SEGA

THE HOUSE of THE DEAD ™

DX TYPE

OWNER'S MANUAL

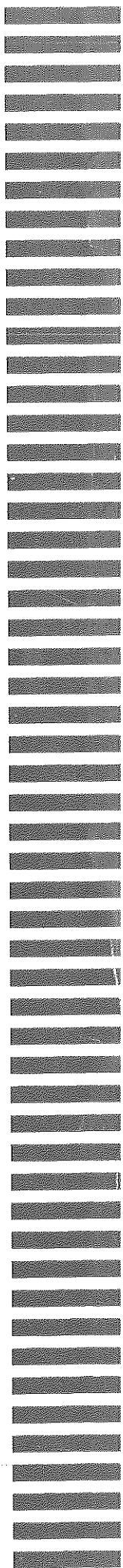# SEGA ENTERPRISES, LTD.

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

To maintain the safety:

To ensure the safe usage of the product, be sure to read the following before using the product. The following instructions are intended for the users, operators and the personnel in charge of the operation of the product. After carefully reading and sufficiently understanding the warning displays and cautions, handle the product appropriately. Be sure to keep this manual nearby the product or elsewhere convenient for referring to it when necessary.

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

DANGER!	Indicates that mishandling the product by disregarding this pictograph will cause severe injury or death.	**CAUTION!**	Indicates that mishandling the product by disregarding this caution will cause a slight hazardous situation which can result in personal injury and or material damage.
WARNING!	Indicates that mishandling the product by disregarding this warning will cause a potentially hazardous situation which can result in death or serious injury.	**STOP IMPORTANT!**	Indicates that mishandling the product by disregarding this display can cause the product's intrinsic performance not to be obtained, resulting in malfunctioning.

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

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

Indicates a "Protective Earth Terminal." Before operating the equipment, be sure to connect it to the Ground.

O **Perform work in accordance with the instructions herein stated.**
Instructions for work are explained by paying attention to the aspect of accident prevention. Failing to perform work as per the instructions can cause accidents. In the case where only those who have technical expertise should perform the work to avoid hazardous situation, the instructions herein state that the serviceman should perform such work.

O **Be sure to turn off power before working on the machine.**
To prevent electric shock, be sure to turn off power before starting the work in which the worker touches the interior of the product. If the work is to be performed in the power-on status, the Instruction Manual herein always states to that effect.

O **Be sure to ground the Earth Terminal** (this, however, is not required in the case where a power cord with earth is used).
This product is equipped with the Earth Terminal. When installing the product, Connect the Earth Terminal to the "accurately grounded indoor earth terminal" by using an earth wire. Unless the product is grounded appropriately, the user can be subject to electric shock. After performing repair, etc. for the Control equipment, ensure that the Earth Wire is firmly connected to the Control equipment.

O **Ensure that the Power Supply used is equipped with an Earth Leakage Breaker.**
This product does not incorporate the Earth Leakage Breaker. Using a power supply which is not equipped with the Earth Leakage Breaker can cause a fire when earth leakage occurs.

O **Be sure to use fuses which meet the specified rating.** (only for the machines which use fuses).
Using fuses exceeding the specified rating can cause a fire and electric shock.

○ **Specification changes (removal of equipment, conversion and addition) not designated by SEGA are not allowed.**
The parts of the product include warning labels for safety, covers for personal protection, etc. It is very hazardous to operate the product by removing parts and or modifying the circuits. Should doors, lids and protective parts be damaged or lost, refrain from operating the product, and contact where the product was purchased from or the office herein stated.

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

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

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

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

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

• Descriptions herein contained may be subject to improvement changes without notice.
• The contents described herein are fully prepared with due care. However, should any question arise or errors be found, please contact SEGA.

INSPECTIONS IMMEDIATELY AFTER TRANSPORTING THE PRODUCT TO THE LOCATION.

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

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

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

SPECIFICATIONS
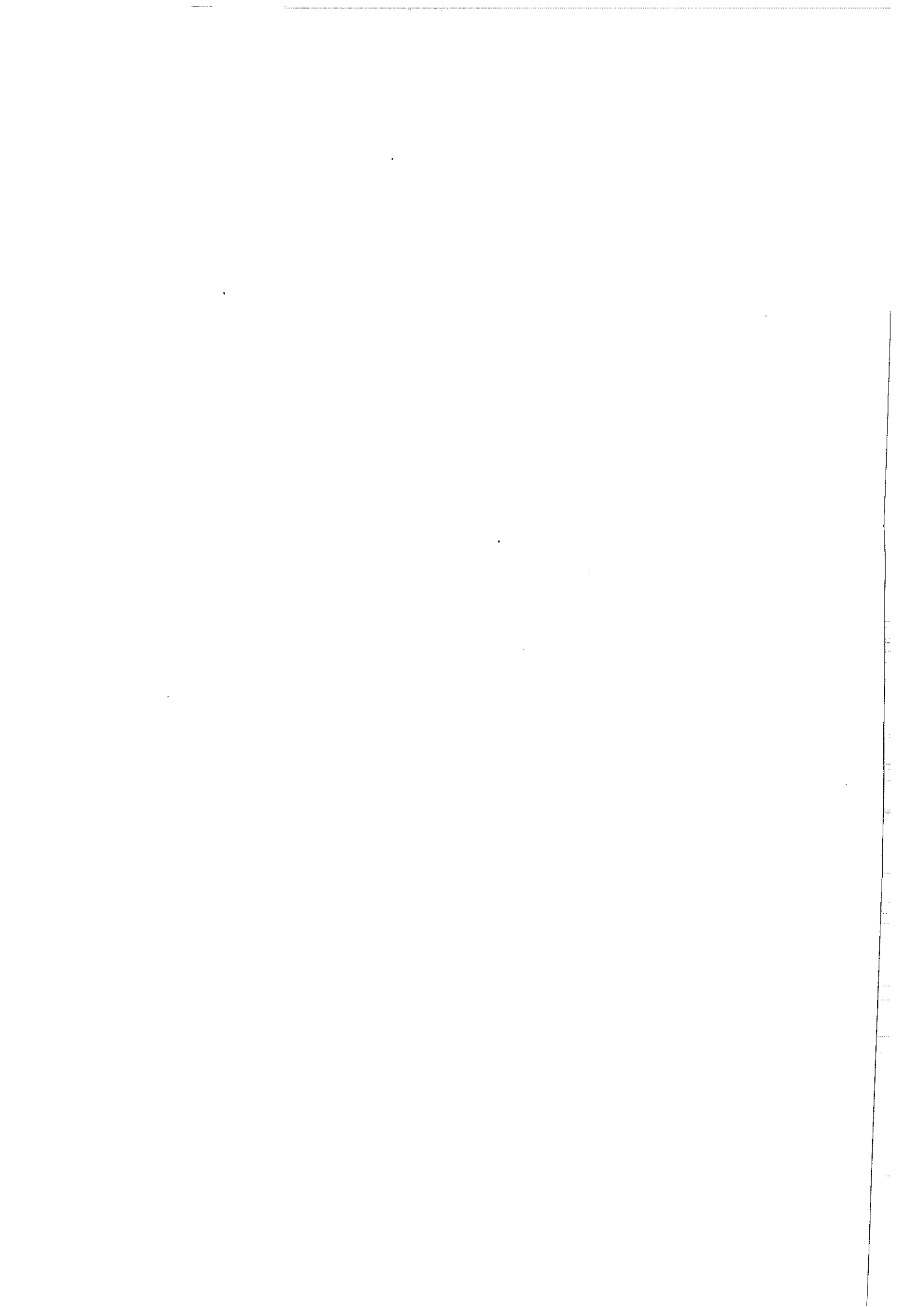
Installation space	: 1,195 mm (W) × 1,690 mm (D)
	(47.0 in. × 66.5 in.)
Height	: 2,249 mm (88.5 in.)
Weight	: Approx. 241 kg. (531 lbs.)
Power, maximum current	: 374W 4.65A (AC 110V 50 Hz AREA)
	380W 4.78A (AC 110V 60 Hz AREA)
	368W 4.21A (AC 120V 60 Hz AREA)
	388W 2.29A (AC 220V 50 Hz AREA)
	372W 2.22A (AC 220V 60 Hz AREA)
	380W 2.16A (AC 230V 50 Hz AREA)
	374W 2.14A (AC 230V 60 Hz AREA)
	382W 2.09A (AC 240V 50 Hz AREA)
	376W 2.06A (AC 240V 60 Hz AREA)
For TAIWAN (TOSHIBA PROJECTION DISPLAY TYPE)	
Power, current	: 339W 4.20A(MAX.)
	257W 3.14A(MIN.)
For TAIWAN (MITSUBISHI PROJECTION DISPLAY TYPE)	
Power, current	: 380W 4.78A(MAX.)
	294W 3.68A(MIN.)
MONITOR	: 50 INCH PROJECTION DISPLAY

INTRODUCTION OF THE OWNER'S MANUAL

SEGA ENTERPRISES, LTD., supported by its high electronic technology of LSIs, microprocessors, etc. and a wealth of experience, has for more than 30 years been supplying various innovative and popular game machines to the world market. This Owner's Manual is intended to provide detailed descriptions together with all the necessary information covering the general operation of electronic assemblies, electromechanicals, servicing control, spare parts, etc. as regards
THE HOUSE OF THE DEAD DX TYPE, a new SEGA product .
This manual is intended for those who have knowledge of electricity and technical expertise especially in ICs, CRTs, microprocessors, etc. Carefully read this manual to acquire sufficient knowledge before working on the machine. Should there be a malfunction, non-technical personnel should under no circumstances touch the interior system. Should such a case arise, contact our Main Office or the closest branch office listed as follows:

SEGA ENTERPRISES, INC. (U.S.A.)/CUSTOMER SERVICE
45133 Industrial Drive, Fremont, California 94538, U.S.A.
Phone : (415) 802-3100
Fax : (415) 802-1754

DEFINITION OF LOCATION MAINTENANCE MAN AND SERVICEMAN

Ensure that parts replacement, servicing & inspections, and troubleshooting are performed by the location's maintenance man or the serviceman. It is instructed herein that particularly hazardous work should be performed by the serviceman who has technical expertise and knowledge.

The location's maintenance man and serviceman are herein defined as follows:

"Location's Maintenance Man" :
Those who have experience in the maintenance of amusement equipment and vending machines, etc., and also participate in the servicing and control of the equipment through such routine work as equipment assembly and installation, servicing and inspections, replacement of units and consumables, etc. within the Amusement Facilities and or locations under the management of the Owner and Owner's Operators of the product.

Activities of Location's Maintenance Man :
Assembly & installation, servicing & inspections, and replacement of units & consumables as regards amusement equipment, vending machines, etc.

Serviceman :
Those who participate in the designing, manufacturing, inspections and maintenance service of the equipment at an amusement equipment manufacturer.
Those who have technical expertise equivalent to that of technical high school graduates as regards electricity, electronics and or mechanical engineering, and daily take part in the servicing & control and repair of amusement equipment.

Serviceman's Activities :
Assembly & installation and repair & adjustments of electrical, electronic and mechanical parts of amusement equipment and vending machines.

1. HANDLING PRECAUTIONS

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

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

⚠ WARNING!

- Before performing the work, be sure to turn power off. Performing the work without turning power off can cause an electric shock or short circuit.
- To avoid electric shock or short circuit, do not insert or pull out the plug quickly.
- To avoid electric shock, do not unplug with a wet hand.
- Do not expose Power Cords and 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 electric shock or short circuit.
- To avoid causing a fire or electric shock, do not put things on or damage 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 electric shock.
- In case the power cord is damaged, ask for replacement through where the product was purchased from or the office herein stated. Using the cord as is damaged can cause fire, electric shock or leakage.
- Be sure to perform grounding appropriately. Inappropriate grounding can cause an electric shock.
- Be sure to use fuses meeting specified rating. Using fuses exceeding the specified rating can cause a fire or electric shock.
- Completely make connector connections for IC BD and others. Insufficient insertion can cause an electric shock.
- To avoid causing a fire or electric shock, do not make Specification changes by removing, converting and making additions unless otherwise designated by SEGA.
- Be sure to perform periodic maintenance inspections herein stated.

🛑 STOP IMPORTANT!

- Also, 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.
- The Projector is employed for this machine. The Projector's screen is susceptible to damage, therefore, be very careful when cleaning the screen. For details, refer to PROJECTOR.

CONCERNING THE STICKER DISPLAY

SEGA product has Stickers describing the product manufacture No. (Serial No.) and Electrical Specifications. Also it has a Sticker describing where to contact for repair and for purchasing parts.
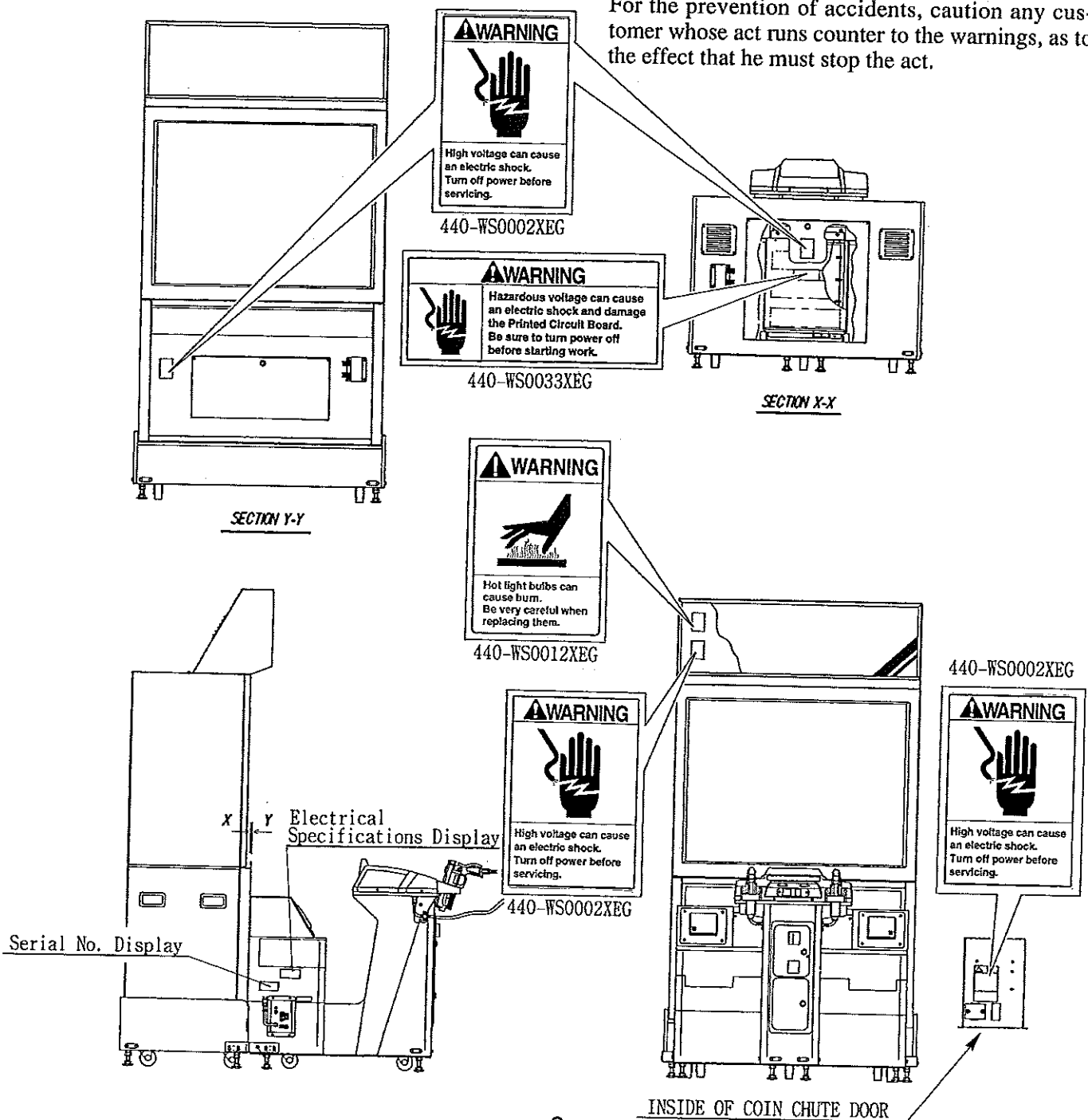
When inquiring about or asking for repair, mention the Serial No. and Name of Machine indicated on the Sticker. The Serial No. indicates the product register. Identical machines could have different parts depending on the date of production. Also, improvements and modifications might have been made after the publication of this Manual. In order to meet the above situations, mention the Serial No. when contacting the applicable places.

CONCERNING WARNING DISPLAYS

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 can arise. The warning displays are intended for avoiding hazardous situation relating to maintenance and servicing work, and for the prevention of accidents for the customers.

There are some portions in the Cabinet, which are subject to high tension voltage, etc. where accidents can be caused only by touching. When performing the servicing work, be very careful of the warning displays. Especially, repair and replacement work not mentioned herein, should be performed by those technical personnel who have knowledge of electricity and technical expertise.

For the prevention of accidents, caution any customer whose act runs counter to the warnings, as to the effect that he must stop the act.

WARNING
High voltage can cause an electric shock. Turn off power before servicing.
440-WS0002XEG

WARNING
Hazardous voltage can cause an electric shock and damage the Printed Circuit Board. Be sure to turn power off before starting work.
440-WS0033XEG

SECTION X-X

SECTION Y-Y

WARNING
Hot light bulbs can cause burn. Be very careful when replacing them.
440-WS0012XEG

X Y Electrical Specifications Display

WARNING
High voltage can cause an electric shock. Turn off power before servicing.
440-WS0002XEG

Serial No. Display

WARNING
High voltage can cause an electric shock. Turn off power before servicing.
440-WS0002XEG

INSIDE OF COIN CHUTE DOOR

2. PRECAUTIONS CONCERNING 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 malfunctioning.

● Places subject to rain or water leakage, or places subject to high humidity in the proximity of an indoor swimming pool and or shower, etc.
● Places subject to direct sunlight, or places subject to high temperatures in the proximity of heating units, etc.
● Places filled with inflammable gas or vicinity of highly inflammable/volatile chemicals or hazardous matter.
● Dusty places.
● Sloped surfaces
● Places subject to any type of violent impact.
● Vicinity of anti-disaster facilities such as fire exits and fire extinguishers.
● The operating (ambient) temperature range is from 5℃ to 40℃.
  Only in the case a projector is employed, the temperature range is from 5℃ to 30℃.

LIMITATIONS OF USAGE REQUIREMENTS

⚠ **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 Electric Specifications can cause a fire and electric shock.
● This product requires the Breaker and Earth Mechanisms as part of the location facilities. Using them in a manner not independent can cause a fire and electric shock.
● Ensure that the indoor wiring for the power supply is rated at 7A or higher (AC single phase 100~120V area), and 5A or higher (AC 220~240V area). Non-compliance with the Electrical Specifications can cause a fire and electric shock.
● Be sure to independently use the power supply equipped with the Earth Leakage Breaker. Using a power supply without the Earth Leakage Breaker can cause an outbreak of fire when earth leakage occurs.
● Putting many loads on one electrical outlet can cause generation of heat and a fire resulting from overload.
● When using an extension cord, ensure that the cord is rated at 7A or higher (AC 100~120V area) and 5A or higher (AC 220~240V area). Using a cord rated lower than the specified rating can cause a fire and electric shock.

● Note that for transporting the machine into the location's building, the minimum necessary dimensions of the opening (of doors, etc.) are 0.9m(W) and 1.2m(H).

● For the operation of this machine, secure a minimum area of 1.2m (W) ✕2.3m (D). For ventilation, provide an approximately 10cm. space between the rear part of the cabinet and the wall.

Electric current consumption

MAX. 4.65A (AC 110V 50 Hz)
MAX. 4.78A (AC 110V 60 Hz)
MAX. 4.21A (AC 120V 60 Hz)
MAX. 2.29A (AC 220V 50 Hz)
MAX. 2.22A (AC 220V 60 Hz)
MAX. 2.16A (AC 230V 50 Hz)
MAX. 2.14A (AC 230V 60 Hz)
MAX. 2.09A (AC 240V 50 Hz)
MAX. 2.06A (AC 240V 60 Hz)

(For TAIWAN)
MAX. 4.20A
   (TOSHIBA Projection display)
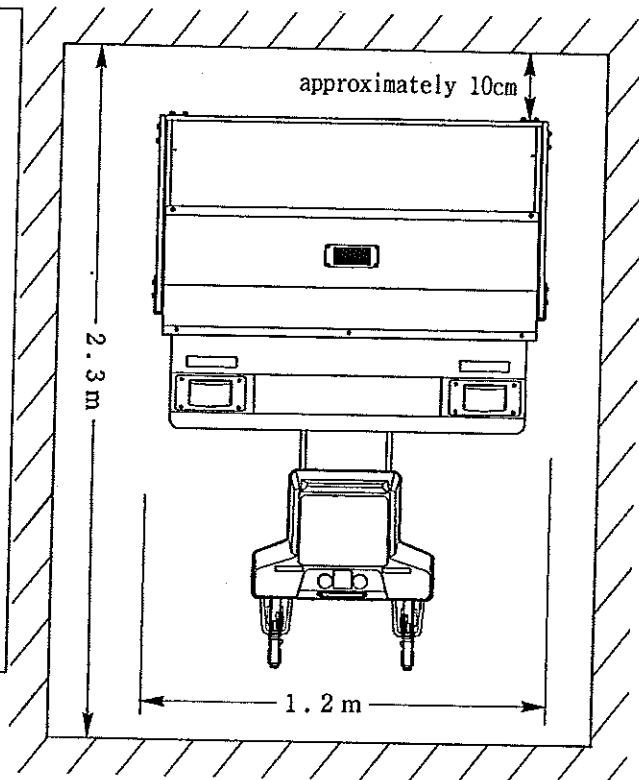MAX. 4.78A
   (MITSUBISHI Projection display)

approximately 10cm

2.3 m

1.2 m

FIG. 2

3. PRECAUTIONS TO BE HEEDED FOR OPERATION
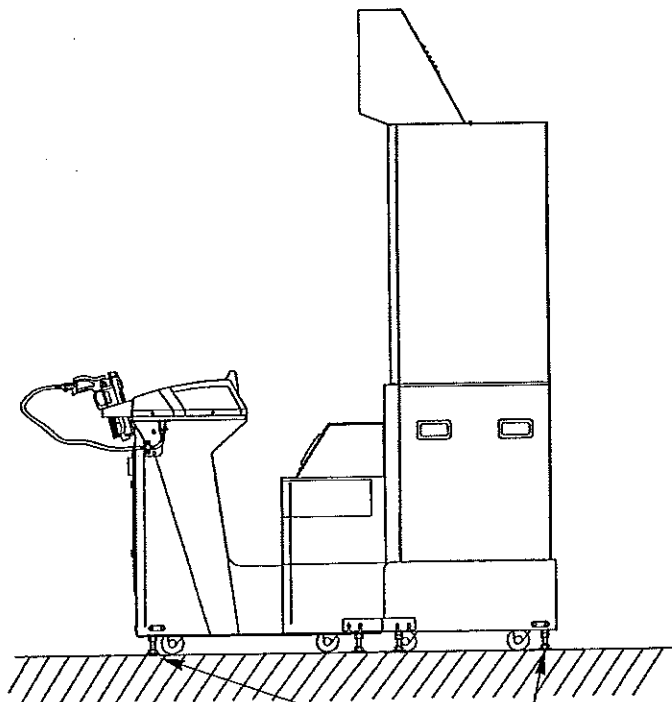
For the safe operation of the product, be sure to comply with the following precautions.

⚠ **WARNING!**

In order to avoid accidents, check the following before starting the operation:
● Check if all of the adjusters are in contact with the surface. If they are not, the Cabinet can move and cause an accident.

Ensure that all of the Adjusters are in contact with the floor.

● Do not put any heavy item on this product. Placing any heavy item on the product can cause a falling down accident or parts damage.
● Do not climb on the product. Climbing on the product can cause falling down accidents. To check the top portion of the product, use a step.
● 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!**

To avoid injury, be sure to provide sufficient space by considering the potentially crowded situation at the installation location. Insufficient installation space can cause the player to come into contact with or hit the others and result in injury or trouble.

PAYING ATTENTION TO CUSTOMERS

To avoid injury and trouble, be sure to constantly give careful attention to the behavior and manner of the visitors and players.

WARNING!

- To avoid electric shock and short circuit, do not allow customers to put hands and fingers or extraneous matter in the openings of the product or small openings in or around the doors.
- To avoid falling down and injury resulting from falling down, immediately stop the customer's leaning against or climbing on the product, etc.
- To avoid electric shock and short circuit, do not allow the customers to unplug the power plug without a justifiable reason.
- To avoid injury resulting from falling down, and electric shock due to spilled drinks, instruct the player not to place heavy items or drinks on the product.

