SEGA®

HOUSE OF THE DEAD 4 SUPER DELUXE

OWNERS MANUAL

Manufactured in the UK by **SEGA** MANUFACTURING DIVISION (U.K.)

Contents

1. Before using this product

To ensure the safe usage of the product, be sure to read the following before using the product. The following instructions are intended for the use of <u>QUALIFIED SERVICE PERSONNEL ONLY</u>. After carefully reading and sufficiently understanding the instructions should any activity be carried out on the product. Only qualified service personnel should carry out maintenance on the product.

Terms such as WARNING!, CAUTION, and IMPORTANT! Are used where an explanation is given which requires special attention, depending on the potential risk. SEGA is not responsible for injury or damage caused by use in a manner contrary to the instructions stated in this document. In order to prevent accidents warning stickers and printed instructions are applied in the places where a potentially hazardous situation relating to the product could arise. Be sure to comply with these warnings.

WARNING

Indicates that mishandling the product by disregarding this warning will cause a potentially hazardous situation which can result in death or serious injury.

CAUTION

Indicates that mishandling the product by disregarding this caution will cause a potentially hazardous situation which can result in personal injury and or material damage.

IMPORTANT

This is cautionary information, which should be complied with when handling the product. Indicates that mishandling the product by disregarding this will cause a potentially hazardous situation, which may not result in personal injury but could damage the product.

- Be sure to turn off the power and disconnect from the mains supply before working on the machine.
- Ensure that the correct fuse(s) is fitted to the machine.
- Details of the correct fusing of the machine are enclosed in the Service Manual.
- Ensure that only qualified Service Engineers perform any maintenance work on the machine.
- Specification changes, removal of equipment, conversion and/or addition, not designated by SEGA are not permitted and will invalidate this product's CE conformity.
- The parts of the product also include any warning labels or safety covers for personal protection etc. A potential hazard will be created if the machine is operated while any parts have been removed. Should any doors, lids or protective covers be damaged or lost, do not operate the product. SEGA is not liable in any whatsoever for any injury and/or damage caused by specification changes not designated by SEGA.
- Before installing the product, check for the Electrical Specification Sticker, SEGA products have a sticker on which the electrical specifications are detailed. Ensure that the product is compatible with the power supply voltage and frequency requirements of the location in which the machine is to be installed.
- When installing this equipment ensure the socket outlet is near the machine and is easily accessible.
- Install and operate the machine only in places where appropriate lighting is available, allowing warning stickers to be clearly read.
- To ensure maximum safety for customers and operators, stickers and printed instructions describing potentially hazardous situations are applied to places where accidents could occur. Ensure that where the product is operated has sufficient lighting to allow any warnings to be read. If any sticker or printed warning is removed or defaced, do not operate the machine, until an identical item has replaced it.
- When handling the monitor, be very careful. (Applies only to product with monitor)
- Some of the monitor (TV) parts are subject to high-tension voltage. Even after turning off the power some components are still occasionally subject to high-tension voltage. Qualified service engineers should perform monitor repair and replacement only.
- In cases where commercially available monitors and printers are used only the contents relating to this product are stated in this manual. Some commercially available equipment has functions and reactions not stated in this manual. Read this manual in conjunction with the specific manual of such equipment.
- Descriptions contained herein may be subject to change without prior notification.
- The contents described herein are fully prepared with due care. However, should any question arise or errors be found please contact SEGA.

1.1. Inspection on immediately transporting the product to location

> **STOP — IMPORTANT**
>
> - QUALIFIED SERVICE PERSONNEL should only carry out inspection.

Normally, at the time of shipment, SEGA products are in a state to allowing usage immediately after transporting to the location. Nevertheless, an irregular situation may arise during transportation preventing this. Before turning on the power, check the following points to ensure that the product has been transported safely.

- Are then any dented parts or defects (cuts, etc.) on the external surfaces of the product.?
- Are castors and leg adjusters present and undamaged?
- Do the power supply voltage and frequency requirements meet with the local supply?
- Are all wiring connectors correctly and securely connected? Unless connected in the correct direction, connector connections cannot be made successfully. Do not insert connectors forcibly.
- Does the power cord have any cuts or dents?
- Do fuses meet the specified rating?
- Are such units such as monitors, control equipment, IC BD, etc. firmly secured?
- Are all earth wires connected?
- Are all accessories available?
- Can all doors and lids be opened with the accessory keys and/or tools?

CONCERNING THE STICKER DISPLAY

SEGA product has stickers describing the product manufacture number (Serial Number) and electrical specification. If you require service assistance you will require the Serial Number. Identical machines may have different parts fitted internally. Only by quoting the Serial Number with the correct parts to be identified.

CONCERNING WARNING STICKERS

SEGA product has warning displays on stickers, labels or printed instructions adhered/attached to or incorporated in the places where hazardous situations can arise. The warning displays are intended for the accident prevention of customers and service personnel.

SPECIFICATIONS		
Installation Space (cm):	3000 x 2600	
Height (cm):	1,503mm × 1,874mm × 2,226mm	
Weight (kg):	320kg	
Power, Max:	Rated Voltage (V.AC):	230V
	Rated Current (A):	3A

Note: Descriptions in this manual are subject to change without prior notice.

2.   Introduction to this service manual

SEGA ENTERPRISES LTD., supported by its experience in electronic high technology of VLSI's, microprocessors etc. and with a wealth of experience, have for more than 30 years been supplying various innovative and popular games to the world market. This Service Manual is intended to provide detailed descriptions together with all the necessary information covering the general operation of electronic assemblies, electromechanicals, servicing controls, spare parts, etc. as regards HOUSE OF THE DEAD 4 SUPER DELUXE, a new SEGA product. This manual is intended for those who have knowledge of electricity and technical expertise especially in IC's, CRT's, microprocessors etc.. Carefully read this manual to acquire sufficient knowledge before working on the machine. Should there be any malfunction, non technical personnel should under no circumstances touch the interior systems. Should such a situation arise contact the nearest branch listed below or our head office.

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Telephone: +44(0) 1372 731 820

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WWW: http://www.sega-amusements.co.uk

3.   Installation and service instructions

> • QUALIFIED SERVICE PERSONNEL should only carry out installation and commissioning of this product.

3.1.   Handling and precautions

When installing or inspecting the machine, be very careful of the following points and pay attention to ensure that the player can enjoy the game safely.

The game must NOT be installed under the following conditions:

- Outside, the game is designed for indoor use only.
- In areas directly exposed to sunlight, high humidity, dust, excessive heat or extreme cold.
- In locations that would present an obstacle in the case of an emergency i.e. near fire equipment or emergency exits.
- On unstable surfaces or surfaces subject to vibration.
- Where liquids, other than routine cleaning, may come into contact with the game.

Important:
- This machine should only be installed by Qualified Service Personnel.
- Be sure to switch the supply power OFF and remove the mains supply plug from the machine before any work is carried out on the machine.
- Do not attempt to repair the PCB's (Printed Circuit Boards) yourself. This will void the warranty. The PCB's contain static sensitive devices that could be damaged.
- Always return a faulty part to your distributor with adequate packaging and protection.
- When removing the plug from the mains always grasp the plug not the cable.
- Do not use a fuse that does not meet the specified rating.
- Make sure all connections are secure before applying power.

> • Ensure that the mains lead is not damaged. If the mains lead is damaged in any way there could be a danger of electric shock or a fire hazard.
> • Ensure that the power supply is fitted with circuit protection. Using the power supply without circuit protection is a fire hazard.

3.1.1. Precautions when moving the machine

⚠ **WARNING**

- When moving the machine, be sure to pull out the plug from the power supply. Moving the machine with the plug still inserted can cause the power cord to be damaged, resulting in a fire and/or electric shock.

- When moving the machine on the floor, retract the adjusters, and ensure that the casters make contact with the floor. Pay careful attention so that the casters do not run over power cords and earth wires. Damaging the power cords can cause an electric shock and/or short circuit.

- When moving across an area with a sharp difference in height, first separate the cabinet and ASSY DIP. Tilting them whilst the two are still joined together may damage the connectors and could cause injury.

- When lifting the cabinet, be sure to hold the handles and the bottom part. Lifting the cabinet by holding other portions may damage parts and installation portions due to the empty weight of the cabinet, and may cause personal injury.

- When moving the ASSY DLP, do not push it from the rear side. Push it from sideways. Pushing the ASSY DLP from the rear side can have the ASSY DLP fall down, causing personal injury, etc. In case the floor has slanted surfaces or step-like differences, be sure to move the machine by 2 or more persons.

- When the cabinet and ASSY DIP are not connected the cabinet is unstable on its own. Pushing it may cause it to fall over. When detached always keep the cabinet on a level surface and make sure it does not start to lean to the left or right whilst working on it.

⚠ **CAUTION**

- Do not hold or press the plastic parts as indicated by the Figure. Failure to observe this instruction may break the parts, and eventually the broken pieces may cause a personal injury.

🛑 **STOP IMPORTANT**

- When moving the cabinet do not hold or push the gun holders. This could deform their shape or cause damage to them.

- Never push on the projector's screen. The screen is easily damaged but cannot be repaired. If damaged the entire screen must be replaced.

Have caster make contact with the floor.
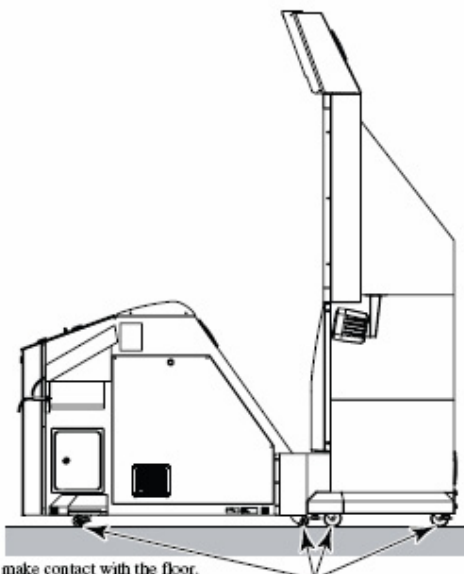
Pushing the ASSY DLP from the back may make it fall over. Always push it from the side.

3.2. Name of general parts
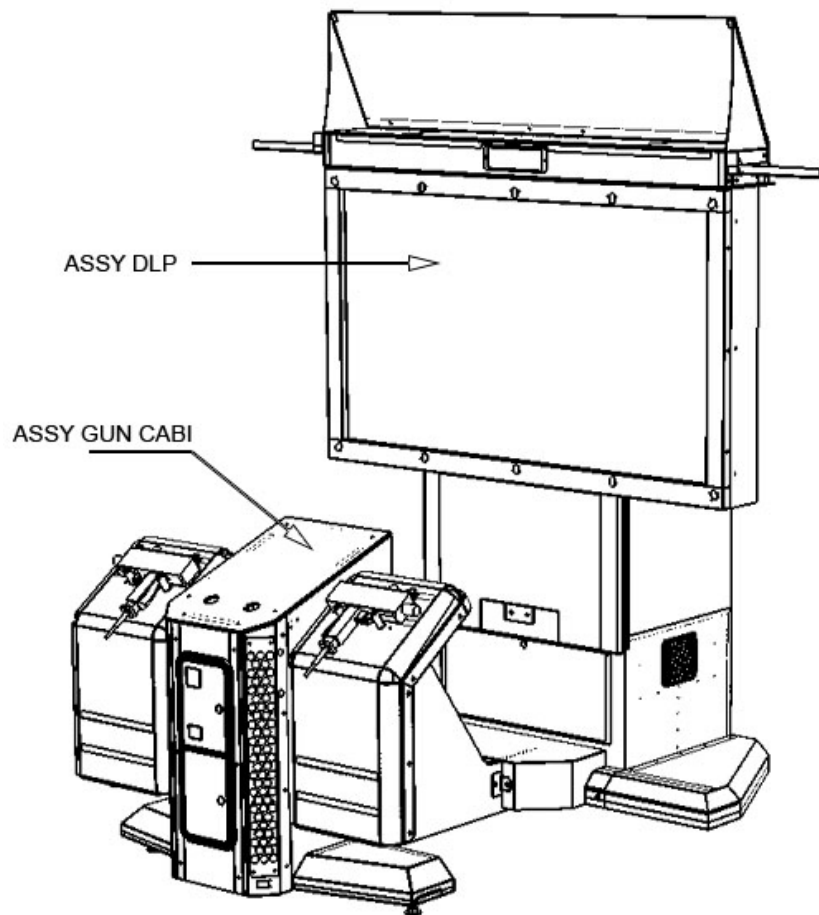
	Width (cm)	Length (cm)	Height (cm)	Weight (kg)
ASSY DLP	212	68	228	200kg approx
ASSY GUN CABI	121	135	97	150kg approx
When Assembled	212	192	228	350kg approx

3.3. Installation parts and accessories

The machine is supplied with an installation kit. Please ensure the following parts are supplied:

SEQ	PT NUMBER	DESCRIPTION	QTY
**1	440-CS0186UK	STICKER C EPILEPSY MULTI	1
**2	SAECE-135	DECLARATION OF CONFORMITY	1
**3	HDF-2003UK	DECAL INST PLATE HDF SDX MULTI	1
**4	540-0043-91	L-WRENCH FOR HEX SOC 3MM	1
**5	540-0006-01	WRENCH M4 TMP PRF	1
**6	540-0007-01	WRENCH M5 TMP PRF	1
**7	HDF-0405UK	ASSY BANNER R	1
**8	HDF-0406UK	ASSY BANNER L	1
**9	610-0727-003	DVD SOFT KIT HDF	1
**301	LM1246	EUROLEAD 10A EUROPEAN SOCKET	1
**302	LM1227	UK MAINS LEAD 10A WITH PLUG	1
**401	OS1019	SELF SEAL BAG 9X12.3/4	2
**402	420-6908-01UK	SERVICE MANUAL HDF SDX 52	1
**403	XXX-XXXX-LG	LG DISPLAY MANUAL + REMOTE CONTR	1
**404	350-5801	MOTOR DC5V TG-01H	2
**405	509-5080	SW MICRO TYPE (SS-5GL2)	2
**406	514-5078-2000	FUSE 2A CER 20MM RS419-779	3
**407	514-5079-10000	FUSE 10A T CER 32MM RS414-061	1
**408	514-5078-10000	FUSE 5X20 CERAMIC SB 10000MA	1
**409	514-5090-3000	3A FUSE 6.3MMX25MM CERAMIC T	1
***2	HDF-0452UK	BRKT LIGHT BILLBOARD PLATE	1
***3	HDF -0453UK	BILLBOARD PLATE (fixed to ITEM 2)	1
***4	HDF-0454UK	SUPPORT LEFT	1
***5	HDF-0455UK	SUPPORT RIGHT	1
***8	HDF-0454BUK	ARTWORK SIDE L (fixed to ITEM 4)	1
***9	HDF-0455BUK	ARTWORK SIDE R (fixed to ITEM 5)	1
***202	030-000620-SB	M6X20 BLT W/S BLK	12

Item 5 AND 6 - Tamper-proof TORX wrenches
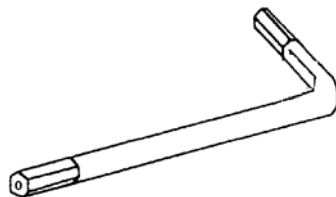
3.4. Shipping the game board

- When returning the GAME BOARD for repair or replacement, be sure to package the entire ASSEMBLY in the original card transit box - THERE ARE NO USER-SERVICEABLE PARTS INSIDE.
- Failure to return the GAME BOARD in this manner may invalidate the warranty.
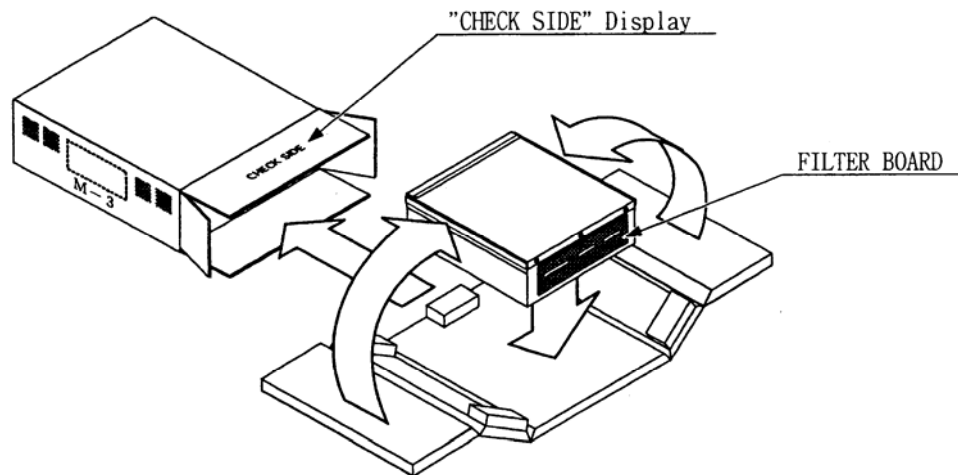
Wrap the ASSY GAME BOARD with the packaging material and put it in the original transit box as shown. Putting it upside down or packing otherwise in the manner not shown can damage the GAME BOARD and parts.

3.5. Precautions regarding installation and location

WARNING

- Perform the assembly by following the procedure herein stated. Failure to comply with the instructions, for example, inserting the plug into an outlet at a stage not mentioned in this manual can cause an electric shock
- Assembling should be performed as per this manual. Since this is a complex machine, erroneous assembling can cause damage to the machine, or malfunction to occur.
- Do not attempt to complete this work alone, a minimum of 2 people are required.

STOP
IMPORTANT

- QUALIFIED SERVICE PERSONNEL should only carry out assembly work.

WARNING

This product is an indoor game machine. Do not install it outside. Even indoors, avoid installing in places mentioned below so as not to cause a fire, electric shock, injury and/or malfunction.

- Places subject to rain or water leakage, or places subject to high humidity in the proximity of an indoor swimming pool and or shower, etc.
- Places subject to direct sunlight, or places subject to high temperatures in the proximity of heating units, etc.
- Places filled with inflammable gas or vicinity of highly inflammable/volatile chemicals or hazardous matter.
- Dusty places.
- Sloped surfaces.
- Places subject to any type of violent impact.
- Vicinity of anti-disaster facilities such as fire exits and fire extinguishers.
- The operating (ambient) temperature range is from 5℃ to 30℃.

3.5.1. Limitations of usage

WARNING

- Be sure to check the Electrical Specifications. Ensure that this product is compatible with the location's power supply, voltage and frequency requirements. A plate describing Electrical Specifications is attached to the product. Non-compliance with the Electrical Specifications can cause a fire and electric shock.

- This product requires a breaker and earth mechanism as part of the location facilities. Using the product without these can cause a fire and electric shock.

- Ensure that the indoor wiring for the power supply is rated at 15A or higher (AC single phase 100Ⅴ 120V area), and 7A or higher (AC 220V ~ 240V area). Non-compliance with the Electrical Specifications can cause a fire and electric shock.

- Be sure to use an independent power supply equipped with a surgesuppressor.
Using a power supply without a surge-suppressor can cause an outbreak of fire if a power surge occurs.

- Putting many loads on one electrical outlet can cause generation of heat and a fire resulting from overload.

- When using an extension cord, ensure that the cord is rated at 15A or higher (AC 100Ⅴ 120V area) and 7A or higher (AC 220V ~ 240V area)

Using a cord rated lower than the specified rating can cause a fire and electric shock

3.5.2. Operation area

- For the operation of this machine, secure a minimum area of 2.6m (8.5ft) (W) x 3.0m (9.8ft) (D). In order to prevent injury resulting from falls/accidents during game play, be sure to secure the minimum area for operation.
- Be sure to provide sufficient space (20cm minimum) so as to allow this product's ventilation fan to function efficiently. To avoid machine malfunctions or fires, do not place any obstacles near the ventilation opening.
- Do not allow objects to block the ventilation ports. It can cause generation of heat and a fire.
- SEGA shall not be held responsible for damage or compensation for damage to a third party, resulting from the failure to observe this instruction.

3.6.   Assemble the machine

When carrying out the assembly work, follow the procedure in the following sequence.

STEP 1   Assemble the machine.

STEP 2   Leg levelling procedure.

STEP 3   Billboard installation procedures.

STEP 4   AC wiring and connection procedure.

Note that the parts contained within the installation kit are required for the assembly work.

- Fit all fixings loosely first as detailed in step 1, then position all components before finally tightening fixings at step 4.

- QUALIFIED SERVICE PERSONNEL should only carry out this operation.

Step 1 (Assemble the machine)

- This operation should only be carried out by QUALIFIED SERVICE PERSONNEL.

Step 1
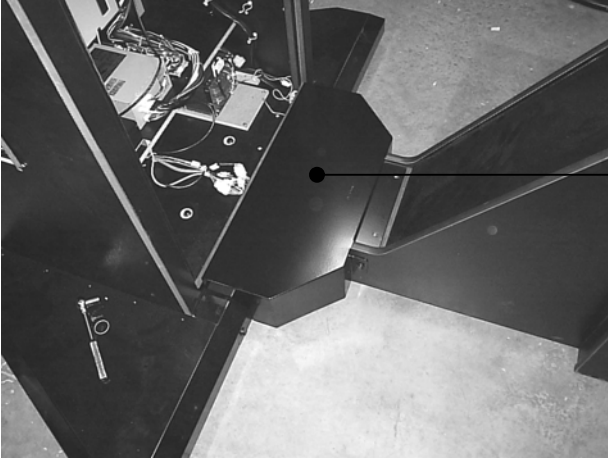
- Remove the JOINT COVER (HDF-1031UK) from over the joint of the 2 cabinets (2x M5x16 PAN PAS BLK and 2x M6x50 HEX BOLT BLK.)

- Join both DLP and GUN cabinets as pictured (left).
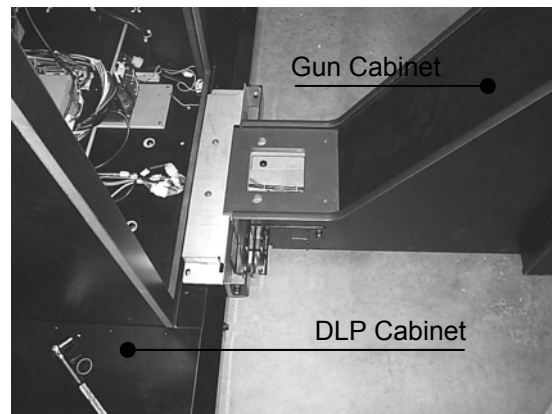
- Feed the harnesses from the Gun cabinet up through the access hole in the DLP cabinet.
- Make all 5 harnesses connection good.

- Feed the 6th and final harness up through the inside rear of the DLP cabinet and connect into the USB port on the Lindbergh CPU as shown in picture (left).
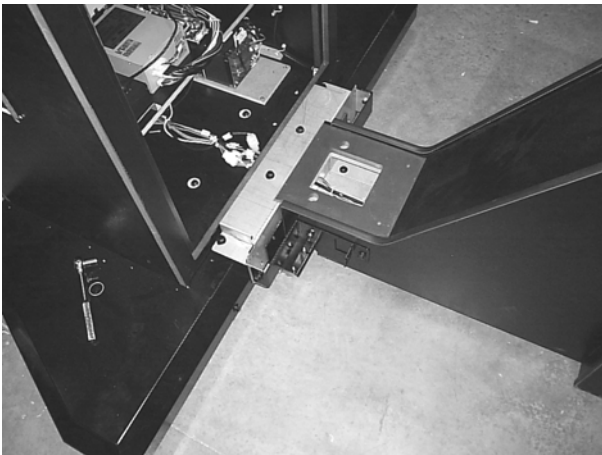
- Secure DLP and GUN Cabinets together using 2x M8x30 Hex Bolt and 2x M8x65 Hex Bolt

- Place JOINT COVER (HDF-1031UK) over the joint of the 2 cabinets and re-secure using 2x M5x16 PAN PAS BLK and 2x M6x50 HEX BOLT BLK.
- Finally, fit the CABLE COVER over the hole in the bottom of the cabinet.

Step 2 (Leg levelling procedure)

<table>
<tr>
<td>⚠ CAUTION</td>
<td>●   Make sure all of the leg adjusters are in contact with the floor. If they are not the machine may move and cause injury. This operation requires 2 people.</td>
</tr>
<tr>
<td>🛑 STOP IMPORTANT</td>
<td>●   QUALIFIED SERVICE PERSONNEL should only carry out this operation.</td>
</tr>
</table>

The cabinet is equipped with 8 casters (4 for DLP Base and 4 for Cabinet) and 6 adjusters (4 for DLP Base and 2 for Cabinet). After deciding on a location, bring the adjusters into direct contact with the ground and adjust the cabinet so that it is completely level. If the floor is level, the machine should be level with the casters about 5 millimeters from the floor.

- Move the cabinet to the desired location. Make sure there is space in the back for air to flow.

- Bring the adjusters into direct contact with the floor. Use a wrench to align the height of the adjusters until the cabinet is perfectly level.

- After making the final adjustments, fix the adjuster height by tightening up the adjuster nuts.
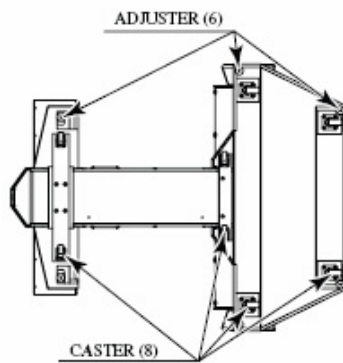
Underside view
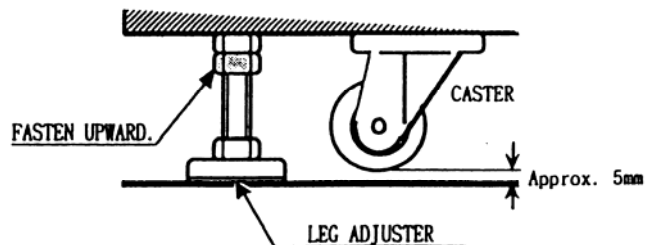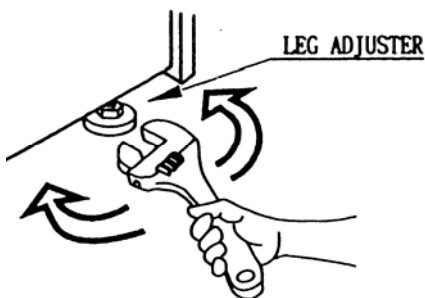
After securing the leg adjuster bolts, fully tighten all bolts temporarily attached in step 1 above.

Ensure adequate ventilation is maintained as detailed below.

Ventilation Space:
200mm (7.9in.) minimum

3000mm (9.8ft)

2600mm (8.5ft)

Ventilation space (20cm minimum)
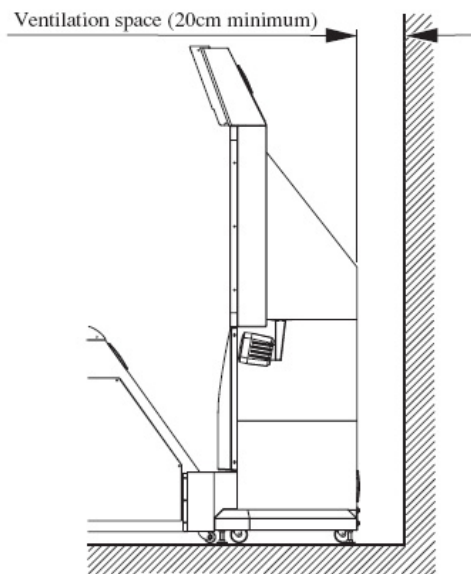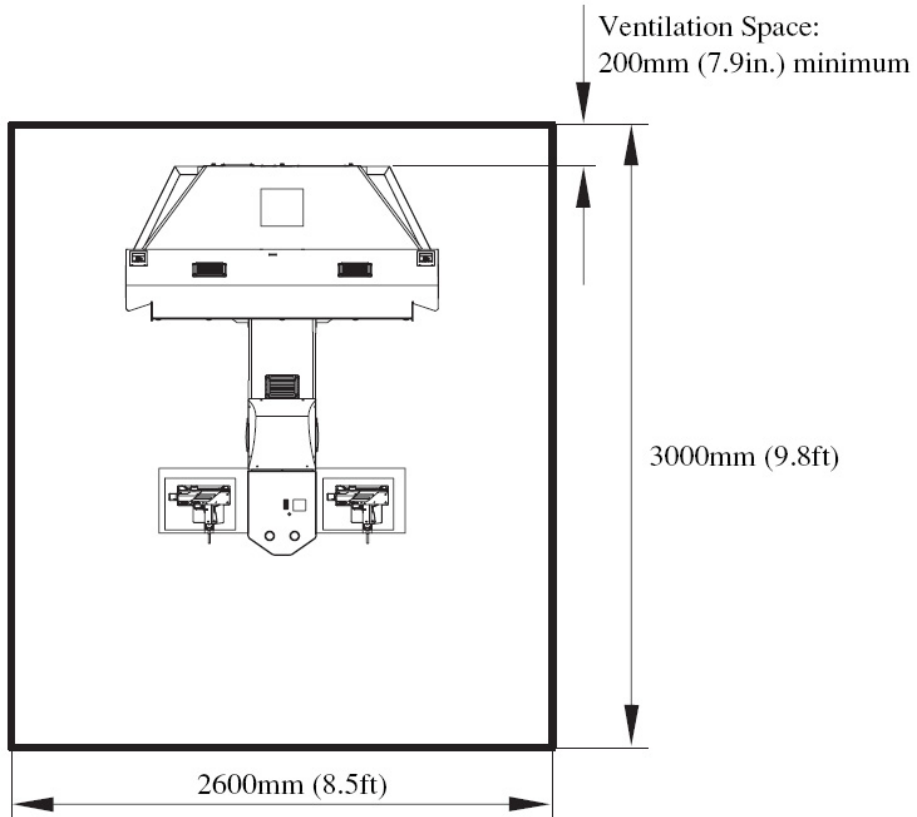
FIG. 6. 4 d   Ensuring Ventilation Space
Provide ventilation space for the ventilation
opening.

Step 3 (Billboard installation procedure)

CAUTION

- One person alone cannot perform the installation of the billboard assembly. Seek assistance before attempting this operation.

STOP IMPORTANT

- QUALIFIED SERVICE PERSONNEL should only carry out this operation.
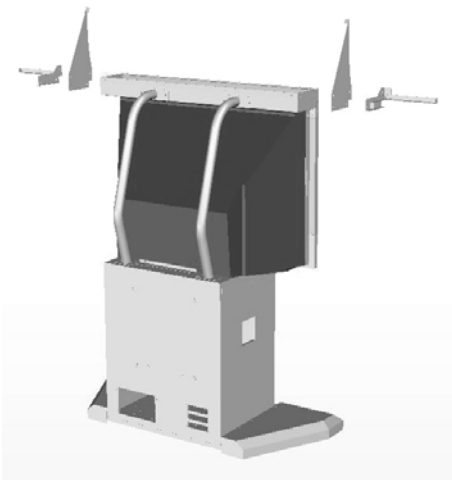
- Fit the SUPPORTS L&R (HDF-0454UK and HDF-0455UK) and the BANNER ASSEMBLY L&R (HDF_0405UK and HDF_0406UK) to the Billboard Assembly using 8x M6x20 BLT W/S BLK and 8x M6 WASHERS BLK.

Banner Assembly R
(HDF-04005UK)

Banner Assembly L
(HDF-0406UK)

Support R
(HDF-0455UK)

Support L
(HDF-0454UK)

Billboard Plate
(HDF-0453UK)
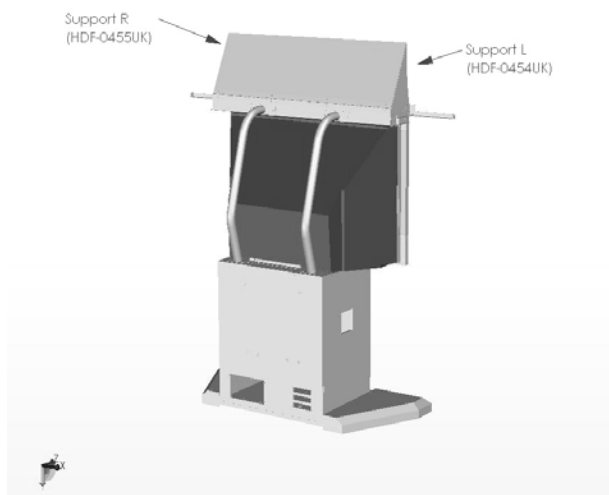
- Place the BILLBOARD PLATE (HDF-0453UK) on the back of the SUPPORTS L&R and secure along the bottom edge using 4x M6x12 MCSR PAN W/FS PAS.

End Cap Banner
(HDF-0408UK)
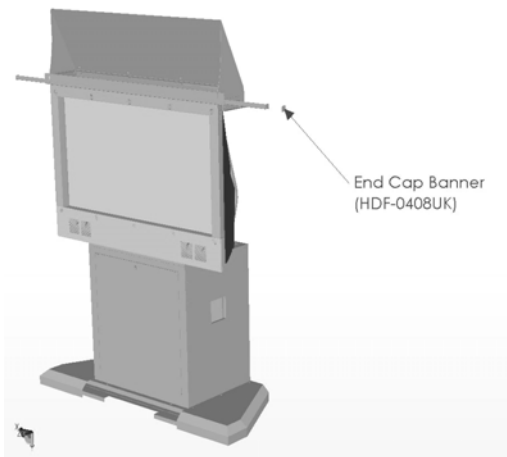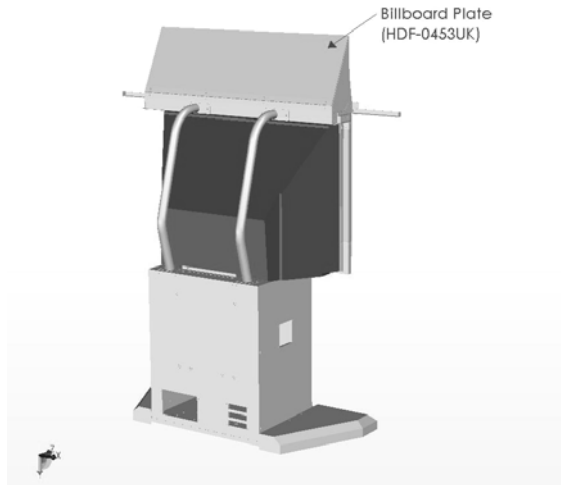
- Remove the END CAPS BANNER (HDF-0406UK) from both BANNER SUPPORTS.
- Slide both BANNERS L&R (HDF-0403UK & HDF-0404UK) onto the supports and re-secure the END CAPS BANNER.

Step 4 (AC wiring and connection procedure)

| CAUTION | • Be sure that the machine is not connected to the mains supply before attempting this operation |

| STOP IMPORTANT | • QUALIFIED SERVICE PERSONNEL should only carry out this operation. |

| WARNING | • Be sure to independently use the power supply socket outlet equipped with an Surge Suppressor. Using a power supply without a Surge Suppressor can cause a fire when electric leakage occurs.

• Ensure that the "accurately grounded indoor earth terminal" and the earth wire cable are available (except in the case where a power cord plug with earth is used). If the grounding work is not performed appropriately, customers can be subjected to an electric shock, and the product may not function properly.

• Ensure that the power cord and earth wire are not exposed on the surface (passage, etc.). If exposed, they can be caught and are susceptible to damage. If damaged, the cord and wire can cause electric shock and short circuit accidents. Ensure that the wire is not in the customer's way and that the wiring has protective insulation.

• After wiring the power cord on the floor, be sure to protect the power cord. An exposed power cord is susceptible to damage and may cause an electric shock.

• When using the earth terminal from Terminal width:12mm the AC unit for the product, always use an earth wire with a round earth terminal as shown in the diagram and be sure to connect it correctly. Never use simply stripped wires or any other form of inappropriate connection method. |

The AC unit is located at the base of the back of the DLP. The AC unit has the following switches/connectors.

- The main switch
- An inlet for the power cable.

The power cable included with the product has an earth wire inside.
Connect the AC unit to the power cable and then plug it into a socket that has an earth terminal. If you do not have access to a socket with an earth terminal you must earth the product in another way, e.g. by connecting the AC unit's earth terminal and an earth device via a separate earth cable. If you are using a commercial conversion adaptor to provide the power you must connect the adaptor's earth terminal to an earth terminal that is definitely earthed.

3.6.1. Connection to the power supply

- Be sure that the machine is not connected to the mains supply before attempting this operation

- QUALIFIED SERVICE PERSONNEL should only carry out this operation.

1. Ensure that the main switch is OFF.
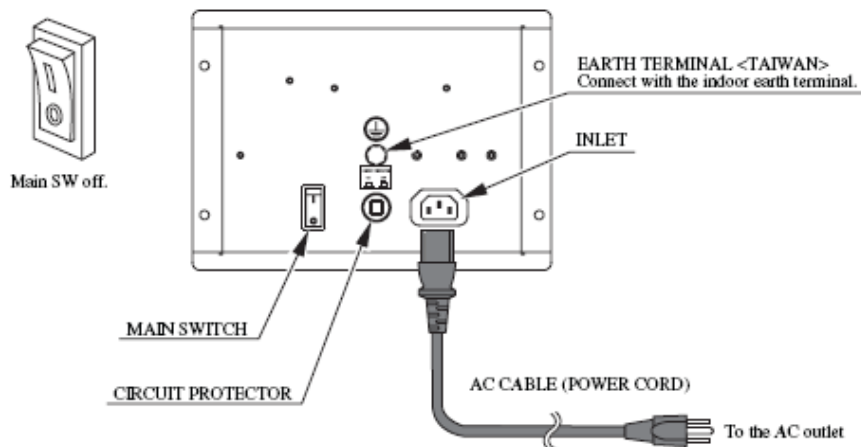
2. Insert the connector on the non-power plug end of the power cord into the AC unit's inlet. Pass the connector through the hole in the base of the satellite and insert it firmly into the AC unit's inlet.
3. Insert the power plug firmly into a power socket.
4. If you are using a separate earth cable connect one end of the earth to the earth terminal on the AC unit and the other end to your in-store earth terminal. The AC Unit earth terminal has a Bolt and Nut combination. Take off the Nut, pass the earth wire through the Bolt, and fasten the nut. <For Taiwan>

*Note that the earth wire is incorporated in the power cord for the Areas of AC 120V (USA) and AC 220 ~ 240V, and therefore, this procedure is not necessary.

5. Firmly insert the power plug into the socket outlet. Insert the opposite side of the power cord plug to the AC Unit's connector ("INLET"). Perform wiring for the power cord and earth wire. Install protective insulation for the power cord and earth wire. If you are using a separate earth to earth the product make sure you install protective insulation for this also.
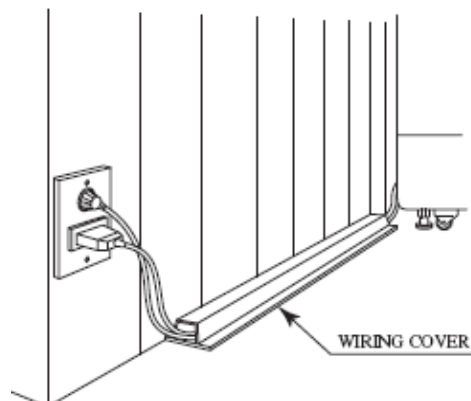
3.6.2. Connecting the DVD drive (software installation)

The software for this product is pre-loaded from the factory. The information and guide lines within this chapter are for reference purposes only.

These procedures will only be implemented if the LINDBERGH is replaced or the SOFTWARE is updated.

For safety's sake, prepare to perform the software install prior to turning on the power. You will need the included DVD Drive, DVD wire and DVF software kit.

NH6pin

USB MINI B

PHOTO 6. 6 a

- Connect the end of the DVD wire with the "DVD" tag on it to the two connectors on the DVD DRIVE.

- Connect the end of the DVD wire with the "LINDBERGH" tag on it to the two connectors on the LINDBERGH board. There are 4 USB connectors on the LINDBERGH board, any of which may be used.

3.6.3. Powering on and software installation.

Caution when using the DVD Drive

WARNING

- Looking directly into the internal laser in the DVD drive may damage your vision.

- Never look into the interior of the DVD drive.

- When connecting the DVD wire connectors be sure to insert them in the correct direction and angle.

- There is only one correct way to connect them. Attempting to force the connectors together incorrectly or connecting them at the incorrect angle may damage the connectors or their pins and create a fire risk or a short circuit.

- Be very careful not to trap or damage the DVD wire. This could cause a short circuit or a fire risk.

STOP
IMPORTANT

- Do not use or store the DVD drive or DVD wire in any of the following locations, as this may lead result in serious damage.

