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OUTRUN 2 SPECIAL TOURS SDX OWNER'S MANUAL 420-6958-02

SEGA®

OWNER'S MANUAL

SEGA PRESENTS
OutRun2SP SDX
OUTRUN2 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.

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

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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 SDX."**

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.

STOP IMPORTANT

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.
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TOLL FREE: 1-888-877-2669
FAX: 1-847-427-1065

SPECIFICATIONS

Installation space:	8,250 mm (324.8 in.) [Width] x 3,250 mm (128.0 in.) [Depth]
Height:	2,610 mm (102.8 in.)
Weight:	3,930 kg (8,664.2 lbs.)
Power, maximum current:	[Billboard, Control tower] Single phase: AC208V, 5.0A [Per cabinet] Single phase: AC208V, 4.5A

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 RECAUTIONS

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.**
- **This machine does not have a power switch that turns all of the power on or off at once. Even when power to the control tower is turned off, current will continue to flow through part of the circuitry inside each cabinet. For this reason, before performing maintenance on a cabinet, also turn off the power switch on the side of the DLP base.**

STOP IMPORTANT

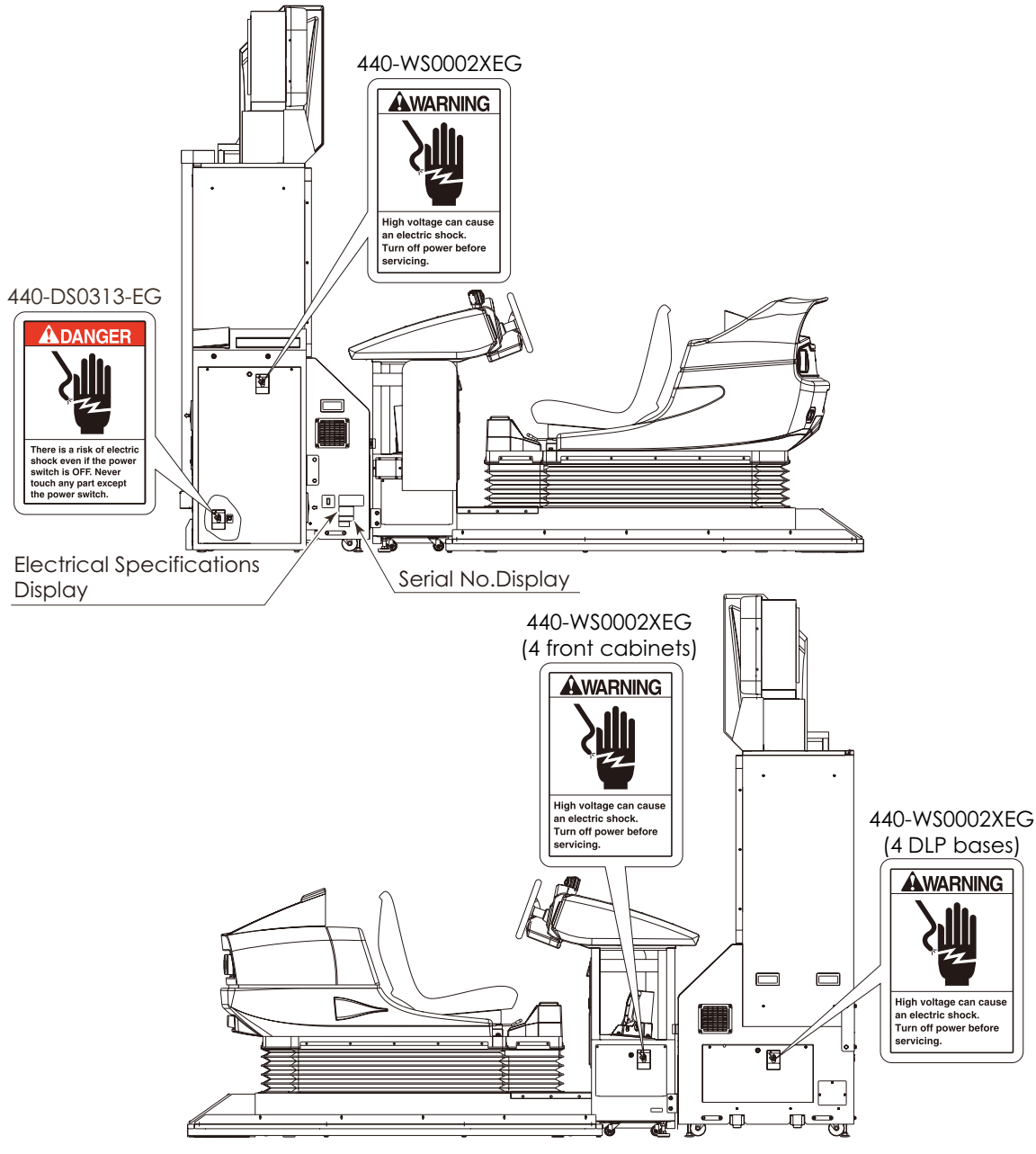
- **For the IC board circuit inspections, only the logic tester is allowed. The use of a multiple-purpose tester is not permitted, so be careful in this regard.**
- **This product uses a projector. The projector's screen can be easily damaged so exercise caution when cleaning it. For details, read the 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

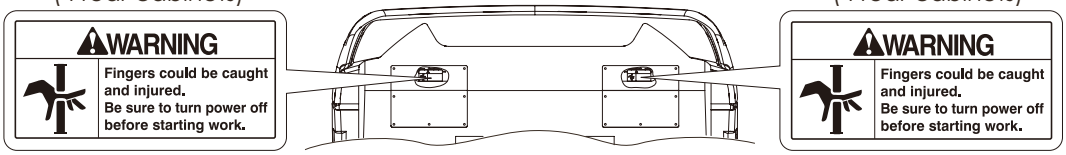
This SEGA product has stickers attached describing the product manufacture No. (Serial No.) and Electrical Specifications. It also has a Sticker describing where to contact for repair and for purchasing parts.
When inquiring about or asking for repairs, mention the Serial No. and Name of Machine indicated 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.

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
(4 rear cabinets)

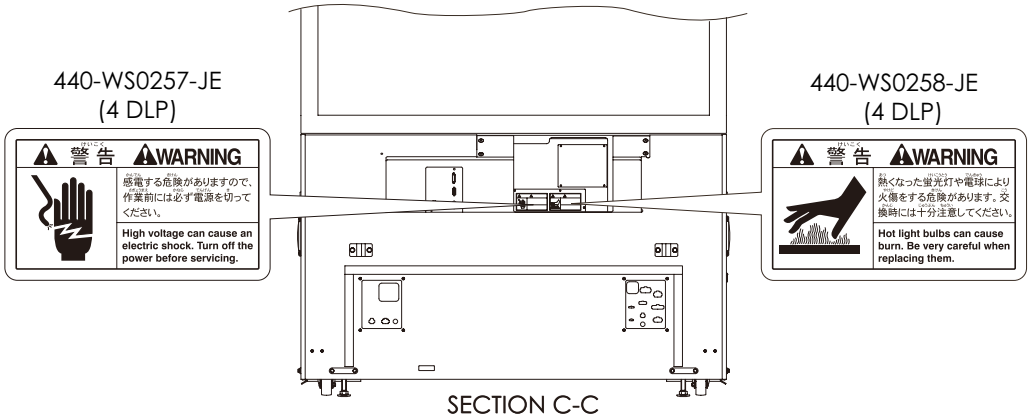


440-WS0315-EG
(4 rear cabinets)

SECTION B-B

440-WS0257-JE
(4 DLP)

440-WS0258-JE
(4 DLP)

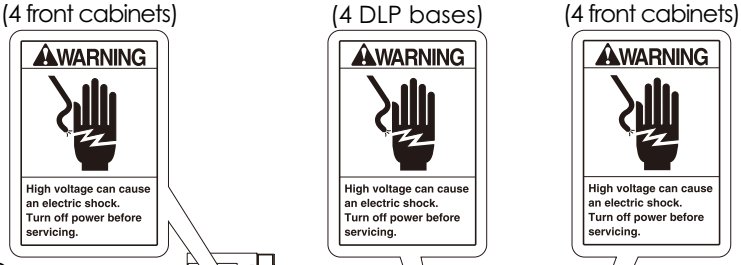


SECTION C-C

440-WS0002XEG
(4 front cabinets)

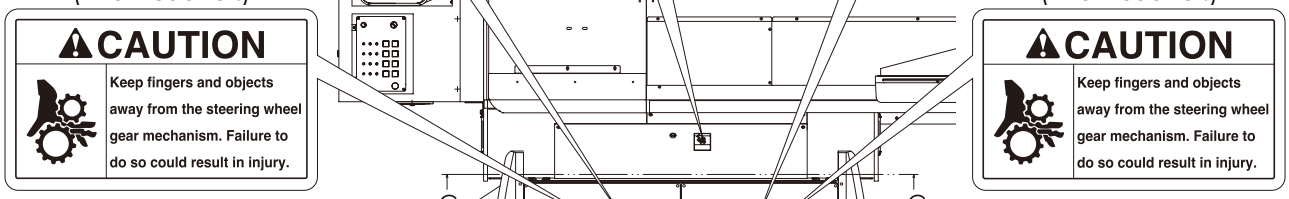
440-WS0002XEG
(4 DLP bases)

440-WS0002XEG
(4 front cabinets)



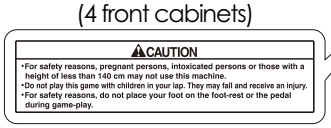
440-CS0167-EG
(4 front cabinets)

440-CS0167-EG
(4 front cabinets)

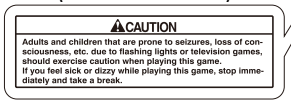


C C

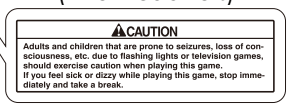
440-CS0276-EG
(4 front cabinets)



440-CS0277-EG
(4 front cabinets)



440-CS0277-EG
(4 front cabinets)

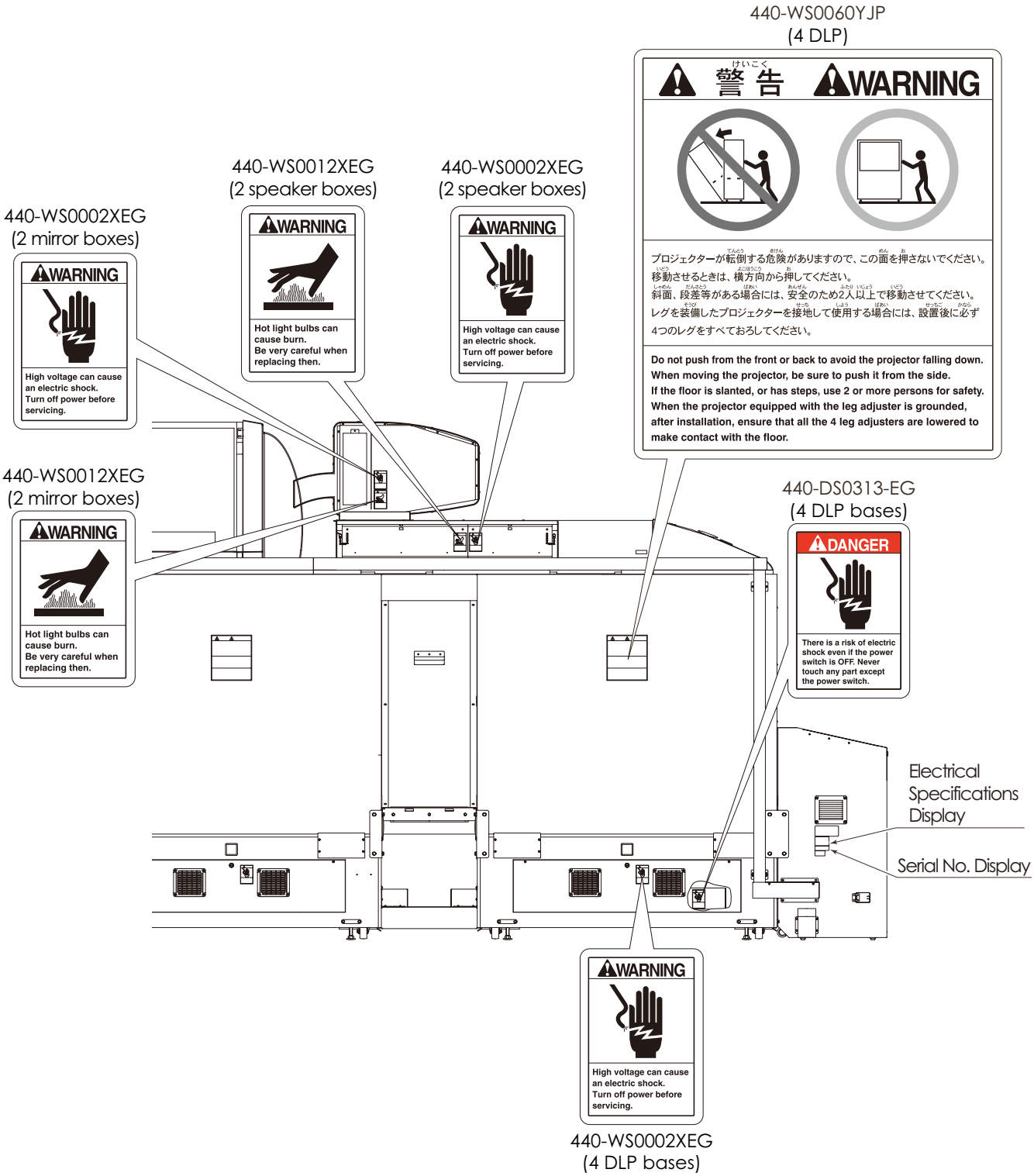


B B



440-WS0027-EG
(4 rear lamps)

440-WS0143-EG
(4 rear lamps)


440-WS0060YJP
(4 DLP)
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-WS0012XEG
(2 speaker boxes)
WARNING
Hot light bulbs can
cause burn.
Be very careful when
replacing then.
440-WS0002XEG
(2 speaker boxes)
WARNING
High voltage can cause
an electric shock.
Turn off power before
servicing.
440-WS0002XEG
(2 mirror boxes)
WARNING
High voltage can cause
an electric shock.
Turn off power before
servicing.
440-WS0012XEG
(2 mirror boxes)
WARNING
Hot light bulbs can
cause burn.
Be very careful when
replacing then.
440-DS0313-EG
(4 DLP bases)
DANGER
There is a risk of electric
shock even if the power
switch is OFF. Never
touch any part except
the power switch.
Electrical
Specifications
Display
Serial No. Display
WARNING
High voltage can cause
an electric shock.
Turn off power before
servicing.
440-WS0002XEG
(4 DLP bases)

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

⚠ WARNING

- **Be sure to check the Electrical Specifications. Ensure that this product is compatible with the location's power supply, voltage and frequency requirements. A plate describing Electrical Specifications is attached to the product. Non-compliance with the Electrical Specifications can cause a fire and electric shock.**
- **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.**
  Control tower: Single phase AC 208 V, 15 A min.
  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:

[Billboard, Control tower]
MAX. 5.0 A (Single phase AC 208 V)
[Per cabinet]
MAX. 4.5 A (Single phase AC 208 V)

2-2 OPERATION AREA

⚠WARNING

- **For the operation of this machine, secure a minimum area of 9.4 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.**
- **Secure a space of at least 0.7 m at the front of the control tower. Unless there is sufficient space to allow the attendant to move freely in front of the control tower, it will be impossible to guarantee safety in the event of an abnormality.**

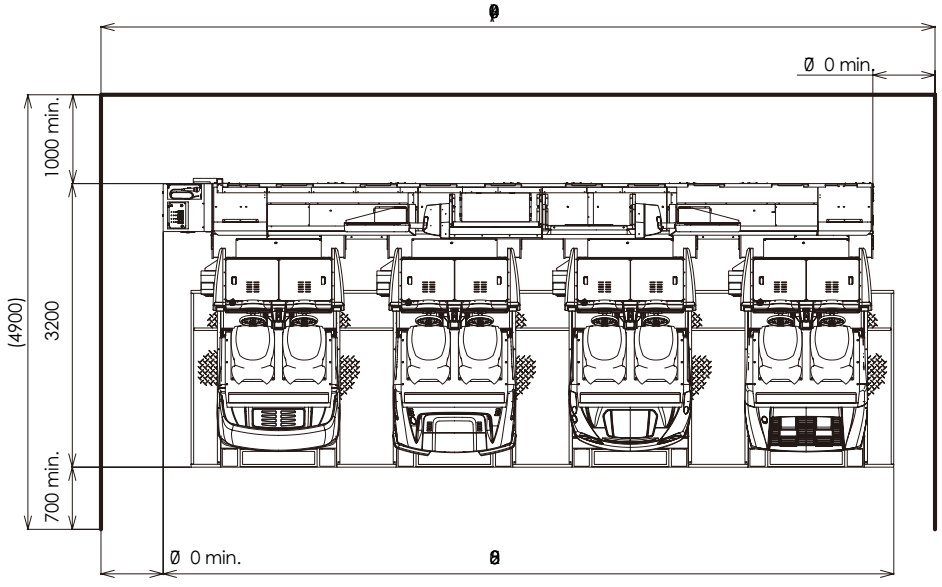


FIG.2 Operation area (Unit: mm)

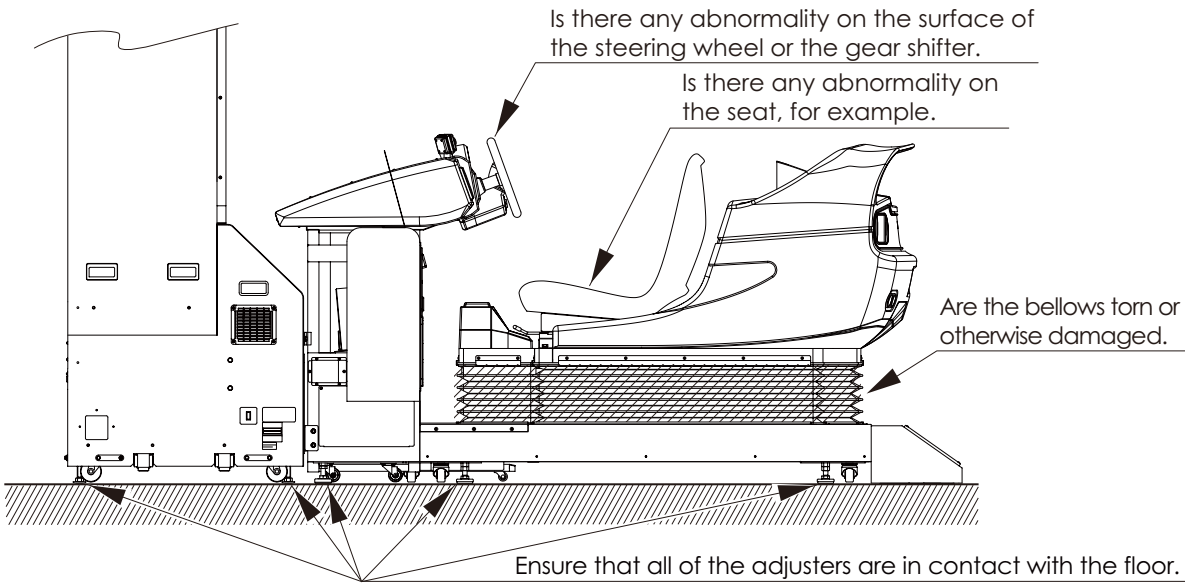
3 PRECAUTIONS REGARDING ROBOT OPERATION

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.**
  - **Can you play a game when the motion of the ride has been stopped with the motion selector switch on the control tower?**
  - **When ride motion has been selected, can you stop the motion of the ride with the motion selector switch on the control tower after the game has started?**
  - **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 7.)
  - 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.

⚠WARNING

- 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.
- 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 results 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.
- 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.

3-3 PRECAUTIONS FOR TICKET OPERATION

When carrying out ticket operation, ensure that an attendant (operator) is present. Note, however, that it is assumed that different operation methods are employed for each installation facility. Consequently, in this manual, common precautions and handling procedures for operating this product are described. Individual precautions for operation are the same as those set out in 3-1.

⚠WARNING

- **To ensure safe operation, the attendant must pay attention to the behavior of the players and also the performance of the ride and other machine parts. The points to which the attendant must pay particular attention are as follows.**
  - **Ensuring that the player watches his or her step when getting on or off the ride**
  - **Paying attention to any belongings that the player takes onto the ride**
  - **Checking the number of persons**
  - **Explaining the precautions to be observed for preventing accidents**
  - **Watching the players during a game**
  - **Stopping the motion of the ride if an abnormality or accident occurs**
  - **Prohibiting access by customers other than players**
  - **Guiding the players off the ride at the end of the game**
  - **Checking for forgotten or dropped items**
  - **Checking the seat, steering wheel, gear shifter, etc.**
  - **Guiding evacuation in the event of a fire or an earthquake**
- **To prevent the possibility of an accident, the following persons must play without any ride motion. In order to prevent unnecessary trouble, explain this to the players before the start of the game.**
  - **Persons susceptible to motion sickness.**
  - **Those who require supporting devices, etc., to walk.**
  - **Those who cannot bend their knees because of illness, etc.**
  - **Those who have fractures or other bone abnormalities anywhere in the body.**
- **Before leaving the control tower, the attendant must lock the cover of the service panel. This is to prevent the possibility of a serious accident resulting from somebody tampering with the controls.**

STOP IMPORTANT

- **To operate the machine through ticket operation, unify the settings in the Test Mode of the four cabinets by entering the GAME ASSIGNMENT MENU and selecting TICKET1 (or TICKET2) for the OPERATION MODE.**
- **Set the main switch on the service panel of the control tower to ON. If it is not in the ON position, the control tower cannot be operated.**
- **For the TICKET1 or TICKET2 setting, use a ticket, token, etc. A coin cannot be used.**

Ctl

The control tower has various switches and lamps, and a microphone. By controlling them, it is possible to manipulate the CCD camera and each cabinet's entry status, and also carry out a multi-cabinet start, PA announcements, etc.

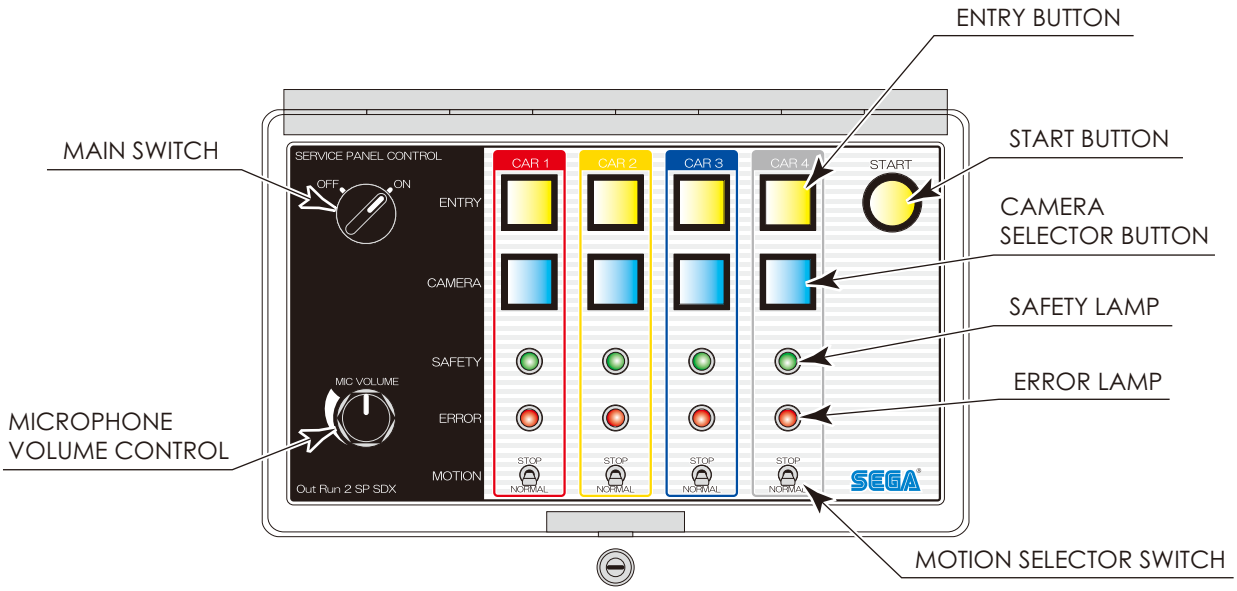


FIG. 3-2 Service panel

- **Main switch**
  This switch permits manipulation of the service panel. If it is not ON, the service panel cannot be manipulated.

- **ENTRY button**
  These buttons enable any desired cabinet (seat) to be entered into a game. When the button flashes, the corresponding cabinet is in an entered status. It is possible to cancel the entered status by pressing the same button once again.

- **START button**
  When this button is pressed, the status of cabinets entered into the game is finalized and the game starts. While the game is in progress, ENTRY buttons remains lit until the game is over.

- **CAMERA selector button**
  These buttons enable any desired CCD camera image to be selected. The CCD camera image of the seat corresponding to the button that is lit is displayed on the LCD screen on the billboard.

- **SAFETY lamp**
  While this lamp is lit, the motion operation of the ride is enabled. When the lamp is out, the ride is in a stopped condition.
  Lit: Motion takes place normally.
  Out: The motion selector switch on the tower side is in the STOP position.
  Flashing: The motion stop switch on the cockpit side has been pressed.

- **ERROR lamp**
  Flashes when an error occurs. The content of the error is indicated below.
  Out: Communication takes place normally.
  Flashing: There is abnormal communication between the tower control board and the actuator control board.

● **MOTION selector switch**
This switch selects either no motion (STOP) or motion (NORMAL) during a game. If this switch is in the STOP position at the start of a game, motion will not take place until after the game is over.
It is also used to stop motion if NORMAL is selected and an abnormally occurs after the game starts.

● **MOTION STOP button at center of control panel**
This button stops the motion of the ride during a game.
Immediately after the start of a race, an input can be made, and once this button is pressed the ride returns to its initial position, and motion stops.
Unless the game is over, the motion stop condition cannot be canceled, and the ride cannot move.

● **Microphone volume control (MIC VOLUME)**
Used to adjust the volume of the microphone that the attendant uses (for making announcements).

● OPERATION MODE Settings

Attendant operation of the control tower is affected by each setting as shown below.

TABLE 3-2

OPERATION MODE	Operation of control tower	Work procedure		
		Operation 1 Entry method	Operation 2 Game start method	Operation 3 Selection of number of drivers
TICKET 1	Yes: Entry and game start operations can be performed from the control tower, and any incorrect input, which was made when deciding the number of drivers, can be canceled, and a selection made once again.	Press the ENTRY button corresponding to the cabinets that you wish to enter into a game.	Upon completion of the entry, press the START button.	Once the players have determined the number of drivers, the screen pauses temporarily, and the machine waits for input from the attendant. Provided that there is no problem with the selection, the attendant should briefly press the ENTRY button of the desired cabinets. Then, the next selection screen appears. If a mistake was made in the selection of the number of drivers, pressing the ENTRY button of the desired cabinets for an extended period (at least 3 seconds) will cause the previous screen to reappear.
TICKET 2	Yes: Entry and game start operations can be performed from the control tower.	Press the ENTRY button corresponding to the cabinets that you wish to enter into a game.	Upon completion of entry, press the START button. This completes the work of the attendant.	No
COIN	No	No	No	No

3-4 SWITCHING OFF THE POWER

If the power is turned off when the actuator that moves the ride is in an elongated condition, noise will be emitted when the ride contracts.
Although there is no concern about wear or overloading, this occurrence is likely to cause apprehension. The following is an explanation of how to turn the power off quietly by adhering to a certain set of steps.
Note, however, that this power off procedure cannot be conducted while a game is in progress.

1 Turn OFF the main switch on the service panel of the control tower. (See Fig. 3-2.)

2 When you wish to turn OFF the power switches of the four cabinets, press the START button on the service panel for an extended period. Press the START button continuously for at least 3 seconds until the rides start to move.

3 Each ride will move to its bottommost point and then stop.

4 Turn OFF the power switch on the control tower. This switch is behind the lid on the left side seen facing the control tower. (See Fig. 4c.)

If you turn OFF the power without carrying out the above procedure, the ride will descend a little at a time while emitting a noise. This is the noise of the elongated actuator contracting.
Although the actuator will not wear due to this operation, you should carry out the above procedure before turning OFF the power.

5 Before carrying out maintenance on a particular cabinet and cockpit, turn OFF the power switch on the side of the DLP base of the target cabinet. (See Fig.4b.)

To turn OFF only the target cabinet, press the ENTRY button for the target cabinet on the service panel for an extended period.
Press the button continuously for at least 3 seconds until the ride starts to move.
Only the ride of the target cabinet will move to its bottommost point and then stop.

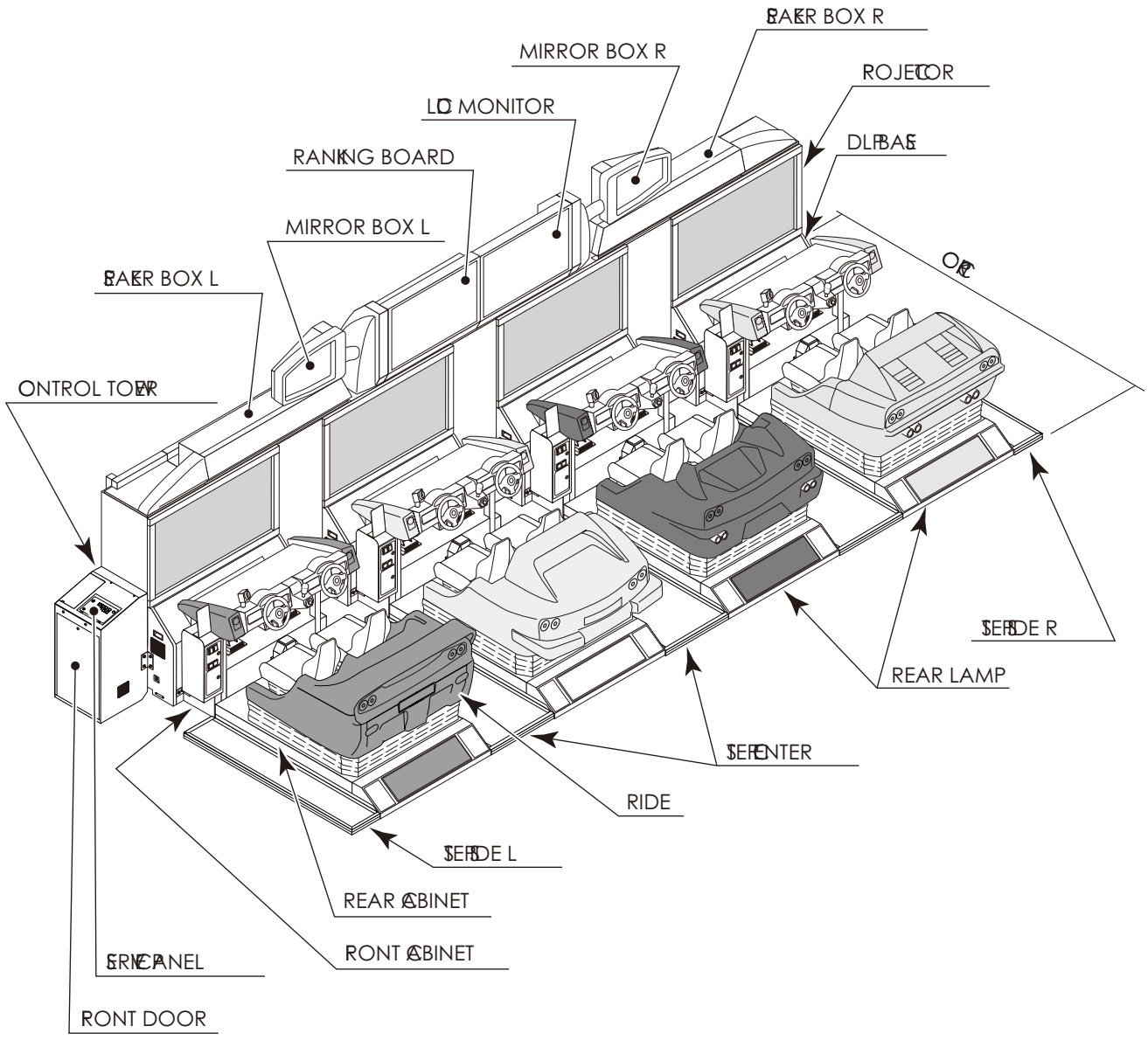


FIG. 4a Overall Diagram

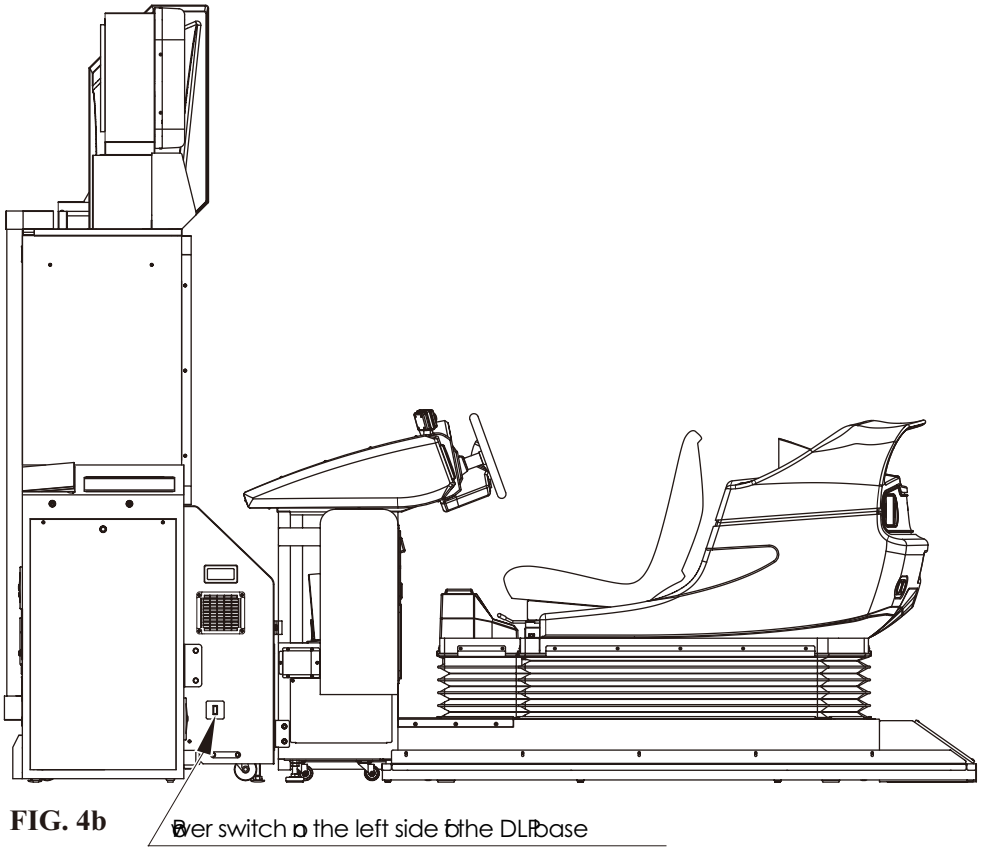

Power switch on the left side of the DLP base

FIG. 4b

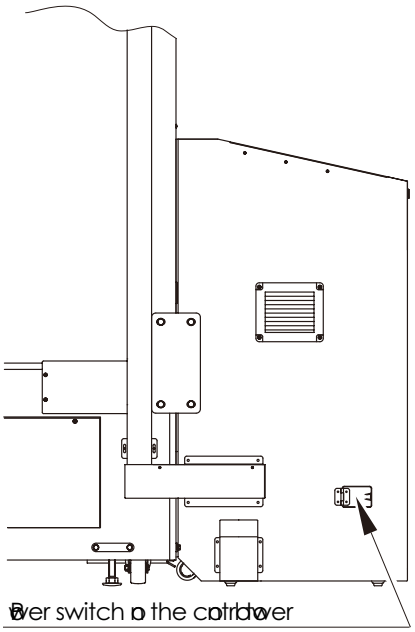

Power switch on the control cover

FIG. 4c

Name (quantity)	Width	×	Depth	×	Height (mm)	Mass (kg)
REAR CABINET (4)	W 1,400	×	D 1,850	×	H 1,170	363
FRONT CABINET (4)	W 1,620	×	D 880	×	H 1,250	177
DLP BASE (4)	W 1,510	×	D 850	×	H 920	152
PROJECTOR (4)	W 1,510	×	D 570	×	H 1,400	110
REAR LAMP (4)	W 1,310	×	D 360	×	H 210	23
CENTER STEP (3)	W 665	×	D 1,990	×	H 62	29
SIDE STEP L (1)	W 332	×	D 1,990	×	H 62	18
SIDE STEP R (1)	W 332	×	D 1,990	×	H 62	18
CONTROL TOWER (1)	W 565	×	D 555	×	H 1,065	87
RANKING BOARD (1)	W 1,400	×	D 620	×	H 775	84
RANKING BASE	W 1,400	×	D 580	×	H 115	-
RANKING BOX	W 1,045	×	D 180	×	H 650	-
LCD UNIT (1)	W 1,400	×	D 620	×	H 775	68
LCD BASE	W 1,400	×	D 580	×	H 115	-
LCD MONITOR	W 980	×	D 95	×	H 590	-
SPEAKER BOX L (1)	W 1,810	×	D 580	×	H 765	71
SPEAKER BASE L	W 1,710	×	D 580	×	H 275	-
MIRROR BOX L	W 935	×	D 285	×	H 500	-
SPEAKER BOX R (1)	W 1,810	×	D 580	×	H 765	71
SPEAKER BASE R	W 1,710	×	D 580	×	H 275	-
MIRROR BOX R	W 935	×	D 285	×	H 500	-

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

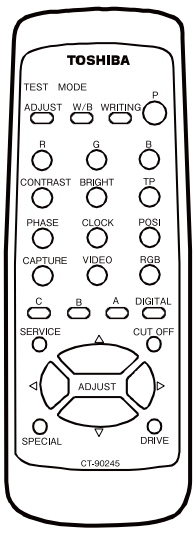
DESCRIPTION: OWNER’S MANUAL
Part No. (Qty.): 420-6958-02 (1)
Note: This manual
Figures:
Parts not labeled with part numbers are as yet unregistered or cannot be registered. Be sure to handle all parts with care, as some parts are not available for purchase separately.

SERVICE MANUAL
420-6990-01 (1)
Explanation of software

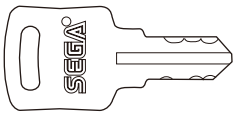
PARTS CATALOG
420-6991-02 (1)
Parts list

LINDBERGH SERVICE MANUAL
420-6921-01 (1)
Explanation of built-in game board

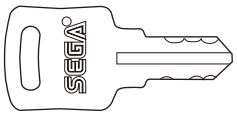
PROJECTOR REMOTE CONTROLLER
200-6023 (4)
For making adjustments. (See Chapter 8.)



KEY MASTER
220-5793-2-A001 (2)
For opening/closing the doors

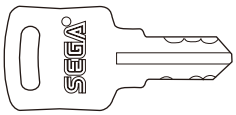


KEY MASTER
220-5793-2-A003 (2)
For opening/closing the doors



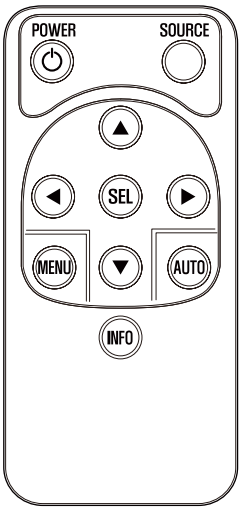
The key master is shipped with the manual packed together with the accessories.

KEY
(2 each)

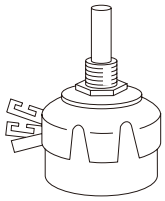


Each key is used for opening and closing the coin chute door of a seat. The key for each seat is different. The keys are placed inside the coin chute doors for shipping.

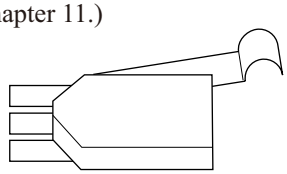
LCD REMOTE CONTROLLER
200-6060 (1)
For making adjustments. (See Chapter 9.)
Located inside the LCD packing box.



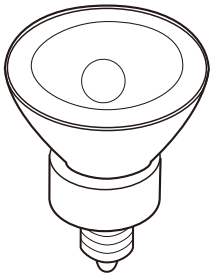
VOLUME
220-5753/220-5484 (2)
Spare. (See Chapters 10 and 12.)



MICROSWITCH
509-5704 (2)
Spare. (See Chapter 11.)

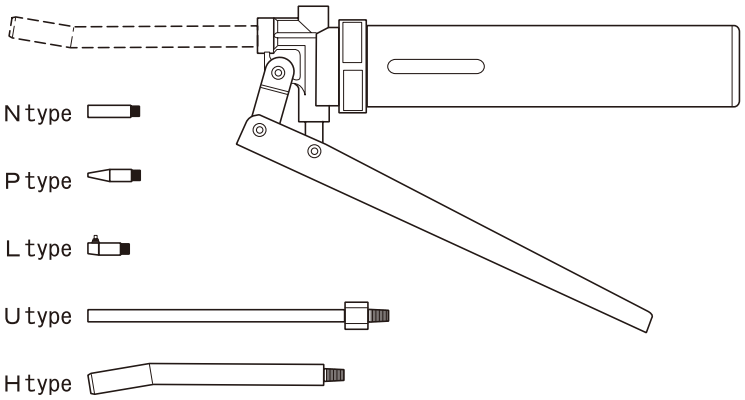


HALOGEN LAMP
390-6732-40M (5)
Spare. (See Chapter 15.)

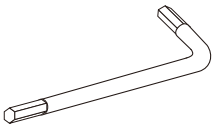


Attached to the machine during installation and assembly. An additional 14 identical lamps are packed together with the machine.

GREASE GUN
090-0083 (1)
For greasing up. (See Chapter 14.)



TAMPERPROOF SCREW WRENCH
540-0007-01 (1)
Tool. (See Chapter 11.)

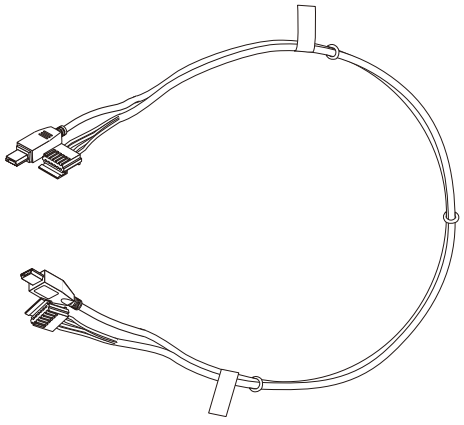


GREASE
090-0289 (1)
For greasing up. (See Chapter 14.)

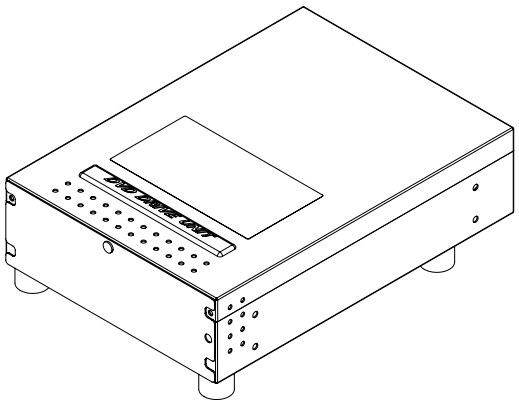


SERVICE MANUAL DVP ENG
420-6923-01 (1)

ASSY WIRE DVD
605-0094 (1)
For software installation.
(See Chapter 18.)



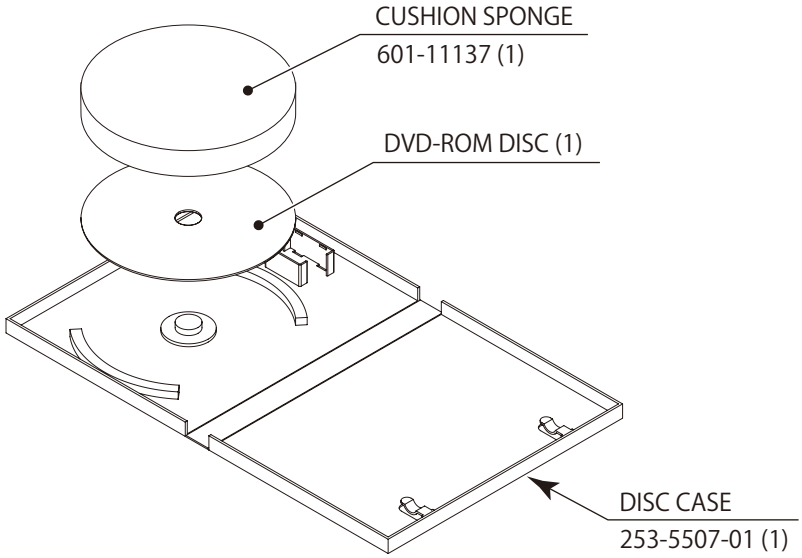
DVD DRIVE
610-0719-01-91 (1)
For software installation.
(See Chapter 18.)



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 18.)



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. Four cables are needed for the cabinets, and one for the control tower. 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.**
- **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.**
- **For the sake of safety and workability, use 3 core coaxial cabtire cables for the power cables.**
- **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.**

⚠ WARNING

- **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.**

STOP 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 Joining the DLP projectors
4 Installing the DLP projector
5 Assembling the ranking board
6 Assembling the LCD monitor
7 Assembling the speaker box
8 Assembling the billboard
9 Assembling the cockpit
10 Joining the cockpit and DLP projector
11 Installing the cockpit
12 Attaching the step and rear lamp
13 Connecting the billboard wiring
14 Attaching the control tower
15 Connecting the power cable
16 Attaching the play instructions stickers
17 Turning on the power
18 Checking assembly

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

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

The sequence in which the four cabinets are arranged is fastened. The sequence is 1P, 2P, 3P, and 4P 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
3P: Blue 360Spider
4P: Silver 512BB

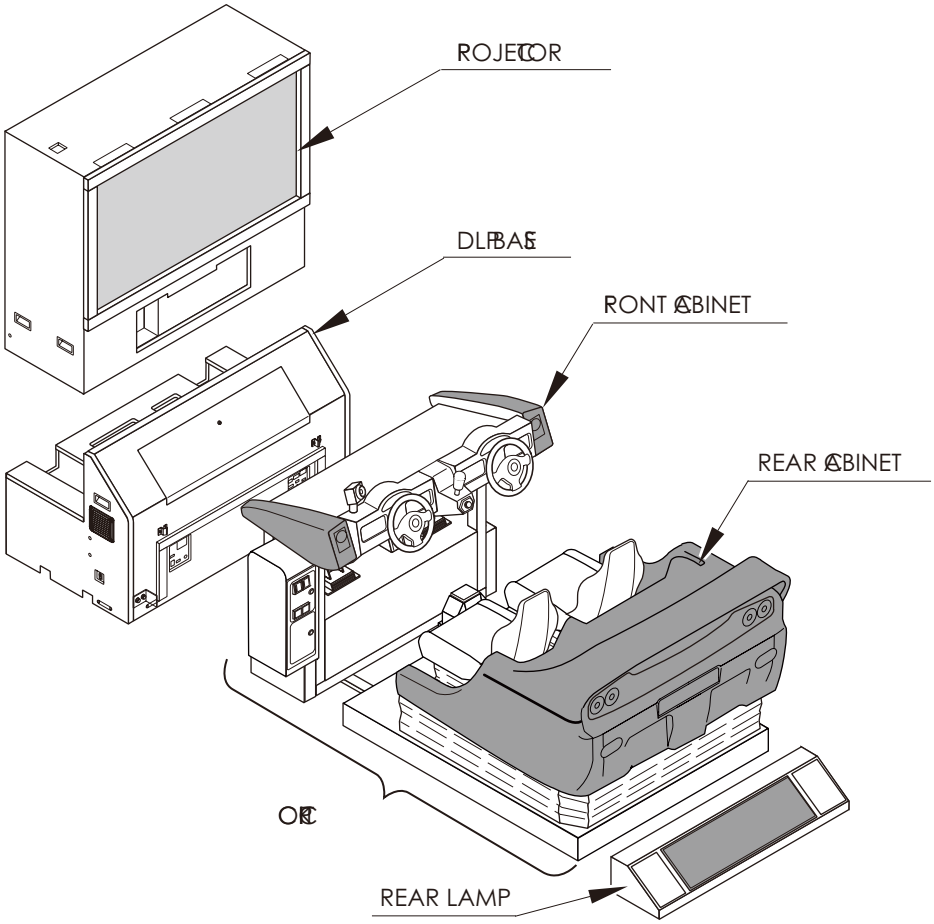


FIG. 6a Component parts of cabinet

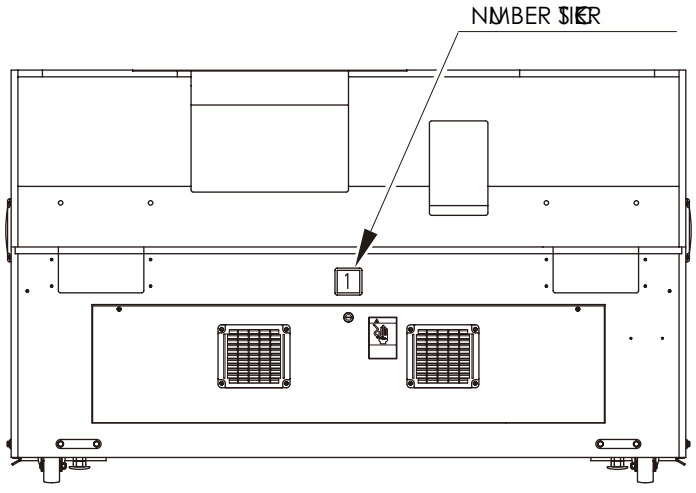
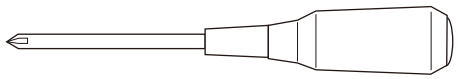
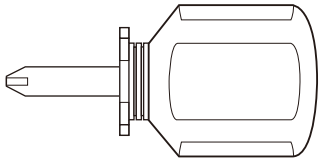


FIG. 6b No. indication on DLP base

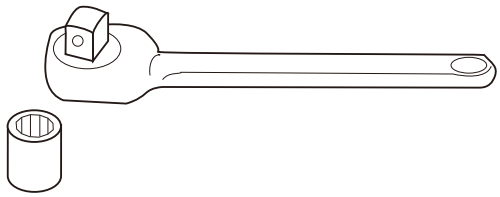
- Philips screwdrivers (for M4, M5, and M8)



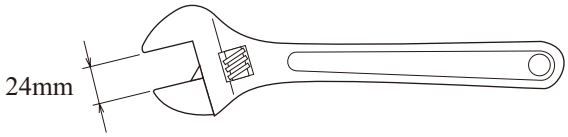
- Short Philips screwdriver or ratchet handle with Philips screwdriver tip (for M4)



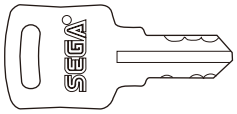
- Socket wrenches or hexagon screwdrivers measuring distances of 10 mm, 13 mm, and 17 mm to opposite side (for M6, M8, and M10 hexagon bolts and nuts)



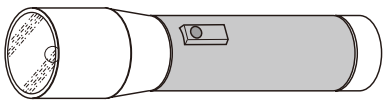
- Spanner with measuring distance of 24mm to opposite side



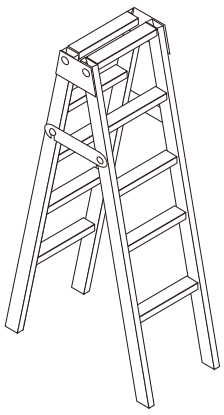
- Master keys (accessory)



- Flashlight or other supplementary lighting



- Stepladder (height must be 1.5 meters min.)



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.

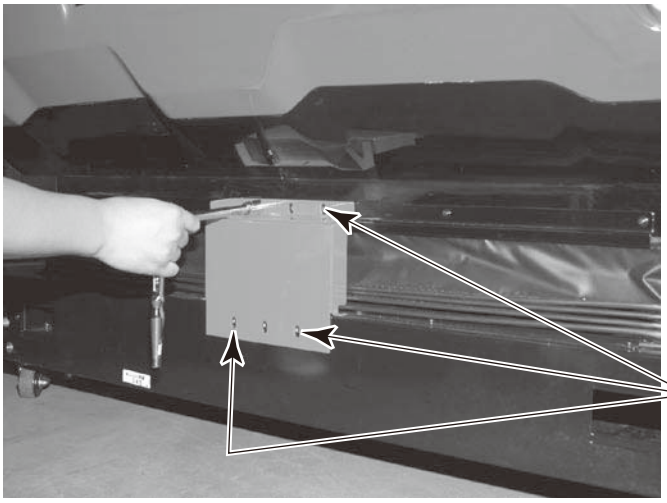


FIG. 6-1a

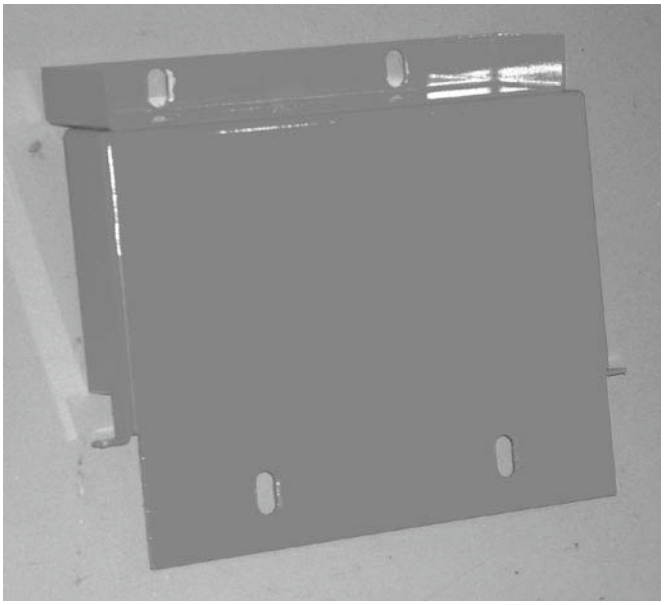


FIG. 6-1b SHIPPING BRACKET

⚠ 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.

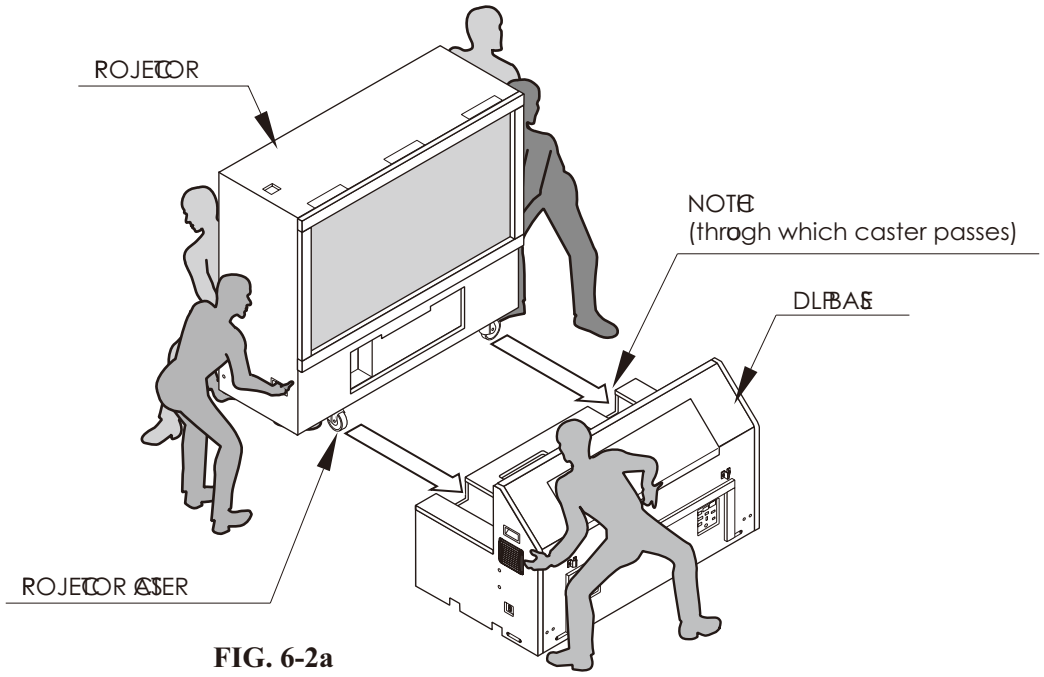


FIG. 6-2a

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.

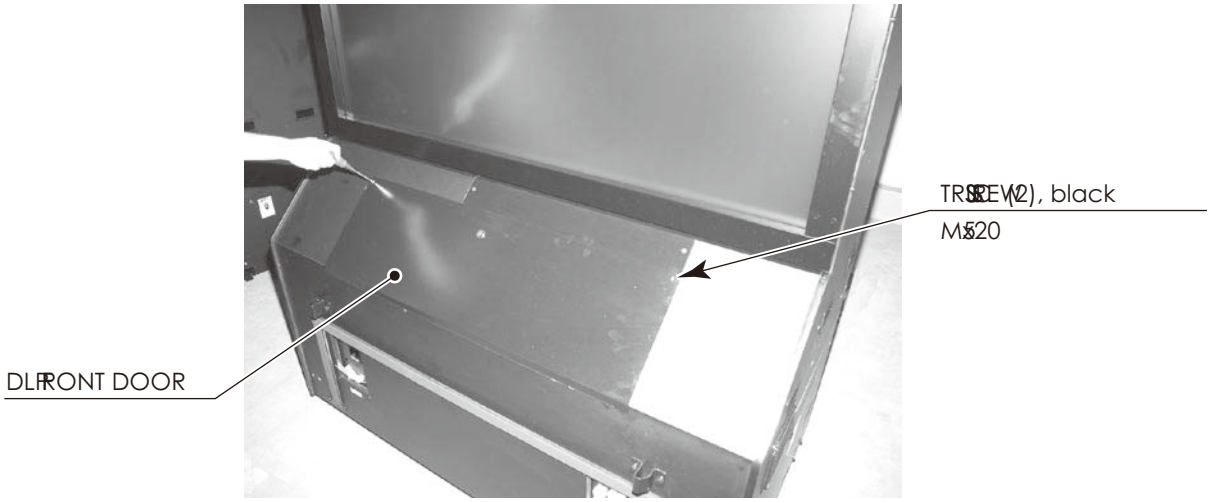


FIG. 6-2b

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

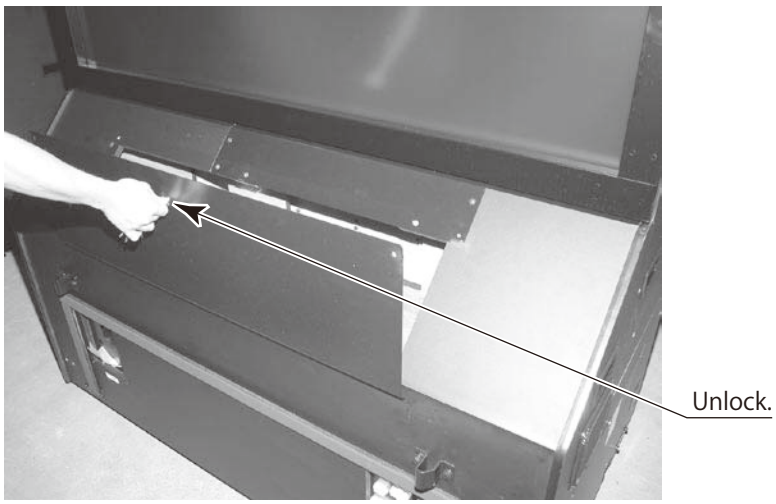


FIG. 6-2c

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.

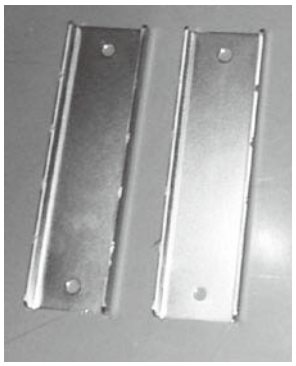


FIG. 6-2d FRONT HOLDER

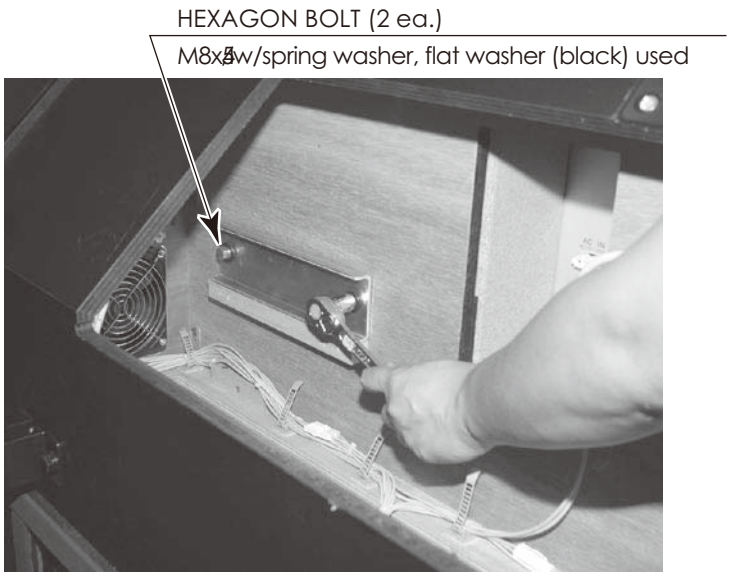


FIG. 6-2e

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.
During this work, do not attach joint A on the left side of projector 1P. The same bolt holes are used to attach the control tower. (See 14.)



FIG. 6-2f JOINT A

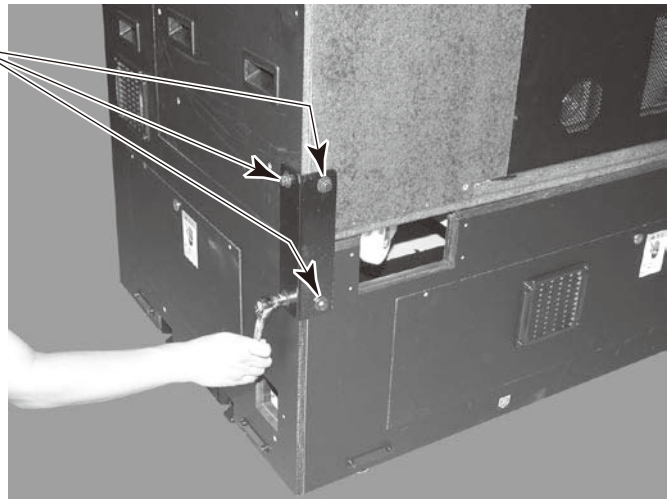


FIG. 6-2g

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.

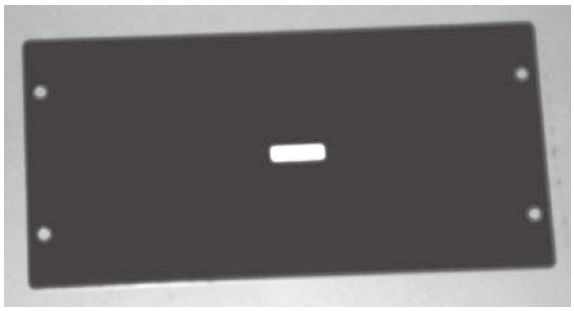


FIG. 6-2h CASTER LID

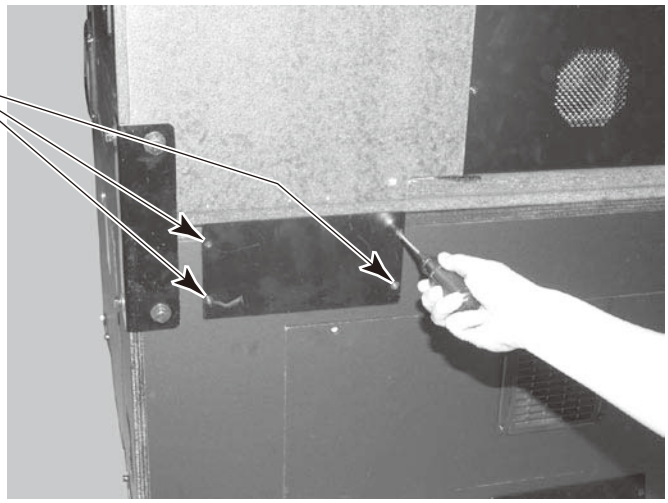


FIG. 6-2i

8 Connect the two 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.

9 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.

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

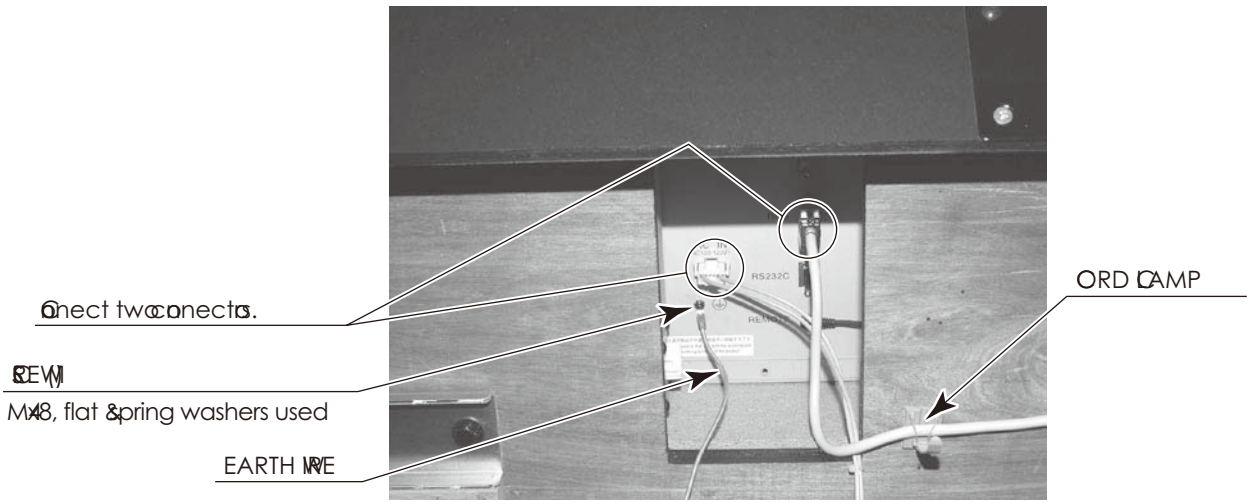


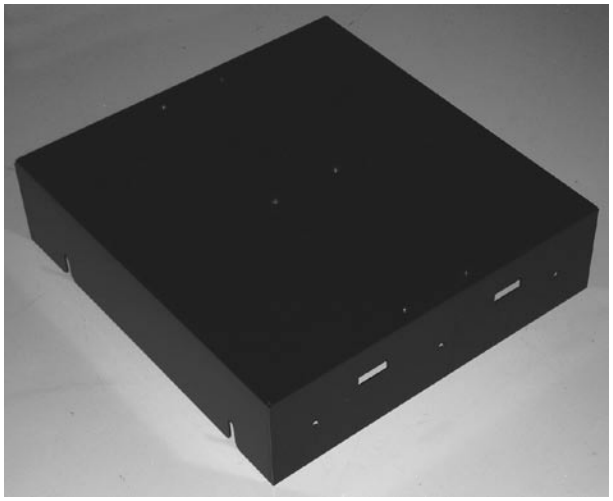
FIG. 6-2j

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

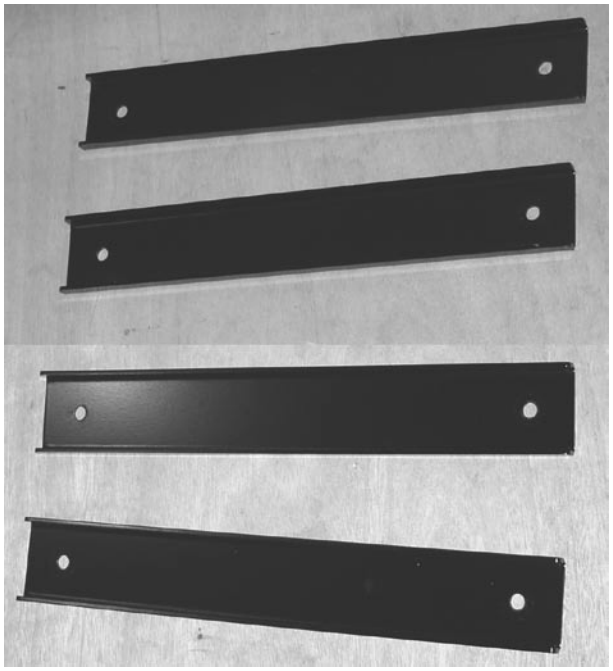
3 JOINING THE DLP PROJECTORS

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

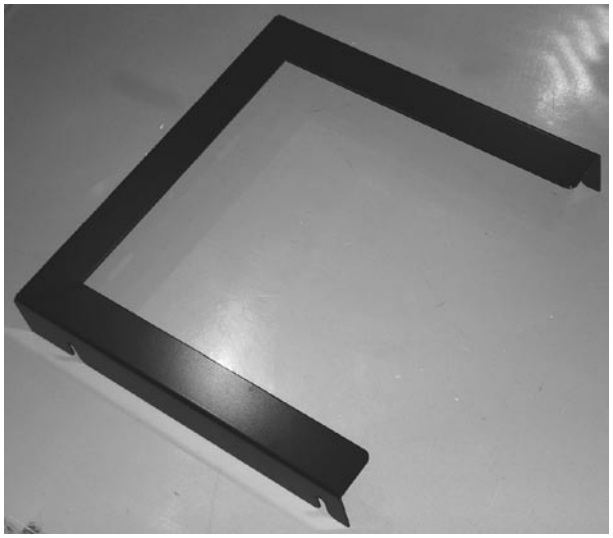
The parts to be attached between the four projectors are uniform. Note, however, that the wiring connections differ according to the particular projectors.



