To ensure safe operation of the machine, be sure to read this Operation Manual before use.

Keep this Operation Manual in a safe place for quick access whenever needed.

The specifications of the machine and the contents of this operation manual are subject to change without prior notice due to product improvements.

© NAMCO BANDAI Games Inc.
Thank you very much for purchasing MACH STORM (referred to as "this machine" in this Operation Manual).

This Operation Manual describes:

• How to safely install, operate, move, transport, maintain and dispose of the machine.
• How to make full use of the machine’s functions and operate it correctly.
• How to ensure the safety of players and bystanders.

Contact for Machine and Machine Repair Inquiries

• For inquiries regarding the machine or machine repairs, contact your distributor.

The copyrights, trademarks and other rights used by the machine are noted at the end of this Operation Manual.
1. Safety Precautions – Be sure to read to ensure safe operation –

Instructions to the Owner

If you delegate the work for installing, operating, moving, transporting, maintaining or disposing the machine to other people, ensure that these people read the relevant sections of this operation manual carefully before starting work, and observe the corresponding precautions.

1-1 Levels of Risk

The safety and property damage precautions on the machine labels and in this Operation Manual are classified according to their risk level, as follows.

⚠️ WARNING : Failure to avoid these risks may result in serious injury or death

⚠️ CAUTION : Failure to avoid these risks may result in light injury or damage to other property

Notes about functionality that are not linked to safety are indicated with the following symbol.

⚠️ NOTICE : Information about product functions or protection

1-2 Definition of “Technician”

This Operation Manual is designed for arcade personnel. However, the sections marked “Must be performed by a technician” in the Table of Contents are written for technicians. These must be performed by technicians only.

A technician is a person involved in the design, manufacture, inspection, maintenance or service at an amusement device manufacturer, or a person involved routinely in the maintenance or management (such as repair) of amusement devices who has specialist knowledge of electricity, electronics or mechanical engineering equivalent to or higher than a technical high school graduate.
1-3 Critical Safety Precautions

**WARNING**

- Should an abnormality occur, turn off the power switch immediately to stop operations. Then, be sure to disconnect the power cord plug from the outlet.
- Operating the machine while the abnormality persists may result in fire or accident.
- Sections of the monitor remain at a high temperature and high voltage even after the power switch is turned off. In order to avoid electric shock or burns, be very careful not to accidentally touch these sections.
- Dust accumulating on the power cord plug may result in fire. Inspect the plug regularly and remove any dust.
- Fully insert the power cord plug into the outlet. Poor contact may generate heat and result in fire or burns.
- Damage to the power cord may result in fire, electric shock or electrical leakage. Be sure to observe the following.
  - Keep the power cord away from heaters.
  - Do not twist the power cord.
  - Do not forcibly bend the power cord.
  - Do not alter the power cord.
  - Do not bundle the power cord.
  - Do not pull the power cord. (Always unplug by holding the plug and not the power cord.)
  - Do not place objects on the power cord.
  - Do not allow the power cord to be caught between the machine and other devices or the wall.
  - Do not do anything else that might damage the power cord.
- Do not expose the power cord and power cord plug to water. Doing so may result in electric shock or electrical leakage.
- Do not touch the power cord plug with wet hands. Doing so may result in electric shock.
- The power capacity of the machine is maximum current consumption 3.2 A in case of AC 230 V specifications, or maximum current consumption 6.3 A in case of AC 120 V specifications. To prevent fire and electric shock, use indoor wiring that conforms to these power supply specifications.
- Use a power supply voltage range of AC 230 V ±10 V (in case of AC 230 V specifications) or AC 120 V ±10 V (in case of AC 120 V specifications). Using a voltage outside this range may result in fire or electric shock. However, to ensure that the machine operates in the optimum condition, keep the voltage at AC 230 V in case of AC 230 specifications or at AC 120 V in case of AC 120 V specifications as much as possible.
- Use the consumables and service parts (including screws) that are specified by NAMCO BANDAI Games Inc. To order parts, contact your distributor.
- Do not modify the machine without permission. Do not perform any operations that are not described in this Operation Manual. Modifying the machine may create unforeseen hazards.
- If you decide to transfer the ownership of this machine, be sure to provide this Operation Manual with the machine.
1. Safety Precautions – Be sure to read to ensure safe operation –

[CAUTION]

- The projector of this machine uses a mercury lamp as the light source. The internal pressure of this lamp increases when lit. This lamp has the characteristics shown below. Be sure to fully understand these points, and handle the lamp with sufficient care.
  - Impact, degradation or other factors may cause the lamp to burst, emit loud noise, or reach the end of its life and no longer light up.
  - The time until the lamp bursts or reaches the end of its life differs according to the lamp.
  - Continued use past the replacement time increases the risk of the lamp bursting.
  - If the lamp bursts, glass shards may scatter inside the machine and exit the machine through the ventilation holes or other openings. If the lamp bursts, the tiny amount of mercury gas sealed inside the lamp may be discharged together with glass particles from the ventilation holes of the projector unit or other openings.
  - Check the lamp operating time occasionally with the Test mode, and prepare a new lamp when the replacement time approaches. (See “7-4-4 (4) PROJECTOR TEST”.)

- If the lamp breaks...
  - Should the lamp, lens or other glass part break, handle any glass shards with care to avoid injury or damage, and contact your distributor.
  - Should the lamp burst, disconnect the power cord plug of the machine from the outlet, evacuate the room, and ventilate the room thoroughly. Then, clean the area around the machine thoroughly, and dispose of any foodstuffs that were located around the machine.
  - If you suspect that glass particles or mercury gas entered your eyes or that you may have breathed in these substances when the lamp burst, consult a doctor immediately.
1. Safety Precautions – Be sure to read to ensure safe operation –

1-4 Machine Warning Labels

![WARNING]

- The warning labels attached to the machine contain important information for ensuring safety. Be sure to observe the following.
  - In order to ensure that the warning labels attached to the machine are always clearly visible, install the machine in an appropriate location with ample illumination and keep the labels clean at all times. Also make sure that the labels are not hidden by other machines or objects.
  - Do not remove or alter the warning labels.
  - If a warning label becomes excessively dirty or damaged, replace it with a new one. To order warning labels, contact your distributor.
1. Safety Precautions – Be sure to read to ensure safe operation –

- **Warning sticker** Service B (EXP)
  Part No.: 461-539

- **Caution sticker** Finger pinching
  POD (EXP)
  Part No.: 461-627

- **Caution sticker** Capacity limit POD (EXP)
  Part No.: 461-620

- **Danger sticker** Watch your head
  POD (EXP)
  Part No.: 461-539

- **Caution sticker** Projector (EXP)
  Part No.: 461-621

- **WARNING**
  To avoid an electrical shock and/or injury, be sure that the power is turned off before opening the service door. Only qualified personnel should attempt to service the game.

- **CAUTION**
  To avoid eye injury, do not directly look into the projector.

- **CAUTION**
  To avoid pinching, do not close the door before hand.
Projector unit
(LVP-FD630 (V1))

1. Safety Precautions – Be sure to read to ensure safe operation –

**WARNING**
- Do not try to plug in the power cord when the projector is operating.
- Do not point the projector at your eyes.
- Do not look into the lens when the projector is operating.

**CAUTION**
- Turn off power before opening the lamp cover.
- Do not block the air inlet and outlet grills.
- Do not push into the air inlet or outlet when projector is operating.
- High temperatures. Do not replace the lamp for at least 1 hour after power off.

**NOTICE**
- When replacing the lamp, be sure the projector is turned off and cooled for at least 1 hour.
- Do not handle the lamp with bare hands. Wear gloves.
- During lamp replacement, be careful of glass fragments dropping down.

To Purchase This Item, Visit BMI Gaming | www.bmigaming.com | (800) 746-2255 | +561.391.7200
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2. Specifications

(1) Rated power supply AC 230 V specifications:
   AC 230 V ±10 V
   AC 120 V specifications: AC 120 V ±10 V

(2) Rated power consumption
   200 V series: 850 W
   100 V series: 860 W

(3) Maximum current consumption
   AC 230 V specifications: 3.2 A
   AC 120 V specifications: 6.3 A

(4) Display unit
   180° dome screen + projector with special lens

(5) Dimensions
   (1) When installed
      Main unit Width (W) 1,880 x Depth (D) 1,620 x Height (H) 2,060 [mm]
      Installation size Asian specifications: Width (W) 1,880 x Depth (D) 1,620 x Height (H) 2,300 [mm]
      U.S. and European specifications: Width (W) 1,880 x Depth (D) 1,620 x Height (H) 2,540 [mm]
2. Specifications

(2) When disassembled

- Front assembly  
  Width (W) 1,780 x Depth (D) 900 x Height (H) 1,940 [mm]

- Rear assembly  
  Width (W) 1,810 x Depth (D) 985 x Height (H) 2,060 [mm]
## 2. Specifications

<table>
<thead>
<tr>
<th>Component</th>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projector unit</td>
<td>Width (W) 520 x Depth (D) 480 x Height (H) 160 [mm]</td>
<td>(LVP-FD630 (V1))</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>520 x 480 x 160 [mm]</td>
<td></td>
</tr>
<tr>
<td>(7) Weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) When installed</td>
<td>365 kg</td>
<td></td>
</tr>
<tr>
<td>(2) When disassembled</td>
<td>• Front assembly 175 kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Rear assembly 180 kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Projector unit 10 kg</td>
<td></td>
</tr>
</tbody>
</table>

To Purchase This Item, Visit BMI Gaming | www.bmigaming.com | (800) 746-2255 | +561.391.7200
3. Package Contents

The following items (three packages) are included when this machine is shipped.

- Make sure that all the items below are contained in the product packages.
- If any items are missing, contact your distributor.
- The packing boxes are reused when transporting the machine, so store them in a safe place and do not dispose of them.

Front assembly

Rear assembly

Cardboard behind seat back

Packed inside the cashbox

Packed inside the box

Projector packing box

1, 2, 3, 25, 31

20, 21

4, 5, 14 to 19, 23, 26, 27, 28

6, 7

8 to 13, 25, 29, 30, 32 to 35
### Supplied Item List

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Specifications</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Operation Manual (this manual)</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Service key</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Cashbox key</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Power cord</td>
<td>3 m U.S. and European specifications only</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>LAN cable</td>
<td>20 m Not used for U.S. and European specifications</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Remote controller for projector</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Batteries for remote controller</td>
<td>Size AAA</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Torx bolt (silver)</td>
<td>M5 x 12 (10 bolts used on page 62, 2 bolts used on page 70, 4 bolts used on page 72)</td>
<td>16</td>
</tr>
<tr>
<td>9</td>
<td>Torx bolt (silver)</td>
<td>M5 x 8 (Used on page 69)</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>Torx bolt (black)</td>
<td>M5 x 12 (Used on pages 61 and 62)</td>
<td>8</td>
</tr>
<tr>
<td>11</td>
<td>Flange socket bolt</td>
<td>M8 x 16 (Used on pages 59 and 60)</td>
<td>16</td>
</tr>
<tr>
<td>12</td>
<td>Flange socket bolt</td>
<td>M6 x 14 (Used on page 67)</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>Flat washer (large)</td>
<td>ø25 x ø5.5 (Used on page 69)</td>
<td>4</td>
</tr>
<tr>
<td>14</td>
<td>Side joint (L)</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>Side joint (R)</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>Side cover (L)</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>Side cover (R)</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>Lower side cover (L)</td>
<td>With cover joint assembled</td>
<td>1</td>
</tr>
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</table>
3. Package Contents

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Specifications</th>
<th>Qty.</th>
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<tbody>
<tr>
<td>19</td>
<td>Lower side cover (R)</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>POP light assembly</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>LED light</td>
<td>AC/DC 12 V 7 W</td>
<td>3</td>
</tr>
<tr>
<td>22-a</td>
<td>POP (EXP)</td>
<td>U.S. and European specifications</td>
<td>1</td>
</tr>
<tr>
<td>22-b</td>
<td>POP (EXP ASIA)</td>
<td>Asian specifications</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>POP bracket</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>24</td>
<td>Torx wrench</td>
<td>For M5, T25</td>
<td>1</td>
</tr>
<tr>
<td>25</td>
<td>USB dongle</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>26</td>
<td>Clamp</td>
<td>For power cord</td>
<td>1</td>
</tr>
<tr>
<td>27</td>
<td>Clamp</td>
<td>For LAN cable Not used for U.S. and European</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Hole cover</td>
<td>U.S. specifications only</td>
<td>1</td>
</tr>
<tr>
<td>29</td>
<td>Phillips pan head screw (with flat and spring washers)</td>
<td>U.S. specifications only</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(M4 x 14)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Countersunk nut with washer</td>
<td>M8, U.S. specifications only</td>
<td>6</td>
</tr>
<tr>
<td>31</td>
<td>Coin door key</td>
<td>U.S. and European specifications only</td>
<td>2</td>
</tr>
<tr>
<td>32</td>
<td>Flat washer (large)</td>
<td>⌀16 x ⌀5 (Used on page 62)</td>
<td>4</td>
</tr>
<tr>
<td>33</td>
<td>Padlock (supplied with a key)</td>
<td>One for European specifications Two for U.S.</td>
<td>1 or 2</td>
</tr>
<tr>
<td></td>
<td>specifications</td>
<td>specifications</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Lock bar (B)</td>
<td>U.S. specifications only</td>
<td>1</td>
</tr>
<tr>
<td>35</td>
<td>Lock bar (C)</td>
<td>U.S. and European specifications only</td>
<td>1</td>
</tr>
</tbody>
</table>
4. Overall Structure (Part Names)

- Front assembly
- Projector assembly
- Seat assembly
- Throttle lever assembly
- Game PC board
- Cord box assembly
- Coin assembly
- Control lever assembly
- Coin door
- Coin assembly
- Control lever assembly
- POP

*Not required for U.S. and European specifications.
5. Delivery and Installation Conditions

**WARNING**
- Install the machine according to the instructions in this Operation Manual. Failure to follow these instructions may result in fire, electric shock, injury or malfunction.
- Fully insert the power cord plug into the outlet. Poor contact may generate heat and result in fire or burns.
- Be sure to install the ground wire. Failure to install the ground wire may result in electric shock in the event of electrical leakage. (See “8A-2-1 Connecting the Power Cord and Ground” on page 73.)
- Install the machine securely by using the level adjusters. Unstable machine installation may result in accident or injury. (See “8A-1-1 (4) Level Adjuster Adjustment” on page 63.)

5-1 Installation Conditions

5-1-1 Safety Inspection

**WARNING**
- Do not block the ventilation holes of the machine with any objects or a wall, etc. If the ventilation holes are blocked, the inside of the machine may become hot, which may result in fire or malfunction.
- The machine is designed for indoor use. Never install the machine outdoors or in the following locations.
  - A location exposed to direct sunlight
  - A location exposed to rain or water leaks
  - A damp location
  - A dusty location
  - A location close to heaters
  - A hot location
  - An extremely cold location
  - A location exposed to condensation caused by temperature differences
  - A location that obstructs an emergency exit or fire extinguishing equipment
  - An unstable location or a location exposed to vibration
- The machine is not suitable for installation in an area where a water jet could be used.
5-1-2 Play Zone

\[ \text{CAUTION} \]

- Create a play zone around the machine so that players leaving the machine do not make contact with bystanders or passersby.

\[ \text{NOTICE} \]

- When installing the machine, create a play zone approximately as shown in the figure below. Be sure to secure this play zone, as it is also needed for service work.
- A ceiling height of 2 m 35 cm or more is required for Asian specifications, and 2 m 60 cm or more for U.S. and European specifications.

(1) Play zone (example)
5-2 Required Dimensions for the Delivery Route (Such as Doors and Corridors)

Entryways and corridors must be larger than the dimensions noted below.

- Front assembly
  Width (W) 1,780 x Depth (D) 900 x Height (H) 1,940 [mm]
  Weight 175 kg

- Rear assembly
  Width (W) 1,810 x Depth (D) 985 x Height (H) 2,060 [mm]
  Weight 180 kg

The delivery route must be sufficiently larger than the above dimensions.
6. Moving and Transportation

WARNING

- Do not leave the machine on a slope. It may fall over or cause an accident.

6-1 Moving (Within the Same Floor)

NOTICE

- Move the machine carefully to avoid damaging it.
- Do not subject the machine to impact when moving it up or down a step.
- Even when moving the machine only a short distance, be sure to raise the level adjusters to their highest level. (See “8A-1-1 (4) Level Adjuster Adjustment” on page 63.)
- Be careful not to apply force to the rear window, door and other acrylic molded parts when moving the machine.
- When disassembling the machine into the front and rear assemblies for movement, attach the rear joint frame to the rear assembly. (See “8A-1-1 (2) Removing the Rear Joint Frame” on page 61.)
6-2  Transportation

- Do not subject the machine to impact when lowering it.

6-2-1  Manual Transportation (Such as Carrying on Stairs)

**WARNING**

- Before transporting the machine manually, be sure to first remove the projector unit from the rear assembly (see “8B-6-1 Removing and Installing Each Part” on page 142), and disassemble the machine into the front and rear assemblies. (See “8A-1-1 Assembling the Machine” on page 56.)
- Transporting the fully assembled machine may result in an accident.
- When transporting the machine manually, be sure to use the following number of people.
  Overburdening yourself may result in accident or injury.
  - Front assembly (175 kg): 7 people or more
  - Rear assembly (180 kg): 9 people or more
  - Projector unit (10 kg): 1 person or more

- Do not subject the machine to impact when lowering it.
- Secure the door with cord or tape so that it does not open when transporting the rear assembly.
Before transporting the machine manually, disassemble it into each assembly by referring to "8A-1-1 Assembling the Machine" on page 56.

1. Raise the level adjusters to their highest level.
2. Remove the molded covers.
3. Disassemble the machine into the front and rear assemblies.
4. Attach the rear joint frame to the rear assembly.
5. Remove the projector unit from the rear assembly.
6. After transporting the machine manually, reassemble the machine.

**NOTICE**
- Be careful not to apply force to the screen when transporting the front assembly manually.
- The front assembly has a height of 1,940 mm. Be careful not to bump the ceiling.
- Be careful not to apply force to the rear window, door and other acrylic molded parts when transporting the rear assembly manually.
- The rear assembly has a height of 2,060 mm. Be careful not to bump the ceiling.
- If the projector image has shifted after assembling the machine, adjust the projector. (See “8B-6-2 Adjusting the Projector Position” on page 155.)
### 6-2-2  Loading to and Unloading from a Vehicle

**WARNING**

- Before transporting the machine manually, be sure to disassemble it into the front and rear assemblies, remove the projector unit from the rear assembly, and attach the rear joint frame to the rear assembly. (See “8A-1-1 Assembling the Machine” on page 56) Transporting the fully assembled machine manually (such as carrying on stairs) may result in damage to equipment or accident.

- When transporting the machine manually, be sure to use the following number of people. Overburdening yourself may result in accident or injury.
  - Front assembly (175 kg): 7 people or more
  - Rear assembly (180 kg): 9 people or more
  - Projector unit (10 kg): 1 person or more

- When using a forklift to transport the machine, observe the following. Failure to observe the following may result in an accident, such as the machine falling over.
  - Make sure that the machine is disassembled into the front assembly, rear assembly and projector unit.
  - Be sure to insert the forks into the specified positions.
  - Make sure that the machine is balanced properly during transportation.