CAUTION!

Immediately stop such violent acts as hitting and kicking the product. Such violent acts can cause parts damage or falling down, resulting in injury due to fragments and falling down.

4. NAME OF PARTS

BILLBOARD

PTV

FRONT CABINET DX

CONTROLLER (GUN)

COIN CHUTE DOOR

CASHBOX DOOR

AC UNIT
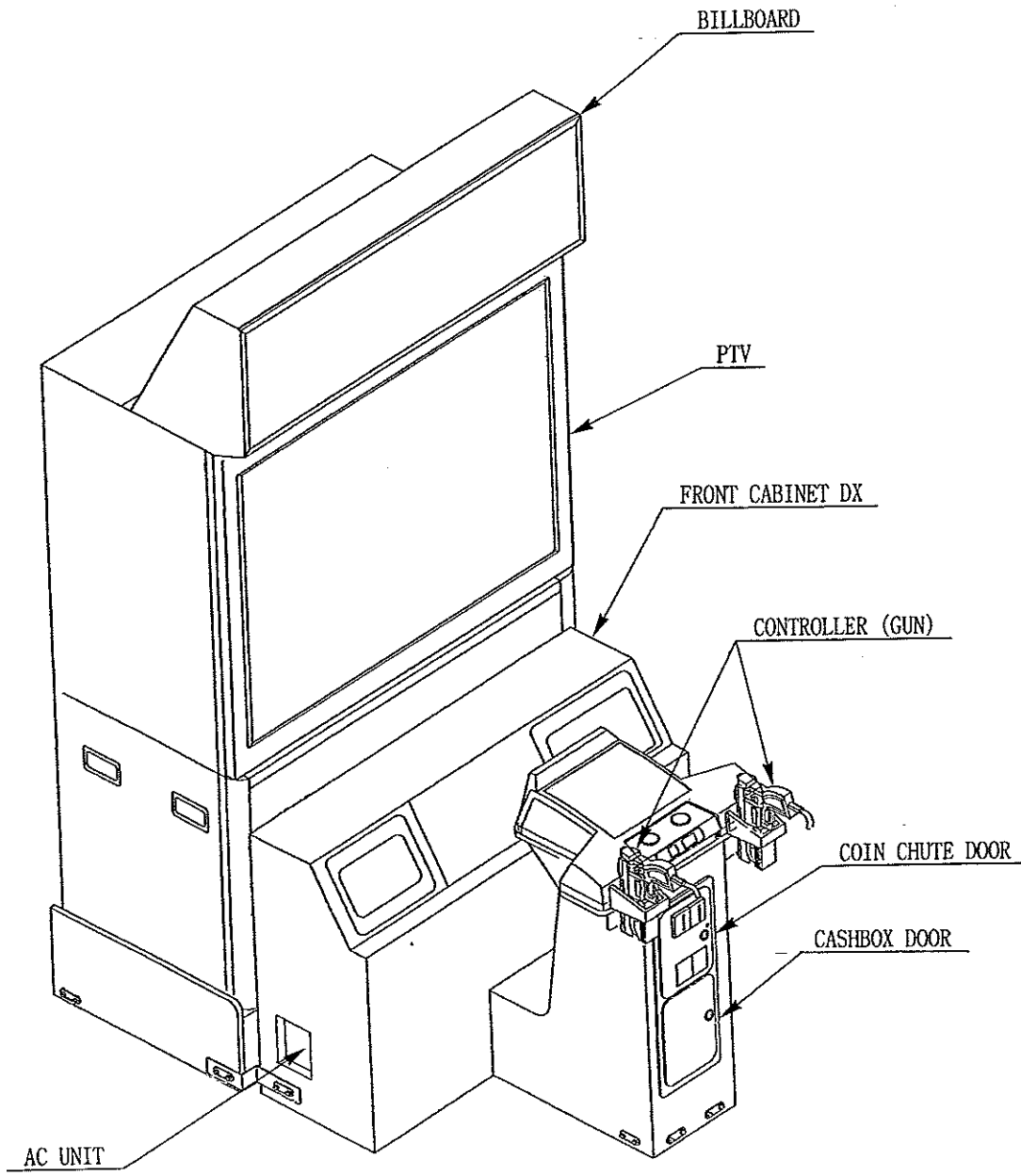
FIG. 4   OVERVIEW
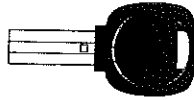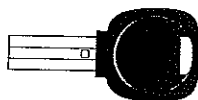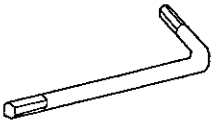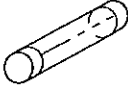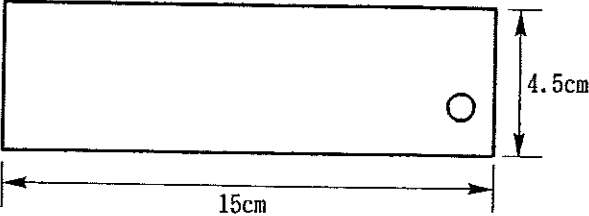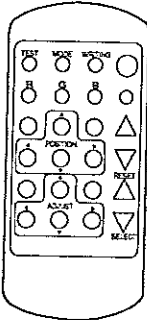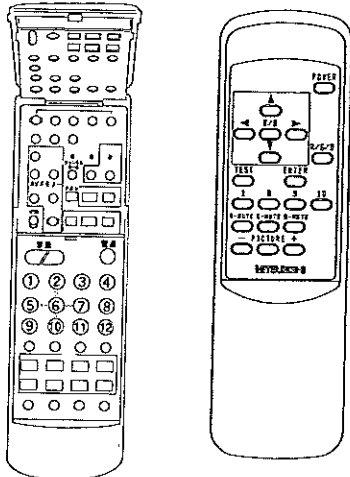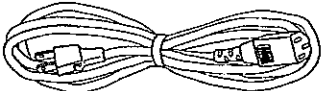
TABLE 4

	Width	Length	Height (mm.)	Weight (kg.)
FRONT CABINET DX	1,095 ×	987 ×	992	81
PTV w/PTV BASE	1,195 ×	782 ×	2,249	160
When assembled	1,195 ×	1,690 ×	2,249	Approx. 241

5. ACCESSORIES

When transporting the machine, make sure that the following parts are supplied.

TABLE 5 ACCESSORIES

DESCRIPTION	OWNERS MANUAL	KEY MASTER	KEY
Part No. (Qty.)	420-6292-02 (1)	220-5381 (2)	(2)
Note		For opening/closing the doors	For the CASHBOX DOOR

Figures

If Part No. has no description, the Number has not been registered or can not be registered. Such a part may not be obtainable even if the customer desires to purchase it. Therefore, ensure that the part is in safekeeping with you.

(TAMPERPROOF WRENCH)
M4   540-0006-01 (1)
TOOL

FUSE 7000mA   125V
514-5036-7000 (1)
For spare, refer to Section 15.

LAMP WEDGE BASE
390-5160 (1)
For spare, refer to Section 13.

BLIND SHEET
ZMB-1102 (1)
For TOSHIBA Projector only (see ⬚1, Sec. 6).

4.5cm

15cm

SW MICRO TYPE
509-5080 (1)
For spare, refer to Section 10.

TOSHIBA
Remote Control for Projector
Used for adjustment. (See Sec. 12).
200-5536 (1)

MITSUBISHI
Remote Control for Projector
Used for adjustment. (See Sec. 12).
200-5298 (1)   200-5532 (1)

AC CABLE CONNECT
600-6724 (1)
600-6729 (1)
Used for installation.
(see⬚4, Sec. 6)

One of the above three types of Remote Controls is used for the Projector.

6. ASSEMBLING AND PRECAUTIONS

⚠ **WARNING!**

- Perform the assembly work by following the procedure herein stated. Failing to comply with the instructions, for example, inserting the plug into an outlet at the stage not mentioned in this manual can cause an electric shock accident.
- Assembling should be performed as per this manual. Since this is a complex machine, erroneous assembling can cause damage to the machine or malfunctioning to occur.
- When assembling, be sure to perform the work by plural persons. Depending on the assembly work, there are some cases in which performing the work by a single person can cause personal injury or parts damage.

When carrying out the assembly work, follow the procedure in the following 5-item sequence:

|1| ASSEMBLING THE PTV

|2| CONNECTING THE FRONT CABINET DX AND PTV

|3| SECURING IN PLACE (ADJUSTER ADJUSTMENT)

|4| POWER SUPPLY, AND EARTH CONNECTION

|5| ASSEMBLING CHECK

Note that the tools such as a plus screwdriver and wrench for M16 hexagon bolt w/24 mm width across flats are required for the assembly work. (for Hexagon Bolt width across flats: 10mm, 24mm)

|1| ASSEMBLING THE PTV

⚠ **WARNING!**

When performing ⑤, ⑥ and ⑦ below, it is difficult to carry out the work by one person. Be sure to perform the work by plural persons. In particular, be sure to use 4 or more persons for Procedure ⑦ to avoid injury and parts damage.

⚠ **CAUTION!**

To perform work safely and securely, be sure to prepare a step which is in a secure and stable condition. Not using a step or using an unstable step can cause a violent falling down accidents.

Apply the Blind Sheet in the manner to meet the hole position.
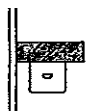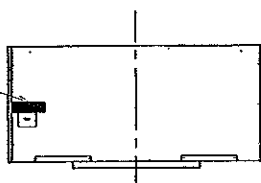
In the case of TOSHIBA Projector, first apply the Blind Sheet, an accessory, on to the Projector ceiling and then perform the following work.
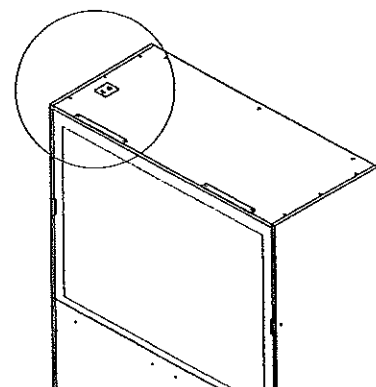
① By using the specified screws, secure the 2 Mask Holders to the Projection Display ceiling. (FIG. 6. 1 a)
② Insert the TV Mask from the underside as shown and secure with a total of 6 screws.
③ Secure Panel Mount Bracket L and R to the front of Projection Display in the installation direction shown with 2 screws for each.
④ Secure the Front Panel to both Panel Mount Brackets with a total of 4 screws.
⑤ Insert the Billboard Connector into the Terminal Board of Projection Display ceiling.
⑥ Insert the Billboard from the front as shown and secure with 2 screws. (FIG. 6.1 a)
⑦ Mount the assembled PTV on the PTV Base. (FIG. 6. 1 b)

⑥BILLBOARD
SCREW(2),M5×16

⑤BILLBOARD's connector

①MASK HOLDER (2)
FLAT HEAD SCREW(2),M4×14

PROJECTION DISPLAY

③PANEL MOUNT BRKT R
SCREW(2), M5×16,
w/flat & spring washers

②TV MASK
SCREW(4),M5×20,
using flat washer

②SCREW(2),M5×25
One each on both sides

③PANEL MOUNT BRKT L
SCREW(2),M5×16,
w/flat & spring washers

⑦PTV BASE

④FRONT PANEL
SCREW(4),M5×20,using flat washer

FIG. 6. 1 a

FIG. 6. 1 b

—10—
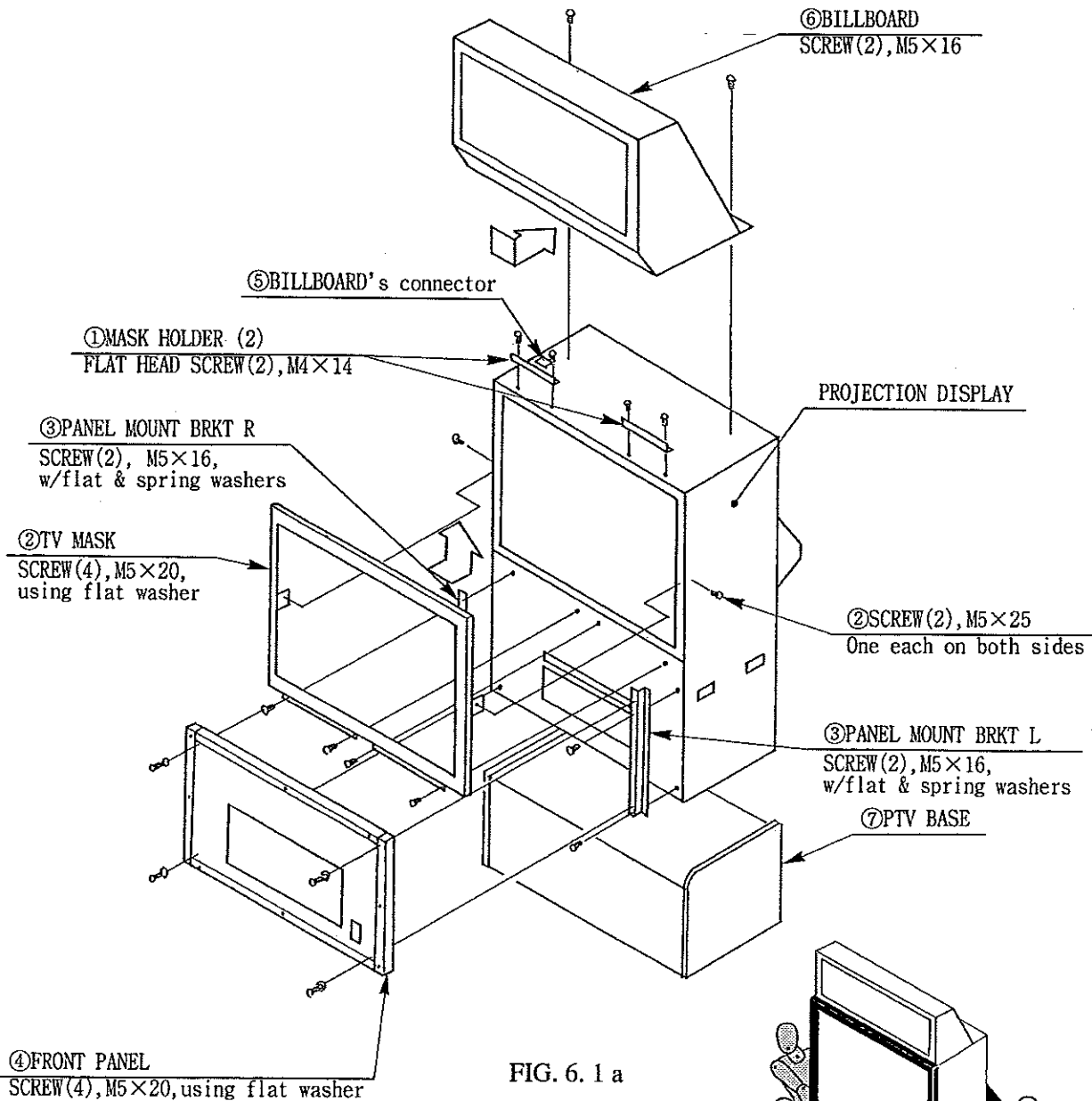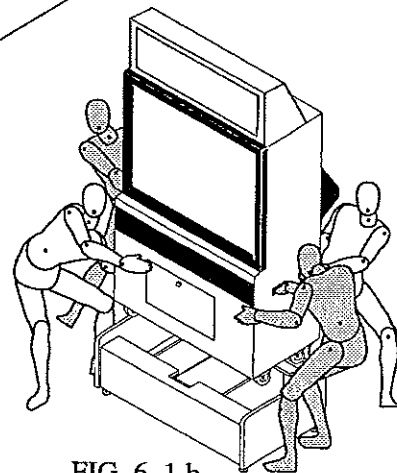
2 CONNECTING THE FRONT CABINET DX AND PTV

Install the CONNECT TUBE in between PTV & FRONT CABINET DX and connect the wire.
When working, use care so that the Connect Tube wiring is not caught between the Joint Box and the Cabinet.
Also, before starting work, be sure to check the length of wiring which comes from the Connect Tube. Depending on the length of wiring, where the connection is to be made varies.

① Remove the PTV's SERVICE DOOR and FRONT CABINET DX BACK LID.

FRONT CABINET DX SIDE

Approx. 300mm

PTV SIDE

Approx. 700mm
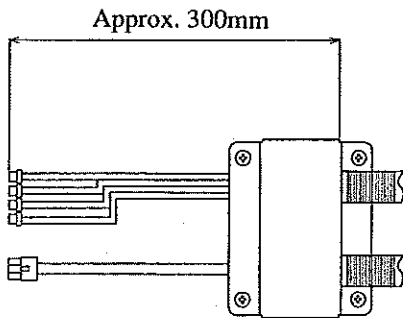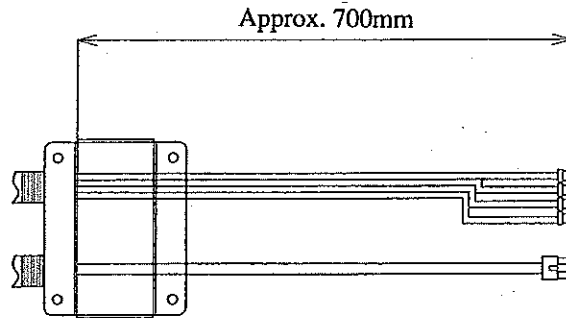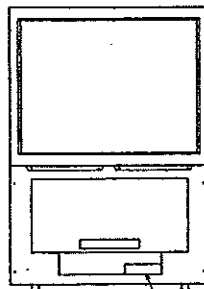
MITSUBISHI PTV   TOSHIBA PTV

CONNECTOR PANEL   CONNECTOR PANEL

Depending on the projector makers,
the connector panel position varies.
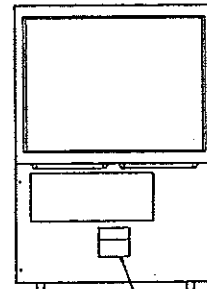
② Put the CONNECT TUBE's wiring connectors in the square hole beside the SERVICE DOOR and secure the JOINT BOX with 4 truss screws by paying careful attention so that the connectors are not damaged.

③ Connect the CONNECT TUBE's wiring connectors to the connector panel inside the PTV. At this time, make sure that the wire color (red, green, blue and the remaining color) corresponds with the applicable symbol of the connector panel's display (R. G. B. and SYNC terminals). (FIG. 6. 2 a)

Also, note that the connector's insertion angle is predetermined. When the connector is forcibly inserted in an incorrect direction, it can be damaged. Therefore, ascertain the correct direction before insertion. After insertion, turn the connector ring clockwise to lock the connection.

JOINT BOX

P T V

CONNECTOR PANEL

CONNECT TUBE

WIRE CONNECTION   TRUSS SCREW (4), black,
M4×20
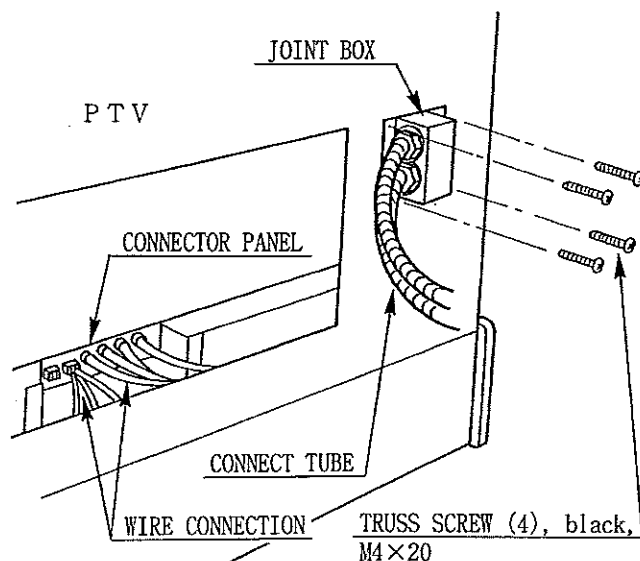
FIG. 6. 2 a

④ Put the connect tube wires into the square hole of the FRONT CABINET DX and secure the joint box with 4 truss screws. When fastening the screws, be careful so that the wires are not damaged. (FIG. 6. 2 b)

CONNECT TUBE   FRONT CABINET DX

JOINT BOX

WIRE CONNECTION

TRUSS SCREW (4), black, M4×20
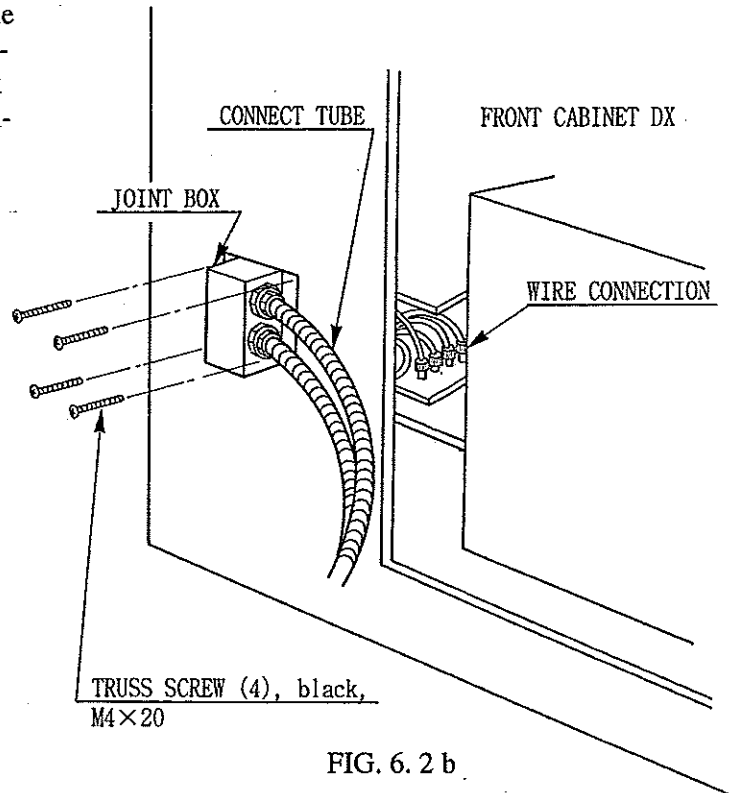
FIG. 6. 2 b

⑤ Connect the CONNECT TUBE's wire with VPM buffer BD & 3P white connector inside the FRONT CABINET DX. Make sure that the connector color corresponds to the applicable one of on-Board R. G. B. Insert the remaining color wire into SYNC. As for the 4 connectors inserted on the board, turn the connector ring clockwise to lock the connection.

⑥ Install the PTV's SERVICE DOOR.

⑦ Install the BACK LID to the FRONT CABINET DX with the 2 screws.

① Loosen the 2 Hexagon Bolts, one each on both sides of Front Cabinet DX.

② Loosen the 2 Hexagon Bolts, one each on both sides of the PTV.

③ Install Joint Bracket L and R by fastening with the previously loosened Hexagon Bolts.

⚠ **WARNING!**

When joining Front Cabinet DX and PTV, use care so as not to damage Connect Tube which connects Front Cabinet DX and PTV. Damaging the Connect Tube can cause electric shock and fire. The Joint Bracket is used for preventing the PTV against falling down.