JOINT UPPER (Total 3)



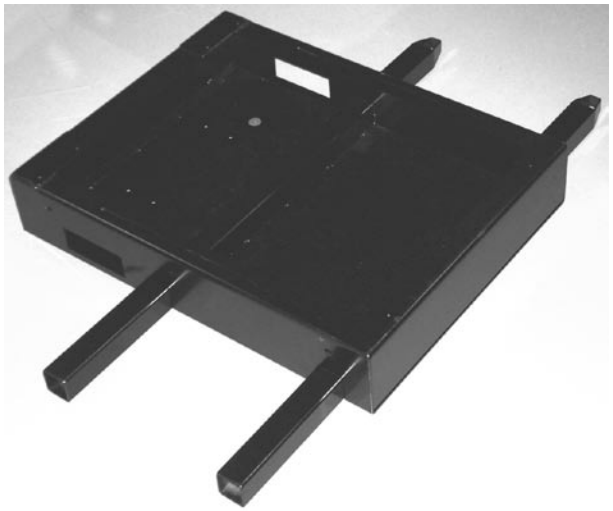
JOINT HOLDER (Total 12)



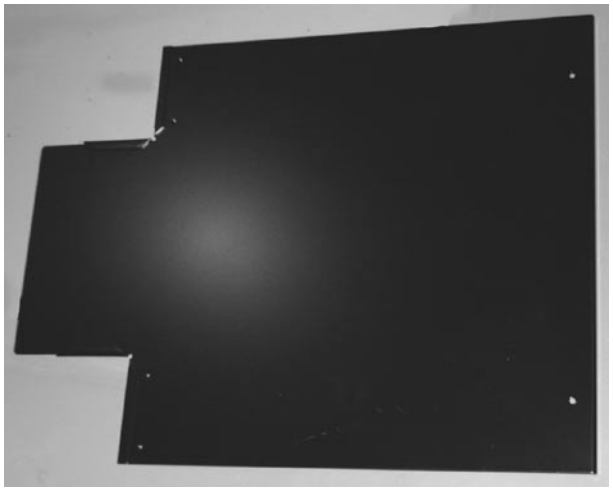
JOINT MIDDLE (Total 3)



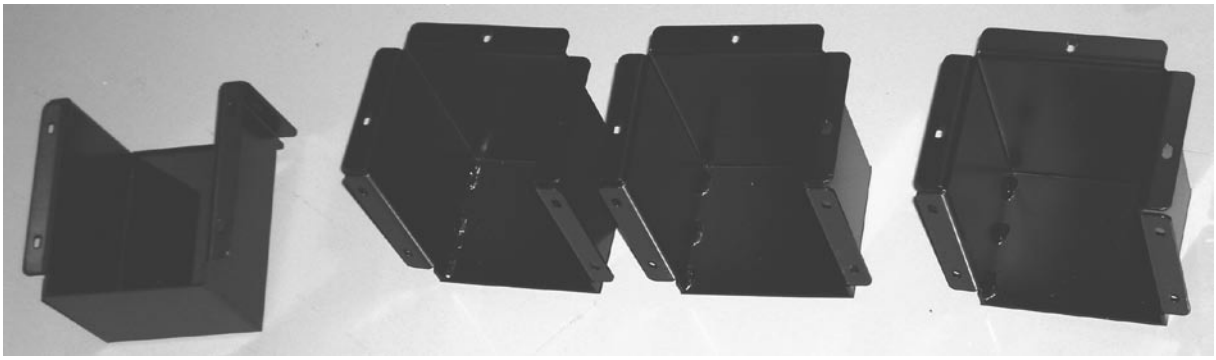
LAN JOINT (Total 10)



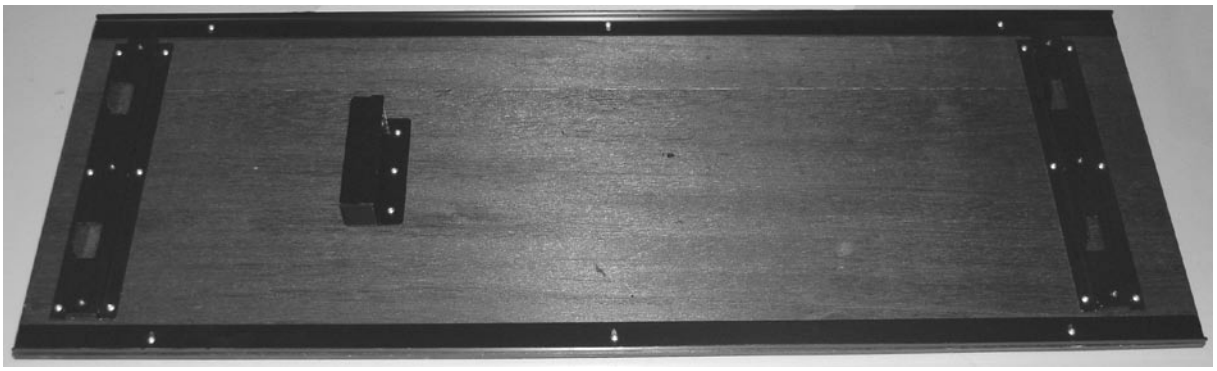
JOINT LOWER (Total 3)



JOINT LOWER COVER (Total 3)



JOINT WIRE COVER (Total 6)



DLP SIDE PLATE (Total 3)

1 Place the four DLP projectors alongside each other. The sequence is 1P, 2P, 3P, and 4P 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.)

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 4P DLP base.

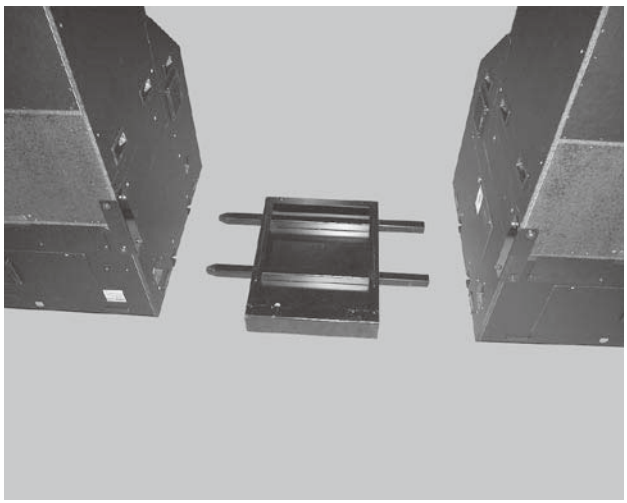


FIG. 6-3a

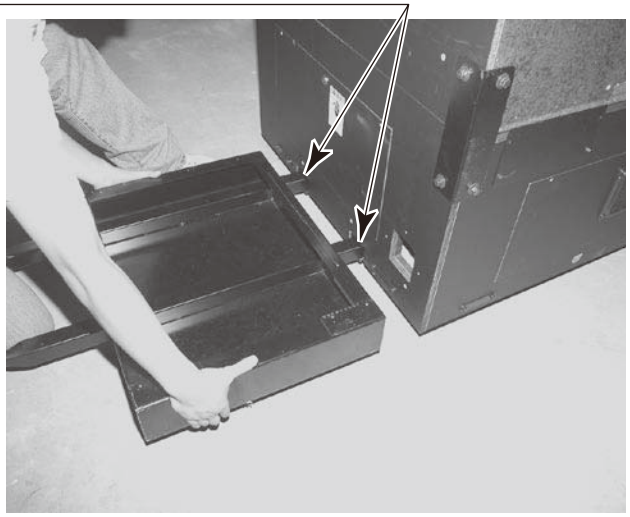


FIG. 6-3b

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 4P.

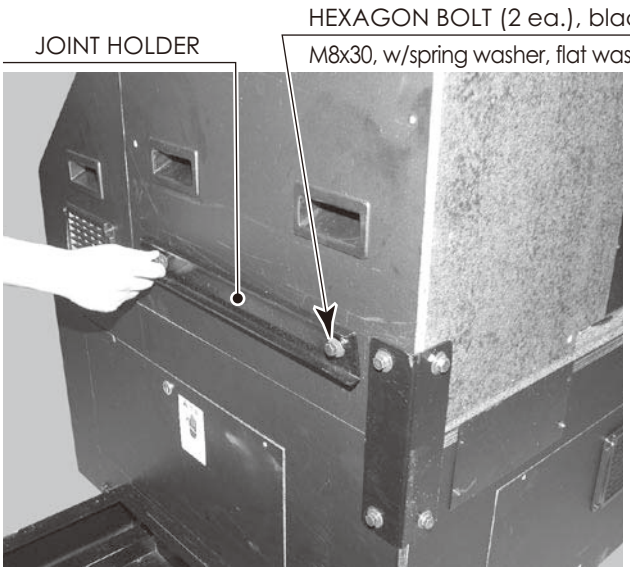


FIG. 6-3c

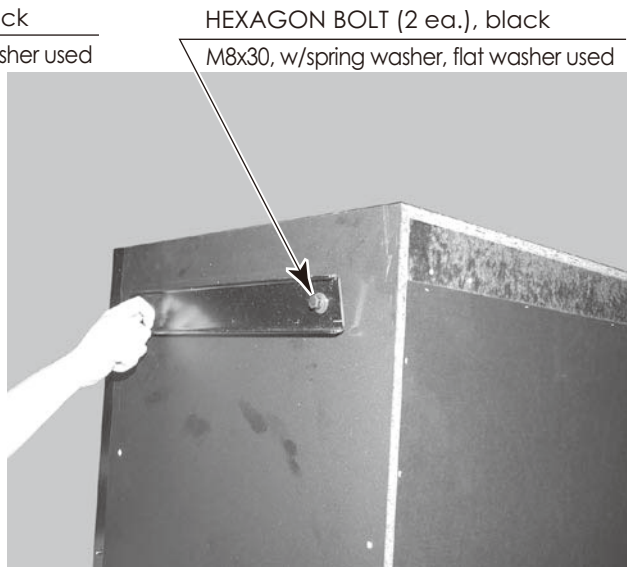


FIG. 6-3d

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

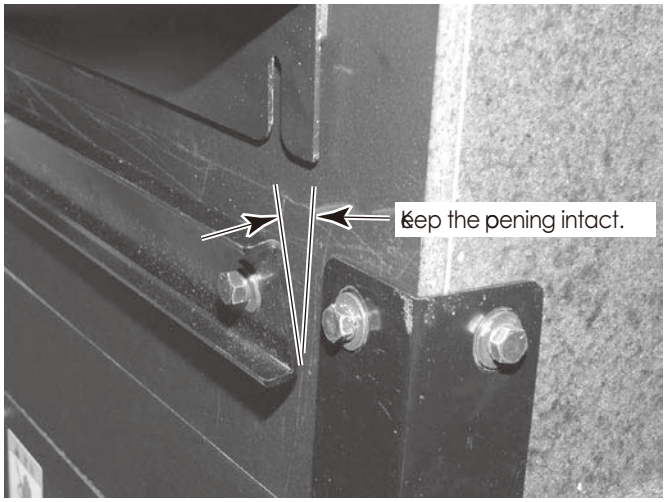


FIG. 6-3e

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.

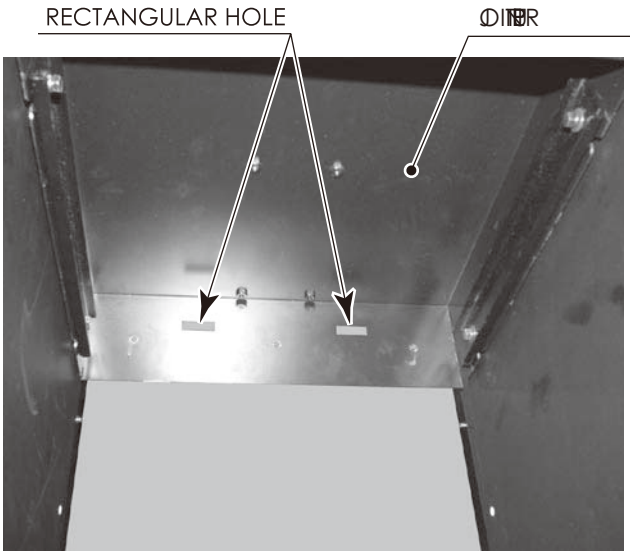


FIG. 6-3f



FIG. 6-3g

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.

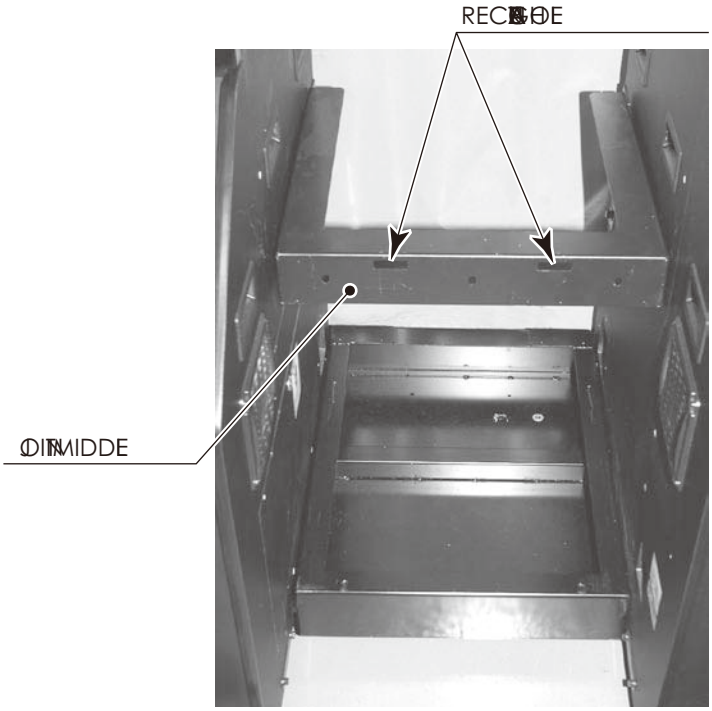


FIG. 6-3h

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.

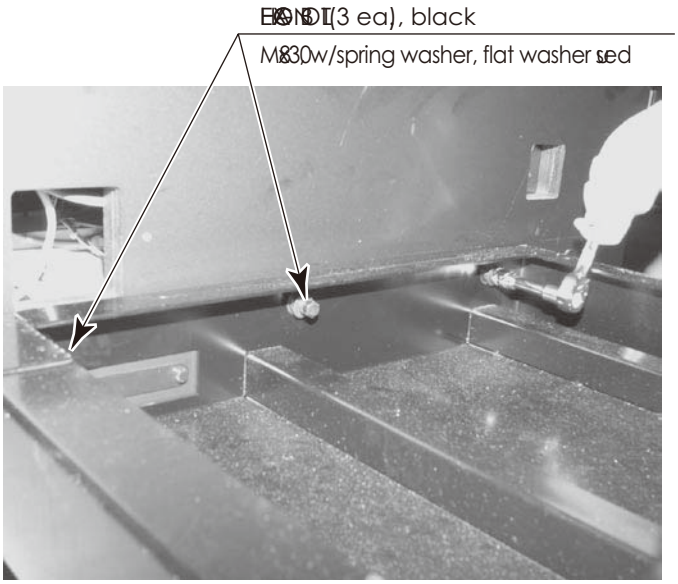


FIG. 6-3i

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

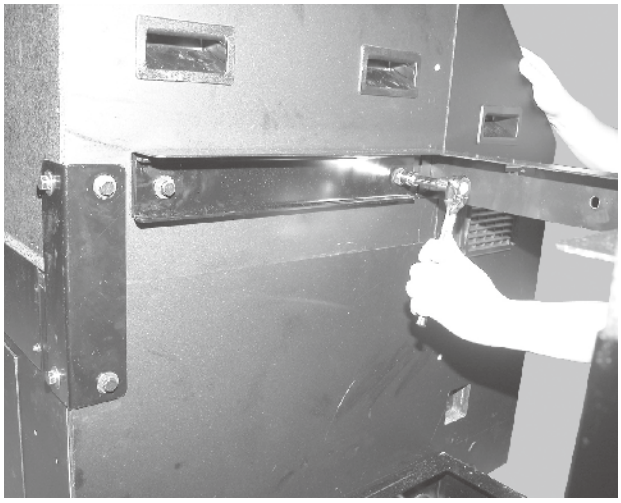


FIG. 6-3j



FIG. 6-3k

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. 6-3l



FIG. 6-3m

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.

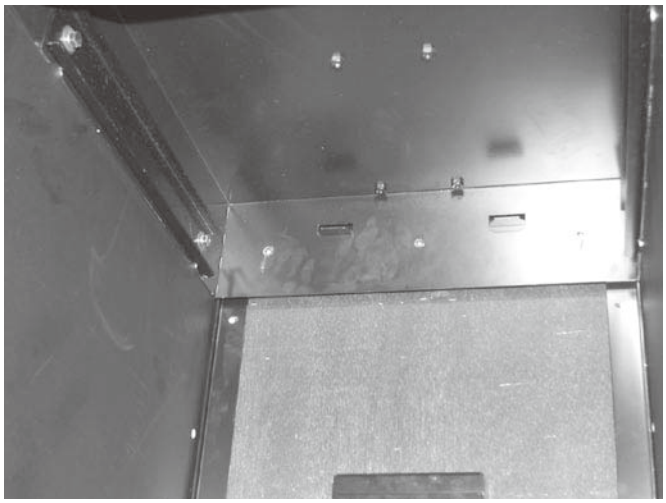


FIG. 6-3n



FIG. 6-3o

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.

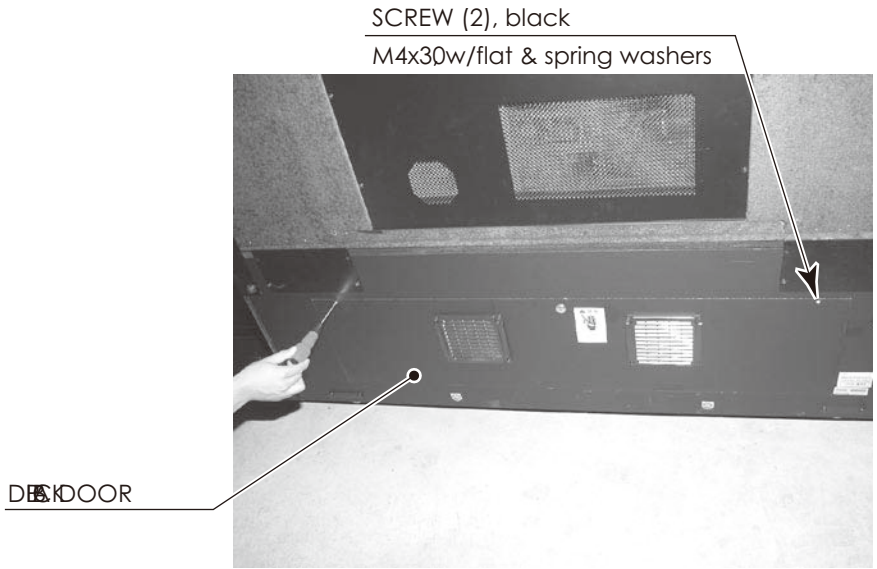


FIG. 6-3p

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

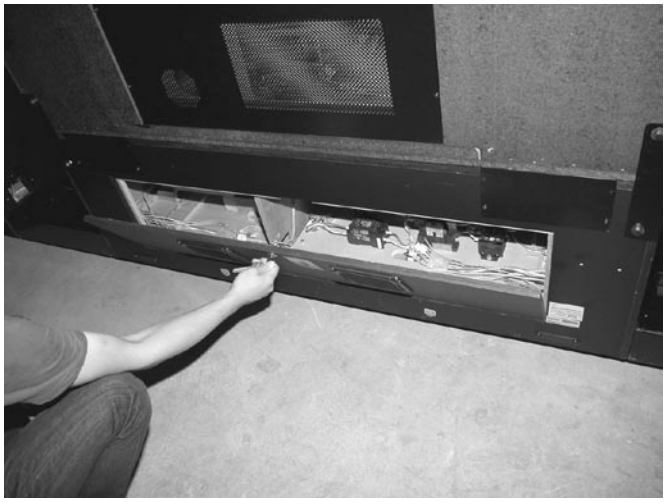


FIG. 6-3q

13 Connect the wiring between the DLP bases. Withdraw the wiring from the side rectangular hole, and connect the connector to it inside the joint lower.



FIG. 6-3r



FIG. 6-3s

The wires and LAN cables have tags on them. Connect wires and LAN cables that have the same tags. Also, use LAN joints to connect the LAN cables.

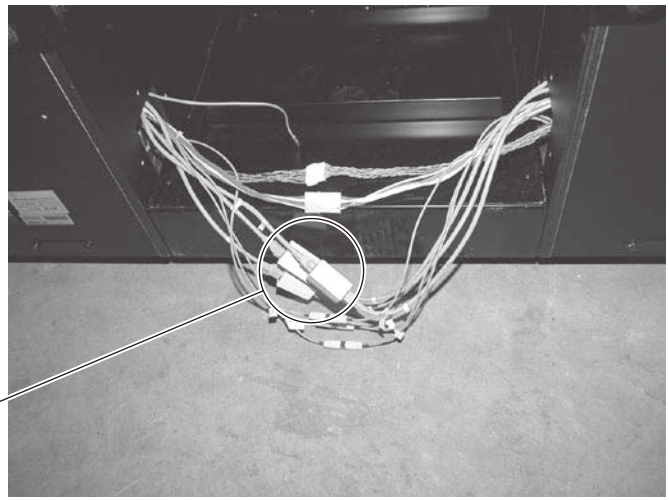


FIG. 6-3t

14 There is an earth wire in the wiring on the left side facing the back of the DLP base. At the bottom of the joint lower there is a screw hole the vicinity of which is left unpainted. There is a screw temporarily fastening the earth wire. Remove the earth wire fastening screw, and then fasten the round terminal of the earth wire. Be sure to use a spring washer and a flat washer with the screw.

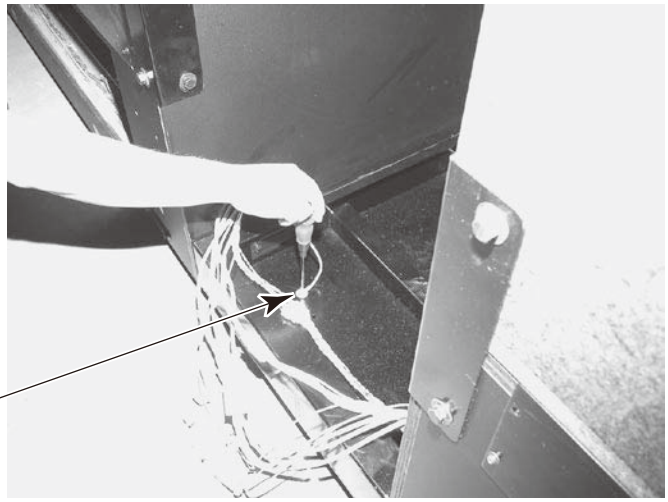


FIG. 6-3u

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

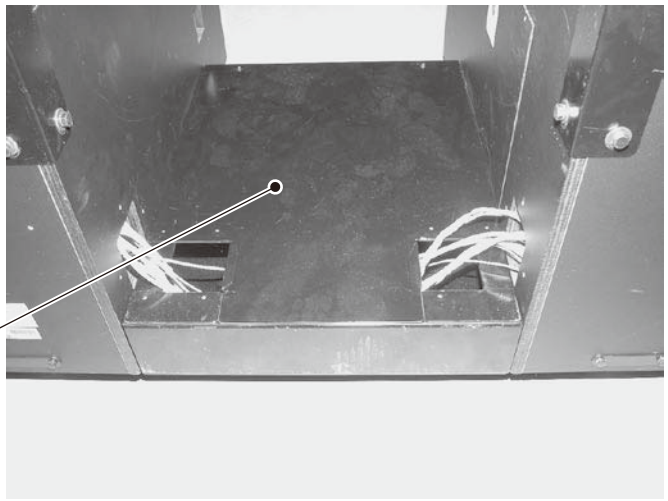


FIG. 6-3v

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

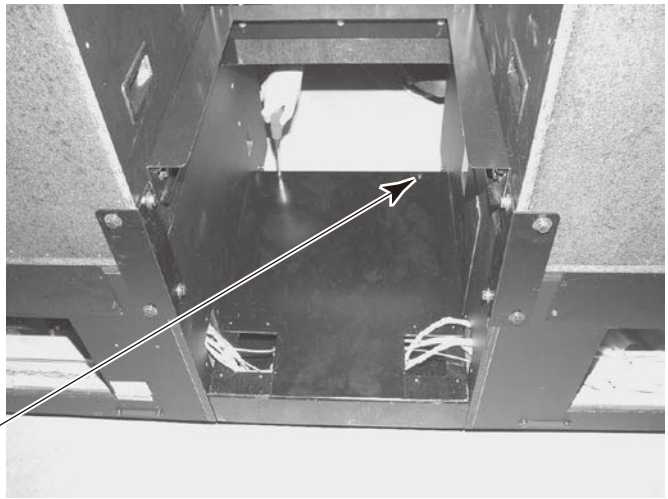


FIG. 6-3w

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.

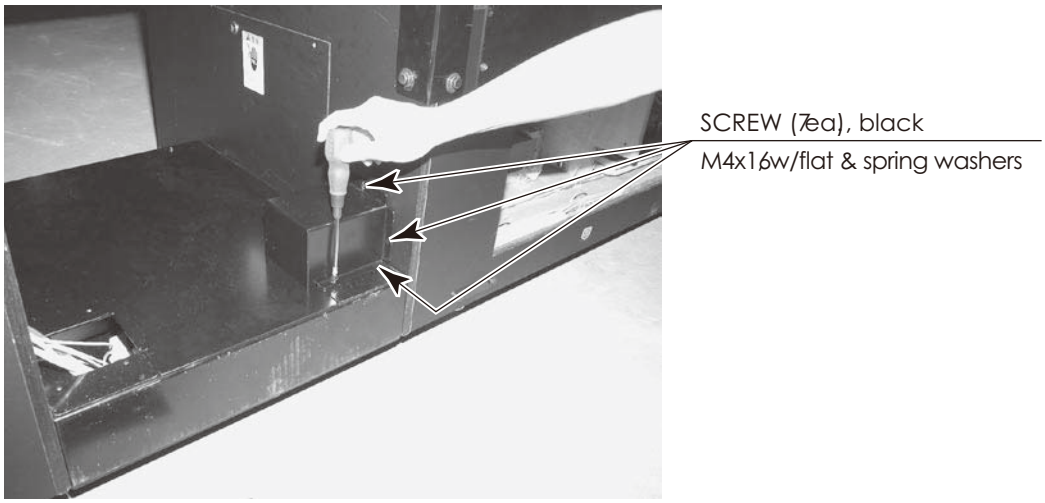


FIG. 6-3x

⚠ 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. 6-4d.) 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 four 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.

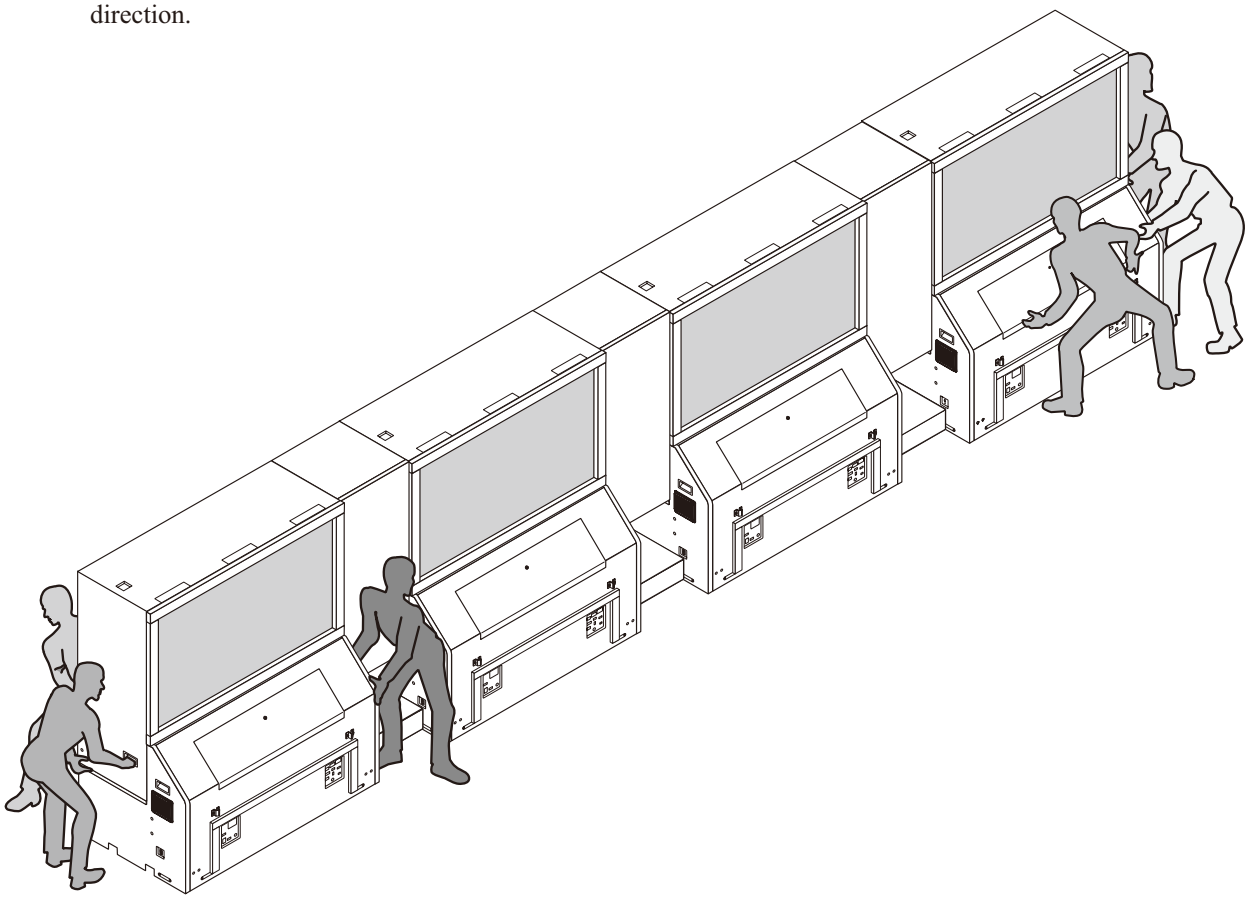


FIG. 6-4a

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. Attach the control tower to the left side of the 1P DLP projector.
Secure at least 1.5 m at both sides.

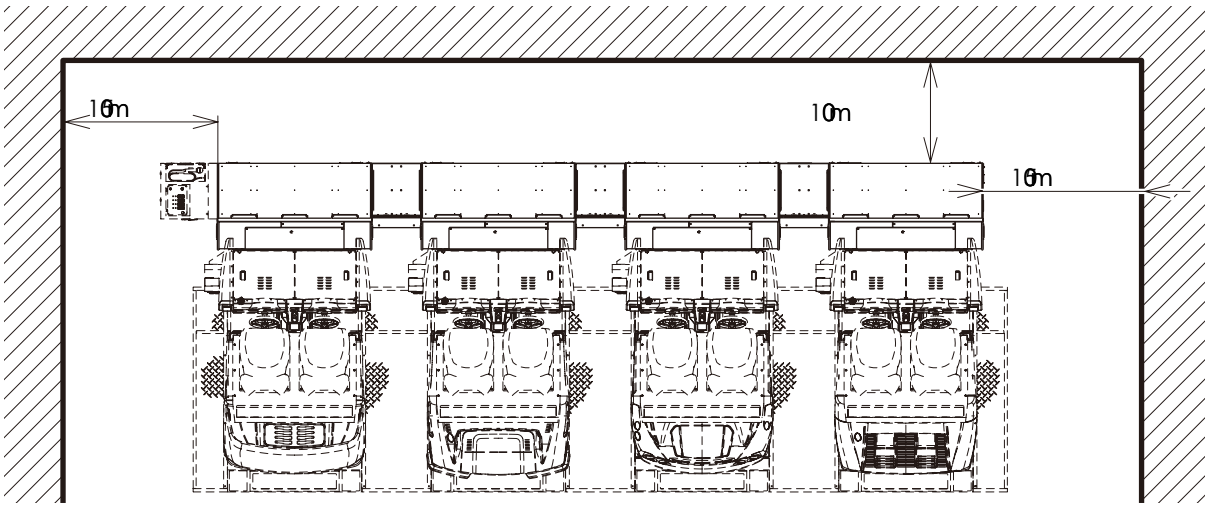


FIG. 6-4b

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



FIG. 6-4c 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.

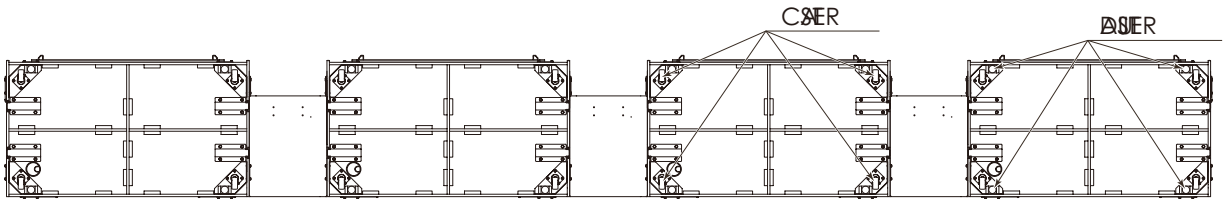


FIG. 6-4d Bottom view of four DLP bases joined together

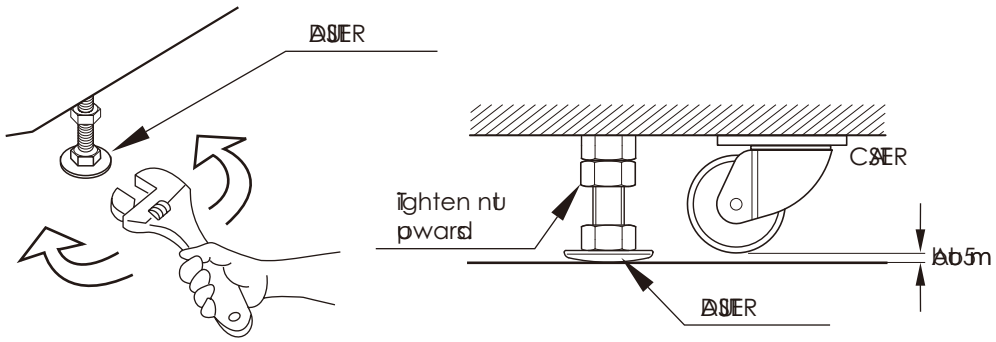


FIG. 6-4e Adjustment of adjusters

Assemble the ranking board to be attached over the 2P DLP projector.

1 When the product is shipped, the ranking box and the front cover have already been assembled. Remove four truss screws, and remove the front cover.

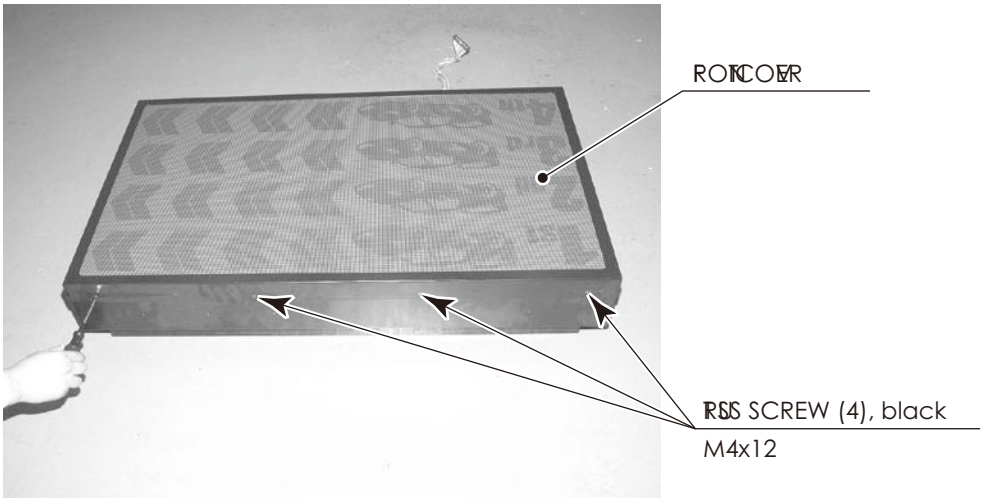


FIG. 6-5a

2 Remove two screws, and remove the billboard electric cover from the ranking base.

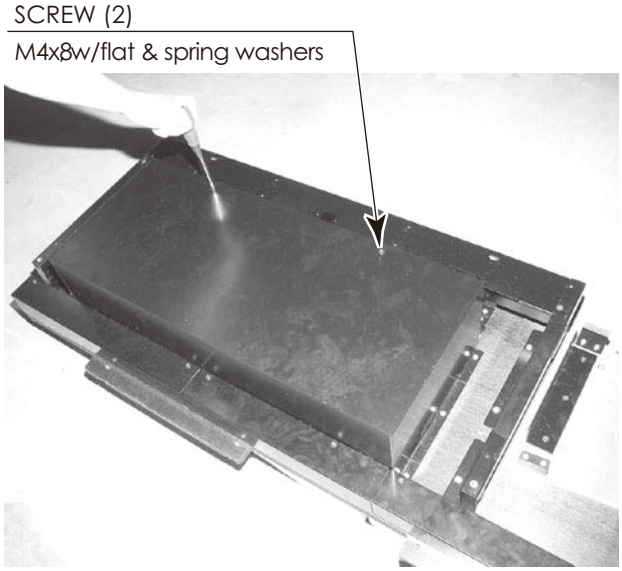


FIG. 6-5b

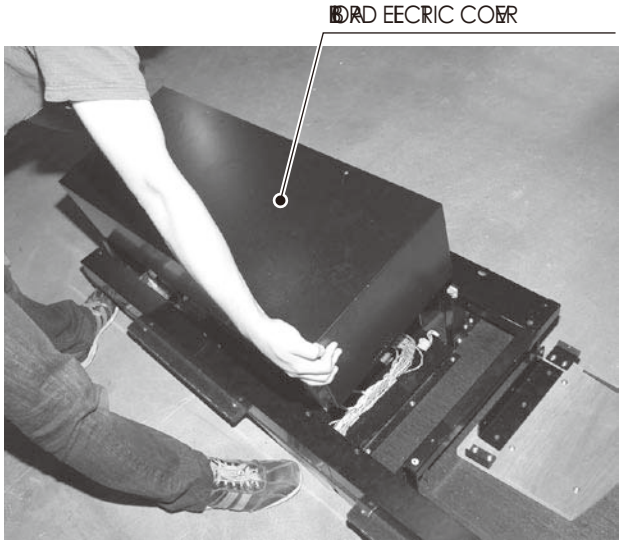


FIG. 6-5c

3 Have the ranking box lifted up by two persons, and then placed on the ranking base. Take care not to catch the wiring.

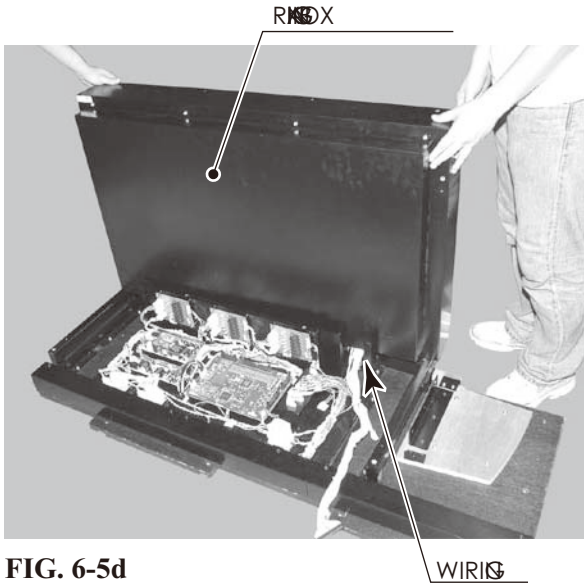


FIG. 6-5d

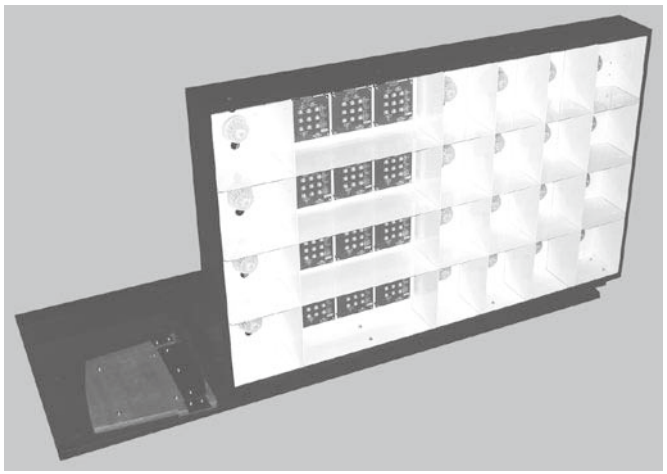


FIG. 6-5e

4 Fasten the ranking box by its bottommost frame to the ranking base with a total of eight screws.
When fastening the screws, use either a short screwdriver or a ratchet handle with screwdriver tip. Each screw has a flat washer and spring washer attached.

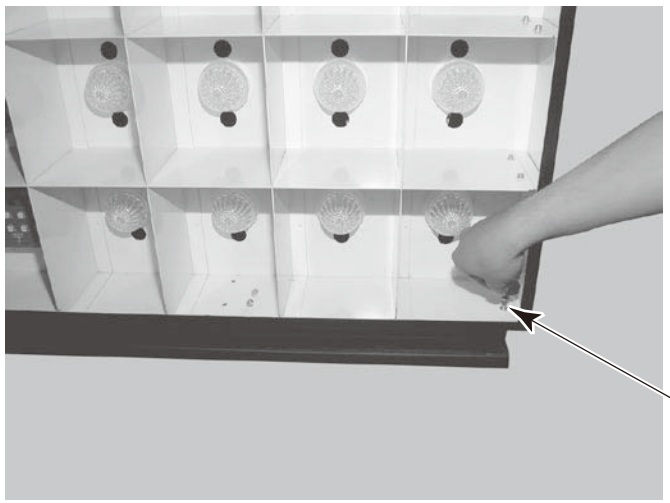


FIG. 6-5f

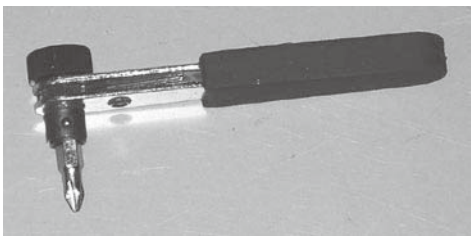


FIG. 6-5g

5 Attach the two base frames upper at the left and right of the back of the ranking box. Fasten each base frame using four screws. Each screw has a flat washer and spring washer attached.

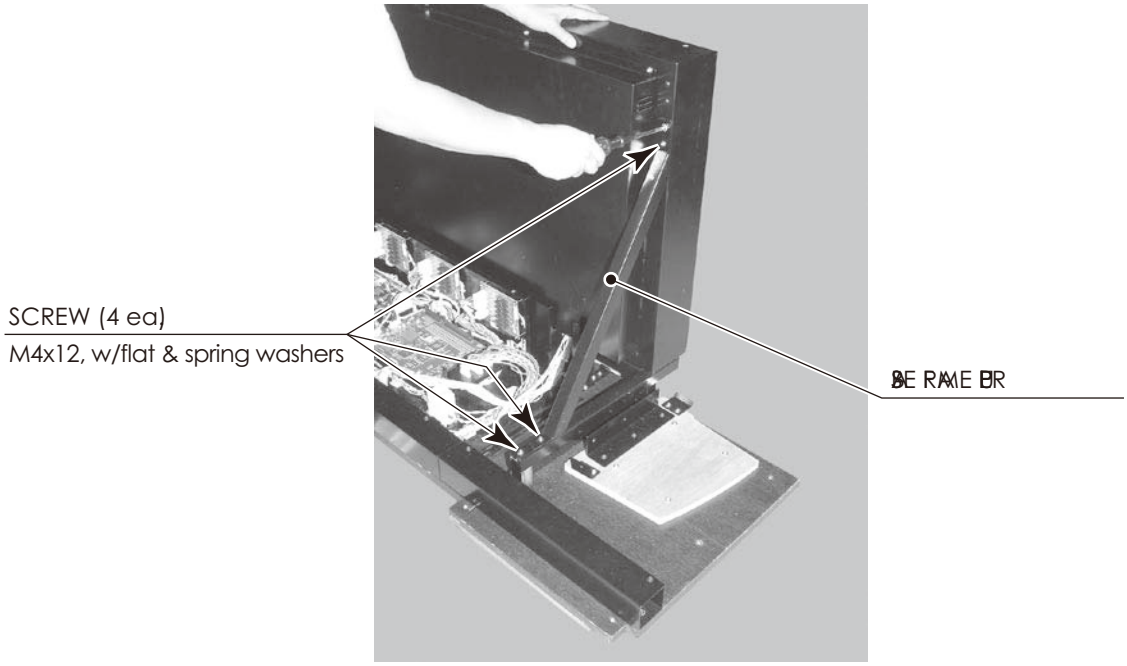


FIG. 6-5h

6 Connect the wire connector of the ranking box to the board and connector panel inside the billboard electric.

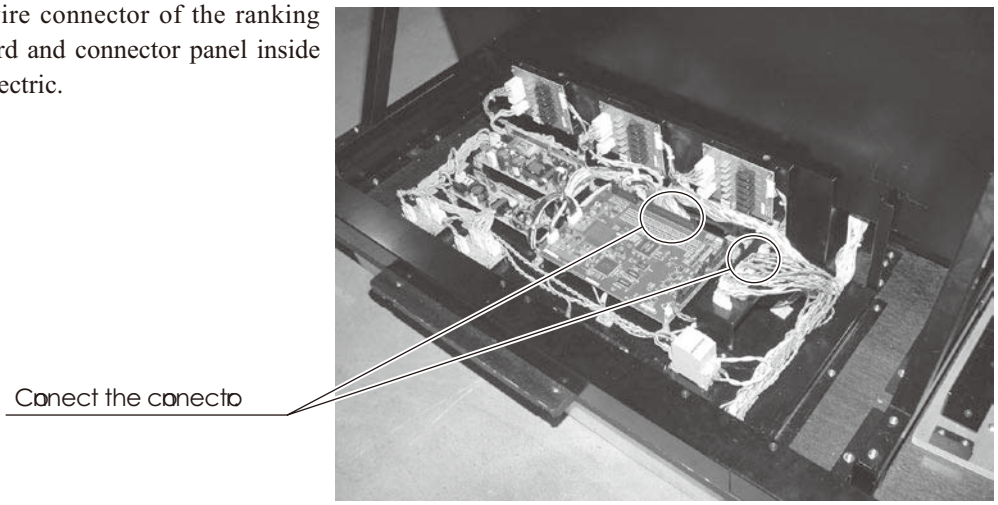


FIG. 6-5i

7 Return the billboard electric cover to its initial position, and fasten it with two screws. Take care not to damage the wiring.

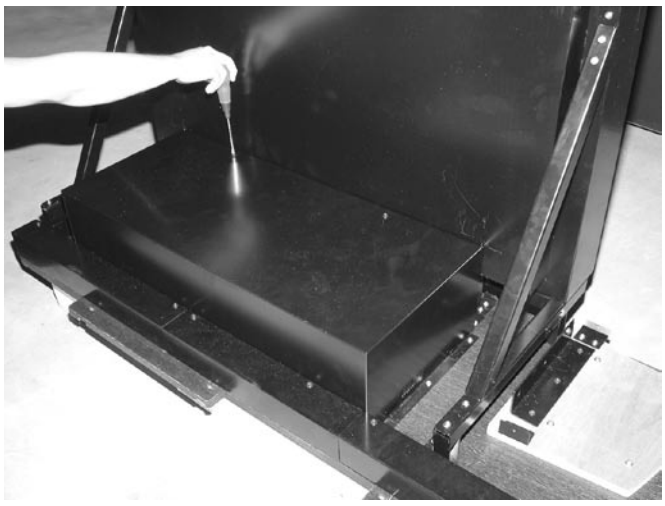


FIG. 6-5j

8 Attach the front cover.

Attach the front cover from the bottom so that the tab at the bottom of the ranking box hitches with the bottom of the front cover. After hitching the tab, attach the front cover so as to cover the top part.

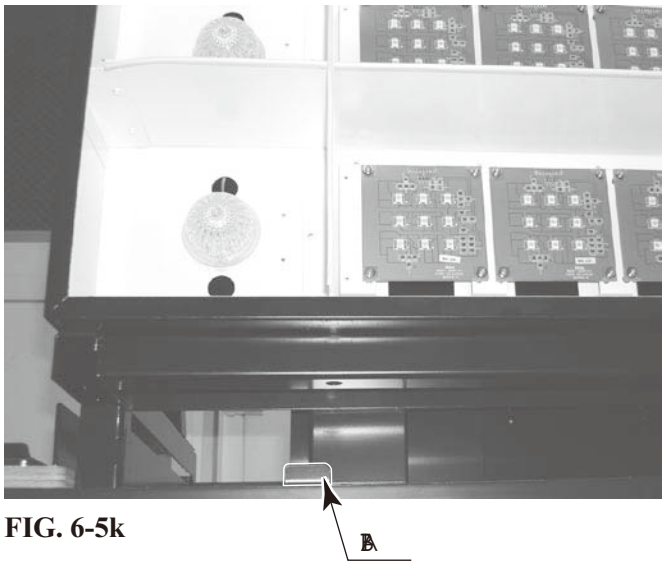


FIG. 6-5k

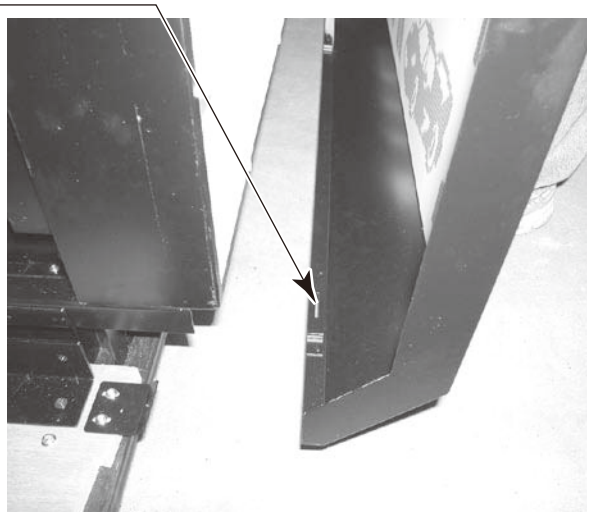


FIG. 6-5l

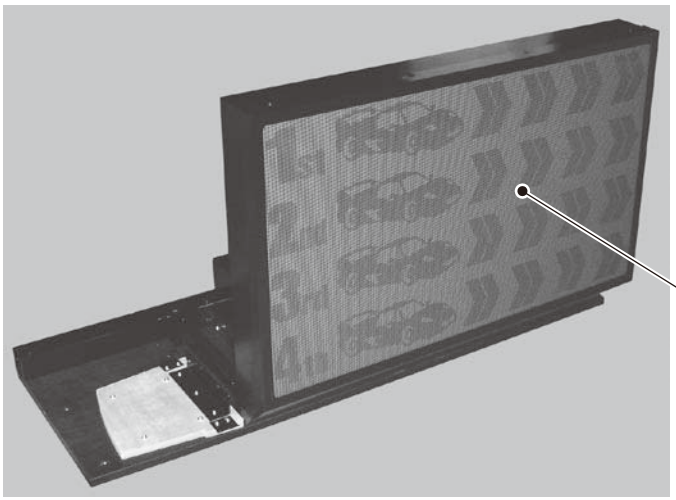


FIG. 6-5m

9 Fasten the front cover using four truss screws.

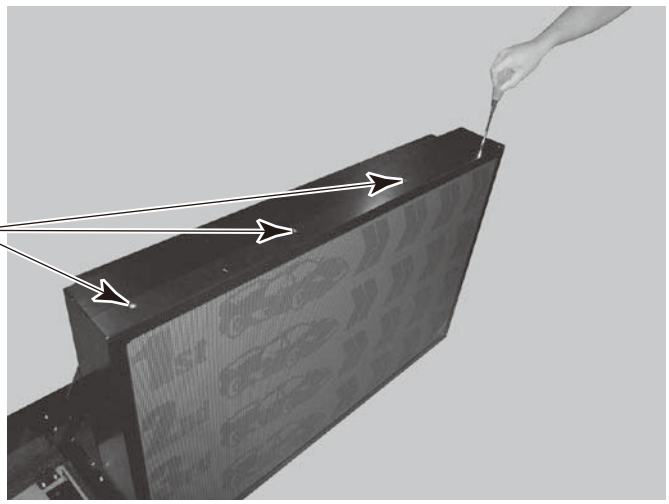


FIG. 6-5n

10 Attach the upper joint to side wood L. Fasten it with two screws. Each screw has a flat washer and spring washer attached.

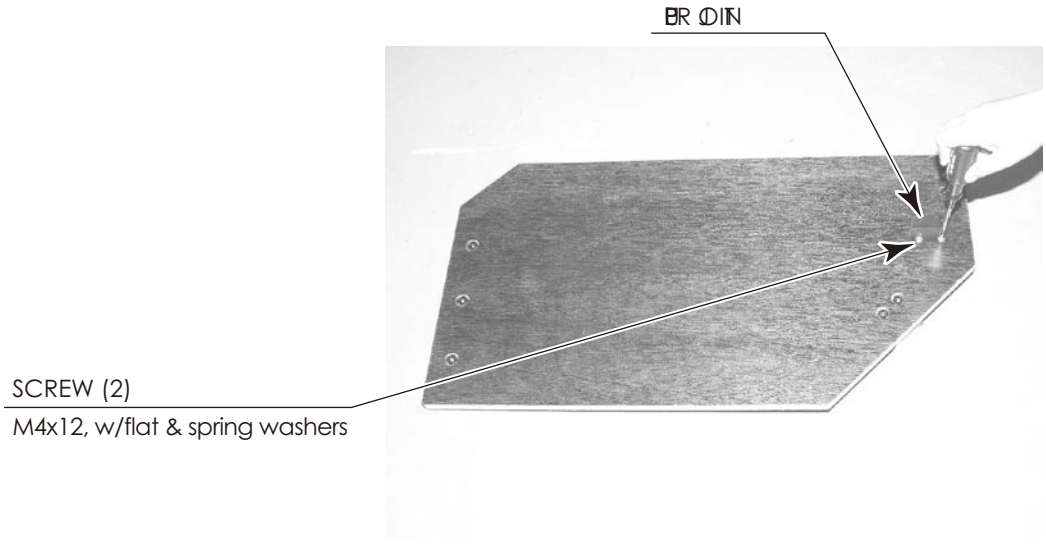


FIG. 6-5o

11 Attach side wood L.
Insert side wood L into the side of the ranking box, and fasten it to the ranking box and the ranking base with five screws. Each screw has a flat washer and spring washer attached.

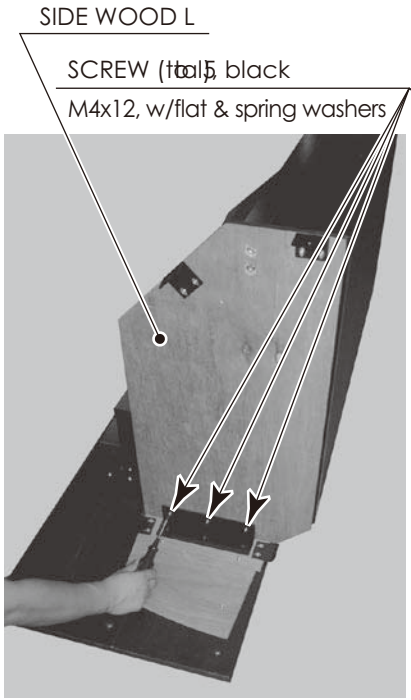


FIG. 6-5p

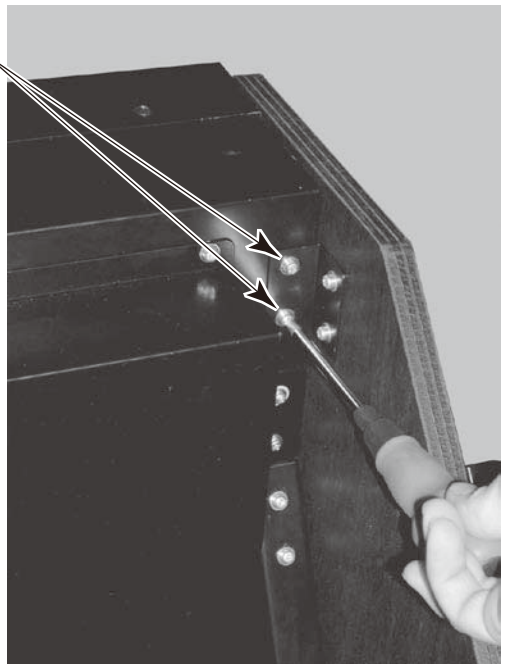


FIG. 6-5q

⚠ CAUTION

Have at least two persons carry the LCD monitor. If the LCD monitor is carried by only one person, it may drop or topple over, resulting in bodily harm. Also, the worker is likely to injure his or her shoulder or back.

Assemble the LCD monitor to be attached over the 3P DLP projector. Attach the LCD monitor to the LCD base.

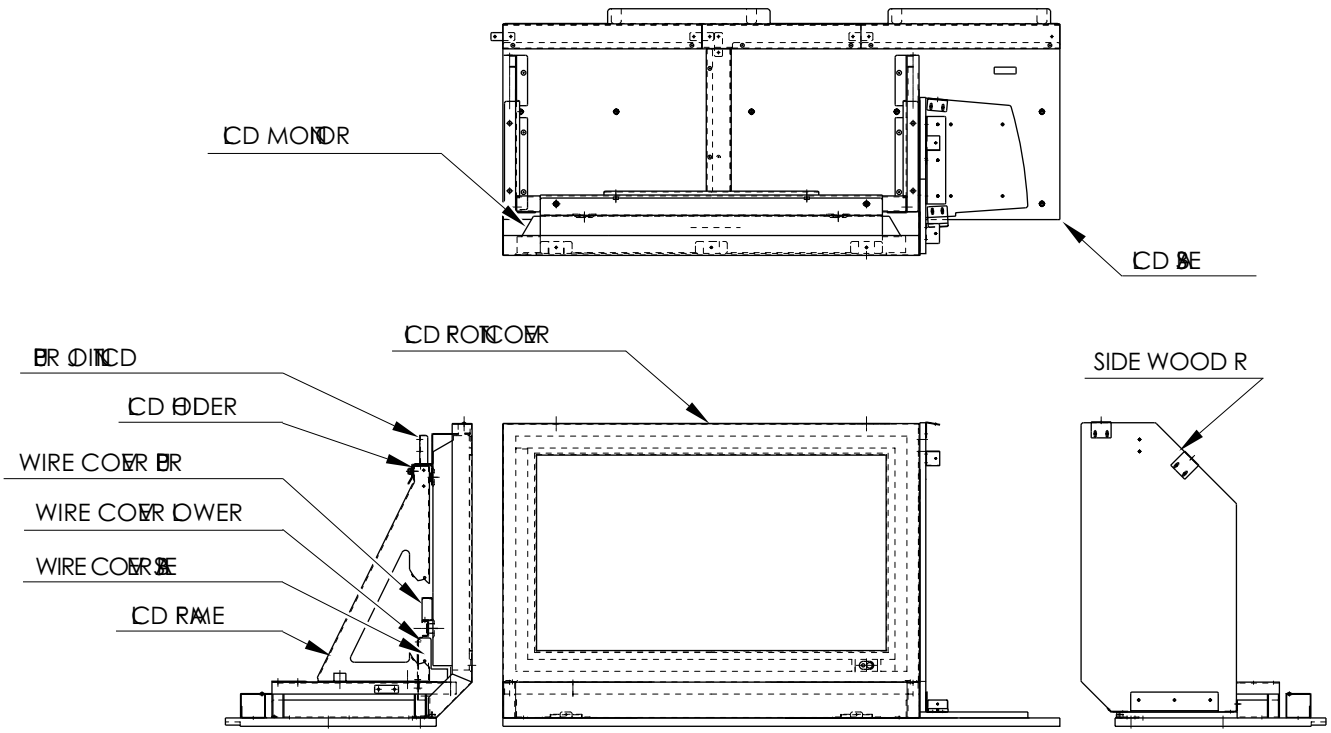


FIG. 6-6a LCD MONITOR

1 Before the product is shipped, the LCD frame and LCD holder are already assembled. Remove the four hexagon bolts, and remove the LCD holder from the LCD frame. The LCD frame and LCD holder use flat washers with bolts that have spring washers attached.

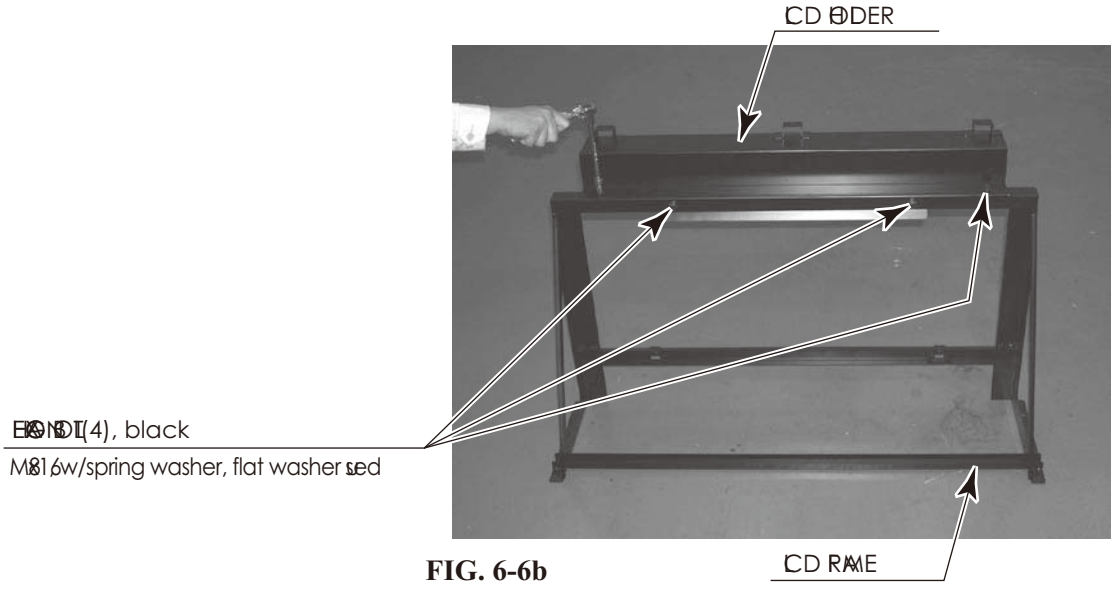
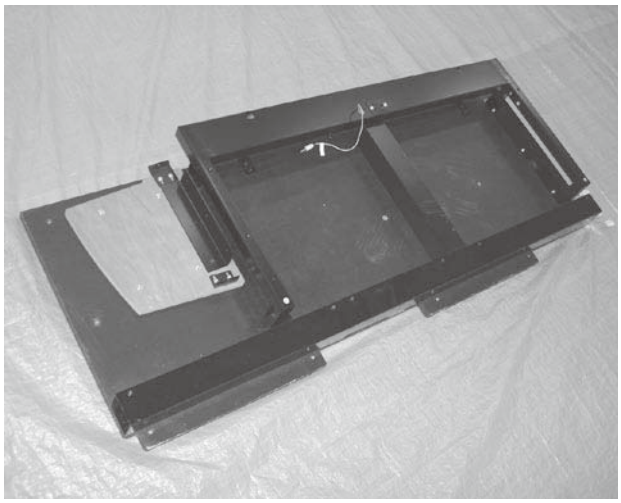
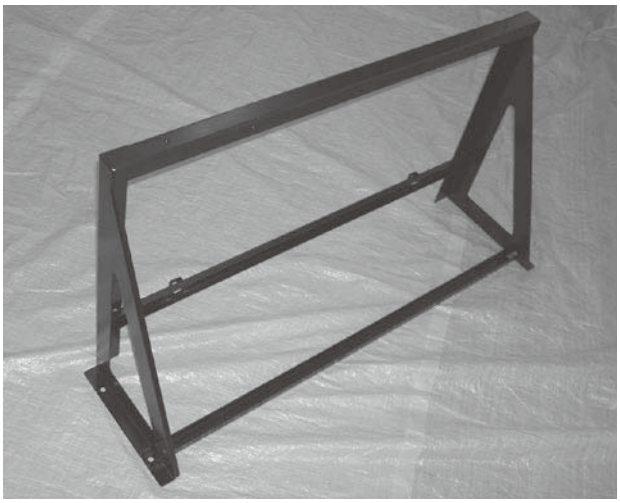


FIG. 6-6b

2 Place the LCD frame on the LCD base, and fix it with four hexagon bolts. The LCD frame and LCD base use flat washers with bolts that have spring washers attached.



LCD BASE



LCD FRAME

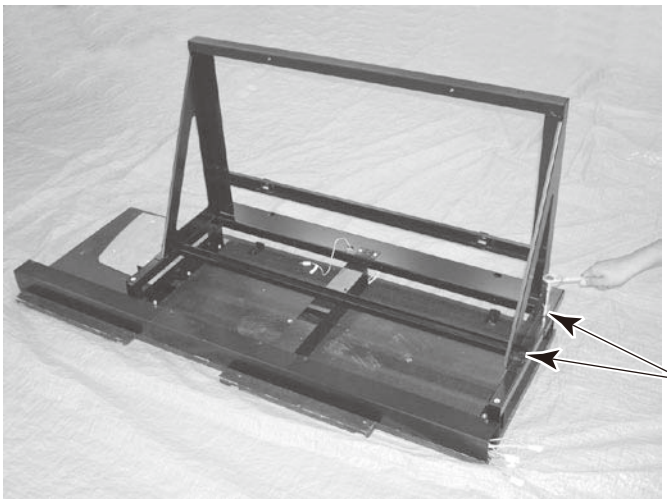


FIG. 6-6c

3 Remove the four screws already fastened on the back of the LCD monitor. These screws are used to attach the following parts. They have flat washers and spring washers attached.
Have one person support the LCD monitor, and another worker remove the screws.