**NOTICE**

- Do not subject the machine to impact when lowering it from the forklift.

---

![Diagram of machine with fork position and sticker]
6-2-3 Transportation Using a Vehicle

**WARNING**

- When transporting the machine on a vehicle, secure the machine firmly so that it does not move during vehicle transport. Failure to secure the machine may result in an accident.

**NOTICE**

- Do not subject the machine to impact when lowering it.
- Move the machine carefully to avoid damaging it.
- When securing the machine with a rope, observe the following.
  - Be sure to secure the machine with ropes or belts in the positions shown in the figure below.
  - Place blankets or other shock absorbing material between the machine and the ropes or belts to protect the machine surfaces.
- Be sure to pack the projector unit in the dedicated packing box for transportation.
- Place Styrofoam or other shock absorbing material between the machine and the truck bed and any other equipment or items to protect the machine surfaces.
- When transporting the machine in rainy weather, use a vehicle with a cargo cover, a container truck, or similar vehicle to protect the machine from direct exposure to rain.
- Secure the door with cord or tape so that it does not open when transporting the rear assembly.
7. Operation

**WARNING**

- Should an abnormality occur, turn off the main power switch immediately to stop operations. Then, be sure to disconnect the power cord plug from the outlet.
- Operating the machine while the abnormality persists may result in fire or accident.
- Dust accumulating on the power cord plug may result in fire. Inspect the plug regularly and remove any dust.
- Fully insert the power cord plug into the outlet. Poor contact may generate heat and result in fire or burns.
- Before operating the machine, be sure to check that installation has been performed according to the instructions and specified procedures in this Operation Manual (see “5. Delivery and Installation Conditions” on page 16). Failure to install the machine correctly may result in fire, electric shock, injury or malfunction.
- The warning labels contain important information for ensuring safety. Be sure to observe the following. (For the warning label locations, see “1-4 Machine Warning Labels” on page 4.)
  - In order to ensure that the warning labels attached to the machine are always clearly visible, install the machine in an appropriate location with ample illumination and keep the labels clean at all times. Also make sure that the labels are not hidden by other machines or objects.
  - Do not remove or alter the warning labels.
  - If a warning label becomes excessively dirty or damaged, replace it with a new one.
- To order warning labels, contact your distributor.
- In order to ensure safe use of the machine, be sure to perform the pre-operation inspection (“7-1 Pre-operation Inspection” on page 25) and service (“8B. Service” on page 83) described in this Operation Manual.
- Omitting these inspections or service may result in an accident.
- If players start feeling ill because of the game images or light stimulation, they must stop playing and take a break immediately.
- In rare cases, stimulation by lights or video images may cause the player to have a seizure or lose consciousness. If this happens, advise the player to seek immediate medical assistance.
- Set the cabinet volume within the range that allows the player to hear alarms and warning announcements within the operating facility.

**CAUTION**

- In order to ensure the safety of players, be careful not to let people play under the following conditions. This is required to prevent accidents.
  - People whose feet cannot reach the floor when sitting on the seat
  - People under the influence of alcohol
  - People who are injured or ill
  - People who are pregnant
  - People with heart conditions
  - People with other ailments
- The machine is designed for one player. Be careful not to let two or more people attempt to enter the machine at the same time. This is required to prevent accidents.
- This machine is not intended for use by persons (including children) with reduced physical, mental or sensory capabilities, or those with lack of experience and knowledge of the machine, unless they are supervised or given instruction by a person responsible for their safety. Children should be supervised to ensure that they do not play with the machine.
7-1 Pre-operation Inspection

7-1-1 Safety Inspection

Check the points below before starting machine operations.
If there is an abnormality, resolve it by referring to “8B-2 Troubleshooting” on page 85.

WARNING

• Before operating the machine, check the following locations. This is required to prevent accident or injury.

• Are all warning labels legible? (See “1-4 Machine Warning Labels” on page 4.)
• Are all level adjusters adjusted properly so that the machine is stable? (See “8A-1-1 (4) Level Adjuster Adjustment” on page 63.)
• Is the specified play zone provided? (See “5-1-2 Play Zone” on page 17.)
• Are the power cord and LAN cable laid out safely so that they will not cause players or other customers to trip over them?
7-1-2  Function Inspection (After Power On)

Inspect the following points after turning on the power switch. If you discover an abnormality, turn off the power switch immediately to stop operations.

Then, disconnect the power cord plug from the outlet and contact your distributor.

- Is any part of the power cord or plug abnormally hot?
- Does touching the machine give a tingling electric shock?
- Is there a burning smell, abnormal noise or vibration?
- Is there any other abnormality or malfunction?
- Check the operation of each button (is there an ON/OFF response?), analog interface (is the input range normal?) and other input devices. (See “7-4-4 (2) SWITCH TEST” on page 37.)
- Check the audio. (Is sound produced by each speaker?) (See “7-4-6 SOUND TEST” on page 42.)
- Set the cabinet volume within the range that allows the player to hear alarms and warning announcements within the operating facility.
- Check that the various lights light up. (See “7-4-4 (3) OUTPUT TEST” on page 38.)
- Check the displayed images. (Are images projected correctly from the projector?)
- Is the screen blank and the back lamp lit up red? (See “7-7 Projector Lamp (Lamp Unit) Life” on page 54.)

To inspect the following points, press the Service switch and actually play the game.

- Check the operation of each control device (levers, machine gun button, missile button). (Can the player’s aircraft be controlled properly?)
7-2 Playing the Game

The game ends when the number of credits runs out (1 credit = 1 stage) or when the endurance gauge reaches 0.

7-2-1 Game Flow

[Operation Method during Game Play]

(1) Control lever (lever on right side)

- Tilt the lever forward, back, right and left to pilot your aircraft.
  - Tilt forward/back: Dives/climbs
  - Tilt to the right/left: Turns to the right/left
- Press the missile button: A missile is launched.
- Squeeze the machine gun button: The machine gun fires.

(2) Throttle lever (lever on left side)

- Tilt the lever forward to accelerate and back to decelerate.
  - Tilt forward: The aircraft speeds up temporarily and closes the distance with the enemy aircraft.
  - Tilt back: The aircraft slows down temporarily and the distance with the enemy aircraft widens.

[Game Flow]

When coins equal to the credits required for game play are inserted, the player selects the sortie mission and game play starts.

[Take-off from the Aircraft Carrier]

(1) Starting the game

After inserting coins equal to the credits required for game play, the player presses the missile button or squeezes the machine gun button to start game play.

(2) Selecting the mission

When the aircraft reaches the takeoff position, tilt the throttle lever to select the sortie mission and press the missile button or squeeze the machine gun button to enter the selection. There are five missions, and a difficulty is set for each mission.

(3) Taking off from the aircraft carrier

Tilt the throttle lever forward to take off from the aircraft carrier.

[Missions]

(1) Mission

The player attempts to align the lock-on circle in the center of the display with enemy craft that appear before them. When the lock-on gauge is red around its entire circumference indicating the lock-on state, the player can fire a missile to shoot down the enemy craft.

When an enemy missile is fired at the player, the player attempts to shoot it down using missiles or the machine gun. If the player fails to shoot down the enemy missile, the player’s aircraft receives damage. When the endurance gauge at the bottom of the display reaches empty, the mission fails.

(2) Boss dogfight

Toward the end of each mission, a dogfight with the enemy boss occurs with a time limit. If the enemy boss cannot be defeated within the time limit, the time runs out and the mission fails.
7. Operation

[RETRY]
When the retry function is set to ON and a mission is failed, the player can play the same mission again from the start by inserting coins equal to the required additional number of credits.

[EXTRA MISSION]
When the extra mission function is set to ON and a mission is successfully completed, the player can challenge an extra mission by inserting coins equal to the required additional number of credits. This extra mission lets the player aim for a higher score by shooting down enemy craft that appear successively within a time limit.

(1) Time limit
The time limit is displayed at the top of the screen during the extra mission. The goal is to shoot down as many enemy craft as possible within this time limit to achieve a higher score. Some enemy craft extend the time limit when shot down.

(2) Quick-kill and multi lock-on missiles
When the player shoots down an enemy craft within a certain time (quick kill), the multi lock-on gauge at the bottom of the screen increases. When the multi lock-on gauge becomes full, multi lock-on missiles can be fired, enabling to shoot down multiple enemy craft at once.

* Set the number of credits required for retry and extra mission game play at the COIN OPTIONS screen (See “7-4-2 Game Cost Settings (COIN OPTIONS)” on page 33.)

* Set the retry and extra mission functions to ON or OFF at the GAME OPTIONS screen. (See “7-4-2 Game Contents Settings (GAME OPTIONS)” on page 34.)

[RESULTS]
(3) Results
When a mission is successfully completed or failed, the player’s score is totaled and a rank is assigned.

(4) Ranking
Finally, the ranking list is displayed. When a player achieves a ranking within the top 20, they can enter their name.

* When the power is turned off, the records for rank 6 and lower are deleted and return to the default rankings.
7-3 Adjustment

7-3-1 Turning the Power Switch On

1. Turn on the main power switch located on the front of the front assembly.

If the machine does not start up correctly, the system power switch may not be set to ON. Check the system power switch by referring to “7-3-2 Adjustment Switches” on page 30.

![Main power switch diagram]

**NOTICE**

- When turning the power off and then on again, do not turn the power back on immediately, and be sure to observe the following condition.
  - When using the main power switch
    
    It takes time to restart the projector, so wait **10 minutes** or more after turning off the main power switch before turning it back on.
7-3-2 Adjustment Switches

The adjustment switches are located inside the machine.

(a) Service switch (red)
Press this button to increase the credit count without operating the coin counter. When credits are added using the Service switch, the back lamp is lit up red.

(b) Test switch
Set this switch to ON to enter Test mode.
Test mode is used to test the various parts of the machine such as the monitor.
(See “7-4 Test Mode” on page 31.)

(c) Select switch
In Test mode, flip this switch up or down to select an item or setting (numerical value).

(d) Enter switch (green)
After selecting an item or setting (numerical value) with the Select switch, press this switch to enter or execute the selection.

(e) System power switch
This switch is used to forcibly reboot the game PC board when an abnormality occurs in the system. To reboot the game PC board, set the Reset switch to OFF, wait for 30 seconds or more, and then set the system power switch to ON again.

(f) Door switch
For security purposes, coin credits can be added by pressing the Service switch only while the door is open.

**NOTICE**
- When the main power switch is turned off, it takes time to restart the projector, and the display may remain blank for a few minutes (approximately 10 minutes).
Therefore, the system power switch should be used to reboot the game PC board.
7-4 Test Mode

7-4-1 Description of the Main Menu Screen (MENU)

1. Use the service key to unlock and open the service door, and set the Test switch to ON. The MENU screen appears on the screen.

2. Flip the Select switch up or down to select the item. The selected item blinks.

3. Press the Enter switch to enter the selected item.

4. When the selection is entered, the display changes to the detailed information for the selected item.

5. After finishing all the adjustments, set the Test switch to OFF. The display returns to the game screen.

When an error occurs in Test mode, the error code and error name are displayed at the upper right of the MENU screen.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Reference section</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) COIN OPTIONS</td>
<td>Game cost settings</td>
<td>Page 33</td>
</tr>
<tr>
<td>(b) GAME OPTIONS</td>
<td>Game contents and other settings</td>
<td>Page 34</td>
</tr>
<tr>
<td>(c) I/O TEST</td>
<td>Switch, light and other tests</td>
<td>Page 35</td>
</tr>
<tr>
<td>(d) MONITOR TEST</td>
<td>Monitor adjustment</td>
<td>Page 41</td>
</tr>
<tr>
<td>(e) SOUND TEST</td>
<td>Volume adjustment, etc.</td>
<td>Page 42</td>
</tr>
<tr>
<td>(f) BOOKKEEPING</td>
<td>Operating time and game related data</td>
<td>Page 43</td>
</tr>
<tr>
<td>(g) OTHERS</td>
<td>Used to check the version, etc.</td>
<td>Page 45</td>
</tr>
<tr>
<td>(h) NETWORK STATUS</td>
<td>Used to check the network status and IP address, and to reacquire the network status. * This item is displayed only when using the online version of the software.</td>
<td>Page 48</td>
</tr>
<tr>
<td>(i) NBLINE POINTS</td>
<td>Used to check the NBLINE points.</td>
<td>Page 50</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Reference section</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>(j) LEFT CREDIT</td>
<td>Number of unused credits immediately before switching to Test mode</td>
<td>–</td>
</tr>
<tr>
<td>(k) USE CREDIT</td>
<td>Number of credits being used by the player during gameplay immediately before switching to Test mode</td>
<td>–</td>
</tr>
</tbody>
</table>
7-4-2 Game Cost Settings (COIN OPTIONS)

This screen is used to make various changes to the cost settings such as the game cost settings.

1. In the MENU screen, select COIN OPTIONS and press the Enter switch. The COIN OPTIONS screen appears.

2. Flip the Select switch up or down to select the item. The selected item blinks.

<table>
<thead>
<tr>
<th>COIN OPTIONS [DEFAULT IN GREEN]</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAME COST: 2 CREDIT(S)</td>
</tr>
<tr>
<td>RETRY COST: 1 CREDIT(S)</td>
</tr>
<tr>
<td>EXTRA COST: 2 CREDIT(S)</td>
</tr>
<tr>
<td>FREE PLAY: OFF</td>
</tr>
</tbody>
</table>

| SELECT SW: CHOOSE | ENTER SW: ENTER |

COIN OPTIONS screen

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) GAME COST</td>
<td>Sets the number of credits required for game play. The setting range is 1 to 20. (Default: 2 *8 for U.S. and European specifications)</td>
</tr>
<tr>
<td>(b) RETRY COST</td>
<td>Sets the number of credits required for retry game play. The setting range is 1 to 20. (Default: 1 *4 for U.S. and European specifications)</td>
</tr>
<tr>
<td>(c) EXTRA COST</td>
<td>Sets the number of credits required for extra mission game play. The setting range is 1 to 20. (Default: 2 *8 for U.S. and European specifications)</td>
</tr>
<tr>
<td>(d) FREE PLAY*</td>
<td>Free play setting (Default: OFF)</td>
</tr>
</tbody>
</table>

* This setting is available only when using the offline version of the software.

3. When the selection is entered, the display changes to the detailed information for the selected item.

4. After entering the selection, flip the Select switch up or down to change the item setting.

5. After changing the setting, press the Enter switch to return to the item selection.

6. Select EXIT and press the Enter switch to return to the MENU screen.
7-4-3 Game Contents Settings (GAME OPTIONS)

This screen is used to make various game contents settings.

1. In the MENU screen, select GAME OPTIONS and press the Enter switch. The GAME OPTIONS screen appears.

2. Flip the Select switch up or down to select the item. The selected item blinks.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) DIFFICULTY</td>
<td>Sets the game difficulty. Increasing the difficulty increases the amount by which the endurance gauge decreases when damage is taken, making it easier to get shot down. The setting range is from A (VERY EASY) to E (VERY HARD). (Default: C (NORMAL))</td>
</tr>
<tr>
<td>(b) NO DEAD MODE</td>
<td>Sets the mode where the player’s aircraft is not shot down even if it receives damage during game play. (Default: OFF)</td>
</tr>
<tr>
<td>(c) RETRY</td>
<td>Sets the function to play the same mission again from the start when a mission is failed. (Default: ON)</td>
</tr>
<tr>
<td>(d) EXTRA MISSION</td>
<td>Sets the time limit mission function to aim for a higher score when a mission is successfully completed. (Default: ON)</td>
</tr>
</tbody>
</table>

3. When the selection is entered, the display changes to the detailed information for the selected item.

4. After entering the selection, flip the Select switch up or down to change the item setting.

5. After changing the setting, press the Enter switch to return to the item selection.

6. Select EXIT and press the Enter switch to return to the MENU screen.
7-4-4 **Input/Output Test of Switches (I/O TEST)**

This screen is used to test the switches and other items.

1. In the MENU screen, select I/O TEST and press the Enter switch. The I/O TEST screen appears.

2. Flip the Select switch up or down to select the item to be changed.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) I/F CALIBRATION</td>
<td>Initializes the controls (levers).</td>
</tr>
<tr>
<td>(b) SWITCH TEST</td>
<td>Tests each switch and control.</td>
</tr>
<tr>
<td>(c) OUTPUT TEST</td>
<td>Tests the fan, etc.</td>
</tr>
<tr>
<td>(d) PROJECTOR TEST</td>
<td>Checks the projector operation status.</td>
</tr>
<tr>
<td>(e) CAMERA TEST</td>
<td>Tests the camera.</td>
</tr>
<tr>
<td>(f) I/O PCB</td>
<td>Displays “CONNECT OK” when the I/O PCB connection status is normal.</td>
</tr>
<tr>
<td>(g) FIRMWARE VERSION</td>
<td>Displays the firmware version of the I/O PCB.</td>
</tr>
</tbody>
</table>

3. Press the Enter switch to enter the selected item. When the selection is entered, the display changes to the detailed information for the selected item.

4. Select EXIT and press the Enter switch to return to the MENU screen.
(1) I/F CALIBRATION

This screen is used to initialize the controls (levers).

1. In the I/O TEST screen, select I/F CALIBRATION and press the Enter switch. The I/F CALIBRATION screen appears.

   ![I/F CALIBRATION screen]

   **I/F CALIBRATION**

   THROTTLE LEVER CONTROL LEVER
   Y: 7640  X: 8680
   Y: 8840

   **STEP 1** Tilt the right and left levers as far as they will go in each direction.
   **STEP 2** Take your hands off the right and left levers.
   **STEP 3** Press the service switch to complete the initialization process. The screen will automatically switch to the SWITCH TEST display.
   **STEP 4** Confirm the status of the levers in the SWITCH TEST screen.

2. Move the levers all the way forward, back, right and left, then release your hands from the levers and press the Service switch to initialize the levers.

   After initialize the controls (levers), the screen will automatically switch to the SWITCH TEST display.

3. Check that the levers have been properly initialized in the SWITCH TEST screen.

4. Select EXIT and press the Enter switch to return to the I/O TEST screen.

   **NOTICE**
   - Be sure to execute I/F (CALIBRATION) when the game PC board is replaced.
(2) SWITCH TEST

This screen is used to test each switch and control.

1. In the I/O TEST screen, select SWITCH TEST and press the Enter switch. The SWITCH TEST screen appears.

2. Flip the Select switch up or down to select the item to be tested.

3. Press the Enter switch to enter the selected item.

4. Hold the Select switch flipped up and press the Enter switch to return to the I/O TEST screen.
7. Operation

(3) OUTPUT TEST

This screen is used to check the fan, control lever vibration, and back lamp operation.

1. In the I/O TEST screen, select OUTPUT TEST and press the Enter switch. The OUTPUT TEST screen appears.

2. Flip the Select switch up or down to select the item to be changed.

<table>
<thead>
<tr>
<th>Item Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) FRONT FAN</td>
</tr>
<tr>
<td>(b) VIBRATION</td>
</tr>
<tr>
<td>(c) POWER</td>
</tr>
<tr>
<td>(d) LED REAR COVER</td>
</tr>
<tr>
<td>(e) COLOR</td>
</tr>
<tr>
<td>(f) R</td>
</tr>
<tr>
<td>(g) G</td>
</tr>
<tr>
<td>(h) B</td>
</tr>
</tbody>
</table>

*These settings are not reflected during game play or Attract mode operation. These setting items are used only to check operation.