- Do not use or store in these locations
Anywhere which may vibrate or shock the equipment
In direct sunlight
In damp or dusty placed
In places with a sharp change in temperature
Close to anything that gives off heat (a heater, etc.)
Close to anything with a strong magnetic field (magnets, monitor, speakers, radio, etc.)
Anyway that is likely to get wet (kitchen, etc.)
Anywhere sloping
Anywhere with corrosive gas in the air (chlorine, hydrogen sulfide, ammonia, sulfur dioxide, etc.)
Anywhere with strong static electricity

- Do not use in these locations
Close to anything that is highly retentive of heat (carpet, sponge, cardboard, etc.)
Anywhere that blocks the DVD drive air vent.

- The DVD drive is a delicate piece of equipment. Avoid the following.
Dropping or shaking it violently.
Getting water or other liquids on it, or placing small items on top of it.
Placing large or heavy items on top of it.
Drinking or smoking close to the DVD drive.

- Do not turn off the power to the DVD drive when its access lamp is on or flashing, as this could cause damage to the device.

- Do not allow any foreign materials, such as liquids, metals or smoke inside the DVD drive.

CAUTION

- Use a soft, dry cloth to wipe off any dirt or marks on the DVD drive.
  If you need to use a cleaning agent, always use a "neutral" agent diluted in water.
  Never use products or cleaning agents containing benzene, alcohol, thinners, etc.

- Do not touch the lens inside the DVD drive. Doing so may prevent it from reading accurately.

- The chip components on IC boards can be damaged by electrostatic discharge from the human body. Before handling an IC board, always neutralize any static charge in the body by touching a grounded metal surface.

Handling the DVD-ROM Disc

STOP
IMPORTANT

- Do not use a DVD-ROM with a damaged front. This may cause a malfunction.
- Insert the DVD-ROM into the DVD drive with the label facing upwards.
- Do not get fingerprints or dust particles on the disc. Contaminated discs may lower audio and video quality, and may result in read malfunctions.
- When cleaning the disc, do not use volatile chemicals (benzene, thinner, etc.), cleaning sprays, or antistatic agents.
- Do not use a cracked, warped, or damaged disc. Do not attach papers or seals onto the disc to avoid scratching it. Do not use a disc with signs of peeled seals, tape, etc. If such a disc is placed in the DVDROM drive, malfunctions, such as the inability to remove the disc from the drive, may result.
- When cleaning a heavily contaminated disc, use a clean cloth that has been soaked in water and squeezed. After wiping, remove any remaining moisture with a clean, dry cloth.

How to Hold a Disc
When handling a disc, be careful not to contaminate it
with your fingerprints.

With both hands:
Put your thumbs and forefingers on 4 opposite sides
of the disc.
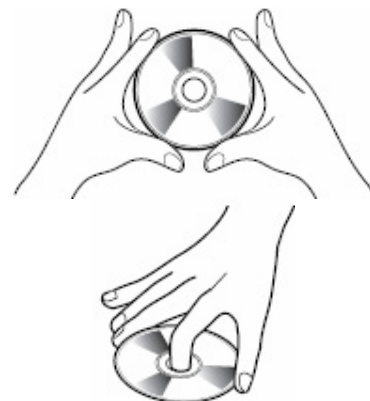
With one hand:
Insert your forefinger into the center hole, while
placing your thumb and middle finger on opposite
sides of the disc.

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> - The product does not come with software installed, so simply turning on the power and leaving the cabinet alone will cause an error. If such an error occurs set the DVD disc into the DVD drive and restart the machine. Installation will take place.
>
> - Due to initialization of the DVD drive, the tray will not come out even if the button is pressed for about 30 seconds after turning on the power.
>
> - Always open the DVD drive's tray and insert/remove DVDs with the power switched on. The tray will not open with the power off.
>
> - Keep the DVD software kit, DVD drive and DVD wire safe even after the software installation is complete.
>
> - If for any reason the installation is not possible, an error will be displayed.

Prepared the attached DVD software kit and sticker "844-0002D-02."
The process as described below features numerous time-consuming steps, such as restarting the power and taking side door L on and off. Each of these steps is required to avoid electric shocks and the operation should be performed exactly as detailed below.

- Turn the AC unit's main switch ON to supply power. The florescent lights in the billboard and the cold-cathode tube inside the lighting should come on.

- Remove the 1 plastic-head screw and remove the DVD drive case lid.
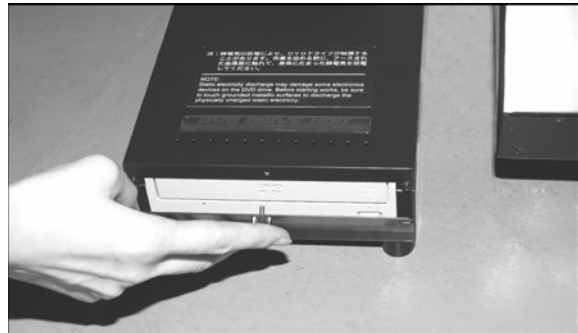
- Wait approximately 30 seconds after turning on the power and then press the switch on the DVD drive. The tray will come out. Insert the DVD from the DVD software kit. Make sure that the label side is facing upwards.
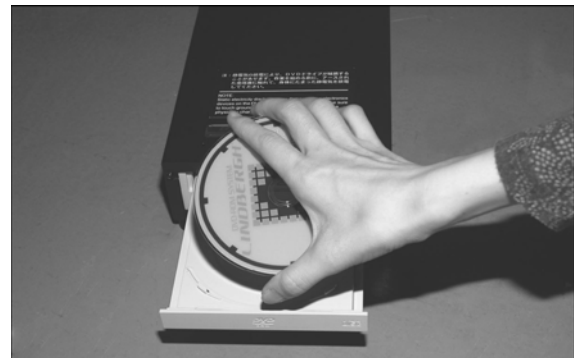
- The software will install automatically from the DVD. The message "Check Release Image・・・ XX.XX%" will be displayed on the screen.

- Once the install finishes, the game screen will be displayed. The install takes about five minutes. Once it is finished remove the DVD. Press the switch on the DVD drive and the tray will open. Take the DVD out.

- Press the switch on the DVD drive and close the tray again. The tray will not move once the power is off so be sure to do this before turning off the power.

- Turn the main switch on the AC unit OFF.

- Remove side door L.

- Undo the two cord clamps holding the DVD wire in place and disconnect the DVD wire connectors attached to the LINDBERGH board. Leave the keychip inserted.

- Stick the sticker "844-0002D-02" onto the LINDBERGH board. The LINDBERGH board initially has a sticker "844-0001D-02" on it. Place the new sticker over this old one.

STICKER "844-0002D-02"
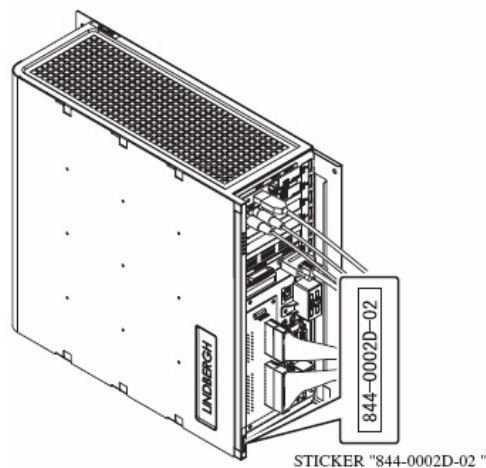
- Place the plate DVD back into side door L and fix it in place with the two truss screws.

- Replace side door L on the cabinet and lock it.

- Fix side door L in place with the three truss screws.

- Replace the DVD drive's case lid and fix it in place with the plastic-head screw.

- Store the DVD drive, DVD wire and DVD software kit in a place free from dust and cigarette smoke.

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Fluorescent lamp is lit.

On-screen images are outputted.

Sound is emitted.

Cold-cathode tube comes on.

FIG. 6. 7 b
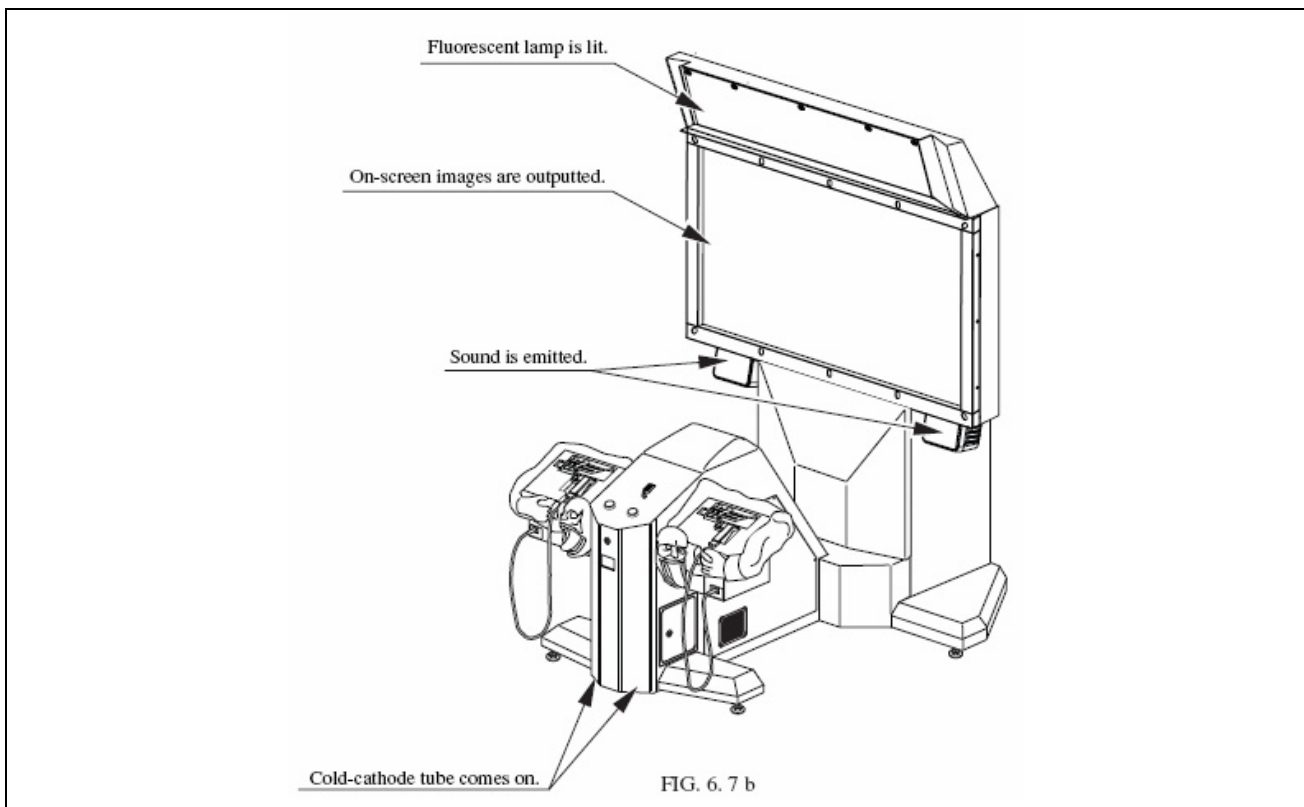
- Turn the main switch on the AC unit ON to supply power.

- As soon as the power is supplied the fluorescent lamps inside the billboard and the cold-cathode tubes inside the lighting unit will come on.

- A few seconds later the LINDBERGH start-up screen will be displayed and then the Advertisement Mode (Attract Mode) will start, which displays a demo of the game and score rankings.

- It takes approximately 3 minutes to reach the Attract Mode.

- During Attract Mode sound will be emitted from the left and right speakers beneath the projector. However if sound during Attract Mode is turned off in TEST Mode, no sound will be emitted.

- Even if the product's power is turned off the number of credits played, ranking data, game difficulty and other settings and bookkeeping data will all be saved.

- The number of incomplete credits (coins inserted that did not equal a credit) and the bonus adder count data will not be saved.

3.7. Precaution regarding product operation

3.7.1. Before operation

To avoid injury and trouble, be sure to pay attention to the behavior of visitors and players.

In order to avoid accidents, check the following before starting the operation:

- To ensure maximum safety for the players and the customers, ensure that where the product is operated has sufficient lighting to allow any warnings to be read. Operation under insufficient lighting can cause players to bump into each other, causing trouble between customers.

- Be sure to perform appropriate adjustment of the monitor (projector).

Do not leave the machine operating with monitor flickering or malfunctioning. Failure to observe this can have a bad influence upon the players' or the customers' physical condition.

- It is suggested to ensure a space for players who feel sick while playing the game to take a rest.

- Check if all of the adjusters are in contact with the surface. If they are not, the cabinet can move and cause an accident.
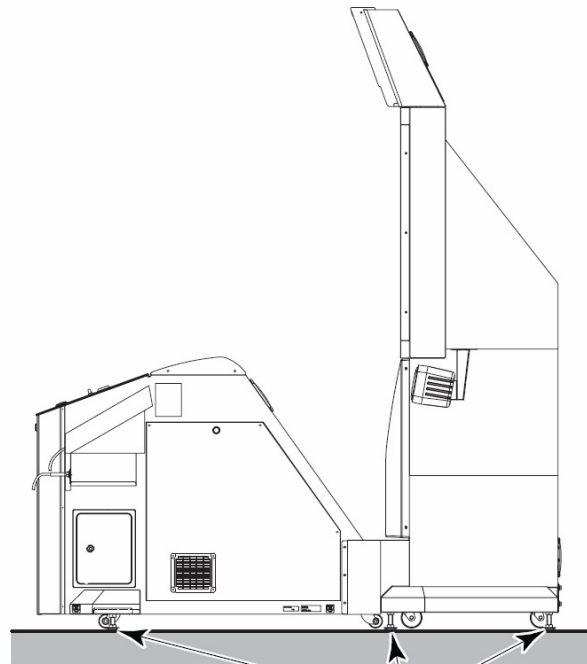
Ensure that all the adjusters are in contact with the floor.

- Do not put any heavy items on this product. Placing heavy items on the product can cause accidents or parts damage.

- Do not climb on the product. Climbing on the product can cause accidents. To check the top portion of the product, use a step.

- To avoid electric shock, check that no door & cover parts are damaged or missing.

- To avoid electric shock, short circuit and or parts damage, do not put the following items on or in the periphery of the product. Flower vases, flowerpots, cups, water tanks, cosmetics, and receptacles/containers/vessels containing chemicals or water.

- To avoid injury, be sure to provide sufficient space by considering the crowd situation at the installation location. Insufficient installation space can cause customers to bump into each other, causing trouble.

- Every day when cleaning the Control Unit (Gun), inspect the gun and make sure that there are no scratches or cracks in the surface, and that the fastening screws are not loose. If the game is played with scratches, cracks or loose screws it can cause injuries to the player or to people nearby.

Ensure that the screws are not loose and are all present.

Ensure that the trigger and buttons and functioning properly.

Ensure that the casing is free of scratches and cracks.

Ensure that all connecting wires are not damaged.
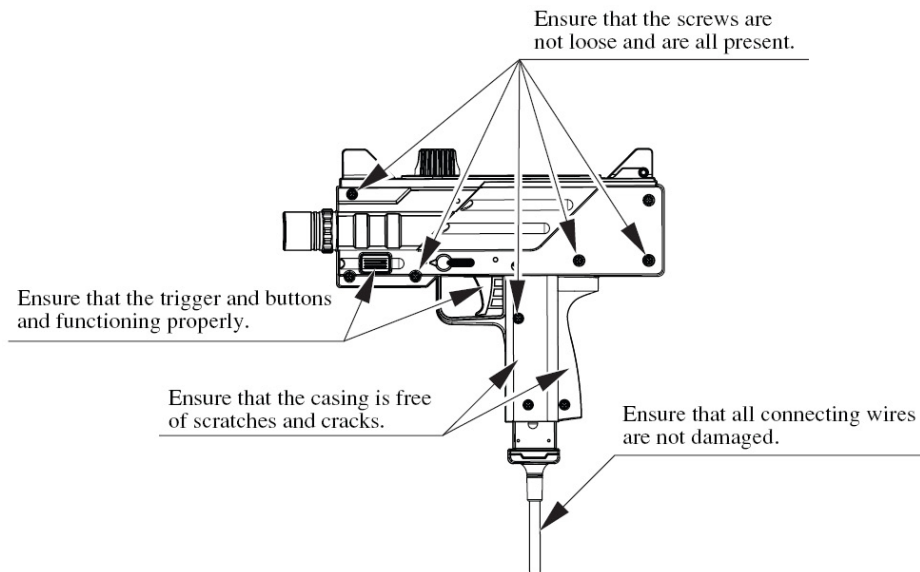
- Players directly hold the controller with their bare hands so it is recommended that the wet towels (paper towels) be provided.

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3.7.2. During operation (paying attention to customers)

To avoid injury and trouble, be sure to pay attention to the behavior of visitors and players.

⚠️ **WARNING**

- To avoid injury and accidents, those who fall under the following categories should refrain from playing the game.

  - Those who need assistance such as the use of an apparatus when walking.
  - Those who have high blood pressure or a heart problem.
  - Those who have experienced muscle convulsion or loss of consciousness when playing video games, etc.
  - Those who have neck or spinal cord problems.
  * Intoxicated persons.
  * Pregnant women or those who could be pregnant.
  * Persons susceptible to motion sickness.
  * Persons who disregard the product's warning displays.

- Even players who have never been adversely affected by light stimulus might experience dizziness or headache depending on their physical condition when playing the game. Small children are especially likely to experience these symptoms. Caution guardians of small children to keep watch on their children during play.

- It is suggested to provide a space for players who feel sick while playing the game to take a rest.

- Instruct those who feel sick during play to have a medical examination.

- To avoid injury from falls and electric shocks due to spilled drinks, instruct the player not to place heavy items or drinks on the product.

- To avoid electric shocks and short circuits, do not allow customers to put hands and fingers or extraneous matter in the openings of the product or small openings in or around the doors.

- To avoid falls and resulting injury, immediately stop the customer from leaning against or climbing on the product, etc.

- To avoid electric shocks and short circuits, do not allow customers to unplug the power plug.

- Be sure to instruct the adult responsible for their children to watch them. Children cannot sense danger. Approaching the player during play may result in accidental contact, collisions or falls. If the gun is pulled from the gun holder and dropped on the head, it may cause injury.

- Caution the player not to wrap the gun cord around his/her wrist or neck, as this can lead to serious injury.

CAUTION

- Immediately stop such violent acts as hitting and kicking the product. Such violent acts can cause parts damage or cause the cabinet to fall over, resulting in injury.

- Immediately stop users from leaning or sitting on the gun holder. Such acts can lead to injury or damage to parts or the shape of the cabinet.

- Immediately stop users from swinging or reloading the Control Unit (Gun) in a violent manner. Such acts may hurt the user or other people around them.

- Playing too close to the cabinet may cause the Control Unit (Gun) to hit the cabinet and cause damage. Make sure that players understand to play at a safe distance from the cabinet.

- Make sure that players understand not to stand too close together when playing a two-player game. Swinging the Control Unit (Gun) could lead to a player getting hit and may cause injury.

- Make sure that players understand to hold the Control Unit (Gun) firmly during play. Dropping the Control Unit (Gun) could cause damage to it or injure the player.

- Larger rings and other such accessories may lead to injury to fingers during play. Make sure that players understand to remove any accessories prior to playing the game that may cause such accidents.

- Make sure that players understand that more than one person is not allowed to play with a single Control Unit (Gun). Such play could lead to various injuries.

STOP IMPORTANT

- Make sure to avoid disturbing customers when moving/removing the machine from its current location.

- The Control Units (Guns) for use on 1P side (left side) and 2P side (right side) are different. Ensure that players do not confuse the right and left side guns when starting play.

3.8. Assembly check

Use Test Mode to check that the product has been assembled correctly and that the game board, other connected boards and all output devices are working correctly.

Perform this test in Test Mode as follows.
See "9-2 System Test Mode" for tests (1) to (4) below and "9-3 Game Test Mode" for test (5) to (7).

(1) Information Display Screen

Selecting SYSTEM INFORMATION, STORAGE INFORMATION or JVS TEST from the SYSTEM TEST Mode menu screen will displayed system information, game information and information concerning the JVS I/O board attached to the LINDBERGH board.
If all information is displayed correctly then the LINDBERGH board is running smoothly.

(2) JVS Input Test Screen

Selecting INPUT TEST on the JVS TEST Screen will display input data for the JVS I/O board.
For this product this is the screen to test the coin switches. Insert a coin to perform a test.
If the display nest to the switch changes the switch and connections are working correctly.

(3) Monitor Test Screen

Selecting MONITOR TEST on the SYSTEM TEST Mode menu screen will display a screen that allows the monitor output to be tested.
The projector comes adjusted from the factory but still use this TEST Screen to make sure that further adjustment is not required. If required, see chapter 11 for information on adjusting the projector.

(4) Speaker Test Screen

Selecting SPEAKER TEST from the SYSTEM TEST Mode menu screen will display a screen that allows the speaker output to be tested.
The speakers attached to the machine will output a test sound. Use this to check that all speakers are outputting correctly.

(5) Input Test

Selecting INPUT TEST from the GAME TEST Mode menu screen will display a screen that allows input devices to be tested.
Press each switch to check that each is working. If the display next to the input device changes to on "ON" or the values displayed change smoothly then that input device and all connections with it are working correctly.

```
                    INPUT TEST

                   PLAYER1      PLAYER2
   START            OFF          OFF
   GUN TRIGGER      OFF          OFF
   GUN BUTTON       OFF          OFF
   GUN SPEED X      7f           7f
   GUN SPEED Y      7f           7f
   GUN X            00           00
   GUN Y            00           00
   SCREEN IN        OUT          OUT
   SERVICE               OFF
   TEST                  OFF



        PRESS TEST AND SERVICE TO EXIT
```

Input Test Screen

(6) Output Test

Selecting OUTPUT TEST from the GAME TEST Mode menu screen will display a screen that allows output devices to be tested.
Operate the lamps and other output devices and check that they are all working correctly.

```
                    OUTPUT  TEST

          START1  LAMP           OFF
          START2  LAMP           OFF




          -> EXIT




          SELECT WITH SERVICE AND PRESS TEST
```
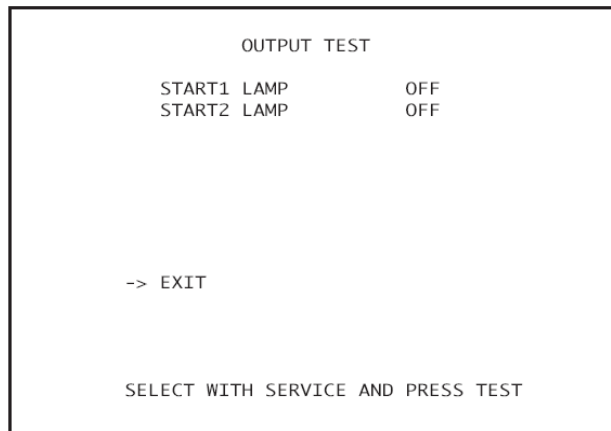
Output Test Screen

(7) Calibration Check and Speed Check

Prior to letting customers use the game you must play a game and make sure that everything is operating correctly. Although adjusted prior to leaving the factory incidents in transit may have affected these settings and so check to make sure that adjustment is not required.

```
                GUN  MARK  CHECK

    +OUT  OF  SCREEN  P1+    +OUT  OF  SCREEN  P2+




                              +



              +



                PRESS  TEST  TO  EXIT
```
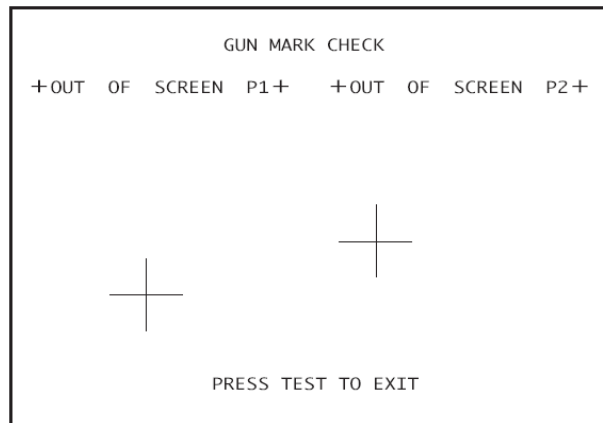
Gun Mark Check Screen

You should perform the above checks once a month. However (7) should be performed at least once a week.

⚠ WARNING	• In order to prevent electric shock and short circuit hazards, be sure to turn power off before performing work. • Be careful not to damage the wires. Damaged wires may cause electric shock or short circuit or present a fire risk. • Do not expose the IC board, etc. unless absolutely necessary. Failure to observe this can cause electric shock hazard or malfunctioning. • This work should be performed by the site maintenance personnel or other qualified professionals. Performing work by non-technical personnel can cause a severe accident such as electric shock.

When the game machines of a same or similar type are installed side by side, their sensors may interfere with each other. To reject the interference, follow the procedure below.
The following game machines employ a same or similar type of sensor. If interference happens to the sensors, operation of the games may be mutually disturbed.

- THE HOUSE OF THE DEAD 2, U/R type, DX type and Super DX type
- DEATH CRIMSON, U/R type and DX type
- THE LOST WORLD, U/R type, DX type and Super DX type
- BRAVE FIRE FIGHTERS
- SAMBA DE AMIGO
- CONFIDENTIAL MISSION, U/R type and DX type
- SHAKATTO TAMBOURINE
- LUPIN THE 3RD THE SHOOTING, U/R type and DX type
- THE MAZE OF THE KINGS, U/R type and DX type
- THE HOUSE OF THE DEAD 3, U/R type and DX type
- VIRTUA COP 3, U/R type and DX type
- GHOST SQUAD, U/R type and DX type
- THE HOUSE OF THE DEAD 4

a. Turn the power off.
b. Undo the 2 truss screws and remove the side door from the cabinet.
c. The interference prevention wire is connected to the IC board inside the cabinet.
d. If multiple units of the same game are installed side by side, make sure that the game units that are connected to the interference prevention wires are arranged so that they alternate with the units that are not connected.
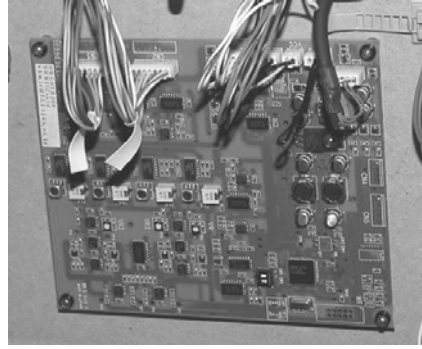
INTERFERENCE PREVENTION WIRING
HDF-60032
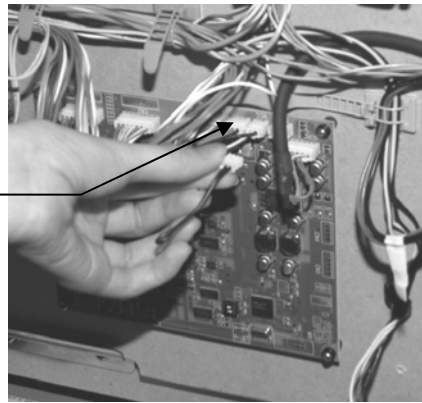
3.9. Fuse locations.

WARNING	• In order to prevent electric shock and short circuit hazards, be sure to turn power off before performing work. • Be careful not to damage the wires. Damaged wires may cause electric shock or short circuit or present a fire risk. • Do not expose the Game BD, etc. without a good reason. Failure to observe this can cause electric shock hazard or malfunctioning. • Do not use this product with connectors other than those that were connected and used with the Game Board at the time of shipping. Do not carelessly connect wires to connectors that were not used at the time of shipping, as this may cause overheating, smoke or fire damage. • When replacing or repairing the game board and then returning it to the cabinet, be sure to reconnect all the connectors correctly. Improper connection may cause electric shock, short circuit or fire. • When connecting the connectors, be sure to attach them correctly. • There is only one correct way in which they must be connected. Attempting to connect them incorrectly may cause damage to the pins on the connectors, and cause electric shock, short circuit or fire.
CAUTION	• In this product, setting changes are made during the Test Mode. The Game BD need not be operated. Use the Game BD, etc. as is with the same setting made at the time of shipment so as not to cause electric shock and malfunctioning. • Static electricity from your body may damage some electronics devices on the IC board. Before handling the IC board, touch a grounded metallic surface so that the static electricity can be discharged.
STOP IMPORTANT	• When exchanging the game board place and post off the damaged board in the new board's special packaging. If you do not have the packaging or it is damaged order one using the following product number/name <601-11691: CARTON BOX LBG>. • When sending a board for repairs or do not dismantle the board in any way prior to sending it away. It may not be possible to meet your request if any parts are missing. • Send a game board in for repair with the key chip still inserted.

There are a number of fuses used on this machine to protect the user and the machine from damage. Only replace the fuse once you have remove the cause of its failure. Detailed below is a list of the fuses used, their location and if relevant P.C.B. reference:

PART NUMBER	LOCATION	TYPE & DETAILS	QTY
514-5078-2000	WH HDF (60033UK)	2A T CERAMIC 20X5MM	2
514-5078-2000	WH HDF 60029-02UK)	2A T CERAMIC 20X5MM	4
514-5079-10000	XFMR (560-LGBH-UK)	10A T CERAMIC 32X6.3MM	1
514-5090-3000	FL UNIT (390-7001-30UK)	3A T CERAMIC 25X6.3MM	1
514-5078-10000	IEC INLET (EP1387)	10A T CERAMIC 20X5MM	1

3.10. Replacement of fluorescent lamps and other lamps

WARNING

- Never touch places other than those specified. Touching places other than those specified can cause electric shock and short circuit. Disconnect the machine from the supply before attempting the replacement of any lamp.

STOP IMPORTANT

- Lamps should only be replaced by QUALIFIED SERVICE PERSONNEL.

3.10.1. Fluorescent lamp replacement

- TURN OFF THE MACHINE.
- Remove the 4 screws, which retain the BILLBOARD sheet.
- Lift off the BILLBOARD sheet.

- Slide back the covers located over the ends of the Fluorescent lamp.
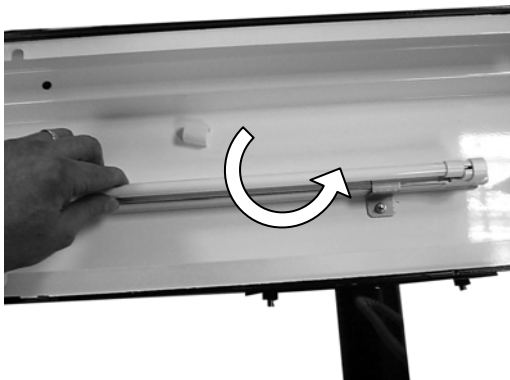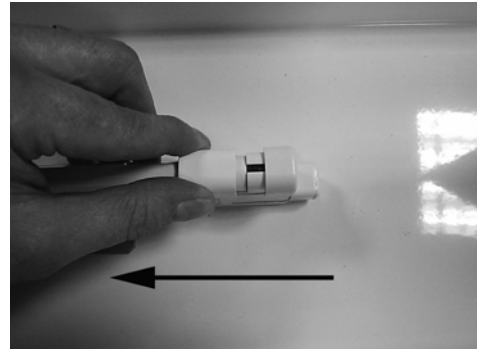
- Carefully twist the lamp to remove.

- Replace the old lamp with a new lamp.
- Reverse the procedure to reassemble.

3.10.2.Standard lamp replacement

- TURN OF THE MACHINE.
- Remove the four (4) truss head screws that secure the ASSY CONTROL PANEL to the Gun Cabinet.
- Lift off the ASSY CONTROL PANEL and disconnect the Lamp and switch holders before removing.

Fluorescent Light

Disconnect the Fluorescent Light from the top and slide the whole unit upwards to remove.
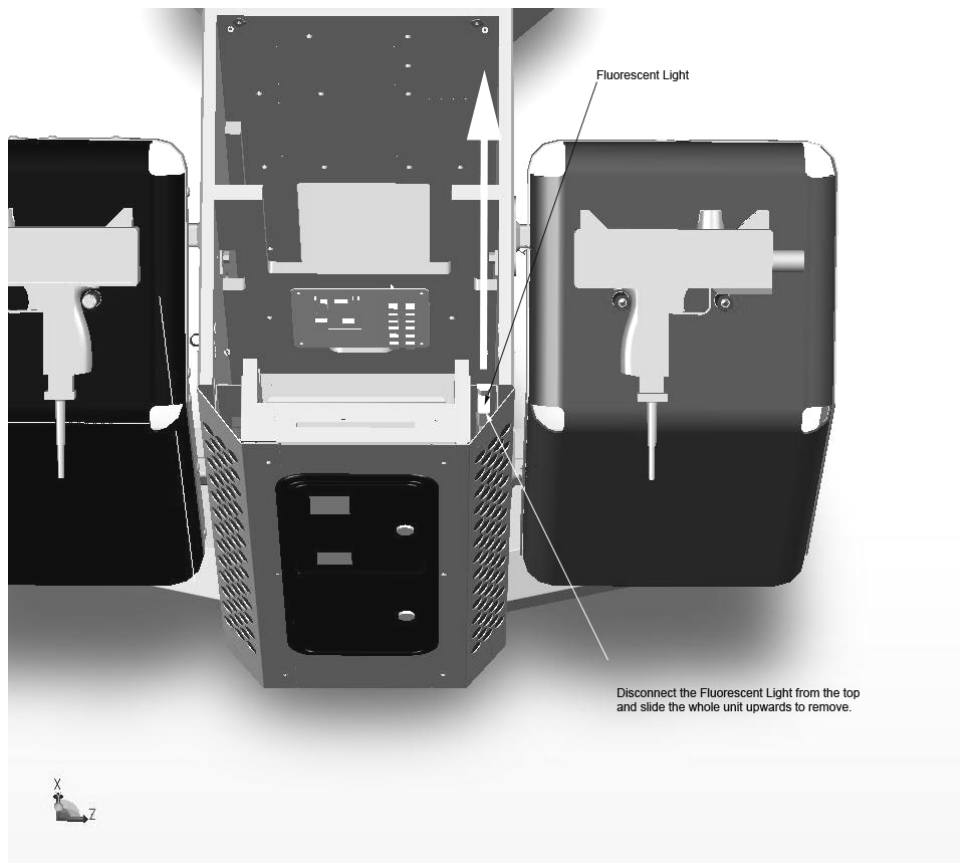
- Disconnect the lamp at the top connection point.
- Carefully raise the lamp assembly unit the unit is free from the cabinet.
- Replace the lamp following the instructions for the BILLBOARD LAMP replacement.

Follow the procedure in reverse to reassemble.

3.11. Troubleshooting

- These procedures should only be carried out by QUALIFIED SERVICE PERSONNEL.

If a problem occurs, first check the wiring connections.

PROBLEMS	CAUSE	COUNTERMEASURES
When the main switch is turned ON, the machine is not activated.	The power is not ON.	Firmly insert the plug into the outlet.
	Incorrect power source/voltage.	Make sure that the power supply/voltage are correct.
	AC Unit CIRCUIT PROTECTION DEVICE (i.e.; fuse) was activated due to an instantaneous over current.	First, remove the cause of over current and reinstate the circuit protection device to its original status. Then identify the cause of the fault on the item, which caused the over current, & fix.
The colour image on the screen is incorrect.	Incorrect monitor adjustment.	Make appropriate adjustments.
The on-screen image of the monitor sways and/or shrinks.	The power source and voltage are not correct.	Make sure that the power supply and voltage are correct.
Sound is not emitted.	Sound volume adjustment is not correct.	Adjust the volume setting on the VTS bracket.
	Malfunctioning BD and Amp.	Perform Sound Test to check it.
	Connector connection is incorrect.	Check connector connection from Base to Speaker.
	VR malfunctioning.	Replace the V.R.
Controller operation is not satisfactory.	Sighting is inaccurate due to environmental conditions, etc.	Adjust the gun sighting alignment.
	Micro switch malfunctioning.	Replace the micro switch.
	Sensor BD is malfunctioning.	Replace the Sensor BD.
The fluorescent lamp does not light up.	Fluorescent lamp needs replacement.	Replace the fluorescent lamp.
	The connector is disconnected.	Check connector connections in the billboard case.
The LEADER lamp does not light up.	The lamp needs replacement.	Replace the lamp.
	The connector is disconnected.	Check connector connections in the billboard case.
Interactive play is not possible.	Communication cable is disconnected.	Connect the cable.
	Cable connections are not correct.	Connect the cable correctly.
	Settings for communication play are not correct.	Ensure that GAME ASSIGNMENTS settings are correct.

4. Gameboard

⚠ **WARNING**

- Turn off the mains power and remove the power cord before opening the machine.

🛑 **STOP IMPORTANT**

- The GAME BOARD should not require any work to be carried out upon it. All settings and tests can be achieved without access to the GAME BOARD.
- All work to be carried out by QUALIFIED SERVICE PERSONNEL

4.1. Removing the game board

The LINDBERGH game board can be found in the base of the display cabinet.

4.2. Composition of the game board.

🛑 **STOP IMPORTANT**

- The game board becomes the game board for this product once the key chip is inserted.
- The DIP SW (dip switches) on the board must be set as specified below. If set incorrectly for this product, an error will be displayed and the game will not run.

ASSY CASE LBG L 1GB HDF EXP (844-0002D-02)
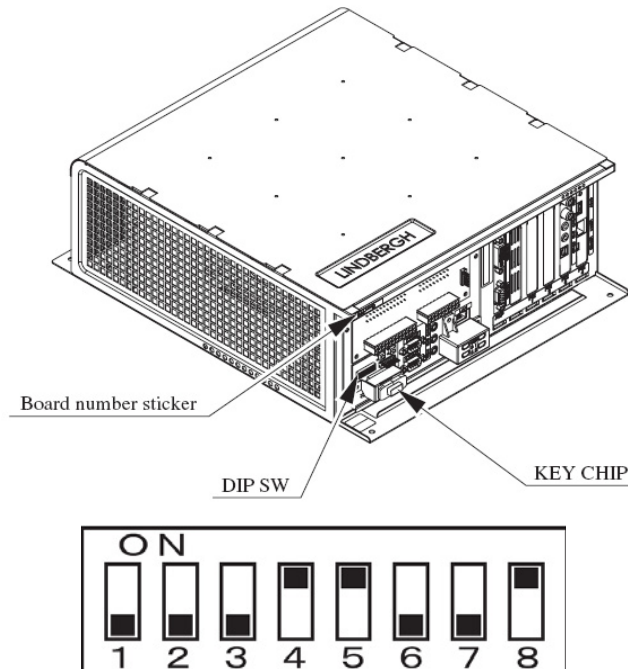
Use this product with the DIP SW settings shown in the figure below.

4.3. Periodic check and inspection

The items listed below require periodic check and maintenance to retain the performance of the machine and ensure safe operation:

⚠️ WARNING	• Be sure to check annually to see if the power cords are damaged. The plug is securely inserted and that there is no dust in the interior of the machine or between the socket and the power cord. Using the product in an unclean condition may cause a fire or electric shock.

🛑 STOP IMPORTANT	• Periodic checks should only be carried out by QUALIFIED SERVICE PERSONNEL.

DESCRIPTION	WHAT TO CHECK	INTERVAL
HANDLE MECHA	Check the V.R. value	Monthly
	Check adjust gear engagement	Every 3 months
	Greasing of gears	Every 3 months
ACCELERATOR & BRAKE	Check the V.R. value	Monthly
	Check adjust gear engagement	Every 3 months
	Greasing of gears	Every 3 months
SHIFT LEVER	Check SW	Monthly
	Greasing	Every 3 months
MONITOR / PROJECTOR	Clean screen	Weekly
	Check adjustment	Monthly
SEAT	Rail greasing	Monthly
GAME BD	Memory Test	Monthly
	Game Assignments	Monthly
INTERIOR	Clean	Annually
POWER SUPPLY CORD	Check condition	Annually
CABINET SURFACE	Clean	As required
CONTROL PANEL	Lamp operation	Monthly
	Check switch operation	Monthly
CONTROLLER (GUN)	Clean	As required
	Check sighting	Weekly
	Check switch operation	Monthly
COIN MECHANISM	Check SW (If Fitted)	Monthly

5. Game description

The following explanations apply to the product when functioning properly. If the product operates differently from the following contents, a fault may have occurred.

Immediately look into and eliminate the cause of the fault to ensure proper operation.
The fluorescent light in the billboard and the cold-cathode tube in the lighting unit are always on whenever the power is turned on. Demo movies and game rankings are displayed on the screen.

Audio may also be played from speakers on the left and right sides of the projector. However, it is possible to select whether sound is output or not during Attract Mode through Test Mode settings.