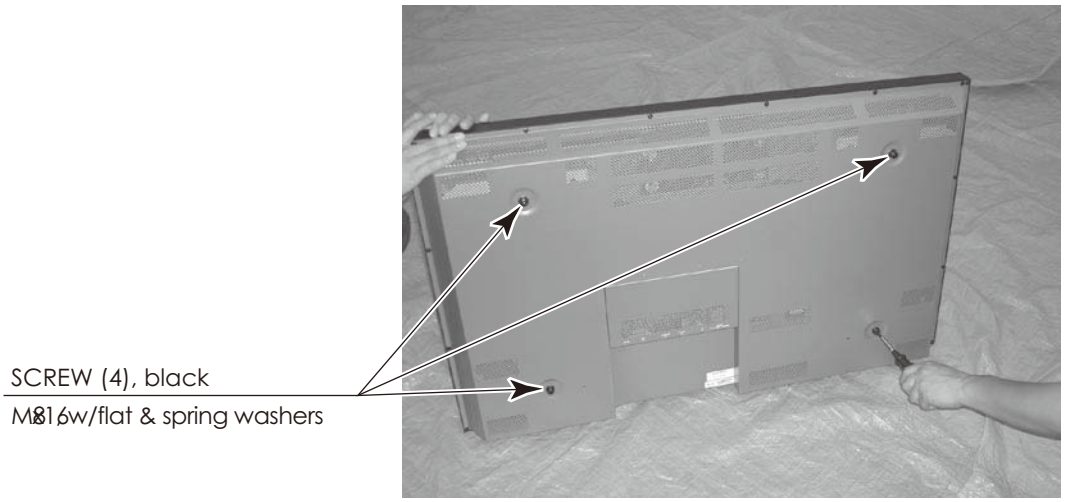


FIG. 6-6d

4 Attach the LCD holder over the LCD monitor, and fix it with two screws. Use the two screws that you removed from the back of the LCD monitor in the upper side screw holes at the back of the LCD monitor.

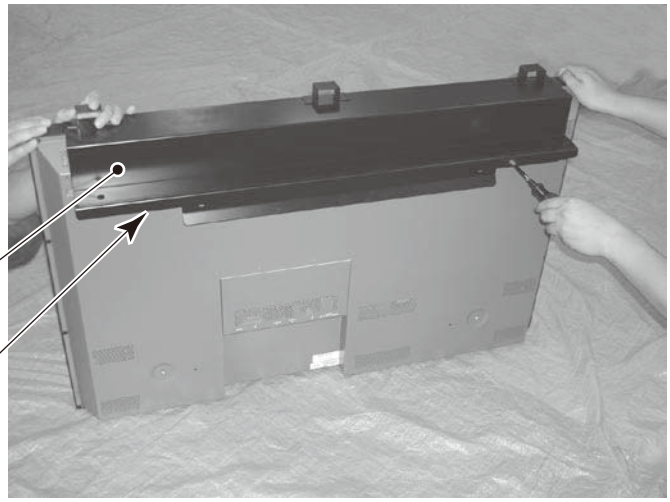


FIG. 6-6e

5 Place the LCD monitor on the LCD frame, and hitch the LCD holder to the LCD frame. Be sure to have at least two persons perform this work.

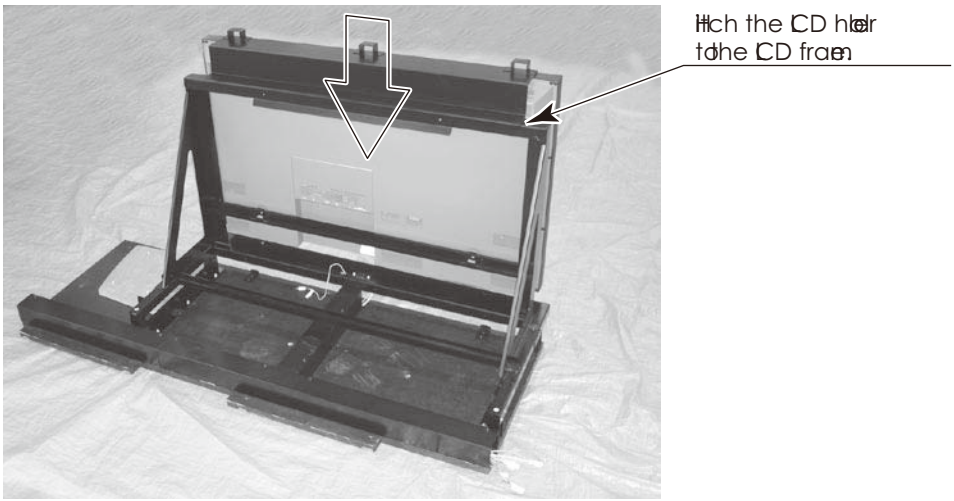


FIG. 6-6f

6 Fix the LCD holder with the LCD frame with four hexagon bolts. The LCD holder and the LCD frame use flat washers with bolts that have spring washers attached.

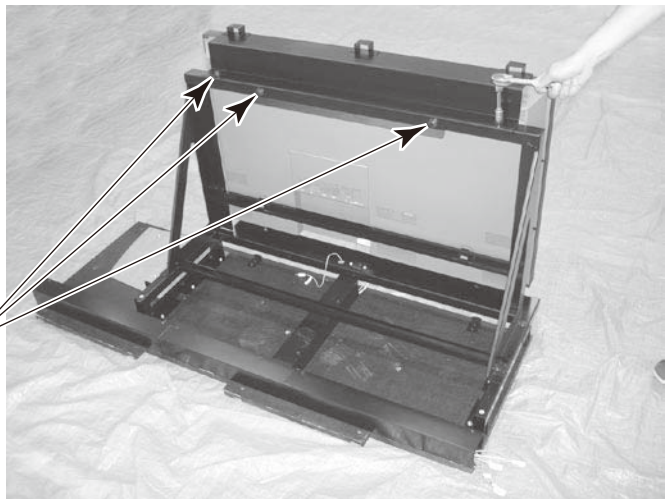


FIG. 6-6g

7 Fix the bottom of the LCD monitor to the LCD frame with two screws. Use the two screws that you removed from the back of the LCD monitor in the lower side screw holes at the back of the LCD monitor.

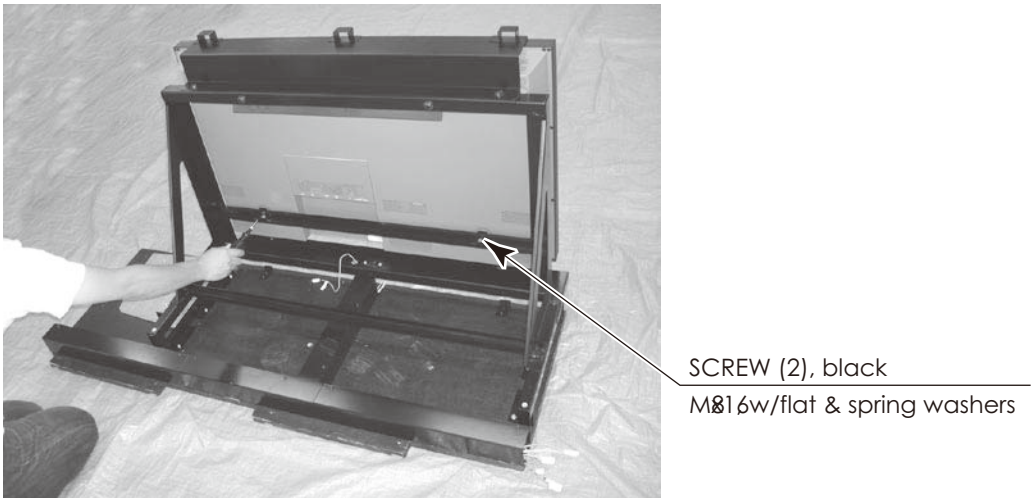
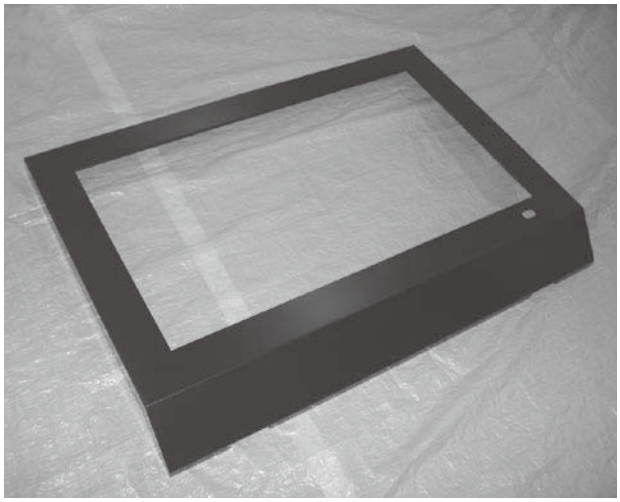


FIG. 6-6h

8 Attach the LCD front cover to the front of the LCD monitor. Hitch the left and right rectangular holes at the bottom of the LCD front cover, and then attach the cover so that it covers the LCD holder.



LCD FRONT COVER

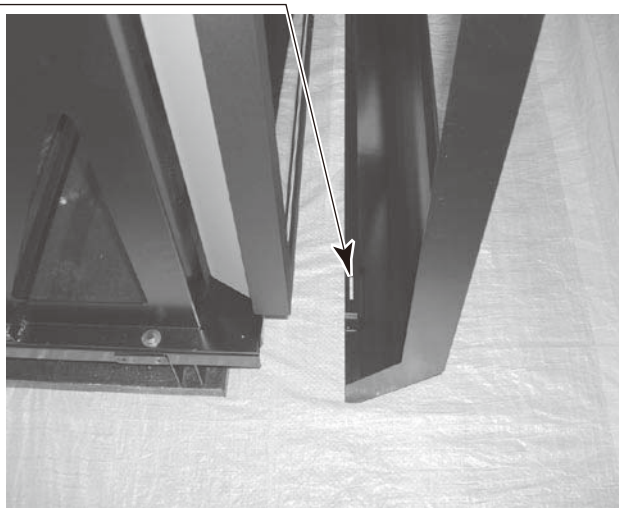


FIG. 6-6i

9 Fix the LCD front cover to the LCD frame with three truss screws.

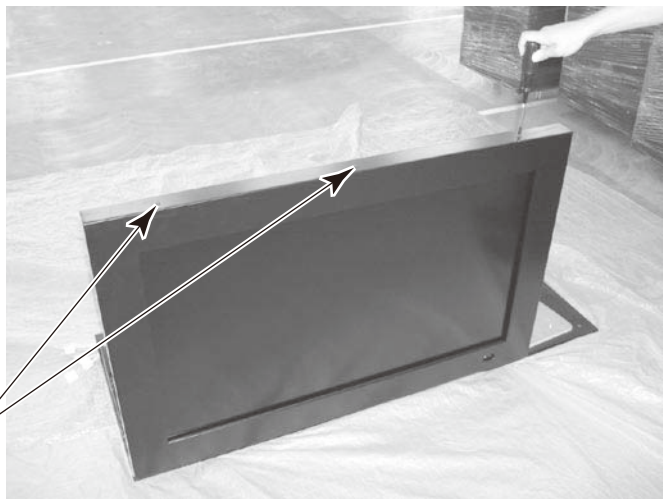
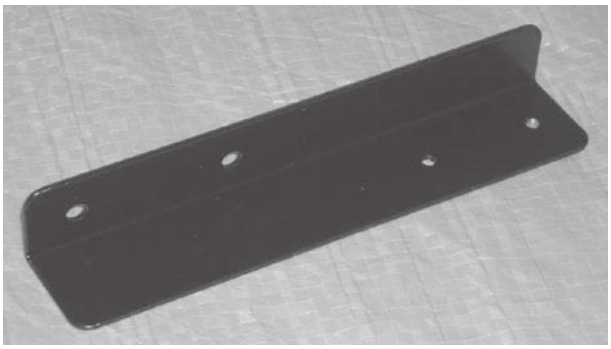
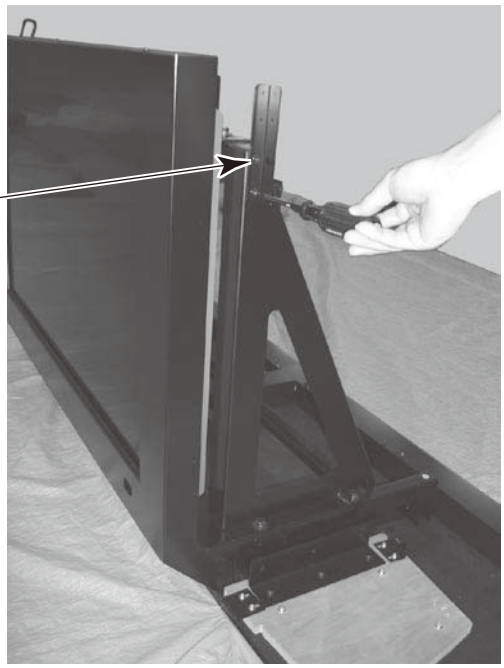


FIG. 6-6j

10 Fix the upper joint LCD to the LCD frame with two screws. The screws have flat washers and spring washers attached.





UPPER JOINT LCD

FIG. 6-6k

11 Attach the upper joint to the side wood R. Fix the joint with two screws. The screws have flat washers and spring washers attached.

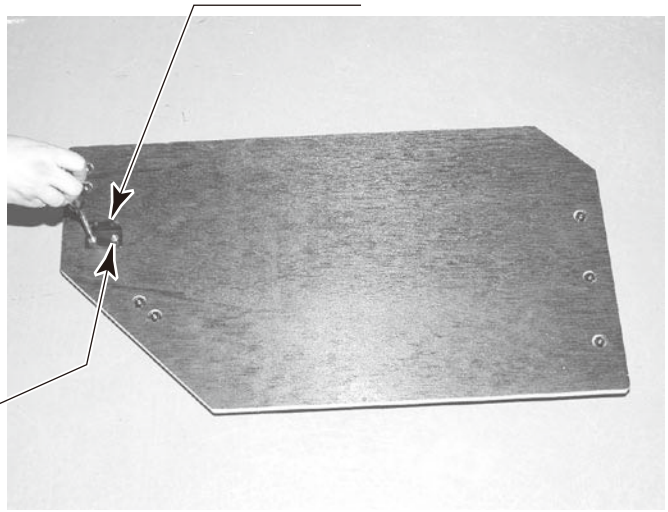


FIG. 6-6l

12 Attach side wood R, and fix it with a total of five screws. The screws have flat washers and spring washers attached.

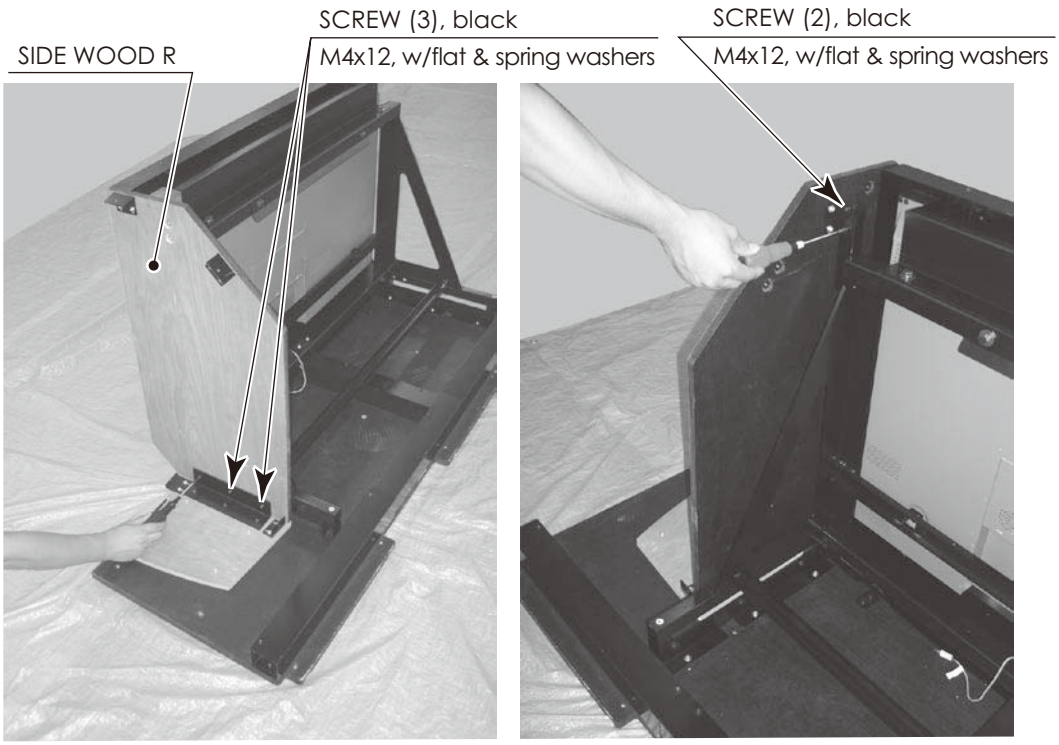
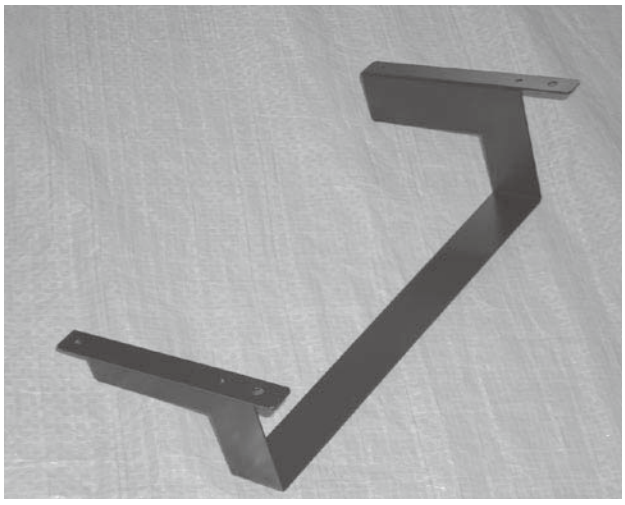


FIG. 6-6m

13 Align the wire cover base with the depression at the center of the back of the LCD monitor, attach it, and then fix it to the LCD frame with two screws. The screws have flat washers and spring washers attached.



WIRE COVER BASE

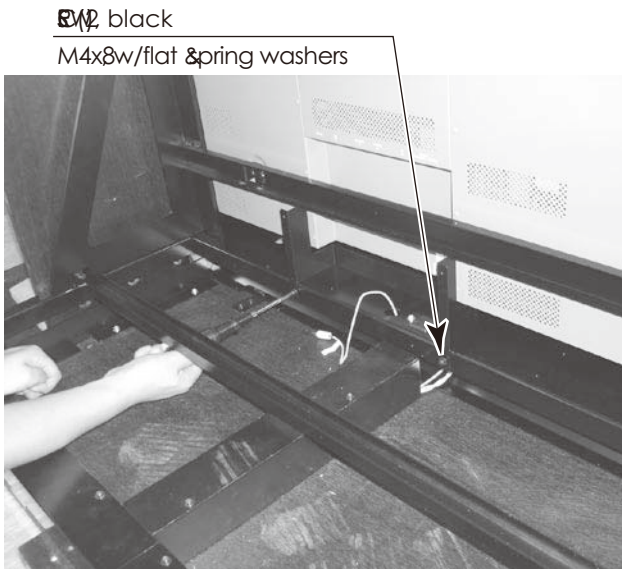
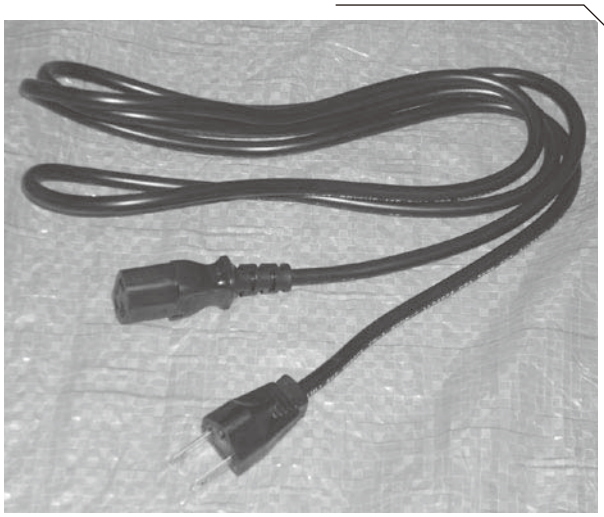


FIG. 6-6n

14 Connect the wiring to the LCD monitor. Connect the AC cable, which is included in the accessories of the LCD monitor, to the connector at the back of the LCD monitor and also the outlet over the base.

Bundle the connected AC cable using the band that was used to pack it.
Of the accessories packed with the LCD monitor, the only ones used are the AC cable and the remote controller.



AC CABLE

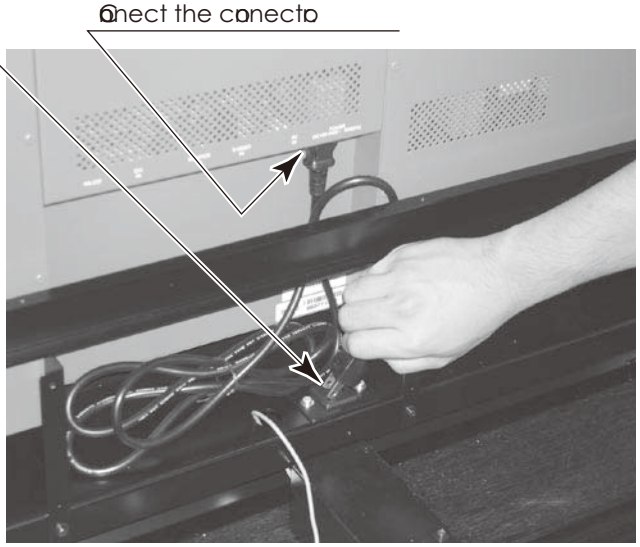


FIG. 6-6o

15 Connect the video signal connector wired to the LCD base to the connector at the back of the LCD monitor.

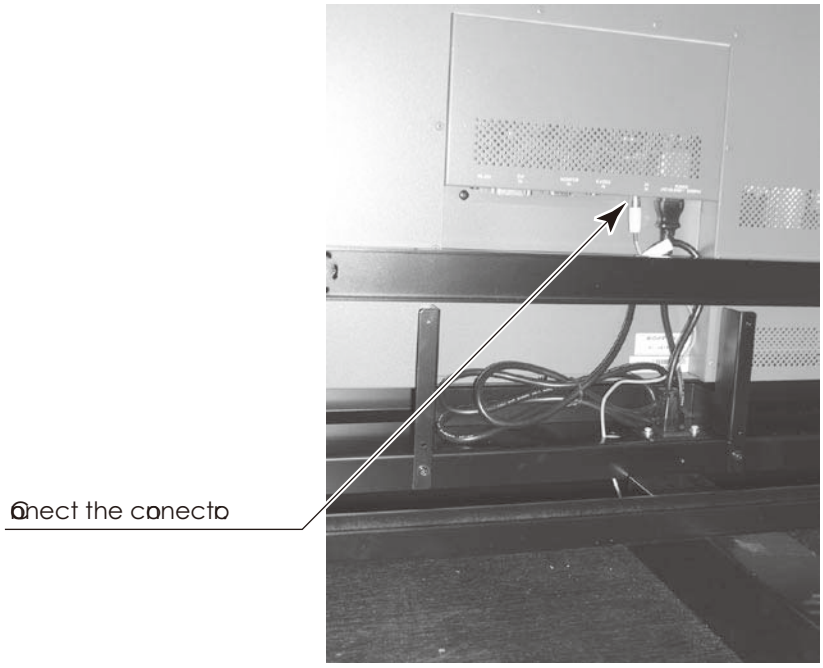


FIG. 6-6p

16 Fix the earth wire round terminal to the LCD frame using one screw. Be sure to fit a spring washer and a flat washer over this screw.

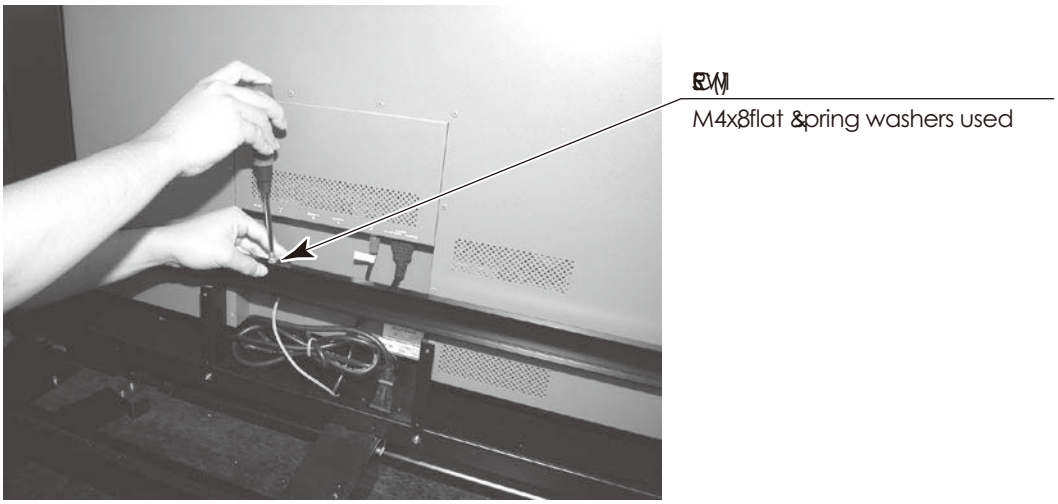
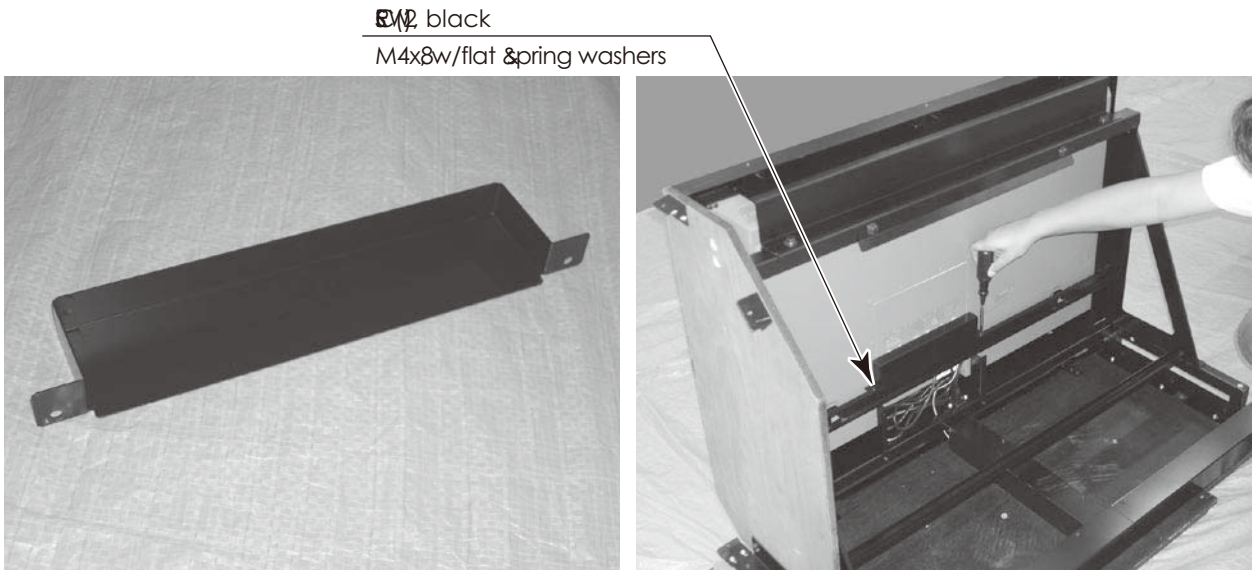


FIG. 6-6q

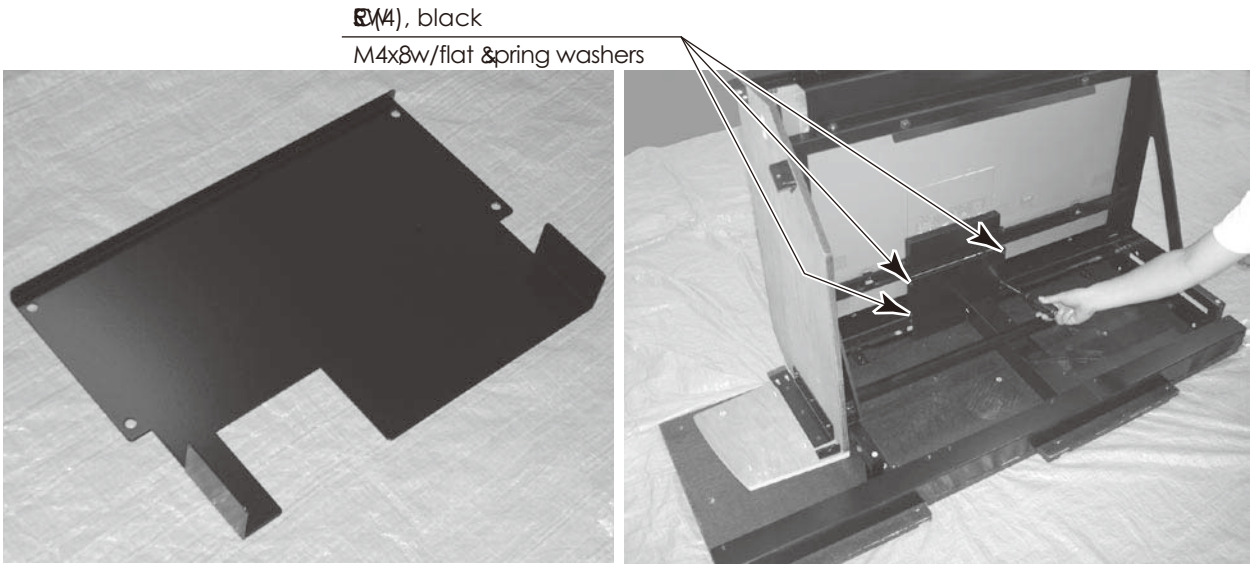
17 Install the wire cover upper, and fix it with the two screws. The screws have flat washers and spring washers attached. Be careful not to damage the wiring.



WIRE COVER UPPER

FIG. 6-6r

18 Fix the wire cover lower using four screws. The screws have flat washers and spring washers attached. Be careful not to damage the wiring.



WIRE COVER LOWER **FIG. 6-6s**

7 ASSEMBLING THE SPEAKER BOX

Assemble the speaker box to be attached over the DLP projector of 1P and 4P. Attach the mirror box to the speaker box base.
The 1P side uses speaker box L, and the 4P side uses speaker box R. The parts on the L side and R side are different, but the assembly method is the same. The following description applies to the assembly of the R side. Assemble the L side using the same procedure.

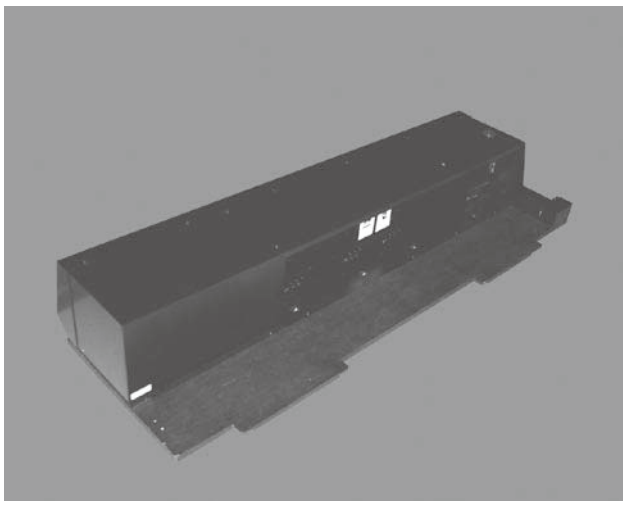


FIG. 6-7a SPEAKER BOX BASE R

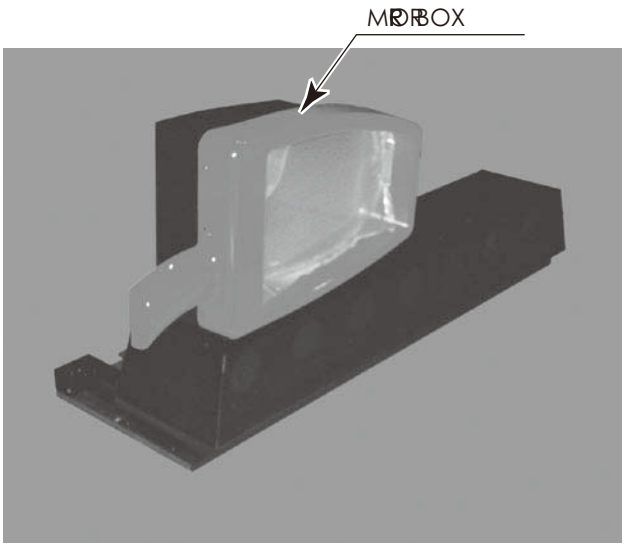


FIG. 6-7b SPEAKER BOX R

1 Open the two halogen doors on the back of the speaker box base R. Unfasten two screws for each. The screws have flat washers and spring washers attached.

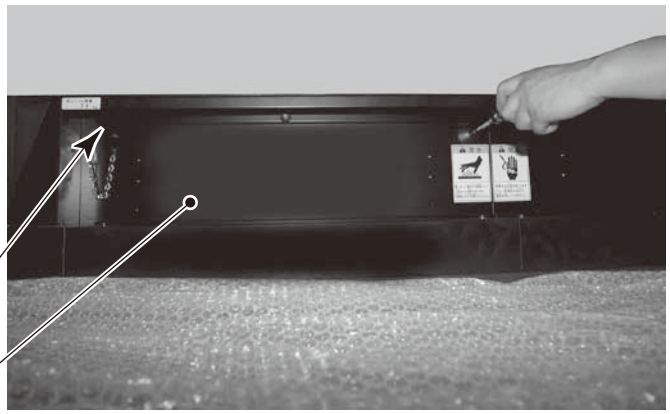


FIG. 6-7c

2 Pull out the wiring inside the door through the rubber grommet.

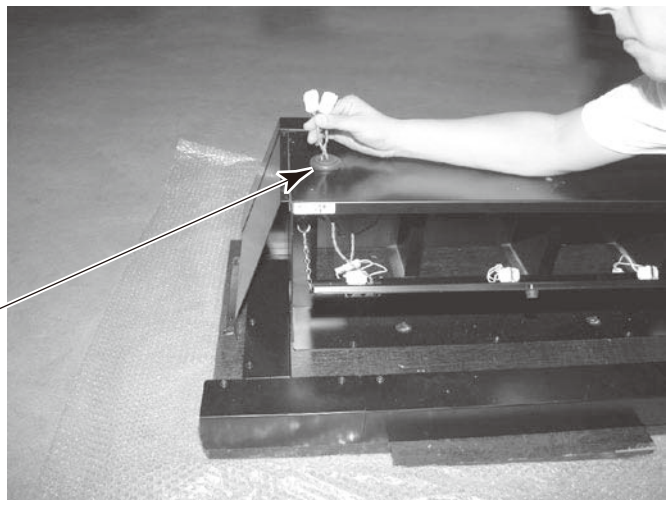


FIG. 6-7d

3 Remove the fastening screw of the back door at the back of the mirror box. The screw has a flat washer and a spring washer attached.
Remove the back door, pulling it straight up.

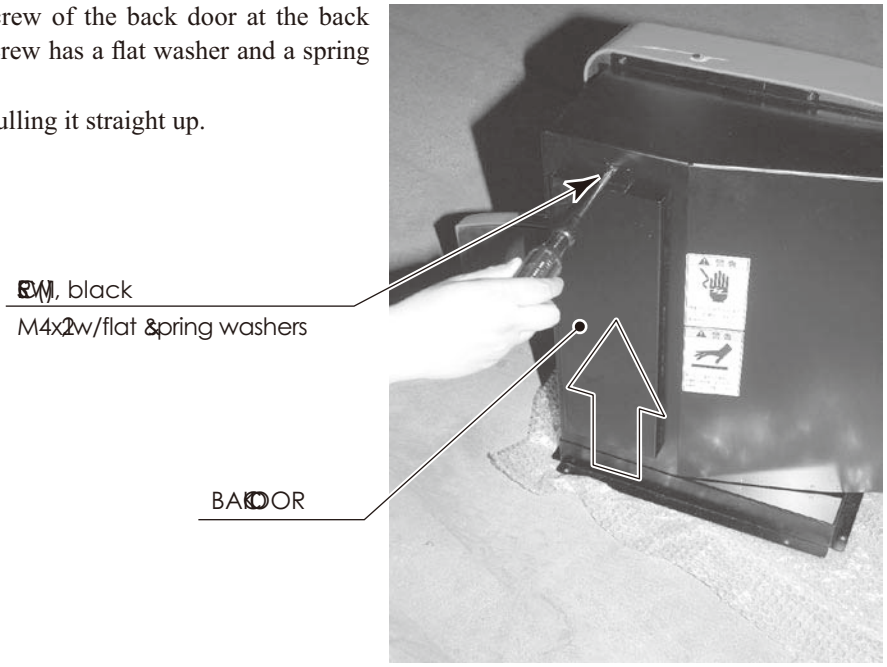


FIG. 6-7e

4 Place the mirror box on the grommet, from which the wiring was pulled out, over the speaker box base. Make sure that the speaker side of the speaker box base and the half-mirror side of the mirror box are facing in the same direction. Be careful not to damage the wiring pulled from the grommet.

Tilt the mirror box. Pass the wiring brought out from the grommet into the inside of the mirror box through the opening resulting from tilting of the mirror box.

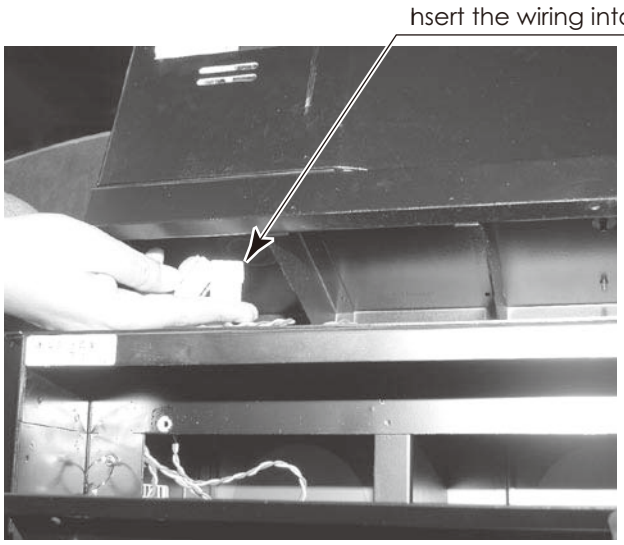


FIG. 6-7f



FIG. 6-7g

5 Secure the mirror box with five screws. The screws have flat washers and spring washers attached.

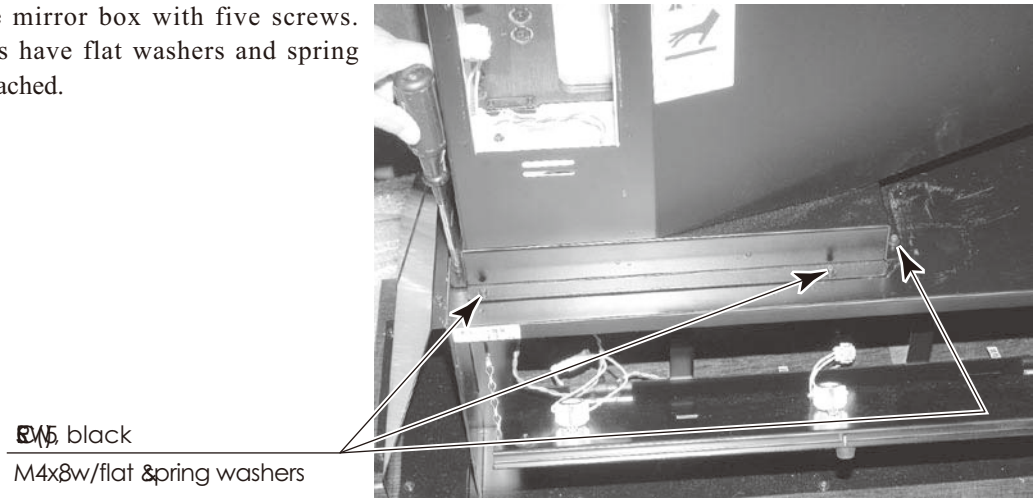


FIG. 6-7h

6 Connect the two connectors on the ends of the wires passed to the inside of the mirror box, to the two connectors inside the mirror box.

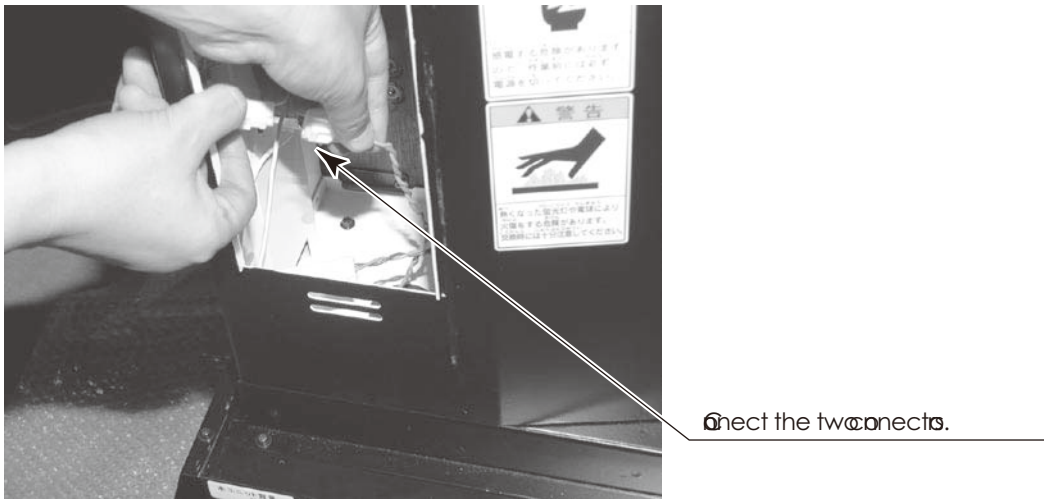


FIG. 6-7i

7 In order to prevent an accident during the work of placing the speaker box on the DLP projector, secure the opened halogen door and the removed back door.

⚠ WARNING

Carry out this work using the number of persons and the tools specified in this manual. If you work with fewer than the number of specified persons or without the required tools, an accident may occur. Be sure to employ at least four persons to lift the ranking board, LCD monitor, and speaker boxes L and R, and ensure that they cooperate with a person standing on a step ladder and providing assistance.

⚠ CAUTION

- **Take care not to get your hands or fingers caught when placing the various parts on the DLP projector or when adjusting the positions of the parts.**
- **Place the ranking board, LCD monitor, and speaker box from the side of the DLP projector. If you attempt to place these parts from the front, irreparable damage, such as damage to the projector screen, may occur.**

1 Attach the eight base hooks and the two side base hooks at the back of the top plate of the four DLP projectors arranged alongside each other, and fix each of them with two hexagon bolts. The hooks use flat washers with bolts that have spring washers attached.

Attach the side base hooks on both ends. The bolt holes used for attaching the base hooks differ according to the base attachment position.

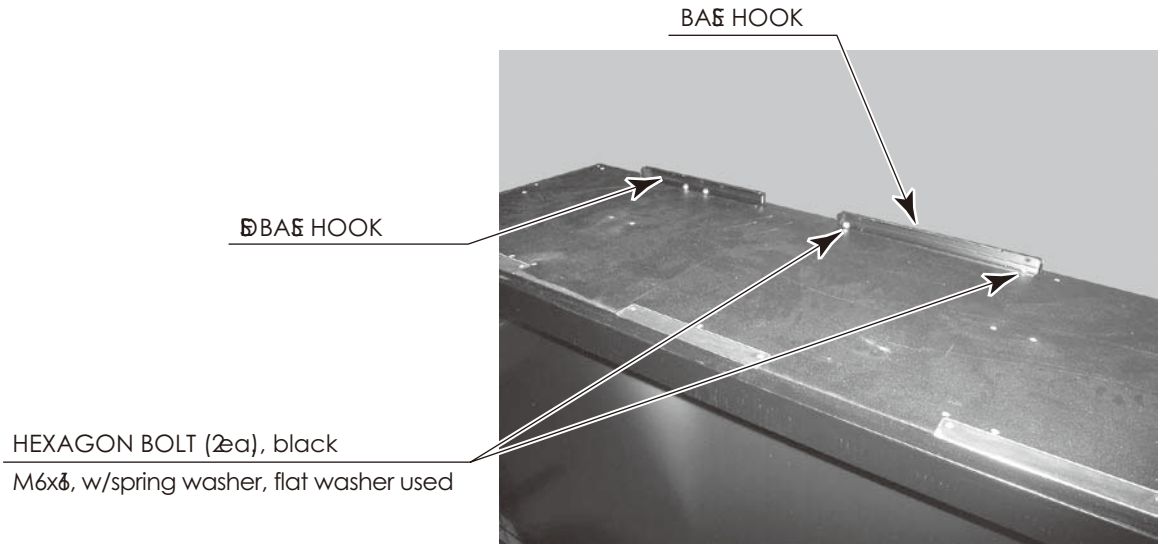


FIG. 6-8a

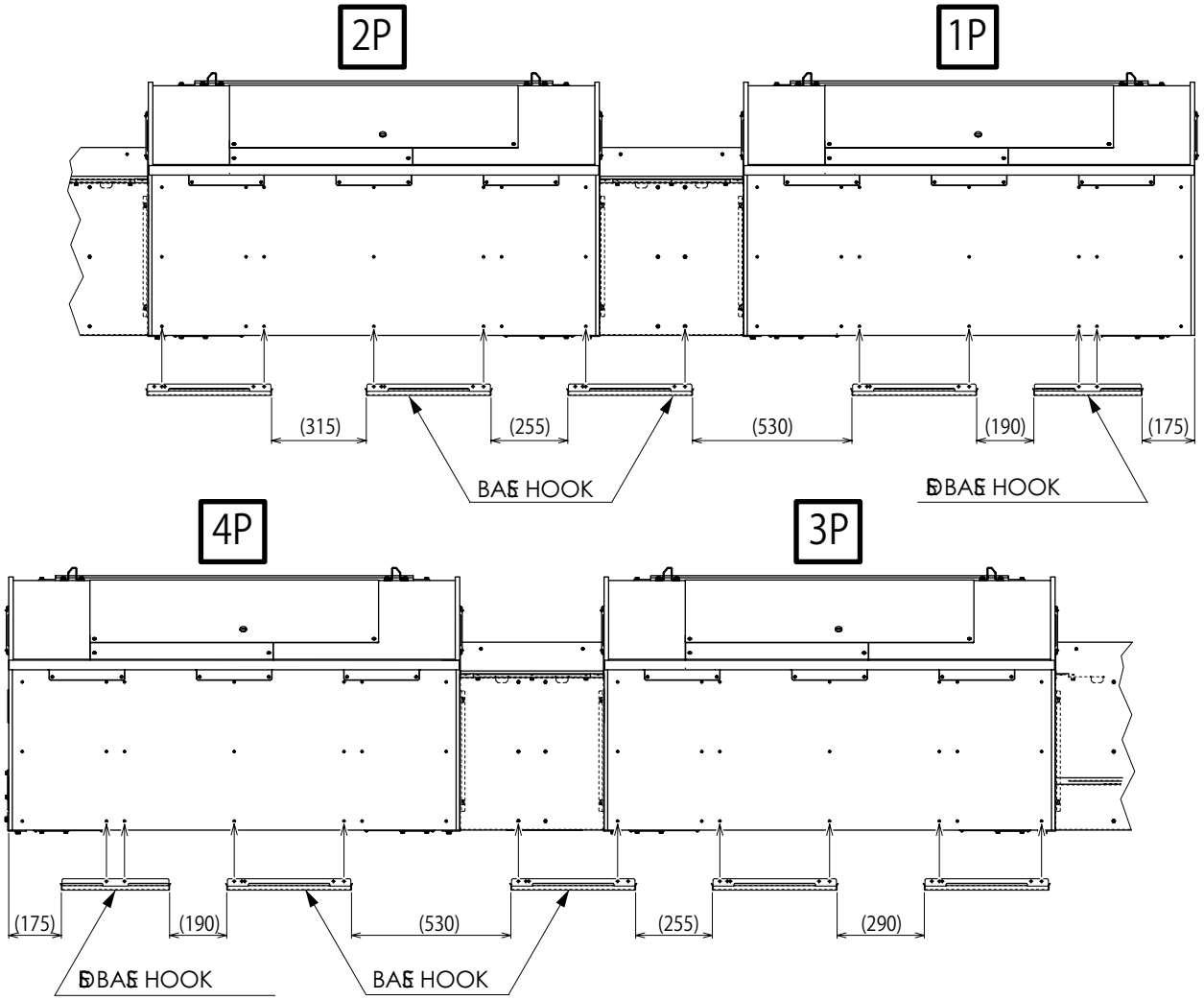


FIG. 6-8b (Unit: mm)

2 Place the ranking board on the DLP projectors from the 1P side. Employ five persons to do this work. Have one of these persons stand in readiness at the top of a step ladder placed at the back of the DLP projector.
If the work space is confined, install the ranking board on the projector from the projector screen side, taking care not to strike it against the screen.

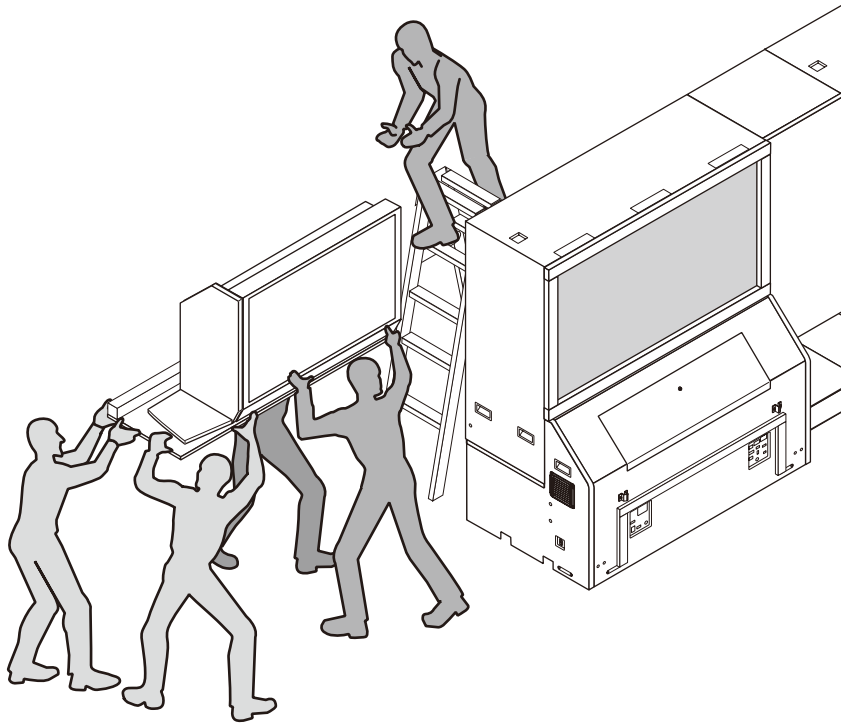


FIG. 6-8c

3 Move the ranking board to the fixing position. Align the right edge of the ranking board with the centerline of the four DLP projectors. Take care not to catch your hands or fingers.

4 Secure the ranking board with three hexagon bolts. The ranking board uses flat washers with bolts that have spring washers attached.

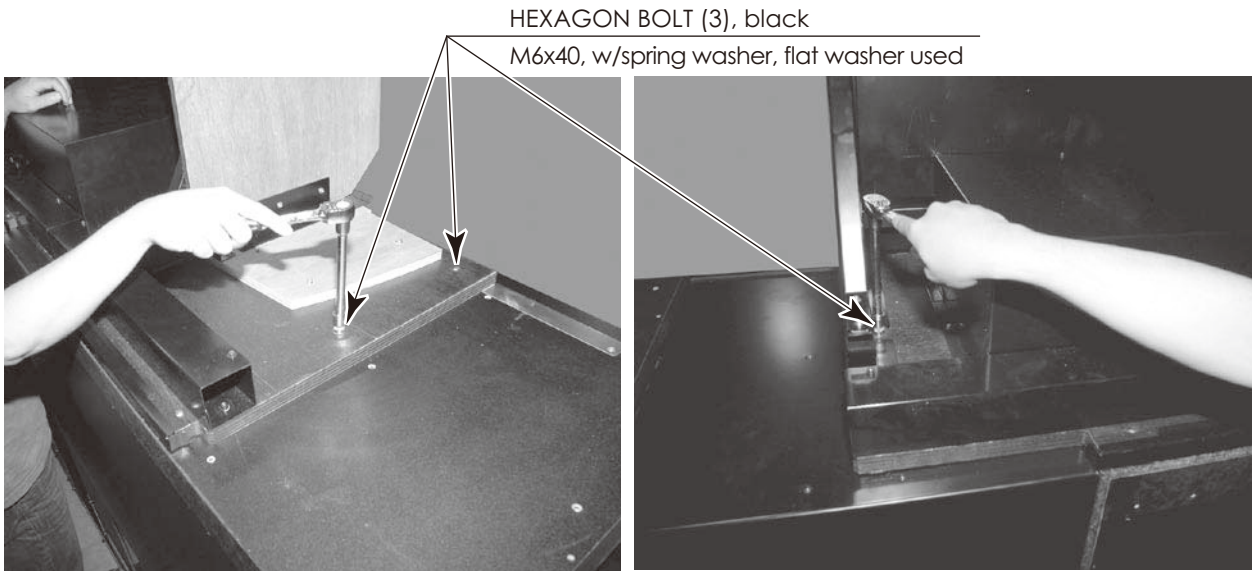


FIG. 6-8d **FIG. 6-8e**

5 Place the LCD monitor on the DLP projectors from the 4P side. This work requires five persons. Have one of these persons stand in readiness at the top of a step ladder placed at the back of the DLP projector.
If the work space is confined, install the LCD monitor from the projector screen side, taking care not to strike it against the screen.

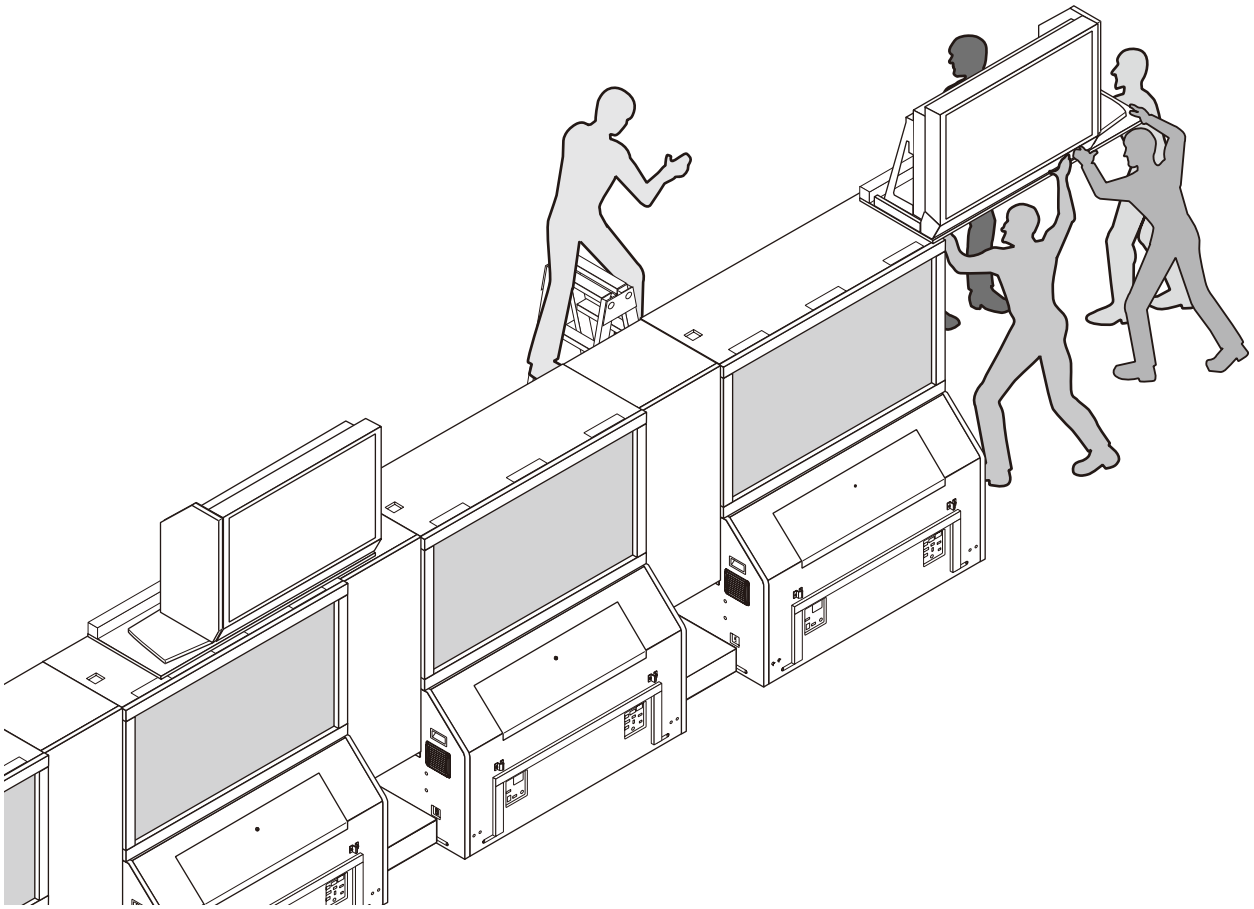


FIG. 6-8f

6 Move the LCD monitor to the fixing position. Align the left edge of the LCD monitor with the centerline of the four DLP projectors. Take care not to catch your hands or fingers.

7 Secure the LCD monitor with five hexagon bolts. The LCD monitor uses flat washers with bolts that have spring washers attached.

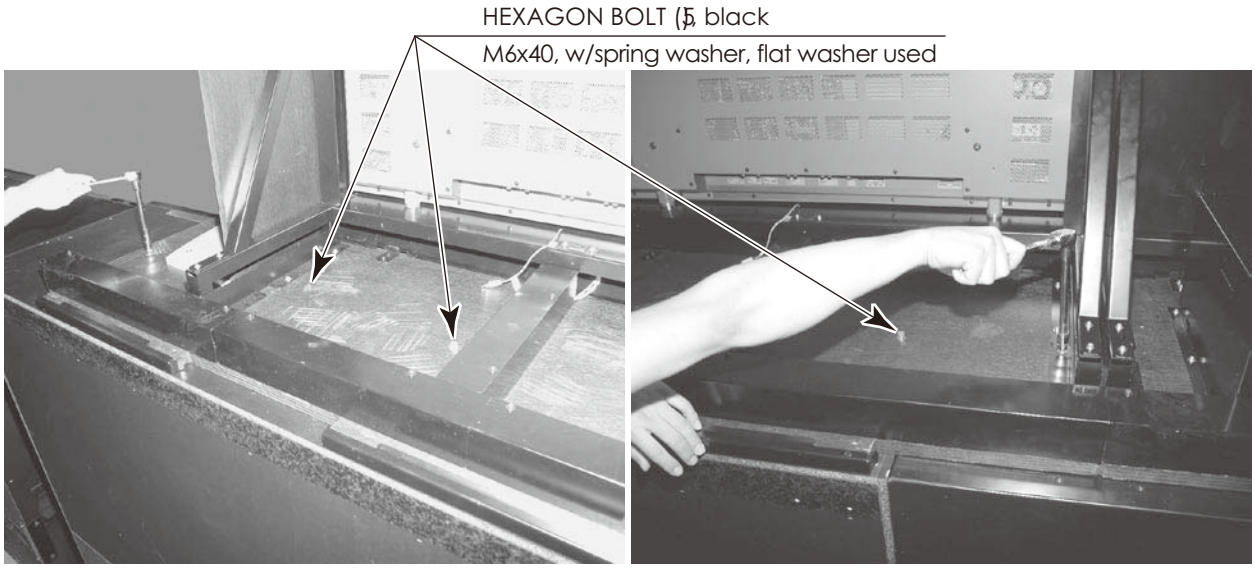


FIG. 6-8g

FIG. 6-8h

8 Attach the center vacuum units to the side wood R of the LCD monitor and also to the side wood L of the ranking board, and secure each of them with four truss screws.

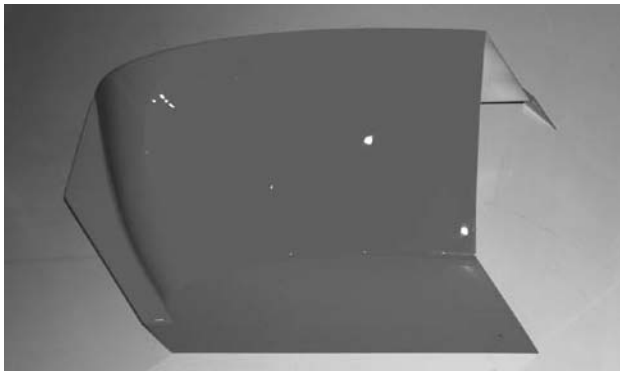


FIG. 6-8i CENTER VACUUM L

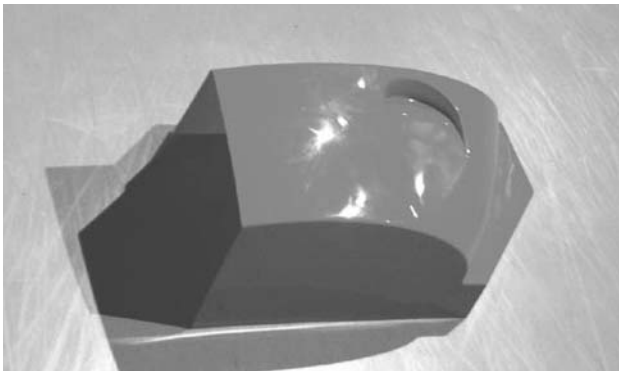


FIG. 6-8j CENTER VACUUM R

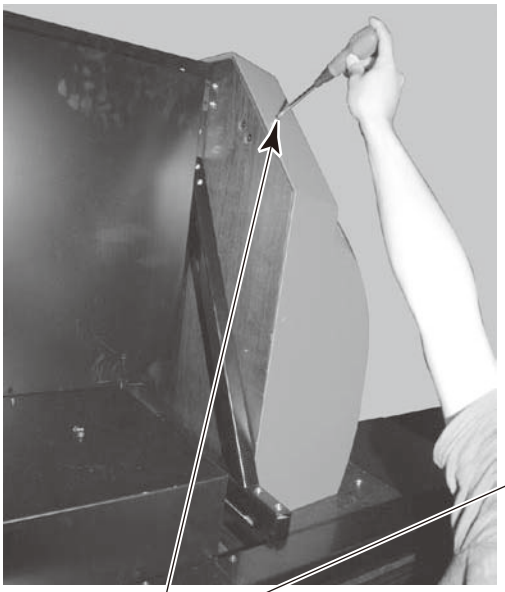


FIG. 6-8k

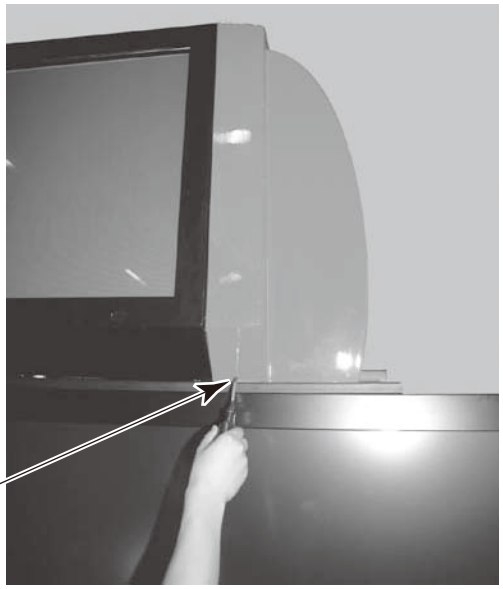


FIG. 6-8l

9 Place speaker boxes L and R on the DLP projectors. Place L on the left side of the ranking board, and R on the right side of the LCD monitor. Employ five persons to do this work. Have one of these persons stand in readiness at the top of a step ladder placed at the back of the DLP projector.
If the work space is confined, place the speaker boxes from the projector screen side, taking care not to strike it against the screen.

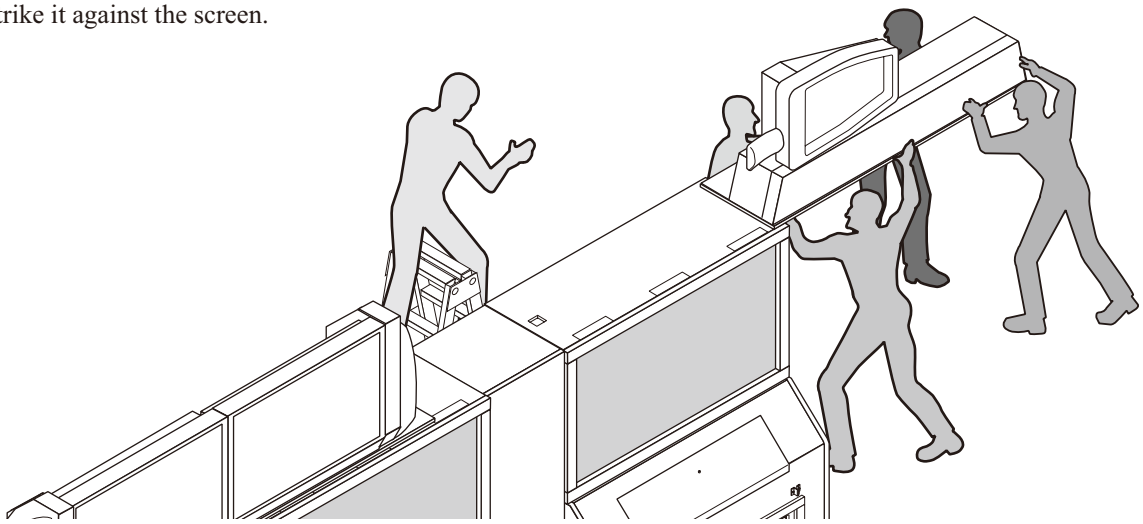


FIG. 6-8m

10 Move the speaker box to the fixing position. Move until the protruding part of the mirror box touches the billboard side cover. Be careful not to catch your hands or fingers.

11 Fix the speaker box with five hexagon bolts. The speaker box uses flat washers with bolts that have spring washers attached.