3. Press the Enter switch to enter the selected item.

4. Select EXIT and press the Enter switch to return to the I/O TEST screen.
(4) PROJECTOR TEST

This screen is used to check the projector lamp operation time and current status.

1. In the I/O TEST screen, select PROJECTOR TEST and press the Enter switch. The PROJECTOR TEST screen appears.

```
PROJECTOR TEST

STATUS: OK
STATE: 2 TURN ON
LAMP TIME: 285 HOUR(S)
PANEL TIME: --- HOUR(S)
TOTAL TIME: --- HOUR(S)
FAN1: --- rpm FAN2: --- rpm
FAN3: --- rpm FAN4: --- rpm
TEMPERATURE1: --- C TEMPERATURE2: --- C

EXIT: 4735 hour(s) until the projector lamp is due for replacement.

ENTER SW: ENTER
```

![PROJECTOR TEST screen](image)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) STATUS</td>
<td>Indicates the current projector status.</td>
</tr>
<tr>
<td>(b) STATE</td>
<td>Indicates the internal operation state of the projector.</td>
</tr>
<tr>
<td>(c) LAMP TIME</td>
<td>Indicates the current lamp operation time. The color and message contents change according to the time. 0h to 3749h: Displayed in white. The time remaining until 5000 hours is also displayed at the bottom of the screen. 3750h to 4749h: Displayed in orange. This indicates that the lamp replacement time is approaching. The time remaining until 5000 hours and a notice are also displayed at the bottom of the screen. 4750 hours or more: Displayed in blinking red. This indicates that it is time to replace the lamp. The message “TIME TO EXCHANGE THE PROJECTOR LAMP” is also displayed at the bottom of the screen.</td>
</tr>
<tr>
<td>(d) PANEL TIME</td>
<td>Not supported and performs no function.</td>
</tr>
<tr>
<td>(e) TOTAL TIME</td>
<td>Not supported and performs no function.</td>
</tr>
<tr>
<td>(f) FAN</td>
<td>Not supported and performs no function.</td>
</tr>
<tr>
<td>(g) TEMPERATURE</td>
<td>Not supported and performs no function.</td>
</tr>
</tbody>
</table>

2. Select EXIT and press the Enter switch to return to the I/O TEST screen.
(5) **CAMERA TEST**

This screen is used to check that the image taken by the camera can be displayed.

1. In the I/O TEST screen, select CAMERA TEST and press the Enter switch. The CAMERA TEST screen appears.

2. Flip the Select switch up or down to select the item to be changed. The selected item blinks.

3. Select EXIT and press the Enter switch to return to the I/O TEST screen.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) TAKE</td>
<td>Takes a still image with the camera. The still image is displayed in the finder. Press the Enter switch again while the still image is displayed to return to the streaming video display.</td>
</tr>
</tbody>
</table>
7-4-5 Projector Test (MONITOR TEST)

This screen is used to make various monitor (projector) adjustments.

1. In the MENU screen, select MONITOR TEST and press the Enter switch. The MONITOR TEST screen appears.

2. Flip the Select switch up or down to select the item to be changed. The selected item blinks.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) GRADATION PATTERN</td>
<td>Displays a 16-gradation pattern.</td>
</tr>
<tr>
<td>(b) VIEW ANGLE ADJUST PATTERN</td>
<td>Displays a viewing angle adjustment pattern. See “8B-6-2 Adjusting the Projector Position” on page 155.</td>
</tr>
<tr>
<td>(c) FOCUS ADJUST PATTERN</td>
<td>Displays a focus adjustment pattern.</td>
</tr>
<tr>
<td>(d) FULL WHITE</td>
<td>Displays an all-white pattern.</td>
</tr>
<tr>
<td>(e) FACTORY (LENS) PATTERN</td>
<td>Displays a factory adjustment pattern.</td>
</tr>
<tr>
<td>(f) FACTORY (ASSEMBLY) PATTERN</td>
<td>Displays a factory adjustment pattern.</td>
</tr>
<tr>
<td>(g) FACTORY (VALIDATION) PATTERN</td>
<td>Displays a factory adjustment pattern.</td>
</tr>
</tbody>
</table>

3. Press the Enter switch to go to the test screen for the selected item.

4. Select EXIT and press the Enter switch to return to the MENU screen.
7-4-6  SOUND TEST

**WARNING**

- Set the cabinet volume within the range that allows the player to hear alarms and warning announcements within the operating facility.

This screen is used to set the sound volume and to request sounds (stereo check).

1. In the MENU screen, select SOUND TEST and press the Enter switch. The SOUND TEST screen appears.

2. Flip the Select switch up or down to select the item to be changed. The selected item blinks.

   **SOUND TEST**
   
   ![Default in Green]

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Game Volume</th>
<th>Setting Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOLUME</td>
<td>(0~15)</td>
<td>10</td>
</tr>
<tr>
<td>ATTRACT</td>
<td>(0~15)</td>
<td>10</td>
</tr>
</tbody>
</table>

3. Press the Enter switch to enter the selected item.

   * When the Service switch is pressed at the SOUND TEST screen, the test sound is played from each of the speakers in order from the speakers installed in the cabinet.

4. After entering the selection, flip the Select switch up or down to change the item setting.

5. After changing the setting, press the Enter switch to return to the item selection.

6. Select EXIT and press the Enter switch to return to the MENU screen.
7-4-7 Displaying Game Data (BOOKKEEPING)

This screen displays the operating time, play count and other game related data.

1. In the MENU screen, select BOOKKEEPING and press the Enter switch. The BOOKKEEPING screen appears.

2. Flip the Select switch up or down to select the item to be changed. The selected item blinks.

### BOOKKEEPING screen

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) POWER ON TIME</td>
<td>Cumulative total power on time, displayed in real time</td>
</tr>
<tr>
<td>(b) TOTAL PLAY TIME</td>
<td>Cumulative total play time</td>
</tr>
<tr>
<td>(c) AVE.PLAY TIME</td>
<td>Average play time</td>
</tr>
<tr>
<td>(d) PLAY ON RATIO</td>
<td>Utilization ratio [Cumulative total play time/Cumulative total power on time]</td>
</tr>
<tr>
<td>(e) PLAY COUNT</td>
<td>Total normal mission count</td>
</tr>
<tr>
<td>(f) RETRY COUNT</td>
<td>Total retry count</td>
</tr>
<tr>
<td>(g) EXTRA COUNT</td>
<td>Total extra mission count</td>
</tr>
<tr>
<td>(h) INPUT1 COUNT</td>
<td>Coin input (Channel 1)</td>
</tr>
<tr>
<td>(i) INPUT2 COUNT</td>
<td>Coin input (Channel 2)</td>
</tr>
<tr>
<td>(j) TOTAL CREDIT COUNT</td>
<td>Total of INPUT1 + INPUT2</td>
</tr>
<tr>
<td>(k) SERVICE SW COUNT</td>
<td>Total number of service credits</td>
</tr>
<tr>
<td>(l) ERROR LOG</td>
<td>Used to check the error history, error count and other information.</td>
</tr>
<tr>
<td>(m) BOOKKEEPING INITIALIZE</td>
<td>Initializes the bookkeeping contents. (YES: Execute initialization, NO: Cancel initialization)</td>
</tr>
</tbody>
</table>

* The time is displayed as the coordinated universal time (UTC). (Online version only)

3. Press the Enter switch to enter the selected item.

4. Select EXIT and press the Enter switch to return to the MENU screen.
7. Operation

(1) ERROR LOG

This screen is used to check the error history.

In the BOOKKEEPING screen, select ERROR LOG and press the Enter switch. The ERROR LOG screen appears.

Flip the Select switch up or down to select the item to be changed. The selected item blinks. Up to 20 of the most recent errors along with the date and time of occurrence can be viewed with 10 errors per page. The most recent error appears at the top of ERROR LOG (1/2), and the oldest error appears at the bottom of ERROR LOG (2/2).

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>COIN ERROR 1 04/Oct/2013 FRI 14:12:53(UTC)</td>
</tr>
<tr>
<td>1-2</td>
<td>COIN ERROR 2 04/Oct/2013 FRI 14:12:43(UTC)</td>
</tr>
<tr>
<td>1-1</td>
<td>COIN ERROR 1 04/Oct/2013 FRI 14:12:42(UTC)</td>
</tr>
<tr>
<td>1-1</td>
<td>COIN ERROR 1 04/Oct/2013 FRI 14:12:33(UTC)</td>
</tr>
<tr>
<td>1-2</td>
<td>COIN ERROR 2 04/Oct/2013 FRI 13:22:49(UTC)</td>
</tr>
<tr>
<td>1-1</td>
<td>COIN ERROR 1 04/Oct/2013 FRI 13:22:40(UTC)</td>
</tr>
<tr>
<td>1-1</td>
<td>COIN ERROR 1 04/Oct/2013 FRI 13:22:28(UTC)</td>
</tr>
<tr>
<td>3-1</td>
<td>I/O ERROR 1 01/Oct/2013 TUE 15:21:28(UTC)</td>
</tr>
<tr>
<td>1-1</td>
<td>COIN ERROR 1 01/Oct/2013 TUE 11:46:08(UTC)</td>
</tr>
<tr>
<td>19-22</td>
<td>USB DONGLE ERROR 01/Oct/2013 TUE 10:32:56(UTC)</td>
</tr>
</tbody>
</table>

Press the Enter switch to enter the selected item.

Select EXIT and press the Enter switch to return to the BOOKKEEPING screen.
7-4-8 Other Options (OTHERS)

This screen is used to initialize various settings.

1. In the MENU screen, select OTHERS and press the Enter switch. The OTHERS screen appears.

2. Flip the Select switch up or down to select the item to be changed. The selected item blinks.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) ROM</td>
<td>Displays the version of the program on the hard disc.</td>
</tr>
<tr>
<td>(b) CLOCK</td>
<td>Displays the clock.</td>
</tr>
<tr>
<td>(c) S/N</td>
<td>Displays the serial number of the software.</td>
</tr>
<tr>
<td>(d) LANGUAGE</td>
<td>Used to select the language.</td>
</tr>
<tr>
<td>(e) MAINTENANCE TIME SETTING</td>
<td>Sets the maintenance time for automatically restarting the game PC board.</td>
</tr>
<tr>
<td>(f) CLOCK SETTING</td>
<td>Used to set the clock.</td>
</tr>
<tr>
<td>(g) BACKUP MEMORY INITIALIZE</td>
<td>Deletes the various settings. (YES: Execute initialization, NO: Cancel initialization)</td>
</tr>
</tbody>
</table>

* This setting is available only when using the offline version of the software.

3. Press the Enter switch to enter the selected item.

4. Select EXIT and press the Enter switch to return to the MENU screen.
7. Operation

(1) Setting the Clock (CLOCK SETTING)

Used to set the clock.

The clock can be set only when the clock is incorrect at machine start-up. (The clock can be set anytime when using the offline version of the software.)

When using the online version of the software, this option is not available in the normal test mode. (The option is not displayed.)

1. In the OTHERS screen, select CLOCK SETTING and press the Enter switch. The CLOCK SETTING screen appears.

2. Flip the Select switch up or down to select the item. The selected item blinks.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)  YEAR</td>
<td>Sets the year.</td>
</tr>
<tr>
<td>(b)  MONTH</td>
<td>Sets the month.</td>
</tr>
<tr>
<td>(c)  DAY</td>
<td>Sets the day.</td>
</tr>
<tr>
<td>(d)  HOUR</td>
<td>Sets the hour.</td>
</tr>
<tr>
<td>(e)  MINUTE</td>
<td>Sets the minute.</td>
</tr>
<tr>
<td>(f)  SET</td>
<td>Sets the time. Applies the values of YEAR to MINUTE above to the clock.</td>
</tr>
</tbody>
</table>

3. Press the Enter switch to enter the selected item.

4. After entering the selection, flip the Select switch up or down to change the item setting.

5. After changing the setting, press the Enter switch to return to the item selection.

6. Select EXIT and press the Enter switch to return to the MENU screen.
(2) Setting the Maintenance Time (MAINTENANCE TIME SETTING)

This screen is used to set the maintenance time at which the game PC board is automatically restarted in order to reduce the load on the game PC board when operating the machine continuously for long times.

1. In the OTHERS screen, select MAINTENANCE TIME SETTING and press the Enter switch. The MAINTENANCE TIME SETTING screen appears.

2. Flip the Select switch up or down to select the item. The selected item blinks.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
</table>
| (a) MAINTENANCE TIME | Displays the maintenance time.  
(Default: 07:00)  
In the online version of the software, the time is displayed as the coordinated universal time (UTC). |
| (b) HOUR      | Hour setting                                                                 |
| (c) MINUTE    | Minute setting                                                               |
| (d) SET       | Sets the maintenance time.  
This reflects the HOUR and MINUTE values to the maintenance time. |

3. Press the Enter switch to enter the selected item.

4. After entering the selection, flip the Select switch up or down to change the item setting.

5. After changing the setting, press the Enter switch to return to the item selection.

6. Select EXIT and press the Enter switch to return to the OTHERS screen.
7-4-9 NETWORK STATUS

This screen is used to check the network status.

* The settings on this page are available only when using the online version of the software.

1 In the MENU screen, select NETWORK STATUS and press the Enter switch. The NETWORK STATUS screen appears.

2 Flip the Select switch up or down to select the item to be changed. The selected item blinks.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Network status displays</td>
<td>The following items are displayed.</td>
</tr>
<tr>
<td></td>
<td>• PCB ID: Serial ID for NBLINE authentication</td>
</tr>
<tr>
<td></td>
<td>• GAME ID: Game ID for NBLINE authentication</td>
</tr>
<tr>
<td></td>
<td>• IP ADDRESS: IP address of this cabinet</td>
</tr>
<tr>
<td></td>
<td>• BROADCAST: IP address of default gateway</td>
</tr>
<tr>
<td></td>
<td>• SUBNETMASK: Subnet mask setting value</td>
</tr>
<tr>
<td></td>
<td>• PRIMARY DNS: IP address of primary DNS</td>
</tr>
<tr>
<td></td>
<td>• NBLINE ROUTER: Connection status with router</td>
</tr>
<tr>
<td></td>
<td>• NBLINE AUTH: NBLINE authentication results</td>
</tr>
<tr>
<td></td>
<td>• BNG SERVER: Connection status with game server</td>
</tr>
</tbody>
</table>

(b) Offline operation warning messages

The following messages are displayed when the machine is operating in offline mode.

• During offline operation
  The network is not available now.
  If the offline condition lasts xx days, (hours)
  you will be unable to start the game.
  (The remaining offline operation time is displayed in xx.)
• When offline operation is not possible (when the remaining offline operation time has reached zero)
  There is an error with the network so the game can't start.
  Please check the network according to the manual.

(c) NETWORK STATUS CHECK

Reacquires the network information.
3 Press the Enter switch to enter the selected item.

4 Select EXIT and press the Enter switch to return to the MENU screen.
7-4-10 NBLINE POINTS

This screen is used to check the NBLINE points.

* The settings on this page are available only when using the online version of the software.

1 In the MENU screen, select NBLINE POINTS and press the Enter switch. The NBLINE POINTS screen appears.

2 Flip the Select switch up or down to select the item to be changed. The selected item blinks.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) PCB ID</td>
<td>Displays the serial ID for NBLINE authentication</td>
</tr>
<tr>
<td>(b) NBLINE AUTH</td>
<td>Displays the NBLINE authentication results.</td>
</tr>
<tr>
<td>(c) POINT REMAIN</td>
<td>Displays the remaining number of NBLINE points held by the machine.</td>
</tr>
</tbody>
</table>
| (d) Alert and error message | When the number of NBLINE points becomes low or runs out, the following messages are displayed.  
  • When the remaining number of NBLINE points is 400 points or less  
    [ LOW NBLINE POINTS ]  
   Playable NBLINE point is low.  
    Please charge NBLINE points.  
  • When there are insufficient NBLINE points  
    [ 22-3 ERROR ]  
   Playable NBLINE point has run out.  
    Please charge NBLINE points.  
    Please check if there is a network error or not on the NETWORK STATUS screen. |
| (e) CHECK SERVER POINTS | Reacquires the NBLINE point information. |

3 Press the Enter switch to enter the selected item.

4 Select EXIT and press the Enter switch to return to the MENU screen.
7. Operation

7-5 About the Network  * Connection to a network is not required for U.S. and European specifications.

When using the online version of the software, this machine requires connection to the network (NBLINE) to operate. (*1)

When communication trouble or other trouble occurs in the network connection, the machine operates in offline mode.

The machine can be operated for 240 hours (10 days) (*2) in the offline condition to enable game play even when network trouble occurs for short periods.

However, when this time limit is exceeded, new games cannot be played.

In this case, “22-1 ERROR” is displayed on the screen.

(When the limit of 240 hours (10 days) is exceeded during game play, game play can continue until the game is over.)

To enable game play again, resolve the network trouble and connect to NBLINE. (*3)

*1 The network connection status can be checked in Test mode. (See “7-4-9 NETWORK STATUS” on page 48.)

*2 The remaining offline operation time can be checked in Test mode. (See “7-4-9 NETWORK STATUS” on page 48.)

*3 Refer to the error display for network troubleshooting. (See “8B-3 Error Displays” on page 89.)

When trouble occurs in the network connection, “MS” appears in the upper left corner of the Attract screens.
7-6 Cleaning

- Do not use thinner, benzene, gasoline or other organic solvents. This may degrade the materials.

(1) Cleaning the Screen Surface

Wipe away any dirt or dust on the screen surface using a soft cloth moistened with a small amount of water, then wipe dry using a dry soft cloth.

(2) Door and Rear Window

Wipe away any dirt or dust using a dry soft cloth. When the door and rear window become extremely dirty, wipe away the dirt using a cloth moistened with a small amount of water, then wipe dry using a dry soft cloth.
(3) **Cleaning the Projector Filters**

**NOTICE**
- Regularly clean the projector filters approximately once per week. Dust and dirt accumulating on the filters may prevent adequate ventilation and result in a projector error.

1. Remove the filter F and filter R. (See “8B-6-1 (3) Replacing the Filter F (Projector)” on page 150 and “8B-6-1 (4) Replacing the Filter R (Projector)” on page 151.)

2. Clean the dust and dirt from the filter F and filter R surfaces.
   - Wash with water and allow to dry thoroughly, or use a vacuum cleaner, being careful not to suck the filter into the vacuum cleaner.
   - When a filter becomes torn or has large holes or other damage, replace it with a new one.

3. After cleaning, install the filters by reversing the procedure.

(4) **Cleaning the Lens Cover**

Open the projector cover and front lid of the projector assembly (see “8A-1-1 (5) Installing the Projector Unit” on page 64), and wipe away any dirt or dust on both sides of the lens cover with a dry cloth. When the door and rear window become extremely dirty, wipe away the dirt using a cloth moistened with a small amount of water, then wipe dry using a dry soft cloth.

(5) **Cleaning the Projector Lens**

Open the projector cover and front lid of the projector assembly (see “8A-1-1 (5) Installing the Projector Unit” on page 64), and remove any dirt or dust from the projector lens using a dedicated lens cleaning kit such as a commercially available eyeglass cleaning cloth or eyeglass cleaner.

