 times flash</td>
<td>4 times flash</td>
<td>Continuous flash</td>
<td>33</td>
</tr>
<tr>
<td>Compressor Control Error</td>
<td>9 times flash</td>
<td>5 times flash</td>
<td>Continuous flash</td>
<td>34</td>
</tr>
<tr>
<td>Outdoor Unit Fan Motor Error</td>
<td>9 times flash</td>
<td>7 times flash</td>
<td>Continuous flash</td>
<td>35</td>
</tr>
<tr>
<td>4 Way Valve Error</td>
<td>9 times flash</td>
<td>9 times flash</td>
<td>Continuous flash</td>
<td>36</td>
</tr>
<tr>
<td>Discharge Temp. Error</td>
<td>10 times flash</td>
<td>1 times flash</td>
<td>Continuous flash</td>
<td>37</td>
</tr>
<tr>
<td>Compressor Temp. Error</td>
<td>10 times flash</td>
<td>3 times flash</td>
<td>Continuous flash</td>
<td>38</td>
</tr>
<tr>
<td>Low Pressure Error</td>
<td>10 times flash</td>
<td>5 times flash</td>
<td>Continuous flash</td>
<td>39</td>
</tr>
<tr>
<td>Branch Boxes Error</td>
<td>13 times flash</td>
<td>2 times flash</td>
<td>Continuous flash</td>
<td>40 ~ 60</td>
</tr>
</tbody>
</table>

### Error Indication Flashing Pattern Diagram

- **Operation LED**: 1.0s ON, 0.5s OFF, 1 cycle
- **Timer LED**: 4.0s ON, 1.0s OFF, 1 cycle
- **Economy LED**: 0.1s ON, 0.1s OFF, 1 cycle
## 2-2-2 Remote Controller Display

### SIMPLE REMOTE CONTROLLER

**ERROR CODE DISPLAY**

If an error occurs, the following display will be shown.
("Er" will appear in the set room temperature display.)
If "Er" is displayed, immediately contact authorized service personnel.

### WIRED REMOTE CONTROLLER

**ERROR CODE DISPLAY**

If an error occurs, the following display will be shown.
("Er" will appear in the set room temperature display.)
If "Er" is displayed, immediately contact authorized service personnel.

### HOME CONTROLLER

**ERROR DISPLAY**

To show which indoor unit is the error displayed.
indoor unit's name and "ERROR" are alternately shown.
(0.5s indoor unit's name / 0.5s "ERROR")
### 2-2-3 Error Code List for Simple and Wired Remote Controller

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Error Contents</th>
<th>Trouble shooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1</td>
<td>Serial Communication Error</td>
<td>1, 2</td>
</tr>
<tr>
<td>1 2</td>
<td>Wired Remote Controller Communication Error</td>
<td>3</td>
</tr>
<tr>
<td>1 5</td>
<td>Check Run Unfinished</td>
<td>4</td>
</tr>
<tr>
<td>2 1</td>
<td>Number of Wires and Pipes Error</td>
<td>5</td>
</tr>
<tr>
<td>2 2</td>
<td>Indoor Unit Capacity Error</td>
<td>6</td>
</tr>
<tr>
<td>2 3</td>
<td>Connected Combination Error</td>
<td>7, 8</td>
</tr>
<tr>
<td>3 2</td>
<td>Indoor Unit Model Information Error</td>
<td>9</td>
</tr>
<tr>
<td>3 5</td>
<td>Manual Auto Switch Error</td>
<td>10</td>
</tr>
<tr>
<td>4 1</td>
<td>Indoor Room Thermistor Error</td>
<td>11</td>
</tr>
<tr>
<td>4 2</td>
<td>Indoor Heat Ex. Thermistor Error</td>
<td>12</td>
</tr>
<tr>
<td>5 1</td>
<td>Indoor Unit Fan Motor Error</td>
<td>13</td>
</tr>
<tr>
<td>5 3</td>
<td>Drainage Error</td>
<td>14</td>
</tr>
<tr>
<td>6 2</td>
<td>Outdoor Unit Model Information Error</td>
<td>15</td>
</tr>
<tr>
<td>6 3</td>
<td>Inverter Error</td>
<td>16</td>
</tr>
<tr>
<td>6 4</td>
<td>A. F. Voltage Error</td>
<td>17</td>
</tr>
<tr>
<td>6 5</td>
<td>I.P.M. Error</td>
<td>18</td>
</tr>
<tr>
<td>6 A</td>
<td>Display P.C.B. Communication Error</td>
<td>19</td>
</tr>
<tr>
<td>7 1</td>
<td>Discharge Thermistor Error</td>
<td>20</td>
</tr>
<tr>
<td>7 2</td>
<td>Compressor Thermistor Error</td>
<td>21</td>
</tr>
<tr>
<td>7 3</td>
<td>Heat Ex. Liquid Outlet Thermistor Error</td>
<td>22</td>
</tr>
<tr>
<td>7 4</td>
<td>Outdoor Thermistor Error</td>
<td>23</td>
</tr>
<tr>
<td>7 5</td>
<td>Suction Gas Thermistor Error</td>
<td>24</td>
</tr>
<tr>
<td>7 7</td>
<td>Heat Sink Thermistor Error</td>
<td>25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Error Contents</th>
<th>Trouble shooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 2</td>
<td>Sub-Cool Heat Ex.Gas Inlet Thermistor Error</td>
<td>26, 27</td>
</tr>
<tr>
<td>8 3</td>
<td>Liquid Pipe Thermistor Error</td>
<td>28</td>
</tr>
<tr>
<td>8 4</td>
<td>Current Sensor Error</td>
<td>29</td>
</tr>
<tr>
<td>8 6</td>
<td>Discharge Pressure Sensor Error</td>
<td>30,31,32</td>
</tr>
<tr>
<td>9 4</td>
<td>Over Current Error</td>
<td>33</td>
</tr>
<tr>
<td>9 5</td>
<td>Compressor Control Error</td>
<td>34</td>
</tr>
<tr>
<td>9 7</td>
<td>Outdoor Unit Fan Motor Error</td>
<td>35</td>
</tr>
<tr>
<td>9 9</td>
<td>4 Way Valve Error</td>
<td>36</td>
</tr>
<tr>
<td>A 1</td>
<td>Discharge Temp. Error</td>
<td>37</td>
</tr>
<tr>
<td>A 3</td>
<td>Compressor Temp. Error</td>
<td>38</td>
</tr>
<tr>
<td>A 5</td>
<td>Low Pressure Error</td>
<td>39</td>
</tr>
<tr>
<td>J 2</td>
<td>Branch Boxes Error</td>
<td>40 ~ 60</td>
</tr>
</tbody>
</table>
2-2-4  Outdoor Unit Display

LED display

POWER MODE LED : on
ERROR LED : blink

Operation button

ERROR transition

Short press : less than 3 seconds
Long press : more than 3 seconds

Annunciation

“Err.” and quantity are alternately shown.

“ENTER” short press

Type of errors

ex : discharge thermistor 1 abnormal
ex : indoor unit abnormal

“SELECT” short press display change

If some error is newly occurred or resolved during transition, it is reflected after going back to "Annunciation".

When there is more than one error, display is changed by "SELECT" short press.
## 2-2-5 Error Code List for Outdoor Unit Display

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Error Contents</th>
<th>Trouble shooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. 1 1. 3</td>
<td>Serial communication error</td>
<td>1</td>
</tr>
<tr>
<td>E. 1 1. 4</td>
<td>Serial communication error</td>
<td>2</td>
</tr>
<tr>
<td>E. 1 5. 6</td>
<td>Check run unfinished</td>
<td>4</td>
</tr>
<tr>
<td>E. 2 1. 2</td>
<td>Number of wires and pipes error</td>
<td>5</td>
</tr>
<tr>
<td>E. 2 2. 1</td>
<td>Indoor unit capacity error</td>
<td>7</td>
</tr>
<tr>
<td>E. 2 4. 2</td>
<td>Number of indoor units error</td>
<td>8</td>
</tr>
<tr>
<td>E. 2 4. 3</td>
<td>Number of Branch boxes error</td>
<td>9 – 14</td>
</tr>
<tr>
<td>E. 5 U. 1</td>
<td>Indoor Unit Error</td>
<td>15</td>
</tr>
<tr>
<td>E. 6 2. 1</td>
<td>Outdoor unit model information error</td>
<td>16</td>
</tr>
<tr>
<td>E. 6 3. 1</td>
<td>Inverter error</td>
<td>17</td>
</tr>
<tr>
<td>E. 6 4. 1</td>
<td>A.F. voltage error</td>
<td>20</td>
</tr>
<tr>
<td>E. 7 1. 1</td>
<td>Discharge thermistor error</td>
<td>21</td>
</tr>
<tr>
<td>E. 7 2. 1</td>
<td>Compressor thermistor error</td>
<td>22</td>
</tr>
<tr>
<td>E. 7 3. 3</td>
<td>Heat Ex. Liquid outlet thermistor error</td>
<td>23</td>
</tr>
<tr>
<td>E. 7 4. 1</td>
<td>Outdoor thermistor error</td>
<td>24</td>
</tr>
<tr>
<td>E. 7 5. 1</td>
<td>Suction gas thermistor error</td>
<td>25</td>
</tr>
<tr>
<td>E. 7 7. 1</td>
<td>Heat sink thermistor error</td>
<td>26</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Error Contents</th>
<th>Trouble shooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. 8 6. 1</td>
<td>Sub cool heat EX. gas inlet thermistor error</td>
<td>26</td>
</tr>
<tr>
<td>E. 8 6. 2</td>
<td>Sub cool heat EX. gas outlet thermistor error</td>
<td>27</td>
</tr>
<tr>
<td>E. 8 3. 1</td>
<td>Liquid pipe thermistor error</td>
<td>28</td>
</tr>
<tr>
<td>E. 8 4. 1</td>
<td>Current sensor error</td>
<td>29</td>
</tr>
<tr>
<td>E. 8 6. 3</td>
<td>Suction pressure sensor error</td>
<td>30</td>
</tr>
<tr>
<td>E. 8 6. 4</td>
<td>High pressure switch error</td>
<td>31</td>
</tr>
<tr>
<td>E. 9 4. 1</td>
<td>Over current error</td>
<td>32</td>
</tr>
<tr>
<td>E. 9 5. 1</td>
<td>Compressor control error</td>
<td>33</td>
</tr>
<tr>
<td>E. 9 7. 3</td>
<td>Outdoor unit fan motor error</td>
<td>34</td>
</tr>
<tr>
<td>E. 9 9. 1</td>
<td>4-way valve error</td>
<td>35</td>
</tr>
<tr>
<td>E. A 1. 1</td>
<td>Discharge temp. error</td>
<td>36</td>
</tr>
<tr>
<td>E. A 3. 1</td>
<td>Compressor temp. error</td>
<td>37</td>
</tr>
<tr>
<td>E. A 5. 1</td>
<td>Low pressure error</td>
<td>38</td>
</tr>
<tr>
<td>E. J 2. U</td>
<td>Branch boxes error</td>
<td>39</td>
</tr>
</tbody>
</table>

"TENTATIVE"
## 2-2-6. Error status for Branch Box Display

When an error occurs, an error description displays in the LED (No.401 - 405).

<table>
<thead>
<tr>
<th>Green</th>
<th>Red</th>
<th>Comment</th>
<th>Trouble shooting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LED401</td>
<td>LED402</td>
<td>LED403</td>
</tr>
<tr>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>●</td>
<td>●</td>
<td>●</td>
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</tr>
<tr>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Error Indication Flashing Pattern

Example: "Serial communication error between Indoor Unit B and branch box" at Secondary unit1
(LED401: 2times, LED402: 5times, LED403: Unlit, LED404: Lit, LED405: Unlit)
TROUBLE SHOOTING

Trouble shooting 1
ALL UNIT Error Method:
Serial Communication Error
(Serial Forward Transfer Error)

Indicate or Display:
Outdoor Unit: E.1 1.3 or E.1 1.4
Indoor Unit: Operation LED 1 times Flash, Timer LED 1 Times Flash,
            Economy LED Continuous Flash.
Error Code: 1 1

Detective Actuators:
E.1 1.3: Outdoor Unit or Branch Box
E.1 1.4: Outdoor Unit or Branch Box

Detective details:
When the branch box cannot properly receive the serial signal from
outdoor unit for 10 seconds or more.