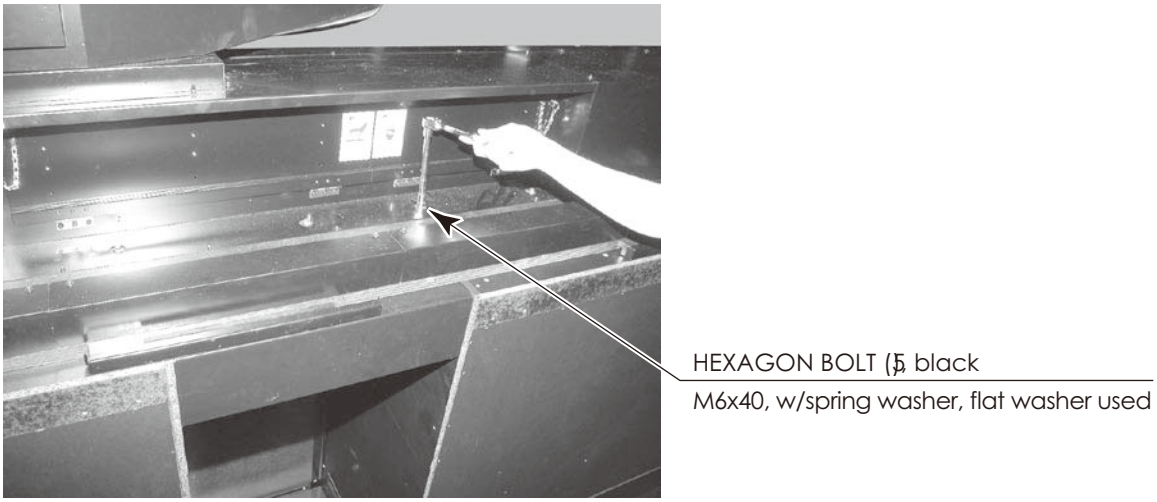


FIG. 6-8n

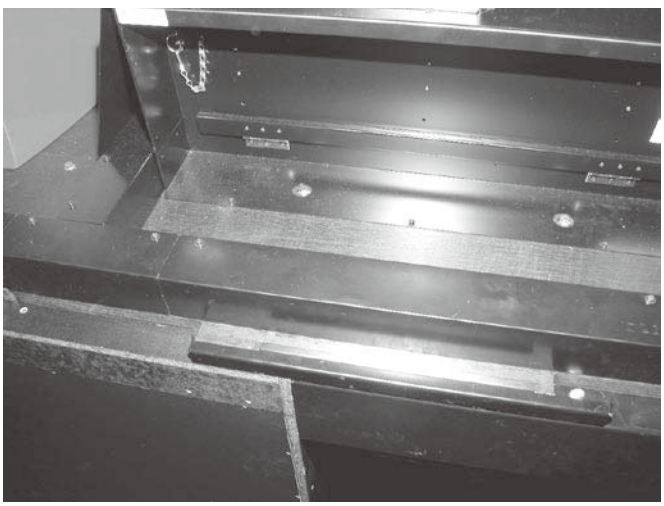


FIG. 6-8o

12 Place the L and R billboard side covers on the DLP projector. Place L on the 1P side and R on the 4P side.

Be sure to fix them securely to the ends of each speaker box base.

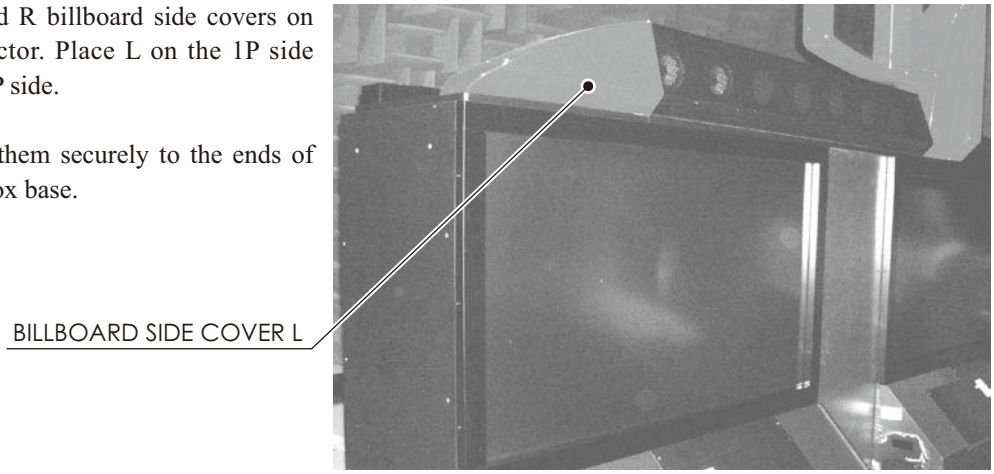


FIG. 6-8p

13 Fasten the L and R billboard side covers using three hexagon bolts. The L and R billboard side uses flat washers with bolts that have spring washers attached.

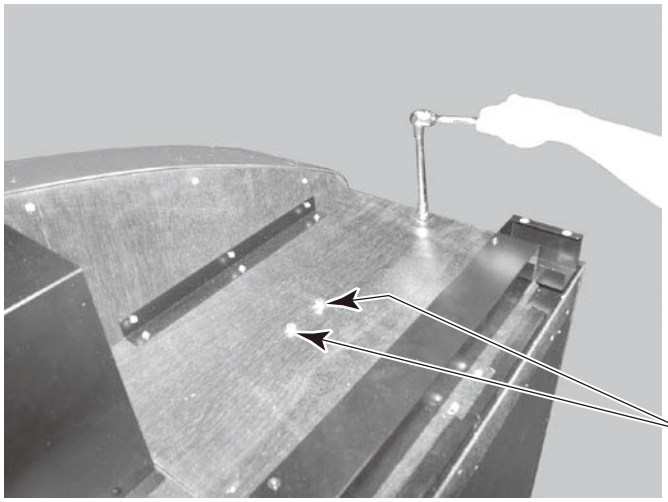


FIG. 6-8q

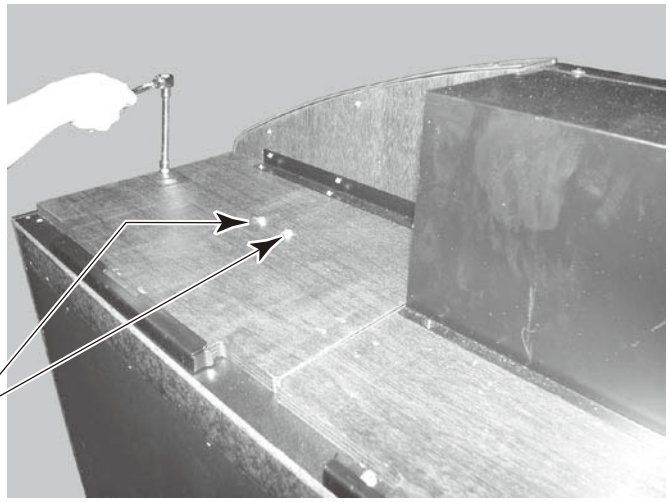


FIG. 6-8r

14 Open the two halogen doors at the back of the L and R speaker boxes. Unfasten two screws for each. The screws have flat washers and spring washers attached.

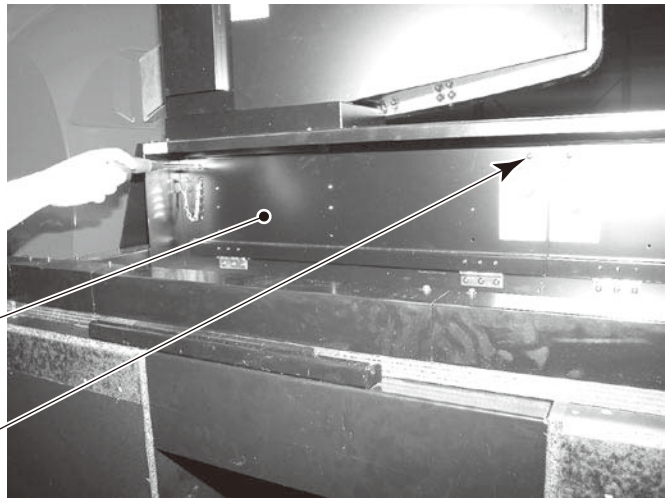


FIG. 6-8s

15 Five lamp sockets are located on the inside of the open halogen doors. Attach the halogen lamps into the sockets. Be sure to not touch the surface of the glass at the front of the lamps. It is possible that they will burn out if oils from fingers are present.

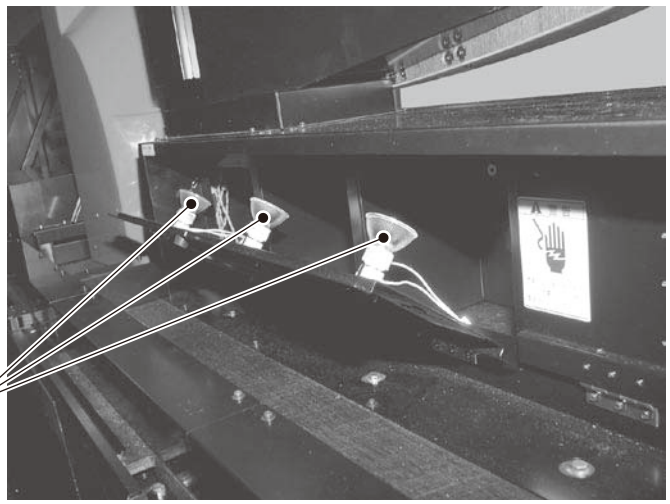


FIG. 6-8t

16 Remove the back door fastening screw at the back of the mirror box. The screw has flat and spring washers attached.

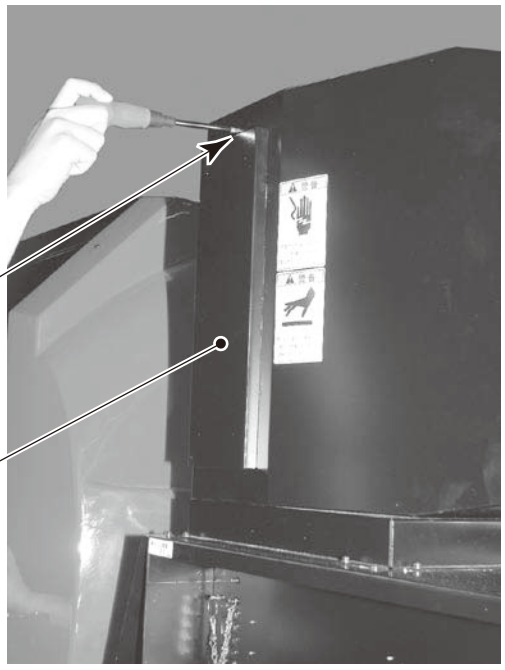


FIG. 6-8u

17 Remove the back door by sliding it directly upwards.



FIG. 6-8v



FIG. 6-8w

18 Attach halogen lamps to each of the two lamp sockets on the inside of the back door. Be sure not to touch the surface of the glass at the front of the lamps. It is possible that they will burn out if oils from fingers are present.

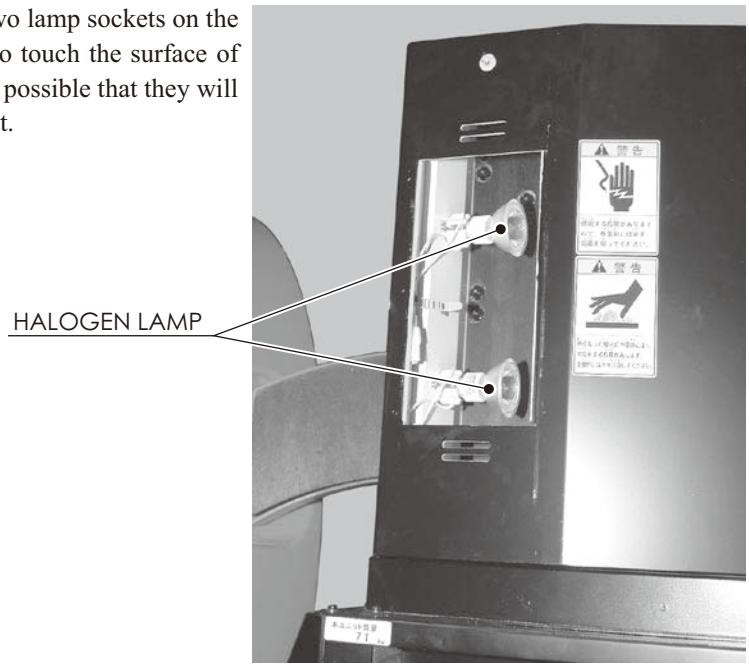


FIG. 6-8x

19 Close all of the open halogen doors and fasten each with two screws. Reattach all of the back doors and fasten each with one screw.

9 ASSEMBLING THE COCKPIT

Assemble the four 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.

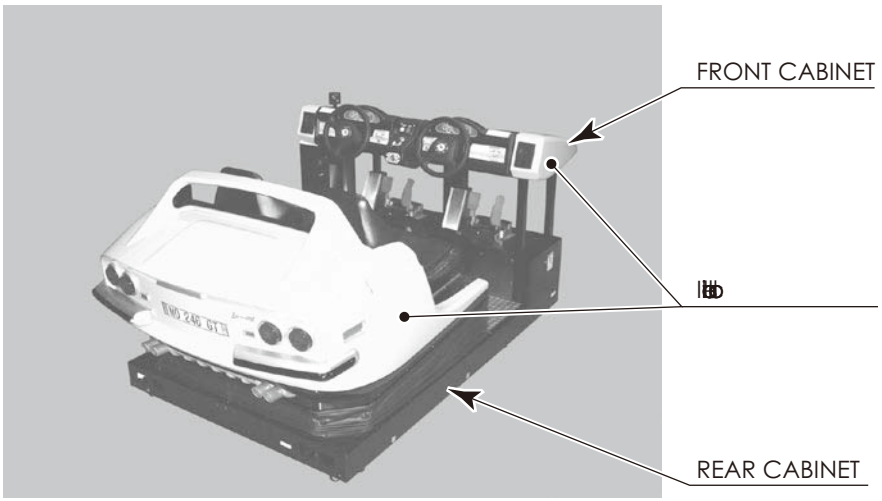


FIG. 6-9a Match the color of the front cabinet and rear cabinet

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.

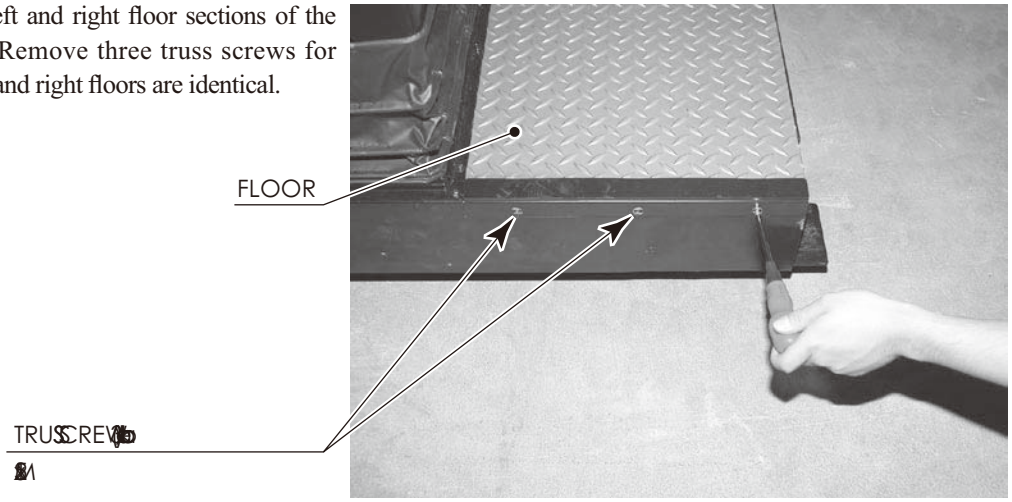


FIG. 6-9b

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.

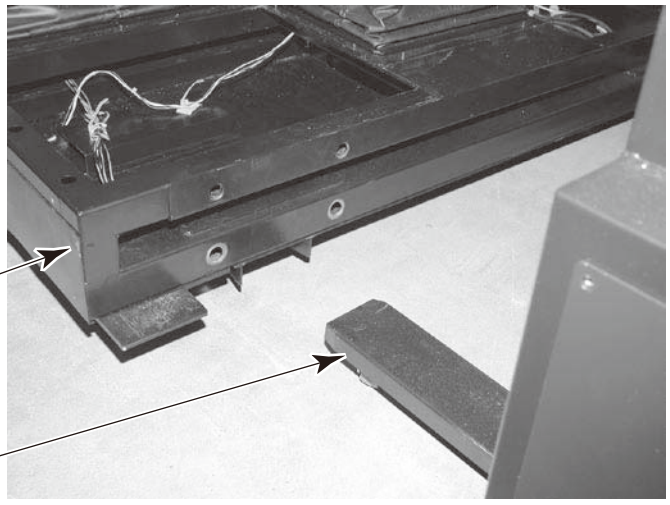


FIG. 6-9c

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.

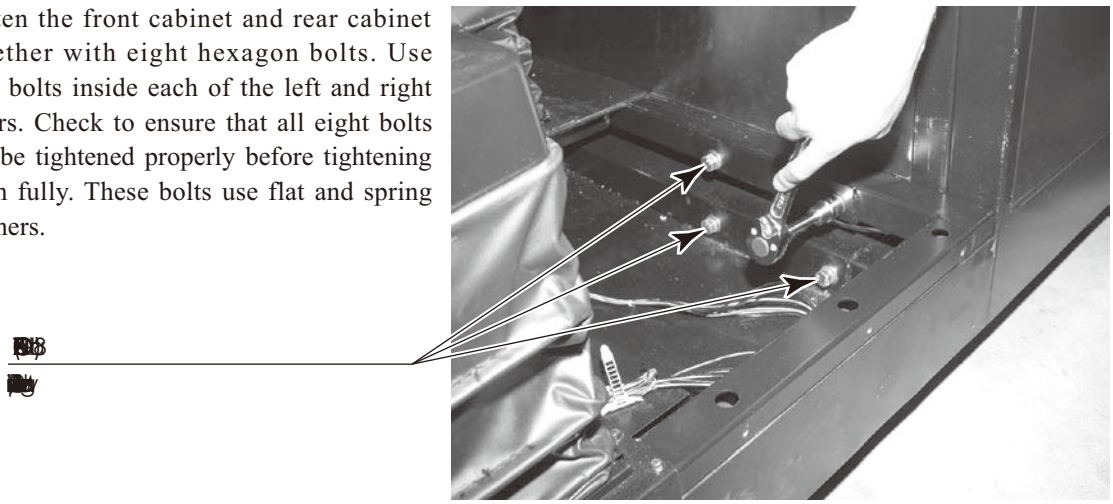


FIG. 6-9d

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

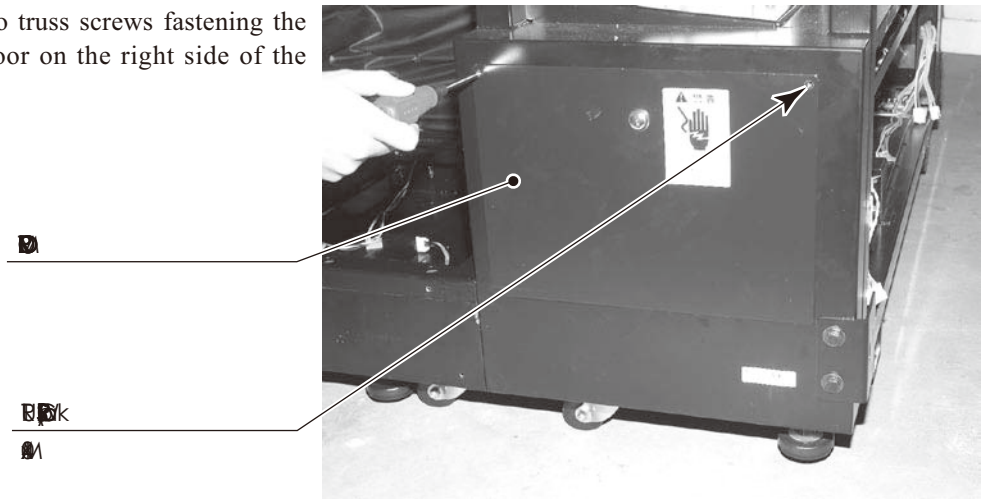


FIG. 6-9e

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

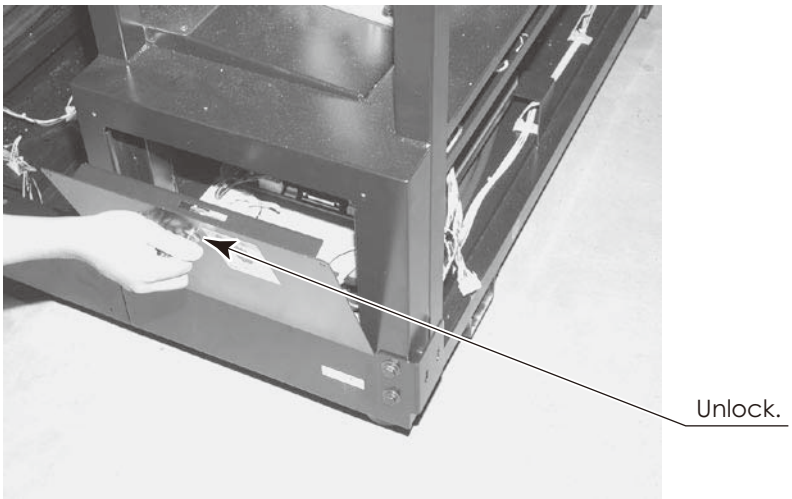


FIG. 6-9f

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

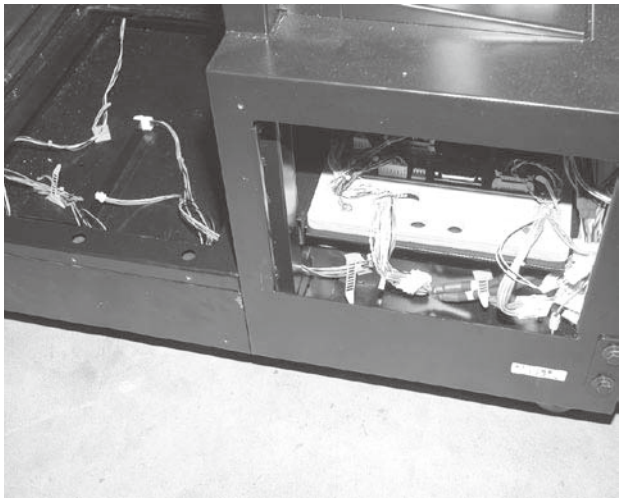


FIG. 6-9g

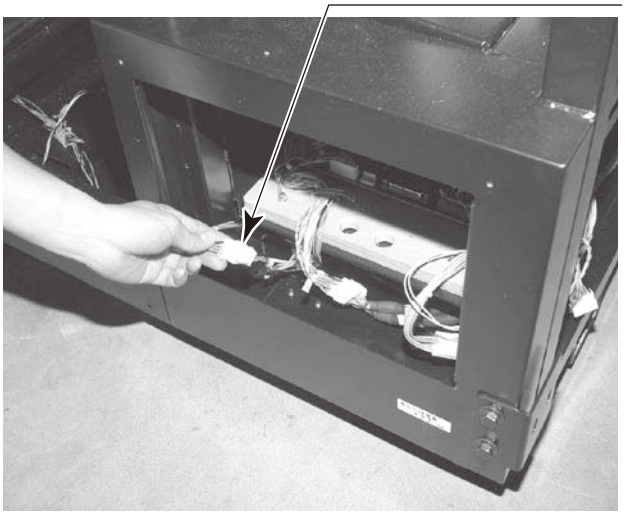


FIG.6-9h

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

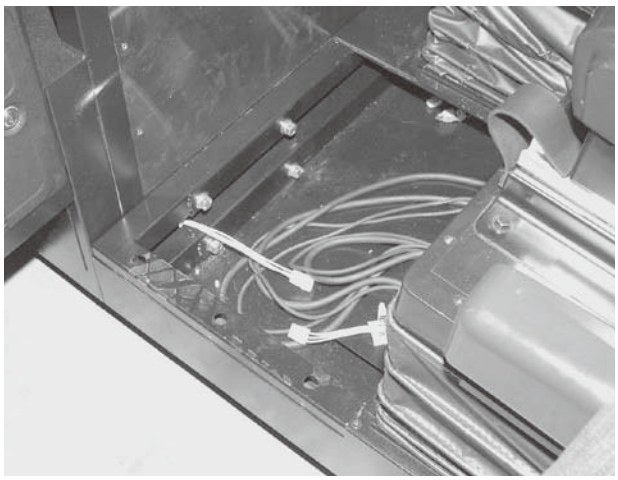


FIG. 6-9i

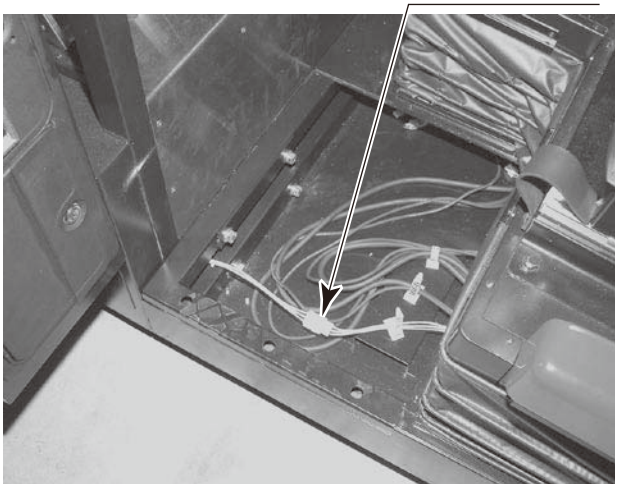


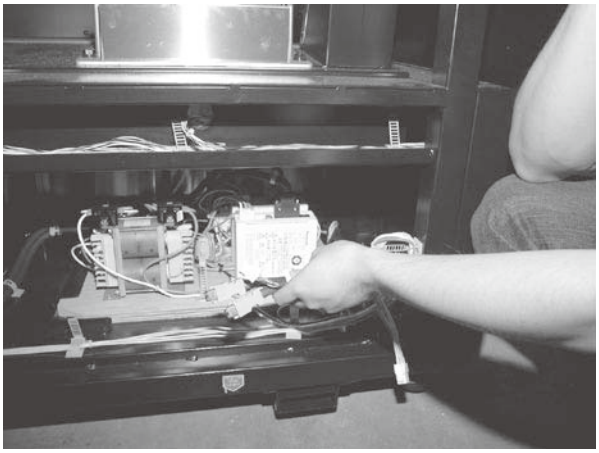
FIG. 6-9j

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. 6-9k

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



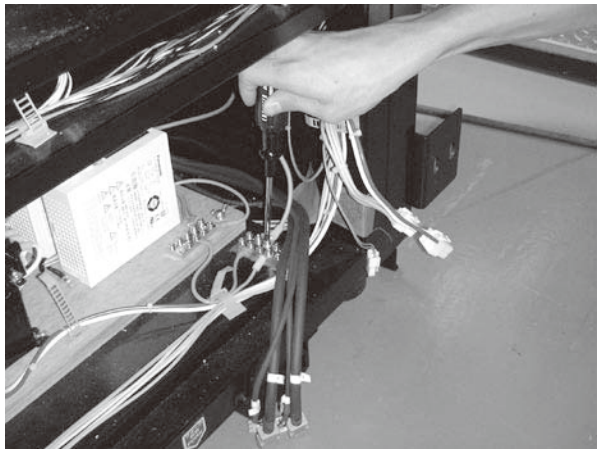


FIG. 6-9l

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.

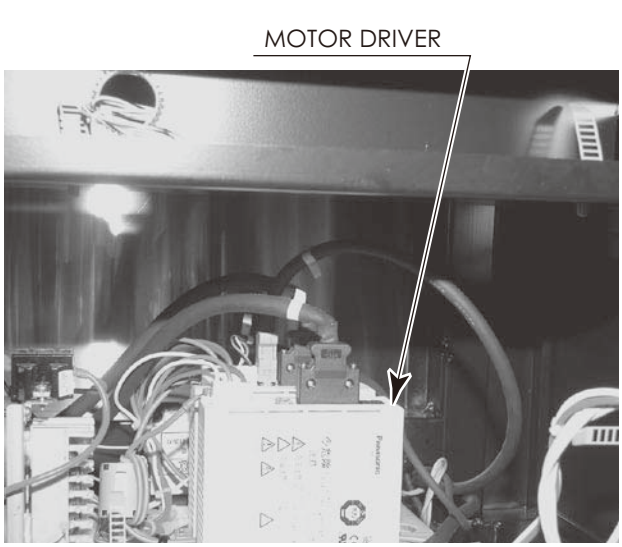


FIG. 6-9m

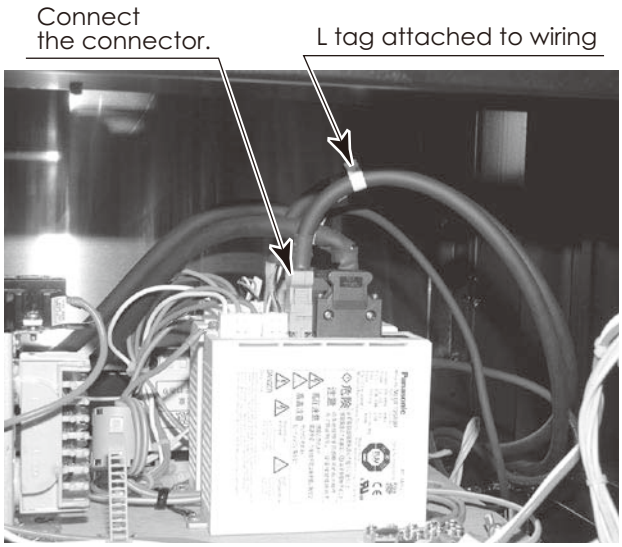


FIG. 6-9n

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

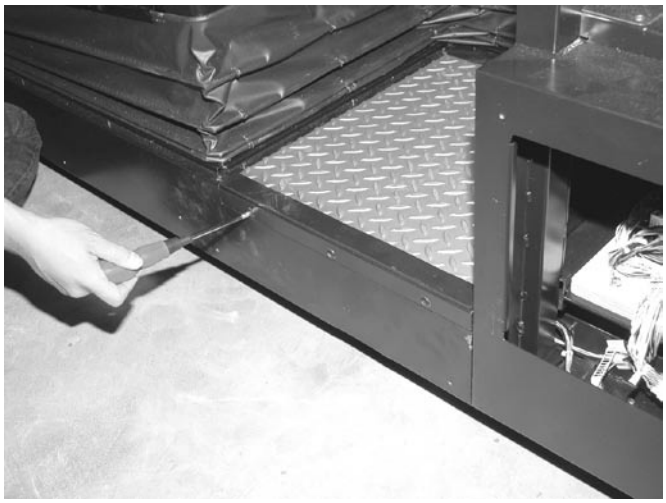


FIG. 6-9o

10 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, 2P is yellow, 3P is blue, and 4P is silver.

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

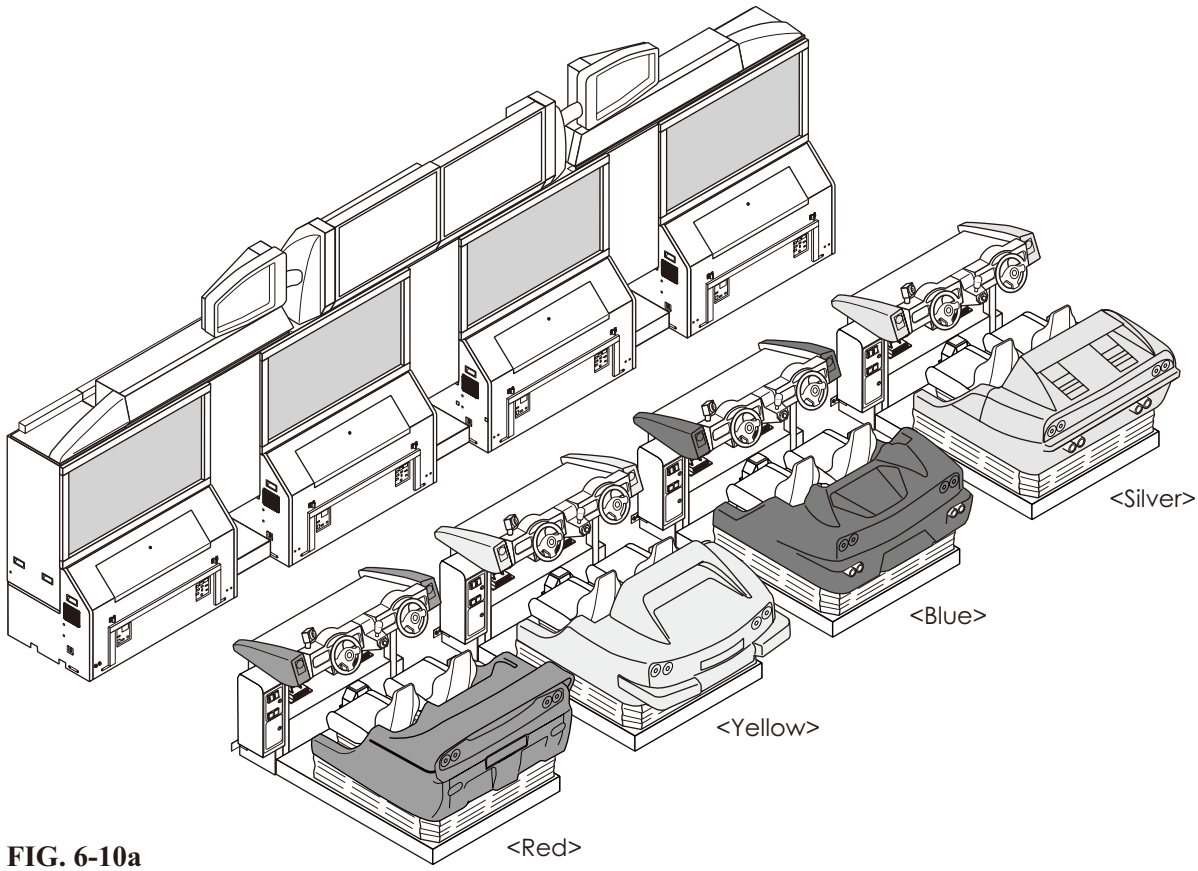


FIG. 6-10a

2 Fully attach the two temporarily fastened L-shaped joint brackets at the front left and right of the cockpit. Remove the two hexagon bolts from each of the temporarily fastened joint brackets facing the corners. The joint brackets use flat washers with bolts that have spring washers attached.

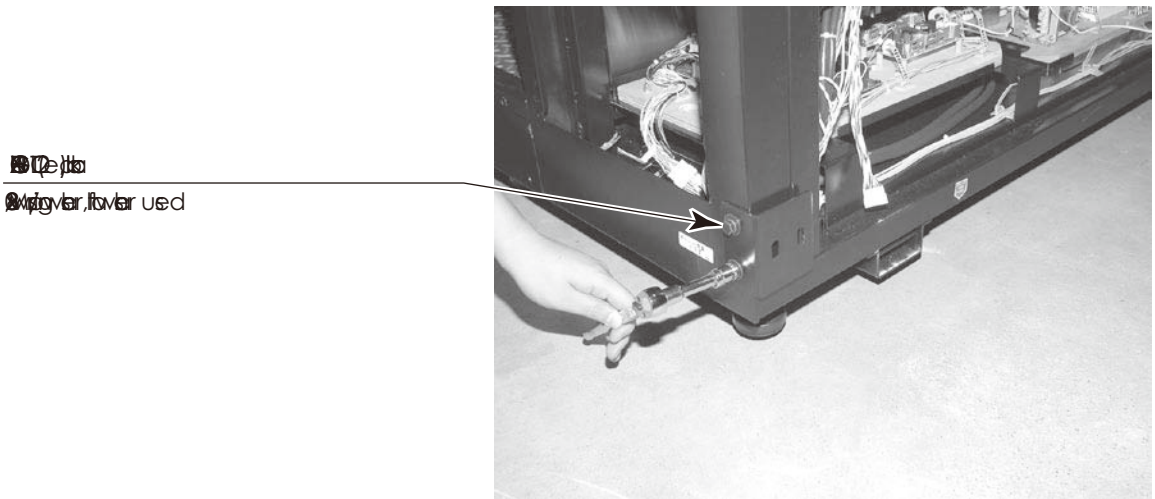


FIG. 6-10b

3 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.

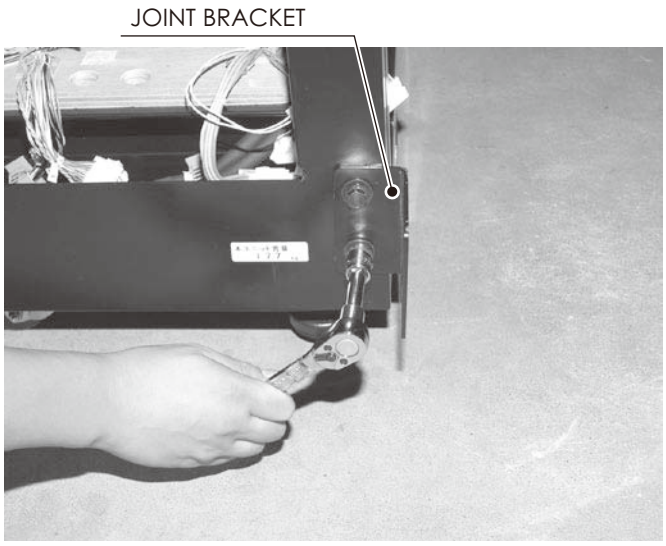


FIG. 6-10c

4 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. 6-10d

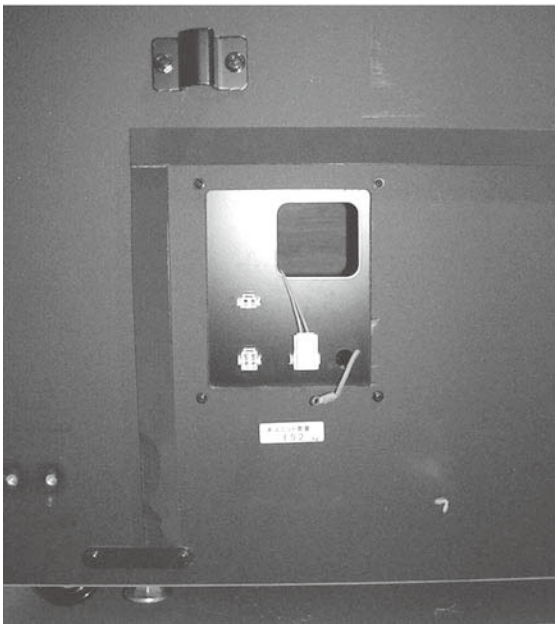


FIG. 6-10e LEFT SIDE CONNECTOR PANEL



FIG. 6-10f RIGHT SIDE CONNECTOR PANEL

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

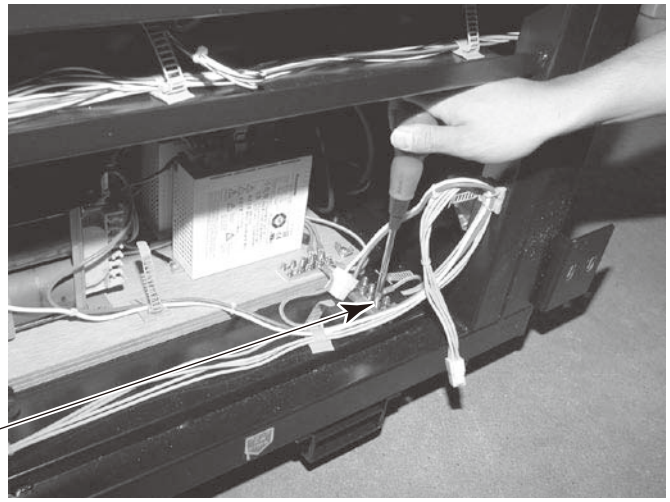


FIG. 6-10g

6 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.

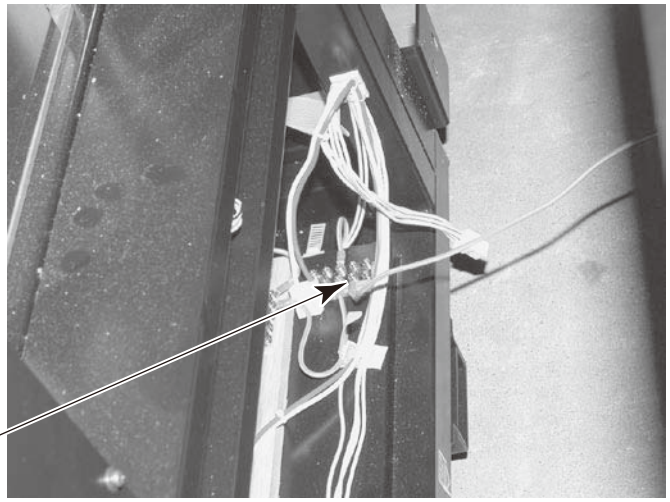


FIG. 6-10h

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

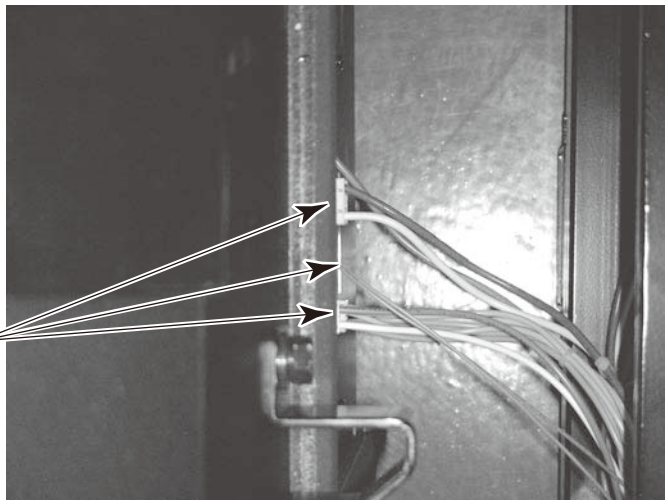


FIG. 6-10i

8 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.

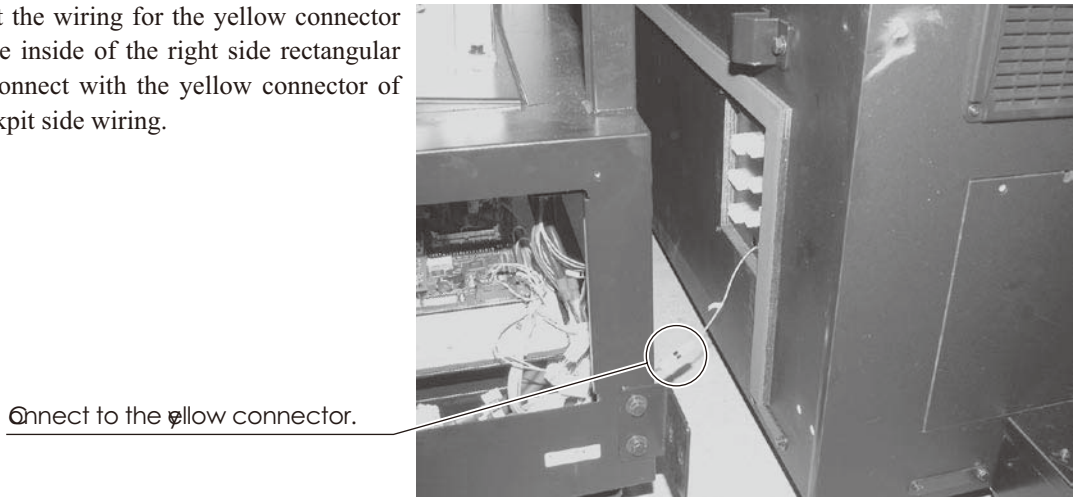


FIG. 6-10j

9 Connect the eight cockpit wiring connectors to the connector panel on the DLP base right side.

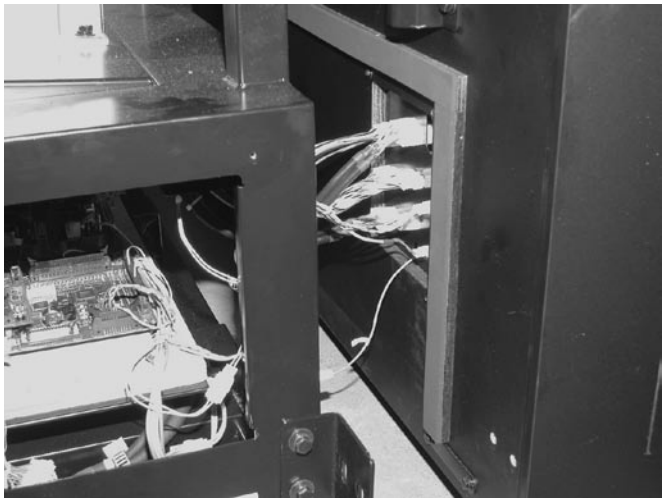


FIG. 6-10k

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

11 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.

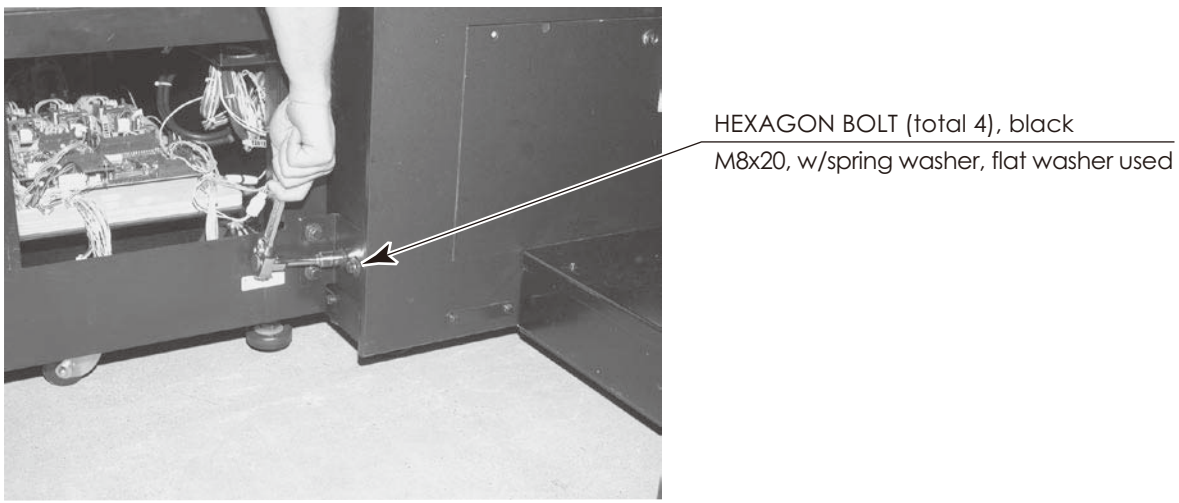


FIG. 6-10l

12 Attach the motor driver door, lock it, and secure with two truss screws.

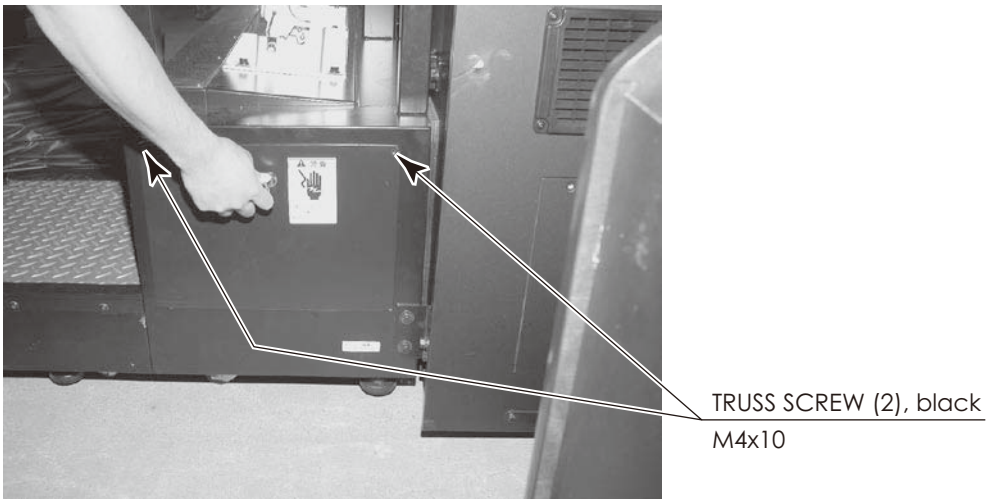


FIG. 6-10m

⚠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. 6-11b.) 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.

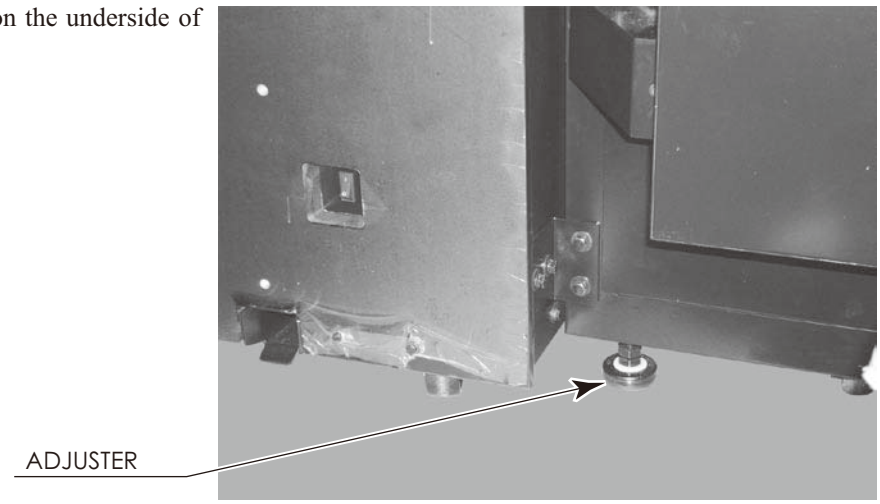


FIG. 6-11a Ground adjusters

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.

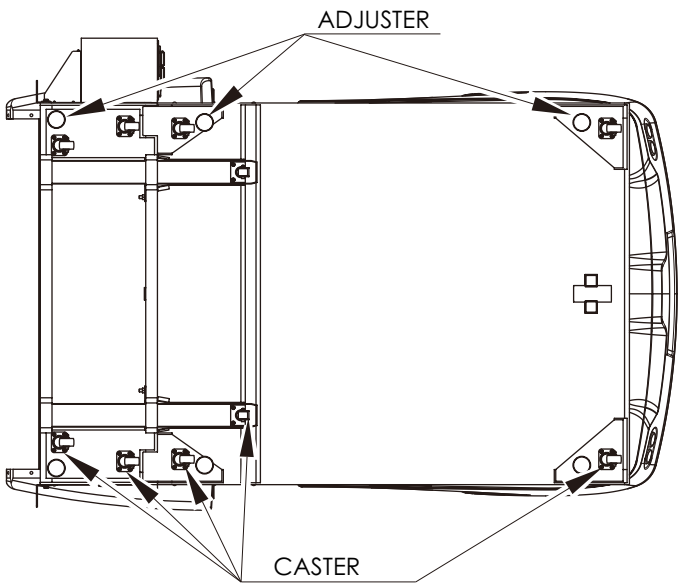


FIG. 6-11b

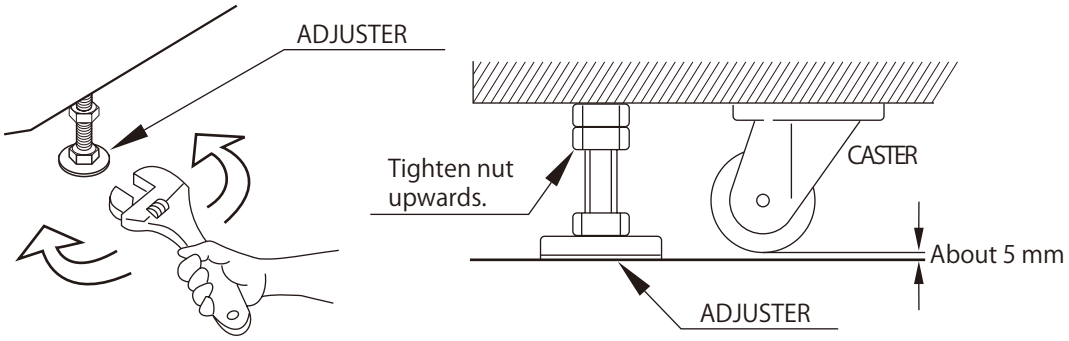
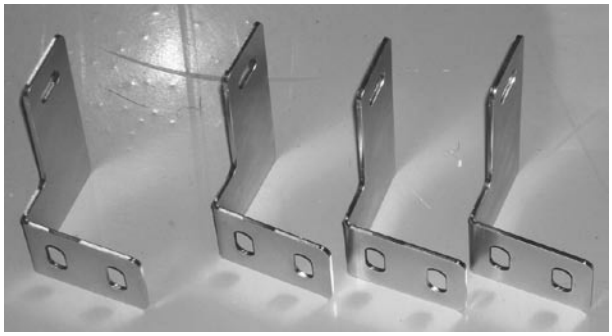


FIG. 6-11c Adjust the adjusters

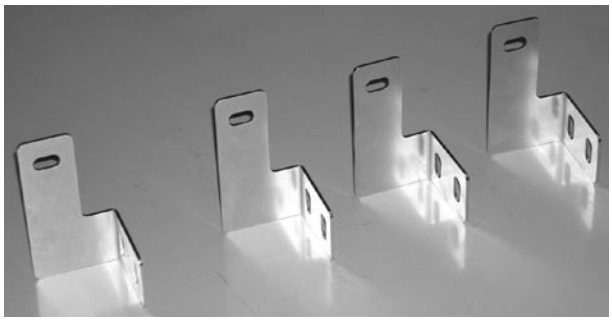
3 Fully tighten the four fastening bolts for each of the cockpit joint brackets temporarily fastened to the DLP projector side.

12 ATTACHING THE STEP AND REAR LAMP

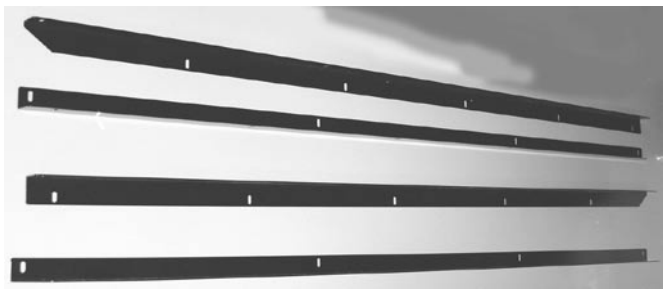
There are three kinds of board parts for the step. There is a step center, which is attached between cockpits, a step side L, which is attached on the left side, and a step side R, which is attached on the right side.
When attaching the step, the rear lamp is also attached at the same time to the cockpit base rear part. Each rear lamp is different. Match each rear lamp with the correct cockpit body color before attaching.
The following metal board parts are used when attaching the step and rear lamp.



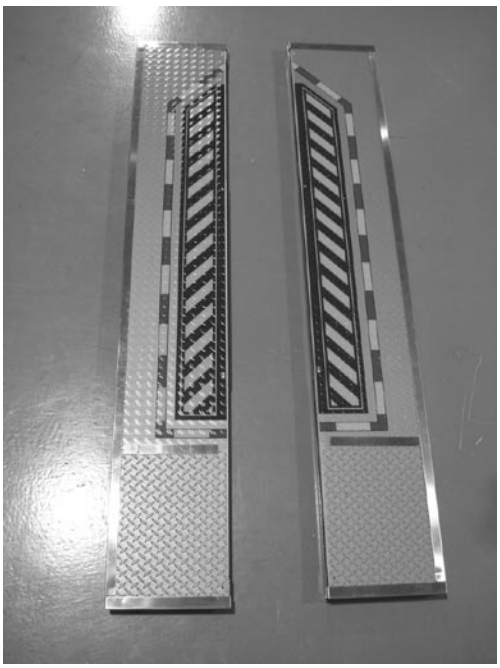
STEP HOLDER R (Total 4)



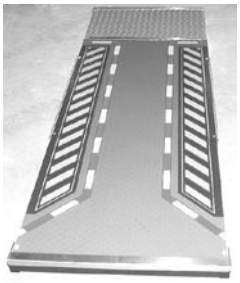
STEP HOLDER L (Total 4)



STEP LID L, R (4 each)

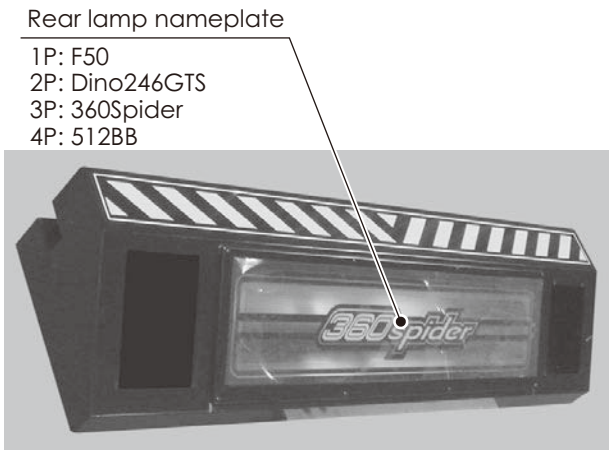


STEP SIDE L, R



STEP CENTER (Total 3)





REAR LAMP (Total 4)

1 Temporarily fasten the left and right step holders to the step center, step side L and R, with two hexagon bolts for each. Use only a step holder R for the step side L, and a step holder L for the step side R. The step holders use flat washers with bolts that have spring washers attached.

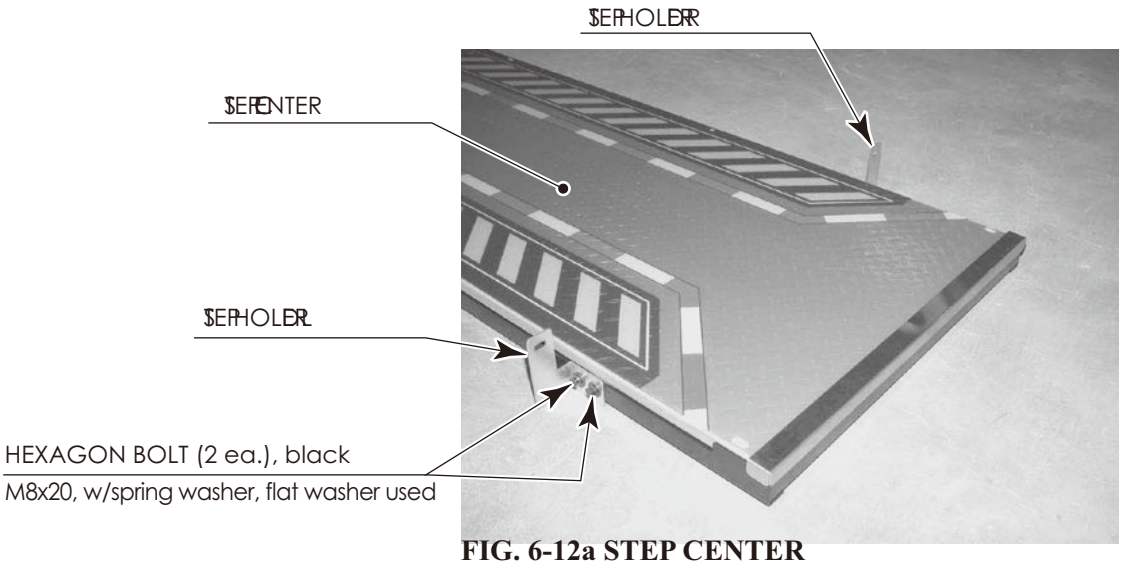


FIG. 6-12a STEP CENTER

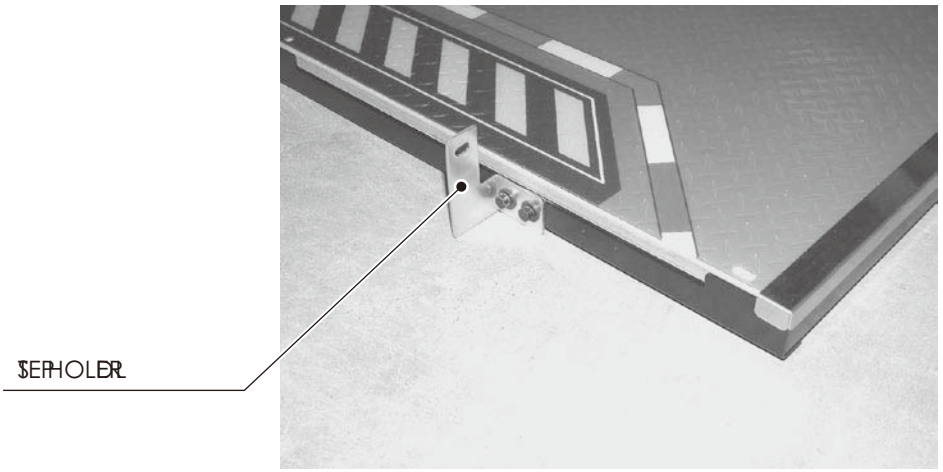


FIG. 6-12b STEP SIDE R

2 Insert the step center between the cockpits, and fasten to each cockpit with two hexagon bolts. At that time, fully tighten the temporarily fastened step holder bolts.
The step holders and step center use flat washers with bolts that have spring washers attached.

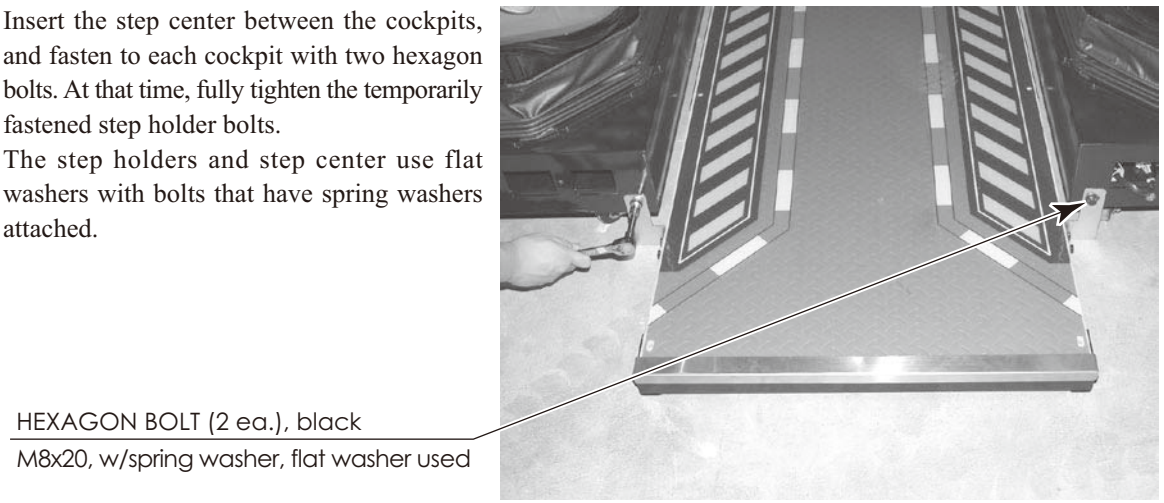


FIG. 6-12c

3 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.

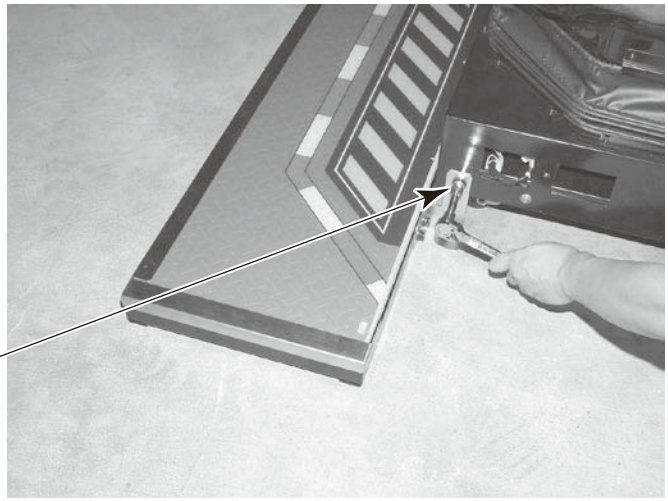


FIG. 6-12d

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

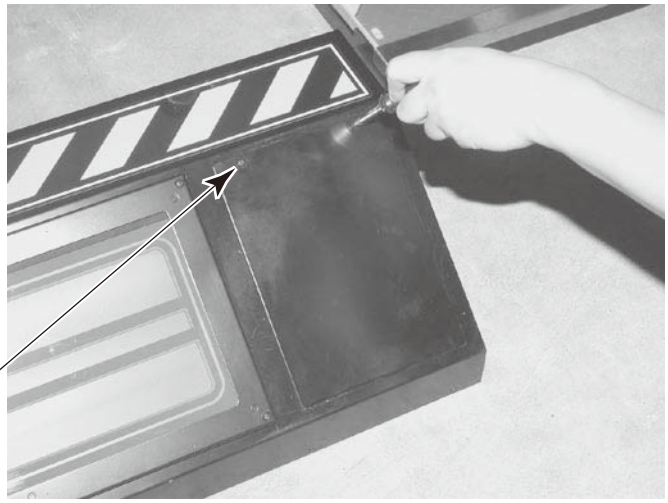


FIG. 6-12e

5 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.

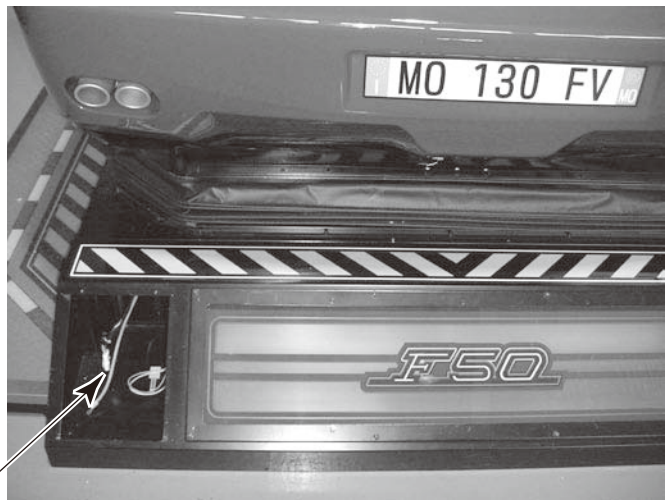


FIG. 6-12f

6 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.

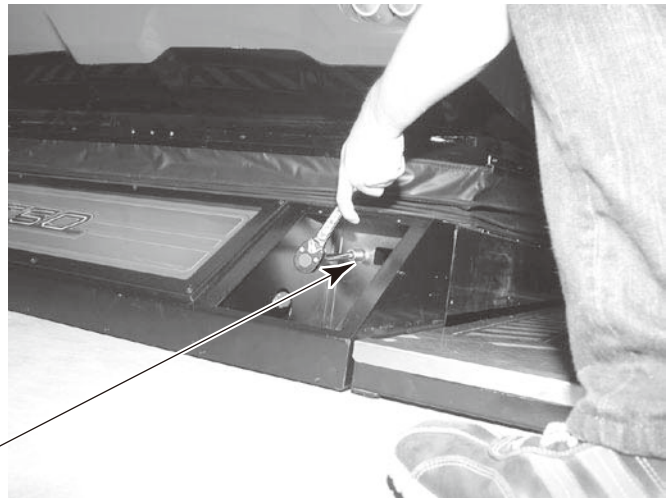
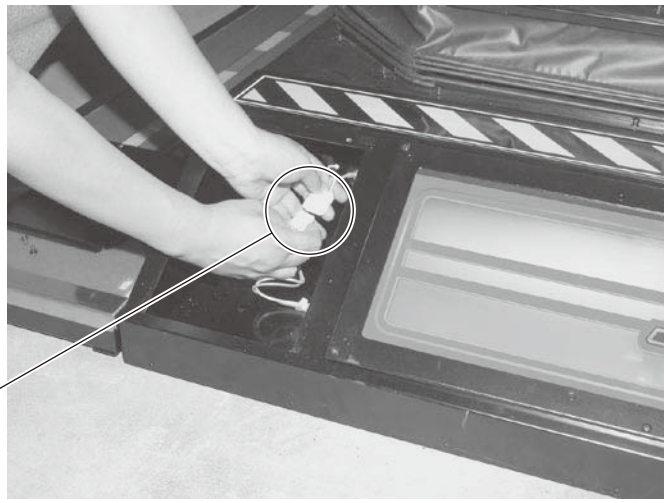


FIG. 6-12g

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



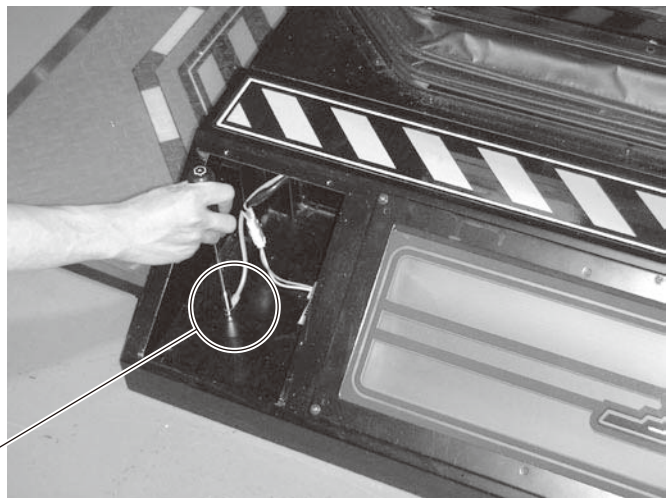


FIG. 6-12h

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

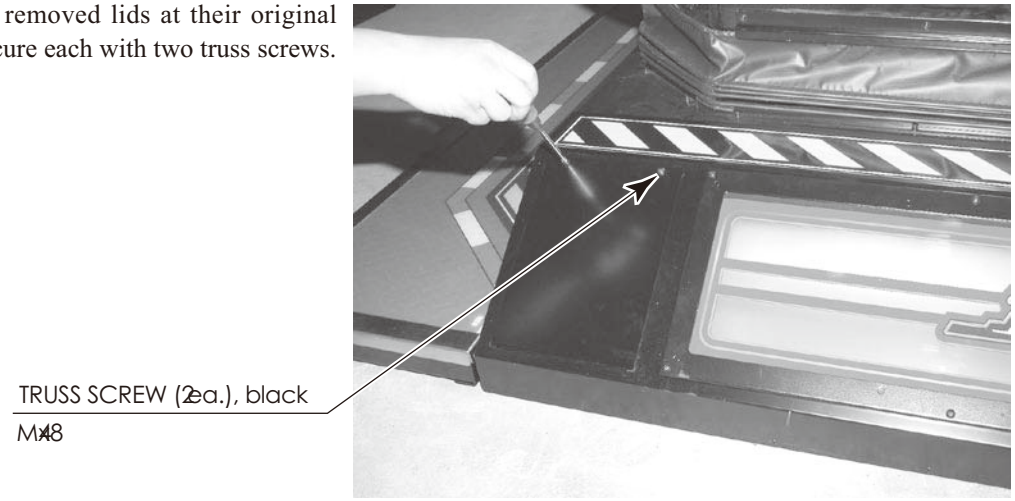


FIG. 6-12i

9 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.