**NOTICE**
- Be sure to use a dedicated lens cleaner to clean the lens surface.
7-7 Projector Lamp (Lamp Unit) Life

It is recommended to replace the projector lamp (lamp unit) promptly to avoid inconveniencing players or other customers. The projector lamp (lamp unit) is a consumable part, and may stop lighting up or the brightness may drop before the lamp reaches the end of its life. The lamp life time noted below is approximate, and is not a guaranteed value.

- **Projector model number: LVP-FD630 (V1)**
  - Lamp life: 5,000 hours
  
  When the lamp reaches the end of its life, the projector stops and the screen goes blank. The game cannot be operated thereafter until the projector lamp (lamp unit) is replaced. In order to avoid this situation, be sure to replace the projector lamp (lamp unit) during the “Replacement time” status noted in the table below.

  * When the lamp reaches the end of its life, the machine stops even if a customer is currently playing a game.

### Behavior when the power switch is turned on

<table>
<thead>
<tr>
<th>Status</th>
<th>Lamp operation time</th>
<th>Screen display after the game PC board is started up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caution urged</td>
<td>3,750 to 4,750 hours</td>
<td>The projector lamp is due for replacement soon.</td>
</tr>
<tr>
<td>Replacement time</td>
<td>4,750 to 5,000 hours</td>
<td>Please replace the projector lamp.</td>
</tr>
<tr>
<td>Operation not possible</td>
<td>5,000 hours or more</td>
<td>The screen is blank and the back lamp is lit up red. (See (2) Projector Errors* on page 90.)</td>
</tr>
</tbody>
</table>

* Until the lamp operation time reaches 5,000 hours, the screen display at game start-up can be skipped until the next start-up by pressing the missile button or squeezing the machine gun button. See “8B-6-1 (2) Replacing the Projector Lamp (Lamp Unit)” on page 143 for the replacement procedure.

- **NOTICE**
  - Use the lamp that is specified by NAMCO BANDAI Games, Inc. Using a non-specified lamp may damage the projector unit.
7-8 24-Hour Continuous Operation

This machine has a maintenance function that automatically restarts the game PC board in order to reduce the load on the game PC board when operating the machine continuously for long times.

* The restart time is approximately 3 minutes.

When operating the machine continuously for long times such as 24-hour operation, refer to "(2) Setting the Maintenance Time (MAINTENANCE TIME SETTING)" on page 47 and set the maintenance time.

* The game PC board automatically restarts (approximately 3 minutes) when Attract mode is entered next after the maintenance time is reached, so set the time to a time period during which there is usually little game play.

**NOTICE**

- There is no need to use this function when the power is turned on and off once or more per day, but set the maintenance time to a time period other than during operating hours to prevent the game PC board from restarting during operating hours.
8. Technician’s Manual – Must be performed by a technician –

※Chapter 8 (page 56 to page 164) of the Operation Manual is for use by service technicians only. The procedures described in these pages must only be performed by qualified service personnel.

8A. Installation and Assembly

8A-1 Assembly

8A-1-1 Assembling the Machine – Must be performed by a technician –

(1) Connecting the Front Assembly and Rear Assembly

⚠️ CAUTION ⚠️

- Be sure to secure sufficient work space.

⚠️ NOTICE ⚠️

- If the door was secured using a cord or rope to restrain it from opening during transport, remove the restraint beforehand so that the door can open and close.

1. Bring the front assembly and rear assembly close to each other.

2. Remove the two Torx bolts (M5 x 12) and remove the side flange guard R. Use the service key to unlock the PCB roof of the front assembly. Remove the five Torx bolts (M5 x 12) and remove the PCB roof.
3. Remove the two flange socket bolts (M3 x 10) from the game PC board and remove the PCB duct.

4. Connect the four connectors from the front assembly side to the connectors of the rear assembly, and lead the two connectors from the rear assembly side into the front assembly.
8A. Installation and Assembly

- Must be performed by a technician -

5 Connect the two connectors led into the front assembly to the connectors on the game PC board panel. Then, insert the USB dongle into the USB 3 slot.

6 Bundle the rear side cables together using the clamps bundling the front side cables.

7 Install the PCB duct and PCB roof by reversing the procedure in steps 2 and 3.
8 Push the front assembly and rear assembly together and use two supplied flange socket bolts (M8 x 16) to temporarily secure the bracket on the rear side of the opened door.

**NOTICE**

- When pushing the front and rear assemblies together, the cover bracket protrusions of the rear assembly may contact the front assembly depending on the floor condition or other factors, so push strongly while being careful not to pinch your hands or other items.

9 Align the base joint on the front assembly side and the bolt holes on the rear assembly side, and use two supplied flange socket bolts (M8 x 16) to temporarily secure the assemblies.
8A. Installation and Assembly

- Must be performed by a technician -

10 Use six supplied flange socket bolts (M8 x 16) to temporarily secure the supplied side joint (L). Then, use six supplied flange socket bolts (M8 x 16) to temporarily secure the supplied side joint (R).

11 Hold the front and rear assemblies together so that there is no gap between the joining surfaces in the location shown in the figure, and fully tighten the twelve flange socket bolts (M8 x 16) temporarily tightened in step 10, the two flange socket bolts (M8 x 16) temporarily tightened in step 9, and the two flange socket bolts (M8 x 16) temporarily tightened in step 8.
8A. Installation and Assembly

- Must be performed by a technician –

(2) Removing the Rear Joint Frame

Remove the six flange socket bolts (M8 x 16), and remove the rear joint frame.

**NOTICE**
- The rear joint frame is a required part during disassembly and transportation, so be sure to keep it together with the bolts in a safe place.

![Diagram of Rear Joint Frame]

(3) Installing the Molded Covers

1. Use four supplied Torx bolts (black) (M5 x 12) to install the supplied lower side cover (L).

![Diagram of Molded Covers]
2. Use four supplied Torx bolts (black) (M5 x 12) to install the supplied lower side cover (R).

3. Hook the slot at the top of the supplied side cover (L) onto the hook, then install the side cover (L) and secure it using five supplied Torx bolts (silver) (M5 x 12) and two flat washers (Ø5 x 16). Perform the same procedure to also install the side cover (R).
(4) Level Adjuster Adjustment

1. After the machine has been installed in accordance with “5-1 Installation Conditions” on page 16, lower the seven level adjusters until the casters are at a height of approximately 5 mm from the floor.
8A. Installation and Assembly

(5) Installing the Projector Unit

**CAUTION**

- The projector unit weighs approximately 10 kg. Be very careful when performing installation.

**NOTICE**

- The projector unit packing materials are used when moving and transporting the projector unit, so do not dispose of these materials.

1. Remove the two flange button bolts (M4 x 10) from both sides of the projector cover.

2. Use the service key to unlock and open the projector cover.

3. Open the front lid upward and lock it in place. (When the front lid is opened up all the way, it automatically locks in place.)
4 Remove the projector unit from the packing box, hold it by the handles with the lens facing downward, and hook the handles onto the fixtures on both sides of the projector case.

**NOTICE**
- Be very careful not to bump the lens part.
- Install the projector unit with the same serial number as the rear assembly. If a projector unit with a different serial number is installed, the video position on the dome screen may be offset. The position of the serial number sticker differs for each model as shown in the figure.

(LVP-FD630 (V1))
8A. Installation and Assembly

- Must be performed by a technician -

5. Connect the three connectors to the projector.

6. Lift up the projector unit and push it back into the projector case, being careful not to pinch the cables. Then, hook the front side of the handles onto the fixtures to secure the projector unit.
8A. Installation and Assembly

8. Use two supplied flange socket bolts (M6 x 14) to secure the projector unit to the fixtures on both sides of the projector case.

9. Remove the lens cap and secure it in the position shown in the figure to avoid losing it. (A hook-and-loop fastener is attached to the lens cap.)
10. Close the front lid and projector cover by reversing the procedure. Support the front lid with your right hand and press the lock with the finger of your left hand to release the lock.

![Lock (Push to release)](image_url)

**NOTICE**
- Be careful not to touch the projector lens with your bare hands. Fingerprints or other dirt may prevent images from being projected properly.
(6) Installing the POP Display

**CAUTION**

- Removing the POP display requires standing at an elevated height. Prepare an appropriate footstool and be careful when working. Working in an unnatural body posture may result in injury or machine damage.

1. Remove the POP display from the packing box. The POP display is folded in half, so very carefully unfold the POP display and place it so that the POP surface is facing upward.

**NOTICE**

- Spread out a sheet or take other measures to prevent the POP display from becoming dirty before unfolding the POP display.

2. Secure the POP display to the POP bracket with four Torx bolts (silver) (M5 x 8) and four flat washers (Ø25 x Ø5.5).

Secure with screws from the front surface of the POP display.
Secure the POP bracket to the rear assembly with two Torx bolts (silver) (M5 x 12).
(7) Installing the POP Light Assembly

**CAUTION**

- Removing the POP light assembly requires standing at an elevated height. Prepare an appropriate footstool and be careful when working. Working in an unnatural body posture may result in injury or machine damage.

1. Remove the POP light assembly from the packing box, then remove the three Torx bolts (silver) (M5 x 12) and remove the POP light cover.

2. Remove the three LED lights from the packing box and install them.

**NOTICE**

- When installing the LED lights, be sure to carefully align the socket and pin positions and insert the LED lights securely. (The lights do not have a polarity.)
3. Install the previously removed POP light cover with three Torx bolts (M5 x 12).

4. Lift up the POP light assembly to the top of the rear assembly and connect the connector.

**NOTICE**

- When lifting up the POP light assembly to the top of the rear assembly, hold the POP light assembly with the LED lights facing upward and do not subject it to strong impact. Otherwise the LED lights may fall out.

5. Secure the POP light assembly with four Torx bolts (silver) (M5 x 12).
8A-2 Power Supply and Other Connections and Preparations

8A-2-1 Connecting the Power Cord and Ground

⚠️ WARNING

- Connect the ground wire of the 3P plug to the ground. Failure to connect the ground wire may result in electric shock in the event of electrical leakage.
- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

⚠️ CAUTION

- Lay out the LAN cable and power cord safely so that they will not cause players, bystanders or passersby to trip over them.

⚠️ NOTICE

- Use the supplied power cord. When there is no supplied power cord, use a power cord that matches the region where the machine is used.
- When laying the power cord on the floor, it is recommended to use commercially available cable molding to protect the power cord.
- When laying the power cord on the floor, be sure to arrange the power cord safely so that passersby do not trip over it.
- Connect the power cord with sufficient leeway so that it is not excessively bent and there is no tension applied.
- Be sure to fully insert the power cord plug into the outlet.

(1) In case of a 3P outlet

Insert the power cord plug into the outlet.
8A. Installation and Assembly

- Must be performed by a technician -

(2) Connecting the power cord to the machine

1. Insert the supplied power cord clamp above the power supply inlet.

2. Connect the power cord plug to the power supply inlet of the machine, then secure it with the clamp as shown in the figure below to prevent accidental disconnection.

To Purchase This Item, Visit BMI Gaming | www.bmigaming.com | (800) 746-2255 | +561.391.7200
8A-2-2 Connecting the LAN Cable

* This task is not required for U.S. and European specifications.

**WARNING**
- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

**CAUTION**
- Lay out the LAN cable so that it will not cause players, bystanders or passersby to trip over it.

1. Insert the supplied LAN cable clamp into the position shown in the figure.
2. Secure the LAN cable with the clamp.

**NOTICE**
- To avoid damage to the electronic circuits, be sure to turn off the power switch before connecting the LAN cable. (See “8A-2-3 Turning the Power Switch On” on page 77.)
- When laying the LAN cable on the floor, it is recommended to use commercially available cable molding to protect the cable.
- Failure to observe the following instructions may result in communication trouble and prevent proper game play. Be sure to connect the LAN cable correctly according to the instructions.
  - A disconnected LAN cable may result in communication trouble. When laying the LAN cable on the floor, be sure to arrange the cable so that passersby do not trip over it.
  - Do not bundle the LAN cable with power cords or pass it through the same cable molding as power cords.
  - Connect the LAN cable with sufficient leeway so that it is not excessively bent and there is no tension applied.
  - After connecting the LAN cable to the machine, secure it with the clamp.
8A. Installation and Assembly

- Must be performed by a technician -

(1) Connection diagram

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

Refer to the figure below and connect the LAN cable connected to the cabinet assembly to an NBLINE router and connected to NBLINE or to an open port of an NBLINE compatible switching hub.

* The connection work required for network communication differs according to the conditions of the installation location. Therefore, this Operation Manual only describes an outline of the connections.

For inquiries regarding individual support at each installation location, contact your distributor.

**WARNING**

- Be careful not to let the machine’s sheet metal or other objects damage the cables extending from the machine.

**NOTICE**

- Careless network system installation or other work makes networks susceptible to hacking and can result in communication errors, lost data and other trouble.

  In consideration of recovery in case of trouble and taking countermeasures to prevent hacking, it is recommended to commission this installation and other related work to professionals.

- Use commercially available cord protectors to protect the LAN cable so that players and other customers do not interfere with or trip over it.
8A-2-3 Turning the Power Switch On

**NOTICE**

- When turning the power off and then on again, do not turn the power back on immediately, and be sure to observe the following condition.
  - When using the system power switch
    Turn off the switch, wait for 30 seconds or more, and then turn on the switch again.
  - When using the main power switch
    It takes time to restart the projector, so wait 10 minutes or more after turning off the main power switch before turning it back on.

- When the main power switch is turned off, it takes time to restart the projector. Therefore, when possible use the system power switch to turn off the power.

1. Turn on the main power switch.
2. Use the service key to unlock and open the service door inside the machine, and check that the system power switch inside the service door is set to ON.
8A-2-4 Setting the Maintenance Time

This machine has a function that automatically restarts the game PC board in order to reduce the load on the game PC board when operating the machine continuously for long times. At the default this maintenance time is set to AM7:00 UTC (coordinated universal time), so refer to “(2) Setting the Maintenance Time (MAINTENANCE TIME SETTING)” on page 47 and change the setting to a time that will have little effect even if the game PC board is restarted during the shop operating hours.

* It is recommended to set this maintenance time to a time other than during operating hours.
8A-3 Post-Installation Checks

☐ Has the machine been installed in conformance with the installation conditions? (See “5-1 Installation Conditions” on page 16.)
☐ Are the power capacity conditions met?
☐ Has the ground wire been installed?
☐ Has the power cord been installed using cable molding or other means so that players and other customers do not trip over it?
☐ Are images projected over the entire dome screen (all the way to the edges)? (See “8B-6-2 Adjusting the Projector Position” on page 155.)
8A-4 Disassembly (When the Delivery Route has a Low Ceiling)

8A-4-1 Removing the Top Cover – Must be performed by a technician –

The height after the top cover is removed is 2,060 mm.

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the main power switch before starting this task.

**CAUTION**

- Removing and installing the top cover requires standing at an elevated height. Prepare an appropriate footstool and be careful when working. Working in an unnatural body posture may result in injury or machine damage.

1. Remove the four Torx bolts (M5 x 12), disconnect the connector and remove the POP light. (In factory-shipped condition the POP light is removed, so this step is not necessary.)
2. Remove the six Torx bolts (silver) (M5 x 8) and six flat washers (ø16 x ø5), and remove the acrylic panel.

3. Remove the ten Torx bolts (M5 x 12) and the flat washer (ø16 x ø5) and remove the top cover.
4. Disconnect the connector of the LED module (white).

5. Loosen the upper two hexagon socket head bolts (with flat and spring washers) (M6 x 16), and remove the lower two hexagon socket head bolts (with flat and spring washers) (M6 x 16). Remove the two Torx bolts (silver) (M5 x 12), and remove the top cover.

To install, perform the procedure in reverse.
8B. Service

⚠️ WARNING ⚠️

- In order to avoid electric shock, accident or injury to yourself or other people, be sure to turn off the power switch before performing service work (such as repairs or correcting malfunctions).
- Sections of the projector remain at a high temperature and high voltage even after the power switch is turned off. To avoid electric shock or burns, be very careful not to accidentally touch these sections.

8B-1 Inspection and Service

⚠️ WARNING ⚠️

- Perform periodic service. Failure to perform service may result in an accident.
- Perform the pre-operation inspection every day. This is required to prevent accidents. (See “7-1 Pre-operation Inspection” on page 25.)

8B-1-1 Points for Inspection – Must be performed by a technician –

Periodically check the following inspection points for any abnormalities.

1. Level Adjuster Inspection
   - Check that the level adjusters are fixed securely. (See “8A-1-1 (4) Level Adjuster Adjustment” on page 63.)

2. Projector Inspection
   - Check that images are projected properly from the projector.
   - Check that the projection range of the projector matches the screen position. (See “8B-6-2 Adjusting the Projector Position” on page 155.)
   - Check the projector installation and adjustment screws for loose screws. Fully retighten any loose screws.

3. Power Cord Plug Inspection
   - Check that the power cord plug is firmly inserted into the power supply input socket in the machine's cord box and an outlet.
   - Clean any dust or dirt from the connection parts.
   - Check for cracks or dirt on the power cord covering. If there is any abnormality on the power cord, be sure to replace it.

