



SEGA CORPORATION

Nissay Aroma Building, 5-37-1, Kamata, Ohta-ku, Tokyo 144-8721, Japan
Phone: +81-3-5480-6582 Facsimile: +81-3-5480-6584

© SEGA

Ferrari

OFFICIAL LICENSED PRODUCT

- All trade marks used with permission of the owners.
- AMD, the AMD ARROW Logo and combinations thereof are trademarks of Advanced Micro Devices, Inc.

OUTRUN 2 SPECIAL TOURS DX

OWNER'S MANUAL

420-7004-02



OWNER'S MANUAL

SEGA PRESENTS

OutRun 2 SP DX

OUTRUN 2 SPECIAL TOURS



IMPORTANT

- Before using this product, read this manual carefully to understand the contents herein stated.
- After reading this manual, be sure to keep it near the product or in a convenient place for easy reference when necessary.

BEFORE USING THE PRODUCT, BE SURE TO READ THE FOLLOWING:

To maintain safety:

To ensure the safe operation of this product, be sure to read the following before usage. The following instructions are intended for the users, operators and the personnel in charge of the operation of the product. After carefully reading and sufficiently understanding the warning displays and cautions, handle the product appropriately. Be sure to keep this manual close to the product or in a convenient place for future reference.

Herein, explanations which require special attention are enclosed with dual lines. Depending on the potentially hazardous degrees, the terms of DANGER, WARNING, CAUTION, etc. are used. Be sure to understand the contents of the displays before reading the text.



Indicates that mishandling the product by disregarding this pictograph will cause severe injury or death.



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



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

For the safe usage of the product, the following pictographs are used:



Indicates "HANDLE WITH CARE." In order to protect the human body and equipment, this display is attached to places where the Owner's Manual, Serviceman Manual and/or Service Manual should be referred to.



Indicates a "Protective Earth Terminal." Before operating the equipment, be sure to connect it to the Ground.
(The step may be omitted for products in which a power cord with earth is used.)

- **Perform work in accordance with the instructions herein stated.**
Instructions for work are explained by paying attention to the aspect of accident prevention. Failing to perform work as per the instructions can cause accidents. In the case where only those who have technical expertise should perform the work to avoid hazardous situation, the instructions herein state that the site maintenance personnel should perform such work.
- **Be sure to turn off the power before working on the machine.**
To prevent an electric shock, be sure to turn off the power before carrying out any work that requires direct contact with the interior of the product. If the work is to be performed in the power-on status, the Instruction Manual herein always states to that effect.
- **Be sure to ground the Earth Terminal.**
(This is not required in the case where a power cord with earth is used.)
This product is equipped with the Earth Terminal. When installing the product, connect the Earth Terminal to the "accurately grounded indoor earth terminal" by using an earth wire. Unless the product is grounded appropriately, the user can be subject to an electric shock. After performing repair, etc. for the control equipment, ensure that the Earth Wire is firmly connected to the control equipment.
- **Ensure that the Power Supply used is equipped with an Earth Leakage Breaker.**
This product does not incorporate the Earth Leakage Breaker. Using a power supply which is not equipped with the Earth Leakage Breaker can cause a fire when earth leakage occurs.
- **Be sure to use fuses which meet the specified rating.**
(Only for the machines which use fuses.)
Using fuses exceeding the specified rating can cause a fire and an electric shock.

- **Specification changes (removal of equipment, conversion and addition) not designated by SEGA are not allowed.**

The parts of the product include warning labels for safety, covers for personal protection, etc. It is very hazardous to operate the product by removing parts and/or modifying the circuits. Should doors, lids and protective parts be damaged or lost, refrain from operating the product, and contact where the product was purchased from or the office herein stated. SEGA shall not be held responsible for any accidents, compensation for damage to a third party, resulting from the specifications not designated by SEGA.

- **Ensure that the product meets the requirements of appropriate Electrical Specifications.**

Before installing the product, check for Electrical Specifications. SEGA products have a nameplate on which Electrical Specifications are described. Ensure that the product is compatible with the power supply voltage and frequency requirements of the location. Using any Electrical Specifications different from the designated Specifications can cause a fire and an electric shock.

- **Install and operate the product in places where appropriate lighting is available, allowing warning labels to be clearly read.**

To ensure safety for the customers, labels and printed instructions describing potentially hazardous situations are applied to places where accidents can be caused. Ensure that where the product is operated has sufficient lighting allowing the warnings to be read. If any label is peeled off, apply it again immediately. Please place an order with where the product was purchased from or the office herein stated.

- **When handling the monitor, be very careful. (Applies only to the product with a monitor.)**

Some of the monitor (TV) parts are subject to high tension voltage. Even after turning off the power, some portions are still subject to high tension voltage sometimes. Monitor repair and replacement should be performed only by those technical personnel who have knowledge of electricity and technical expertise.

- **Be sure to adjust the monitor/projector properly. (Applies only to the product with a monitor/projector.)**

Do not operate the product leaving on-screen flickering or blurring as it is. Using the product with the monitor/projector not properly adjusted may cause dizziness or a headache to an operator, a player, or the customers.

- **When transporting or reselling this product, be sure to attach this manual to the product.**

In the case where commercially available monitors and printers are used in this product, only the contents relating to this product are explained herein. Some commercially available equipment has functions and reactions not stated in this manual. Read this manual together with the specific Instruction Manual of such equipment.

**Descriptions herein contained may be subject to improvement changes without notice.*

**The contents described herein are fully prepared with due care. However, should any question arise or errors be found, please contact SEGA.*

INSPECTIONS IMMEDIATELY AFTER TRANSPORTING THE PRODUCT TO THE LOCATION

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

- Are there any dented portions or defects (cuts, etc.) on the external surfaces of the cabinet?
- Are Casters and Adjusters damaged?
- Do the power supply voltage and frequency requirements meet with those of the location?
- Are all wiring connectors correctly and securely connected? Unless connected in the correct way, connector connections can not be made accurately. Do not insert connectors forcibly.
- Do power cords have cuts and dents?
- Do the fuses used meet specified ratings? Is the Circuit Protector in an energized status?
- Are all accessories available?
- Can all Doors and Lids be opened with the Accessory Keys? Can Doors and Lids be firmly closed?

TABLE OF CONTENTS

BEFORE USING THE PRODUCT, BE SURE TO READ THE FOLLOWING:

TABLE OF CONTENTS	i
INTRODUCTION	iii
1 HANDLING PRECAUTIONS	1
2 PRECAUTIONS REGARDING INSTALLATION LOCATION	6
2-1 LIMITATIONS OF USAGE	7
2-2 OPERATION AREA	8
3 PRECAUTIONS REGARDING PRODUCT OPERATION	9
3-1 BEFORE OPERATION	9
3-2 DURING OPERATION (PAYING ATTENTION TO CUSTOMERS)	12
4 PART DESCRIPTIONS	16
5 ACCESSORIES	18
6 ASSEMBLY AND INSTALLATION	21
7 PRECAUTIONS WHEN MOVING THE MACHINE.....	73
8 PROJECTOR	78
8-1 CLEANING THE SCREEN	79
8-2 PROJECTOR ADJUSTMENT	80
8-3 CHANGING THE LAMP UNIT	84
9 STEERING WHEEL MECHANISM	91
9-1 VOLUME ADJUSTMENT AND REPLACEMENT	92
9-2 GREASING	96
10 GEAR SHIFTER.....	97
10-1 GEAR SHIFTER REMOVAL.....	97
10-2 SWITCH REPLACEMENT.....	98
10-3 GREASING	98
11 ACCELERATOR & BRAKE.....	99
11-1 VOLUME ADJUSTMENT AND REPLACEMENT	99
11-2 GREASING	102
12 COIN SELECTOR.....	103

13 GREASING THE RIDE MECHANISMS 105
 13-1 GREASING THE ACTUATOR106
 13-2 GREASING THE GUIDE 111

14 FLUORESCENT LIGHT REPLACEMENT 115

15 PERIODIC INSPECTION 119

16 TROUBLESHOOTING 122

17 GAME BOARD 125
 17-1 REMOVING THE LINDBERGH126
 17-2 COMPOSITION OF THE GAME BOARD130
 17-3 SOFTWARE INSTALLATION131

18 DESIGN-RELATED PARTS 139

19 WIRE COLOR CODE TABLE 142

20 WIRING DIAGRAM 143

INTRODUCTION

This manual is intended to provide detailed descriptions together with all the necessary information covering the general operation of electronic assemblies, electro-mechanicals, servicing control, spare parts, etc. for the product, **OUTRUN 2 SPECIAL TOURS DX**

This manual is intended for the owners, personnel and managers in charge of operation of the product. Operate the product after carefully reading and sufficiently understanding the instructions.

In the unlikely event that the product does not function correctly, DO NOT allow anyone other than a technician to touch the internal system. Turn off the power to the machine, making sure to unplug the electrical cord from the outlet, and contact the office listed below or the point of purchase for this product.

Use of this product is unlikely to cause physical injuries or damage to property. However, points that require special attention are indicated by bold text, the word "IMPORTANT" and the symbol below.



Indicates important information that, if ignored, may result in the mishandling of the product and cause faulty operation or damage to the product.

Sega Amusements U.S.A., Inc.

800 Arthur Avenue, Elk Grove Village, IL 60007-5215, U.S.A.

TEL: 1-847-364-9787

TOLL FREE: 1-888-877-2669

FAX: 1-847-427-1065

SPECIFICATIONS

Installation space:	4,000 mm (157.5in.) [Width] x 3,200 mm (126.0 in.) [Depth]
Height:	2,250 mm (88.6 in.)
Weight:	1,850 kg (4,078.6 lbs.)
Power, maximum current:	[Per cabinet] Single phase AC 208 V, 4.8 A

NOTE: The contents herein described are subject to change without notice.

Definition of 'Site Maintenance Personnel or Other Qualified Individuals'

WARNING

Procedures not described in this manual or marked as 'to be carried out by site maintenance personnel or other qualified professionals' should not be carried out by personnel without the necessary skill or technology. Work carried out by unqualified persons may cause serious accidents, including electrocution.

Parts replacement, maintenance inspections and troubleshooting should be carried out by site maintenance personnel or other qualified professionals. This manual includes directions for potentially dangerous procedures which should only be carried out by professionals with the appropriate specialized knowledge.

The site maintenance personnel or other qualified professionals mentioned in this manual are defined as follows:

Site maintenance personnel:

Individuals with experience in maintaining amusement equipment, vending machines, etc., working under the supervision of the owner/operator of this product to maintain machines within amusement facilities or similar premises by carrying out everyday procedures such as assembly, maintenance inspections, and replacement of units/expendable parts.

Activities to be carried out by site maintenance personnel:

Amusement equipment/vending machine assembly, maintenance inspection and replacement of units/expendable parts.

Other qualified professionals:

Persons employed by amusement equipment manufacturers, or involved in design, production, testing or maintenance of amusement equipment. The individual should have either graduated from technical school or hold similar qualifications in electrical/electronics/mechanical engineering.

Activities to be carried out by other qualified professionals:

Amusement equipment/vending machine assembly, repair/adjustment of electrical/electronic/mechanical parts.

1 HANDLING 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.

Non-compliance with the following points or inappropriate handling running counter to the cautionary matters herein stated can cause personal injury or damage to the machine.

WARNING

- Before performing work, be sure to turn the power off. Performing the work without turning the power off can cause an electric shock or short circuit. In the case work should be performed in the status of power on, this manual always states to that effect.
- Do not expose power cords or earth wires on the surface, (floor, passage, etc.). If exposed, the power cords and earth wires are susceptible to damage. Damaged cords and wires can cause an electric shock or short circuit.
- To avoid causing a fire or an electric shock, do not put things on or damage the power cords.
- When or after installing the product, do not unnecessarily pull the power cord. If damaged, the power cord can cause a fire or an electric shock.
- In case the power cord is damaged, ask for a replacement through where the product was purchased from or the office herein stated. Using the cord as is damaged can cause fire, an electric shock or leakage.
- Be sure to perform grounding appropriately. Inappropriate grounding can cause an electric shock.
- Be sure to use fuses meeting the specified rating. Using fuses exceeding the specified rating can cause a fire or an electric shock.
- Completely make connector connections for IC BD and others. Insufficient insertion can cause an electric shock.
- Specification changes, removal of equipment, conversion and/or addition, not designated by SEGA are not permitted.
 - Failure to observe this may cause a fire or an electric shock. Non-compliance with this instruction can have a bad influence upon physical conditions of the players or the onlookers, or result in injury during play.
 - SEGA shall not be held responsible for damage, compensation for damage to a third party, caused by specification changes not designated by SEGA.
- If work or parts replacement not indicated in this manual is carried out, an accident may occur. If it is necessary to carry out work not indicated in this manual, be sure to have it done by the office indicated in this manual or by the point of purchase. Also, please inquire regarding details of the work involved.
- Be sure to perform periodic maintenance inspections herein stated.



IMPORTANT

- For the IC board circuit inspections, only the logic tester is allowed. The use of a multiple-purpose tester is not permitted, so be careful in this regard.
- This product uses a projector. The projector's screen can be easily damaged so exercise caution when cleaning it. For details, read the chapter on "Projector."
- Some parts are not designed and manufactured specifically for this game machine. The manufacturers may discontinue, or change the specifications of such general-purpose parts. If this is the case, SEGA cannot repair or replace a failed game machine whether or not a warranty period has expired.

CONCERNING THE STICKER DISPLAY

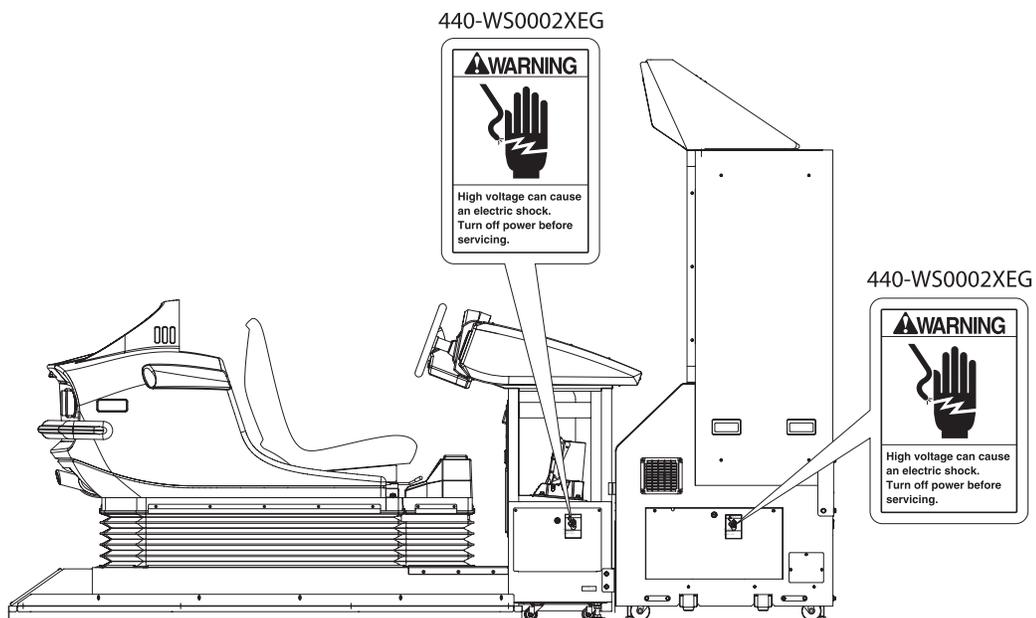
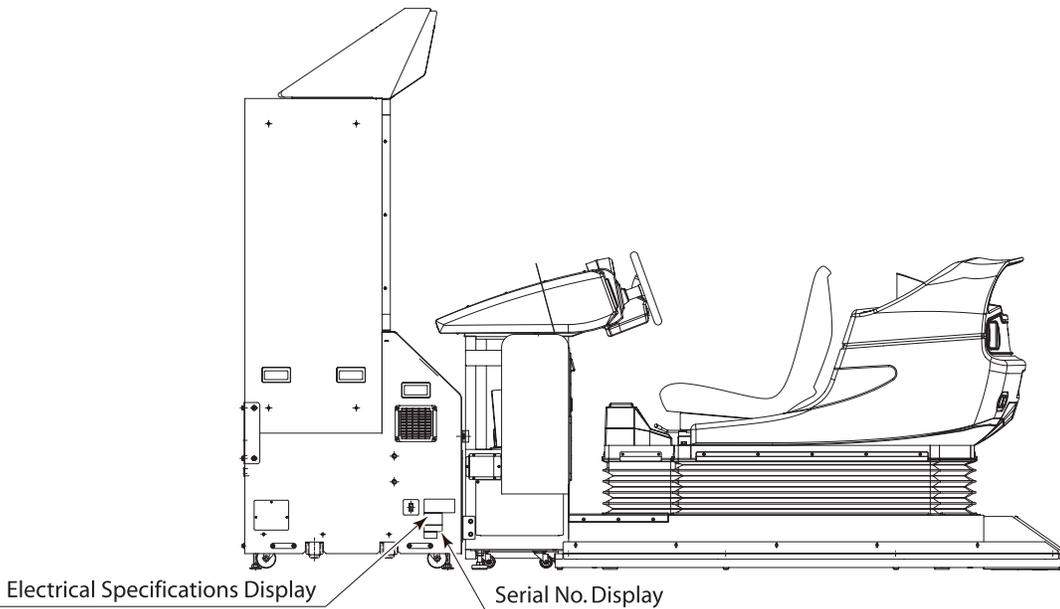
This SEGA product has stickers attached describing the product manufacture No. (Serial No.) and Electrical Specifications. It also has a Sticker describing where to contact for repair and for purchasing parts.

When inquiring about or asking for repairs, mention the Serial No. and Name of Machine indicated on the Sticker. The Serial Number indicates the product register. Identical machines could have different parts depending on the date of production. Also, improvements and modifications might have been made after the publication of this manual. In order to ensure you order the correct parts, mention the Serial No. when contacting the applicable places.

NOTE: The stickers referred to in this manual are all attached to each machine.

CONCERNING WARNING DISPLAYS

This SEGA product has warning displays on stickers, labels and/or printed instructions adhered/attached to or incorporated in the places where a potentially hazardous situation could arise. The warning displays are intended for accident prevention for customers and for avoiding hazardous situations relating to maintenance and servicing work. Some portions of the cabinet contain high voltage and may cause accidents if touched. When performing maintenance, be very careful of the warning displays. It is especially important that any complex repair and replacement work not mentioned herein should be performed by those technical personnel who have knowledge of electricity and technical expertise. In order to prevent accidents, caution any customer ignoring the warnings to cease and desist immediately.

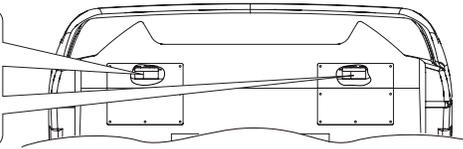


440-WS0315-EG
Rear cabinet (2)

WARNING



Fingers could be caught and injured. Be sure to turn power off before starting work.



SECTION B-B

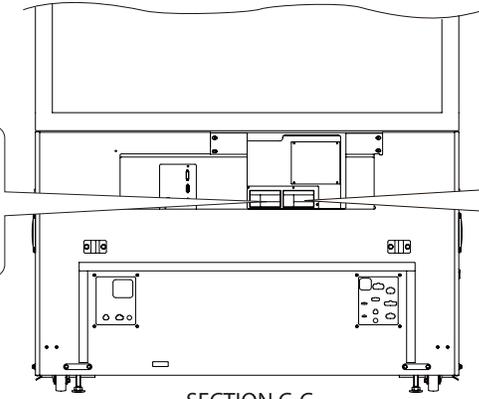
440-WS0257-JE

警告 **WARNING**



感電する危険がありますので、作業前には必ず電源を切ってください。

High voltage can cause an electric shock. Turn off the power before servicing.



440-WS0258-JE

警告 **WARNING**



熱くなった蛍光灯や電球により火傷をする危険があります。交換時には十分注意してください。

Hot light bulbs can cause burn. Be very careful when replacing them.

SECTION C-C

440-WS0002XEG
Front cabinet (2)

WARNING



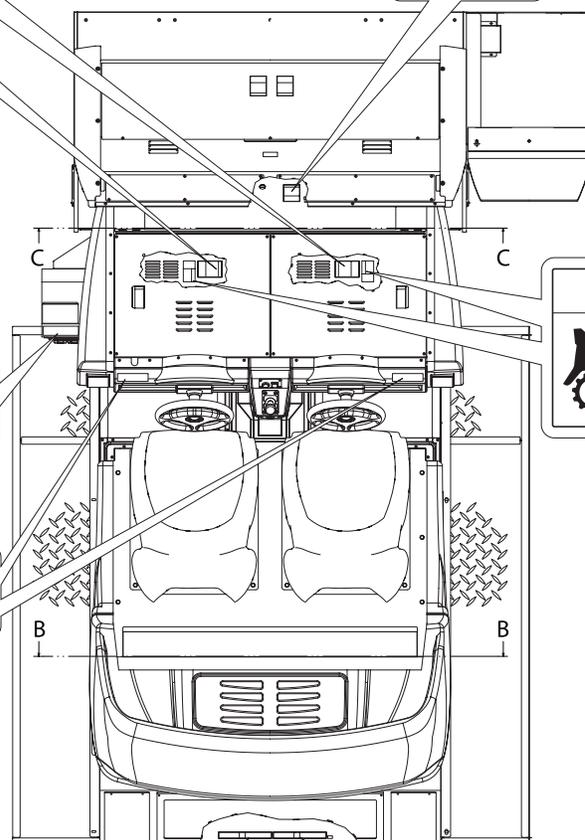
High voltage can cause an electric shock. Turn off power before servicing.

440-WS0002XEG

WARNING



High voltage can cause an electric shock. Turn off power before servicing.



440-CS0167-EG
Front cabinet (2)

CAUTION



Keep fingers and objects away from the steering wheel gear mechanism. Failure to do so could result in injury.

440-CS0276-EG

CAUTION

•For safety reasons, pregnant persons, intoxicated persons or those with a height of less than 140 cm may not use this machine.
•Do not play this game with children in your lap. They may fall and receive an injury.
•For safety reasons, do not place your foot on the foot-rest or the pedal during game-play.

440-CS0277-EG
Front cabinet (2)

CAUTION

Adults and children that are prone to seizures, loss of consciousness, etc. due to flashing lights or television games, should exercise caution when playing this game. If you feel sick or dizzy while playing this game, stop immediately and take a break.

WARNING



Hot light bulbs can cause burn. Be very careful when replacing them.

440-WS0027-EG

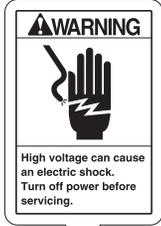
WARNING



High voltage can cause an electric shock. Turn off power before servicing.

440-WS0143-EG

440-WS0002XEG



440-WS0012XEG

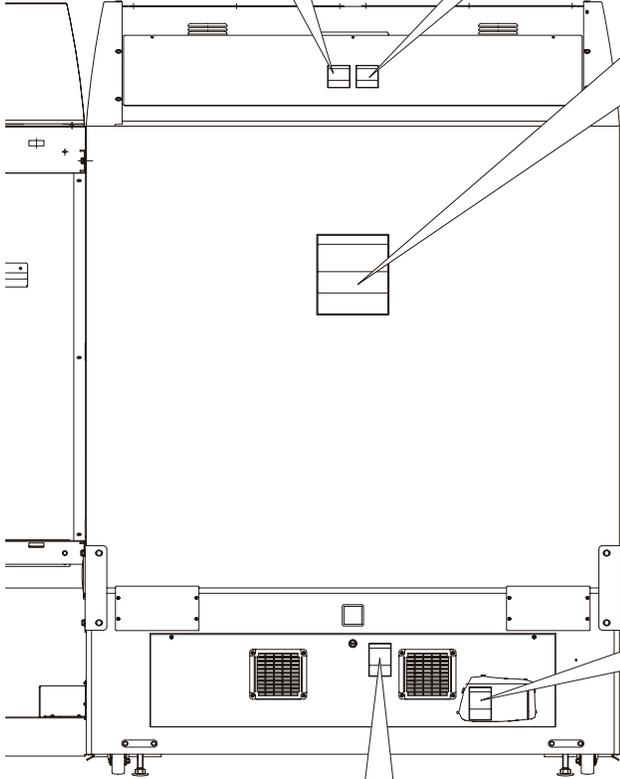


440-WS0060YJP

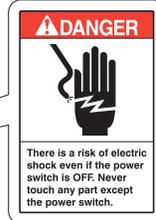
警告 **WARNING**

プロジェクターが転倒する危険がありますので、この面を押さないでください。移動させるときは、横方向から押してください。斜面、段差等がある場合には、安全のため2人以上で移動させてください。レグを装備したプロジェクターを接地して使用する場合には、設置後に必ず4つのレグをすべておろしてください。

Do not push from the front or back to avoid the projector falling down. When moving the projector, be sure to push it from the side. If the floor is slanted, or has steps, use 2 or more persons for safety. When the projector equipped with the leg adjuster is grounded, after installation, ensure that all the 4 leg adjusters are lowered to make contact with the floor.



440-DS0313-EG



440-WS0002XEG

2 PRECAUTIONS REGARDING INSTALLATION LOCATION

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 places in the vicinity of highly inflammable/volatile chemicals or hazardous matter.
- Dusty places.
- Sloped surfaces.
- Places subject to any type of violent impact.
- Places in the vicinity of anti-disaster facilities such as fire exits and fire extinguishers.
- Areas where the temperature exceeds the applicable temperature (ambient temperature) range of 5 to 30 degrees centigrade.

2-1 LIMITATIONS OF USAGE

CAUTION

- 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.
- A dedicated breaker and grounding mechanism are necessary for the control tower and each cabinet of this product. Failure to heed this warning can cause a fire or electric shock.
- Use wires of the following capacity for the indoor power wiring. The use of wires of different electrical specifications can cause a fire or electric shock.
Per cabinet: Single phase AC 208 V, 15 A min.
- Be sure to use an independent power supply equipped with an earth leakage breaker. Using a power supply without an earth leakage breaker 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.
- Use cable as rated below for the power cable. Use of a rated cable that does not satisfy the prescribed rating can cause fire and electric shock.
Single phase AC 208 V, 15 A min.

Electricity Consumption:

[Per cabinet]
MAX. 4.8 A (Single phase AC 208 V)

2-2 OPERATION AREA

⚠️ WARNING

- For the operation of this machine, secure a minimum area of 4.9 m (W) x 4.9 m (D). These dimensions are necessary to enable the customer to walk around the machine and also to provide adequate ventilation. This machine is a ride, so there is a possibility of a player falling off. In such an event, if a player strikes his or her head, a serious accident may occur, so be sure to secure the minimum area around the machine specified in this manual.
- Be sure to provide sufficient space specified in this manual. 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.
- If the machine does not fit through the entryway to the installation location, do not disassemble it without first consulting the instructions. The machine should only be disassembled in accordance with the instructions listed in this manual; do not attempt to disassemble it in any other way. Specific tools and adjustment procedures are required to assemble and disassemble the mechanical parts. Attempting to assemble or disassemble the machine without consulting the instructions may result in accidents during assembly/disassembly and electric shock, short circuits, and/or personal injury during operation. If the machine still does not fit through the entryway after following the procedures in this manual, contact your retailer or the office listed in this manual.
- If the machine is still too large to fit through the entryway after following the procedures listed in this manual, do not tip the machine on its side. Attempting to transport the machine while it is tipped on its side may cause accidents. It may also damage or warp parts of the machine, resulting in accidents during operation.
- To install this product, the entrance must be at least 1.4 m in width and 1.45 m in height. If the entrance is too narrow, do not tilt the product carelessly. If all the product weight is put on the casters at one side only, there could be damage or deformation, causing serious accidents such as workers getting caught underneath.

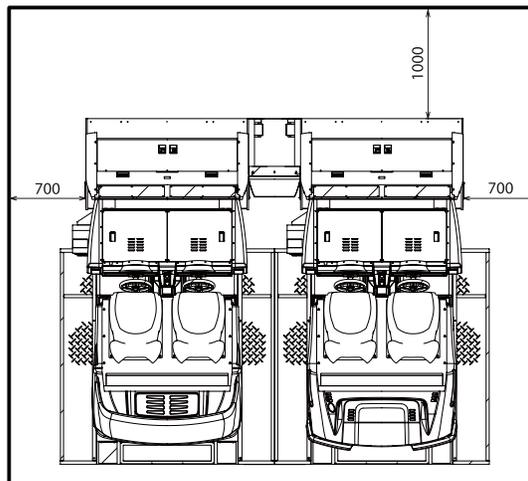


FIG.2 Operation Area (Unit: mm)

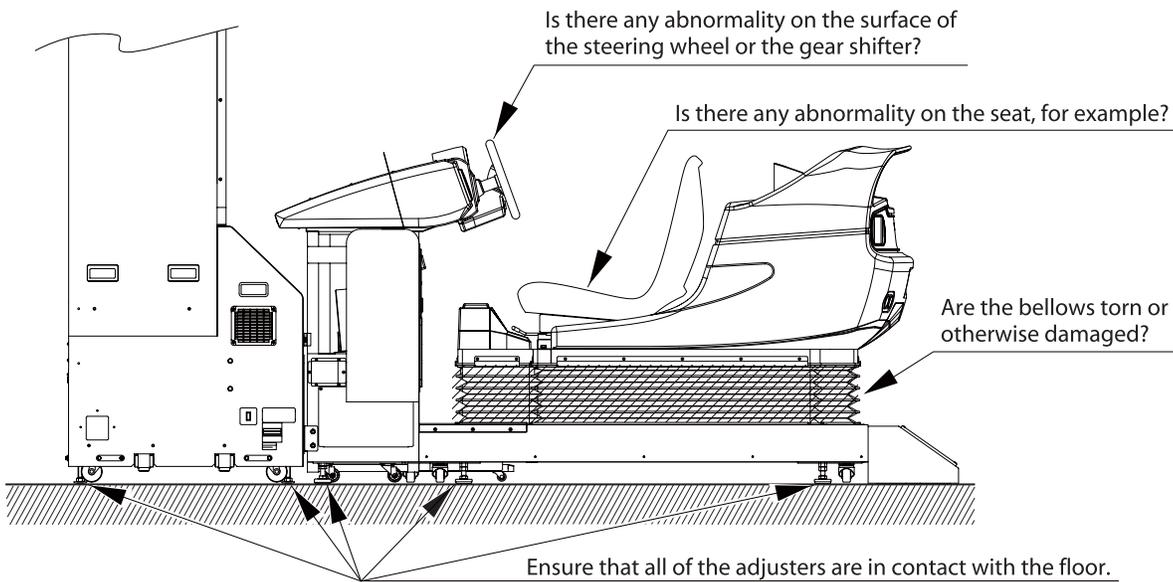
3 PRECAUTIONS REGARDING PRODUCT OPERATION

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

3-1 BEFORE OPERATION

! WARNING

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



- To ensure safety, carry out a trial run before starting operation, and be sure to check the safety devices. Each ride moves, so each is equipped with safety devices. Be sure to check that these safety devices function normally.
 - Does the ride stop when the MOTION STOP button at the center of the control panel is pressed?
- Check each safety device and also check to see if any of the rides move abnormally. Abnormal motion may cause an accident, so do not operate the machine until the cause of the abnormality has been removed.
 - Does the ride move in the direction corresponding to the direction of operation?
 - Does the ride move smoothly?
 - Is there any undesirable looseness in the ride?
 - Is any unusual noise emitted while the ride is operating?
 - Is any unusual vibration emitted while the ride is operating?
 - Does the ride stop at an even position when the game is over?

⚠ WARNING

- If an abnormality occurs in the ride mechanism, immediately stop operation, turn off the power, and contact the office indicated in this manual or the point of purchase. If you continue to operate the machine while there is an abnormality in it, a serious accident such as an electric shock, short circuit, fire, or a fall may occur.
- The motion of the ride will not stop when the ride is touched by anybody other than a player. Be sure to monitor the machine during a game.
- If a part related to the actuator of the ride mechanism breaks or deforms, for example, necessitating replacement or repair of the part, request the office indicated in this manual or the point of purchase to carry out this work. Specialized knowledge, technical expertise, and tools are necessary for carrying out this work. If you attempt to carry out this work yourself, an accident may occur.
- Be sure to perform appropriate adjustment of the projector. For operation of this machine, do not leave monitor's flickering or deviation as is. Failure to observe this can have a bad influence upon the players' or the customers' physical conditions.
- It is suggested to prepare a rest space for players who feel sick after playing the game.
- Do not put any heavy item on this product. Placing any heavy item on the product can cause an accident fall or parts damage.
- Do not climb on the product. Climbing on the product can cause an accident fall. To check the top portion of the product, use a step ladder.
- To avoid electric shock, check to see if door & cover parts are damaged or omitted.
- 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 and water.

CAUTION

- Inspect for the following items during a trial run. If there is any type of error, use the Test Mode, etc., to resolve the problem. If you continue use with an error, it can cause an accident or irreparable parts damage.
 - Do the steering wheel and the ride move smoothly during the initialization operation? (See Chapter 6.)
 - Is there any strangeness in the operability of the steering wheels or the pedals?
 - Is there any abnormality in the steering wheel reaction mechanism?
 - Is there any improper adjustment of the projector screen?
 - Are the bellows torn or has a screw dropped out of them?
- During daily cleaning, be sure to check the surface of the steering wheel, gear shifter, and other parts that the player touches with his hands for damage, cracks, or loose screws. If a player uses the machine while it is damaged, cracked, or has a loose screw, the player may become injured.
- During daily cleaning, be sure to check the seat for any abnormality, wetness, etc. Failure to do this may result in deliberate tampering or negligence being left undetected.

IMPORTANT

- Players directly hold the controller with their bare hands so it is recommended that wet towels (paper towels) be provided.
- Endeavor to clean the steering wheel and seat frequently.
- Provide a container or space for storing the customers' hand luggage, etc. To help prevent an accident and also protect parts, establish measures so that customers do not bring raingear, such as umbrellas, on rainy days, or juice or other beverages, into the area where the machine is installed.
- During network play, if communication is interrupted for some reason, each game will continue independently. Also, if communication is interrupted while in Customer Welcome Mode, the Test Screen will appear.
- When one cabinet connected for network play enters the Test Mode, the other cabinets will move to the Test Screen. For this reason, do not needlessly put a cabinet in the Test Mode while a customer is playing a game, even if the cabinet is not being used.
- You can make game settings and coin/credit (fee) settings individually, even for cabinets that are connected for network play. You can also change the settings of an individual cabinet to those for advanced players or beginners, for example. Normally, however, set all of the cabinets to the same settings. If you make a mistake in the fee setting, it is likely that the balance of payments and other items will be adversely affected.

3-2 DURING OPERATION (PAYING ATTENTION TO CUSTOMERS)

In order to prevent an accident or unnecessary trouble, the attendant or operator must endeavor to always pay attention to the behavior of the players and customer. This machine has movable rides of about the same size as an automobile. Sometimes a player or a customer may behave in an unexpected way. Be adequately aware of safety, and stop any behavior that is considered dangerous.

WARNING

- For safety, do not allow any of the following people to play the game.
 - 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.
 - Those who are intoxicated or under the influence of drugs.
 - Pregnant women or those who could be pregnant.
 - Those who are not in good health.
 - Those who do not follow the attendant's instructions.
 - Those who cannot grasp the Control Unit securely because of immobility in fingers, hands or arms.
 - Persons who disregard the product's warning displays.

The game cannot be played while sitting in a wheelchair.

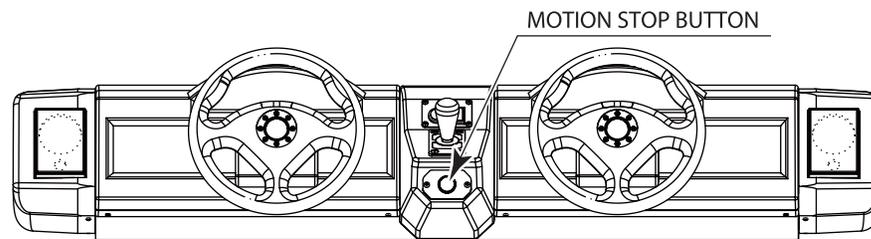
- For safety's sake, a person of less than 140 cm in height cannot play games on this machine. Because of the dimensions of the seat and the place where the player puts his or her feet, there is a risk that when the ride moves the player may fail to support their weight, causing the player to fall off the ride.
- 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.
- 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.
- For safety's sake, warning indicators such as stickers are placed on the machine. However, a careless player will generally fail to read these warnings. The attendant must point out steps and level differences on the ride in order to prevent the occurrence of an accident.
- To avoid falls and resulting injury, immediately stop customers from leaning against or climbing on the product, etc.

WARNING

- No more than 2 persons should sit on each ride of this machine. Instruct customers that 3 or more players must not sit on a ride. Failure to observe this precaution may result in players striking their bodies against each other, causing them to receive blows, fall over, or fall off the ride.
- Instruct customers not to get on or in any ride part, such as the rear of the ride or behind the back of the seat, other than the seat. Failure to observe this precaution may result in players falling over, falling off, or catching body parts in the ride.
- Entering the cabinet with a wet umbrella or wet shoes is strictly forbidden. There are electrical parts and wiring underneath the cabinet floor. If these become wet, this can cause an electric shock or short circuit. Be especially careful in managing the product on rainy days.
- Take care not to place a heavy object on a ride or seat. This may cause the object to strike the player when the ride moves.
- Instruct customers not to play a game with a child on their knees. This may cause an accident such as the child becoming caught between the control panel and the player or the child falling off the ride.
- Instruct players not to stand during a game in which the ride moves. This may result in the player falling off the ride or falling over.
- Instruct persons other than players to keep away from the machine while a game is in progress. If a person touches the moving ride, this may result in an accident such as the person falling over or getting his or her fingers caught in the bellows.
- An infant is unable to recognize danger, so instruct the guardian of the infant to be attentive and ensure that the infant does not approach the machine.

⚠ 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.
- Items such as large finger rings can cause injury to the fingers while playing. Instruct players to remove all accessories that could cause an accident before playing.
- Take care to ensure that two persons do not attempt to play a game by grasping a single steering wheel. Failure to heed this precaution may result in a minor or a major collision.
- Explain that the MOTION STOP button can be pressed to stop play whenever the player feels ill.



○ **MOTION STOP button at center of control panel**

This button stops the motion of the ride during a game. Immediately after the start of the race, this button can be pressed. Once this button is pressed, the ride returns to its initial position, and motion stops. Until the game is over, the motion stop condition cannot be canceled, and the ride cannot move.

- Explain that the attendant will stop the game if he or she judges that a situation is dangerous.
- Take care to ensure that other customers do not touch operating devices during a game. Failure to heed this precaution may result in an accident or cause trouble between customers.
- There are steps and level differences on each ride, so instruct players to be careful when getting on or off the ride.
- Do not allow players to extend their hands or feet out from the ride during play. Otherwise there could be bruises, sprains or other accidental injuries.
- Instruct the player to adjust the seat in the front-rear direction to match his or her body size. If a player plays a game in an unreasonable posture, he or she may sustain an injury or incur discomfort.

STOP IMPORTANT

- The load limit on one ride of the machine is 300 kg. If you allow a person or persons weighing more than the load limit to get on a ride and operate it, the ride may break down or wear considerably.
- If a player carries hand luggage or other items onto a ride, objects may fall off or roll over, for example, when the ride moves, resulting in injury or damage. Also, instruct players not to take breakable items, etc., onto the ride.
- After the end of a game, check to ensure that the player has not forgotten or dropped any belongings.

4 PART DESCRIPTIONS

4 PART DESCRIPTIONS

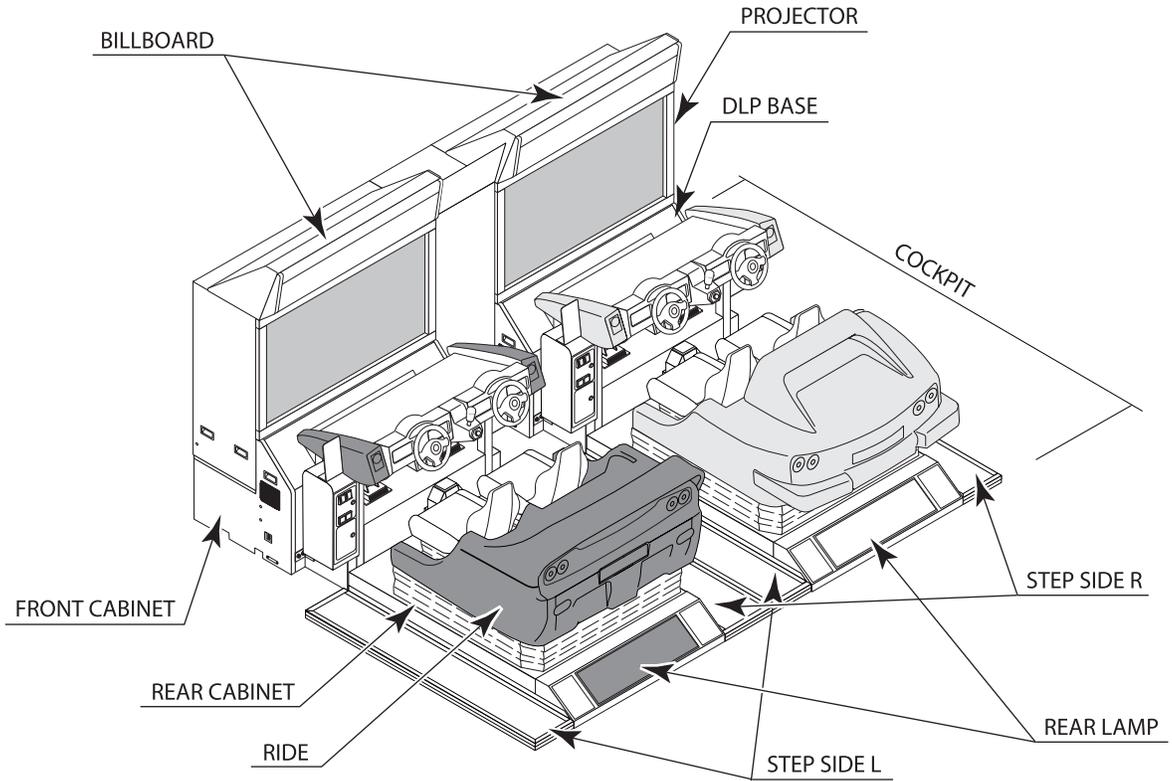


FIG. 4a Overall Diagram

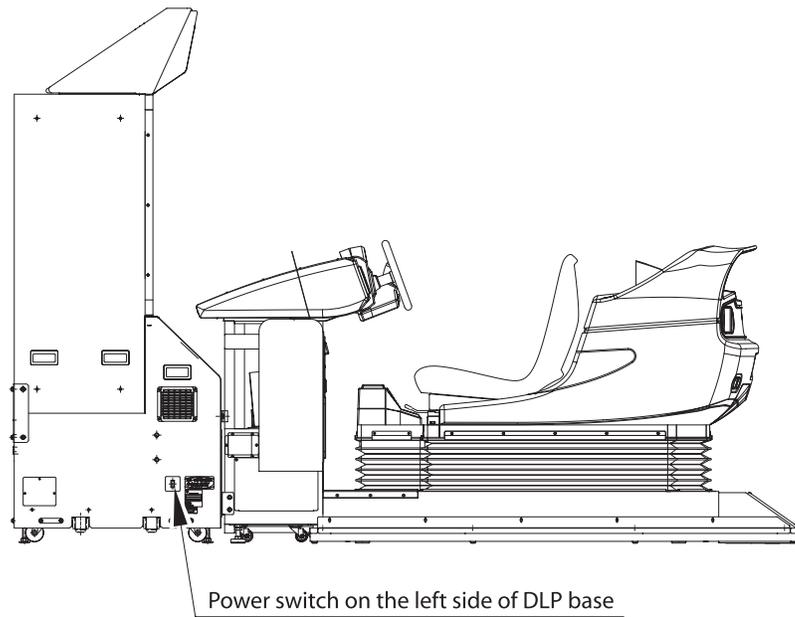


FIG. 4b

Name (quantity)	Width	×	Depth	×	Height (mm)	Mass (kg)
REAR CABINET (2)	W 1,400	×	D 1,850	×	H 1,170	363
FRONT CABINET (2)	W 1,620	×	D 880	×	H 1,250	177
DLP BASE (2)	W 1,510	×	D 850	×	H 920	152
PROJECTOR (2)	W 1,510	×	D 570	×	H 1,400	110
REAR LAMP (2)	W 1,310	×	D 360	×	H 210	23
SIDE STEP L (2)	W 332	×	D 1,990	×	H 62	18
SIDE STEP R (2)	W 332	×	D 1,990	×	H 62	18
BILLBOARD (2)	W 1,510	×	D 630	×	H 360	32

5 ACCESSORIES

Confirm that the accessories listed in the table below are present when setting up the product. Accessories marked "Spare" in the note column are consumable items but included as spares. If there are an insufficient number of game play manuals, request the point of purchase or the office indicated in this manual to supply additional manuals.

TABLE 5a

DESCRIPTION: OWNER'S MANUAL

Part No. (Qty.): 420-7004-02 (1)

Note: This manual

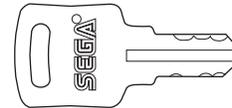
Figures:

Parts not labeled with part numbers are as yet unregistered or cannot be registered. Be sure to handle all parts with care, as some parts are not available for purchase separately.

KEY MASTER

220-5793-2-A001 (2)

For opening/closing the doors



The key master is shipped with the manual packed together with the accessories.

SERVICE MANUAL

420-7005-01 (1)

Explanation of software

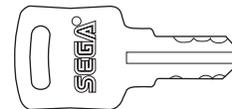
PARTS CATALOG

420-7006-02 (1)

Parts list

KEY

(2 each)



Each key is used for opening and closing the coin chute door of a seat. The key for each seat is different. The keys are placed inside the coin chute doors for shipping.

LINDBERGH SERVICE MANUAL

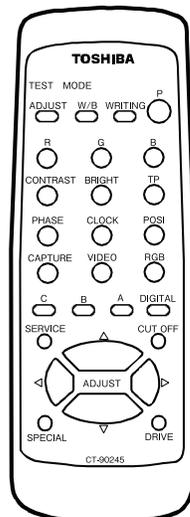
420-6921-01 (1)

Explanation of built-in game board

PROJECTOR REMOTE CONTROLLER

200-6023 (2)

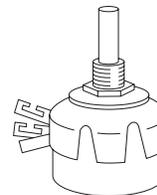
For making adjustments. (See Chapter 8.)



VOLUME

220-5753/220-5484 (2)

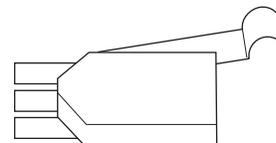
Spare. (See Chapters 9 and 11.)



MICROSWITCH

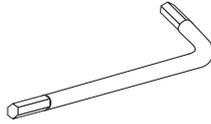
509-5704 (2)

Spare. (See Chapter 10.)



TAMPERPROOF SCREW WRENCH

540-0007-01 (1)
Tool. (See Chapter 10.)



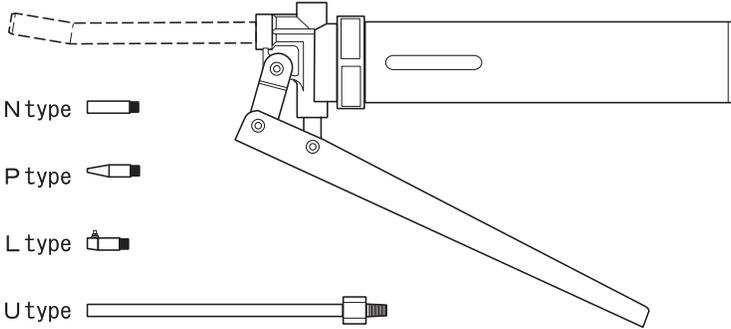
GREASE

090-0289 (1)
For greasing up. (See Chapter 13.)