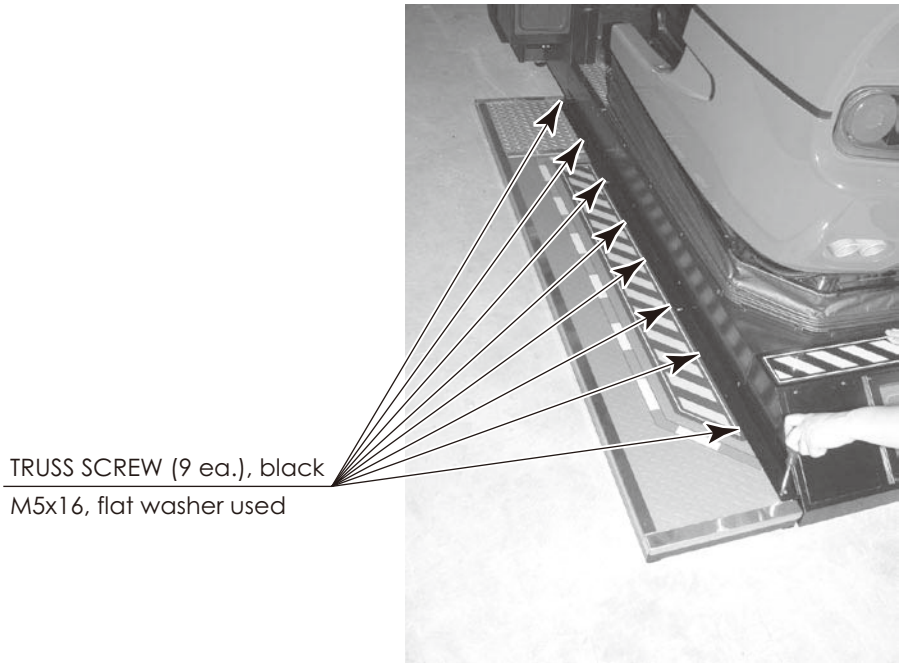


FIG. 6-12j

⚠WARNING

The earth plate used for grounding has a painted face and an unpainted face. Attach so that the unpainted face faces the metal parts. If grounding is not achieved, an accident such as an electric shock or short circuit may occur.

Connection of the wiring between the billboard and all corresponding parts (LCD monitor, ranking board, speaker box L and R, billboard side cover L) will be conducted.
Work will be conducted from above the DLP projector at a high elevation. Make sure to use a step ladder. An accident may result if a worker attempts to climb up the projector or hang onto the projector, etc.
As well as connecting the wiring connectors, attach an earth plate between the connectors and the adjacent parts' metal parts (duct). The earth plate enables grounding, so always be sure to attach it.

1 Connect the wiring found between the speaker box R and the LCD monitor. Remove the duct cover on the rear of the speaker box R. Remove two screws. The screws have flat and spring washers attached.

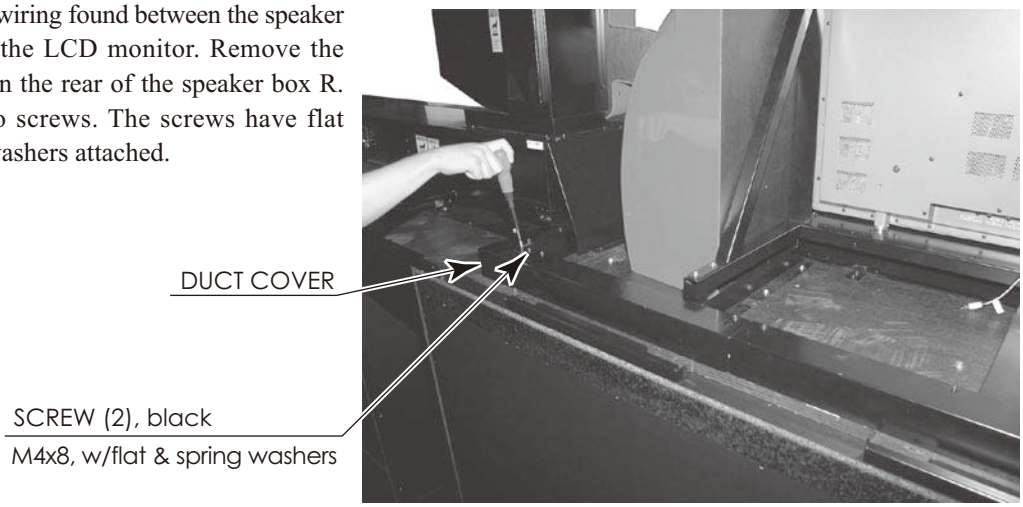


FIG. 6-13a

2 Remove the LCD monitor duct cover. Remove two screws. The screws have flat and spring washers attached.

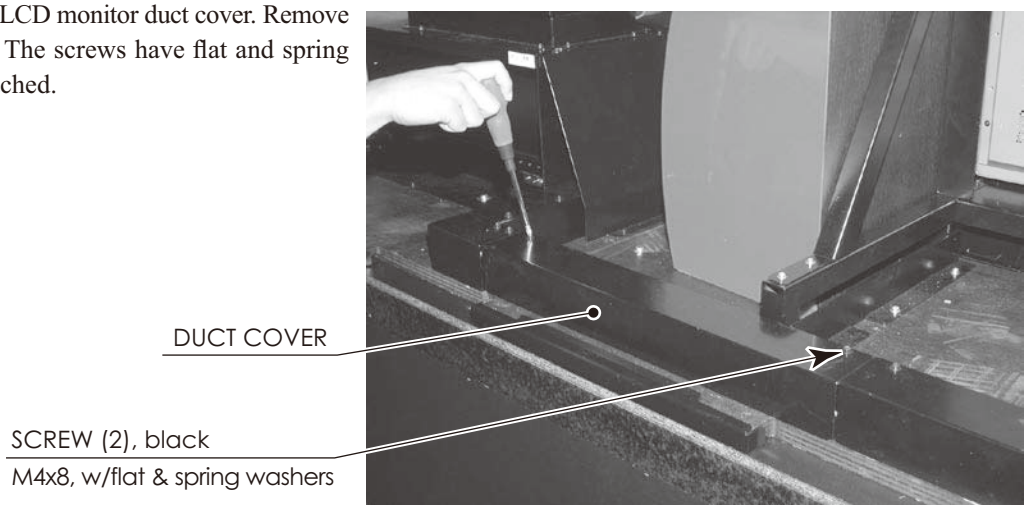


FIG. 6-13b

3 Remove the screw to connect the earth wire, and connect the earth wire. The screw has flat and spring washers attached.

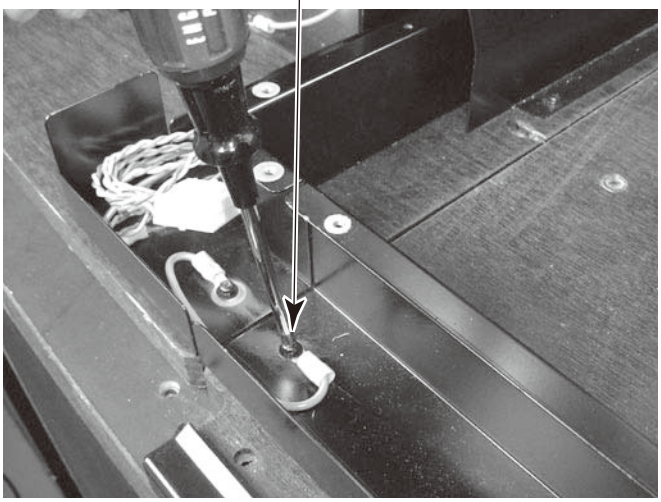


FIG. 6-13c

4 Connect the two connectors. Then, return the duct covers to their original positions and secure them. Be careful not to catch the wiring.

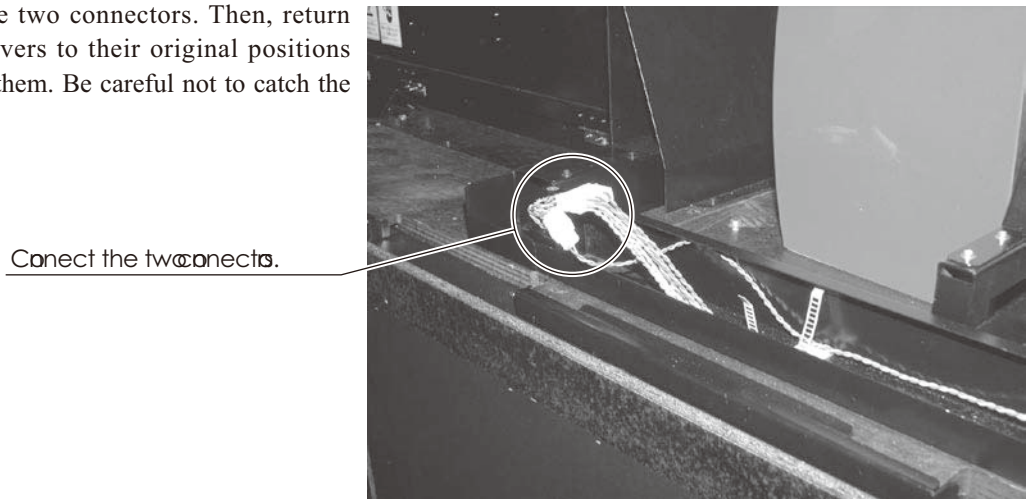


FIG. 6-13d

5 Connect the wiring found between the LCD monitor and the ranking board. Remove the duct cover on the rear of the LCD monitor. Remove two screws. The screws have flat and spring washers attached.

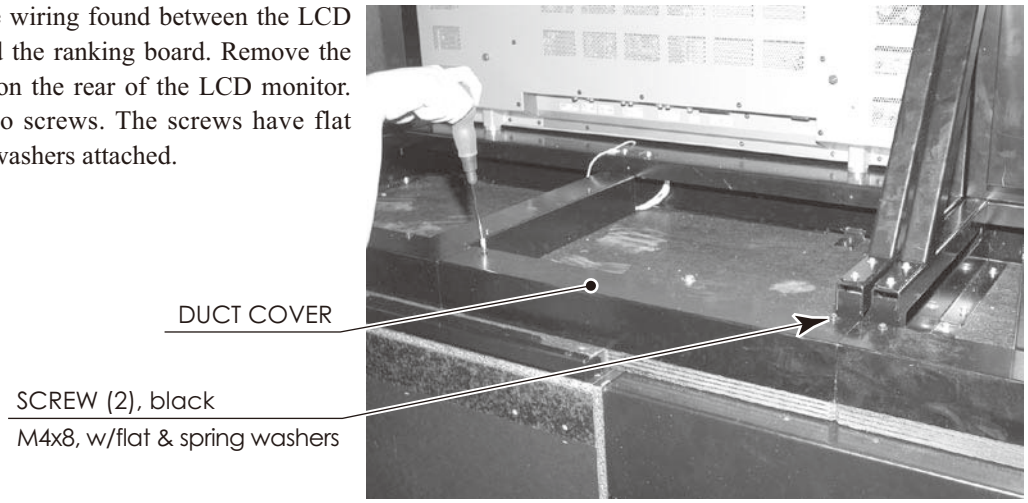


FIG. 6-13e

6 Remove the ranking board duct cover. Remove two screws. The screws have flat and spring washers attached.

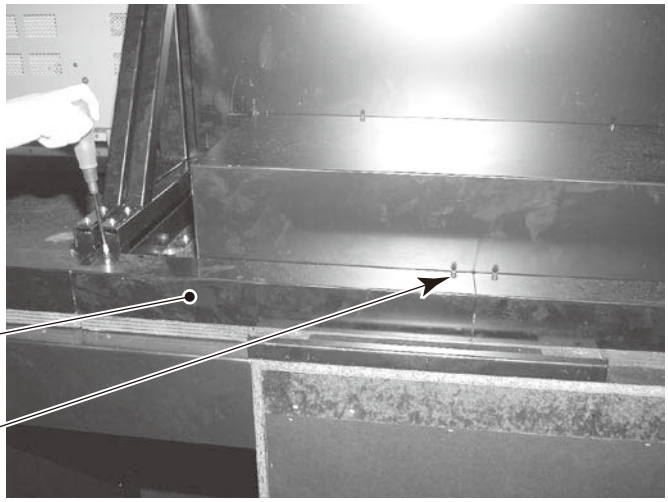


FIG. 6-13f

7 Remove the screw to connect the earth wire, and connect the earth wire. The screw has flat and spring washers attached.

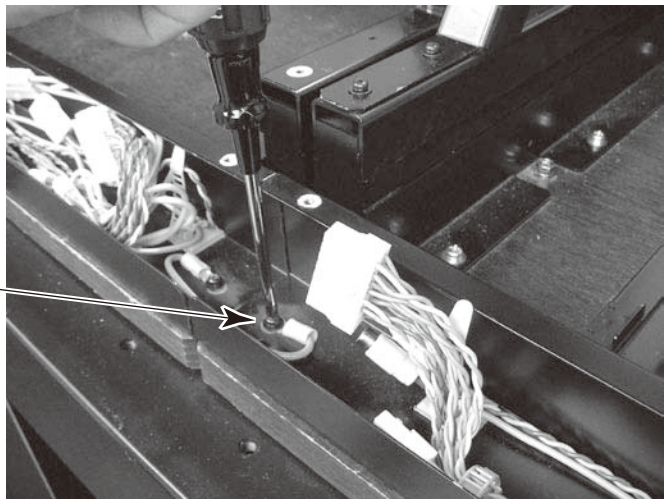


FIG. 6-13g

8 Connect four connectors. Then, return the duct covers to their original positions and secure them. Be careful not to catch the wiring.

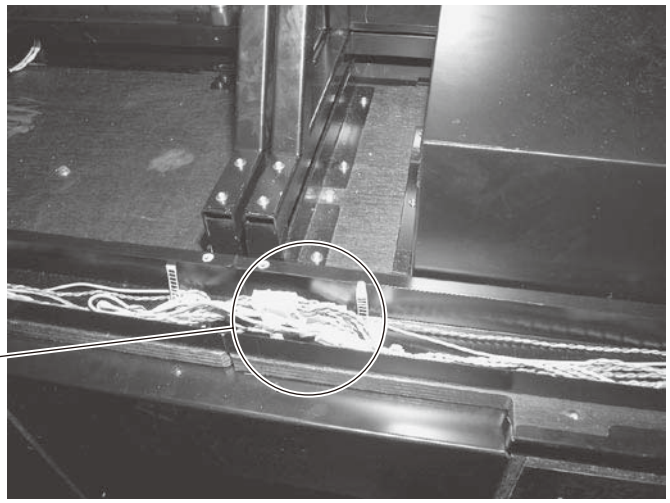


FIG. 6-13h

9 Remove the duct cover adjacent to the duct cover that was removed from the back of the ranking board. Remove two screws. The screws have flat and spring washers attached.

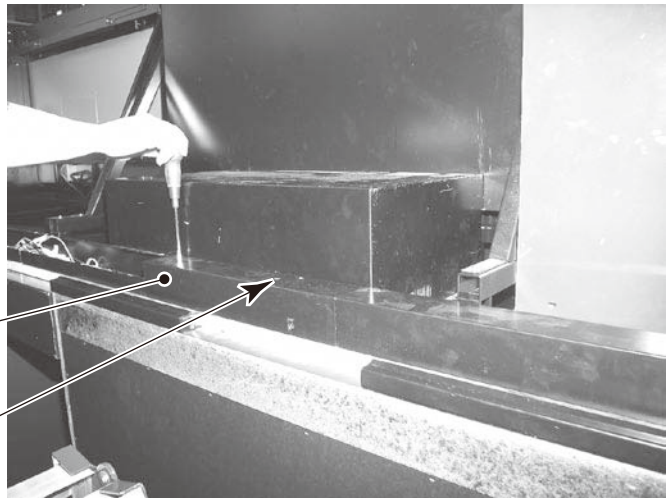


FIG. 6-13i

10 Connect the wiring found between the ranking board and the speaker box L. Remove the duct cover on the rear of the ranking board. Remove two screws. The screws have flat and spring washers attached.

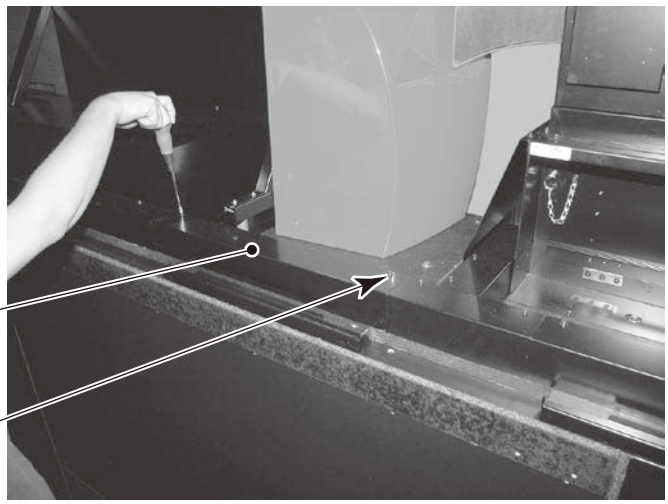


FIG. 6-13j

11 Remove the speaker box L duct cover. Remove two screws. The screws have flat and spring washers attached.

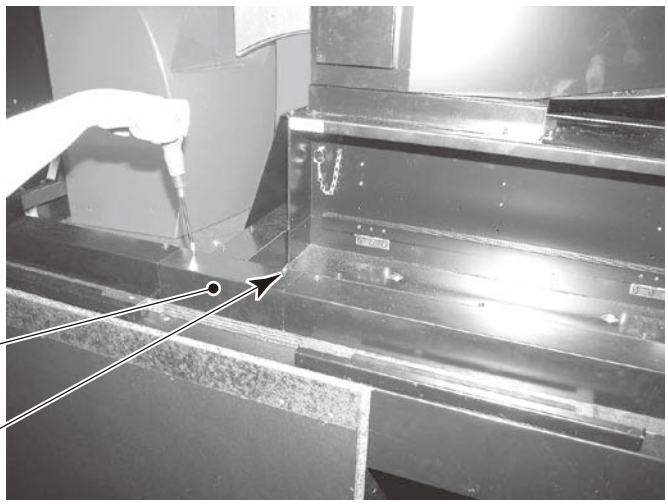


FIG. 6-13k

12 Remove the screw to connect the earth wire, and connect the earth wire. The screw has flat and spring washers attached.

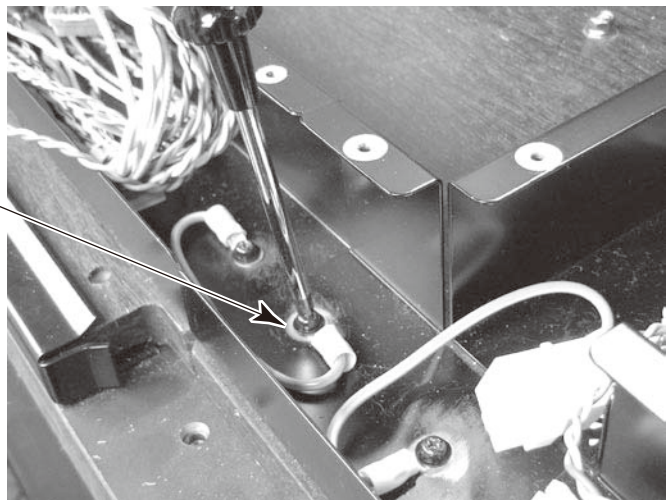


FIG. 6-13l

13 Connect five connectors. Then, return the duct covers to their original positions and secure them. Be careful not to catch the wiring.

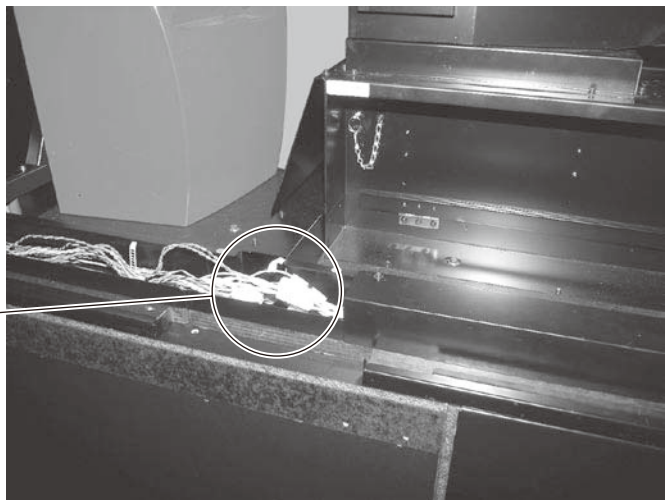


FIG. 6-13m

14 Remove the speaker box L duct cover. Remove two screws. The screws have flat and spring washers attached.

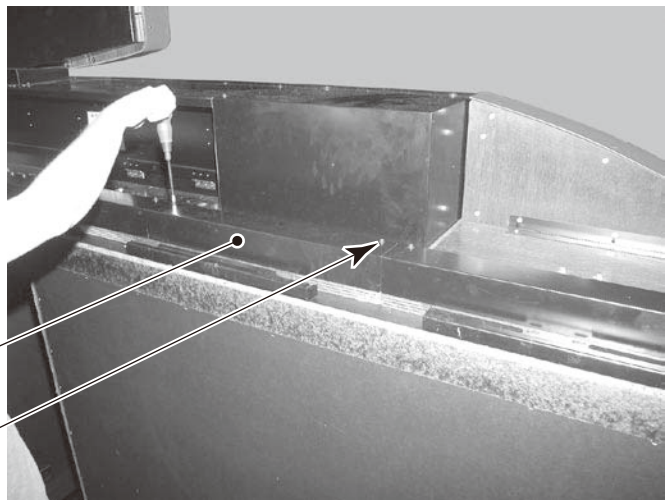


FIG. 6-13n

15 Remove the billboard side cover L duct cover. Remove two screws. The screws have flat and spring washers attached.

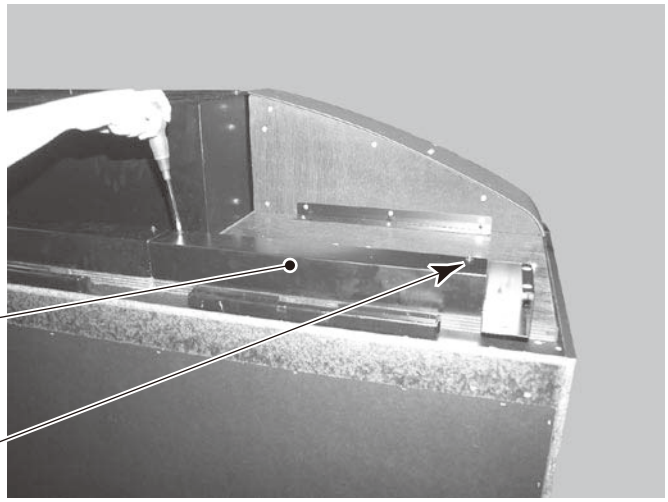


FIG. 6-13o

16 Remove the screw to connect the earth wire, and connect the earth wire. The screw has flat and spring washers attached.

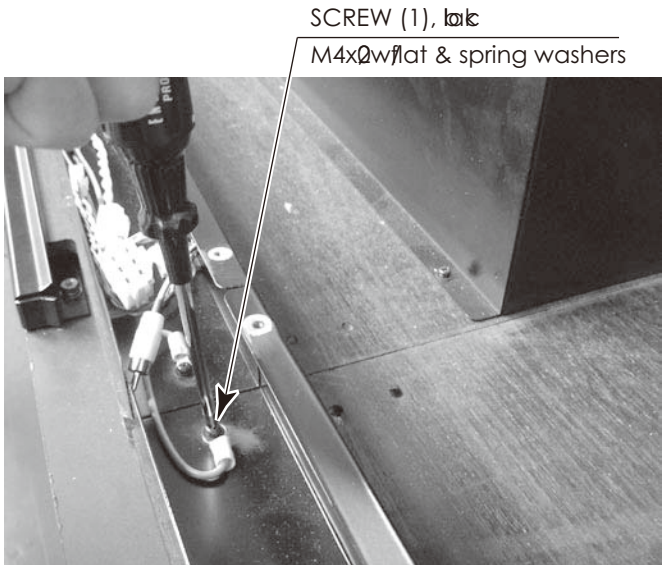


FIG. 6-13p

17 Fasten the earth wire terminal of the wiring inside the duct cover to the inside of the duct cover using one screw. Make sure to use a flat and spring washer with the screw.

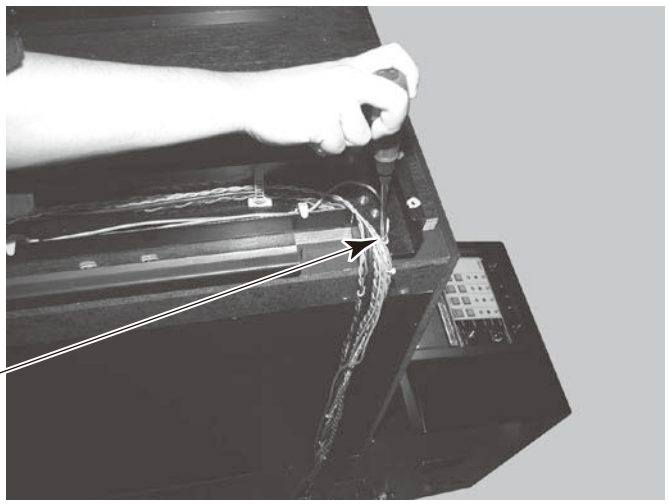
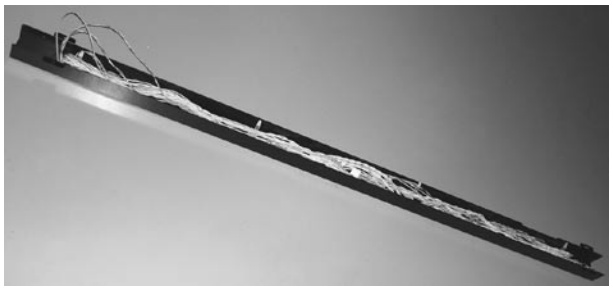


FIG. 6-13q

18 Pull out wiring from both sides of the vertical duct. Connect the longer of the wiring pulled from the vertical duct to the billboard side.
Paying attention to the length of the wiring, attach the vertical duct to the rear of the 1P DLP projector. Fasten with four screws. The screws have flat and spring washers attached.

Be careful not to damage the wiring. While performing the work of fastening the screws, make sure to support the vertical duct firmly. Also, please note that the dimensions of the screws used for this task are different than that of the screw used for the earth wire terminal.



VERTICAL DUCT

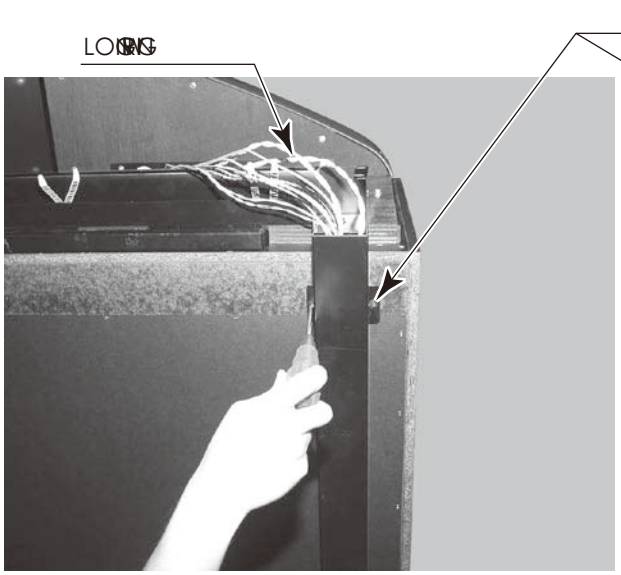
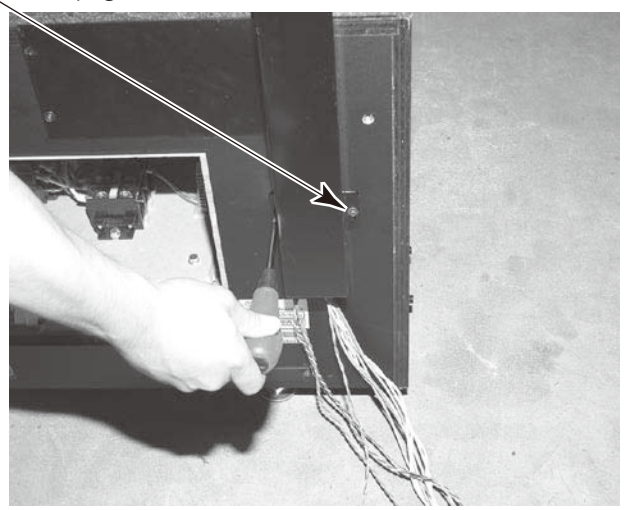


FIG. 6-13r Upper rear side of 1P DLP projector



Lower rear side of 1P DLP projector

19 Connect the vertical duct wiring connector to the speaker box L wiring connector. There are four connectors.

20 Pass the wiring inside the billboard side cover L duct, and fasten with the cord clamp inside the duct.
Dead weight will be applied to the wiring inside the vertical duct. Secure the wiring firmly with the cord clamp so that no dead weight is applied directly to the wiring.
Also, there is an earth wire inside the vertical duct wiring. This earth wire is connected to the back of the ranking board.

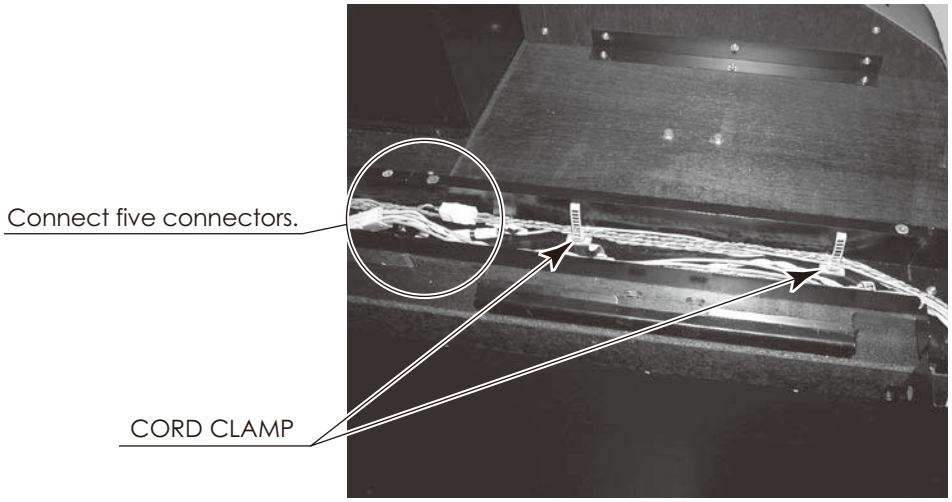


FIG. 6-13s

21 Attach the billboard side cover L duct to the end duct cover over the vertical duct. Secure with three screws. The screws have flat and spring washers attached.



END DUCT COVER

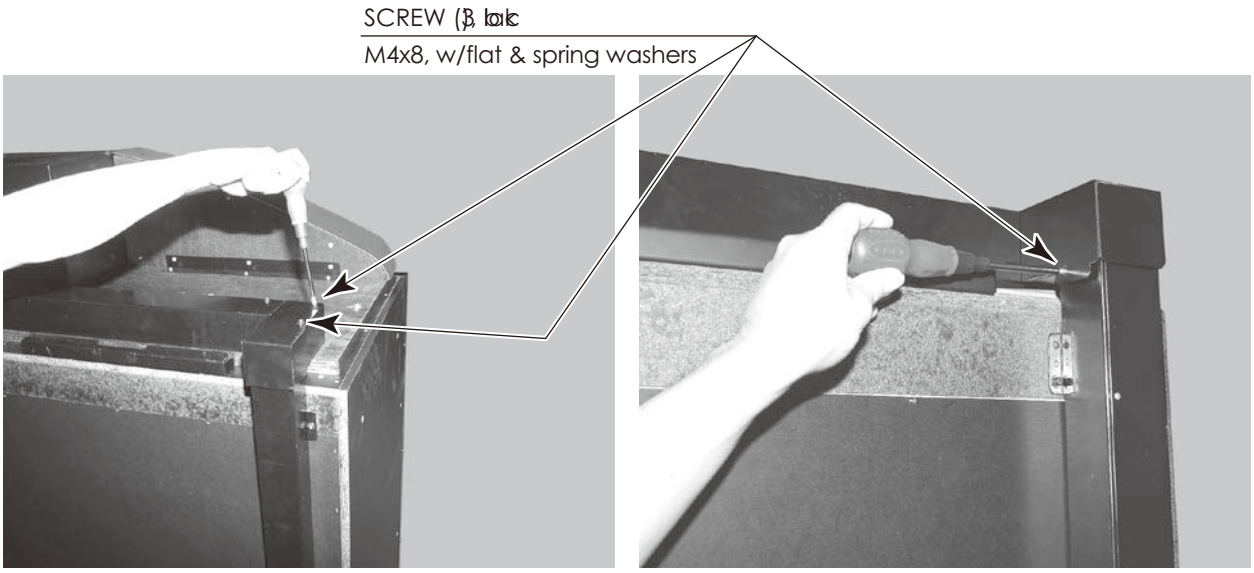


FIG. 6-13t

22 Remove the billboard electric cover on the back of the ranking board. Remove two screws. The screws have flat and spring washers attached.

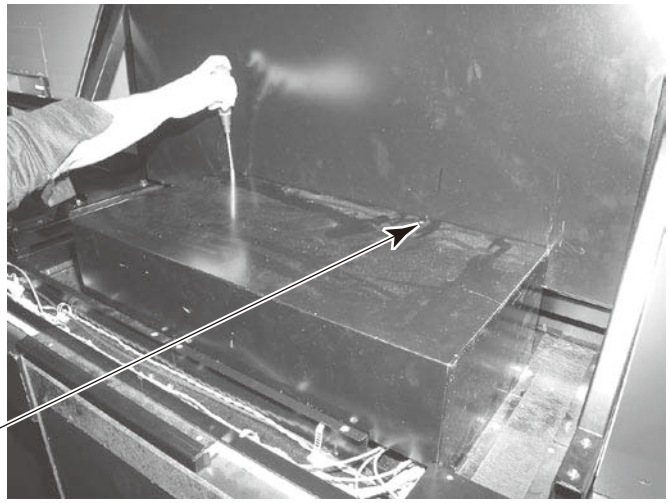


FIG. 6-13u

23 There is a plate for fastening the earth wire terminals inside the billboard electric. Fasten the terminals of four earth wires, which are inside the duct cover, to open screw holes. There are two earth wires from the side of the LCD monitor, one from the speaker box L, and one inside the vertical duct wiring. Fasten one earth wire terminal to one screw hole. Tighten the earth wire terminals one at a time, and not all at the same time. Make sure to always use flat and spring washers with the screws.

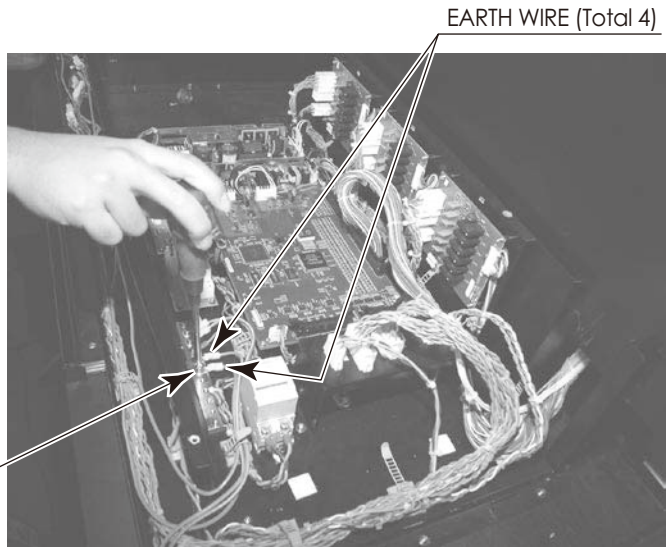


FIG. 6-13v

24 Attach duct covers to the billboard electric cover that was removed. Fasten each with two screws. Be careful not to catch the wiring.

14 ATTACHING THE CONTROL TOWER

Attach the control tower to the left side of the 1P DLP projector.
The control tower will be controlled by an attendant during operation of the product. To ensure safe operation, make sure to provide ample work space for the attendant.

1 Place the control tower close to the left side of the 1P DLP projector, but make sure they do not come in contact with one another. Leave an opening about 10 cm between them.

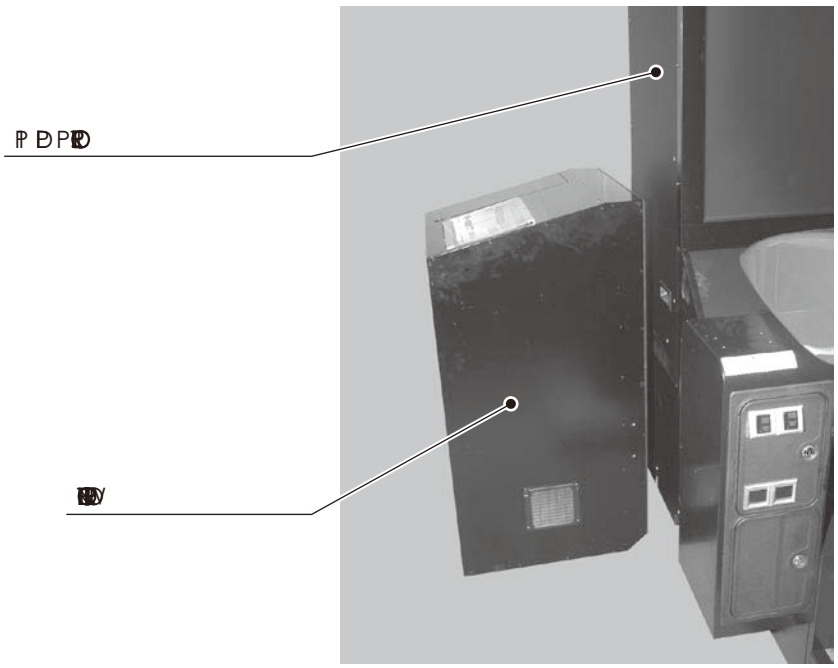


FIG. 6-14a

2 Pull out the wiring from the 1P DLP base side and the vertical duct.

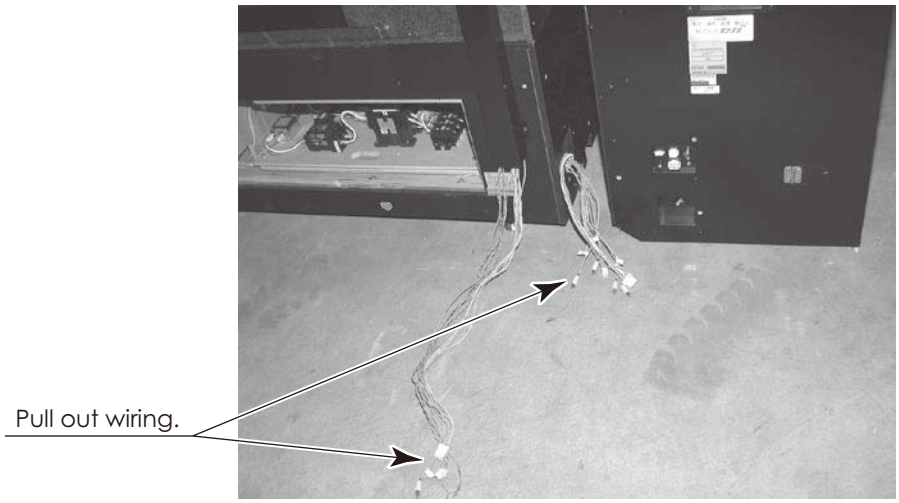


FIG. 6-14b

3 Connect all of the connectors of the wiring pulled out from the DLP base to the control tower connectors.
Connect the yellow connectors in the order of 1, 2, 3, and 4 from the left.

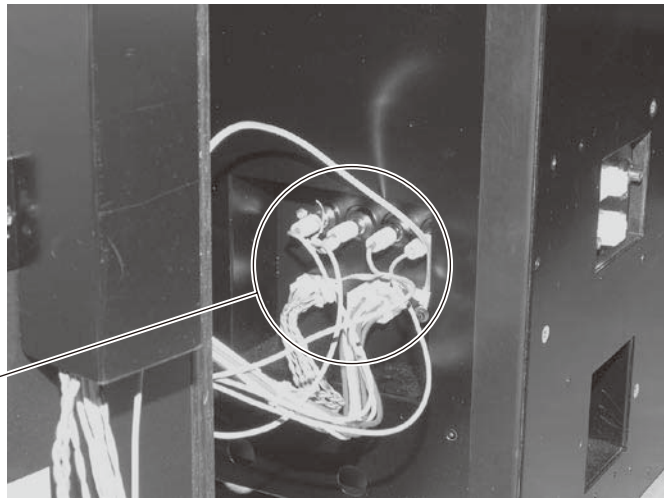


FIG. 6-14c

4 Align the control tower and the DLP projector so that the side of the control tower and the rear side of the DLP projector are level on the same plane.
At this time, be careful not to catch the wiring.

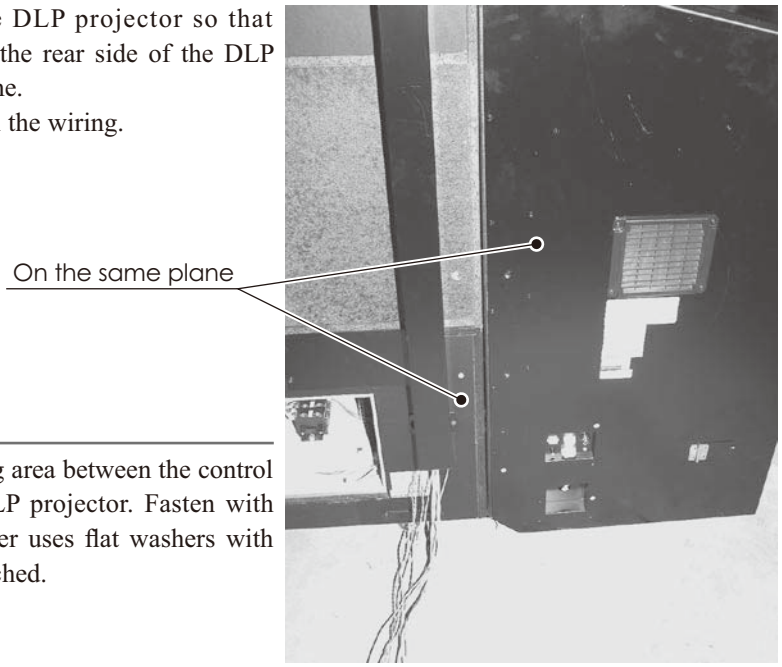


FIG. 6-14d

5 Attach the rear holder to the joining area between the control tower and the rear side of the DLP projector. Fasten with four hexagon bolts. The rear holder uses flat washers with bolts that have spring washers attached.

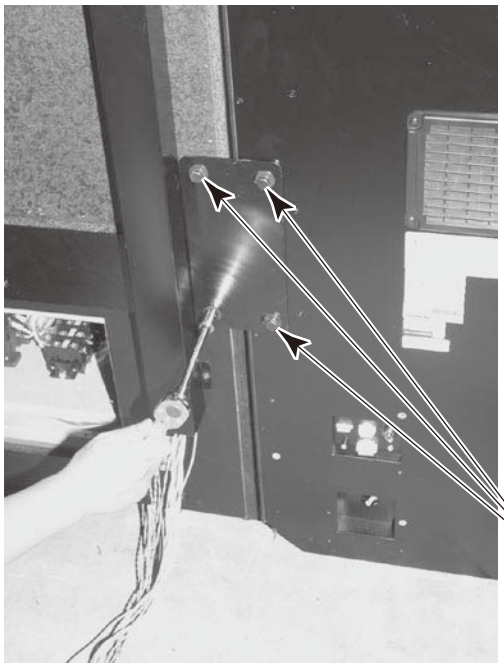


FIG. 6-14f

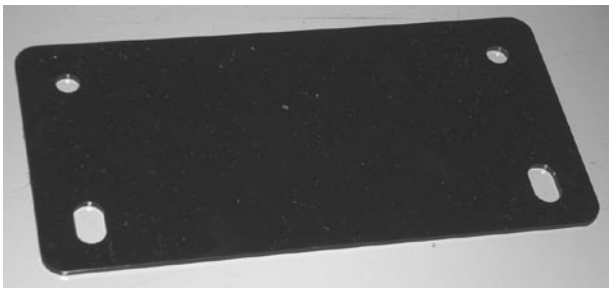


FIG. 6-14e REAR HOLDER

6 Attach the front holder to the joining area between the control tower and the front side of the DLP projector. Fasten with four hexagon bolts. The front holder uses flat washers with bolts that have spring washers attached.

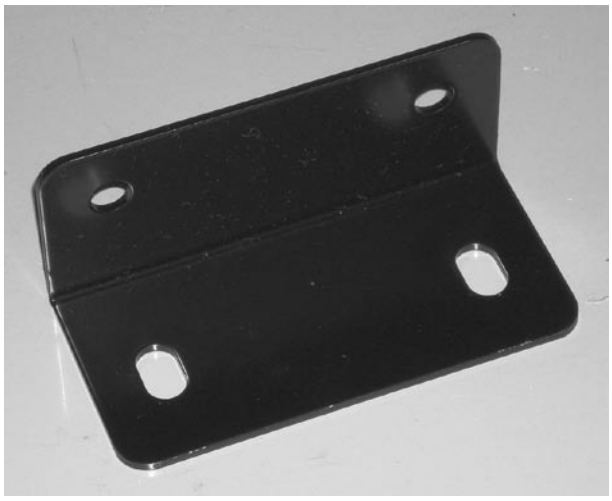


FIG. 6-14g FRONT HOLDER

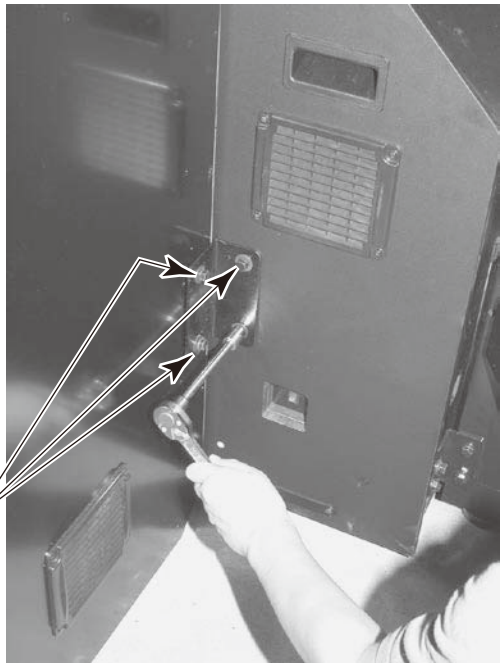


FIG. 6-14h

7 Attach the tower duct to the side of the control tower. Fasten with two screws. The screws have flat and spring washers attached.

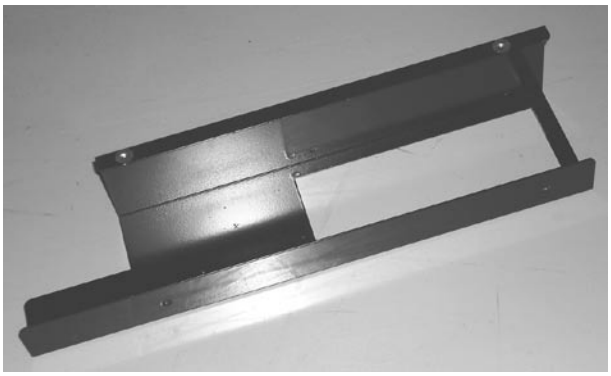


FIG. 6-14i TOWER DUCT

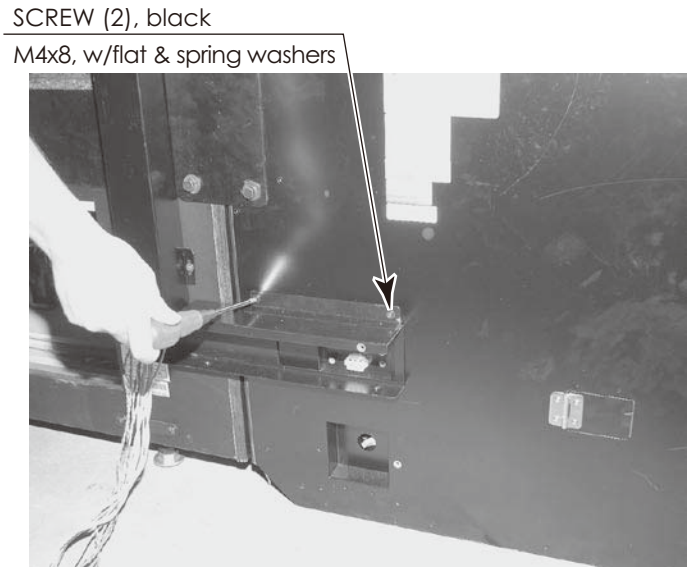


FIG. 6-14j

8 Connect all of the wiring connectors from the vertical duct to the control tower connectors.

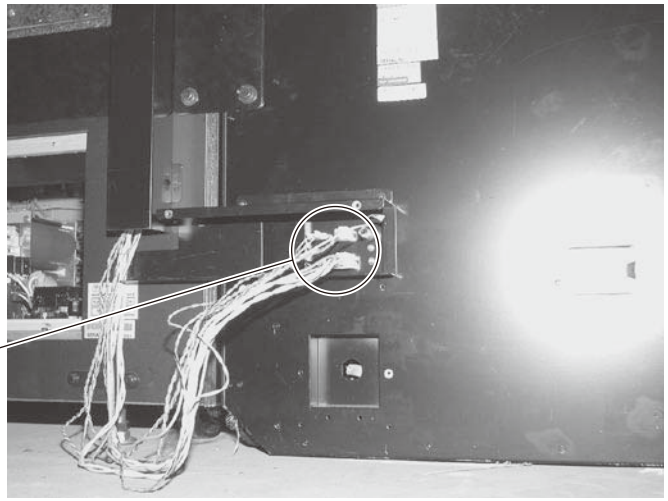


FIG. 6-14k

9 There is an earth wire in the vertical duct wiring. Fasten the terminal of this earth wire with one nut. Make sure to always use flat and spring washers with the nut.

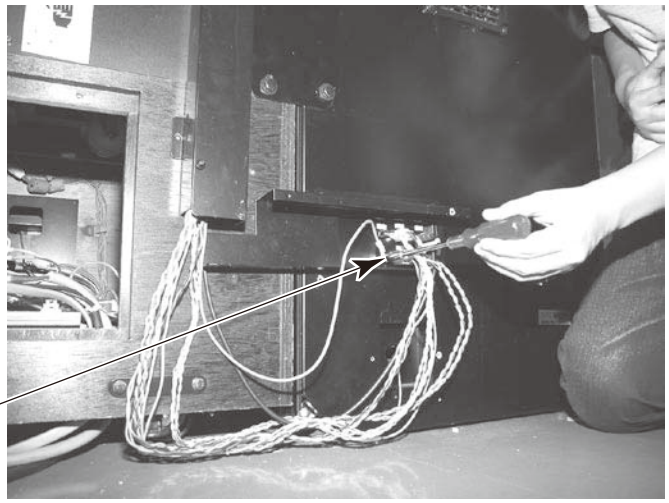


FIG. 6-14l

10 After putting the wiring away in the center of the tower duct, attach the duct cover over the tower duct. Fasten with four screws. The screws have flat and spring washers attached. Be careful not to damage the wiring.



FIG. 6-14m DUCT COVER

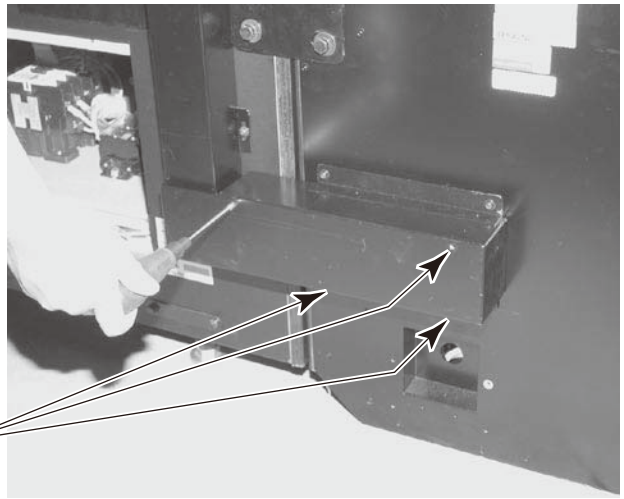


FIG. 6-14n

⚠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 (4 cockpits and 1 control tower) to the receptacle (not included) correctly and secure the connection.



FIG. 6-15a

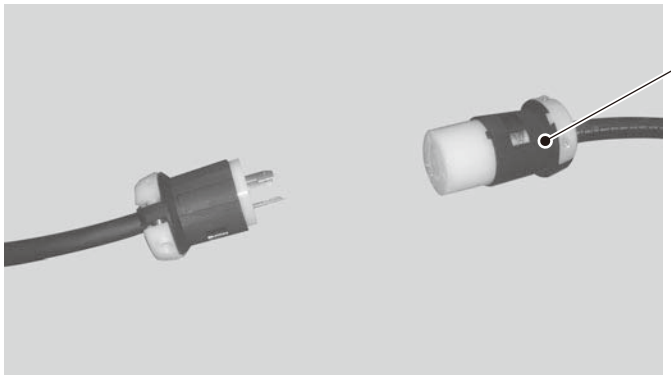


FIG. 6-15b



SINGLE PHASE
(Hubbell: HBL2321)

FIG. 6-15c Power Cable Plug



FIG. 6-16a PLAY INSTRUCTIONS STICKERS

Attach a play instructions sticker on top of each cockpit coin chute tower. All four 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.

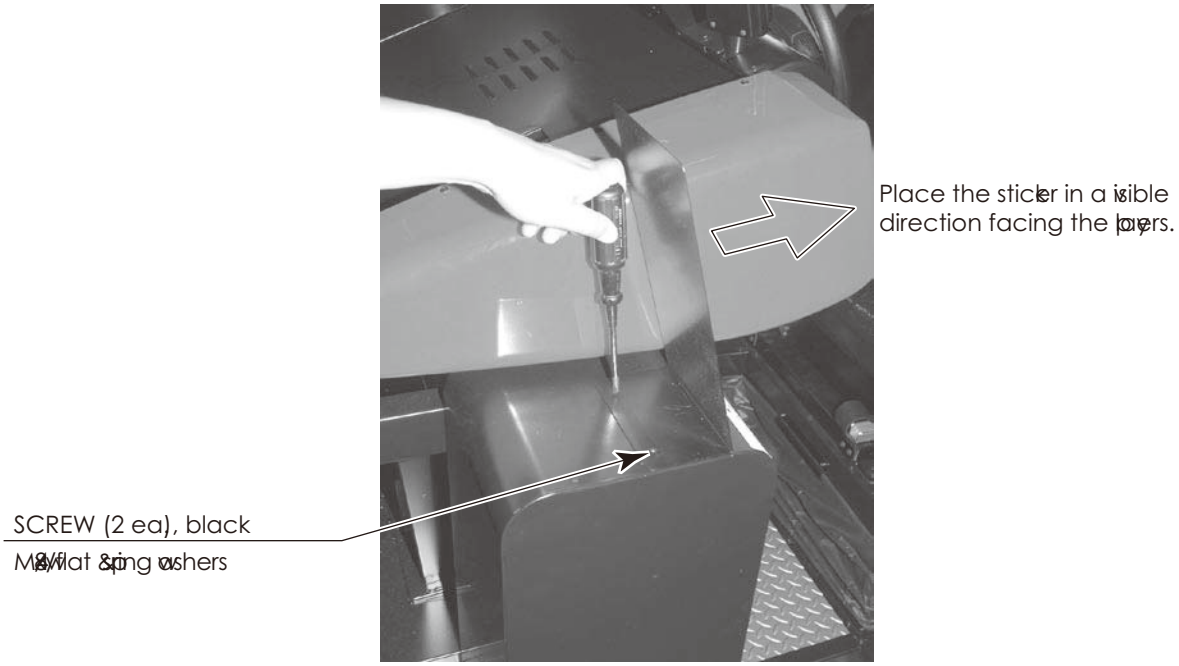


FIG. 6-16b

⚠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 reenage the power and conduct the initialization operation properly.**
- **There is a power switch for each cabinet on the left side of the DLP base and for the control tower on the side that faces the rear side of the projector. However, current will not flow through the cabinet just by turning on the switch on the left side of the DLP base.**

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 Make sure that the control tower power switch on the side that faces the rear side of the projector is turned off.

3 Turn the power switches for each cabinet on the left side of the DLP base on.

4 Turn the power switch on the control tower on. This sends power throughout the product. Following the order below, output locations will activate.

a) The rear lamp fluorescent light will glow.
b) The ranking board will flash, with displayed material changing about once a second.
c) The speaker box halogen lamps will flash.
d) CCD camera images will be output onto the LCD monitor, switching from 1P through 4P.
e) The LINDBERGH logo is displayed on the projector screen.
f) 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.
g) 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.
h) The actuator initializes. After moving from its lowest point to its highest point, the actuator stops at its home position.
i) A network check is performed. The projector screen display changes to a network check display.
j) If the network check is completed properly, the Customer Welcome Screen appears and sound is output at the same time.

5 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.)

IMPORTANT

There is a LINDBERGH installed in each of the four cabinets of this product. Always enter the Test Mode of all four cabinets when checking settings or making inspections. It is not possible to use one cabinet's controls to check any other of the cabinets' settings, etc.

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.

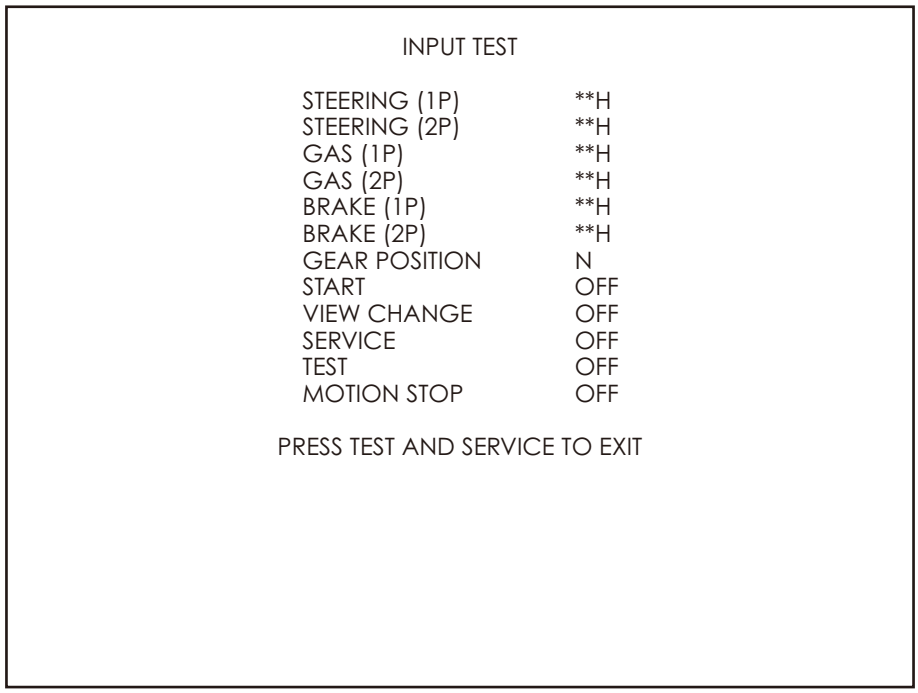


FIG. 6-18a INPUT TEST Screen

(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.

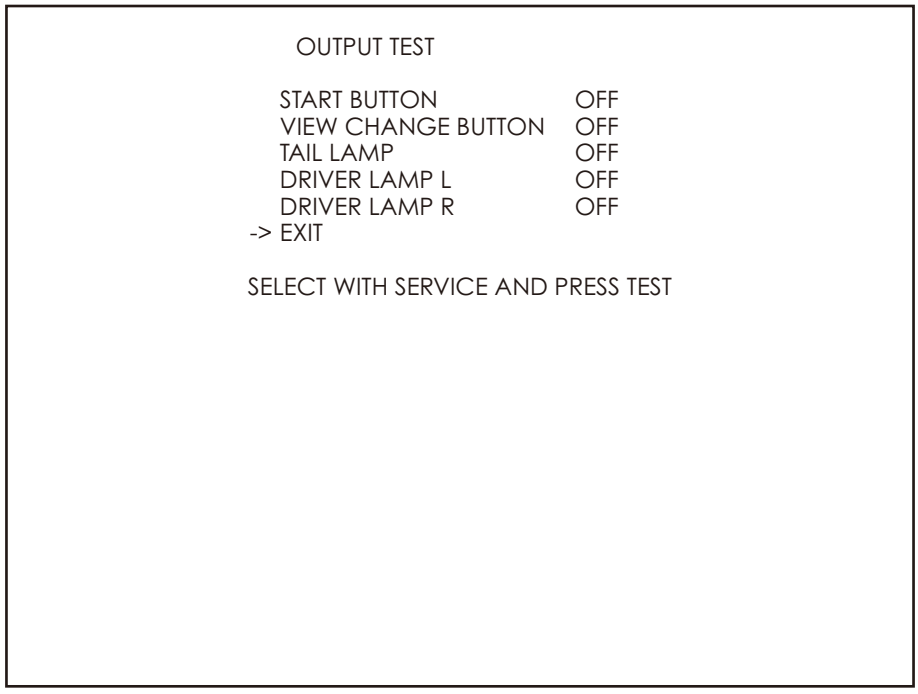


FIG. 6-18b OUTPUT TEST Screen

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.

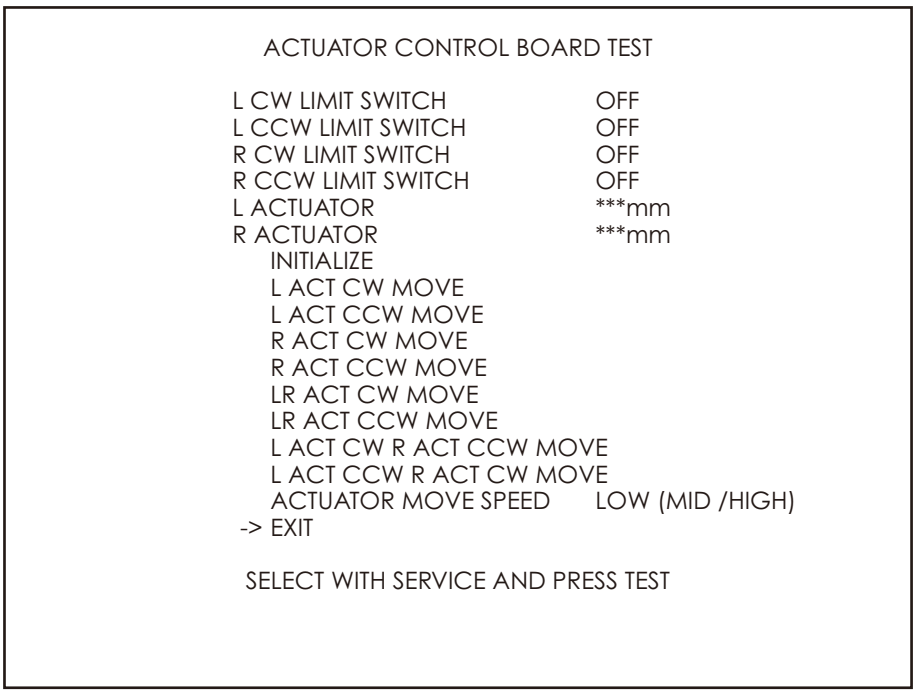


FIG. 6-18c ACTUATOR CONTROL BOARD TEST Screen

(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.

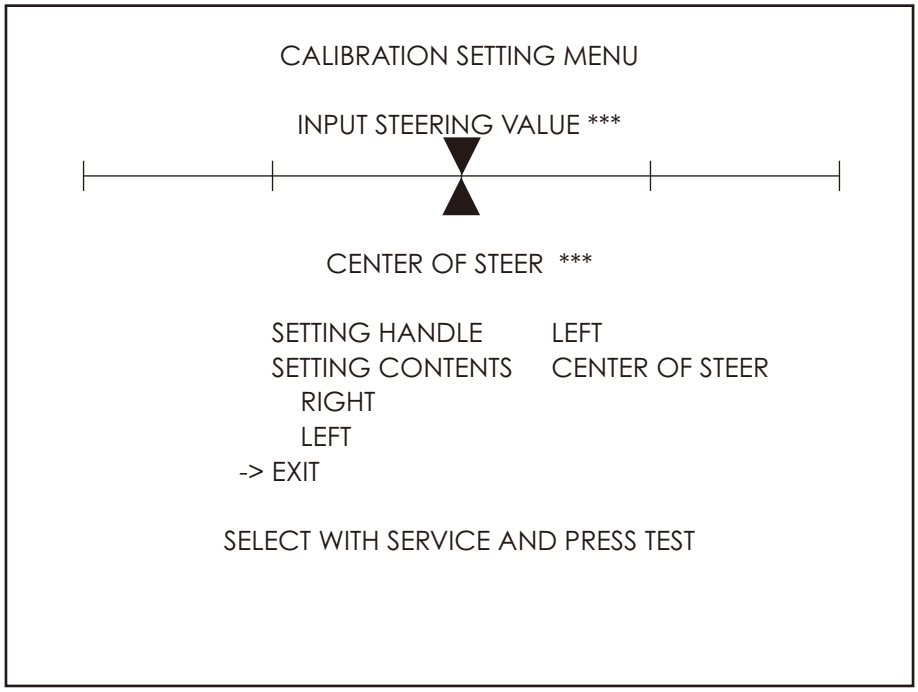


FIG. 6-18d CALIBRATION SETTING MENU Screen

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

There are many settings for this product which can be used for ticket operation, etc. Check these settings and change them to meet the operational needs of the installation facility.

