1. Cautions

(1) Be sure to turn off the cabinet whenever installing or removing the PC board.

(2) Be sure to use an edge connector which is applied to the JAMMA standard. Any modifications such as cutting the edges of PC boards will cause a failure and also will be out of our guarantee for repair.

(3) Never test the PC boards for conductivity with a multimeter or similar device. The PCB contains sensitive chips which could be destroyed even by the internal voltage of such a device.

(4) Foreign matters or dust on the PC boards will cause a failure. Turn off the power and clean the PC boards with a brush or similar thing.

(5) When transporting the PC boards, wrap them with sponges or air caps and pack them in a card board box so that they can avoid a direct impact from outside during shipment.

(6) For maintenance, contact your distributor.

2. Specifications

(1) Control panel: One-side 4-P specification (2-P also available)
   - Button switch: 12 (1P, 2P, 3P, 4P, 3 each)
   - Start switch: 4 (1P, 2P, 3P, 4P, 1 each)

(2) PC board size: 220 x 230 mm

(3) Direction of monitor: Horizontal

(Note 1)
- Close the holes with Lever Masks (accessories) after removing the control levers.
- When you use 2-P cabinet, change the Cabinet Type in the Test Mode.

3. Connection

(1) Connection of control panel
See below to connect the control panel to the cabinet (See Page 3: PC board Connector Table).

(2) Connection of PC board
Connect the PC board to the cabinet (see Page 3: PC Board Connector Table).
Using the PC board with a stereo cabinet allows you to enjoy a stereophonic effect (See Page 3: Connection to Stereo Cabinet).

4. Explanation of PC Boards

(1) Option switches
No.1 to "ON" for Test Mode.
No.2 to "ON" for Screen Freeze.
Normally, all of the option switches are "OFF".

(2) Control volumes
The control volumes are already adjusted properly at shipment.
Unless otherwise inconvenient, use the control volumes as they are.
   ① Speaker volumes
To decrease the sound volume of the speaker, turn the speaker volume counter-clockwise.

   ② Headphone volume
To decrease the sound volume of the speaker, turn the headphone volume counter-clockwise.

Specified Connector
Use a DDK 225D-10024C2-2312 as a 48P extended edge connector.
5. **Test Mode**

(1) The PC Board enters the test mode by setting the test switch on the PC Board to "ON" on the game screen. And the test menu screen is displayed on the monitor. Use the test switch (For connection, see Page 3: PC Board Connector Table) on the cabinet or the option switch on the PC Board.

When an item is selected by operating the 1P button 1 and 1P button 3, and the 1P button 2 switch is pushed, the selected test screen is displayed.

(2) Game fees can be changed on the coin option screen, and the game difficulty can be changed on the game option screen.

Select an item by operating the 1P button 1 and 1P button 3, and change its contents using the 1P button 2 switch (see the option setting table). After that, push the 2P button 2 switch to return to the test menu screen.

![Test menu screen](image)

---

### Option setting table

<table>
<thead>
<tr>
<th>Item</th>
<th>Contents</th>
<th>Original setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Game fees</td>
<td>Coin count required for one game (one credit)</td>
<td>1 &lt;[1 - 9]</td>
</tr>
<tr>
<td>② Discount</td>
<td>50% discount when continuing a play</td>
<td>No &lt;, Yes</td>
</tr>
<tr>
<td>③ Coin 1 - 4 Mech</td>
<td>Count per coin</td>
<td>1 &lt;[1 - 9]</td>
</tr>
<tr>
<td>④ Bonus coin</td>
<td>One additional coin per the specified number of coins</td>
<td>None &lt;</td>
</tr>
<tr>
<td>⑤ Free Play</td>
<td>No &lt;, Yes</td>
<td></td>
</tr>
<tr>
<td>⑥ Game Difficulty</td>
<td>Medium [Easy, Medium, Hard, Very Hard] (Note 2)</td>
<td></td>
</tr>
<tr>
<td>⑦ Attract sound</td>
<td>Yes &lt;, No</td>
<td></td>
</tr>
<tr>
<td>⑧ FBl display</td>
<td>No (Not displayed) &lt;, Yes (Displayed)</td>
<td></td>
</tr>
<tr>
<td>⑨ Credit mode</td>
<td>Common (Credit is common to 1P, 2P, 3P and 4P) &lt;</td>
<td></td>
</tr>
<tr>
<td>⑩ Coin Counter</td>
<td>Type A (1 counter) (1 coin counter for 4 slots) &lt;</td>
<td></td>
</tr>
<tr>
<td>⑪ Cabinet Type</td>
<td>4 Players (Standard) &lt;, 2 Players</td>
<td></td>
</tr>
</tbody>
</table>