Forecast of Cause:

Check Point 1-1: Reset the power and operate
- Does error indication reappear?

Check Point 2: Check connection
- Check any loose or removed connection line of
  between branch box and outdoor unit.
  >> If there is a normal condition, correct it by
     referring to Installation Manual or Data &
- Check connection condition in control unit.
  (If there is loose connector, open cable or mis-wiring)

Check Point 1-2: Check external cause such as noise
- Check if the ground connection is proper.
- Check if there is any equipment that causes harmonic wave
  near the power cable (Neon light bulb or any electronic
  equipment which causes harmonic wave).

Check Point 3: Check the voltage of power supply
- Check the voltage of power supply
  >> Check if AC187(AC208V-10%) - 253V(AC230V+10%) appears
     at outdoor unit terminal L1 - L2.

Check Point 4: Check serial signal (Forward transfer signal)
- Check serial signal (Forward transfer signal)
  >> Check if indicated value swings between AC70V and AC130V at outdoor unit terminal 2 - 3.
  >> If it is abnormal, replace Outdoor Main PCB and execute the check operation again.
Trouble shooting 2
ALL UNIT Error Method:
Serial Communication Error (Serial Reverse Transfer Error)

Indicate or Display:
Outdoor Unit : E.5 U.1
Indoor Unit : Operation LED 1 times Flash, Timer LED 1 Times Flash,
            Economy LED Continuous Flash.
Error Code : 1 1

Detective Actuators:
Indoor Unit
Branch Box(Master / Slave)

Detective details:
When the indoor unit cannot properly receive the serial signal from
branch box for 10 seconds or more.

Forecast of Cause:

Check Point 1-1 : Reset the power and operate
• Does error indication reappear?

Check Point 1-2 : Check external cause such as noise
• Check if the ground connection is proper.
• Check if there is any equipment that causes harmonic wave
  near the power cable (Neon light bulb or any electronic
  equipment which causes harmonic wave).

Check Point 2 : Check connection
• Check any loose or removed connection line of
  between branch box(Master / Slave) and indoor unit.
  >> If there is an abnormal condition, correct it by
     referring to Installation Manual or Data &
• Check connection condition in control unit.
  (If there is loose connector, open cable or mis-wiring)

Check Point 3 : Check the voltage of power supply
• Check the voltage of power supply
  >> Check if AC187(AC208V-10%) - 253V(AC230V+10%) appears
      at branch box(Master / Slave) terminal L1 - L2 .

Check Point 4 : Check serial signal (Reverse transfer signal)
• Check serial signal (Reverse transfer signal)
  >> Check if indicated value swings between AC70V and AC130V at branch box(Master / Slave)
      terminal 2 - 3.
  >> If it is abnormal, replace Master / Slave Branch box controller PCB.
Trouble shooting 3

INDOOR UNIT Error Method:
Wired Remote Controller Communication Error

Indicate or Display:
Outdoor Unit : E.5 U.1
Indoor Unit : Operation LED 1 times Flash, Timer LED 2 Times Flash, Economy LED Continuous Flash.
Error Code : 1 2

Detective Actuators:
Indoor unit controller PCB
Wired Remote Controller

Detective details:
Upon receiving the signal more than 1 time from Wired Remote or other Indoor unit, but the same signal has not been received more than 1 minute.


Check Point 1: Check the connection of terminal

After turning off the power, check & correct the followings.
☐ Indoor Unit - Check the connection of terminal between remote controller and Indoor unit, and check if there is a disconnection or short of the cable.

Check Point 2: Check Remote controller and Controller PCB

☐ Check terminal voltage of controller PCB Connector. (Power supply for Remote)
  Cassette / Duct Type ⇒ CN14 , Wall mount Type ⇒ CN6 , Small size Wall mount Type ⇒ CN305(UTY-XCBXZ14)
  If DC12V, Remote Controller failure (Controller PCB is OK) >>> Replace Remote Controller
  If DC0V, Controller PCB failure (Remote is OK) >>> Replace Controller PCB and execute the check operation again.
  ▶ In case of re-installation is done due to removed connector or incorrect wiring, turn on the power again.
<table>
<thead>
<tr>
<th>Trouble shooting 4</th>
<th>Indicate or Display:</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDOOR UNIT Error Method:</td>
<td>Outdoor Unit : E. 15. 6</td>
</tr>
<tr>
<td>Check run unfinished</td>
<td>Indoor Unit : Operation LED 1 times Flash, Timer LED 5 Times Flash, Economy LED Continuous Flash.</td>
</tr>
<tr>
<td>Error Code : 15</td>
<td></td>
</tr>
</tbody>
</table>

**Detective Actuators:**
- Outdoor unit
- Branch BOX

**Detective details:**
When the operation command is input by remote controller without check operation completion.

<table>
<thead>
<tr>
<th>Forecast of Cause :</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Check operation not complete</td>
</tr>
<tr>
<td>2. Outdoor Main PCB changed</td>
</tr>
<tr>
<td>3. Branch BOX PCB changed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check Point 1 : Check the indoor unit number connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Check the indoor unit number connection.</td>
</tr>
<tr>
<td>&gt;&gt; If the check operation not complete, execute it by referring to Installation Manual or Data &amp; Technical Manual.</td>
</tr>
<tr>
<td>&gt;&gt; Upon correcting incorrect setting, reset the power.</td>
</tr>
</tbody>
</table>

**OK**

<table>
<thead>
<tr>
<th>Check Point 2 : Replace Main PCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Replace Main PCB, and execute the check operation again.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INDOOR UNIT Error Method:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Wires and Pipes Error</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicate or Display:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor Unit : E.2 1.2</td>
</tr>
<tr>
<td>Indoor Unit : Operation LED 2 times Flash, Timer LED 1 Times Flash, Economy LED Continuous Flash.</td>
</tr>
<tr>
<td>Error Code : 2 1</td>
</tr>
</tbody>
</table>

**Detective Actuators:**
- Indoor unit

**Detective details:**
When the operation command is input by remote controller without check operation completion. When the replaced PCB.

<table>
<thead>
<tr>
<th>Forecast of Cause :</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Check operation not complete</td>
</tr>
<tr>
<td>2. Indoor Controller PCB changed</td>
</tr>
<tr>
<td>3. Branch BOX PCB changed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check Point 1 : Check the indoor unit number connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Check the indoor unit number connection.</td>
</tr>
<tr>
<td>&gt;&gt; If the check operation not complete, execute it by referring to Installation Manual or Data &amp; Technical Manual.</td>
</tr>
<tr>
<td>&gt;&gt; Upon correcting incorrect setting, reset the power.</td>
</tr>
</tbody>
</table>

**OK**

<table>
<thead>
<tr>
<th>Check Point 2 : Replace Controller PCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Replace Controller PCB, and execute the check operation again.</td>
</tr>
</tbody>
</table>

14
## Outdoor Unit Error Method:

### Detective Actuators:

<table>
<thead>
<tr>
<th>Actuator</th>
</tr>
</thead>
<tbody>
<tr>
<td>All indoor unit</td>
</tr>
</tbody>
</table>

### Detective details:

When the total capacity of indoor units is outside of range between 38,000BTU and 63,000BTU.

### Forecast of Cause:

1. The selection of indoor units is incorrect
2. Main PCB failure

### Check Point 1: Check the total capacity of indoor unit

- Check the total capacity of the connected indoor units.

  >> If abnormal condition is found, correct it by referring to Installation Manual or Data & Technical Manual.

### Check Point 2: Replace Main PCB

- If Check Point 1 do not improve the symptom, replace Main PCB, and execute the check operation again.

---

**Indicate or Display:**

- **Indoor Unit:** Operation LED 2 times Flash, Timer LED 2 Times Flash, Economy LED Continuous Flash.
- **Outdoor Unit:** E. 22. 1
- **Error Code:** 22
**Trouble shooting 6**

**INDOOR UNIT Error Method:**
Connected Combination Error

**Indicate or Display:**
- Outdoor Unit: E.5 U.1 or E.J 2.U
- Indoor Unit: Operation LED 2 times Flash, Timer LED 3 Times Flash,
  Economy LED Continuous Flash.
- Error Code: 2 3

**Detective Actuators:**
- Indoor Unit
- Branch Box

**Detective details:**
When power is on and there is some below case.
1. When the wiring is mistake
2. When the connection outdoor unit different.

**Forecast of Cause:**
1. External cause  
2. Connections condition in Controller PCB  
3. Controller PCB failure

---

**Check Point 1-1:** Reset power supply and operate

- Does error indication show reappear?

  **YES**

  **Check Point 2:**
  Check connections condition in Controller PCB

  - Check all connectors.
    - (loose connector or incorrect wiring)
  - Check any shortage or corrosion on PCB.

  **NO**

  **Check Point 1-2:** Check external cause such as noise

  - Check if the ground connection is proper.
  - Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).

  **OK**

  **Check Point 3:** Replace Controller PCB

  ▶ If Check Point 1, 2 do not improve the symptom, replace Controller PCB and execute the check operation again.
Trouble shooting 7
INDOOR UNIT Error Method:
Number of Indoor Units Error

<table>
<thead>
<tr>
<th>Detective Actuators:</th>
<th>Detective details:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor Unit</td>
<td>When the total connection number of indoor units is outside of range between 2 and 8.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Forecast of Cause:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Indoor unit connection failure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check Point 1: Check the indoor unit number connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Check the indoor unit number connection.</td>
</tr>
<tr>
<td>&gt;&gt; If there is an abnormal condition, correct it by referring to Installation Manual or Data &amp; Technical Manual.</td>
</tr>
<tr>
<td>&gt;&gt; Upon correcting incorrect setting, reset the power.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicate or Display:</th>
<th>Outdoor Unit : E. 24. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor Unit</td>
<td>Operation LED 2 times Flash, Timer LED 4 Times Flash, Economy LED Continuous Flash.</td>
</tr>
<tr>
<td>Error Code</td>
<td>24</td>
</tr>
</tbody>
</table>
## Trouble shooting 8
### Branch Box Error Method:
- **Detective Actuators:**
  - Branch Box

### Detective details:
- When the number of branch boxes ① and ② are different, and the operation command is input to the outdoor unit.
  - ① Memorized number at the check operation.
  - ② Number of Serial forward signal.

### Forecast of Cause:
1. Branch box power failure
2. Branch box connection failure

### Check Point 1: Check the Branch box power
- Check the Branch Box power
  - **If there is an abnormal condition, power turned on.**

### Check Point 2: Check the Branch box connection
- Check the Branch Box connection.
  - **If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.**
  - **Upon correcting incorrect setting, reset the power.**

### Indicate or Display:
- **Outdoor Unit:** E. 24. 3
- **Indoor Unit:** Operation LED 2 times Flash, Timer LED 4 Times Flash, Economy LED Continuous Flash.
- **Error Code:** 24

### Indoor Unit:
- Operation LED 2 times Flash, Timer LED 4 Times Flash, Economy LED Continuous Flash.
- E. 24. 3

### Outdoor Unit:
- E. 24. 3

### Error Code:
- 24

### Indicate or Display:
- TENTATIVE
## Trouble shooting 9

### INDOOR UNIT Error Method:
- Indoor Unit Model Information Error
- EEPROM Access Abnormal

### Indicate or Display:
- **Indoor Unit**: Operation LED 3 times Flash, Timer LED 2 Times Flash, Economy LED Continuous Flash.
- **Outdoor Unit**: E.5 U.1
- **Error Code**: 3 2

### Detective Actuators:
- Indoor Unit

### Detective details:
3 continuous failure of read test of EEPROM at power on, or apparent model information error from EEPROM. Also, error on model information upon model information test of EEPROM, or Model information of EEPROM not possible to recover.

### Forecast of Cause:
1. External cause
2. Connections condition in Controller PCB
3. Controller PCB failure

### Check Point 1-1: Reset power supply and operate
- Does error indication show reappear?
  - **YES**
  - **NO**

### Check Point 2:
- Check connections condition in Controller PCB
  - Check all connectors.
  - Check any shortage or corrosion on PCB.