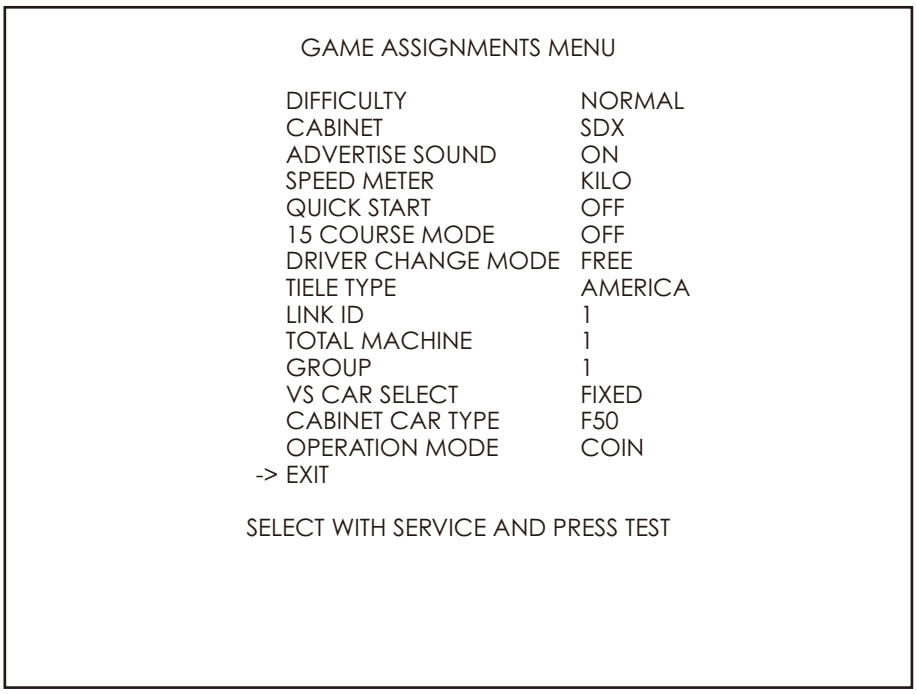


FIG. 6-18e GAME ASSIGNMENTS MENU Screen

[Settings at the time of shipping]

Game Setting Screen Items	1P	2P	3P	4P
CABINET *	SDX	SDX	SDX	SDX
LINK ID #	1	2	3	4
TOTAL MACHINE *	4	4	4	4
GROUP *	1	1	1	1
VS CAR SELECT *	FIXED	FIXED	FIXED	FIXED
CABINET CAR TYPE #	F50	DINO246	360SPIDER	512BB
OPERATION TYPE *	COIN	COIN	COIN	COIN

NOTES:
**: This setting must be the same for all four 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 take down the billboard, and separate the four 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.
- 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.

⚠ WARNING

- 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.

STOP 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.

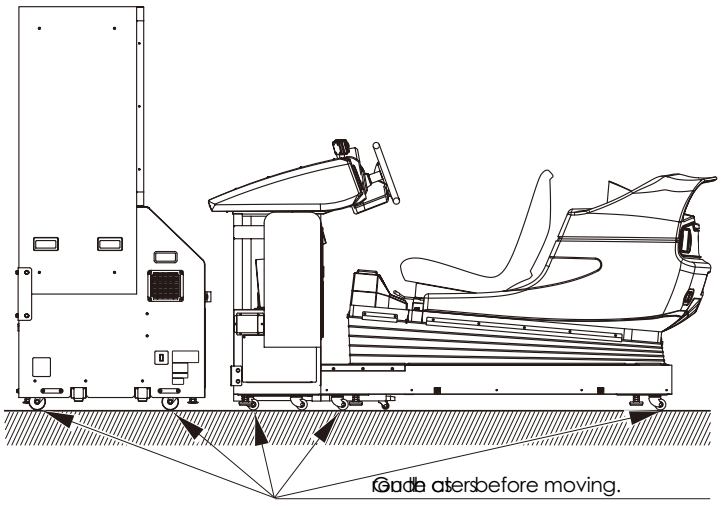


FIG. 7a

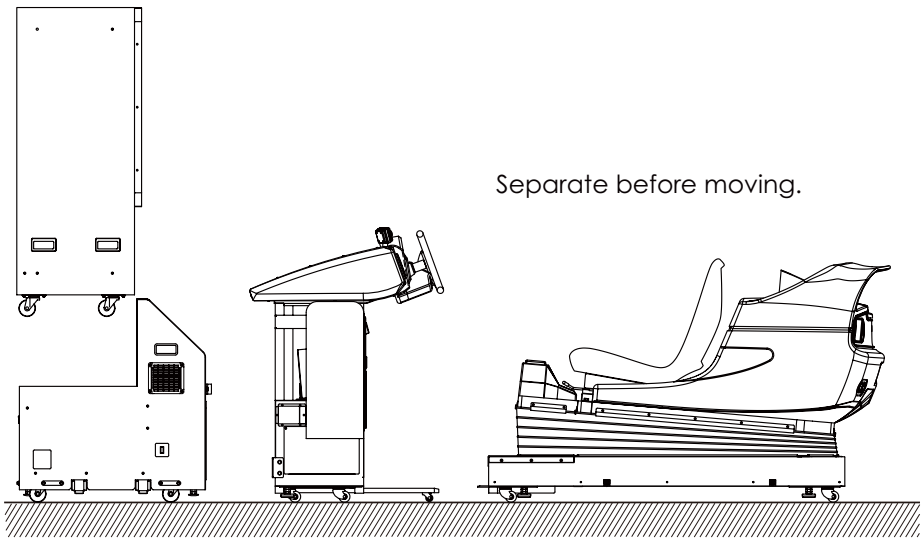


FIG. 7b

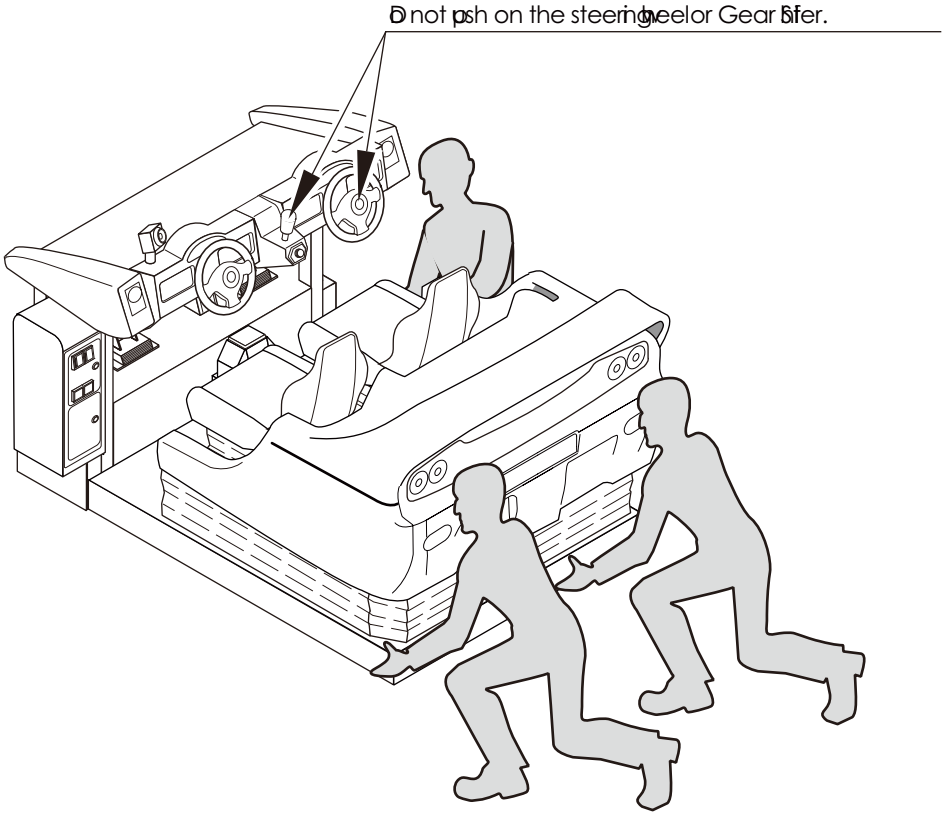


FIG. 7c

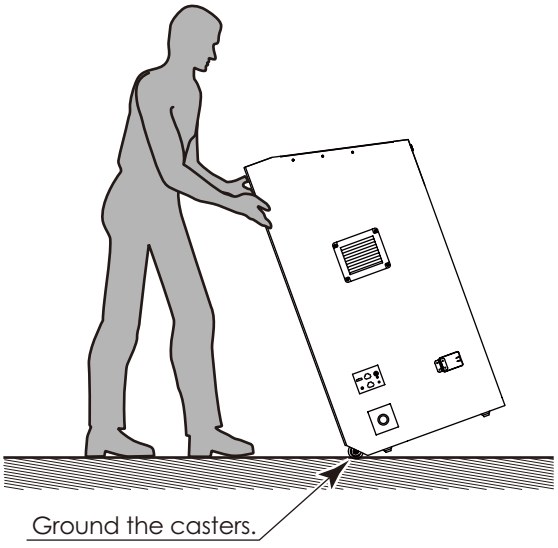


FIG. 7d Moving the control tower

⚠ CAUTION

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

STOP IMPORTANT

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

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.

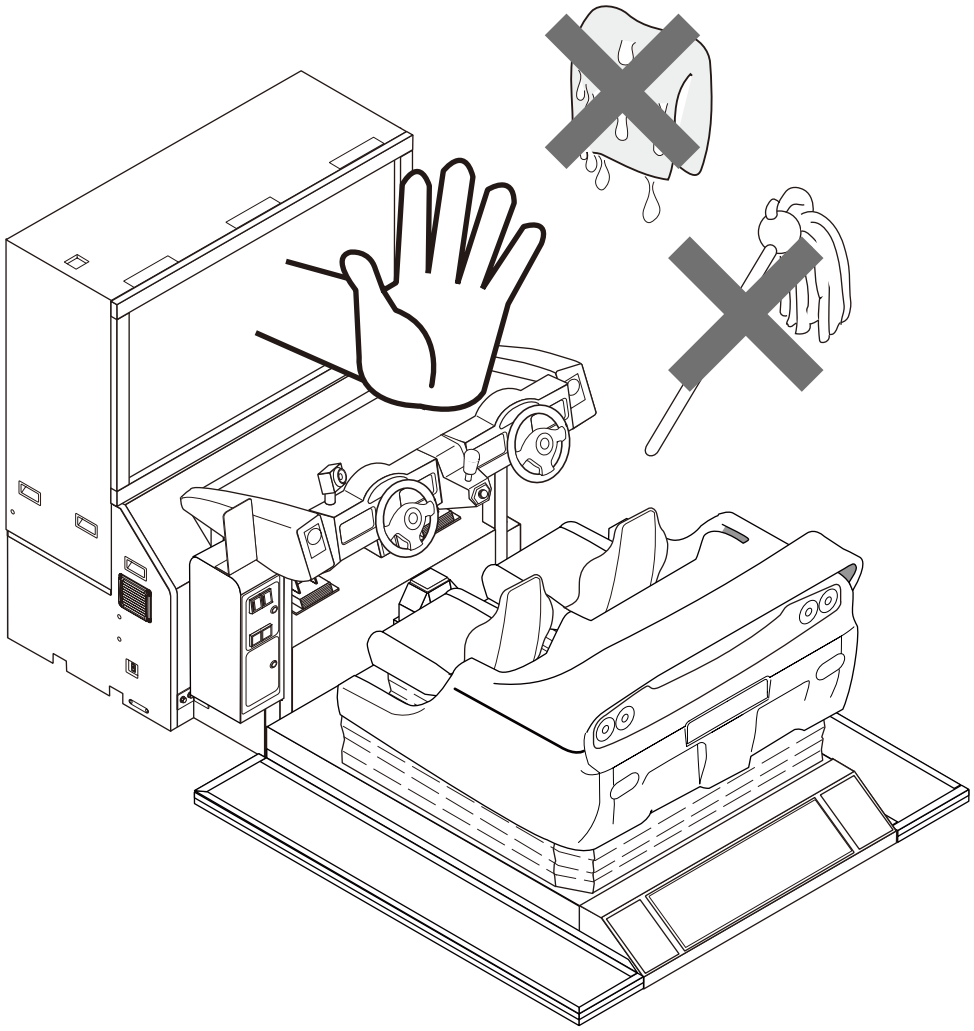


FIG. 8-1 Cleaning the screen

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.

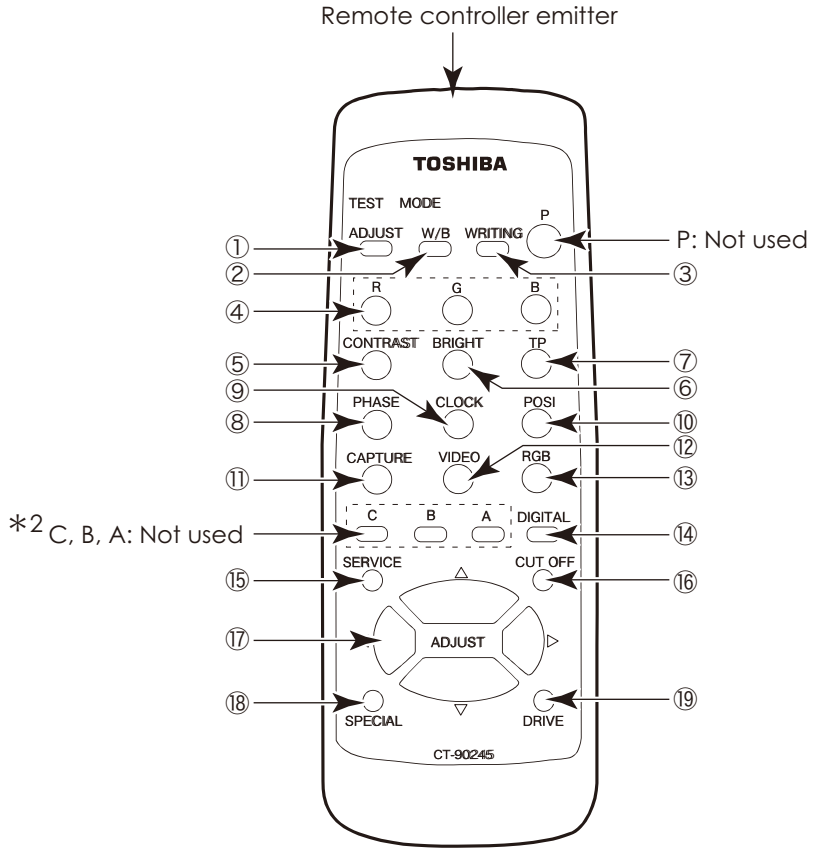


FIG. 8-2a

(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.

Ctn Ash

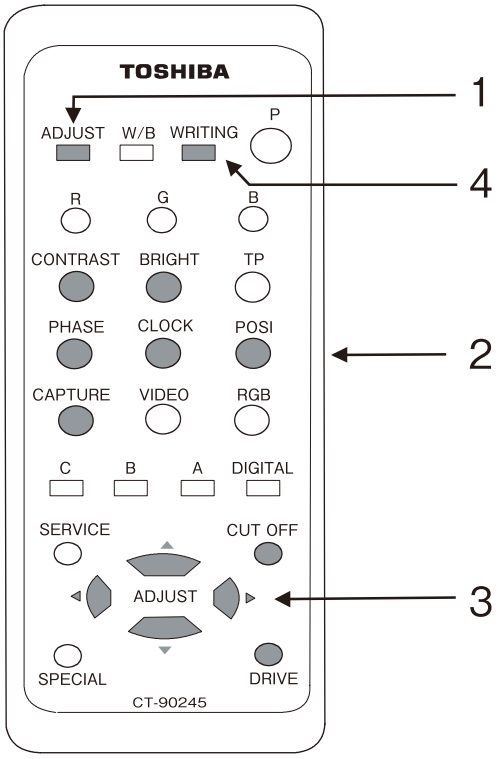
STOP IMPORTANT

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]

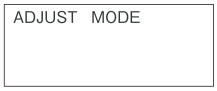
Before performing any adjustments you must first press the ADJUST button and enter Adjust Mode.
If you wish to exit without making any adjustments press the ADJUST button twice to return to Normal Mode.
When you have finished making adjustments press the WRITING button to record the adjusted data.

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.

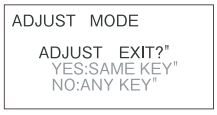


Returning to Normal Mode from Adjust Mode:

Adjust Mode
(ADJUST MODE)



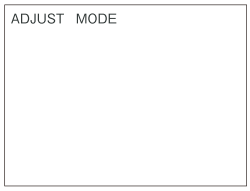
Press the ADJUST button.
The exit menu will appear.



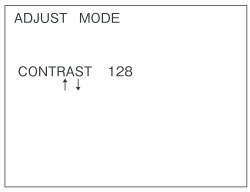
Press the ADJUST button again.

Returns to Normal Mode.

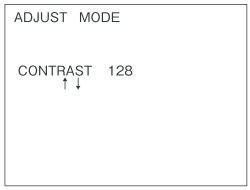
1 Press the ADJUST button.
The projector will enter Adjust Mode and wait for an adjustment category button to be pressed.



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.



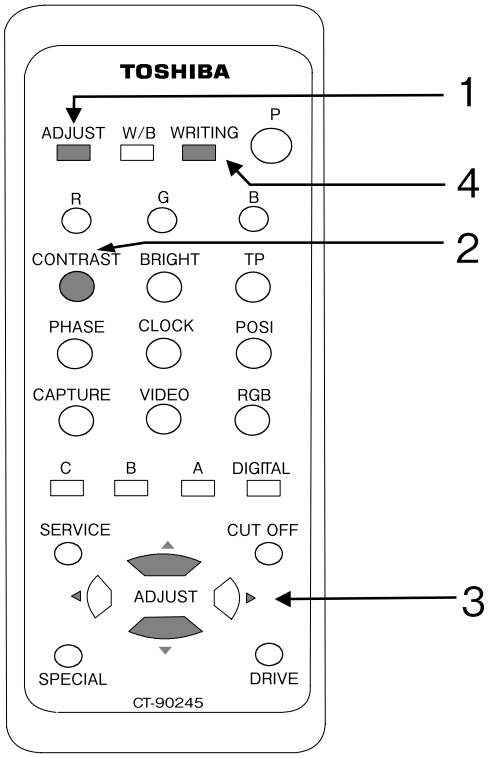
Use the following “Adjusting Contrast” explanation as an example of the main adjustment process.

Adjusting Contrast

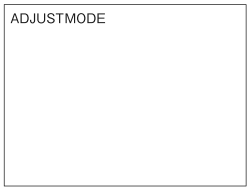
IMPORTANT

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

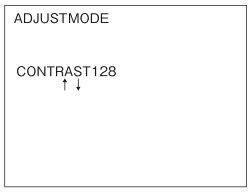
Adjusting the contrast will alter the tones of the displayed image.



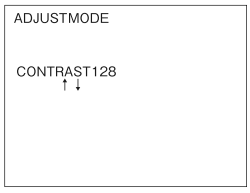
1 Press the ADJUST button.
The projector will enter Adjust Mode and wait for an adjustment category button to be pressed.



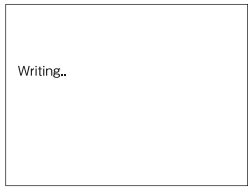
2 Press the CONTRAST button.
The projector will enter the Contrast Adjust Mode.



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. (See 3-4.)

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

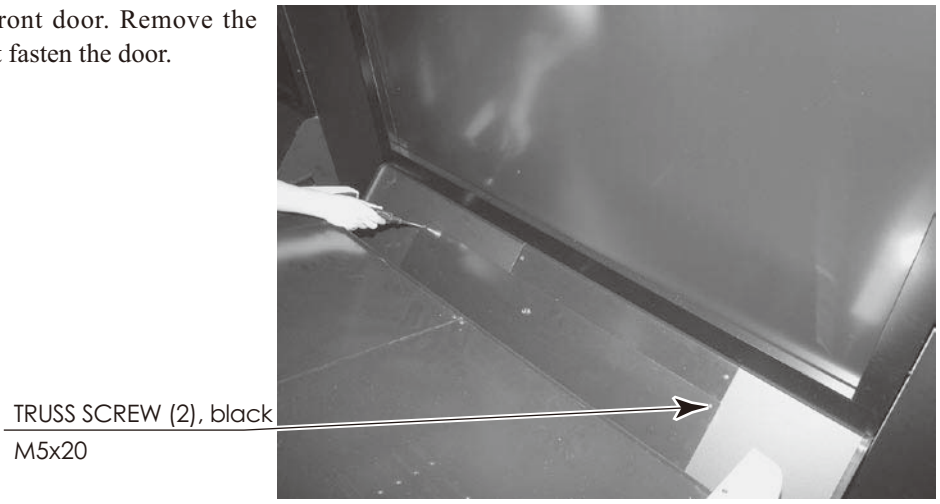


FIG. 8-3a

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

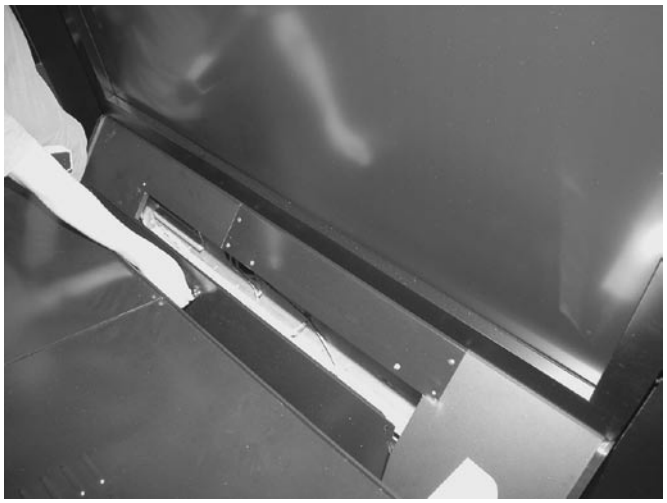


FIG. 8-3b

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

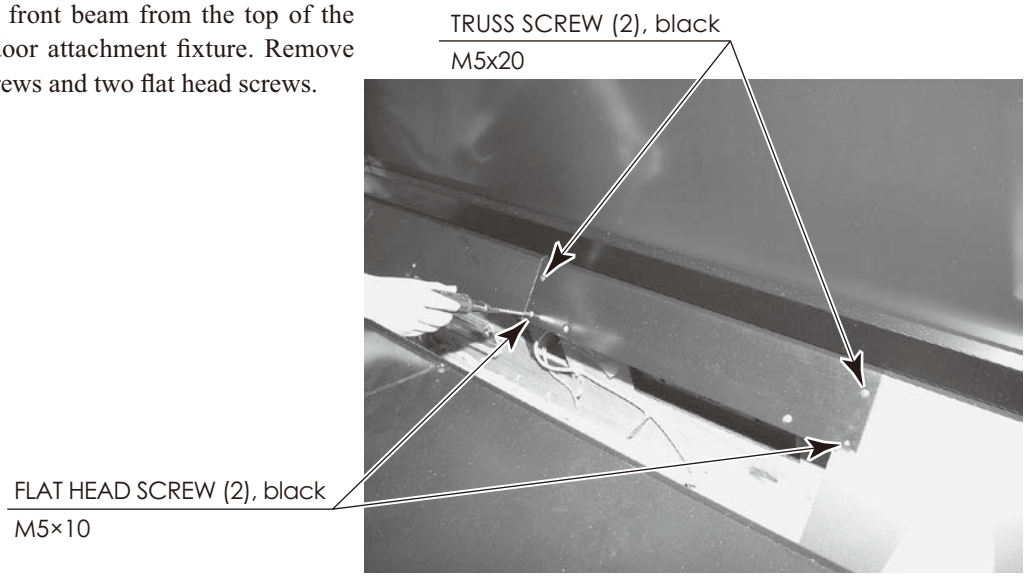


FIG. 8-3c

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

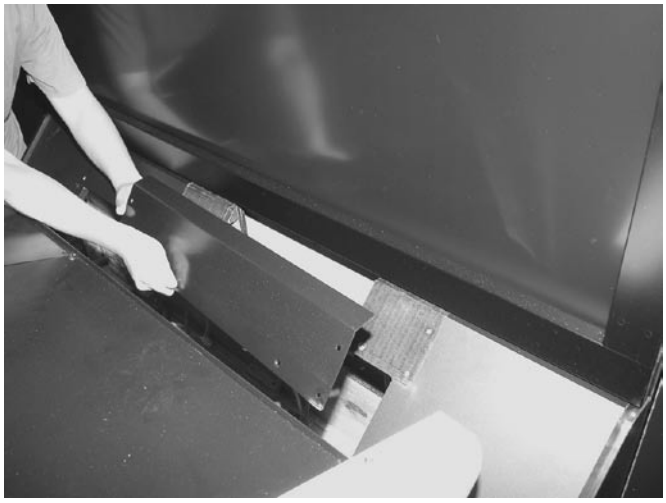


FIG. 8-3d

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.

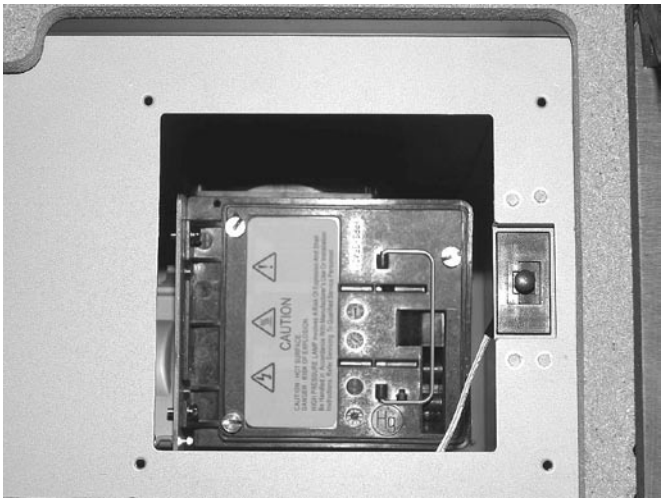


FIG. 8-3h

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.

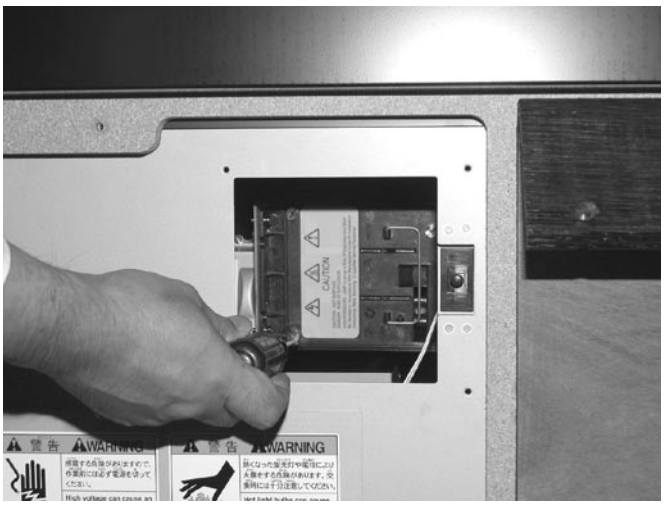


FIG. 8-3i

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

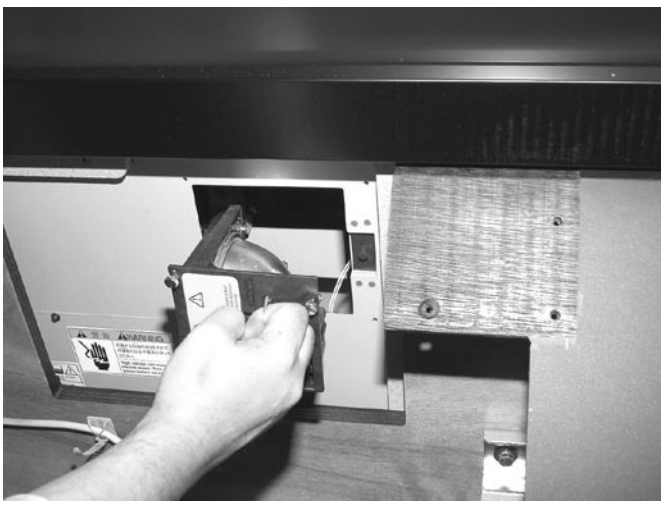


FIG. 8-3j

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.

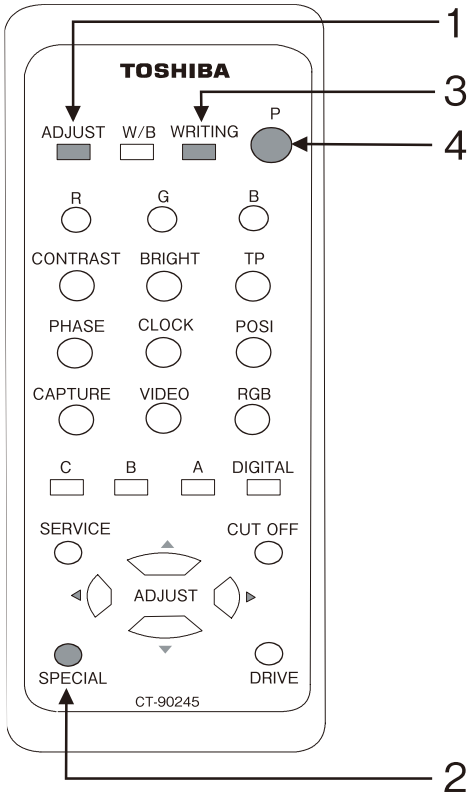
12 Attach the front beam.

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

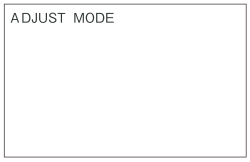
IMPORTANT

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

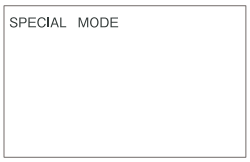
Displays the amount of time the lamp has been used for.



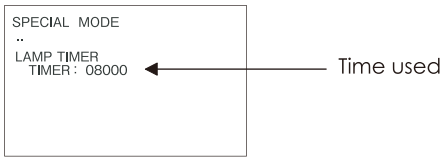
1 Press the ADJUST button.
The projector will enter Adjust Mode and wait for an adjustment category button to be pressed.



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



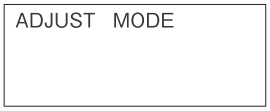
3 Press the WRITING button.
The amount of time the current lamp has been used for will be displayed.



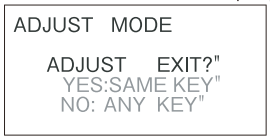
Return to Normal Mode after checking the lamp timer

Press the ADJUST button. ⇨ Press the ADJUST button. ⇨ Press the ADJUST button again.

The projector will enter Adjust Mode.

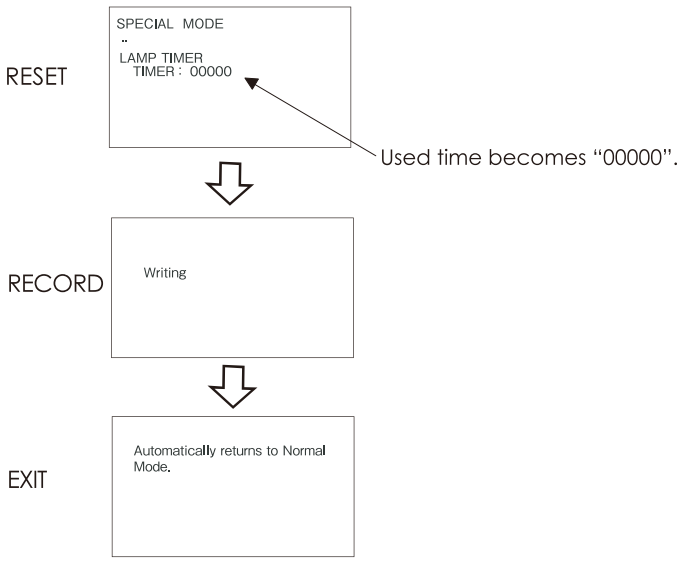


The exit menu will be displayed.



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 LCD MONITOR

⚠WARNING

- **Do not use water as a cleaning agent when wiping the LCD monitor surface. Doing so could result in electric shocks or short circuits.**
- **Use a stepladder or step when cleaning the LCD monitor surface. Do not climb on the cabinet. It is a sloped surface, and you could fall or the product could topple over.**

STOP IMPORTANT

- **Since the LCD monitor is adjusted prior to leaving the factory, refrain from adjusting its settings unnecessarily. Misadjusting the settings can make repair difficult.**
- **Alcohol (ethanol) is the recommended cleaning agent when wiping the monitor surface of dirt. Apply a small amount to a soft cloth, and lightly wipe the monitor surface. Do not use other solvents such as detergents or thinners. These may damage the monitor surface.**
- **Do not scrub or scratch the surface with hard objects such as brushes or abrasive pads.**

9-1 CLEANING THE MONITOR SURFACE

Clean the LCD monitor surface once a week. Use a soft, dry cloth to wipe the monitor of dust that has stuck to its surface. Be careful not to damage the monitor surface.

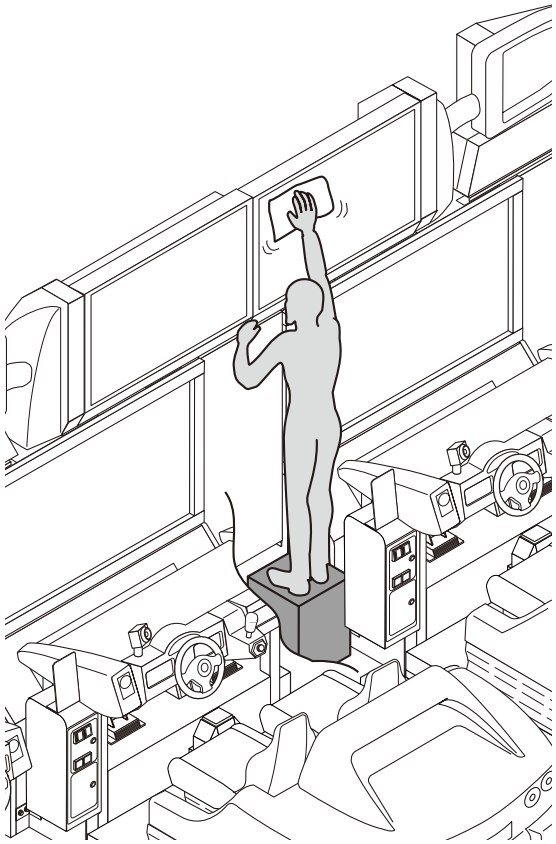
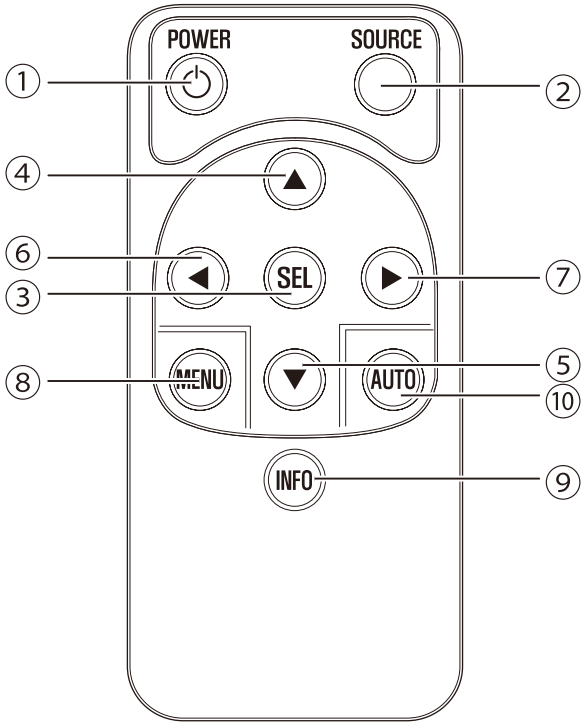


FIG. 9-1



① POWER
② SOURCE
③ SEL
④ ▲: UP
⑤ ▼: DOWN
⑥ ◀: LEFT
⑦ ▶: RIGHT
⑧ MENU
⑨ INFO
⑩ AUTO

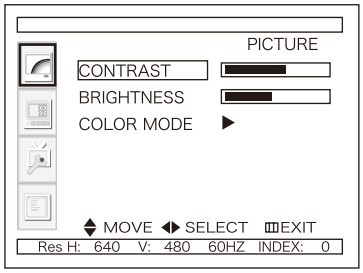
Image Adjust

The image quality type can be chosen based on your preferences. Also, the image quality settings can be manually adjusted to meet your preferences.

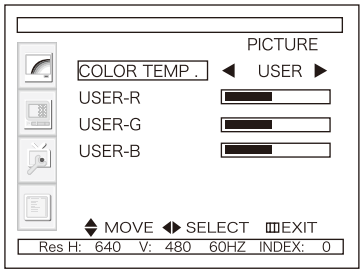
1 Press the MENU button.

2 Use the UP or DOWN button to select PICTURE.
Press the SELECT or AUTO button.

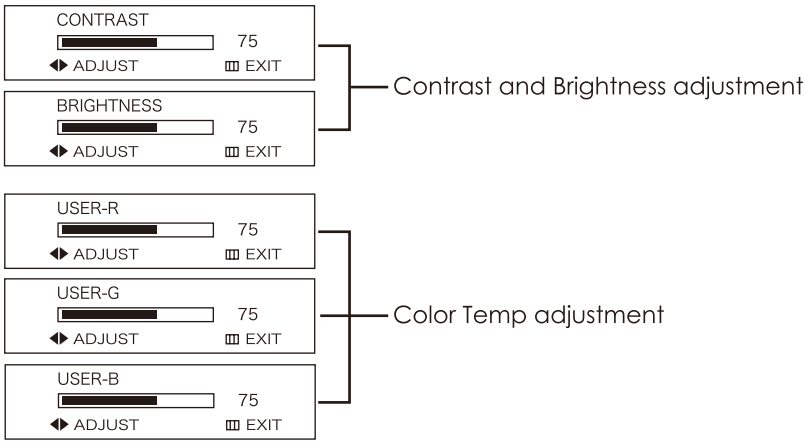
3 Repeatedly press the SELECT or AUTO button to choose your preferred color mode.
The following color modes are available:
[USER - NORMAL - WARM - COOL - SRGB]



4 Use the UP or DOWN button to select an option (Contrast, Brightness, Color Temp) for adjustment.
Press the SELECT or AUTO button.
- A level bar will be displayed.
- Adjusting the Contrast, Brightness, or Color Temp settings on the Picture Menu will automatically switch the image quality standard to USER.



5 Use the AUTO button (◄) or SELECT button (►) to adjust the settings to your preference.



6 After the necessary adjustments have been made, press the MENU button to return to the previous menu.

10 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.

10-1 VOLUME ADJUSTMENT AND REPLACEMENT

Adjustment

1 Turn off the power switch of the cabinet that requires maintenance. (See 3-4)

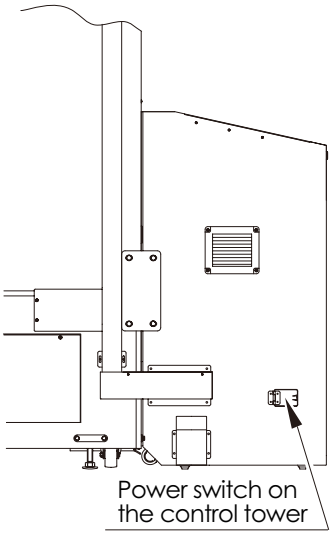


FIG. 10-1a

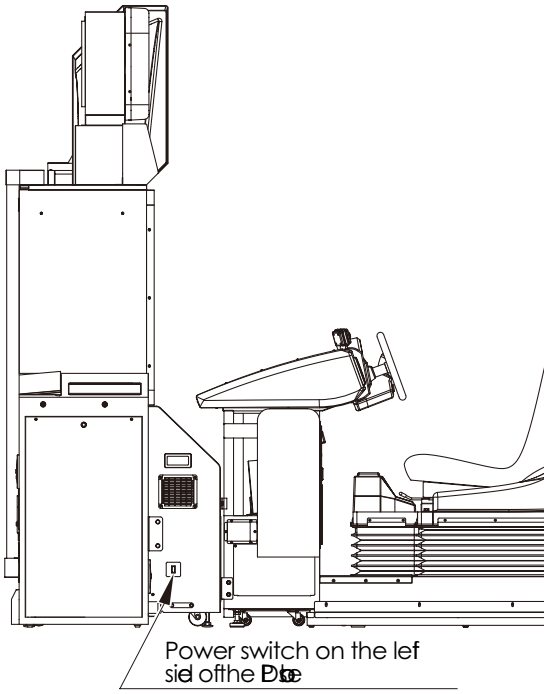


FIG. 10-1b

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.

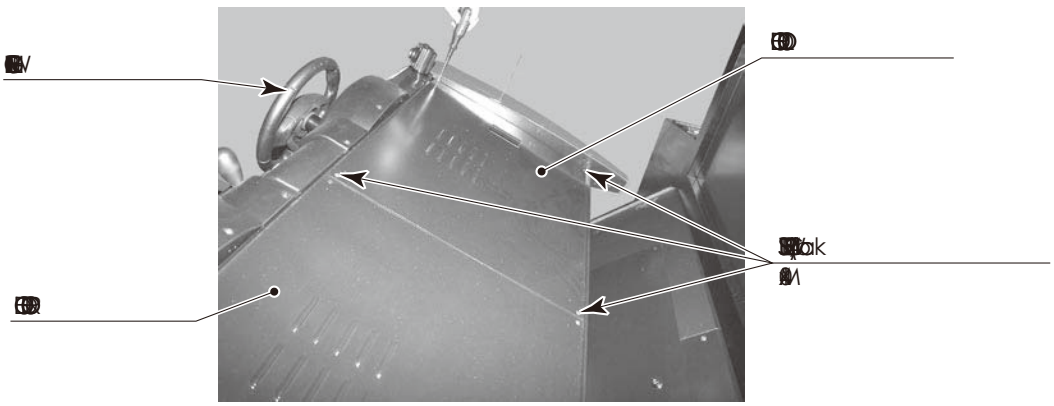


FIG. 10-1c

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. 10-1d

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.)

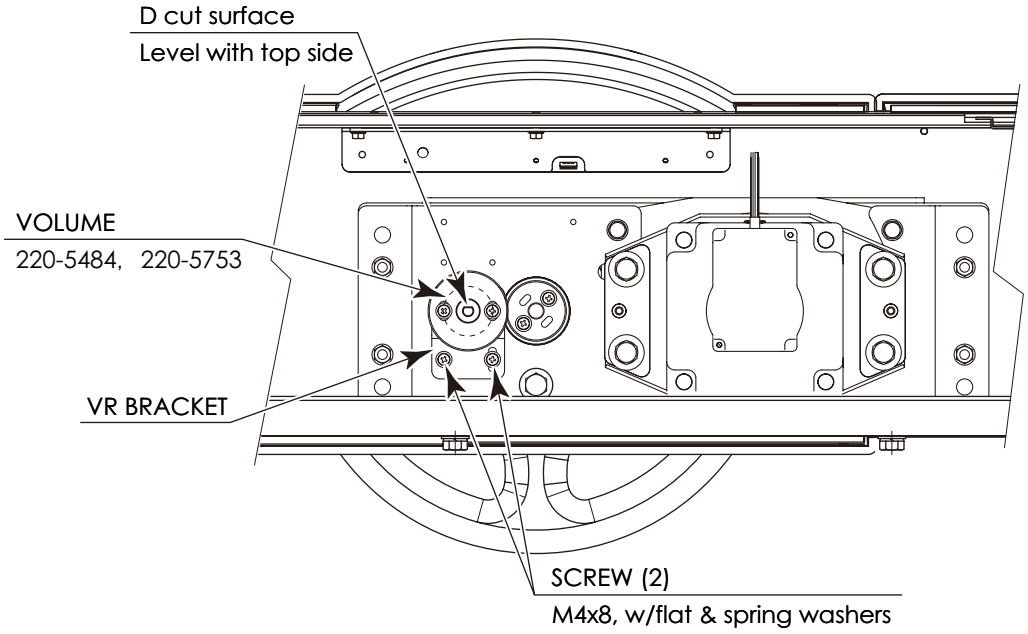


FIG. 10-1e STEERING WHEEL MECHANISM VOLUME

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

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.

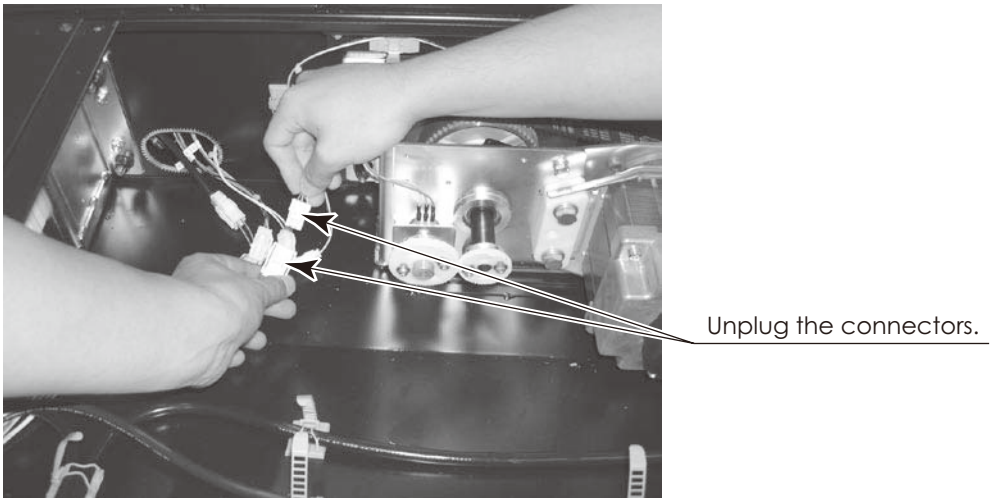


FIG. 10-1f

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. 10-1e.)

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.)

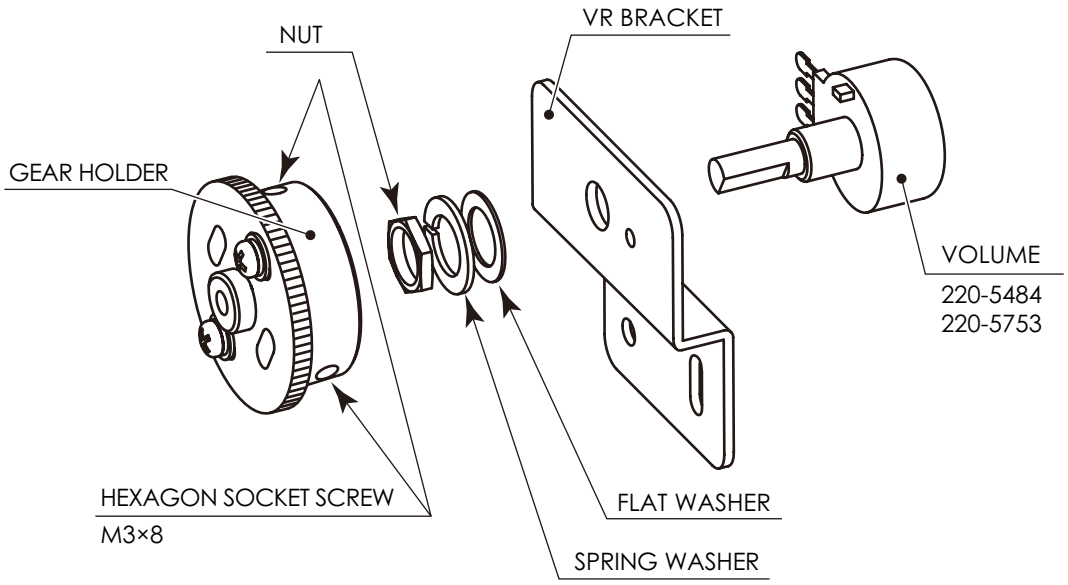


FIG. 10-1g

IMPORTANT

- **Be sure to use the designated grease. Using undesignated 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.

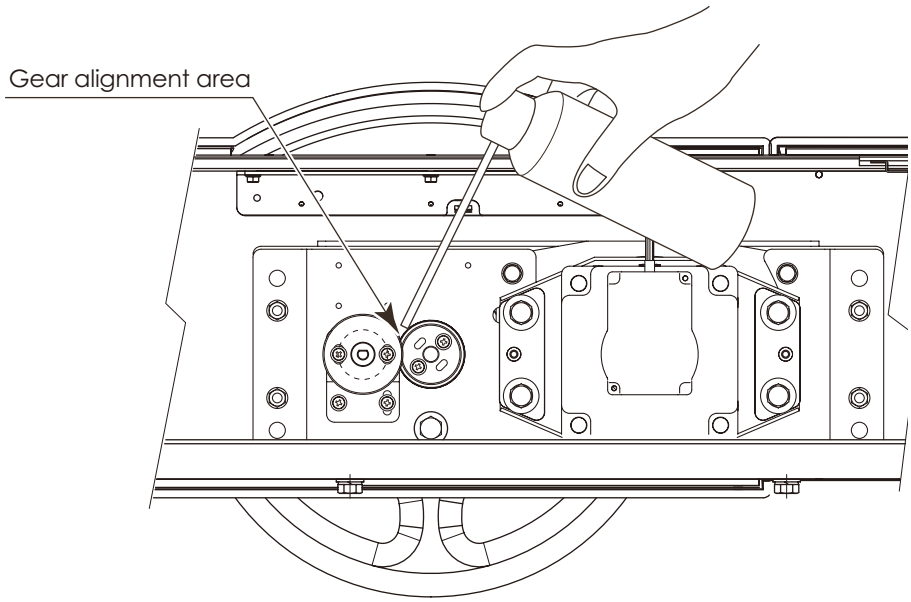


FIG. 10-2

11 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.**

11-1 GEAR SHIFTER REMOVAL

1 Turn off the power switch.

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

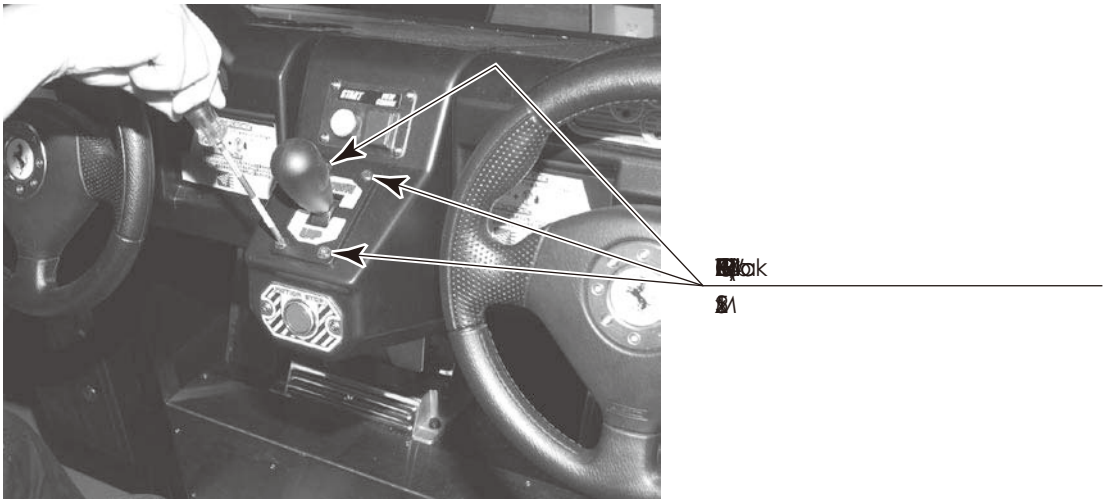


FIG. 11-1a

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

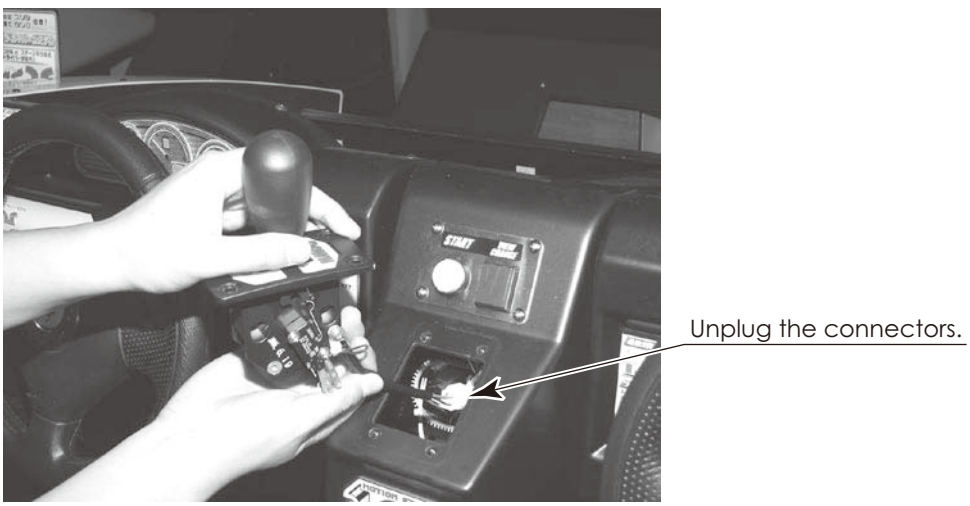


FIG. 11-1b

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.)

11-2 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.)

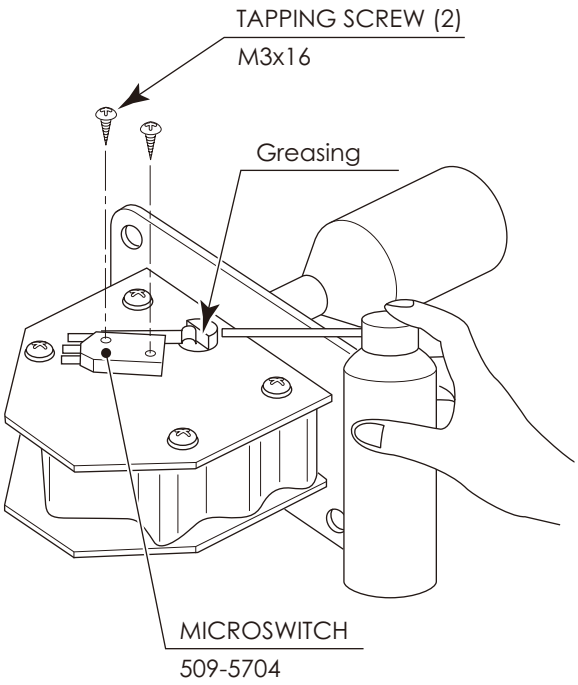


FIG. 11-2

11-3 GREASING

Once every three months, apply grease to the designated point specified. (See FIG. 11-2)
Use NOK KLUBER L60 or GREASE MATE (PART No. 090-0066) as spray grease.

12 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.

12-1 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.

1 Remove two truss screws, and remove the front cover of the accelerator and brake. (FIG. 12-1a)

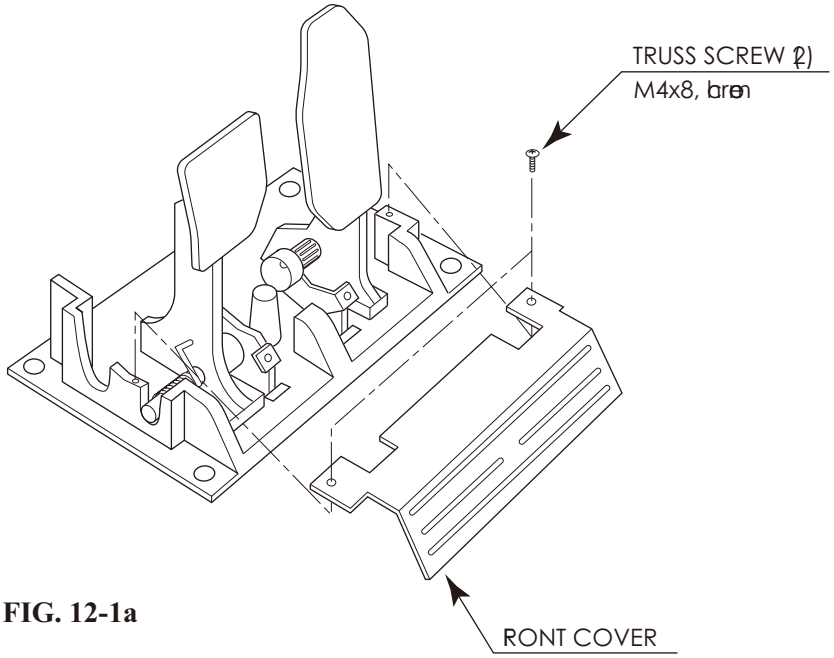


FIG. 12-1a

2 Loosen the screw that secures the potentiobase, and adjust the volume values by moving the base. (FIG. 12-1b)

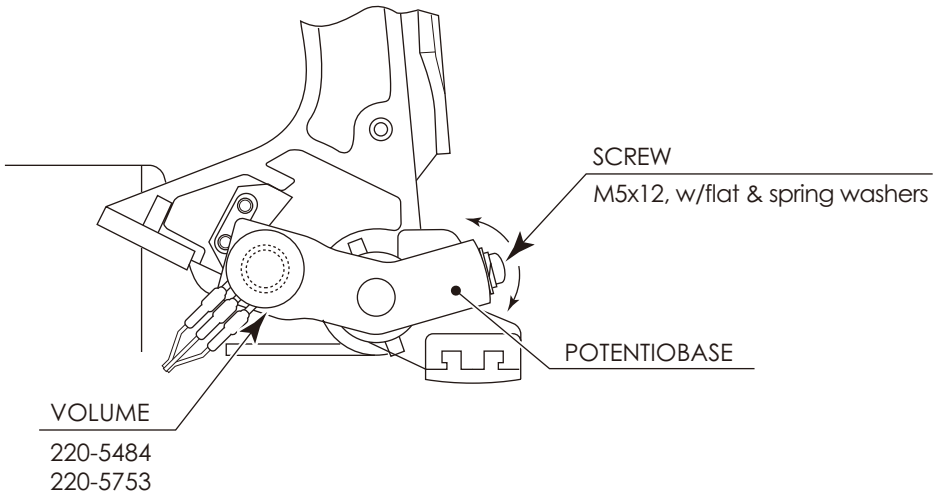


FIG. 12-1b

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.

1 Turn off the power.

2 Remove two screws, and remove the potentiocover. (FIG. 12-1c)

3 Undo the connector of the volume to be replaced.

4 Remove the screw that fastens the potentiobase. (FIG. 12-1b)

5 With the volume still attached, remove the potentiobase. (FIG. 12-1c)

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.)

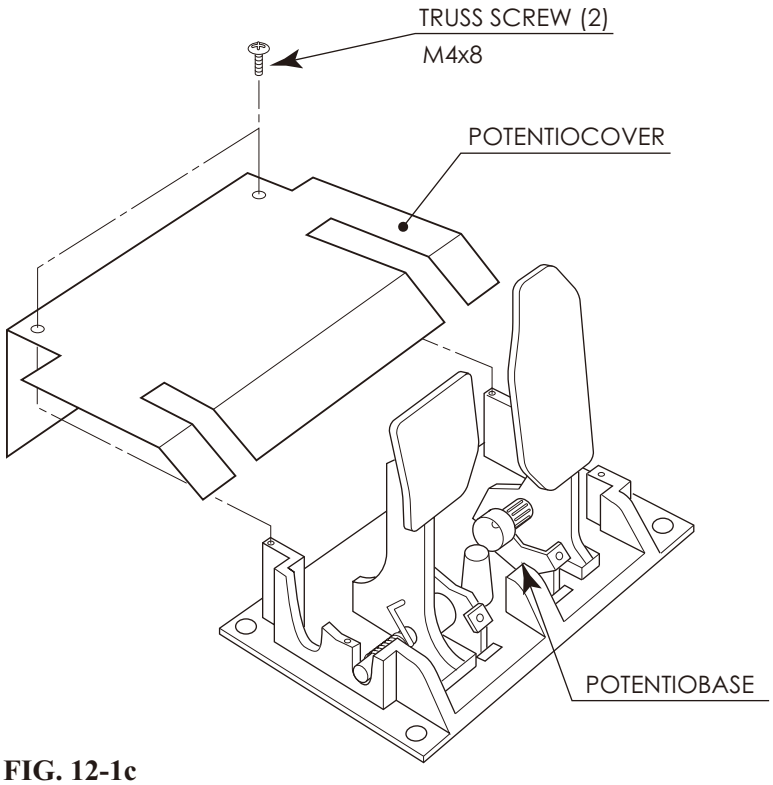


FIG. 12-1c

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

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.

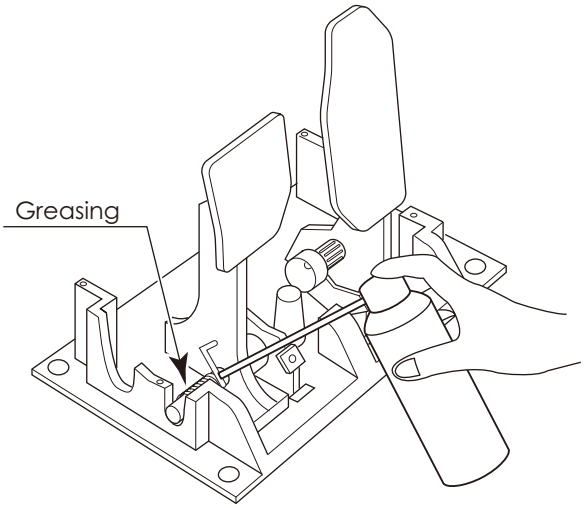


FIG. 12-2

13 COIN SELECTOR

If a Coin Jams

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.).

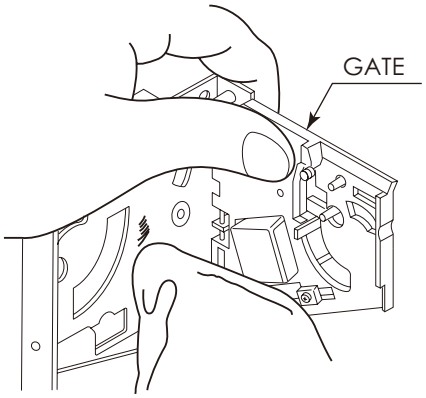


FIG. 13a

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.

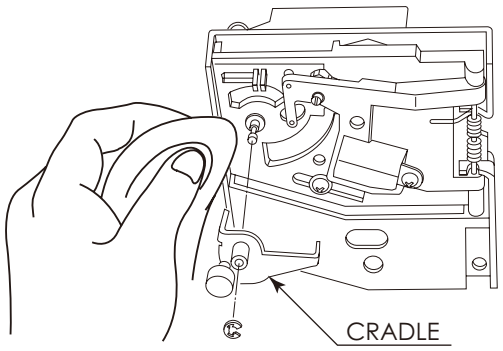


FIG. 13b

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 Selector 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?

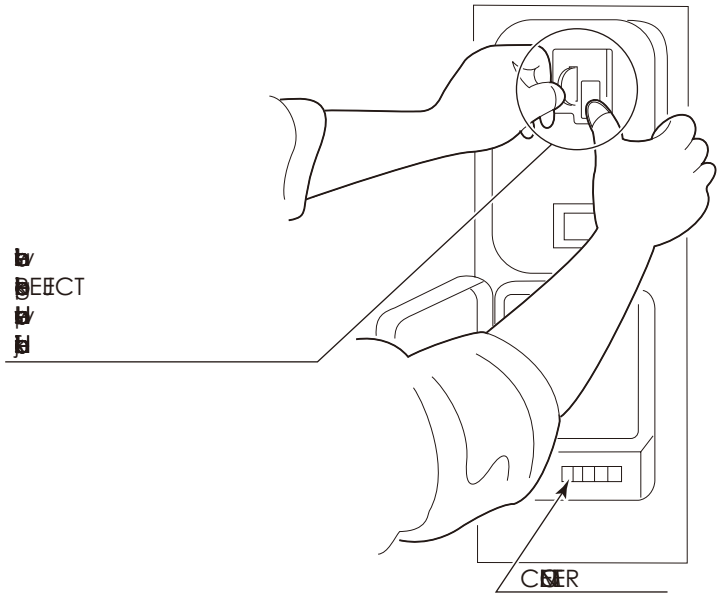


FIG. 13c

14 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.**

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

14-1 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 back side of the control tower.

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

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

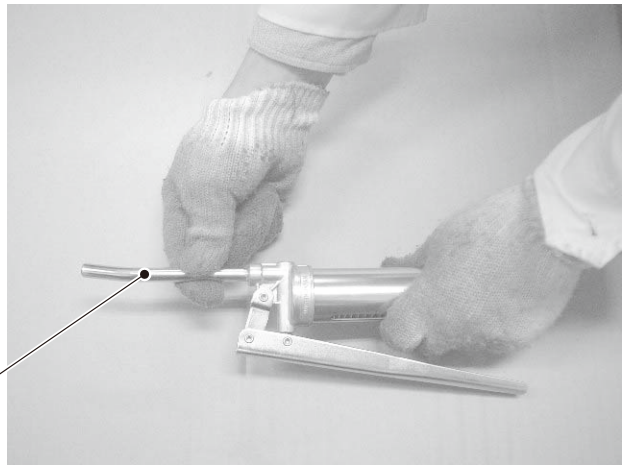


FIG. 14-1a

4 Unscrew the grease tube of the included grease gun, and remove it from the main part.

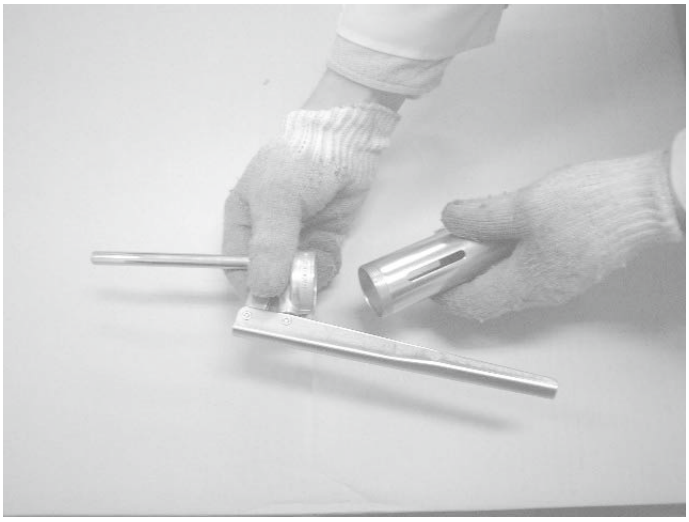


FIG. 14-1b

5 Remove the cap of the included grease cartridge.

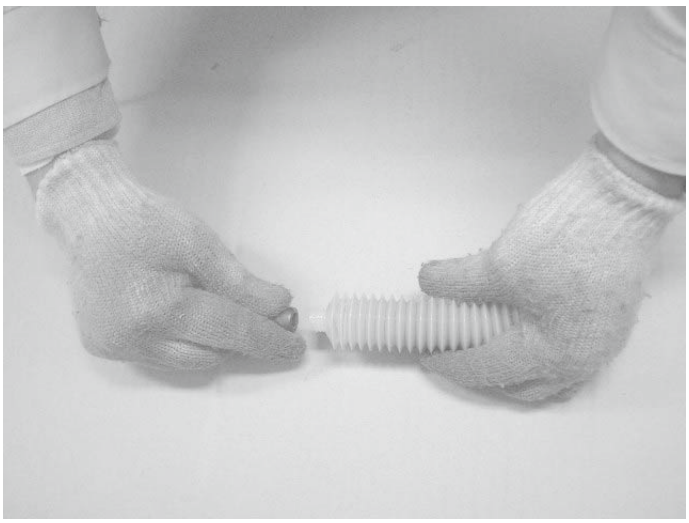


FIG. 14-1c

6 Screw the grease cartridge onto the grease gun.



FIG. 14-1d

7 Reattach the grease tube to its original position on the grease gun main part.

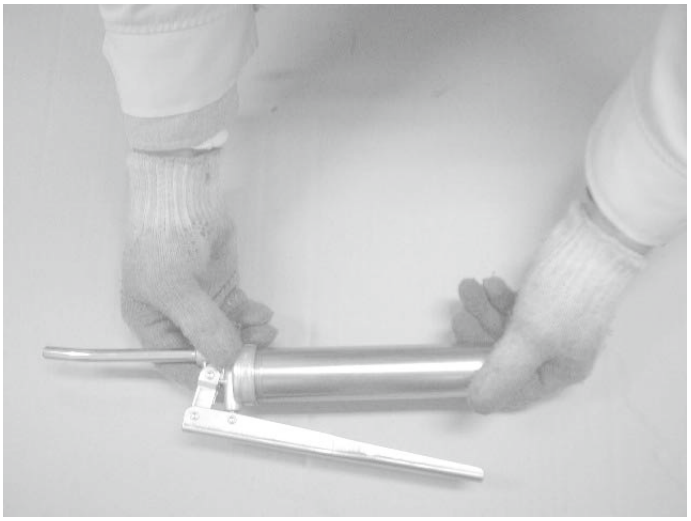


FIG. 14-1e

8 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.