---

### Example

<table>
<thead>
<tr>
<th>Game fees</th>
<th>Game fees</th>
<th>Continue</th>
<th>①</th>
<th>②</th>
<th>③ ~ ⑥</th>
<th>⑦</th>
<th>Credit display</th>
<th>Note 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 yen</td>
<td>100 yen</td>
<td>1 Coin</td>
<td>1 Credit</td>
<td>No</td>
<td>1 Count</td>
<td>Coin</td>
<td>None</td>
<td>CREDIT 0</td>
</tr>
<tr>
<td>100 yen</td>
<td>50 yen</td>
<td>2 Coins</td>
<td>1 Credit</td>
<td>Yes</td>
<td>1 Count</td>
<td>2 Coins</td>
<td>None</td>
<td>CREDIT 0/2</td>
</tr>
</tbody>
</table>

---

(3) How to initialize the World Records (Note 2)

The World Records are initialized when the Game Difficulty is changed. When you want to initialize the World Records only, change the Game Difficulty to any other level temporary and return to the game screen once, and then set the Game Difficulty back in the Test Mode.
6. PC Board Connector Table

<table>
<thead>
<tr>
<th>Solder side</th>
<th>Terminal No.</th>
<th>Parts side</th>
</tr>
</thead>
<tbody>
<tr>
<td>GND</td>
<td>A</td>
<td>GND</td>
</tr>
<tr>
<td>GND</td>
<td>B</td>
<td>GND</td>
</tr>
<tr>
<td>+5V</td>
<td>C</td>
<td>+5V</td>
</tr>
<tr>
<td>+5V</td>
<td>D</td>
<td>+5V</td>
</tr>
<tr>
<td>E</td>
<td>F</td>
<td>+12V</td>
</tr>
</tbody>
</table>

Insertion error preventing key

<table>
<thead>
<tr>
<th>Coin counter 2</th>
<th>J</th>
<th>8</th>
<th>Coin counter 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>9</td>
<td>Coin lockout 1</td>
<td></td>
</tr>
</tbody>
</table>

Speaker (-)

Audio (GND)

Video GREEN

Video SYNC

Service switch

S          | 15 | Test switch |

Coin switch 2

2P start switch

V          | 18 |

W          | 19 |

X          | 20 |

Y          | 21 |

2P button 1

2P button 2

2P button 3

GND

GND

- Do not connect anything to the blank connectors.
- Both lockout solenoid and coin counter operate on +12V.
- Connect the switches to N.O. terminals such as a microswitch, and the GND to the COM terminal.

The supply voltage is available within ±5%. For use in the best condition, get the supply voltage as close to the specified voltage as possible.

(Recommended power capacity)

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>+5V ±5%</td>
<td>2.0 A or more</td>
</tr>
<tr>
<td>+12V ±5%</td>
<td>2.0 A or more</td>
</tr>
</tbody>
</table>

Extended edge connector (48P 2.54 mm pitch)

<table>
<thead>
<tr>
<th>Solder side</th>
<th>Terminal No.</th>
<th>Parts side</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaker R (-)</td>
<td>A1</td>
<td>B1</td>
</tr>
<tr>
<td>Headphone R</td>
<td>A2</td>
<td>B2</td>
</tr>
<tr>
<td>4P start switch</td>
<td>A3</td>
<td>B3</td>
</tr>
</tbody>
</table>

Insertion error preventing key

<table>
<thead>
<tr>
<th>Coin switch 3</th>
<th>A15</th>
<th>B15</th>
<th>Coin switch 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coin counter 3</td>
<td>A16</td>
<td>B16</td>
<td>Coin counter 4</td>
</tr>
</tbody>
</table>

VCC

VCC

3P button 3

3P button 1

3P start switch

- Do not connect anything to the blank connectors.

[Connection to stereo cabinet]
(1) STEREO/MONO setting
Place the STEREO/MONO setting component (JP3) on the PC board in the STEREO position.

(Caution) If the JP3 is set to "STEREO" on a cabinet with monophonic specifications as shown above, only the left sound comes from the speakers.

J P 3

MO ST

(2) Connection to speakers
The speaker output of 56P edge connector (JAMMA) on the PC board is the left (L) output. Connect the right (R) speaker output to the right (R) speaker output of 48P edge connector on the PC board.

* Use a DDK 225D-10024C2-2312 as a 48P extended edge connector.

[Headphone output]
Connect the headphone to the headphone output of the 48P edge connector.

(Recommended headphone circuit)