### Check Point 3: Replace Controller PCB
- Change Controller PCB and execute the check operation again.

### Note: EEPROM
EEPROM (Electrically Erasable and Programmable Read Only Memory) is a non-volatile memory which keeps memorized information even if power is turned off. It can change the contents electronically. To change the contents, it uses higher voltage than normal, and it can not change a partial contents. (Rewriting shall be done upon erasing the all contents.) There is a limit in a number of rewriting.
## INDOOR UNIT Error Method:

### Manual Auto Switch Error

<table>
<thead>
<tr>
<th>Troubleshooting 10</th>
<th>Indicate or Display:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor Unit : Operation LED 3 times Flash, Timer LED 2 Times Flash, Economy LED Continuous Flash.</td>
<td></td>
</tr>
<tr>
<td>Error Code : 3 5</td>
<td></td>
</tr>
</tbody>
</table>

### Detective Actuators: Detective details:  

- Indoor Unit Controller PCB  
- Indicator PCB  
- Manual Auto Switch  

- When the Manual Auto Switch becomes ON for consecutive 30 or more seconds.

### Forecast of Cause:

1. Manual Auto Switch failure  
2. Controller PCB and Indicator PCB failure

### Check Point 1: Check the Manual Auto Switch

- Check if Manual Auto Switch is kept pressed.
- Check ON/OFF switching operation by using a meter.

**OK**

**If Manual Auto Switch is disabled (on/off switching), replace it.**

### Check Point 2: Replace Controller PCB and Indicator PCB

**If Check Point 1 do not improve the symptom, replace Controller PCB and Indicator PCB and execute the check operation again.**
Trouble shooting 11
INDOOR UNIT Error Method:
Indoor Room Thermistor Error

Indicate or Display:
Outdoor Unit : E.5 U.1
Indoor Unit : Operation LED 4 times Flash, Timer LED 1 Times Flash, Economy LED Continuous Flash.
Error Code : 4 1

Detective Actuators:
Indoor Unit Controller PCB Circuit
Indoor Temperature Thermistor

Detective details:
Indoor unit thermistor is open or short is detected always.


Check Point 1 : Check connection of Connector

☐ Check if connector is loose or removed
☐ Check erroneous connection
☐ Check if thermistor cable is open

>>Reset Power when reinstalling due to removed connector or incorrect wiring.

Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Rough value)

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance Value (kΩ)</td>
<td>33.6</td>
<td>25.2</td>
<td>20.1</td>
<td>15.8</td>
<td>12.5</td>
<td>10.0</td>
<td>8.0</td>
<td>6.5</td>
</tr>
</tbody>
</table>

Temperature (°C) | 40  | 45  | 50  |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance Value (kΩ)</td>
<td>5.3</td>
<td>4.3</td>
<td>3.5</td>
</tr>
</tbody>
</table>

► If Thermistor is either open or shorted, replace it and reset the power.

Check Point 3 : Check voltage of Controller PCB (DC5.0V)

Make sure circuit diagram of each indoor unit and check terminal voltage at Thermistor (DC5.0V)

- Duct circuit diagram (Connector connection)
- Small size Wall mount circuit diagram (Connector connection)
- Cassette circuit diagram (Connector connection)
- Wall mount Scircuit diagram (Direct soldering to PCB)

► If the voltage does not appear, replace Controller PCB and execute the check operation again.
Thermistor Characteristics (Rough value)
If Thermistor is either open or shorted, replace it and reset the power.

Trouble shooting 12
INDOOR UNIT Error Method:
Indoor Heat Ex. Thermistor Error

Indicate or Display:
Outdoor Unit : E.5 U.1
Indoor Unit : Operation LED 4 times Flash, Timer LED 2 Times Flash,
Economy LED Continuous Flash.
Error Code : 4 2

Detective Actuators:
Indoor Unit Controller PCB
Heat Exchanger (MID) Thermistor

Detective details:
Indoor unit thermistor is open or short is detected always.


Check Point 1 : Check connection of Connector
☐ Check if connector is loose or removed
☐ Check erroneous connection
☐ Check if thermistor cable is open
>>Reset Power when reinstalling due to removed connector or incorrect wiring.

Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Rough value)

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance Value (kΩ)</td>
<td>168.6</td>
<td>129.8</td>
<td>100.9</td>
<td>79.1</td>
<td>62.5</td>
<td>49.8</td>
<td>40.0</td>
<td>32.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>40</th>
<th>45</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance Value (kΩ)</td>
<td>26.3</td>
<td>21.2</td>
<td>17.8</td>
</tr>
</tbody>
</table>

If Thermistor is either open or shorted, replace it and reset the power.

Check Point 3 : Check voltage of Controller PCB (DC5.0V)

Make sure circuit diagram of each indoor unit and check terminal voltage at Thermistor (DC5.0V)

- Duct circuit diagram (Connector connection)
- Small size Wall mount circuit diagram(Connector connection)
- Cassette circuit diagram (Connector connection)
- Wall mount circuit diagram (Direct soldering to PCB)

If the voltage does not appear, replace Controller PCB and execute the check operation again.
# Trouble shooting 13

## INDOOR UNIT Error Method

- **Indoor Unit Fan Motor Error**

<table>
<thead>
<tr>
<th>Indicate or Display:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor Unit: E.5 U.1</td>
</tr>
<tr>
<td>Indoor Unit: Operation LED 5 times Flash, Timer LED 1 Times Flash, Economy LED Continuous Flash.</td>
</tr>
<tr>
<td>Error Code: 5 1</td>
</tr>
</tbody>
</table>

## Detective Actuators:
- Indoor Unit Controller PCB
- Indoor Fan Motor

## Detective details:

- When Indoor fan control is either phase control or DC control and rotation feedback control is ON, the feedback rotation value becomes 0 and lasts for more than 1 minute at motor operation condition. Or, the feedback rotation value continues at 1/3 of target value for more than 1 minute.

## Forecast of Cause:

1. Fan MOTOR failure
2. Fan motor winding open
3. Motor protection by surrounding temp. increase
4. Power PCB failure
5. Controller PCB failure

<table>
<thead>
<tr>
<th>Check Point 1: Check rotation of Fan</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Rotate the fan by hand when operation is off.</td>
</tr>
<tr>
<td>(Check if fan is caught, dropped off or locked motor)</td>
</tr>
<tr>
<td>&gt;&gt;If Fan or Bearing is abnormal, replace it.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check Point 2: Check Motor winding</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Check Indoor Fan motor (PARTS INFORMATION**)</td>
</tr>
<tr>
<td>&gt;&gt;If Fan motor is abnormal, replace it.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check Point 3: Check ambient temp. around motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Check excessively high temperature around the motor.</td>
</tr>
<tr>
<td>(If there is any surrounding equipment that causes heat)</td>
</tr>
<tr>
<td>&gt;&gt;Upon the temperature coming down, restart operation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check Point 4: Check Motor Capacitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Check continuity of motor capacitor</td>
</tr>
<tr>
<td>&gt;&gt;If it is shorted, replace the capacitor.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check Point 5: Replace Controller PCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Change Controller PCB and execute the check operation again.</td>
</tr>
</tbody>
</table>
Trouble shooting  14
INDOOR UNIT Error Method:
Drainage Error

<table>
<thead>
<tr>
<th>Indicate or Display:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor Unit : E.5 U.1</td>
</tr>
<tr>
<td>Indoor Unit : Operation LED 5 times Flash, Timer LED 3 Times Flash, Economy LED Continuous Flash.</td>
</tr>
<tr>
<td>Error Code : 5 3</td>
</tr>
</tbody>
</table>

Detective Actuators:
Indoor Unit Controller PCB Circuit
Float Switch

Detective details:
When Float switch is ON for more than 3 minutes.

Forecast of Cause:
1. Float switch failure
2. Shorted connector/wire
3. Controller PCB failure
4. Drain pump failure
5. Hose clogging

Check Point 1: Check Float Switch
- Check operation of float switch. (any blocking by dust, etc.)
- Remove Float switch and check ON/OFF switching operation by using a meter.
  >>If Float switch is abnormal, replace it.

Check Point 2: Check Connector (CN 9) / Wire
- Check loose contact of CN9/shorted wire (pinched wire).
  >>Replace Float switch if the wire is abnormal

Check Point 3: Check Drain Hose
- Check Drain Hose.
  >>If there is Hose clogging, Please clear the clog.

Check Point 4: Check Controller PCB
If Check Point 1 ~ 3 do not improve the symptom, change Controller PCB and execute the check operation again.

Attention!!
Wall mount / Small size wall mount type does not have a float switch. In this case, replace Controller PCB and set up the original address. Please refer to.
## Trouble shooting 15

### OUTDOOR UNIT Error Method:
- Outdoor Unit Model: Information Error

### Indicate or Display:
- Outdoor Unit: E.62.1
- Indoor Unit: Operation LED 6 times Flash, Timer LED 2 Times Flash, Economy LED Continuous Flash.
- Error Code: 62

### Detective Actuators:
- Outdoor unit Main PCB

### Detective details:
- Access to EEPROM failed due to some cause after outdoor unit started.

### Forecast of Cause:
- 1. External cause (Noise, temporary open, voltage drop)
- 2. Main PCB failure

### Check Point 1-1: Turn the power on again.

#### Error displayed again?

- **NO**
- **YES**

### Check Point 2: Replace Main PCB

- Change Main PCB, and execute the check operation again.

- Check if temporary voltage drop was not generated.
- Check if momentary open was not generated.
- Check if ground is connection correctly or there are no related cables near the power line.
**Trouble shooting 16**

<table>
<thead>
<tr>
<th>OUTDOOR UNIT Error Method:</th>
<th>Indoor Unit Error Method:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inverter Error</td>
<td>Error displayed again?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicate or Display:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor Unit : E. 63. 1</td>
</tr>
<tr>
<td>Indoor Unit : Operation LED 6 times Flash, Timer LED 3 Times Flash, Economy LED Continuous Flash.</td>
</tr>
<tr>
<td>Error Code : 63</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Detective Actuators:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inverter PCB</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Detective details:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error information received from Inverter PCB</td>
</tr>
</tbody>
</table>

**Forecast of Cause:**
1. External cause.
2. Power supply to Filter PCB to Inverter PCB wiring disconnection, open
3. Filter PCB failure
4. Inverter PCB failure

**Check Point 1-1:** Turn the power on again.
- Error displayed again?
  - NO
  - YES

**Check Point 1-2:** External cause
- Check if temporary voltage drop was not generated.
- Check if temporary open was not generated.
- Check if ground is connection correctly or there are no related cables near the power line.

**Check Point 2:** Check the wiring (Power supply to Filter PCB to Inverter PCB)
- Connector and wiring connection state check
- Cable open check

**Check Point 3:** Check Filter PCB (INV) and Inverter PCB
- Check Filter PCB and Inverter PCB.
## Trouble shooting 17

### OUTDOOR UNIT Error Method:

<table>
<thead>
<tr>
<th>A.F Voltage Error</th>
</tr>
</thead>
</table>

### Indicate or Display:

- **Outdoor Unit**: E. 64. 1
- **Indoor Unit**: Operation LED 6 times Flash, Timer LED 4 Times Flash
- **Economy LED**: Continuous Flash

### Error Code: 64

### Detective Actuators:

- Outdoor Unit Main PCB
- Outdoor Unit ACTPM PCB

### Detective details:

- Inverter low voltage protection
- Inverter overvoltage protection

### Forecast of Cause:

1. Connector connection failure
2. Inverter PCB failure
3. ACTPM failure
4. Main PCB failure

### Check Point 1:

- Check connections condition in control unit
  - Check if the terminal connection is loose.
  - Check if connector is removed.
  - Check if connector is erroneous connection.
  - Check if cable is open.

  *Upon correcting the removed connector or mis-wiring, reset the power.*

### Check Point 2:

- Replace Inverter PCB and ACTPM, and Main PCB

*If Check Point 1, 2 do not improve the symptom,
replace Main PCB and ACTPM, and execute the check operation again.*
**Trouble shooting 20**

**OUTDOOR UNIT Error Method:**

<table>
<thead>
<tr>
<th>Discharge Thermistor Error</th>
</tr>
</thead>
</table>

**Indicate or Display:**

- **Outdoor Unit:** E. 71. 1
- **Indoor Unit:** Operation LED 7 times Flash, Timer LED Times Flash, Economy LED Continuous Flash.
- **Error Code:** 71

**Detective Actuators:**

- Discharge temperature thermistor

**Detective details:**

- Discharge temperature thermistor short detected
- Discharge thermistor open detected

**Forecast of Cause:**

1. Connector connection failure, open
2. Thermistor failure
3. Main PCB failure

**Check Point 1:** Check the connector connection and cable open

- Connector connection state check
- Cable open check

**Check Point 2:** Check the thermistor

- Thermistor characteristics check (Disconnect the thermistor from the PCB and check.)
  - For the thermistor characteristics, refer to the "Service Parts Information 5".