Both the right and left START buttons are integrated with a light. The light flashes when sufficient coins are inserted for play. The light goes out when the START button is pressed to start the game.
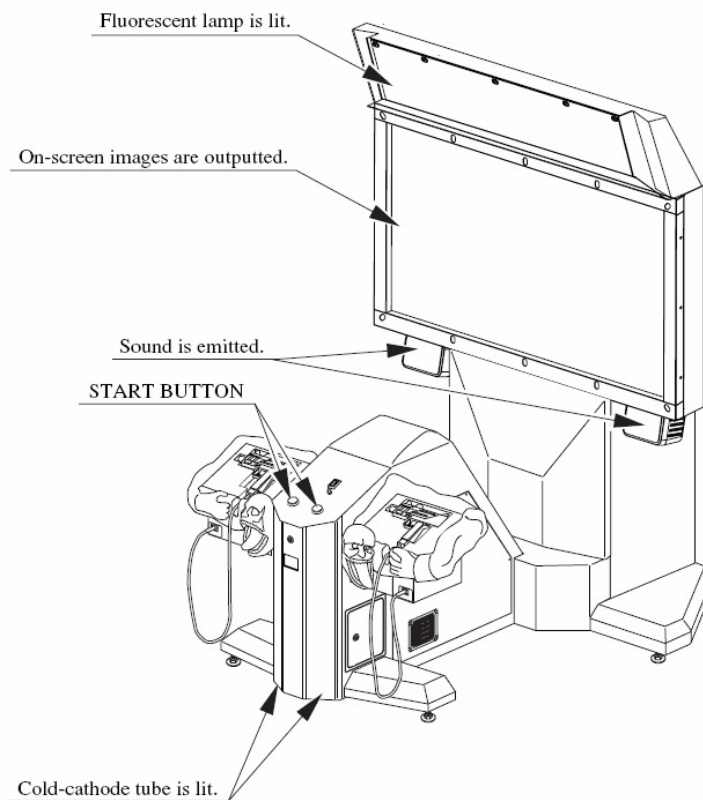
Note: This image is not a true representation for the product. This image is for illustration purpose only.

5.1.   Game outline

🔴 Insert a coin and a credit will be added to the credit indicator below the screen. When enough coins have been entered for one play, the "INSERT COIN(S)" message below the screen will change to "PRESS START BUTTON," and both START buttons will flash.

NOTE: The maximum number of credits that can be counted at once is "24." Any coins inserted after 24 credits have been counted will not be counted as credits, nor will they be refunded. However, they will be counted as inserted coins on the data display and by the coin meter.

🔴 A player plays on the left (Player 1) or the right (Player 2) by pressing the START button on that side. Pressing the START button begins the game.

🔴 When the game starts, a demo plays and the stage title is displayed before switching over to game play.

Life, loaded bullets remaining and grenades are shown at the bottom left of the screen for the player on the left (Player 1). Life, loaded bullets remaining and grenades are shown at the bottom right of the screen for the player on the right (Player 2).

Each bullet represents one remaining shot.

The number of grenades that can currently be used.

Life is displayed as a flame mark. The game ends when life runs out.

Credit indicator.
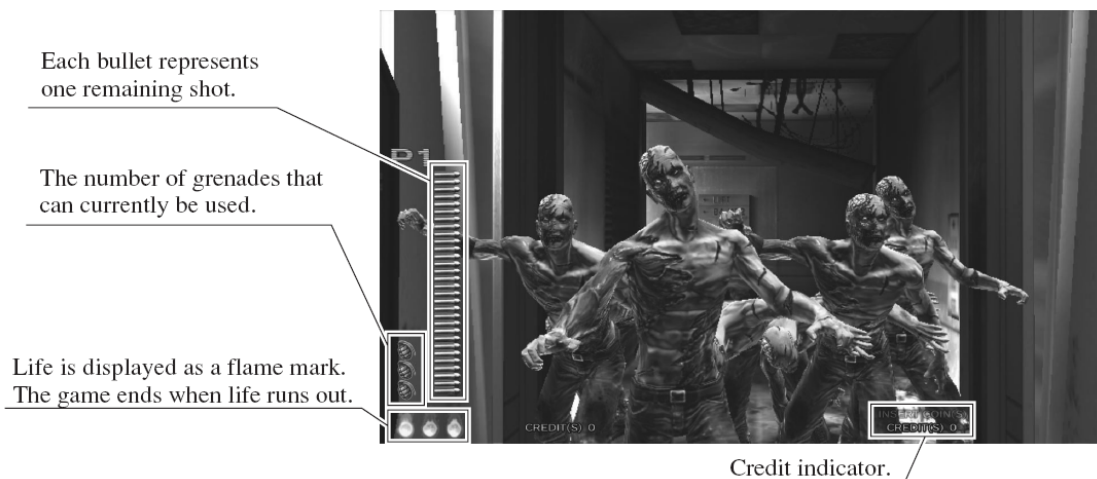
The gun holds 30 shots. When empty, the message "RELOAD" will appear on the screen.
The player can reload the gun by gently shaking it or by pointing it outside of the screen. Gently shaking it or pointing it outside of the screen even if bullets remain in the gun can reload the gun.

Only the displayed number of grenades may be used. This number may be increase by collecting grenades during each stage. A maximum of 5 grenades may be held at once. Also, if only 2 or less grenades remain upon clearing a stage, the player will automatically start the next stage with 3 grenades.
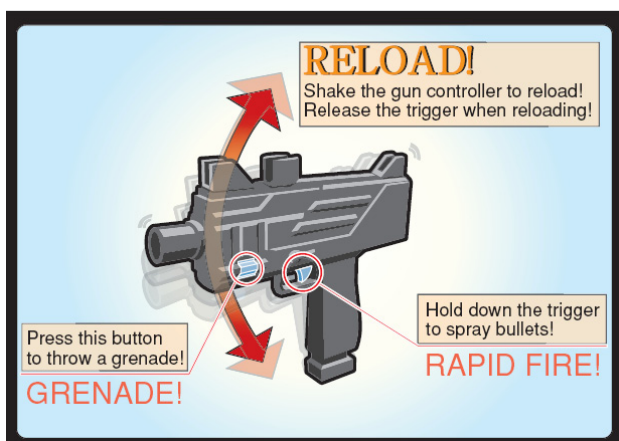
Players can defend themselves against oil drums, rocks and axes thrown by enemies by shooting them.

Shooting the background will sometimes cause items to appear. Players grab them by shooting them. Grabbing items will increase a player's score or restore life.

When life reaches zero the game ends.
A unique boss awaits the players at each stage. The bosses appear different on each stage.

Players defeat a boss by reducing its Life Meter to zero.
In addition, when a boss begins to attack the Cancel Meter appears. Players can stop the boss's attack by reducing this meter to zero.

This is the boss's life meter.
Defeat the boss by reducing it to zero.

This is the boss's cancel meter.
Stop the boss's attack by reducing it to zero.

Boss
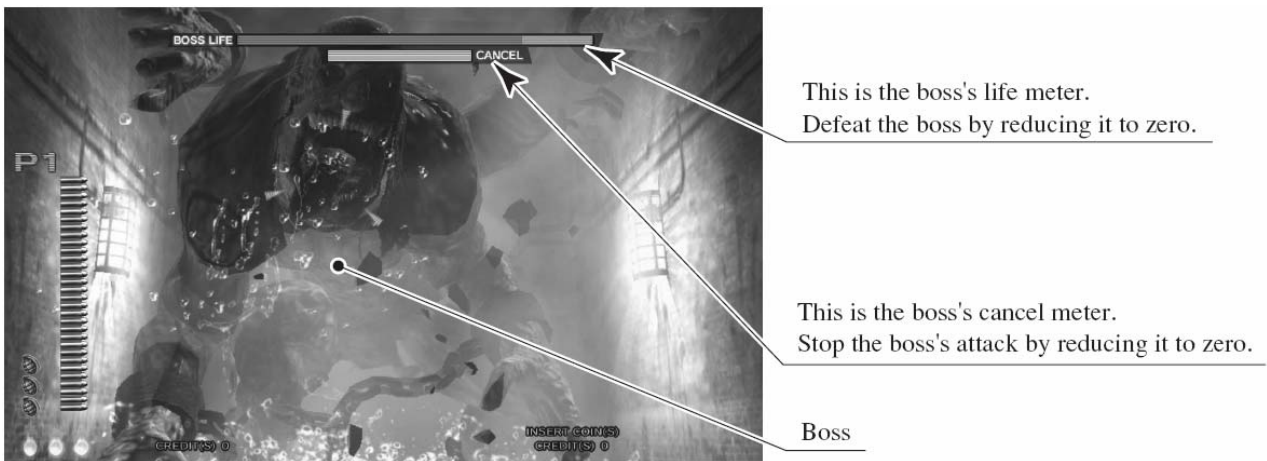
As the game progresses, players will be faced with enemies grabbing them and attempting to push them over. To survive this danger, the player must shake the gun controller to fill up the on-screen meter within the time limit. If the player fails to do so they will take damage, reducing their number of lives, and risk being pushed over and taking further damage.

Shaking the gun controller fills up the on-screen meter.

Filling the meter up within the time limit will shake the enemy off.

The gun cannot be fired and grenades cannot be used when grabbing an enemy.

Being grabbed by an enemy.
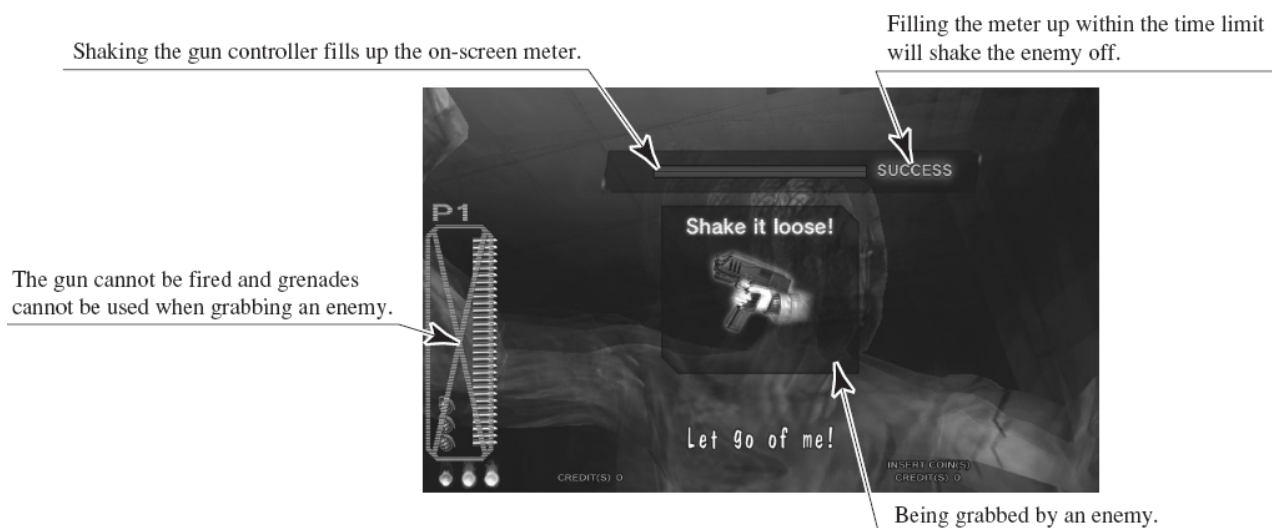
- A player can join a game in progress at any time by inserting coins and pressing the START button. In addition, the START button on the side where no one is playing will continue to flash if enough credits remain. A second player can join the game by pressing the flashing START button.
- "CONTINUE" is displayed when life drops to zero. A player may continue by inserting sufficient coins and pressing the START button.
- If upon clearing every stage in the game the player's score is better than the current top 10, they may enter their name.

5.2. Items

"Medical Kit"
Increases life by one.
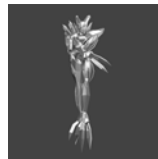
"Mini Magician"
Increases a player's score.

"Gold Coin"
Increases a player's score.

"Golden Frog"
Increases a player's score.

"Silk Hat"
Increases a player's score.

"Toy's Bus"
Increases a player's score.

Other items can also be found during the game.

5.3. Play hints

- **Aim for the head!**
  Enemies in every stage, aside from boss characters, will lose the most life when shot in the head. Therefore, shooting enemies accurately in the head is the fastest way to defeat them.

- **Choose your favorite route!**
  Each stage has a number of branching paths. Some branching paths can be simply chosen and some depend upon certain actions. The key to improving play is to find the route that suits you best!

- **Use recovery items to regain lost lives!**
  Although being attacked by enemies will reduce your remaining lives, each stage also contains items that will increase remaining lives. Also, upon clearing a stage your performance may award extra lives. Repeated play and knowledge of the levels will aid in gathering extra lives.

- **Use grenades effectively!**
  As well as the gun, you have grenades in your arsenal. These can cause massive damage to enemies, and are best used when there are a large number of enemies on screen or at sections you find difficult. Your number of remaining grenades can be increased by collecting items, and if a stage is cleared with less than 2 grenades remaining you will start the next stage with 3.

- **Aim for the boss' weak spot!**
  Every stage boss has a weak spot. Shooting this weak spot accurately will help you to avoid boss' attacks. However, practice will be required to hit the weak spot accurately whilst the boss is moving.

6.   Maintenance instructions

6.1.   Explanation of test and display test

Use the switches on the VTS to enter the TEST MODE. This will allow you to carry out post installation and periodic checks and adjustments. The following section details the function of each of the tests:

> **STOP IMPORTANT**
> • Be very careful about entering TEST MODE. If the machine you wish to test is linked to other machines, exiting test on your machine will cause a network check to be carried out. This will disable all other machines linked to it.

ITEM	DESCRIPTION	INTERVAL
INSTALLATION OF THE MACHINE	When the machine is installed perform the following checks: • Check to see that each setting is as per the standard settings input at the time of shipment. • In the INPUT TEST mode, check each switch and V.R. • In the OUTPUT TEST mode, check each of the lamps. • In the MEMORY TEST mode check all of the IC's on the IC BD.	Monthly
MEMORY	• On the TEST MENU screen choosing the MEMORY TEST allows self test to be performed. In this test RAM & ROM are tested.	Monthly
PERIODIC CHECKS	Periodically perform the following • MEMORY TEST. • Ascertain each setting. • In the INPUT TEST mode, test the control devices. • In the OUTPUT TEST mode, check each of the lamps.	Monthly
CONTROL SYSTEM	• In the INPUT TEST mode, check each switch and V.R. • Adjust or replace each switch and V.R.	Monthly
MONITOR	• In the C.R.T. TEST mode, check to ensure the monitor is adjusted correctly • Clean screen (switch off machine and remove the plug)	Monthly Weekly
IC BOARD	MEMORY TEST • In the SOUND TEST mode, check the sound related ROMs	Monthly
DATA CHECK	• Check such data as held in the bookkeeping screens, relating to number and length of plays	Monthly
EXTERIOR MAINTENANCE	• Clean surfaces • Lubricate seat sliders Note: This appliance shall not be cleaned by a water jet.	Monthly
COIN MECHANISM	• Check switch operation (if fitted)	Monthly

7. System test mode

The SYSTEM TEST MODE allows the functioning of each part of the machine to be checked. In addition game configuration and coin configuration changes can be made within this mode.

> • When setting changes are made within TEST MODE, be sure to exit from TEST MODE using the exit options. If you turn the power off and then on without having exited correctly the changes you made will not take effect.

7.1. System test menu

System Test Mode can be used to check the information or the operation of the LINDBERGH board, adjust Monitor color, and perform coin/credit settings.

Press the TEST Button after powering on the unit to display the following SYSTEM TEST MENU.

```
                    S Y S T E M   T E S T   M E N U


        S Y S T E M   I N F O R M A T I O N .......................... a
        S T O R A G E   I N F O R M A T I O N ...................... b
        J V S   T E S T ........................................... c
        M O N I T O R   T E S T ................................... d
        S P E A K E R   T E S T ................................... e
        C O I N   A S S I G N M E N T S ........................... f
        C L O C K   S E T T I N G ................................. g
        N E T W O R K   S E T T I N G ............................. h
        G A M E   T E S T   M O D E ............................... i
      - > E X I T

      S E L E C T   W I T H   S E R V I C E   A N D   P R E S S   T E S T
```

Use the SERVICE Button to move the cursor to the desired test item. Press the TEST Button to enter the selected item.

Press the TEST Button when GAME TEST MODE is selected to change to the Test Menu specific to this game.

Refer to the section "GAME TEST MODE."

After the test is complete, move the cursor to EXIT and press the TEST Button to return to the Game Advertisement screen.

7.2.   System information.

The SYSTEM INFORMATION screen displays system information.

```
            S Y S T E M    I N F O R M A T I O N

    M O T H E R    B O A R D
        S E R I A L    N O .          A A G E － ×××××××××××××
        K E R N E L    V E R S I O N  2 . 4 . 2 0 _ m l 3 1 a
        B O O T    V E R S I O N      1 . 0 0  ( B U I L D   0 0 0 9 )
        R E G I O N                   × ×
        M E M O R Y    S I Z E        × × × × × × ×
    S T O R A G E    D E V I C E
        S T O R A G E    S I Z E      × × × × ×   M B
    B A S E    B O A R D
        S E R I A L    N O .          A 8 0 E － ×××××××××××××
        F I R M    V E R S I O N      2 . 0 0
    G R A P H I C    B O A R D
        D E V I C E    I D            × × × × × ×


            P R E S S    T E S T    T O    E X I T
```

The following information is displayed on this screen.

MOTHER BOARD

SERIAL NO.:	The serial number of the game board.
KERNEL VERSION:	The system's OS version.
BOOT VERSION:	The boot program version.
REGION:	The region setting.
MEMORY SIZE:	The onboard memory size.
STORAGE DEVICE:	The total capacity of the program installer device.
STORAGE SIZE:	The total capacity of the program installer device.

BASE BOARD

SERIAL NO.:	The serial number.
FIRM VERSION	The firmware version.

GRAPHIC BOARD

DEVICE ID:	The graphic board's ID.

Press the TEST Button to return to the System Test Menu screen.

7.3. Storage information.

The STORAGE INFORMATION screen displays information on the game contained within the program installer device. This screen is also used when uninstalling the game contained within the program installer device.

Until preparations to launch the game are complete, a "now checking" screen will be displayed and uninstall cannot be performed. If the program installer device does not contain any game data, the game information will be displayed in grey and uninstall cannot be performed.

```
               STORAGE   INFORMATION

    THE  HOUSE  OF  THE  DEAD  4
       GAME  ID              SBLC
       PROGRAM  TYPE       CLIENT

    0)    SBLC:X.XX    yyyy/mm/dd


       UNINSTALL
    ->EXIT

       SELECT  WITH  SERVICE  AND  PRESS  TEST
```

The following information is displayed on this screen.
- GAME TITLE
- GAME ID
- PROGRAM TYPE
- INSTALLED IMAGE LIST
  IMAGE NUMBER
  GAME IDVERSION
  DATE OF RELEASE

Move the cursor to EXIT and press the TEST Button to return to the System Test Menu screen.

7.4. JVS test.

The JVS TEST screen displays information on the connected JVS I/O boards.

Select INPUT TEST to display input data for the currently displayed JVS I/O board.

Select NEXT NODE to display information on the next NODE.

If no JVS I/O boards are connected, the message "NO JVS NODE" will be displayed.

```
                         J V S   T E S T

          I N P U T   T E S T
          N E X T   N O D E
      - > E X I T
          N O D E              1 / 1
          N A M E              S E G A   E N T E R P R I S E S ,  L T D .
                               I / O   B D   J V S
                               8 3 7 - 1 3 5 5 1
                               V e r 1 . 0 0
          C M D   V E R        1 .  1
          J V S   V E R        2 .  0
          C O M   V E R        1 .  0
          S W I T C H          2   P L A Y E R ( S )   1 3   B I T S
          C O I N              2   S L O T ( S )
          A N A L O G          8   C H
          R O T A R Y          0   C H
          K E Y C O D E        0
          S C R E E N          X : 0   Y : 0   C H : 0
          C A R D              0   S L O T ( S )
          H O P P E R   O U T  0   C H
          D R I V E R   O U T  6   C H
          A N A L O G   O U T  0   C H
          C H A R A C T E R    C H A R A : 0   L I N E : 0
          B A C K U P          0

          S E L E C T   W I T H   S E R V I C E   A N D   P R E S S   T E S T
```

The following information is displayed on this screen.

NODE:	The currently displayed NODE number and the total number of connected NODEs
NAME:	ID Code
CMD VER:	Command format version
JVS VER:	JVS standard version
COM VER:	Communication version
SWITCH:	Number of players and number of 1P switches
COIN:	Number of coin slots
ANALOG:	Number of analog channels
ROTARY:	Number of encoders
KEYCODE:	Keycode input active/inactive
SCREEN:	Screen position input (X axis, Y axis, number of channels)
CARD:	Number of card slots
HOPPER OUT:	Number of hoppers
DRIVER OUT:	Number of standard output drivers
ANALOG OUT:	Number of analog output channels
CHARACTER:	Number of characters/lines displayed
BACKUP:	Backup present/absent

Move the cursor to EXIT and press the TEST Button to return to the System Test Menu screen.

7.4.1. JVS input test.

Use the JVS INPUT TEST to test the JVS input.

The hexadecimal input information from the JVS I/O board will be displayed in real time.

```
                         J V S   T E S T

          I N P U T   T E S T
          N E X T   N O D E
        - > E X I T
          N O D E           1 ∕ 1
          N A M E           S E G A   E N T E R P R I S E S ,  L T D .
                            I ∕ O   B D   J V S
                            8 3 7 - 1 3 5 5 1
                            V e r 1 . 0 0
          C M D   V E R     1 . 1
          J V S   V E R     2 . 0
          C O M   V E R     1 . 0
          S W I T C H       2   P L A Y E R ( S )   1 3   B I T S
          C O I N           2   S L O T ( S )
          A N A L O G       8   C H
          R O T A R Y       0   C H
          K E Y C O D E     0
          S C R E E N       X : 0   Y : 0   C H : 0
          C A R D           0   S L O T ( S )
          H O P P E R   O U T   0   C H
          D R I V E R   O U T   6   C H
          A N A L O G   O U T   0   C H
          C H A R A C T E R     C H A R A : 0   L I N E : 0
          B A C K U P       0

        S E L E C T   W I T H   S E R V I C E   A N D   P R E S S   T E S T
```

The following information is displayed on this screen.

- SYSTEM: System switch input data
- PLAYER: Player number and player switch input data
- COIN: Slot number and coin input data
- ANALOG: Channel number and analog input data

Press the SERVICE and TEST Buttons simultaneously to return to the JVS Test screen.

7.5. Monitor test

Use MONITOR TEST to check the output of the monitor.

Enter MONITOR TEST and the following color bars will be displayed.
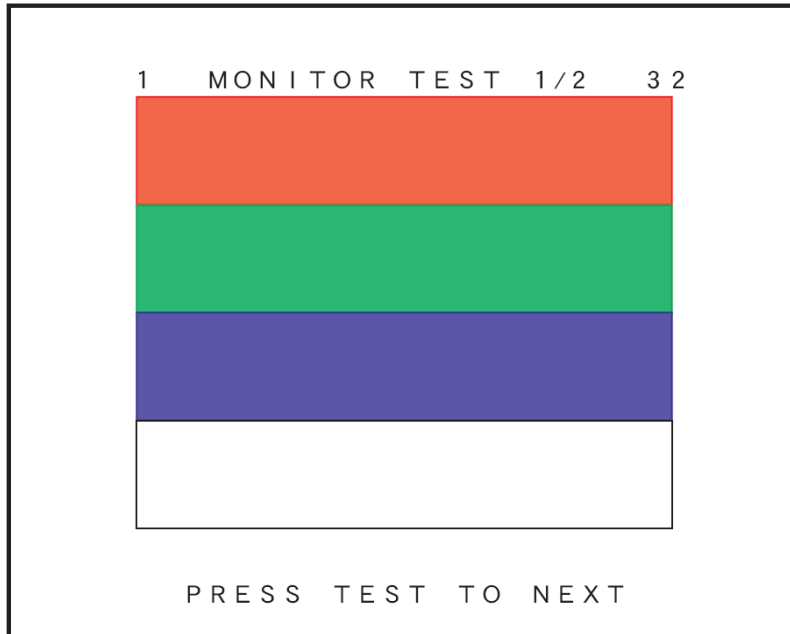
Press the TEST Button and the screen will change to the following cross-hatch screen.
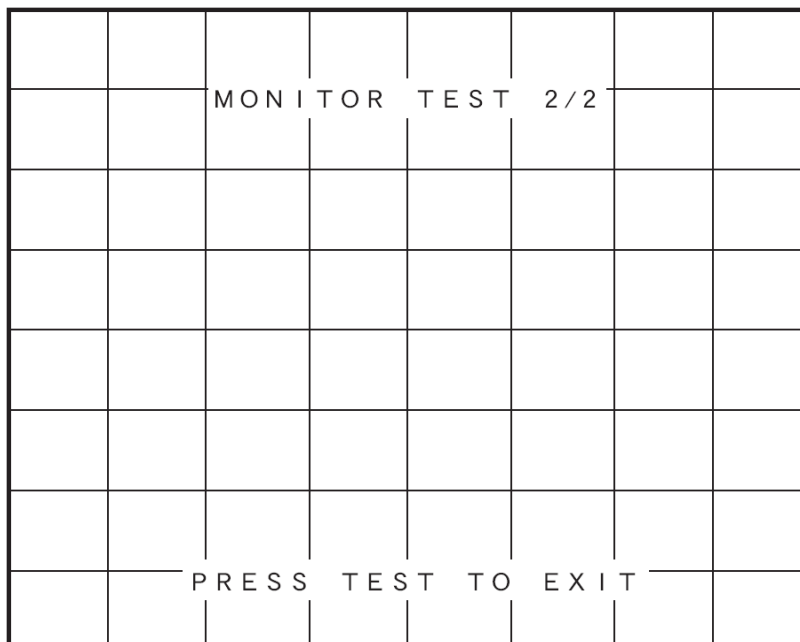
Press the TEST Button to return to the System Test Menu screen.

7.6.   Speaker test

Use SPEAKER TEST to check the output of speakers by having them each emit a test sound.
Select each speaker with the cursor and press the TEST Button to turn that speaker ON or OFF.

When set to ON a test sound will be emitted from that speaker.
It is possible to set multiple speakers to emit the test sound at the same time.

```
                         SPEAKER  TEST

         RIGHT  SPEAKER          OFF
         LEFT  SPEAKER           OFF
         REAR  RIGHT  SPEAKER  OFF
         REAR  LEFT  SPEAKER    OFF
         CENTER  SPEAKER         OFF
         WOOFER  SPEAKER         OFF
       ->EXIT


         SELECT  WITH  SERVICE  AND  PRESS  TEST
```

The speakers available to test are as follows.

- RIGHT SPEAKER
- LEFT SPEAKER
- REAR RIGHT SPEAKER
- REAR LEFT SPEAKER
- CENTER SPEAKER
- WOOFER SPEAKER

Move the cursor to EXIT and press the TEST Button to return to the System Test Menu screen.

7.7. Coin assignments.

Use COIN ASSIGNMENTS to alter the credit settings.

The game will award players the number of credits determined here. Settings will only be saved if they have been changed.

Changing the credit settings will also clear the current inserted coins value.
The following settings must be set as shown below for this product.

- COIN CHUTE TYPE: COMMON
- SERVICE TYPE: COMMON

```
            COIN  ASSIGNMENTS

   COIN  CHUTE  TYPE          COMMON ................ f1
   SERVICE  TYPE             COMMON ................ f2

   COIN  CHUTE  #1  COIN  TO  CREDIT  RATE ....... f3
   1  COIN(S)  COUNT  AS  1  CREDIT(S)
   COIN  CHUTE  #2  COIN  TO  CREDIT  RATE ...... f4
   1  COIN(S) COUNT  AS  1  CREDIT(S)
   DETAIL  SETTING .......................................... f5
   GAME  COST  SETTING ..................................... f6
  ->EXIT


   SELECT  WITH  SERVICE  AND  PRESS  TEST
```

The following information is displayed on this screen.

7.7.1. Coin chute type

COMMON:	Allow all credits to be used by all players.
INDIVIDUAL:	Treat each player's credits individually.

7.7.2. Service type

COMMON:	When the COIN CHUTE TYPE is set to COMMON, the number of credits available to all players will increase by 1.
	When the COIN CHUTE TYPE is set to INDIVIDUAL, each player's credits will increase by 1.
INDIVIDUAL:	When the COIN CHUTE TYPE is set to COMMON, the number of credits available to all players will increase by 1.
	When the COIN CHUTE TYPE is set to INDIVIDUAL, the player corresponding to the SERVICE Button's credits will increase by 1.

7.7.3. Coin chute #1 coin to credit rate. (Coin to credit conversion rate)

1 COIN(S) COUNT AS 1 CREDIT(S)	1 coin counts as 1 credit
2 COIN(S) COUNT AS 1 CREDIT(S)	2 coins count as 1 credit
3 COIN(S) COUNT AS 1 CREDIT(S)	3 coins count as 1 credit
4 COIN(S) COUNT AS 1 CREDIT(S)	4 coins count as 1 credit
5 COIN(S) COUNT AS 1 CREDIT(S)	5 coins count as 1 credit
1 COIN(S) COUNT AS 2 CREDIT(S)	1 coin counts as 2 credits
1 COIN(S) COUNT AS 3 CREDIT(S)	1 coin counts as 3 credits
1 COIN(S) COUNT AS 4 CREDIT(S)	1 coin counts as 4 credits
1 COIN(S) COUNT AS 5 CREDIT(S)	1 coin counts as 5 credits
FREE PLAY	Free play (no coins required)
DETAIL SETTING	More detailed settings

7.7.4. Coin chute #2 coin to credit rate. (Coin to credit conversion rate)

(Can only be set when the COIN CHUTE TYPE is set to COMMON and the COIN setting for the COIN CHUTE #1 COIN TO CREDIT RATE is set to "1")

7.7.5. Detail settings.

The COIN ASSIGNMENTS DETAIL SETTING screen allows more detailed settings that cannot be performed on the Coin Setting screen to be performed.

```
              COIN  ASSIGNMENTS
               DETAIL  SETTING
       COIN  CHUTE  #1  MULTIPLIER
          1  COIN  COUNT  AS  1  COIN(S)
       COIN  CHUTE  #2  MULTIPLIER
          1  COIN  COUNT  AS  1  COIN(S)
        BONUS  ADDER         NO  BONUS  ADDER
        COIN  TO  CREDIT   1  COIN(S)  1  CREDIT
     ->EXIT
      COIN  CHUTE  #1  OPERATION
      COIN     1   2   3   4   5   6   7   8   9
      CREDIT 1   2   3   4   5   6   7   8   9
      COIN  CHUTE  #2  OPERATION
      COIN     1   2   3   4   5   6   7   8   9
      CREDIT 1   2   3   4   5   6   7   8   9

      SELECT  WITH  SERVICE  AND  PRESS  TEST
```

The following information is displayed on this screen.

- COIN CHUTE #1 MULTIPLIER: Coin conversion rate for #1 (How many coins 1 inserted coin counts for)

- COIN CHUTE #2 MULTIPLIER: Coin conversion rate for #2 (How many coins 1 inserted coin counts for)

- BONUS ADDER: Use of a bonus coin

NO BONUS ADDER	No bonus coin given
2 COINS GIVE 1 EXTRA COIN	2 coins inserted successively award 1 bonus coin
3 COINS GIVE 1 EXTRA COIN	3 coins inserted successively award 1 bonus coin
4 COINS GIVE 1 EXTRA COIN	4 coins inserted successively award 1 bonus coin
5 COINS GIVE 1 EXTRA COIN	5 coins inserted successively award 1 bonus coin
6 COINS GIVE 1 EXTRA COIN	6 coins inserted successively award 1 bonus coin
7 COINS GIVE 1 EXTRA COIN	7 coins inserted successively award 1 bonus coin
8 COINS GIVE 1 EXTRA COIN	8 coins inserted successively award 1 bonus coin
9 COINS GIVE 1 EXTRA COIN	9 coins inserted successively award 1 bonus coin

- COIN TO CREDIT: The number of coins to number of credits conversion rate.

Move the cursor to EXIT and press the TEST Button to return to the Coin Assignments screen.

7.7.6. Game cost setting.

Use the COIN ASSIGNMENTS GAME COST SETTING screen to set the cost (number of required credits) that the game program will use to determine if there are enough credits to play the game.

A total of 8 game costs can be defined. The BOOT ID defines the game cost, and when the second boot recognizes the game, the game cost defined by the BOOT ID will be displayed.

If the game is not recognized, the default game cost will be displayed.

```
                COIN  ASSIGNMENTS
                GAME  COST  SETTING

        2  CREDIT  TO  START
        1  CREDIT  TO  CONTINUE



    ->EXIT

    SELECT  WITH  SERVICE  AND  PRESS  TEST
```

Move the cursor to EXIT and press the TEST Button to return to the Coin Assignments screen.

7.8. Clock setting.

Use CLOCK SETTING to set the date and time.

```
                    CLOCK  SETTING

      2005／ 7／ 7 (THU)  12 : 00 : 00
         YEAR
         MONTH
         DAY
         HOUR
         MINUTE
         SECOND
      ->EXIT

      SELECT  WITH  SERVICE  AND  PRESS  TEST
```
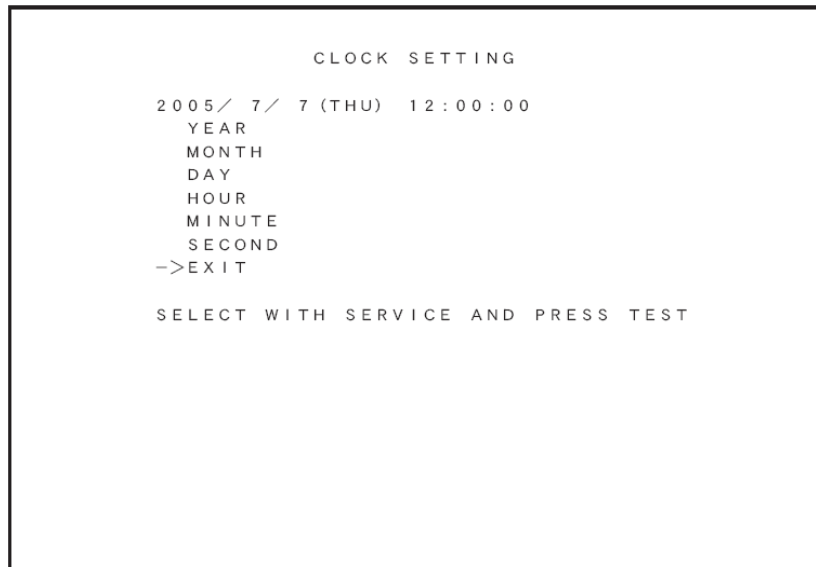
Use the SERVICE Button to move the cursor to the category that you wish to change and press the TEST Button to increase that value. Holding the TEST Button down will make the value continuously increase. Changes will come into effect when you exit.

Move the cursor to EXIT and press the TEST Button to return to the System Test Menu screen.

7.9.　Network setting.

Use NETWORK SETTING to determine network settings or to test the network.

This product does not use the network function. You must use the following factory settings.

- NETWORK TYPE: MAIN
- MAIN NETWORK: No need to set.

```
                    NETWORK  SETTING

     NETWORK  TYPE            MAIN
     MAIN  NETWORK
     NETWORK  TEST
   ->EXIT

     SELECT  WITH  SERVICE  AND  PRESS  TEST
```
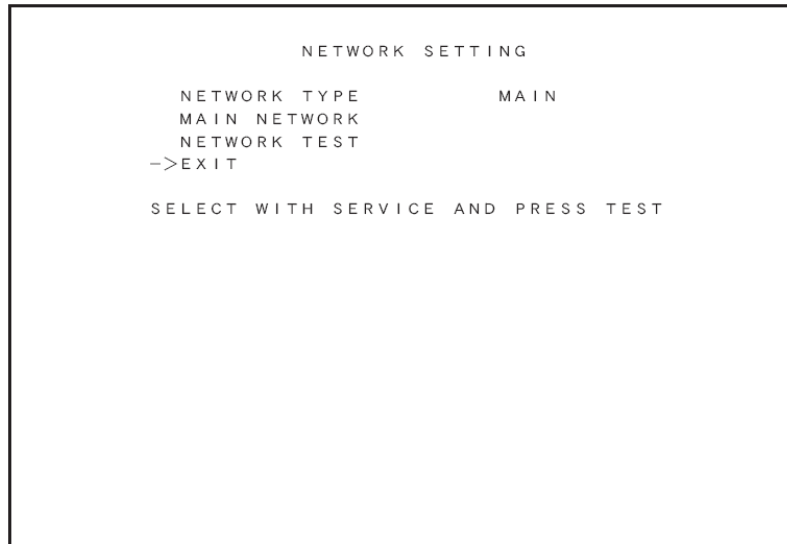
The following information is displayed on this screen.

- NETWORK TYPE: Sets the type of network to use.
- MAIN NETWORK: Sets the onboard LAN.
- NETWORK TEST: Performs a network test.

Move the cursor to EXIT and press the TEST Button to return to the System Test Menu screen.

Select a category on the NETWORK SETTING (Setting Menu) and the following screen will be displayed. However, since this product does not use network function, this manual does not contain instructions for performing network settings or tests.

```
                    NETWORK  SETTING

        DHCP              ××××××××
        IP  ADDRESS
          ×××. ×××. ×××. ×××
        SUBNET  MASK
          ×××. ×××. ×××. ×××
        GATEWAY
          ×××. ×××. ×××. ×××
        PRIMARY  DNS
          ×××. ×××. ×××. ×××
        SECONDARY  DNS
          ×××. ×××. ×××. ×××
        ->EXIT

        SELECT  WITH  SERVICE  AND  PRESS  TEST
```

NETWORK SETTING Screen

```
                  NETWORK  TEST

        STATUS          ××××
        CHECKING        ×××%

        DHCP  ------  ××××
        LOOPBACK  --  ××××
        GATEWAY  ---  ××××
        SERVER  ----  ××××

        PRESS  TEST  TO  EXIT
```

NETWORK TEST Screen

8.   Game test mode

Opens the Game Test Mode, allowing game specific settings and tests to be performed.
This option will be displayed in grey until preparations are complete. Select the Game Test Mode option
then perform the exit to begin the game test.

> Among the settings in Game Test Mode, the following settings become effective as
> listed below, rather than in the same way as System Test mode settings.
> Changes in GAME ASSIGNMENTS are effective after selecting EXIT on the GAME
> ASSIGNMENTS screen.
> Changes in GUN CALIBRATION SETTING and GUN SPEED SETTING are effective
> after pressing the TEST Button on the confirmation screen.

Game Test Mode allows game settings to be altered, Control Units (Guns) to be calibrated and game data
to be checked.

Select GAME TEST MODE from the System Test Menu screen to display the Game Test Mode screen as
follows.

Use the SERVICE Button to move the cursor to the desired test item. Press the TEST Button to enter the
selected item's test.

```
              GAME TEST MODE

          INPUT TEST ...........................a
          OUTPUT TEST ..........................b
          GAME ASSIGNMENTS .....................c
          GUN CALIBRATION SETTING ..............d
          GUN SPEED SETTING ....................e
          BOOKKEEPING ..........................f
          BACKUP DATA CLEAR ....................g
      -> EXIT




          SELECT WITH SERVICE AND PRESS TEST
```

Performs test, adjustments and settings for each of the Game Test Mode screen items below.

a. INPUT TEST: Tests each input device used in the game.

b. OUTPUT TEST: Tests each output device used in the game.

c. GAME ASSIGNMENTS: Adjusts game settings.

d. GUN CALIBRATION SETTING: Performs sight settings for the game's gun.

e. GUN SPEED SETTING: Sets the speed volume for the game's gun.

f. BOOKKEEPING: View all recorded game data.

g. BACKUP DATA CLEAR: Erase all game records.

After selecting an item, read the explanations below regarding operation.

After performing tests and adjustments, return to the Game Test Mode screen, select EXIT and press the TEST Button. You will return to the System Test Menu screen.

Move the cursor to EXIT on System Test Menu screen and press the TEST Button to return to the Game Play screen.

8.1. Input test

Select INPUT TEST to display the following screen and check the status of input devices.
This test should be used periodically to check that each input device is functioning correctly.

```
                    INPUT TEST

                    PLAYER1      PLAYER2
        START          OFF          OFF
        GUN TRIGGER    OFF          OFF
        GUN BUTTON     OFF          OFF
        GUN SPEED X    7f           7f
        GUN SPEED Y    7f           7f
        GUN X          00           00
        GUN Y          00           00
        SCREEN IN      OUT          OUT
        SERVICE              OFF
        TEST                 OFF


          PRESS TEST AND SERVICE TO EXIT
```

The items refer to the following input devices. Input is normal if the display to the right of each item changes from OFF to ON when each input device is operated.