GREASE GUN

090-0083 (1)
For greasing up. (See Chapter 13.)



N type

P type

L type

U type

H type

SERVICE MANUAL DVP ENG

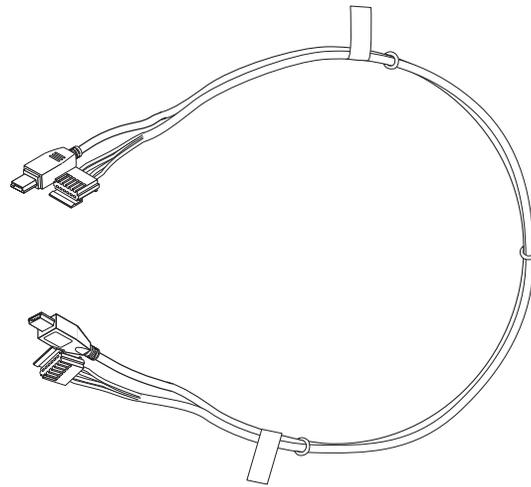
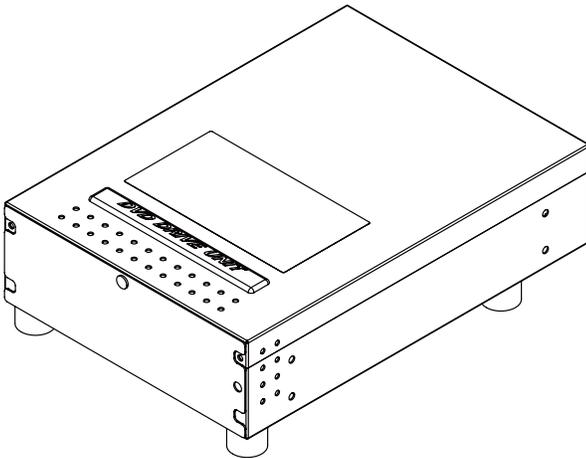
420-6923-01 (1)

ASSY WIRE DVD

605-0094 (1)
For software installation. (See Chapter 17.)

DVD DRIVE

610-0719-01-91 (1)
For software installation. (See Chapter 17.)

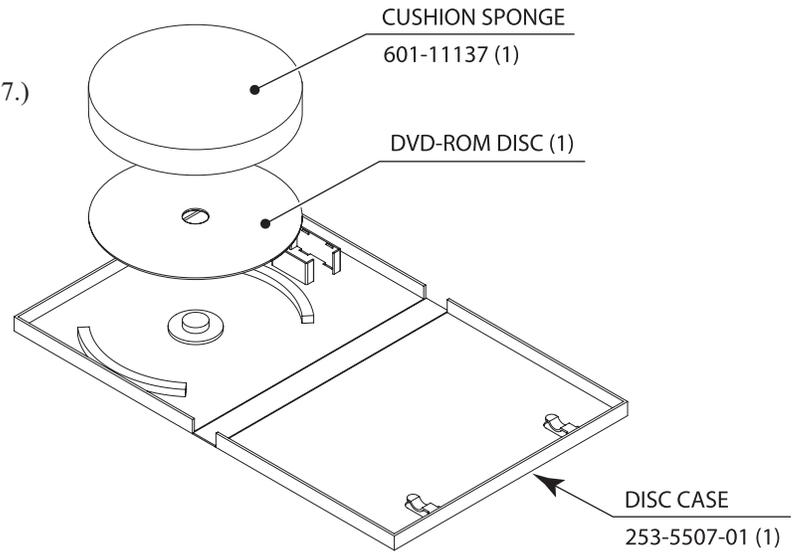


The parts shown in TABLE 5b are not used for normal maintenance. They are used to reinstall software that was inadvertently uninstalled.

TABLE 5b

DVD SOFTWARE KIT

(1)
Software media. (See Chapter 17.)



*NOTE: When you order the DVD-ROM disc only,
specify the part number 610-0726-0015 (DVD SOFT ORA).*

6 ASSEMBLY AND INSTALLATION

WARNING

- Perform assembly work by following the procedure herein stated. Failure to comply with the instructions can cause electric shock.
- Perform assembling as per this manual. Since this is a complex machine, incorrect assembling can cause an electric shock, machine damage and/or improper functioning as per specified performance.
- When assembling, be sure to use plural persons. Depending on the assembly work, there are some cases in which working by one person alone can cause personal injury or parts damage.
- Adhere strictly to all of the work procedures stipulated in this document. If two or more workers are working at the same time, exercise special caution. If sequences are carried out erroneously, accidents can result. There might also be cases in which the assembly cannot be completed.
- Pay special attention to the surroundings when a multiple number of workers are working at the same time. There is always the danger that a worker might be injured. In assembly and installation of this product, there are procedures in which a stepladder is used, procedures in which heavy objects are attached, and procedures involving connection of a rated power supply of 15 amperes. Carelessness in doing work could lead to grave injuries and even fatalities.
- Ensure that connectors are accurately connected. Incomplete connections can cause electric shock.
- This work should be carried out by the site maintenance personnel or other qualified professionals. Work performed by non-technical personnel can cause a severe accident such as electric shock. Failing to comply with this instruction can cause a severe accident such as electric shock to the player during operation. If no one with proper technological expertise is available, request service from the office indicated in this document or the point of purchase so as to ensure safety.
- Be careful not to damage the wires. Damaged wires may cause electric shock or short circuit or present a risk of fire.
- Do not leave power cable or earth lines exposed over passageways. Exposure could lead to damage, electric shock or short circuit. Wherever wiring has been laid out on a floor surface, use a wiring protection cover. (Wiring diameter: Power cable, approx. Ø18)
- Persons who connect indoor power supplies must be qualified electricians. Do not allow anyone without proper qualifications to make such connections. Otherwise there could be electric shock.

⚠ WARNING

- Provide power cables for connecting the indoor power supply to the product. Two cables are needed for the cabinets. The rating of each power cable must be at least 15 amperes. The cables must conform to this requirement and also be of sufficient length to enable the indoor power supply to be connected to the product without difficulty. Use of a cable that does not meet the requirements can result in a fire or electric shock.
- For the sake of safety and workability, use 3 core coaxial cable for the power cables.
- Provide an earth wire for connecting the indoor earth terminal to the product earth terminal. Unless grounding is secure, there could be electric shock, damage to parts, or faulty operation.
- When inserting or removing a connector, always hold it by its main part. If you hold it by anything else while doing so, the connections between wire and connector terminal fixtures could be damaged; and there could be a short circuit or fire.
- Make sure that all the adjusters are resting on the floor. The cabinet may move and cause an accident if the adjusters are not laid out properly.
- Whenever any fasteners (e.g. screws, nuts) have been lost, always use replacement fasteners with proper dimensions as specified in this document. If fasteners of any other dimensions are used, it could cause damage and/or separation of parts that result in secondary accidents.
- In order to perform the work of assembling this product reliably and safely, provide a number of stepladders. If there is only one step ladder, it will be difficult to carry out the work.
- Exercise due caution when using stepladders while working. If anyone stumbles or falls, it could cause a serious accident. In locations where the ceiling is low, a head injury could occur.
- Be careful when aligning, attaching or mounting parts so that your head, hands, fingers, etc., do not get caught in anything. If two or more workers are working at the same time, exercise special caution. Failure to be cautious could result in accidental bone fractures or amputation. Check the surroundings carefully before proceeding.
- When connecting wires inside the cabinet, there may be instances in which the indoor lighting does not reach that location. Have a flashlight or other auxiliary lighting equipment on hand. If wires are connected carelessly, there could be an accidental short circuit, fire, etc.
- After installing the step, be careful. If you trip over the step and fall over, you may seriously injure yourself.
- When tightening bolts and screws, ensure that other parts are suspended properly and bolts and screws are fastened tightly. Be sure to take accident prevention measures such as having another worker support parts. If a part drops or topples over during this work, a serious accident may result.

CAUTION

- When removing or attaching the door or parts, be careful that your hands or fingers do not get caught in anything.
- Support and hold parts in place securely and fasten them with screws and/or bolts. Use two workers, one to support the part and another to fasten it in place. If a part is not supported securely, it might fall down, resulting in an accident.
- Wear appropriate work clothing so that work can be performed safely. Use gloves and safety shoes to prevent accidents or injuries.
- When installing a wire protection cover over a floor, use a material shaped so that no one passing by will stumble over it. Using a material that could be stumbled over might lead to an accidental fall.
- Be careful in handling plastic parts. Be sure not to tighten screws or nuts too tightly. If such parts are exposed to excessive loads or impact, they might become damaged, resulting in fragments or cracks that could cause accidental injury.

IMPORTANT

- There are parts of similar shape, so carefully check the shape of each part.
- Confirm the direction of installation for a part before proceeding. Make sure you understand the part's orientation in terms of up or down, left or right, front or rear, etc.
- Be careful in handling the projector screens. They can easily be damaged, and if they are damaged, it might not be possible to service or repair them.

- 1 Removing the shipping brackets
- 2 Assembling the projector and the DLP base
- 3 Assembling the billboard
- 4 Joining the DLP projectors
- 5 Installing the DLP projector
- 6 Assembling the cockpit
- 7 Joining the cockpit and DLP projector
- 8 Installing the cockpit
- 9 Attaching the step and rear lamp
- 10 Connecting the power cable
- 11 Attaching the play instructions stickers
- 12 Turning on the power
- 13 Checking assembly

This product consists of two cabinets. The cabinet consists of a projector, DLP base, cockpit (front cabinet and rear cabinet), rear lamp and billboard assembled together.

Of the component parts of the cabinets, the projectors and billboards are common to each other. The external body cover, internal wiring, etc, are different.

The sequence in which the two cabinets are arranged is fastened. The sequence is 1P and 2P seen facing the projector screens when the cabinets are assembled. This sequence cannot be changed.

If you assemble the cabinets with the component parts set out incorrectly or with the cabinets in the wrong sequence, the machine may fail to operate normally. Before assembly, carefully verify that all parts are to be set in the right place.

The number sticker of each DLP base is on the rear of that DLP base.

The body color of each cabinet and the rear lamp nameplate are shown below.

1P: Red F50
2P: Yellow Dino246GTS

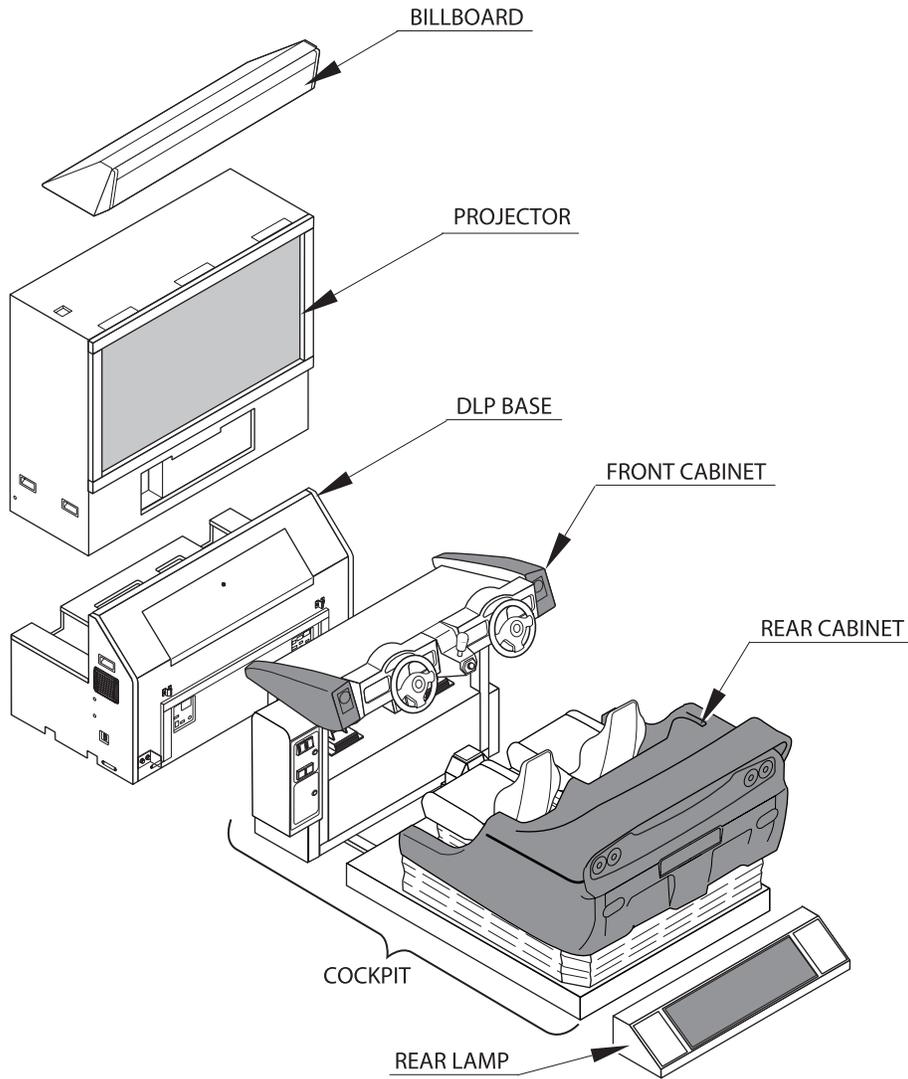


FIG. 6a Component parts of cabinet

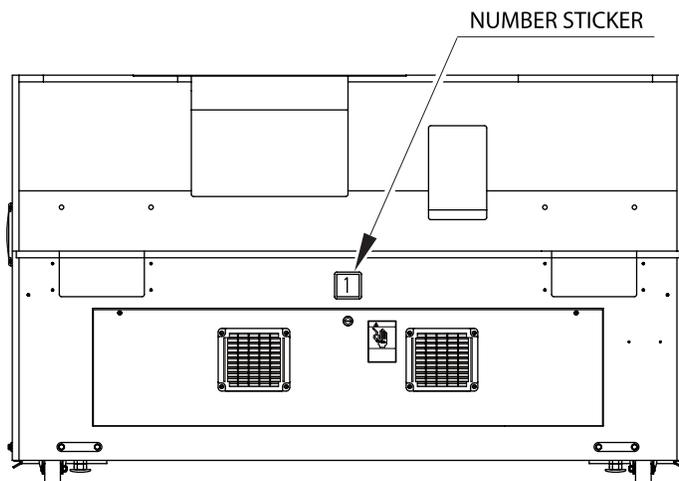
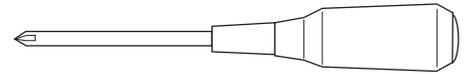


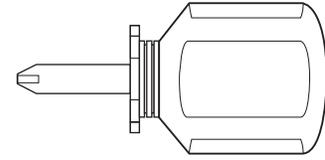
FIG. 6b No. indication on DLP base

Tools necessary for work

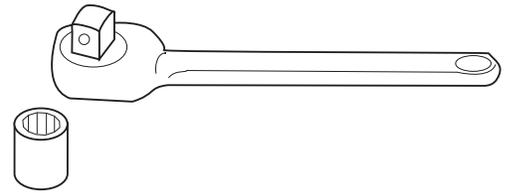
- Philips screwdrivers (for M4, M5, and M8)



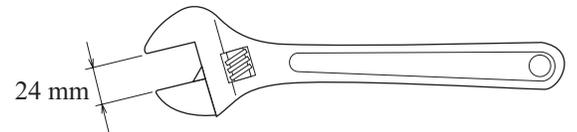
- Short Philips screwdriver or ratchet handle with Philips screwdriver tip (for M4)



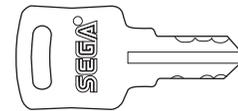
- Socket wrenches or hexagon screwdrivers measuring distances of 10 mm, 13 mm, and 17 mm to opposite side (for M6, M8, and M10 hexagon bolts and nuts)



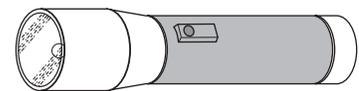
- Spanner with measuring distance of 24mm to opposite side



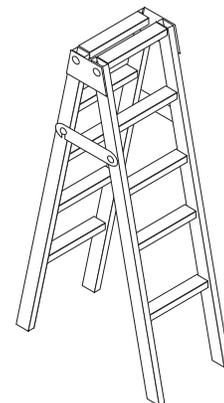
- Master key (accessory)



- Flashlight or other supplementary lighting



- Stepladder (height must be 1.5 meters min.)



- Scissors



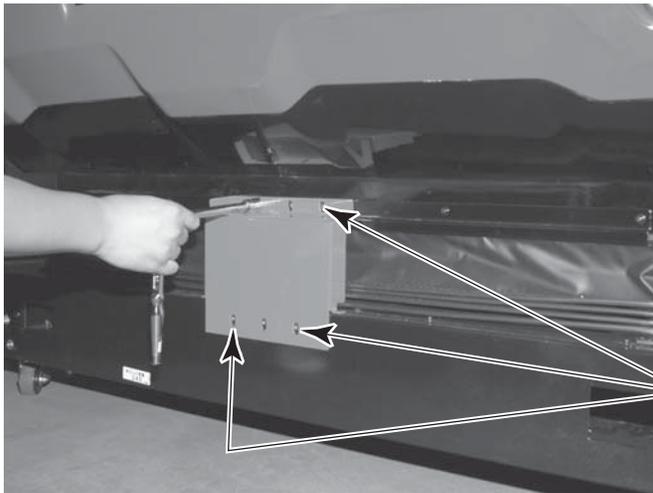
1 REMOVING THE SHIPPING BRACKETS

STOP IMPORTANT

Store the shipping brackets and fastening bolts carefully, because they are used to prevent the product from becoming damaged while moving the product.

There are red-painted shipping brackets at the bellows at the rear part of the rear cabinets.

Remove the four hexagon bolts from each shipping bracket, and remove the shipping bracket. The bracket uses flat washers with bolts that have spring washers attached.



HEXAGON BOLT (4 ea.)
M6x16, w/spring washer,
flat washer used

FIG. 6-1a

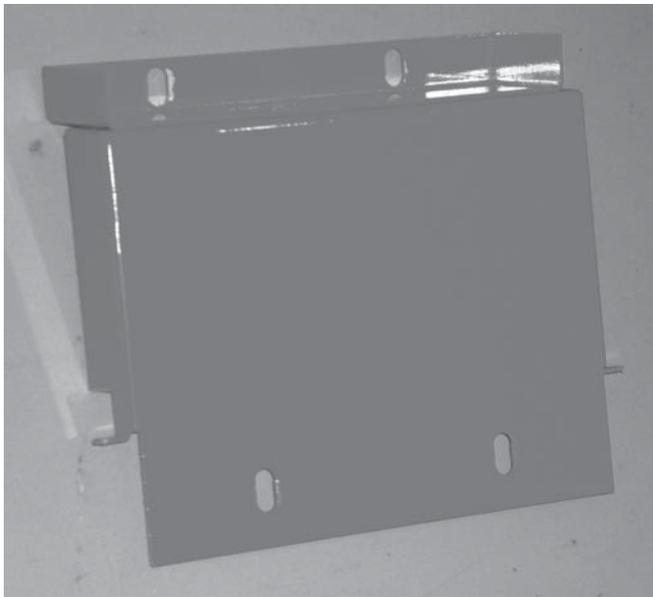


FIG. 6-1b SHIPPING BRACKET

WARNING

- Be sure to have at least four persons lift the projector. Do not perform this work using three or fewer persons. Failure to heed this warning may result in an accident or injury to a worker.
- Be careful not to get your hands or fingers caught. Hold the projector by the handles on the side, and also at the bottom part at the rear face. Failure to follow this precaution may result in broken bones or amputation.
- In addition to the workers who carry the projector, have another worker support the DLP base. This will prevent the base from moving and causing an accident.
- Once the projector has been mounted on the DLP base, promptly fasten it in place. If it is left in an unfastened condition, an unforeseen accident may occur.

STOP IMPORTANT

The screen of the projector is easily damaged, so try not to touch it during the above work.

Mount the projector on the DLP base. Employ a total of at least five workers, four for carrying the projector, and one for supporting the DLP base.

The DLP base has notches to enable the casters on the projector to pass into the DLP base. Mount the projector from the side of the DLP base that has the notches.

- 1 Have at least four persons lift the projector, and place it on the DLP base.

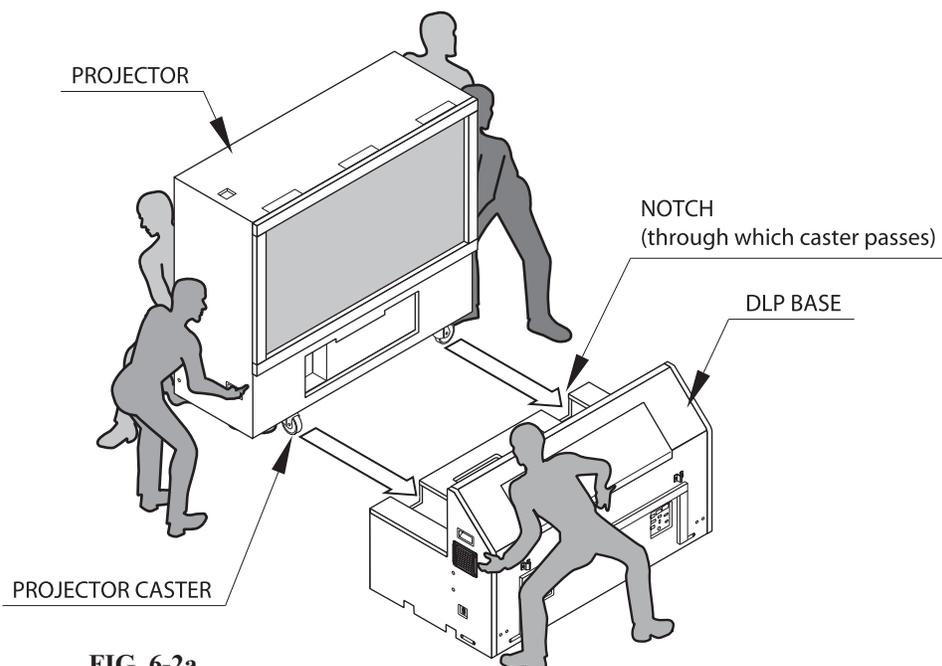


FIG. 6-2a

-
- 2** Align the projector and the DLP base so that their sides are in the same plane, and then push them together so that there is no opening between them.
Be careful not to get your hands or fingers caught.
-

- 3** Remove the two fastening screws from the DLP front door.

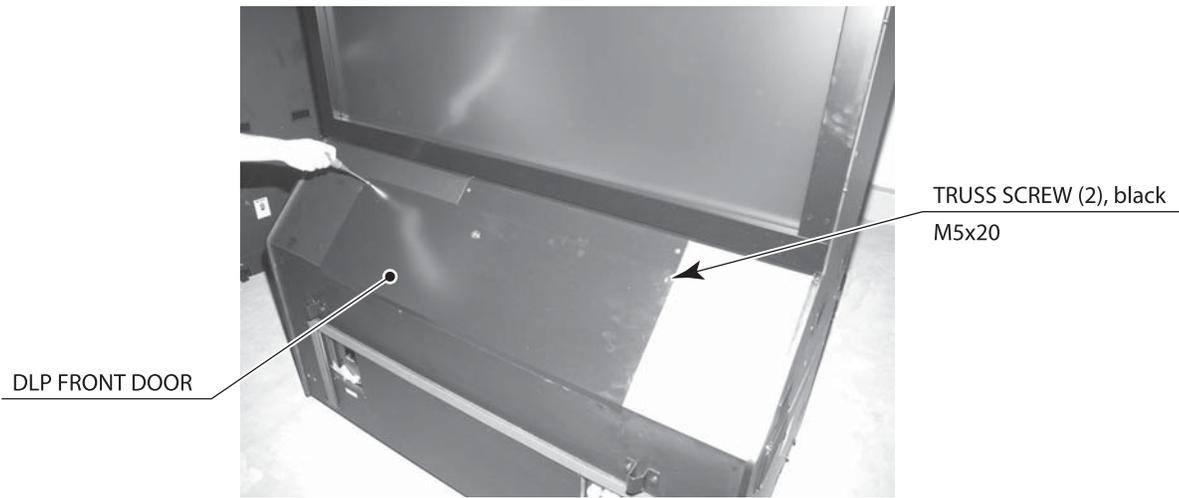


FIG. 6-2b

-
- 4** Unlock the DLP front door using the master key, and then remove the door.

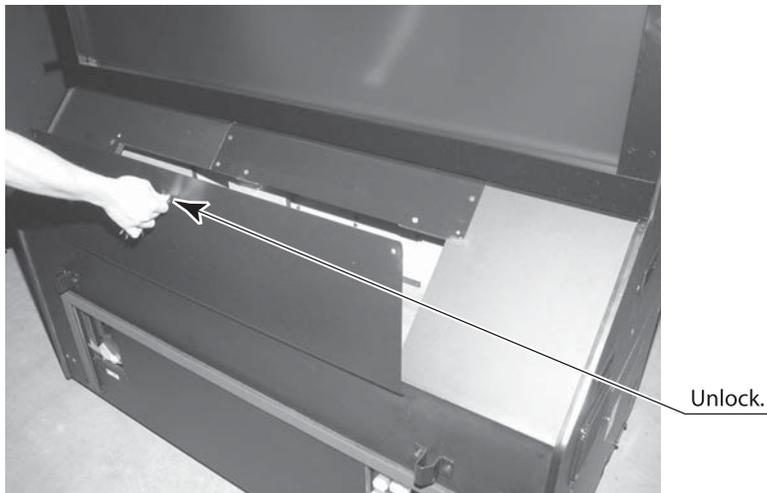


FIG. 6-2c

- 5** Attach each of the two front holders (U-shaped rectangular sheet metal parts) with two hexagon bolts to the inside of the DLP front door. The holders use flat washers with bolts that have spring washers attached. When attaching the front holder, join the projector to the DLP base.

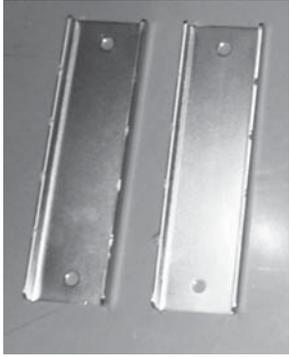


FIG. 6-2d FRONT HOLDER

HEXAGON BOLT (2 ea.)

M8x45, w/spring washer, flat washer (black) used



FIG. 6-2e

- 6** Attach joint A (L-shaped sheet metal part) to the rear corner of the projector. Fasten each joint A with four hexagon bolts. Joint A use flat washers with bolts that have spring washers attached.

HEXAGON BOLT (4 ea.), black

M8x20, w/spring washer, flat washer used



FIG. 6-2f JOINT A

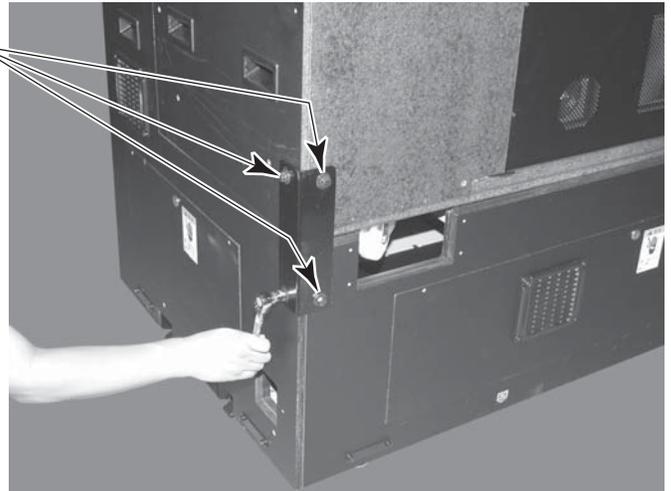


FIG. 6-2g

- 7** Attach two caster lids on the back of the DLP base, and fasten each of them with four screws. The screws have flat washers and spring washers attached.

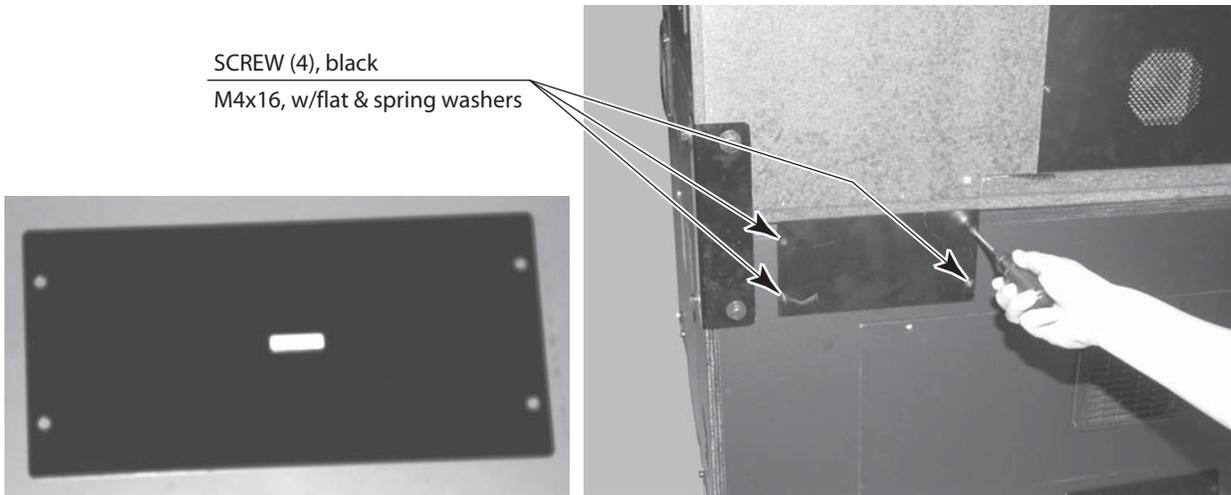


FIG. 6-2h CASTER LID

FIG. 6-2i

- 8** Using a screw, fasten the round terminal at the tip of the earth wire already connected inside the DLP base. Be sure to use a flat washer and spring washer with the screw.

- 9** Connect the three wiring connectors inside the DLP base to the projector connectors. There are fastening screws on both sides of the metal D-SUB connector. Secure the connectors with the screws after they are connected.

- 10** Fasten the wiring of the connected connector using the cord clamp inside the DLP base.

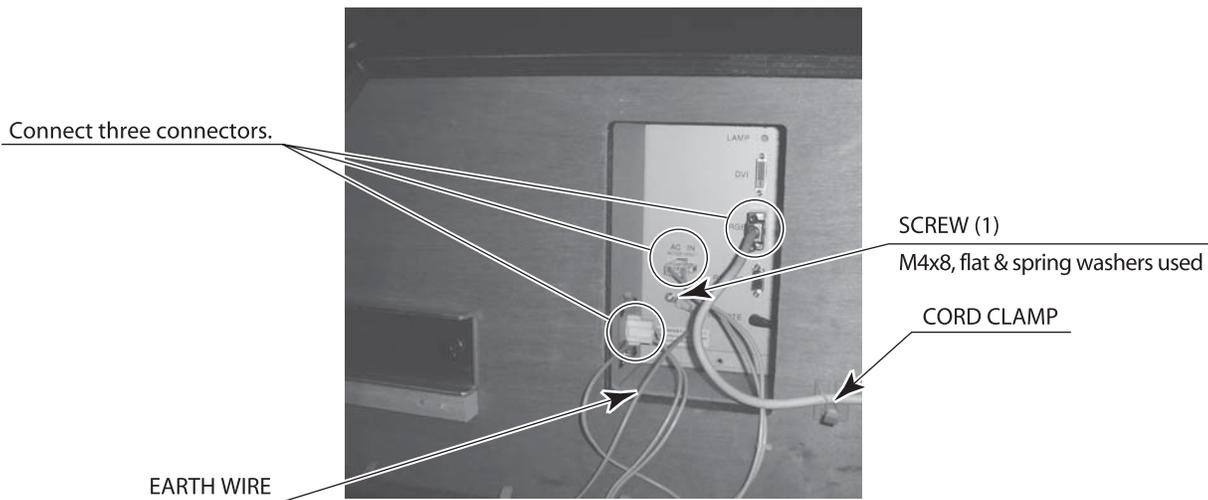


FIG. 6-2j

- 11** Attach the DLP front door, lock it and fasten it with the two truss screws.

!WARNING

Perform this work with the tools and number of workers specified in this manual. Proceeding without the necessary tools or number of workers could cause an accident. Two or more workers should lift up the billboard, in cooperation with one other worker who assists while standing on a stepladder.

- 1 Remove the three screws then remove the service door.

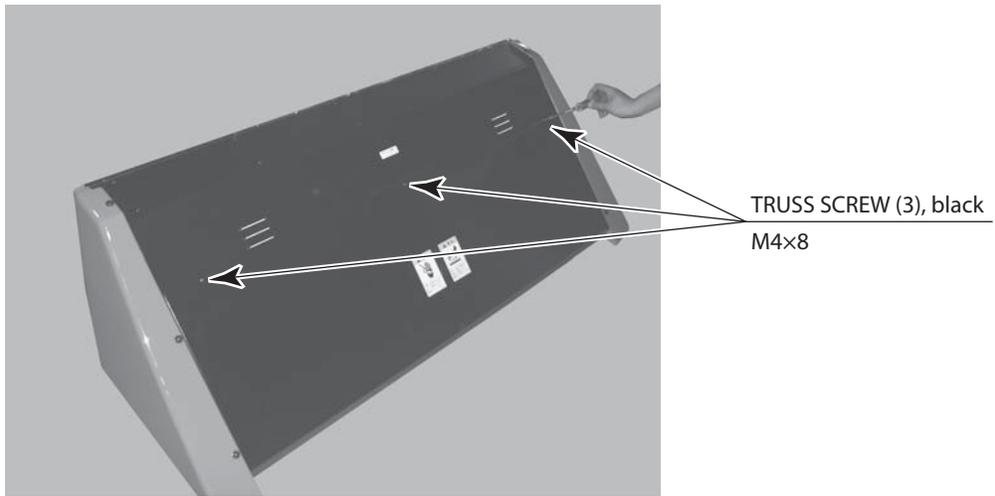


FIG. 6-3a

- 2 Lift up the billboard with two or more workers. From the rear of the DLP, place the billboard down on the hook on the upper part of the DLP.

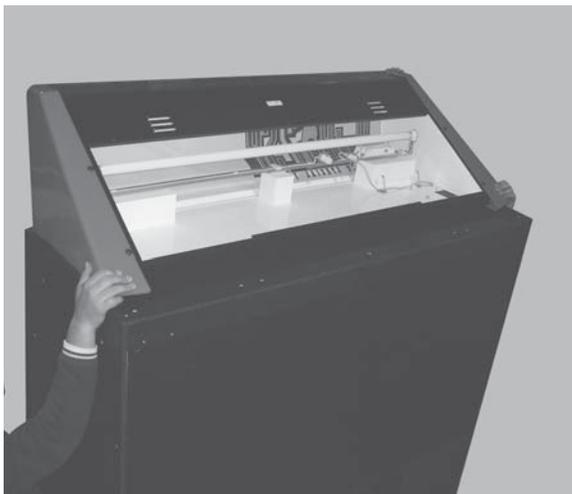


FIG. 6-3b



FIG. 6-3c

- 3** Slide the billboard forward. Hitch the billboard onto the bracket of the DLP.

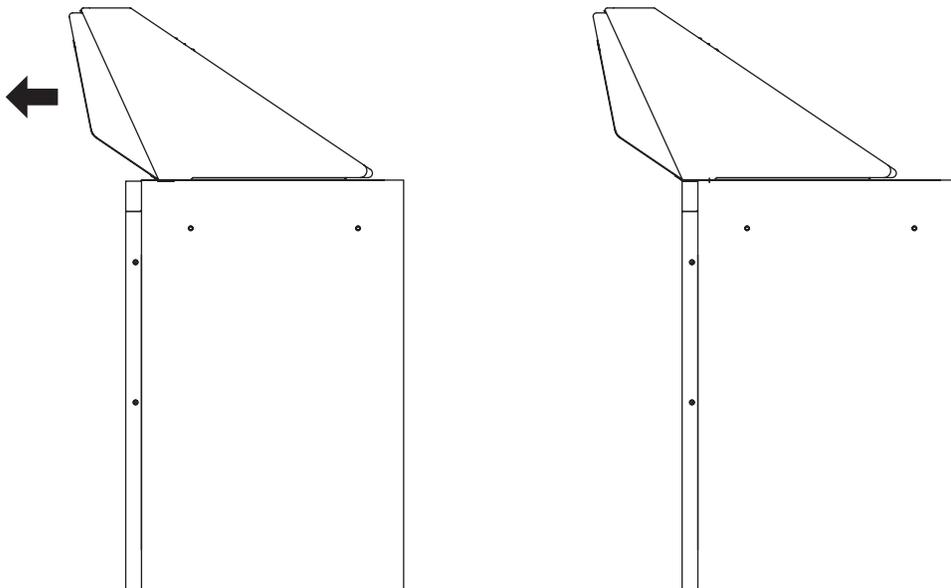


FIG. 6-3d

- 4** Fasten the billboard with two hexagon bolts.

HEXAGON BOLT (2)

M6x20, w/spring washer and flat washer used

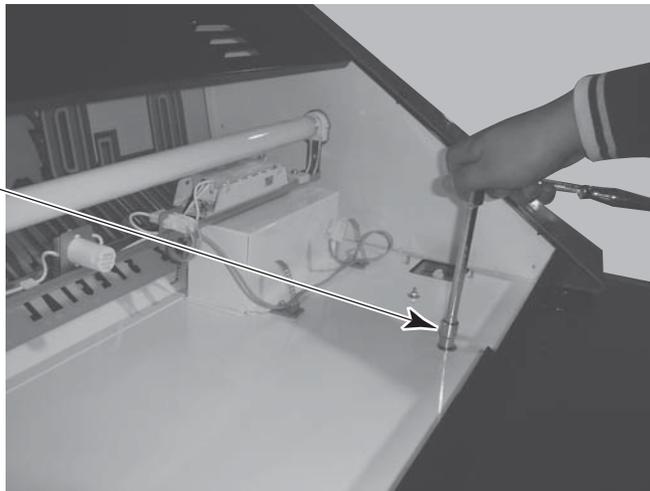


FIG. 6-3e

- 5** Undo the cord clamp to access the connector.

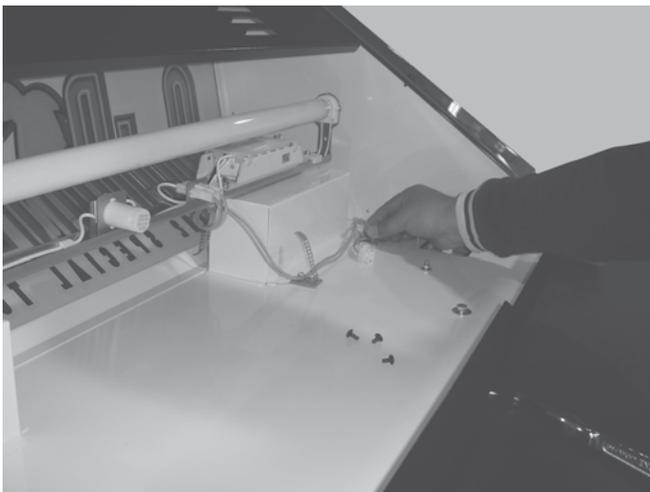


FIG. 6-3f

- 6** Connect this connector to the connector on the panel on the upper part of the DLP.

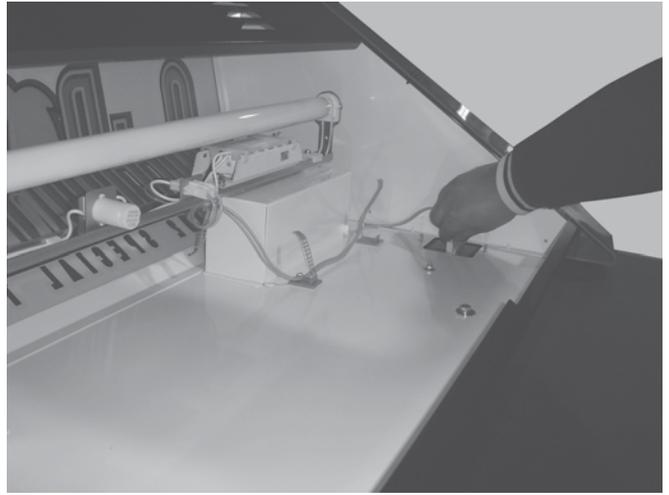


FIG. 6-3g

- 7** Fasten the wire with the cord clamp.

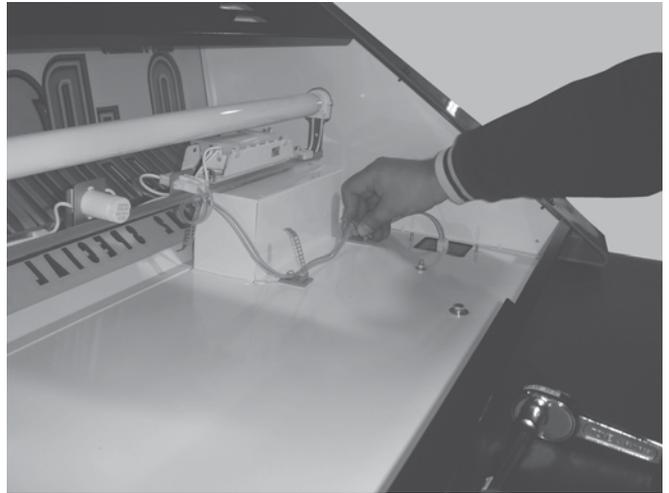


FIG. 6-3h

- 8** Reattach the service door with three screws.

TRUSS SCREW (3), black
M4x8

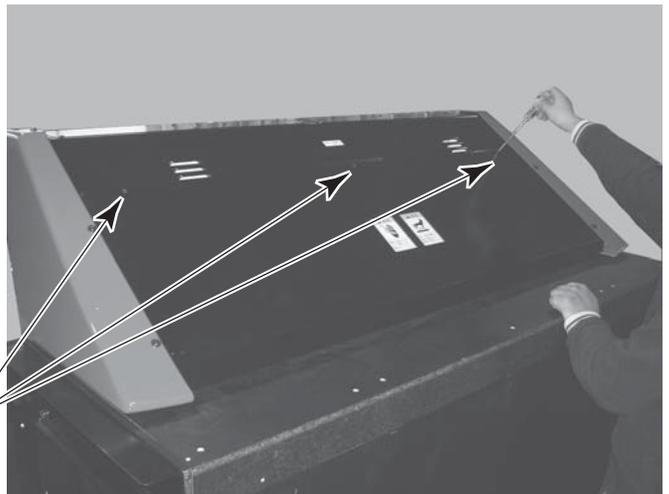
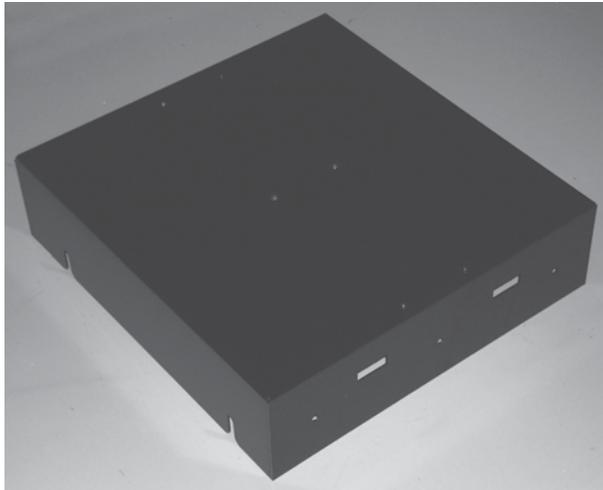


FIG. 6-3i

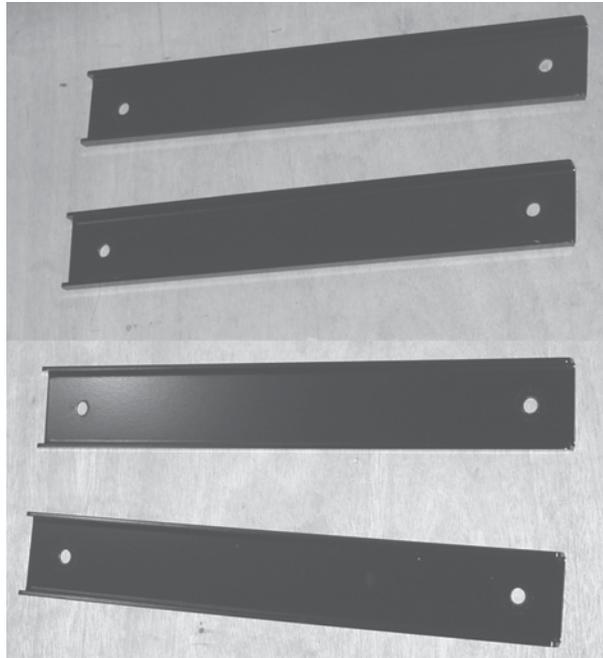
4 JOINING THE DLP PROJECTORS

Arrange the two DLP projectors consisting of the projectors mounted on their DLP bases alongside each other, and join them together. Attach the following parts between the two projectors.

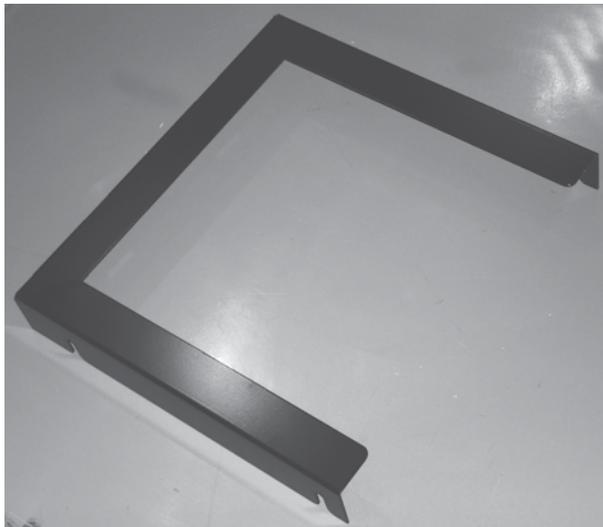
The parts to be attached between the two projectors are uniform. Note, however, that the wiring connections differ according to the particular projectors.