**Check Point 3:** Check voltage of Main PCB (DC5.0 V)

- Main PCB (CN62:1-2) voltage value = 5V
  - Remove the thermistor from Main PCB, check the voltage.

---

If the voltage does not appear, replace Main PCB, and execute the check operation again.
Trouble shooting

**OUTDOOR UNIT Error Method:**
Compressor Thermistor Error

<table>
<thead>
<tr>
<th>Indicate or Display:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor Unit : E. 72. 1</td>
</tr>
<tr>
<td>Indoor Unit : Operation LED 7 times Flash, Timer LED 2 Times Flash, Economy LED Continuous Flash.</td>
</tr>
<tr>
<td>Error Code : 72</td>
</tr>
</tbody>
</table>

**Detective Actuators:**
Compressor temperature thermistor

**Detective details:**
- Compressor temperature thermistor short detected
- Compressor thermistor open detected

**Forecast of Cause :**
1. Connector connection failure, open
2. Thermistor failure
3. Main PCB failure

Check Point 1 : Check the connector connection and cable open
- Connector connection state check
- Cable open check

Check Point 2 : Check the thermistor
- Thermistor characteristics check (Disconnect the thermistor from the PCB and check.)
  * For the thermistor characteristics, refer to the "Service Parts Information 14".

Check Point 3 : Check voltage of Main PCB (DC5.0V)
- Main PCB (CN62:3-4) voltage value = 5V
  Remove the thermistor from Main PCB, check the voltage.

Compressor temperature thermistor (CN62:3-4)

- If the voltage does not appear, replace Main PCB, and execute the check operation again.
**Trouble shooting 22**

**OUTDOOR UNIT Error Method:**
- Outdoor Unit Heat Ex. Outlet Temp. Thermistor Error

<table>
<thead>
<tr>
<th>Indicate or Display:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor Unit: E. 73. 3</td>
</tr>
<tr>
<td>Indoor Unit: Operation LED 7 times Flash, Timer LED 3 Times Flash, Economy LED Continuous Flash.</td>
</tr>
<tr>
<td>Error Code: 73</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Detective Actuators:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat exchanger liquid temperature thermistor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Detective details:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Heat exchanger outlet temperature thermistor short or open detected</td>
</tr>
</tbody>
</table>

**Forecast of Cause:**
1. Connector connection defective, open
2. Thermistor failure
3. Main PCB failure

---

Check Point 1: Check the connector connection and cable open
- Connector connection state check
- Cable open check

**OK**

Check Point 2: Check the thermistor
- Thermistor characteristics check (Disconnect the thermistor from the PCB and check.)
  * For the thermistor characteristics, refer to the "Service Parts Information 5".

**OK**

Check Point 3: Check voltage of Main PCB (DC5.0V)
- Main PCB (CN63:1-2) voltage value = 5V
- Remove the thermistor from Main PCB, check the voltage.

Heat exchanger outlet temperature thermistor (CN63:1-2)

*If the voltage does not appear, replace Main PCB, and execute the check operation again.*
Trouble shooting  
OUTDOOR UNIT Error Method:  
Outdoor Thermistor Error

Indicate or Display:  
Outdoor Unit : E. 74. 1  
Indoor Unit : Operation LED 7 times Flash, Timer LED 4 Times Flash,  
Economy LED Continuous Flash.  
Error Code : 74

Detective Actuators:  
Outdoor temperature thermistor

Detective details:  
- Outdoor temperature thermistor short or open detected

Forecast of Cause:  
1. Connector connection defective, open  
2. Thermistor failure  
3. Main PCB failure

Check Point 1 : Check the connector connection and cable open

- Connector connection state check  
- Cable open check

OK

Check Point 2: Check the thermistor

- Thermistor characteristics check (Disconnect the thermistor from the PCB and check.)  
  * For the thermistor characteristics, refer to the "Service Parts Information 5".

OK

Check Point 3 : Check voltage of Main PCB (DC5.0V)

- Main PCB (CN61:1-3) voltage value = 5V  
  Remove the thermistor from Main PCB, check the voltage.

\[\text{DC}\]

Outdoor temperature thermistor (CN61:1-3)

\[\text{If the voltage does not appear, replace Main PCB, and execute the check operation again.}\]
Suction gas temperature thermistor

Indicate or Display:
- Outdoor Unit: E. 75. 1
- Indoor Unit: Operation LED 7 times Flash, Timer LED 5 Times Flash, Economy LED Continuous Flash.
- Error Code: 75

**Detective Actuators:**
- Suction gas temperature thermistor

**Detective details:**
- Suction gas temperature thermistor short or open detected

**Forecast of Cause:**
1. Connector connection defective, open
2. Thermistor failure
3. Main PCB failure

**Check Point 1:** Check the connector connection and cable open
- Connector connection state check
- Cable open check

**Check Point 2:** Check the thermistor
- Thermistor characteristics check (Disconnect the thermistor from the PCB and check.)
  * For the thermistor characteristics, refer to the "Service Parts Information 5".

**Check Point 3:** Check voltage of Main PCB (DC5.0V)
- Main PCB (CN66:1-3) voltage value = 5V
  Remove the thermistor from Main PCB, check the voltage.

▶ If the voltage does not appear, replace Main PCB, and execute the check operation.
## Trouble shooting 25

<table>
<thead>
<tr>
<th>OUTDOOR UNIT Error Method:</th>
<th>Indicate or Display:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Sink Thermistor Error</td>
<td>Outdoor Unit : E. 77. 1</td>
</tr>
<tr>
<td></td>
<td>Indoor Unit : Operation LED 7 times Flash, Timer LED 7 Times Flash, Economy LED Continuous Flash.</td>
</tr>
<tr>
<td></td>
<td>Error Code : 77</td>
</tr>
</tbody>
</table>

### Detective Actuators:

- Inverter PCB

### Detective details:

- Heat sink temperature thermistor (Built-in IPM) open/short detected

### Forecast of Cause:

1. Inverter PCB failure

    - If this error is displayed, replace inverter PCB
Trouble shooting 26
OUTDOOR UNIT Error Method:
Sub-cool Heat EX. Gas
Inlet Thermistor Error

Indicate or Display:
Outdoor Unit : E. 82. 1
Indoor Unit : Operation LED 8 times Flash, Timer LED 2 Times Flash,
Economy LED Continuous Flash.
Error Code : 82

Detective Actuators:
Sub-cooling heat exchanger gas inlet temperature thermistor

Detective details:
• Sub-cooling heat exchanger gas inlet temperature thermistor short or open detected

Forecast of Cause :
1. Connector connection defective, open
2. Thermistor failure
3. Main PCB failure

Check Point 1 : Check the connector connection and cable open
- Connector connection state check
- Cable open check

Check Point 2 : Check the thermistor
- Thermistor characteristics check (Disconnect the thermistor from the PCB and check.)
  * For the thermistor characteristics, refer to the "Service Parts Information 5".

Check Point 3 : Check voltage of Main PCB (DC5.0V)
- Main PCB (CN65:1-2) voltage value = 5V
  Remove the thermistor from Main PCB, check the voltage.

Sub-cooling heat exchanger gas inlet thermistor (CN65:1-2)
  If the voltage does not appear, replace Main PCB, and execute the check operation again.
**Trouble shooting 27**

**OUTDOOR UNIT Error Method:**
Sub-cool Heat EX. Gas Outlet Thermistor Error

**Indicate or Display:**
- **Outdoor Unit:** E. 82. 2
- **Indoor Unit:** Operation LED 8 times Flash, Timer LED 2 Times Flash, Economy LED Continuous Flash.
- **Error Code:** 82

### Detective Actuators:
Sub-cooling heat exchanger gas outlet temperature thermistor

### Detective details:
- Sub-cooling heat exchanger gas outlet temperature thermistor short or open detected

### Forecast of Cause:
1. Connector connection defective, open
2. Thermistor failure
3. Main PCB failure

---

**Check Point 1:** Check the connector connection and cable open

- Connector connection state check
- Cable open check

**OK**

**Check Point 2:** Check the thermistor

- Thermistor characteristics check (Disconnect the thermistor from the PCB and check.)
  - For the thermistor characteristics, refer to the "Service Parts Information 5".

**DC**

**Check Point 3:** Check voltage of Main PCB (DC5.0V)

- Main PCB (CN63:4-5) voltage value = 5V
  - Remove the thermistor from Main PCB, check the voltage.

**Sub-cooling heat exchanger gas outlet thermistor (CN63:4-5)**

> **If the voltage does not appear, replace Main PCB, and execute the check operation again.**
**Trouble shooting 28**

**OUTDOOR UNIT Error Method:**
Heat Ex. Liquid Outlet Thermistor Error

**Indicate or Display:**
- Outdoor Unit: E. 83. 1
- Indoor Unit: Operation LED 8 times Flash, Timer LED 3 Times Flash, Economy LED Continuous Flash.
- Error Code: 83

**Detective Actuators:**
Heat exchanger liquid outlet thermistor

**Detective details:**
- Heat exchanger liquid pipe thermistor short or open detected

**Forecast of Cause:**
1. Connector connection failur, open
2. Thermistor failure
3. Main PCB failure

---

**Check Point 1:** Check the connector connection and cable open

- Connector connection state check
- Cable open check

**Check Point 2:** Check the thermistor

- Thermistor characteristics check (Disconnect the thermistor from the PCB and check.)
  * For the thermistor characteristics, refer to the "Service Parts Information 5".

**Check Point 3:** Check voltage of Main PCB (DC5.0V)

- Main PCB (CN63:1-2) voltage value = 5V
  Remove the thermistor from Main PCB, check the voltage.

**TENTATIVE**

- If the voltage does not appear, replace Main PCB, and execute the check operation again.
Trouble shooting 29

OUTDOOR UNIT Error Method:
Current Sensor Error

Indicate or Display:
Outdoor Unit : E. 84. 1
Indoor Unit : Operation LED 8 times Flash, Timer LED 4 Times Flash, Economy LED Continuous Flash.
Error Code : 84

Detective Actuators:
Judgment from value sensed by current sensor (current sensor for inverter)
* Current sensor is mounted on Filter PCB

Detective details:
* When the compressor stops and 30 seconds has passed, and the current value from INV is over than 15A, outdoor unit is stopped permanently by protection.

Forecast of Cause:
1. Filter PCB to Inverter PCB CT system wiring connector disconnection, open
2. Filter PCB failure (Power supply section, current sensor section)
3. Inverter PCB failure

Check Point 1 : Filter PCB to Inverter PCB CT system wiring connection state
- Connector and wiring connection state check
- Cable open check
- OK

Check Point 2 : Check Filter PCB and Inverter PCB
- Check Filter PCB and Inverter PCB.
Discharge Pressure Sensor Error

Forecast of Cause:
1. Discharge pressure sensor connector disconnection, open
2. Discharge pressure sensor failure
3. Main PCB failure

Check Point 1: Check the discharge pressure sensor connection state
- Connector connection state check
- Cable open check

Check Point 2: Check the discharge pressure sensor
- Sensor characteristics check
  * For the characteristics of the discharge pressure sensor, refer to the "Service Parts Information 6".

Check Point 3: Check voltage of Main PCB (DC5.0V)
- Main PCB (CN91:1-4) voltage value = 5V
  Remove the thermistor from Main PCB, check the voltage.

Detective Actuators:
Discharge pressure sensor

Detective details:
- When any of the following conditions is satisfied, a discharge pressure sensor error is generated.
  1. 30 seconds or more have elapsed since the outdoor unit power was turned on and pressure sensor detected value < 0.3V continued for 30 seconds or more
  2. 30 seconds or more have elapsed since the outdoor unit power was turned on and pressure sensor detected value ≥ 5.0V was detected.