Everything is functioning correctly if the GUN SPEED X and GUN SPEED Y values change according to the speed at which the Control Unit (Gun) is moved vertically/horizontally.

Everything is functioning correctly if the word "OUT" to the right of SCREEN IN changes to "IN" when the gun is pointed at the screen, and the values to the right of GUN X and GUN Y move between 00 to FF.

- START: The player START Buttons.
- GUN TRIGGER: The trigger on the gun.
- GUN BUTTON: The Button on the gun.
- GUN SPEED X: This value changes if gun is shaken on the X axis.
- GUN SPEED Y: This value changes if gun is shaken on the Y axis.
- GUN X: The X axis position on the screen targeted by the gun.
- GUN Y: The Y axis position on the screen targeted by the gun.
- SCREEN IN: Displays if the gun is pointing IN or OUT of the screen.
- SERVICE: The SERVICE Button.
- TEST: The TEST Button.

Press the SERVICE and TEST Buttons simultaneously to return to the Game Test Mode screen.

8.2. Output test

Select OUTPUT TEST to display the following screen and check the status of output devices.
This test should be used periodically to check that the lamps are functioning correctly.

Use the SERVICE Button to move the cursor to the desired test item. Press the TEST Button to enter the selected item's test.

> **STOP**
> **IMPORTANT**
>
> Display of GUN MOTOR1 and GUN MOTOR2 options can be turned on or off using the DIP-SW.
> For cabinets with vibration motors attached to the Control Units (Guns), turn on display of the GUN MOTOR1 and GUN MOTOR2 under DIP-SW settings to alter these settings.

```
                OUTPUT TEST

        START1 LAMP           OFF
        START2 LAMP           OFF
        GUN MOTOR1            OFF
        GUN MOTOR2            OFF




     -> EXIT



        SELECT WITH SERVICE AND PRESS TEST
```

Perform the tests as follows.

● START1 LAMP: Select START1 LAMP and press the TEST Button to turn the option ON.
                   The player 1 START Button will light up. The lamp will remain on for as long as the TEST Button is held down.

● START2 LAMP: Select START2LAMP and press the TEST Button to turn the option ON.
                   The player 2 START Button will light up. The lamp will remain on for as long as the TEST Button is held down.

● GUN MOTOR1:   Select GUN MOTOR1 and press the TEST Button to turn the option ON.
                   The player 1 gun will begin to vibrate. The vibration will continue for as long as the TEST Button is held down.

● GUN MOTOR2:   Select GUN MOTOR2 and press the TEST Button to turn the option ON.
                   The player 2 gun will begin to vibrate. The vibration will continue for as long as the TEST Button is held down.

Move the cursor to EXIT and press the TEST Button to return to the Game Test Mode screen.

8.3. Game assignments

Select GAME ASSIGNMENTS to display the current game settings and make changes.

Changes to settings are not enabled until Game Assignments is exited. After changing settings, be sure to exit the Test Mode.

Use the SERVICE Button to move the cursor to the desired test item. Press the TEST Button to enter the selected item's test.

```
              GAME ASSIGNMENTS

     GAME DIFFICULTY        NORMAL
     LIFE SETTING
        INITIAL LIFE           3
        MAX LIFE               5
     BLOOD COLOR             RED
     VIOLENCE               NORMAL
     ADVERTISE SOUND          ON


  -> EXIT



     SELECT WITH SERVICE AND PRESS TEST
```
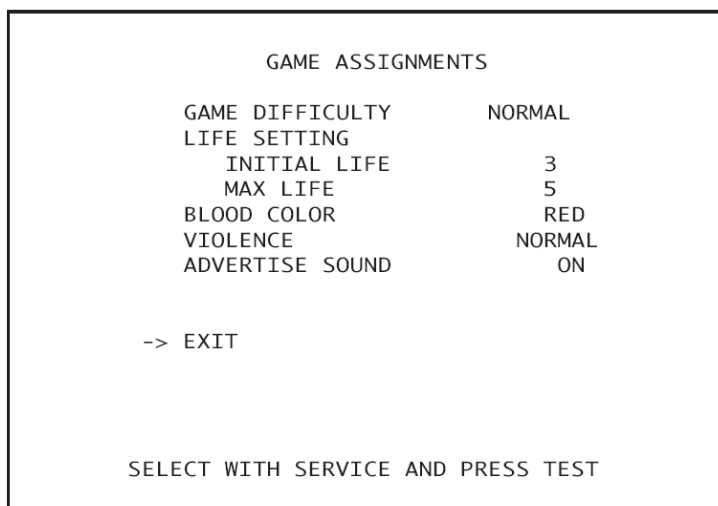
Perform the following settings for each item.

- GAME DIFFICULTY:
  Set the level of difficulty to one of five levels; VERY EASY -> MEDIUM EASY ->NORMAL -> MEDIUM HARD -> VERY HARD.

- LIFE SETTING INITIAL LIFE
  The number of lives the player will start the game with. Can be set between 1 and 9.
  However, cannot be set higher than the MAX LIFE setting.

- LIFE SETTING MAX LIFE:
  The maximum number of lives a player may have. Can be set between 1 and 9.

- BLOOD COLOR:
  You can set the color of blood to one of two settings; RED or BROWN.

- VIOLENCE:
  You can set the level of damage for the enemies to one of two settings; NORMAL or MILD.
  When set to MILD, the violence of enemy deaths will be toned down.

- ADVERTISE SOUND:
  You can set the Attract Mode (Advertise) sound to ON or OFF.

After changing the settings, select EXIT and press the TEST Button to return to the Game Test Mode screen.

8.4. Gun calibration settings

Select GUN CALIBRATION SETTING to display the following screen.
Perform the sight settings for the guns to be used in the game.

Use the SERVICE Button to move the cursor to the desired test item. Press the TEST Button to enter the selected item's test.

```
        GUN CALIBRATION SETTING

     GUN MARK CHECK ..........................   7.4.1
     PLAYER1 GUN ADJUSTMENT ..................   7.4.2
     PLAYER1 GUN DEFAULT ADJUSTMENT ..........   7.4.3
     PLAYER2 GUN ADJUSTMENT ..................   7.4.2
     PLAYER2 GUN DEFAULT ADJUSTMENT ..........   7.4.3




   -> EXIT




     SELECT WITH SERVICE AND PRESS TEST
```

Details for each item are as follows.

7.4.1. GUN MARK CHECK:
Checks the gun sights. 1P and 2P guns are checked at the same time.

7.4.2. PLAYER1 GUN ADJUSTMENT:
Adjusts the sight for the Player 1 side.

7.4.3. PLAYER1 GUN DEFAULT ADJUSTMENT:
Adjust the default sight settings for the Player 1 side.

7.4.2. PLAYER2 GUN ADJUSTMENT:
Adjust the sight for the Player 2 side. (Operated in the same way as PLAYER1 GUN ADJUSTMENT)

7.4.3. PLAYER2 GUN DEFAULT ADJUSTMENT:
Adjust the default sight settings for the Player 2 side. (Operated in the same way as PLAYER1 GUN DEFAULT ADJUSTMENT)

After changing the settings, select EXIT and press the TEST Button to return to the Game Test Mode screen.

8.4.1. Gun mark check

This checks gun sights.

Select GUN MARK CHECK on the Gun Calibration Setting screen and press the TEST Button.

```
                        GUN MARK CHECK

    ＋OUT  OF  SCREEN  P1＋    ＋OUT  OF  SCREEN  P2＋




                                    ┬
                                  ──┼──
                                    │
                      ┬
                    ──┼──
                      │



                    PRESS TEST TO EXIT
```
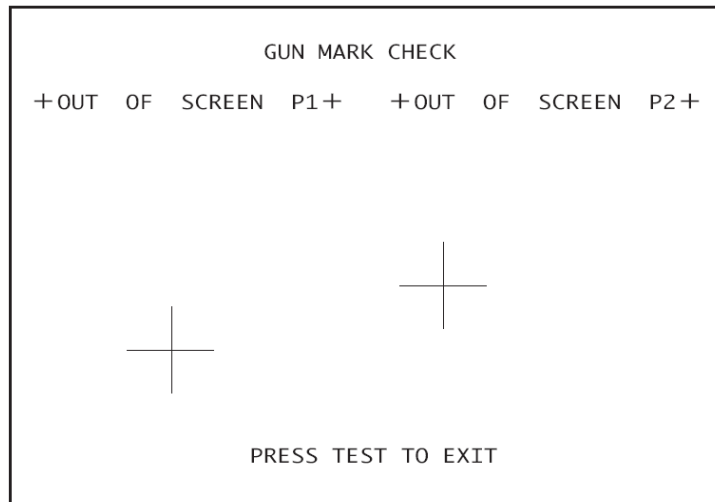
- 1P Gun Cross
  This is displayed when the gun is pointed at the screen. 1P is red.

- 2P Gun Cross
  This is displayed when the gun is pointed at the screen. 2P is blue.

"OUT OF SCREEN" is displayed when the gun cross is perceived to be out of screen.

Pointing the gun at the screen displays the gun cross (sight) for that gun. You can check to see if the sight lines up properly at this screen.

Press the TEST Button when everything has been checked. You will return to the Gun Calibration Setting screen.

8.4.2. Gun adjustment

This item adjusts the Player 1 gun sight. (This is the same for "PLAYER2 GUN ADJUSTMENT".)

Select PLAYER1 GUN ADJUSTMENT on the Gun Calibration Setting screen and press the TEST Button.

NOTE: "PLEASE SHOOT GRID WITH PLAYER1 GUN" on the screen will flash.

```
            PLAYER1 GUN ADJUSTMENT
      ←PLEASE SHOOT GRID WITH PLAYER1 GUN












              PRESS TEST TO EXIT
```
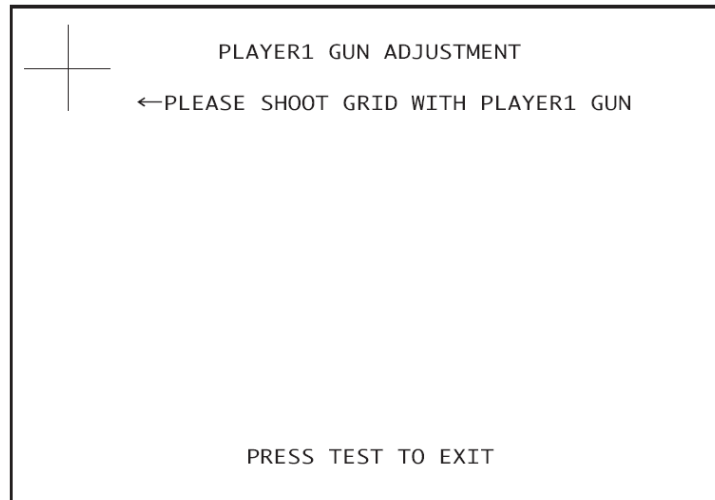
Follow the on-screen instructions to adjust the gun sight settings. Aim at the mark in the upper left corner and fire. The mark in the upper left will disappear, and the same mark will be displayed in the lower right corner.

(Press the TEST Button to return to the Gun Calibration Setting screen with canceling the adjustment.)

```
            PLAYER1 GUN ADJUSTMENT












      PLEASE SHOOT GRID WITH PLAYER1 GUN→
              PRESS TEST TO EXIT
```
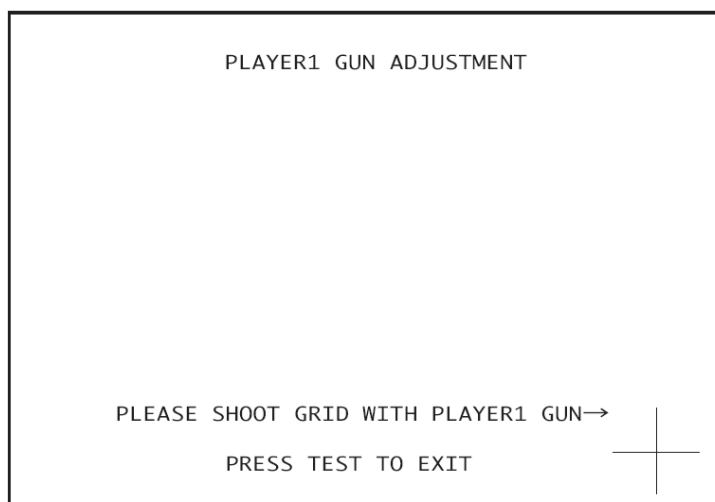
Aim and fire at the mark to the lower right. The mark to the lower right will disappear, and the same mark will be displayed in the center.

(Press the TEST Button to return to the Gun Calibration Setting screen.)

```
┌─────────────────────────────────────────┐
│                                         │
│         PLAYER1 GUN ADJUSTMENT          │
│                                         │
│                                         │
│                                         │
│                    │                    │
│                ────┼────                │
│                    │                    │
│                                         │
│      ↑PLEASE SHOOT GRID WITH PLAYER1 GUN│
│                                         │
│                                         │
│            PRESS TEST TO EXIT           │
│                                         │
└─────────────────────────────────────────┘
```
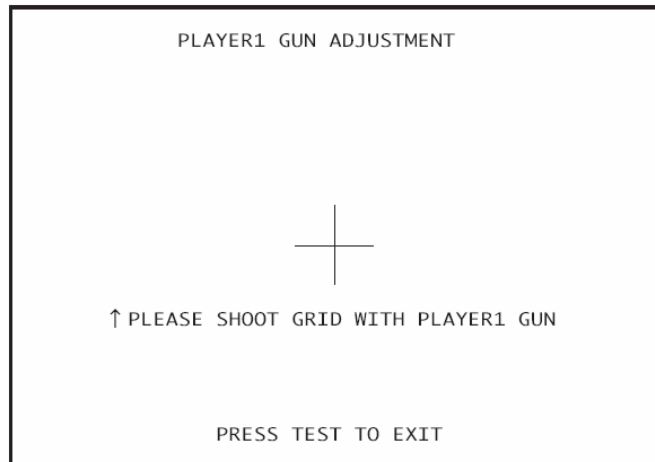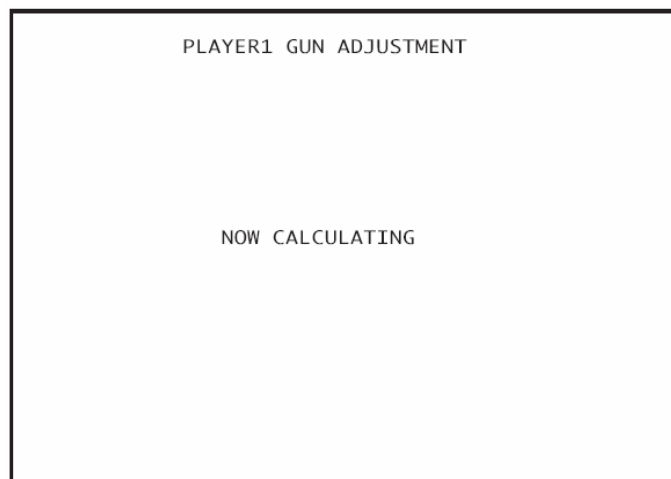
Aim and fire at the mark in the center.

```
┌─────────────────────────────────────────┐
│                                         │
│         PLAYER1 GUN ADJUSTMENT          │
│                                         │
│                                         │
│                                         │
│                                         │
│              NOW CALCULATING            │
│                                         │
│                                         │
│                                         │
│                                         │
│                                         │
└─────────────────────────────────────────┘
```

"NOW CALCULATING" will be displayed in the center. The screen will automatically switch to the following.

```
                    PLAYER1  GUN  ADJUSTMENT

                    PLAYER1  GUN  MARK  CHECKING

       +OUT  OF  SCREEN  P1+


                            |
                    _____|_____
                            |
                            |




                    TEST     :  TO MEMORIZE
                    SERVICE  :  TO CANCEL
```
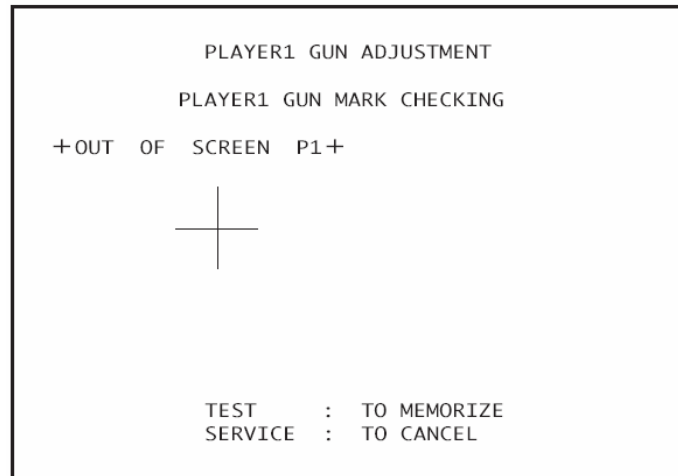
Point the Control Unit (Gun) at the screen and a gun mark will be displayed. Check to make sure that the gun can aim right up to the edges of the frame.

If the calibration is correct press the TEST Button to save it.

If re-calibration is required press the SERVICE Button. The calibration results will not be saved and you will return to the Gun Calibration Setting screen.

"OUT OF SCREEN" is displayed when the gun cross is perceived to be out of screen.

Refer to the following procedure when adjusting the sights.

Line up the concave sight nearest you on the gun so that it is at the height of the horizontal line of the "+" mark.
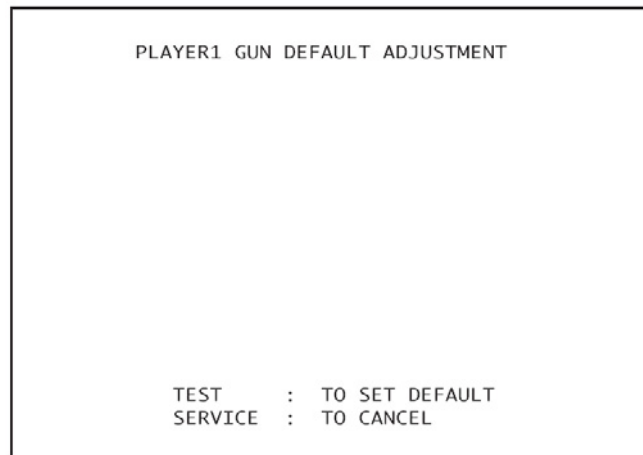
Line up the convex sight at the tip of the gun so that it also lines up with the horizontal line.

Line up the centers of the tops of the concave and convex sights with the center of the "+" and fire.
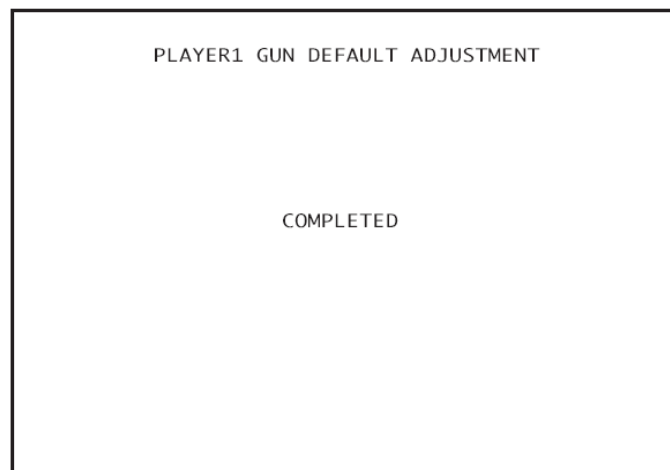
8.4.3. Gun default adjustment

This item adjusts the sight settings to those at the time of shipment.
(This is the same for"PLAYER2 GUN DEFAULT ADJUSTMENT".)

Select PLAYER 1 GUN DEFAULT ADJUSTMENT on the Gun Calibration Setting screen and press the
TEST Button.

```
┌─────────────────────────────────────────┐
│                                          │
│      PLAYER1 GUN DEFAULT ADJUSTMENT       │
│                                          │
│                                          │
│                                          │
│                                          │
│                                          │
│                                          │
│                                          │
│                                          │
│         TEST     :  TO SET DEFAULT        │
│         SERVICE  :  TO CANCEL             │
│                                          │
└─────────────────────────────────────────┘
```

Press the TEST Button to set the Control Unit (Gun) targeting to the pre-set default values.

When setting is complete the message "COMPLETED" will appear on the screen and it will then
automatically proceed to the Gun Calibration Setting screen.

```
┌─────────────────────────────────────────┐
│                                          │
│      PLAYER1 GUN DEFAULT ADJUSTMENT       │
│                                          │
│                                          │
│                                          │
│               COMPLETED                   │
│                                          │
│                                          │
│                                          │
│                                          │
│                                          │
└─────────────────────────────────────────┘
```
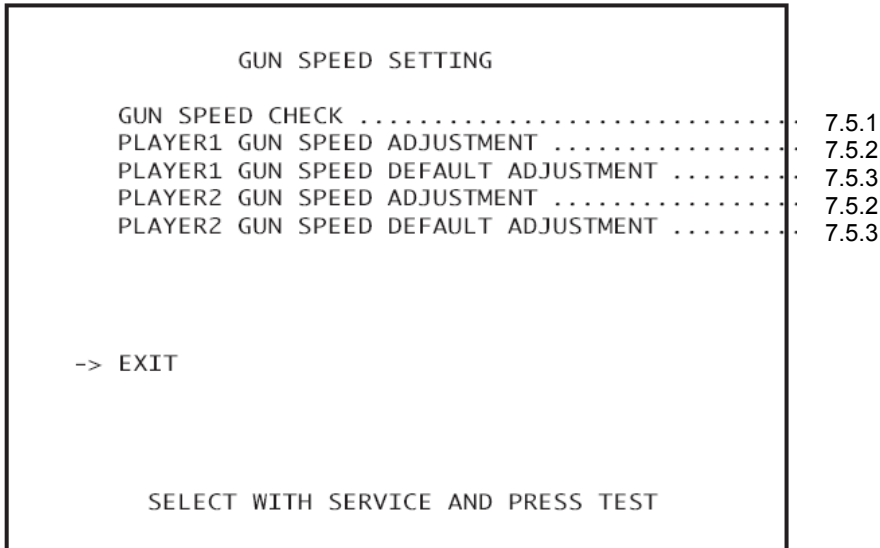
If you wish to cancel this process, press the SERVICE Button. The screen will automatically proceed to the
Gun Calibration Setting screen without altering the settings for the gun.

8.5. Gun speed setting

Adjust the volume settings for the Control Unit's (Gun's) speed sensors.

Select GUN SPEED SETTING on the Game Test Mode screen and press the TEST Button to display the following screen.

Use the SERVICE Button to move the cursor to the desired test item.
Press the TEST Button to enter the selected item's test.

```
              GUN  SPEED  SETTING

    GUN  SPEED  CHECK  .............................    7.5.1
    PLAYER1  GUN  SPEED  ADJUSTMENT  ................    7.5.2
    PLAYER1  GUN  SPEED  DEFAULT  ADJUSTMENT  ........    7.5.3
    PLAYER2  GUN  SPEED  ADJUSTMENT  ................    7.5.2
    PLAYER2  GUN  SPEED  DEFAULT  ADJUSTMENT  ........    7.5.3




   -> EXIT




         SELECT  WITH  SERVICE  AND  PRESS  TEST
```

Details for each item are as follows.

7.5.1. GUN SPEED CHECK:
Checks the registered speed when the guns are shaken. Player 1 and Player 2 Guns are both checked together.

7.5.2. PLAYER1 GUN SPEED ADJUSTMENT:
Adjusts the registered speed for when the Player 1 gun is shaken.

7.5.3. PLAYER1 GUN SPEED DEFAULT ADJUSTMENT:
Returns the registered speed for when the Player 1 gun is shaken to the pre-set default setting.

7.5.2. PLAYER2 GUN SPEED ADJUSTMENT:
Adjusts the registered speed for when the Player 2 gun is shaken. (Operated in the same way as PLAYER1 GUN SPEED ADJUSTMENT.)
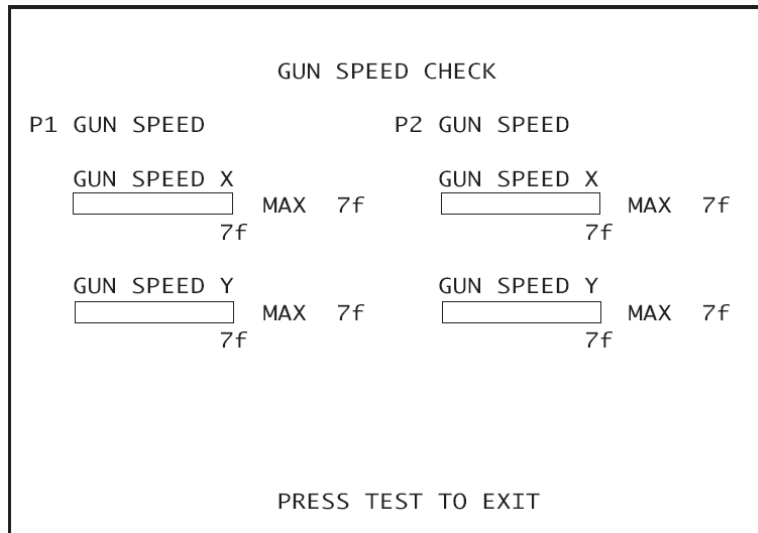
7.5.3. PLAYER2 GUN SPEED DEFAULT ADJUSTMENT:
Returns the registered speed for when the Player 2 gun is shaken to the pre-set default setting. (Operated in the same way as PLAYER1 GUN SPEED DEFAULT ADJUSTMENT.)

After changing the settings, select EXIT and press the TEST Button to return to the Game Test Mode screen.

8.5.1. Gun speed check

Checks the registered speed when the Control Units (Guns) are shaken.

Select GUN SPEED CHECK on the Gun Speed Setting screen and press the TEST Button to display the following screen.

```
                    GUN  SPEED  CHECK

P1  GUN  SPEED                    P2  GUN  SPEED

      GUN  SPEED  X                    GUN  SPEED  X
      [            ]   MAX   7f        [            ]   MAX   7f
             7f                               7f

      GUN  SPEED  Y                    GUN  SPEED  Y
      [            ]   MAX   7f        [            ]   MAX   7f
             7f                               7f




                    PRESS  TEST  TO  EXIT
```

Moving the gun for each player will alter the values displayed on the X axis and Y-axis speed bars. Use this screen to check that the current maximum speed setting matches the speed values by moving the guns around.

● If the numbers don't change at all:
The sensors may be broken or cables disconnected.

● If the numbers change but never reach even half of the MAX value no matter how hard the gun is moved:

There is a problem with speed settings.
Once you have finished all checks press the TEST Button to return to the Gun Speed Setting screen.

8.5.2. Player 1 & Player 2 gun speed adjustment

⚠️ **CAUTION**

Pay attention to your surroundings when moving the Control Unit (Gun) during speed adjustment so as not to hit people or objects around you.
You may hurt others or yourself if due caution is not taken.
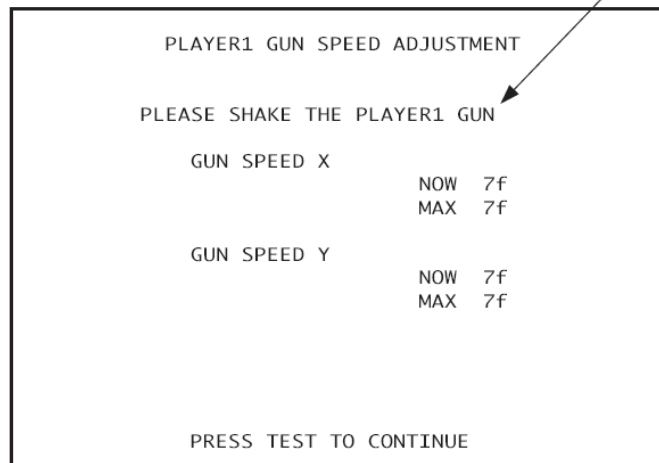
🛑 **STOP IMPORTANT**

If GUN SPEED SETTINGS are not set, or a mistake is made with the GUN SPEED SETTINGS, the gun may start to only fire single shots during the game.

This is because the gun continually registers as having been shaken and thus continually reloads. This is not a fault with the gun itself, and can be fixed by performing GUN SPEED SETTINGS again.

Adjusts the registered speed for when the Player 1 gun is shaken. (This is the same for "PLAYER2 GUN SPEED ADJUSTMENT".)
Select PLAYER1 GUN SPEED ADJUSTMENT on the Gun Speed Setting screen and press the
TEST Button to display the following screen.

NOTE: "PLEASE SHAKE THE PLAYER1 GUN" on the screen will flash.

```
           PLAYER1 GUN SPEED ADJUSTMENT


       PLEASE SHAKE THE PLAYER1 GUN

          GUN SPEED X
                           NOW   7f
                           MAX   7f

          GUN SPEED Y
                           NOW   7f
                           MAX   7f




             PRESS TEST TO CONTINUE
```

Follow the onscreen instructions to perform the gun speed settings.
Shake the gun on the X-axis and the Y-axis and set the MAX value for each.

NOTES:
- You need only shake the gun gently on the X-axis and the Y-axis. If these settings are set with the gun shaken very hard it may lead to malfunctions during the game.
- Proceed to the next screen to confirm the set values. The bar here is simply for reference, and swinging the gun forcefully and filling this bar to the top is not necessary. Moving the gun lightly so that the bar is more than half full will allow the game to progress smoothly.
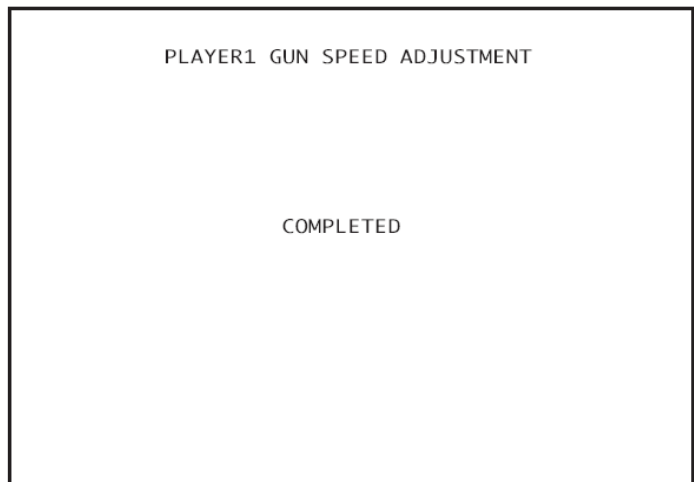
```
                PLAYER1 GUN SPEED ADJUSTMENT






                        NOW CALCULATING
```
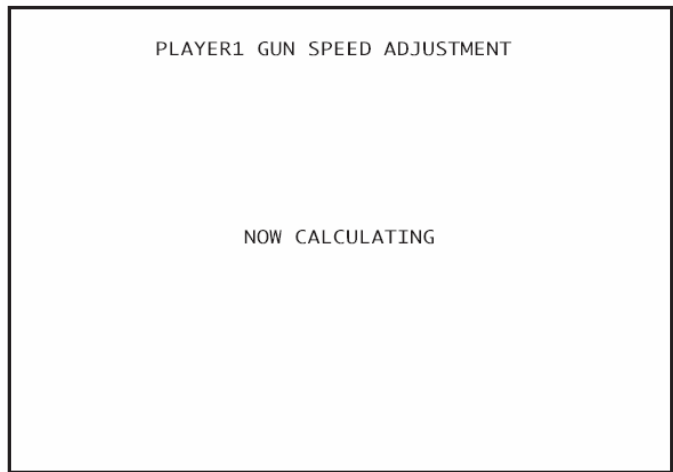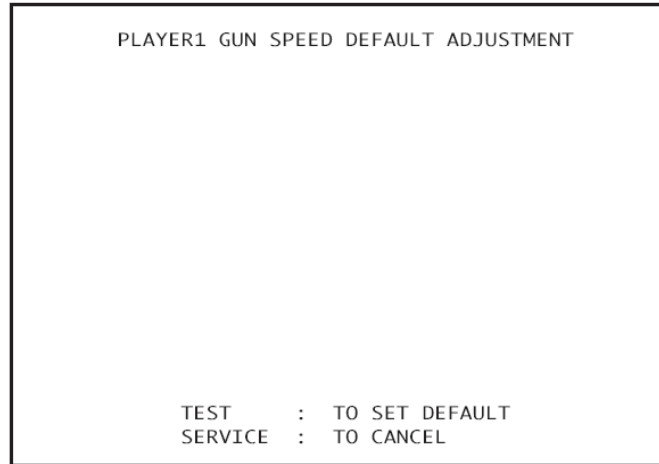
Press the TEST Button and the message "NOW CALCULATING" will be displayed on the screen, and it will then proceed automatically to the next screen.

```
                PLAYER1 GUN SPEED ADJUSTMENT


                 PLAYER1 GUN SPEED CHECKING

          P1 GUN SPEED

               GUN SPEED X
               [          ]      MAX   7f
                                 7f

               GUN SPEED Y
               [          ]      MAX   7f
                                 7f


                    TEST     :   TO MEMORIZE
                    SERVICE  :   TO CANCEL
```
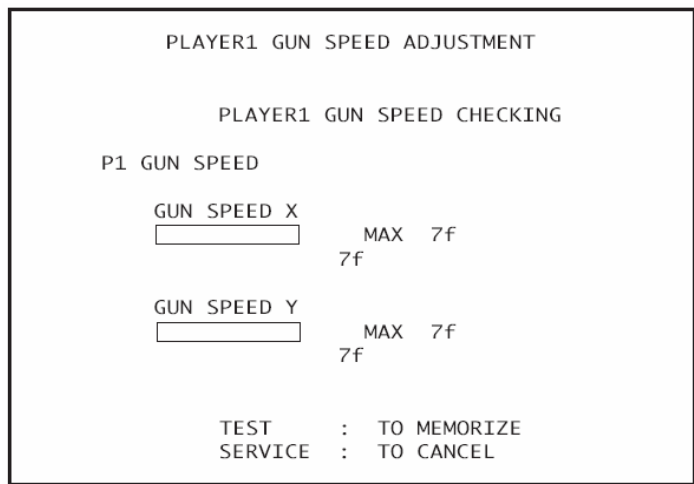
The set MAX speed values will be displayed. Move the gun again and check that these are no problems with these speed settings. If everything seems in order, press the TEST Button.

If the speed settings need to be adjusted again, press the SERVICE Button. The results of the adjustment will not be saved and the screen will return to the Gun Speed Setting screen.

```
                PLAYER1 GUN SPEED ADJUSTMENT






                        COMPLETED
```

Press the TEST Button and the message "COMPLETED" will be displayed on the screen, and it will then proceed automatically to the Gun Speed Setting screen.

8.5.3. Player 1 & Player 2 gun speed default adjustment

Returns the speed setting to the default factory setting.
(This is the same for "PLAYER2 GUN SPEED DEFAULT ADJUSTMENT".)

Select PLAYER1 GUN SPEED DEFAULT ADJUSTMENT on the Gun Speed Setting screen and press the TEST Button to display the following screen.

```
+-------------------------------------------+
|                                           |
|    PLAYER1 GUN SPEED DEFAULT ADJUSTMENT    |
|                                           |
|                                           |
|                                           |
|                                           |
|                                           |
|                                           |
|                                           |
|                                           |
|                                           |
|                                           |
|                                           |
|                                           |
|       TEST     :  TO SET DEFAULT          |
|       SERVICE  :  TO CANCEL               |
|                                           |
+-------------------------------------------+
```

Press the TEST Button to set the Control Unit (Gun) speed settings to the pre-set defaults. If you wish to cancel the process, press the SERVICE Button.

The gun speed settings will not be changed and the screen will automatically return to the Gun Speed Setting screen.

```
+-------------------------------------------+
|                                           |
|    PLAYER1 GUN SPEED DEFAULT ADJUSTMENT    |
|                                           |
|                                           |
|                                           |
|                                           |
|                                           |
|                                           |
|                COMPLETED                  |
|                                           |
|                                           |
|                                           |
|                                           |
|                                           |
|                                           |
|                                           |
|                                           |
+-------------------------------------------+
```

When adjustment is complete the message "COMPLETED" will be displayed on the screen and it will then proceed automatically to the Gun Speed Setting screen.

8.6. Bookkeeping

Select BOOKKEEPING on the Game Test Mode screen to display the three screens of operating status data.

```
              BOOKKEEPING        PAGE1/3



            COIN 1              0
            COIN 2              0
            TOTAL COINS         0

            COIN CREDITS        0
            SERVICE CREDITS     0
            TOTAL CREDITS       0




              PRESS TEST TO CONTINUE
```

The display items for the screen (PAGE 1/3) are as follows.

- COIN 1:   The number of coins inserted into Coin Chute 1.

- COIN 2:   The number of coins inserted into Coin Chute 2.

- TOTAL COINS: The total number of coins inserted into the coin chutes.

- COIN CREDITS: The number of credits for the coins inserted.

- SERVICE CREDITS: ●   The number of credits input by the SERVICE Button.
TOTAL CREDITS: The total number of all credits.

Press the TEST Button to display the next screen (PAGE 2/3).

```
              BOOKKEEPING        PAGE2/3


        NUMBER OF GAMES                         0
          FIRST PLAY                            0
          CONTINUE PLAY                         0
        TOTAL TIME            0000D 00H 00M 00S
        PLAY TIME            0000D 00H 00M 00S
        AVERAGE PLAY TIME            00M 00S
        LONGEST PLAY TIME            00M 00S
        SHORTEST PLAY TIME           00M 00S




              PRESS TEST TO CONTINUE
```

The display items for the screen (PAGE 2/3) are as follows.

- ● NUMBER OF GAMES: The total number of games played by 1P and 2P.
- ● FIRST PLAY: The total number of games started by 1P and 2P.
- ● CONTINUE PLAY: The total number of continues used by 1P and 2P.
- ● TOTAL TIME: The amount of time the unit has been in operation.
- ● PLAY TIME: The amount of time the game has been played.
- ● AVERAGE PLAY TIME: The average play time for one game.
- ● LONGEST PLAY TIME: The longest play time for one game.
- ● SHORTEST PLAY TIME: The shortest play time for one game.

Press the TEST Button to display the next screen (PAGE 3/3).

```
        BOOKKEEPING        PAGE3/3
             GAME   HISTOGRAM
        0M 00S -    0M 29S       0
        0M 30S -    0M 59S       0
        1M 00S -    1M 29S       0
        1M 30S -    1M 59S       0
        2M 00S -    2M 29S       0
        2M 30S -    2M 59S       0
        3M 00S -    3M 29S       0
        3M 30S -    3M 59S       0
        4M 00S -    4M 29S       0
        4M 30S -    4M 59S       0
        5M 00S -    5M 29S       0
        5M 30S -    5M 59S       0
        6M 00S -    6M 29S       0
        6M 30S -    6M 59S       0
        7M 00S -    7M 29S       0
        7M 30S -    7M 59S       0
        8M 00S -    8M 29S       0
        8M 30S -    8M 59S       0
        9M 00S -    9M 29S       0
        9M 30S -    9M 59S       0
         OVER     10M 00S       0


          PRESS  TEST  TO  EXIT
```

This displays play times on a scale from 0M00S to 9M59S with 30-second intervals. All play times over ten minutes are included in the item OVER 10M00S.

Press the TEST Button after viewing. You will return to the Game Test Mode screen.

8.7. Backup data clear

Select BACKUP DATA CLEAR to clear the contents of BOOKKEEPING in the Game Test Mode and the game score.

```
             BACKUP DATA CLEAR


                  YES (CLEAR)
              -> NO (CANCEL)








          SELECT WITH SERVICE AND PRESS TEST
```
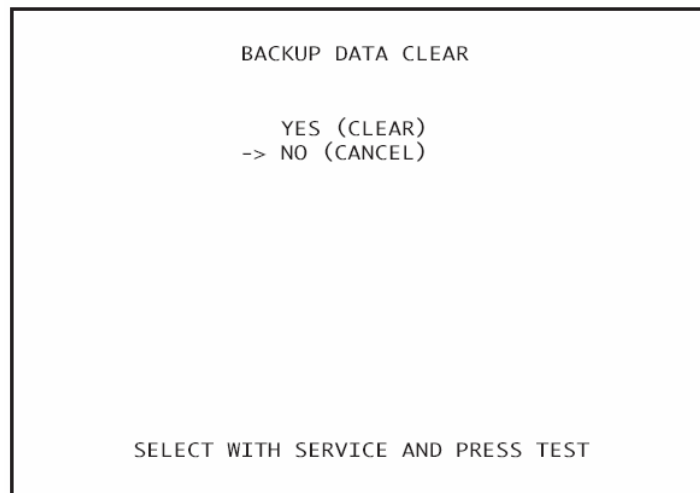
To clear data, use the SERVICE Button to move the cursor to YES (CLEAR) and then press the TEST Button.