4. Screw Looseness Inspection
   - Check the following parts for loose screws. Fully retighten any loose screws.
     - Throttle lever assembly and control lever assembly fixing screws (See “8B-5-1 (6) Replacing and Installing the Control Lever Assembly” on page 103.)
     - Lever grip A and lever grip B fixing screws (See “8B-5-1 (8) Replacing the Control Lever Switch (Micro Switch)” on page 106.)
(5) Greasing the Lever Assemblies

- Clean off the old grease every six months and apply fresh silicon grease (Shin-Etsu Chemical Co., Ltd G-40M or equivalent product) to the stainless steel part, spring stopper and shaft. Also reapply grease when the lever operation becomes stiff. (See “8B-5-1 (12) Replacing the Spring or Spring Stopper” on page 113.)
## 8B-2 Troubleshooting

### 8B-2-1 Machine – Must be performed by a technician –

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Main cause</th>
<th>Solution</th>
<th>Reference page</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The machine does not start.</td>
<td>• The USB dongle is not inserted.</td>
<td>• Insert the USB dongle.</td>
<td>Page 94</td>
</tr>
<tr>
<td></td>
<td>• The system power switch is set to OFF.</td>
<td>• Set the system power switch to ON.</td>
<td>Page 30</td>
</tr>
<tr>
<td></td>
<td>• A game PC board malfunction</td>
<td>• Contact your distributor.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• A USB dongle malfunction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Operation is not stable or the machine operates incorrectly.</td>
<td>• The power supply voltage is not within the range of</td>
<td>• Disconnect any high-capacity devices (such as an air conditioner or large machine) from the same line to secure the specified power supply voltage.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10 V.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The power turns off during operation.</td>
<td>• The fuse has burned out.</td>
<td>• Replace with a new fuse of the specified capacity. If the fuse burns out frequently, there is a mechanical abnormality.</td>
<td>Page 137</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contact your distributor.</td>
<td></td>
</tr>
<tr>
<td>• There is no sound coming from the speakers.</td>
<td>• The volume setting is low.</td>
<td>• Set the appropriate volume.</td>
<td>Page 42</td>
</tr>
<tr>
<td>• There is no sound coming from the main speakers or sound is not coming from the correct speaker (side, seat, woofer).</td>
<td>• The sound connectors are not connected correctly.</td>
<td>• Refer to the Operation Manual and connect the connectors correctly.</td>
<td>Page 94</td>
</tr>
</tbody>
</table>
### 8B-2-2  Projector Assembly  – Must be performed by a technician –

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Main cause</th>
<th>Solution</th>
<th>Reference page</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Images are not displayed.</td>
<td>• A projector unit connector is disconnected.</td>
<td>• Insert the connector securely.</td>
<td>Page 66</td>
</tr>
<tr>
<td>• Images are not displayed correctly.</td>
<td>• An abnormality in some of the projector settings.</td>
<td>• Contact your distributor</td>
<td>—</td>
</tr>
<tr>
<td>• The screen display is flipped vertically or horizontally.</td>
<td>• The projector assembly is a factory shipped part or repair part, and initialization when the projector is started up for the first time is not yet complete.</td>
<td>• Wait until the projector starts up.</td>
<td>—</td>
</tr>
<tr>
<td>• The image is out of focus.</td>
<td>• The projector unit lens or lens cover is dirty.</td>
<td>• Clean the projector unit lens and lens cover.</td>
<td>Page 52</td>
</tr>
<tr>
<td>• The image is dark.</td>
<td>• The brightness and contrast are not adjusted properly.</td>
<td>• Adjust the brightness and contrast.</td>
<td>Page 159</td>
</tr>
<tr>
<td>• The color appears faded or the hue is poor.</td>
<td>• The red, green and blue levels are not adjusted properly.</td>
<td>• Adjust the red, green and blue levels.</td>
<td>Page 159</td>
</tr>
<tr>
<td></td>
<td>• The dome screen is dirty.</td>
<td>• Clean the dome screen.</td>
<td>Page 52</td>
</tr>
<tr>
<td>• The remote controller does not function.</td>
<td>• The remote controller batteries have run down.</td>
<td>• Replace the remote controller batteries.</td>
<td>Page 159</td>
</tr>
<tr>
<td></td>
<td>• The projector unit lamp operation time is nearing the end of the lamp life.</td>
<td>• Replace the projector unit lamp.</td>
<td>Page 143</td>
</tr>
<tr>
<td>• The remote controller batteries are not installed correctly.</td>
<td>• The remote controller batteries are not installed correctly.</td>
<td>• Install the remote controller batteries correctly.</td>
<td>—</td>
</tr>
<tr>
<td>• The remote controller is not pointed at the photosensor of the projector unit.</td>
<td>• The remote controller is not pointed at the photosensor of the projector unit.</td>
<td>• Point the remote controller at the photosensor of the projector unit when operating it.</td>
<td>Page 160</td>
</tr>
</tbody>
</table>
### Troubleshooting

#### 8B. Service

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Main cause</th>
<th>Solution</th>
<th>Reference page</th>
</tr>
</thead>
<tbody>
<tr>
<td>“LAMP EXCHANGE” is displayed on the left edge of the dome screen.</td>
<td>The projector lamp is nearing the end of its life.</td>
<td>When the lamp operation time exceeds 4,750 hours, this message is displayed once every 25 hours for approximately one minute and then disappears.</td>
<td>Page 54 Page 144</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The lamp will no longer light when the lamp operation time reaches 5,000 hours, so be sure to prepare a replacement lamp and replace the projector lamp when this message appears.</td>
<td></td>
</tr>
</tbody>
</table>

#### 8B-2-3 Throttle and Control Lever Assemblies

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Main cause</th>
<th>Solution</th>
<th>Reference page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The lever does not function.</td>
<td>The analog interface has not been initialized.</td>
<td>Initialize the analog interface.</td>
<td>Page 36</td>
</tr>
<tr>
<td></td>
<td>A connector is disconnected.</td>
<td>Insert the connector securely.</td>
<td>Page 103</td>
</tr>
<tr>
<td></td>
<td>An analog interface malfunction.</td>
<td>Replace the analog interface.</td>
<td>Page 104</td>
</tr>
<tr>
<td>A button switch does not function.</td>
<td>A connector is disconnected.</td>
<td>Insert the connector securely.</td>
<td>Page 103</td>
</tr>
<tr>
<td></td>
<td>A micro switch malfunction.</td>
<td>Replace the micro switch.</td>
<td>Page 106</td>
</tr>
<tr>
<td>The throttle or control lever movement is stiff.</td>
<td>The silicon grease has become worn (dry).</td>
<td>Apply new silicon grease.</td>
<td>Page 84</td>
</tr>
<tr>
<td>An abnormality in the throttle or control lever neutral range.</td>
<td>The throttle or control lever (analog interface) has not been initialized.</td>
<td>Initialize the throttle or control lever.</td>
<td>Page 36</td>
</tr>
<tr>
<td></td>
<td>The spring stopper has become worn.</td>
<td>Replace the spring stopper.</td>
<td>Page 113</td>
</tr>
</tbody>
</table>
### 8B-2-4 Seat Assembly – Must be performed by a technician –

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Main cause</th>
<th>Solution</th>
<th>Reference page</th>
</tr>
</thead>
<tbody>
<tr>
<td>• There is no sound coming from the seat speakers or the bottom speakers.</td>
<td>• The volume setting is low.</td>
<td>• Set the appropriate volume.</td>
<td>Page 42</td>
</tr>
<tr>
<td>• The connector or Faston terminal is disconnected.</td>
<td>• Insert the connector and Faston terminals securely.</td>
<td></td>
<td>Page 94  Page 99</td>
</tr>
</tbody>
</table>

*Refer to “8B-3 Error Displays” on page 89 for coin errors, “(2) Projector Errors” on page 90 for projector errors.*
## 8B-3 Error Displays  – Must be performed by a technician –

**(1) Error Display**

*If the error display remains on the screen after performing the appropriate solution, set the Test switch to ON and then OFF again to cancel the error display.*

<table>
<thead>
<tr>
<th>Symptom (error code)</th>
<th>Main cause</th>
<th>Solution</th>
<th>Reference page</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 1-1 COIN ERROR 1</td>
<td>• The coin selector is jammed.</td>
<td>• Check the coin selector and resolve the trouble.</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>• A coin selector malfunction.</td>
<td>• Replace the coin selector.</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>• An abnormality in the harness around the coin selector.</td>
<td>• Contact your distributor.</td>
<td>—</td>
</tr>
<tr>
<td>• 1-2 COIN ERROR 2</td>
<td>• A Service switch malfunction.</td>
<td>• Replace the Service switch.</td>
<td>Page 30</td>
</tr>
<tr>
<td></td>
<td>• An abnormality in the harness around the Service switch.</td>
<td>• Contact your distributor.</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>• A NA-JV(S) PC board malfunction.</td>
<td>• Replace the NA-JV(S) PC board.</td>
<td>Page 97</td>
</tr>
<tr>
<td>• 1-3 COIN ERROR 3</td>
<td>• Coin counter is not connected.</td>
<td>• Connect the harness of the coin counter.</td>
<td>—</td>
</tr>
<tr>
<td>• 3-1 NOT CONNECT I/O-PCB</td>
<td>• A NA-JV(S) PC board malfunction.</td>
<td>• Replace the NA-JV(S) PC board.</td>
<td>Page 97</td>
</tr>
<tr>
<td></td>
<td>• The USB cable is not connected.</td>
<td>• The USB cable is not connected correctly.</td>
<td>Page 93</td>
</tr>
<tr>
<td>• 3-3 I/O ERROR 3</td>
<td>• The NA-JV(S) PC board connection is disconnected.</td>
<td>• The USB cable is not connected correctly.</td>
<td>Page 94</td>
</tr>
<tr>
<td>• 5-1 ERROR</td>
<td>• Network connection failed.</td>
<td>• Check the network cable connection.</td>
<td>Page 91</td>
</tr>
<tr>
<td>• 8-1 CAMERA ERROR</td>
<td>• The camera unit is not inserted correctly into the game PC board.</td>
<td>• Check that the camera unit USB is inserted into the game PC board correctly.</td>
<td>Page 94</td>
</tr>
<tr>
<td></td>
<td>• A camera unit malfunction.</td>
<td>• Contact your distributor.</td>
<td>—</td>
</tr>
<tr>
<td>• 19-21 USB DONGLE ERROR (INVALID DONGLE)</td>
<td>• A different USB dongle than that specified is connected to the game PC board.</td>
<td>• Connect a USB dongle that matches the specifications of the cabinet.</td>
<td>Page 58</td>
</tr>
<tr>
<td>• 19-22 USB DONGLE ERROR (NO DONGLE)</td>
<td>• The USB dongle is not inserted correctly to the game PC board.</td>
<td>• Insert the USB dongle securely.</td>
<td>Page 58</td>
</tr>
<tr>
<td></td>
<td>• A USB dongle malfunction.</td>
<td>• Contact your distributor.</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>• A game PC board malfunction.</td>
<td>• Replace the game PC board.</td>
<td>Page 92</td>
</tr>
<tr>
<td>• 19-23 USB DONGLE ERROR (IO ERROR)</td>
<td>• A service USB dongle malfunction.</td>
<td>• Contact your distributor.</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>• A game PC board malfunction.</td>
<td>• Replace the game PC board.</td>
<td>Page 92</td>
</tr>
<tr>
<td>• 20-1 VERSION UP ERROR - FAILED</td>
<td>• Version update failed.</td>
<td>• Replace the version update USB dongle.</td>
<td>—</td>
</tr>
<tr>
<td>• 20-2 VERSION UP ERROR - NO FILE</td>
<td>• Version update failed.</td>
<td>• Insert the version update USB dongle.</td>
<td>—</td>
</tr>
<tr>
<td>• 22-1 ERROR</td>
<td>• Offline operation time exceeded.</td>
<td>• Connect the network cable.</td>
<td>Page 94</td>
</tr>
<tr>
<td>• 22-2 ERROR</td>
<td>• Acquisition of game cost information failed.</td>
<td>• Contact your distributor.</td>
<td>—</td>
</tr>
<tr>
<td>• 99-1 SYSTEM ERROR</td>
<td>• A game PC board malfunction.</td>
<td>• Replace the game PC board.</td>
<td>Page 92</td>
</tr>
</tbody>
</table>
(2) Projector Errors

When the projector lamp has burned out, the back lamp lights up red.
When the screen is blank and the back lamp is not lit up red, there may be a problem with the projector.
Request a technician to solve the problem.

* If the error display remains on the screen after performing the appropriate solution, set the Test switch to ON and then OFF again to cancel the error display.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Main cause</th>
<th>Solution</th>
<th>Reference page</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The screen is blank and the back lamp is lit up red.</td>
<td>• The projector lamp is nearing the end of its life.</td>
<td>• Replace the lamp.</td>
<td>Page 143</td>
</tr>
<tr>
<td>• The screen is blank and the back lamp is not lit up red.</td>
<td>• The lamp has become hot making it difficult to light.</td>
<td>• Turn off the projector power, wait a bit, then turn on the power again. If allowing the lamp to cool does not resolve the problem, replace the lamp.</td>
<td>Page 143</td>
</tr>
<tr>
<td>• The inside of the projector has become hot.</td>
<td>• Turn off the power and clean the projector filters, then turn on the power again.</td>
<td></td>
<td>Page 53, 150</td>
</tr>
<tr>
<td>• The projector lamp outer cover is open.</td>
<td>• Turn off the power and install the projector lamp outer cover properly.</td>
<td></td>
<td>Page 144</td>
</tr>
<tr>
<td>• The projector main power is off.</td>
<td>• Turn on the projector main power.</td>
<td></td>
<td>Page 148</td>
</tr>
<tr>
<td>• The connectors of the cables connecting the projector and the game PC board are disconnected.</td>
<td>• Insert the projector connectors and the video and projector connectors on the game PC board side securely.</td>
<td></td>
<td>Page 66, 94</td>
</tr>
<tr>
<td>• A projector malfunction.</td>
<td>• Contact your distributor.</td>
<td></td>
<td>—</td>
</tr>
<tr>
<td>• A projector cooling fan malfunction.</td>
<td>• Contact your distributor.</td>
<td></td>
<td>—</td>
</tr>
</tbody>
</table>
8B-4 Network Trouble

When using the online version of the software with the machine not connected to the network, some limits are applied even if there are no mechanical abnormalities.

- When not connected to NBLINE for a long time
  This machine requires a connection to the network (NBLINE) to operate. (*1)
  When communication trouble or other trouble occurs in the network connection, the machine operates in offline mode.
  The machine can be operated for 240 hours (10 days) (*2) in the offline condition to enable game play even when network trouble occurs.
  However, when this time limit is exceeded, new games cannot be played.
  In this case, “22-1 ERROR” is displayed on the screen. (When the limit of 240 hours (10 days) is exceeded during game play, game play can continue until the game is over.)
  To enable game play again, resolve the network trouble and connect to NBLINE. (*3)

- 1 The network connection status can be checked in Test mode. (See “7-4-9 NETWORK STATUS” on page 48.)
- 2 The remaining offline operation time can be checked in Test mode. (See “7-4-9 NETWORK STATUS” on page 48.)
- 3 Refer to the error display for network troubleshooting. (See “8B-3 Error Displays” on page 89.)

When trouble occurs in the network connection, “MS” appears in the upper left corner of the Attract screens.
8B. Service

 Removing and Installing Assemblies and Parts

8B-5-1 Machine – Must be performed by a technician –

(1) Removing and Installing the Game PC Board – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Turn off the main power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)

2. Remove the two Torx bolts (M5 x 12) and remove the side flange guard R. Use the service key to unlock the PCB roof of the front assembly. Remove the five Torx bolts (M5 x 12), and remove the PCB roof.
3. Remove the two flange socket bolts (M3 x 10) from the game PC board and remove the PCB duct. Then, remove the two Phillips pan head screws (with flat and spring washers) (M3 x 6) from the PCB duct and attach them to the game PC board.

4. Disconnect the power cord, Faston terminal, USB dongle and 14 connectors connected to the game PC board and open the two clamps.
- Must be performed by a technician -

- When installing, follow the indications on the game PC board and connect the connectors correctly.

5. Remove the two Phillips pan head screws (with flat and spring washers) (M5 x 12).
6. Remove the game PC board.

Use the handles as guides and hold the game PC board firmly with both hands when removing and installing the game PC board.

Be very careful of the sheet metal and heat sink edges and other sharp locations.

Be very careful of the sheet metal and heat sink edges and other sharp locations.

Be careful not to injure yourself on the electronic parts or sheet metal inside the Station.

NOTE Be careful not to damage the 5.1CH AMP PC board when removing and installing the game PC board.
7 Remove the ten Phillips pan head screws (with flat and spring washers) (M4 x 10) and remove the ES3 (X) base A, ES3 (X) base B and NA-JV (S) PC board.

![Diagram of ES3 (X) base A, ES3 (X) base B, NA-JV (S) PC board, and Game PC board with screws highlighted.]

8 Install the new game PC board by reversing the procedure.

**NOTICE**

- When installing, check the connector orientations and insert the connectors firmly until they lock securely.
- When installing, be careful not to pinch the connectors and harness.
- After replacing the game PC board, be sure to perform initialization. (See “7-4-4 (1) I/F CALIBRATION” on page 36.)
- When assembling, remember to attach the Phillips pan head screws (with flat washer) (M3 x 6) removed from the game PC board to the PCB duct.
(2) Replacing the NA-JV (S) PC Board – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

**NOTICE**

- PC boards are sensitive to static electricity. If a person handles a PC board while charged with static electricity, the parts on the PC board may be damaged. Before handling a PC board, discharge the static electricity from your body. (Example: touching the surface of grounded metal.)

1. Turn off the main power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)

2. Remove the two Torx bolts (M5 x 12) and remove the side flange guard R. Use the service key to unlock the PCB roof of the front assembly. Remove the five Torx bolts (M5 x 12), and remove the PCB roof.

![Diagram of the front assembly with service key and PCB roof highlighted]
Open the two clamps and disconnect the Faston terminal and four connectors connected to the NA-JV (S) PC board.

Remove the five Phillips pan head screws (with flat and spring washers) (M3 x 8) and remove the NA-JV (S) PC board.

To install, perform the procedure in reverse.

- When installing, check the connector orientations and insert the connectors firmly until they lock securely.
- When installing, be careful not to pinch the connectors and harness.
- After replacing the NA-JV(S) PC board, use Test mode to check that there are no I/O problems.
(3) Replacing the 5.1CH AMP PC Board – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

**NOTICE**

- PC boards are sensitive to static electricity. If a person handles a PC board while charged with static electricity, the parts on the PC board may be damaged. Before handling a PC board, discharge the static electricity from your body. (Example: touching the surface of grounded metal.)

1. Turn off the main power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)
2. Remove the two Torx bolts (M5 x 12) and remove the side flange guard R. Use the service key to unlock the PCB roof of the front assembly. Remove the five Torx bolts (M5 x 12), and remove the PCB roof.
8B. Service

- Must be performed by a technician -

3. Disconnect the six connectors, remove the five Phillips pan head screws (with flat and spring washers) (M3 x 8) and remove the 5.1CH AMP PC board.

To install, perform the procedure in reverse.

- **NOTICE**
  - When installing, check the connector orientations and insert the connectors firmly until they lock securely.
  - When installing, connect the cables so that the harness tag indications match the PCB connector indications (IN1, IN2, IN3).
  - When installing, be careful not to pinch the connectors and harness.
  - After replacing the 5.1CH AMP PC board, use the sound test of Test mode to check the volume.
(4) Removing and Installing the Power Panel Assembly – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Turn off the main power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)

2. Remove the two Torx bolts (M5 x 12) and remove the side flange guard R.
   Remove the four Torx bolts (black) (M5 x 12) and remove the PCB roof case.
   Use the service key to unlock the PCB roof of the front assembly. Remove the five Torx bolts (M5 x 12), and remove the PCB roof. (See steps 2 of “8B-5-1 (1) Removing and Installing the Game PC Board” on page 92.)

3. Loosen the two nuts with washers (M5), then lift up the power panel assembly slightly and pull it forward to remove it.

4. To install, perform the procedure in reverse.
   
   - When installing, check the connector orientations and insert the connectors firmly until they lock securely.
   - When installing, be careful not to pinch the connectors and harness.
(5) Replacing the Fan – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Turn off the main power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)

2. Loosen the lower two Torx bolts (black) (M5 x 12), remove the upper two Torx bolts (black) (M5 x 12) and remove the fan bracket.

3. Disconnect the connector and Faston tab, remove the two nuts with washers (M4) and remove the fan.

4. To install, perform the procedure in reverse.

**NOTICE**

- When installing the fan, orient it so that it blows air from the outside to the inside of the cabinet.

- When installing, check the connector orientation and insert the connector firmly until it locks securely.

- When installing, be careful not to pinch the connectors and harness.
(6) Replacing and Installing the Control Lever Assembly – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)
2. Remove the four Torx bolts (black) (M5 x 12) and lift up the control lever assembly.
3. Disconnect the connector and replace the control lever assembly.