Indicate or Display:
- Outdoor Unit: E. 86. 1
- Indoor Unit: Operation LED 8 times Flash, Timer LED 6 Times Flash, Economy LED Continuous Flash.
- Error Code: 86

Troubleshooting:
- OUTDOOR UNIT Error Method: Discharge Pressure Sensor Error
- Indicate or Display:
  - Outdoor Unit: E. 86. 1
  - Indoor Unit: Operation LED 8 times Flash, Timer LED 6 Times Flash, Economy LED Continuous Flash.
  - Error Code: 86

Detective Actuators:
- Discharge pressure sensor

Detective details:
- When any of the following conditions is satisfied, a discharge pressure sensor error is generated.
  1. 30 seconds or more have elapsed since the outdoor unit power was turned on and pressure sensor detected value < 0.3V continued for 30 seconds or more
  2. 30 seconds or more have elapsed since the outdoor unit power was turned on and pressure sensor detected value ≥ 5.0V was detected.

Indicate or Display:
- Outdoor Unit: E. 86. 1
- Indoor Unit: Operation LED 8 times Flash, Timer LED 6 Times Flash, Economy LED Continuous Flash.
- Error Code: 86

Troubleshooting:
- OUTDOOR UNIT Error Method: Discharge Pressure Sensor Error
- Indicate or Display:
  - Outdoor Unit: E. 86. 1
  - Indoor Unit: Operation LED 8 times Flash, Timer LED 6 Times Flash, Economy LED Continuous Flash.
  - Error Code: 86

Detective Actuators:
- Discharge pressure sensor

Detective details:
- When any of the following conditions is satisfied, a discharge pressure sensor error is generated.
  1. 30 seconds or more have elapsed since the outdoor unit power was turned on and pressure sensor detected value < 0.3V continued for 30 seconds or more
  2. 30 seconds or more have elapsed since the outdoor unit power was turned on and pressure sensor detected value ≥ 5.0V was detected.

Indicate or Display:
- Outdoor Unit: E. 86. 1
- Indoor Unit: Operation LED 8 times Flash, Timer LED 6 Times Flash, Economy LED Continuous Flash.
- Error Code: 86

Troubleshooting:
- OUTDOOR UNIT Error Method: Discharge Pressure Sensor Error
- Indicate or Display:
  - Outdoor Unit: E. 86. 1
  - Indoor Unit: Operation LED 8 times Flash, Timer LED 6 Times Flash, Economy LED Continuous Flash.
  - Error Code: 86

Detective Actuators:
- Discharge pressure sensor

Detective details:
- When any of the following conditions is satisfied, a discharge pressure sensor error is generated.
  1. 30 seconds or more have elapsed since the outdoor unit power was turned on and pressure sensor detected value < 0.3V continued for 30 seconds or more
  2. 30 seconds or more have elapsed since the outdoor unit power was turned on and pressure sensor detected value ≥ 5.0V was detected.

Indicate or Display:
- Outdoor Unit: E. 86. 1
- Indoor Unit: Operation LED 8 times Flash, Timer LED 6 Times Flash, Economy LED Continuous Flash.
- Error Code: 86
Trouble shooting 31
OUTDOOR UNIT Error Method:
Suction Pressure Sensor Error

Indicate or Display:
Outdoor Unit: E. 86. 3
Indoor Unit: Operation LED 8 times Flash, Timer LED 6 Times Flash,
Economy LED Continuous Flash.
Error Code: 86

Detective Actuators:
Suction pressure sensor

Detective details:
- When any of the following conditions is satisfied, a suction pressure sensor error is generated.
  1. 30 seconds or more have elapsed since the outdoor unit power was turned on and pressure sensor detected value < 0.06V continued for 30 seconds or more.
  2. 30 seconds or more have elapsed since the outdoor unit power was turned on and pressure sensor detected value ≥ 5.0V was detected.

Forecast of Cause:
1. Suction pressure sensor connector disconnection, open
2. Suction pressure sensor failure
3. Main PCB failure

Check Point 1: Check the suction pressure sensor connection state
- Connector connection state check
- Cable open check

OK

Check Point 2: Check the suction pressure sensor
- Sensor characteristics check
  * For the characteristics of the suction pressure sensor, refer to the "Service Parts Information 6".

OK

Check Point 3: Check voltage of Main PCB (DC5.0V)
- Main PCB (CN92:1-3) voltage value = 5V
  Remove the thermistor from Main PCB, check the voltage.

If the voltage does not appear, replace Main PCB, and execute the check operation again.
Trouble shooting 32
OUTDOOR UNIT Error Method:
High Pressure Switch Error

Indicate or Display:
Outdoor Unit : E. 86. 4
Indoor Unit : Operation LED 8 times Flash, Timer LED 6 Times Flash,
Economy LED Continuous Flash.
Error Code : 86

Detective Actuators:
High pressure switch

Detective details:
• When the power was turned on, "high pressure switch : open" was detected.

Forecast of Cause :
1. High pressure switch connector disconnection, open
2. High pressure switch characteristics failure
3. Main PCB failure

Check Point 1 : Check the high pressure switch connection state
☐ Connector and wiring connection state check
☐ Cable open check
OK

Check Point 2 : Check the high pressure switch characteristics
☐ Switch characteristics check
* For the characteristics of high pressure switch, refer to below.
OK

Check Point 3 : Replace Main PCB
☐ Change Main PCB, and execute the check operation again.

• Type of contact

• Characteristics of pressure switch (CN101)

<table>
<thead>
<tr>
<th>Contact State</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short ⇒ Open</td>
<td>4.2 ± 0.1MPa</td>
</tr>
<tr>
<td>Open ⇒ Short</td>
<td>3.2 ± 0.15MPa</td>
</tr>
</tbody>
</table>
Trouble shooting 33
OUTDOOR UNIT Error Method:
Over Current Error

Indicate or Display:
Outdoor Unit : E. 94. 1
Indoor Unit : Operation LED 9 times Flash, Timer LED 4 Times Flash, Economy LED Continuous Flash.
Error Code : 94

Detective Actuators: Inverter PCB

Detective details:
- “Protection stop by “overcurrent generation after inverter compressor start processing completed” generated consecutively 10 times.
- The number of generations is reset if the start-up of the compressor succeeds.

Forecast of Cause:
1. Outdoor unit fan operation defective, foreign matter on heat exchanger, excessive rise of ambient temperature
2. Inverter PCB failure
3. Inverter compressor failure (lock, winding short)

Check Point 1: Check the outdoor unit fan operation, heat exchanger, ambient temperature

- No obstructions in air passages?
- Heat exchange fins clogged
- Outdoor unit fan motor check
- Ambient temperature not raised by the effect of other heat sources?
- Discharged air not sucked in?

OK

Check Point 2: Check the Inverter PCB

- Inverter PCB check

OK

Check Point 3: Replace the Inverter compressor

- Inverter compressor replacement
## Trouble shooting 34
### OUTDOOR UNIT Error Method:

<table>
<thead>
<tr>
<th>Compressor Control Error</th>
</tr>
</thead>
</table>

### Indicate or Display:
- **Outdoor Unit**: E. 95. 1
- **Indoor Unit**: Operation LED 9 times Flash, Timer LED 5 Times Flash, Economy LED Continuous Flash.
- **Error Code**: 95

### Detective Actuators:
- Outdoor Unit Inverter PCB
- Compressor

### Detective details:
- When "compressor location detection error" is detected consecutively 5 times, within 40 seconds after start-up.
- (Compressor location detection becomes over than 90°)

### Forecast of Cause:
1. Connector connection failure
2. Inverter PCB failure
3. Compressor failure

### Check Point 1: Check connections condition in control unit
- Check if the terminal connection is loose.
- Check if connector is removed.
- Check if connector is erroneous connection.
- Check if cable is open.
- **Upon correcting the removed connector or mis-wiring, reset the power.**

### Check Point 2: Check the Inverter PCB to inverter compressor connection state
- Wiring connection state check
- Cable open check

### Check Point 3: Check the Inverter compressor
- Inverter compressor check (Refer to Service Parts Information 1. 2)

### Check Point 4: Replace the Inverter PCB
- If Check Point 1~3 do not improve the symptom, replace Inverter PCB.

### Check Point 5: Replace the Inverter compressor
- If Check Point 4 do not improve the symptom, replace Inverter compressor.
Outdoor Unit Fan Motor Error

OK
OK
OK

1. Rotation obstruction by foreign matter
2. Motor wiring, connector disconnection, open
3. Fan motor failure (winding open, lock)
4. Main PCB failure (drive circuit, speed detection circuit)

Check Point 1 : Fan rotation state check
☐ Check for the absence of foreign matter around the fan

☐ OK

Check Point 2 : Check the motor wiring, connector disconnection, open
☐ Check for motor wiring connector disconnection, open.

☐ OK

Check Point 3 : Fan motor defective
☐ Check if fan can be rotated by hand.
☐ Motor winding resistance check
☐ Motor operation check

☐ OK

Check Point 4 : Check output voltage of Main PCB

- Check outdoor unit circuit diagram and the voltage.
  (Measure at Main PCB side connector 243)

  >>1 pin(Red) - 4 pin(Black)  DC250V ~ 400V
  >>4 pin(Black) - 5 pin(White)  DC15V ±2V

  - If the voltage is not correct, replace Main PCB, and execute the check operation again.
## Trouble shooting 36

### OUTDOOR UNIT Error Method:
4-way valve error

### Indicate or Display:
- **Outdoor Unit**: E. 99.1
- **Indoor Unit**: Operation LED 9 times Flash, Timer LED 9 Times Flash, Economy LED Continuous Flash.
- **Error Code**: 99

### Detective Actuators:
- Indoor Unit Controller PCB Circuit
- Heat Exchanger Temperature Thermistor
- Room Temperature Thermistor
- 4-way valve

### Detective details:
- When the indoor heat exchanger temperature is compared with the room temperature, and either following condition is detected continuously two times, the compressor stops.
  - Cooling or Dry operation: \( [\text{Indoor heat exchanger temp.}] - [\text{Room temp.}] > 10\text{degC} \)
  - Heating operation: \( [\text{Indoor heat exchanger temp.}] - [\text{Room temp.}] < -10\text{degC} \)
- If the same operation is repeated 5 times, the compressor stops permanently.

### Forecast of Cause:
1. Connector connection failure
2. Thermistor failure
3. Coil failure
4. 4-way valve failure
5. Main PCB failure

### Check Point 1: Check connection of Connector
- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

  \>
  **Upon correcting the removed connector or mis-wiring, reset the power.**

### Check Point 2: Check thermistor
- Isn't it fallen off the holder?
- Is there a cable pinched?

  \>
  **Check characteristics of thermistor, If defective, replace the thermistor.**

### Check Point 3: Check the solenoid coil and 4-way valve

#### [Solenoid coil]
- Remove CN30 from PCB and check the resistance value of coil.
  Resistance value is about 1.4kΩ

  \>
  **If it is Open or abnormal resistance value, replace Solenoid Coil.**

#### [4-way valve]
- Check each piping temperature, and the location of the valve by the temperature difference.

  \>
  **If the value location is not proper, replace 4-way valve.**

### Check Point 4: Replace Main PCB
- If Check Point 1-3 do not improve the symptom, replace Main PCB, and execute the check operation again.
Discharge Temp. Error

**<Cooling operation>**

1. Check Point 1: Check if 3-way valve (gas side) is open.
   - If the 3-way valve (gas side) was closed, open the 3-way valve (gas side) and check operation.

2. Check Point 2: Check the EEV, strainer
   - EEV (EEV2, indoor unit EEV) open?
   - Strainer clogging check (before and after EEV, ACM oil return)
   - Refer to "Service Parts Information 3, 4"

3. Check Point 3: Check the outdoor unit fan, heat exchanger
   - Check for foreign matter at heat exchanger
   - Check if fan can be rotated by hand.
   - Motor check

4. Check Point 4: Check the discharge thermistor
   - Discharger thermistor characteristics check
     (Check by disconnecting thermistor from PCB.)
     * For the characteristics of the thermistor, refer to the "Service Parts Information 5".

**<Heating operation>**

1. Check Point 1: Check if 3-way valve (liquid side) is open.
   - If the 3-way valve (liquid side) was closed, open the 3-way valve (liquid side) and check operation.