Connect Tube

PTV

Joint Bracket L
CPT-0001

Front Cabinet DX

Joint Bracket R
CPT-0002

M6 Bolt

FIG. 6. 2 c

⚠ CAUTION!
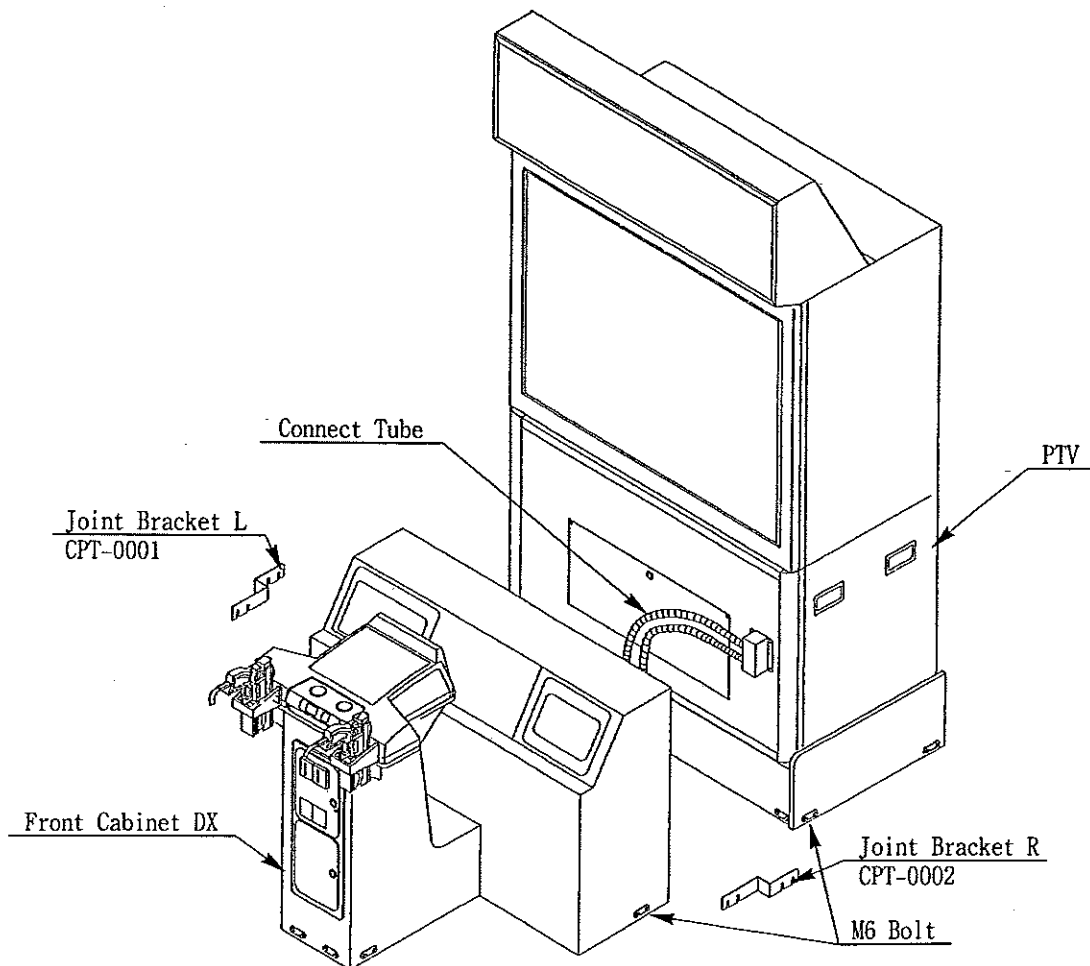
Make sure that all of the adjusters are in contact with the floor. If they are not, the cabinet may move and cause an accident.

This machine has 4 each of casters and adjusters on PTV Base, and 4 Adjusters & 3 Casters for Front Cabinet DX (FIG. 6. 3 a). When the installation position is determined, cause the adjusters to come into contact with the floor directly, make adjustments in a manner so that the casters will be raised approximately 5mm. from the floor and make sure that the machine position is level.

① Move the machine to the installation position.

② Cause all of the adjusters to make contact with the floor. By using a wrench, make adjustments in the height of the leg adjusters to ensure that the machine's position is level.

③ After making adjustments, fasten the adjuster nut upward and secure the height of the adjuster.

ADJUSTER

CASTER

FIG. 6. 3 a   BOTTOM VIEW

ADJUSTER

FASTEN UPWARD.

CASTER

Approx. 5mm

ADJUSTER

FIG. 6. 3 b   ADJUSTER

ADJUSTER

Approx. 10cm
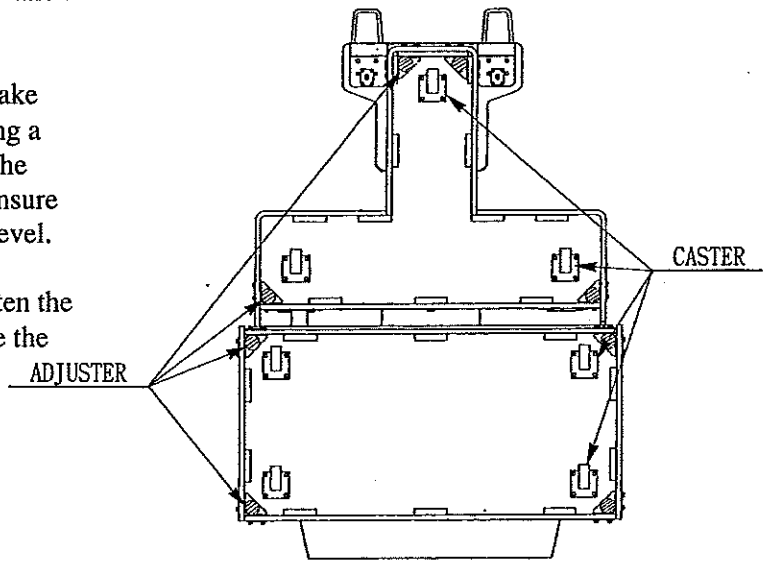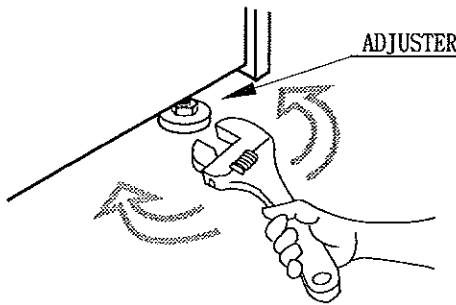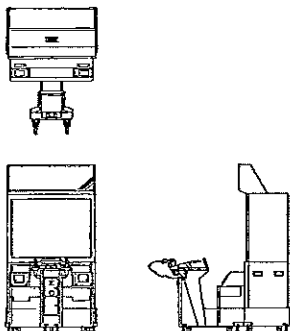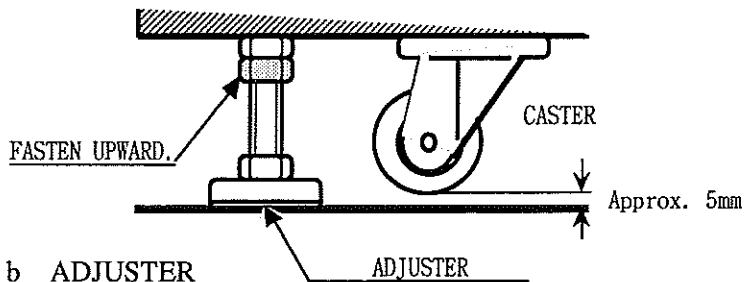
FIG. 6. 3 c
Refer to this Fig. (Scale:1/100) for the layout of the place of installation.
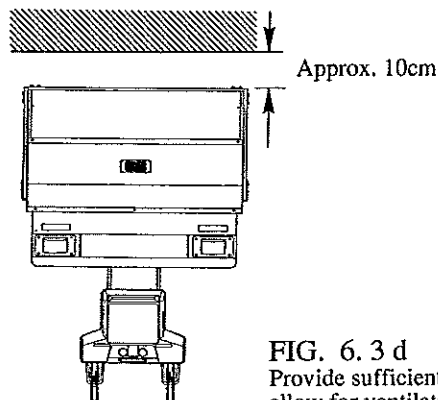
FIG. 6. 3 d
Provide sufficient space so as to allow for ventilation by the ventilation fan.

⚠ WARNING!

- Be sure to independently use the power supply socket outlet equipped with an Earth Leakage Breaker. Using a power supply without an Earth Leakage Breaker can cause a fire when the leakage occurs.
- Ensure that the "accurately grounded indoor earth terminal" and the earth wire cable are available (except in the case where a power cord plug with earth is used). This product is equipped with the earth terminal. Connect the earth terminal and the indoor earth terminal with the prepared cable. If the grounding work is not performed appropriately, customers can be subjected to an electric shock, and the product's functioning may not be stable.
- Ensure that the power cord and earth wire are not exposed on the surface (passage, etc.). If exposed, they can be caught and are susceptible to damage. If damaged, the cord and wire can cause an electric shock or short circuit. Ensure that the wiring position is not in the customer's passage way or the wiring has protective covering.

The AC unit is mounted on the side of Front Cabinet DX. The AC Unit incorporates the Main SW, Earth Terminal and Inlet. Firmly insert the Power Plug into the Socket Outlet and the other side of the plug to the Inlet. Turn the Main SW ON to turn power ON.

① Ensure that the Main SW is OFF.
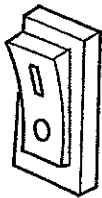
Earth Terminal
Connect with the
Indoor Earth Terminal

Inlet

Main SW

Circuit Protector
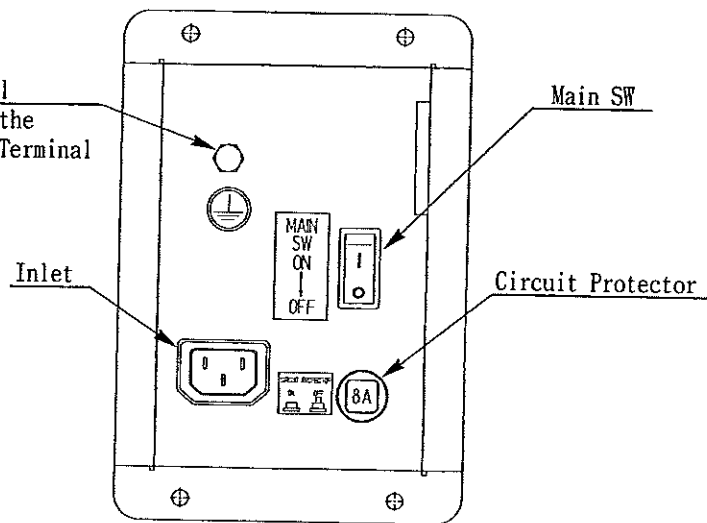
FIG. 6. 4 a   AC Unit

② Connect one end of the earth wire to the AC Unit earth terminal, and the other end to the indoor earth terminal. The AC Unit earth terminal has a Bolt and Nut combination. Take off the Nut, pass the earth wire through the Bolt, and fasten the Nut.
Note that the Earth Wire is incorporated in the Power Cord for the Areas of AC 120V (USA) and AC 220~240V, and therefore, this procedure is not necessary.
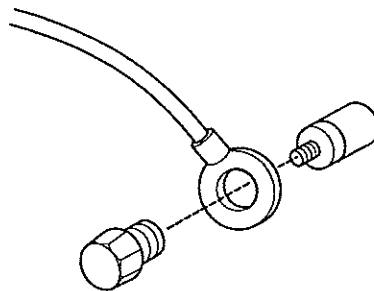
Connect the Earth Wire to
the Earth Terminal

FIG. 6. 4 b   Earth Wire Connection

③ Firmly insert the power cord
into the socket outlet and
inlet.
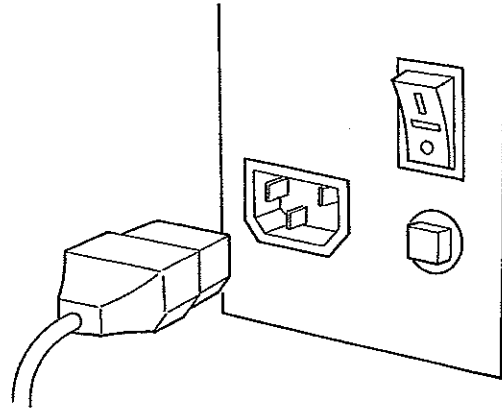
FIG. 6. 4 c

④ Perform wiring for the
Power Cord and Earth Wire.
Install protective covering
for the Power Cord and Earth
Wire.

⑤ Turn the Main SW ON to
turn power ON.

Wiring Cover
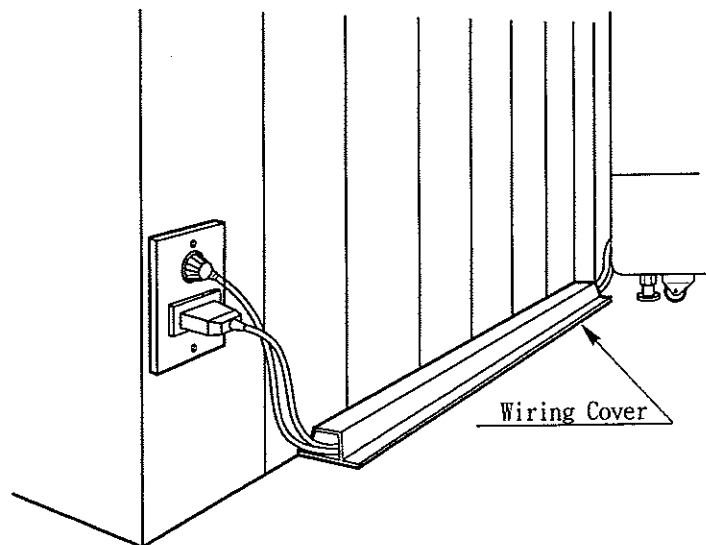
FIG. 6. 4 d   Wiring for Power Cord and Earth Wire

5 ASSEMBLING CHECK

In the TEST MODE, ensure that the assembly has been made correctly and IC BD. is satisfactory (refer to Section 9).
In the test mode, perform the following test:

```
                    MEMORY TEST
<ROM>  BOARD
   IC15 GOOD          IC16 GOOD        IC13 GOOD
   IC14 GOOD          IC11 GOOD        IC12 GOOD
   IC9  GOOD          IC10 GOOD        IC7  GOOD
   IC8  GOOD          IC5  GOOD        IC6  GOOD

<RAM>  CPU  BOARD
   IC58  GOOD    IC64  GOOD    IC72  GOOD    IC78  GOOD
   IC63  GOOD    IC71  GOOD
   IC79  GOOD    IC73  GOOD
   IC109 GOOD    IC101 GOOD
   IC116 GOOD    IC114 GOOD    IC115 GOOD    IC113 GOOD
   IC95  GOOD    IC87  GOOD
   IC86  GOOD    IC94  GOOD    IC100 GOOD
   IC12  GOOD    IC10  GOOD    IC11  GOOD    IC9   GOOD

   IC110 GOOD    IC102 GOOD    IC96  GOOD    IC88  GOOD
   IC111 GOOD    IC103 GOOD    IC97  GOOD    IC89  GOOD
   IC82  GOOD    IC75  GOOD    IC68  GOOD    IC60  GOOD
   IC61  GOOD    IC69  GOOD    IC76  GOOD    IC83  GOOD

   IC81  GOOD    IC55  GOOD    IC54  GOOD


            PRESS TEST BUTTON TO EXIT
```

Selecting the MEMORY TEST on the test mode menu screen causes the on-board memory to be tested automatically. The game board is satisfactory if the display beside each IC No. shows GOOD.

```
                    INPUT TEST


        CHUTE#1      OFF      CHUTE#2      OFF

        START1       OFF      START2       OFF

        TEST-SW      OFF      SERVICE-SW   OFF

        TRIGGER1     OFF      TRIGGER2     OFF




            PRESS TEST BUTTON TO EXIT
```

Selecting the INPUT TEST on the test mode menu screen causes the screen (on which each switch is tested) to be displayed. Press each switch. For the coin switch test, insert a coin from the coin inlet with the coin chute door being open. If the display beside each switch indicates "ON," the switch and wiring connections are satisfactory.

```
                    OUTPUT TEST


        START1LAMP       OFF

        START2LAMP       OFF






        → EXIT

        SELECT WITH SERVICE BUTTON
          AND PRESS TEST BUTTON
```

Select "OUTPUT TEST" from the Test Menu in the Test Mode to have the Lamp Test Screen displayed. Check if each lamp lights up satisfactorily.

```
SOUND TEST

NO.0
```

```
SELECT WITH SERVICE BUTTON
PRESS TEST BUTTON TO EXIT
```

In the TEST mode, selecting SOUND TEST causes the screen, on which sound related BD and wiring connections are tested, to be displayed. Be sure to check if the sound is satisfactorily emitted from each speaker and the sound volume is appropriate.

```
C.R.T. TEST 1/2

RED

GREEN

BLUE

WHITE

PRESS TEST BUTTON CONTINUE
```

In the TEST mode menu, selecting C.R.T. TEST allows the screen (on which the projector is tested) to be displayed. Although the projector adjustments have been made at the time of shipment from the factory, color deviation, etc., may occur due to the effect caused by geomagnetism, the location building's steel frames and other game machines in the periphery. By watching the test mode screen, make judgment as to whether an adjustment is needed. If it is necessary, adjust the projector by referring to Section 12.

```
GUN SETTING
GUN MARK CHECK
PLAYER1 GUN ADJUSTMENT
PLAYER1 GUN DEFAULT ADJUSTMENT
PLAYER1 GUN MANUAL ADJUSTMENT
PLAYER2 GUN ADJUSTMENT
PLAYER2 GUN DEFAULT ADJUSTMENT
PLAYER2 GUN MANUAL ADJUSTMENT
➡ EXIT


SELECT WITH SERVICE BUTTON
AND PRESS TEST BUTTON
```

On the menu screen in the test mode, selecting GUN SETTING displays the screen on which gun sighting is set. Check to see if there is any problem for playing game.

Perform the above inspections also at the time of monthly inspection.

7. PRECAUTIONS TO BE HEEDED WHEN MOVING THE MACHINE

WARNING!

- When moving the machine, be sure to pull out the plug from the power supply. Moving the machine with the plug as is inserted can damage the power cord and cause a fire or electric shock.
- When moving the machine on the floor, retract the Leg Adjusters and ensure that Casters make contact with the floor. During transportation, pay careful attention so that Casters do not tread power cords and earth wires. Damaging the power cords can cause an electric shock and or short circuit.
- In places where step-like grade differences exist, be sure to separate the PTV, PTV Base, and the Cabinet. Inclining the PTV as is mounted on the PTV Base can cause the PTV to fall off from the Base and result in injury.
- When lifting the cabinet, be sure to hold the catch portions or bottom part. Lifting the cabinet by holding other portions can damage parts and installation portions due to the empty weight of the cabinet, and cause personal injury.
- When moving the PTV, do not push it from the rear side. Push it from sideways. Pushing the PTV from the rear side can have the PTV fall down, causing personal injury and damaging parts or installation portions. In case the floor has slanted surfaces or step-like differences, be sure to move the machine by 2 or more persons.

STOP

IMPORTANT!

When moving Front Cabinet DX, inclining it diagonally can cause the Controller (Gun) to fall off and to be damaged. Be very careful in this regard.

Where to hold
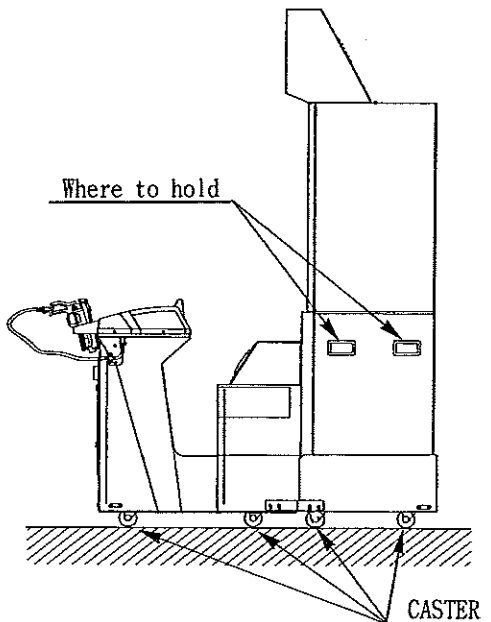
On level surfaces, move the machine by causing the Casters to make contact with the surfaces.

CASTER
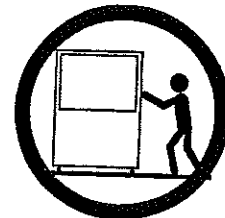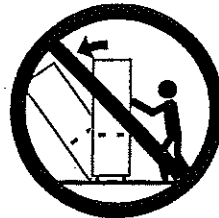
Do not push PTV from the rear side. Pushing the PTV from the rear side can cause the PTV to fall down. Push it from the side.
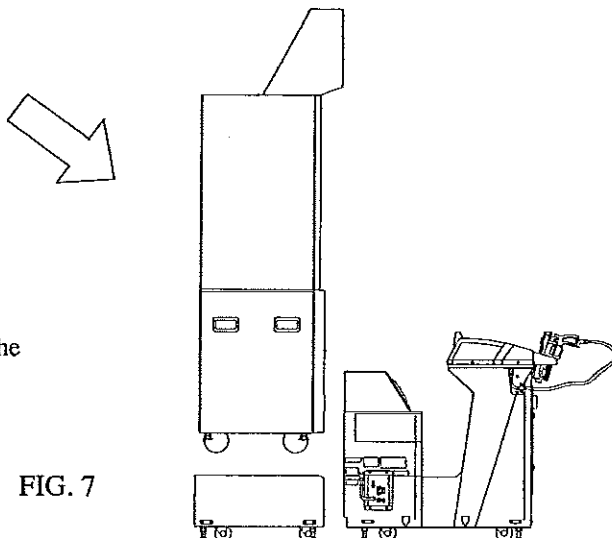
FIG. 7

Where there are steps (or step-like differences in grade), move the machine by separating into each unit.

8. CONTENTS OF GAME

① Inserting a coin(s) causes the credit display on the bottom of the screen to count. Inserting one credit worth coin(s) changes the message on the bottom of the screen from "INSERT COIN(S)" to "PRESS START BUTTON" and both of the start buttons will flash.

② Pressing either of the start buttons determines which side (left or right) you are playing on. Press the START button to start the game.

③ After starting the game, the Title of the Stage being started and the purpose of game are displayed.

The Cartridge picture shows charged bullets.

RELOAD

1P

2P

When your gun runs out of ammo, point outside the screen and pull the trigger to reload.

When the life point becomes zero, the game is over.
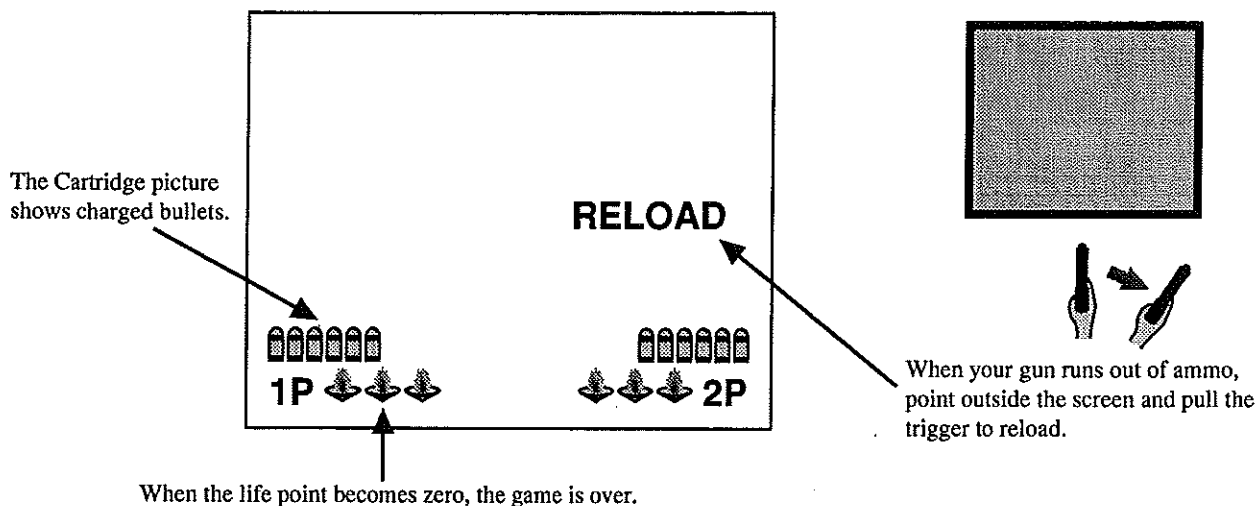
- The life points and the number of bullets of the left-hand side player (1P) are displayed on the lower left-hand side of the screen, and those of the right-hand side player (2P), on the lower right-hand side of the screen.

- The player loses one life point if he shoots a hostage by mistake.

- The gun holds 6 bullets. When it runs out of ammo, "RELOAD" is displayed on the screen. At this time, point outside the screen and pull the trigger to reload.

- The enemy's axes, knives, drum cans, barrels, etc. can be shot down for your defense.

- Shooting the background scenery can cause Special Items to appear sometimes. The Special Items can be captured by shooting. Capturing an item allows you to earn points or recovers life points (explanations as regards the Items are given later).

- When the life point becomes zero, the game is over.

- Downing the boss character awaiting you at the end of each stage results in clearing that particular stage. The player can not defeat the boss until his life meter becomes zero.
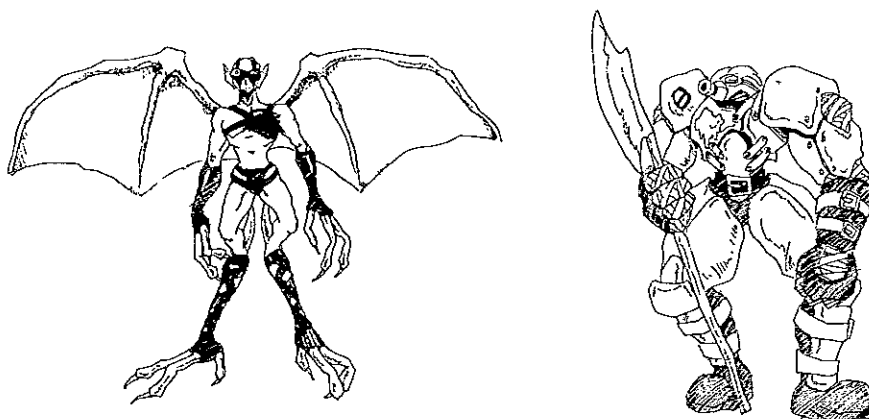
④ If you would like to join in the game at anytime while the other person is playing, insert a coin(s) and press the start button. Also, when credits allowing the game to be played still remain, the start button on the other side will keep flashing. The player can participate in the game by pressing the flashing button.