When the data has been cleared, the message "COMPLETED" will be displayed and the screen will return to the Game Test Mode screen automatically.

```
             BACKUP DATA CLEAR






                  COMPLETED




```
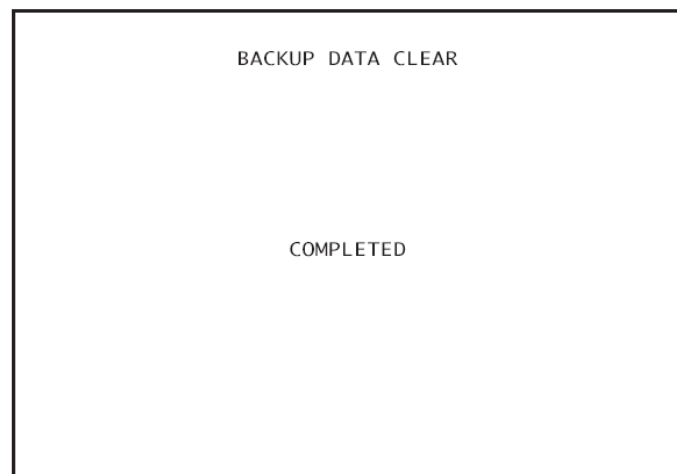
Move the cursor to NO (CANCEL) and press the TEST Button to return to the Game Test Mode screen without clearing the data.

9. Gun control unit

WARNING

- In order to prevent any electric shocks or short circuits, be sure to turn the power off before performing any work that involves touching the interior parts of the product.

- Be careful not to damage the wires. Damaged wires may cause electric shocks or short circuits, or present a risk of fire.

- Be very careful when soldering. Handling a soldering iron carelessly may result in a fire or burns.

CAUTION

- When securing the plastic-made parts, do not excessively fasten screws and nuts. Failure to do this may damage the parts, and fragments resulting from damage may cause injury.

- When reassembling the Control Unit (Gun), be sure to check the connecting portion and the trigger, etc. If the reassembly work is insufficient and/or incorrect, fingers may be caught and result in injury.

- Make sure that there is no gap when attaching cover L and R. A gap or crack may trap hands or fingers and lead to injury.

STOP IMPORTANT

- Do not cut the tie belt securing the wires in the Control Unit (Gun).
Cutting the tie belt may cause malfunctioning of the wire connection. If you cut the tie belt when replacing the wire etc., be sure to secure the wires using a new tie belt as before.

- After taking the Control Unit (Gun) apart, always use "Tightening Adhesive" (part number: 090-0012). Apply an appropriate amount to the screw and then tighten it up. If you do not use "Tightening Adhesive" there is a risk of looseness or the Control Unit (Gun) coming apart.

- Only use the tightening adhesive specified by this manual. Using any other "Tightening Adhesive" may cause a chemical reaction that renders the screws useless or damage the surface of the Control Unit (Gun).

- Follow these directions carefully to avoid damaging or losing small parts.

- After exchanging any parts, always enter Test Mode and adjust/check the Control Unit (Gun).

If there appears to be a problem with the gun and adjustment in Test Mode makes no difference, part of the gun is most likely broken.

Use the following instructions to take the gun apart and replace the broken part.
The exterior casing, comprised of cover L and cover R, must be opened up in order to change interior parts.

As some internal parts are connected to cover R, work with cover R face down on the working surface.

Speed sensor
839-1280

Trigger microswitch
509-5080

Sensor unit
JPT-2030

Grenade button microswitch
509-5080
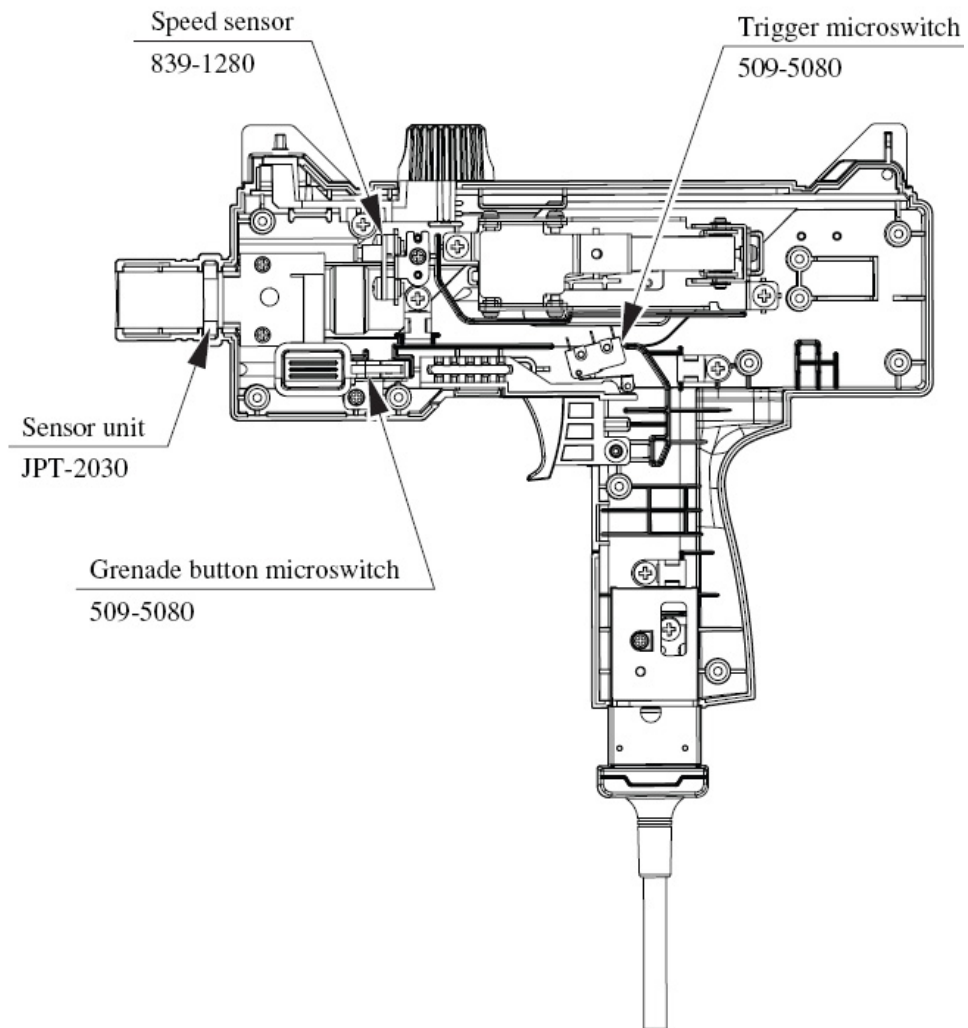
9.1.   Replacing the microswitch

The Control Unit (Gun) houses two microswitches, the trigger microswitch and the grenadebutton microswitch.

- Turn off power to the cabinet.

- Removing all 9 screws will allow cover L and cover R to be taken apart. Remove all 9 screws.

SCREW (9), black
M3×12, w/small flat & spring washers

Place cover R face down on the work surface and slowly lift cover L directly upward.

Lift the trigger microswitch up from where it is attached to cover R.
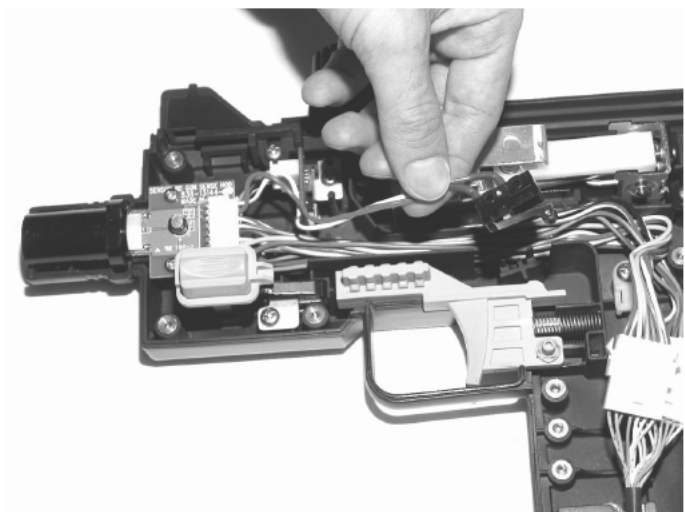
- Remove the solder, allowing you to remove the microswitch.

- The grenade button microswitch is located at the base of the grenade button. Lift the grenade button free of cover R.
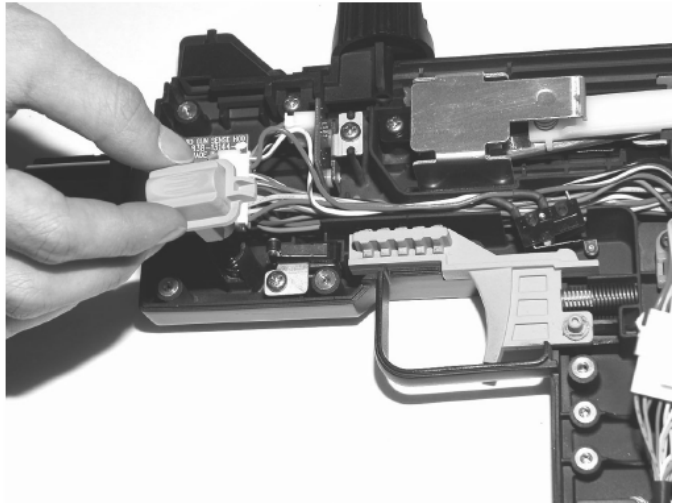
Remove the screw and remove microswitch cover R.

SCREW (1), black
M3×6, w/spring washer
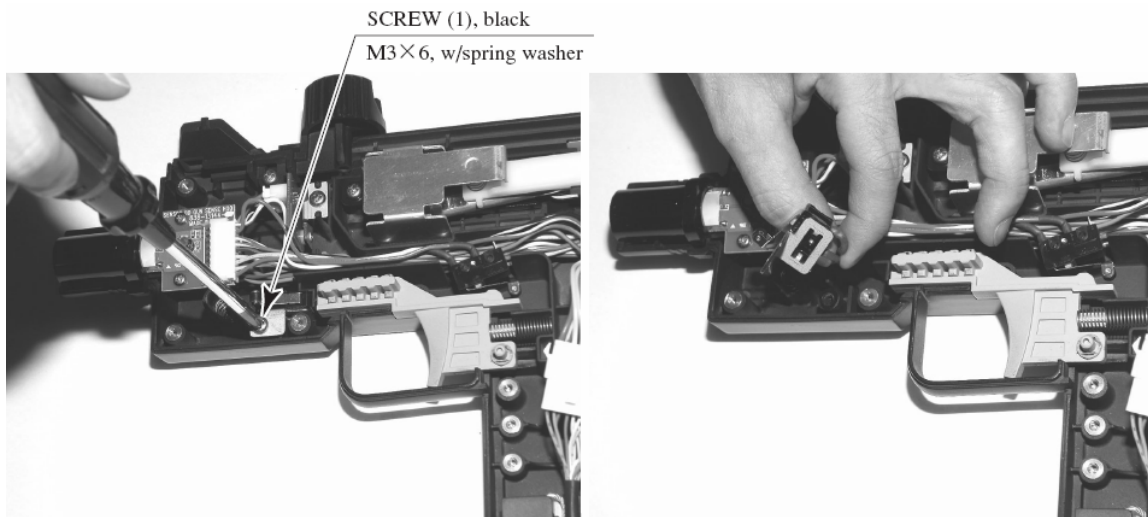
Undo the brackets and remove the solder to allow you to remove the microswitch.
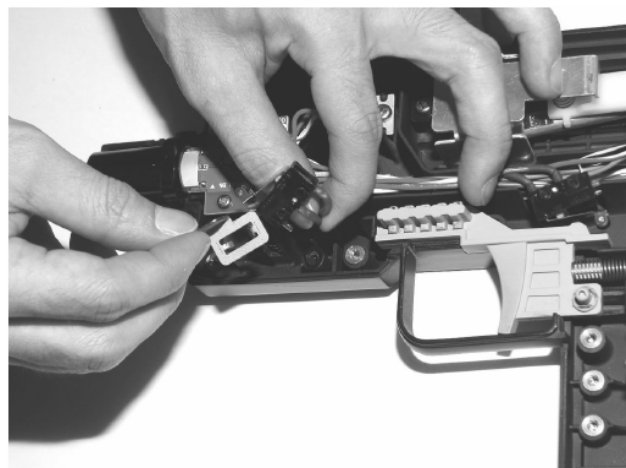
- Solder the new microswitch in place on the gun.

- Then operate all buttons on the gun and confirm that the microswitch turns ON/OFF before putting covers L and R back together.

- Do not tighten the screws too tightly when reattaching the covers.

- Perform an input test as described in the chapter on "Test Mode."

9.2. Replacing the sensor unit

① Follow steps ① - ③ above of the microswitch replacement procedure.
  You will now have removed cover L.

② Undo the connector and remove the
  sensor unit.

Undo the connector.
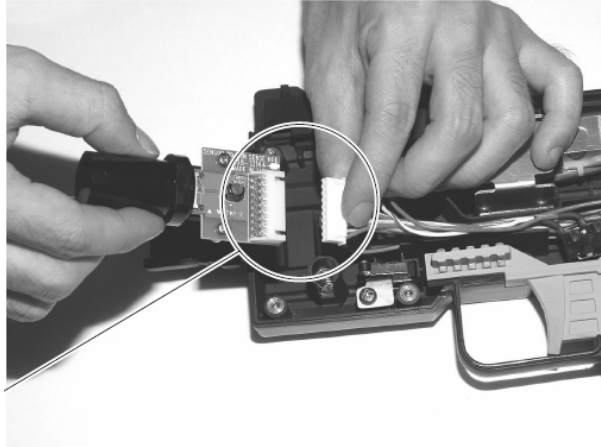
③ Attach the new sensor unit and fit it back in place inside the Control Unit (Gun).

Then operate all buttons on the gun and confirm that the microswitch turns ON/OFF before putting covers L and R back together.

Do not tighten the screws too tightly when reattaching the covers.

④ Perform a targeting test as described in the chapter on "Test Mode."

9.3. Replacing the speed sensor unit

① Follow steps ① - ③ above of the microswitch replacement procedure.
   You will now have removed cover L.

② Remove 1 screw.

SCREW (1), black
M3×6, w/spring washer
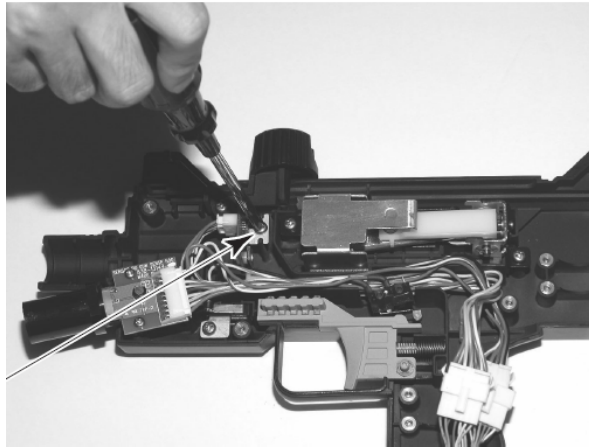
③ Remove cover R from the speed sensor
   and undo the connector.

Undo the connector.
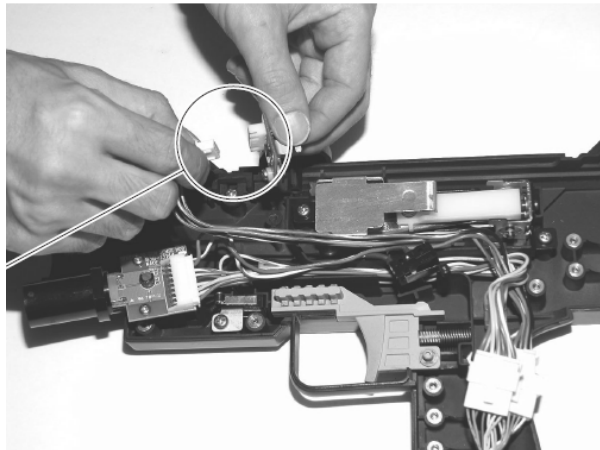
④ Undo the 2 screws and separate the sensor (board) and brackets. The brackets, screws and plastic
   washers will be used with the new sensor so do not lose them.
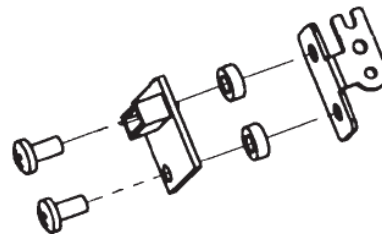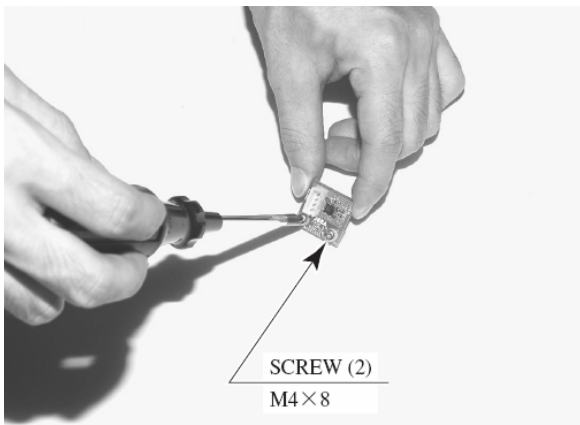
SCREW (2)
M4×8

⑤ Replace the sensor and paying careful attention to all parts involved place it inside the gun.

   Pass the screws through the sensor, plastic washers and then the bracket in order.

⑥ Perform a speed test as described in the chapter on "Test Mode."

10. Projector

⚠️ **CAUTION**

> The projector is adjusted prior to leaving the factory. Avoid any unnecessary adjustment.

🛑 **STOP IMPORTANT**

- If the adjustment method in this manual does not resolve the problem contact the customer service number in this manual or your supplier.

- "Snow" on the screen/changes in brightness for a short period is due to the high-pressure mercury lamp in the projector. This is not a defect and does not need repairs.

- The life of the high-pressure mercury lamp is the average number of hours 50% of lamps last for. Therefore a life of 8,000 hours does not mean that the lamp cannot last beyond 8,000 hours.

- There is no way of knowing when the lamp is going to cease to function. Once it ceases to function, the projector will be unable to display anything and the product cannot be used. Have a spare lamp ready at all times.

- Do not stick tape, stickers or anything else onto the screen. Any kind of adhesive may damage the surface of the screen.

The projector remembers adjustments.
If there is any distortion, etc. that requires adjustment on the TEST screen, use the remote control.

The average life of the projector's high pressure mercury lamp is approximately 8000 (50% survival), but the its actual lifespan depends on how it is used etc.

The lamp will not last forever. If the screen is dark or continually disappears the lamp must be changed immediately.

Follow the procedure as outlined in the projector manual to change the lamp and be sure to reset the timer setting.

10.1. Cleaning the screen

Since the Projector screen is susceptible to damage, pay careful attention to its handling. When cleaning, refrain from using water or volatile chemicals.

When the screen surface becomes dirty with dust, etc., clean it by using a soft cloth such as gauze. When water, and volatile chemicals such as benzene, thinner, etc., spill on the screen surface, it may be subject to damage, therefore, do not use them.

Also, since the surfaces are susceptible to damage, refrain from rubbing them with a hard material or using a duster.

If the screen is especially dirty, call in a professional cleaner.
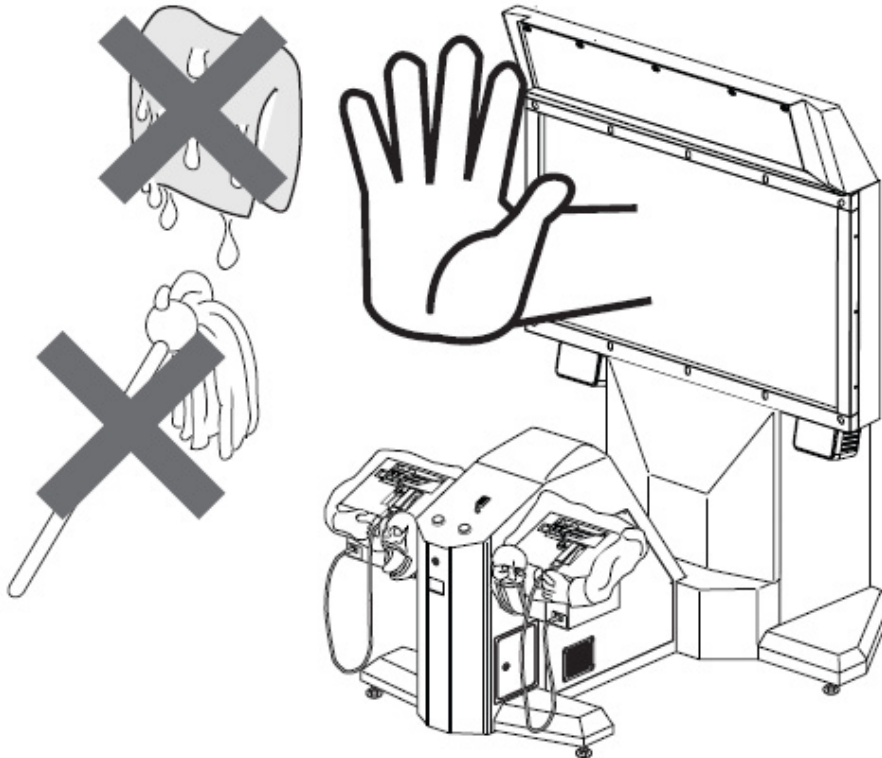
10.2. Projector adjustment

STOP
IMPORTANT

- When making adjustments, make sure that the remote control's emitter is pointed toward the projector screen.

- The projector unit itself does not have any controls on it.

*1: Do not needlessly enter SERVICE or SPECIAL Modes. Any control errors made in these Modes may alter settings and prevent display. This manual does not contain an explanation of SERVICE Mode.
*2: The projector does not have a VIDEO input. The VIDEO setting cannot be used.

Use the accompanying remote control to perform all projector adjustments.
The remote control cannot turn the projector or the entire game system's power ON or OFF.

Remote control emitter
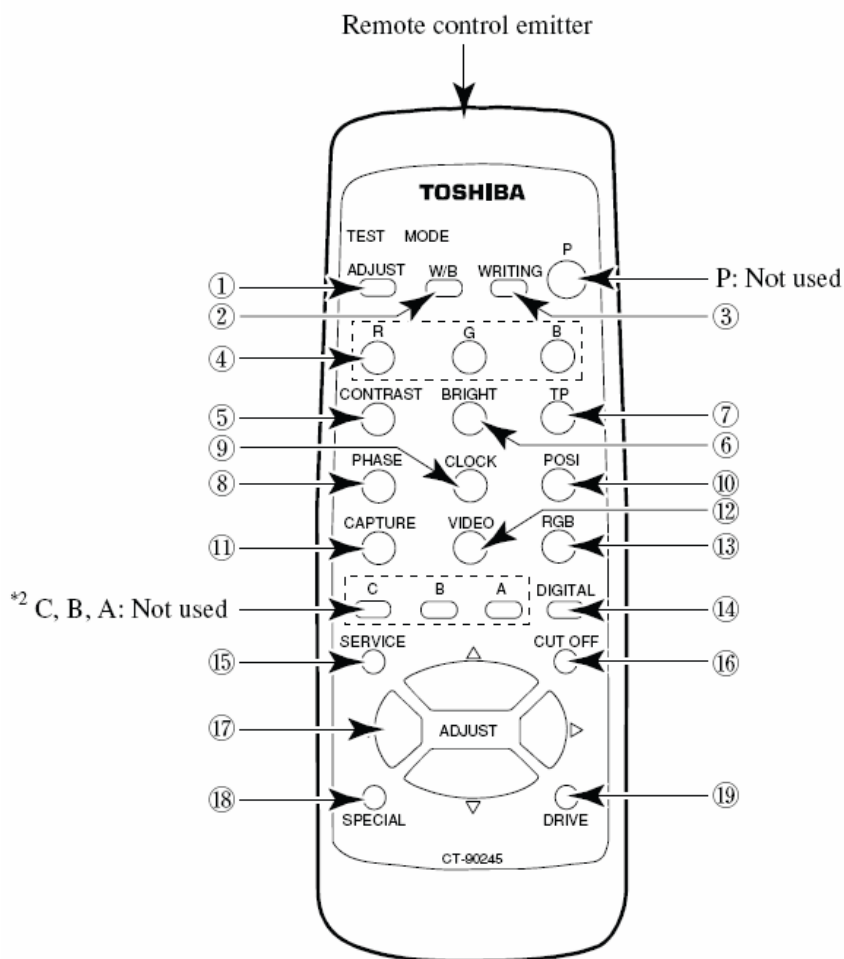
ADJUST (ADJUST Mode):	Press this button to enter ADJUST Mode. It also functions as the EXIT button.
W/B switch (white balance):	Select WHITE BALANCE Mode.
WRITING (memory):	Store adjustment data.
R, G, B (color select):	Use to select a color when adjusting color balance.
CONTRAST:	Adjust the contrast of the projected image.
BRIGHT:	Adjust the black level (brightness) of the projected image.
TP (test pattern):	Display an internal test pattern.
PHASE (phase adjust):	Adjust the sampling phase.
CLOCK (clock adjust):	Adjust the sampling clock.
POSI (display position):	Adjust the display position of the projected image.
CAPTURE (adjust image capture):	Adjust timing of image capture.
VIDEO input:	Select video input.
RGB input:	Select RGB input.
DVI input:	Select DVI input.
*1 SERVICE:	Enter SERVICE Mode.
CUT OFF (adjust cut off):	Adjust the white balance of dark areas.
ADJUST (adjust up/down and left/right):	Adjusted selected category.
*1 SPECIAL:	Enter SPECIAL Mode.
DRIVE (adjust drive):	Adjust the white balance of light areas.

10.3. Colour adjustment

STOP IMPORTANT

The projector is precisely adjusted in the factory prior to sale. Avoid unnecessary adjustment at all costs. Needlessly altering adjustment data may make any later repairs harder to perform.

● Before performing any adjustments you must first press the ADJUST button and enter ADJUST Mode. If you wish to exit without making any adjustments press the ADJUST button twice to return to Normal Mode.

● Once in ADJUST Mode press the button for the adjustment you wish to make.

● When the adjustment category is displayed used the ADJUST [▲] [▼] [ ] [ ] buttons to make adjustments.

● When you have finished making adjustments press the WRITING button to record the adjusted data. If you wish to exit without saving the adjusted data return to Normal Mode without pressing the WRITING button and then turn the power off for a reasonable period of time. Press the ADJUST button three times to return to Normal Mode.
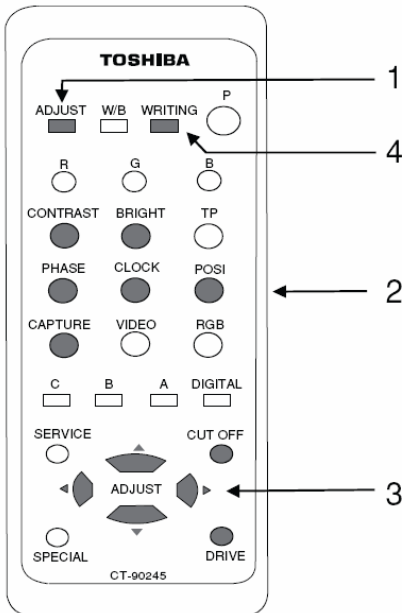
Returning to Normal Mode from ADJUST Mode:

ADJUST Mode — ADJUST MODE

Press the ADJUST button. The exit menu will appear. — ADJUST MODE / ADJUST EXIT?" / YES:SAME KEY" / NO:ANY KEY"

Press the ADJUST button again. — Returns to Normal Mode.

1 Press the ADJUST button.

ADJUST MODE

The projector will enter ADJUST Mode and wait for an adjustment category button to be pressed.

2 Press an adjustment category button.

ADJUST MODE / CONTRAST 128 ↑↓
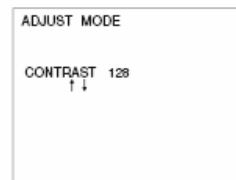
The projector will enter the selected Adjustment Mode.

3 Use the ADJUST [▲] [▼] [◄] [►] buttons to make adjustments.

ADJUST MODE / CONTRAST 128 ↑↓
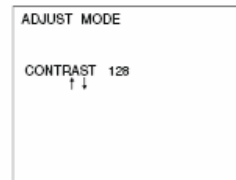
Adjust the values of the displayed adjustment data to suit your needs.

4 Press the WRITING button (record and finish).
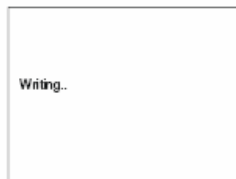
Writing..

The message "WRITING" will be displayed, and the adjusted data recorded. After about 3 seconds the projector will return to Normal Mode.
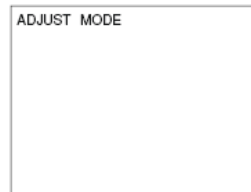
10.4. Adjusting contrast

> • To abort adjustment without recording any changes press the ADJUST button twice (in some instances three times) to return to Normal Mode.
>
> • If you wish to carry on and make further adjustments to a different menu repeat 2 ~ 3.
>
> • If you do not record adjustment data then all adjustments will be lost when the power if turned off, and when it is turned back on the projector will be returned to the state prior to adjustment.

Adjusting the contrast will alter the tones of the displayed image.
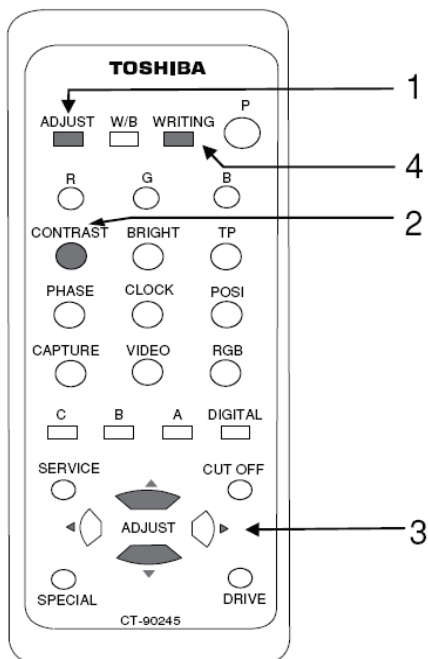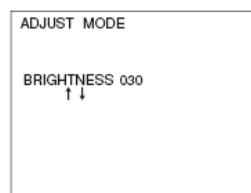

1 Press the ADJUST button.
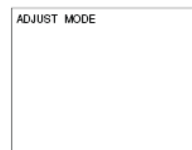
The projector will enter ADJUST Mode and wait for an adjustment category button to be pressed.
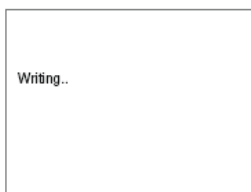
2 Press the CONTRAST button.
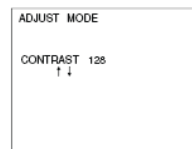
The projector will enter the CONTRAST Adjust Mode.

3 Use the ADJUST [▲] [▼] buttons to make adjustments.
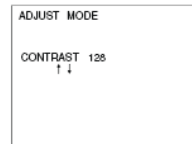
The values of the adjustment data will change. Continue to make adjustments until the screen's contract suits your needs.

4 Press the WRITING button (record and finish).
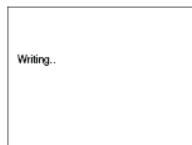
The message "WRITING" will be displayed, and the adjusted data recorded.

10.5. Adjusting brightness

- To abort adjustment without recording any changes press the ADJUST button twice (in some instances three times) to return to Normal Mode.

- If you wish to carry on and make further adjustments to a different menu repeat 2 ~ 3.

- If you do not record adjustment data then all adjustments will be lost when the power if turned off, and when it is turned back on the projector will be returned to the state prior to adjustment.

- Mistaken adjustment of the brightness can reduce the quality of the projected image. It is therefore recommended that the factory setting by used.

Adjusting the brightness will alter the display of the black parts of the image.
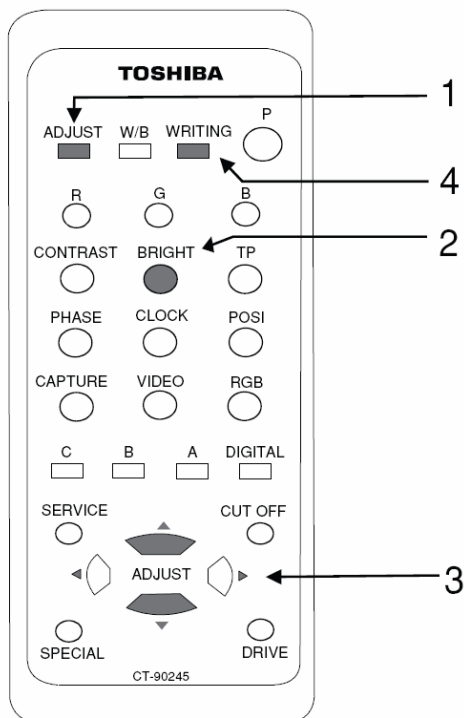
1 Press the ADJUST button.

ADJUST MODE

The projector will enter ADJUST Mode and wait for an adjustment category button to be pressed.

2 Press the BRIGHT button.

ADJUST MODE
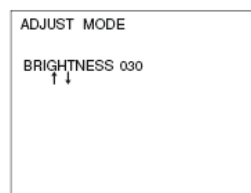
BRIGHTNESS 030

The projector will enter the BRIGHTNESS Adjust Mode.

3 Use the ADJUST [▲] [▼] buttons to make adjustments.

ADJUST MODE

BRIGHTNESS 030

The values of the adjustment data will change. Continue to make adjustments until the screen's brightness suits your needs.
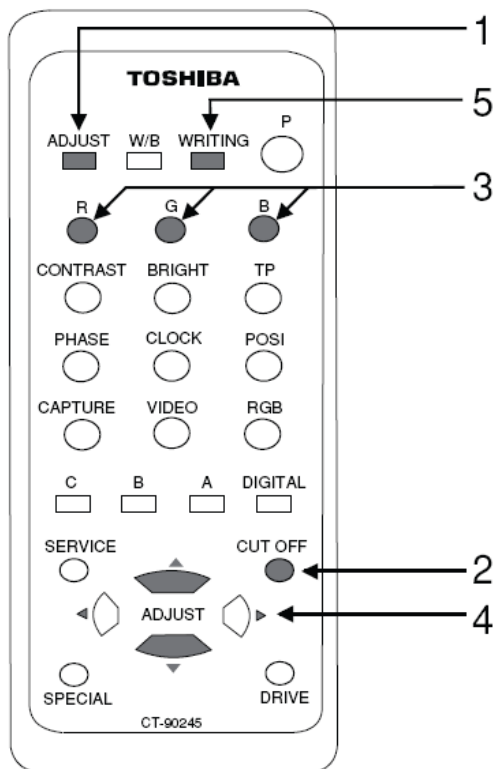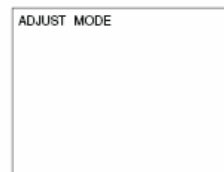
4 Press the WRITING button (record and finish).

Writing..

The message "WRITING" will be displayed, and the adjusted data recorded.

TOSHIBA

ADJUST W/B WRITING P

R G B

CONTRAST BRIGHT TP

PHASE CLOCK POSI

CAPTURE VIDEO RGB

C B A DIGITAL

SERVICE CUT OFF

ADJUST

SPECIAL DRIVE

CT-90245

10.6. Adjusting cut-off

STOP
IMPORTANT

- To abort adjustment without recording any changes press the ADJUST button twice (in some instances three times) to return to Normal Mode.

- If you wish to carry on and make further adjustments to a different menu repeat 2 ~ 3.

- If you do not record adjustment data then all adjustments will be lost when the power if turned off, and when it is turned back on the projector will be returned to the state prior to adjustment.

- Mistaken adjustment of the cut off can reduce the quality of the projected image. It is therefore recommended that the factory setting by used.
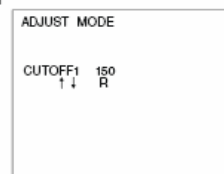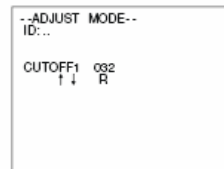
1 Press the ADJUST button.

ADJUST MODE

The projector will enter ADJUST Mode and wait for an adjustment category button to be pressed.
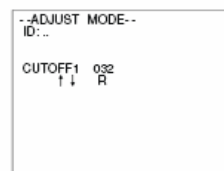
2 Press the CUT OFF button.

ADJUST MODE

CUTOFF1 150
  ↑↓   R

The projector will enter the CUT OFF Adjust Mode.

3 Press a color select button; R, G or B.

--ADJUST MODE--
ID: ..

CUTOFF1 032
  ↑↓   R

Select the color you wish to adjust.

4 Use the ADJUST [▲] [▼] buttons to make adjustments.

--ADJUST MODE--
ID: ..

CUTOFF1 032
  ↑↓   R

The values of the adjustment data will change. Continue to make adjustments until the screen's white balance of darker areas suits your needs.

5 Press the WRITING button (record and finish).
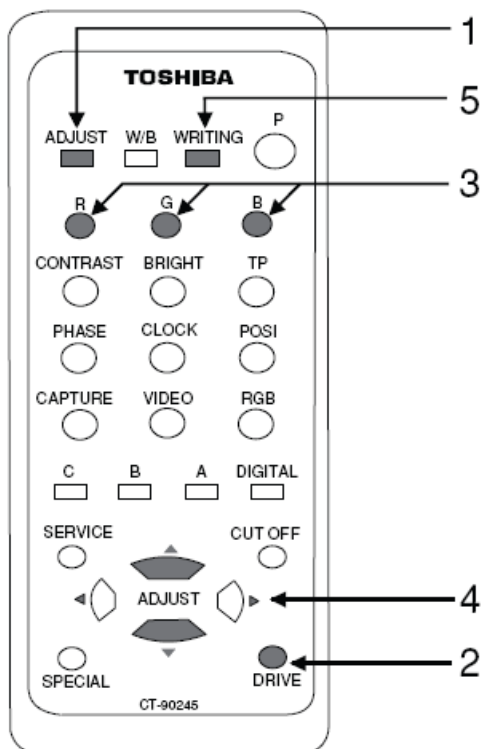
--ADJUST MODE--
ID: ..
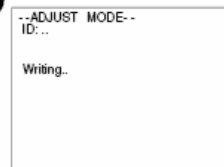
Writing..

The message "WRITING" will be displayed, and the adjusted data recorded.

10.7. Adjusting drive

- To abort adjustment without recording any changes press the ADJUST button twice (in some instances three times) to return to Normal Mode.

- If you wish to carry on and make further adjustments to a different menu repeat 2 ~ 3.

- If you do not record adjustment data then all adjustments will be lost when the power if turned off, and when it is turned back on the projector will be returned to the state prior to adjustment.

- Mistaken adjustment of the drive can reduce the quality of the projected image. It is therefore recommended that the factory setting by used.

Adjusting the drive will alter the white balance of the light parts of the image.
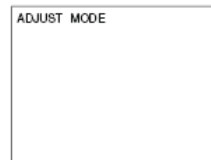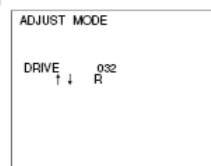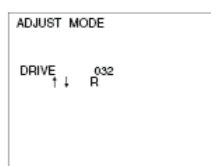
1 Press the ADJUST button.

ADJUST MODE

The projector will enter ADJUST Mode and wait for an adjustment category button to be pressed.

2 Press the DRIVE button.

ADJUST MODE

DRIVE ↑↓   032 R

The projector will enter the DRIVE Adjustment Mode.

3 Press a color select button; R, G or B.

ADJUST MODE

DRIVE ↑↓   032 R

Select the color you wish to adjust.

4 Use the ADJUST [▲] [▼] buttons to make adjustments.

ADJUST MODE

DRIVE ↑↓   032 R
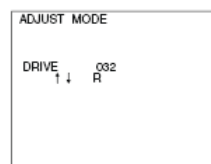
The values of the adjustment data will change. Continue to make adjustments until the screen's white balance of lighter areas suits your needs.

5 Press the WRITING button (record and finish).
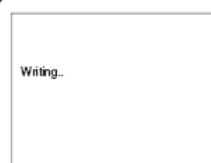
Writing..

The message "WRITING" will be displayed, and the adjusted data recorded.