2. Check Point 2: Check the EEV, strainer
   - EEV (EEV1, EEV2) open?
   - Strainer clogging check (before and after EEV, ACM oil return)
   - Refer to "Service Parts Information 3, 4"

3. Check Point 5: Check the refrigerant amount
   - Leak check
## Trouble shooting

### OUTDOOR UNIT Error Method:

- Compressor Temp. Error

### Indicate or Display:

- Outdoor Unit: E. A3. 1
- Indoor Unit: Operation LED 10 times Flash, Timer LED 3 Times Flash, Economy LED Continuous Flash.
- Error Code: A3

### Detective Actuators:

- Compressor temperature thermistor

### Detective details:

- “Protection stop by "compressor temperature" ≥ 112°C during compressor operation” generated 2 times within 24 hours

### Forecast of Cause:

1. 3-way valve not opened
2. EEV defective, strainer clogged
3. Outdoor unit operation failure, foreign matter on heat exchanger
4. Compressor temperature thermistor failure
5. Insufficient refrigerant

### <Cooling operation>

<table>
<thead>
<tr>
<th>Check Point 1: Check if 3-way valve(gas side) is open.</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ If the 3-way valve(gas side) was closed, open the 3-way valve(gas side) and check operation.</td>
</tr>
<tr>
<td><strong>OK</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check Point 2: Check the EEV, strainer</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ EEV (EEV2, indoor unit EEV) open?</td>
</tr>
<tr>
<td>□ Strainer clogging check (before and after EEV, ACM oil return)</td>
</tr>
<tr>
<td>Refer to &quot;Service Parts Information 3, 4&quot;.</td>
</tr>
<tr>
<td><strong>OK</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check Point 3: Outdoor unit fan, heat exchanger check</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Check for foreign matter at heat exchanger</td>
</tr>
<tr>
<td>□ Check if fan can be rotated by hand.</td>
</tr>
<tr>
<td>□ Motor check</td>
</tr>
<tr>
<td><strong>OK</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check Point 4: Check the compressor temperature thermistor</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Compressor temperature thermistor characteristics check (Check by disconnecting thermistor from PCB)</td>
</tr>
<tr>
<td>* For the characteristics of the thermistor, refer to the &quot;Service Parts Information 5.&quot;</td>
</tr>
<tr>
<td><strong>OK</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check Point 5: Check the refrigerant amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Leak check</td>
</tr>
</tbody>
</table>

### <Heating operation>

<table>
<thead>
<tr>
<th>Check Point 1: Check if 3-way valve(liquid side) is open.</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ If the 3-way valve(liquid side) was closed, open the 3-way valve(liquid side) and check operation.</td>
</tr>
<tr>
<td><strong>OK</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check Point 2: Check the EEV, strainer</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ EEV (EEV1, EEV2) open?</td>
</tr>
<tr>
<td>□ Strainer clogging check (before and after EEV, ACM oil return)</td>
</tr>
<tr>
<td>Refer to &quot;Service Parts Information 3, 4&quot;.</td>
</tr>
<tr>
<td><strong>OK</strong></td>
</tr>
</tbody>
</table>
Trouble shooting  39
OUTDOOR UNIT Error Method:
Low Pressure Error
Indicate or Display:
Outdoor Unit : E. A5. 1
Indoor Unit : Operation LED 10 times Flash, Timer LED 5 Times Flash,
Economy LED Continuous Flash.
Error Code : A5

Detective Actuators:
Suction pressure sensor

Detective details:
• "Protection stop by suction pressure $\leq 0.05$MPa continued for 5 minutes" repeats 5 times within 2 hours.

Forecast of Cause:
1. 3-way valve not opened  2. Outdoor unit ambient temperature too low
3. Outdoor unit fan operation defective, foreign matter at heat exchanger
4. EEV defective, strainer clogged  5. Solenoid valve defective
6. Low pressure sensor characteristics defective  7. Insufficient refrigerant

<Cooling operation>
Check Point 1 : Check if 3-way valve(gas side) is open.
If the 3-way valve(gas side) was closed, open the 3-way valve(gas side) and check operation.
OK
Check Point 2 : Check the outdoor unit ambient temperature
Outdoor ambient temperature lower than operating range?
OK
Check Point 3 : Check the outdoor unit EEV, strainer clogging
Indoor unit EEV operation check
Strainer not clogged?
OK
Check Point 4 : Check the solenoid valve (SV1)
Solenoid valve operation check
OK
Check Point 5 : Check the solenoid valve (SV1)
Solenoid valve operation check
OK
Check Point 6 : Check the suction pressure sensor
Suction pressure sensor characteristics check
* For the characteristics of the suction pressure sensor
OK
Check Point 7 : Check the refrigerant amount
Leak check

<Heating operation>
Check Point 1 : Check if 3-way valve(liquid side) is open.
If the 3-way valve(liquid side) was closed, open the 3-way valve(liquid side) and check operation.
OK
Check Point 2 : Check the outdoor unit ambient temperature
Outdoor ambient temperature lower than operating range?
OK
Check Point 3 : Check the outdoor unit fan operation, heat exchanger
No foreign matter in air passage?
Heat exchange fins clogged
Fan rotates?
Outdoor unit fan motor check
OK
Check Point 4 : Check the outdoor unit EEV, strainer clogging
Outdoor unit EEV1 operation check
Strainer not clogged?
Refer to "Service Parts Information 3"
### Trouble shooting 40

#### Branch Box Error Method:

<table>
<thead>
<tr>
<th>Connected combination error</th>
</tr>
</thead>
</table>

#### Indicate or Display:

<table>
<thead>
<tr>
<th>Outdoor Unit</th>
<th>E. J2. U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Branch Box</td>
<td>LED401/402/403/404/405 Lit</td>
</tr>
<tr>
<td>Indoor Unit</td>
<td>Operation LED 13times Flash, Timer LED 2times Flash, Economy LED Flashing (0.1s ON / 0.1s OFF)</td>
</tr>
<tr>
<td>Error Code</td>
<td>J2</td>
</tr>
</tbody>
</table>

#### Detective Actuators:

- Outdoor unit

#### Detective details:

- When another outdoor unit in the future is connected to the terminal "Outdoor unit" of Primary branch box.

#### Forecast of Cause:

1. Connected outdoor unit

#### Check Point 1:

- Check the outdoor unit
  - If there is another outdoor unit, correct it by referring to Installation Manual or Data & Technical Manual.
  - Upon correcting incorrect setting, reset the power.
Trouble shooting 41
Branch Box Error Method:
Power frequency error 1

Indicate or Display:
Outdoor Unit: E. J2. U
Branch Box: LED401/402/403/404 Lit, LED405 Unlit
Indoor Unit: Operation LED 13times Flash, Timer LED 2times Flash,
Economy LED Flashing (0.1s ON / 0.1s OFF)
Error Code: J2

Detective Actuators:
Branch Box Controller PCB

Detective details:
- When 4 continuous failures occurred at Power frequency test.
  (Power supply of Branch Box)

Forecast of Cause:
1. Connection failure
2. External cause
3. Controller PCB failure

Check Point 1-1: Reset the power supply and operate

☐ Does error indication reappear?

YES | NO

Check Point 2: Check connection

☐ Check Cable/Breaker.
☐ Check loose or removed connection.

>> If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.

OK

Check Point 3: Check the voltage of power supply

☐ Check the voltage of power supply

>> Check if AC187V(AC208V-10%) - 253V(AC230V+10%) appears at Branch Box terminal "Power" L1 - L2.

OK

Check Point 4: Replace Controller PCB.

▶ If Check Point 1 ~ 3 do not improve the symptom, replace Controller PCB.
## Trouble shooting 42

### Branch Box Error Method:
- Power frequency error 2

### Indicate or Display:
- **Outdoor Unit**: E. J2. U
- **Branch Box**: LED401/ 402/ 403 Lit, LED404 Unlit, LED405 Lit
- **Indoor Unit**: Operation LED 13times Flash, Timer LED 2times Flash, Economy LED Flashing (0.1s ON / 0.1s OFF)
- **Error Code**: J2

### Detective Actuators:
- Branch Box Controller PCB
- Outdoor unit Main PCB
- Outdoor Filter PCB

### Detective details:
- When 4 continuous failures occurred at Power frequency test.
  - (Branch Box (Primary)): Power supply for communication to outdoor unit.
  - (Branch Box (Secondary)): Power supply for communication to primary branch box.

### Forecast of Cause:
1. Connection failure
2. External cause
3. Controller PCB failure
4. Outdoor Main PCB failure
5. Outdoor Filter PCB failure

### Check Point 1-1 : Reset the power supply and operate
- Does error indication reappear?
- **YES**
- **NO**

### Check Point 2 : Check connection
- Check Cable/Breaker.
- Check loose or removed connection.
- **If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.**

### Check Point 1-2 : Check external cause such as noise
- Check if the ground connection is proper.
- Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).

### Check Point 3 : Check the voltage of power supply
- Check the voltage of power supply
  - **[Primary branch box]**
    - Check if AC187V(AC208V-10%) - 253V(AC230V+10%) appears at Branch box terminal "Outdoor unit" 1 - 2 (CN105).
    - If the voltage does not appear, replace Outdoor Filter PCB.
  - **[Secondary branch box]**
    - Check if AC187V(AC208V-10%) - 253V(AC230V+10%) appears at Branch box terminal "Branch box" 1 - 2 (CN105).
    - If the voltage does not appear, replace Branch box controller PCB.
Trouble shooting 43
Branch Box Error Method:
EEPROM access error

Indicate or Display:
Outdoor Unit : E. J2. U
Branch Box : LED402 1time Flash, LED403/ 404/ 405 Unlit
Indoor Unit : Operation LED 13times Flash, Timer LED 2times Flash,
Economy LED Flashing (0.1s ON / 0.1s OFF)
Error Code : J2

Detective Actuators:
Branch Box Controller PCB

Detective details:
• When power is on and the access to EEPROM failed.

Forecast of Cause:
1. External cause
2. Defective for connection in controller unit
3. Controller PCB failure

Check Point 1-1 : Reset power supply and operate
☐ Does error indication show reappear?

YES

Check Point 2 : Check connections condition.
☐ Check all connectors.
   (loose connector or incorrect wiring)
☐ Check any shortage or corrosion on PCB.

OK

Check Point 3 : Replace Controller PCB
► If Check Point 1, 2 do not improve the symptom, replace Controller PCB.

Check Point 1-2 : Check external cause such as noise
☐ Check if the ground connection is proper.
☐ Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).
**Indicate or Display:**
- **Outdoor Unit:** E. J2. U
- **Branch Box:** LED402 2times Flash, LED403/404/405 Unlit
- **Indoor Unit:** Operation LED 13times Flash, Timer LED 2times Flash, Economy LED Flashing (0.1s ON / 0.1s OFF)
- **Error Code:** J2

**Detective Actuators:**
- Branch Box Controller PCB

**Detective details:**
- When power is on and model information of EEPROM is incorrect.

**Forecast of Cause:**
1. External cause
2. Defective for connection in controller unit
3. Controller PCB failure

**Trouble shooting 44**

**Branch Box Error Method:**

**Check Point 1-1:** Reset power supply and operate
- **YES**
- **NO**
  - Does error indication show reappear?

**Check Point 2:** Check connections condition.
- **☑** Check all connectors.
  - (loose connector or incorrect wiring)
- **☑** Check any shortage or corrosion on PCB.

**Check Point 3:** Replace Controller PCB
- **► If Check Point 1, 2 do not improve the symptom, replace Controller PCB.**

**Check Point 1-2:** Check external cause such as noise
- **☑** Check if the ground connection is proper.
- **☑** Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).
Trouble shooting 45
Branch Box Error Method:
Serial communication error between outdoor unit and branch box

Indicate or Display:
Outdoor Unit: E. J2. U or E. 11. 3 or E. 11. 4
Branch Box: LED402 3times Flash, LED403/ 404/ 405 Unlit
Indoor Unit: Operation LED 13times Flash, Timer LED 2times Flash,
Economy LED Flashing (0.1s ON / 0.1s OFF)
Error Code: J2

Detective Actuators:
Branch Box Controller PCB
Outdoor unit Main PCB

Detective details:
• When the branch box cannot properly receive the serial signal from outdoor unit for 10 seconds or more.


Check Point 1-1 : Reset power supply and operate
☐ Does error indication show reappear?

NO

YES

Check Point 2 : Check connection
☐ Check any loose or removed connection line of between branch box and outdoor unit.
  >> If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.
  ☐ Check connection condition in control unit.
    (If there is loose connector, open cable or mis-wiring)

OK

Check Point 1-2 : Check external cause such as noise
☐ Check if the ground connection is proper.
☐ Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).