4. To install, perform the procedure in reverse.

**NOTICE**

- When installing, check the connector orientations and insert the connectors firmly until they lock securely.
- When installing, be careful not to pinch the connectors and harness.
- After replacement, be sure to perform initialization. (See “7-4-4 (1) IIF CALIBRATION” on page 36.)
(7) Replacing the Control Lever Analog Interface – Must be performed by a technician –

**WARNING**

In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)

2. Remove the control lever assembly. (See “8B-5-1 (6) Replacing and Installing the Control Lever Assembly” on page 103.)

3. Remove the four cap bolts (with spring washer) (M5 x 35) and remove the guide plate.

4. Remove the two Phillips pan head screws (M3 x 20) and remove the analog interface.

5. Remove the analog interface from the analog interface bracket.

6. Replace the analog interface.

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X-axis analog interface

- Phillips pan head screw (M3 x 20)
- Control lever assembly

Y-axis analog interface

- Cap bolt (with spring washer) (M5 x 35)
- Guide plate

Analog interface

- Analog interface bracket
- Flat washer
- Spring washer
- Hexagonal nut (Do not over-tighten)

Analog interface bracket

- Analog interface spacer

Analog interface spacer

- Cross sectional view of analog interface portion

Analog interface terminal 1

- Wiring color: White and red
- Wiring color: White and black

Analog interface terminal 2

- Wiring color: White and green
- Wiring color: White and blue

Analog interface terminal 3

- Wiring color: White and red
- Wiring color: White and blue

Heat-shrinkable tube
To install, perform the procedure in reverse.

\[\text{NOTICE}\]

- When installing the analog interface, align the flat surface of the analog interface shaft with the position of the D-shaped hole.

- After replacement, be sure to perform initialization. (See “7-4-4 (1) I/F CALIBRATION” on page 36.)

- When installing, be careful not to pinch the harness in the lever moving parts.
(8) Replacing the Control Lever Switch (Micro Switch) – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)
2. Remove the control lever assembly. (See “8B-5-1 (6) Replacing and Installing the Control Lever Assembly” on page 103.)
3. Lower the rubber cover until the screw is visible.

4. Remove the two button bolts (with spring washer) (M4 x 8) and the button bolt (with spring washer) (M4 x 30) and remove the lever grip A.

**NOTICE**

- Be sure not to remove the button bolt (with spring washer) (M4 x 8) on the top of the lever clip A to keep the machine gun button installed.
5. Remove the four special Phillips pan head screws (M2.3 x 12), four spring washers and the
Phillips pan head screw (with flat and spring washers) (M4 x 8), and remove the switches and
clamps.

6. Melt the solder of the micro switch terminals and replace the micro switch.
* Be careful not to disconnect the contacts crimped onto the wiring.

**NOTICE**
- When installing, be careful not to pinch the harness.
- Be very careful when handling the soldering iron.
- When soldering the wiring to the micro switch, be careful not to mix up the
  combinations of wiring colors and terminals.
- Be sure to insert the control lever metal part B below the switch (for machine gun
  button).
8B. Service

- Must be performed by a technician -

7 To install, perform the procedure in reverse.

Arrange the cable by wrapping it around the shaft one time in the clockwise direction starting from the analog interface side.

Arrange the cable along the side surface of the square pipe.

After replacement, be sure to perform initialization. (See “7-4-4 (1) I/F CALIBRATION” on page 36.)
Replacing the Lever Switch (Machine Gun Button) – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)

2. Remove the control lever assembly. (See “8B-5-1 (6) Replacing and Installing the Control Lever Assembly” on page 103.)

3. Disassemble the lever grip. (See steps 3 and 4 of “8B-5-1 (8) Replacing the Control Lever Switch (Micro Switch)” on page 106.)

4. Remove and replace the machine gun button and machine gun button spring.

5. To install, perform the procedure in reverse. (See steps 3 and 4 of “8B-5-1 (8) Replacing the Control Lever Switch (Micro Switch)” on page 106.)

**NOTICE**

- After replacement, be sure to perform the I/O test for each switch. (See “7-4-4 (2) SWITCH TEST” on page 37.)
(10) Replacing the Lever Switch (Missile Button) – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)

2. Remove the control lever assembly. (See “8B-5-1 (6) Replacing and Installing the Control Lever Assembly” on page 103.)

3. Disassemble the lever grip. (See steps 3 and 4 of “8B-5-1 (8) Replacing the Control Lever Switch (Micro Switch)” on page 106.)

4. Remove and replace the missile button and missile button spring.

5. To install, perform the procedure in reverse. (See steps 3 and 4 of “8B-5-1 (8) Replacing the Control Lever Switch (Micro Switch)” on page 106.)

**NOTICE**

- After replacement, be sure to perform the I/O test for each switch. (See “7-4-4 (2) SWITCH TEST” on page 37.)
(11) Replacing the Control Lever Vibration Motor – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)
2. Remove the control lever assembly. (See “8B-5-1 (6) Replacing and Installing the Control Lever Assembly” on page 103.)
3. Remove the button bolt (with spring washer) (M4 x 30) and two cap bolts (with spring washer) (M3 x 30) and remove the motor cover.

4. Disconnect the connector, remove the Phillips pan head screw (with flat and spring washers) (M3 x 6) and remove the vibration motor, ferrite core and core spacer.
8B. Service

- Must be performed by a technician -

5 Rotate the weight, remove the two Phillips pan head screws (M2.3 x 2.5) and remove the vibration motor. Replace with a new vibration motor by reversing the procedure.

6 Wind the harness of the new vibration motor around the ferrite core one time, attach the core spacer to the ferrite core, and install the vibration motor, ferrite core and core spacer to the lever base B.

7 To install, perform the procedure in reverse.
(12) Replacing the Spring or Spring Stopper – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)
2. Remove the control lever assembly or the throttle lever assembly. (See “8B-5-1 (6) Replacing and Installing the Control Lever Assembly” on page 103.)
3. Remove the E-ring, spring end, spring and spring stopper.

   - **Control lever**
     - Stainless steel part
     - Shaft
     - Spring stopper
     - Spring
     - Spring end
     - E-ring

4. Replace the spring or spring stopper.

   - **NOTICE**
     - Apply silicon grease (Shin-Etsu Chemical Co., Ltd G-40M or equivalent product) to the spring or spring stopper.

5. To install, perform the procedure in reverse.

   - **NOTICE**
     - When installing, be careful not to pinch the harness in the lever moving parts.
     - After replacement, be sure to perform initialization. (See “7-4-4 (1) I/F CALIBRATION” on page 36.)
8B. Service

(13) Replacing the Rubber Cover – Must be performed by a technician –

**WARNING**

● In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)
2. Remove the control lever assembly. (See “8B-5-1 (6) Replacing and Installing the Control Lever Assembly” on page 103.)
3. Remove the grips A and B of the control lever assembly. (See steps 3 to 5 of “8B-5-1 (8) Replacing the Control Lever Switch (Micro Switch)” on page 106.)
4. Remove the six button bolts (with spring washer) (M4 x 8) and remove the cover fixing frame and rubber cover.

![Diagram of Control Lever Assembly]

5. Replace the rubber cover.
6. To install, perform the procedure in reverse. (See steps 3 to 5 and 7 of “8B-5-1 (8) Replacing the Control Lever Switch (Micro Switch)” on page 106.)

**NOTICE**

● Arrange the cable by wrapping it around the shaft one time in the clockwise direction starting from the analog interface side.
● Arrange the cable along the side surface of the square pipe.
● After replacement, be sure to perform initialization. (See “7-4-4 (1) I/F CALIBRATION” on page 36.)
Replacing the Lever Sub-assembly – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)
2. Remove the control lever assembly. (See “8B-5-1 (6) Replacing and Installing the Control Lever Assembly” on page 103.)
3. Remove the grips A and B of the control lever assembly. (See steps 3 to 5 of “8B-5-1 (8) Replacing the Control Lever Switch (Micro Switch)” on page 106.)
4. Remove the rubber cover. (See steps 4 to 5 of “8B-5-1 (13) Replacing the Rubber Cover” on page 114.)
5. Remove the four cap bolts (with spring washer) (M5 x 35) and remove the guide plate.
8B. Service

- Must be performed by a technician -

6. Remove the two Phillips pan head screws (M3 x 20) and remove the X-axis and Y-axis analog interfaces (two screws each).

7. Remove the two Phillips pan head screws (with spring washer) (M5 x 14) and remove the clamp base.

8. Loosen the clamp and remove the grip harness.

9. Remove the two Phillips pan head screws (with spring washer) (M5 x 14) and remove the lever sub-assembly from the installation plate.

Be careful as the four corner nuts (M5) may fall out when removing the cap bolts.
10 Use pliers or another tool to remove the E-ring, spring stopper, spring, spring end and stainless steel plate.

*The spring stopper, spring, spring end and E-ring are reused. (The stainless steel plate is not used.)

11 Remove the four cap bolts (with spring washer) (M5 x 35) of the new lever sub-assembly, and remove the guide plate.

Be careful as the four corner nuts (M5) may fall out when removing the cap bolts.
8B. Service

**- Must be performed by a technician -**

12. Attach the new lever sub-assembly to the installation plate by performing the step 9 procedure in reverse.

At this time attach the new lever sub-assembly so that the screw holes in the shaft of the new lever sub-assembly face the folded-back portion of the installation plate (the direction of the arrows), and the analog interface installation holes (without fixture) and positions where fixtures are mounted are as shown in the figure below.

![Diagram of installation plate and lever sub-assembly](image)

Make sure that the four corner nuts (M5) are properly inserted before assembly.

13. Apply silicon grease (Shin-Etsu Chemical Co., Ltd G-40M or equivalent product) to the stainless steel plate and shaft portion of the new lever sub-assembly.

![Diagram of silicon grease application](image)

14. Install the spring stopper, spring and spring end removed in step 10 by reversing the procedure in step 10 and secure them with the E-ring.

![Diagram of spring stopper and components](image)
15 Install the analog interfaces and harness by reversing the procedure in steps 6 to 8.

- When installing, be careful not to pinch the harness in the moving parts.
- When installing the analog interface, align the flat surface of the analog interface shaft with the position of the D-shaped hole.

Flat surface of the analog interface shaft
8B. Service

- Must be performed by a technician -

16 Arrange the grip harness as shown in the figure below.

**NOTICE**

- Arrange the grip harness by wrapping it around the shaft one time in the clockwise direction starting from the analog interface side.

17 Use the four cap bolts (with spring washer) (M5 x 35) to install the guide plate removed in step 11.

During assembly the four corner nuts (M5) may rotate loosely so that the bolts do not tighten. In this case use a thin rod or other tool to push the nuts (M5) toward the bolt side.

**NOTICE**

- When installing the guide plate, be careful not to pinch the stainless steel plate.

18 Install the rubber cover. (See steps 4 to 5 of “8B-5-1 (13) Replacing the Rubber Cover” on page 114.)
19 Install the grip. (See steps 3 to 5 and 7 of “8B-5-1 (8) Replacing the Control Lever Switch (Micro Switch)” on page 106.)
Make sure that the grip harness is wired correctly before installing the grip.

20 Pull the rubber cover up to the base of the lever arm.
21 Connect the connector and use four Torx bolts (black) (M5 x 12) to install the control lever. (See “8B-5-1 (6) Replacing and Installing the Control Lever Assembly” on page 103.)

**NOTICE**

- When installing, be careful not to pinch the harness.
- After installation, be sure to perform initialization. (See “7-4-4 (1) I/F CALIBRATION” on page 36.)
(15) Replacing the Throttle Lever Assembly – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)
2. Remove the four Torx bolts (black) (M5 x 12) and lift up the throttle lever assembly.
3. Disconnect the connector.

4. To install, perform the procedure in reverse.

**NOTICE**

- When installing, check the connector orientations and insert the connectors firmly until they lock securely.
- When installing, be careful not to pinch the connectors and harness.
- After installation, be sure to perform initialization.
In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)

2. Remove the throttle lever assembly. (See “8B-5-1 (15) Replacing the Throttle Lever Assembly” on page 123.)

3. Loosen the double point (M4 x 6) and remove the analog interface together with the analog interface bracket.

4. Remove the analog interface from the analog interface bracket.

5. Replace the analog interface.
To install, perform the procedure in reverse.

**NOTICE**

- When installing the analog interface, align the flat surface of the analog interface shaft with the position of the D-shaped hole.

![Flat surface of the analog interface shaft]

- After replacement, be sure to perform initialization. (See “7-4-4 (1) I/F CALIBRATION” on page 36.)
- When installing, be careful not to pinch the harness in the lever moving parts.
Replacing the USB Camera – Must be performed by a technician –

⚠️ **WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

**NOTICE**

- PC boards are sensitive to static electricity. If a person handles a PC board while charged with static electricity, the parts on the PC board may be damaged. Before handling a PC board, discharge the static electricity from your body. (Example: touching the surface of grounded metal.)

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)

2. Remove the four Torx bolts (M5 x 12) and remove the camera box cover.

3. Remove the two nuts with washer (M4) and release the cable clip.
4. Remove the two Phillips pan head screws (with flat and spring washers) (M4 x 10), and remove the camera cover.

5. Remove the connector and the two Phillips pan head screws (M2 x 4) from the camera bracket, then replace the USB camera.

6. To install, perform the procedure in reverse.

**NOTICE**
- After replacement, be sure to perform the camera shooting test. (See “7-4-4 (5) CAMERA TEST” on page 40.)
(a) Replacing the bill validator

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)

2. Open the padlock and remove the lock bar (B).

3. Use the service key to open the door.
4 Disconnect the connector, remove the four bolts and replace the bill validator.

5 To install, perform the procedure in reverse.

(b) Removing the bill validator box

* Perform this task to operate the machine without using the bill validator.

**NOTICE**
- Perform this task before joining the front and rear assemblies.

1 Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)

2 Use the coin door key to open the door, and remove the four flange socket bolts (M8 x 12) from the inside of the coin box and the two flange socket bolts (M8 x 12) from inside the hole on the side of the base.
8B. Service

- Must be performed by a technician -

3. Use the service key to open the bill validator door, disconnect the connector and two ground wires from the bill validator, and push the harnesses into the coin box.

![Push the harnesses into this hole.]

4. Remove the bill validator box and install the supplied hole cover using the six supplied countersunk nuts with washers (M8) in four locations inside the coin box and two locations on the bottom surface of the base.

![Hole cover, Countersunk nuts with washer (M8), Countersunk nuts with washer (M8)]

5. Close the coin door.
(19) Replacing the CASHFLOW (European Specifications) – Must be performed by a technician –

WARNING

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)

2. Use the coin door key and open the door.

3. Raise the upper lock lever, lower the lower lock lever, and remove and replace the CASHFLOW.

4. To install, perform the procedure in reverse.
8B. Service

(20) Replacing the LED module (full color) – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

**NOTICE**

- PC boards are sensitive to static electricity. If a person handles a PC board while charged with static electricity, the parts on the PC board may be damaged. Before handling a PC board, discharge the static electricity from your body. (Example: touching the surface of grounded metal.)

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)

2. Remove the four Torx bolts (M5 x 12) and remove the LED cover.

3. Disconnect the connector, remove the two Phillips pan head screw (with flat and spring washers) (M4 x 10) and remove the LED module (full color) together with the LED bracket.
4. Remove the three Phillips pan head screws (with spring washer) (M2 x 6) and remove the LED module (full color).

5. To install, perform the procedure in reverse.

**NOTICE**
- When installing, check the connector orientations and insert the connectors firmly until they lock securely.
- When installing, be careful not to pinch the connectors and harness.
8B. Service

Replacing the LED module (white) – Must be performed by a technician –

⚠ WARNING ⚠

In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

- PC boards are sensitive to static electricity. If a person handles a PC board while charged with static electricity, the parts on the PC board may be damaged. Before handling a PC board, discharge the static electricity from your body. (Example: touching the surface of grounded metal.)

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)

2. Make sure that the power switch of the machine is turned off, then remove the six Torx bolts (silver) (M5 x 8) and six flat washers (ø16 x ø5) and remove the acrylic panel.

3. Disconnect the three connectors of the LED modules (white). (Each LED PC board has one connector.)
4. Release the nine clips securing the LED modules (white), release the five-cable clamps and remove the LED modules (white).

5. To install, perform the procedure in reverse. When installing the LED module (white), secure it so that there are three light emitters outside the clips on both sides.

**NOTICE**
- When installing, check the connector orientations and insert the connectors firmly until they lock securely.
- When securing the LED modules (white) with the clips, be sure not to pinch the light emitters or elements.
8B. Service

(22) Replacing the POP Light – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

**CAUTION**

- Removing the POP light assembly requires standing at an elevated height. Prepare an appropriate footstool and be careful when working. Working in an unnatural body posture may result in injury or machine damage.

1. Turn off the power switch. (See “8A-2-3 Turning the Power Switch On” on page 77.)
2. Remove the three Torx bolts (silver) (M5 x 12) and remove the POP light cover.

![Diagram of POP light assembly]

3. Replace the LED lights.
   * The LED lights are hot immediately after the power switch is turned off. Although the LED lights are not hot enough to cause burns, be careful when replacing the LED lights. If possible, allow the LED lights to cool for 10 minutes before performing this task.

4. To install, perform the procedure in reverse.

**NOTICE**

- When installing the LED lights, be sure to carefully align the socket and pin positions and insert the LED lights securely. (The lights do not have a polarity.)
(23) Replacing the Fuse – Must be performed by a technician –

**WARNING**

- Never use a fuse other than the specified type. The fuse must be installed to prevent fire or accident. To order a fuse, contact your distributor.
- When the fuse burns out again soon after replacement, there may be some other cause for the abnormality. Turn off the power switch immediately, disconnect the power cord plug from the outlet and contact your distributor.

(a) Cord box assembly

1. Turn off the main power switch of the machine. (See “Turning the Power Switch On” of page 77.)

![Diagram of cord box assembly with main power switch and fuse labeled.]

2. Use a standard screwdriver to rotate the fuse counter-clockwise and remove it. Replace with a new slow-blow fuse with the same rating as the removed fuse.

![Diagram showing slow-blow fuse installation and removal.]

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(b) Coin box assembly (U.S. and European specifications only)

1. Turn off the main power switch of the machine. (See “Turning the Power Switch On” of page 77.)

2. Use a standard screwdriver to rotate the fuse counter-clockwise and remove it. Replace with a new fuse with the same rating as the removed fuse.
(24) Replacing the Shock Absorber

1. Open the door to expose the shock absorber.
2. Push the shock absorber from the back side to remove and replace it.
(25) Replacing the Filters

1 Filters are located on the right outer side of the front assembly and inside the front assembly below the control lever. Loosen the lower two Torx bolts (M5 x 12), remove the upper two Torx bolts (M5 x 12) and remove the filter tray.

2 Remove the filter from the filter tray and replace it.

3 To install, perform the procedure in reverse.
8B-6 Replacing and Adjusting the Projector Unit

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.
- Do not look into the lens while the projector assembly is lit. The strong light emitted from the lens may result in vision impairment or other problems.
- Be sure to use the dedicated lamp for this machine when replacing the lamp. Using other lamp than the dedicated lamp may result in malfunction, damage or injury. Also, do not reuse an old lamp. For inquiries regarding the dedicated lamp, contact your distributor.
- Contact your distributor for regular cleaning of the inside of the projector. Continued operation with dust accumulated inside the projector may result in fire or malfunction. Cleaning of the inside of the projector before humid or rainy seasons begin is particularly effective. Contact your distributor regarding the internal cleaning cost.