10.8. Adjusting screen display position

- To abort adjustment without recording any changes press the ADJUST button twice (in some instances three times) to return to Normal Mode.

- If you wish to carry on and make further adjustments to a different menu repeat 2 ~ 3.

- If you do not record adjustment data then all adjustments will be lost when the power if turned off, and when it is turned back on the projector will be returned to the state prior to adjustment.

1 Press the ADJUST button.

ADJUST MODE

The projector will enter ADJUST Mode and wait for an adjustment category button to be pressed.
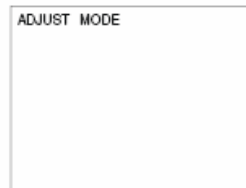
2 Press the POSI button.

ADJUST MODE

POSITION 20 260
↑↓ ←→

The projector will enter the POSITION Adjust Mode.

3 Use the ADJUST [▲][▼][◄][►] buttons to make adjustments.

ADJUST MODE

POSITION 20 260
↑↓ ←→

The values of the adjustment data will change. Continue to make adjustments until the screen's display position suits your needs.

4 Press the WRITING button (record and finish).
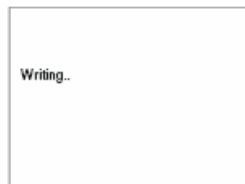
Writing..

The message "WRITING" will be displayed, and the adjusted data recorded.
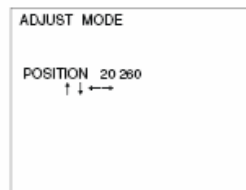
10.9. Adjusting capture

- To abort adjustment without recording any changes press the ADJUST button twice (in some instances three times) to return to Normal Mode.

- If you wish to carry on and make further adjustments to a different menu repeat 2 ~ 3.

- If you do not record adjustment data then all adjustments will be lost when the power if turned off, and when it is turned back on the projector will be returned to the state prior to adjustment.
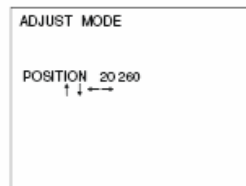
1 Press the ADJUST button.

--ADJUST MODE--
ID:..

The projector will enter ADJUST Mode and wait for an adjustment category button to be pressed.

2 Press the CAPTURE button.

ADJUST MODE

CAPTURE 27 313

The projector will enter the CAPUTRE Adjust Mode.

3 Use the ADJUST [▲][▼][◄][►] buttons to make adjustments.
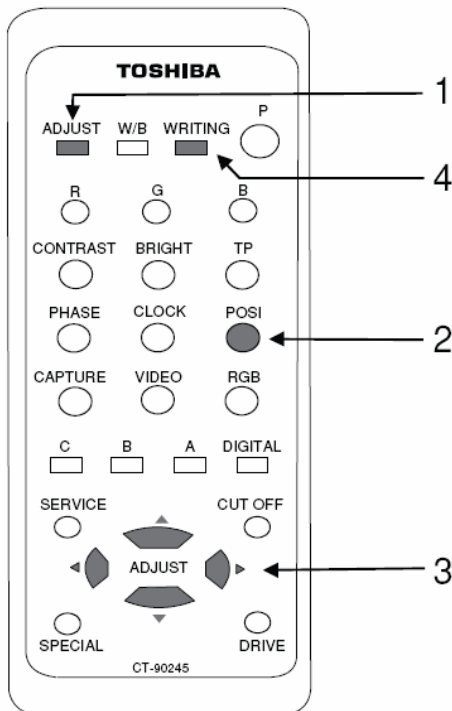
ADJUST MODE

CAPTURE 27 313

The values of the adjustment data will change. Continue to make adjustments until the screen's display position suits your needs.

4 Press the WRITING button (record and finish).

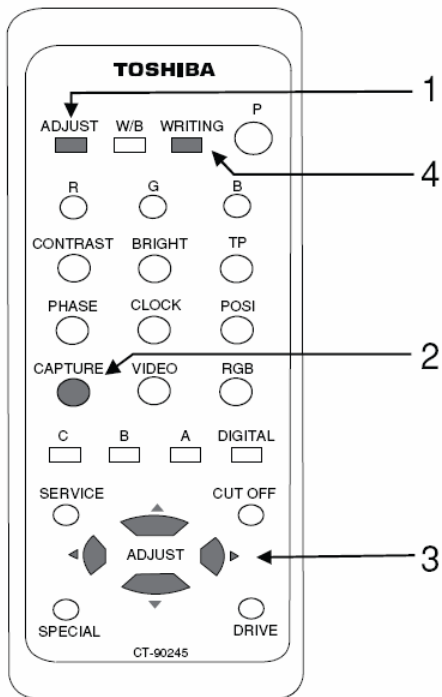Writing..

The message "WRITING" will be displayed, and the adjusted data recorded.

TOSHIBA
ADJUST W/B WRITING P
R G B
CONTRAST BRIGHT TP
PHASE CLOCK POSI
CAPTURE VIDEO RGB
C B A DIGITAL
SERVICE CUT OFF
ADJUST
SPECIAL DRIVE
CT-90245

10.10. Adjusting the clock

STOP
IMPORTANT
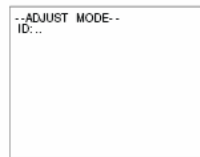
- To abort adjustment without recording any changes press the ADJUST button twice (in some instances three times) to return to Normal Mode.

- If you wish to carry on and make further adjustments to a different menu repeat 2 ~ 3.

- If you do not record adjustment data then all adjustments will be lost when the power if turned off, and when it is turned back on the projector will be returned to the state prior to adjustment.
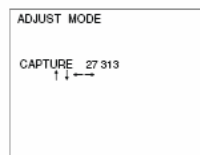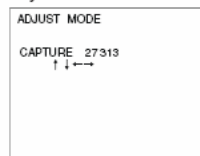
- Mistaken adjustment of the drive can reduce the quality of the projected image. It is therefore recommended that the factory setting by used.

1 Press the ADJUST button.

ADJUST MODE

The projector will enter ADJUST Mode and wait for an adjustment category button to be pressed.

2 Press the CLOCK button.

AD JUST MODE

CLOCK   0852
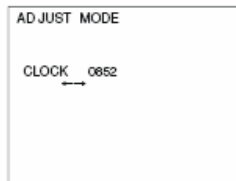
The projector will enter the CLOCK Adjust Mode.

3 Use the ADJUST [◄] [►] buttons to make adjustments.
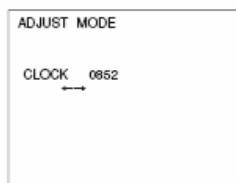
ADJUST MODE

CLOCK   0852

The values of the adjustment data will change. Continue to make adjustments until the screen's sampling clock reaches a suitable setting (no jitter or moir_).

Example of Adjustment via Crosshatch Pattern

←Back too far
NG (moiré present)
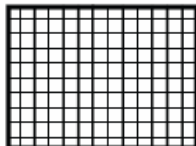
Perfect setting
OK (no moiré)
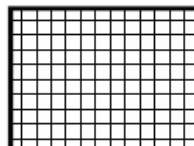
Too far forward →
NG (moiré present)
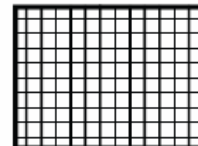
4 Press the WRITING button (record and finish).
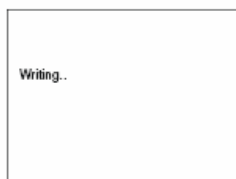
Writing..

The message "WRITING" will be displayed, and the adjusted data recorded.

10.11. Adjusting phase

> ● To abort adjustment without recording any changes press the ADJUST button twice (in some instances three times) to return to Normal Mode.
>
> ● If you wish to carry on and make further adjustments to a different menu repeat 2 ~ 3.
>
> ● If you do not record adjustment data then all adjustments will be lost when the power if turned off, and when it is turned back on the projector will be returned to the state prior to adjustment.
>
> ● Mistaken adjustment of the drive can reduce the quality of the projected image. It is therefore recommended that the factory setting by used.

1 Press the ADJUST button.

ADJUST MODE

The projector will enter ADJUST Mode and wait for an adjustment category button to be pressed.

2 Press the PHASE button.

ADJUST MODE

PHASE 024
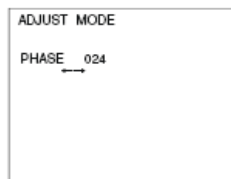
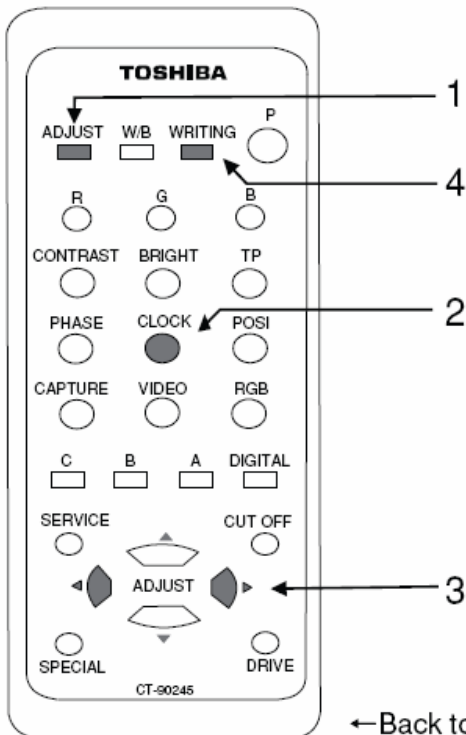The projector will enter the PHASE Adjust Mode.

3 Use the ADJUST [◄] [►] buttons to make adjustments.
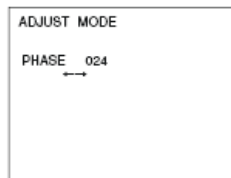
ADJUST MODE

PHASE 024

The values of the adjustment data will change. Continue to make adjustments until the screen's sampling phase reaches a suitable setting (no jitter).

Example of Adjustment via Crosshatch Pattern
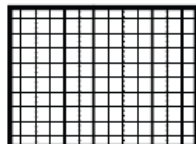
←Back too far   Perfect setting   Too far forward →
NG (jitter present)   OK (no jitter)   NG (jitter present)
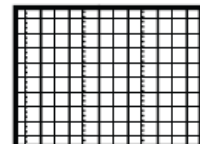
4 Press the WRITING button (record and finish).
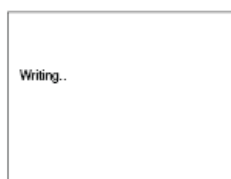
Writing..

The message "WRITING" will be displayed, and the adjusted data recorded.

10.12. White balance switch

- WB1 has been given standard adjustment in the factory. Therefore use of WB1 is recommended.

White balance (W/B) is adjusted (preset) to WB1 in the factory, but you can switch it to suit your needs.
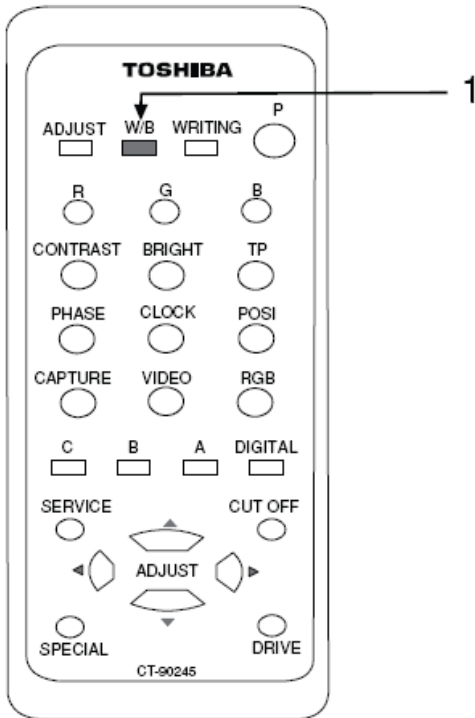
1 Press the W/B button.

WB1

Each press of the W/B button will move through the White Balance Modes in sequence.

[WB 1] ⟶ [WB 2] ⟶ [WB 3]
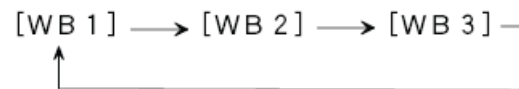
10.13. Change input (RGB input / DVI input)

STOP
IMPORTANT

- You must use the analog RGB setting with this product.

- If the input selected in change input is not receiving a signal the message "NO INPUT SIGNAL" will be displayed for approximately 5 seconds on the screen. After that the screen will remain black.

The projector can be switched between analog RGB input and DVI input.
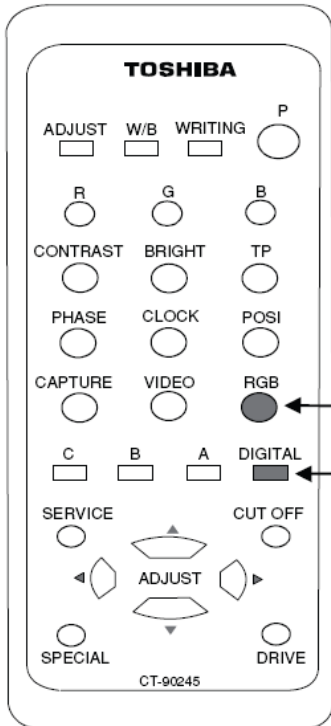
1 Press the RGB button.

| RGB |

This will select analog RGB input.

2 Press the DIGITAL button.

| DVI |
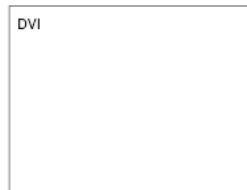
This will select DVI input.

10.14. Display internal test pattern

The projector has the following internal test pattern onboard.
However, to adjust the monitor for this product you must use MONITOR TEST under TEST Mode.
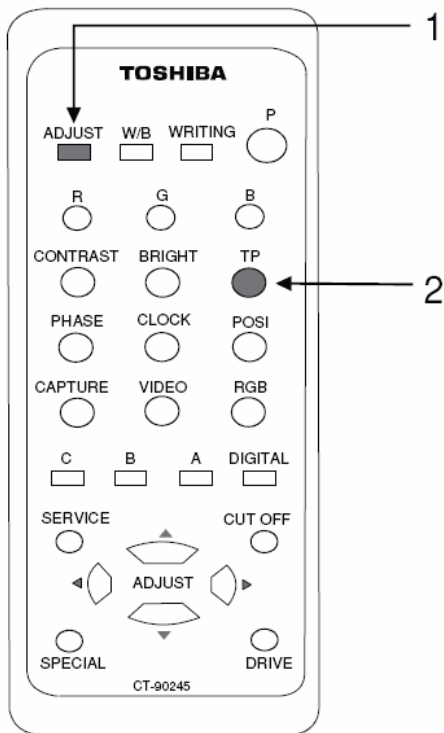
1 Press the ADJUST button.
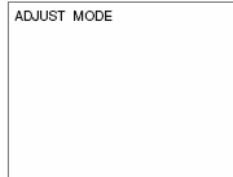
ADJUST MODE

The projector will enter ADJUST Mode and wait for an adjustment category button to be pressed.

2 Press the TP button.

00

Each press of the TP button will display a different internal test pattern.

$$0\,0 \quad \cdot\;\cdot\;\cdot\;\cdot\;\cdot \rightarrow \quad 6\,0$$

Return to Normal Mode after displaying a test pattern

Press the ADJUST button.

The projector will enter ADJUST Mode.

ADJUST MODE

Press the ADJUST button.

The exit menu will be displayed.

ADJUST MODE

ADJUST   EXIT?"
  YES:SAME KEY"
  NO: ANY KEY"

Press the ADJUST button again.

The projector
will return
to Normal Mode.
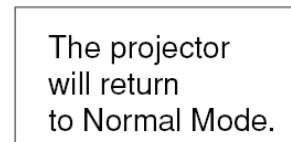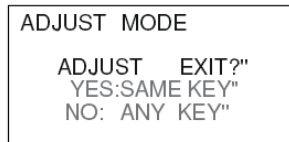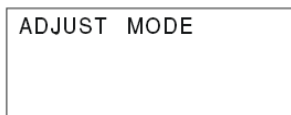
10.15. Display internal test pattern
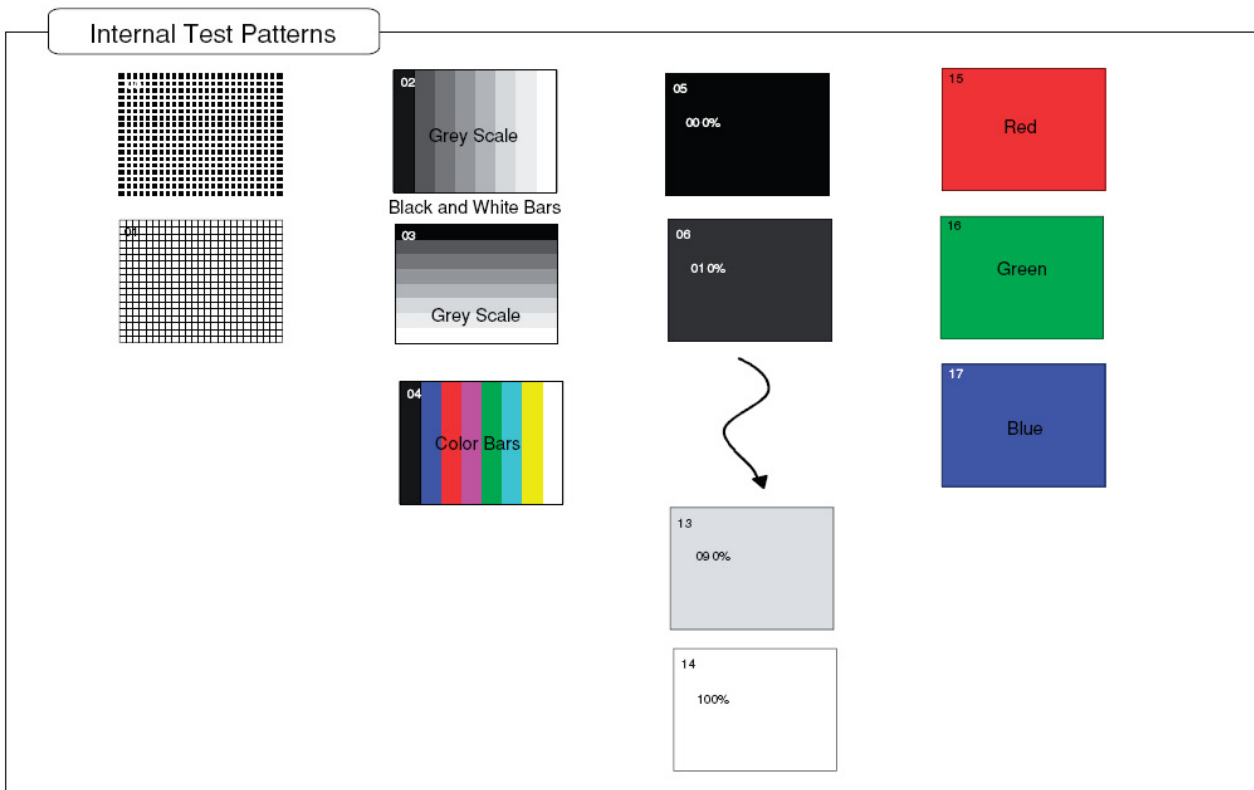
NOTE: The content of the internal test patterns may be altered without prior notice.

10.16. Special mode: Lamp, timer display and reset

STOP IMPORTANT

After changing the lamp you must perform the lamp reset operation (step 4 below) to reset the lamp timer.

Displays the amount of time the lamp has been used for.
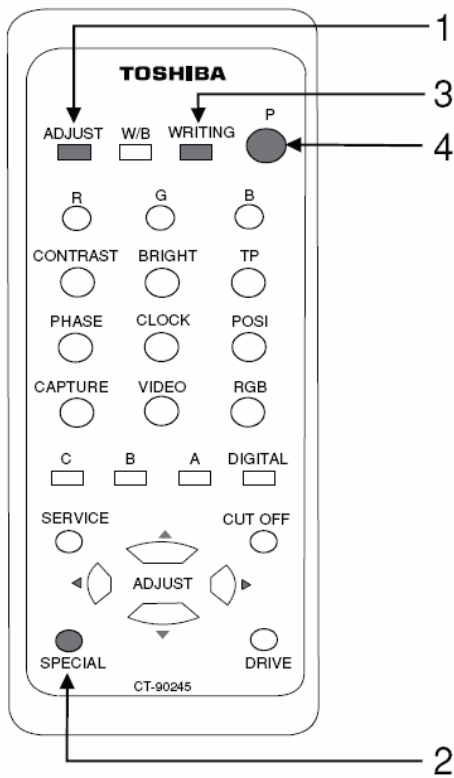
1 Press the ADJUST button.

ADJUST MODE

The projector will enter ADJUST Mode and wait for an adjustment category button to be pressed.

2 Press the SPECIAL button.
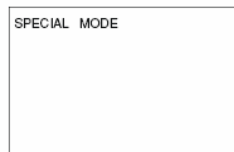
SPECIAL MODE

The projector will enter SPECIAL Mode and await further selections.

3 Press the WRITING button.

SPECIAL MODE
..
LAMP TIMER
TIMER : 08000
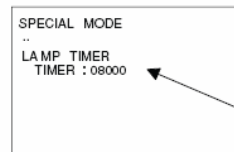
The amount of time the current lamp has been used for will be displayed.

Time used

Return to Normal Mode after checking the lamp timer

Press the ADJUST button.
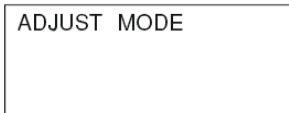
The projector will enter ADJUST Mode.

ADJUST MODE

⇨ Press the ADJUST button.

The exit menu will be displayed.

ADJUST MODE

ADJUST   EXIT?"
YES:SAME KEY"
NO: ANY KEY"
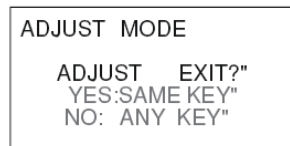
⇨ Press the ADJUST button again.

The projector will return to Normal Mode.

4 Hold down the P button for approximately 4 seconds.
(Will reset the timer, record it and exit.)

Reset

```
SPECIAL  MODE
..
LA MP  TIMER
   TIMER : 0 0 0 00  ◄
```

Once this message appears release the P button.
The used time will change to "00000" and the reset is complete.

Used time becomes "00000".

⬇

Record

```
Writing
```

⬇

Exit

```
Automatically returns to Normal Mode.
```

10.17. Special mode: Force mode.

STOP IMPORTANT

- You must set FORCE Mode to OFF for this product.

- To abort adjustment without recording any changes press the ADJUST button twice (in some instances three times) to return to Normal Mode.

Setting FORCE Mode to ON will allow you to set reception to always occur with the same timing.

When FORCE Mode is set to OFF reception will be set automatically each time in accordance with a timing signal. However, if this does not match the timing signal recorded in the projector, the image may fall out of sync.

1 Press the ADJUST button.

ADJUST MODE

The projector will enter ADJUST Mode and wait for an adjustment category button to be pressed.

2 Press the SPECIAL button.

SPECIAL MODE

The projector will enter SPECIAL Mode and await further selections.

3 Press the CLOCK button.

SPECIAL MODE

FORCE MODE OFF

The current setting (ON/OFF) will be displayed.
Press the CLOCK button again to change this setting.
If you wish to finish without changing the setting press the ADJUST button three times to return to Normal Mode.

4 Press the ADJUST button to remember the setting.

ADJUST MODE

The projector will enter ADJUST Mode and await further selections.

5 Press the WRITING button.

WRITING

The data will be remembered and then the projector will automatically return to Normal Mode.

10.18. Special mode: Auto adjust and frame lock setting.

STOP
IMPORTANT

> • You must set AUTO ADJUST Mode to ON for this product.
>
> • You must set Frame Lock to ON for this product.
>
> • To abort adjustment without recording any changes press the ADJUST button twice (in some instances three times) to return to Normal Mode.

AUTO ADJUST ON/OFF (Press the PHASE button at step 3)

Setting the AUTO ADJUST Mode to ON will automatically determine the timing signal and the image will be displayed in the normal screen position.

Setting AUTO ADJUST Mode to OFF will display the image according to the timing signal recorded in the projector.

FRAME LOCK ON/OFF (Press the POSI button at step 3)

If Frame Lock is set to OFF then "snow" may appear on the screen when displaying moving images. If this happens setting the Frame Lock to ON is advised.
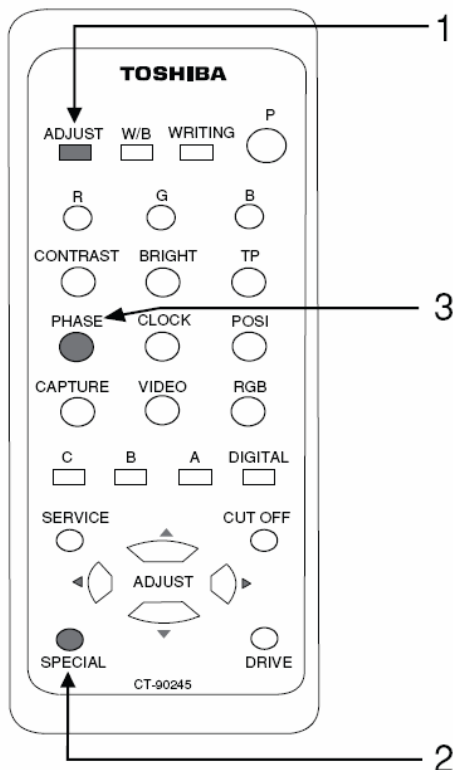
1 Press the ADJUST button.
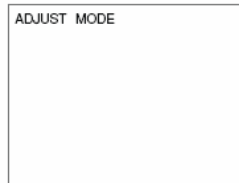
ADJUST MODE

The projector will enter ADJUST Mode and wait for an adjustment category button to be pressed.

2 Press the SPECIAL button.
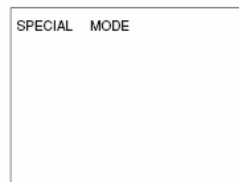
SPECIAL MODE

The projector will enter SPECIAL Mode and await further selections.

3 Press the PHASE button.

SPECIAL MODE

AUTO ADJUST ON
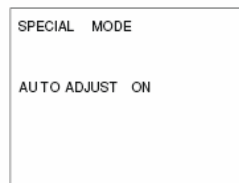
The current setting (ON/OFF) will be displayed.
Press the PHASE button again to change this setting.

If you wish to finish without changing the setting, press the ADJUST button three times to return to Normal Mode.

⇩
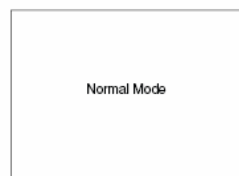
Normal Mode

The setting will be automatically recorded and the projector will return to Normal Mode.

10.19. Special mode: Re-auto adjust.

STOP
IMPORTANT

To abort adjustment without recording any changes press the ADJUST button twice (in some instances three times) to return to Normal Mode.

RE-AUTO ADJUST (Press the VIDEO button at step 3)
Press this button and the Auto Adjust process will be performed again.
If the image is being drawn incorrectly pressing this button should fix the problem.
You must input a signal that displays 100% of the image field when performing this operation.
For this product, use the MONITOR TEST screen under TEST Mode.
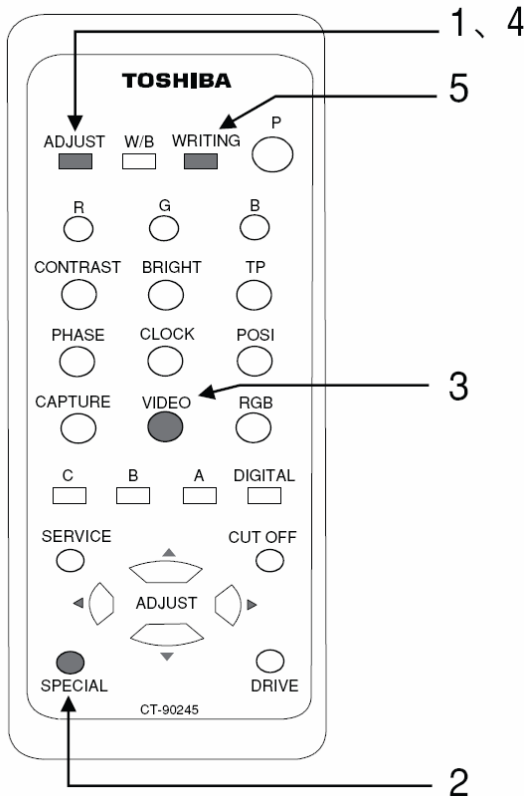
1 Press the ADJUST button.
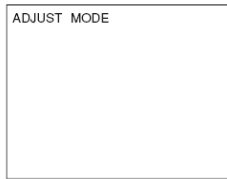
ADJUST MODE

The projector will enter ADJUST Mode and wait for an adjustment category button to be pressed.

2 Press the SPECIAL button.
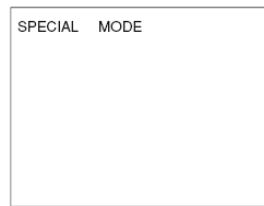
SPECIAL MODE

The projector will enter SPECIAL Mode and await further selections.

3 Press the VIDEO button.

SPECIAL MODE
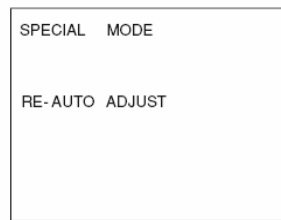
RE-AUTO ADJUST

The Auto Adjust process will be performed.
If you wish to finish without changing the setting, press the ADJUST button three times to return to Normal Mode.

4 Press the ADJUST button to remember the setting.

ADJUST MODE
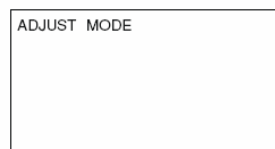
The projector will enter ADJUST Mode and await further selections.

5 Press the WRITING button.

WRITING

The data will be remembered and then the projector will automatically return to Normal Mode.

10.20. Changing the lamp unit.

⚠ **WARNING**

- To prevent electric shock and fire hazards, only perform this operation after turning off the main power switch and removing the power cord from the socket.

- Never put anything metal or flammable into the interior of the DLP.
Using it with such an object inside may lead to an electric shock or fire.

- Make sure that the lamp is firmly in place. If the lamp is loose then it is a fire hazard, and it also might not come on.

- The lamp becomes very hot during use and remains so for a while afterward. Attempting to change the lamp before it has sufficiently cooled may lead to burns and other injuries.

- If the lamp shatters fragments of glass will remain inside the lamp.

Never shake a shattered lamp or hold/place one higher than eye level.
Doing so could lead to a serious accident.

⚠ **CAUTION**

When opening the door or lamp cover to change the lamp, do not touch or remove any parts that are unrelated to the lamp changing process. Doing so may lead to injury, and could also harm the efficient working of the product.

🛑 **STOP IMPORTANT**

Do not remove any screws other than those specified below. Doing socould harm the efficient working of the product.

Always perform the lamp changing operation with the power turned off.
Once you have inserted the new lamp only turn the power back on once the lamp exchange cover is back in place. Then enter SPECIAL mode and reset the lamp timer on the Lamp Timer Screen.
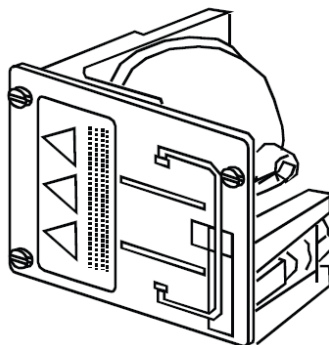
Lamp Unit Parts Number/Name
200-6020/ASSY LAMP DLP PJTN DSPL

- Turn OFF the main power switch on the AC unit and disconnect the power.

- Remove the 4 truss screws and remove the front panel.

FRONT PANEL

TRUSS SCREW (4), black
M4×12, large flat screw used
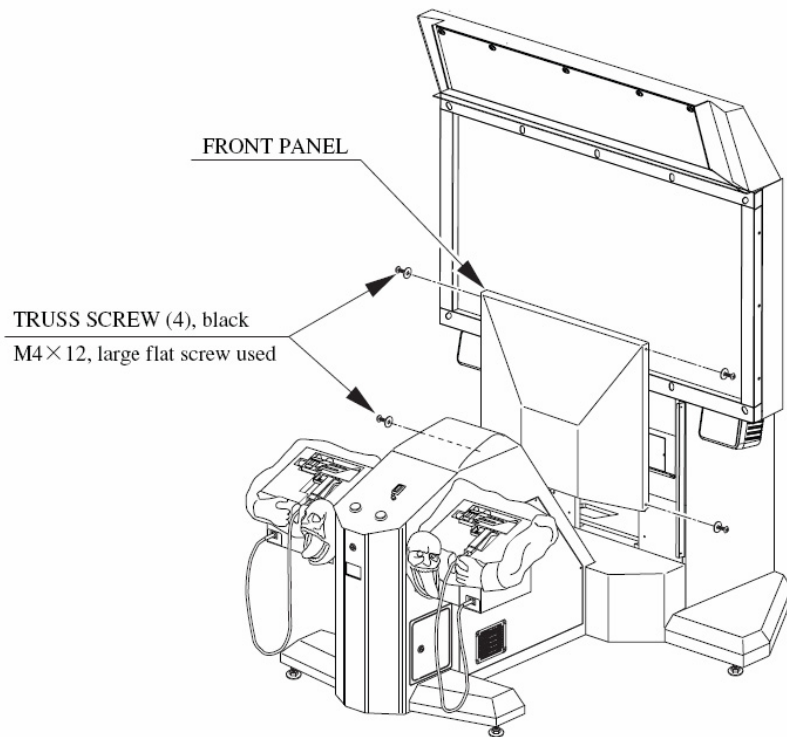
- Remove the 4 screws and remove the lamp change cover.
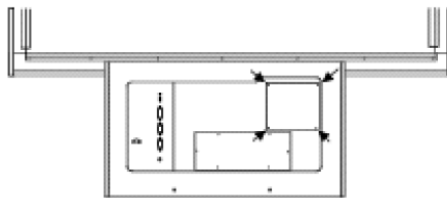
- Remove the old lamp unit. Loosen the three screws holding the lamp unit in place.
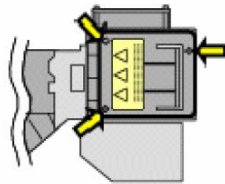
- Pull the lamp out toward you.
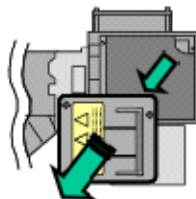
● Insert the new lamp unit. Make sure that you push it all the way in.
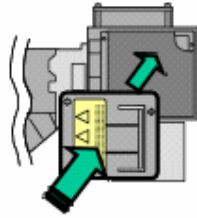
● Tighten the three screws to hold the lamp unit in place.
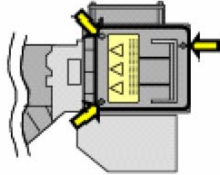
● Replace the lamp change cover and fix it in place with the 4 screws.
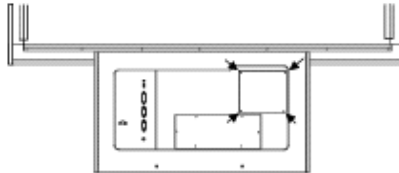
● Replace the front panel and fix it in place with the 4 truss screws.

11.   Coin validator.

11.1.1. VTS P.C board.

All playable credit for this machine is controlled by the *VTS* board.
This electronic circuit allows the price of play to be set for a range of different countries.
These functions are set on Dual In Line (DIL) PCB mounted switches.

DIL-2 is used to set the currency (or coin ratio) and DIL-1 the price of play.
Refer to the Tables on the following pages for the correct settings for your environment.

The *VTS* board pictured below is mounted on the VTS Bracket within the Coin Tower.
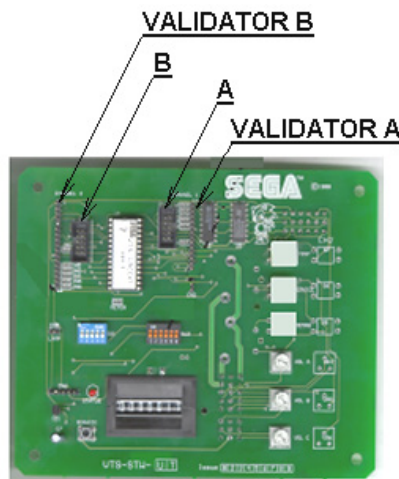
The *VTS* board is connected to the coin validator and lamps via a dedicated wiring harness depending upon the coin validator used:

Wiring Harness	Validator	
LM1006	Coin Controls	(15 way connector)
LM1007	Mars	(13 way connector)
LM1008	Mechanical	See note 1
N/A	NRI	See note 2

Mechanical coin mechanisms may be connected in parallel allowing two identical mechanisms to be fitted.

If NRI mechanisms are to be used, these should be ordered (programmed) with the highest denomination coin on coin-path #1 and the lowest denomination on coin-path #4. The VTS board should be then be set up for either the UK or EURO settings. A minimum connecting lead length of 600mm is required.

All COIN ASSIGNMENTS are carried out and processed by the VTS Board. This game uses a single SR3 Coin Validator (if supplied). This Validator will connect into port A as indicated by the illustration above.

11.1.2. CREDIT SETTINGS

STOP
IMPORTANT

The CREDIT SETTINGS as displayed in the COIN ASSIGNEMNTS of the SYSTEM TEST MODE in the LINDBERGH TEST MENU should always be set to 1 COIN = 1 CREDIT to maintain a correct output from the VTS.

11.1.3.VTS credit board option settings

Country	Setting	\<SW\>						\<Coin Validator Programming\>								\<C120/SR3 Only\>			
		\<Credit Board Mode Settings Switch 3\>																	
		Switch 3 Setting						Coin Validator Programming								C120/SR3 Only			
		SW1	SW2	SW3	SW4	SW5	SW6	COIN1	COIN2	COIN3	COIN4	COIN5	COIN6	COIN7	COIN8	COIN9	COIN10	COIN11	COIN12
UK	Coin Controls C220 Parallel	OFF	OFF	OFF	OFF			£1	50p new	20p	10p	-	50p old	-	-				
UK	Coin Controls C220 Binary	ON	OFF	OFF	OFF			£1	50p new	20p	10p	-	50p old	-	£2				
UK	Coin Controls C220 Binary	OFF	ON	OFF	OFF			£1	50p new	20p	10p	-	£2	-	50p old				
UK	Coin Controls SR3 Parallel	ON	ON	OFF	OFF			£1	50p new	20p	10p	-	£2	-	50p old	-	-	-	-
UK Euro	Coin Controls SR3 Parallel	OFF	OFF	ON	OFF			£2 €2	£1 €1	50p new 50¢	20p 20¢	10p 10¢	-	-	-	50p old	-	-	-
UK	Mars ME/MS 111 Parallel	ON	OFF	ON	OFF			£1	£2	20p	10p	50p new	50p old						
UK	NRI Parallel	OFF	ON	ON	OFF			10p	20p	50p	£1	£2	-						
Belgium	Parallel	ON	ON	ON	OFF			-	50BFr	20BFr	5BFr								
Holland	Parallel	OFF	OFF	OFF	ON			-	5NLG	2.5NLG	1NLG								
Austria	SR3 Parallel	ON	OFF	OFF	ON			20Sch	10Sch	5Sch	1Sch								
Spain	Coin Controls C220 Binary	OFF	ON	OFF	ON			500Pta	200Pta	100Pta	50Pta	25Pta	200Pt old	50Pta old	25Pta old				
Spain	SR3/NRI Parallel	ON	ON	OFF	ON			500Pta	200Pta	100Pta	50Pta	25Pta	-	-	200Pta	-	50Pta old	25Pta old	-
Spain	Coin Controls C220 Parallel	OFF	OFF	ON	ON			100Pta	50Pta new	-	25Pta new	-	50Pta old	-	25Pta old				
Portugal Euro	Parallel	ON	OFF	ON	ON			200Es €1	100Es 50¢	50Es	-	-	-	-	-				
	TBA					OFF		TBA					**Please Note** The credit board automatically sets the validator for parallel and binary operation through an output on pin 8 of the 17 way pinstrip. For the feature to work it is necessary for the validator interconnecting cable to include at wire at this position						
						ON		TBA											
	Channels					OFF		Direct Mode											
						ON		2 channel Mode											

Note: These switch settings are under constant review and may change due to world currency updates.

- Set SW 1 according to the option settings found in the relevant Price of Play Settings Table on the following pages.

- For Germany (DM), France (Fr) & Switzerland (SFr), use the appropriate existing setting shown above (from another country) that matches the coin ratios programmed into your coin mech.

- Set SW 3 on the *VTS*/Excel board as shown in the table above corresponding to the country required.