⑤ When the life point becomes zero, if you want to continue, insert a coin(s) required to continue and press the start button. If credits allowing the player to continue still remain, you can continue by merely pressing the start button.

⑥ At the time of game over, if the player's score ranks 10th or higher, his name can be entered.

CONCERNING SPECIAL ITEMS
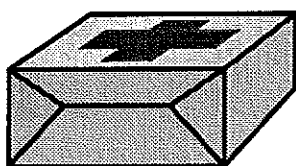
LIFE
The life point increases by one.
The upper limit of Life Point can be set to 3, 4, and 5 (see Sec. 9).
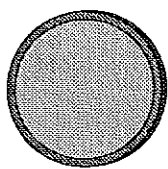
COIN or GOLDEN FROG
Capturing either of these items increases the Life Point.

KNACK OF PLAY

● Accurately shoot at the head:
In each stage, the head part is the weak point of the enemy characters other than the Boss. Hitting the head greatly decreases the enemy's life points and can down the enemy quickly. In the latter half of the stages, the higher the stage level you proceed to, the more important the shooting accuracy becomes.

WEAK POINT ➡️

● Look for your favorite routes:
The stage has various routes which are determined by the player's action. Some routes have less enemy appearance, frequent life recovery, etc. You can master a knack of play by looking for your favorite routes.

● Memorizing the enemy's appearance position:
Since the enemy's appearance pattern is the same every time, you can also master a knack of play by memorizing such pattern through repeated game play.
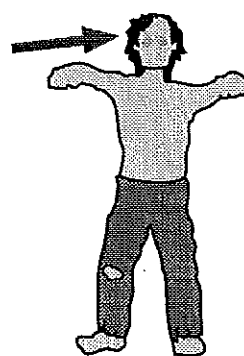
9. EXPLANATION OF TEST AND DATA DISPLAY

By operating the switch unit, periodically perform the tests and data check. When installing the machine initially or collecting cash, or when the machine does not function correctly, perform checking in accordance with the explanations given in this section. The following shows tests and modes that should be utilized as applicable.

TABLE 9   EXPLANATION OF TEST MODE

ITEMS	DESCRIPTION	REFERENCE SECTIONS
INSTALLATION OF MACHINE	When the machine is installed, perform the following: 1. Check to see that each setting is as per standard setting made at the time of shipment.	9 - 9, 9 - 10
	2. In the INPUT TEST mode, check each SW and VR.	9 - 5
	3. In the OUTPUT TEST mode, check each of lamps.	9 - 6
	4. In the MEMORY TEST mode, check ICs on the IC Board.	9 - 3, 9 - 4
MEMORY	Choose MEMORY TEST in the MENU mode to allow the MEMORY test to be performed. In this test, PROGRAM RAMs, ROMs, and ICs on the IC Board are checked.	9 - 3, 9 - 4
PERIODIC SERVICING	Periodically perform the following: 1. MEMORY TEST	9 - 3, 9 - 4
	2. Ascertain each setting.	9 - 9, 9 - 10
	3. In the INPUT TEST mode, test the CONTROL device	9 - 5
	4. In the OUTPUT TEST mode, check each of lamps.	9 - 6
CONTROL SYSTEM	1. In the INPUT TEST mode, check each SW and VR.	9 - 5
	2. Adjust or replace each SW and VR.	10
	3. If the problem can not be solved yet, check the CONTROL's moves.	10
PROJECTOR	In the PROJECTOR ADJUSTMENT mode, check to see if the PROJECTOR adjustment is appropriately made.	9 - 8
IC BOARD	1. MEMORY TEST	9 - 3, 9 - 4
	2. In the SOUND TEST mode, check the sound related ROMs.	9 - 7
DATA CHECK	Check such data as game play time and histogram to adjust the difficulty level, etc..	9 - 12

WARNING!

Never touch places other than those specified. Touching places not specified can cause electric shock and short circuit.

STOP

IMPORTANT!

● Adjust to the optimum sound volume by considering the environmental requirements of the installation location.
● If the COIN METER and the game board are electrically disconnected, game play is not possible.

Open the coin chute door, and you will see the switch unit shown appears. The functioning of each SW is as follows:

① SOUND VOLUME ------------ Controls the speaker volume.

② TEST BUTTON ---------------- For the handling of the TEST BUTTON, refer to the sec-
(TEST)   tion on test mode.

③ SERVICE BUTTON ----------- Gives credits without registering on the coin meter.
(SERVICE)
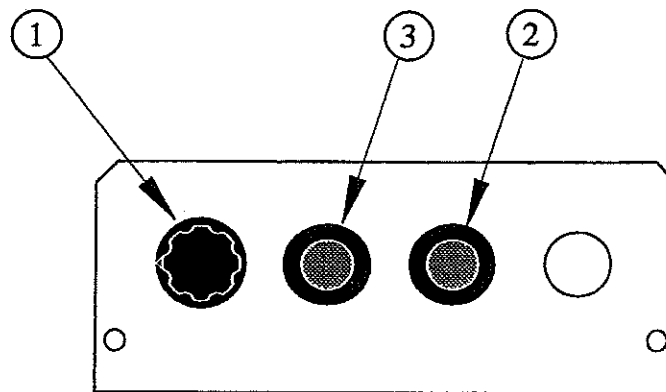
FIG. 9. 1a   SW UNIT
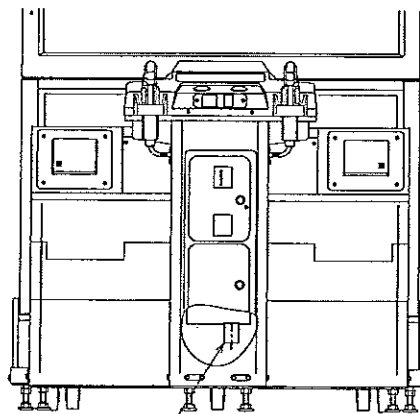
Open the Cashbox Door by using the key to have the Coin Meter appear underneath the Cashbox.

COIN METER
Counts the number of coins

FIG. 9. 1 b   COIN METER

9—2 TEST MODE

This mainly checks if the operation of the game BD is accurate, and allows for COIN ASSIGNMENTS/GAME ASSIGNMENTS setting and Projector adjustments.

| SELECTION OF TEST ITEMS |

```
            TEST MODE

        MEMORY TEST
        T.G.P. TEST
        INPUT TEST
        OUTPUT TEST
        SOUND TEST
        C.R.T. TEST
        GAME ASSIGNMENTS
        COIN ASSIGNMENTS
        GUN SETTING
        BOOKKEEPING
        BACKUP DATA CLEAR
      → EXIT


      SELECT WITH SERVICE BUTTON
        AND PRESS TEST BUTTON
```

FIG. 9. 2   TEST MENU
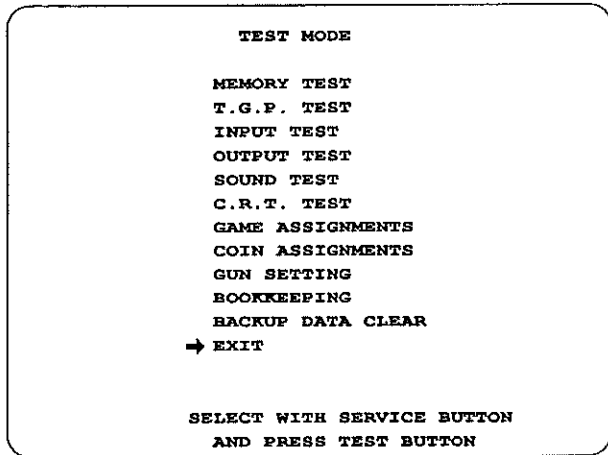
① Push the TEST BUTTON to cause the following TEST MENU to appear:

② By pushing the SERVICE BUTTON, bring the arrow mark "→" to the desired item and press the TEST BUTTON.

③ After the test is complete, move "→" to "EXIT" and press the TEST BUTTON to return to the Game Mode.

9—3 MEMORY TEST

```
                  MEMORY TEST
<ROM>  BOARD
    IC15 GOOD        IC16 GOOD        IC13 GOOD
    IC14 GOOD        IC11 GOOD        IC12 GOOD
    IC9  GOOD        IC10 GOOD        IC7  GOOD
    IC8  GOOD        IC5  GOOD        IC6  GOOD

<RAM>  CPU  BOARD
  IC58 GOOD    IC64  GOOD    IC72  GOOD    IC78  GOOD
  IC63 GOOD    IC71  GOOD
  IC79 GOOD    IC73  GOOD
  IC109 GOOD   IC101 GOOD
  IC116 GOOD   IC114 GOOD    IC115 GOOD    IC113 GOOD
  IC95 GOOD    IC87  GOOD
  IC86 GOOD    IC94  GOOD    IC100 GOOD
  IC12 GOOD    IC10  GOOD    IC11  GOOD    IC9   GOOD

  IC110 GOOD   IC102 GOOD    IC96  GOOD    IC88  GOOD
  IC111 GOOD   IC103 GOOD    IC97  GOOD    IC89  GOOD
  IC82  GOOD   IC75  GOOD    IC68  GOOD    IC60  GOOD
  IC61  GOOD   IC69  GOOD    IC76  GOOD    IC83  GOOD

  IC81  GOOD   IC55  GOOD    IC54  GOOD


            PRESS TEST BUTTON TO EXIT
```

FIG. 9. 3   MEMORY TEST

The MEMORY TEST mode is for checking the on-BD memory IC functioning.
"GOOD" is displayed for normal ICs and "BAD" is displayed for abnormal ICs.

● When the test is completed, if the display is as shown left, it is satisfactory.

● After finishing the test, pressing the TEST BUTTON allows the MENU mode to return on to the screen.

9—4 T.G.P. TEST

```
            T.G.P. TEST



        IC25   GOOD
        IC23   GOOD












            PRESS TEST BUTTON TO EXIT
```
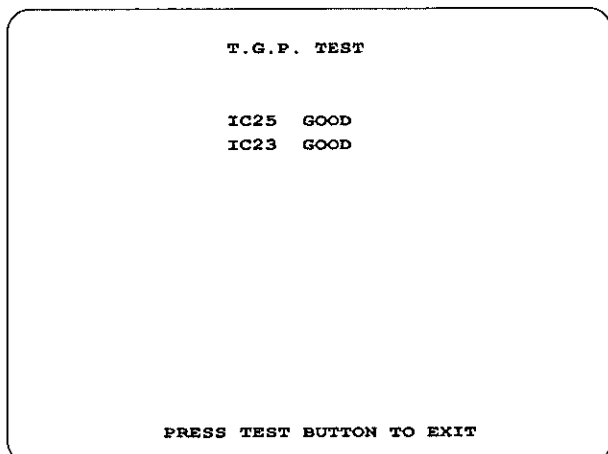
FIG. 9. 4   T.G.P. TEST

In this test, T.G.P. (on-screen display related IC) is checked. As shown at the left, if "GOOD" is displayed for all, it is satisfactory. Press TEST BUTTON to return to the menu screen.

9—5 INPUT TEST

When INPUT TEST is selected, the Projector will show the following, allowing you to watch the status of each switch.
On this screen, periodically check the status of each switch.

```
           INPUT TEST


   CHUTE#1    OFF     CHUTE#2     OFF

   START1     OFF     START2      OFF

   TEST-SW    OFF     SERVICE-SW  OFF

   TRIGGER1   OFF     TRIGGER2    OFF




        PRESS TEST BUTTON TO EXIT
```
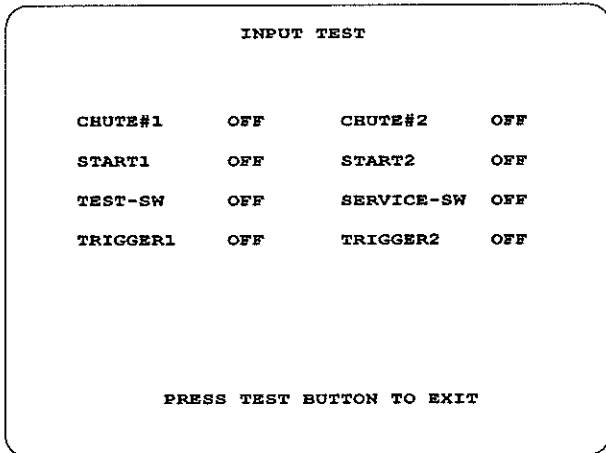
FIG. 9. 5   INPUT TEST

● By pressing each switch, if the display on the righthand side of the name of each switch changes to ON from OFF, the SW and the wiring connections are satisfactory.

● Open the COIN CHUTE DOOR and insert a coin from the COIN ENTRY to check the COIN CHUTE COIN SW.

In the INPUT test, pressing the TEST BUTTON and the SERVICE BUTTON simultaneously causes the menu to return to the screen.

9—6 OUTPUT TEST

Choose OUTPUT TEST to cause the following upper screen to appear. In this test, periodically adjust the projector and check the status of each lamp.

```
           OUTPUT TEST


      START1LAMP      OFF

      START2LAMP      OFF




      → EXIT

      SELECT WITH SERVICE BUTTON
      AND PRESS TEST BUTTON
```
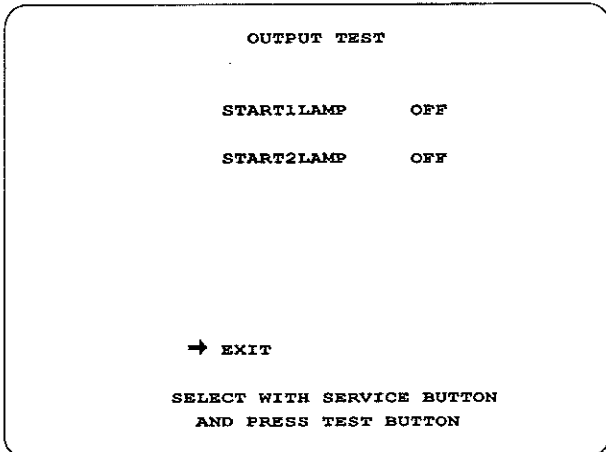
FIG. 9. 6   OUTPUT TEST

Choose OUTPUT TEST to have the MONITOR screen shown left appear. This screen allows lamp status to be checked. Periodically check the lamp status in this mode.

Press the Service button to move the arrow to the desired lamp test item.

Press the Test button. If the display to the right of the lamp name changes to ON from OFF, the lamp and wiring connection are satisfactory.

Choose EXIT and press the Test button to return to the Menu mode (FIG. 9.2).

9—7 SOUND TEST


```
            SOUND TEST

            NO. 0




        SELECT WITH SERVICE BUTTON
        PRESS TEST BUTTON TO EXIT
```
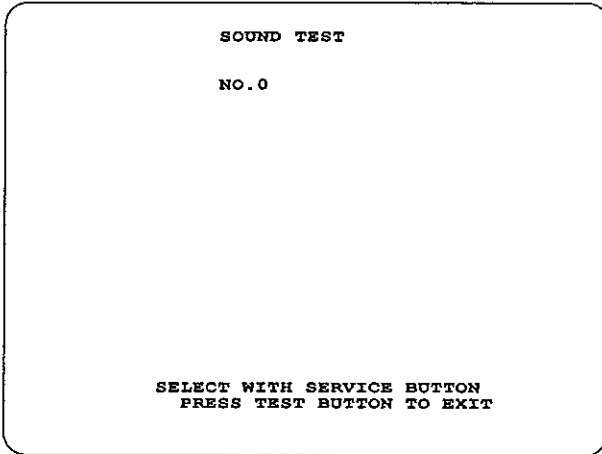
FIG. 9. 7   SOUND TEST

This enables sounds used in the game to be checked. Sound related memory and each speaker are checked. Press the SERVICE BUTTON to bring the arrow (→) to the desired sound item to be tested. Pressing the TEST BUTTON causes the desired sound test screen to appear.

Each time the Service button is pressed, the numeral displayed on the screen counts up and sound is emitted.

9—8   C.R.T. TEST

FIG. 9. 8   C.R.T. TEST
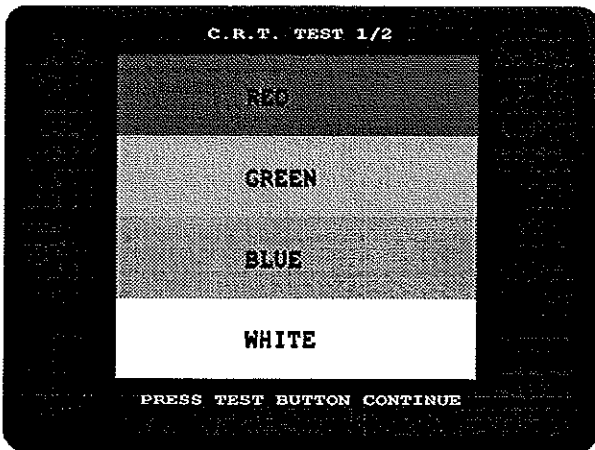
Select C. R. T. Test to cause the Projector to display the screen shown left , allowing Projector adjustment status to be checked.

Periodically check the Projector adjustment status on this screen.

The screen (1/2) enables color adjustment check to be performed. The color bar of each of the 4 colors, i. e., red, green, blue and white, is darkest at the extreme left and becomes brighter towards the extreme right.

Press the TEST BUTTON to shift to the next page (2/2).
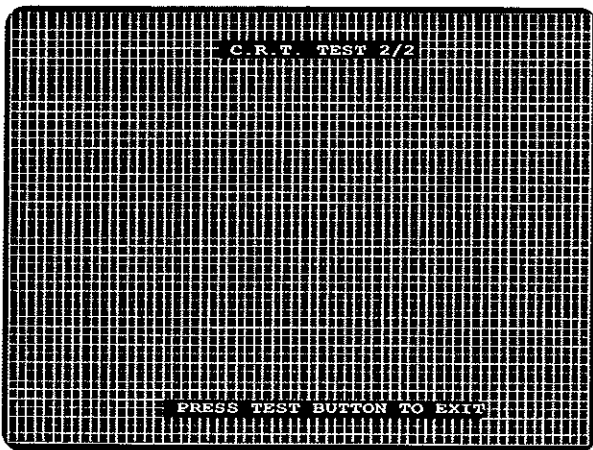
The screen (2/2) allows screen size and distortion to be tested.

Check if the Crosshatch Frame Line goes out of the screen and if the crosshatch lines are distorted.

Press the TEST BUTTON to return to the Menu mode. (FIG. 9. 2)

9-9 GAME ASSIGNMENTS

Selecting the GAME ASSIGNMENTS in the menu mode causes the present game setting to be displayed and also the game setting changes (game difficulty, etc.) can be made. Each item displays the following content.

| SETTING CHANGE PROCEDURE |

(STOP)

IMPORTANT!

| The setting can not be changed until "EXIT." When the setting is changed, be sure to "EXIT." |

① Press the SERVICE BUTTON to move the arrow "→" to the desired item.

② Choose the desired setting change item by using the TEST BUTTON.

③ To return to the MENU mode, move the arrow to EXIT and press the TEST BUTTON.

```
                GAME ASSIGNMENTS

        GAME DIFFICULTY        NORMAL
        LIFE SETTING
          INITIAL LIFE         3
          MAX LIFE             5
        BLOOD COLOR            GREEN
        ADVERTISE SOUND        ON
        COUNTRY                JAPAN
      → EXIT




          SELECT WITH SERVICE BUTTON
            AND PRESS TEST BUTTON
```

FIG. 9. 9   GAME ASSIGNMENTS

● **GAME DIFFICULTY**
Game difficulty can be set in 5 different levels from VERY EASY to VERY HARD.

● **LIFE SETTING**
The combination set of INITIAL LIFE (the number of life points allotted to the player at the time of game start) and MAX LIFE (the limited number of life points) can be selected from the following 12 variations.

INITIAL LIFE: 1 2 3 1 2 3 4 1 2 3 4 5
MAX LIFE: 3 3 3 4 4 4 4 5 5 5 5 5

● **BLOOD COLOR**
The blood color is chosen from among the 4 kinds, i. e., GREEN, RED, BLUE and PURPLE.

● **ADVERTISE SOUND**
Determines whether ADVERTISE SOUND is to be emitted or not by setting to ON when emitting it and to OFF when not emitting it.

● **COUNTRY**
Message language.
However, Specifications for Korea and Australia do not have this item.

9-10 COIN ASSIGNMENTS

The "COIN ASSIGNMENTS" mode permits you to set the start number of credits, as well as the basic numbers of coins and credits. This mode expresses "how many coins correspond to how many credits."

SETTING CHANGE PROCEDURE

STOP

IMPORTANT!

The setting can not be changed until "EXIT." When the setting is changed, be sure to "EXIT."

① Press the SERVICE BUTTON to move the arrow "→" to the desired item.

② Choose the desired setting change item by using the TEST BUTTON.

③ To return to the MENU mode, move the arrow to EXIT and press the TEST BUTTON.

```
            COIN ASSIGNMENTS

   COIN CHUTE TYPE            COMMON
   CREDIT TO START          2 CREDITS
   CREDIT TO CONTINUE       1 CREDIT

   COIN/CREDIT SETTING  #1

       CHUTE #1    1COIN   1CREDIT


       CHUTE #2    1COIN   1CREDIT

   MANUAL SETTING

 → EXIT

        SELECT WITH SERVICE BUTTON
          AND PRESS TEST BUTTON
```

FIG. 9. 10   COIN ASSIGNMENTS

● **COIN CHUTE TYPE**
Sets the combination of the number of COIN CHUTEs and the number of players as applicable. In the case that the COIN CHUTE is changed, be sure the setting is made in a manner meeting the replaced coin chute.

COMMON :
Coins are accepted in common for both players.

INDIVIDUAL :
Each player uses a coin chute which accepts coins independently.

● **CREDIT TO START**
Number of credits required for starting game (1~5 credits are selected.)

● **CREDIT TO CONTINUE**
Number of credits required for continuing game (1~5 credits are selected.)

● **COIN/CREDIT SETTING**
Sets the CREDIT increase increment per coin insertion. There are 27 settings from #1 to #27, expressed in ○○ CREDIT as against ○○ COINS inserted. (TABLE 9. 10 a, 9. 10 b) #27 refers to FREE PLAY.
When the COIN CHUTE TYPE is set to INDIVIDUAL, there are some setting numbers not displayed as indicated in TABLE 9. 10 b.

● **MANUAL SETTING**
This allows credit increase setting as against coin insertion to be further set in the manner finer than COIN/CREDIT SETTING (refer to Table 9. 10 c).