**NOTICE**

- When transporting the projector unit, use the packing box that contained the projector assembly when the machine was purchased.
- Avoid use at altitudes of 1,500 m or more above sea level, as this may adversely affect the product life.
8B-6-1 Removing and Installing Each Part – Must be performed by a technician –

(1) Replacing the Projector Unit – Must be performed by a technician –

WARNING

In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the main power switch before starting this task.

1. Refer to “8A-1-1 (5) Installing the Projector Unit” on page 64 and remove the projector unit by reversing the procedure.

2. Refer to “8A-1-1 (5) Installing the Projector Unit” on page 64 and install the projector unit.

3. After installation, adjust the projector position. (See “8B-6-2 Adjusting the Projector Position” on page 155.)
(2) Replacing the Projector Lamp (Lamp Unit) – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the main power switch before starting this task.
- Be sure to turn off the power switch and wait one hour or more to allow the lamp unit to cool sufficiently before replacing the lamp unit. The lamp unit is very hot immediately after the power switch is turned off, and may cause burns.
- Never insert metal objects, flammable foreign matter, hands or other objects into the lamp enclosure after removing the lamp unit. Doing so may result in fire or electric shock.
- Be careful not to drop the lamp unit fixing screws inside of the machine. Also do not allow pieces of metal or flammable matter to enter the inside of the machine. Operation with foreign matter inside the machine may result in electric shock or fire.
- Install the replacement lamp unit securely. Improper installation may result in dark images or fire.
- Never use other than a new dedicated lamp for this machine. Also do not reuse an old lamp. Doing so may result in malfunction, damage or injury. To order a lamp unit, contact your distributor.
- Do not place the removed lamp unit on or near flammable matter. Doing so may result in fire.
- Do not leave the removed lamp unit where customers may touch it. If the lamp unit is dropped it may be damaged and glass shards may cause injury.
- The lamp unit of this machine uses a tiny amount of inorganic mercury, which is an environmentally hazardous substance. Handle the used lamp unit carefully to avoid damaging it, and dispose of it properly as hazardous waste such as fluorescent lights. In addition, follow any applicable local municipal regulations or other ordinances when disposing of the lamp unit.
- If the lamp unit is damaged, a tiny amount of white gas (inorganic mercury) may be discharged. If you breathe in this gas or if it gets in your eyes or mouth, consult a doctor immediately.

**CAUTION**

- Depending on the lamp unit damage status, glass shards may have scattered inside the projector unit. Handle with particular care when removing the projector unit from the machine or when replacing the lamp unit, as glass shards may fall out. Should any glass shards fall onto the floor or seat, carefully and completely remove the glass shards using a vacuum cleaner, etc.
- Do not remove any screws other than necessary when replacing the lamp unit. Doing so may result in machine damage or malfunction.
8B. Service

**- Must be performed by a technician -**

- Confirm the projector unit model and be sure to use a compatible replacement lamp that is specified by NAMCO BANDAI Games Inc. Using other than the specified replacement lamp may result in a projector malfunction. In addition, when requesting repair, be sure to indicate the projector unit model.

<table>
<thead>
<tr>
<th>Projector unit</th>
<th>Replacement lamp</th>
</tr>
</thead>
<tbody>
<tr>
<td>LVP-FD630 (V1)</td>
<td>Part No.: 002-596</td>
</tr>
</tbody>
</table>

- Install the lamp outer cover properly so that there is no gap. Failure to install the cover correctly may result in malfunction such as the power not turning on or the lamp not lighting up.
- Be sure use a new lamp when replacing the lamp.
- The lamp is made of glass, so be careful not to touch it with bare hands, subject it to strong impact or scratch it. (Dirt, impact or scratches may cause the glass to break.)
- When replacing the lamp unit, be sure to remove the lamp unit from this machine and perform the work on a flat surface.

1. Secure an area next to the machine cabinet to place the removed projector unit. Spread out a vinyl sheet or otherwise prepare a flat and sufficiently wide space (approx. 1 m square).

2. Remove the projector unit and place it in the area prepared in step 1. (See “8A-1-1 (5) Installing the Projector Unit” on page 64.)

3. Hook your fingernail onto the cosmetic cover of the lamp cover fixing screw and remove the cosmetic cover. If the cosmetic cover is difficult to remove with your finger, use a standard screwdriver or other pointed tool.

4. Remove the screw and slide the lamp cover to remove it.
5. Loosen the two lamp unit fixing screws, raise up the lamp unit handle, and gently lift the lamp unit straight up to remove it.

**NOTICE**
- Do not loosen any screws other than the lamp unit fixing screws.

**CAUTION**
- Remove the lamp unit gently from the projector unit. If the light source lamp is damaged, pulling out the lamp unit quickly may cause glass shards to scatter.
- Do not expose the removed lamp unit to water or other substances or place it where children may touch it or near flammable objects. Doing so may result in burns or injury.
When the removed old lamp unit is damaged or glass shards can be confirmed, glass shards may also remain inside the projector unit. Before installing the new lamp unit, follow the procedure in steps 7 to 9 below and clean the inside of the projector unit. When the old lamp unit is not damaged and glass shards cannot be confirmed, follow the procedure below from step 10 and install the new lamp unit.

7 Use a vacuum cleaner with a thin-tip nozzle and thoroughly remove any fine glass shards from inside the lamp enclosure. Large glass shards may damage the internal fan. Be sure to thoroughly remove any glass shards from around the fan.

Be careful not to damage the equipment inside the lamp enclosure when cleaning the inside of the lamp enclosure.

8 Glass shards may have entered the inside of the projector unit, so hold the projector unit by the handles, shake it gently forward and back and to the right and left and confirm whether there is any sound. Glass shards remaining inside the projector unit will make a rattling sound when shaken lightly. If a rattling sound is confirmed, tip the projector unit on its side to remove the glass shards from the ventilation holes on both sides, or hold the projector unit upside down to remove the glass shards from the lamp enclosure. If the glass shards inside the projector unit cannot be removed by these actions, contact your distributor.
9. Fine glass shards may be scattered around the base sheet metal of the projector unit or the vinyl sheet spread on the floor, so use a vacuum cleaner and clean the areas around the projector (especially near the exhaust port).

10. Align the new lamp unit as shown in the figure and insert it into the lamp enclosure while pressing in the direction of the arrow. Then, insert the terminal portion securely and secure the lamp unit with two fixing screws.
Install the lamp cover in its original position with the screw and attach the cosmetic cover by reversing the procedure in steps 3 and 4.

**NOTICE**

- If the lamp cover is not installed properly, the POWER indicator will blink alternately red and green and the power will not turn on. Be sure to install the lamp cover securely.

If the lamp unit was damaged, glass shards may have fallen into the machine as a result of the lamp unit replacement work thus far. Use a vacuum cleaner to thoroughly clean the floor inside the machine, the seat, around the levers and other areas, then wipe these areas using a cloth moistened with a small amount of water.

Connect the supplied power cord to the removed projector unit and connect the power cord plug to an outlet.

The POWER indicator lights up red and the STATUS indicator remains off or lights up red. If this status does not change, perform the procedure from 17 onward.

The POWER indicator lights up green and the start-up process is performed automatically. Wait until the start-up process is complete. (Approx. 90 seconds)

*The STATUS indicator blinks green during start-up and lights up green when start-up is complete.
Press the power button twice to start the shutdown process. Wait until the shutdown process is complete. (Approx. 90 seconds)

*The POWER indicator lights up red during shutdown and after shutdown is complete.

*The STATUS indicator blinks green during shutdown and turns off after shutdown is complete.

Press the ◄ ► and power buttons on the projector unit control panel at the same time. Confirm that the STATUS indicator blinks red twice.

(If the STATUS indicator blinking cannot be confirmed, press the buttons again.)

Disconnect the power cord connected in step 13, then install the projector unit by reversing the procedure. (See “8A-1-1(5) Installing the Projector Unit” on page 64)

Turn on the main power switch and enter Test mode.

Select the PROJECTOR TEST item in the I/O TEST screen to open the page that displays the current projector status, and confirm that LAMP TIME indicates “0 HOUR.”

If “0 HOUR” is not indicated, perform the procedure in steps 14 to 18 again. (See “7-4-4 (4) PROJECTOR TEST” on page 39)

Be sure to confirm that this is “0 HOUR” after lamp replacement!

Set the Test switch to OFF to exit Test mode.
(3) Replacing the Filter F (Projector) – Must be performed by a technician –

**WARNING**

In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Open the projector cover. (See “8A-1-1 (5) Installing the Projector Unit” on page 64.)
2. Open the front lid. (See “8A-1-1 (5) Installing the Projector Unit” on page 64.)
3. Loosen the knurled screw (M4 x 16).
4. Remove the filter tray F and remove the filter F.
5. To install, perform the procedure in reverse.
Replacing the Filter R (Projector) – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Loosen the two knurled screws (M4 x 16) at the back of the projector cover and remove the filter tray R.

2. Remove and replace the filter R.

3. To install, perform the procedure in reverse.
(5) Replacing the Lens Cover – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Open the projector cover. (See “8A-1-1 (5) Installing the Projector Unit” on page 64.)
2. Open the front lid. (See “8A-1-1 (5) Installing the Projector Unit” on page 64.)
3. Remove the four countersunk nuts (M4), then remove and replace the lens cover.

4. To install, perform the procedure in reverse.
(6) Replacing the Fan Motor – Must be performed by a technician –

**WARNING**

- In order to avoid electric shock, accident or injury to yourself or others as well as damage to the electronic circuits, be sure to turn off the power switch before starting this task.

1. Remove the projector unit. (See “8A-1-1 (5) Installing the Projector Unit” on page 64.)

2. Remove the two lower Phillips truss screws (M4 x 10) and loosen the two upper Phillips truss screws (M4 x 10).

3. Open the front lid and disconnect the connector.

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4. Slide the fan motor sideways in the direction of the arrow to remove and replace it.

5. To install, perform the procedure in reverse.

**NOTICE**
- Be careful of the air inlet facing when installing the fan motor. If the fan motor is installed with the air inlet facing the wrong direction, the fan motor will not operate correctly and the projector unit may become damaged.
8B-6-2 **Adjusting the Projector Position** – Must be performed by a technician –

1. Turn on the power switch.

2. After the title screen appears, enter Test mode, select the MONITOR TEST item and display the VIEW ANGLE ADJUST PATTERN screen. (See “7-4-5 Projector Test (MONITOR TEST)” on page 41)

3. Adjust the vertical and lateral positions and viewing angle of the projector as described on the following pages so that the white lines on the right and left edges of the VIEW ANGLE ADJUST PATTERN display screen are located at the edges of the dome screen as shown in the figure below.

**Approximate adjustment method**

- Page 157
  - “(2) Lateral Adjustment”
- Page 158
  - “(3) Viewing Angle Adjustment”
- Page 156
  - “(1) Vertical Adjustment”
(1) **Vertical Adjustment – Must be performed by a technician –**

1. Loosen the four flange socket bolts (M6 x 8) on the right and left sides of the projector assembly.

2. Loosen the countersunk nut (M6) and rotate the cap bolt (M6 x 55) to move the screen display up and down. Rotate clockwise to lower and counter-clockwise to raise the screen display.

3. Adjust the vertical position so that the white lines on the right and left edges of the VIEW ANGLE ADJUST PATTERN display screen are approximately parallel with the edges of the dome screen.

4. After finishing the adjustment, tighten the loosened screws by reversing the procedure.
(2) Lateral Adjustment – Must be performed by a technician –

1. Loosen the four flange socket bolts (M6 x 12) on the right and left sides of the projector assembly and the flange socket bolt (M6 x 12) above the lens. Loosen each screw just enough so that the projector assembly can be moved.

2. Move the rear of the projector assembly to the right and left around the axis of the loosened flange socket bolt (M6 x 12) above the lens. The screen display moves to the right and left accordingly.

3. Adjust the lateral position so that the white lines on the right and left edges of the VIEW ANGLE ADJUST PATTERN display screen are approximately the same distance from the edges of the dome screen.

4. After finishing the adjustment, tighten the loosened screws by reversing the procedure.
(3) Viewing Angle Adjustment – Must be performed by a technician –

1. Loosen the four flange socket bolts (M6 x 8) on the right and left sides of the projector assembly. Loosen each screw just enough so that the projector assembly can be moved.

2. Move the projector assembly forward and back to move the edges of the screen display in and out.

3. Adjust so that the white lines on the right and left edges of the VIEW ANGLE ADJUST PATTERN display screen are within the edges of the dome screen.

4. After finishing the adjustment, tighten the loosened screws by reversing the procedure.
8B-6-3 Various Projector Settings – Must be performed by a technician –

(1) Preparing the Remote Controller

**WARNING**

- Be sure to observe the following regarding the dry cell batteries of the remote controller. Failure to do so may cause the batteries to leak fluid or burst, possibly resulting in burns or injury.
  - Do not use other than the specified batteries.
  - Do not mix up the polarity indications (+ and -).
  - Do not charge, heat, disassemble, short circuit or place the batteries in a fire.
  - Do not leave dry cell batteries that have run out or are past the recommended use date indicated on the batteries in the remote controller.
  - Do not mix different types of dry cell batteries or use new and old batteries together.
  - Should battery fluid adhere to equipment, do not touch the battery fluid directly. If you happen to touch the battery fluid, rinse thoroughly with water and consult a doctor.

- Insert the dry cell batteries into the remote controller

1. Remove the battery cover.

2. Insert the dry cell batteries. Confirm the polarity indications (+ and -) on the dry cell batteries and insert the batteries correctly.

3. Close the battery cover.
(2) How to Operate the Remote Controller

- The remote controller may not operate when the remote control photosensor is directly exposed to bright light such as sunlight or fluorescent light.
- Do not drop or subject the remote controller to impact.
- Do not leave the remote controller in hot or humid locations.
- Do not expose the remote controller to water or place wet objects on the remote controller.
- Do not disassemble the remote controller.
- In rare cases, remote controller operations may not be accepted easily depending on the location of use or surrounding conditions. In these cases point the remote controller directly at the projector unit and perform the operation again.

Open the projector cover and front lid of the projector assembly (see “8A-1-1 (5) Installing the Projector Unit” on page 64), point the remote controller at the remote control photosensor of the projector unit and operate the remote controller.
3) Projector Unit Control Panel and Remote Controller Part Names

Projector unit control panel

Remote controller

There are two types of menu display. Press the MENU button to display the Quick Menu on the screen. Select “Detailed Menu” from the Quick Menu and press the ENTER button to display the Detailed Menu.

Projector unit control panel

Remote controller transmission part

(1) Power button
: Main function
Turns the power on and off.

(2) POWER indicator
: Indicates the power on/off state.

(3) STATUS indicator
: Indicates errors and other states.

(4) MENU button
: Displays the menu. (See “8B-6-4 Projector Settings” on page 162.)

(5) AUTO POSITION/▲ button, ▼ button, COMPUTER/◄ button, VIDEO/► button
: Used to select menu items and make adjustments.

(6) KEYSTONE/ENTER button
: Adjusts the screen distortion. Enters the selected mode.

Remote controller

(1) ON button
: Turns on the power.

(2) STANDBY button
: Turns off the power (standby mode).

(3) MENU button
: Displays the menu.

There are two types of menu display. Press the MENU button to display the Quick Menu on the screen. Select “Detailed Menu” from the Quick Menu and press the ENTER button to display the Detailed Menu. (See “8B-6-4 Projector Settings” on page 162.)

(4) buttons ▲, ▼,◄ ► buttons
: Used to select menu items and make adjustments. (See “8B-6-4 Projector Settings” on page 162.)

(5) ENTER button
: Enters the selected mode.

• When this button is pressed, the button lights up. The projector can be operated using the remote controller while this button is lit. When a button inside the control button cover is pressed, this button automatically lights up and the projector can be operated using the remote controller. In either case, the button light turns off after approximately 30 seconds have passed since the last operation.
8B. Service

8B-6-4 Projector Settings – Must be performed by a technician –

(1) Menu Settings

- In rare cases the brightness may fluctuate due to the lamp characteristics. This is not a malfunction.
- The lamp is a consumable part. When the lamp is used for a long time, the image may become dark or the lamp may burn out and no longer light up. This is due to the lamp characteristics, and is not a malfunction.
- The pixel engine used in the machine is manufactured using high-precision technology, but there may be pixels that do not light (dark pixels) or are constantly lit (bright pixels). This is not a malfunction.
- Avoid use at altitudes of 1,500 m or more above sea level, as this may adversely affect the product life.

The control buttons of the projector unit control panel and the remote controller (*8B-6-3 Various Projector Settings* on page 159) can be used to display menus on the screen and make various settings and adjustments. Press the MENU button to display the QUICK MENU and INFORMATION Menu.

* External signal input is required to enable adjustments using the Quick Menu.
* When a control button that cannot be executed is pressed, an icon may appear.
* Changing the values of some items in the setting menus provided with the machine is restricted. In particular, items not described in this Operation Manual include some settings that change automatically.

# How to make Quick Menu settings

The screen images in the description below show the contrast setting as an example.

1. Press the MENU button.
   The Quick Menu selection bar appears.

2. Press the ENTER button (or the ▼ button).
   The desired menu appears.

3. Press the ▲ or ▼ button to select the item to be set.

4. Press the ◀ or ▶ button to set the desired value.
To cancel the QUICK MENU

Press the MENU button repeatedly.

- Menu screen operations may not be possible even when the button is pressed. In this case a malfunction may have occurred. Disconnect the power cord plug from the outlet, wait 10 minutes or more and then connect the power cord plug to the outlet again.
- Adjustments can be made using the QUICK MENU when there is external signal input.