JOINT UPPER (Total 1)



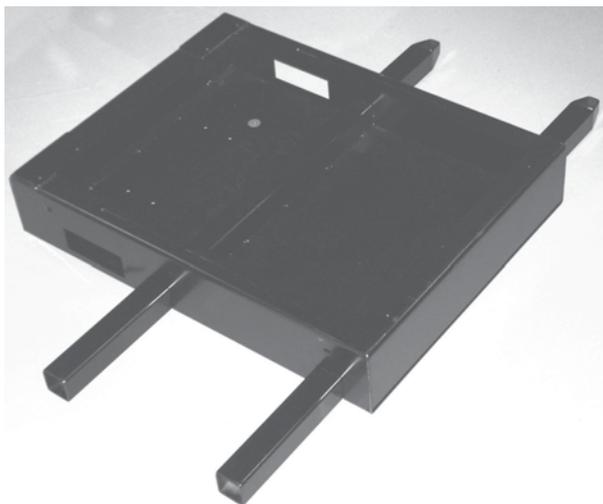
JOINT HOLDER (Total 4)



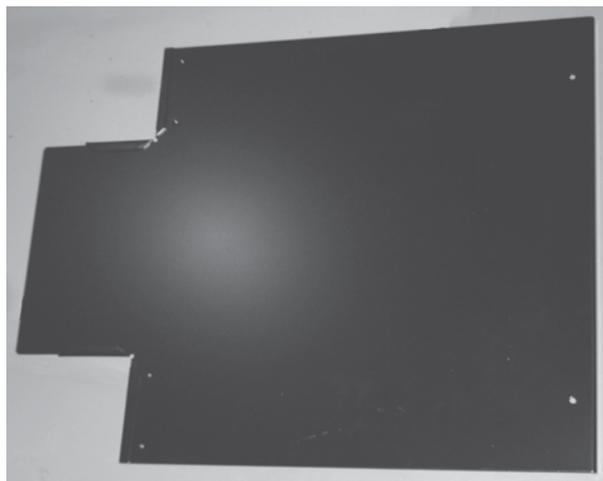
JOINT MIDDLE (Total 1)



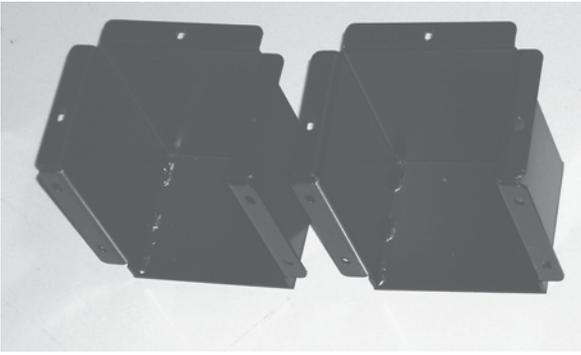
LAN JOINT (Total 1)



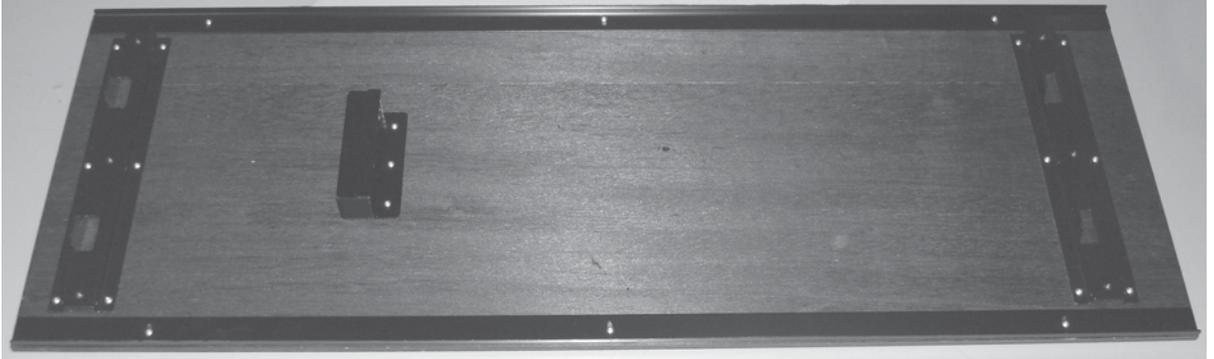
JOINT LOWER (Total 1)



JOINT LOWER COVER (Total 1)



JOINT WIRE COVER (Total 2)



DLP SIDE PLATE (Total 1)

- 1 Place the two DLP projectors alongside each other. The sequence is 1P and 2P going from the left seen facing the projector screens. Check the sequence by observing the number stickers at the back of the DLP bases. (See FIG. 6b.)

Remove the DLP projector lids on the sides where the 1P and 2P projectors will be joined together.

SCREW (3 ea.), black
M4 x 16, w/flat & spring washers

LID

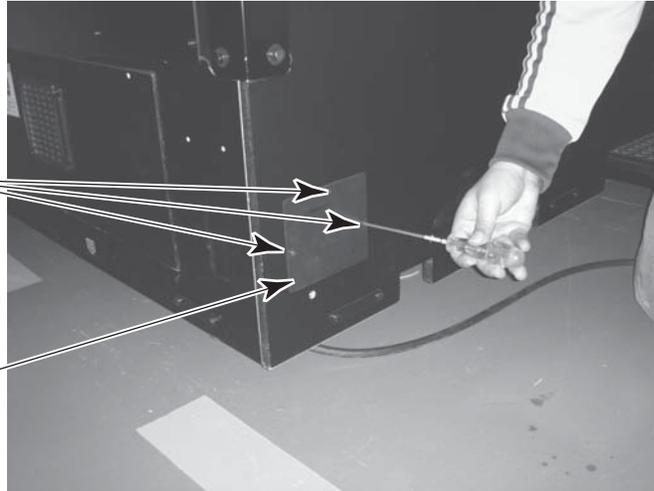


FIG. 6-4a

- 2 Insert the rectangular pipe of the joint lower into the rectangular holes at the bottom of the side of the DLP base. The side rectangular holes for the joint lower are towards the back of the DLP base (rear of screen). Assemble the joint lower so that the rectangular holes in the DLP base still have remaining space (in the shape of a rectangular hole) above the joint lower.

Attach a lid over the rectangular holes in the right side of the 2P DLP base.

RECTANGULAR HOLE IN SIDE OF DLP BASE

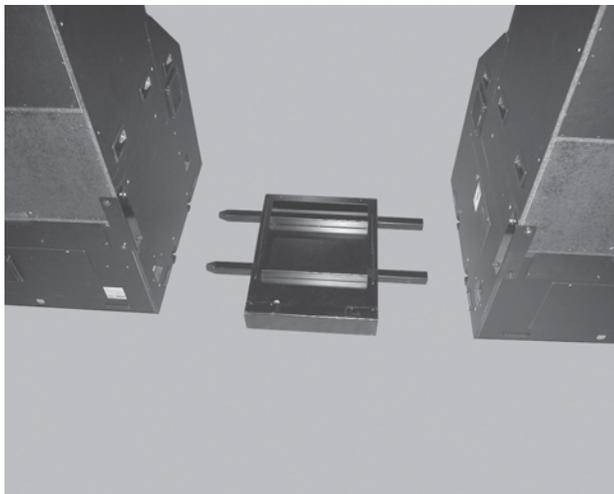


FIG. 6-4b

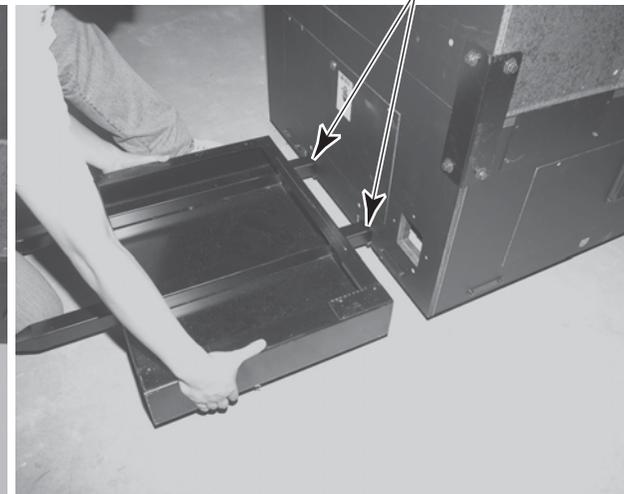


FIG. 6-4c

- 3 Move the DLP projector so that the side of the DLP base and the side of the joint lower are firmly connected.

Take care not to catch your hands or fingers.

Do not fasten the joint lower with the bolts at this stage. If you insert the bolts of the joint lower before attaching the other parts, it will be difficult to then attach the other parts.

- 4** Temporarily fasten the two joint holders to the side of the projector using two hexagon bolts for each. The joint holders use flat washers with bolts that have spring washers attached. The mounting face is the side that faces the adjacent DLP projector. Do not attach joint holders on the left side of 1P or the right side of 2P.

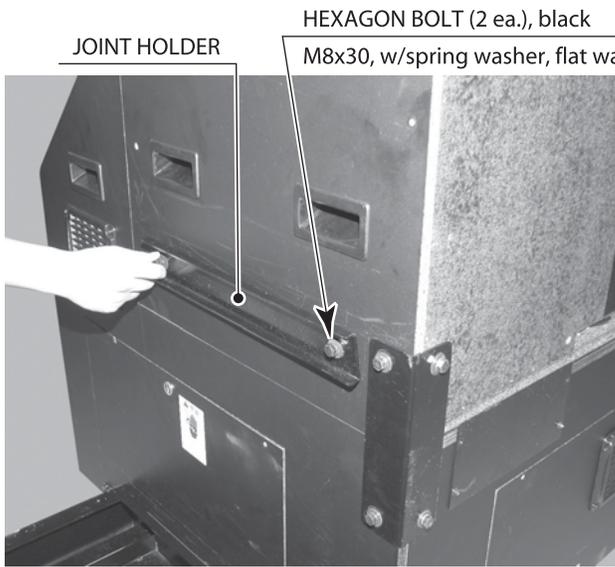


FIG. 6-4d

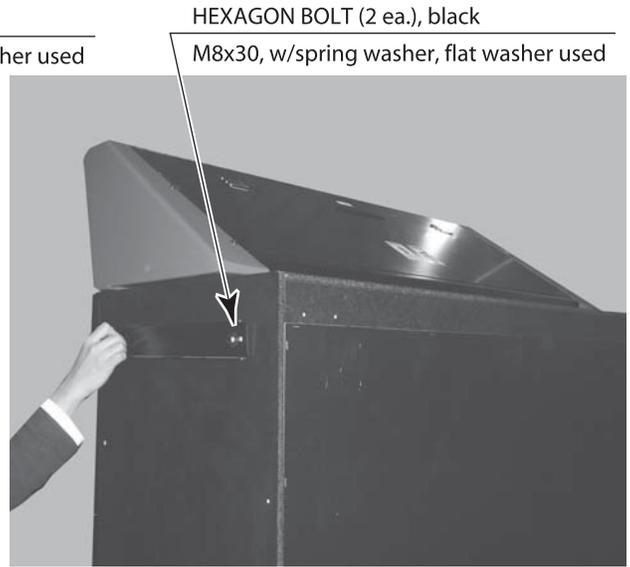


FIG. 6-4e

Insert the joint part into the opening between the joint holder and the projector side. Fasten a hexagon bolt loosely so the opening is kept intact.

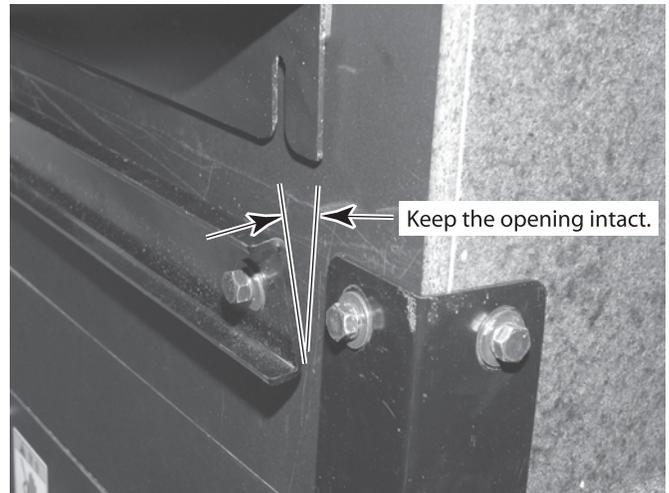


FIG. 6-4f

- 5** Attach the joint upper in such a way that the sheet metal on the side of the joint upper is inserted into the opening of the upper joint holder. The face that has a notch for passing the temporarily fastened bolts of the joint holder is the side of the joint upper. Also, the face with the rectangular holes is the screen side. Do not tighten the temporarily fastened bolts at this stage.

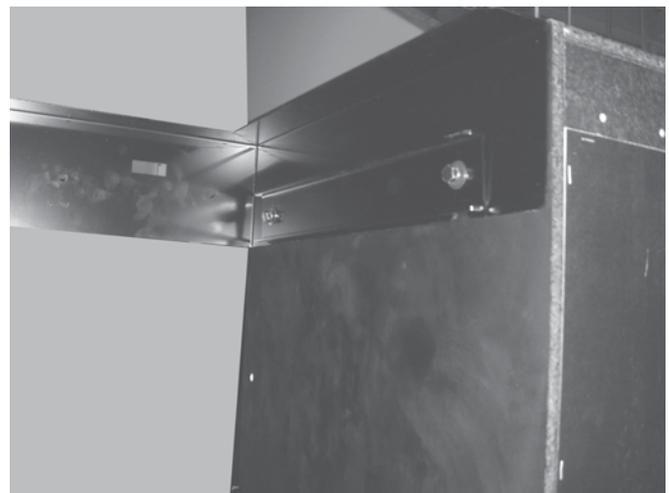


FIG. 6-4g

- 6** Attach the joint middle in such a way that the sheet metal on the side of the joint middle is inserted into the opening of the lower joint holder. The face that has a notch for passing the temporarily fastened bolts of the joint holder is the side of the joint middle. Also, the face with the rectangular holes is the screen side. Do not tighten the temporarily fastened bolts at this stage.

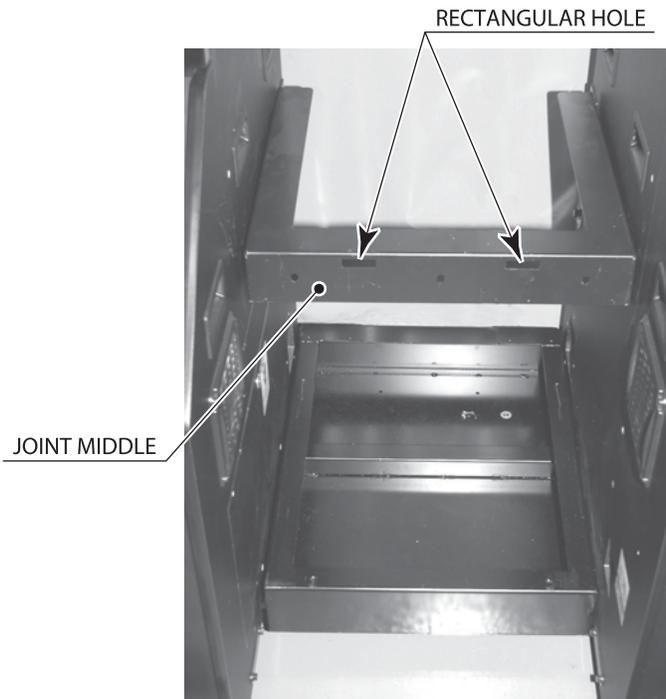


FIG. 6-4h

- 7** Fasten the joint lower to the DLP base. Tighten three hexagon bolts on one side of each side. The joint lower uses flat washers with bolts that have spring washers attached.

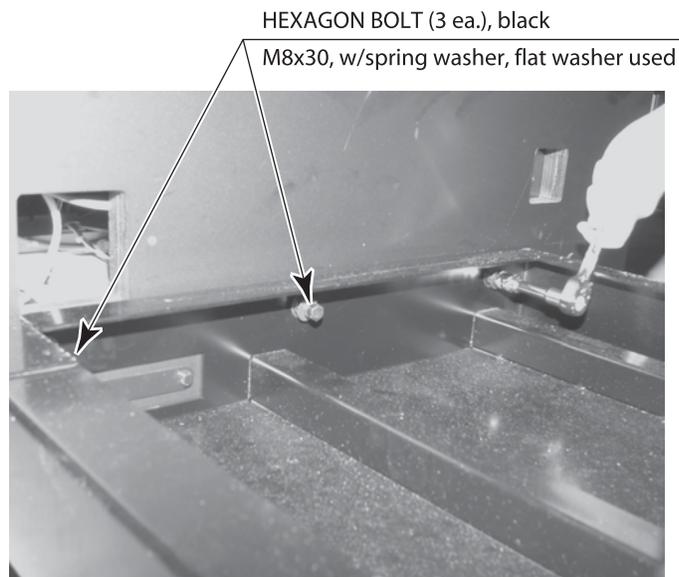


FIG. 6-4i

8 Tighten all of the temporarily fastened bolts of the joint holder.



FIG. 6-4j



FIG. 6-4k

9 Attach the DLP side plate (wooden board). Attach the upper and lower sheet metal parts so that they are suspended from the rectangular holes in the joint upper and joint middle. Hoist the central sheet metal part and attach it.



FIG. 6-4l



FIG. 6-4m

10 Fasten the DLP side plate using six hexagon bolts. Use three bolts each for the joint upper and middle, respectively. The joint upper and middle use flat washers with bolts that have spring washers attached.

HEXAGON BOLT (3 ea.), black
M6x16, w/spring washer, flat washer (black) used



FIG. 6-4n

11 Remove the 2 screws fastening the DLP back door at the back of the DLP base. The screws have spring washers and flat washers attached.

SCREW (2), black
M4x30, w/flat & spring washers

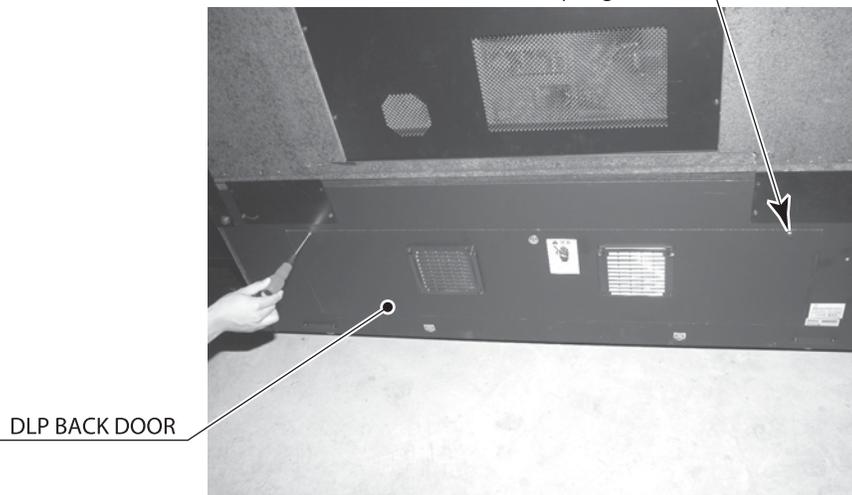


FIG. 6-4o

12 Unlock the DLP back door with the master key, and remove the door. Remove the doors of all two DLP bases.

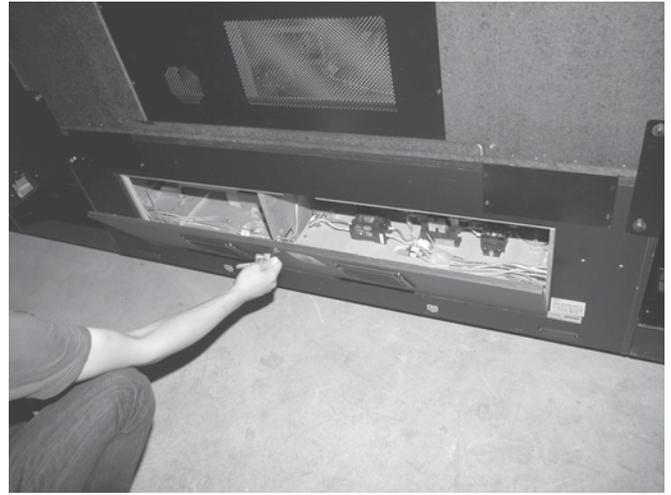


FIG. 6-4p

13 Connect the LAN cables between the DLP bases. Draw out the LAN cables from the rectangular holes at the sides of the 1P and 2P. Connect their connectors inside the joint lower. Also, at this time, draw out the earth wire from the 2P together with the LAN cable.

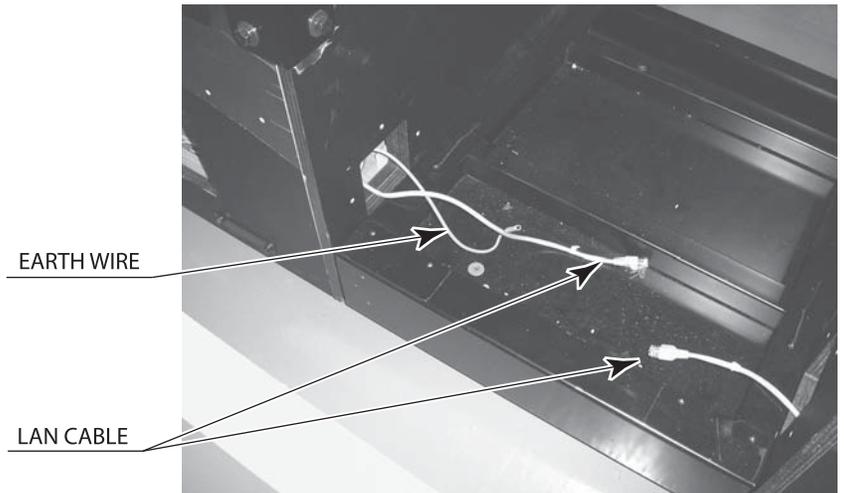


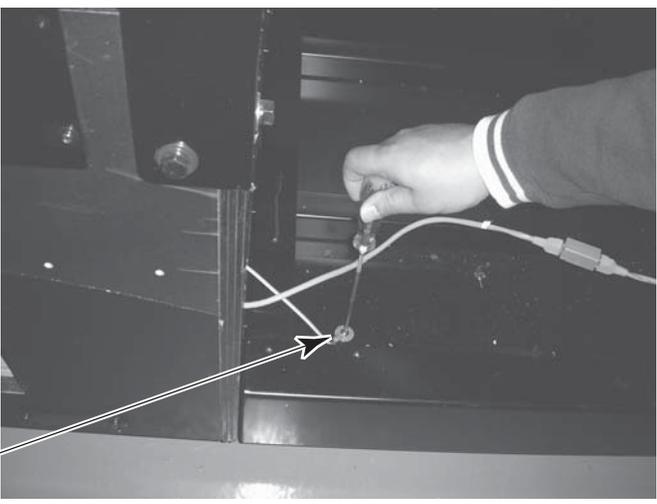
FIG. 6-4q

Also, use LAN joints to connect the LAN cables.



FIG. 6-4r

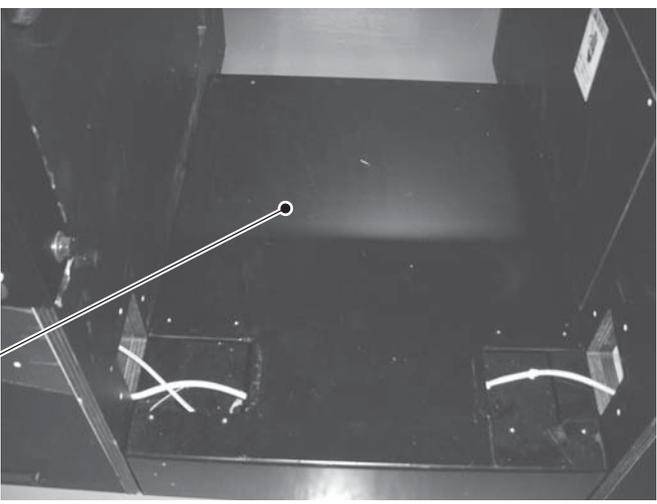
14 At the bottom of the joint lower in the area that is left unpainted, there is a provisionally fastened screw for securing the earth wire. Temporarily remove the earth wire fastening screw, and then use it to secure the round terminal that fastens the earth wire. Be sure to use a spring washer and a flat washer with the screw.



SCREW (1)
M4x8, flat & spring washer used

FIG. 6-4s

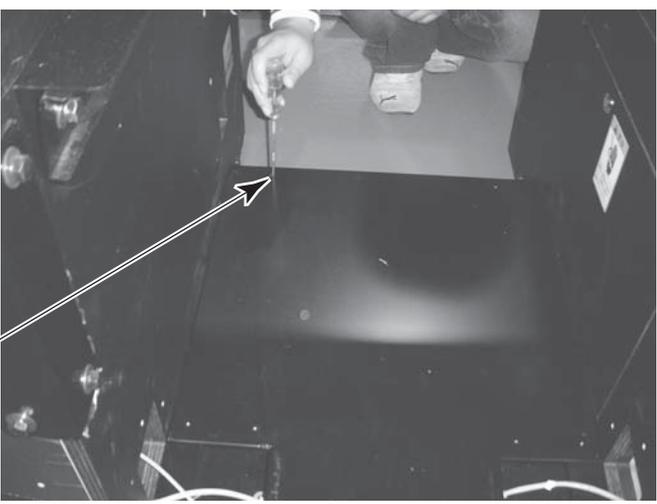
15 Attach the joint lower cover on the joint lower. Take care not to damage the wiring.



JOINT LOWER COVER

FIG. 6-4t

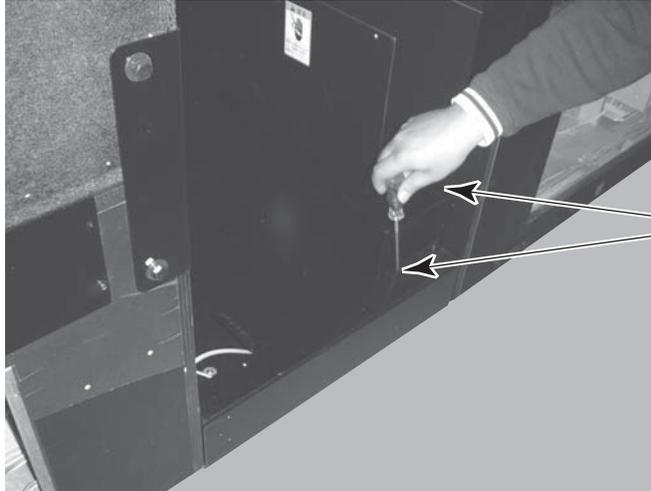
16 Fasten the joint lower cover using two screws. Each screw has a flat washer and spring washer attached.



SCREW (2), black
M4x8, w/flat & spring washers

FIG. 6-4u

17 Attach the joint wire cover by the left and right rectangular holes of the joint lower cover, and fasten each with seven screws. The screws have a flat washer and spring washer attached. Be careful not to damage the wiring.



SCREW (7 ea.), black
M4x16, w/flat & spring washers

FIG. 6-4v

18 Provisionally tighten the center plate on both sides with two screws.

PAN HEAD SCREW (2), black
M5x20

CENTER PLATE

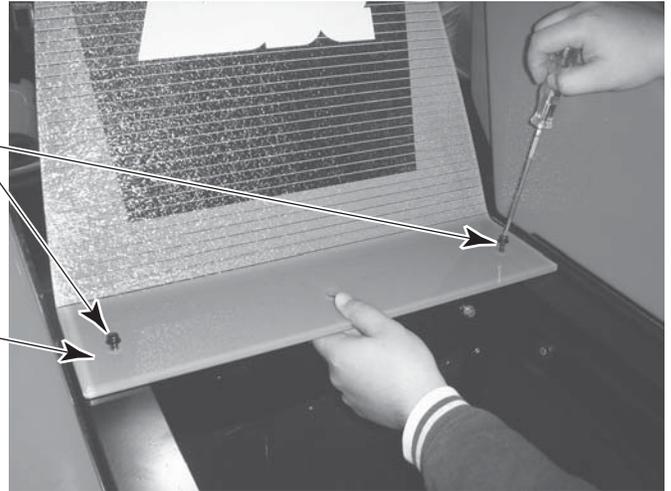


FIG. 6-4w

19 Pass the keyhole slots of the bracket plate holder through the provisionally fastened screws. Push forward until the center hole becomes visible.

BRACKET PLATE HOLDER



FIG. 6-4x

20 Tighten the screw for the center hole.

PAN HEAD SCREW (1), black
M5×20

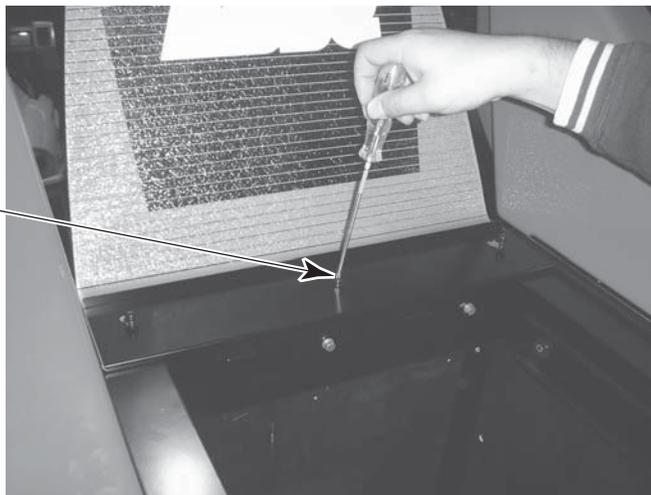


FIG. 6-4y

21 Tighten the remaining screws on the both sides of the bracket plate holder.

PAN HEAD SCREW (2), black
M5×20

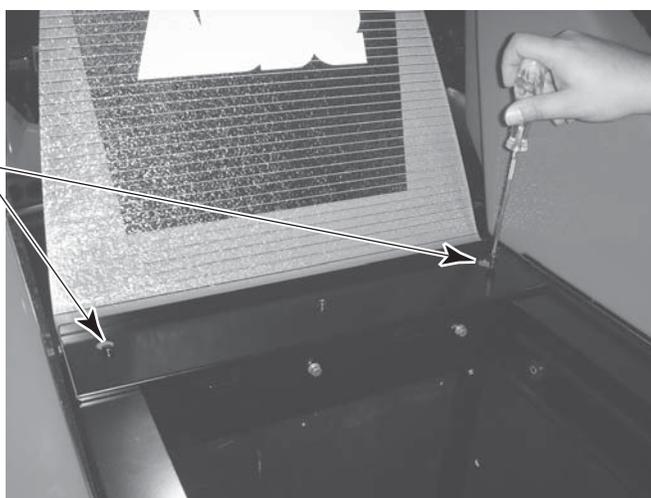


FIG. 6-4z

⚠ WARNING

- Carefully check the surrounding area while moving the projector. If you get caught between the product and the wall, a serious accident may occur.
- Be sure to ground the adjusters, and secure the product firmly to the installation location. If the projector moves either during assembly work or during operation after the completion of assembly, a serious accident may occur.
- Secure adequate space at the back of the product to enable workers to pass by the product without problem. A confined space may result in an accident during work. It will also prevent work from being carried out accurately and reliably.

⚠ CAUTION

Grasp the handles at the side of the projector or the side of the DLP base, or hold at the bottom, and then either push or pull to move and change direction. Do not push or hold the sheet metal part because this may result in injury.

STOP**IMPORTANT**

- When the adjusters are grounded and secured to the installation location, the projector cannot be moved easily. Carefully check the distance between nearby walls and other installed items when grounding the adjusters.
- If the floor where the projector is to be moved is made of carpet or decorative sheeting, there is a risk of wear or staining.

Each DLP base has four casters and four adjusters. (See FIG. 6-5d.) Move to the installation position, directly ground the adjusters, provide an opening of about 5 mm between the floor surface and the casters, and perform adjustments so the machine is level to the ground.

The subsequent assembly work includes placing a ladder at the back of the product and the connecting of power cables.

Be sure to secure enough space at the back of the product to enable workers to pass by the product easily.

- 1 Move the two joined DLP projectors to the installation position. Grasp the handles at the side of the projector or the side of the DLP base, or hold at the bottom, and then either push or pull to move and change direction.

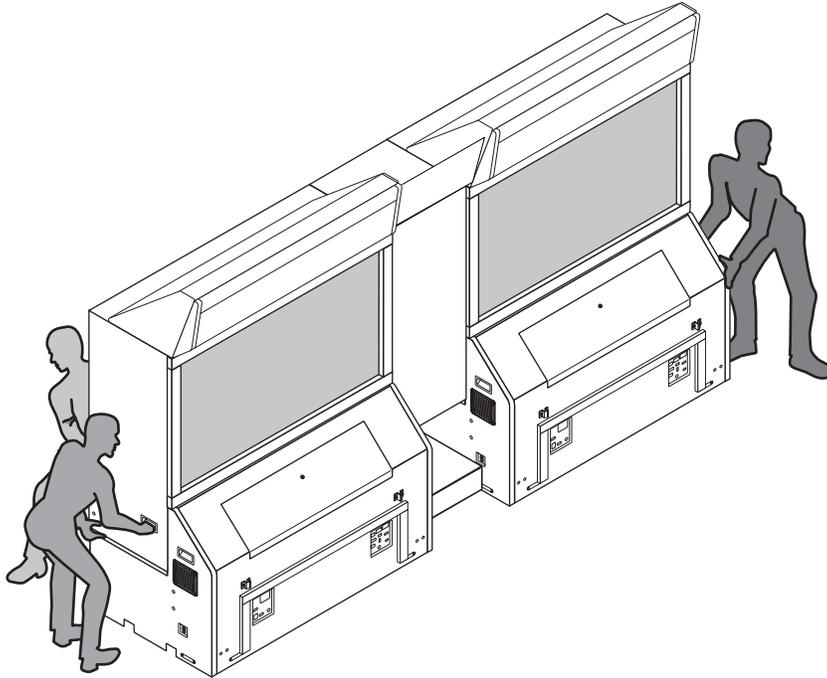


FIG. 6-5a

- 2 After moving the DLP projectors to the installation position, check the passageway for customers to ensure that it has a width of at least 1.2 m, and that there is a clearance of at least 1 m behind the product.

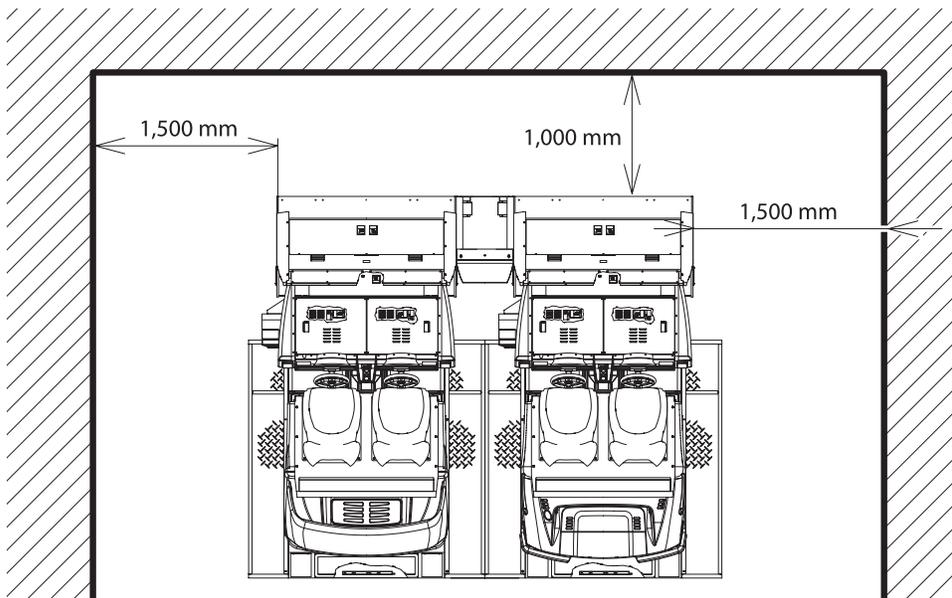


FIG. 6-5b

- 3** Ground all of the adjusters at the bottom of the DLP base.

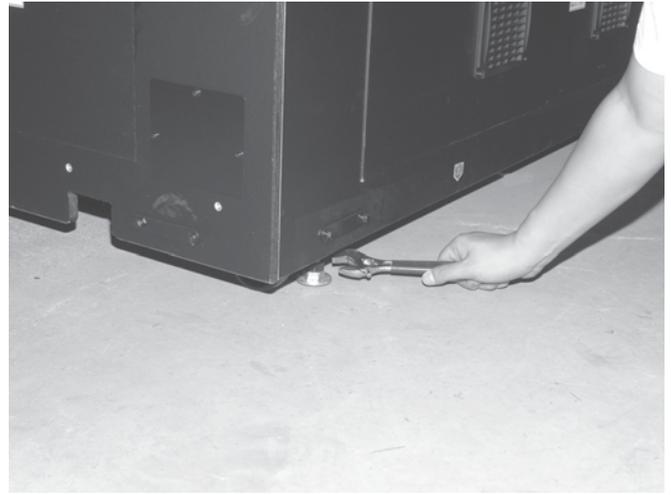


FIG. 6-5c Ground adjusters

- 4** Adjust the height of the adjusters. Provide a clearance of about 5 mm between the casters and the floor surface. After adjustment, tighten the nuts of the adjusters in the upward direction so as to secure the height.

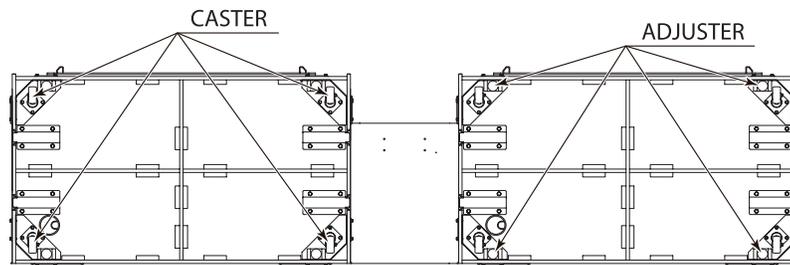


FIG. 6-54d Bottom view of two DLP bases joined together

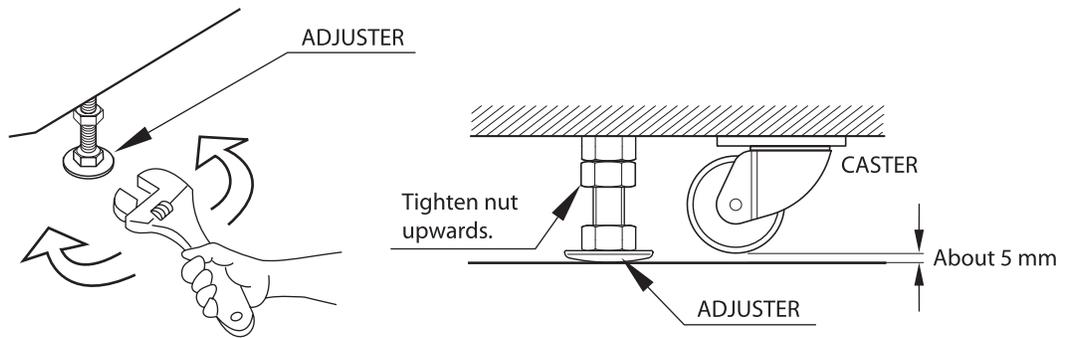


FIG. 6-5e Adjustment of adjusters

6 ASSEMBLING THE COCKPIT

Assemble the two cabinets' cockpits. Join the front cabinets and rear cabinets together, and connect the wiring. Be sure that the color of the front cabinet parts matches the body color of the rear cabinet.

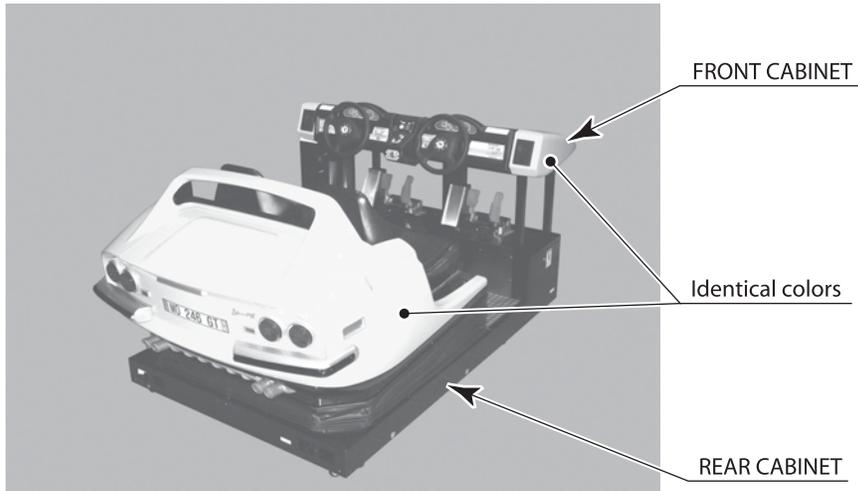


FIG. 6-6a Match the color of the front cabinet and rear cabinet

- 1 Remove the left and right floor sections of the rear cabinet. Remove three truss screws for each. The left and right floors are identical.

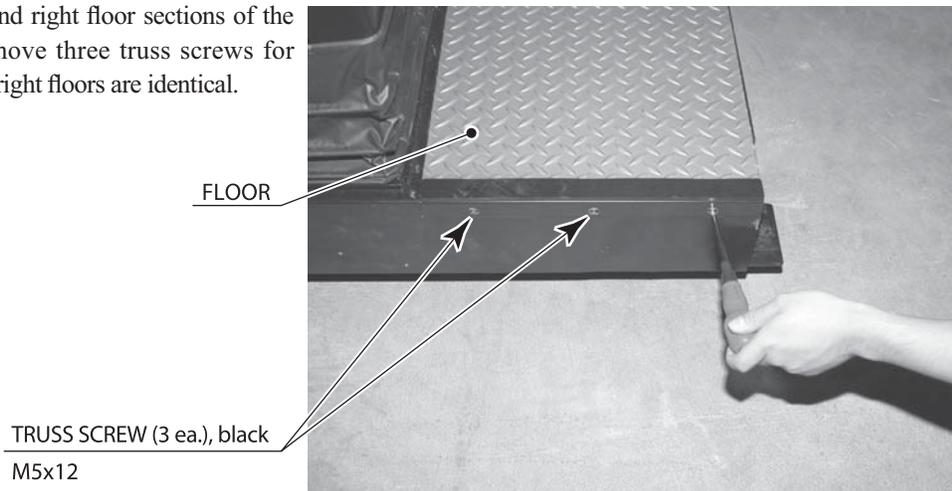


FIG. 6-6b

- 2 Join the front cabinet and rear cabinet together by inserting the two rectangular pipes of the front cabinet into the U-shaped rectangular hole on the underside of the rear cabinet. Be careful not to get your hands or fingers caught.

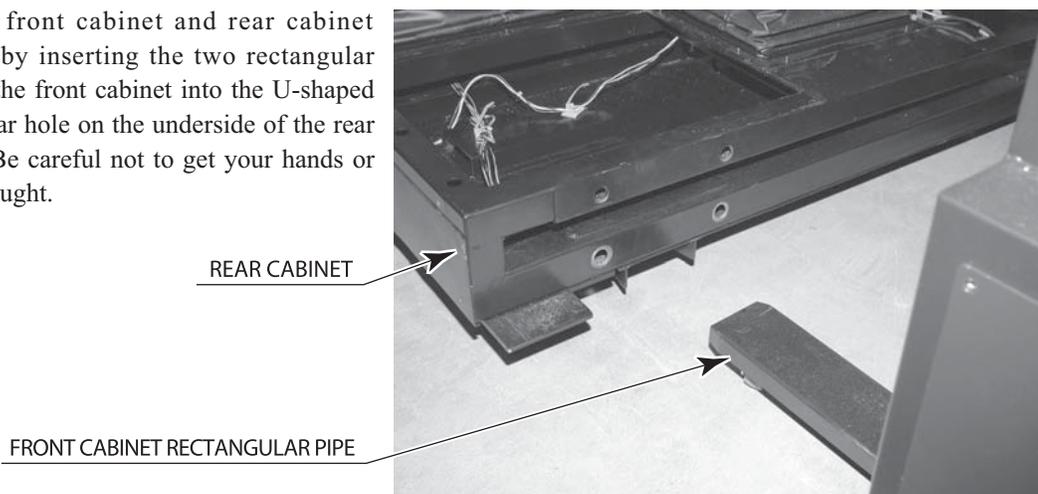


FIG. 6-6c

- 3** Fasten the front cabinet and rear cabinet together with eight hexagon bolts. Use four bolts inside each of the left and right floors. Check to ensure that all eight bolts can be tightened properly before tightening them fully. These bolts use flat and spring washers.

HEXAGON BOLT (total 8)
M10x110, flat & spring washers used

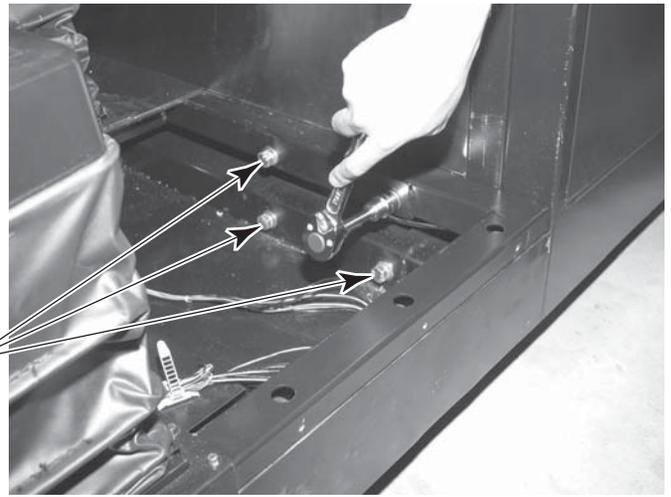


FIG. 6-6d

- 4** Remove the two truss screws fastening the motor driver door on the right side of the front cabinet.

MOTOR DRIVER DOOR

TRUSS SCREW (2), black
M4x10

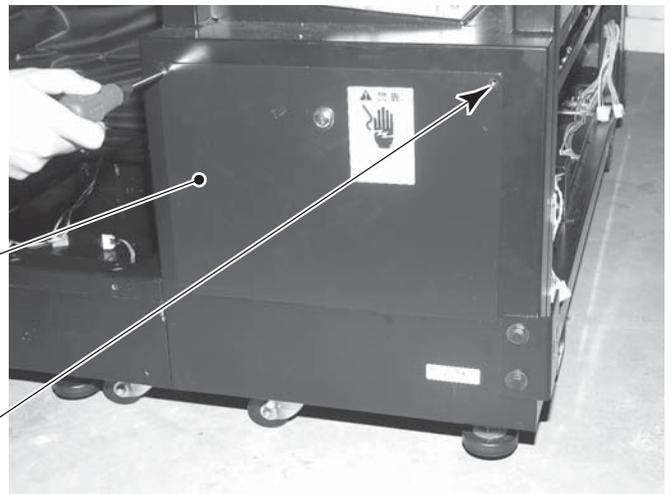
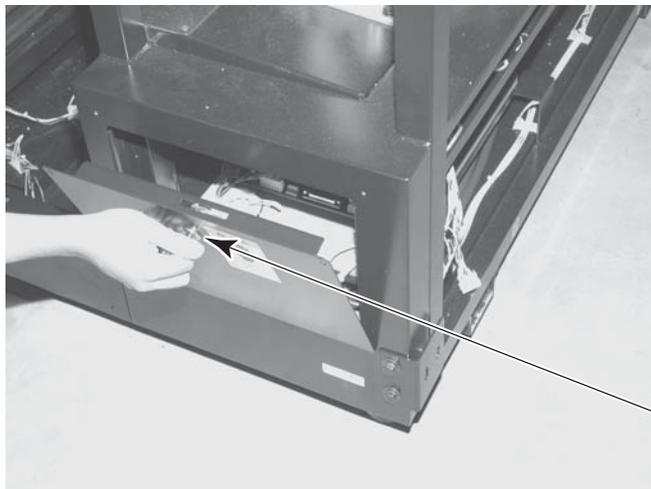


FIG. 6-6e

- 5** Unlock using the master key, and remove the motor driver door.



Unlock.