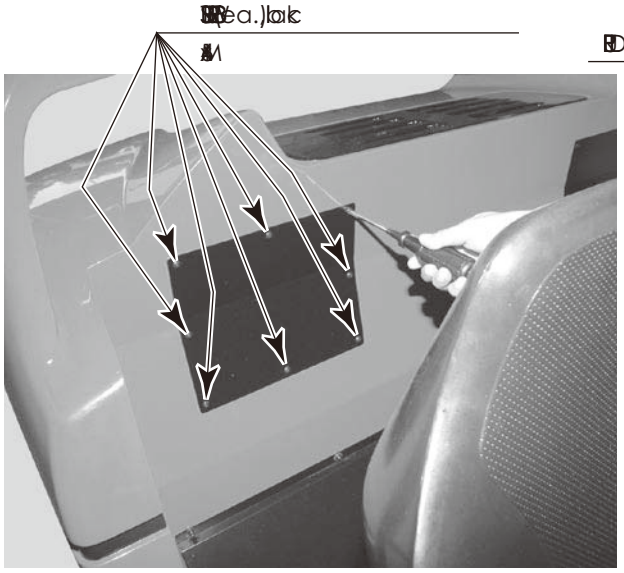


FIG. 14-1f

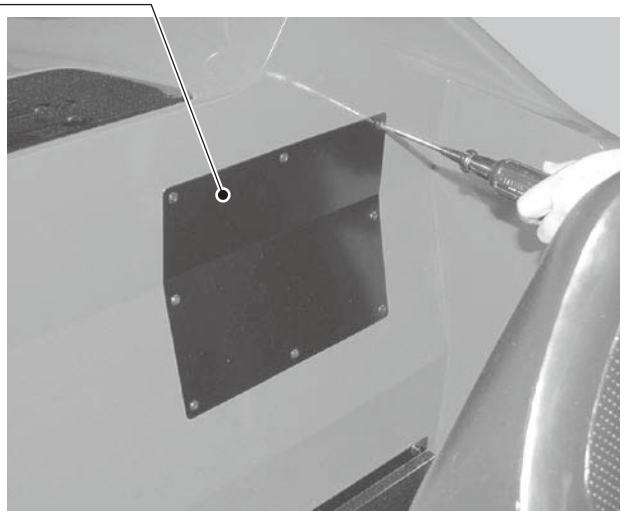


FIG. 14-1g

9 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.

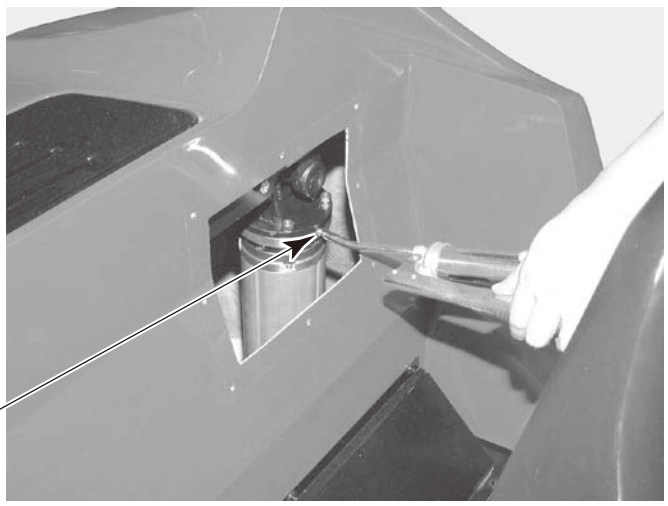


FIG. 14-1h

10 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.

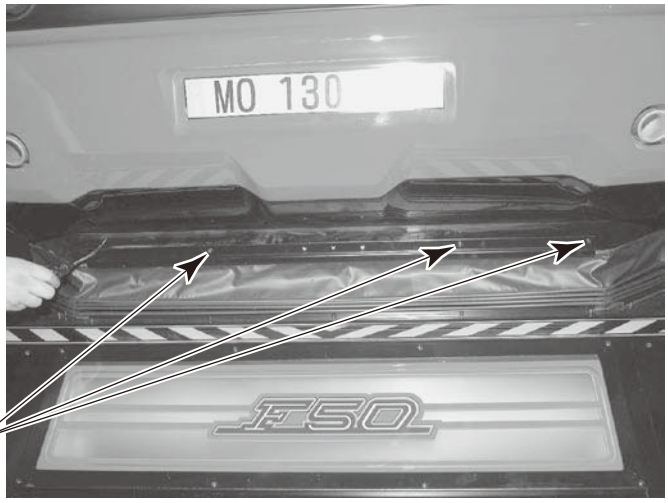


FIG. 14-1i

11 Remove the rear holder.

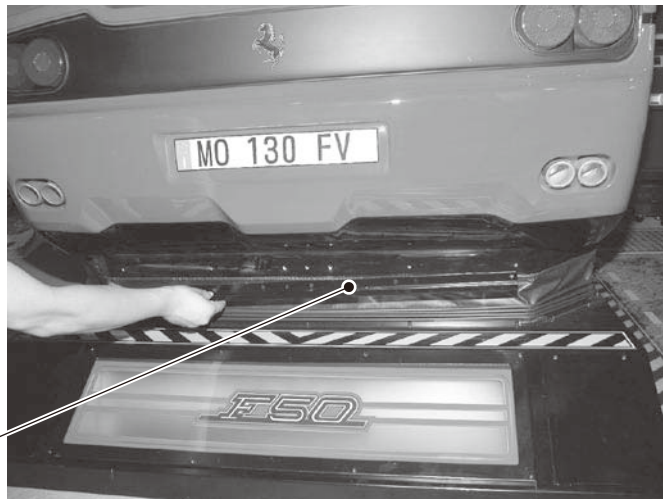


FIG. 14-1j

12 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.

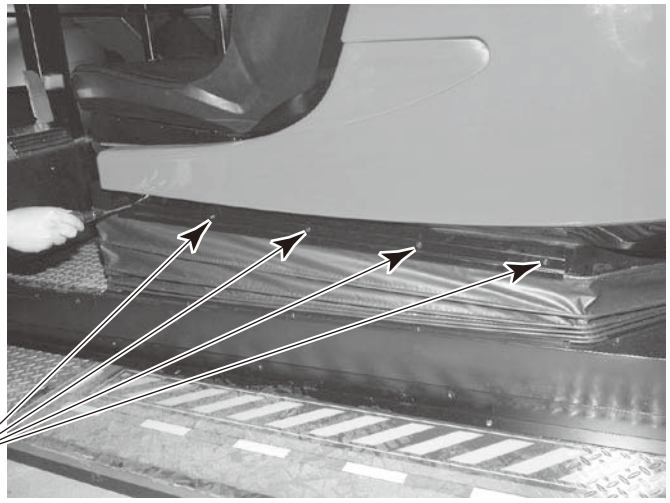


FIG. 14-1k

13 Remove the side holders from each side.

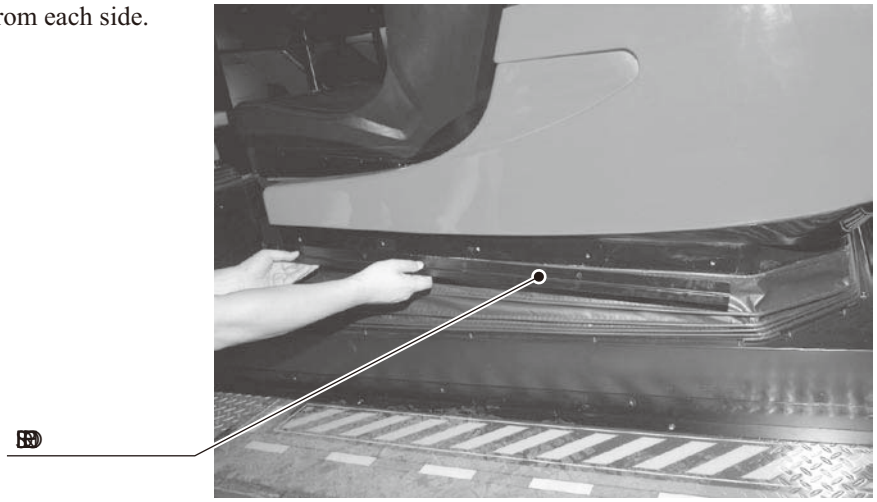


FIG. 14-1l

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

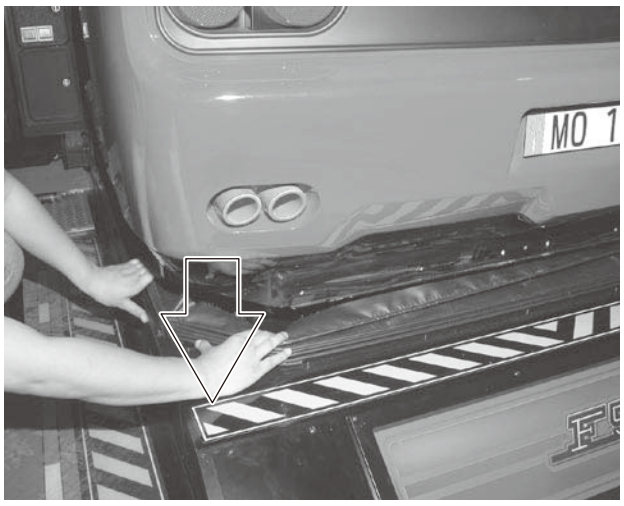


FIG. 14-1m

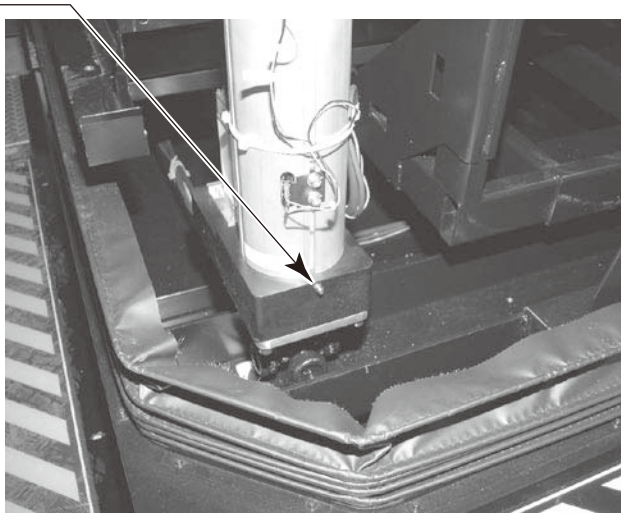


FIG. 14-1n

15 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.

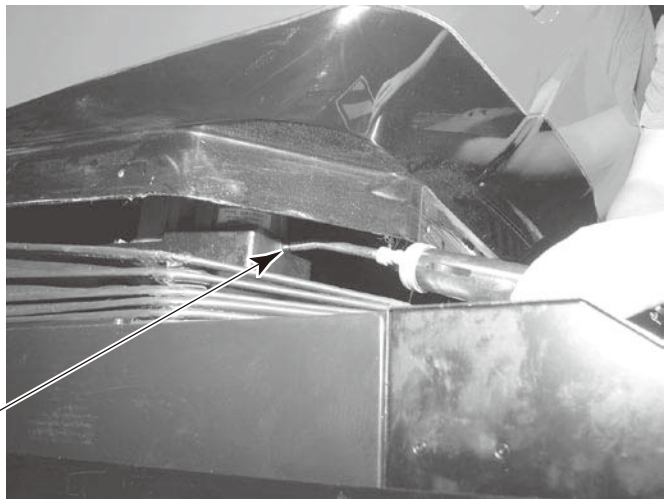


FIG. 14-1o

⚠ 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 14-1.)

3 Remove the lower cover on the lower side at the rear of the seat. Remove ten truss screws. The screws use flat washers.

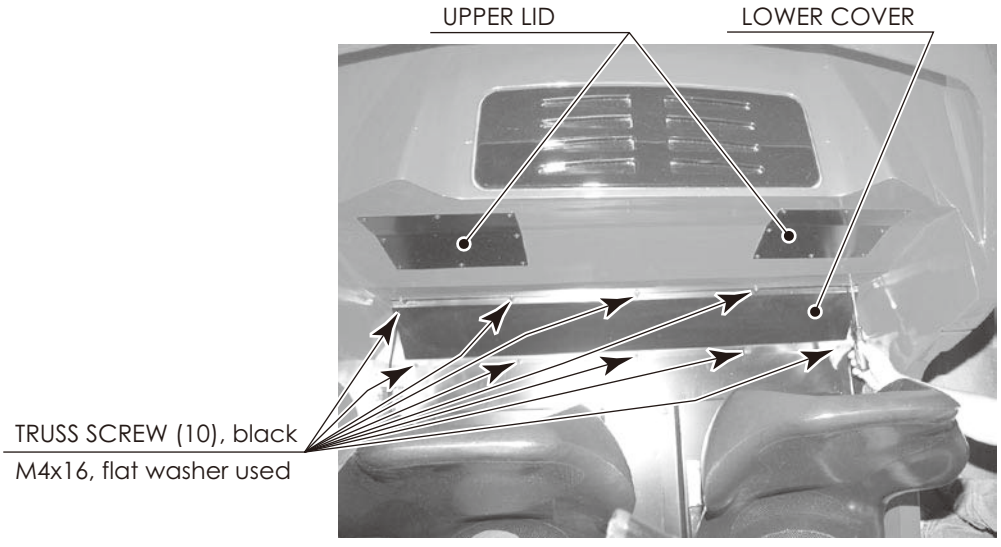


FIG. 14-2a

4 Remove the two upper lids from the rear of the seat. (See 14-1.)

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.

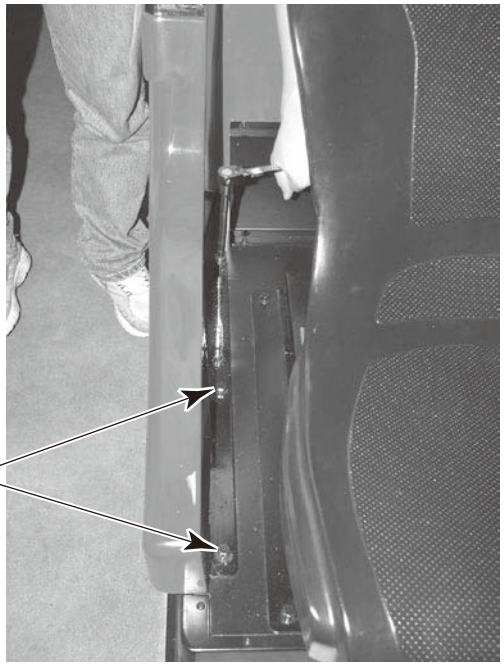


FIG. 14-2b

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

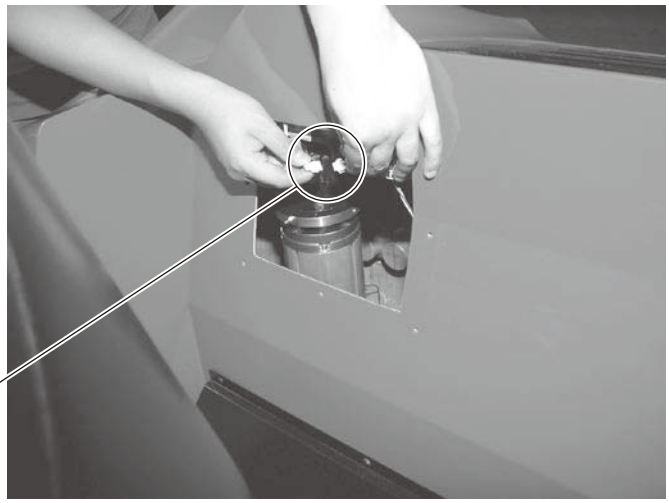


FIG. 14-2c

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.

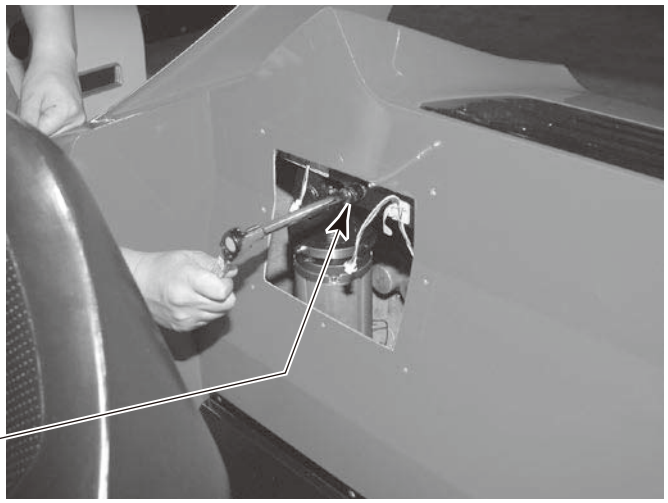


FIG. 14-2d

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

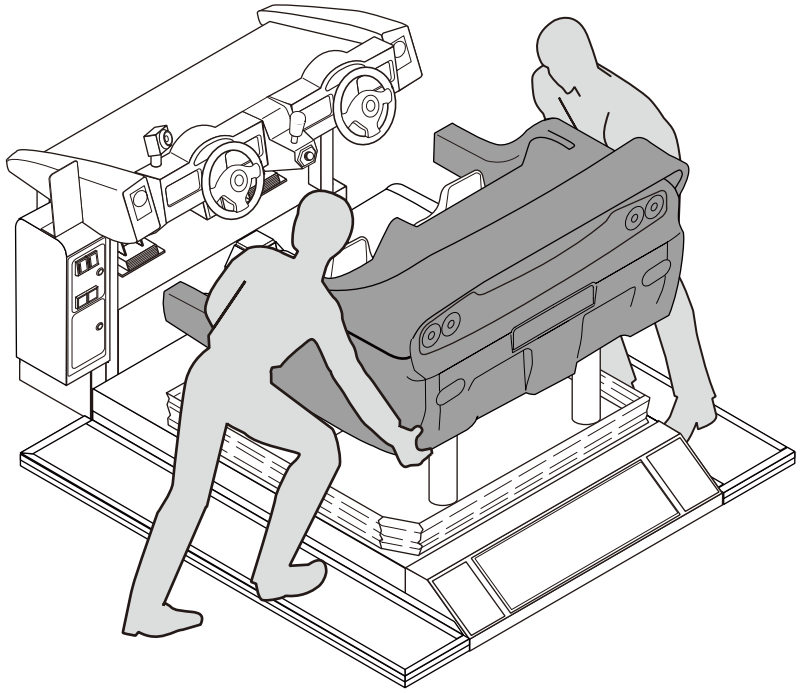


FIG. 14-2e

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

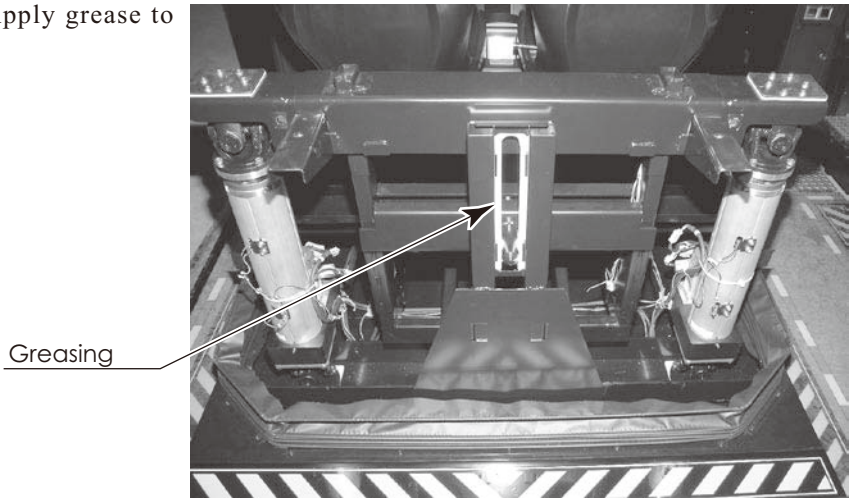


FIG. 14-2f

10 Attach the H-shaped nozzle on the included grease gun, and install the special grease cartridge. (See 14-1.)

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.

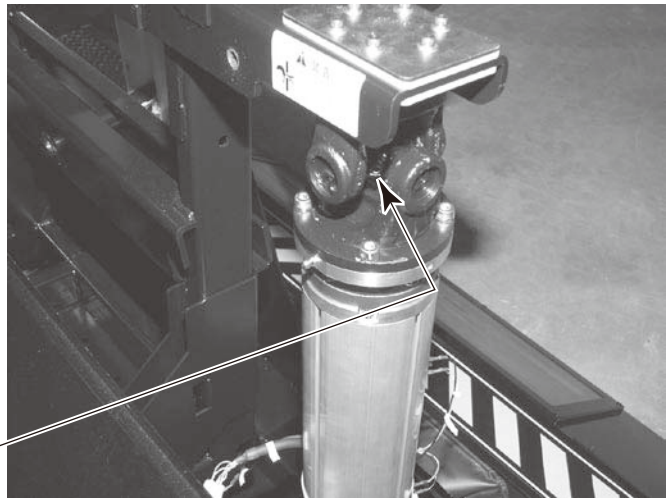


FIG. 14-2g



FIG. 14-2h



FIG. 14-2i

15 FLUORESCENT LIGHT AND LAMP 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. (See 3-4.)

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

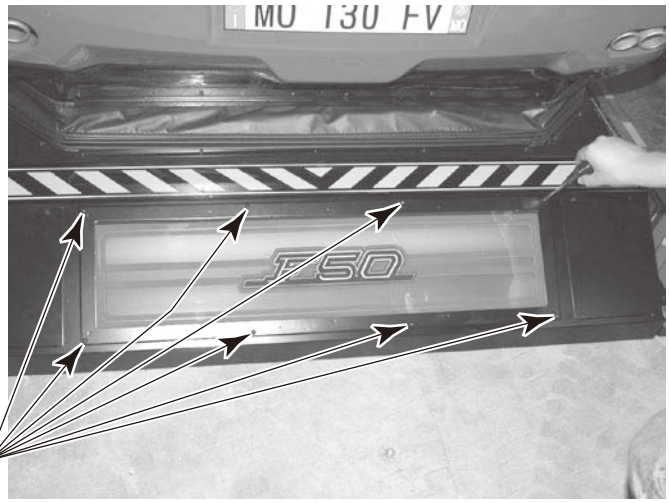


FIG. 15a

3 Remove the rear lamp cover.



FIG. 15b

4 Replace the fluorescent light and glow lamp.

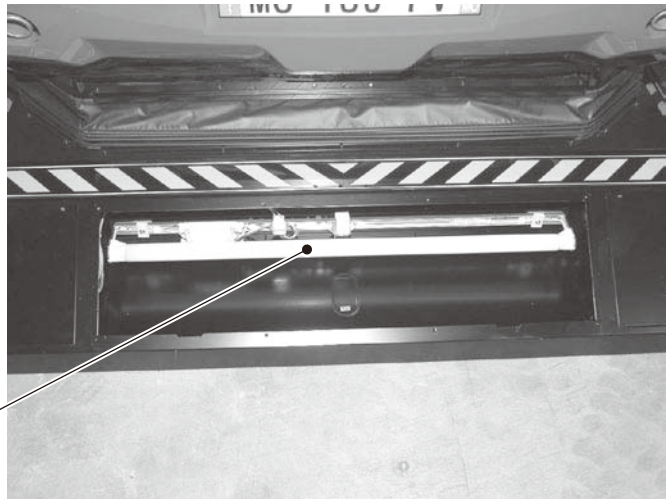


FIG. 15c

5 Attach the rear lamp cover.

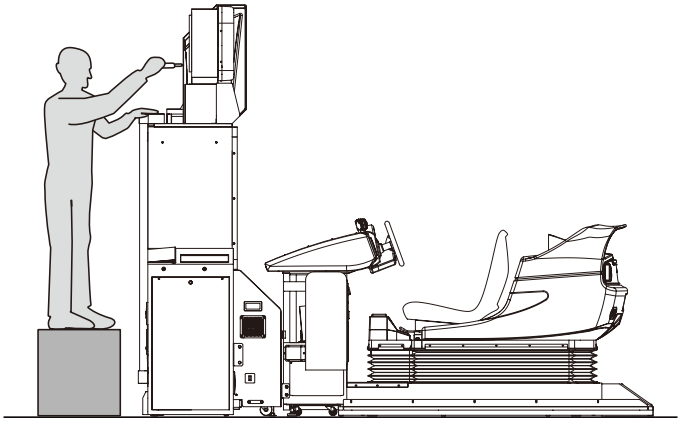


FIG. 15d Using a step or stepladder

1 Turn the power off for the control tower. (See 3-4.)

2 The rear of the speaker box has a left door and a right door. Open the door of the lamp that will be replaced.
Remove the two screws that fasten the door. The screws have flat and spring washers attached.

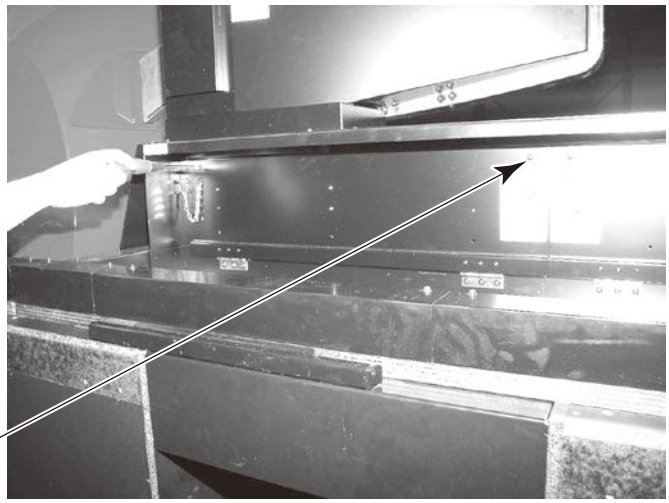


FIG. 15e

3 Open the door slowly. Since it is attached to a chain, the door will stop when roughly halfway ajar.

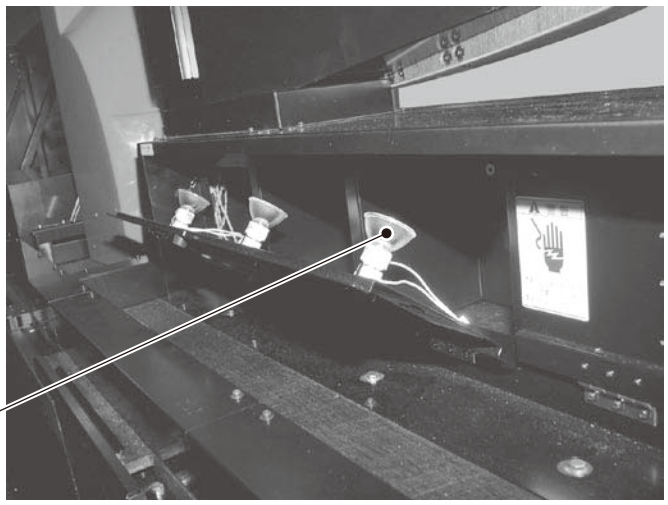


FIG. 15f

4 Replace the lamp. Be careful not to touch the glass surface of the front of the lamp. It is possible that it will burn out if oils from fingers are present.

5 Close the door, and fasten it with two screws.

1 Turn the power off for the control tower. (See 3-4.)

2 Remove the lid from the back of the mirror box. First remove the screw on the upper part. The screw has a flat and spring washer attached.

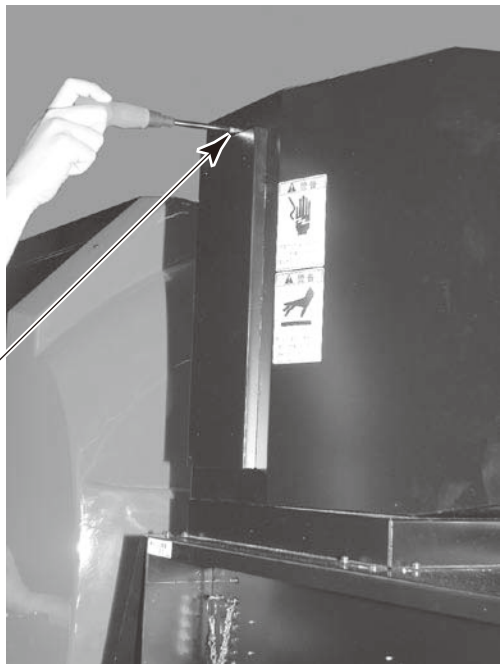


FIG. 15g

3 Slide the lid upwards, and remove it by pulling it back towards you.

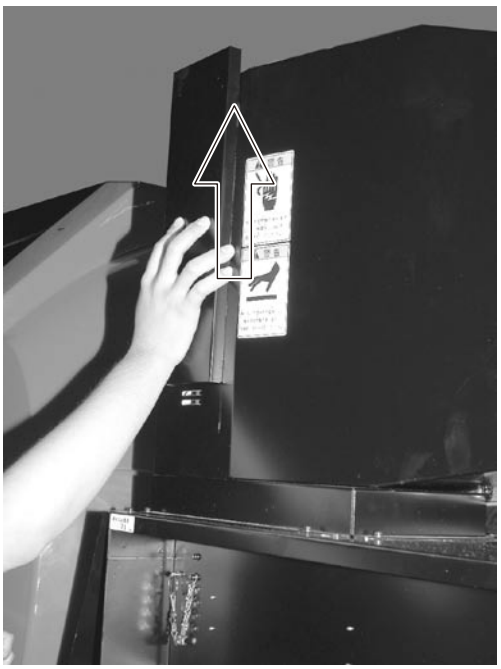


FIG. 15h



FIG. 15i

4 Replace the lamp. Be careful not to touch the glass surface of the front of the lamp. It is possible that it will burn out if oils from fingers are present.

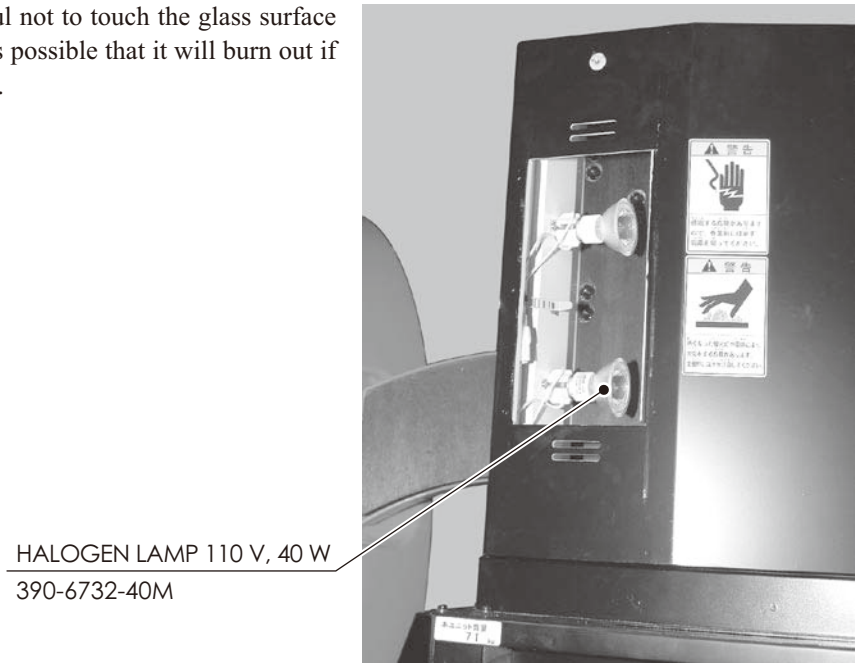


FIG. 15j

5 Reattach the lid, and fasten it with the screw.

16 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 16 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
CONTROL TOWER	Confirm operation of service panel	Daily	3
DLP PROJECTOR	Screen cleaning	Weekly	8-1
	Confirm settings	Monthly	6 18 , 8-2
	Replace lamp	Upon message display	8-3
LCD MONITOR	Monitor surface cleaning	Weekly	9-1
	Confirm settings	Monthly	9-2
STEERING WHEEL MECHANISM	Volume inspection	Monthly	Service Manual 3
	Gear alignment inspection	Every 3 months	Service Manual 3
	Greasing	Every 3 months	10-2
GEAR SHIFTER	Switch inspection	Monthly	Service Manual 3
	Greasing	Every 3 months	11-3
ACCELERATOR & BRAKE	Volume inspection	Monthly	Service Manual 3
	Greasing	Every 3 months	12-2
COIN SELECTOR	Coin switch inspection	Monthly	13
	Coin insertion test	Monthly	13
	Selector cleaning	Every 3 months	13
SEAT RAIL	Greasing	Every 3 months	Next page
ACTUATOR	Greasing	Every 2 months	14
GUIDE	Greasing	1 year	14
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

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 Rail Greasing

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.

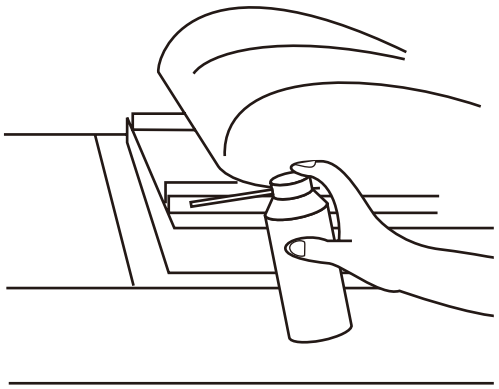


FIG. 16

17 TROBLESHOOTING

⚠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 17

PROBLEMS	CAUSE	COUNTERMEASURES
Control tower does not turn on.	The control tower internal breaker is not on.	Check the control tower internal breaker, and set it to on.
	The breaker has been tripped due to overload.	After resolving the overload, set the breaker to on.
	The power supply voltage is not being received.	Confirm that the building's power breaker is on, and confirm that the power cable is wired correctly.
The control tower turns on, but the cockpits do not turn on.	The power switch on each DLP side is not on.	Set the power switch on the DLP side to on.
	The DLP base internal breaker is not on.	Check the DLP base internal breaker, and set it to on.
	The DLP base internal breaker has been tripped due to overload.	After resolving the overload, set the breaker to on.
	The power connectors between the control tower and each cockpit are not connected.	Check the connections of the wiring between the control tower and DLP base, and check the connection of the wiring of the DLP coupling box.
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 on the cockpit side, and check the wiring of the connections from the microphone to the speaker on the billboard side.
	The volume is not appropriate.	Check the volume inside the coin tower on the cockpit side, and check the tower control panel volume on the billboard side.

PROBLEMS	CAUSE	COUNTERMEASURES
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 LCD monitor does not display an image.	The wiring is not connected correctly.	Check the RCA connector's connections from the LCD monitor to each CCD camera. Check the LCD monitor power connections.
	The power was turned off by the remote controller.	Use the remote controller to turn the power on. (See 9-2.)
	The CCD camera does not have power. ("NO SIGNAL" is displayed.)	Check the power connections to the CCD camera.
The LCD screen colors are wrong.	The CCD camera's automatic functions are making adjustments for the surroundings.	The LCD screen's display may change to match the surrounding environment's brightness and hues. Use the LCD's remote controller to adjust the settings of the hues. (See 9-2.)
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 10-1.)
	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 12.)
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.	The control tower motion selector switch is set to STOP.	Confirm that there are no problems if motion is initiated and move the switch to NORMAL.
	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.
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 14.)

PROBLEMS	CAUSE	COUNTERMEASURES
The rear fluorescent lights 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 15.)
The speaker box lamps do not glow.	The halogen lamp was not installed during assembly.	Install a halogen lamp.
	The halogen lamp has burned out.	Replace the halogen lamp. (See Section 15.)
	The wiring is not connected correctly.	Check the connections of the wiring to the halogen lamp.
	The circuit protector has been tripped due to overload.	After resolving the overload, set the billboard electric's internal circuit protector to on.
The billboard ranking board does not glow.	The wiring is not connected correctly.	Check the connections of the wiring to the ranking board and the billboard electric. (See FIG. 6-5i.)
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 SDX.)
	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.

18 GAME BOARD

⚠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.)**

18-1 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. (See 3-4.)

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.

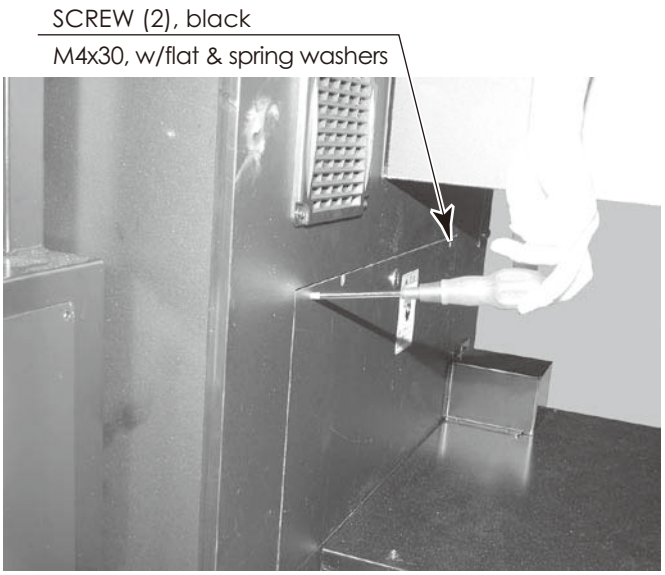


FIG. 18-1a

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.

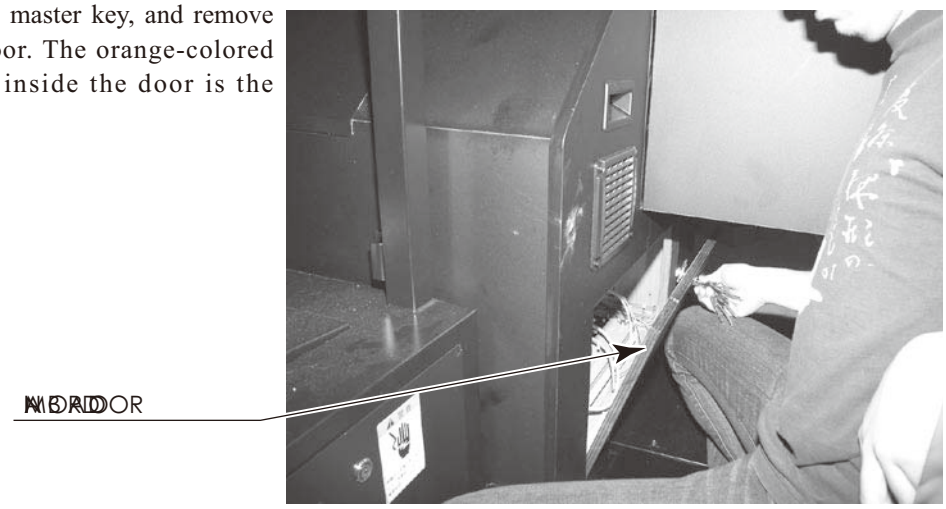


FIG. 18-1b

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.

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

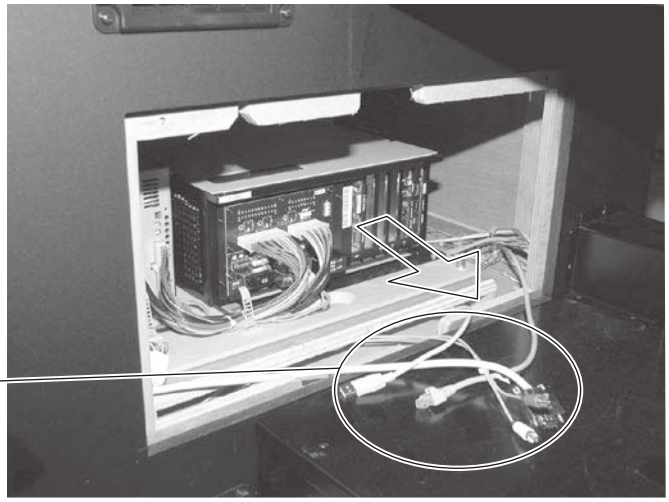


FIG. 18-1c

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

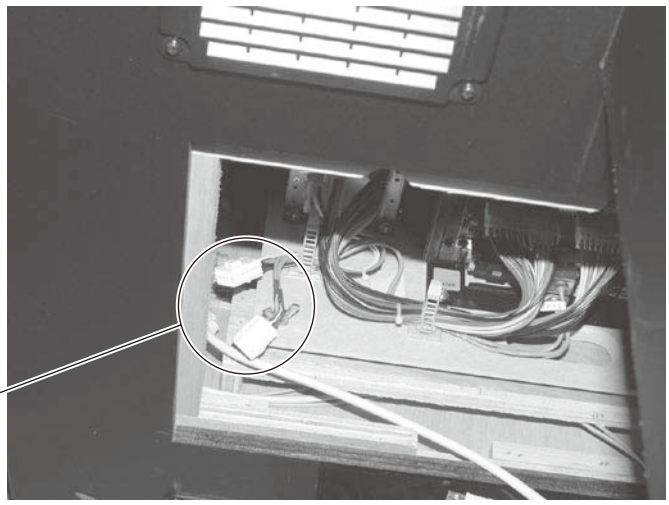


FIG. 18-1d

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.

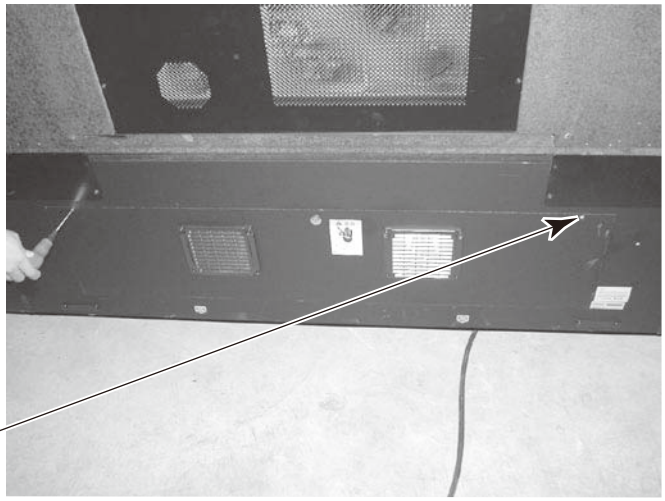


FIG. 18-1e

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

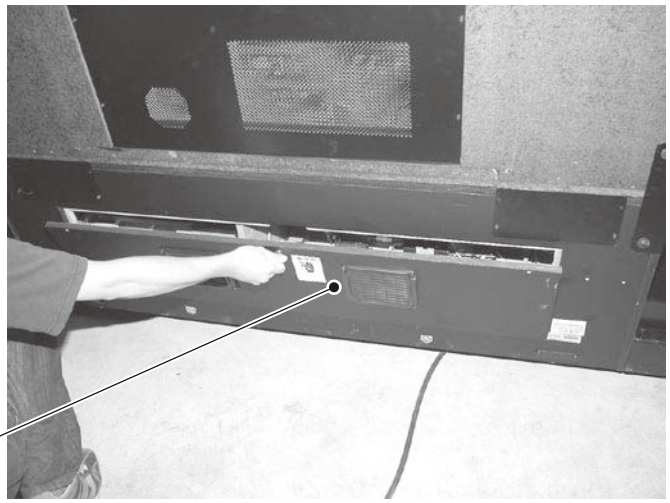


FIG. 18-1f

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

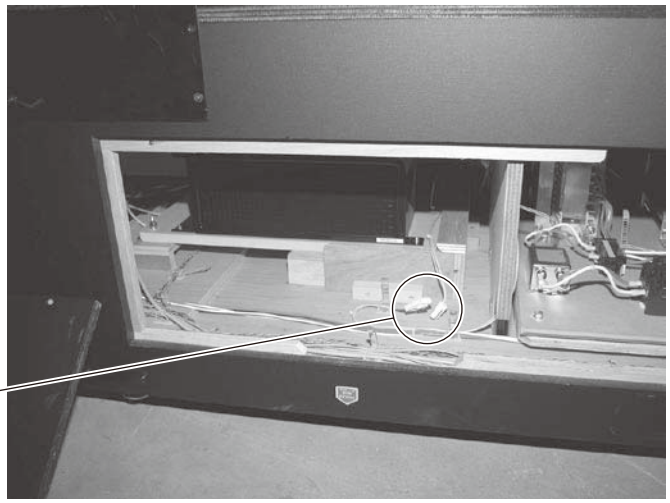


FIG. 18-1g

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

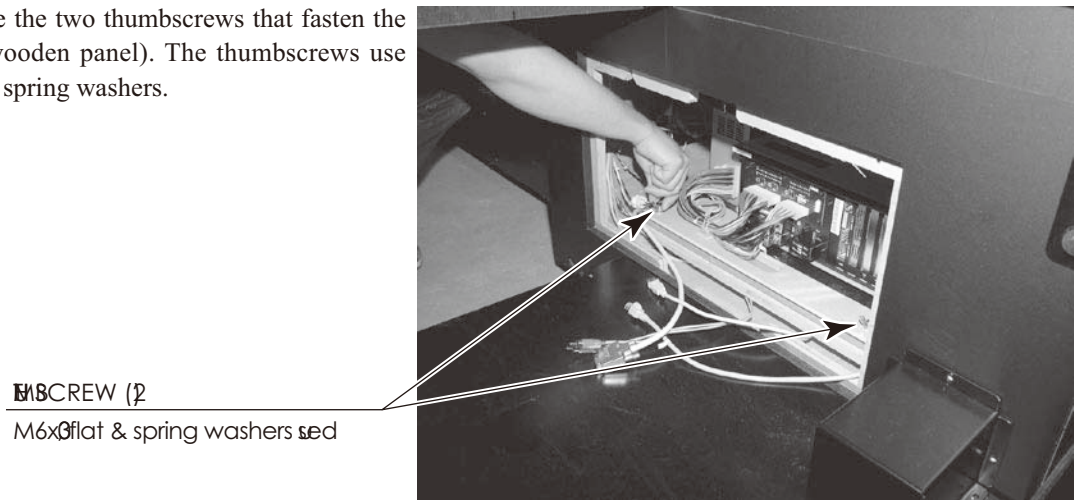


FIG. 18-1h

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

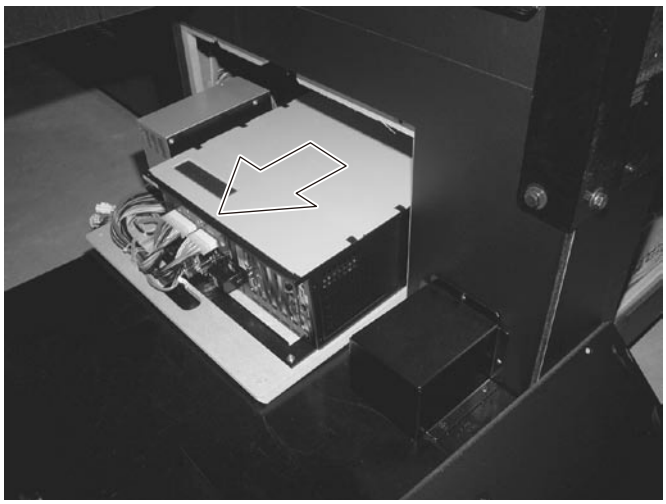


FIG. 18-1i

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.

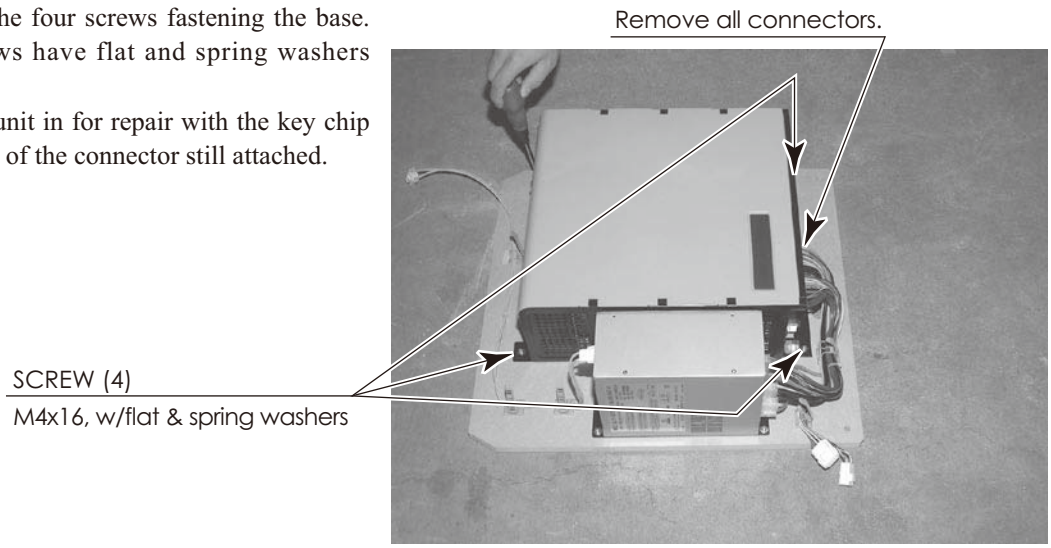


FIG. 18-1j

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)

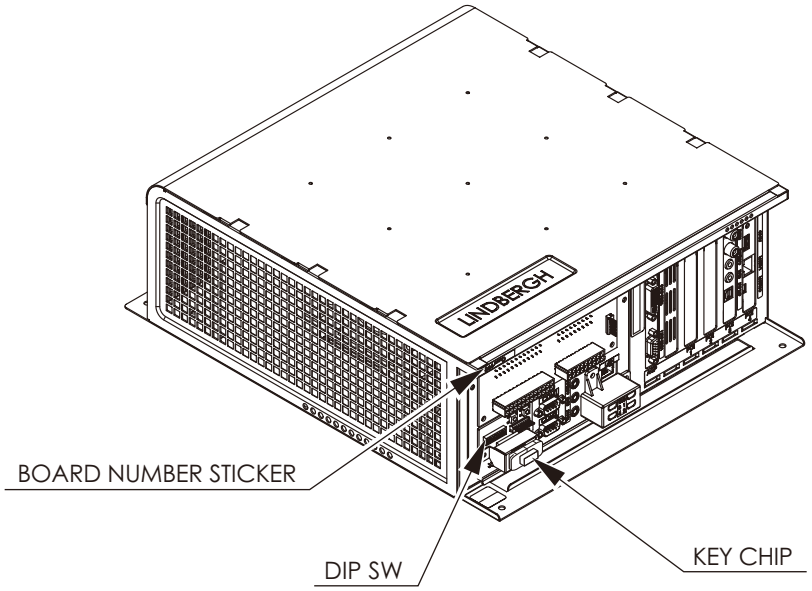


FIG. 18-2a

DIP SW Settings

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

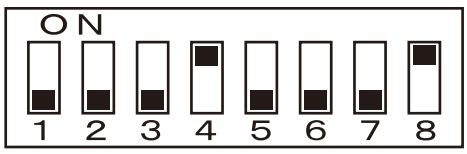


FIG. 18-2b

⚠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, and the sold separately 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.

1 Switch off the power of the cabinet which has the LINDBERGH that will undergo software installation. (See 3-4.)

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.

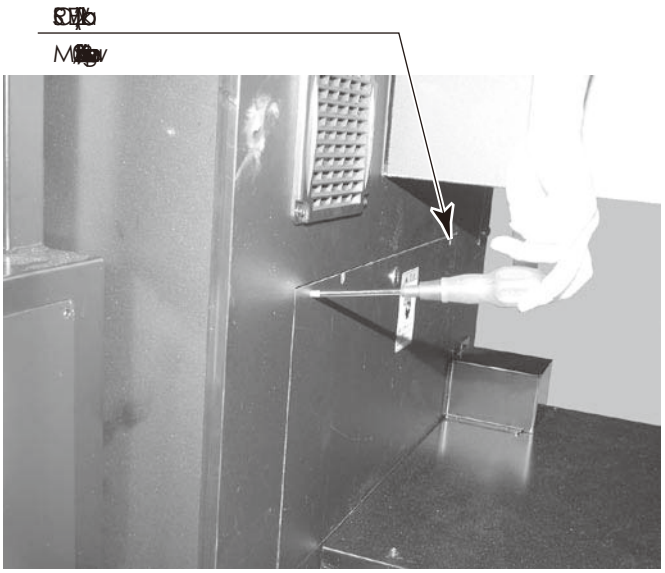


FIG. 18-3a

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

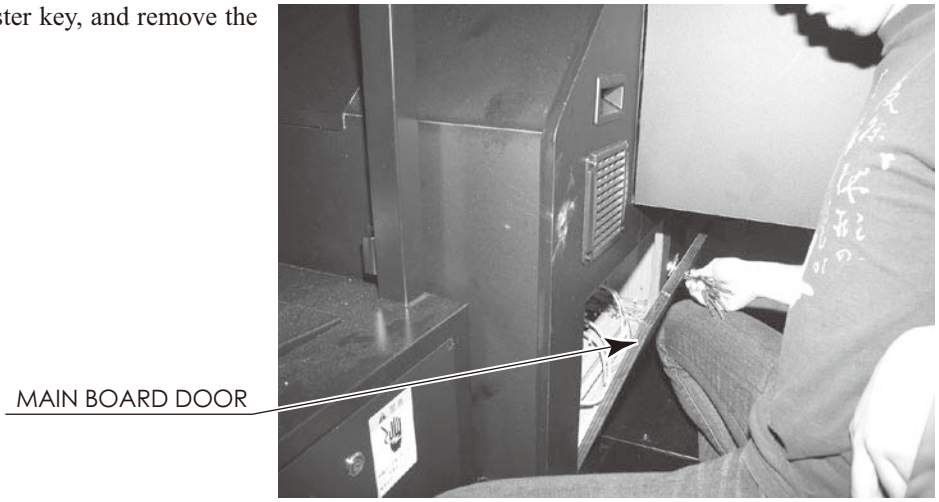


FIG. 18-3b

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.

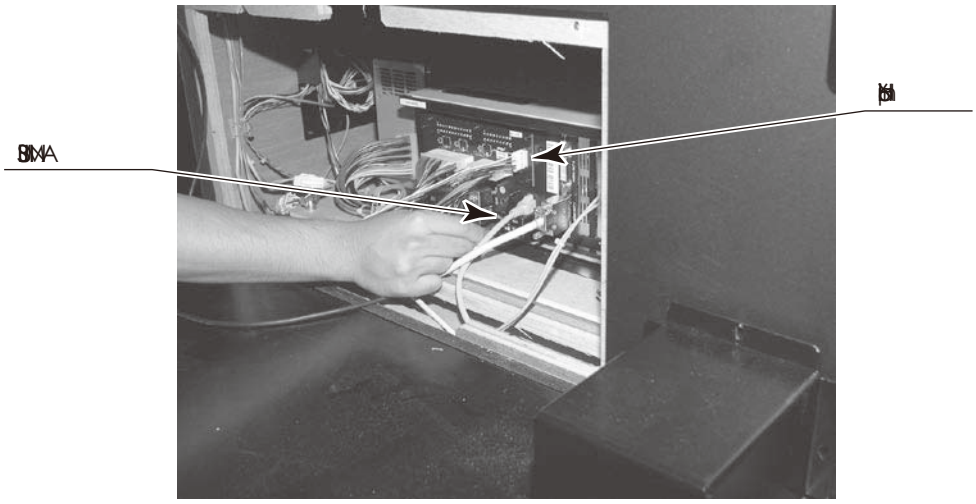


FIG. 18-3c

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.

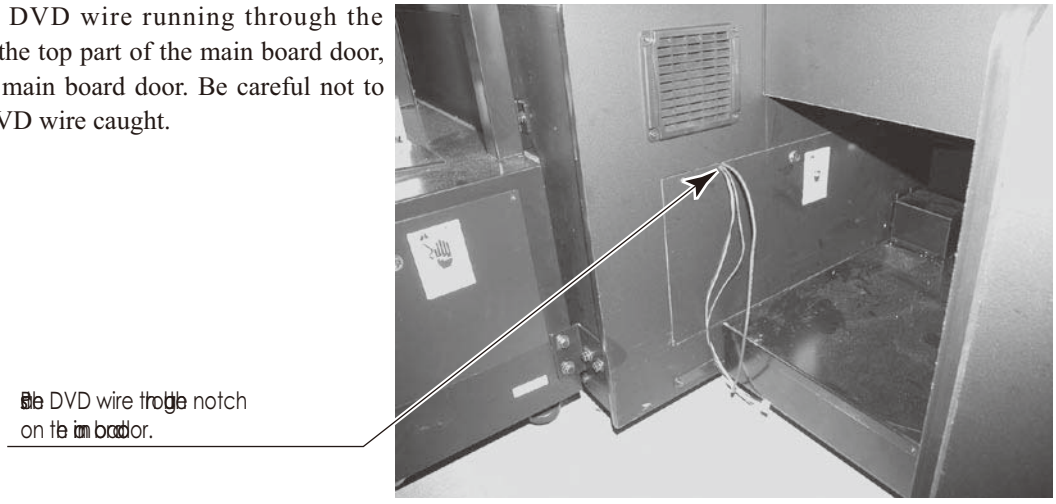


FIG. 18-3d

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

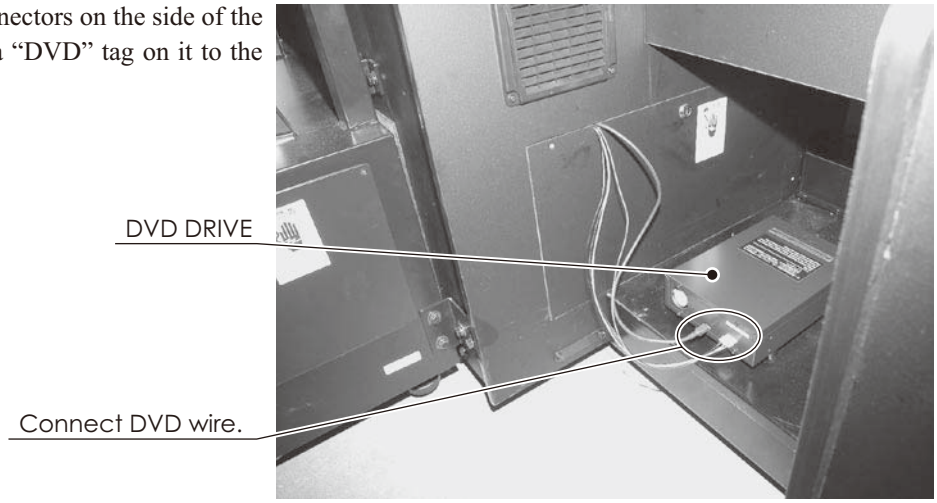


FIG. 18-3e

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.

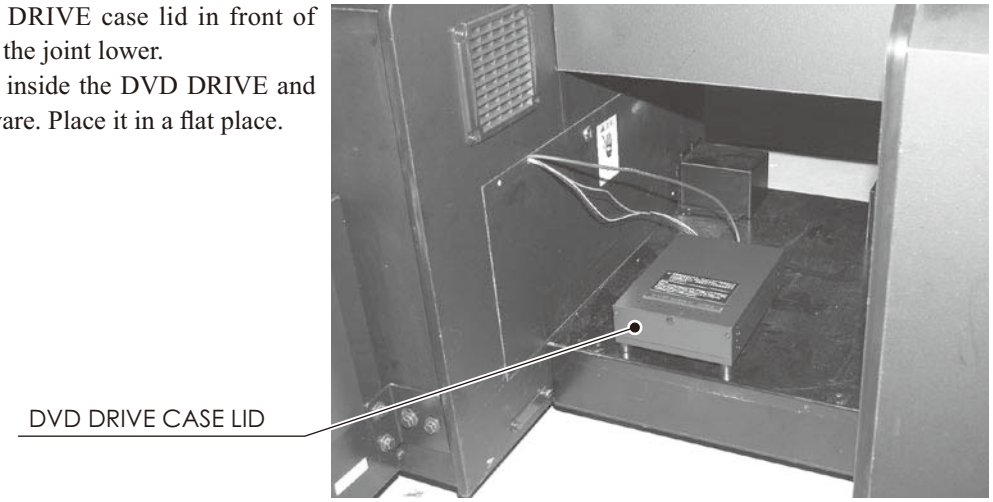


FIG. 18-3f

DVD DRIVE

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.

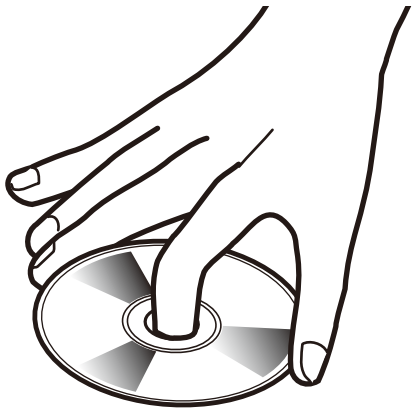
With both hands:

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.

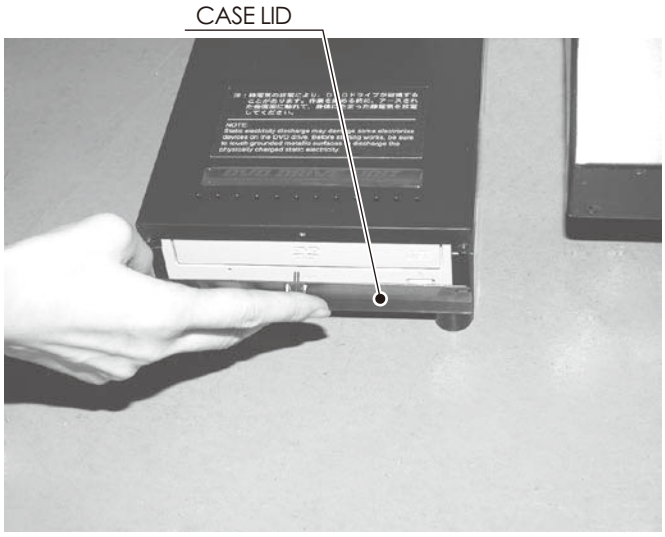


FIG. 18-3g

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.

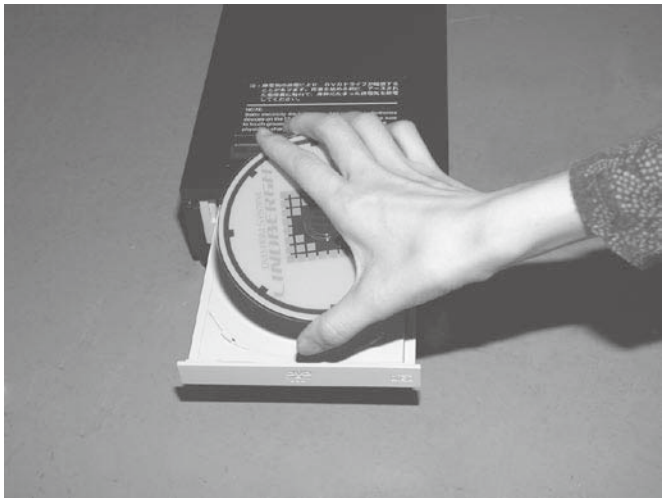


FIG. 18-3h

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. (See 3-4.)

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.

For the warning display stickers, refer to Section 1.