Check Point 3 : Check the voltage of power supply
☐ Check the voltage of power supply
  >> Check if AC187V(AC208V-10%) - 253V(AC230V+10%) appears at outdoor unit terminal 1 - 2.

OK

Check Point 4 : Check serial signal (Reverse transfer signal)
☐ Check serial signal (Reverse transfer signal)
  >> Check if indicated value swings between AC70V and AC130V at outdoor unit terminal 2 - 3.
  >> If it is abnormal, replace Outdoor unit Main PCB.
Trouble shooting 46
Branch Box Error Method:
Serial communication error between branch boxes

Indicate or Display:
Outdoor Unit: E. J2. U
Branch Box: LED402 3 or 4times Flash, LED403/404/405 Unlit
Indoor Unit: Operation LED 13times Flash, Timer LED 2times Flash,
Economy LED Flashing (0.1s ON / 0.1s OFF)
Error Code: J2

Detective Actuators:
Branch Box Controller PCB

Detective details:
• When the branch box cannot properly receive the serial signal from other branch box for 10 seconds or more.


CASE1 : Error Display in the Master Branch box

Check Point 1-1: Reset power supply and operate
Does error indication show reappear?

Check Point 2: Check connection
☐ Check any loose or removed connection line of between branch boxes.
  >> If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.
  ☐ Check connection condition in control unit.
  (If there is a loose connector, open cable or mis-wiring)

Check Point 1-2: Check external cause such as noise
☐ Check if the ground connection is proper.
☐ Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).

Check Point 3: Check the voltage of power supply
☐ Check the voltage of power supply
  >> Check if AC187V(AC208V-10%) - 253V(AC230V+10%) appears at Branch box terminal "Branch box" 1 - 2.

Check Point 4: Check serial signal (Forward transfer signal)
☐ Check serial signal (Forward transfer signal)
  >> Check if indicated value swings between AC70V and AC130V at Branch box terminal "Branch box" 2 - 3.
  >> If it is abnormal, replace Secondary branch box controller PCB.
[CASE2 : Error Display in the Slave Branch box]

Check Point 1-1 : Reset power supply and operate

☐ Does error indication show reappear?

→ YES

Check Point 2 : Check connection

☐ Check any loose or removed connection line of between branch boxes.

☐ If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.

☐ Check connection condition in control unit.
   (If there is loose connector, open cable or mis-wiring)

→ NO

Check Point 1-2 : Check external cause such as noise

☐ Check if the ground connection is proper.

☐ Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).

→ OK

Check Point 3 : Check the voltage of power supply

☐ Check the voltage of power supply

☐ Check if AC187V(AC208V-10%) - 253V(AC230V+10%) appears at Branch box terminal "Branch box" 1 - 2.

→ OK

Check Point 4 : Check serial signal (Reverse transfer signal)

☐ Check serial signal (Reverse transfer signal)

☐ Check if indicated value swings between AC70V and AC130V at Branch box terminal "Branch box" 2 - 3.

☐ If it is abnormal, replace Secondary Branch box controller PCB.

Diagram:

- BLACK
- WHITE
- PURPLE
- AC

1
2
3
Trouble shooting 47
Branch Box Error Method:
Serial communication error between Indoor unit A and branch box

Indicate or Display:
Outdoor Unit : E. J2. U
Branch Box : LED402 5times Flash, LED403 Lit, LED404/ 405 Unlit
Indoor Unit : Operation LED 13times Flash, Timer LED 2times Flash,
Economy LED Flashing (0.1s ON / 0.1s OFF)
or Operation LED 1time Flash, Timer LED 1time Flash,
Economy LED Flashing (0.1s ON / 0.1s OFF)
Error Code : J2 or 11

Detective Actuators:
Branch Box Controller PCB
Indoor unit Controller PCB

Detective details:
- When the branch box cannot properly receive the serial signal from Indoor unit for 10 seconds or more.


Check Point 1-1 : Reset power supply and operate

☐ Does error indication show reappear?

NO

YES

Check Point 2 : Check connection

☐ Check any loose or removed connection line of between indoor unit and branch box.
   >> If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.

☐ Check connection condition in control unit.
   (If there is loose connector, open cable or mis-wiring)

OK

Check Point 1-2 : Check external cause such as noise

☐ Check if the ground connection is proper.
☐ Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).

Check Point 3 : Check the voltage of power supply

☐ Check the voltage of power supply
   >> Check if AC187V(AC208V-10%) - 253V(AC230V+10%) appears at Branch box terminal "Indoor unit A" 1 - 2.

OK

Check Point 4 : Check serial signal (Forward transfer signal)

☐ Check serial signal (Forward transfer signal)
   >> Check if indicated value swings between AC70V and AC130V at Branch box terminal "Indoor unit A" 2 - 3.
   >> If it is abnormal, replace Branch box controller PCB.

TENTATIVE
Trouble shooting 48
Branch Box Error Method:
Serial communication error between Indoor unit B and branch box

Indicate or Display:
Outdoor Unit : E. J2. U
Branch Box : LED402 5times Flash, LED403 Unlit, LED404 Lit, LED405 Unlit
Indoor Unit : Operation LED 13times Flash, Timer LED 2times Flash,
Economy LED Flashing (0.1s ON / 0.1s OFF)
or Operation LED 1time Flash, Timer LED 1time Flash,
Economy LED Flashing (0.1s ON / 0.1s OFF)
Error Code : J2 or 11

Detective Actuators:
Branch Box Controller PCB
Indoor unit Controller PCB

Detective details:
- When the branch box cannot properly receive the serial signal from Indoor unit for 10 seconds or more.


Check Point 1-1 : Reset power supply and operate
☐ Does error indication show reappear?

Check Point 2 : Check connection
☐ Check any loose or removed connection line of between indoor unit and branch box.

☐ If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.
☐ Check connection condition in control unit.
(If there is loose connector, open cable or mis-wiring)

Check Point 3 : Check the voltage of power supply
☐ Check the voltage of power supply

☐ Check if AC187V(AC208V-10%) - 253V(AC230V+10%) appears at Branch box terminal "Indoor unit B" 1 - 2.

Check Point 4 : Check serial signal (Forward transfer signal)
☐ Check serial signal (Forward transfer signal)

☐ Check if indicated value swings between AC70V and AC130V at Branch box terminal "Indoor unit B" 2 - 3.

☐ If it is abnormal, replace Branch box controller PCB.

 bras  

 1 2 3 

 WHITE  BLACK  YELLOW

AC

TENTATIVE
Serial communication error between Indoor unit C and branch box

Indicate or Display:
- Outdoor Unit: E. J2. U
- Branch Box: LED402 5times Flash, LED403/404 Unlit, LED405 Lit
- Indoor Unit: Operation LED 13times Flash, Timer LED 2times Flash, Economy LED Flashing (0.1s ON / 0.1s OFF), or Operation LED 1time Flash, Timer LED 1time Flash, Economy LED Flashing (0.1s ON / 0.1s OFF)
- Error Code: J2 or 11

Detective Actuators:
- Branch Box Controller PCB
- Indoor unit Controller PCB

Detective details:
- When the branch box cannot properly receive the serial signal from Indoor unit for 10 seconds or more.

Forecast of Cause:
1. Connection failure
2. External cause
3. Controller PCB failure
4. Indoor unit Controller PCB failure

Check Point 1-1: Reset power supply and operate
- Does error indication show reappear?

Check Point 2: Check connection
- Check any loose or removed connection line of between indoor unit and branch box.
  - If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.
- Check connection condition in control unit.
  (If there is loose connector, open cable or mis-wiring)

Check Point 1-2: Check external cause such as noise
- Check if the ground connection is proper.
- Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).

Check Point 3: Check the voltage of power supply
- Check the voltage of power supply
  - Check if AC187V(AC208V-10%) - 253V(AC230V+10%) appears at Branch box terminal "Indoor unit C" 1 - 2.

Check Point 4: Check serial signal (Forward transfer signal)
- Check serial signal (Forward transfer signal)
  - Check if indicated value swings between AC70V and AC130V at Branch box terminal "Indoor unit C" 2 - 3.
  - If it is abnormal, replace Branch box controller PCB.

Diagram:
- AC power supply connection diagram
  - BLACK: 1
  - WHITE: 2
  - PINK: 3
Trouble shooting  50
Branch Box Error Method:
Indoor Unit A, B, C, liquid pipe thermistor error (CN309 / 310)

Indicate or Display:
Outdoor Unit :  E. J2. U
Branch Box :  LED402 6times Flash
(Indoor unit A): LED403 Lit, LED404/ 405 Unlit
(Indoor unit B): LED403 Unlit, LED404 Lit, LED405 Unlit
(Indoor unit C): LED403/ 404 Unlit, LED405 Lit
Indoor Unit :  Operation LED 13times Flash, Timer LED 2times Flash,
Economy LED Flashing (0.1s ON / 0.1s OFF)
Error Code :  J2

Detective Actuators:
Branch Box Controller PCB
Indoor unit A,B,C Liquid pipe Thermistor

Detective details:
- When open or shorted Liquid pipe Thermistor is detected.


Check Point 1 : Check connection of Connector

- Check if connector is loose or removed
- Check erroneous connection
- Check if thermistor cable is open

>>Reset Power when reinstalling due to removed connector or incorrect wiring.

Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Rough value)

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance Value (kΩ)</td>
<td>168.6</td>
<td>129.8</td>
<td>100.9</td>
<td>79.1</td>
<td>62.5</td>
<td>49.8</td>
<td>40.0</td>
<td>32.4</td>
</tr>
</tbody>
</table>

- If Thermistor is either open or shorted, replace it and reset the power.

Check Point 3 : Check voltage of Controller PCB (DC5.0V)

Make sure circuit diagram of each indoor unit and check terminal voltage at Thermistor (DC5.0V)
- Schematic Diagram (Connector connection)

- Liquid pipe Thermistor (Unit A) (CN309 Wire:Black)
- Liquid pipe Thermistor (Unit B) (CN309 Wire:Black)
- Gas pipe Thermistor (Unit A) (CN309 Wire:Black)
- Gas pipe Thermistor (Unit B) (CN309 Wire:Black)
- Liquid pipe Thermistor (Unit C) (CN310 Wire:Black)
- Gas pipe Thermistor (Unit C) (CN310 Wire:Black)

- If the voltage does not appear, replace Controller PCB.
Indoor Unit A, B, C, gas pipe thermistor error (CN309 / 310)

Trouble shooting 51
Branch Box Error Method:
Indoor Unit A, B, C, gas pipe thermistor error (CN309 / 310)
Indicate or Display:
Outdoor Unit : E. J2. U
Branch Box : LED402 7times Flash
(Indoor unit A): LED403 Lit, LED404 / 405 Unlit
(Indoor unit B): LED403 Unlit, LED404 Lit, LED405 Unlit
(Indoor unit C): LED403 / 404 Unlit, LED405 Lit
Indoor Unit : Operation LED 13times Flash, Timer LED 2times Flash,
Economy LED Flashing (0.1s ON / 0.1s OFF)
Error Code : J2

Detective Actuators:
Branch Box Controller PCB Circuit
Indoor unit A, B, C Gas pipe Thermistor

Detective details:
• When open or shorted Liquid pipe Thermistor is detected.


Check Point 1 : Check connection of Connector
☐ Check if connector is loose or removed
☐ Check erroneous connection
☐ Check if thermistor cable is open
>>Reset Power when reinstalling due to removed connector or incorrect wiring.

Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Rough value)

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance Value (kΩ)</td>
<td>168.6</td>
<td>129.8</td>
<td>100.9</td>
<td>79.1</td>
<td>62.5</td>
<td>49.8</td>
<td>40.0</td>
<td>32.4</td>
</tr>
</tbody>
</table>

If Thermistor is either open or shorted, replace it and reset the power.