	Price	Bonus			DIL Switch 1				
					Switch 1	Switch 2	Switch 3	Switch 4	Switch 5
1	10p	No Bonus			OFF	OFF	OFF	OFF	OFF
2	10p	6 = 50p			**ON**	OFF	OFF	OFF	OFF
3	20p	No Bonus			OFF	**ON**	OFF	OFF	OFF
4	20p	3 = 50p	6 = £1	12 =£2	**ON**	**ON**	OFF	OFF	OFF
5	30p	No Bonus			OFF	OFF	**ON**	OFF	OFF
6	30p	1.66 = 50p	4 = £1	8 = £2	**ON**	OFF	**ON**	OFF	OFF
7	30p	2 = 50p	4 = £1		OFF	**ON**	**ON**	OFF	OFF
8	30p	AMLD *	3 = £1	6 = £2	**ON**	**ON**	**ON**	OFF	OFF
9	40p	No Bonus			OFF	OFF	OFF	**ON**	OFF
10	40p	1.25 = 50p	3 = £1	6 = £2	**ON**	OFF	OFF	**ON**	OFF
11	50p	No Bonus			OFF	**ON**	OFF	**ON**	OFF
12	50p		3 = £1	6 = £2	**ON**	**ON**	OFF	**ON**	OFF
13	50p		2 = £1	5 = £2	OFF	OFF	**ON**	**ON**	OFF
14	60p	No Bonus			**ON**	OFF	**ON**	**ON**	OFF
15	60p		2 = £1	4 = £2	OFF	**ON**	**ON**	**ON**	OFF
16	80p	No Bonus			**ON**	**ON**	**ON**	**ON**	OFF
17	80p	1.25 = £1	2 = £1.50	2.5 = £2	OFF	OFF	OFF	OFF	**ON**
18	£1	No Bonus			**ON**	OFF	OFF	OFF	**ON**
19	£1		3 = £2		OFF	**ON**	OFF	OFF	**ON**
20	£1		2 = £2	5 = £4	**ON**	**ON**	OFF	OFF	**ON**
21	£1.50	No Bonus			OFF	OFF	**ON**	OFF	**ON**
22	£1.50		2 = £2		**ON**	**OFF**	**ON**	OFF	**ON**
23	£2	No Bonus			OFF	**ON**	**ON**	OFF	**ON**
24	£2			3 = £5	**ON**	**ON**	**ON**	OFF	**ON**
25	£3	No Bonus			OFF	OFF	OFF	**ON**	**ON**
26	£3			2 = £5	**ON**	OFF	OFF	**ON**	**ON**
27	£5	No Bonus			OFF	**ON**	OFF	**ON**	**ON**
28	£5			3 = £10	**ON**	**ON**	OFF	**ON**	**ON**
29	£7.50	No Bonus			OFF	OFF	**ON**	**ON**	**ON**
30	£7.50			2 = £10	**ON**	OFF	**ON**	**ON**	**ON**
31	£10	No Bonus			OFF	**ON**	**ON**	**ON**	**ON**
32	Free Play				**ON**	**ON**	**ON**	**ON**	**ON**

11.1.5.VTS credit board rice of play settings (EURO).

	Price	Bonus			DIL Switch 1				
					Switch 1	Switch 2	Switch 3	Switch 4	Switch 5
1	10¢	No Bonus			OFF	OFF	OFF	OFF	OFF
2	10¢	6 = 50¢			**ON**	OFF	OFF	OFF	OFF
3	20¢	No Bonus			OFF	**ON**	OFF	OFF	OFF
4	20¢	3 = 50¢	6 = €1	12 =€2	**ON**	**ON**	OFF	OFF	OFF
5	30¢	No Bonus			OFF	OFF	**ON**	OFF	OFF
6	30¢	1.66 = 50¢	4 = €1	8 = €2	**ON**	OFF	**ON**	OFF	OFF
7	30¢	2 = 50¢	4 = €1		OFF	**ON**	**ON**	OFF	OFF
8	30¢	AMLD *	3 = €1	6 = €2	**ON**	**ON**	**ON**	OFF	OFF
9	40¢	No Bonus			OFF	OFF	OFF	**ON**	OFF
10	40¢	1.25 = 50¢	3 = €1	6 = €2	**ON**	OFF	OFF	**ON**	OFF
11	50¢	No Bonus			OFF	**ON**	OFF	**ON**	OFF
12	50¢		3 = €1	6 = €2	**ON**	**ON**	OFF	**ON**	OFF
13	50¢		2 = €1	5 = €2	OFF	OFF	**ON**	**ON**	OFF
14	60¢	No Bonus			**ON**	OFF	**ON**	**ON**	OFF
15	60¢		2 = €1	4 = €2	OFF	**ON**	**ON**	**ON**	OFF
16	80¢	No Bonus			**ON**	**ON**	**ON**	**ON**	OFF
17	80¢	1.25 = £1	2 = €1.50	2.5 = €2	OFF	OFF	OFF	OFF	**ON**
18	€1	No Bonus			**ON**	OFF	OFF	OFF	**ON**
19	€1		3 = €2		OFF	**ON**	OFF	OFF	**ON**
20	€1		2 = €2	5 = €4	**ON**	**ON**	OFF	OFF	**ON**
21	€1.50	No Bonus			OFF	OFF	**ON**	OFF	**ON**
22	€1.50		2 = €2		**ON**	**OFF**	**ON**	OFF	**ON**
23	€2	No Bonus			OFF	**ON**	**ON**	OFF	**ON**
24	€2			3 = €5	**ON**	**ON**	**ON**	OFF	**ON**
25	€3	No Bonus			OFF	OFF	OFF	**ON**	**ON**
26	€3			2 = €5	**ON**	OFF	OFF	**ON**	**ON**
27	€5	No Bonus			OFF	**ON**	OFF	**ON**	**ON**
28	€5			3 = €10	**ON**	**ON**	OFF	**ON**	**ON**
29	€7.50	No Bonus			OFF	OFF	**ON**	**ON**	**ON**
30	€7.50			2 = €10	**ON**	OFF	**ON**	**ON**	**ON**
31	€10	No Bonus			OFF	**ON**	**ON**	**ON**	**ON**
32	Free Play				**ON**	**ON**	**ON**	**ON**	**ON**

12.   Periodic inspection.

The items listed below require periodic check and maintenance to retain the performance of this machine and to ensure safe business operation.

When handling the Control Unit (Gun), the player will be in direct contact with it. In order to always allow the player to enjoy the game, be sure to clean it regularly.

Also, it is advisable to provide wet tissue, etc. available for player use.

WARNING

- Be sure to check once a year to see if power cords are damaged, the plug is securely inserted, dust is accumulated between the socket outlet and the power plug, etc.

- Using the product with dust as is accumulated can cause fire and electric shock hazards.

- Never use a water jet, etc. to clean inside and outside the cabinet. If wetness occurs for any reason, do not use the product until it has completely dried.

- It is advisable to clean the product internally once a year. This will prevent the build-up of dust and other particles and will aid in preventing fumes or fire.

Periodic inspection table

	Description	Period
CABINET	Checking adjuster grounding	Daily
CONTROL UNIT (GUN)	Cleaning	As necessary
	Checking sight	Weekly
	Inspecting switches	Monthly
COIN SELECTOR	Inspecting coin switches	Monthly
	Testing coin insertion	Monthly
	Cleaning the coin selector	Tri-monthly
PROJECTOR	Screen cleaning	Weekly
	Checking adjustments	Monthly or when moving
GAME BOARD	Performing memory test	Monthly
	Checking settings	Monthly
POWER SUPPLY PLUG	Inspecting and cleaning	Annually
INTERIOR	Cleaning	Annually
CABINET SURFACES	Cleaning	As necessary

When the cabinet surfaces become dirty, remove stains with a soft cloth soaked in water or diluted (with water) chemical detergent and then wrung dry. To avoid damaging the finish, do not use such solvents as thinner, benzene, etc. (other than ethyl alcohol) or abrasives (bleaching agent and chemical dust-cloth).

Some general-purpose household, kitchen, and furniture cleaning products may contain strong solvents that degrade plastic components, coatings, and print. Before using any cleaning product, read the product's cautionary notes carefully and test the product first on a small area that is not highly visible.

13. Troubleshooting.

13.1. Problems not involving the Game Board.

In case a problem occurs, first check wiring connector connections.

<table>
<tr>
<td rowspan="2">⚠
WARNING</td>
<td>
● In order to prevent electric shock and short circuit, be sure to turn power off before performing work.

● Be careful not to damage the wires. Damaged wires may cause electric shock or short circuit or present a fire risk.

● After removing the cause of the functioning of the Circuit Protector, reinstate the Circuit Protector. Depending on the cause of the functioning, using the Circuit Protector as is without removing the cause can cause generation of heat and fire hazard.
</td>
</tr>
</table>

Problem	Cause	Countermeasure
With Main SW ON, no activation.	Power is not supplied.	Securely insert the power plug into the plug socket.
	Power supply/voltage is not correct.	Make sure that power supply/voltage is correct.
	The Circuit Protector functioned due to a momentary electrical overload.	After eliminating the cause of overload, reinstate the AC Unit's Circuit Protector
The color on the projector screen is incorrect.	Image adjustment is not appropriate.	Adjust appropriately
No sound is emitted.	Sound volume adjustment is not appropriate.	Adjust sound volume
	Board and Amplifier malfunctioning	Perform the sound test and confirm

PROBLEMS	CAUSE	COUNTERMEASURES
Control Unit (Gun) sighting is not satisfactory.	Sights are not aligned due to changes in the surrounding environment.	Perform sighting adjustment in the test mode.
	LED board malfunctioning.	Check to ensure that the LED lights up. If it does not light up, replace.
	Sensor unit malfunctioning	Replace the sensor unit <JPT-2030 SENSOR UNIT>
	LED board and LED board cover are contaminated.	Wipe off soiled surfaces.
	Fuse on the sensor unit has blown due to a momentary electrical overload.	Fix the source of the overload, then replace the fuse. <514-5143-200 FUSE S.B 200MA250V HBC CE ROHS or 514-5146-200 FUSE S.B 200MA250V 218 CE ROHS>
The Control Unit (Gun) does not appear to be operating correctly.	A fault with the microswitches	Use an Input Test to make sure they change between ON and OFF. If they do not, exchange the faulty microswitches. <509-5080 SW MICRO TYPE>
	A fault with the LED board	Check that the LEDs are on. If not, exchange them.
	Speed sensor settings are wrong.	Use TEST Mode to correct the settings.
	The sensor unit is broken.	Exchange the sensor unit.
	The speed sensor circuit fuse has blown due to a momentary electrical overload.	After resolving the cause of the overload, change the fuse. <514-5143-200 FUSE S.B 200MA250V HBC CE ROHS or 514-5146-200 FUSE S.B 200MA250V 218 CE ROHS>
The fluorescent light does not come on.	The fluorescent light has died.	Exchange the fluorescent light.
The cold-cathode tube does not come on.	The cold-cathode tube has died.	Exchange the cold-cathode tube.
	The inverter board is broken.	Exchange the inverter board.

13.2. Replacing the LED board.

⚠ **CAUTION**

● Removing or attaching the mask must be carried out by at least two people, one on the left and one on the right. A single person working alone can lead to injury.

If the light from the 2 LEDs cannot be seen then there is a problem or malfunction. Follow the steps below to exchange them. You can also use the following steps to clean the screen.
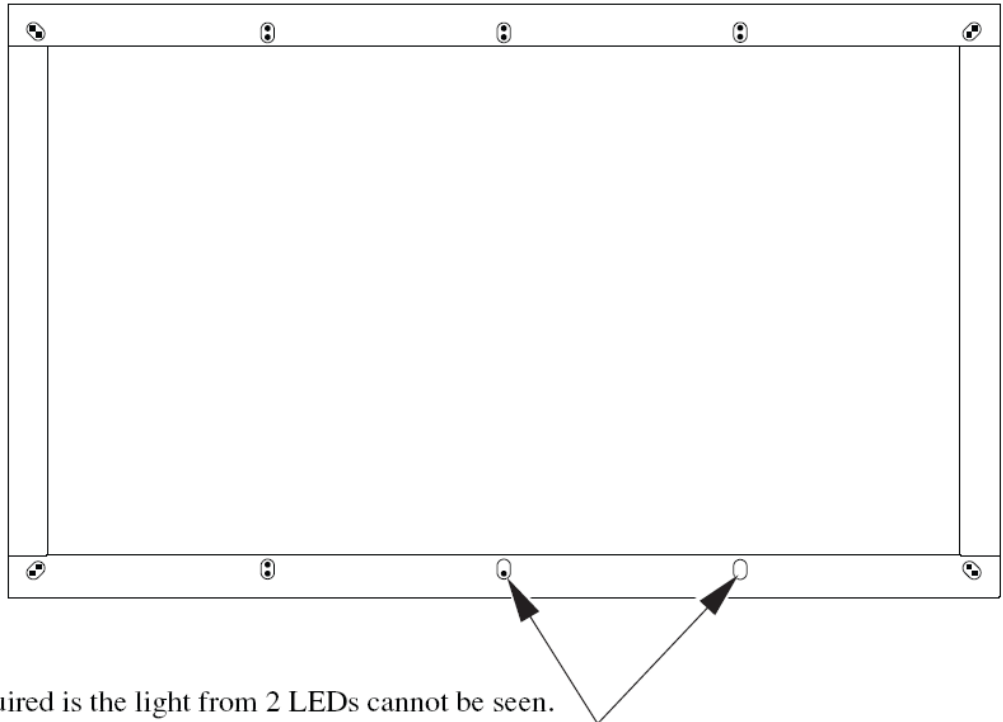
Replacement is required is the light from 2 LEDs cannot be seen.

1. Turn the power off.

2. Remove the four truss screws and remove the front panel.
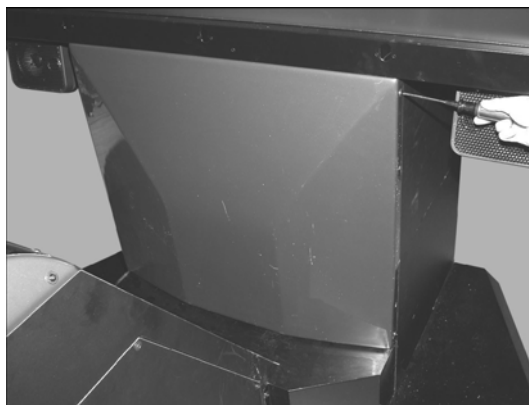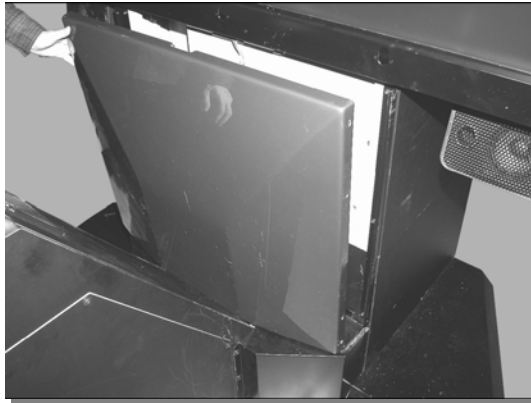
3. Disconnect the two connectors.

4. Remove the six screws from the side of the projector.

5. Have one person take the left and another the right and remove the mask.

6. The mask has the LED boards attached. Remove the two U nuts holding the malfunctioning board, disconnect both connectors and remove and replace the LED board. Be carefully not to lose the flat metal washers and plastic washers safe, and pay attention to the direction of the LED board when inserting it.
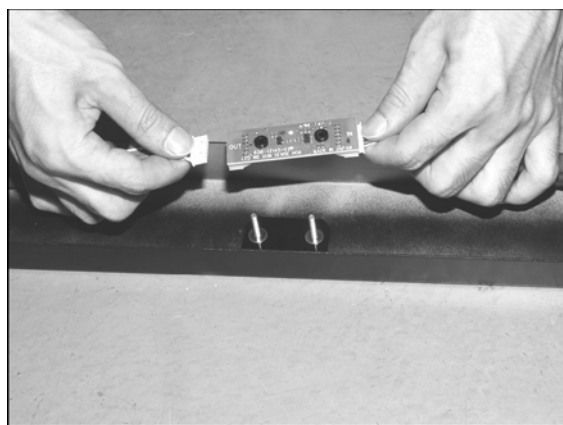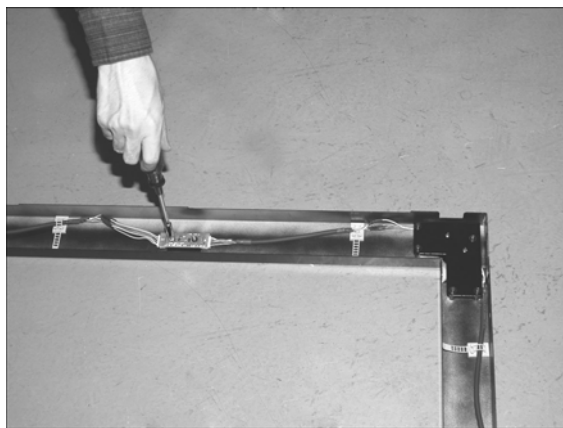
7. If the problematic LED board is in the corner of the mask remove the 5 screws and remove the joint bracket. The joint bracket has the same parts are the boards along the straight sections of the mask, and there are 2 types.
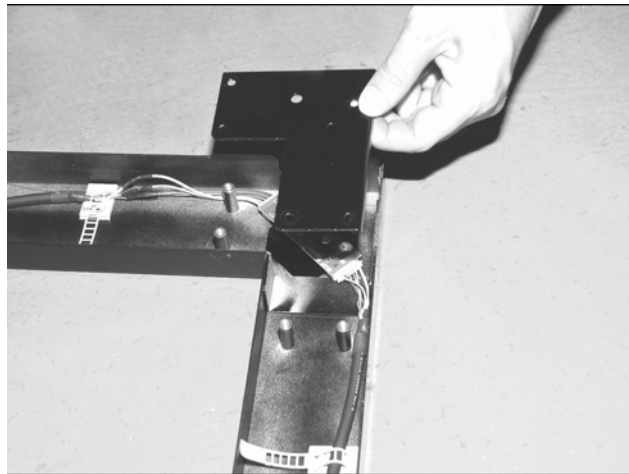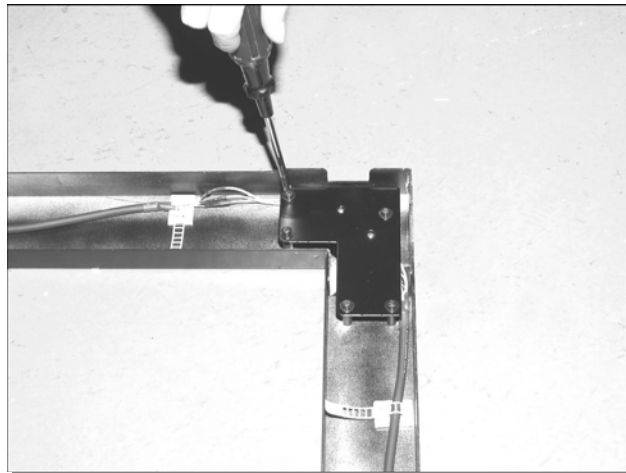
8. Remove the two U nuts, disconnect both connectors and remove and replace the LED board. Be carefully not to lose the flat metal washers and plastic washers safe, and pay attention to the facing/direction of the LED board when inserting it.
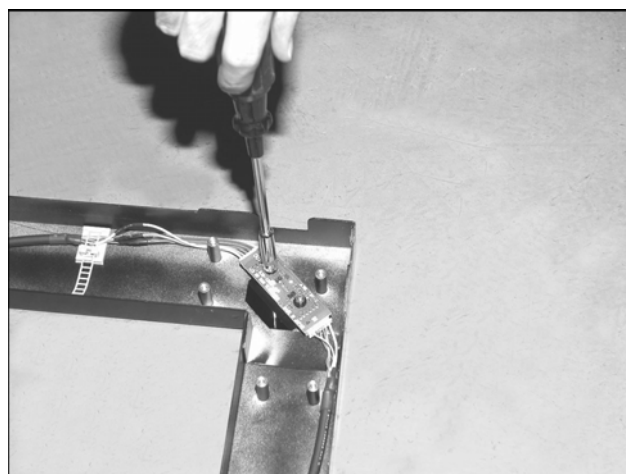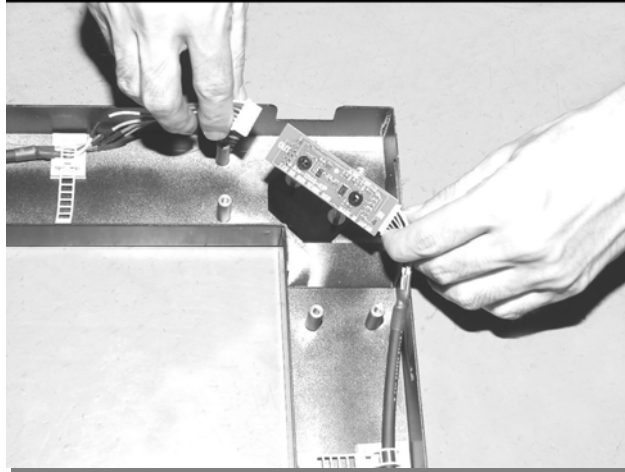
9.   After exchanging the LED board enter TEST Mode and perform a lighting test.

14. Error codes.

- If an error code is displayed get on-site maintenance personnel or other qualified professional to look at it. An unqualified person attempting to resolve an error code problem may lead to electric shock, short circuit and risk of fire.

- If no on-site maintenance personnel or qualified professional is available immediately turn off the power and contact the customer services in this manual or your supplier.

- If a problem not described in this manual occurs, or the resolution to a problem described in this manual is not effective, do not make further attempts to resolve the problem yourself.

- Immediately turn off the power and contact the customer services in this manual or your supplier. Any unguided attempts to solve such problems may lead to a serious accident.

- If Error 20 occurs it is necessary to restart the machine in order to clear the error.

- The errors below include some which can never occur during the normal operation of "The House of the Dead 4."

- If an error number or message not listed below appears, cease using the product immediately and send the LINDBERGH board in for repairs.

The LINDBERGH board is equipped to display various errors on-screen to help solve any problems. If an error is displayed the game cannot be used. Use the following table of causes and resolutions to solve the problem.

Error 01

DISPLAY	Game Program Not Found.
CAUSE	The key chip is not connected.
COUNTERMEASURES	Check that the key chip is connected correctly. Check that the keychip is not inserted the wrong way or that the key chip from a different system is not inserted.

Error 02

DISPLAY	Game Program Not Available.
CAUSE	The key chip is not supported.
COUNTERMEASURES	Send the LINDBERGH board in for repair with the key chip still in place.

Error 05

DISPLAY	Wrong Region.
CAUSE	The game is for a foreign region.
COUNTERMEASURES	Use a domestic game.

Error 06

DISPLAY	I/O Device Not Found.
CAUSE	The LINDBERGH board's I/O board cannot be found.
COUNTERMEASURES	Send the LINDBERGH board in for repair with the key chip still in place.

Error 07

DISPLAY	Graphic Card Not Found.
CAUSE	The LINDBERGH board's graphics card cannot be found.
COUNTERMEASURES	Send the LINDBERGH board in for repair with the key chip still in place.

Error 08

DISPLAY	Sound Card Not Found.
CAUSE	The LINDBERGH board's sound card cannot be found.
COUNTERMEASURES	Send the LINDBERGH board in for repair with the key chip still in place.

Error 09

DISPLAY	System Memory Not Enough.
CAUSE	The LINDBERGH board does not have enough memory.
COUNTERMEASURES	Send the LINDBERGH board in for repair with the key chip still in place.

Error 10

DISPLAY	Unexpected Game Program Failure.
CAUSE	The game program crashed due to an unexpected error.
COUNTERMEASURES	Turn the power off and then restart.

Error 11

DISPLAY	JVS I/O board is not connected to main board.
CAUSE	(1) The I/O board is not connected. (2) Unreliable connection between the main board and the I/O board.
COUNTERMEASURES	(1) Connect the I/O board to the main board. Verify that the power cable is connected to I/O board. (2) Reconnect or replace the JVS cable that connects the I/O board to the main board.

Error 12

DISPLAY	JVS I/O board does not fulfill the game spec..
CAUSE	The correct I/O board is not connected
COUNTERMEASURES	Use an I/O board that provides the proper input/output for the game.

Error 14

DISPLAY	Network firmware version does not fulfill the game spec. Required version XX.XX.
CAUSE	The firmware version installed on either the network board or the DIMM Media board is older than the required version.
COUNTERMEASURES	Use a network board or DIMM Media board with firmware that meets or exceeds the required version.

Error 15

DISPLAY	Game Program Not Found.
CAUSE	The key chip is not connected.
COUNTERMEASURES	Check that the key chip is connected correctly. Check that the key chip is not inserted the wrong way or that the key chip from a different system is not inserted.

Error 21

DISPLAY	Game Program Not Found on Game Disk.
CAUSE	There is no program image on the game disk.
COUNTERMEASURES	Check that a game disk corresponding to the key chip is inserted into the drive.

Error 22

DISPLAY	Game Program Not Found on Device.
CAUSE	There is no game image on the game installer device.
COUNTERMEASURES	Perform a reinstall from the game disk.

Error 24

DISPLAY	DVD Drive Not Found.
CAUSE	The DVD drive cannot be found.
COUNTERMEASURES	Connect the DVD drive.

Error 25

DISPLAY	Game Disk Not Found.
CAUSE	The game disk cannot be found.
COUNTERMEASURES	Insert the game disk.

Error 26

DISPLAY	Storage Device Not Found.
CAUSE	The program installer device cannot be found.
COUNTERMEASURES	Send the LINDBERGH board in for repair with the key chip still in place.

Error 27

DISPLAY	Storage Device is Not Acceptable.
CAUSE	The program installer device does not have enough space.
COUNTERMEASURES	Send the LINDBERGH board in for repair with the key chip still in place.

Error 28

DISPLAY	This Game Disk is Not Acceptable.
CAUSE	The game disk cannot be read correctly.
COUNTERMEASURES	Exchange the game disk for a proper game disk. Check that the game disk is not scratched, damaged or dirty.

Error 29

DISPLAY	Cannot Control DVD Drive.
CAUSE	The DVD drive cannot be controlled.
COUNTERMEASURES	The DVD drive may be damaged.

Error 31

DISPLAY	Storage Device Not Enough.
CAUSE	The program installer device does not have enough space.
COUNTERMEASURES	Send the LINDBERGH board in for repair with the key chip still in place.

Error 32

DISPLAY	Installing Game Program Failed.
CAUSE	Transfer of the program failed.
COUNTERMEASURES	Check that the DVD drive is connected correctly. Check that the game disk is not scratched, damaged or dirty.

Error 33

DISPLAY	Storage Device is Not Acceptable.
CAUSE	The program installer device cannot be found.
COUNTERMEASURES	Send the LINDBERGH board in for repair with the key chip still in place.

Error 34

DISPLAY	Storage Device Not Found.
CAUSE	The program installer device cannot be found.
COUNTERMEASURES	Send the LINDBERGH board in for repair with the key chip still in place.

Error 35

DISPLAY	Storage Device is Not Acceptable.
CAUSE	The program installer device does not have enough space.
COUNTERMEASURES	Send the LINDBERGH board in for repair with the key chip still in place.

Error 36

DISPLAY	Storage Device May be Broken.
CAUSE	The program installer device is broken.
COUNTERMEASURES	Send the LINDBERGH board in for repair with the key chip still in place.

Error 37
DISPLAY   Verifying Game Program Failed.
CAUSE   The program image is unverified due to the program image not existing on the
                     game disk or server.
COUNTERMEASURES   Check that the correct game disk is inserted.

Error 41
DISPLAY   Server Not Respond.
CAUSE   The server is not responding.
COUNTERMEASURES   Check the network settings.

                     Set IP Address and other settings.

                     Check that the network cable has not been pulled out.

Error 42
DISPLAY   Server Mount Failed

CAUSE   The server directory is could not be reached.
COUNTERMEASURES   Check the network settings.

                     Set IP Address and other settings.

                     Check that the network cable has not been pulled out.

Error 43
DISPLAY   IP Address Not Assigned.
CAUSE   An IP Address could not be obtained from the DHCP server.
COUNTERMEASURES   Check the network settings.

                     Set IP Address and other settings.

                     Check that the network cable has not been pulled out.

Error 44
DISPLAY   Game Program Not Found on Server.
CAUSE   No program image on the network server.
COUNTERMEASURES   Check that the game title, place on the network server, and the key chip
                     correspond to each other.

Caution 51
DISPLAY   Wrong Resolution Setting.
CAUSE   The game does not support the current resolution settings.
COUNTERMEASURES   Change the DIP SW to the correct settings and restart.

Caution 52
DISPLAY   Wrong Horizontal/Vertical Setting.
CAUSE   The monitor horizontal/vertical settings are incorrect.
COUNTERMEASURES   Change the DIP SW to the correct settings and restart.

15. Design related parts
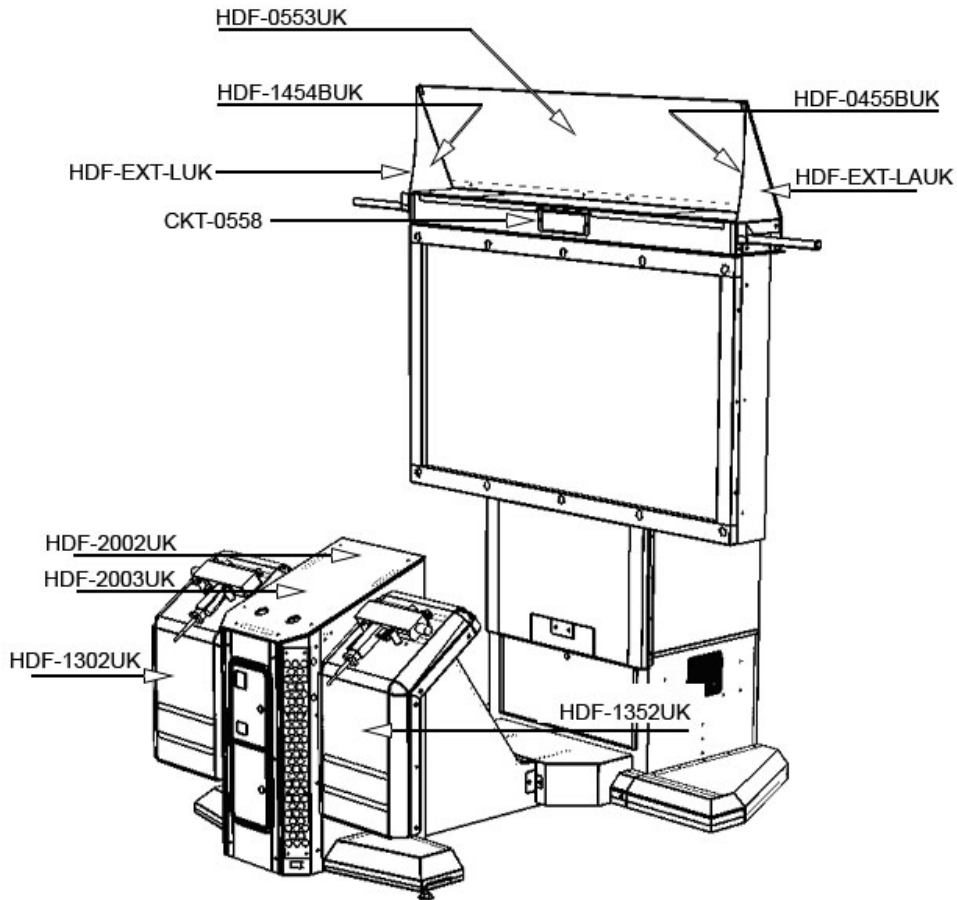
No.	PART NUMBER	QTY	DESCRIPTION
1	HDF-0455BUK	1	ARTWORK BILLBOARD RHS INTERNAL
2	HDF-0553UK	1	ARTWORK BILLBOARD PANEL
3	HDF-1454UK	1	ARTWORK BILLBOARD LHS INTERNAL
4	HDF-1302UK	1	ARTWORK GUN HOLSTER LHS
5	HDF-1352UK	1	ARTWORK GUN HOLSTER RHS
6	HDF-2002UK	1	ARTWORK PLAY PANEL
7	HDF-2003UK	1	ARTWORK MULTILINUAL INSTRUCTIONS
8	HDF-EXT-LUK	1	ARTWORK BILLBOARD LHS EXTERNAL
10	HDF-EXT-LAUK	1	ARTWORK BILLBOARD RHS EXTERNAL

16. Parts list

16.1. ASSY TOP (HDF-0000UK)
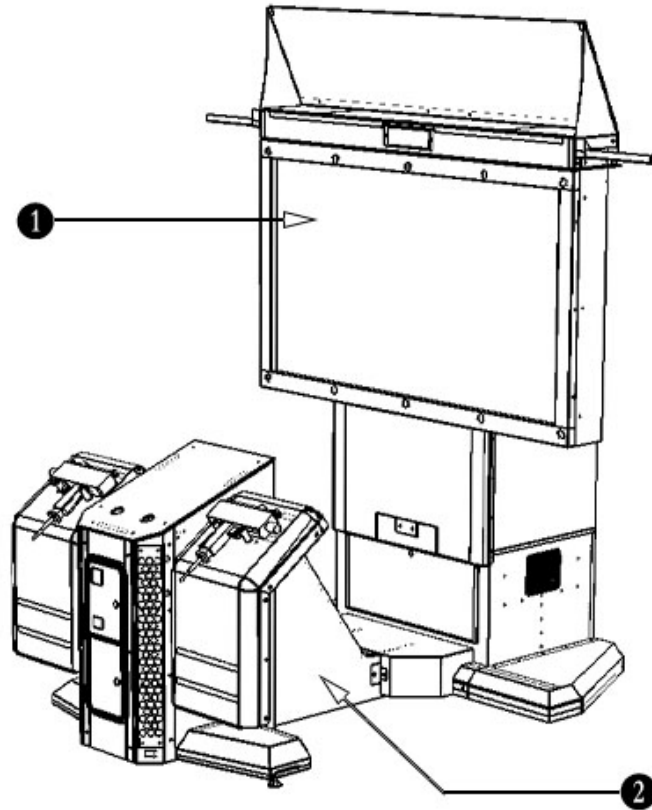
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
1	HDF-0500UK	1	ASSY DLP	
2	HDF-1000-00UK	1	ASSY CABINET DX 62	

16.2. ASSY DLP (HDF-0500UK)
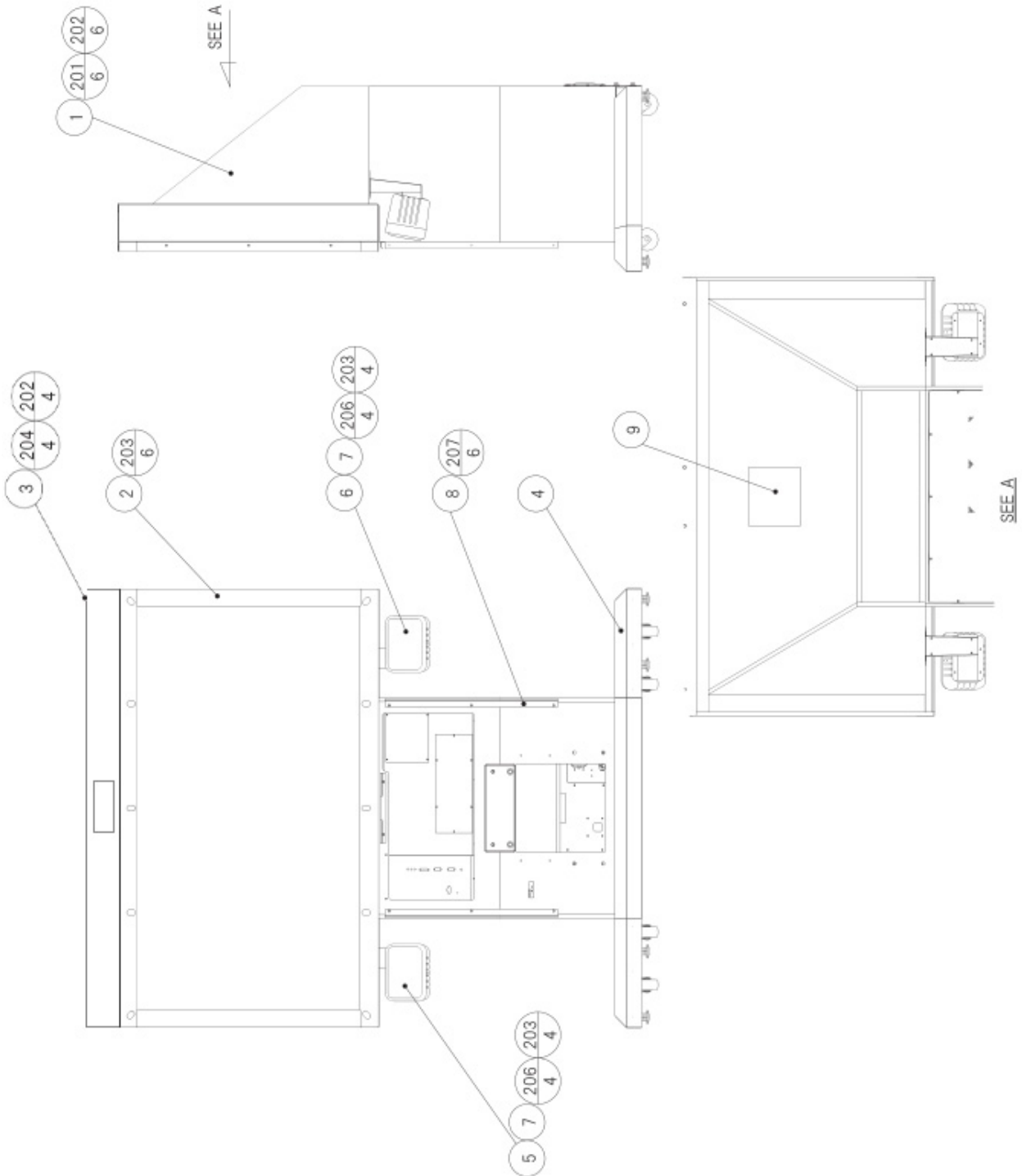
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
1	HDF-0510UK	1	ASSY SUB DLP	
2	HDF-0530-01UK	1	ASSY MASK 62	
3	HDF-0500UK	1	ASSY BILLBOARD DX 62	
4	HDF-0600-01UK	1	ASSY DLP BASE 62	
5	HDF-0700UK	1	ASSY SPKR L	
6	HDF-0710UK	1	ASSY SPKR R	
7	HDF-0703UK	1	SPEAKER HOLDER	
8	NOT USED			
9	NOT USED			

16.3. ASSY SUB DLP (HDF-0510UK)
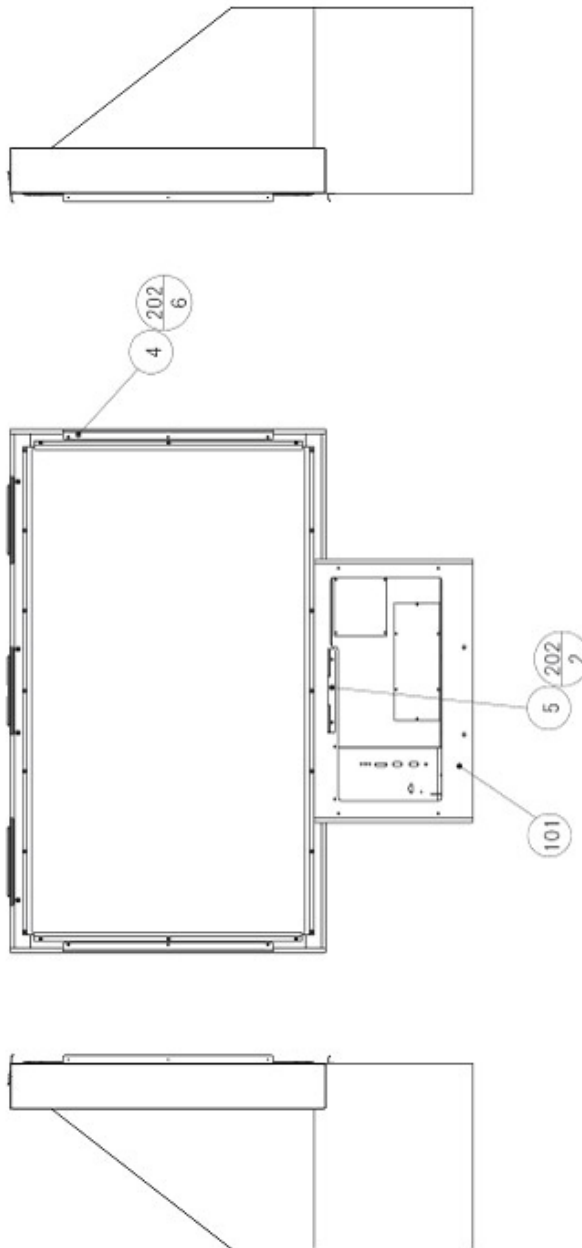
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
4	HDF-0514UK	2	SIDE MASK FIX BKT	
5	HDF-0515UK	1	FRONT PANEL BKT	
101	200-6017	1	DLP PJTN DSPL 62W	