TABLE 9. 10 a   COIN/CREDIT SETTING (COIN CHUTE COMMON TYPE)

SETTING	FUNCTIONING COIN CHUTE #1			FUNCTIONING COIN CHUTE #2		
SETTING #1	1 COIN	1	CREDIT	1 COIN	1	CREDIT
SETTING #2	1 COIN	2	CREDITS	1 COIN	1	CREDIT
SETTING #3	1 COIN	3	CREDITS	1 COIN	1	CREDIT
SETTING #4	1 COIN	4	CREDITS	1 COIN	1	CREDIT
SETTING #5	1 COIN	5	CREDITS	1 COIN	1	CREDIT
SETTING #6	1 COIN	2	CREDITS	1 COIN	2	CREDITS
SETTING #7	1 COIN	5	CREDITS	1 COIN	2	CREDITS
SETTING #8	1 COIN	3	CREDITS	1 COIN	3	CREDITS
SETTING #9	1 COIN	4	CREDITS	1 COIN	4	CREDITS
SETTING #10	1 COIN	5	CREDITS	1 COIN	5	CREDITS
SETTING #11	1 COIN	6	CREDITS	1 COIN	6	CREDITS
SETTING #12	2 COINS	1	CREDIT	2 COINS	1	CREDIT
SETTING #13	1 COIN	1	CREDIT	2 COINS	1	CREDIT
SETTING #14	1 COIN	2	CREDITS	2 COINS	1	CREDIT
SETTING #15	1 COIN	1	CREDIT	1 COIN	1	CREDIT
	2 COINS	3	CREDITS	2 COINS	3	CREDITS
SETTING #16	1 COIN	3	CREDITS	1 COIN	1	CREDIT
				2 COINS	3	CREDITS
SETTING #17	3 COINS	1	CREDIT	3 COINS	1	CREDIT
SETTING #18	4 COINS	1	CREDIT	4 COINS	1	CREDIT
SETTING #19	1 COIN	1	CREDIT	1 COIN	1	CREDIT
	2 COINS	2	CREDITS	2 COINS	2	CREDITS
	3 COINS	3	CREDITS	3 COINS	3	CREDITS
	4 COINS	5	CREDITS	4 COINS	5	CREDITS
SETTING #20	1 COIN	5	CREDITS	1 COIN	1	CREDIT
				2 COINS	2	CREDITS
				3 COINS	3	CREDITS
				4 COINS	5	CREDITS
SETTING #21	5 COINS	1	CREDIT	5 COINS	1	CREDIT
SETTING #22	1 COIN	2	CREDITS	3 COINS	1	CREDIT
				5 COINS	2	CREDITS
SETTING #23	2 COINS	1	CREDIT	2 COINS	1	CREDIT
	4 COINS	2	CREDITS	4 COINS	2	CREDITS
	5 COINS	3	CREDITS	5 COINS	3	CREDITS
SETTING #24	1 COIN	3	CREDITS	2 COINS	1	CREDIT
				4 COINS	2	CREDITS
				5 COINS	3	CREDITS
SETTING #25	1 COIN	1	CREDIT	1 COIN	1	CREDIT
	2 COINS	2	CREDITS	2 COINS	2	CREDITS
	3 COINS	3	CREDITS	3 COINS	3	CREDITS
	4 COINS	4	CREDITS	4 COINS	4	CREDITS
	5 COINS	6	CREDITS	5 COINS	6	CREDITS
SETTING #26	1 COIN	6	CREDITS	1 COIN	1	CREDIT
				2 COINS	2	CREDITS
				3 COINS	3	CREDITS
				4 COINS	4	CREDITS
				5 COINS	6	CREDITS
SETTING #27	FREE PLAY			FREE PLAY		

TABLE 9. 10 b COIN/CREDIT SETTING
(COIN CHUTE INDIVIDUAL TYPE)

SETTING	FUNCTIONING OF EACH COIN CHUTE		
SETTING #1	1 COIN	1	CREDIT
SETTING #6	1 COIN	2	CREDITS
SETTING #8	1 COIN	3	CREDITS
SETTING #9	1 COIN	4	CREDITS
SETTING #10	1 COIN	5	CREDITS
SETTING #11	1 COIN	6	CREDITS
SETTING #12	2 COINS	1	CREDIT
SETTING #15	1 COIN	1	CREDIT
	2 COINS	3	CREDITS
SETTING #17	3 COINS	1	CREDIT
SETTING #18	4 COINS	1	CREDIT
SETTING #19	1 COIN	1	CREDIT
	2 COINS	2	CREDITS
	3 COINS	3	CREDITS
	4 COINS	5	CREDITS
SETTING #21	5 COINS	1	CREDIT
SETTING #22	3 COINS	1	CREDIT
	5 COINS	2	CREDITS
SETTING #23	2 COINS	1	CREDIT
	4 COINS	2	CREDITS
	5 COINS	3	CREDITS
SETTING #25	1 COIN	1	CREDIT
	2 COINS	2	CREDITS
	3 COINS	3	CREDITS
	4 COINS	4	CREDITS
	5 COINS	6	CREDITS
SETTING #27	FREE PLAY		

Selecting MANUAL SETTING in the Coin Assignment mode displays the following screen.

```
              MANUAL SETTING
   COIN TO CREDIT          1 COIN    1CREDIT*   *    •  •  •  ①
   BONUS ADDER                NO BONUS ADDER*   *    •  •  •  •  •  ②


   COIN CHUTE #1 MULTIPLIER          •  •  •  •    •  •  •  •  •  ③
   1 COIN COUNTS AS 1 COIN
      COIN     1   2   3   4   5   6   7   8   9
      CREDIT   1   2   3   4   5   6   7   8   9

   COIN CHUTE #2 MULTIPLIER
   1 COIN COUNTS AS 1 COIN
      COIN     1   2   3   4   5   6   7   8   9
      CREDIT   1   2   3   4   5   6   7   8   9


→ EXIT

         SELECT WITH SERVICE BUTTON
         AND PRESS TEST BUTTON
```
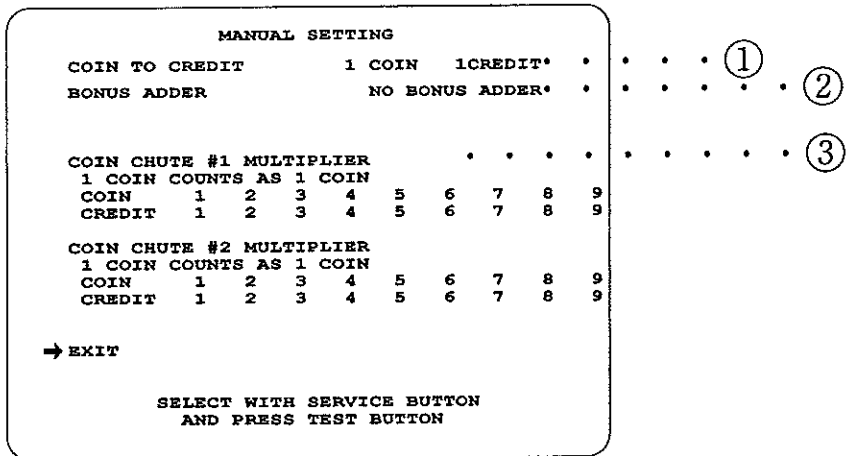
FIG. 9. 10 b   MANUAL SETTING

①   Determines Coin /Credit setting.
②   This sets how many coins should be inserted to obtain one Service Coin.
③   This sets how many tokens one coin represents.

Table 9. 10 c   MANUAL SETTING

COIN TO CREDIT		
	1 COIN	1 CREDIT
	2 COINS	1 CREDIT
	3 COINS	1 CREDIT
	4 COINS	1 CREDIT
	5 COINS	1 CREDIT
	6 COINS	1 CREDIT
	7 COINS	1 CREDIT
	8 COINS	1 CREDIT
	9 COINS	1 CREDIT

BONUS ADDER	
	NO BONUS ADDER
	2 COINS GIVE 1 EXTRA COIN
	3 COINS GIVE 1 EXTRA COIN
	4 COINS GIVE 1 EXTRA COIN
	5 COINS GIVE 1 EXTRA COIN
	6 COINS GIVE 1 EXTRA COIN
	7 COINS GIVE 1 EXTRA COIN
	8 COINS GIVE 1 EXTRA COIN
	9 COINS GIVE 1 EXTRA COIN

COIN CHUTE MULTIPLIER	
	1 COIN COUNTS AS 1 COIN
	1 COIN COUNTS AS 2 COINS
	1 COIN COUNTS AS 3 COINS
	1 COIN COUNTS AS 4 COINS
	1 COIN COUNTS AS 5 COINS
	1 COIN COUNTS AS 6 COINS
	1 COIN COUNTS AS 7 COINS
	1 COIN COUNTS AS 8 COINS
	1 COIN COUNTS AS 9 COINS

9-11 GUN SETTING

Selecting GUN SETTING causes the following screen shown at the top to appear. This allows the controller sighting to be adjusted. Periodically check the sighting adjustment status on this screen.

```
           GUN SETTING
        GUN MARK CHECK
      PLAYER1 GUN ADJUSTMENT
      PLAYER1 GUN DEFAULT ADJUSTMENT
      PLAYER1 GUN MANUAL ADJUSTMENT
      PLAYER2 GUN ADJUSTMENT
      PLAYER2 GUN DEFAULT ADJUSTMENT
      PLAYER2 GUN MANUAL ADJUSTMENT
    → EXIT



      SELECT WITH SERVICE BUTTON
        AND PRESS TEST BUTTON
```

FIG. 9. 11 a   SIGHTING ADJUSTMENT MENU

The screen shown at the left is the sighting adjustment menu mode. Press the SERVICE BUTTON to bring the (→) arrow to the desired adjustment item to select.
Press the TEST BUTTON to cause the following sighting check screen and sighting adjustment screen to appear. There are 2 types of adjustments, i. e., one for 1P side and the other for 2P side. Adjustments for both 1P and 2P can not be made on the same screen.
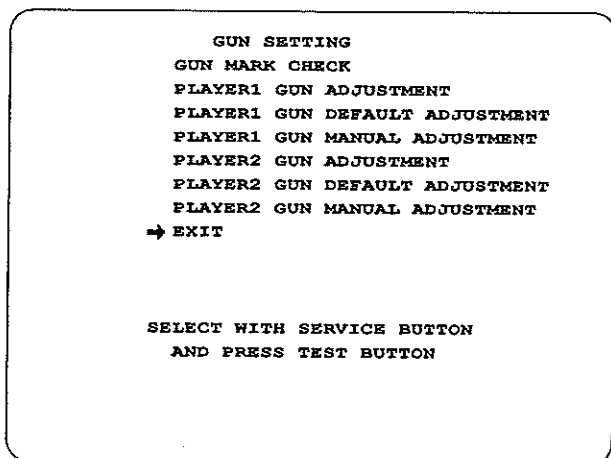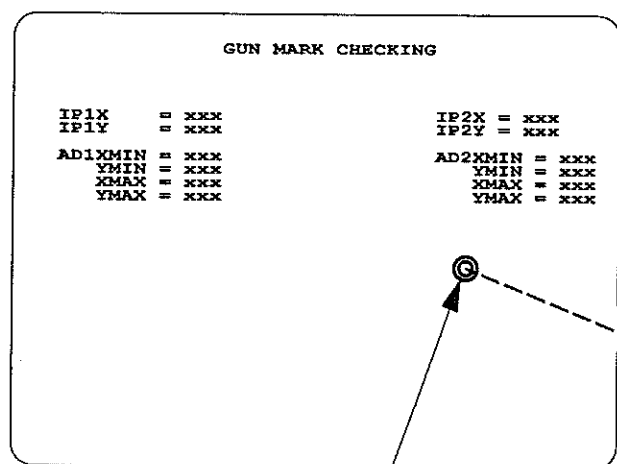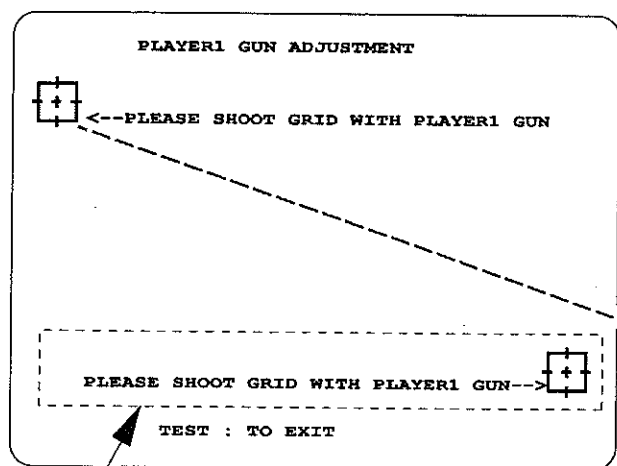To return to the menu, bring the arrow to EXIT and press the TEST BUTTON (FIG. 9.2).

```
              GUN MARK CHECKING


   IP1X    = xxx              IP2X = xxx
   IP1Y    = xxx              IP2Y = xxx
   AD1XMIN = xxx              AD2XMIN = xxx
      YMIN = xxx                 YMIN = xxx
      XMAX = xxx                 XMAX = xxx
      YMAX = xxx                 YMAX = xxx
```

IMPACT MARK

FIG. 9. 11 b   SIGHTING CHECK

Selecting GUN MARK CHECK causes the screen at the left to appear. Point the controller at this screen to have an impact mark appear on the screen. The position of the mark shows the impact point shot by the controller. A red impact mark applies to the 1P side and a blue one to the 2P side. Perform sighting check on this screen.
Press the TEST BUTTON to return to the above sighting adjustment menu screen.

```
         PLAYER1 GUN ADJUSTMENT

  [+] <---PLEASE SHOOT GRID WITH PLAYER1 GUN




    .-------------------------------.
    | PLEASE SHOOT GRID WITH PLAYER1 GUN-->[+] |
    '-------------------------------'
         TEST : TO EXIT
```
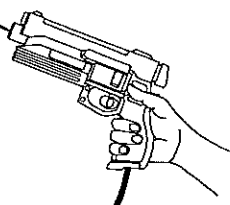
This appears if the upper left grid is hit.

FIG. 9. 11 c   SIGHTING ADJUSTMENT

Selecting PLAYER 1 GUN ADJUSTMENT causes the screen shown at the left to be displayed. 1P side sighting adjustment can be made on this screen. If the TEST BUTTON is pressed, the sighting adjustment menu returns to the screen without performing anything.
Adjustment procedure: First shoot at the center of the grid (the square mark at the upper left portion of the screen). This causes another grid to appear at the lower right portion of the screen. Shoot at this grid also. (To be continued.)

```
┌─────────────────────────────────────┐
│       PLAYER1 GUN MARK CHECKING      │
│                                      │
│                                      │
│                                      │
│                                      │
│                 ◎                    │
│                                      │
│                                      │
│      TEST OR START1 : TO MEMORIZE    │
│      SERVICE OR START2 : TO CANCEL   │
│                                      │
└─────────────────────────────────────┘
```
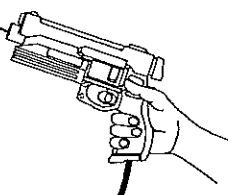
FIG. 9. 11 d   SIGHTING ADJUSTMENT SELECTION

Shooting the 2 Grid points displays "NOW CALCULATING" on the center of screen to allow sighting to be adjusted. Next, the gun m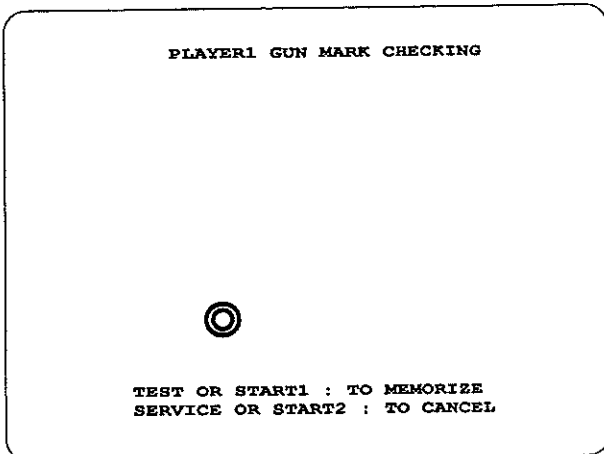ark checking screen shown left appears. When the Controller is pointed to the screen, the gun mark is shown on the screen. The mark position shows the gunshot. If this adjustment is satisfactory, press either the Test button or 1P side START button. When readjusting, press either the Service button or 2P side START button.

```
┌─────────────────────────────────────┐
│    DEFAULT PLAYER1 GUN ADJUSTMENT    │
│                                      │
│                                      │
│                                      │
│                                      │
│                                      │
│                                      │
│                                      │
│     TEST OR START1 : TO SET DEFAULT  │
│     SERVICE OR START2 : TO CANCEL    │
│                                      │
└─────────────────────────────────────┘
```
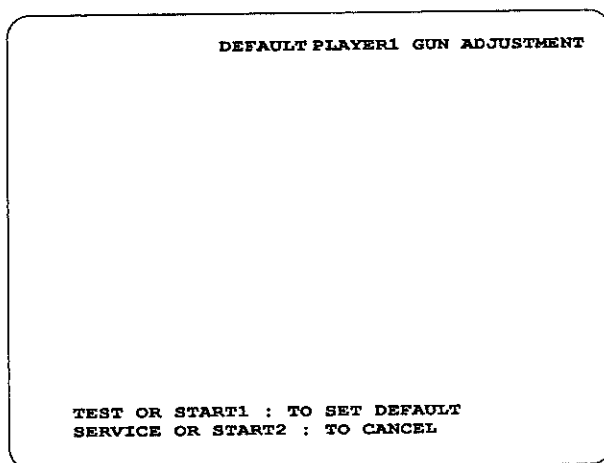
FIG. 9. 11 e   SIGHTING ADJUSTMENT

Choosing PLAYER 1 GUN DEFAULT ADJUSTMENT causes the screen shown at the left to be displayed. The sighting is reset to the initial setting made at the time of shipment from the factory.
However, due to some changes in the unit's environment and cabinet after shipment, sighting may not be always accurate. To reset to the initial setting, press the TEST BUTTON or 1P side start button. To return to the sighting adjustment menu without doing anything, press the SERVICE BUTTON or 2P side start button.
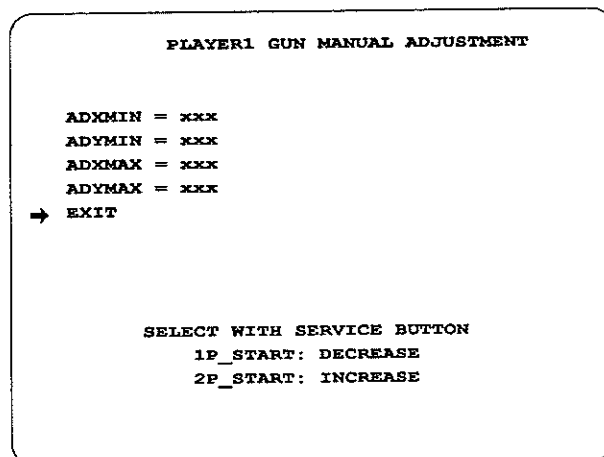
```
┌─────────────────────────────────────┐
│     PLAYER1 GUN MANUAL ADJUSTMENT    │
│                                      │
│    ADXMIN = xxx                      │
│    ADYMIN = xxx                      │
│    ADXMAX = xxx                      │
│    ADYMAX = xxx                      │
│  ➡ EXIT                              │
│                                      │
│                                      │
│       SELECT WITH SERVICE BUTTON     │
│          1P_START: DECREASE          │
│          2P_START: INCREASE          │
│                                      │
└─────────────────────────────────────┘
```

FIG. 9. 11 f   SIGHTING ADJUSTMENT

Select PLAYER1 GUN MANUAL ADJUSTMENT to cause the screen shown at the left to be displayed. In this screen, the 4 adjustment values which determine sighting can directly be set. Use this adjustment mode only when accurate sighting can not be achieved in the above 2 screens. When setting each of the 4 adjustment values, follow the procedure below: Be sure to shoot at the screen's end portion in the designated direction and determine the adjustment value by paying attention to the impact mark movement.

ADXMIN = xxx

Determines the adjustment value of the left-hand end in the horizontal direction. By pointing the controller at the screen's left-hand end, bring the impact mark to the left end of the screen. While pointing at the screen's left-hand end, pressing the left and right start buttons to change the adjustment value causes the impact mark to move left and right. Make adjustments in a manner so that the impact mark is at an appropriate position. At this time, disregard vertical directions.

ADYMIN = xxx

Determines the adjustment value of the screen's upper end in the vertical direction. Point the controller at the screen's upper end to bring the impact mark to the screen's upper end. While pointing at the screen's upper end, changing the adjustment value by pressing the left and right start buttons causes the impact mark to move up and down. Make adjustments in a manner so that the impact mark is at an appropriate position.
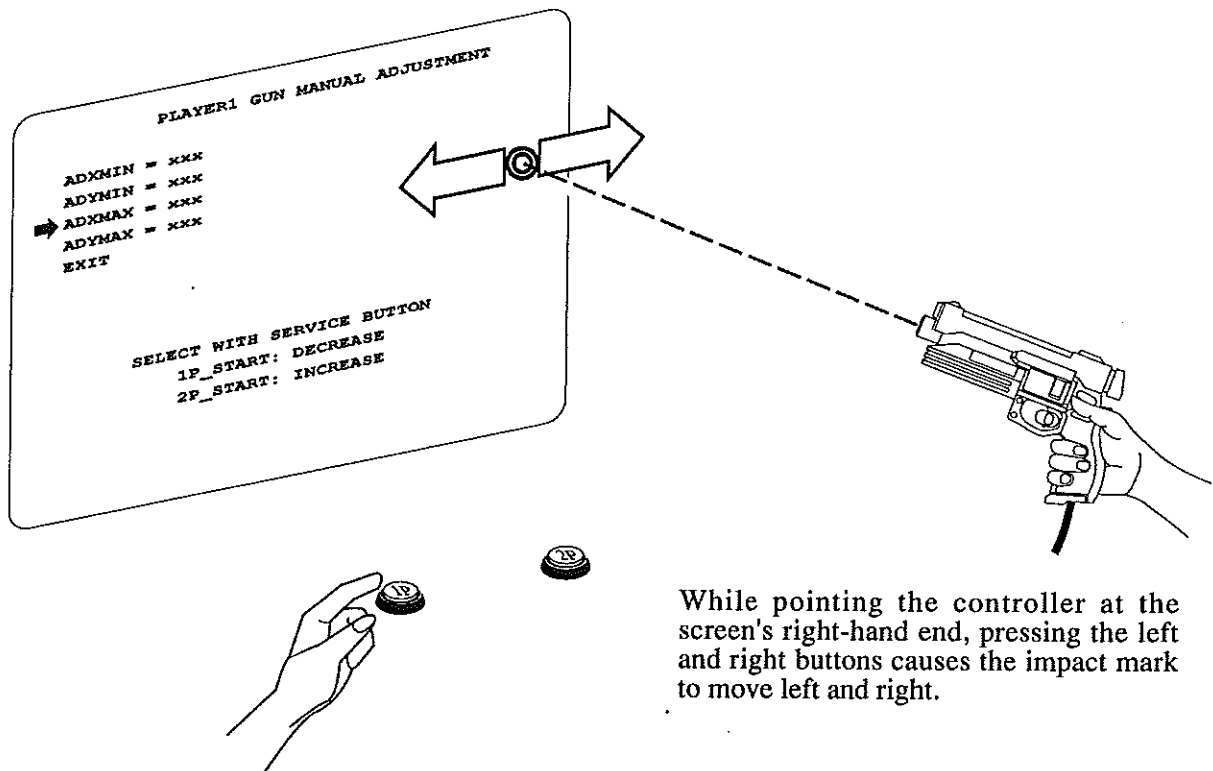At this time, disregard horizontal directions.

PLAYER1 GUN MANUAL ADJUSTMENT

```
ADXMIN = xxx
ADYMIN = xxx
ADXMAX = xxx
ADYMAX = xxx
EXIT

SELECT WITH SERVICE BUTTON
1P_START: DECREASE
2P_START: INCREASE
```

While pointing the controller at the screen's right-hand end, pressing the left and right buttons causes the impact mark to move left and right.

FIG. 9. 11 g   SIGHTING ADJUSTMENT (in the case of ADXMAX)

ADXMAX = xxx

Determines the adjustment value of the screen's right-hand end in the horizontal direction.
Point the controller at the screen's right-hand end to bring the impact mark to the screen's right-hand end. While pointing at the screen's right-hand end, changing the adjustment value by pressing the left and right hand start buttons causes the impact mark to move left and right. Make adjustments in a manner so that the impact mark is at an appropriate position. At this time, disregard vertical directions.

ADYMAX = xxx

Determines the adjustment value of the screen's lower end in the vertical direction. Point the controller at the screen's lower end to bring the impact mark to the screen's lower end. While pointing at the lower end, changing the adjustment value by pressing the left and right start buttons causes the impact mark to move up and down. Make adjustments in a manner so that the impact mark is at an appropriate lower end position. At this time, disregard horizontal directions.

Choosing PLAYER 2 GUN ADJUSTMENT causes 2P side sighting adjustment screen to be displayed. How to operate is the same as for 1P side.

Choosing PLAYER 2 GUN DEFAULT ADJUSTMENT causes 2P side sighting to be reset to the initial setting. How to operate is the same as for 1P side.

Choosing PLAYER 2 GUN MANUAL ADJUSTMENT causes the screen to adjust the 4 adjustment values for 2P side to appear. How to operate is the same as for 1P side.

9-12 BOOKKEEPING

Choosing BOOKKEEPING in the menu mode displays the data of operating status up to the present are shown on 2 pages. Press the Test button to proceed to PAGE 2/2.
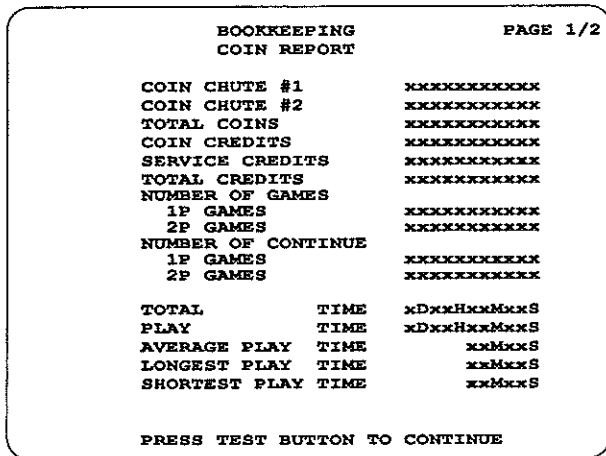
```
           BOOKKEEPING              PAGE 1/2
           COIN REPORT

    COIN CHUTE #1           xxxxxxxxxxx
    COIN CHUTE #2           xxxxxxxxxxx
    TOTAL COINS             xxxxxxxxxxx
    COIN CREDITS            xxxxxxxxxxx
    SERVICE CREDITS         xxxxxxxxxxx
    TOTAL CREDITS           xxxxxxxxxxx
    NUMBER OF GAMES
        1P GAMES            xxxxxxxxxxx
        2P GAMES            xxxxxxxxxxx
    NUMBER OF CONTINUE
        1P GAMES            xxxxxxxxxxx
        2P GAMES            xxxxxxxxxxx

    TOTAL          TIME     xDxxHxxMxxS
    PLAY           TIME     xDxxHxxMxxS
    AVERAGE PLAY   TIME        xxMxxS
    LONGEST PLAY   TIME        xxMxxS
    SHORTEST PLAY  TIME        xxMxxS


    PRESS TEST BUTTON TO CONTINUE
```

FIG. 9.12 a   BOOKKEEPING(1/2)

● COIN CHUTE#※:
Number of coins put in each Coin Chute.