FIG. 6-6f

6 Pass the rear cabinet wiring into the interior of the front cabinet, and connect the two connectors.



FIG. 6-6g

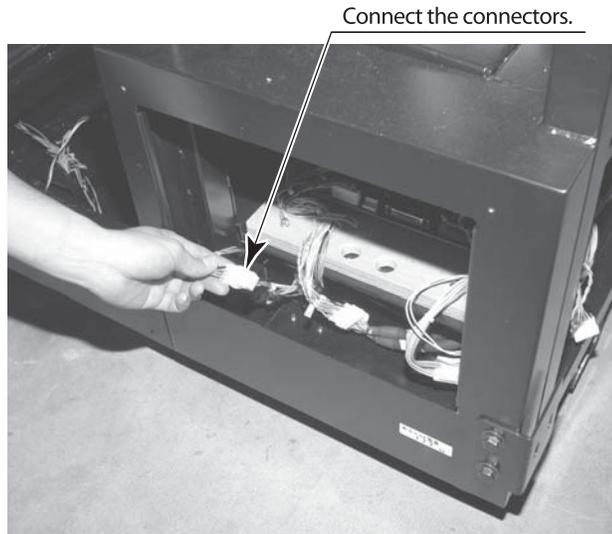


FIG. 6-6h

7 Inside the left side floor, pull the front cabinet wiring to the rear cabinet, and connect the connector.

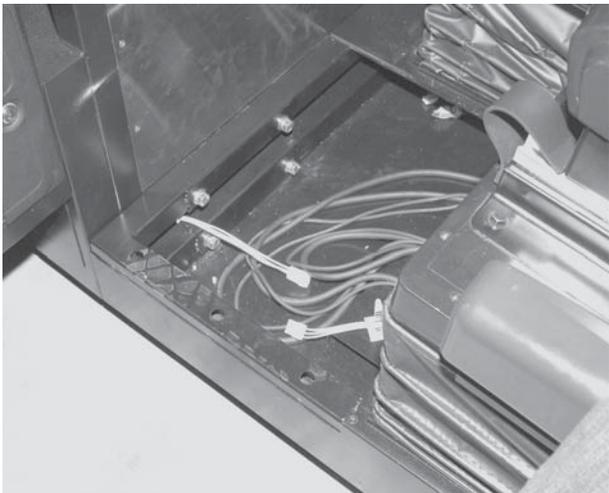


FIG. 6-6i



FIG. 6-6j

8 Pass the motor driver wiring (the black covered wiring with the L and R tags) and the earth wire to the front cabinet.



FIG. 6-6k

9 Pull the motor driver wiring and the earth wire through to the front of the front cabinet.

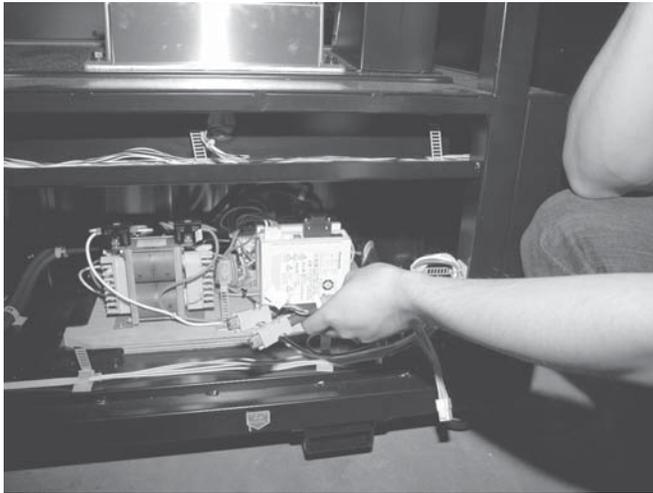


FIG. 6-6l

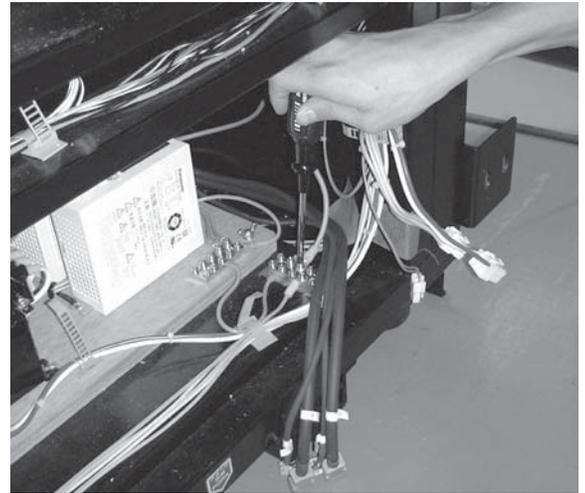


FIG. 6-6m

10 The two parts with the white casing at the front of the front cabinet is the motor driver. Connect the wiring connector with the L tag to the near side of the motor driver, and the wiring connector with the R tag to the far side of the motor driver.

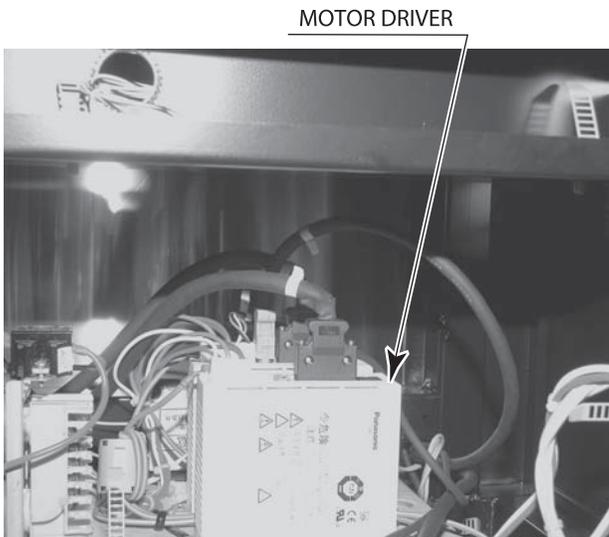


FIG. 6-6n

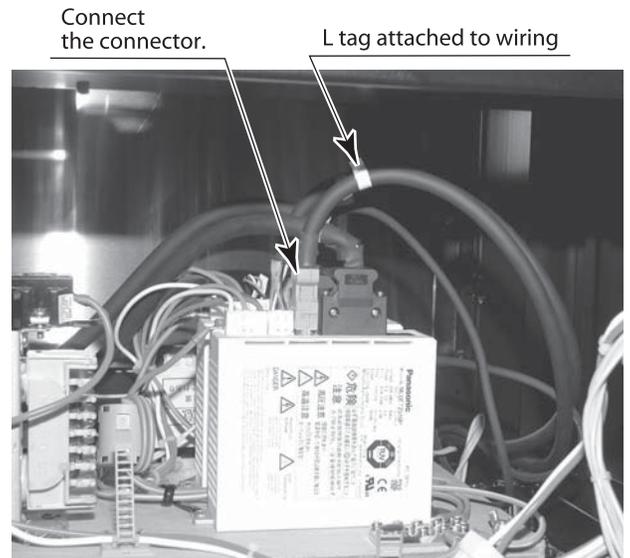


FIG. 6-6o

11 Reattach the left and right floors to their original positions, and fasten three truss screws for each.

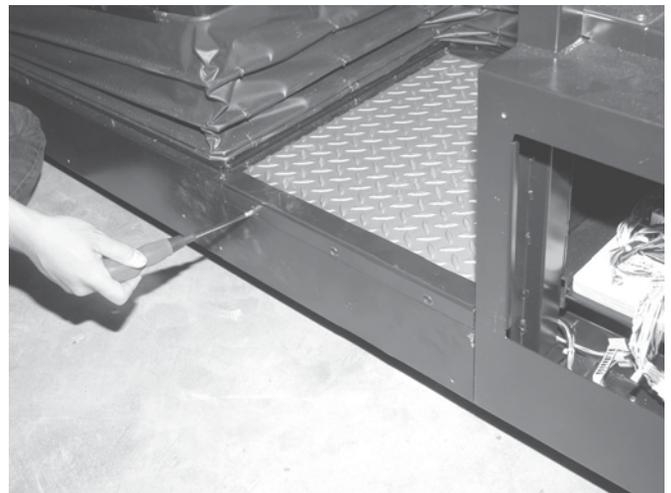


FIG. 6-6p

7 JOINING THE COCKPIT AND DLP PROJECTOR

Join each DLP projector and cockpit. The order of the cockpits is already determined. 1P is the red body and 2P is yellow.

- 1 Place the two cockpits in front of the DLP projectors. The sequence of body color is red and yellow going from the left seen facing the projector screens.

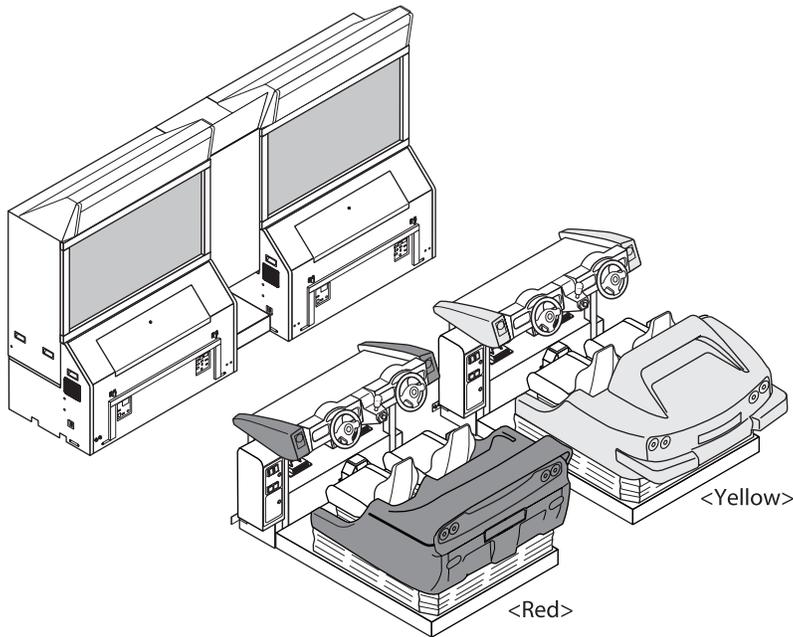


FIG. 6-7a

- 2 Attach the joint brackets so that they extend out to the left and right, respectively. Temporarily fasten each with the two hexagon bolts that were removed.

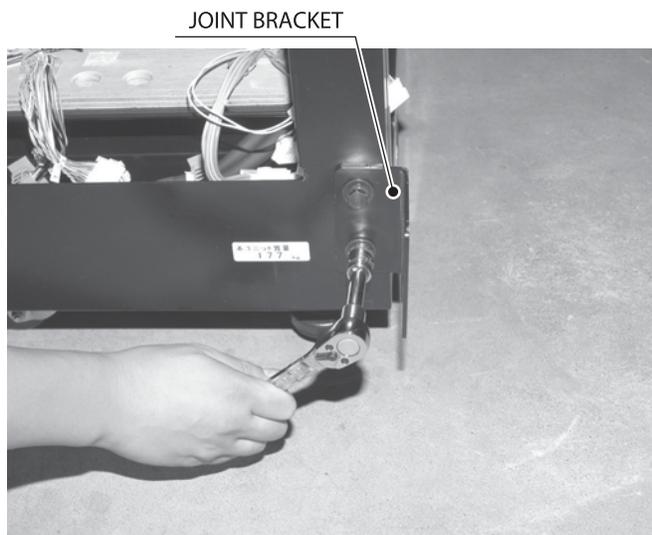


FIG. 6-7b

- 3** Place the cockpit near the DLP projector. As the wiring is not long, keep the distance between them at around 10 cm.



The connector panels are to the front left and right of the DLP projector. Besides the connector panel connectors, there is an earth wire inside the rectangular hole on the left side. Inside the rectangular hole on the right side, there is a wire for the yellow connector.

FIG. 6-7c

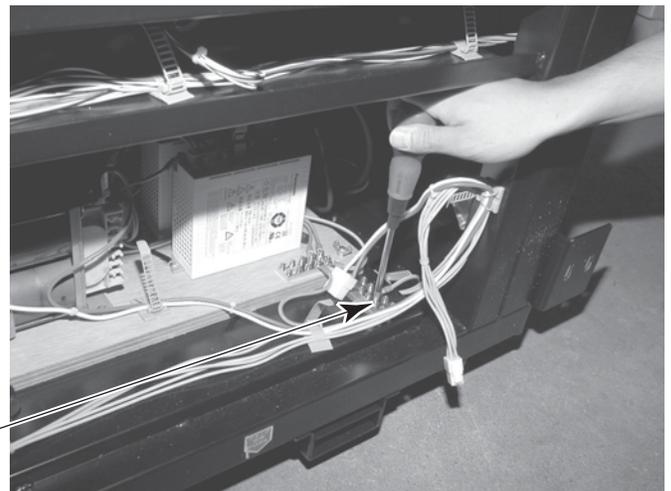


FIG. 6-7d LEFT SIDE CONNECTOR PANEL



FIG. 6-7e RIGHT SIDE CONNECTOR PANEL

- 4** Remove one screw from the near side motor driver terminal. The screw uses flat and spring washers. Be careful not to misplace these washers.



SCREW (1)
M4x6, flat & spring washer used

FIG. 6-7f

5 Fasten the round terminal of the earth wire pulled from the DLP projector to the motor driver terminal with the removed screw. Make sure to always use flat and spring washers with the screw.

Fasten the earth wire.

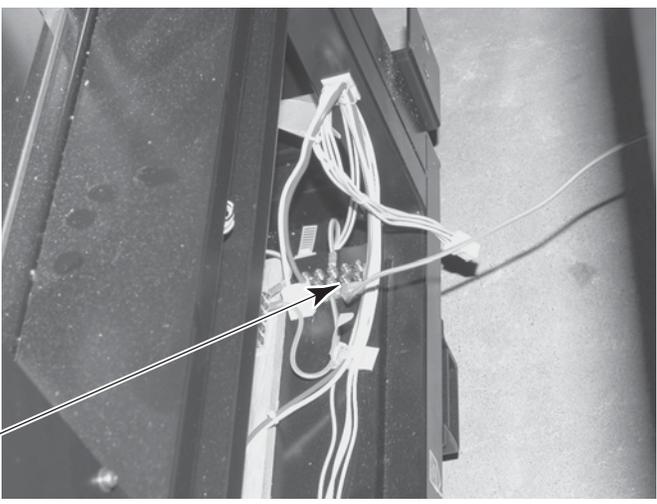


FIG. 6-7g

6 Connect the four cockpit wiring connectors to the connector panel on the left side of the DLP base.

Connect the connectors.

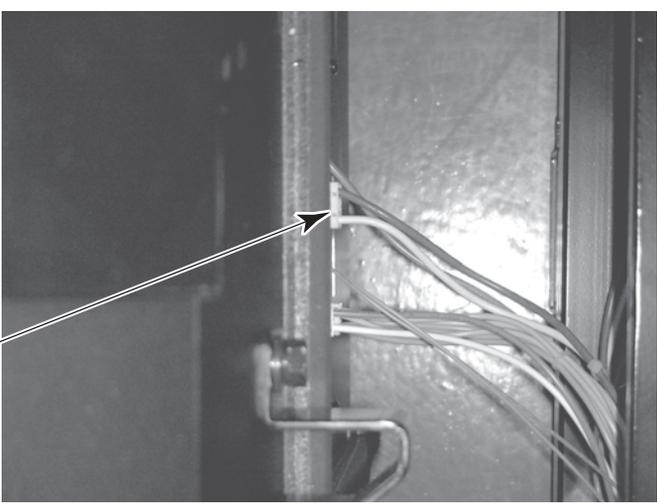


FIG. 6-7h

7 Pull out the wiring for the yellow connector from the inside of the right side rectangular hole. Connect with the yellow connector of the cockpit side wiring.

Connect to the yellow connector.

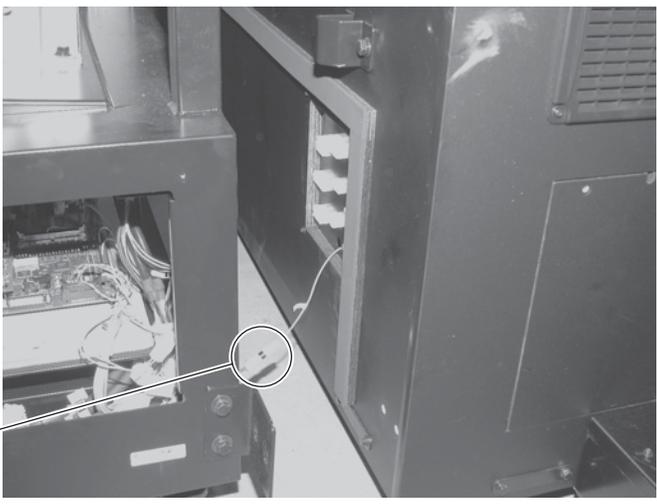


FIG. 6-7i

- 8** Connect the eight cockpit wiring connectors to the connector panel on the DLP base right side.

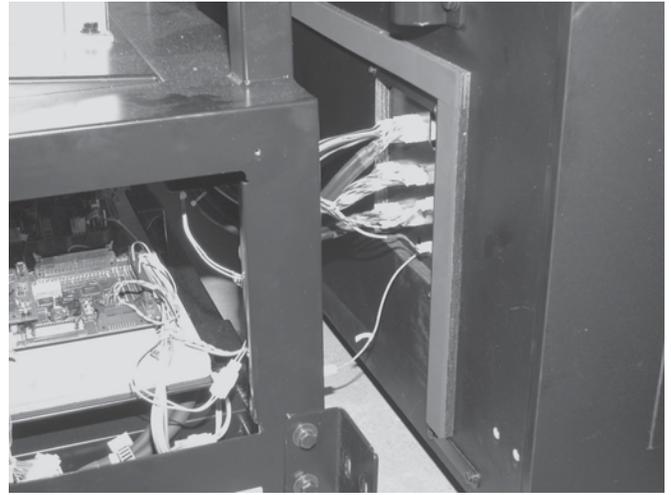
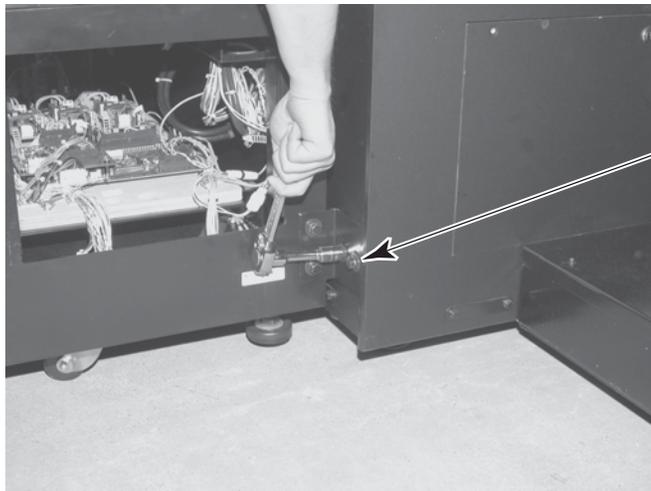


FIG. 6-7j

- 9** Completely align the cockpit with the front side of the DLP projector. Be careful not to catch the wiring.

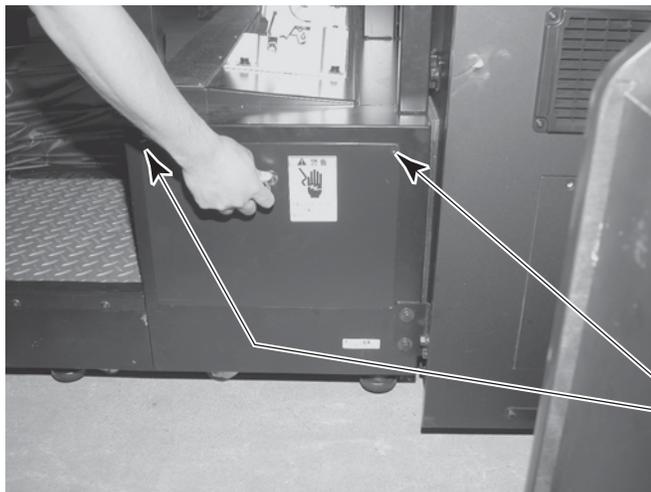
- 10** Pass two hexagon bolts into the DLP projector side bolt holes of each of the joint brackets. Ensure that all four bolts can be fully tightened, before temporarily fastening them. The joint brackets use flat washers with bolts that have spring washers attached.



HEXAGON BOLT (total 4), black
M8x20, w/spring washer, flat washer used

FIG. 6-7k

- 11** Attach the motor driver door, lock it, and secure with two truss screws.



TRUSS SCREW (2), black
M4x10

FIG. 6-7l

WARNING

- Carefully check the surrounding area while moving the product. If caught between the product and a nearby wall, a serious injury could result.
- Always ground the adjusters, and secure the product to the installation site. If this is not done, a serious accident may result as the product may move during assembly work, or during operation after assembly is completed.
- Make sure that there is enough space behind the product for workers to pass by. During work, an accident may result if this space is too narrow. Also, it may become too difficult to perform the work accurately and reliably.

Each cockpit has eight casters and six adjusters. (See FIG. 6-8b.) Directly ground the adjusters, provide a clearance of about 5 mm between the floor surface and the casters, and perform adjustments so the machine is level to the ground.

- 1** Ground all the adjusters on the underside of the cockpit.

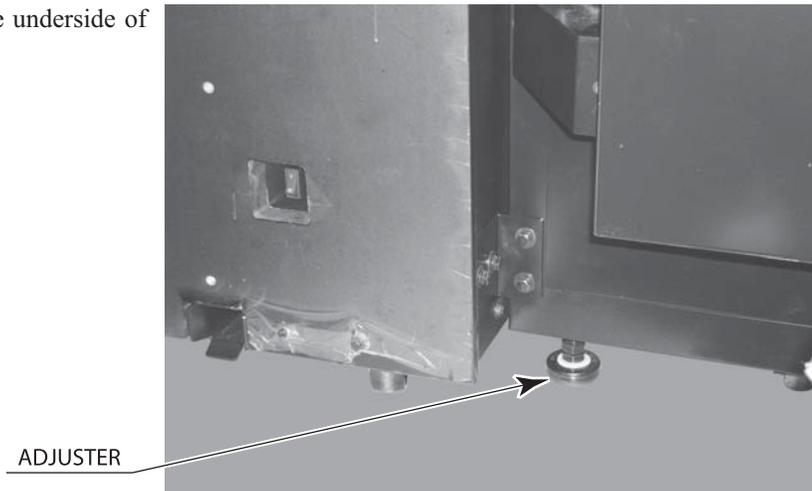


FIG. 6-8a Ground adjusters

- 2** Adjust the height of the adjusters. Provide a clearance of about 5 mm between the casters and the floor surface. After adjustment, tighten the nuts of the adjusters in an upward direction so as to secure the height.

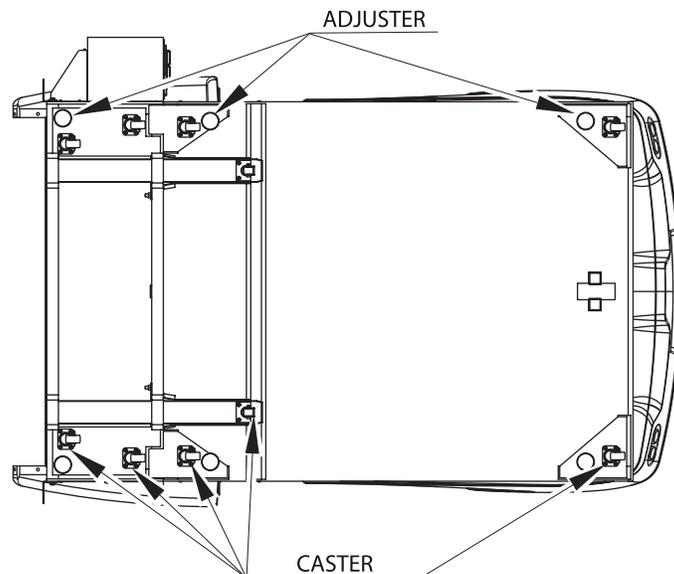


FIG. 6-8b

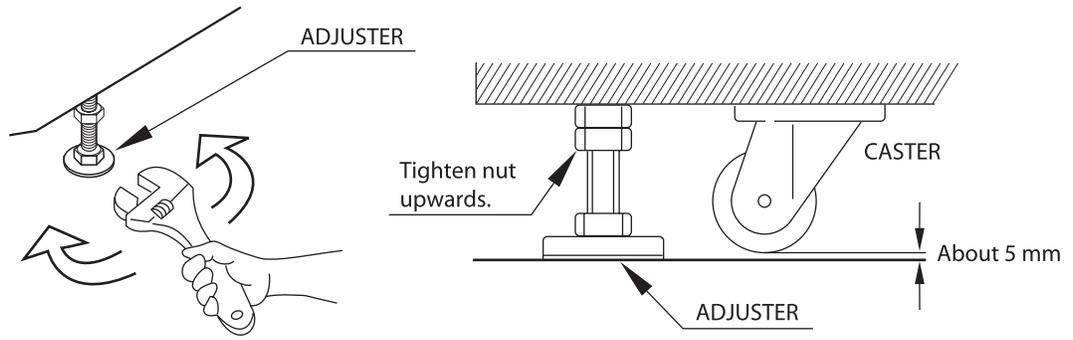


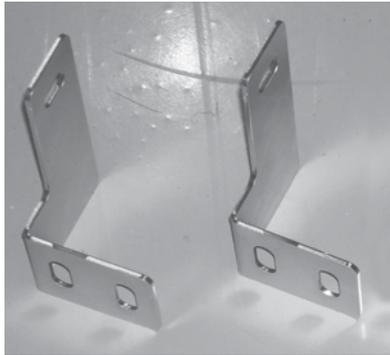
FIG. 6-8c Adjust the adjusters

- 3 Fully tighten the four fastening bolts for each of the cockpit joint brackets temporarily fastened to the DLP projector side.

9 ATTACHING THE STEP AND REAR LAMP

There are two kinds of metal board parts used for the step. These are step side L for use on the left side of the cockpit, and step side R for use on the right side of the cockpit. First, assemble the step to be attached between the cockpits.

When attaching the step, the rear lamp is also attached at the same time to the cockpit base rear part. Each rear lamp is different. Match each rear lamp with the correct cockpit body color before attaching.



STEP HOLDER R (Total 2)



STEP HOLDER L (Total 2)



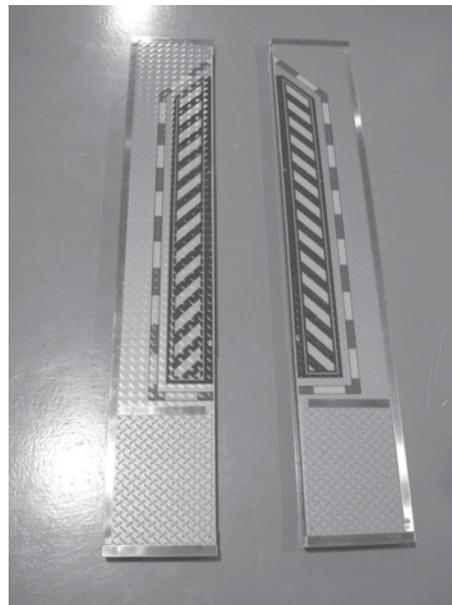
STEP LID L, R (2 each)



JOINT BRACKET (Total 2)



CUSHIONING (1)



STEP SIDE L, R (2 each)

Rear lamp nameplate

- 1P: F50
- 2P: Dino246GTS



REAR LAMP (Total 2)

- 1 Prepare step L and step R. Assemble the step to be attached between the cockpits. Attach cushioning to step L.

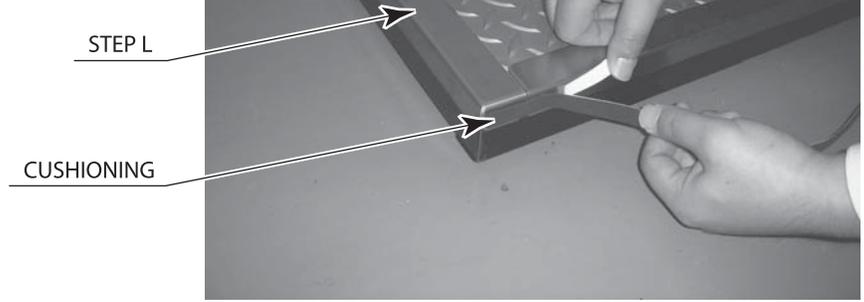


FIG. 6-9a

Cut away any surplus cushioning with a scissors.

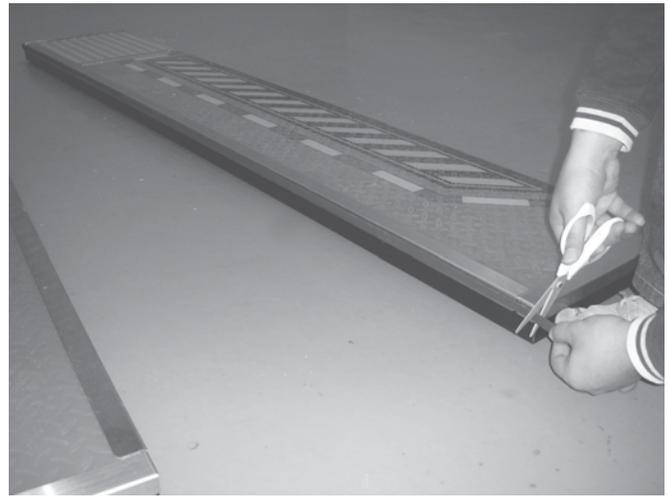


FIG. 6-9b

- 2 Place step L and step R side by side as shown in the picture.

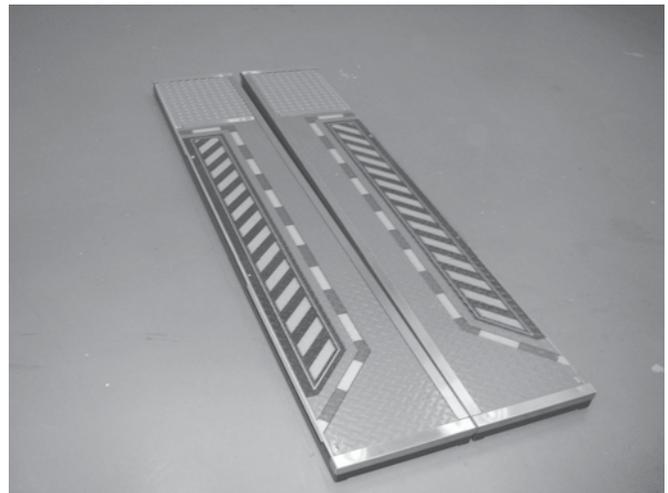


FIG. 6-9c

3 Link step L and step R with the joint bracket and four screws.

Link the opposite side in the same way.

TRUSS SCREW (4), black
M6x16

JOINT BRACKET

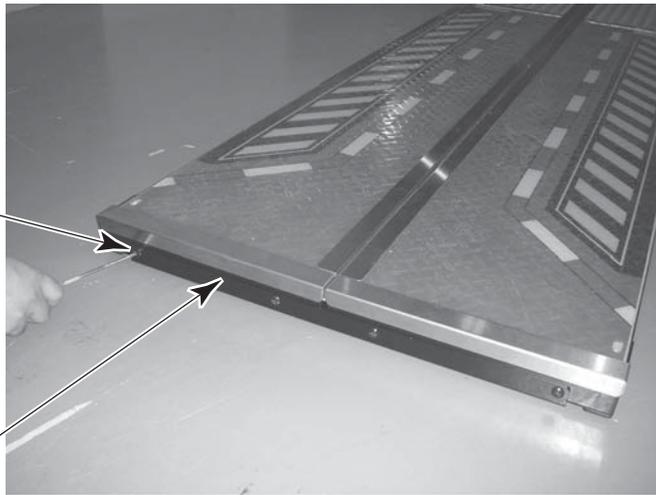


FIG. 6-9d

4 Provisionally fasten step holder L and step holder R to the linked step with four hexagon bolts.

STEP HOLDER R

STEP HOLDER L

HEXAGON BOLT (2 ea.), black
M8x20, w/spring washer and flat washer used

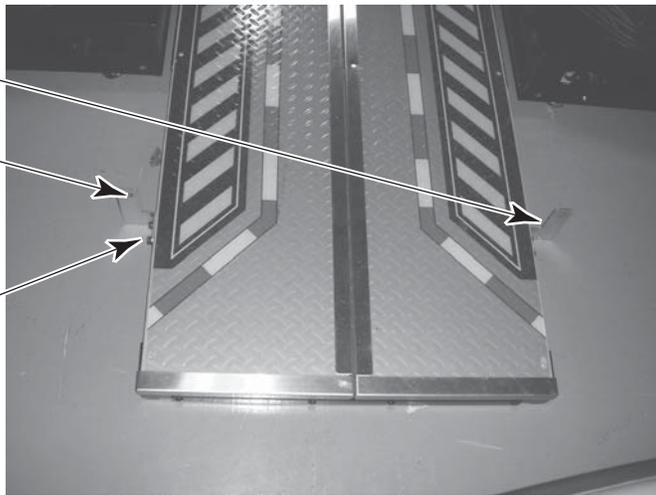


FIG. 6-9e

5 Insert the linked step between the cockpits. Secure to the cockpits with two hexagon bolts each. At this time, fully tighten the bolts that were provisionally fastening the step holders. Use flat washers with bolts that have spring washers attached.

HEXAGON BOLT (2 ea.), black
M8x20, w/spring washer and flat washer used

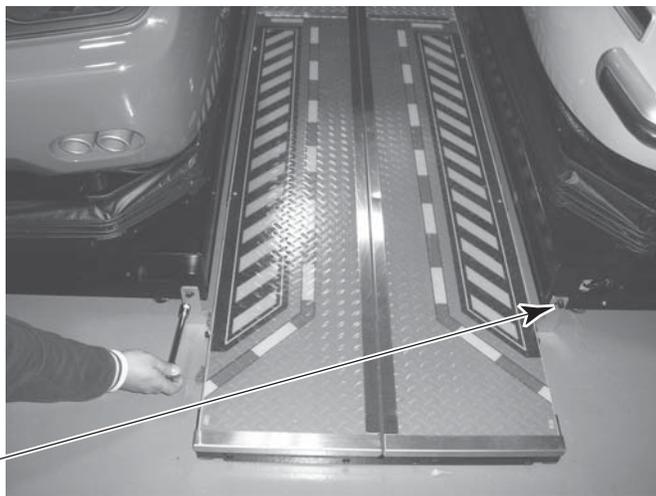


FIG. 6-9f

- 6** Secure the step side L and R in the same way. Both step side L and R use flat washers with bolts that have spring washers attached.

HEXAGON BOLT (1), black
M8x20, w/spring washer, flat washer used

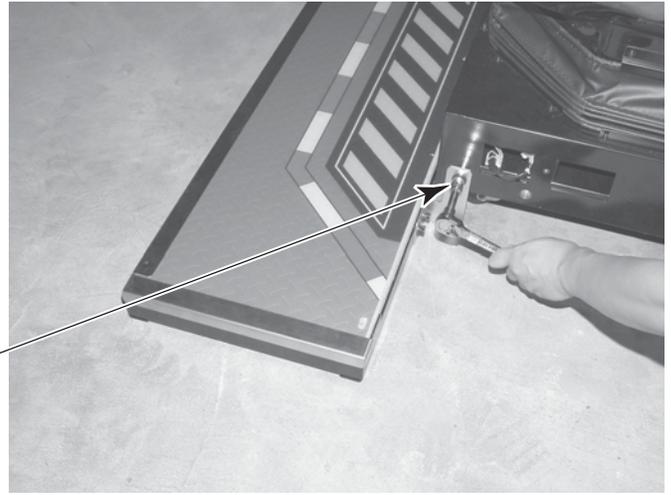


FIG. 6-9g

- 7** Remove the rear lamp lids on both sides. Remove two truss screws from each. The left and right lids are identical parts.

TRUSS SCREW (2 ea.), black
M4x8

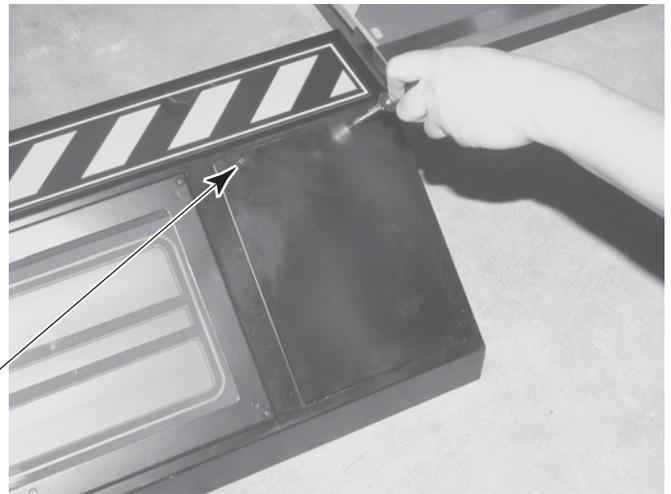


FIG. 6-9h

- 8** Align a rear lamp with each cockpit rear part. At that time, pull out the fluorescent light wiring and the earth wire from the hole in the left rear area of the cockpit, and draw them into the inside of the rear lamp. Be careful not to catch the wiring.

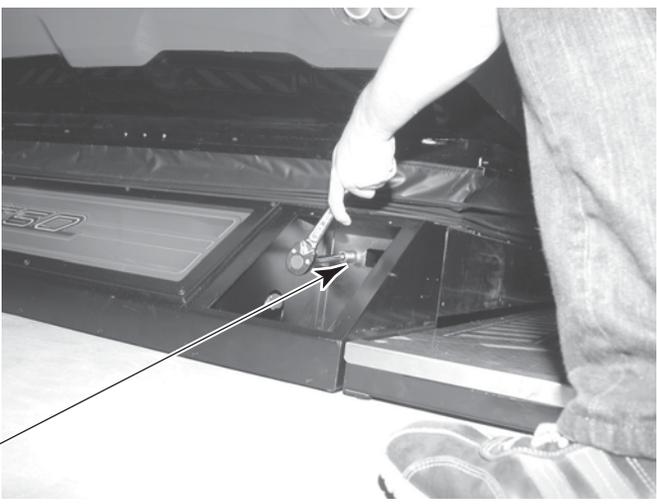
Pay attention to the nameplate design in the center of the rear lamp. The photo below showing “F50” is for the 1P rear lamp.

Draw the wiring and the earth wire inside the rear lamp.



FIG. 6-9i

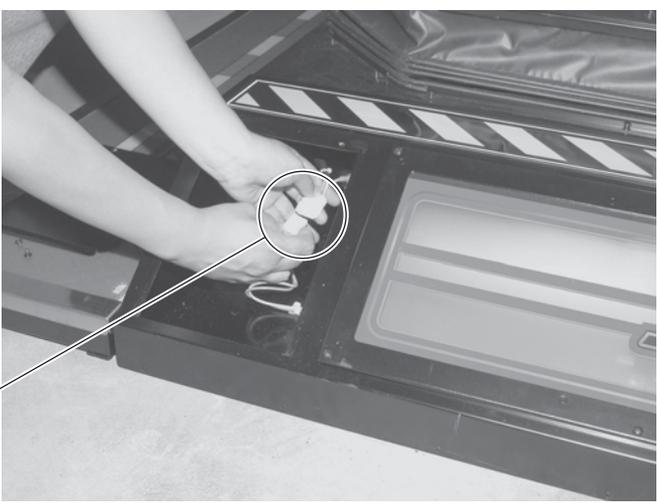
9 Secure the rear lamp with two hexagon bolts. The bolt hole for fastening the rear lamp is visible from the hole that appears after the lids are removed. The rear lamp uses flat washers with bolts that have spring washers attached.



HEXAGON BOLT (2), black
M8x20, w/spring washer, flat washer used

FIG. 6-9j

10 Connect the connector to the inside of the lid on the rear lamp left side and connect the earth wire to the rear lamp.



Connect the connector.



Connect the earth wire.

FIG. 6-9k

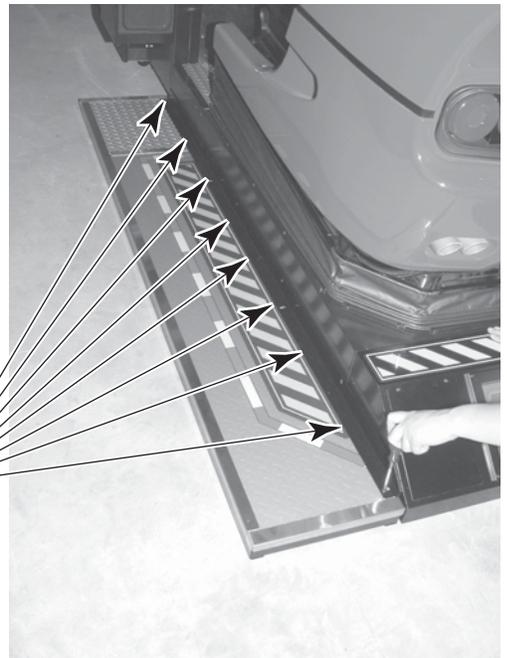
11 Reattach the removed lids at their original positions. Secure each with two truss screws.



TRUSS SCREW (2 ea.), black
M4x8

FIG. 6-9l

12 Attach the step lid L and R. The slanted side is for the rear lamp side. Use nine truss screws for each step lid. The truss screws use flat washers.



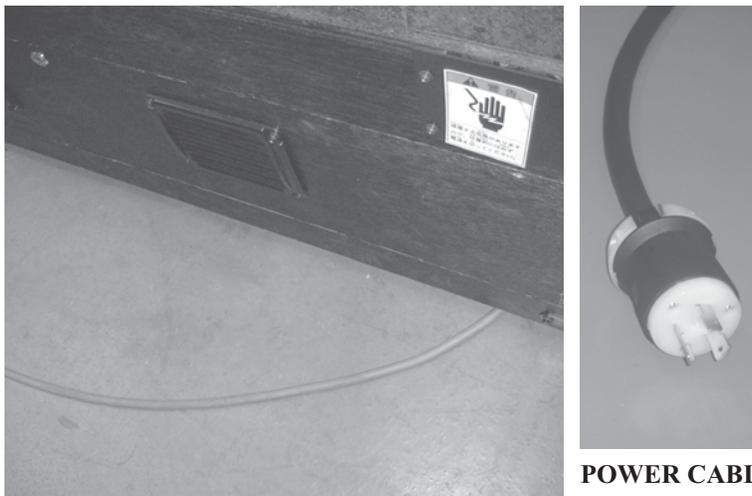
TRUSS SCREW (9 ea.), black
M5x16, flat washer used

FIG. 6-9m

WARNING

- Use the power supply equipped with an earth leakage breaker. Use of power supply without such a breaker could result in fire if there is a current leakage.
- Have available a securely grounded indoor earth terminal. Without proper grounding, customers could be electrocuted and product operations might not always be stable.
- Do not expose the power cable or earth wire. If these are exposed, customers could stumble over them, for instance, and easily damage them. Additionally, if these lines are damaged, there could be a risk of electrical shock or short circuit. Set these lines at locations where they will not interfere with customer traffic, or attach covers to them.
- For safety reasons, be sure to first connect the power cable to the product. If the power cable is first connected to the power source, an accident such as an electric shock or short circuit may occur.

Connect the power supply cables (2 cockpits) to the receptacle (not included) correctly and secure the connection.



POWER CABLE

FIG. 6-10a

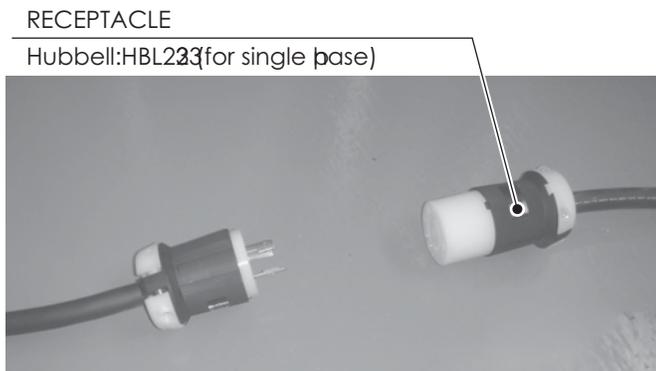
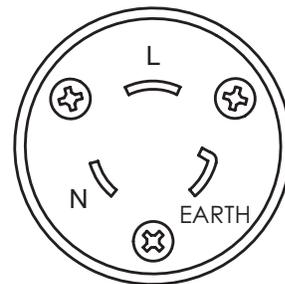


FIG. 6-10b



SINGLE PHASE
(Hubbell: HBL2321)

FIG. 6-10c Power Cable Plug

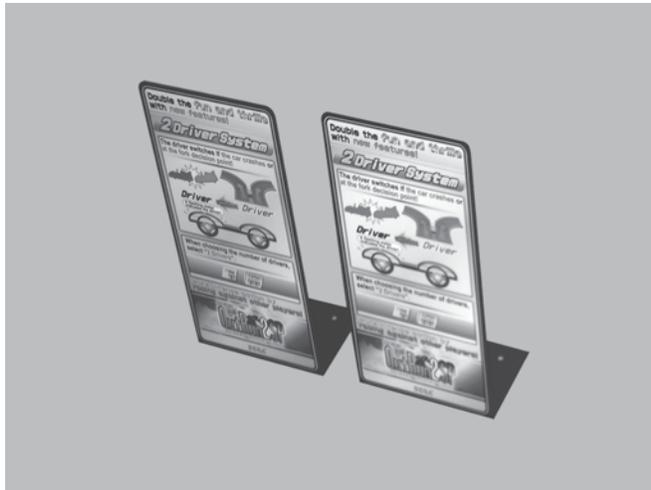
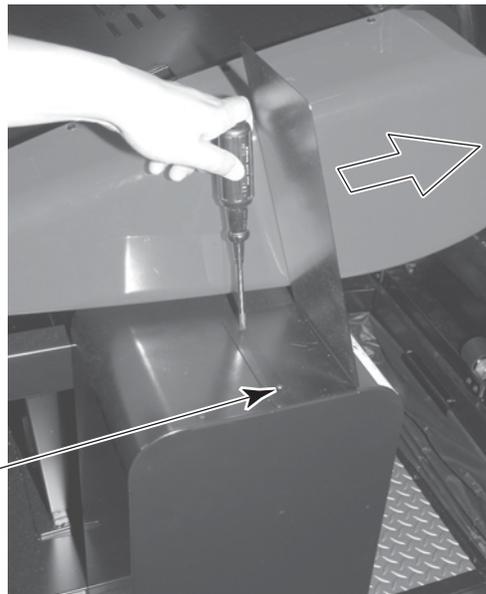


FIG. 6-11a PLAY INSTRUCTIONS STICKERS

Attach a play instructions sticker on top of each cockpit coin chute tower. Both play instructions stickers are identical.

Place the sticker on top of the tower in a visible direction facing the players. Fasten with two screws. The screws have flat and spring washers attached.



Place the sticker in a visible direction facing the players.

SCREW (2 ea.), black
M4x8, w/flat & spring washers

FIG. 6-11b

! WARNING

- Turn on the power only after carefully checking the surrounding area. The initialization operation begins automatically when the power is engaged. If a person is near the product and the ride (car body) or steering wheel moves, that person may collide with the product and an accident such as a fall or fingers being caught may occur.
- Turn on the power only after checking that there are no foreign objects or abnormalities near the ride's moving parts or the steering wheel. If any parts are damaged or deformed due to the presence of a foreign object when the ride or steering wheel moves during the initialization operation, an accident may occur.
- Turn on the power, only after reinspecting the assembly work. If the power is engaged directly after the installation and assembly work is completed, a fatal accident may occur if the adjusters are not grounded properly, screws are not fastened, or tools or spare screws have been left on or in the product.

STOP IMPORTANT

It will take about five minutes for the Customer Welcome Screen to appear after the power is engaged and the initialization operation is completed. Do not touch the ride or steering wheel until the Customer Welcome Screen appears. The product cannot be operated properly if the initialization operation is not completed properly. If there is any abnormality when the ride or steering wheel moves, make sure to reengage the power and conduct the initialization operation properly.

Take great care when working on this product. This product has a ride the same size as an actual automobile. A serious accident could occur if proper care is not taken.

Follow the steps below, and then turn on the power. After beginning operation, always be mindful that customers may leave belongings behind or tamper with the product. Carefully inspect all areas of the product before engaging power.

1 Reinspect the assembly work, paying special attention to the points below. Finally, check that there are no persons near the ride.

- Has the shipping bracket been removed?
- Have all the adjusters been properly grounded, and are no casters contacting the floor surface?
- Have all power cable terminal blocks been fastened correctly?
- Has the cover been attached to the terminal block?
- Have all fastening bolts and screws been tightened?
- Have any foreign objects been placed near the ride, or have any tools or spare screws, etc. been left on or in the product?
- Have any foreign objects been placed near the steering wheel?

2 Turn the power switches for each cabinet on the left side of the DLP base on. Following the order below, output locations will activate.

- a) The fluorescent lights of the rear lamp and the billboard will glow.
- b) The LINDBERGH logo is displayed on the projector screen.
- c) The steering wheel L initializes. After aligning itself in a center position, it turns completely to the left, and then returns to the center position.
- d) The steering wheel R initializes. After aligning itself in a center position, it turns completely to the left, and then returns to the center position.
- e) The actuator initializes. After moving from its lowest point to its highest point, the actuator stops at its home position.
- f) A network check is performed. The projector screen display changes to a network check display.
- g) If the network check is completed properly, the Customer Welcome Screen appears and sound is output at the same time.