Items that can be set using the QUICK MENU

<table>
<thead>
<tr>
<th>Setting item</th>
<th>Setting</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLOR ENHANCER</td>
<td>AUTO</td>
<td>Makes settings suited to the input signal.</td>
</tr>
<tr>
<td></td>
<td>Presentation</td>
<td>Results in a bright and crisp image.</td>
</tr>
<tr>
<td></td>
<td>Standard</td>
<td>Results in a natural image.</td>
</tr>
<tr>
<td></td>
<td>Theater</td>
<td>Sets a mellow image suitable for movies.</td>
</tr>
<tr>
<td></td>
<td>USER</td>
<td>Reflects the values set using the Picture Quality Menu in the Detailed Menu.</td>
</tr>
<tr>
<td>CONTRAST</td>
<td>±30</td>
<td>Adjusts the contrast of the image.</td>
</tr>
<tr>
<td>BRIGHTNESS</td>
<td>±30</td>
<td>Adjusts the brightness of the image.</td>
</tr>
<tr>
<td>COLOR TEMP.</td>
<td>Standard, Low, High, USER</td>
<td>Adjusts the color temperature of the image.</td>
</tr>
<tr>
<td>SHARPNESS</td>
<td>±5</td>
<td>Adjusts the sharpness of the image.</td>
</tr>
<tr>
<td>LAMP MODE</td>
<td>Standard</td>
<td>Lamp life (3,000 hours). This mode increases the lamp brightness. The operating sound increases and the time until light source lamp replacement becomes shorter.</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>Lamp life (5,000 hours). Normally select this setting.</td>
</tr>
<tr>
<td>ASPECT</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>USER MENU</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>SELECT USER MENU</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>DETAIL MENU</td>
<td>Not used</td>
<td></td>
</tr>
</tbody>
</table>

- The LAMP MODE starts up in “Standard” mode when the power is turned on. When “Low” mode is set, the mode switches to “Low” mode after approximately 1 minute.
- The image may flicker when the LAMP MODE is switched, but this is not a malfunction.
- Do not switch the LAMP MODE frequently.
### Information Menu

<table>
<thead>
<tr>
<th>Setting Item</th>
<th>Description</th>
</tr>
</thead>
</table>
| LAMP TIME (LOW)    | Displays the lamp operation time converted to the time when the lamp mode is set to “Low.”  
  ● When the lamp mode is set to “Standard,” the displayed time is longer than the actual operation time.  
  ● When the lamp operation time is 10 hours or less, 0 H is displayed. When the lamp operation time exceeds 10 hours, the time is displayed in 1 hour units.  
  ● When the lamp operation time exceeds 3,750 hours, the bar display turns yellow. When the time exceeds 4,750 hours, the bar display turns red. (The lamp life is 5,000 hours.) |
| INPUT              | Displays the name of the input terminal inputting the currently projected video signal.                                                        |
| RESOLUTION         | Displays the resolution of the currently projected video signal.                                                                             |
| VERTICAL FREQUENCY | Displays the vertical frequency of the currently projected video signal.                                                                     |
| HORIZONTAL FREQUENCY | Displays the horizontal frequency of the currently projected video signal.                                                                     |
| SYNC. TYPE         | Displays the sync signal format of the currently projected video signal.                                                                     |
9. Disposal

**WARNING**

- When disposing of the machine, follow the applicable regulations for collection, transportation and disposal.
- When entrusting the collection, transportation and disposal of the machine to someone else, be sure to entrust to specialists in each field.
- The projector lamp used in this machine contains inorganic mercury, which is hazardous to the human body and the environment. When disposing of the used lamp, follow the applicable regulations for collection, transportation and disposal.

*The software used in this machine is protected by copyright laws. It is prohibited to copy, adapt, distribute publicly, or use the software for purposes other than the operation of this machine. Infringement of the copyright laws may subject persons to criminal penalties.

Do not use the recording media containing the software in a machine other than the specified game machine. Doing so may result in mechanical malfunction.
10. Parts List

10-1 Overall

(1) Overall

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Qty.</th>
<th>Type or Rating</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Side joint (L)</td>
<td>1</td>
<td></td>
<td>717-910</td>
</tr>
<tr>
<td>2</td>
<td>Side joint (R)</td>
<td>1</td>
<td></td>
<td>717-911</td>
</tr>
<tr>
<td>3</td>
<td>Side cover (L) MA</td>
<td>1</td>
<td></td>
<td>734-205</td>
</tr>
<tr>
<td>4</td>
<td>Side cover (R) MA</td>
<td>1</td>
<td></td>
<td>734-206</td>
</tr>
<tr>
<td>5</td>
<td>Lower side cover (L) MA</td>
<td>1</td>
<td></td>
<td>734-207</td>
</tr>
<tr>
<td>6</td>
<td>Lower side cover (R) MA</td>
<td>1</td>
<td></td>
<td>734-208</td>
</tr>
<tr>
<td>7</td>
<td>Cover joint</td>
<td>1</td>
<td></td>
<td>717-916</td>
</tr>
<tr>
<td>8</td>
<td>Caution sticker Finger pinching POD (EXP)</td>
<td>1</td>
<td></td>
<td>461-627</td>
</tr>
<tr>
<td>9</td>
<td>Operation Manual</td>
<td>1</td>
<td>This manual</td>
<td>735-100</td>
</tr>
<tr>
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<td>Power cord UL</td>
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Front assembly
(see page 167)

Not used for Asian specifications

Rear assembly
(see page 170)

Not used for U.S. and European specifications

(Opposite side)

(Opposite side)

(Opposite side)
2. Front assembly
   Fan assembly
   (see page 185)

3. Cord box assembly
   (see page 181)

4. Service plate assembly
   (see page 174)

5. Power panel assembly
   (see page 174)

6. Throttle lever assembly
   (see page 182)

7. Control lever assembly
   (see page 183)

---

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* If you wish to specify the number (same number) for Part No. 38, consult your distributor when ordering.
### Parts List

**Rear assembly**

![Diagram of Rear assembly](image)

1. **Projector assembly**
   - See page 175

2. **Seat assembly**
   - See page 177

3. **POP light assembly**
   - See page 186

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### 10. Parts List

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## Parts List

### Projector Assembly

![Projector Assembly Diagram](diagram.png)

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* If you wish to specify the number (same number) for Part No. 24, consult your distributor when ordering.
### Seat assembly

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## Parts List

### (8)-1 Coin assembly (Asian specifications)

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*If you wish to specify the number (same number) for Part No. 11, consult your distributor.*
### (8)-2 Coin assembly (U.S. Specifications)

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<td></td>
<td>735-120</td>
</tr>
<tr>
<td>10</td>
<td>Padlock</td>
<td>1</td>
<td>C-555N-45</td>
<td>101-264</td>
</tr>
<tr>
<td>11</td>
<td>Cam lock</td>
<td>1</td>
<td>N92-L10</td>
<td>101-142</td>
</tr>
<tr>
<td>12</td>
<td>Coin box (N)</td>
<td>1</td>
<td></td>
<td>735-121</td>
</tr>
<tr>
<td>13</td>
<td>Guard panel</td>
<td>1</td>
<td></td>
<td>735-122</td>
</tr>
<tr>
<td>14</td>
<td>Bill validator box</td>
<td>1</td>
<td></td>
<td>735-123</td>
</tr>
<tr>
<td>15</td>
<td>Fuse holder</td>
<td>1</td>
<td>ø5 mm x 20 mm or ø6.3 mm x 32 mm</td>
<td>001-112</td>
</tr>
<tr>
<td>16</td>
<td>Fuse</td>
<td>1</td>
<td>ø5.0 mm x 20 mm TIME LAG 6.3A 250V</td>
<td>011-114</td>
</tr>
<tr>
<td>17</td>
<td>Coin counter</td>
<td>2</td>
<td></td>
<td>003-055</td>
</tr>
<tr>
<td>18</td>
<td>Fuse holder cap</td>
<td>1</td>
<td>ø5 mm x 20 mm</td>
<td>001-113</td>
</tr>
</tbody>
</table>

* If you wish to specify the number (same number) for Part No. 11, consult your distributor.
## (8)-3 Coin assembly (European Specifications)

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Qty.</th>
<th>Type or Rating</th>
<th>No.</th>
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<tbody>
<tr>
<td>1</td>
<td>Fuse holder bracket (NEL)</td>
<td>1</td>
<td></td>
<td>735-127</td>
</tr>
<tr>
<td>2</td>
<td>Cover panel (N)</td>
<td>1</td>
<td></td>
<td>735-117</td>
</tr>
<tr>
<td>3</td>
<td>Hole cover</td>
<td>1</td>
<td></td>
<td>735-119</td>
</tr>
<tr>
<td>4</td>
<td>Fuse sticker (D)</td>
<td>1</td>
<td></td>
<td>735-128</td>
</tr>
<tr>
<td>5</td>
<td>Coin box (N)</td>
<td>1</td>
<td></td>
<td>735-121</td>
</tr>
<tr>
<td>6</td>
<td>Guard panel</td>
<td>1</td>
<td></td>
<td>735-122</td>
</tr>
<tr>
<td>7</td>
<td>Fuse holder</td>
<td>1</td>
<td>Ø5 mm x 20 mm or Ø6.3 mm x 32 mm</td>
<td>001-112</td>
</tr>
<tr>
<td>8</td>
<td>Fuse</td>
<td>1</td>
<td>Ø5.0 mm x 20 mm FAST-ACTING 2A 250V</td>
<td>001-115</td>
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<tr>
<td>9</td>
<td>Coin counter</td>
<td>1</td>
<td></td>
<td>003-055</td>
</tr>
<tr>
<td>10</td>
<td>Fuse holder cap</td>
<td>1</td>
<td>Ø5 mm x 20 mm</td>
<td>001-113</td>
</tr>
</tbody>
</table>

* If you wish to specify the number (same number) for Part No. 11, consult your distributor.
(9) Cord box assembly

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Qty.</th>
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<tr>
<td>1</td>
<td>Cord box</td>
<td>1</td>
<td>734-244</td>
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<tr>
<td>2</td>
<td>Fuse sticker</td>
<td>1</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Strait PC board</td>
<td>1</td>
<td>307-308</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Fuse</td>
<td>1</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Noise Filter</td>
<td>1</td>
<td>RPE-2010R</td>
<td>011-103</td>
</tr>
<tr>
<td>6</td>
<td>Fuse holder</td>
<td>1</td>
<td>001-109</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Fuse holder cap</td>
<td>1</td>
<td>001-110</td>
<td></td>
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<tr>
<td>8</td>
<td>Power switch</td>
<td>1</td>
<td>JW-L21RRKF1-008E</td>
<td>000-665</td>
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</tbody>
</table>
## Parts List

10. Parts List

(10) Throttle lever assembly

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Qty.</th>
<th>Type or Rating</th>
<th>No.</th>
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<tr>
<td>1</td>
<td>Base plate</td>
<td>1</td>
<td></td>
<td>734-248</td>
</tr>
<tr>
<td>2</td>
<td>Lever shaft</td>
<td>1</td>
<td></td>
<td>734-249</td>
</tr>
<tr>
<td>3</td>
<td>Spring stopper</td>
<td>1</td>
<td></td>
<td>734-250</td>
</tr>
<tr>
<td>4</td>
<td>Spring</td>
<td>1</td>
<td></td>
<td>734-251</td>
</tr>
<tr>
<td>5</td>
<td>Analog interface bracket</td>
<td>1</td>
<td></td>
<td>734-252</td>
</tr>
<tr>
<td>6</td>
<td>Finger guard</td>
<td>1</td>
<td></td>
<td>734-253</td>
</tr>
<tr>
<td>7</td>
<td>Stopper</td>
<td>1</td>
<td></td>
<td>734-254</td>
</tr>
<tr>
<td>8</td>
<td>Throttle lever grip A</td>
<td>1</td>
<td>L and R make a set</td>
<td>734-256</td>
</tr>
<tr>
<td>9</td>
<td>Throttle lever grip B</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Throttle sticker (EXP)</td>
<td>1</td>
<td></td>
<td>735-129</td>
</tr>
<tr>
<td>11</td>
<td>Analog interface</td>
<td>1</td>
<td>RVQ24YN04-06 20F B102</td>
<td>008-079</td>
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<td>12</td>
<td>Side base L (B)</td>
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<tr>
<td>13</td>
<td>Side base R (B)</td>
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<td></td>
<td>734-261</td>
</tr>
<tr>
<td>14</td>
<td>Throttle lever assembly</td>
<td>1</td>
<td></td>
<td>734-259</td>
</tr>
<tr>
<td>15</td>
<td>Spring washer</td>
<td>1</td>
<td></td>
<td>734-255</td>
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</table>
## Parts List

<table>
<thead>
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<th>Type or Rating</th>
<th>No.</th>
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<tr>
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<td>Cover fixing frame</td>
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<tr>
<td>2</td>
<td>Rubber cover</td>
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<td></td>
<td>306-783</td>
</tr>
<tr>
<td>3</td>
<td>Installation plate</td>
<td>1</td>
<td></td>
<td>306-824</td>
</tr>
<tr>
<td>4</td>
<td>Analog interface (with analog interface bracket)</td>
<td>2</td>
<td></td>
<td>307-856</td>
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<tr>
<td>5</td>
<td>Spring stopper</td>
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<td></td>
<td>306-791</td>
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<tr>
<td>6</td>
<td>Spring</td>
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<td>307-849</td>
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<td>7</td>
<td>Spring end</td>
<td>1</td>
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<td>306-828</td>
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<tr>
<td>8</td>
<td>Grip harness</td>
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<td>307-850</td>
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<td>Control lever grip A</td>
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<td>L and R make a set</td>
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<td>Control lever grip B</td>
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<td>307-882</td>
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<td>11</td>
<td>Motor cover</td>
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<td>Machine gun button</td>
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<td>13</td>
<td>Machine gun button spacer</td>
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<td>307-126</td>
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<td>14</td>
<td>Machine gun button spring</td>
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<td></td>
<td>307-853</td>
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<tr>
<td>15</td>
<td>Switch (For Machine gun button and Missile button)</td>
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<td>307-854</td>
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<tr>
<td>16</td>
<td>Missile button</td>
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<td>307-855</td>
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<tr>
<td>17</td>
<td>Missile button spring</td>
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<td></td>
<td>307-856</td>
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<tr>
<td>18</td>
<td>Lever metal part A</td>
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<td>307-857</td>
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<tr>
<td>19</td>
<td>Lever metal part B</td>
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<td>20</td>
<td>Motor bracket</td>
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<td>No.</td>
<td>Name</td>
<td>Qty.</td>
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<td>21</td>
<td>Vibration motor</td>
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<td>22</td>
<td>Ferrite core</td>
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<td></td>
<td>307-860</td>
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<tr>
<td>23</td>
<td>Core spacer</td>
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<td>307-861</td>
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<td>24</td>
<td>Clamp bracket</td>
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<td></td>
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<td>Clamp (large)</td>
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<td>307-863</td>
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<td>26</td>
<td>Clamp (small)</td>
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<tr>
<td>27</td>
<td>Lever harness</td>
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<td>307-865</td>
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<tr>
<td>28</td>
<td>Lever sub-assembly</td>
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<td>29</td>
<td>Guide plate</td>
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10. Parts List

(12) Fan assembly

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<th>No.</th>
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<td>Front cover</td>
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<td>Fan bracket</td>
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<td>3</td>
<td>Fan</td>
<td>1</td>
<td>9GV1224P1J10</td>
<td>005-540</td>
</tr>
<tr>
<td>4</td>
<td>Fan guard</td>
<td>1</td>
<td>8130-TR</td>
<td>005-413</td>
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</table>
### 10. Parts List

#### (13) POP light assembly

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<th>Name</th>
<th>Qty.</th>
<th>Type or Rating</th>
<th>No.</th>
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</thead>
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<td>1-a</td>
<td>POP (EXP)</td>
<td>1</td>
<td>U.S. and European specifications</td>
<td>735-131</td>
</tr>
<tr>
<td>1-b</td>
<td>POP (EXP ASIA)</td>
<td>1</td>
<td>Asian specifications</td>
<td>735-124</td>
</tr>
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<td>2</td>
<td>POP bracket (A)</td>
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<td>734-347</td>
</tr>
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<td>3</td>
<td>POP light bracket (A)</td>
<td>1</td>
<td></td>
<td>734-325</td>
</tr>
<tr>
<td>4</td>
<td>POP light bracket (B)</td>
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<td></td>
<td>734-326</td>
</tr>
<tr>
<td>5</td>
<td>POP light cover</td>
<td>1</td>
<td></td>
<td>734-327</td>
</tr>
<tr>
<td>6</td>
<td>Lamp socket</td>
<td>3</td>
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<td>002-672</td>
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<tr>
<td>7</td>
<td>LED light</td>
<td>3</td>
<td></td>
<td>002-675</td>
</tr>
</tbody>
</table>

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11-2 Overall Connection Diagram (European Specifications, AC 230V) (1/3)
11-3 Overall Connection Diagram (Asian specifications, AC 110 – 120, 220 – 240V) (1/3)

Note 1: Install the F1 fuse which is compatible with the power supply voltage and connect the T1 transformer terminal.
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cURL 7.22.0

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   • **Plug and Play and Plug and Play Extensions.** You may connect new hardware to your device. Your device may not have the drivers needed to communicate with that hardware. If so, the update feature of the software can obtain the correct driver from Microsoft and install it on your device.

   • **Web Content Features.** Features in the software can retrieve related content from Microsoft and provide it to you. Examples of these features are clip art, templates, online training, online assistance and Appshelp. You may choose to switch them off or not use them.

   • **Digital Certificates.** The software uses x.509 version 3 digital certificates. These digital certificates confirm the identity of user sending information to each other and allow you to encrypt the information. The software retrieves certificates and updates certificate revocation lists over the Internet.

   • **Auto Root Update.** The Auto Root Update feature updates the list of trusted certificate authorities. You can switch off this feature.

   • **Windows Media Digital Rights Management.** Content owners use Windows Media digital rights management technology (WMDRM) to protect their intellectual property, including copyrights. This software and third party software use WMDRM to play and copy WMDRM-protected content. If the software fails to protect the content, content owners may ask Microsoft to revoke the software’s ability to use WMDRM to play or copy protected content. Revocation does not affect other content. When you download licenses for protected content, you agree that Microsoft may include a revocation list with the licenses. Content owners may require you to upgrade WMDRM to access their content. Microsoft software that includes WMDRM will ask for your consent prior to the upgrade. If you decline an upgrade, you will not be able to access content that requires the upgrade. You may switch off WMDRM features that access the Internet. When these features are off, you can still play content for which you have a valid license.

   • **Windows Media Player.** When you use Windows Media Player, it checks with Microsoft for

   • compatible online music services in your region;
   • new versions of the player; and
   • codecs if your device does not have the correct ones for playing content.

   You can switch off this feature. For more information, go to: go.microsoft.com/fwlink/?linkid=51331.
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• **Network Awareness.** This feature determines whether a system is connected to a network by either passive monitoring of network traffic or active DNS or HTTP queries. The query only transfers standard TCP/IP or DNS information for routing purposes. You can switch off the active query feature through a registry setting.

• **Windows Time Service.** This service synchronizes with www.time.windows.com once a week to provide your device with the correct time. The connection uses standard NTP protocol.

• **Search Suggestions Service.** In Internet Explorer, when you type a search query in the Instant Search box or type a question mark (?) before your search term in the Address bar, you will see search suggestions as you type (if supported by your search provider). Everything you type in the Instant Search box or in the Address bar when preceded by a question mark (?) is sent to your search provider as you type. Also, when you press Enter or click the Search button, the text in the Instant Search box or Address bar is sent to the search provider. If you use a Microsoft search provider, use of the information sent is subject to the Microsoft Online Privacy Statement. This statement is available at go.microsoft.com/fwlink/?linkid=31493. If you use a third-party search provider, use of the information sent will be subject to the third party’s privacy practices. You can turn search suggestions off at any time. To do so, use Manage Add-ons under the Tools button in Internet Explorer. For more information about the search suggestions service, see go.microsoft.com/fwlink/?linkid=128106.

• **Consent to Update Infrared Emitter/Receiver.** The software may contain technology to ensure the proper functioning of the infrared emitter/receiver device shipped with certain Media Center-based products. You agree that the software may update the firmware of this device.

• **Media Center Online Promotions.** If you use Media Center features of the software to access Internet-based content or other Internet-based services, such services may obtain the following information from the software to enable you to receive, accept and use certain promotional offers:
  • certain device information, such as your Internet protocol address, the type of operating system and browser you are using, and the name and version of the software you are using,
  • the requested content, and
  • the language code of the device where you installed the software.

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• **Media Playback Updates.** The software on the device may include media playback features which receives updates directly from the MSCORP Media Playback Update servers. If activated by your manufacturer, these updates will be downloaded and installed without further notice to you. The manufacturer is responsible for ensuring these updates work on your device.
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