● TOTAL COINS:
Total number of activations of coin chutes

● COIN CREDITS:
Number of credits registered by inserting coins

● SERVICE CREDITS:
Credits registered by the SERVICE BUTTON

● TOTAL CREDITS:
Total number of credits (COIN CREDITS +
SERVICE CREDITS)

● TOTAL TIME:
The total energized time

```
           BOOKKEEPING              PAGE 2/2
           TIME HISTOGRAM

    0M00S ~ 0M29S     xxxxxxxx
    0M30S ~ 0M59S     xxxxxxxx
    1M00S ~ 1M29S     xxxxxxxx
    1M30S ~ 1M59S     xxxxxxxx
    2M00S ~ 2M29S     xxxxxxxx
    2M30S ~ 2M59S     xxxxxxxx
    3M00S ~ 3M29S     xxxxxxxx
    3M30S ~ 3M59S     xxxxxxxx
    4M00S ~ 4M29S     xxxxxxxx
    4M30S ~ 4M59S     xxxxxxxx
    5M00S ~ 5M29S     xxxxxxxx
    5M30S ~ 5M59S     xxxxxxxx
    6M00S ~ 6M29S     xxxxxxxx
    6M30S ~ 6M59S     xxxxxxxx
    7M00S ~ 7M29S     xxxxxxxx
    7M30S ~ 7M59S     xxxxxxxx
    8M00S ~ 8M29S     xxxxxxxx
    8M30S ~ 8M59S     xxxxxxxx
    9M00S ~ 9M29S     xxxxxxxx
    9M30S ~ 9M59S     xxxxxxxx
    OVER    10M00S    xxxxxxxx


    PRESS TEST BUTTON TO EXIT
```
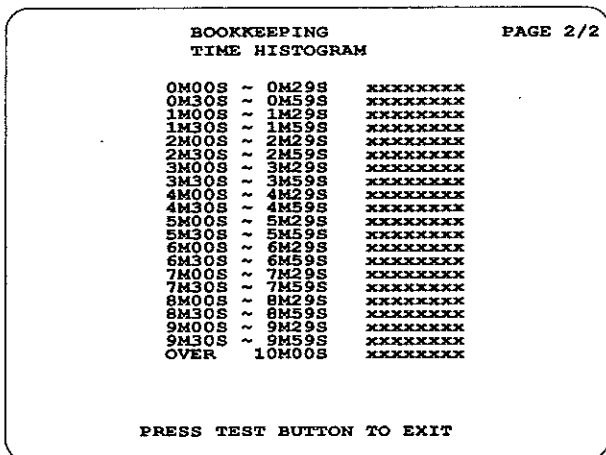
FIG. 9.12 b   BOOKKEEPING(2/2)

On page (2/2), each play frequency is displayed. When setting difficulty levels, the frequency can be referred to as a standard.

When in the PAGE 2/2 mode, press the Test button to return to the Menu mode (FIG. 9.2).

9—13 BACKUP DATA CLEAR

```
    BACKUP DATA CLEAR

    YES (CLEAR)
  ➡ NO  (CANCEL)




    SELECT WITH SERVICE BUTTON
    AND PRESS TEST BUTTON
```
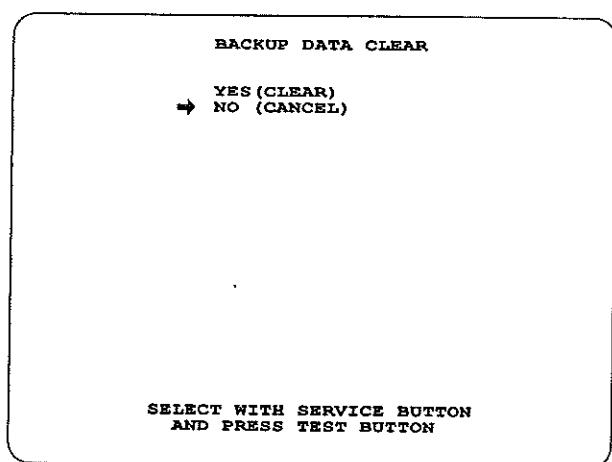
FIG. 9. 13   BACKUP DATA CLEAR

Clears the contents of BOOKKEEPING and high score player ranking entry.
When clearing, bring "→" to "YES" and when not clearing, to "NO", by using the SERVICE BUTTON, and then push the TEST BUTTON.
When the data has been cleared, "COMPLETED" will be displayed. Bring "→" to "NO" and press the TEST BUTTON to cause the Menu mode to return on to the screen.
Note that the contents of game setting and sighting adjustment are not affected by BACKUP DATA CLEAR operation.

10. CONTROLLER (GUN)

WARNING!

● In order to prevent an electric shock and short circuit, be sure to turn power off before performing work by touching the interior parts of the product.
● Be careful so as not to damage wirings. Damaged wiring can cause an electric shock or short circuit accident.

In the cases where the controller's operation is not satisfactory or the controller sight deviates from the direction in which the controller is pointed, it is possible that some maintenance may be required (the controller's interior parts may have been damaged). Replace the parts by disassembling the controller in the following procedure: Also, be sure to perform sighting check in the test mode when the controller parts are replaced.

10-1 REPLACING THE MICROSWITCH

① Disassemble the controller.

② Pull out the microswitch from COVER RIGHT.

③ Take out the microswitch by removing the soldering from it.

④ Solder the new microswitch and assemble the controller.
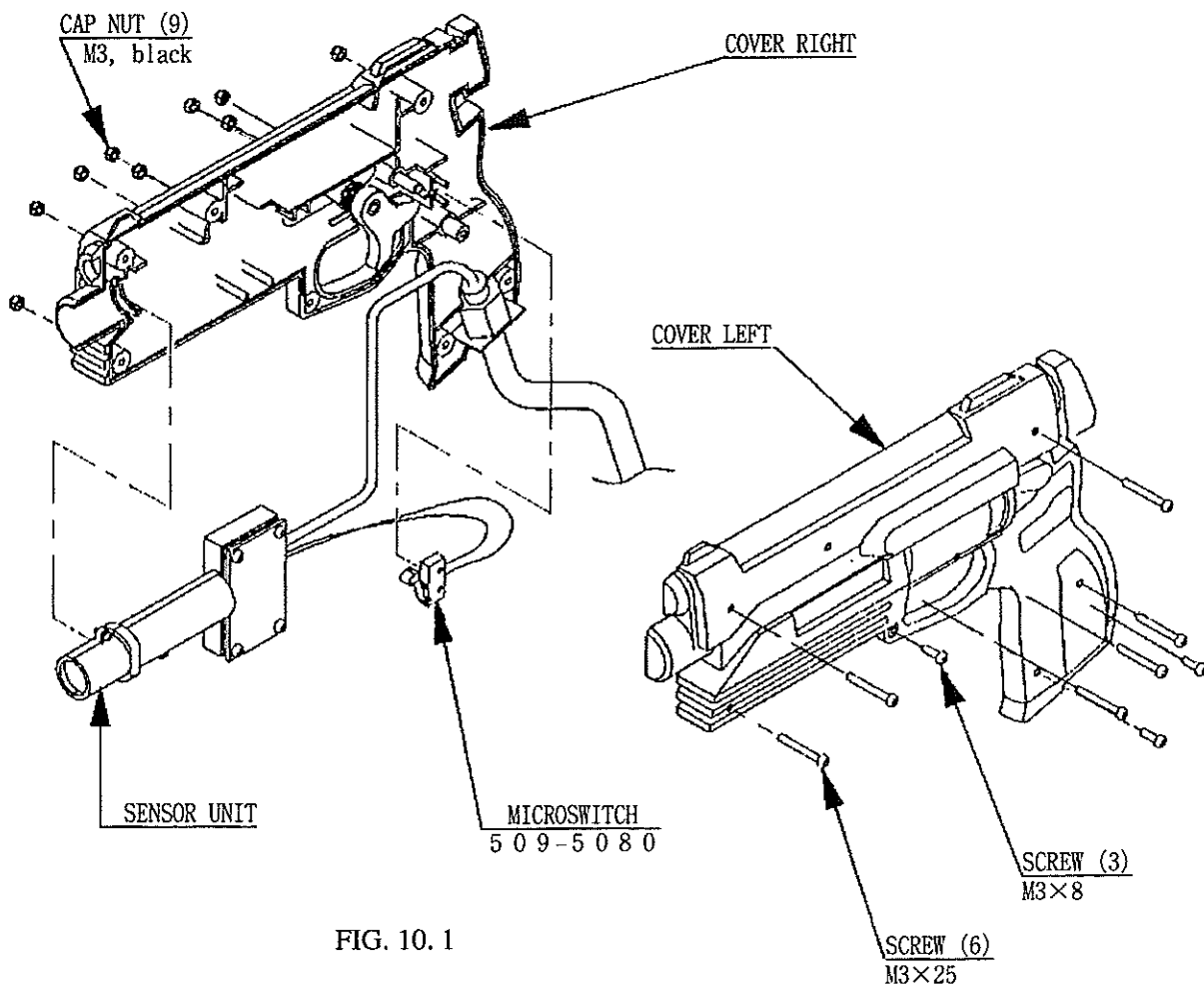
FIG. 10. 1

10—2 REPLACING THE SENSOR BOARD

The sensor board fits in between LENS HOLDER L and LENS HOLDER R. Replace the sensor board by disassembling sensor unit in the following procedure:

① Disassemble the controller.

② Remove the sensor unit from COVER R.

③ Take off the 2 tapping screws to remove LENS HOLDER L.

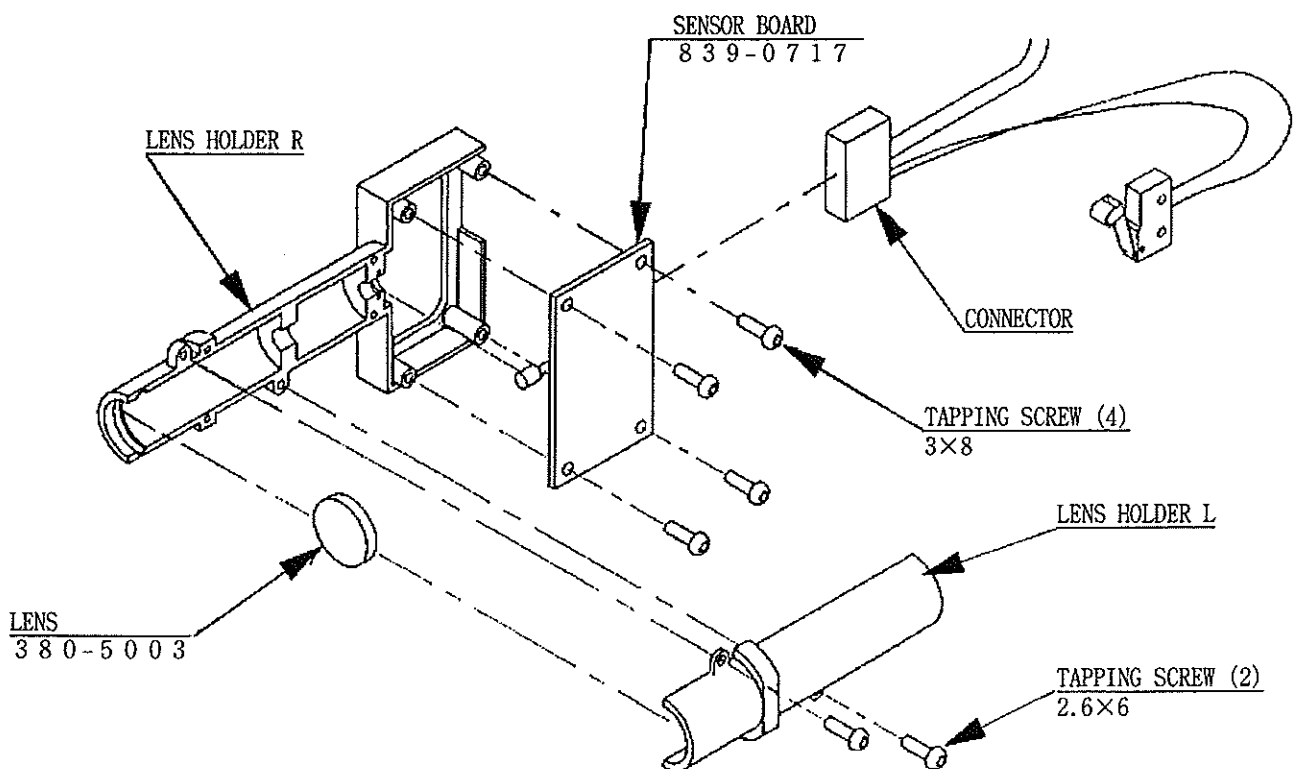④ Take off the 4 tapping screws and remove the sensor board from LENS HOLDER R.

FIG. 10. 2

11. COIN SELECTOR

HANDLING THE COIN JAM

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

CLEANING THE COIN SELECTOR

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 Open the gate and dust off by using a soft brush (made of wool, etc.).

③ Remove and clean smears by using a soft cloth dipped in water or diluted chemical detergent and then squeezed dry.

④ Remove the CRADLE.
When removing the retaining ring (E ring), be very careful so as not to bend the shaft.

⑤ Remove stain from the shaft and pillow portions by wiping off with a soft cloth, etc.

⑥ After wiping off as per ⑤ above, further apply a dry cloth, etc. to cause the coin selector to dry completely.

FIG. 11 a

FIG. 11 b

STOP

IMPORTANT!

- Never apply machine oil, etc. to the Coin Selector.
- After cleaning the Coin Selector, insert a regular coin in the normal working status and ensure that the Selector correctly functions.

COIN INSERTION TEST

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

☐ Does the Coin Meter count satisfactorily?
☐ Does the coin drop into the Cashbox correctly?
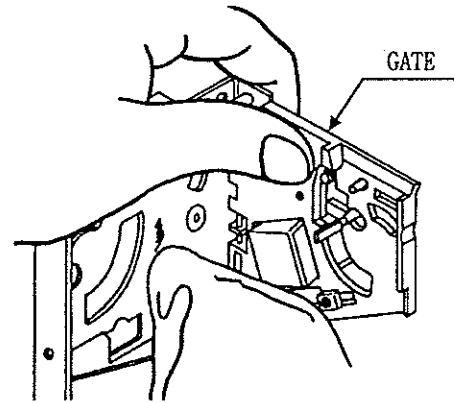☐ Is the coin rejected when inserted while keeping the Reject Button pressed down?

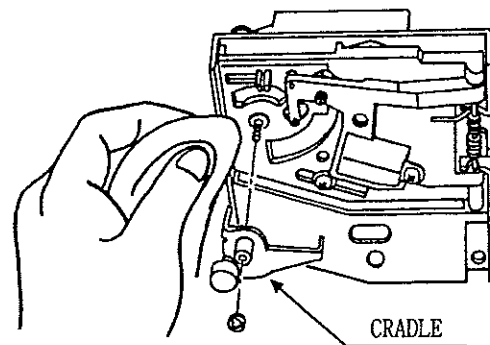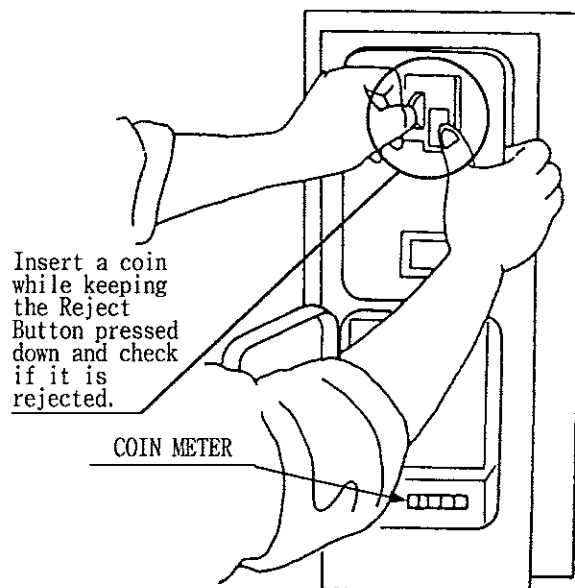Insert a coin while keeping the Reject Button pressed down and check if it is rejected.

COIN METER

FIG. 11 c

12. PROJECTOR

Fine adjustments are stored in the Projector. Pressing the Fine Adjustment SW (Convergence Adjustment) results in entering the Fine Adjustment mode, and this may cause the stored fine adjustment to be changed. During work other than for adjustment, should you touch the Fine Adjustment SW by mistake, immediately turn the power off by using the main SW and then turn it back on again. If any distortion or color deviation is found in the test mode and adjustments are needed, use the specified Adjustment knob, or perform the adjustment by remote control. In relation to this type of Projector, there are 2 different manufacturers, i. e., Mitsubishi and Toshiba. The adjustment method differs depending on the specific maker. To find the Adjustment Knob, move Cabinet DX and remove the PTV Front Service Door by using the procedure opposite the one for installing and assembling. In the case of Mitsubishi Projector, a cover is installed to the Adjustment Knobs. Remove the Cover.

12—1 CLEANING THE SCREEN

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 benzine, 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.
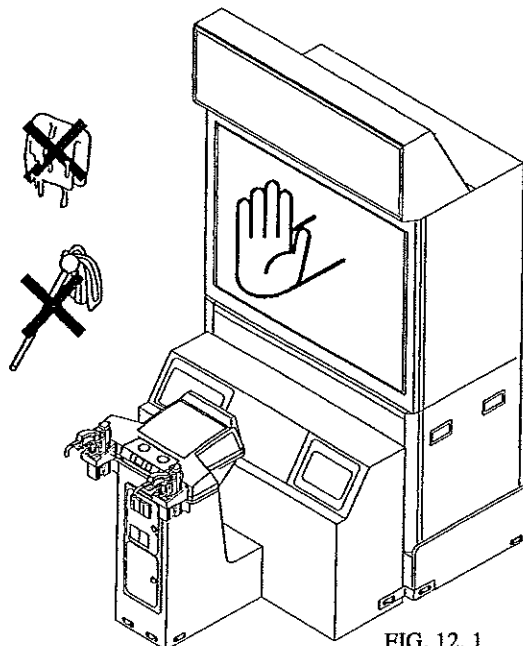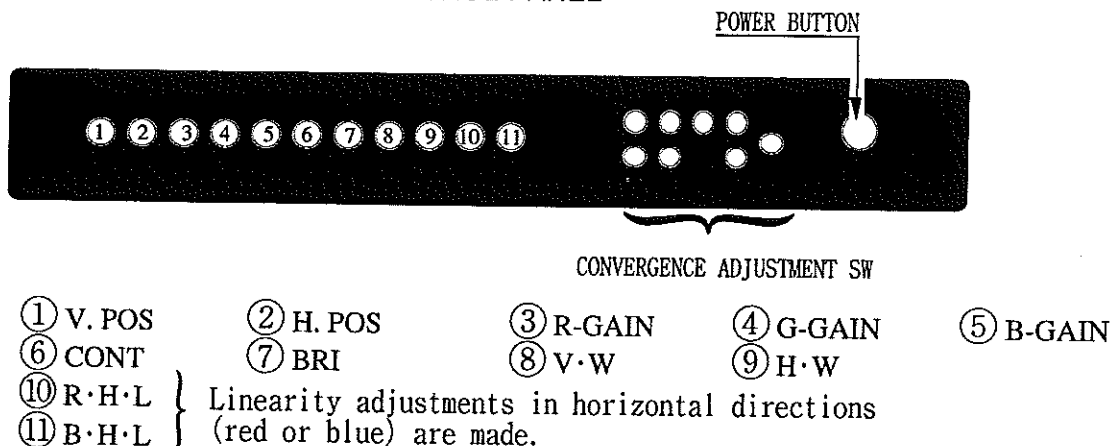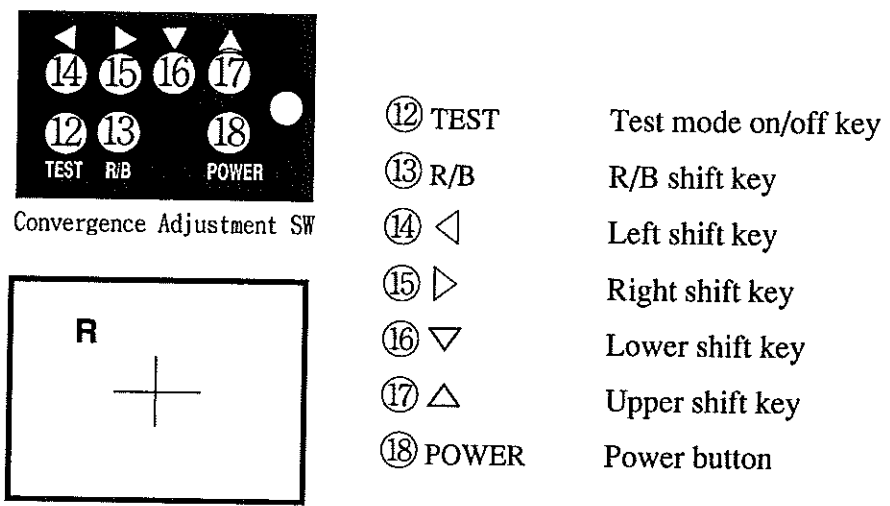
FIG. 12. 1

☐ MITSUBISHI PROJECTOR CONTROL PANEL

POWER BUTTON

CONVERGENCE ADJUSTMENT SW

① V. POS   ② H. POS   ③ R-GAIN   ④ G-GAIN   ⑤ B-GAIN
⑥ CONT   ⑦ BRI   ⑧ V·W   ⑨ H·W
⑩ R·H·L }
⑪ B·H·L } Linearity adjustments in horizontal directions (red or blue) are made.

STATIC CONVERGENCE ADJUSTMENT

Convergence Adjustment SW

⑫ TEST   Test mode on/off key

⑬ R/B   R/B shift key

⑭ ◁   Left shift key

⑮ ▷   Right shift key

⑯ ▽   Lower shift key

⑰ △   Upper shift key

⑱ POWER   Power button

① For the Convergence adjustment mode, press the test mode on/off key ⑫.

② Ensure that "R" is displayed on the screen.

③ Make adjustment so as to cause the red cross pattern to match with the green cross pattern by using Left Shift key ⑭, Right shift key ⑮, Lower shift key ⑯ and Upper shift key ⑰.

④ By using R/B shift key ⑬, cause the red adjustment "R" to shift to blue adjustment "B" and make sure that "B" is displayed on the screen.

⑤ In the same manner as in ③ above, cause the blue cross pattern to match with the green cross pattern.

⑥ After making adjustment, press the test mode on/off key ⑫ to cancel the Convergence adjustment mode.

STOP

IMPORTANT!

- Although Remote Control Buttons other than those specified below do not function even if pressed during Convergence Adjustment, do not press them during adjustment work so as to avoid causing malfunctioning.
- Operate the Remote Control towards the PTV screen. If directed other than to the PTV screen, the Remote Control does not function.

BEFORE USING THE REMOTE CONTROL:

First make sure that the main SW on the Projector's control panel is ON (the LED adjacent to the main SW is lit).