3 Check that the Customer Welcome Screen appears on all the screens. If the network check continues for five minutes or more, there is most likely a fault in the network play connection or settings.

If, after the initialization operation ends, the steering wheel is not at its center position (facing straight ahead) or the ride stops at a tilted position, for example, reengage the power and conduct the initialization operation again.

If the problem is not corrected after repeating the initialization, there is most likely a fault in the volume settings.

Enter Test Mode, and check the settings. (See service manual.)

For this product, the following data and settings are still saved even if the power is turned off. Coin numbers represented in fractions (number of coins deposited that are not enough for one credit) and bonus adder count data are not saved.

- Number of credits
- Ranking data
- Test Mode settings (coin/credit settings, difficulty level, etc.)

STOP IMPORTANT

**There is a LINDBERGH installed in each of the two cabinets of this product. Always enter the Test Mode of all two cabinets when checking settings or making inspections.
When using Test Mode for a particular cabinet, only that cabinet can be checked.**

Use Test Mode to confirm that assembly has been properly done, and that the LINDBERGH, connecting boards, and input/output devices are normal.

Perform the following tests in Test Mode.

For tests (1) to (4), refer to the LINDBERGH service manual. For tests (5) to (8), see service manual [3-3 Game Test Mode].

(1) Information Display Screen

When “SYSTEM INFORMATION,” “STORAGE INFORMATION,” or “JVS TEST” has been selected on the System Test Mode Menu, system information, game information and information on JVS I/O board connected to LINDBERGH are displayed.

If each category of information is displayed without anomalies, the LINDBERGH is normal.

(2) JVS Input Test Screen

When “INPUT TEST” has been selected on the JVS test screen, data input to the JVS I/O board is displayed. On the product, this is the screen for testing the coin switch.

Insert a coin. If the display to the side of the switch changes the switch and wiring connections are normal.

(3) Monitor Test Screen

When “MONITOR TEST” has been selected on the System Test Mode Menu, the screen for checking monitor adjustment status appears.

Monitor adjustment is completed when the product is shipped from the factory, but you should observe the test screen to determine whether further adjustment is necessary. Refer to Chapter 8 and adjust the monitor if necessary.

(4) Speaker Test Screen

When “SPEAKER TEST” has been selected on the System Test Mode Menu, the screen for checking speaker sound output appears.

To confirm that audio output is normal, have test sound output from the game unit’s speaker.

(5) Input Test

When “INPUT TEST” has been selected on the Game Test Mode Menu, the screen for testing input devices appears. Test the input devices by pressing each switch. If the display on the side of each input device changes to “ON” and numerical values change smoothly in accordance with each operation, the input device and its wiring connections are normal.

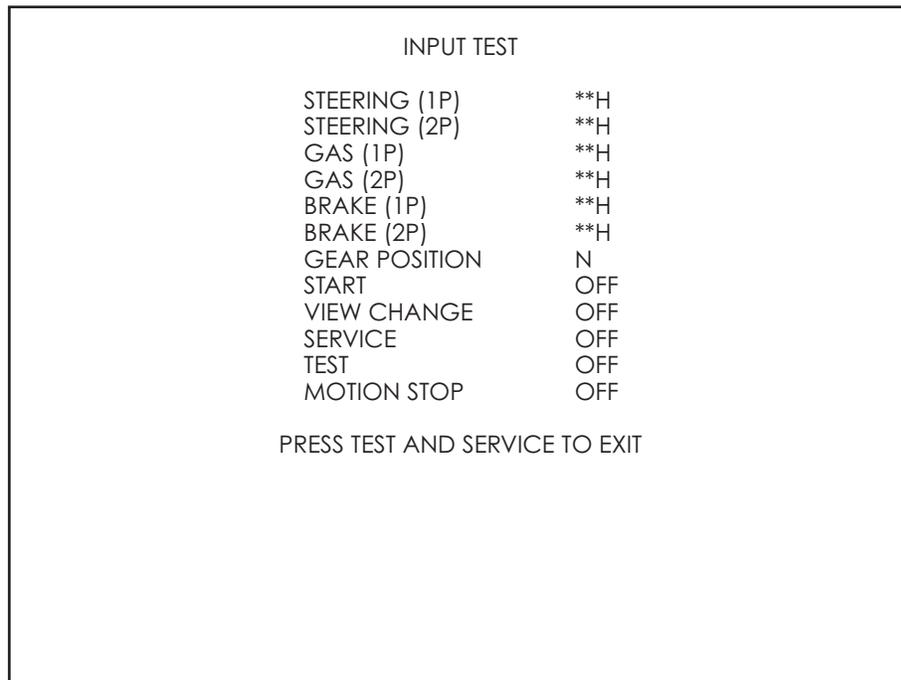


FIG. 6-13a INPUT TEST Screen

(6) Output Test

When “OUTPUT TEST” has been selected on the game test mode menu, the screen for testing lamps and other output devices appears. If each output device operates properly, the output device and its wiring connections are normal.

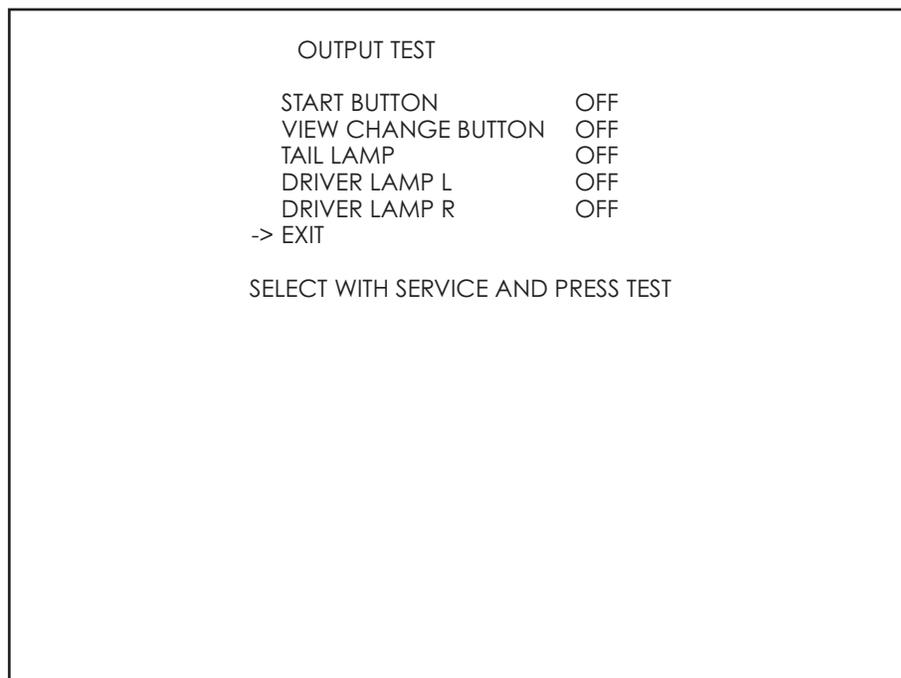


FIG. 6-13b OUTPUT TEST Screen

When “ACTUATOR CONTROL BOARD TEST” has been selected, the screen for testing ride mechanisms appears. If, when the controls are manipulated, the ride moves properly and it stops at its limit positions, the mechanisms and wiring connections are normal.

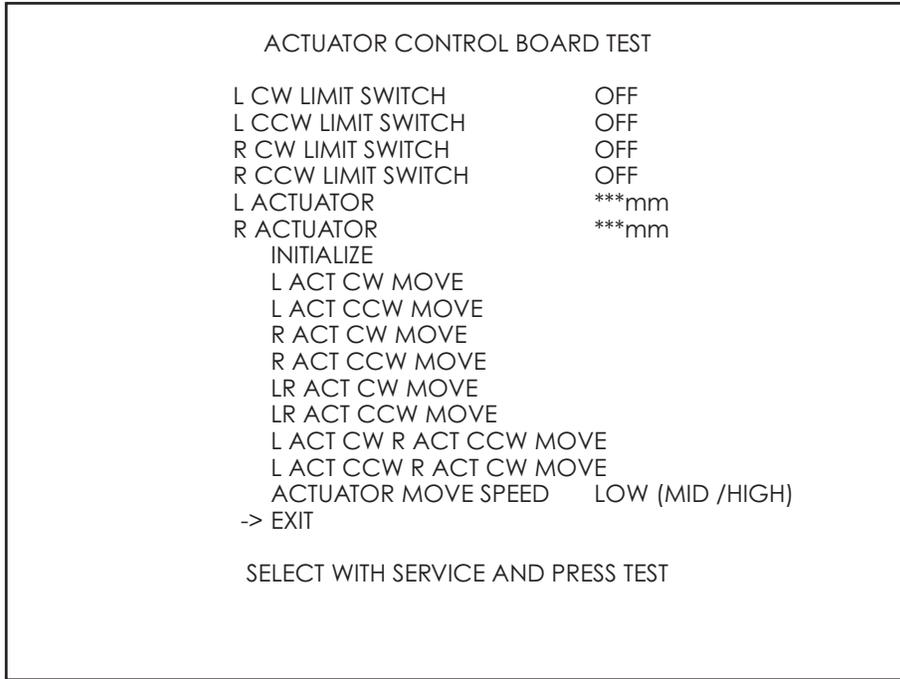


FIG. 6-13c ACTUATOR CONTROL BOARD TEST Screen

(7) Calibration Setting

Begin a game, and check to see if there is any irregularity in the controls for the input devices or in the movement of the ride. These are adjusted before the product is shipped, but, due to vibration, etc. during transit, there may be a need to adjust these settings again.

If the controls cannot be operated satisfactorily, select “CALIBRATION” on the Game Test Mode Menu Screen, and check and adjust the volume figures.

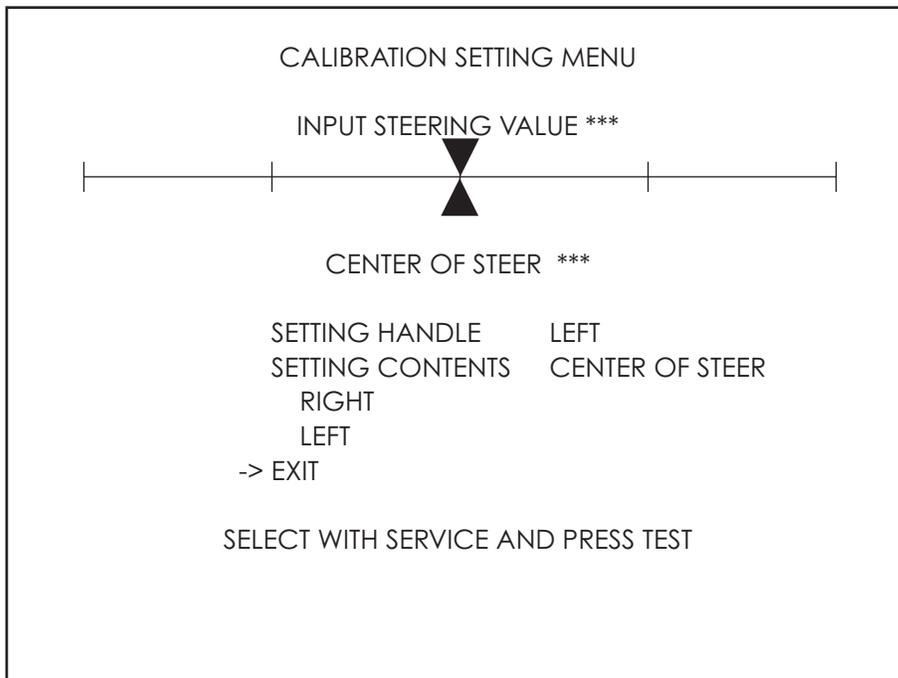


FIG. 6-13d CALIBRATION SETTING MENU Screen

Also, be sure to conduct the above inspections regularly once a month.

(8) Game Assignments

At shipping, the settings for this product are such that coin-operated network play can be conducted on all two cabinets. Check this setting by entering the Game Setting Screen.

After turning on the power and allowing for the initialization operation to end, check the settings and connection for network play. If the settings and connection are normal, the Customer Welcome Screen will appear on all two screens.

If all two cabinets can conduct simultaneous network play properly, the settings are normal.

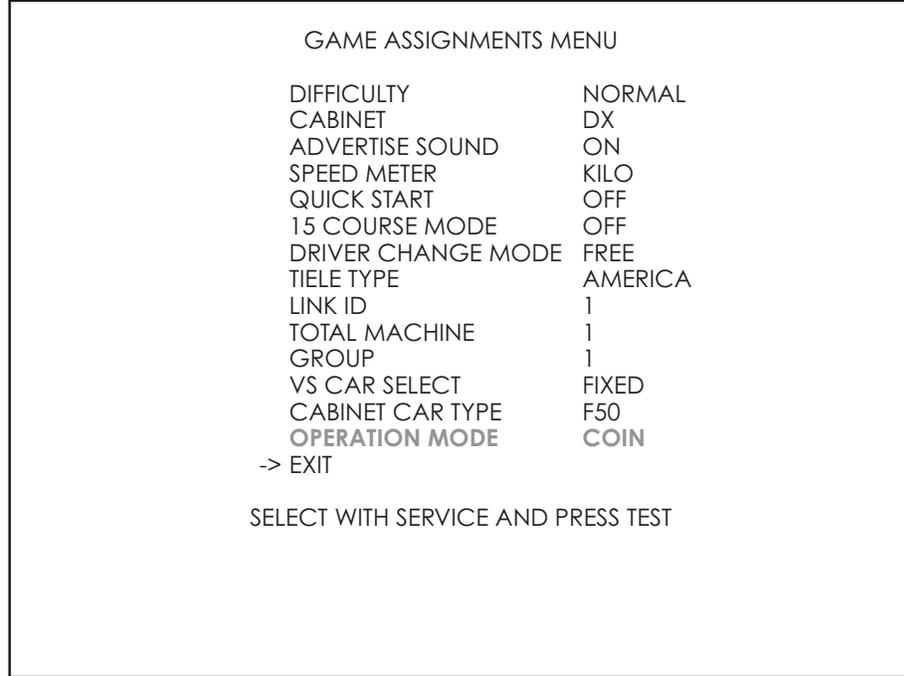


FIG. 6-13e GAME ASSIGNMENTS MENU Screen

[Settings at the time of shipping]

Game Setting Screen Items	1P	2P
CABINET *	DX	DX
LINK ID #	1	2
TOTAL MACHINE *	2	2
GROUP *	1	1
VS CAR SELECT *	FIXED	FIXED
CABINET CAR TYPE #	F50	DINO246
OPERATION TYPE *	COIN	COIN

NOTES:

*: This setting must be the same for all two cabinets.

#: This setting is different for each cabinet.

7 PRECAUTIONS WHEN MOVING THE MACHINE

WARNING

- As used in these instructions, the term “moving” refers to moving of the product within the same building, store or facility. These instructions do not cover moving between different buildings, areas, stores or facilities, since diverse factors are involved, not only packaging but also loading onto transport vehicles, and securing the product in place during transport. To transport the product to a different building or store, contact the vendor where the product was purchased or the office indicated in these instructions. Or request that moving be done for you. This product is made up of parts that are of large size and heavy weight. Unless work is entrusted to someone with expertise in packaging and transport of such parts, a serious accident might occur.
- Even when the product is to be moved within the same building, store or facility, contact the point of purchase or the office indicated in these instructions if there will be level differences or narrow or low level entrances while moving. Or request that moving be done for you. Never disassemble the product in any way not covered in these instructions. Otherwise there could be a fire, electric shock and/or short circuit.
- Always disconnect the power cable before moving the product. If it is moved with the power cable connected, the cable could be damaged, causing fire or electric shock.
- A qualified electrician is required for moving product parts within a store and for changing indoor wiring. Do not have work performed by anyone who is not qualified. Otherwise there could be electric shock.
- Have work performed by site maintenance personnel or other qualified individuals. Do not allow people without proper knowledge and technical expertise to work on the product. Otherwise there could be an electric shock or other serious accident. Also, customers could be injured while operating the product.
- Never move the product after it has been assembled. Always separate the two cabinets' cockpit units from the DLPs (with the projector remaining on the DLP base). Moving the product while it is assembled may cause abnormalities in the joints and fastenings, and can result in accidents such as electric shock, short circuit, and fire.
- Because it is structurally difficult for exterior lighting to enter the cabinet, have auxiliary lighting available. Working within a dark environment can lead to accidents.
- For instructions on separation and disassembly of the cabinet, please refer to Chapter 6 of this manual. Failure to follow the instructions given by this manual leaves a high risk of accidents such as electric shock occurring.
- Proceed with checks and tasks as indicated in these instructions. If instructions are not followed, or if tasks and/or checks are neglected, an electric shock or other very serious accident, even fatal accident, can occur. Also, customers could be injured while operating the product.

⚠ WARNING

- Be careful not to damage wiring. Before separating parts that have wiring connections, disconnect the wiring connections, unravel wire bundles and undo fastenings. Only after that, remove fasteners (screws, nuts, etc.). If wiring becomes damaged, there could be an electric shock, short circuit or fire.
- When inserting or removing a connector, always hold it by its main part. If you hold it by anything else while doing so, the connections between wire and connector terminal fixtures could be damaged; and there could be a short circuit or fire. There could also be poor connectivity.
- Do not move unit with the adjusters in contact with the floor. Otherwise parts might be damaged or deformed and there might be accidents.
- Whenever any fasteners (e.g. screws, nuts) have been lost, always use replacement fasteners with proper dimensions as specified in this manual. If fasteners of any other dimensions are used, it could cause damage and/or separation of parts that result in secondary accidents.
- Check surroundings carefully while moving the unit. If you should get caught between the unit and a wall, for instance, there could be a serious accident.
- Do not place the cockpit or DLP on inclines or uneven surfaces. This could result in the unit falling over.
- Have on hand a number of workers appropriate for each task that needs to be done. Make calculations by approximating that one worker can lift roughly 15 kg of weight.

If an insufficient number of workers try to lift a heavy object, it could result in a worker stumbling and the object being dropped, crushing someone or something underneath. Workers could also injure their backs, etc.

- When lifting a heavy object, be sure to carefully consider the area where it will be lifted. If possible, lift the object by its handles or base. If weak fasteners or fragile parts are gripped, they could be damaged under the weight of the object, and this could result in a worker stumbling and the object being dropped, causing personal injury.
- Never disassemble the unit in ways other than those described in this manual. Doing so can cause accidents such as electric shocks, short circuits, and fires.
- Do not attempt to tilt the unit to fit it through narrow doorways. Moving the unit while it is tilted can result in an accident. It can also cause deformations and damage to parts, as well as deviations of fastening positions, which could result in accidents during operation.

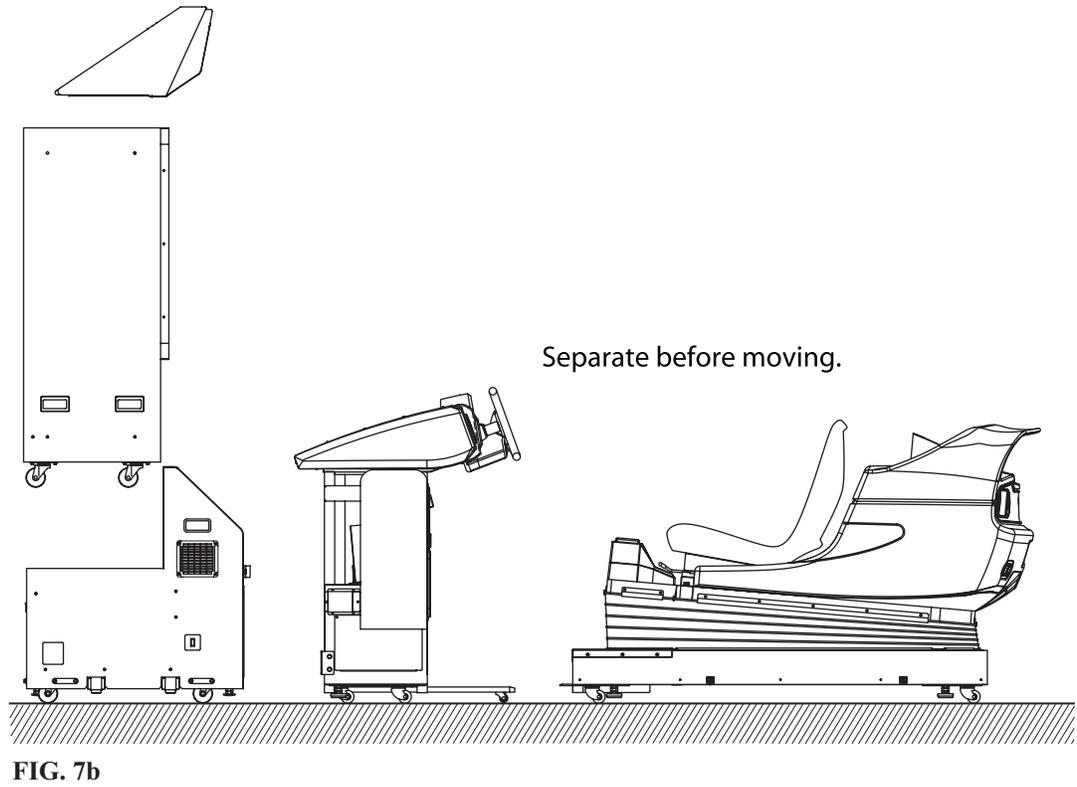
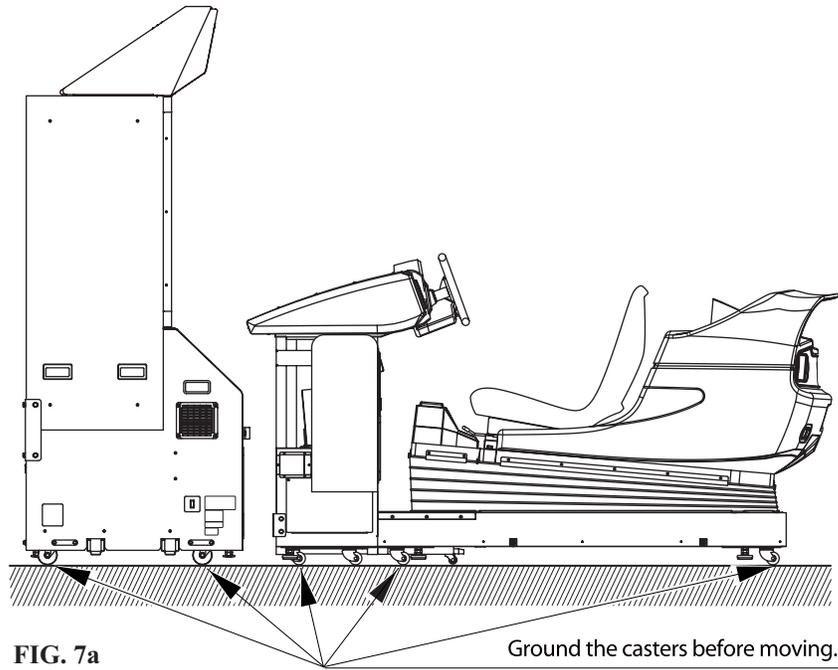
CAUTION

- Do not push plastic parts or the ride's FRP parts. Do not support the unit by carrying plastic parts or FRP parts. Parts can be damaged, and fragments can cause injury.
- Do not stack parts that have been separated or disassembled indiscriminately. The surface of the parts could be damaged or deformed. Significant deformations can result in improper operation and breakdowns.
- Do not lean separated or disassembled parts against a wall or other surface indiscriminately. The parts could be deformed. Accidents could also occur should the parts fall over.
- Do not hold or push controls such as the steering wheels or Gear Shifters. Deformations could lead to player injury.

IMPORTANT

- If the unit is moved over floor surfaces where there is carpet, decorative panel, etc., there might be friction or soiling.
- Movement by casters can damage the floor, depending on the floor material. Have a mat or thin plate available for moving casters. If rugs, for instance, have been laid out, remove them before moving.
- Be careful not to damage the surfaces of parts. Support and push strong parts made of metal.
- Do not apply rope directly to the product's surface. Use protective material at locations where rope is applied.

The strength of this product's joints were not designed such that the product can be moved while assembled. Attempting to push on the cockpit, etc. to move the unit while assembled can result in damage, deformation, and misalignment of the joints. Abnormalities in the joints can result in improper operation or breakdown in internal mechanisms.



Do not push on the steering wheel or Gear Shifter.

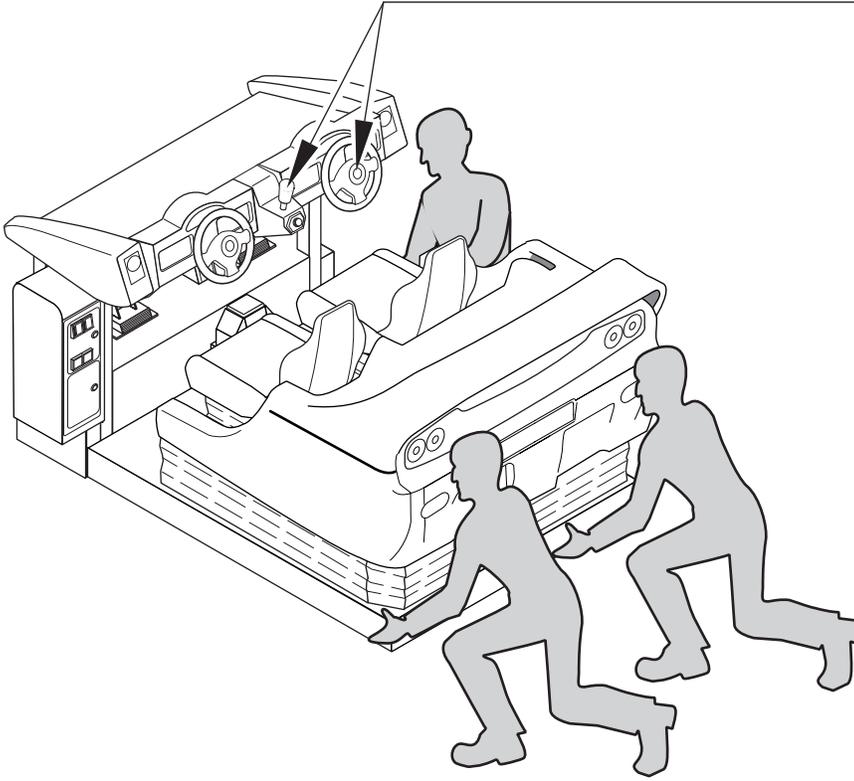


FIG. 7c

8 PROJECTOR

CAUTION

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

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 and changes in brightness for a short period are due to the high pressure mercury lamp in the projector. This is not a defect and does not need repairs.
- 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 can save adjustments.

When the test screen shows distortions, use the remote controller to adjust the projector’s settings.

The projector’s high pressure mercury lamp has an average lifespan of roughly 8000 hours (50% survival rate), but the actual lifespan may vary depending on its usage.

The lamp is a replaceable product. If the screen becomes dark or goes out occasionally, replace the lamp as quickly as possible.

Replace the lamp following the instructions in the instruction manual provided with the projector. Also, be sure to reset the timer setting.

8-1 CLEANING THE SCREEN

STOP IMPORTANT

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.

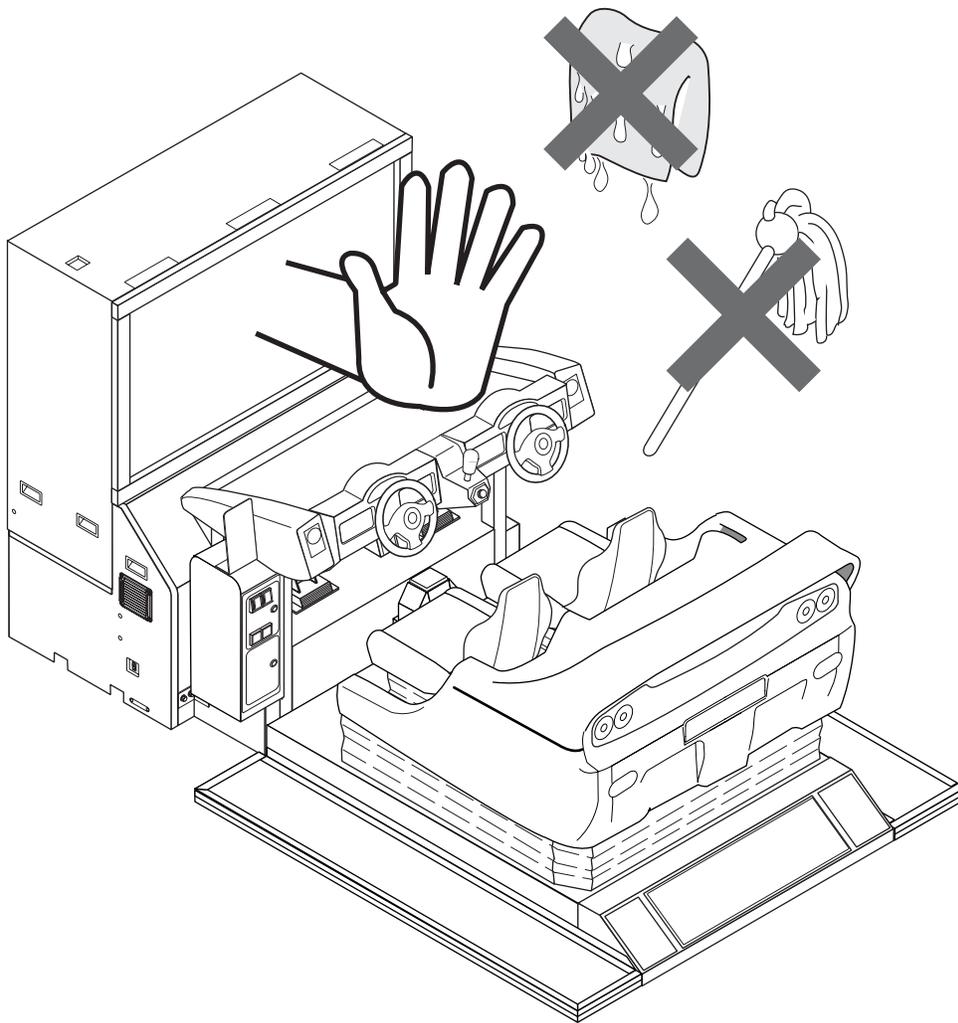


FIG. 8-1 Cleaning the screen

8-2 PROJECTOR ADJUSTMENT

STOP IMPORTANT

- When making adjustments, make sure that the remote controller'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 controller to perform all projector adjustments.

The remote controller cannot turn the projector or the entire game system's power ON or OFF.

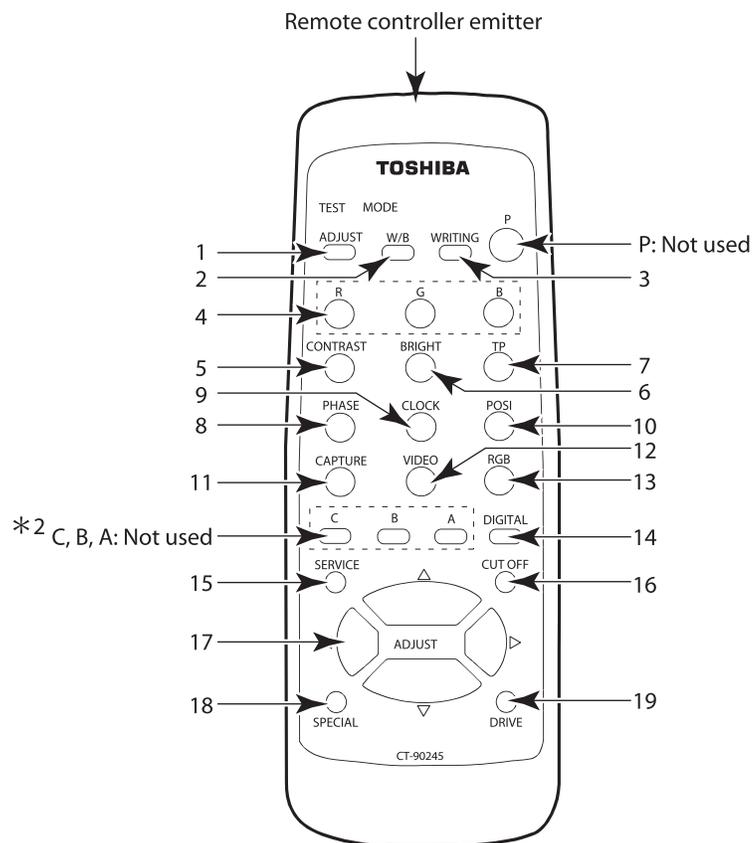


FIG. 8-2a

- | | |
|--|---|
| (1) ADJUST (Adjust Mode): | Press this button to enter Adjust Mode. It also functions as the EXIT button. |
| (2) W/B switch (white balance): | Select White Balance Mode. |
| (3) WRITING (memory): | Store adjustment data. |
| (4) R, G, B (color select): | Use to select a color when adjusting color balance. |
| (5) CONTRAST: | Adjust the contrast of the projected image. |
| (6) BRIGHT: | Adjust the black level (brightness) of the projected image. |
| (7) TP (test pattern): | Display an internal test pattern. |
| (8) PHASE (phase adjust): | Adjust the sampling phase. |
| (9) CLOCK (clock adjust): | Adjust the sampling clock. |
| (10) POSI (display position): | Adjust the display position of the projected image. |
| (11) CAPTURE (adjust image capture): | Adjust timing of image capture. |
| (12) VIDEO input: | Select video input. |
| (13) RGB input: | Select RGB input. |
| (14) DVI input: | Select DVI input. |
| (15) * ¹ SERVICE: | Enter Service Mode. |
| (16) CUT OFF (adjust cut off): | Adjust the white balance of dark areas. |
| (17) ADJUST (adjust up/down and left/right): | Adjusted selected category. |
| (18) * ¹ SPECIAL: | Enter Special Mode. |
| (19) DRIVE (adjust drive): | Adjust the white balance of light areas. |

Control and Adjustment

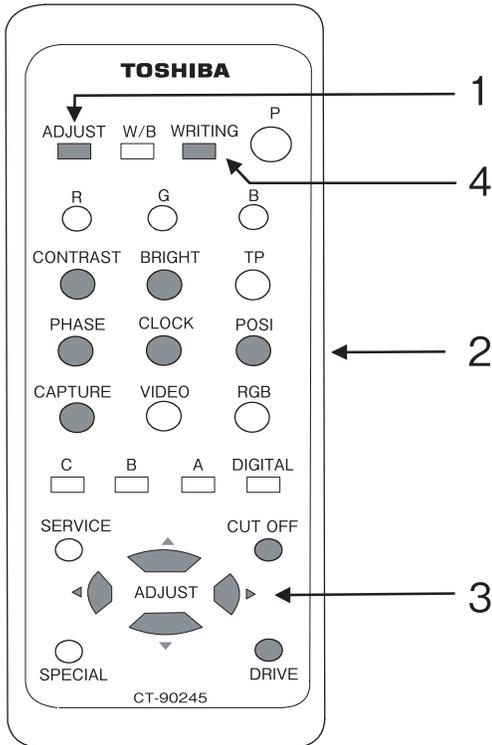
STOP IMPORTANT

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.

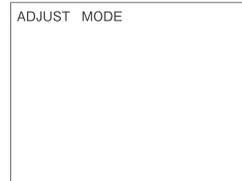
[Controls]

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. When you have finished making adjustments press the WRITING button to record the adjusted data.

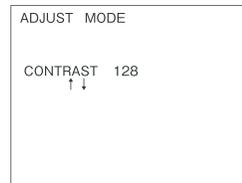
If you wish to exit without saving the adjusted data return to Normal Mode without pressing the WRITING button and then turn the power off for a reasonable period of time. Press the ADJUST button three times to return to Normal Mode.



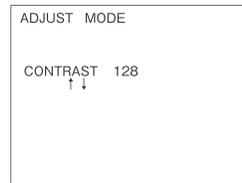
- 1** Press the ADJUST button. The projector will enter Adjust Mode and wait for an adjustment category button to be pressed.



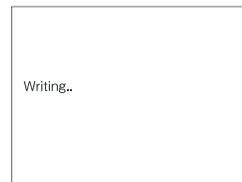
- 2** Press an adjustment category button. The projector will enter the selected Adjustment Mode.



- 3** Use the ADJUST [▲][▼][◀][▶] buttons to make adjustments. Adjust the values of the displayed adjustment data to suit your needs.



- 4** Press the WRITING button (record and finish). The message “WRITING” will be displayed, and the adjusted data recorded. After about 3 seconds the projector will return to Normal Mode.



Returning to Normal Mode from Adjust Mode:

Adjust Mode (ADJUST MODE)

Press the ADJUST button. The exit menu will appear.

Press the ADJUST button again.

Returns to Normal Mode.

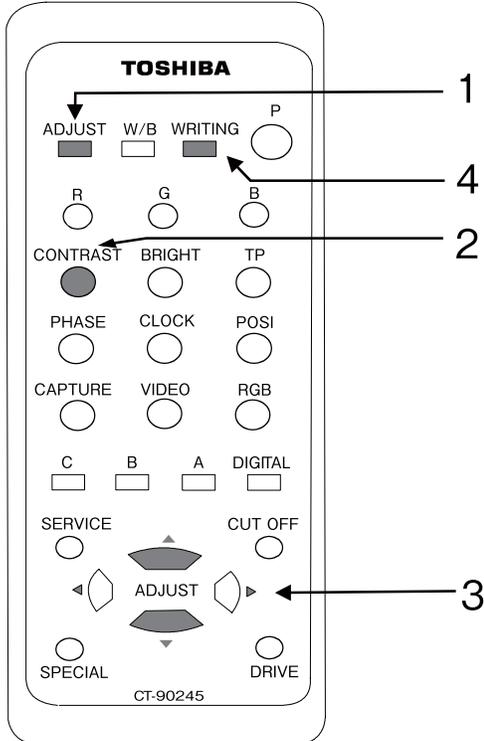
Use the following “Adjusting Contrast” explanation as an example of the main adjustment process.

Adjusting Contrast

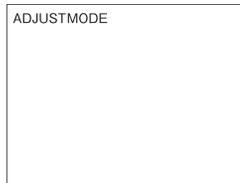
STOP IMPORTANT

- 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 is turned off, and when it is turned back on the projector will be returned to the state prior to adjustment.

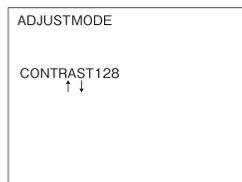
Adjusting the contrast will alter the tones of the displayed image.



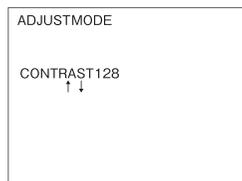
- 1** Press the ADJUST button.
The projector will enter Adjust Mode and wait for an adjustment category button to be pressed.



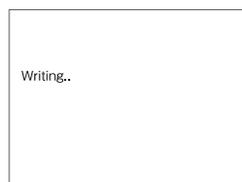
- 2** Press the CONTRAST button.
The projector will enter the Contrast Adjust Mode.



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



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



8-3 CHANGING THE LAMP UNIT

⚠ WARNING

- To prevent electric shock and fire hazards, only perform this operation after turning off the power switch.
- 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.
- Be careful not to get fingers or hands caught when removing or attaching doors or other parts.

STOP IMPORTANT

- Do not remove any screws other than those specified below. Doing so could harm the efficient working of the product.
- There are electric and electronic parts such as circuit boards contained in the DLP base. Be sure to avoid dropping removed parts or tools inside the base.

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



1 Turn the power off for the cabinet whose projector's lamp will be changed.

2 Remove the DLP front door. Remove the two truss screws that fasten the door.

TRUSS SCREW (2), black
M5x20

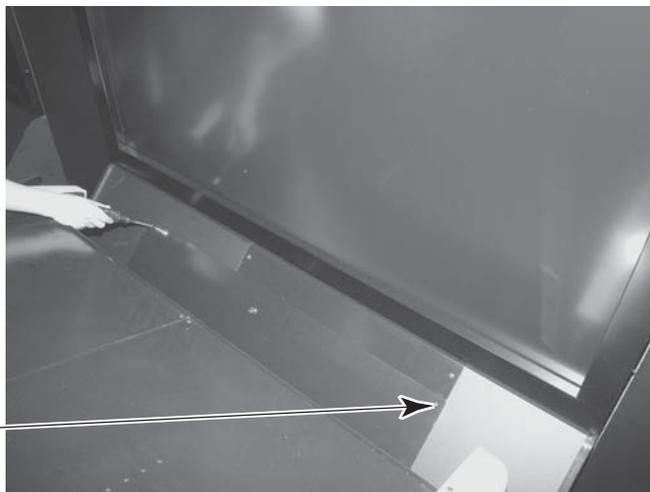


FIG. 8-3a

3 Unlock using the master key, and remove the DLP front door.

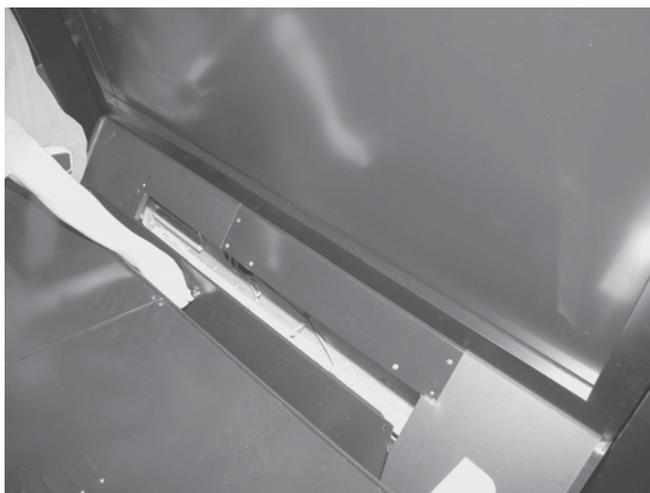


FIG. 8-3b

4 Remove the front beam from the top of the DLP front door attachment fixture. Remove two truss screws and two flat head screws.

FLAT HEAD SCREW (2), black
M5x10

TRUSS SCREW (2), black
M5x20

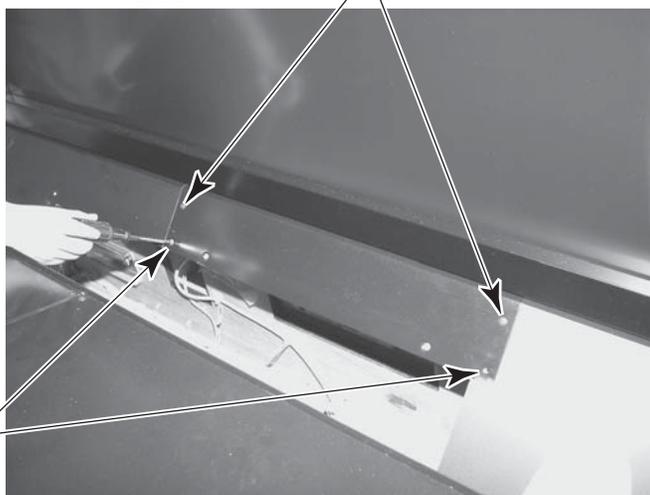


FIG. 8-3c

- 5** Remove the front beam. Be careful not to drop it inside the DLP base.

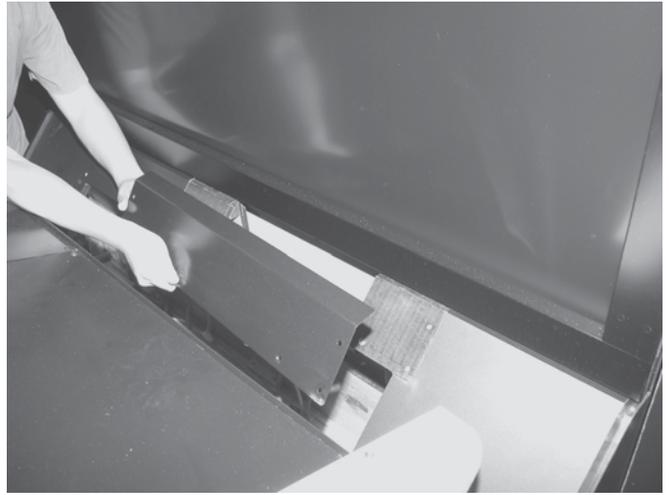


FIG. 8-3d

There is a lamp replacement cover in the front of the projector.

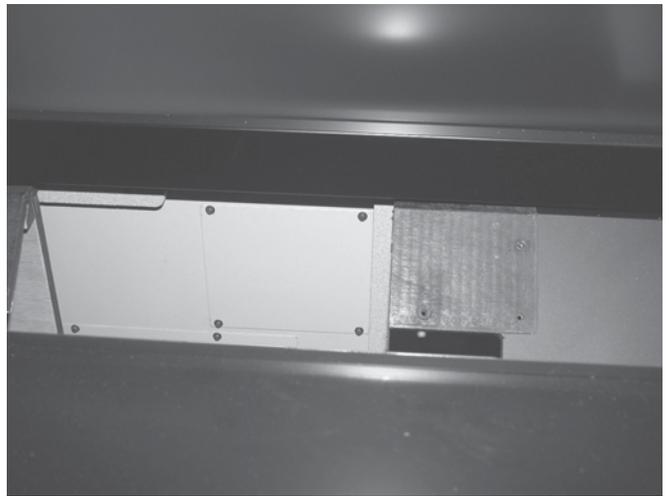


FIG. 8-3e

- 6** Remove four screws, and remove the lamp replacement cover.

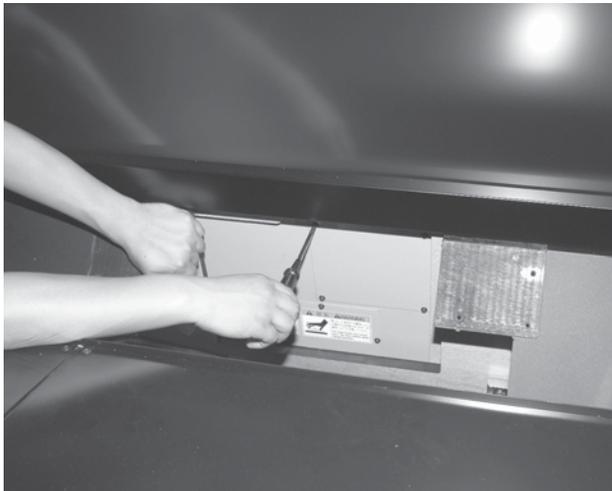


FIG. 8-3f



FIG. 8-3g

On the inside of the removed lamp replacement cover are replacement instructions.

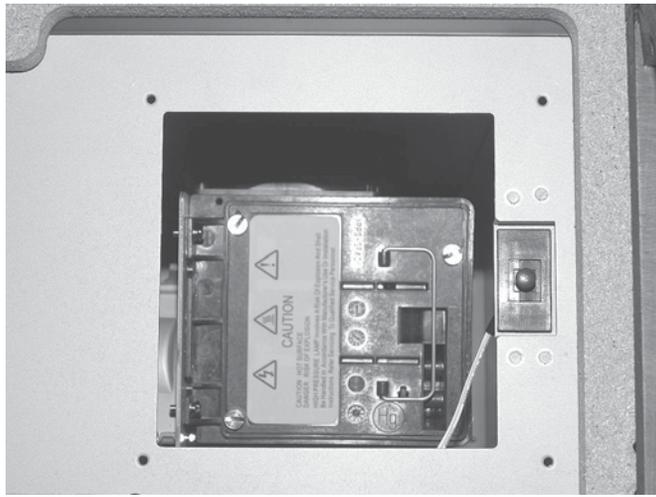


FIG. 8-3h

- 7** Use a flathead screwdriver to fully loosen the three lamp unit fastening screws. The design is such that the screws will not be lost even if they are loosened.