16.4. ASSY MASK 52 (HDF-0431UK)
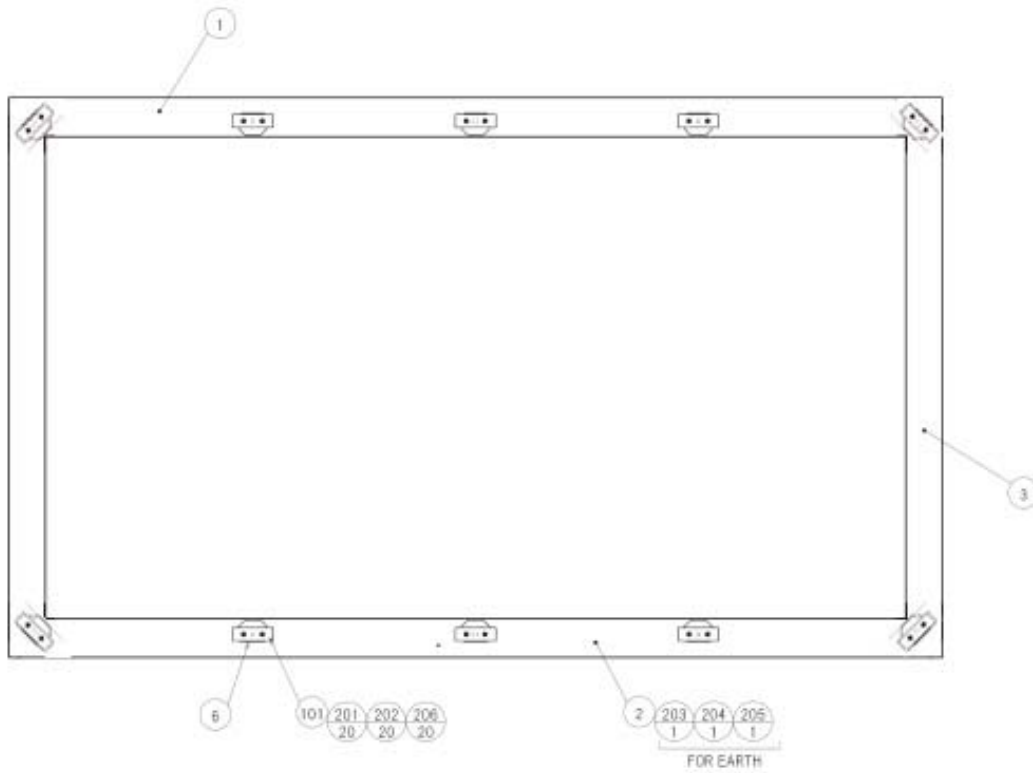
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
1	HDF-0530-UK	1	MONITOR MASK 62 HDF	
6	JPT-1082	10	IR COVER	
7	838-13145-02	10	LED BD GUN SENSE HOD	
301	HDF-60009UK	1	WH MASK EXT 1	
302	HDF-60010UK	2	WH MASK EXT 2	
303	HDF-60011UK	7	WH MASK LINK	

16.5. ASSY BILLBOARD DX 62" (HDF-0550UK)
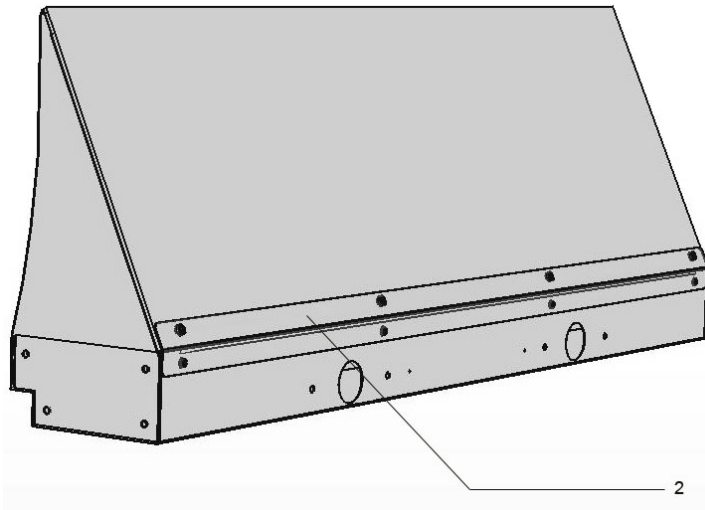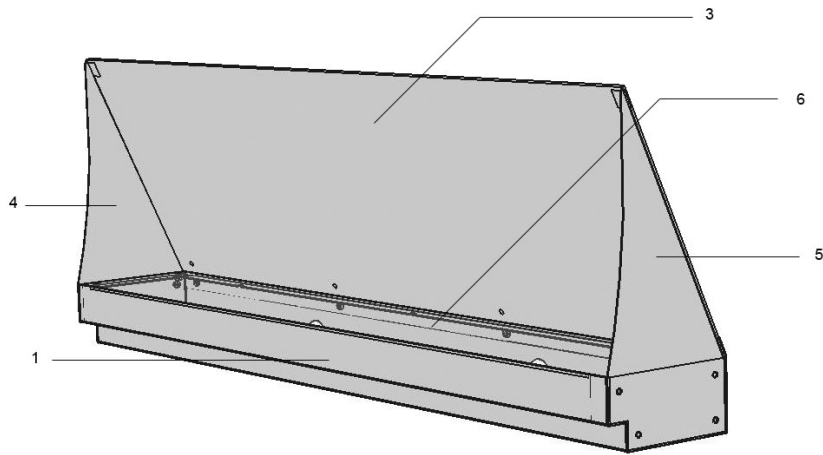
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
1	HDF-0551UK	1	BILLBOARD BOX 62 HDF	
2	HDF-0554UK	1	BRKT LIGHT BILLBOARD PLATE	
3	HDF-0552UK	1	BILLBOARD PLATE	
4	HDF-0454UK	1	SUPPORT L	
5	HDF-0455UK	1	SUPPORT R	
6	HDF-0553UK	1	LIGHT COVER	
7	390-5695-40-CUK	3	FL TRAY 110V 40W	NOT SHOWN
101	LT1050	1	FL TUBE LSTR40W	NOT SHOWN
301	HDF-61010UK	1	WH BILLBOARD	NOT SHOWN

16.6. ASSY SPEAKER L (HDF-0770UK)
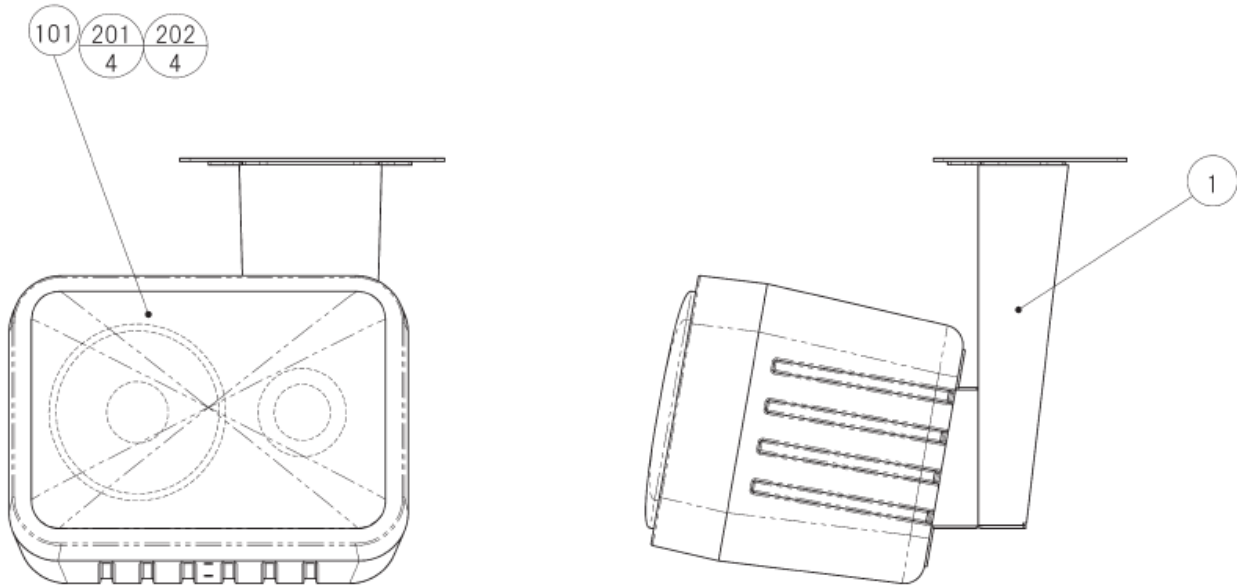
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
1	HDF-0701UK	1	SPKR BRKT L	
2	HDF-0703UK	1	SPKR HOLDER 62"	
101	130-5228-02UK	1	SPKR BOX 50W 8R	
102	280-5275-SR10	1	CORD CLAMP	
301	HDF-65046UK	1	WH SPKR 62"	NOT SHOWN

16.7. ASSY SPEAKER R (HDF-0710UK)
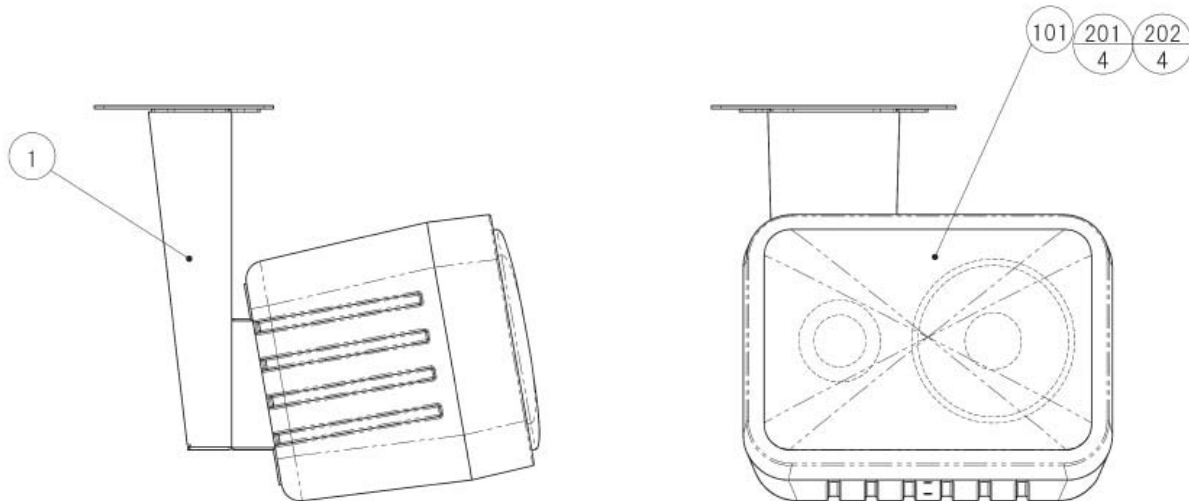
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
1	HDF-0711UK	1	SPKR BRKT R	
2	HDF-0703UK	1	SPKR HOLDER 62"	
101	130-5228-02UK	1	SPKR BOX 50W 8R	
102	280-5275-SR10	1	CORD CLAMP	
301	HDF-65046UK	1	WH SPKR 62"	NOT SHOWN

16.8. ASSY FAN UNIT UK (HOD-1530UK)

CONNECTOR POSITION

FLOW
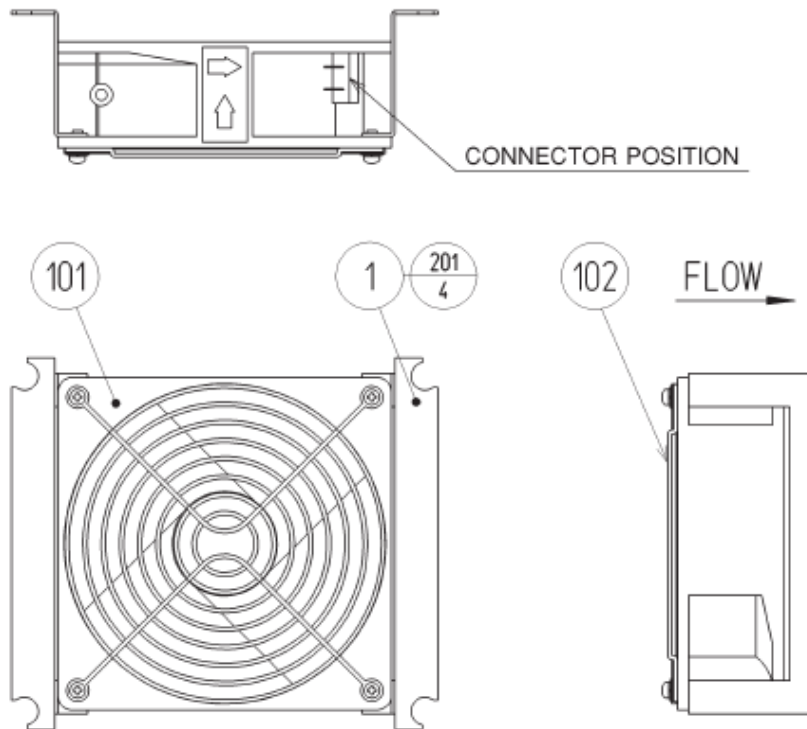
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
1	105-5340-01	2	FAN BRKT LONG	
101	260-0011-02	1	FAN AC100V 50/50HZ	
102	FN1012	1	FAN GUARD METAL 120MM	
201	000-P00312-W	4	M3X12 MSCR PAN W/FS PAS	

16.9. ASSY SUB DLP BASE (HDF-0670UK)
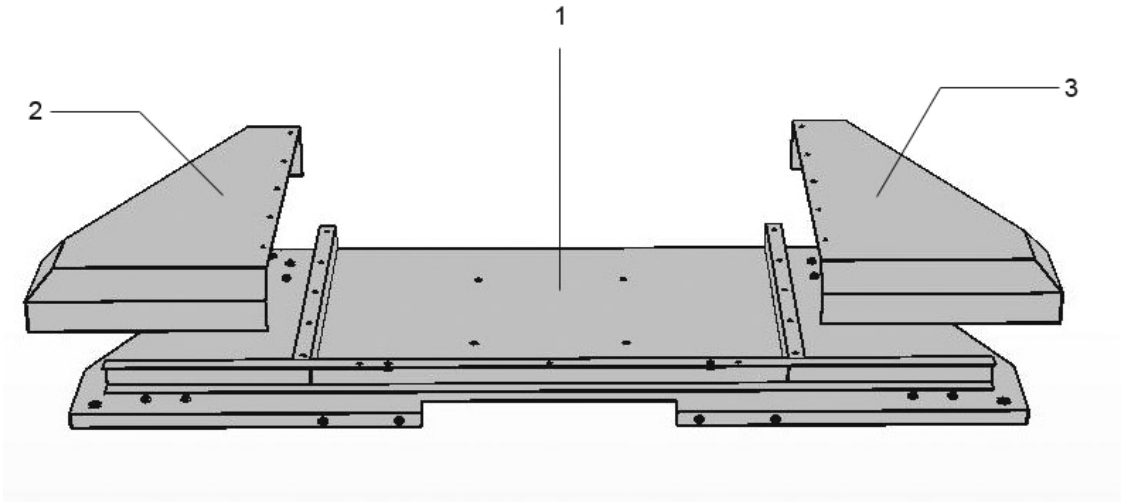
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
1	HDF-0671UK	1	DLP BASE	
2	HDF-0672UK	1	SHOE L	
3	HDF-0673UK	1	SHOE R	
101	601-9377	4	CASTOR FAI-75	NOT SHOWN
102	601-5699UK-01	4	LEG ADJ M16X130 1L/NUT	NOT SHOWN

16.10. ASSY 62" GAME BOARD (HDF-4000-01UK)

No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
1	HDF-4001UK	1	MAIN BOARD	
2	844-002D-15	1	ASSY CASE LBG L 1GB HDF	
301	HDF-65006UK	1	WH PSU LINDBERGH	NOT SHOWN
302	HDF-65023UK	1	WH DC DVD 62	NOT SHOWN

135

16.11. ASSY CABINET DX (HDF-1000UK)
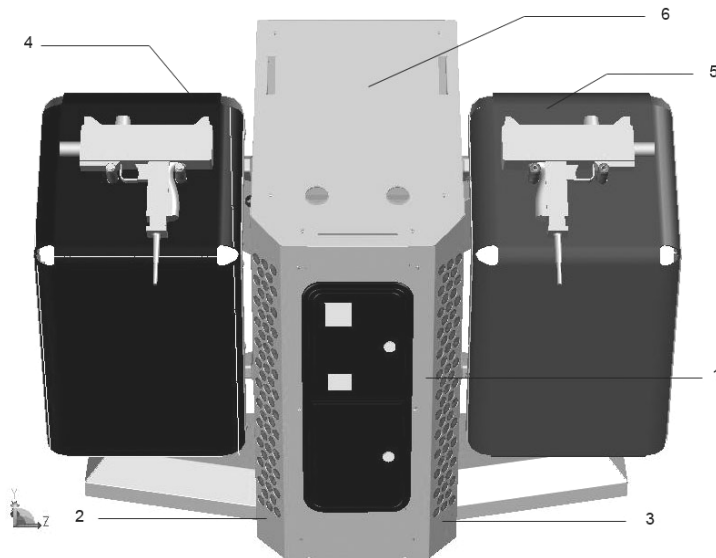
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
1	HDF-1100UK	1	ASSY SUB CABINET DX	
2	HDF-1010UK	1	ASSY LIGHT COVER L	
3	HDF-1020UK	1	ASSY LIGHT COVER R	
4	HDF-1300UK	1	ASSY GUN HOLDER L	
5	HDF-1350UK	1	ASSY GUN HOLDER R	
6	HDF-2000UK	1	ASSY CONTROL PANEL	

16.12. ASSY SUB CABINET DX (HDF-1100UK)
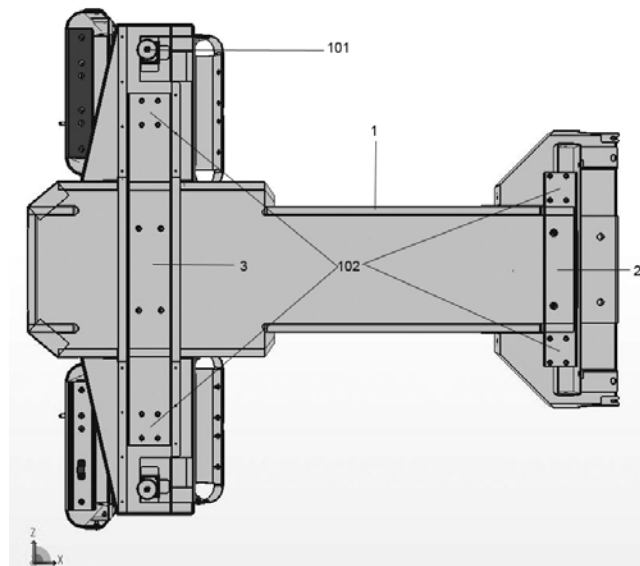
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
1	HDF-1101-AUK	1	CABINET DX BLANK	
2	HDF-1108UK	1	CASTOR BKT	
3	HDF-1109UK	1	FOOT BASE	
101	601-5699X	2	LEG ADJUSTER BOLT M16X75	
102	601-6056-01	4	CASTOR 50 PH	

16.13. ASSY LIGHT COVER R (HDF-1020UK)
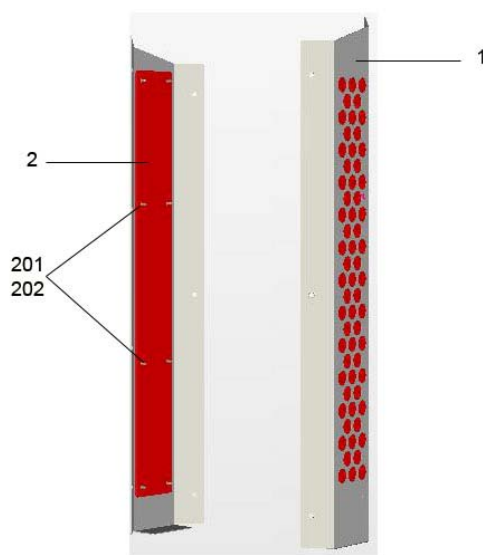
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
1	HDF-1021UK	1	LIGHT COVER R	
2	HDF-1012UK	1	LIGHT COVER FRONT	
201	060-F00400	8	M4 WSHR FORM A FLT PAS	
202	050-U00400	8	M4 NUT NYLOCK PAS	

16.14. ASSY LIGHT COVER L (HDF-1010UK)
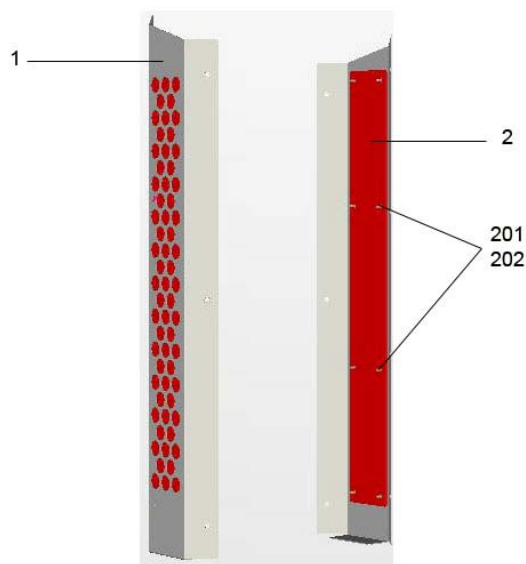
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
1	HDF-1011UK	1	LIGHT COVER L	
2	HDF-1012UK	1	LIGHT COVER FRONT	
201	060-F00400	8	M4 WSHR FORM A FLT PAS	
202	050-U00400	8	M4 NUT NYLOCK PAS	

16.15. ASSY GUN HOLDER L (HDF-1300UK)
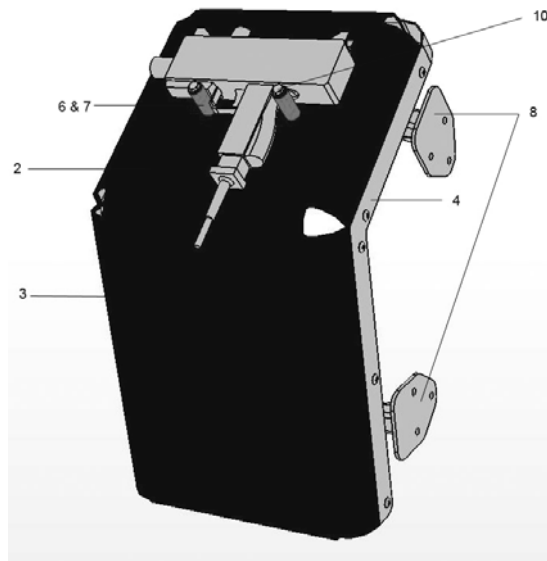
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
2	HDF-1302UK	1	MAT HOLDER L	
3	HDF-1303UK	1	STRAP HOLDER L	
4	HDF-1304UK	1	STRAP HOLDER R	
6	SPY-5104UK	2	GUN CUSHION A	
7	SPY-5110UK	2	CUSHION BAR	
8	HDF-1306UK	2	HOLDER SUPPORT	
10	SDW-0001UK	2	BLIND CAP	

16.16. ASSY GUN HOLDER R (HDF-1350UK)
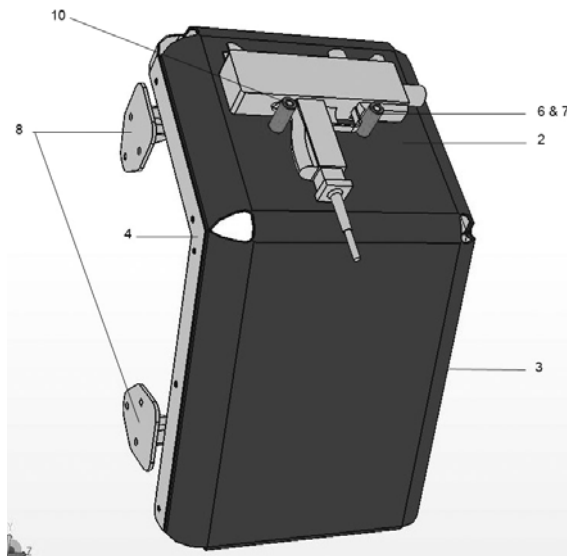
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
2	HDF-1352UK	1	MAT HOLDER R	
3	HDF-1303UK	1	STRAP HOLDER L	
4	HDF-1304UK	1	STRAP HOLDER R	
6	SPY-5104UK	2	GUN CUSHION A	
7	SPY-5110UK	2	CUSHION BAR	
8	HDF-1306UK	2	HOLDER SUPPORT	
10	SDW-0001UK	2	BLIND CAP	

16.17. ASSY CONTROL PANEL (HDF-2000UK)
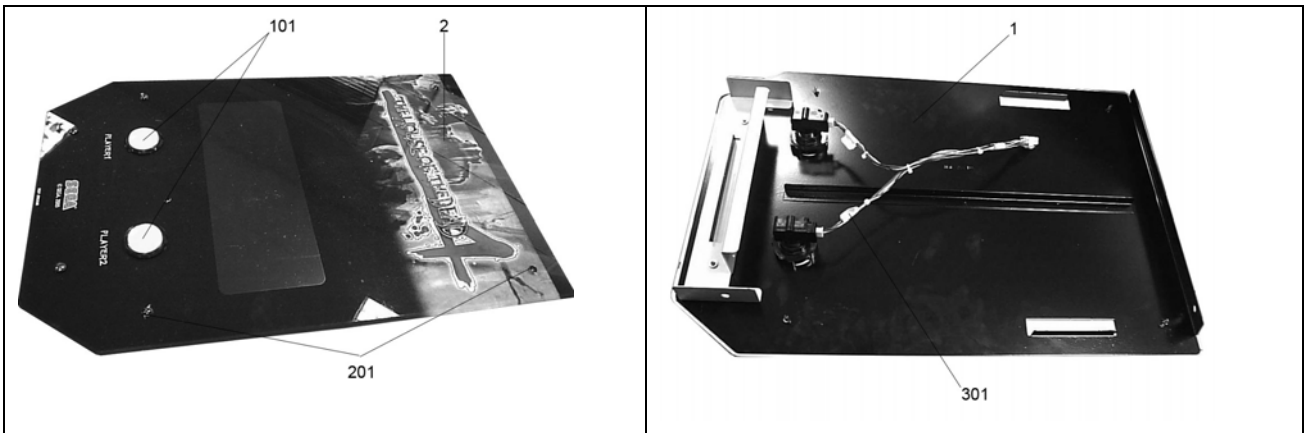
No.	PART NUMBER	QTY	DESCRIPTION	COMPONENT REFERENCE
1	HDF-2001UK	1	CONTROL PANEL BASE	
2	HDF-2002UK	1	CONTROL PANEL PLATE	
101	509-6101	2	SW PB OBSA-45UM-Y-1FLED-5V	
201	008-T00412-0B	4	M4X12 TMP PRF MSCR BLK	
301	HDF-60034UK	1	HARNESS CONT PAN	

17.   Appendix A - Electrical schematic

> ⚠ **WARNING**
>
> ● The DC power wire color for this product is different from previous SEGA titles. Working from the previous wire colors will create a high risk of fire.

The color codes for the wires used in the diagrams in the following chapter are as follows.

A   PINK
B   SKY BLUE
C   BROWN
D   PURPLE
E   LIGHT GREEN

Wires other than those of any of the above 5 single colors will be displayed by 2 alphanumeric characters.

1   RED
2   BLUE
3   YELLOW
4   GREEN
5   WHITE
7   ORANGE
8   BLACK
9   GRAY

If the right-hand side numeral of the code is 0, then the wire will be of a single color shown by the left-hand side numeral (see the above).

Note 1: If the right-hand side alphanumeric is not 0, that particular wire has a spiral color code. The left-hand side character shows the base color and the right-hand side one, the spiral color.
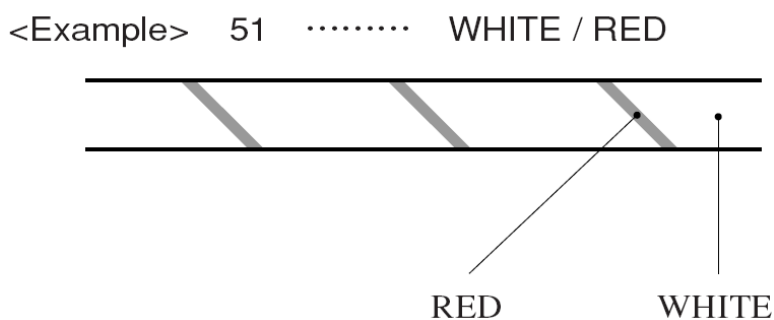
Note 2: The character following the wire color code indicates the size of the wire.

U: AWG16
K: AWG18
L: AWG20
None: AWG22

17.1. Electrical schematic

The following pages contains the electrical schematic for this machine.

HDF-4700UK POWER BASE

EP1389 INLET, SW & FILTER

20L
COL
SWITCH

5A
514-5078-5000

HDF-1530UK
ASSY AC UNIT

43K
EARTH STUD

HDF-66013UK
20L
COL
43K

HDF-66016UK
20L×2
COL×2
43K×2

P C
M&L

P C
M&L

20K   0V
10K   210V
30K   220V
COK   230V
80K   240V
43K EARTH

0V   0V
100V
12A

250v 10A

560-LBGH-01VUK
XFMR 220-240V
100V 8A

RND-838-001 FUSE BOARD
P C
COL   1 L
20L   2 N
43L   3 E

3A 250VAC
FUSE

(HDF-66016UK)
C P
L 1 COL
N 2 20L
E 3 43L

COL
20L
43L

C P
1
U

C P
1 VL
2
3

30K

30K

PAGE 2/3
POS B1
(B)

HDF-66017UK

HDF-1500UK
ASSY CABI
LOWER

P C
COL 1
20L 2
20L 3
20L 4
20L 5
20L 6

838-13145-02
LED GUN SENSE BRD HOD   HDF-66023UK   838-13145-02
LED GUN SENSE BRD HOD   HDF-66023UK   838-13145-02
LED GUN SENSE BRD HOD   HDF-66023UK   838-13145-02
LED GUN SENSE BRD HOD   HDF-66023UK   838-13145-02
LED GUN SENSE BRD HOD

SH 1 GND   GND 1 SH
70 2 A   A   2 70
40 3 B   B   3 40
20 4 C   C   4 20
10 5 5V   5V   5 10
30 6 12V   12V 6 30
JST XH   JST XH

HDF-66022UK

HDF-1070UK
ASSY MONITOR

HDF-66022UK

HDF-66018UK

P C
COL 1 COL
20L 2 20L
V   L

PAGE 2/3
POS B1
(B)

390-7001-30WUK FL 30W
ASSY LSTR30W T4 TUBE

1 20L   P C
2 COL   1 COL
          2 20L
          3
          MNL

HDF-1095UK   ASSY LIGHT BOX

HDF-66015UK

390-7001-08WUK FL 08W
ASSY LSTR8W T4 TUBE

1 20L   P C
2 COL   1 COL
          2 20L
          3
          MNL

1 20L
2 COL
          P C
          1 COL
          2 20L
          3
          MNL

100VAC
1 20L
2
3 COL

PAGE 2/3
POS B1
(B)

RIGHT

HDF-66020UK

90
98
90
93

C P
1 93
2 90
3 98
4 90
Y L

PAGE 2/3
POS H3
(C)

SPKR 4Ohm 15W
130-365-564UK

LEFT
90
93

200-5949-PFX ASSY CRT 29

15 PIN HD
D TYPE
VGA

600-7009-1800

PAGE 2/3
POS D1
(D)

838-13145-02
LED GUN SENSE BRD HOD   HDF-66023UK   838-13145-02
LED GUN SENSE BRD HOD   HDF-66023UK   838-13145-02
LED GUN SENSE BRD HOD   HDF-66023UK   838-13145-02
LED GUN SENSE BRD HOD   HDF-66023UK   838-13145-02
LED GUN SENSE BRD HOD

SH 1 GND   GND 1 SH
70 2 A   A   2 70
40 3 B   B   3 40
20 4 C   C   4 20
10 5 5V   5V   5 10
30 6 12V   12V 6 30
JST XH   JST XH

HDF-66021UK

P C
30 1
10 2
20 3
40 4
70 5
SH 6
SM

PAGE 2/3
POS G1
(A)

COLOUR CODE
1 RED   8 BLACK   E LIGHT GREEN
2 BLUE   9 GREY
3 YELLOW   A PINK   U AWG 16 UL1015
4 GREEN   B SKY BLUE   K AWG 18 UL1015
5 WHITE   C BROWN   L AWG 20 UL1007
7 ORANGE   D PURPLE   AWG 22 UL1007
WIRE TYPE

DRAWN CHKD   TOP LEVEL

CW

28/12/05

SEGA

SEGA AMUSEMENTS EUROPE, LTD.

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HOUSE OF THE DEAD 4 (MINI DLX)

ORIGINAL SIZE
A3

HDF MDX 1/3

DESCRIPTION   PART NO.

ALTERATIONS

HDF-4700UK POWER BASE

HDF-1500UK ASSY CABINET LOWER

839-1160 AC TERMINAL BRD

100vac
AK
BK
V L

CTF-60019UK

260-0011-02 AC100V FAN

HDF-1500UK ASSY CABINET LOWER

600-7009-1800UK

HDF-4600UK ASSY ELEC RIGHT

HDF-66010UK

HDF-66014UK

HDF-66001UK

VIDEO SIGNAL 15 PIN HD D TYPE

100R 0.25W Resistor
100R 0.25W Resistor

HDF-66011UK
HDF-66012UK

HDF-66005UK

400-5421-05012 SW REGU LCA50S-12

HDF-66002UK

AUDIO L RCA WH
AUDIO R RCA RED

HDF-66006UK

HDF-66008UK

12v GND M4 FORK TERMS

4A AUTO FUSE

VOLUME BOARD WIRED

HDF-66004UK

838-CA-150 AUDIO AMP CA150 15 WATT 4 OHM

LEFT RIGHT

HDF-66003UK

400-5457-91 LINBURGH PSU

+3.3V
+3.3V
GND
+5V
+5V
POW OK
+5V SB
+12V
+12V
+3.3V
+3.3V
-12V
GND
PS ON#
GND
GND
GND
+5V
+5V
+5V
GND

+3.3V
+3.3V
GND
+5V
GND
+5V
POW OK
+5V SB
+12V
+12V
+3.3V
+3.3V
-12V
GND
PS ON#
GND
GND
GND
+5V
+5V
+5V
GND

HDF-66007UK

LINBURGH GAME BRD 844-0001D-02 ASSY CASE LBG L 1GB EXP

JVS SERIAL

USB A

+12V
+12V
+5V
+12V
+5V
+12V
+5V
+12V
+3.3V RS
GND
GND
GND
GND
GND
GND
GND

+12V
+12V
+5V
+12V
+5V
+12V
+5V
+12V
+3.3V RS
GND
GND
GND
GND
GND
GND
GND

HDF-66023UK

USB A

USB MINI B

600-7920-100

610-0719-01 DVD DRIVE UNIT USB

600-7141-100

837-13551-92 I/O CONTROL BD FOR JVS

AVCC
+EXV
+EXV
1P GUN POSITION X
1P GUN ACCEL X
+5V
AGND
+5V
AVCC
+5V
1P GUN POSITION Y
+5V
1P GUN ACCEL Y
+5V
AGND
GND
AVCC
GND
2P GUN POSITION X
GND
2P GUN ACCEL X
GND
AGND
AVCC
AGND
2P GUN POSITION Y
AGND
2P GUN ACCEL Y
AVCC
NOT USE
NOT USE

1P START
2P START

1P TRIGGER
2P TRIGGER
1P F OUT
2P F OUT
1P BOM
2P BOM

120 Ohm 0.25W RESISTOR

1P SERVICE
TEST SW
COIN SW1

COIN METER1
COIN METER2
1P START LAMP
2P START LAMP

+12V
+12V
+12V
+12V

JST RA 60P

HDF-66012UK

JST NH 4P
JST NH 5P

CTF-60013UK

+12V
+5V
C
B
A
GND

FREQ
GND

838-14465 IC GUN SENSOR BRD (NEW EDIT)

GND
+12V

2P

1P

TRG
B1
D1
C1
B1
A1
+5V

RET
1P X
1P Y
2P X
2P Y
1P F OUT
2P F OUT
1P TRG
2P TRG

TRG
B2
D2
C2
B2
A2
+5V

514-5078-2000 HOLDER
514-5094UK FUSE

HDF-66009UK

HDF-66010UK

DIODE 1N4001

DIODE 1N4001

HDF-4700UK ASSY POWER BD

HDF-4500UK ASSY ELEC BD

COLOUR CODE		WIRE TYPE	
1 RED	8 BLACK	E LIGHT GREEN	
2 BLUE	9 GREY		
3 YELLOW	A PINK	U AWG 16 UL1015	
4 GREEN	B SKY BLUE	K AWG 18 UL1015	
5 WHITE	C BROWN	L AWG 20 UL1007	
7 ORANGE	D PURPLE	AWG 22 UL1007	

DRAWN CHKD   TOP LEVEL

CW

28/12/05

SEGA AMUSEMENTS EUROPE, LTD.

ORIGINAL SIZE A3

HOUSE OF THE DEAD 4 (MINI DLX)

HDF MDX 2/3

DESCRIPTION
PART NO.
ALTERATIONS

E PAGE 2/3 POS H2

HDF-65024UK

N PAGE 1/3 POS H3

F PAGE 2/3 POS H3

HDF-66024UK

GND
GND
12V
VCC
COIN 1
GND
TEST
VOL
SERVICE

TEST
SERVICE
NOT USED
VOLUME
NOT USED
NOT USED

COIN METER
EP1003

VTS-HOD-D

HDF-1540UK
ASSY CABI LOWER

5V
1P START LAMP
1P START SW
GND
NH START BUTTON ASSY 509-6101

5V
2P START LAMP
2P START SW
GND
NH START BUTTON ASSY 509-6101

EARTH MAP

HDF-1074UK
UPPER MONITOR BRKT

G PAGE 2/3 POS H4

HDF-60038
HDF-60036X
HDF-2100-02 ASSY GUN 2P

ORG/RED 1
ORG/BLK 1
GRY/RED 1
GRY/BLK 1
WHT/RED 1
WHT/BLK 1
YEL/RED 1
YEL/BLK 1
PNK/RED 1
PNK/BLK 1
ORG/RED 2
ORG/BLK 2
GRY/RED 2
GRY/BLK 2
WHT/RED 2
SHEILD

+5V
A
B
C
D
E
TRG
TRG
+5V

509-5080

XY ACCEL BD 839-1280

HDF-60037-01

COIN DOOR
HDF-1096UK LIGHT TRAY
600-9120-44K
HDF-1096UK LIGHT TRAY

HDF-1080UK
SCREEN RETAINER LOWER
HDF-1084UK
SPEAKER BRKT
HDF-1074UK
LOWER MON BRKT

600-9080-44K
600-9180-454K
600-9150-44K
600-9080-44K
600-9180-44K
600-9080-44K
FROM HDF-66017UK

H PAGE 2/3 POS H5

HDF-60038
HDF-60036X
HDF-2100-02 ASSY GUN 1P

HDF-60037-01

AC BRKT HDF-1531UK

HDF-1506UK JOINT BASE

	RED	8	BLACK	E	LIGHT GREEN
2	BLUE	9	GREY		
3	YELLOW	A	PINK	U	AWG 16 UL1015
4	GREEN	B	SKY BLUE	K	AWG 18 UL1015
5	WHITE	C	BROWN	L	AWG 20 UL1007
7	ORANGE	D	PURPLE		AWG 22 UL1007

COLOUR CODE
WIRE TYPE

DRAWN CHKD TOP LEVEL
CW
28/12/05

SEGA
SEGA AMUSEMENTS EUROPE, LTD.
THIS DRAWING WILL IN NO WAY BE COPIED. TO BE RETURNED ON DEMAND.
HOUSE OF THE DEAD 4 (MINI DLX)
DESCRIPTION

ORIGINAL SIZE
A3
HDF MDX 3/3
PART NO.

ALTERATIONS

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