The Remote Control has 2 different types. Depending on the type, the Adjustment procedure is different.
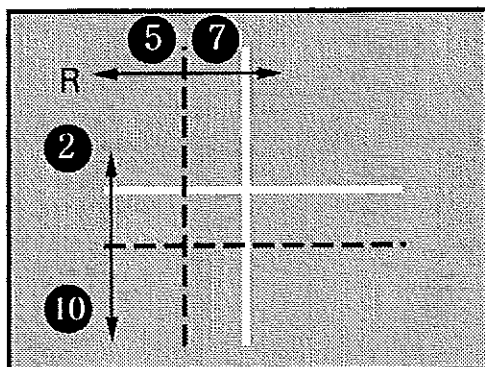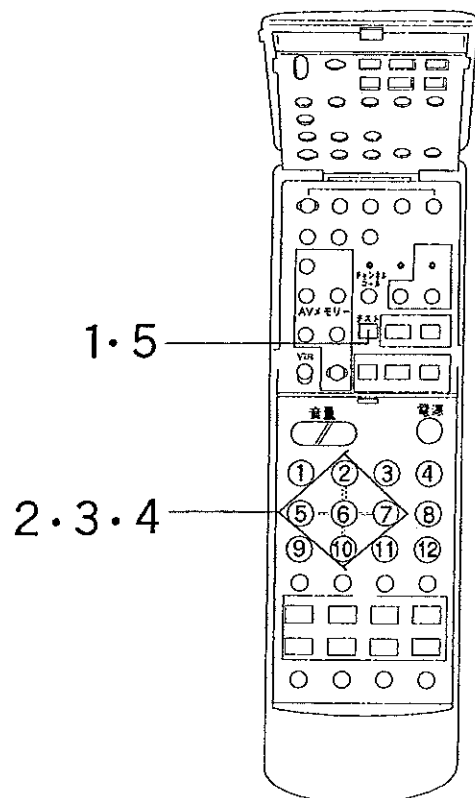
In case of REMOTE CONTROL (Part No. 200-5298):

① For the Convergence Adjustment mode, press the test button (Figures 1 · 5 below). Ensure that "R" is displayed on the screen.
② Make adjustment so as to cause the red cross pattern to match with the green cross pattern. When the red cross matches the green cross, the green cross turns yellow or white (Figures 2 · 3 · 4 below).

Use remote control buttons shown below to move the red cross as follows:

Button ⑤ .... to the left.
⑦ .... to the right.
② .... Upward.
⑩ .... Downward.

③ Use Remote Control button ⑥ to shift "R" to "B." Make sure that "B" is displayed on the screen. Each time Button ⑥ is pressed, red and blue adjustments are shifted.
④ In the same manner as in ② above, cause the blue cross to match with the green cross. When the blue cross matches with the green cross, the green cross turns white.
⑤ After adjustment is made, press the test button (Figures 1 · 5 below) to cancel the Convergence Adjustment mode.
※ When 2 minutes or more elapses in the Convergence mode screen without taking any action, the on-screen adjustment mode will disappear.

1·5

2·3·4

In case of REMOTE CONTROL (Part No. 200 - 5532):
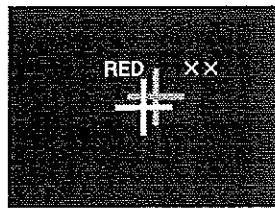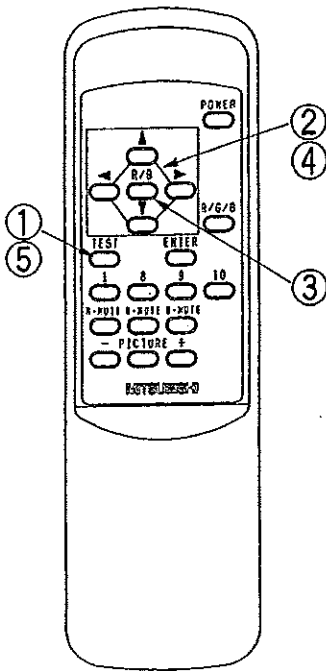
Red Line Adjustment
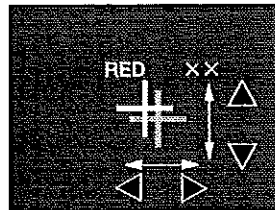
Press SHIFT to superimpose
the red line on the green line.

Completion of Adjustment

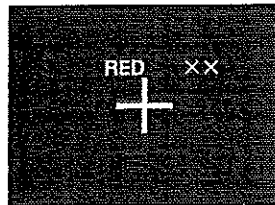① Press the TEST KEY to have the red line adjustment screen appear.

② Superimpose the red cross on the green cross at the center of the screen.
Move the red cross to the left, right, up and down respectively with ◀ ▶ ▲and▼of the Remote Control.
When the red cross is superimposed on the green cross, the green cross turns into yellow or white.

③ Press the R/B Key to have the blue line adjustment screen appear. Each time R/B Key is pressed, the red line and blue line will be alternated.

④ In the manner similar to②above, press each key to superimpose the blue cross on the green cross. When it is superimposed, the cross in the center will become white.

⑤ Press the TEST Key to exit from the adjustment mode.

During STATIC CONVERGENCE Adjustment Mode, if no action is taken within 5 minutes, the Adjustment Mode will be exited automatically.

12—3 TOSHIBA PROJECTOR

⚠ **WARNING!**

Do not touch places other than those specified. Touching places not specified can cause an electric shock or short circuit accident.

☐ TOSHIBA PROJECTOR CONTROL PANEL
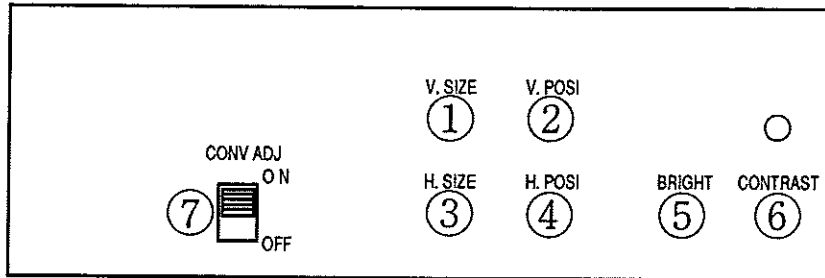
① V. SIZE　　② H. SIZE　　③ V. POSI
④ H. POSI　　⑤ BRIGHT　　⑥ CONTRAST
⑦ CONV ADJ　　If this is not ON, remote control operation is not accepted.

STATIC CONVERGENCE ADJUSTMENT

STOP IMPORTANT!

● Do not press undesignated key. Pressing any undesignated key can cause malfunction and adjustment fault. Should the key be pressed by mistake, turn power off and turn it back on again.
● During adjustment, should the screen image be abnormally disfigured due to static electricity and other causes, do not have the adjustment status stored, and be sure to turn the power off.
● Operate the Remote Control towards the PTV screen. If directed other than to the PTV screen, the Remote Control does not function.
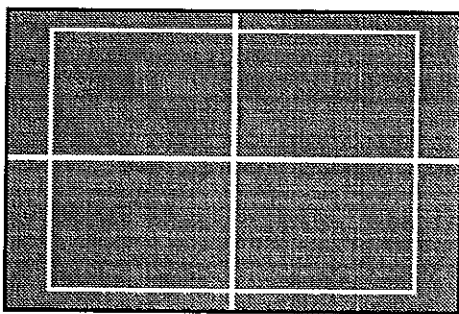
Test Pattern

① Unless the CONV ADJ SW is ON, remote control operation is not acceptable. At the time of shipment, the SW is set to ON. If remote control is not accepted, check the status of this SW.

② Direct the Remote Control towards the PTV screen and keep the Test Key pressed down for approximately 3 seconds. The Adjustment mode should appear on the screen and the screen turns into the green test pattern.

On the screen, the cross pattern and the square frame line will be projected. However, due to the TV mask, the up/down lines cannot be seen.
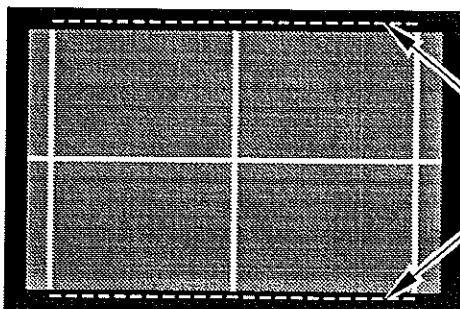
Due to the TV mask, the up/down lines of the Frame Line cannot be seen.

Adjustment Mode

—44—
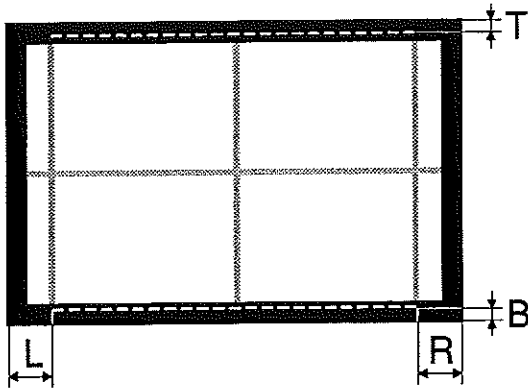
Adjust the position of green frame line
to L=R, T=B.

③⑤⑦
ADJUST KEY

③ When initially installing the machine, or when the installation position is changed, check to see if the Test Pattern is in the central, well-balanced position. If deviated, adjust the green position by using the Adjust Key ▲▼◀▶ in the manner so as to improve the balance (L & R, and T & B are approximately equal as shown).

In the normal usage, with green as reference color, red and blue are adjusted. Therefore, skip the above procedure

④ Press the R Key of the remote control. The red pattern together with the green pattern are displayed on the screen. At this time, the frame color turns into red.

⑤ By operating the Adjust Key of the remote control ▲▼◀▶, have the center of red match with that of green. When red color is superimposed on green color, it seems to be yellow.
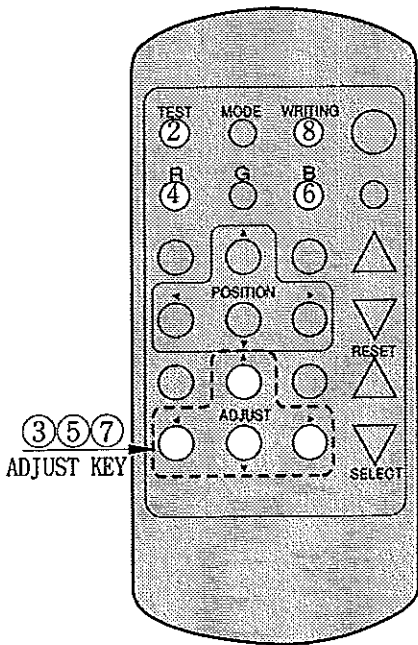
⑥ Press the B Key of remote control. The blue test pattern is added to the display on the screen. At this time, the frame color turns into blue.

⑦ By operating the Adjust Key of the remote control ▲▼◀▶, have the center of blue match with that of yellow. When blue color is superimposed on yellow color, it seems to be white.

⑧ By pressing the WRITING KEY, have the adjustment status stored. After it has been stored, the Adjustment Mode is exited automatically, and the normal mode returns. If the Test Key is pressed down for approximately 3 seconds without having the adjustment status stored, pre-adjustment status will remain.

The R, G, B Keys have screen display color change functions. Pressing the key of the color presently shown on the screen causes the color to disappear, therefore, for adjustment, press the key again.
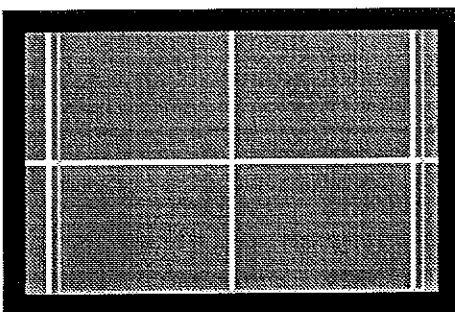
Choosing red causes the frame color to turn into red and the display indicates that red is adjustable. Choosing blue causes the frame color to turn into blue and the display indicates that blue is adjustable.
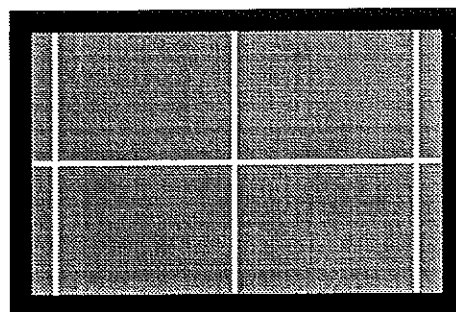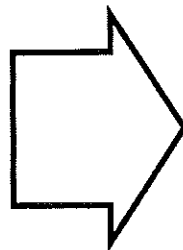
By operating ADJUST Key, have the center of red and blue frame match with that of green frame (the reference color). When the center matches with each other, the frame line becomes white.

STATIC CONVERGENCE ADJUSTMENT

13. REPLACEMENT OF FLUORESCENT LAMP AND LAMPS

⚠ **WARNING!**

● When performing the work, be sure to turn power off. Working with power on can cause an electric shock or short circuit accident.
● The Fluorescent Lamp, when it gets hot, can cause burns. Be very careful when replacing the Fluorescent Lamp.

⚠ **CAUTION!**

To perform work safely and securely, be sure to prepare a step which is in a secure and stable condition. Not using a step or using an unstable step can cause a violent falling down accidents.

13—1 FLUORESCENT LAMP REPLACEMENT

Remove the Billboard Holder and pull out the Billboard upward to replace the Fluorescent Lamp.

BILLBOARD HOLDER

TRUSS HEAD SCREW (3)
M4×8, black

FLUORESCENT LAMP 32W: 390-5251-32-01
GLOW LAMP: 390-5638-5P

To slide
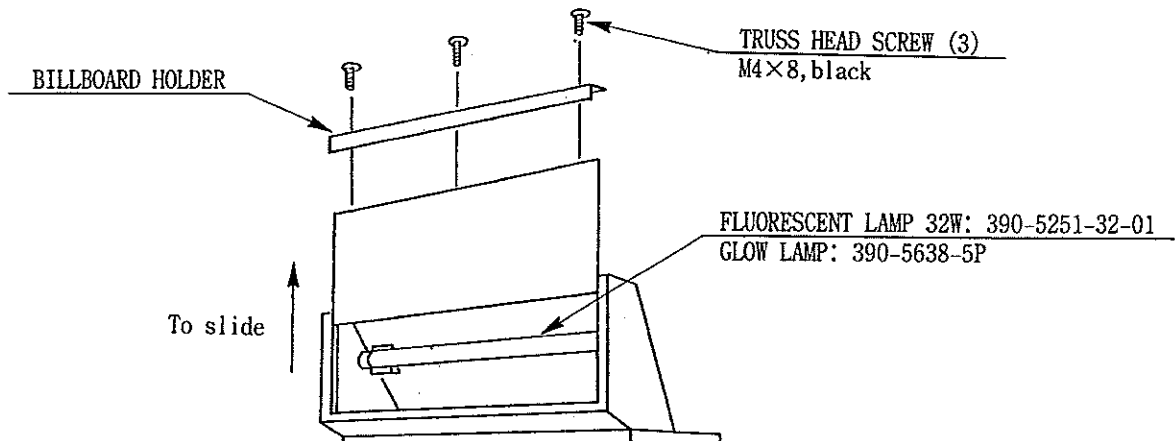
FIG. 13. 1

13—2 LAMP REPLACEMENT

① Take off the 8 Tamperproof Screws to remove the Control Panel upward. (FIG. 13. 2 a)
② Disconnect the Connector which comes from the Switch.
③ Pull the lower part of the Switch and remove the lamp portion to replace it. (FIG. 13. 2 b)

SWITCH
509-5712-01

CONTROL PANEL

TAMPERPROOF SCREWS (8)
M4×16, chromium plated,
using flat washer

LAMP 6V 3W
390-5160
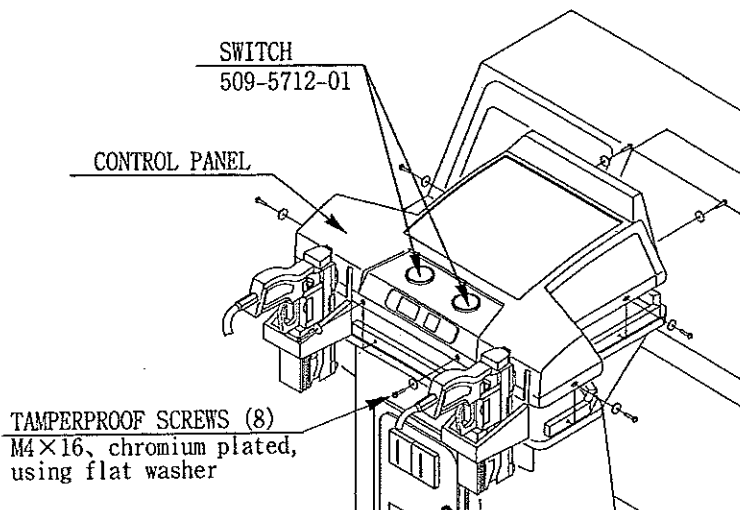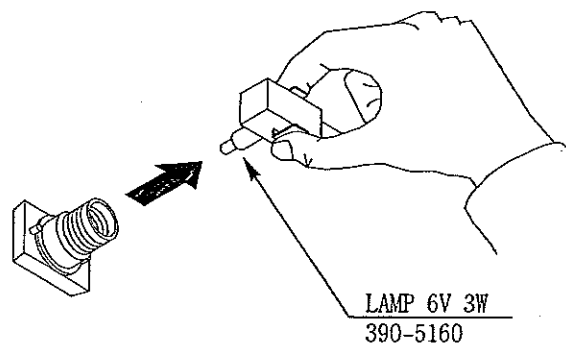
FIG. 13. 2 b

FIG. 13. 2 a

14. PERIODIC INSPECTION TABLE

The items listed below require periodic check and maintenance to retain the performance of this machine and ensure safe operation.
When handling the controller, the player will be in direct contact with it . In order to always allow the player to enjoy the game, be sure to clean it regularly. Also, it is advisable to provide wet tissue, etc. available for player use.

⚠️ **WARNING!**

- Be sure to check once a year to see if Power Cords are damaged, the plug is securely inserted, dust is accumulated between the Socket Outlet and the Power Plug, etc. Using the product with dust as is accumulated can cause a fire or electric shock.
- Periodically once a year, request the place of contact herein stated or the Distributor, etc. where the product was purchased from, as regards the interior cleaning. Using the product with dust as is accumulated in the interior without cleaning can cause a fire or accident. Note that cleaning the interior parts can be performed on a pay-basis.

ITEMS	DESCRIPTION	PERIOD	REFERENCE
CONTROLLER	Cleaning	As required	
	Sight check	Weekly	9
	Check SWes.	Monthly	9
COIN SELECTOR	Check COIN SWes.	Monthly	9
	COIN SELECTOR cleaning.	Trimonthly	1 1
PROJECTOR	SCREEN cleaning.	Weekly	1 2
	Check adjustments.	Monthly	6 、 9 、 1 2
GAME BD	Setting check	Monthly	9
ITERIOR	Cleaning	Annually	See above.
POWER PLUG	Inspection and cleaning		
CABINET SURFACE	Cleaning	As necessary	See below.

CLEANING THE CABINET SURFACES

When the cabinet surfaces are badly soiled, remove stains with a soft cloth dipped in water or diluted (with water) chemical detergent and squeezed dry. To avoid damaging surface finish, do not use such solvents as thinner, benzine, etc. other than ethyl alcohol, or abrasives, bleaching agent and chemical dustcloth.

15. TROUBLESHOOTING

For troubleshooting, first check the connection of wiring connectors.

| PROBLEMS	CAUSE	COUNTERMEASURES
With Main SW ON, no activation	Power is not supplied. Power supply/voltage is not correct. AC unit circuit protector causes the power to be off due to momentary overload. Connect Board Fuse is blown due to momentary overload.	Plug in correctly. Make sure that power supply/voltage is correct. Check circuit protector. Remove the cause of overload to reinstate the circuit protector (see Section 6). After eliminating the cause of overload, replace the fuse (see next page).
PTV screen is blackened and no sound is emitted.	POWER SW is OFF. Connections within the base are defective. The CIRCUIT PROTECTOR functioned due to momentary overcurrent.	① Check to see if the power switch is ON. ② Check the BNC connector connections of the PTV TERMINAL BD and VPM BUFFER BD in CONTROL CABI. ③ Check the CIRCUIT PROTECTOR beside the POWER SUPPLY SW. If it functioned, restore it.
PTV screen is all blue.	Irregular communications between each board.	① Check the communication cable connection between the Game BD and I/O BD. ② Turn the Power SW back on again.
The color of the image on PTV screen is incorrect.	Connector connections are defective.	Check the connection for the RGB and SYNC Connectors of the PTV TERMINAL BD and VPM BUFFER BD.
The image on PTV screen has color deviation.	Affected by the magnetic field of installation location.	Make CONVERGENCE adjustment. (Refer to Section 12.)
No sound is emitted.	Sound volume adjustment is not appropriate. Sound BD and speaker are malfunctioning.	Adjust sound volume (see Section 9). Perform sound test to find and replace defective parts (See Section 9).
Controller operation is not satisfactory.	Due to environmental changes, etc., sighting became inappropriate. Microswitch malfunctioning. Sensor BD malfunctioning.	Perform sighting adjustment in the test mode (see Section 9). Replace the microswitch (see Section 10). Replace the sensor BD. (see Section 10).
The Fluorescent lamp does not light up.	The Fluorescent tube is burnt out.	Replace the Fluorescent tube with an FL tube (refer to Sction 13).
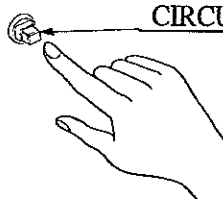
CIRCUIT PROTECTOR

Functions due to the activation of bimetal. To restore the function, wait for approximately one minute or longer until the bimetal cools off.

REPLACMENT AND ADJUSTMENT OF FUSE

① Turn the Main Switch off.

② Remove the Joint Bracket which secures the PTV and Front Cabinet DX (see FIG. 6.2 c).

③ Remove the Back Lid from the Front Cabinet DX.

④ Disconnect all of the Connectors which are connected to the Shield Case. Remove the 2 screws securing the Wooden Base on which the Shield Case is to be mounted, and take out the Shield Case together with the Wooden Base from Cabinet DX (FIG. 16.1).

⑤ By using the accessory and removing the Fuse Cover, replace the Connect Board Fuse of ASSY AC SPLY (ZMB-1440).

⑥ By using the reversed procedure, reinstall the Shield Case to Front Cabinet DX and connect the Connectors.

⑦ Reinstall the Back Lid and secure the PTV and Front Cabinet DX.

FUSE 7A
514-5036-7000
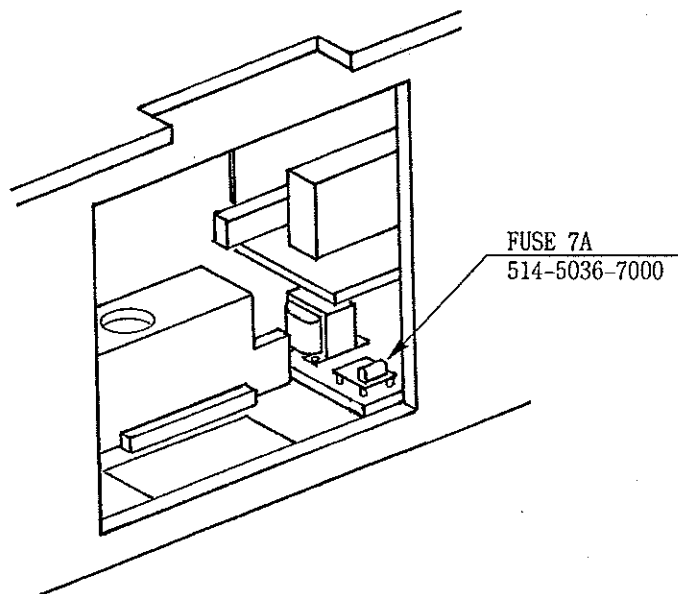
16. GAME BOARD

● In order to prevent an electric shock and short circuit, be sure to turn power off before performing work by touching the interior parts of the product.
● Be careful so as not to damage wirings. Damaged wiring can cause a fire or electric shock or short circuit accident.
● Do not expose the Game BD, etc. without a justifiable reason. Exposed Game BD, etc. can cause electric shock and malfunctioning.

16—1 REMOVING THE BOARD

Remove the Back Lid from Front Cabinet DX, disconnect the Connector which is connected to the Shield Case, and take out the Shield Case together with the Shield Case Base. Then, remove the Shield Case Lid to take out the Game BD. When taking out the Game BD from the Shield Case, ensure that the Shield Case is kept in a level status.

SCREW (3)
M4×8, using flat & spring washers

Disconnect the connector.