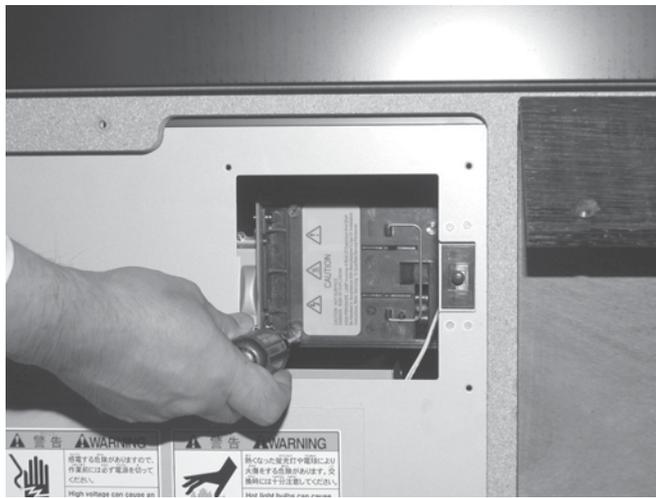


FIG. 8-3i

- 8** Grip the handle, and remove the lamp unit by pulling directly towards yourself.



FIG. 8-3j

- 9** Attach the new lamp unit. Insert it until it is all the way inside.

10 Tighten the three lamp unit fastening screws.

11 Attach the lamp replacement cover, and fasten its four screws.

12 Attach the front beam.

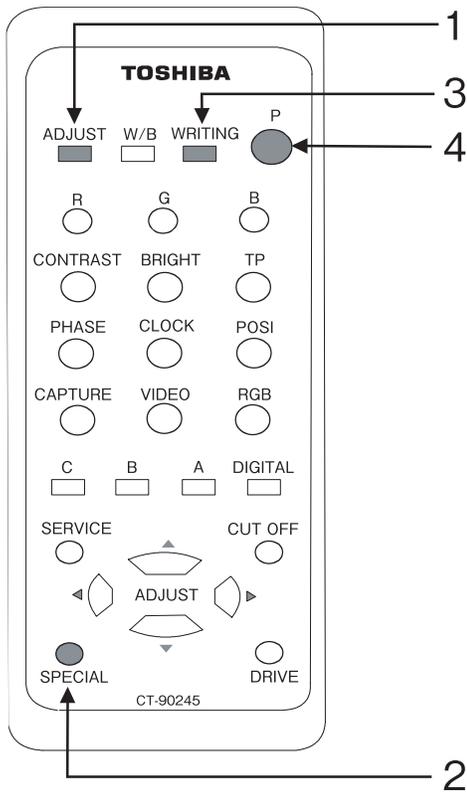
13 Attach the DLP front door, and lock it. Fasten the two truss screws.

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.

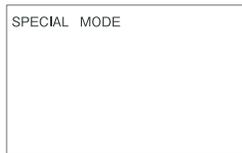
Displays the amount of time the lamp has been used for.



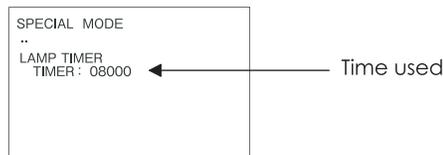
- 1 Press the ADJUST button.
The projector will enter Adjust Mode and wait for an adjustment category button to be pressed.



- 2 Press the SPECIAL button.
The projector will enter Special Mode and await further selections.



- 3 Press the WRITING button.
The amount of time the current lamp has been used for will be displayed.



Return to Normal Mode after checking the lamp timer

Press the ADJUST button.

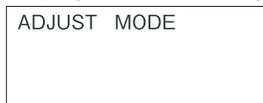


Press the ADJUST button.

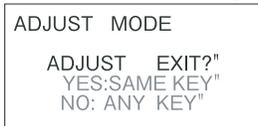


Press the ADJUST button again.

The projector will enter Adjust Mode.

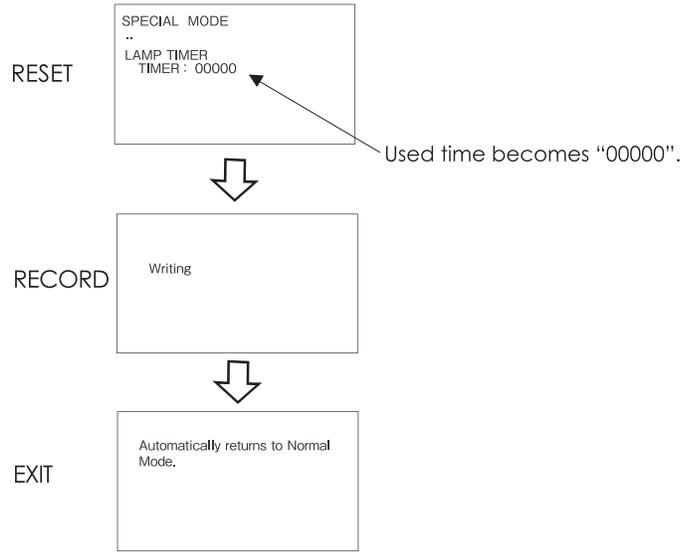


The exit menu will be displayed.



Returns to Normal Mode.

- 4** Hold down the P button for approximately 4 seconds.
(Will reset the timer, record it and exit.)
Once this message appears release the P button.
The used time will change to “00000” and the reset is complete.



9 STEERING WHEEL MECHANISM

WARNING

- When working with the product, be sure to turn the power off. Working with the power on may cause an electric shock or short circuit.
- Be careful not to damage the wires. Damaged wires may cause an electric shock, short circuit or present a risk of fire.
- Do not touch any parts that are not specified in these directions. Touching unspecified locations may lead to electric shock or cause short circuits.
- This work should be performed by site maintenance personnel or other skilled professionals. Work performed by non-technical personnel can cause a severe accident such as an electric shock.
- To prevent accidents while working or while operating the product after it has been installed, be sure not to conduct any procedures other than those given in this manual. There are cases in which procedures not covered in this manual require special tools and skills. If a procedure not given in this manual is required, request service from the office given in this manual or from the point of purchase.
- Exercise due caution in performing soldering procedures. If the soldering iron is handled carelessly, there could be fires or burns.
- Proceed very carefully when heating the thermal contraction tube. Careless operations can result in fires or burns.
- The motor parts may be hot immediately after a game has been completed, so allow some time to pass before beginning work on the parts.
- Stand back from the cabinet when restoring power after maintenance has been completed. The ride and steering wheel will automatically undergo initialization operation when power is restored. Failure to move away from the product could result in an accident such as a collision or fall.

CAUTION

- Be careful when handling the parts of the steering wheel mechanism. Avoid damaging, deforming, or losing them. The loss of even one part will adversely affect the operation of the steering wheel, and may cause player injury. It could also result in fatal breakdown or faulty operations.
- Be careful not to get fingers caught when removing or attaching doors or adjusting the VR bracket.
- The handle mechanism has mechanical parts such as gears and timing belts. Performing maintenance also requires a person to bend over the side of the cockpit. Careless work methods can result in injuries such as back and shoulder injuries, or fingers being caught.

When the operability of the steering wheel is poor, or when there is no effect from adjusting the volume in Test Mode, most likely either the volume gears are misaligned or the volume has broken down. Following the procedures described below, adjust the alignment of the gears, or replace the volume. This product is designed such that the volume will not be damaged when the steering wheel is turned completely to the left or right, because it will be within the range of the volume's axis of revolution. Fasten the volume so the gears are aligned appropriately when the steering wheel is in the center position (i.e. straight ahead) with the volume axis in the illustrated direction.

9-1 VOLUME ADJUSTMENT AND REPLACEMENT

Adjustment Method

- 1 Turn off the power switch of the cabinet that requires maintenance.

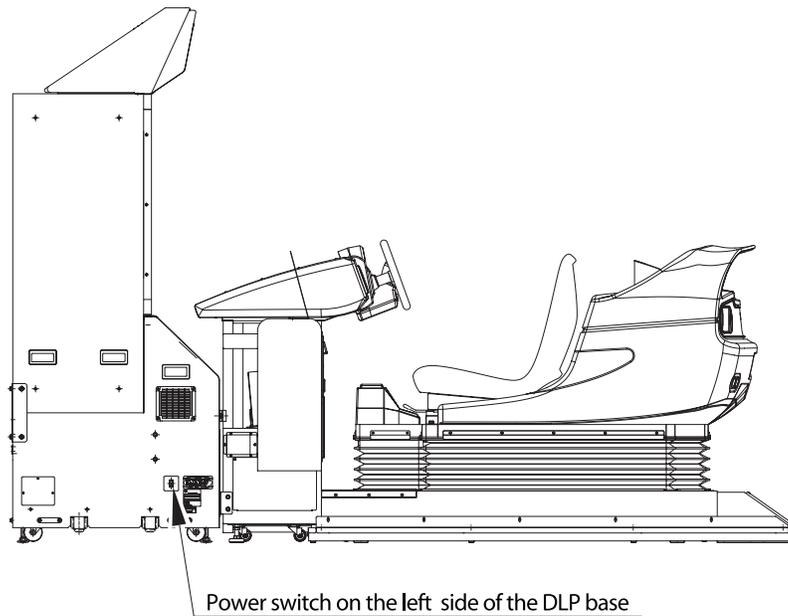


FIG. 9-1a

- 2 Remove the hood door on the same side as the steering wheel mechanism which requires adjustment. Remove four truss screws. Facing the projector screen, the left side is steering wheel L, and the right side is steering wheel R. In the illustrations below, work on steering wheel L is depicted.

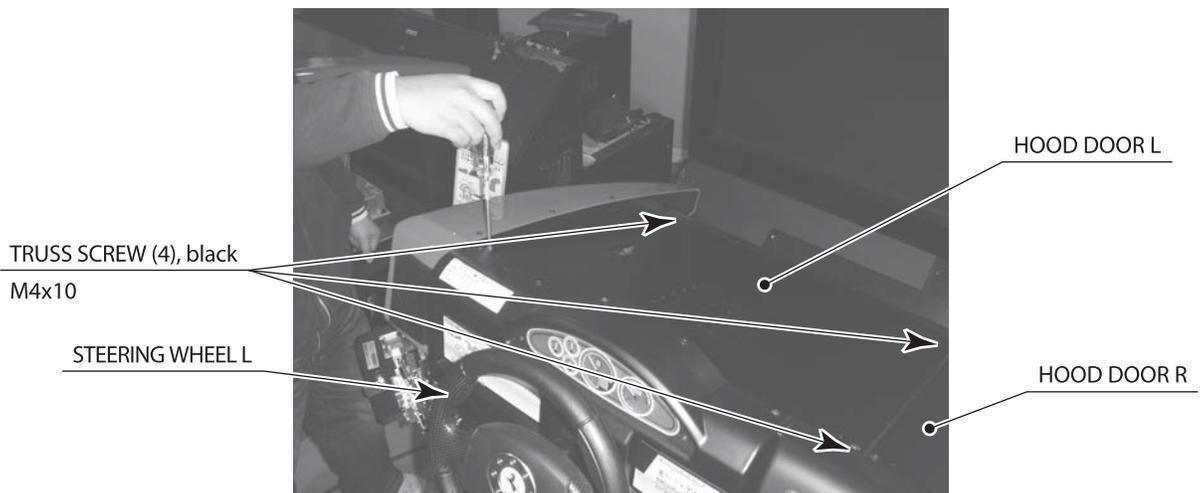


FIG. 9-1b

- 3** Remove hood door L (R). On the top of the door, there is a handle near the side. When reattaching the hood door after work has completed, be aware of the direction in which it is to be attached.



FIG. 9-1c

- 4** Loosen the two screws that fasten the VR bracket, and undo the gear alignment. Only loosen the two screws.
- 5** Align the gears so that the volume axis is as depicted below, with the steering wheel in center position (i.e. straight ahead).
- 6** Tighten the two VR bracket fastening screws.
- 7** Confirm that the gears rotate smoothly by operating the steering wheel.
- 8** On the Calibration Screen in the Game Test Mode, set the volume values. (See service manual.)

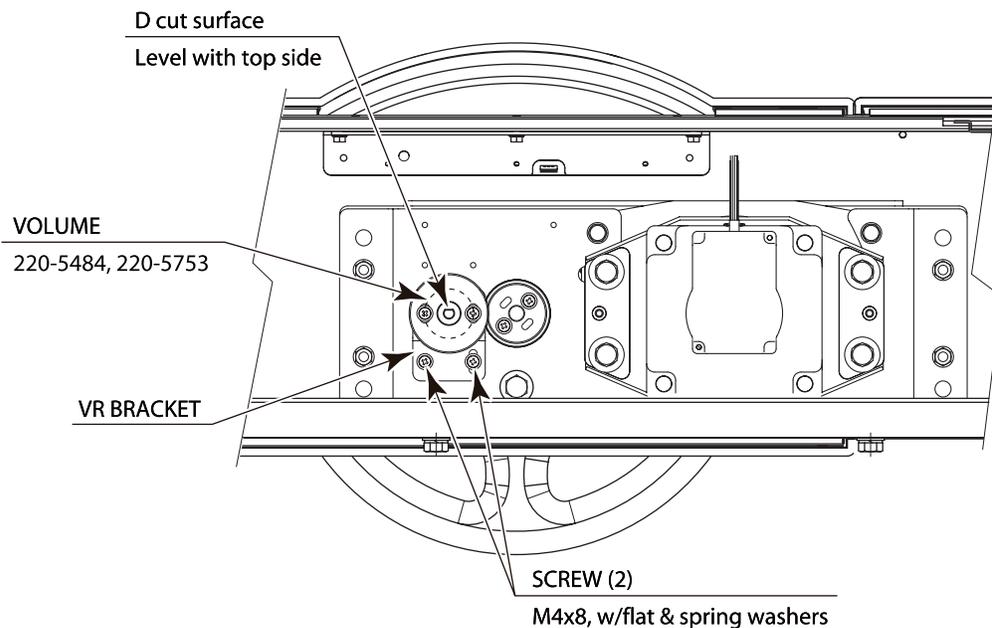


FIG. 9-1d STEERING WHEEL MECHANISM VOLUME

- 9** Confirm that the figures change smoothly by operating the steering wheel.

Replacement Method

When replacing the volume, prepare the new volume and three thermal contraction tubes (PART No. 310-5029-F20). Use the wiring to be soldered to the volume as is.

For replacement, the following tools are required.

- Philips screwdriver for M4 screws
- Allen wrench measuring a distance of 1.5 mm to opposite side
- Adjustable spanner measuring a distance of 11 mm to 12 mm to opposite side
- Nippers
- Cutter
- Soldering iron
- Industrial dryer
- Solder

- 1 Unplug the wiring connectors from the volume. Undo the cord clamp that fastens the wiring.



FIG. 9-1e

- 2 Remove the two screws that fasten the VR bracket, and remove the VR bracket together with the volume. The screws have flat and spring washers attached.
- 3 Loosen the two hexagon socket screws from the gear holder, and pull out the gear holder from the volume axis.
- 4 Remove the nut that fastens the VR bracket, and remove the volume from the VR bracket.
- 5 With nippers or a cutter, remove the thermal contraction tube that covers the solder weld part. Use a soldering iron to melt the solder weld, and remove the wiring from the volume.
- 6 Run each wire of the wiring through a thermal contraction tube.
- 7 Solder each wire to the terminals of the new volume. Be sure to verify the wire for soldering and its terminal using the wiring diagram.
- 8 Cover the solder weld part with thermal contraction tubing, and heat with the industrial dryer, adhering the thermal contraction tubing to the solder weld part.

9 Attach the VR bracket and gear holder to the volume.

10 Align the gears so that the volume axis's D cut surface is level with the top side, while the steering wheel is in center position (i.e. straight ahead). Fasten the VR bracket with two screws. (See FIG. 9-1d.)

11 Confirm that the gears rotate smoothly by operating the steering wheel.

12 Connect the connectors. Fasten the wiring with a cord clamp so that it does not get caught in the gears or other parts.

13 Turn on the power. Take proper precautions since the initialization operation will begin.

14 On the Calibration Screen in the Game Test Mode, set the volume figures. (See service manual.)

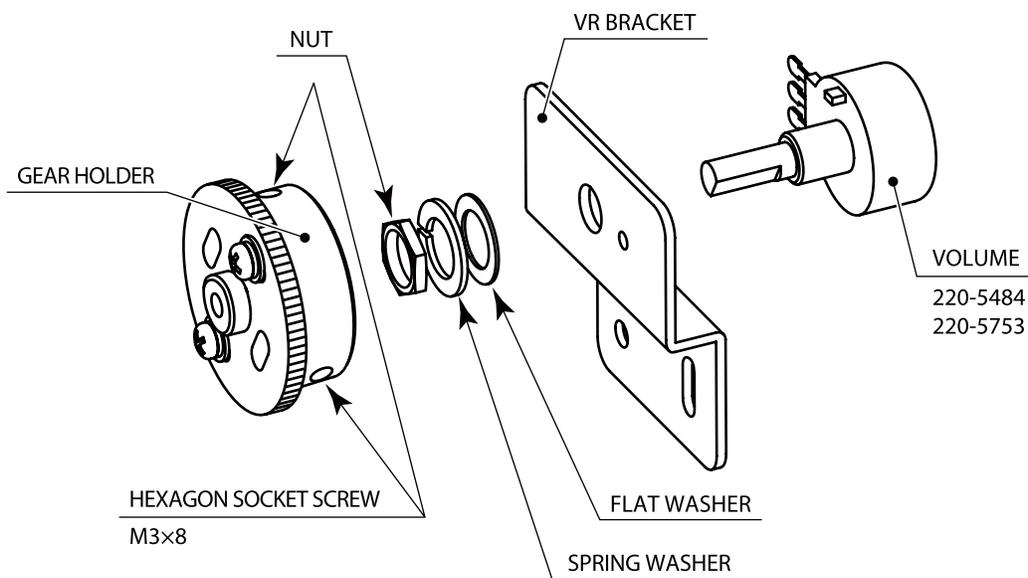


FIG. 9-1f

9-2 GREASING

STOP IMPORTANT

- Be sure to use the designated grease. Using undesignted grease can cause parts damage.
- Do not apply grease to locations other than as specified. Doing so may create a risk of operational problems and deterioration of parts.
- The designated periods for greasing serve only as a guide. Whenever there are squeaks or other anomalies, apply grease at designated locations.

Grease the parts listed below once every three months.
Use GREASE MATE (PART No. 090-0066) as spray grease.

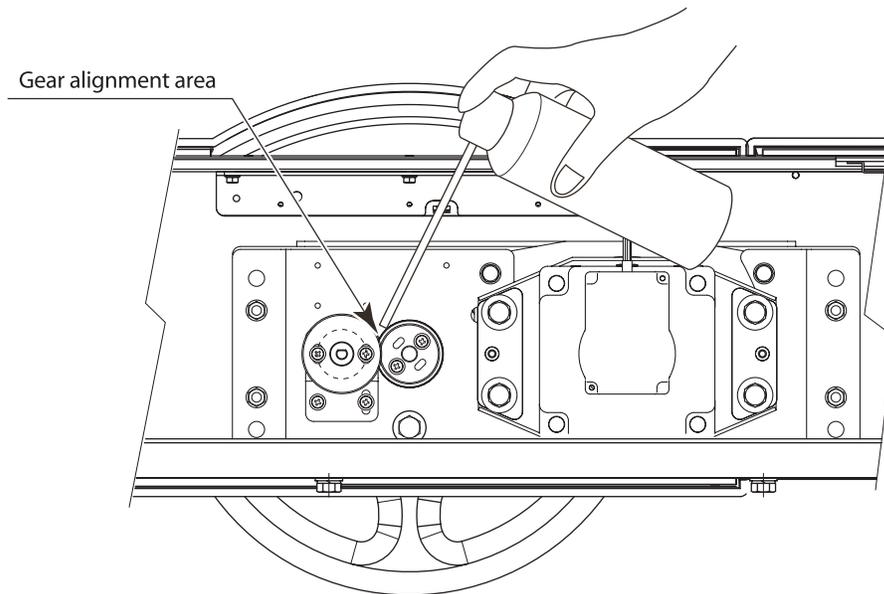


FIG. 9-2

10 GEAR SHIFTER

If there is an abnormality in the Gear Shifter's switch input as seen on the Test Screen, replace the switch. Also, mechanical sliding parts should be greased once every three months. Both of the above operations require removal of the Gear Shifter unit.

⚠ WARNING

- When working with the product, be sure to turn the power off. Working with the power on may cause an electric shock or short circuit.
- Be careful not to damage the wires. Damaged wires may cause an electric shock, short circuit or present a risk of fire.

10-1 GEAR SHIFTER REMOVAL

1 Turn off the power switch.

2 Remove the four tamperproof screws, and lift up the Gear Shifter unit.

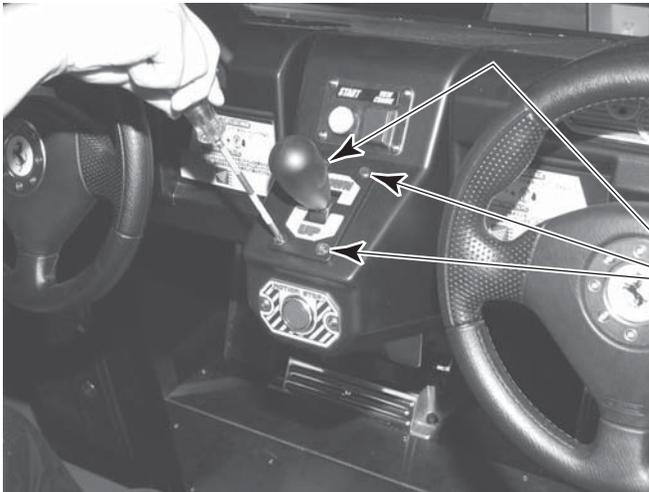


FIG. 10-1a

3 Unplug the connectors, and remove the Gear Shifter unit.



FIG. 10-1b

4 To attach, do the reverse procedure. Do the above steps in the opposite order. Be sure to attach so that the “DOWN” display is upwards.

5 After attaching, verify proper operation using the Input Test in Test Mode. (See service manual.)

10-2 SWITCH REPLACEMENT

1 Undo the wiring connectors from the switch to be replaced.

2 Remove two tapping screws, and replace the microswitch.

3 Verify that the indicators change in response to the manipulation of the Gear Shifter on the Input Test Screen in Test Mode. (See service manual.)

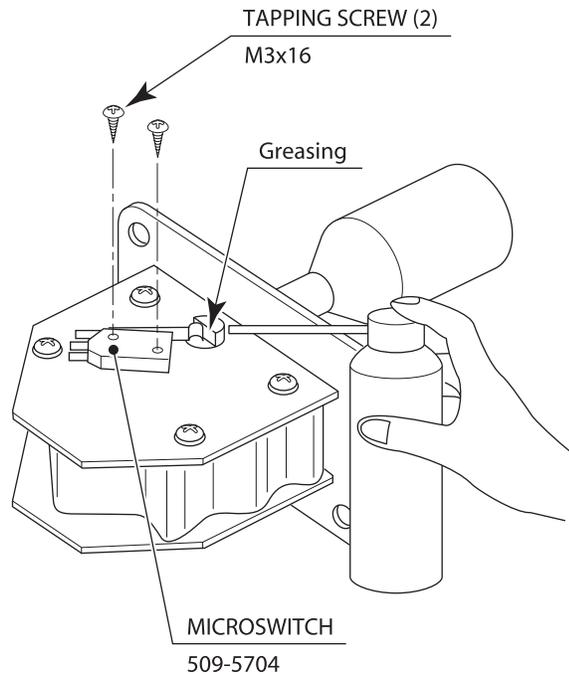


FIG. 10-2

10-3 GREASING

Once every three months, apply grease to the designated point specified. (See FIG. 10-2) Use NOK KLUBER L60 or GREASE MATE (PART No. 090-0066) as spray grease.

11 ACCELERATOR & BRAKE

WARNING

- When working with the product, be sure to turn the power off. Working with the power on may cause an electric shock or short circuit.
- Be careful not to damage the wires. Damaged wires may cause an electric shock, short circuit or present a risk of fire.
- Do not touch any parts that are not specified in these directions. Touching unspecified locations may lead to electric shock or cause short circuits.
- This work should be performed by site maintenance personnel or other skilled professionals. Work performed by non-technical personnel can cause a severe accident such as an electric shock.
- For the replacement of parts whose replacement methods are not listed in this manual, work should be done only after confirming the procedure and points of caution from the point of purchase or office listed in this manual. Using improper replacement parts or making improper adjustments can cause overloading and inadvertent contact between parts, which can result in electric shocks, short circuits, or fires.

STOP IMPORTANT

After replacing or adjusting the volume, always set the volume's movement values at the Volume Settings Screen in Test Mode. (See service manual.)

When the accelerator and brake pedal do not operate properly, either the volume attachment position must be adjusted, or the volume must be replaced. Also, the gear alignment position and spring should be greased once every three months.

11-1 VOLUME ADJUSTMENT AND REPLACEMENT

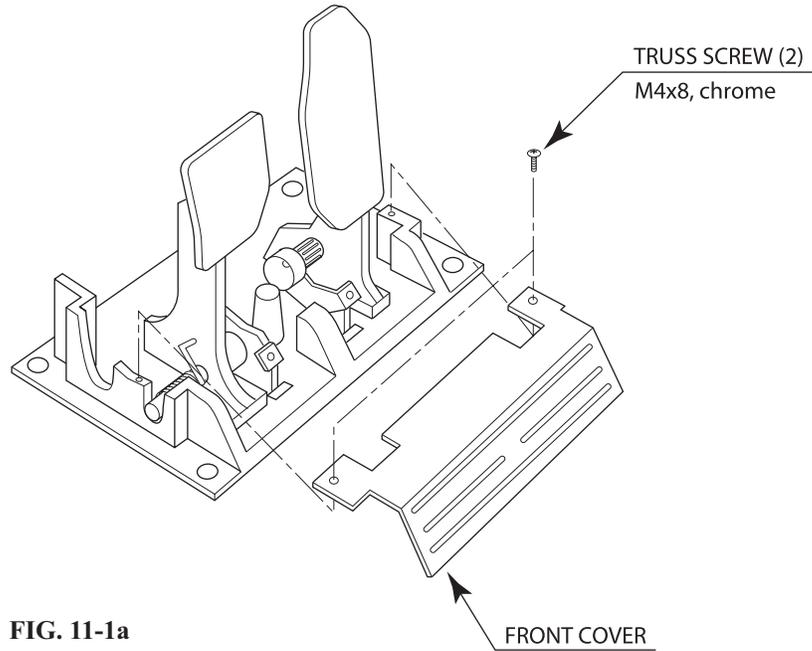
A Philips screwdriver for M4 and M5 screws is required for the following procedures.

To view the volume values, use Test Mode. (See service manual.)

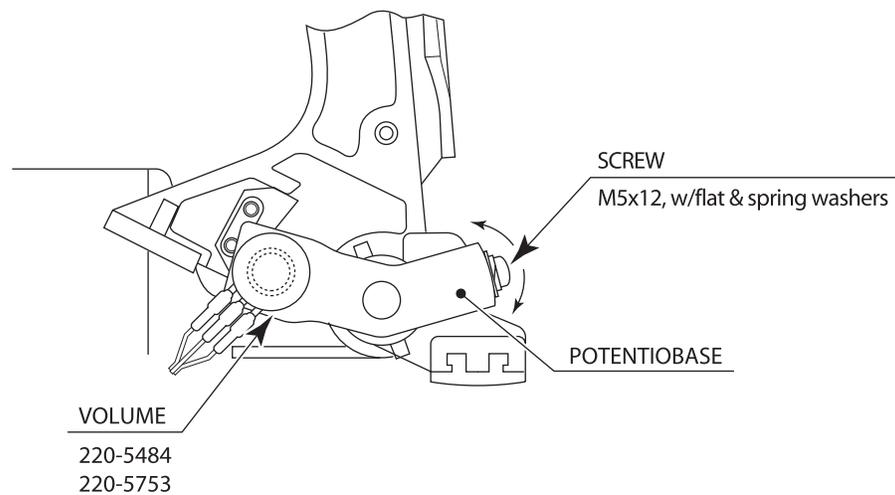
Because this procedure involves handling machinery with the power still connected, never touch places other than those designated. Failure to observe this precaution could result in electric shocks and short circuits.

Adjustment Method

- 1 Remove two truss screws, and remove the front cover of the accelerator and brake.



- 2 Loosen the screw that secures the potentiobase, and adjust the volume values by moving the base.



- 3 Fasten the potentiobase.
- 4 On the Calibration Screen in the Game Test Mode, set the volume values.
(See service manual.)
- 5 Confirm that the values change smoothly by operating the pedal.

Replacement Method

- 1 Turn off the power.
- 2 Remove two screws, and remove the potentiocover. (FIG. 11-1c)
- 3 Undo the connector of the volume to be replaced.
- 4 Remove the screw that fastens the potentiobase. (FIG. 11-1b)
- 5 With the volume still attached, remove the potentiobase. (FIG. 11-1c)
- 6 Remove the base and the gears, and replace the volume.
- 7 After replacement, set the volume as described in the “Adjustment Method” section above. (See service manual.)

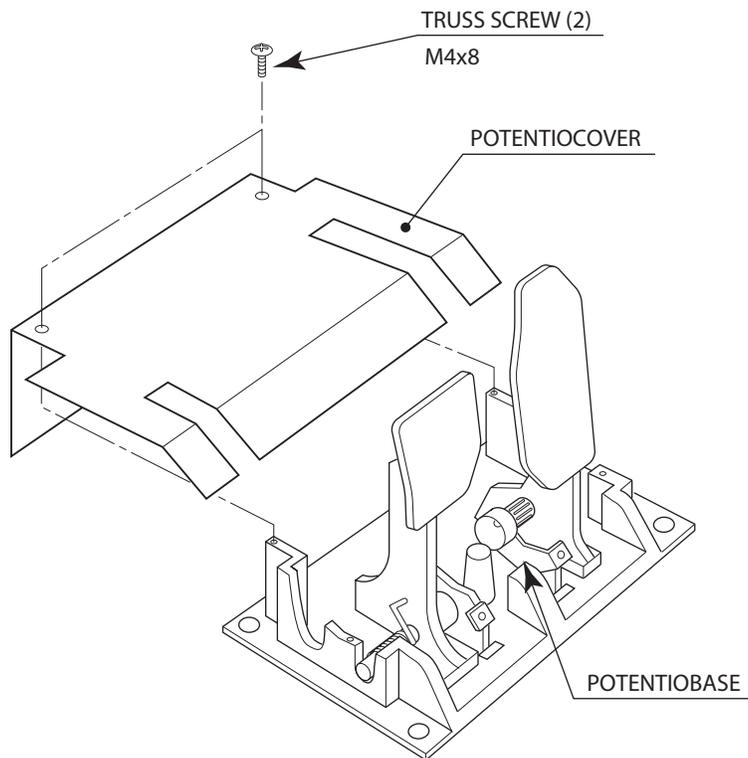


FIG. 11-1c

- 8 After adjusting the settings, confirm that the values change smoothly by operating the pedal.

11-2 GREASING

STOP IMPORTANT

Be sure to use the designated grease. Using undesignated grease can cause parts damage.

Grease the spring and gear alignment area once every three months.
Use GREASE MATE (PART No. 090-0066) as spray grease.

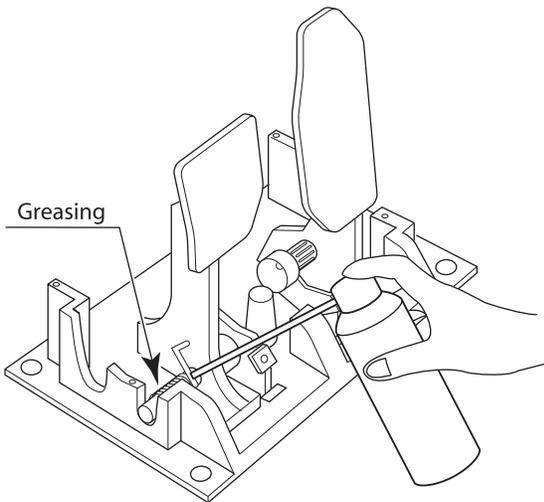


FIG. 11-2

12 COIN SELECTOR

Handling the Coin Jam

If the coin is not rejected when the REJECT button is pressed, open the coin chute door and open the selector gate. After removing the jammed coin, put a normal coin in and check to see that the selector correctly functions.

Cleaning the Coin Selector

STOP IMPORTANT

- Remove and clean smears by using a soft cloth dipped in water or diluted chemical detergent and then squeezed dry.
- Never apply machine oil, etc. to the coin selector. Never apply machine oil, etc. to the coin selector.
- After cleaning the coin selector, insert a regular coin during normal working status and ensure that the selector correctly functions.

The coin selector should be cleaned once every 3 months.
When cleaning, follow the procedure below:

- 1 Turn the power for the machine OFF. Open the coin chute door.
- 2 Remove the coin selector from the coin chute door.
- 3 Open the gate and dust off by using a soft brush (made of wool, etc.).

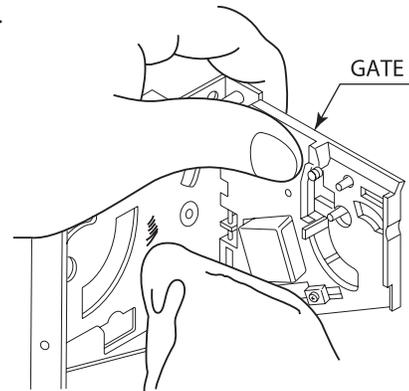


FIG. 12a

- 4 Remove and clean smears by using a soft cloth dipped in water or diluted chemical detergent and then squeezed dry.

- 5** Remove the cradle.
When removing the retaining ring (E ring), be very careful so as not to bend the rotary shaft.

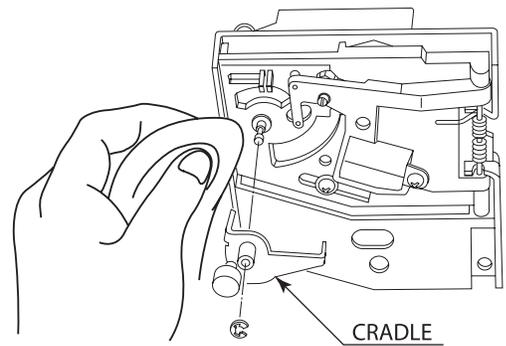


FIG. 12b

- 6** Remove any stains from the rotary shaft and shaft receiving portions by wiping with a soft cloth, etc.
- 7** After wiping off as per previous step, further apply a dry cloth, etc. to dry the coin selector completely.

Coin Insertion Test

Once every month, when performing the Coin SW Test, simultaneously check the following:

- Does the coin meter count satisfactorily?
- Does the coin drop into the cashbox correctly?
- Is the coin rejected when inserted while keeping the REJECT button pressed down?

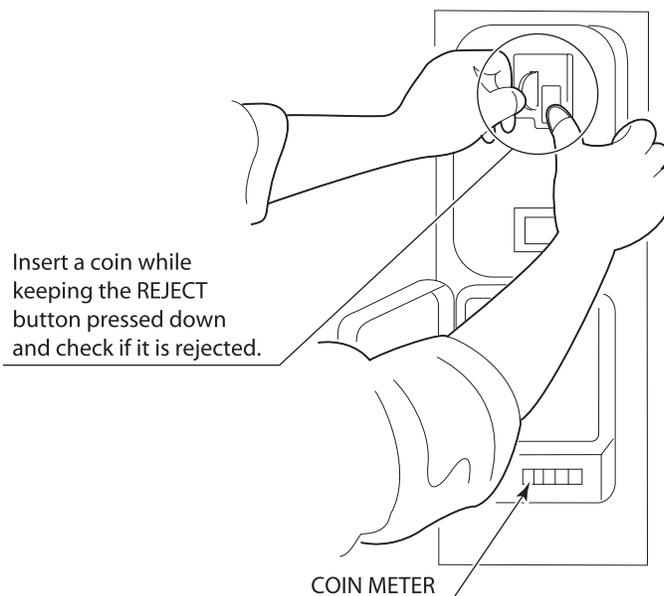


FIG. 12c

13 GREASING THE RIDE MECHANISMS

WARNING

- When working with the product, be sure to turn the power off. Working with the power on may cause an electric shock or short circuit.
- Be careful not to damage the wires. Damaged wires may cause an electric shock, short circuit or present a risk of fire.
- Do not touch any parts that are not specified in these directions. Touching unspecified locations may lead to electric shock or cause short circuits.
- This work should be performed by site maintenance personnel or other skilled professionals. Work performed by non-technical personnel can cause a severe accident such as an electric shock.
- To prevent accidents while working or while operating the product after it has been installed, be sure not to conduct any procedures other than those given in this manual. There are cases in which procedures not covered in this manual require special tools and skills. If a procedure not given in this manual is required, request service from the office given in this manual or from the point of purchase.
- Stand back from the cabinet when restoring power after maintenance has been completed. The ride and steering wheel will automatically undergo initialization operation when power is restored. Failure to observe this precaution could result in a collision or fall.
- Do not carelessly touch the ride mechanism. Doing so could result in broken bones or amputation.

CAUTION

When using grease, adhere to all warnings described on the grease's packaging. Careless use of grease can present health risks to workers.

- Grease may cause inflammation upon contact with skin. Use gloves for protection, and be careful not to let the grease come in contact with bare skin.
If grease gets into contact with skin, wash thoroughly with soap and water.
- There is a risk of cutting your hands when opening the container of grease. Use gloves for protection.
- The handling of grease is governed by laws and ordinances. Use grease in accordance with the laws and ordinances administered by the area where the facility is located. Unlawful usage can result in environmental pollution. If you are unsure of the laws and ordinances associated with handling grease, consult with the point of purchase of this product.

STOP IMPORTANT

- Use only the specified grease. Using any other kind of grease can result in faulty operations and damage to parts.
- To prevent dirt or water from mixing with grease, tightly seal the grease after usage.
- Store the grease in a dark area, out of direct sunlight.
- The designated periods for greasing serve only as a guide. Whenever there are squeaks or other anomalies, apply grease at designated locations.
- Be sure to use the special grease included with the product. The same grease is applied before shipping. Use of different grease creates chemical changes, and can result in faulty operations or operational failures.
- Order more grease from the point of purchase if you run out of the included special grease.
- Control the grease gun's lever so it is completely open and completely closed. Without implementing the full range of motion, the grease cannot be applied.
- Do not apply grease to locations other than as specified. Doing so may create a risk of operational problems and deterioration of parts.
- Use only the specified amount of grease when applying grease with the grease gun. Applying more than the specified amount of will have no effect.
- If you turn the power off when the actuators that move the ride are stretched, they will make noise when shrinking. This is not a malfunction.

The cockpit's ride mechanism has two actuators and a guide in the middle.
Grease the mechanisms at the following frequencies listed below.

- Actuator: Once per two months
- Guide: Once per year

13-1 GREASING THE ACTUATOR

Equip the included grease gun with the H-shaped nozzle, and apply the special grease to the upper and lower nipples of the actuator.

1 Turn off the power switch on the DLP base side of the ride that needs greasing.

2 Attach the H-shaped nozzle on the grease gun main part, and firmly fasten it.

H-SHAPED NOZZLE

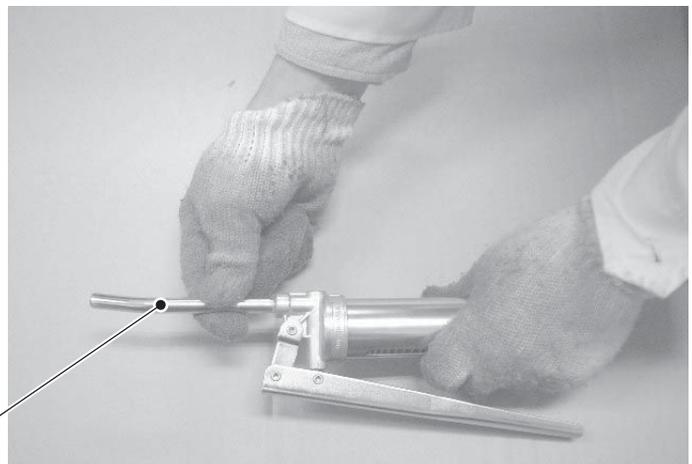


FIG. 13-1a

- 3** Unscrew the grease tube of the included grease gun, and remove it from the main part.

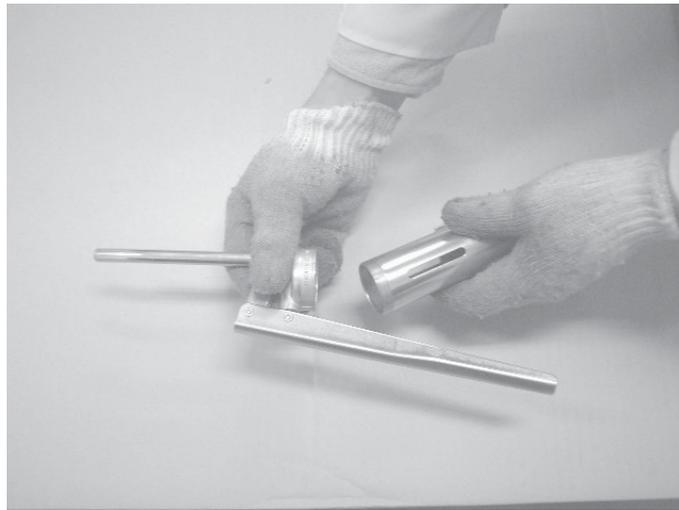


FIG. 13-1b

- 4** Remove the cap of the included grease cartridge.

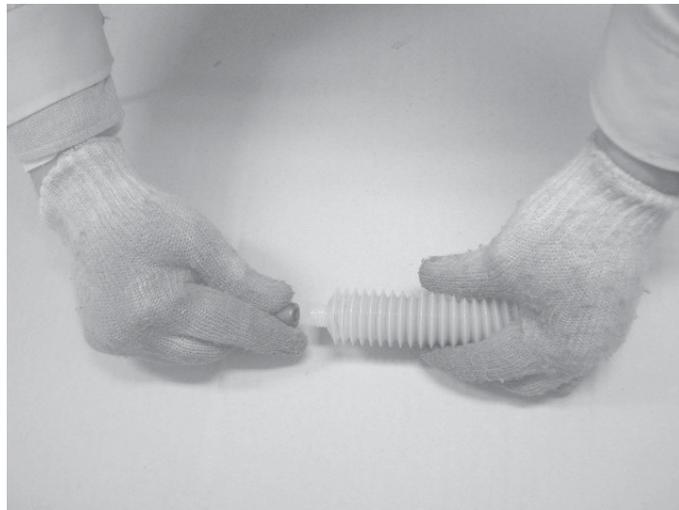


FIG. 13-1c

- 5** Screw the grease cartridge onto the grease gun.



FIG. 13-1d

- 6** Reattach the grease tube to its original position on the grease gun main part.

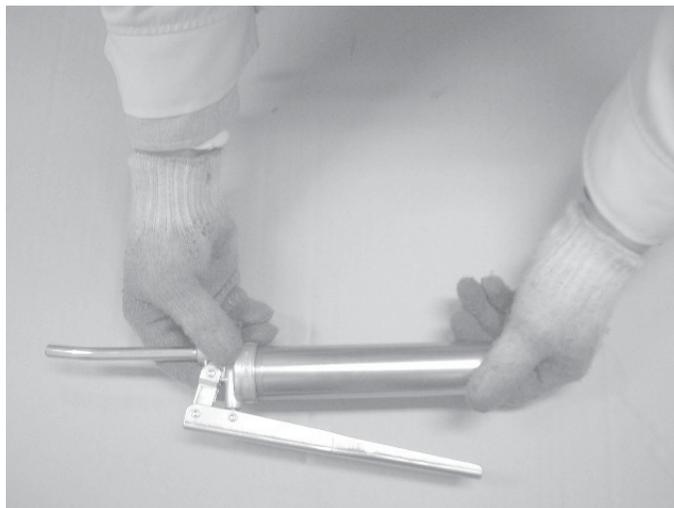


FIG. 13-1e

- 7** Remove the two upper lids at the rear of the seat. Remove eight truss screws for each. After removing the upper lids, you will see the upper nipple of the actuator.

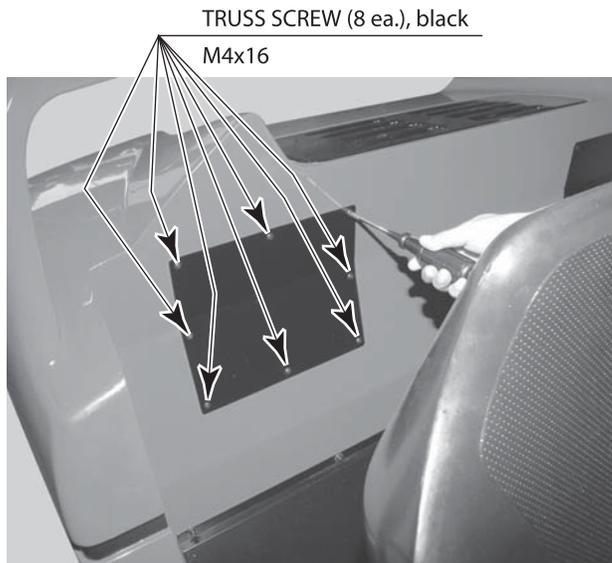


FIG. 13-1f

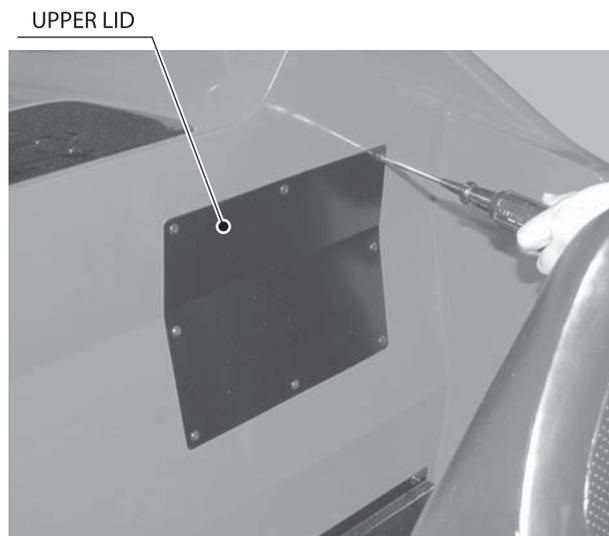


FIG. 13-1g

- 8** Insert the H-shaped nozzle's tip into the nipple, and apply grease. Apply grease by fully opening and closing the grease gun's lever repeatedly. Do three to four repetitions.

Apply grease.

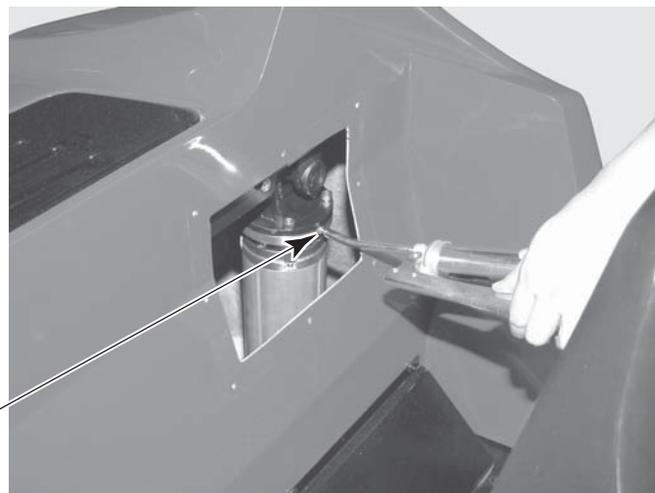


FIG. 13-1h

- 9** Remove the rear holder that fastens the top part on the rear side of the bellows. Remove four screws. The screws have flat and spring washers attached.

SCREW (4), black
M4x12, w/flat & spring washers



FIG. 13-1i

- 10** Remove the rear holder.

REAR HOLDER



FIG. 13-1j

- 11** Remove the side holders that fasten the upper part on the left and right side of the bellows. Remove five screws from each. The screws have flat and spring washers attached.