Check Point 3 : Check voltage of Controller PCB (DC5.0V)
Make sure circuit diagram of each indoor unit and check terminal voltage at Thermistor (DC5.0V)
• Schematic Diagram (Connector connection)

If the voltage does not appear, replace Controller PCB.
### Troubleshooting

**Indoor Unit A, B, C, EEV control error (CN305 / 306 / 307)**

<table>
<thead>
<tr>
<th>Branch Box Controller PCB</th>
<th>EEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor Unit</td>
<td>Operations LED 13 times Flash, Timer LED 2 times Flash, Economy LED Flashing (0.1s ON / 0.1s OFF)</td>
</tr>
<tr>
<td>Outdoor Unit</td>
<td>E. J2. U</td>
</tr>
<tr>
<td>Branch Box</td>
<td>LED402 8 times Flash</td>
</tr>
<tr>
<td>Indoor Unit A</td>
<td>LED403 Lit, LED404/405 Unlit</td>
</tr>
<tr>
<td>Indoor Unit B</td>
<td>LED403 Unlit, LED404 Lit, LED405 Unlit</td>
</tr>
<tr>
<td>Indoor Unit C</td>
<td>LED403/404 Unlit, LED405 Lit</td>
</tr>
</tbody>
</table>

**Error Code**
- J2

---

**Detective Actuators:**
- Branch Box Controller PCB
- EEV

**Detective Details:**
1. In cooling or dry operation, when the Indoor unit heat exchanger temperature becomes lower than 3degC for 5 minutes, the compressor stops and EEV is initialized.
2. After the compressor restarts, if the same protection is repeated within 60 seconds, the compressor stops permanently.

---

**Forecast of Cause:**
1. Connection failure
2. EEV failure
3. Controller PCB failure

---

**Check Point 1: Check Connections**
- Check Connectors (Loose connector or open cable.)

<table>
<thead>
<tr>
<th>CN305</th>
<th>CN306</th>
<th>CN307</th>
<th>CN308</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RED</td>
<td>BLUE</td>
<td>WHITE</td>
<td>ORANGE</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**Check Point 2: Check Coil of EEV**
- Remove connector, check each winding resistance of Coil.

<table>
<thead>
<tr>
<th>Read wire</th>
<th>Resistance value (20°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White - Red</td>
<td>46 ± 4Ω</td>
</tr>
<tr>
<td>Yellow - Red</td>
<td></td>
</tr>
<tr>
<td>Orange - Red</td>
<td></td>
</tr>
<tr>
<td>Blue - Red</td>
<td></td>
</tr>
</tbody>
</table>

**If Resistance value is abnormal, replace EEV.**

---

**Check Point 3: Check Voltage from Controller PCB**
- Remove Connector and check Voltage (DC12V).

**If it does not appear, replace Controller PCB.**

---

**TENTATIVE**
Check Point 4: Check Noise at start up
- Turn on Power and check operation noise.
  >> If an abnormal noise does not show, replace Controller PCB.

Check Point 5: Check Opening and Closing Operation of Valve
- When Valve is closed, it has a temp. difference between Inlet and Outlet.
- If it is open, it has no temp. difference between Inlet and Outlet.

Check Point 6: Check Strainer
- Strainer normally does not have temperature difference between inlet and outlet as shown in (1), but if there is a difference as shown in (2), there is a possibility of inside clogged. In this case, replace Strainer.
### Trouble shooting 53

<table>
<thead>
<tr>
<th>Branch Box Error Method:</th>
<th>Remote controller communication error</th>
</tr>
</thead>
</table>

### Indicate or Display:
- **Indoor Unit**: Operation LED 13times Flash, Timer LED 2times Flash, Economy LED Flashing (0.1s ON / 0.1s OFF)
- **Outdoor Unit**: E. J2. U
- **Branch Box**: LED402 9times Flash, LED403/404/405 unlit
- **Error Code**: J2

### Detective Actuators:
- Branch Box Controller PCB
- Home controller

### Detective details:
- More than 1 time of Token from Home controller and other Branch box is received, but it was not received more than 1 minute.
- Upon receiving the signal more than 1 time from Home controller, but the same signal has not been received more than 1 minute.

### Forecast of Cause:
1. Terminal connection abnormal
2. Home Controller failure
3. Controller PCB failure

### Check Point 1: Check the connection of terminal

After turning off the power, check & correct the followings:
- Check the connection of terminal between Home controller and Branch box, or between other Branch boxes, and check if there is a disconnection or short of the cable.

### Check Point 2: Check Home controller and Controller PCB

- Check terminal voltage of controller PCB Connector (CN304). (Power supply for Home controller)
  - If DC12V, Home controller failure (Controller PCB is OK) >>> Replace Home controller
  - If DC0V, Controller PCB failure (Remote is OK) >>> Replace Controller PCB

> **In case of re-installation is done due to removed connector or incorrect wiring, turn on the power again.**
Diagnosis method of Compressor (If outdoor unit LED displays error, refer to Trouble shooting)

<table>
<thead>
<tr>
<th>Does not start up</th>
<th>Stops soon after starting up</th>
<th>Abnormal noise</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Is there open or loose connection cable?</td>
<td>• Is there open or loose connection cable?</td>
<td>• Check vibration noise by loose bolt or contact noise of piping is happening.</td>
</tr>
<tr>
<td>• Check connection of Compressor, winding resistance. (Refer to the next page).</td>
<td>• Is Gas Pipe Valve open? (Low Pressure is too low)</td>
<td>[Defective Compressor can be considered. (due to inside dirt clogging or broken component)]</td>
</tr>
<tr>
<td>&gt;&gt; If there is no failure, the defect of Compressor is considered (Locked compressor due to clogged dirt or less oil)</td>
<td>• Check Refrigerant is leaking. (Recharge Refrigerant)</td>
<td>Replace Compressor</td>
</tr>
<tr>
<td></td>
<td>• Check if Strainer is clogged. (PARTS INFORMATION 3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Check Inverter PCB, winding resistance. (Refer to the next page).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;&gt; If there is no failure, the defect of Compressor can be considered. (Compression part broken or valve defective.)</td>
<td></td>
</tr>
<tr>
<td>Replace Compressor</td>
<td>AYS</td>
<td>Replace Compressor</td>
</tr>
</tbody>
</table>
Check Point 1 : Check connection

- Check terminal connection of Compressor (Loose or incorrect wiring)

Check Point 2 : Check winding resistance

- Check winding resistance of each terminal
  ▶ If the resistance value is 0 Ω or infinite, replace Compressor.

Check Point 3 : Replace Inverter PCB

▶ If Check Point 1, 2 do not improve the symptom, replace Inverter PCB.
SERVICE PARTS INFORMATION 3
Outdoor Unit Electronic Expansion Valve (EEV1)

Check Point 1 : Check Connections
- Check connection of connector (CN111) (Loose connector or open cable)

Check Point 2 : Check Coil of EEV
- Remove connector, check each winding resistance of Coil.

<table>
<thead>
<tr>
<th>Read wire</th>
<th>Resistance value (20°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White - Red</td>
<td>46Ω ± 4Ω</td>
</tr>
<tr>
<td>Yellow - Red</td>
<td></td>
</tr>
<tr>
<td>Orange - Red</td>
<td></td>
</tr>
<tr>
<td>Blue - Red</td>
<td></td>
</tr>
</tbody>
</table>

**If Resistance value is abnormal, replace EEV.**

Check Point 3 : Check Voltage from Controller PCB
- Remove Connector and check Voltage (DC12V).

**If it does not appear, replace Controller PCB.**

Check Point 4 : Check Noise at start up
- Turn on Power and check operation noise.

**If an abnormal noise does not show, replace Controller PCB.**

Check Point 5 : Check Opening and Closing Operation of Valve
- When Valve is closed, it has a temp. difference between Inlet and Outlet.
- If it is open, it has no temp. difference between Inlet and Outlet.

**Example :** Hot GUS

CLOSE
Pipe (In)

Pipe (Out)

Hi TEMP.

Normal TEMP.

OPEN
Pipe (In)

Pipe (Out)

Hi TEMP.

Hi TEMP.

Check Point 6 : Check Strainer
- Strainer normally does not have temperature difference between inlet and outlet as shown in (1), but if there is a difference as shown in (2), there is a possibility of inside clogged. In this case, replace Strainer.

**Example :** Hot GUS

(1) Pipe (In) Pipe (Out)

(2) Pipe (In) Pipe (Out)
SERVICE PARTS INFORMATION 4
Outdoor Unit Electronic Expansion Valve (EEV2)

Check Point 1 : Check Connections

- Check connection of connector (CN112)
  (Loose connector or open cable)

<table>
<thead>
<tr>
<th>CN111</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHITE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLUE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORANGE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YELLOW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Check Point 2 : Check Coil of EEV

- Remove connector, check each winding resistance of Coil.

<table>
<thead>
<tr>
<th>Read wire</th>
<th>Resistance value (20°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White - Red</td>
<td>46Ω ± 4Ω</td>
</tr>
<tr>
<td>Yellow - Red</td>
<td></td>
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<tr>
<td>Orange - Red</td>
<td></td>
</tr>
<tr>
<td>Blue - Red</td>
<td></td>
</tr>
</tbody>
</table>

If Resistance value is abnormal, replace EEV.

Check Point 3 : Check Voltage from Controller PCB

- Remove connector and check Voltage (DC12V).

DC 12V

If it does not appear, replace Controller PCB.

Check Point 4 : Check Noise at start up

- Turn on Power and check operation noise.

If an abnormal noise does not show, replace Controller PCB.

Check Point 5 : Check Opening and Closing Operation of Valve

When Valve is closed,
it has a temp. difference between Inlet and Outlet.

CLOSE
Example : Hot GUS
Pipe (In)

Hi TEMP.
Pipe (Out)
Normal TEMP.

If it is open,
it has no temp. difference between Inlet and Outlet.

OPEN
Example : Hot GUS
Pipe (In)

Hi TEMP.
Pipe (Out)
Hi TEMP.

Check Point 6 : Check Strainer

Strainer normally does not have temperature difference between inlet and outlet as shown in (1), but if there is a difference as shown in (2), there is a possibility of inside clogged. In this case, replace Strainer.
Check Point: Check Thermistor resistance value

- Remove connector and check Thermistor resistance value.

<table>
<thead>
<tr>
<th>Temperature [°C]</th>
<th>Resistance Value [ kΩ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Thermistor A</td>
</tr>
<tr>
<td>- 20</td>
<td>---</td>
</tr>
<tr>
<td>- 10</td>
<td>---</td>
</tr>
<tr>
<td>- 5</td>
<td>---</td>
</tr>
<tr>
<td>0</td>
<td>168.6</td>
</tr>
<tr>
<td>5</td>
<td>129.8</td>
</tr>
<tr>
<td>10</td>
<td>100.9</td>
</tr>
<tr>
<td>15</td>
<td>79.1</td>
</tr>
<tr>
<td>20</td>
<td>62.6</td>
</tr>
<tr>
<td>25</td>
<td>49.8</td>
</tr>
<tr>
<td>30</td>
<td>40.0</td>
</tr>
<tr>
<td>40</td>
<td>26.3</td>
</tr>
<tr>
<td>50</td>
<td>17.8</td>
</tr>
<tr>
<td>60</td>
<td>12.3</td>
</tr>
<tr>
<td>70</td>
<td>8.7</td>
</tr>
<tr>
<td>80</td>
<td>6.3</td>
</tr>
<tr>
<td>90</td>
<td>4.6</td>
</tr>
<tr>
<td>100</td>
<td>3.4</td>
</tr>
<tr>
<td>110</td>
<td>2.6</td>
</tr>
<tr>
<td>120</td>
<td>2.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Applicable Thermistors</th>
<th>Discharge temp. TH</th>
<th>Compressor temp. TH</th>
<th>Heat exchanger. TH</th>
<th>Suction temp. TH</th>
<th>Sub-cool heat exchanger LP gas (inlet) TH</th>
<th>Sub-cool heat exchanger LP gas (outlet) TH</th>
<th>Sub-cool heat exchanger HP liquid (outlet) TH</th>
<th>Outdoor temp. TH</th>
<th>Heat sink temp. TH</th>
</tr>
</thead>
</table>

TENTATIVE
1. Discharge Pressure Sensor

Check Point: Check Voltage from Main PCB

- With the connector connected to the PCB, measure the voltage between CN91:3-4 of the Main PCB.

![Diagram of CN91 connection](image1)

- Characteristics of pressure sensor

![Graph showing output (V) vs. pressure (MPa)](image2)

2. Suction Pressure Sensor

Check Point: Check Voltage from Main PCB

- With the connector connected to the PCB, measure the voltage between CN92:2-3 of the Main PCB.

![Diagram of CN92 connection](image3)

- Characteristics of pressure sensor

![Graph showing output (V) vs. pressure (MPa)](image4)