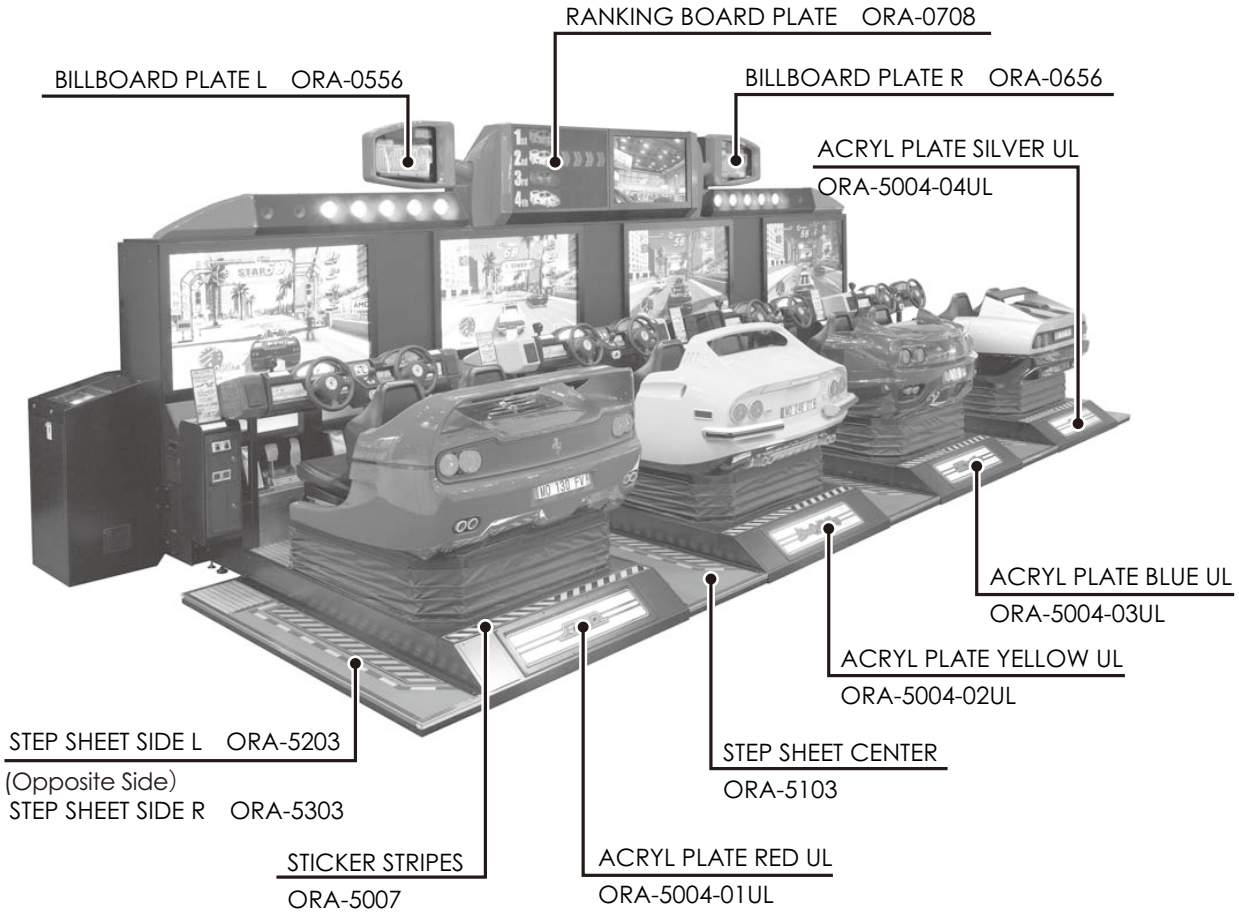


FIG. 19a

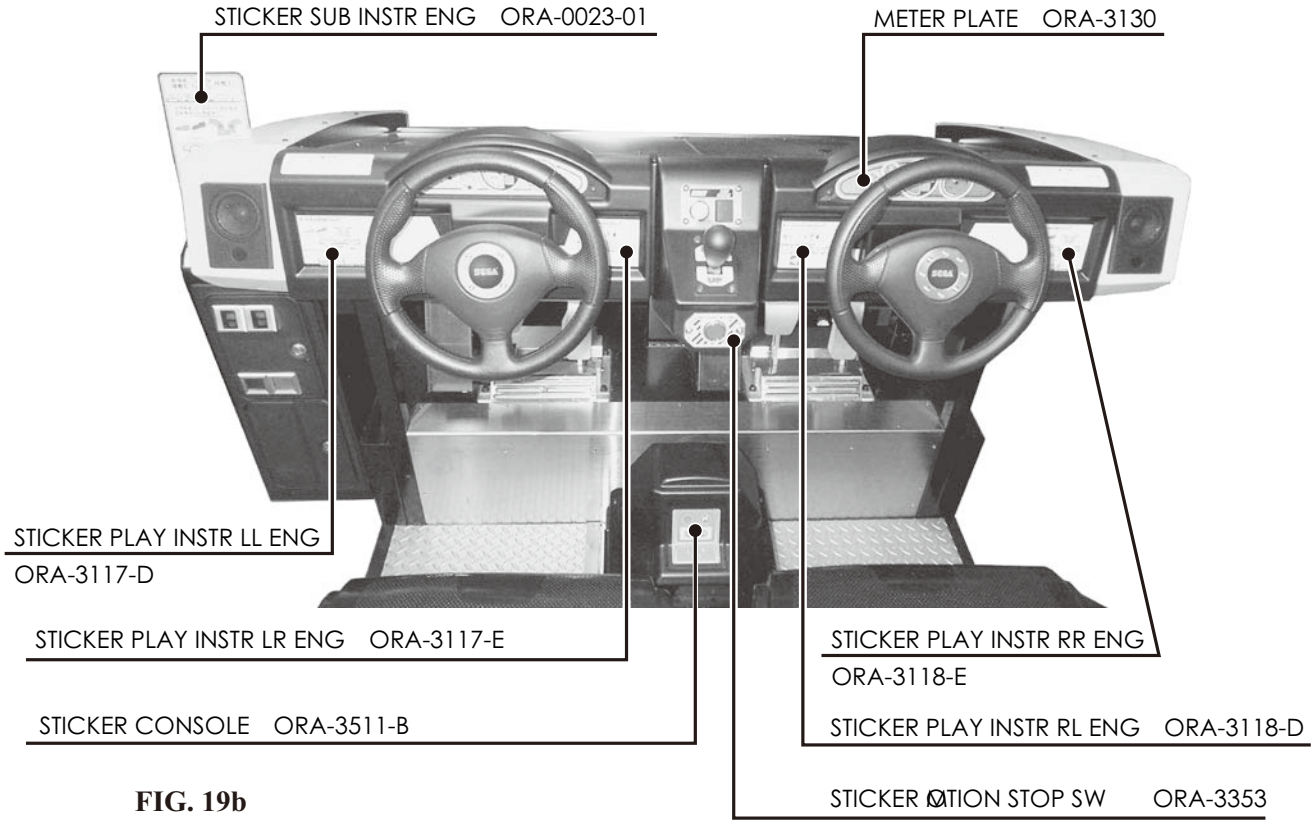
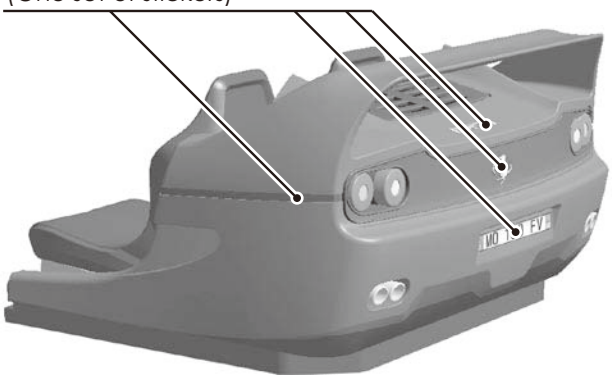


FIG. 19b

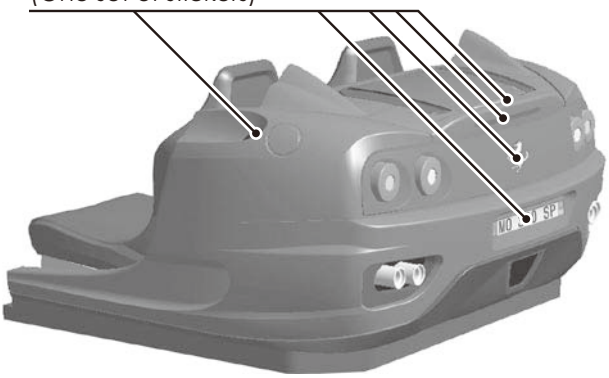
STOP IMPORTANT

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.

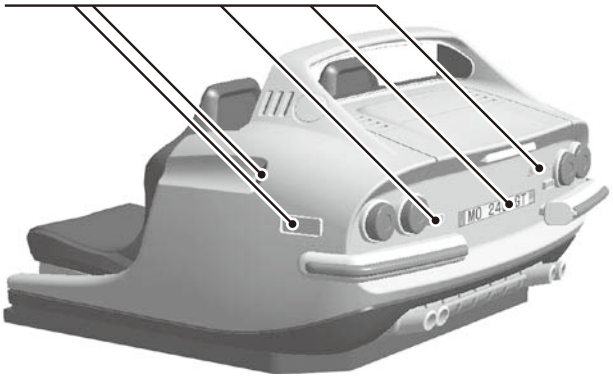
STICKER SET F50 ORA-3521-J
(One set of stickers)



STICKER SET 360 ORA-3523-J
(One set of stickers)



STICKER SET DINO ORA-3522-J
(One set of stickers)



STICKER SET 512BB ORA-3524-J
(One set of stickers)

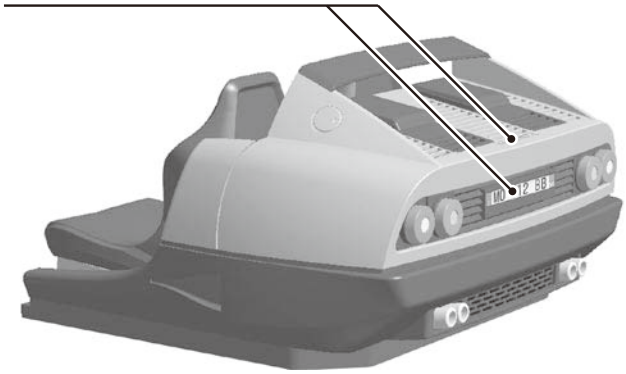


FIG. 19c FRP STICKERS

20 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.

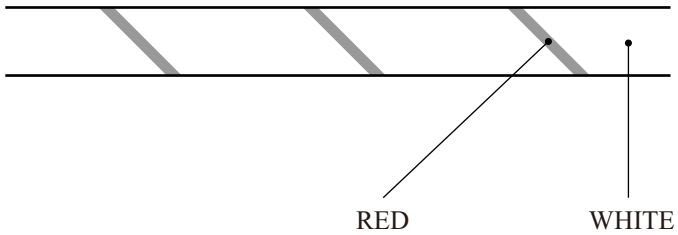
The color codes for the wires used in the diagrams in the following chapter are as follows.
Wires other than those of any of the above 5 single colors will be displayed by 2 alphanumeric characters.

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.

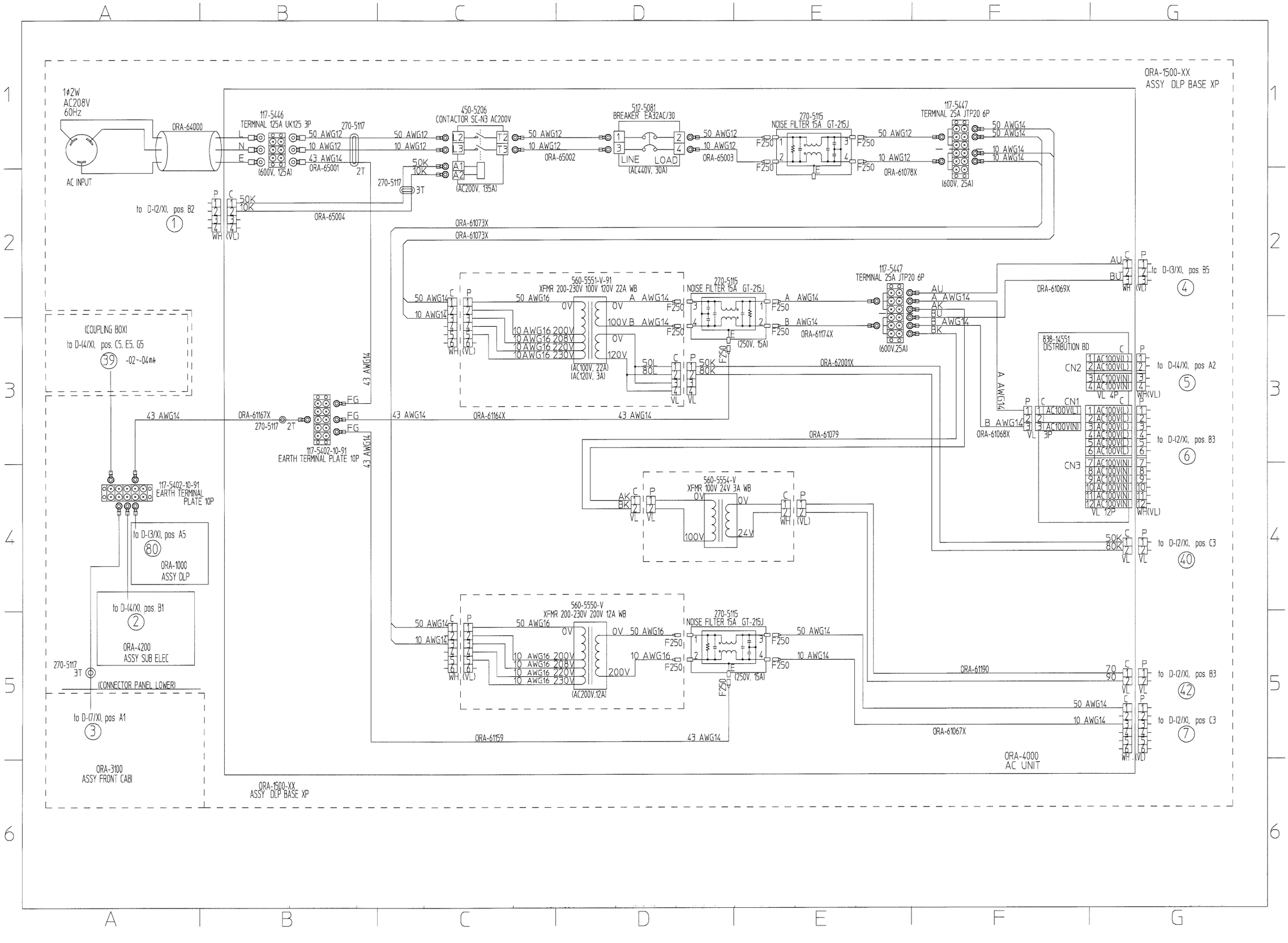
<Example> 51……WHITE/RED



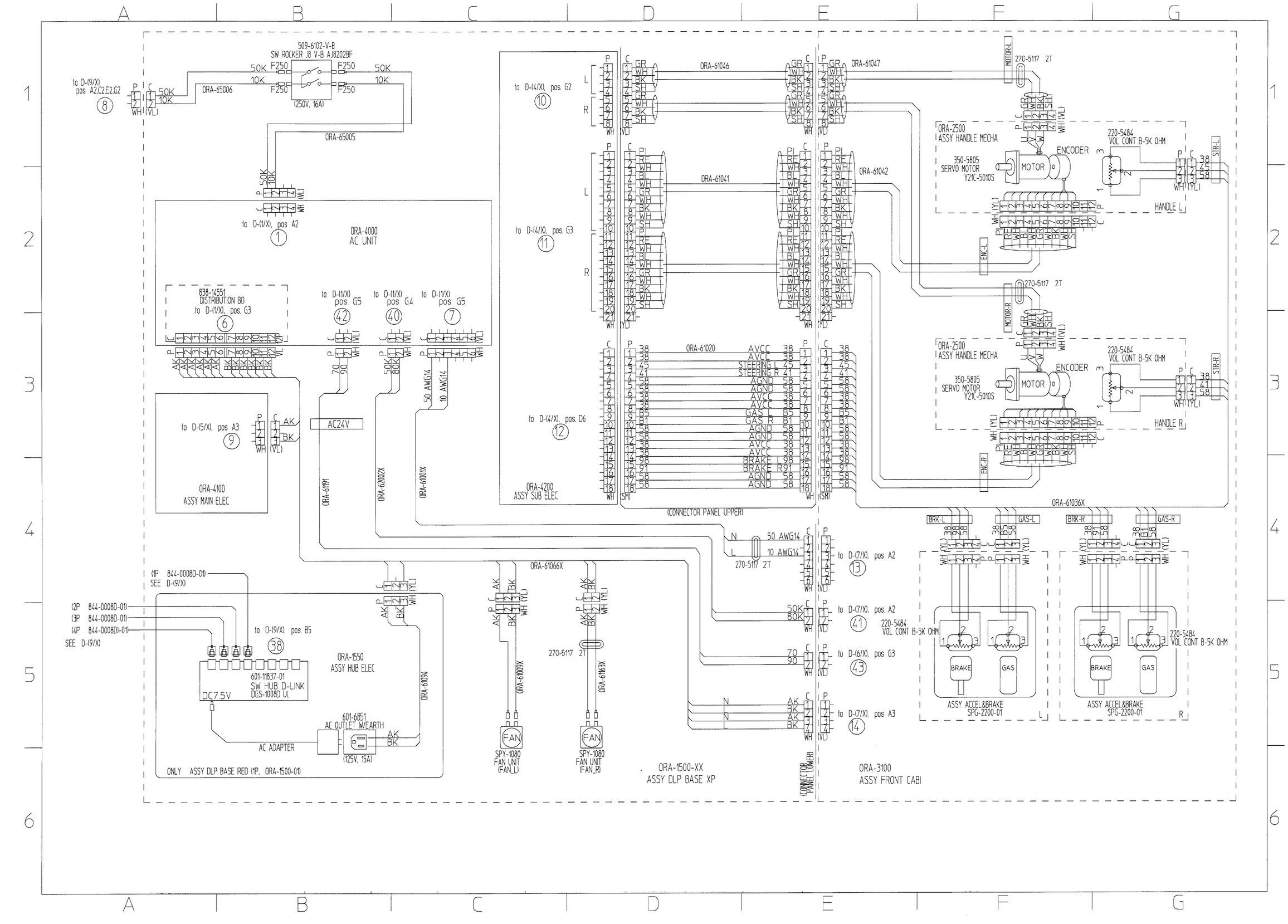
Note 2:The character following the wire color code indicates the size of the wire.

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

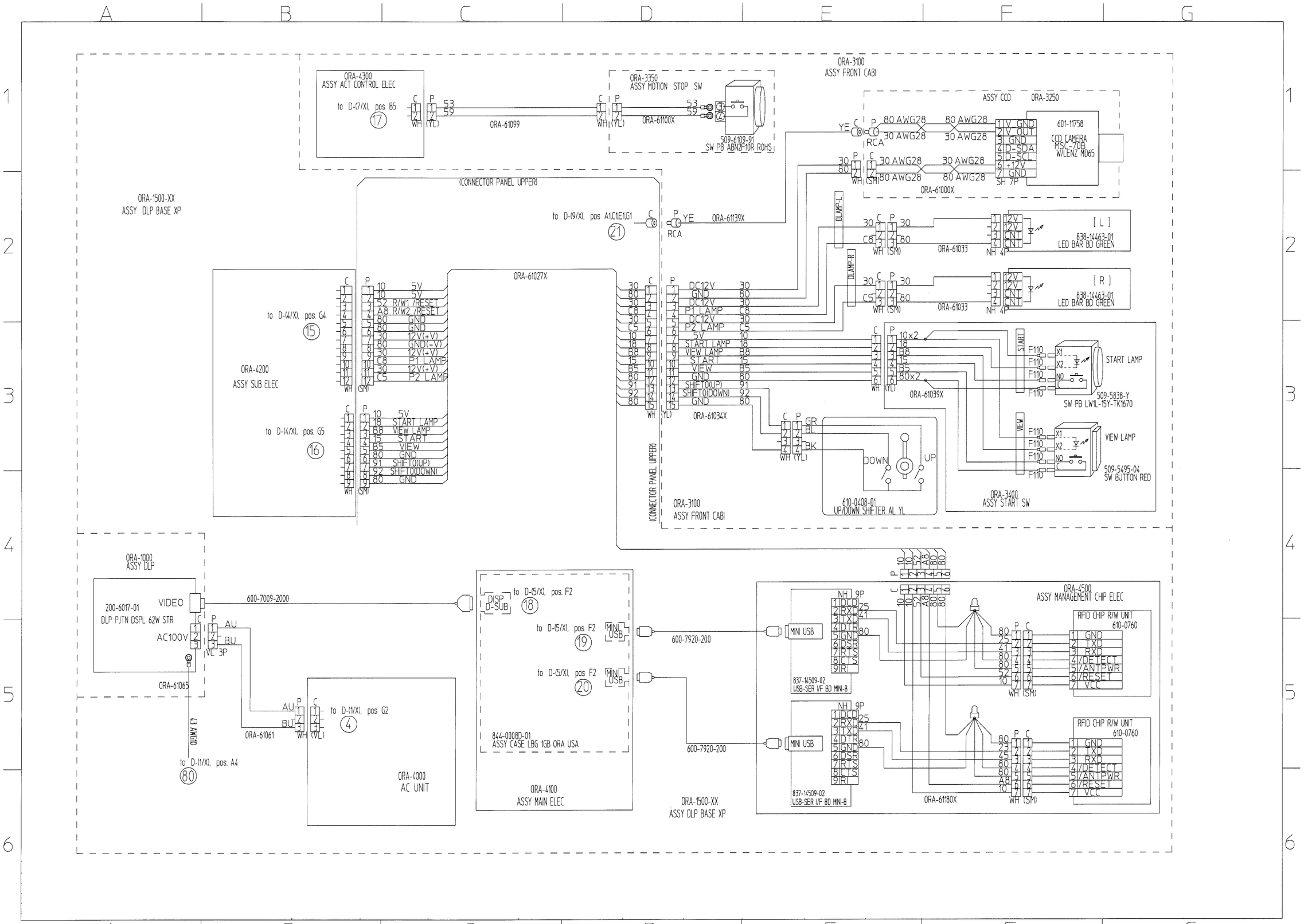
21 WIRING DIAGRAM (D-1/10) CABINET



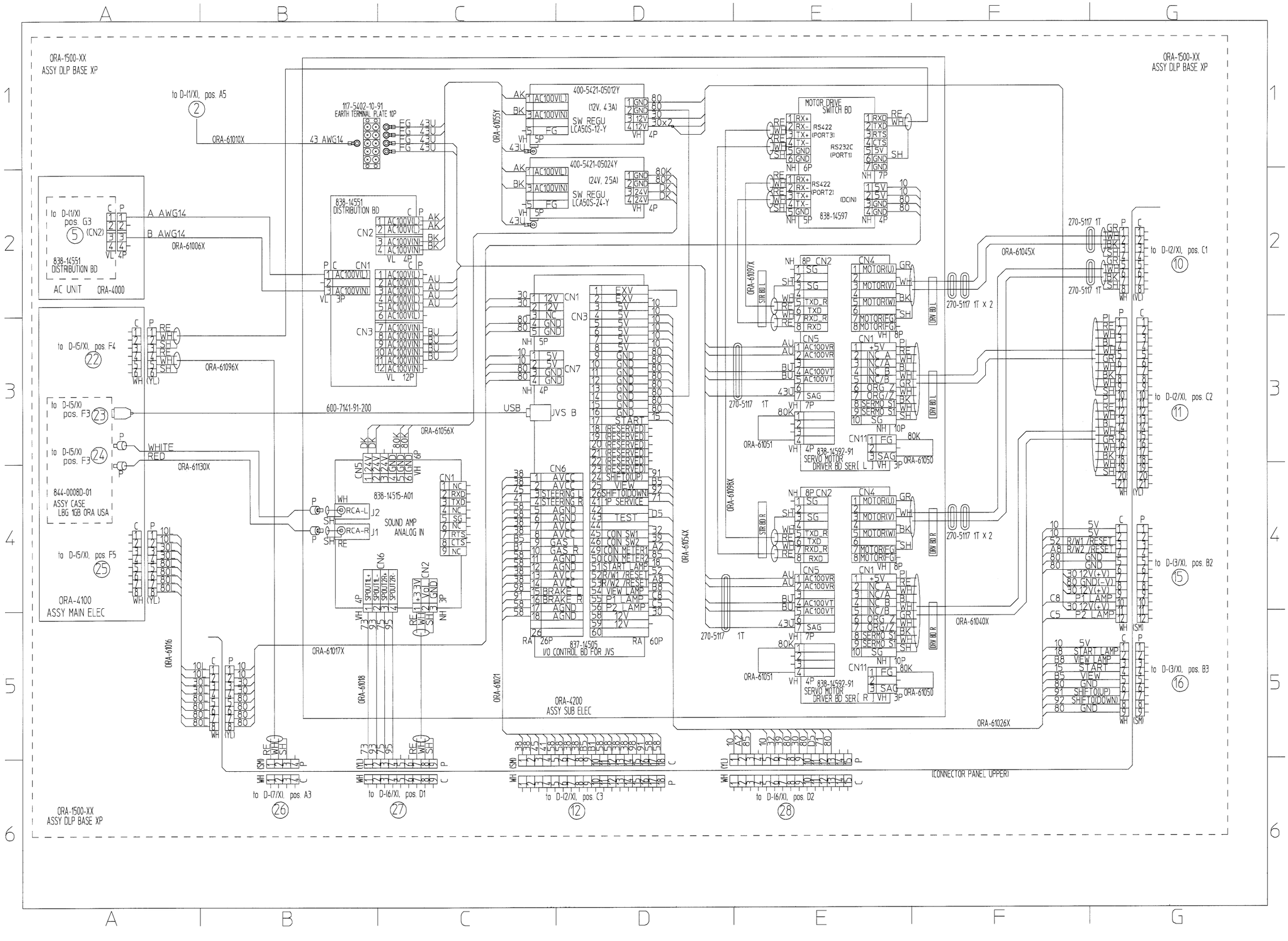
(D-2/10) CABINET



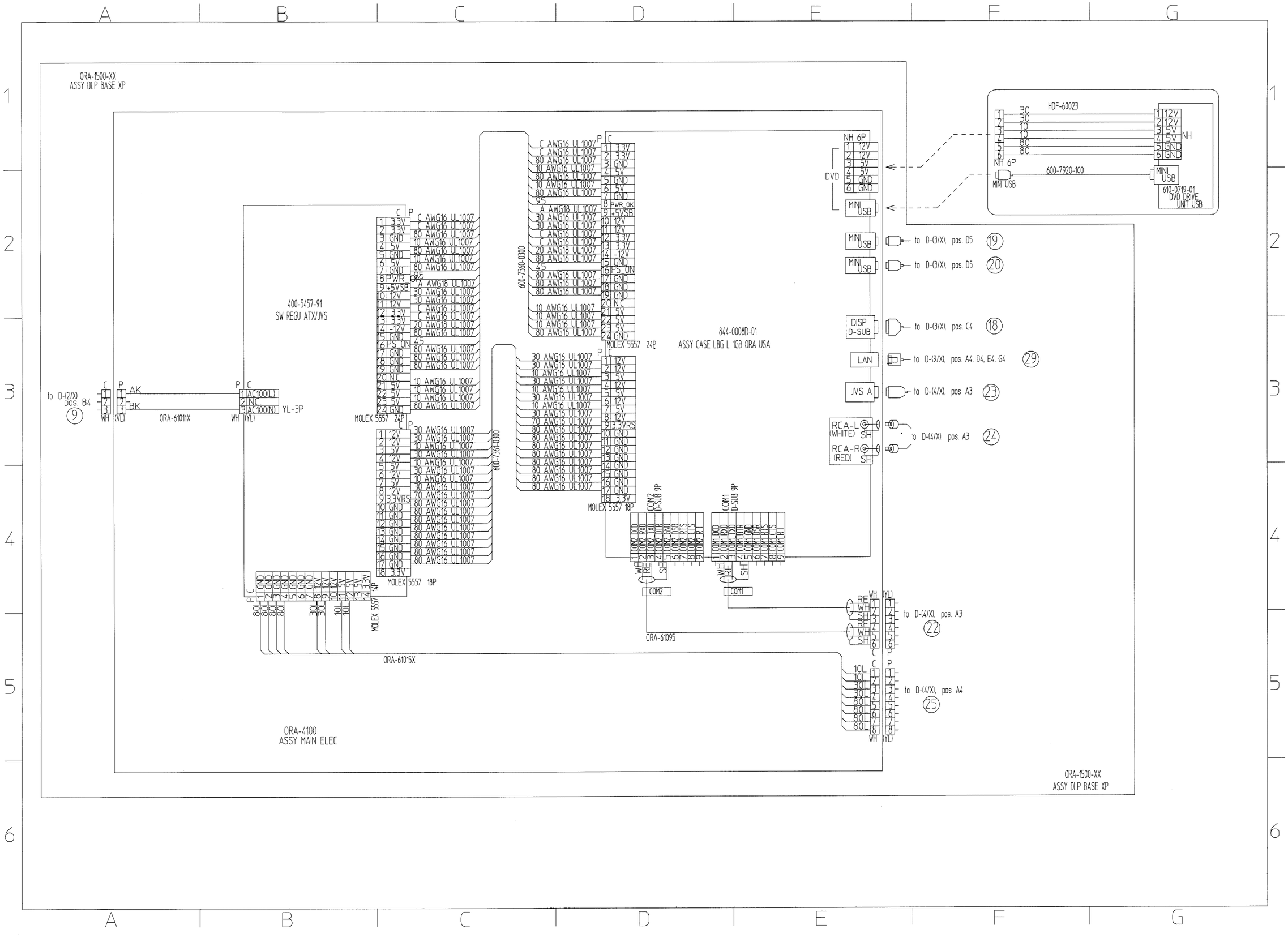
(D-3/10) CABINET



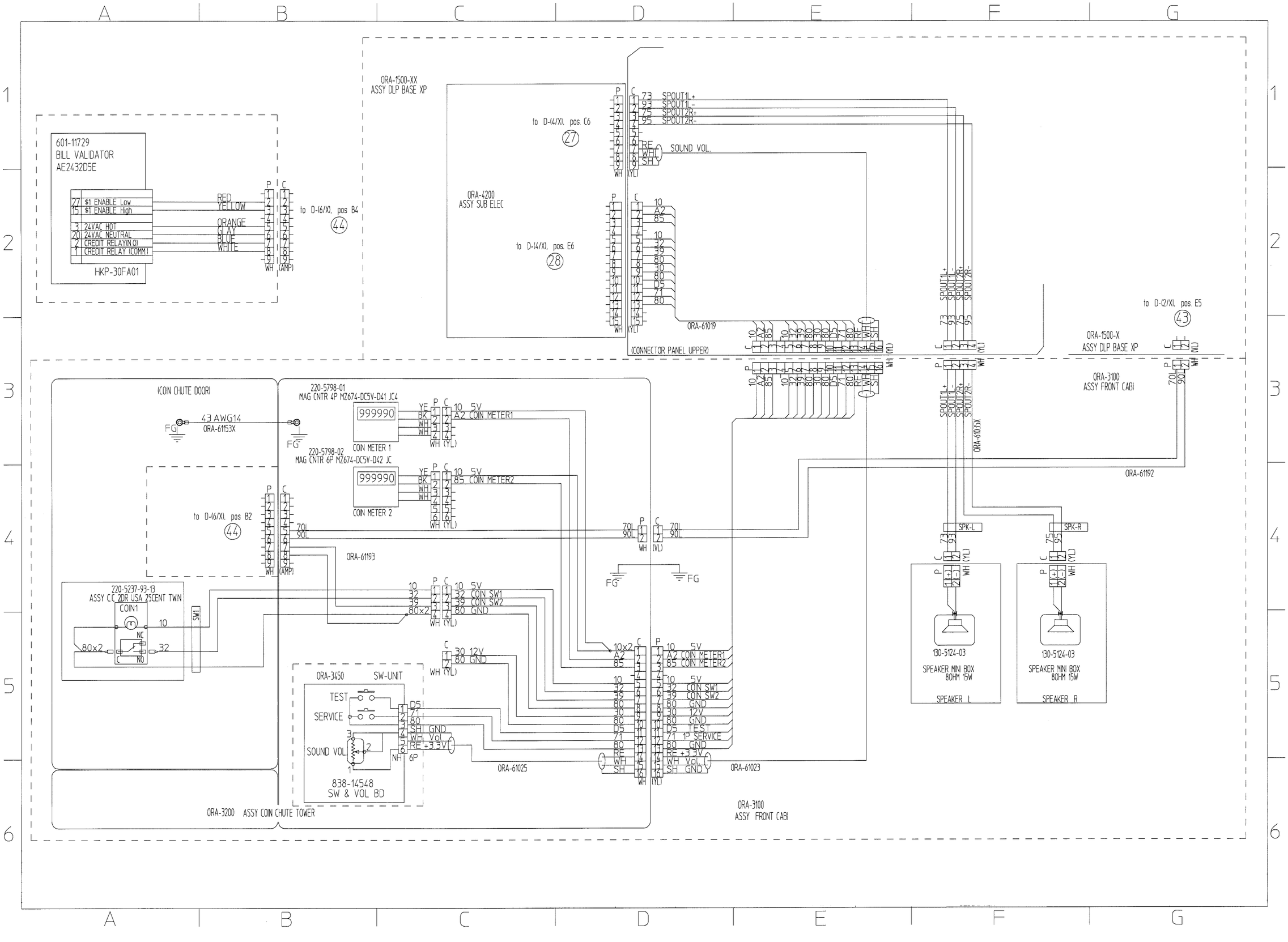
(D-4/10) CABINET



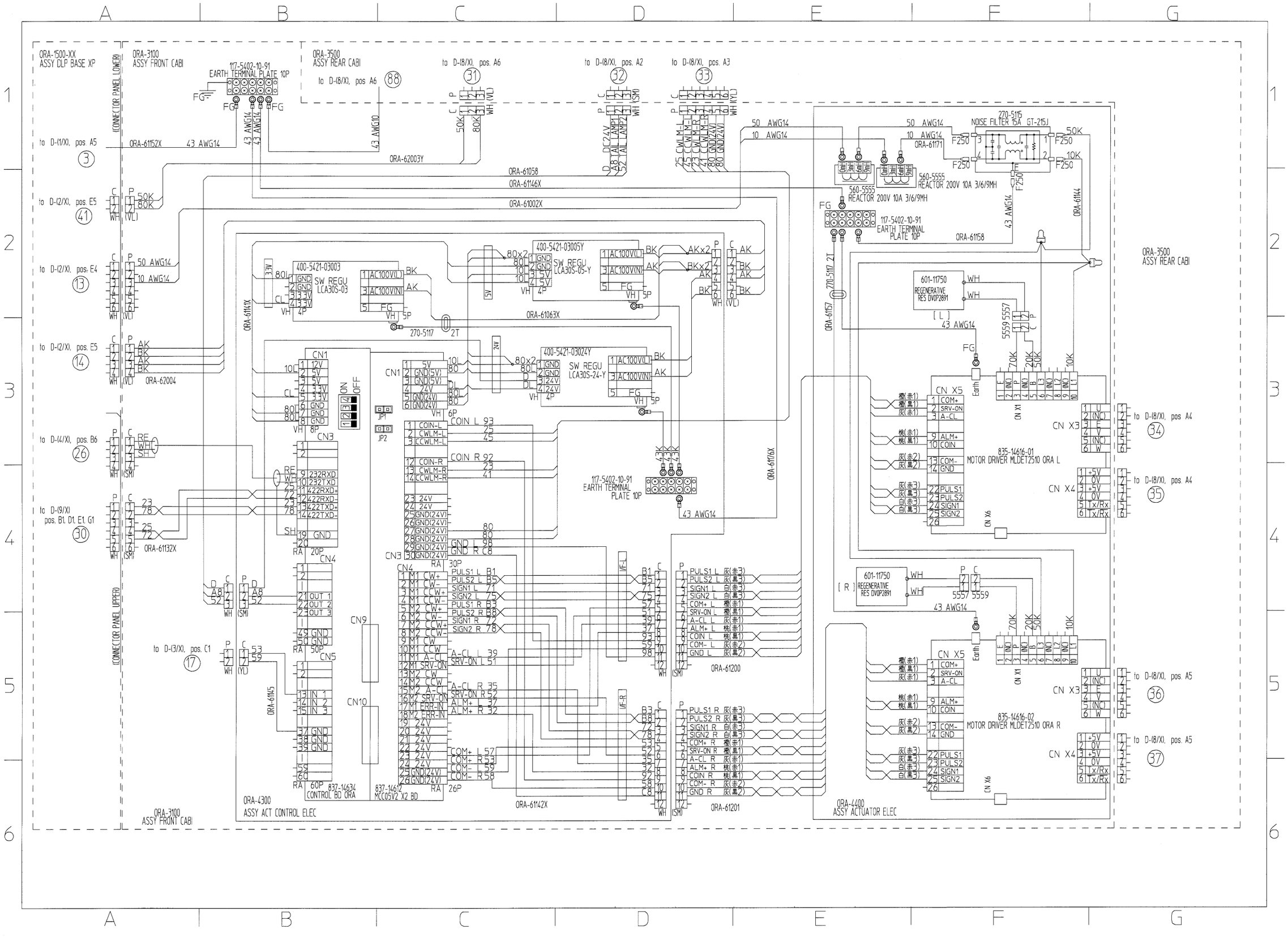
(D-5/10) CABINET



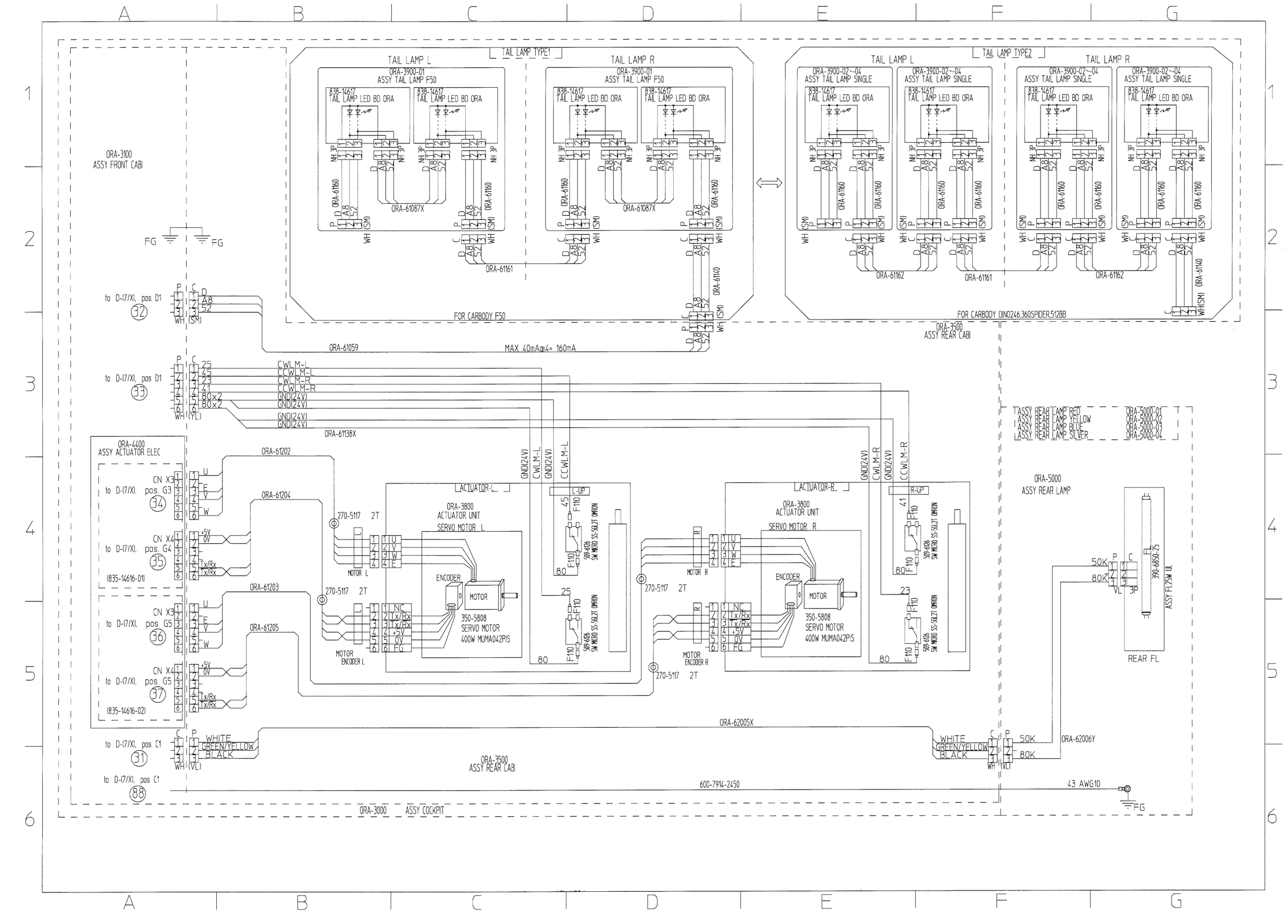
(D-6/10) CABINET



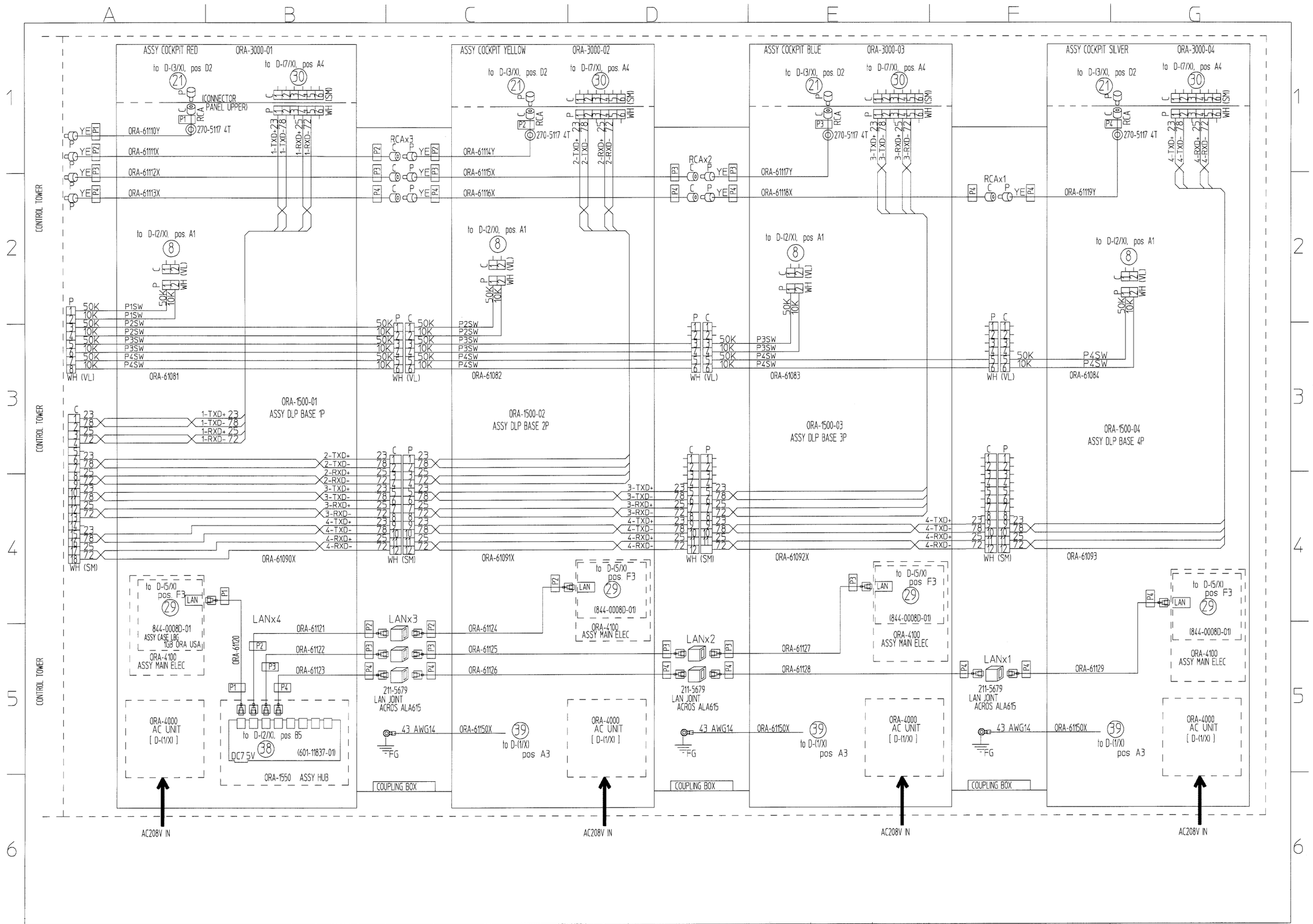
(D-7/10) CABINET



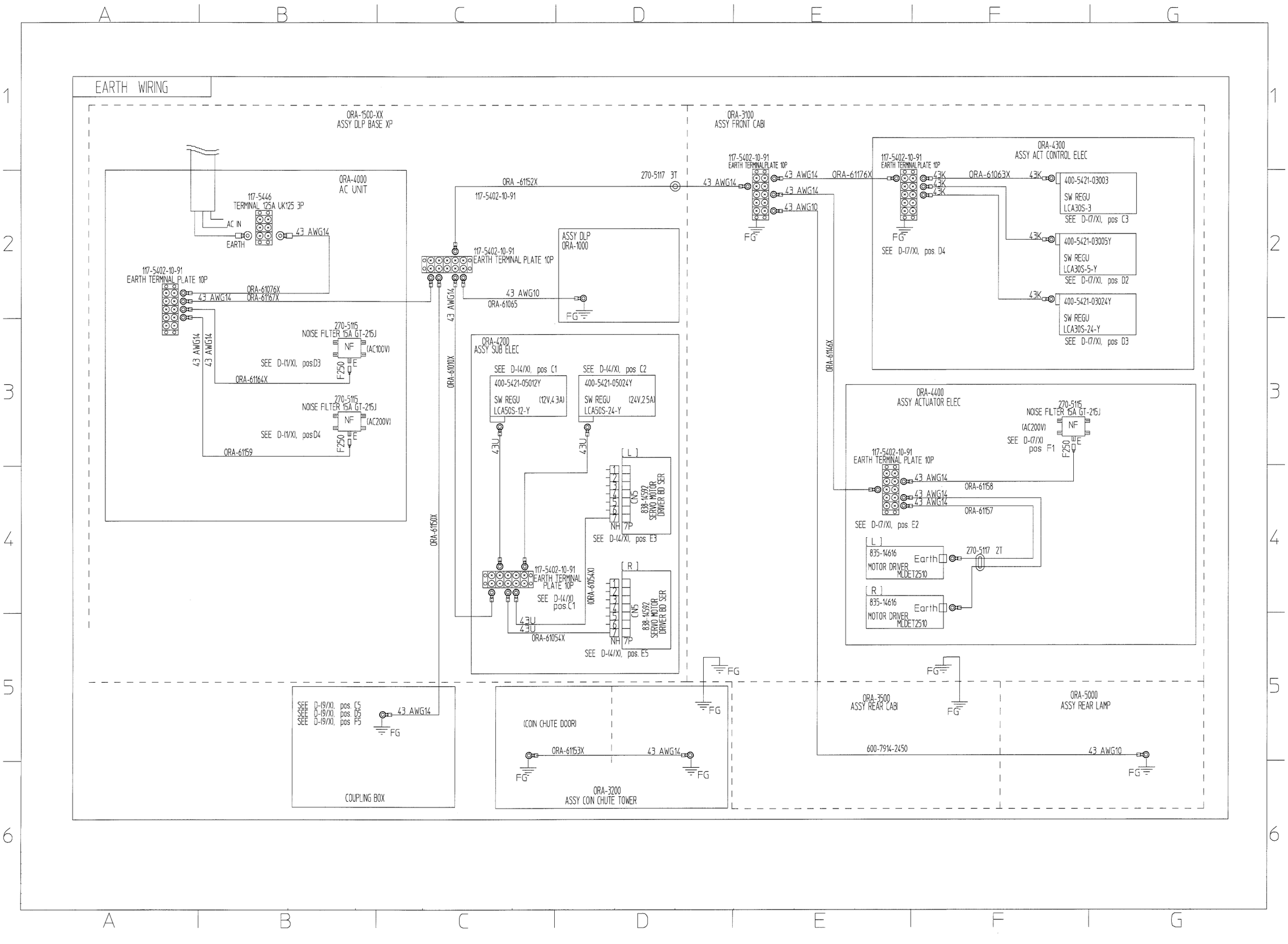
(D-8/10) CABINET



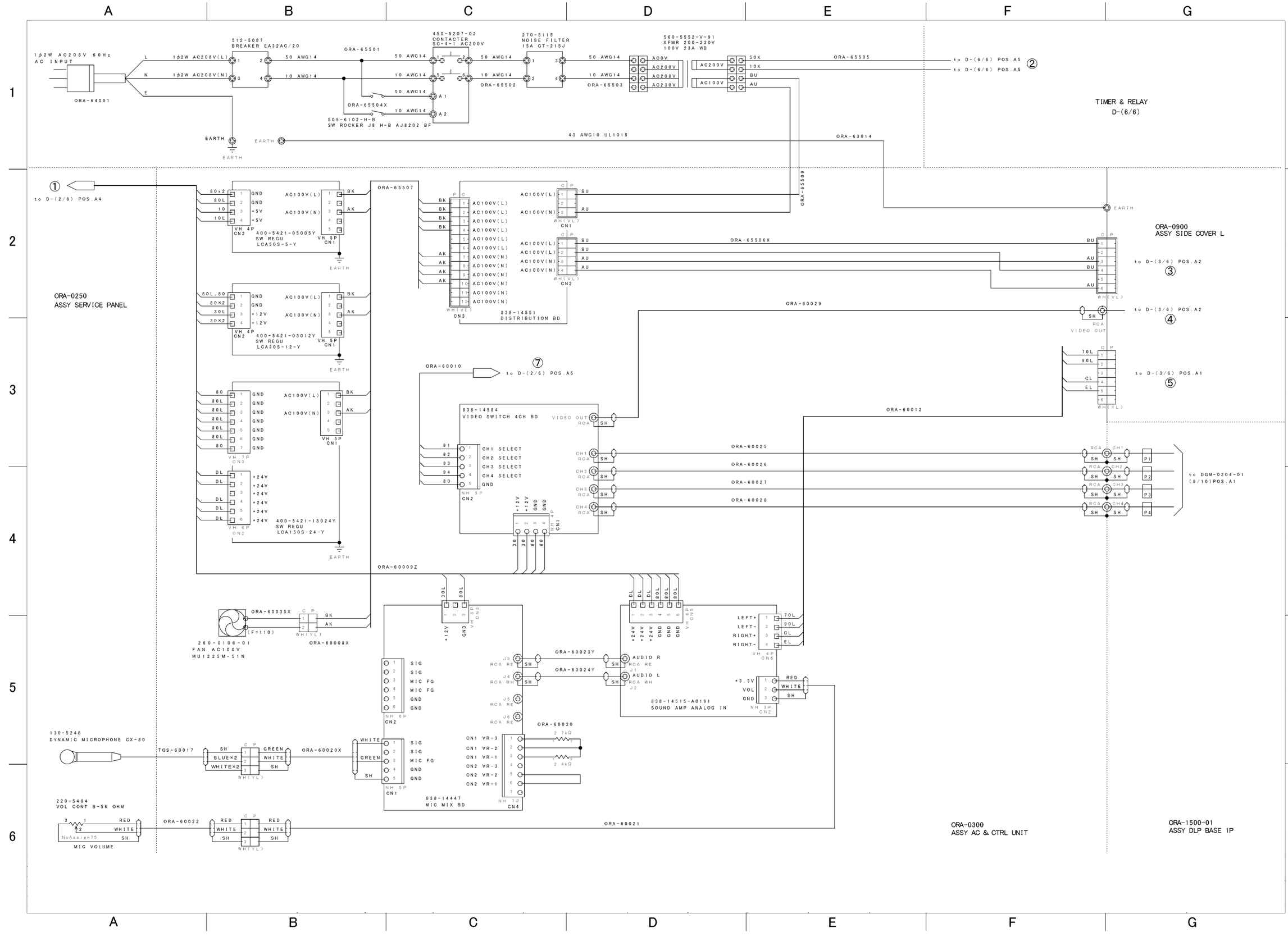
(D-9/10) CABINET



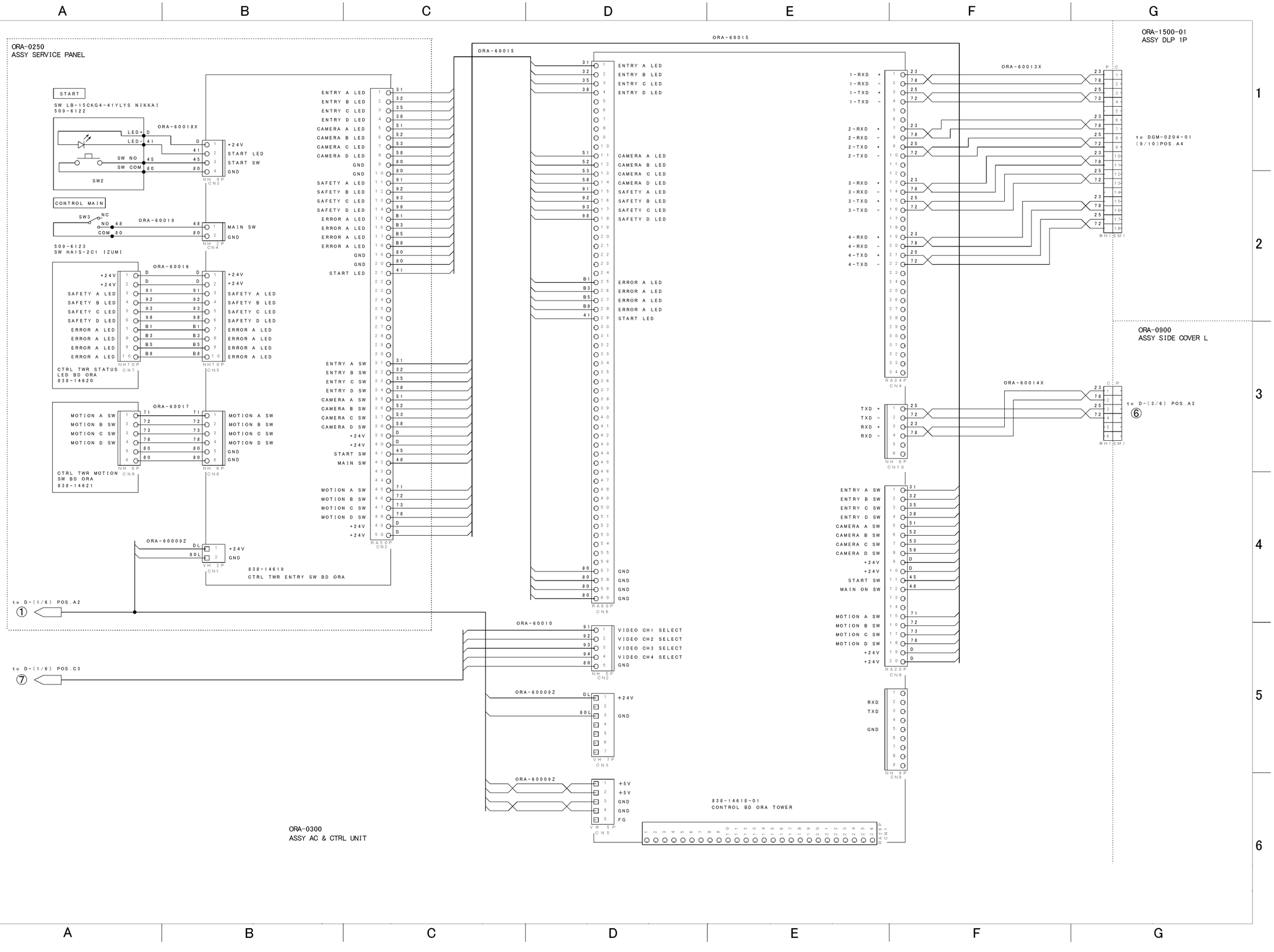
(D-10/10) CABINET



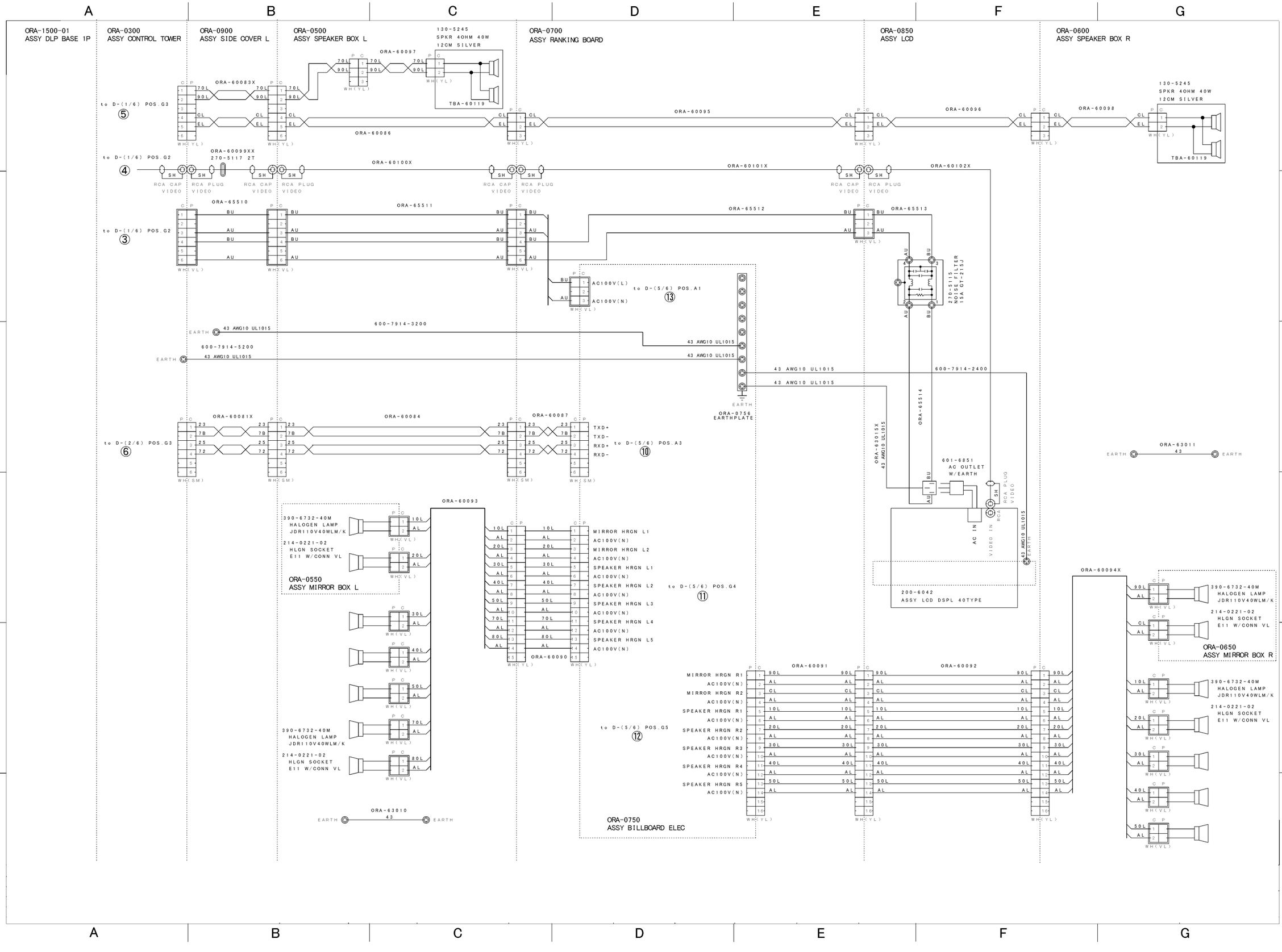
(D-1/6) BILLBOARD, CONTROL TOWER



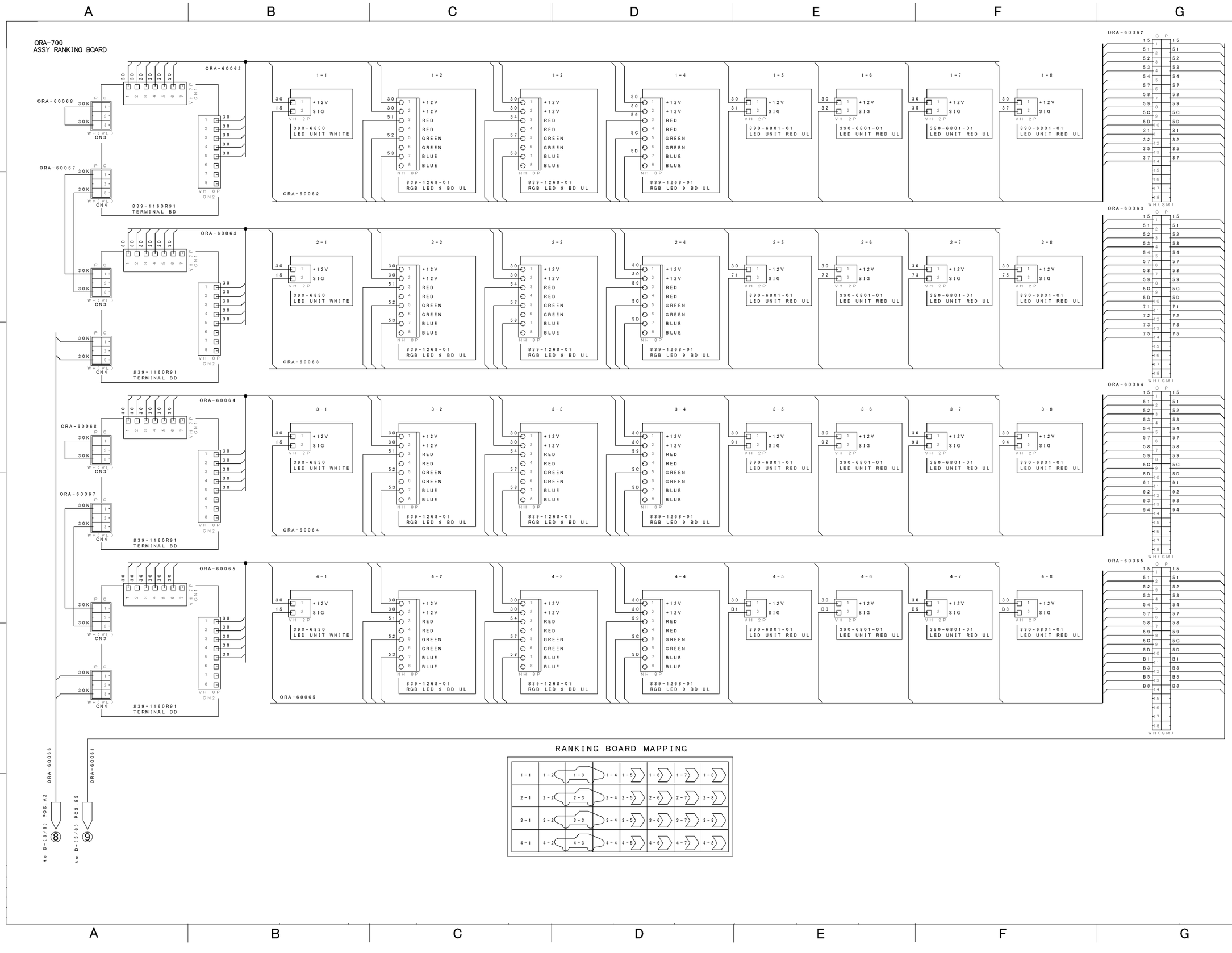
(D-2/6) BILLBOARD, CONTROL TOWER



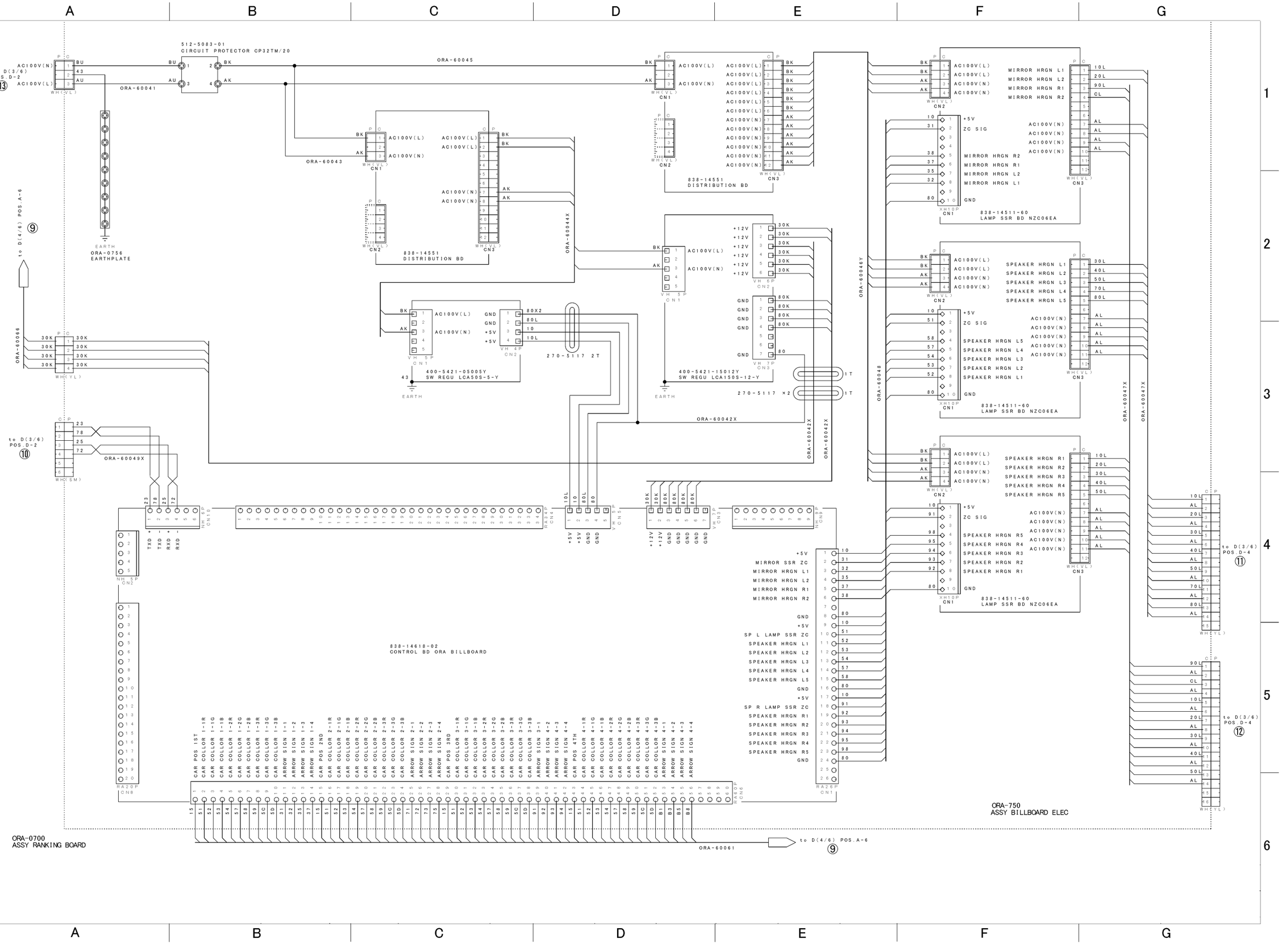
(D-3/6) BILLBOARD, CONTROL TOWER



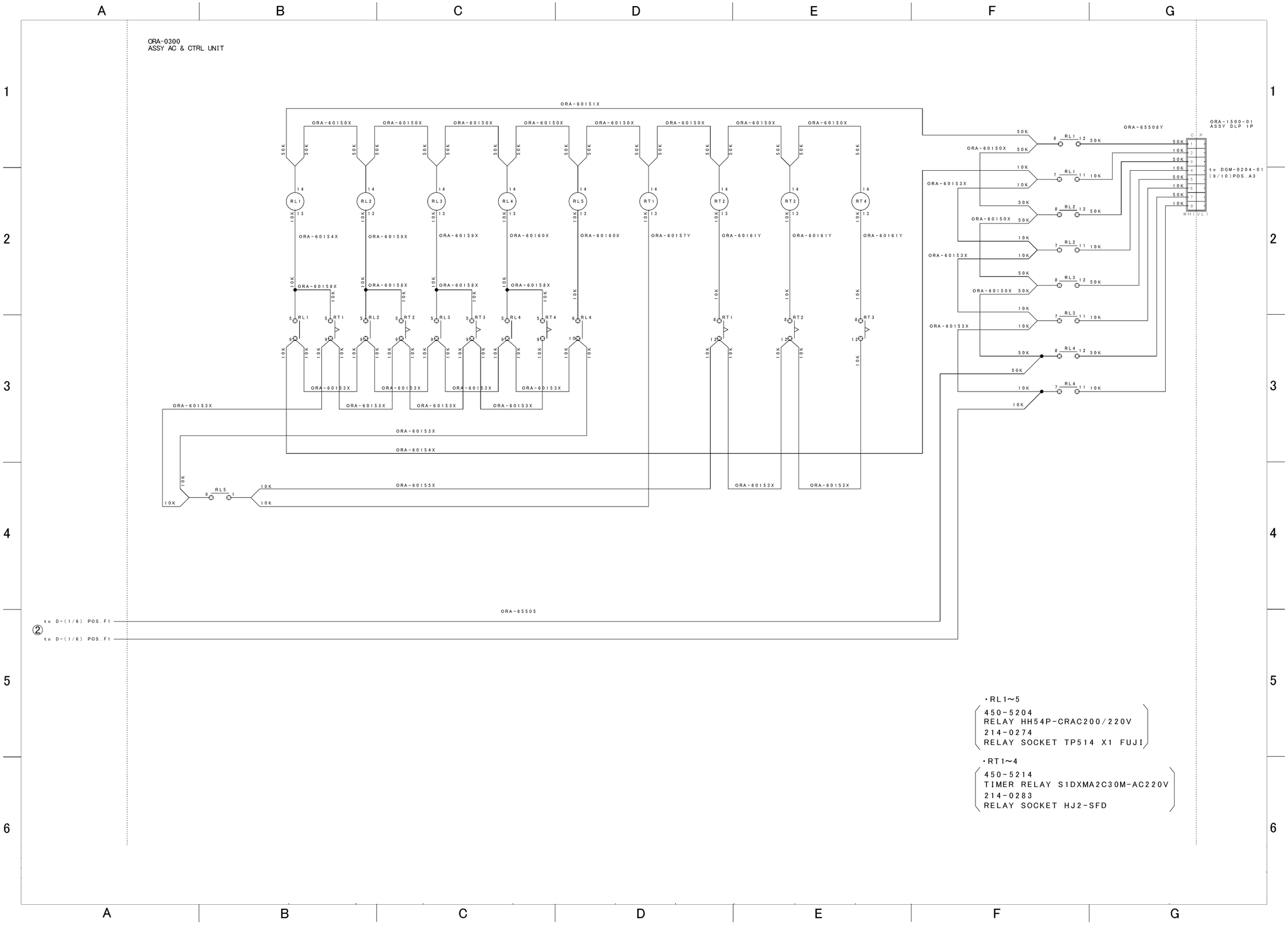
(D-4/6) BILLBOARD, CONTROL TOWER



(D-5/6) BILLBOARD, CONTROL TOWER



(D-6/6) BILLBOARD, CONTROL TOWER



・RL1～5

450-5204
RELAY HH54P-CRAC200/220V
214-0274
RELAY SOCKET TP514 X1 FUJI

・RT1～4

450-5214
TIMER RELAY S1DXMA2C30M-AC220V
214-0283
RELAY SOCKET HJ2-SFD