SCREW (5 ea.), black
M4x12, w/flat & spring washers

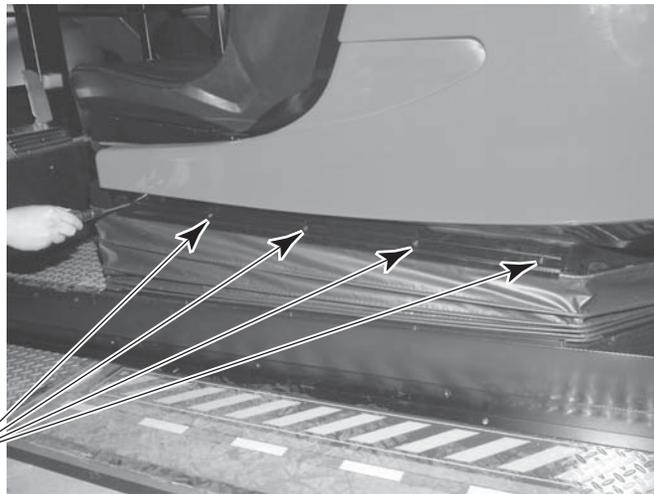
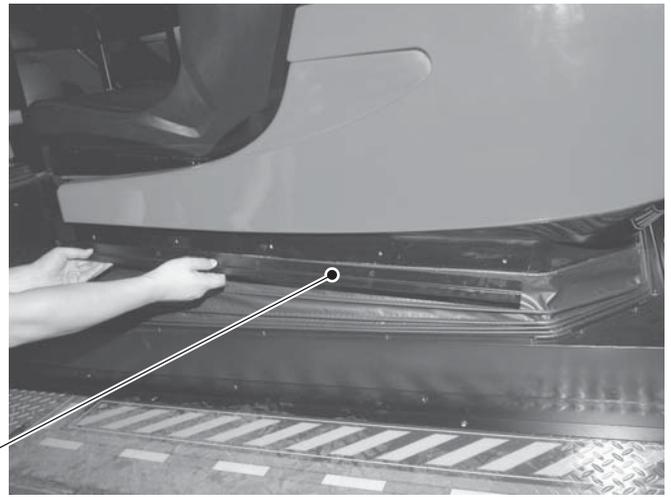


FIG. 13-1k

12 Remove the side holders from each side.



SIDE HOLDER

FIG. 13-11

13 Push down on the bellows to assure there is an opening. You will see the lower nipple of the actuator.

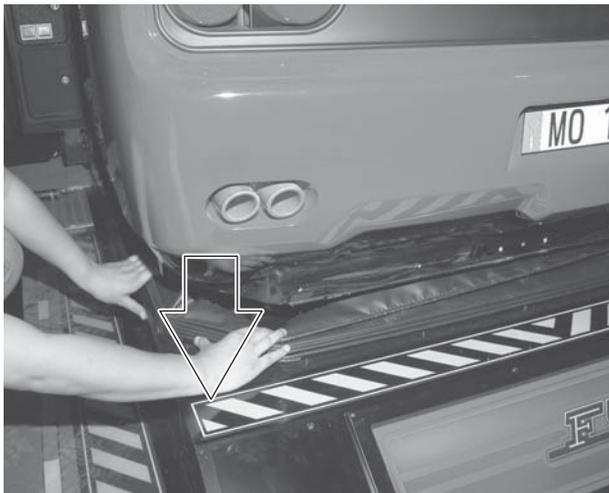


FIG. 13-1m

NIPPLE

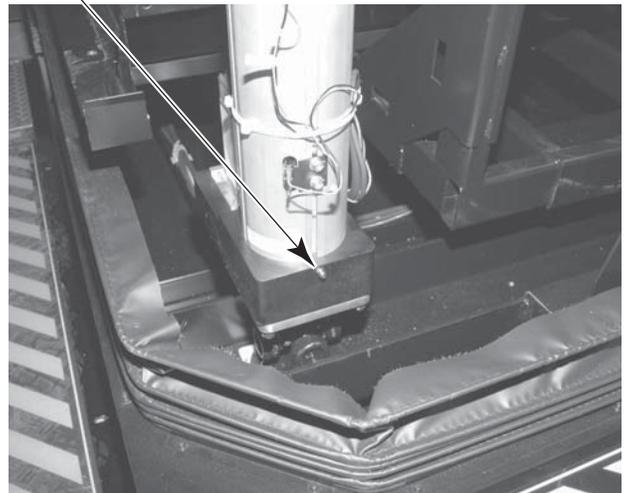
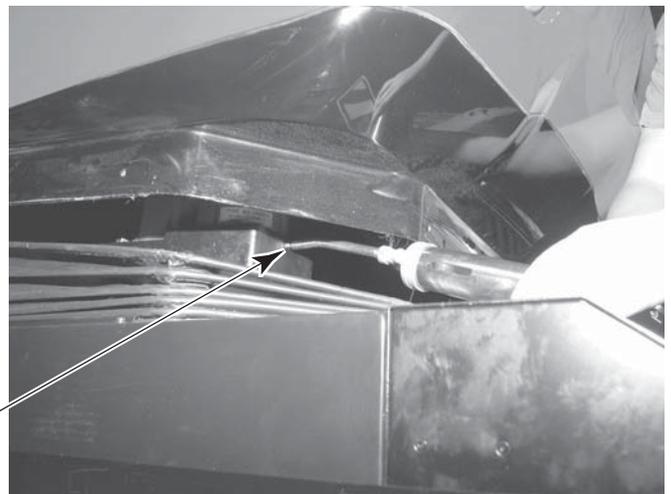


FIG. 13-1n

14 Insert the H-shaped nozzle's tip into the nipple, and apply grease.

Apply grease by fully opening and closing the grease gun's lever repeatedly. Do one to two repetitions.



Apply grease.

FIG. 13-1o

13-2 GREASING THE GUIDE

⚠ CAUTION

- Use at least two people to remove the ride body (car body). Trying to remove the body alone can result in an accident. The ride body itself could also be damaged.
- In order not to damage the ride body, take appropriate measures. If damaged, chipped pieces and fragments could cause injury, and maintenance and repair could be difficult to conduct.
 - Assure the availability of space to place the removed ride body.
 - Do not stand up the ride body because it could become deformed.
 - Place it on a soft floor covering such as a blanket.

To grease the universal joints of the lower and upper actuators and guide of the ride's central mechanisms, the ride body will be removed. Since the ride body is a large part, one worker cannot remove it alone. Two or more workers must remove the ride body.

Use the included grease gun and special grease for greasing the universal joints. Use the grease listed below for greasing the guide.

Sumico Lubricant Sumitec 305

Poly-alpha-olefin (PAO) synthetic oil grease (extra lubrication type)

This grease is an organic molybdenum compound, with weight support, for plastic lubrication. If you are unable to obtain an equivalent product, contact the office listed in this manual or the point of purchase.

- 1 After turning off the power switch on the rear side of the control tower, turn off the power switch on side of the DLP base of the ride to be greased.
- 2 Remove the two side holders and rear holders that fasten the top part of the bellows. (See 13-1.)
- 3 Remove the lower cover on the lower side at the rear of the seat. Remove ten truss screws. The screws use flat washers.

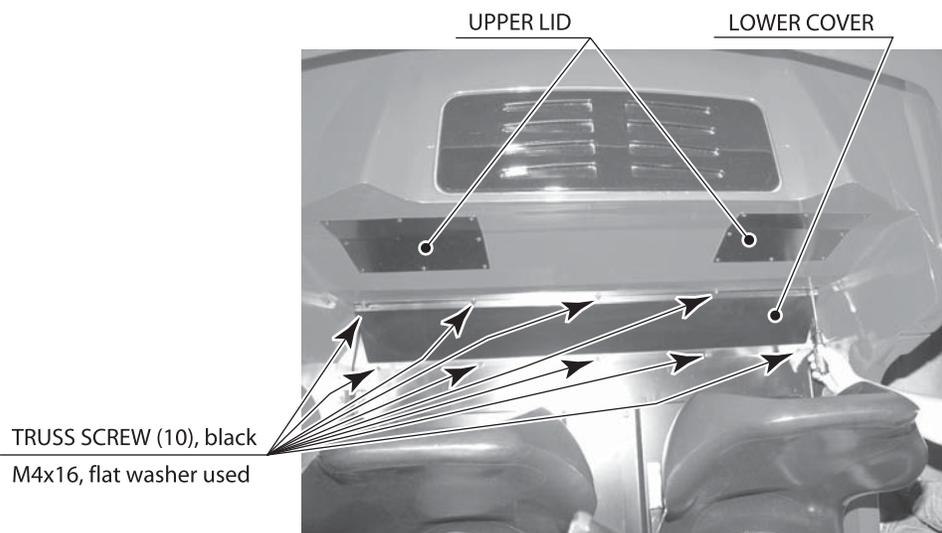


FIG. 13-2a

4 Remove the two upper lids from the rear of the seat. (See 13-1.)

5 Remove the hexagon bolts between the ride body side panels and the left and right seats. There are three bolts on each side, totaling six bolts for removal. The side panels use flat washers with bolts that have spring washers attached.

HEXAGON BOLT (3 ea.), black
M8x20, w/spring washer, flat washer used

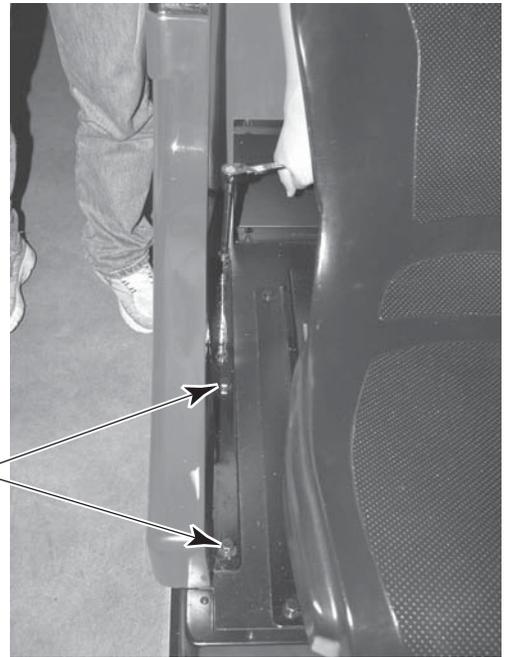


FIG. 13-2b

6 Remove the wiring connector inside the upper lid. Facing the projector screen, this connector is only on the right side.

Remove the connector.
(Right side only)

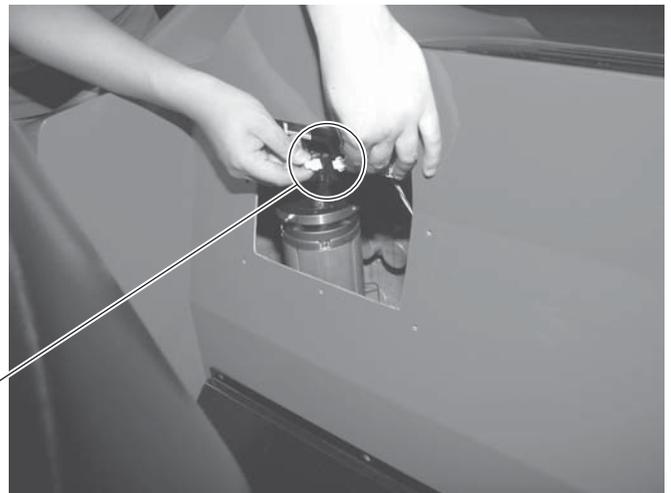


FIG. 13-2c

7 Remove the hexagon bolts inside the upper lid on the left and right sides, totaling two bolts for removal. The bolts use flat and spring washers.

HEXAGON BOLT (total 2), black
M8x120, spring (silver) & flat (black) washers used

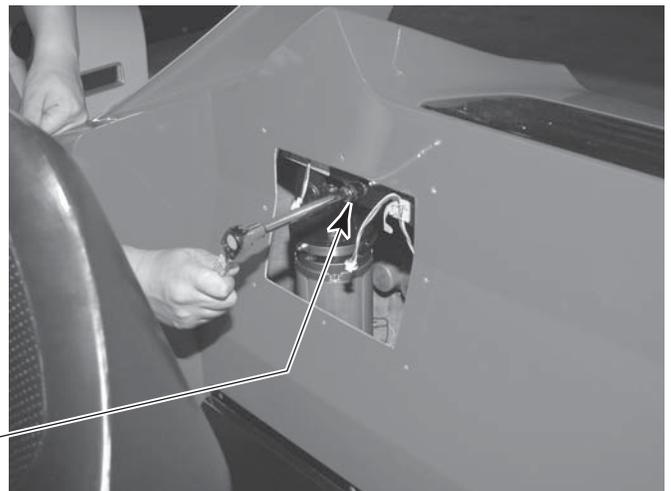


FIG. 13-2d

- 8** Employ at least two people to vertically lift and remove the ride body. To avoid damage, carry the body to a separate area.

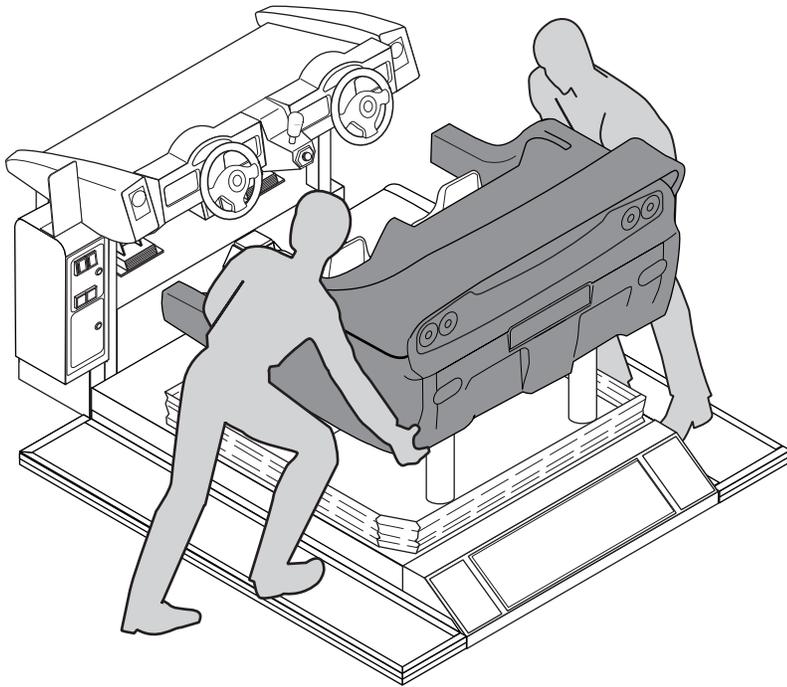


FIG. 13-2e

- 9** Grease the guide part. Apply grease to sliding parts.

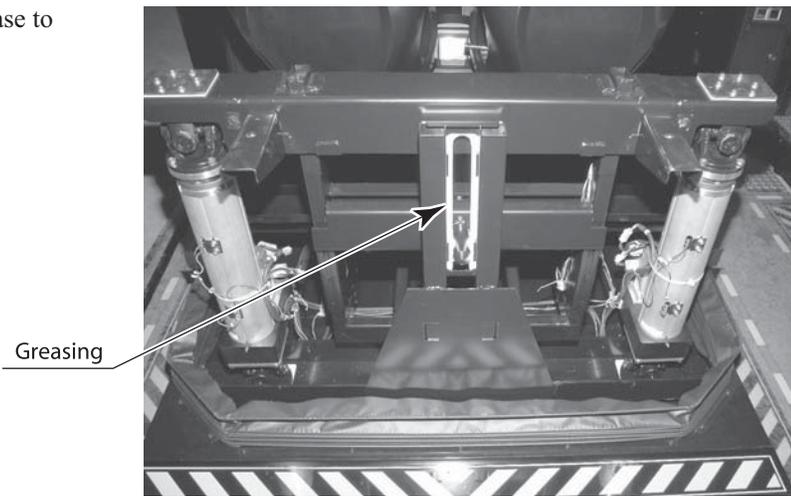


FIG. 13-2f

- 10** Attach the H-shaped nozzle on the included grease gun, and install the special grease cartridge. (See 13-1.)

- 11** Grease the universal joints of the upper and low parts of the two actuators.
 Insert the tip of the H-shaped nozzle of the grease gun into the nipple of the universal joint, and apply grease.
 Apply grease by fully opening and closing the grease gun's lever repeatedly. Do one to two repetitions.

UNIVERSAL JOINT NIPPLE

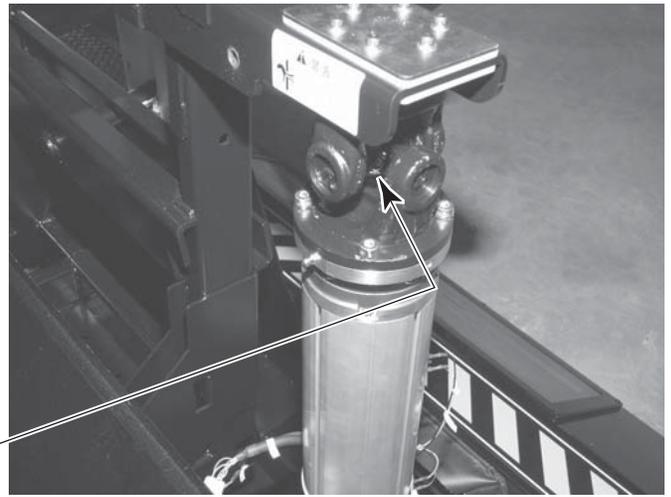


FIG. 13-2g



FIG. 13-2h



FIG. 13-2i

14 FLUORESCENT LIGHT REPLACEMENT

⚠ WARNING

- When working with the product, be sure to turn the power off. Working with the power on may cause an electric shock or short circuit.
- There is danger that hot lamps can cause burns. Exercise due caution when replacing lamps.
- Use lamps of the specified ratings. Using lamps with different ratings may cause fires or damage.
- Watch your step while working. There is a step leading to the ride inside the cabinet. You could stumble and fall.
- Such things as deteriorated insulation in lighting fixtures can cause a short circuit and/or smoke. Make sure there are no abnormalities. For example, check if you can smell anything burning, if any sockets have been discolored and if the lamp has to be replaced frequently.

⚠ CAUTION

- To safely and reliably perform this work, be sure to use a stable stepladder. Use of an unstable stepladder can result in a worker falling over or falling down.
- Be careful when handling parts made of plastic or glass. For example, be careful not to tighten screws excessively. If such parts are damaged, injuries could be caused by fragments, cracks, etc.

Rear Lamp Fluorescent Light

1 Turn off the power switch of the cabinet whose rear lamp fluorescent light will be replaced.

2 Remove the eight truss screws that fasten the rear lamp cover.

TRUSS SCREW (8), black
M4x16

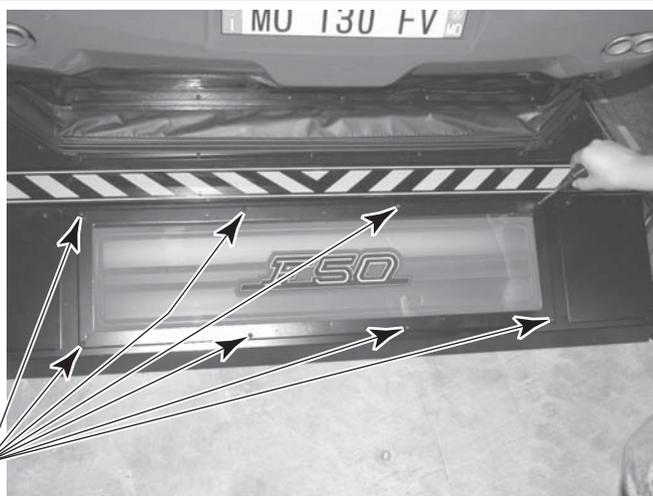


FIG. 14a

3 Remove the rear lamp cover.



FIG. 14b

4 Replace the fluorescent light and glow lamp.



FLUORESCENT LIGHT 25 W: 390-6870-UL
GLOW LAMP: 390-6874-UL

FIG. 14c

5 Attach the rear lamp cover.

Billboard Fluorescent Light

- 1 Remove the three screws then remove the service door.

TRUSS SCREW (3), black
M4x8

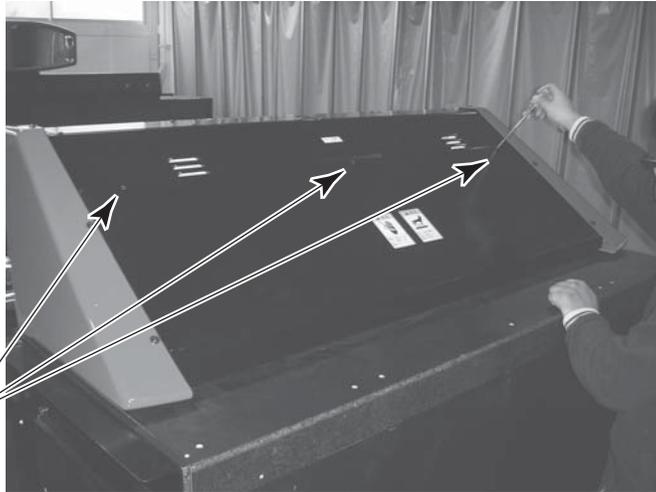


FIG. 14d



FIG. 14e

- 2 Replace the fluorescent light and glow lamp.

FLUORESCENT LIGHT 40 W: 390-6865-UL

GLOW LAMP: 390-6872-UL

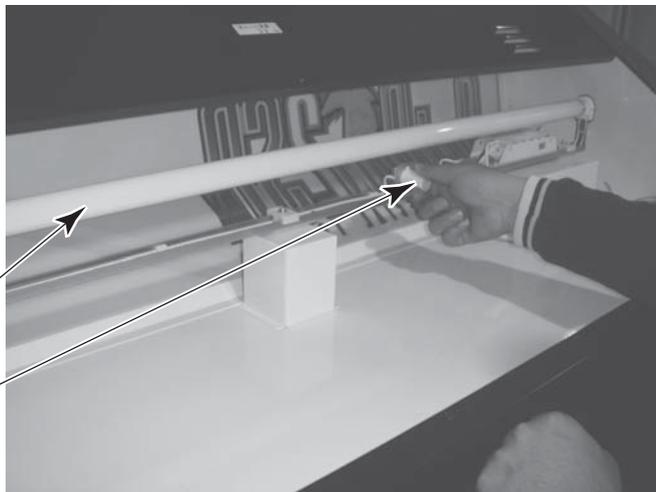


FIG. 14f

3 Reattach the service door.

TRUSS SCREW (3), black
M4x8

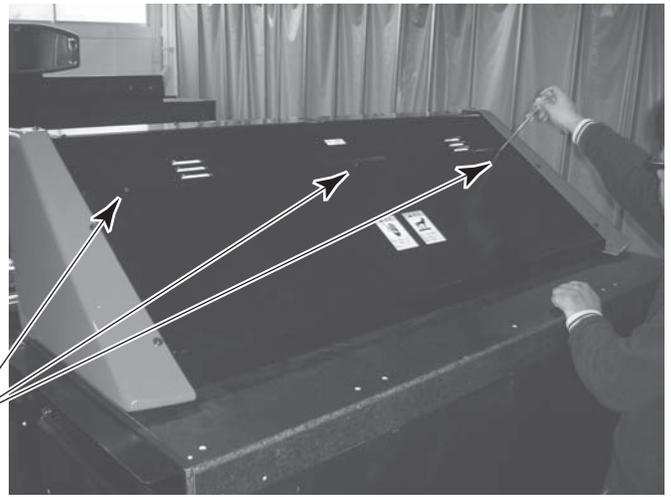


FIG. 14g

15 PERIODIC INSPECTION

WARNING

- Be sure to check once a year to see whether power cords are damaged, the plug is securely inserted, dust has accumulated between the socket outlet and the power plug, etc. Using the product with accumulated dust can cause fire and electric shock.
- Never use a water jet, etc. to clean inside and outside the cabinet. If the machine gets wet for any reason, do not use it until it has completely dried.
- Periodically, around once a year, get in touch with the office herein stated or the distributor, etc. where the product was purchased from, regarding internal cleaning. Using the product with accumulated dust in the interior can cause a fire or accident. Note that professional cleaning will require a fee.
- There is the danger of accidents involving electrical shorts circuits or fire caused by factors such as the deterioration of insulation in electrical and electronic equipment over time. Check that there are no abnormalities such as odors from burning.
- For all normal maintenance procedures, always turn off the power before beginning. Starting the procedures with the power still on can result in electric shocks or short circuits.
- When restoring power after maintenance is completed or going into or coming out of the Test Mode, be sure to verify that there are no people near the product. When the power is restored or when coming out of Test Mode, the product will automatically undergo initialization operation. If someone is near the product, there could be a minor or major collision.
- In the event that parts related to the ride mechanisms (actuators, limit switches, etc.) are damaged or break down, or when parts replacement or repairs are needed, request work be done by the point of purchase or the office listed in this manual. Such procedures require specialized knowledge, techniques, and tools. Improperly performed procedures can result in accidents.

The items listed below require periodic checks and maintenance to guarantee the performance of this machine and to ensure safe operation.

Regularly clean all points of direct player contact such as the steering wheel, gear shifter, and seat. Make regular inspections to ensure there is no damage to the surfaces and there are no foreign objects on the parts.

TABLE 15 PERIODIC INSPECTION TABLE

ITEMS	DESCRIPTION	PERIOD	REFERENCE
Area surrounding installed product	Check space for evacuation and exhaust	Daily	2
CABINET	Confirm that adjusters contact floor	Daily	3
	Inspect bellows	Daily	3
	Steering wheel, gear shifter surface inspection	Daily	3
	Seat inspection, removal of foreign objects	Daily	3
	Trial run	Daily	3
	Confirm operation of MOTION STOP button	Daily	3
DLP PROJECTOR	Screen cleaning	Weekly	8-1
	Confirm settings	Monthly	6 [13] , 8-2
	Replace lamp	Upon message display	8-3
STEERING WHEEL MECHANISM	Volume inspection	Monthly	Service Manual 3
	Gear alignment inspection	Every 3 months	Service Manual 3
	Greasing	Every 3 months	9-2
GEAR SHIFTER	Switch inspection	Monthly	Service Manual 3
	Greasing	Every 3 months	10-3
ACCELERATOR & BRAKE	Volume inspection	Monthly	Service Manual 3
	Greasing	Every 3 months	11-2
COIN SELECTOR	Coin switch inspection	Monthly	12
	Coin insertion test	Monthly	12
	Selector cleaning	Every 3 months	12
SEAT RAIL	Greasing	Every 3 months	Next page
ACTUATOR	Greasing	Every 2 months	13
GUIDE	Greasing	1 year	13
FLUORESCENT LIGHTS, LAMPS	Lighting fixture inspection	As appropriate	As above
ELECTRONIC/ ELECTRICAL PARTS	Inspection	As appropriate	As above
GAME BOARD	All tests	Monthly	Service Manual 3
	Confirm settings	Monthly	Service Manual 3
POWER CABLES & EARTH WIRES	Inspection, Cleaning	1 year	As above
CABINET INTERIOR	Cleaning	1 year	As above
CABINET SURFACES	Cleaning	As appropriate	Next page

Cleaning the Cabinet Surfaces

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 such 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 parts, 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.

Seat (Greasing to Seat Rail Portion)

Move the seat to the rearmost position and apply grease to the portion shown in the figure once every 3 months by using NOK KLUBER L60 or GREASE MATE SEGA PART No. 090-0066.

After greasing, move the seat a few times forward and backward so as to allow the grease to be applied all over uniformly.

Be sure to wipe grease which attaches to the surfaces of the PROTECT RUBBER on the seat rail, or any excess grease.

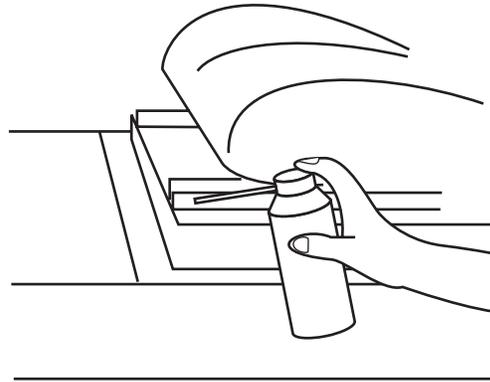


FIG. 15

16 TROUBLESHOOTING

WARNING

- Should an error message appear, have the facility's maintenance or technical staff deal with the issue. Work by those without the necessary specialized knowledge and technical expertise can result in electric shocks, short circuits, and fires. If such maintenance or technical staff is not available, or if the problem is with the ride mechanisms, immediately turn off the product's power and contact the office listed in this manual or the point of purchase.
- In the event that problems arise beyond those covered in this manual, or if the procedures listed in this document do not solve the problem, do not attempt to solve the problem with careless measures. Immediately turn off the product's power and contact the office listed in this manual or the point of purchase. Improper procedures can result in unforeseen accidents. There is also a risk of fatal damage.
- When restoring power after the problem has been resolved or going into or coming out of Test Mode procedures, be sure to verify that there are no people near the product. When the power is restored or when coming out of Test Mode, the product will automatically undergo initialization operation. If someone is near the product, there could be a minor or major collision.
- When working with the product, be sure to turn the power off. Working with the power on may cause an electric shock or short circuit.
- Be careful not to damage the wires. Damaged wires may cause an electric shock, short circuit or present a risk of fire.
- Once the reason that the breaker or circuit protector activated has been removed, restore the breaker or circuit protector to its original condition. If the product is used while the reason for activation has not yet been removed, heat and/or fire could be generated.
- In the event that parts related to the ride mechanism actuator are damaged or break down, or when parts replacement or repairs are needed, request work be done by the point of purchase or the office listed in this manual. Such procedures require specialized knowledge, techniques, and tools. Improperly performed procedures can result in accidents.

Because this product has parts such as the ride mechanisms, it has some unique error messages. When an error message appears, refer to the supplemental service manual.

If trouble arises, first inspect the connections of the wiring connectors.

TABLE 16

PROBLEMS	CAUSE	COUNTERMEASURES
The steering wheels do not initialize.	The wiring is not connected correctly.	Check the connections of the wiring from the steering wheel motor to the steering wheel driver board.
		Check the wiring from the game board to the steering wheel drive switchboard.
		Check the wiring from the IO board to the steering wheel unit volume.
The ride does not initialize.	The wiring is not connected correctly.	Check the connections of the wiring from the game board to the actuator control board.
		Check the connections of the wiring from the actuator control board to the servo amplifier.
		Check the connections of the wiring from the servo amplifier to the actuator motor.
Sound does not output from speakers.	The wiring is not connected correctly.	Check the connections of the wiring from the game board to the speaker.
	The volume is not appropriate.	Check the volume inside the coin tower.
The projector does not display an image.	The wiring is not connected correctly.	Check the connections of the wiring of the projector.
	The projector lamp has burned out.	Replace the projector's lamp unit. (See 8-3.)
The steering wheel does not perform appropriately.	The steering wheel volume has broken down.	Use Test Mode to check the changes in the steering wheel values, and replace the volume if there are problems. (See 9-1.)
	The steering wheel center position is misaligned.	Adjust the steering wheel's centering using Test Mode.
The steering wheel does not respond or is weak.	The Test Mode setting value.	Use Test Mode to adjust the motor power value to an appropriate level.
The accelerator or brake does not perform appropriately.	The volume has broken down.	Use Test Mode to check the changes in the various values, and replace the volume if there are problems. (See Section 11.)
The START button or VIEW CHANGE buttons do not operate properly, or the lamps do not glow.	The button has broken down, or the IO board has broken down.	Use Test Mode to check input and output, and replace the parts if there are problems.
The ride does not move.	An error has arisen in the servo amplifier because of a problem such as overloading.	Turn the power of the cockpit with the problem to off, wait about 30 seconds, then switch the power to on again.

PROBLEMS	CAUSE	COUNTERMEASURES
Abnormal sounds come from the rear part of the ride.	The actuator is over its limits because of improper adjustment with the limit switch.	The actuator or limit switch requires adjustment. Contact the office listed in this manual or the point of purchase.
	The actuator has not been properly maintained.	Turn the power off, remove the FRP, and grease the actuator. (See Section 13.)
The fluorescent lights of the rear lamp or the billboard do not glow.	The wiring is not connected correctly.	Check the fluorescent light power connections.
	The fluorescent light or glow lamp has burned out.	Replace the florescent light or glow lamp. (See Section 14.)
Network play does not work.	Test Mode settings are not correct.	Check the game assignment items in Test Mode. (See recommended settings for OutRun 2 SP DX.)
	The hub does not have power.	Check the connections of the wiring to the hub inside the DLP base.
	The network cable is not connected correctly.	Check the connections of the wiring inside the joints between the DLP bases.

WARNING

- When working with the product, be sure to turn the power off. Working with the power on may cause an electric shock or short circuit.
- Have work pertaining to electric circuitry such as with the game board done by the site maintenance personnel or other qualified professionals. Otherwise there could be an electric shock or other serious accident. If no one with proper knowledge and skills is available, request work from the point of purchase or the office indicated in these instructions.
- Have auxiliary lighting made available. The cabinet structure makes it difficult for external lighting to reach inside the cabinet and floorboards are removed. Working in an environment without proper illumination can result in accidents. It can also cause damage to parts or wiring, resulting in an electric shock or short circuit.
- Be careful not to damage the wires. Damaged wires may cause an electric shock, short circuit or present a risk of fire.
- Do not expose the game board, etc. for any reason. Doing so may cause electric shock or malfunctioning.
- No connectors other than those connected on the game board when first delivered can be used by this product. Do not connect any other wires to any of the unused connectors. This may lead to the generation of heat, smoke or burn outs.
- 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 using the Test Mode. The game board need not be operated. Use the game board, etc. as is with the same setting made at the time of shipment so as not to cause electric shock and malfunctioning.
- The chip parts 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.
- Be careful not to get fingers caught when removing doors or other parts.
- Be careful of the steps and joint lowers which cause level differences. Tripping over these could result in sprains or other accidents.
- Work is done by squatting down between cabinets. Hitting the cabinet with your body, or remaining in uncomfortable positions for long periods of time can result in neck, shoulder, and back injuries, etc.

STOP

IMPORTANT

- When exchanging the game board, place and post 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, 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.
- LINDBERGH units that are sent as replacements already have software installed on them, but settings such as seat numbers are required. After replacing the unit and turning on the power, since network play settings do not match, network check will continue to display. Enter Test Mode, and adjust the settings for the cabinet on the Game Setting Screen, etc. (See Service Manual.)

17-1 REMOVING THE LINDBERGH

The LINDBERGH is inside the DLP base of each cabinet on the right side when facing the screen. The LINDBERGH is on top of the MAIN ELEC base (wooden panel). The LINDBERGH is removed from the DLP base along with its base.

1 Switch off the power of the cabinet which has a LINDBERGH to be removed.

2 Remove the two screws that secure the main board door on the right side of the DLP base. The screws have flat and spring washers attached.

SCREW (2), black
M4x30, w/flat & spring washers



FIG. 17-1a

- 3** Unlock it using the master key, and remove the main board door. The orange-colored sheet metal case inside the door is the LINDBERGH.

MAIN BOARD DOOR



FIG. 17-1b

- 4** Remove the following connectors connected to the LINDBERGH. Hold the connector, and pull straight out to remove. Be careful not to pull the connector in a non-straight direction.

The D-SUB connector and LAN cable has a lock and fastening screws. After loosening the fastening screw, remove the connector as you unlock the lock.

CONNECTOR (total 5)

- D-SUB CONNECTOR
- LAN CABLE
- JVS IO CABLE
- SOUND CABLE CONNECTOR (2)

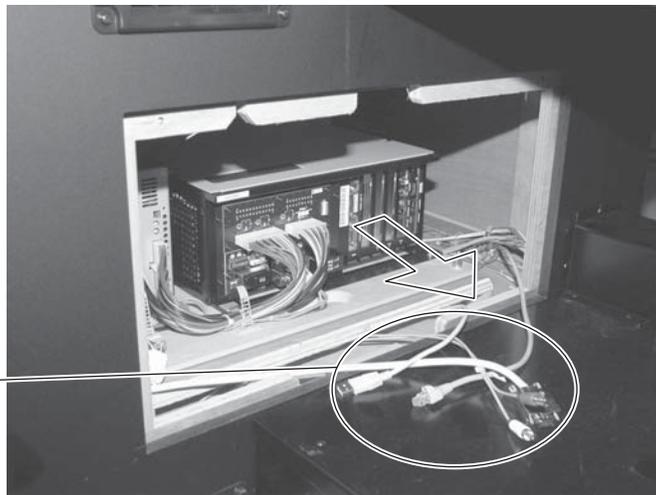


FIG. 17-1c

- 5** Remove the two connectors (YL6P, YL8P) on the left side of the LINDBERGH. These are the MAIN ELEC connectors.

CONNECTOR (2)

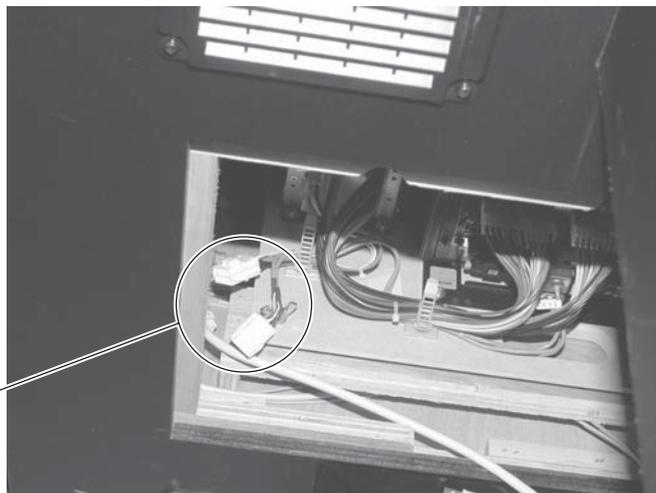
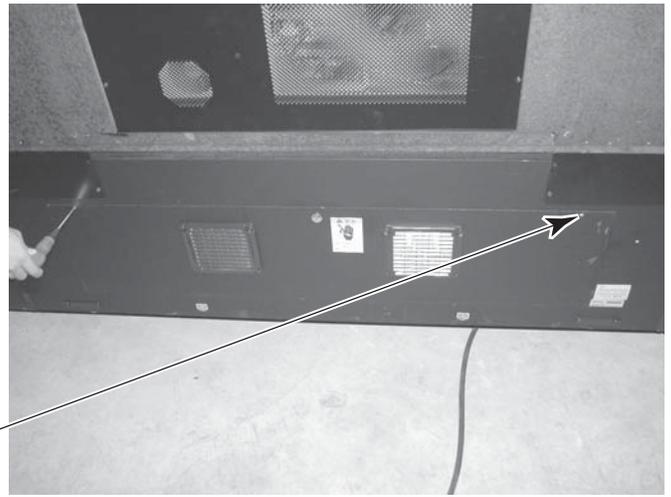


FIG. 17-1d

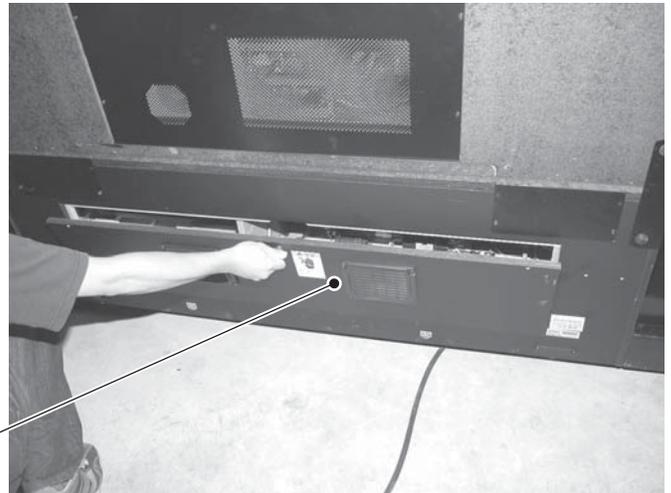
- 6** Remove the DLP back door on the rear side of the DLP base. Remove two screws. The screws have flat and spring washers attached.



SCREW (2), black
M4x30, w/flat & spring washers

FIG. 17-1e

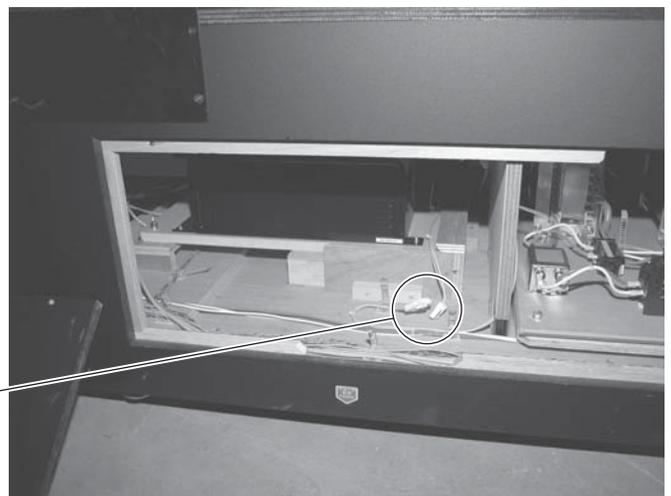
- 7** Unlock with the master key, and remove the DLP back door.



DLP BACK DOOR

FIG. 17-1f

- 8** Remove the connector (YL3P). This is also connected to MAIN ELEC.



CONNECTOR (1)

FIG. 17-1g

- 9** Remove the two thumbscrews that fasten the base (wooden panel). The thumbscrews use flat and spring washers.

THUMBSCREW (2)
M6x30, flat & spring washers used

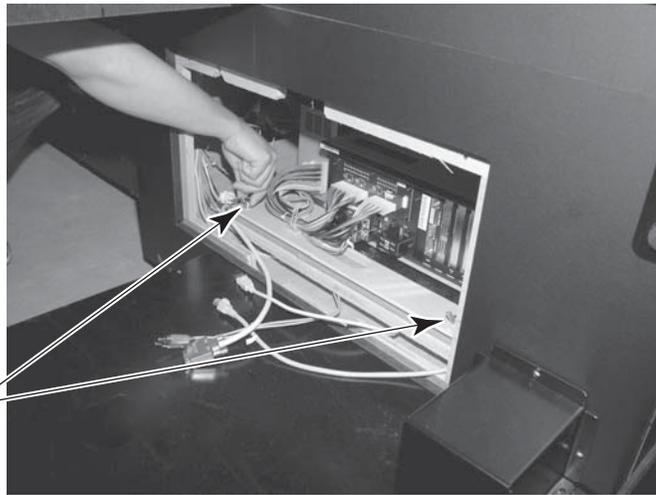


FIG. 17-1h

- 10** While being careful that the wiring does not get caught, pull out the LINDBERGH along with its base.

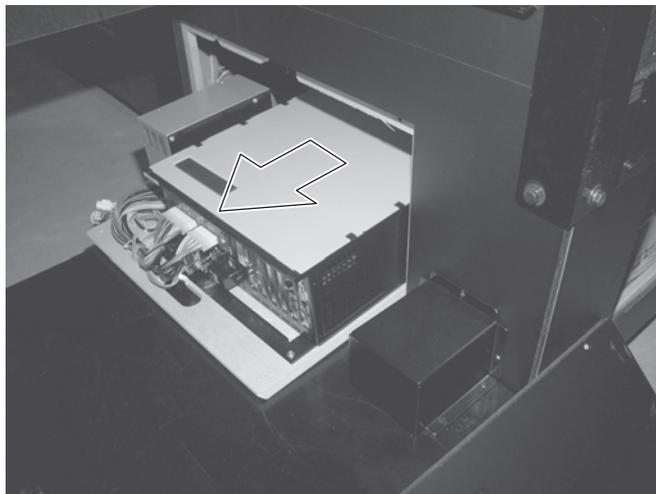


FIG. 17-1i

- 11** Place the base in a flat location.

- 12** When replacing the LINDBERGH, remove all connectors connected to LINDBERGH.

- 13** Remove the four screws fastening the base. The screws have flat and spring washers attached. Send the unit in for repair with the key chip at the side of the connector still attached.

SCREW (4)
M4x16, w/flat & spring washers

Remove all connectors.

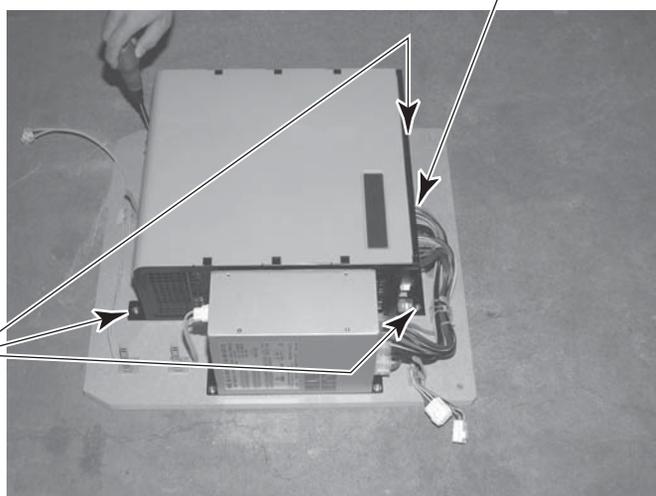


FIG. 17-1j

17-2 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 ORA USA (844-0008D-01)

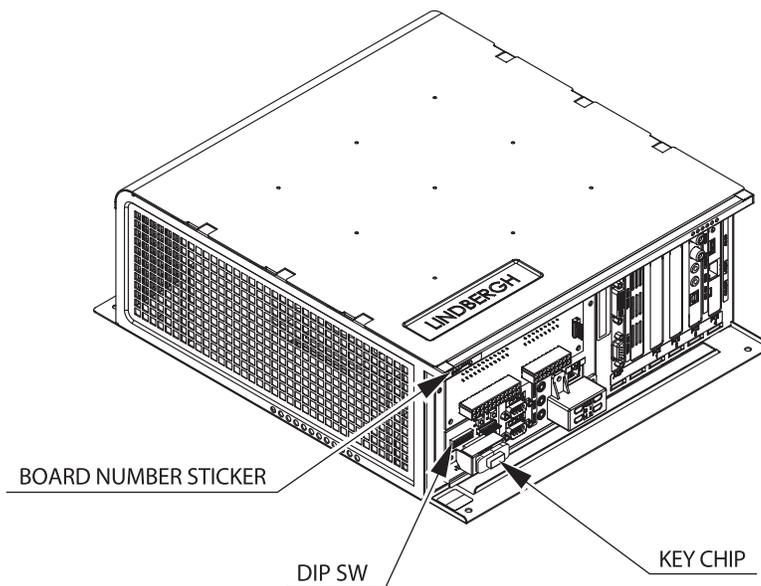


FIG. 17-2a

DIP SW Setting

Use this product with the DIP SW settings shown in the figure below.

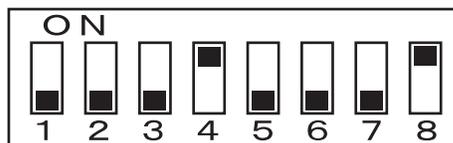


FIG. 17-2b

WARNING

- When working with the product, be sure to turn the power off. Working with the power on may cause an electric shock or short circuit.
- The ride will go through initialization operation and software installation simultaneously. Verify that there are no people near the product, and then begin installation. The car-sized ride will move. There is a step in the area of the ride. Even the slightest contact could cause a fall.
- Be careful not to damage DVD wire, for example, by letting it get caught in something. Otherwise there could be a short circuit or fire.
- The following explanation assumes that the unit has been assembled properly as instructed. If there are operations or abnormalities other than as mentioned below, cut off the power supply immediately. If power is left on, there could be an electric shock or fire.
- Do not look directly into the DVD DRIVE interior. If you look directly at the laser beam inside the DVD DRIVE, your vision could be impaired.

 STOP

IMPORTANT

- Because power is engaged while software has not been installed in the game board (LINDBERGH), “Error 22” is displayed, but this is not a malfunction. However, if any other error is displayed, or if the screen remains completely blank, it could be that there was an error in assembly, a wire connection is faulty, or the LINDBERGH has broken down.
- After turning on the power, wait for “Error 22” to be displayed. If you perform some operation beforehand, there could be problems, malfunction and/or damage to parts.
- After “Error 22” has been displayed, set the DVD disc in the DVD DRIVE, reset the power. Then, installation is executed.
- For about 30 seconds after the power has been engaged, the tray will not come out even if the switch is pressed because the DVD DRIVE is initializing.
- The DVD DRIVE tray can be made to come out and/or go back in only while the power is on. The tray does not move if the power has been disconnected.
- After software has been installed, be sure to store the DVD software kit, DVD DRIVE and DVD wire at a secure location.
- If for some reason installation cannot be completed, an error message will be displayed. Take corrective action as indicated in the service manual.
- After software installation, the seat numbers, etc. must be set. After turning on the power and installing the software, network play will not be set. Enter Test Mode, and adjust the settings for the cabinet on the Game Setting Screen, etc. (See service manual.)

If software is accidentally uninstalled, follow the procedures below to install software to the LINDBERGH. Also, if the software version is updated, follow the same procedures to install the updated software.

Ready the included DVD software kit, DVD DRIVE and DVD wire. (See Chapter 5.)

If the version is updated, details about the changes can be found in the manual included with the DVD software kit that contains the updated software.

Software Installation Preparation

1 Switch off the power of the cabinet which has the LINDBERGH that will undergo software installation.

2 Remove the two screws that fasten the main board door on the right side of the DLP base. The screws have flat and spring washers attached.

SCREW (2), black
M4x30, w/flat & spring washers



FIG. 17-3a

3 Unlock with the master key, and remove the main board door.

MAIN BOARD DOOR



FIG. 17-3b

4 Connect the two connectors on the side of the DVD wire that has a “LINDBERGH” tag on it to the LINDBERGH.

On the LINDBERGH, there is a box-shaped part with four USB connectors lined up next to one another. The DVD wire can be connected to any of these USB connectors.

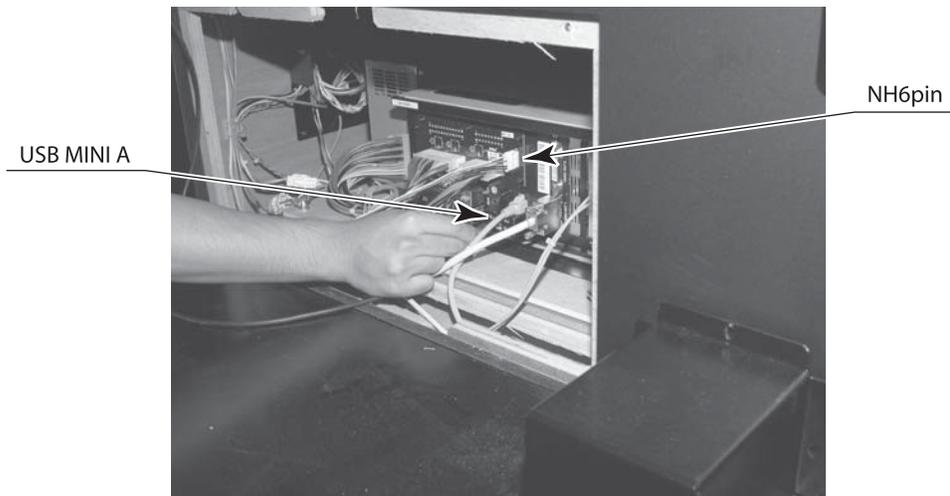


FIG. 17-3c

5 With the DVD wire running through the notch on the top part of the main board door, close the main board door. Be careful not to get the DVD wire caught.

Pass the DVD wire through the notch on the main board door.

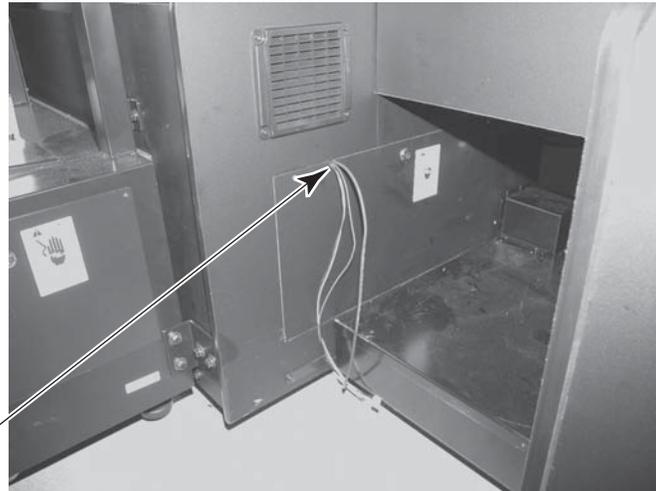


FIG. 17-3d

6 Connect the two connectors on the side of the DVD wire that has a “DVD” tag on it to the DVD DRIVE.

DVD DRIVE

Connect DVD wire.

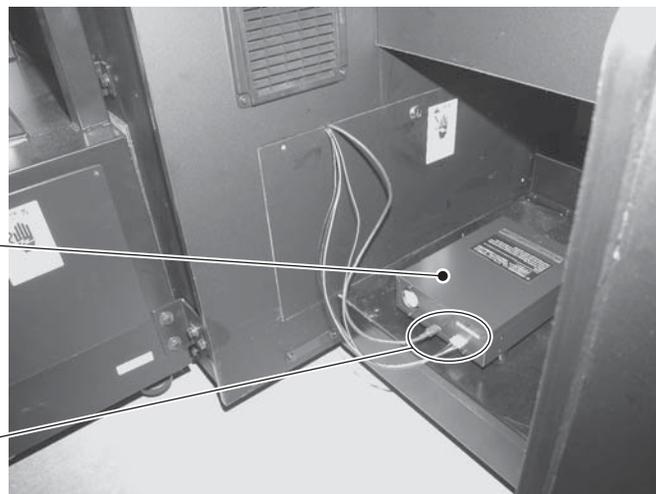


FIG. 17-3e

- 7 With the DVD DRIVE case lid in front of you, place it on the joint lower. Place the DVD inside the DVD DRIVE and install the software. Place it in a flat place.

DVD DRIVE CASE LID

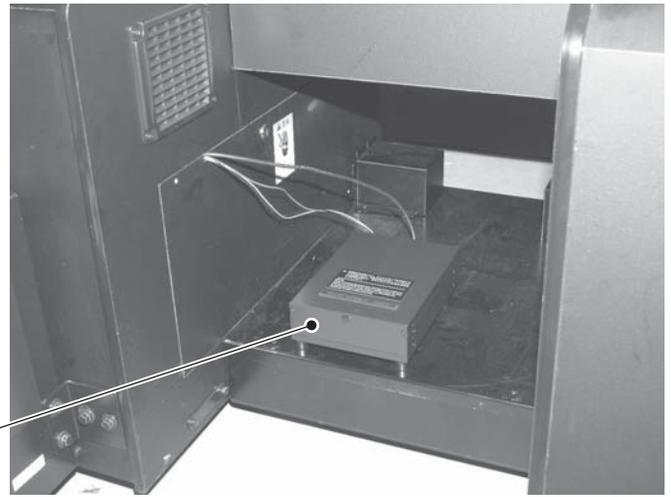


FIG. 17-3f

STOP IMPORTANT

- Do not use or store the DVD DRIVE or DVD wire in any of the following locations, as this may 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 places
- 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.)
- Anywhere that is likely to get wet (kitchen, etc.)
- Anywhere with a slope or incline
- 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.
 - 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.

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 DVD-ROM 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.

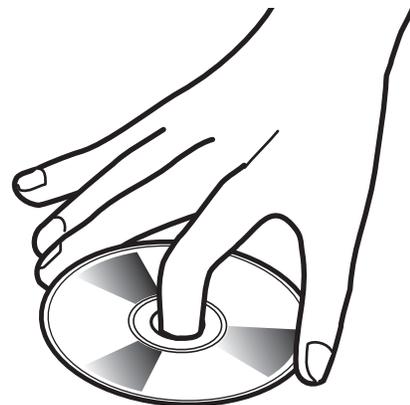
With both hands:

Put your thumbs and forefingers on 4 opposite sides of the disc.



With one hand:

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



1 Before turning on the power, do an inspection to ensure that there are no people in the area near the ride and that there are no tools, etc. left on or in the ride.

2 Turn on the power.

3 The LINDBERGH startup screen will be displayed. Wait at least a minute before proceeding. An error will show.

Confirm that it is an “Error 22.” If it is an “Error 22,” continue with the following procedures. If it is not an “Error 22,” refer to the LINDBERGH service manual for instructions.

4 Remove 1 resin-head screw, and then remove DVD DRIVE case lid.

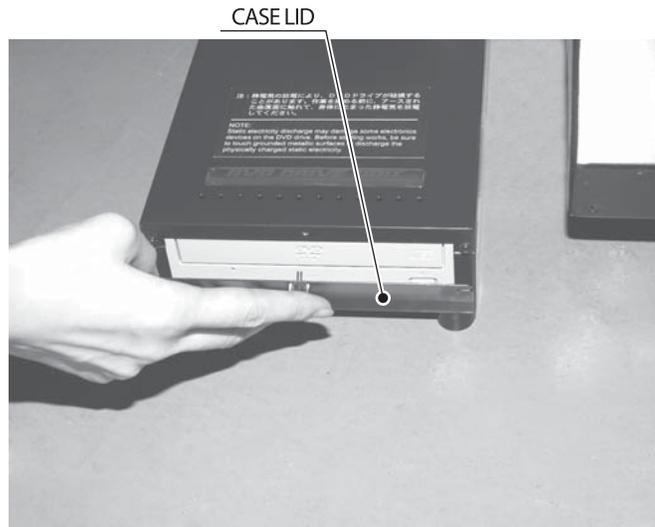


FIG. 17-3g

5 Press the DVD DRIVE switch. The DVD DRIVE tray comes out. Set the DVD from the DVD software kit into the tray. Always have the DVD label side facing upward.

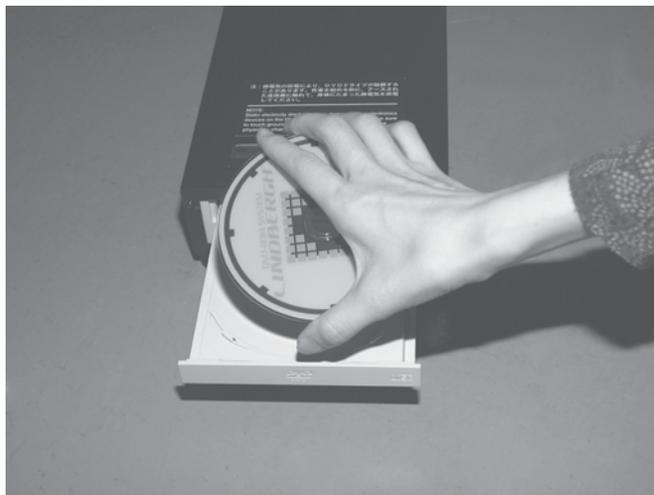


FIG. 17-3h

6 Press the DVD DRIVE switch and the tray returns to its original position.

7 After verifying that there are no people in the area of the ride, reset the power. After temporarily turning the power off, once again restore power after at least a minute has passed.

8 Software installs automatically from the DVD to the LINDBERGH. In some cases, it may take as long as 5 minutes for the software to install to the LINDBERGH.

-
- 9** Once installation completes, initialization operation will begin automatically. The steering wheel and ride will move.
Standby until the ride stops at a level position. Touching the ride unnecessarily could result in accidents, errors, or trouble.
-
- 10** Upon completion of the initialization operation, the Customer Welcome Screen will be displayed.
When installing the software, the settings for network play are cleared, so use Test Mode in order to set up network play.
-
- 11** Open the coin chute door of the cabinet whose software was installed, and use the switch unit to put the cabinet into Test Mode.
-
- 12** Adjust the settings as appropriate using the Coin Setting Screen and Game Setting Screen, etc.
-
- 13** Exit Test Mode.
When the Customer Welcome Screen displays, setup has been completed.
-
- 14** Press the DVD DRIVE's switch to open the tray, and remove the DVD.
-
- 15** Press the DVD DRIVE's switch to close the tray. The tray will not move if the power is turned off.
-
- 16** Turn off the power.
-
- 17** Remove the DVD wire from the DVD DRIVE.
-
- 18** Attach the case lid to the DVD DRIVE, and fasten it with a resin-head screw.
-
- 19** Remove the main board door after unlocking it. Be careful not to damage the DVD wire.
-
- 20** Remove the DVD wire from the LINDBERGH.
-
- 21** Attach the main board door, lock it, and fasten it with two screws.
-
- 22** Store the DVD DRIVE, DVD wire and DVD software kit in a location free of dust and cigarette smoke.

18 DESIGN-RELATED PARTS

For the warning display stickers, refer to Section 1.



FIG. 18a

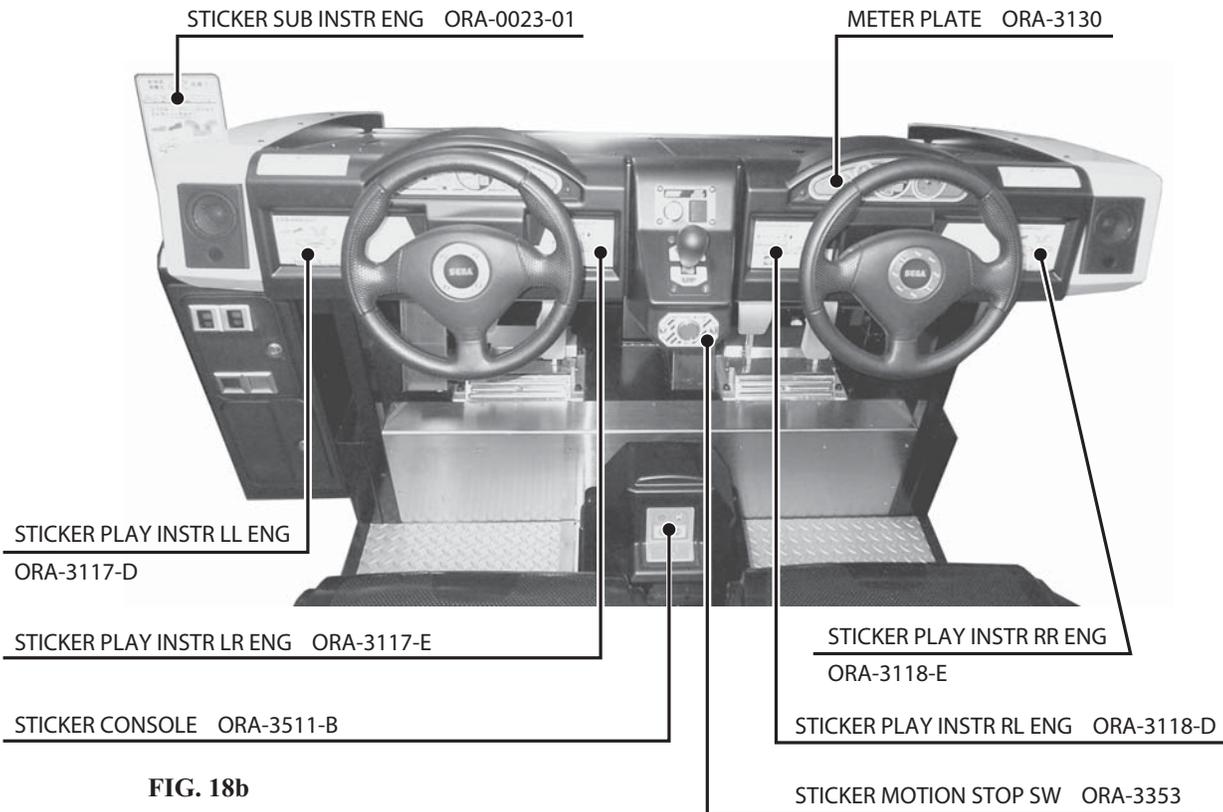


FIG. 18b

STOP IMPORTANT

The various stickers that are placed on each ride (FRP car body) cannot be ordered individually. We appreciate your understanding that an entire set of stickers must be purchased at the same time.

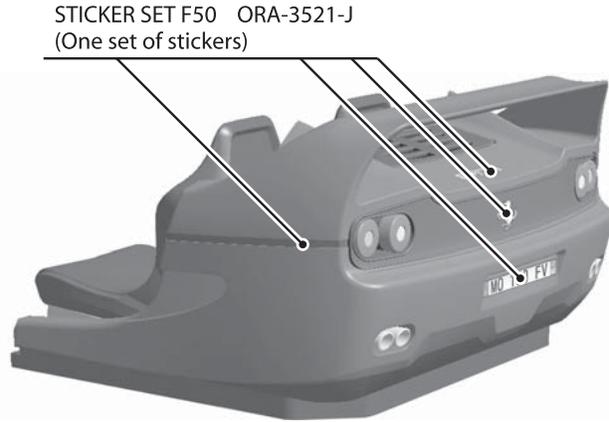


FIG. 18c FRP STICKERS



FIG. 18d FRP STICKERS

19 WIRE COLOR CODE TABLE

19 WIRE COLOR CODE TABLE

! 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.

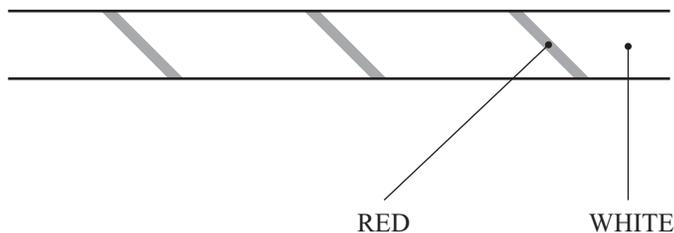
The color codes for the wires used in the diagrams in the following chapter are as follows.
Wires other than those of any of the above 5 single colors will be displayed by 2 alphanumeric characters.

CODE	WIRE COLOR
10	RED
20	BLUE
30	YELLOW
40	GREEN
50	WHITE
70	ORANGE
80	BLACK
90	GRAY
A	PINK
B	SKYBLUE
C	BROWN
D	PURPLE
E	LIGHT GREEN

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 numeral 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.

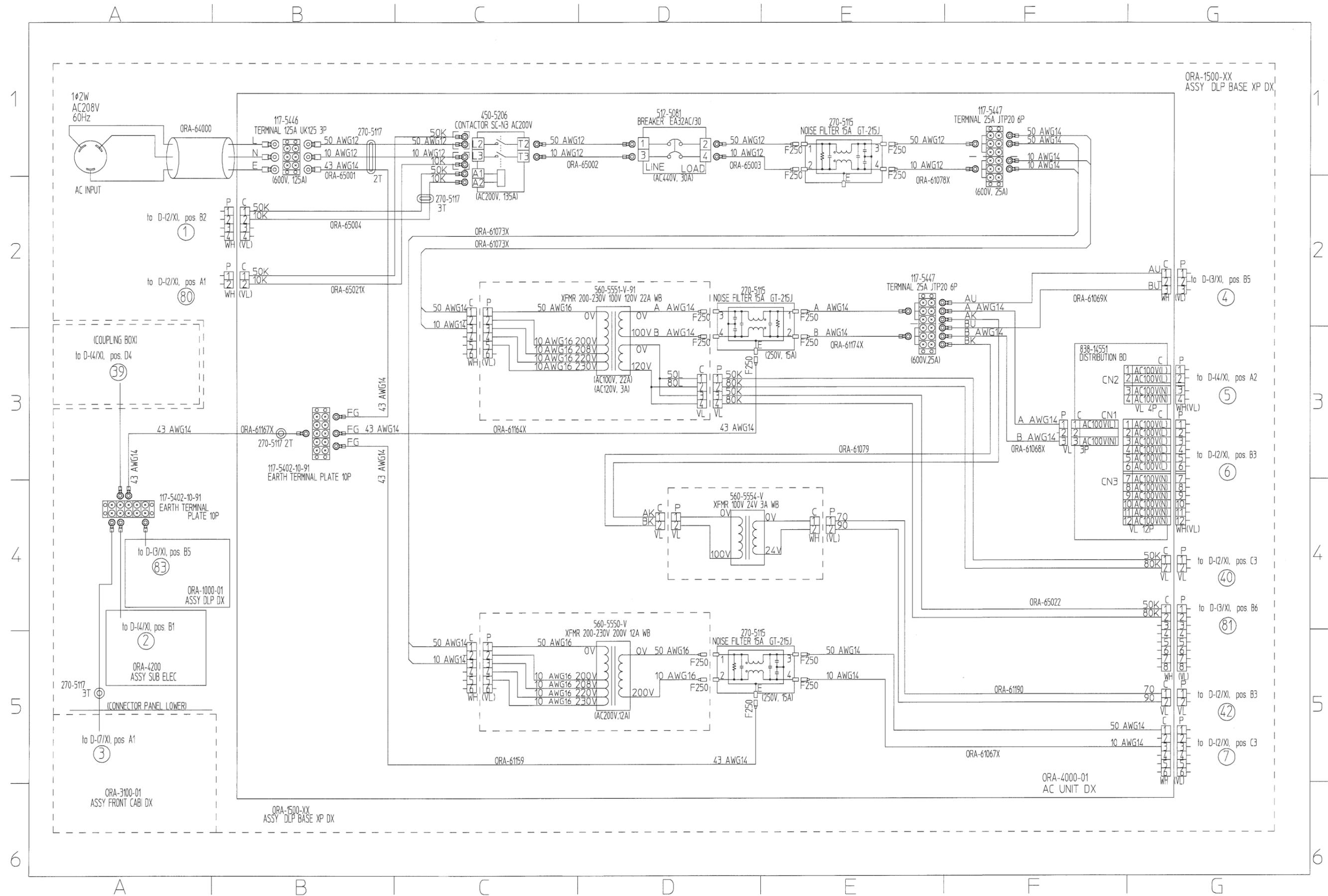
<Example> 51.....WHITE/RED



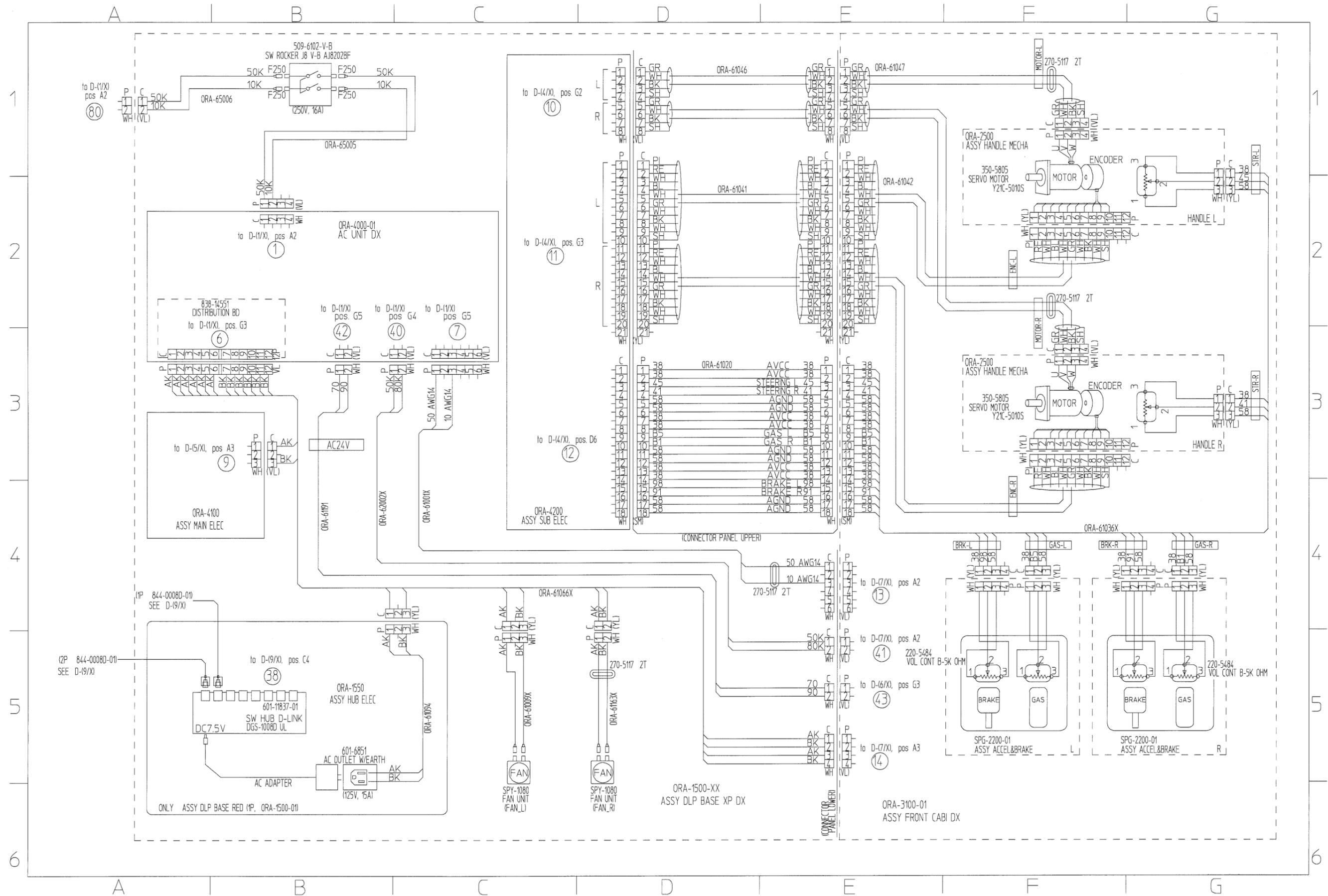
Note 2: The character following the wire color code indicates the size of the wire.

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

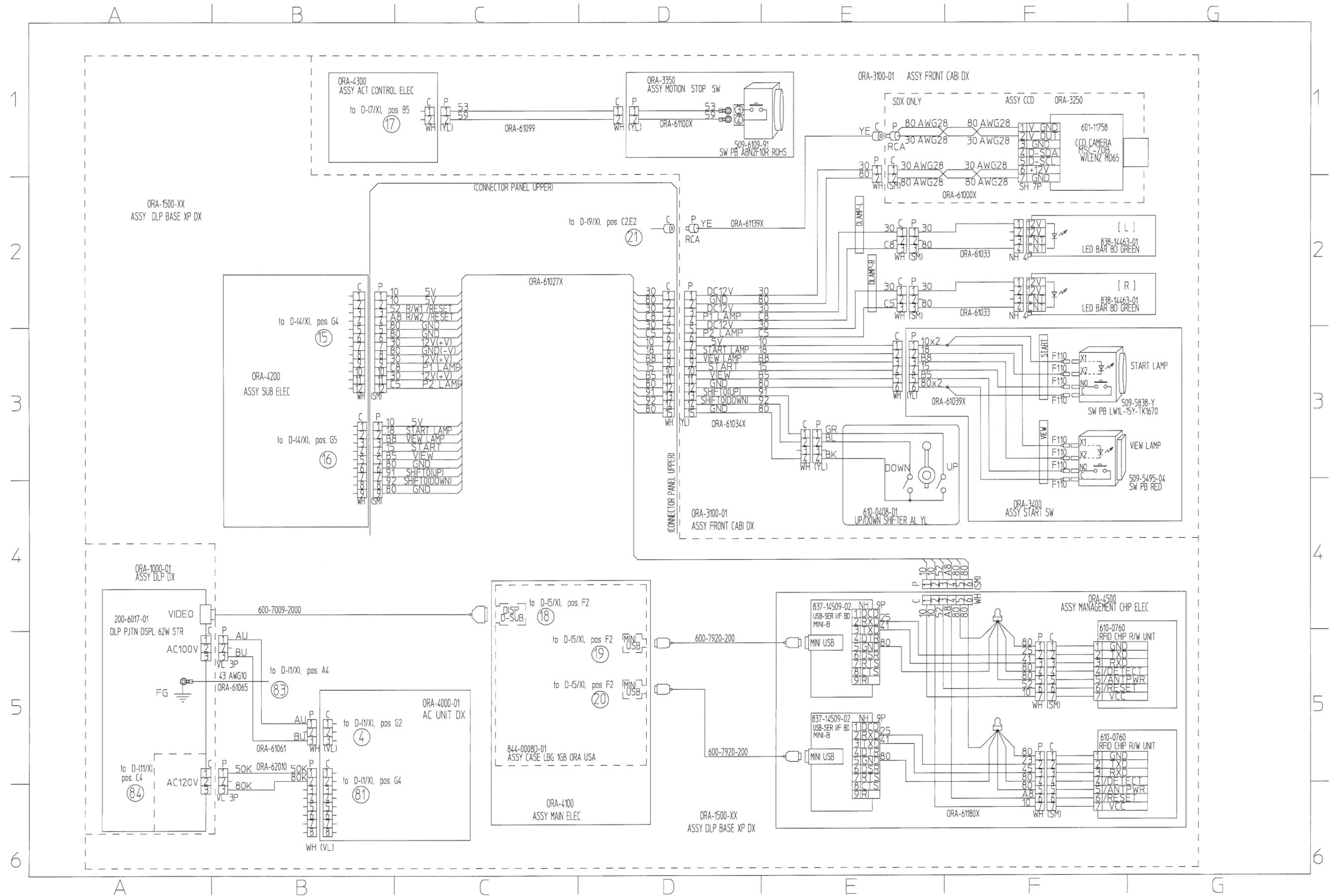
20 WIRING DIAGRAM (D-1/10) CABINET



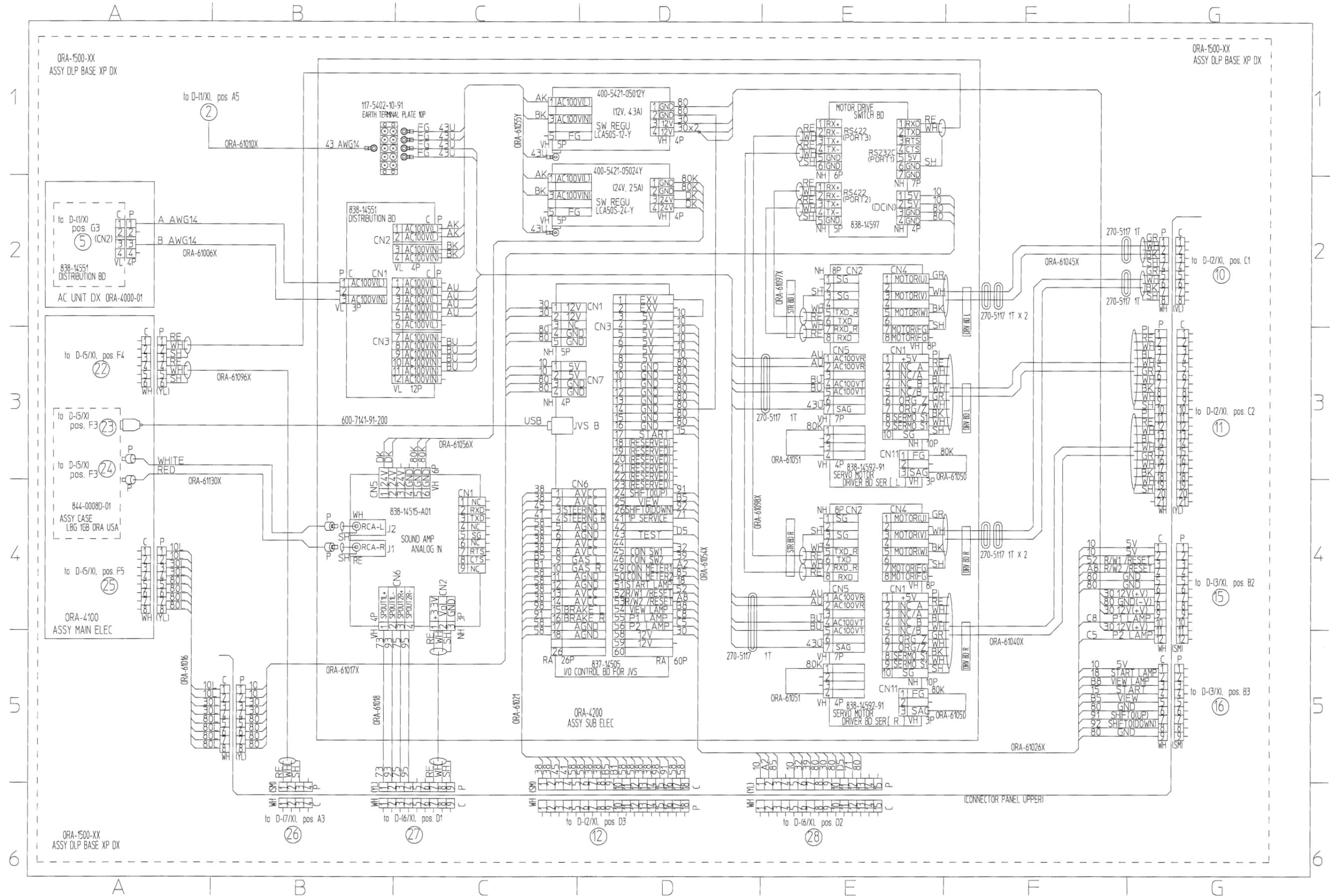
(D-2/10) CABINET



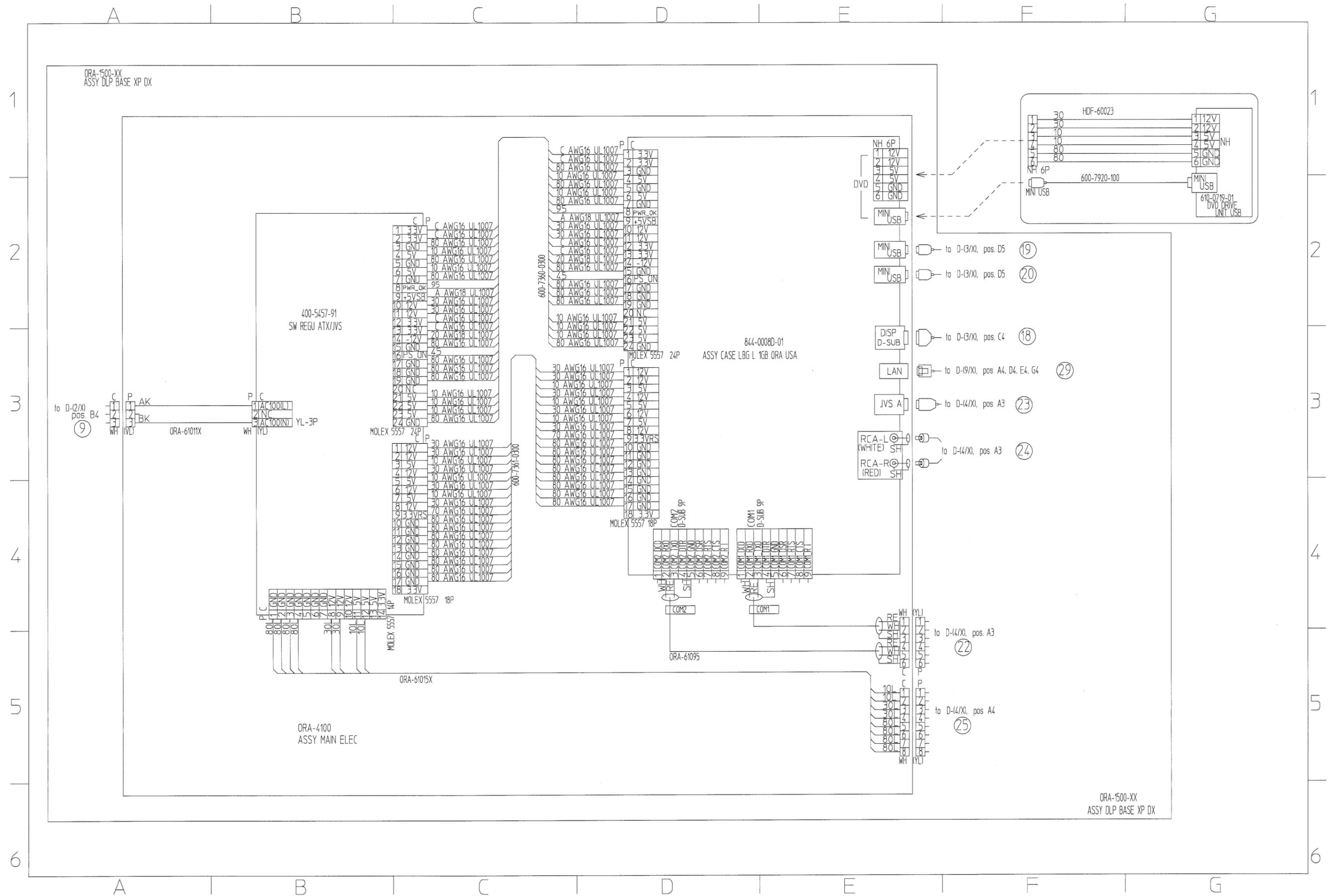
(D-3/10) CABINET



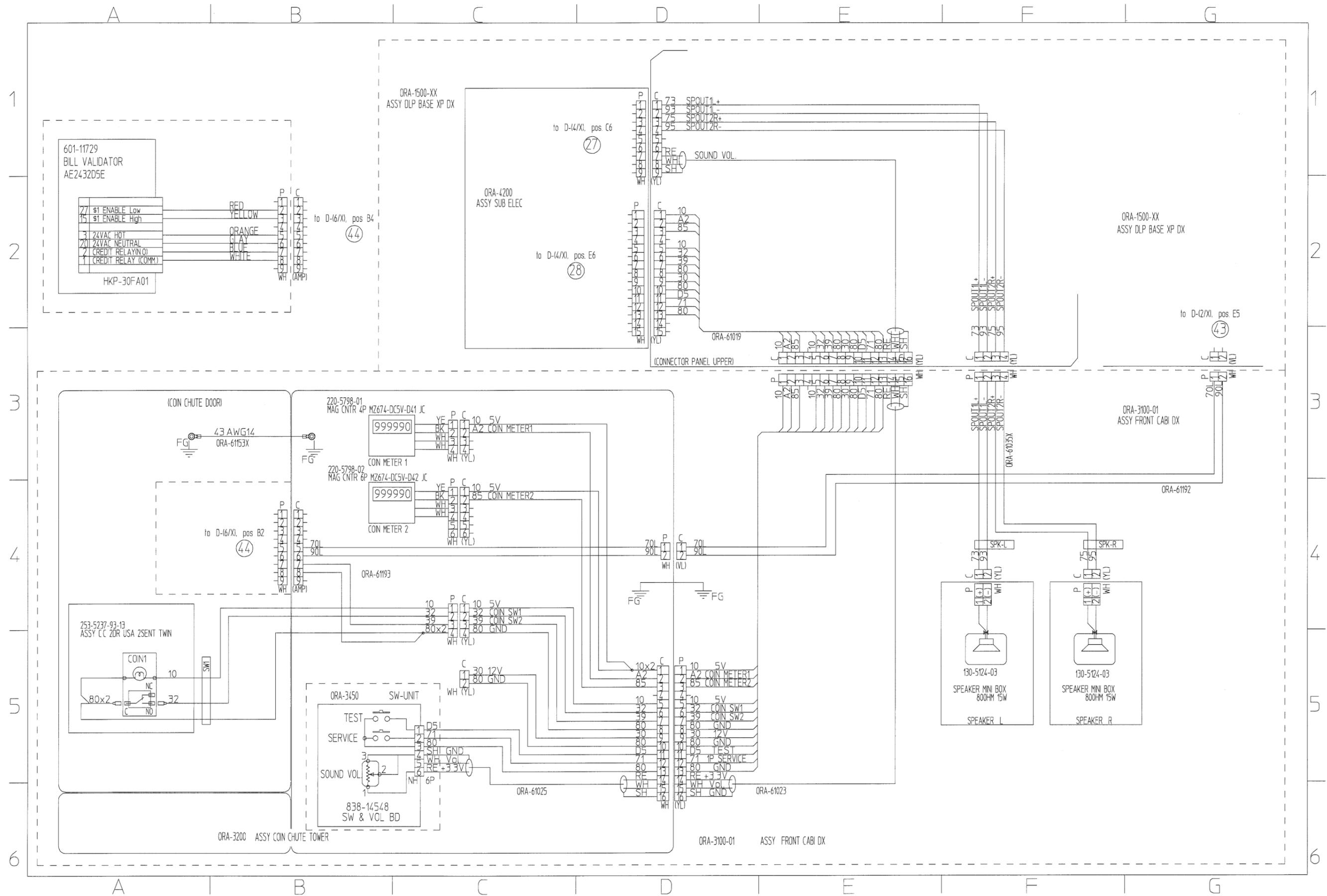
(D-4/10) CABINET



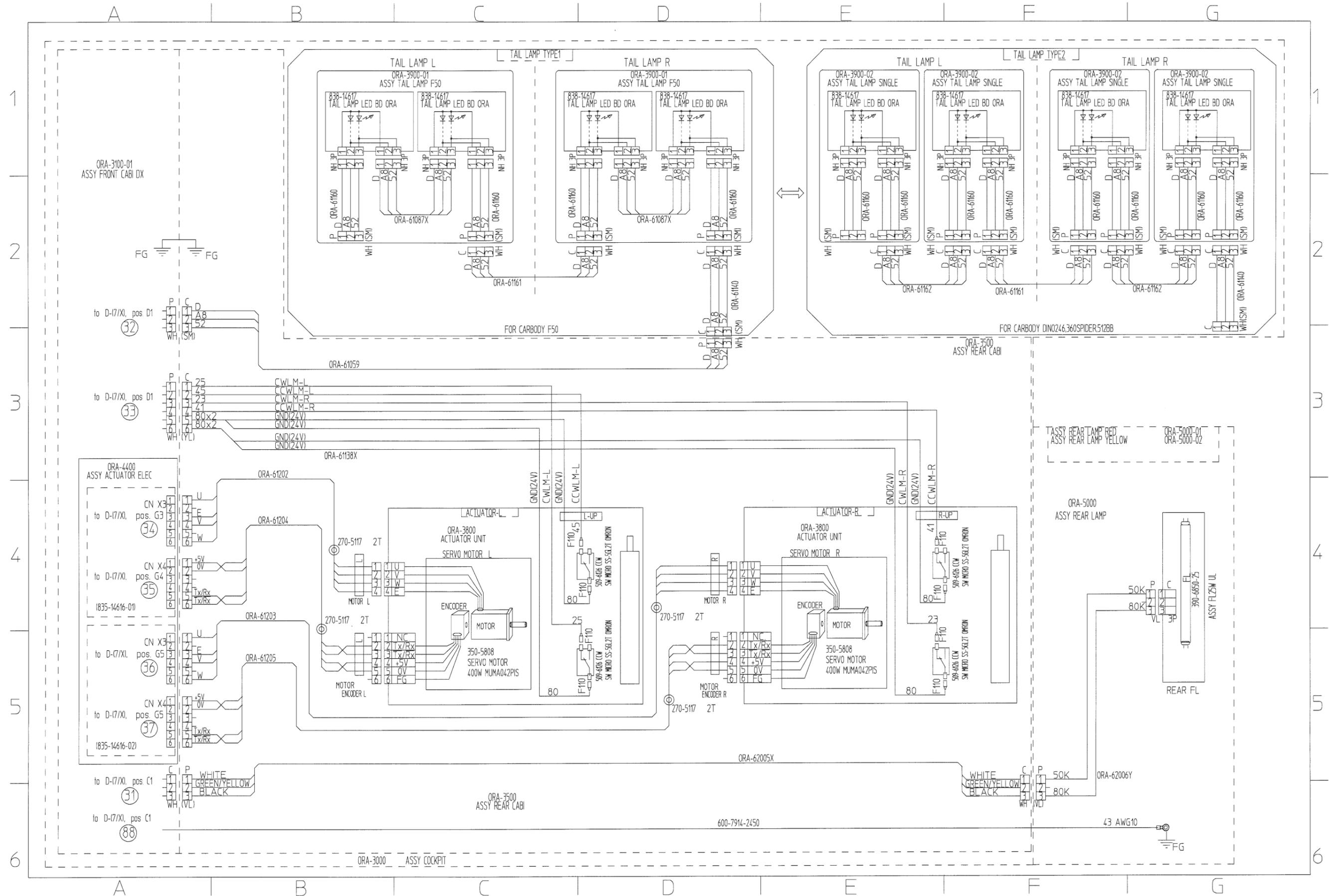
(D-5/10) CABINET



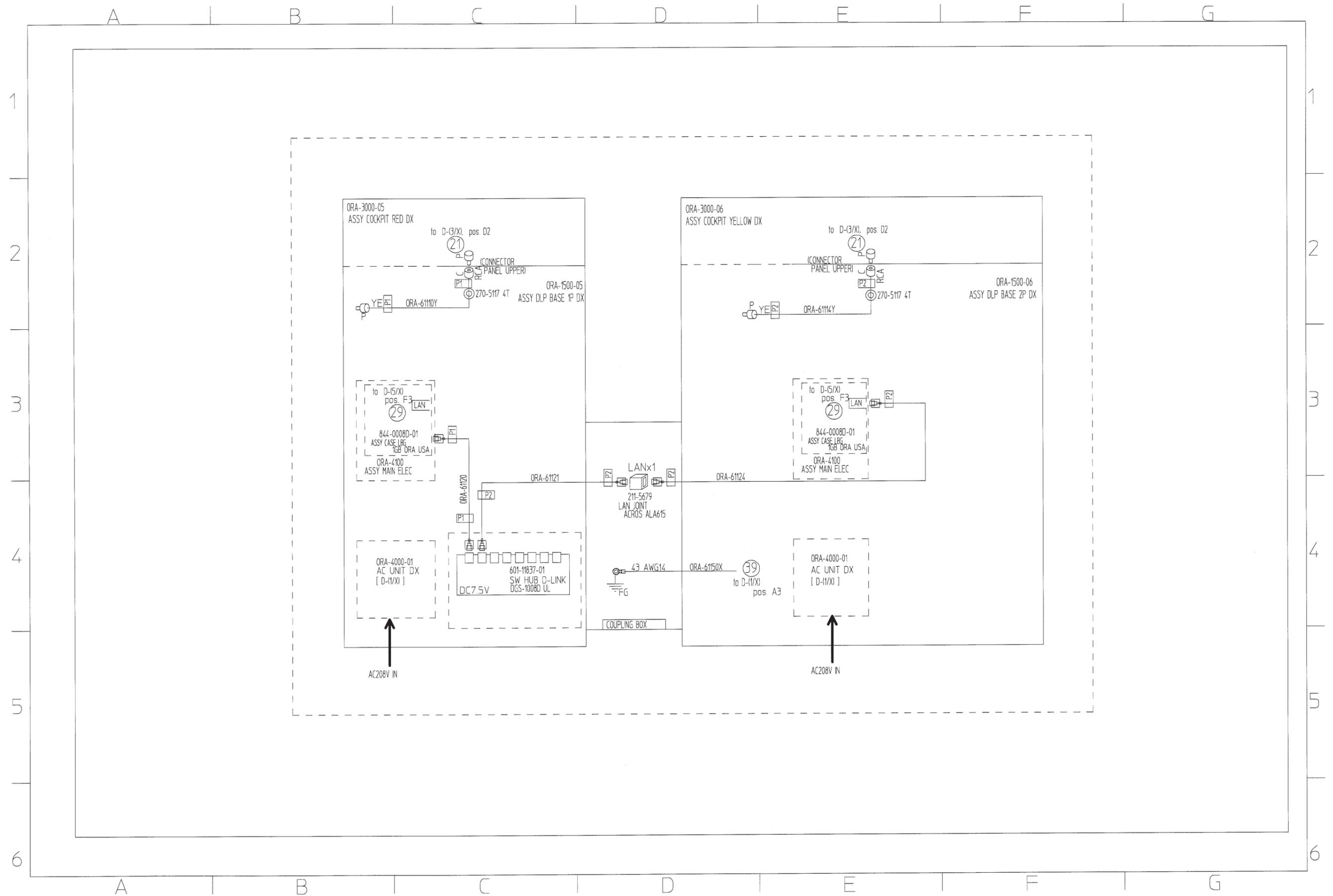
(D-6/10) CABINET



(D-8/10) CABINET



(D-9/10) CABINET



(D-10/10) CABINET