SHIELD CASE BASE

SHIELD CASE

SHIELD CASE LID

KEY MASTER

BACK LID

SCREW (2)
M4×30

SCREW (2)
M4×25, using flat washers
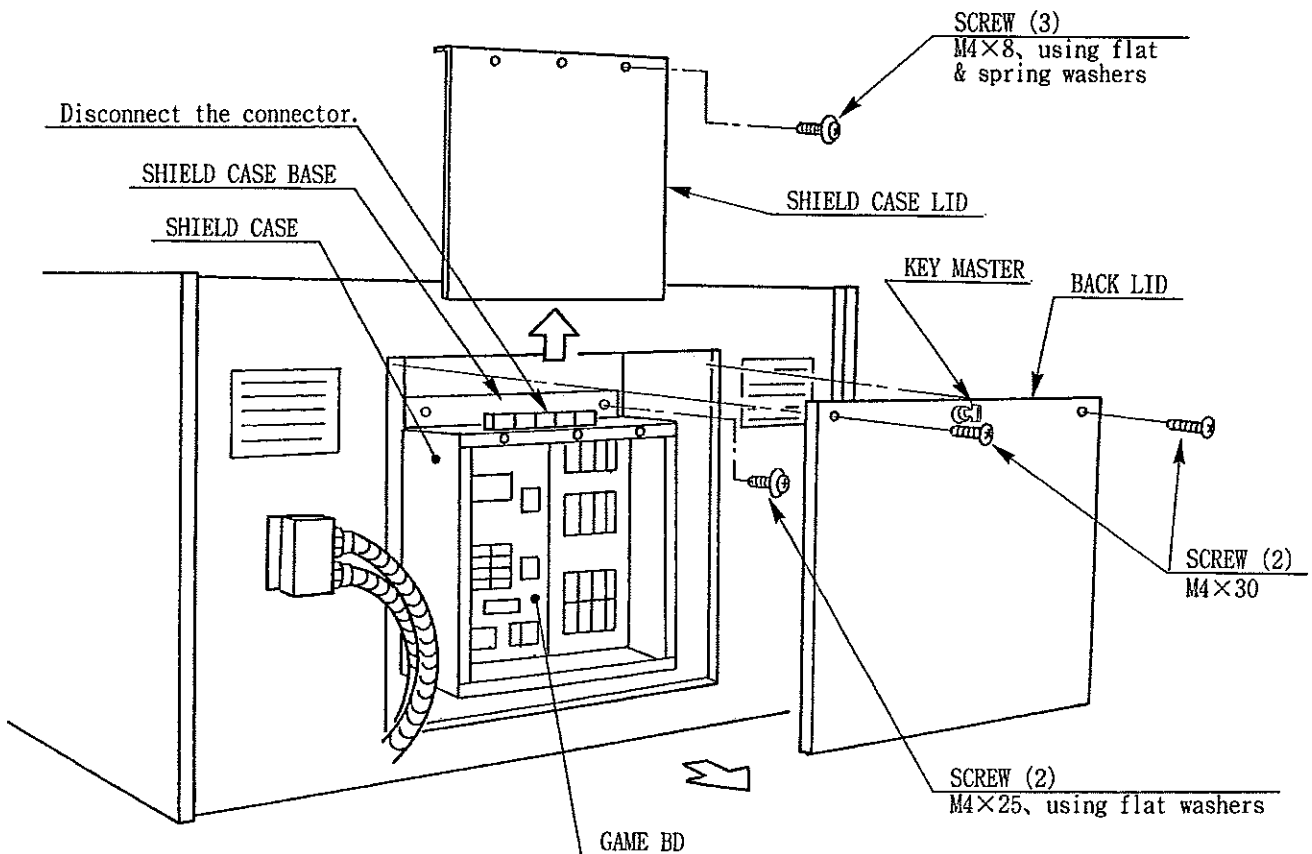
GAME BD

FIG. 16. 1

GAME BD THE HOUSE OF THE DEAD (833-13054 : OTHERS)
(833-13054-01 : KOREA)
(833-13054-02 : AUSTRALIA)

SCREW(9)
M3×35, using flat &
spring washers

SCREW(4)
M3×16, using flat &
spring washers
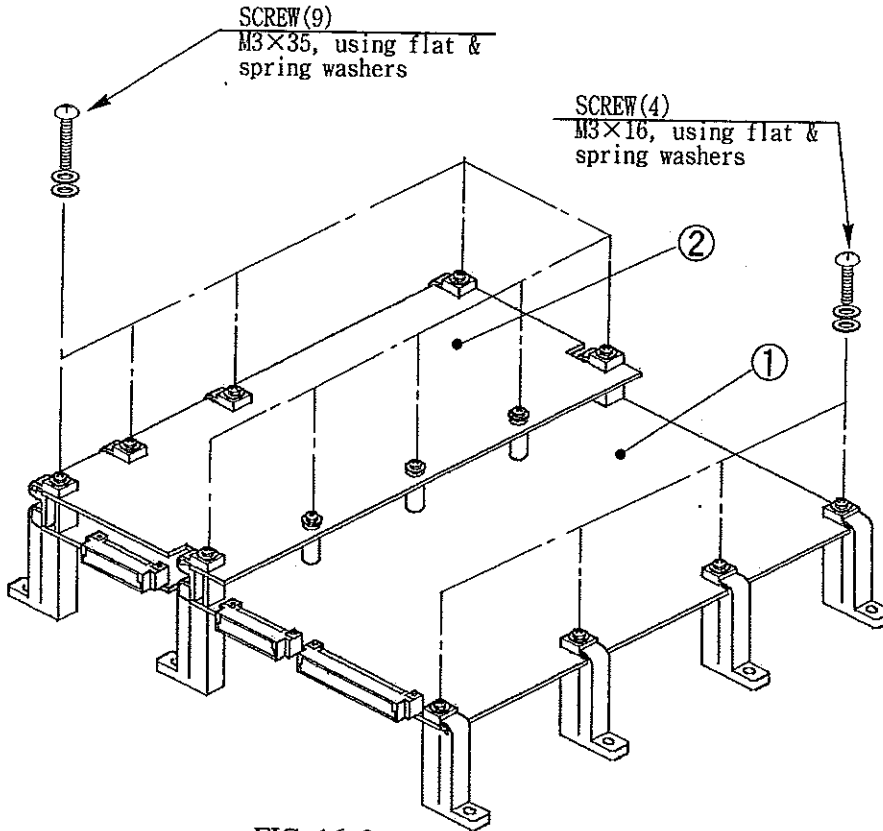
FIG. 16. 2

No.	PART No.	DESCRIPTION	NOTE
1	837-12469-91,-01	MODEL2 C-CRX MAIN BD COM	
2	834-13055	ROM BD THE HOUSE OF DEAD	OTHERS
	834-13055-01	ROM BD THE HOUSE OF DEAD KOR	KOREA
	837-13055-02	ROM BD THE HOUSE OF DEAD AUS	AUSTRALIA

17. DESIGN RELATED PARTS

For the Warning Display stickers, refer to Section 1.

ZMB-2004-01
NST PLATE ZMB DX ENG

ZMB-2001-C
STICKER AGENT 1 ZMB DX

ZMB-2001-E
BUTTON SHEET ZMB DX

ZMB-2001-D
STICKER AGENT 2 ZMB DX

ZMB-2001-B
STICKER CONT PNL TOP ZMB DX

ZMB-1009
STICKER MANTE DOOR ZMB DX

421-9499
STICKER PTV SDE ZMB DX

421-9499
STICKER PTV SDE ZMB DX

ZMB-1010
STICKER F SDE UP L ZMB DX

ZMB-1011
STICKER F SDE UP R ZMB DX

ZMB-1206
STICKER PTV FRONT ZMB DX

ZMB-1005
STICKER TOWER L ZMB DX

ZMB-1003
STICKER F L ZMB DX

ZMB-1004
STICKER F R ZMB DX

ZMB-1006
STICKER TOWER R ZMB DX

ZMB-1007
STICKER F UNDER L ZMB DX

ZMB-1008
STICKER F UNDER R ZMB DX

ZMB-2300(1P SIDE)

ZMB-2350(2P SIDE)

ZMB-2301
STICKER CONTROLLER 1P

ZMB-2351
STICKER CONTROLLER 2P
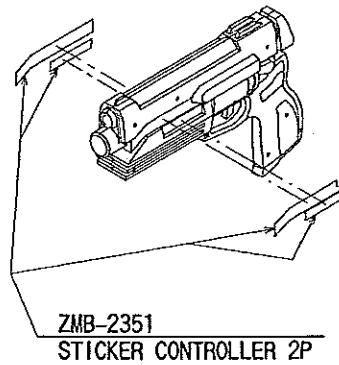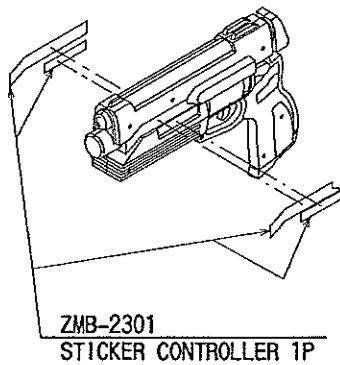
18. PARTS LIST

(1) TOP ASSY ZMB DX   (D-1/2)

SECTION Y-Y

SEE A

SEE A

SECTION X-X

OPPOSITE SIDE

—53—
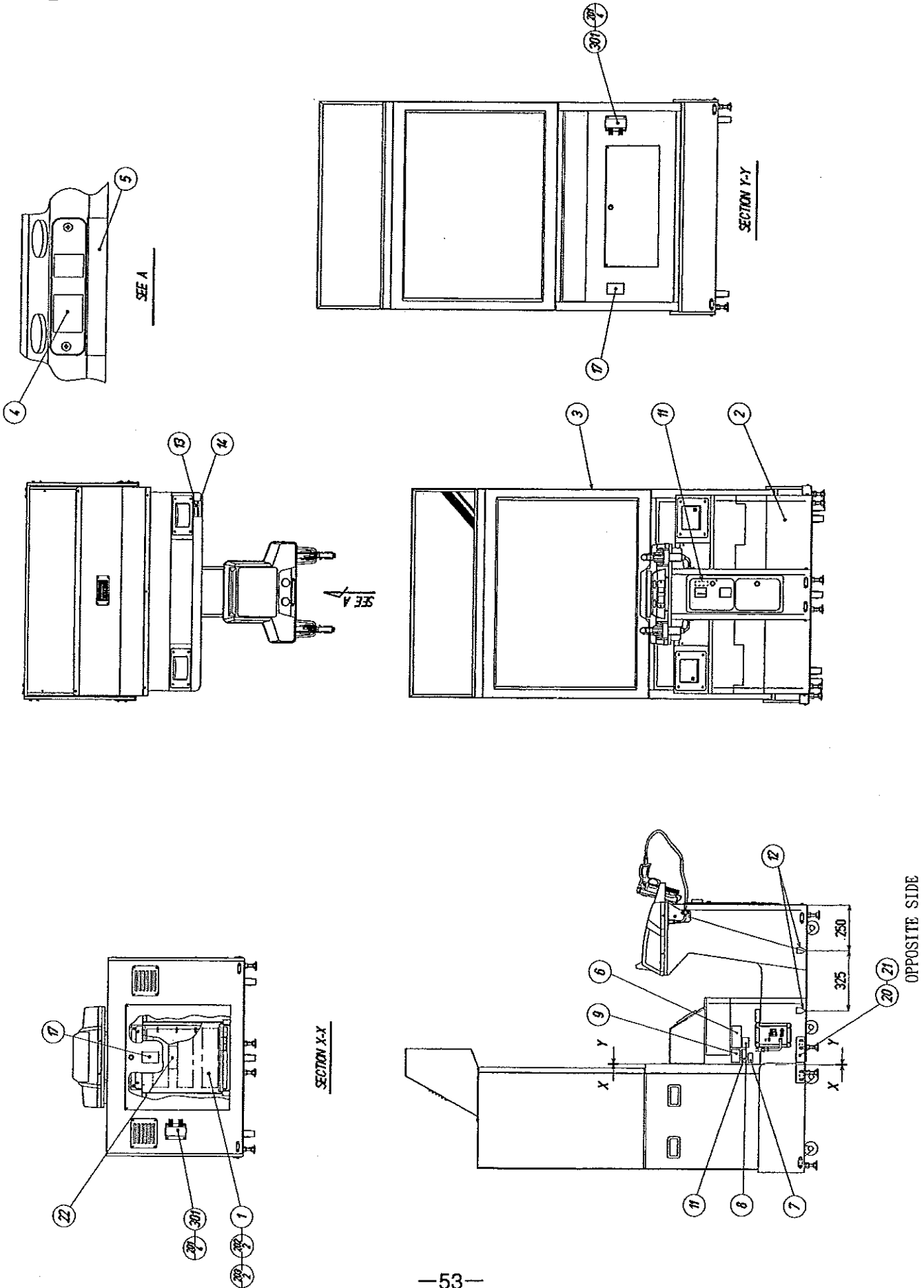
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	ZMB-0100	ASSY SHIELD CASE DX	
2	ZMB-1000	ASSY CABINET DX	
3	ZMB-1100	ASSY PTV	
4	421-7308- ～	DENOMINATION SHEET 1GAME ～	
7	421-6594-91	STICKER CERTIFICATE	
9	421-7987	STICKER ELEC SPEC	OTHERS
	421-8408	STICKER ELEC SPEC FOR TAIWAN	TAIWAN
10	SGM-4385	POLY COVER 1000×1100×1000	
11	421-7988-91	STICKER SERIAL NUMBER	
12	421-8885	STICKER CAUTION FORK	
15	421-8479-01	STICKER INSTR SUNLIGHT ENG	
17	440-WS0002XEG	STICKER W POWER OFF ENG	
20	CPT-0001	JOINT BRKT L	
21	CPT-0002	JOINT BRKT R	
22	440-WS0033XEG	STICKER W BD POWER OFF ENG	
201	000-T00416-0B	M SCR TH BLK M4×16	
202	000-P00425	M SCR PH M4×25	
203	068-441616	FLT WSHR 4.4-16×1.6	
301	600-6445-63	WIRE HARN CONNECT TUBE	
401	601-6604-70	CARTON BOX 70	
402	SGM-2675	POLYETHYLENE BAG 240×370	
403	540-0006-01	WRENCH M4 TMP SCR	
404	420-6292-02	OWNERS MANUAL ZMB DX ENG	
405	601-6605-04	CARTON BOX 600×460×70	
407	390-5160	LAMP WG B TYPE 6V 3W	
408	509-5080	SW MICRO TYPE	
409	600-6724	AC CABLE CONNECT TYPE 15A	} AC 110V AREA
	600-6729	AC CABLE CONNECT TYPE 15A	
	600-6618	AC CABLE CONNECT TYPE FOR EXP	AC 220～240V AREA
410	SGM-4111	KEY BAG	
411	220-5381	KEY MASTER FOR 220-5380	
413	514-5036-7000	FUSE 6.4φ×30 7000mA 125V	
／	560-5212	STEP DN AUTO XFMR 550VA	
／	CPT-1461	WOODEN BASE XFMR	
／	000-P00516-W	M SCR PH W/FS M5×16	
／	000-P00430	M SCR PH M4×30	
／	068-441616	FLT WSHR 4.4-16×1.6	
／	600-6888-005	WIRE HARN AUTO XFMR	
／	008-T00408-0C	TMP PRF SCR TH CRM M4×8	
／	105-5216	CHAIN BRKT	
／	601-7975	CHAIN 1080	
／	GPD-0002X	SHIPPING BRACKET	
／	421-8740	CAUTION INSTR COP U/R	
／	421-9018	STICKER 12.8V	
／	440-CS0110-EG	STICKER C ZMB DX ENG	
／	421-6690-03	STICKER 220V	AC 220V AREA
／	421-6690-06	STICKER 110V	AC 110V AREA
／	421-6690-05	STICKER 240V	AC 240V AREA

② ASSY SHIELD CASE DX (ZMB-0100)
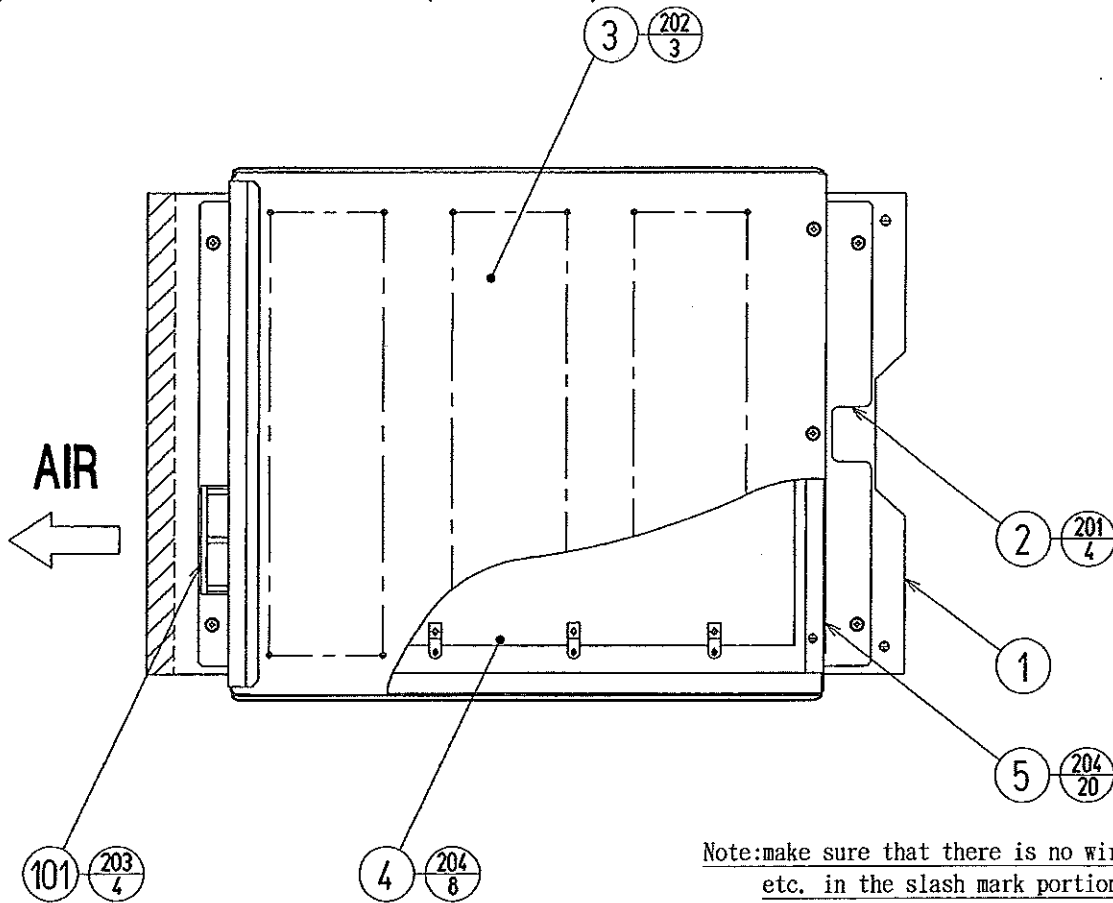
Note:make sure that there is no wiring,
etc. in the slash mark portions.

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	CPT-0101	SHIELD CASE BASE	
2	105-5218	SHIELD CASE	
3	105-5219-91	SHIELD CASE LID	
4	833-13054	GAME BD THE HOUSE OF DEAD	OTHERS
	833-13059-01	GAME BD THE HOUSE OF DEAD KOR	KOREA
	833-13059-02	GAME BD THE HOUSE OF DEAD AUS	AUSTRALIA
5	839-0946-T	FLT BD MODEL2B/C GUN	
	839-0946-01	FLT BD MODEL2B/C GUN	
101	260-0055	FAN MOTOR DC5V	
102	209-0023	CONN CLOSED END	
103	601-0460	PLASTIC TIE BELT 100MM	
104	280-5275-SR10	CORD CLAMP SR10	
201	000-P00414-W	M SCR PH W/FS M4×14	
202	000-P00408-W	M SCR PH W/FS M4×8	
203	000-P00330-W	M SCR PH W/FS M3×30	
204	010-P00308-F	S-TITE SCR PH W/F M3×8	
301	600-6502-13	WIRE HARN DC FAN	
302	600-6656-22	WIRE HARN DC GAME BD	
303	600-6656-23	WIRE HARN RGB GAME BD	
304	600-6656-24	WIRE HARN COMM GAME BD	
305	600-6656-25	WIRE HARN AUDIO GAME BD	
306	600-6656-26	WIRE HARN MAIN GAME BD	

SEE A

SEE A
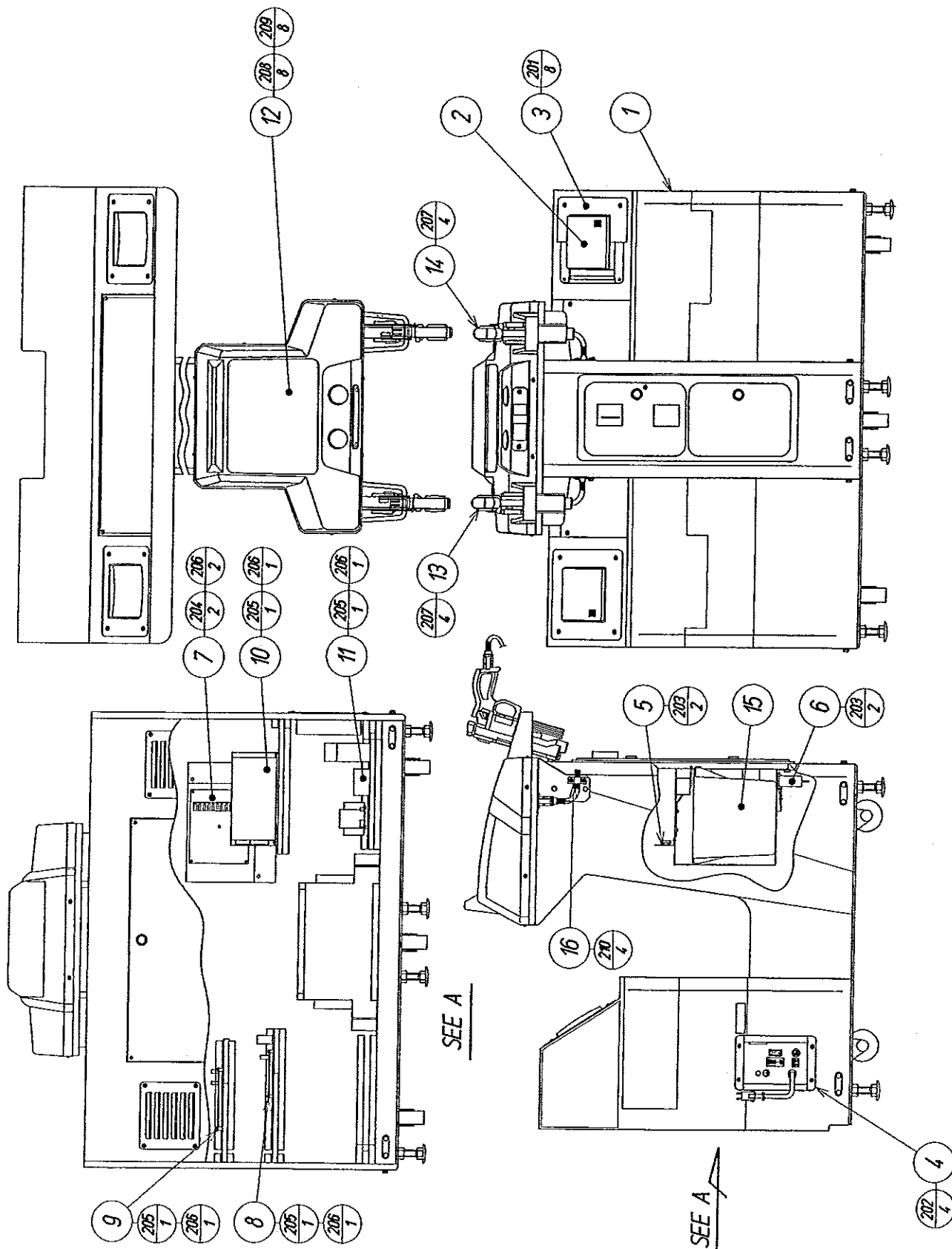
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	ZMB-1001	ASSY SUB-CABI DX	
2	CPT-1060	ASSY SPEAKER	
3	CPT-1011	SPEAKER COVER	
4	ZMB-1070	AC UNIT	
5	CPT-1080	SW UNIT	
6	COP-1590	METER UNIT	
7	CPT-1400	ASSY AMP BD	
8	CPT-1410	ASSY BUFFER BD	
9	CPT-1420	ASSY I/O BD	
10	ZMB-1430	ASSY SW REGU	
11	ZMB-1440	ASSY AC SPLY	
12	ZMB-2000	ASSY CONT PANEL DX	
13	ZMB-2300	CONTROL UNIT 1P	
14	ZMB-2350	CONTROL UNIT 2P	
15	253-5366	CASH BOX	
16	CPT-1017	CABLE CLAMP	
201	008-T00420-0B	TMP PRF SCR TH BLK M4×20	
202	000-T00420-0C	M SCR TH CRM M4×20	
203	000-P00410-W	M SCR PH W/FS M4×10	
204	032-000430	WING BLT M4×30	
205	000-P00430	M SCR PH M4×30	
206	068-441616	FLT WSHR 4.4-16×1.6	
207	008-T00430-0C	TMP PRF SCR TH CRM M4×30	
208	008-T00416-0C	TMP PRF SCR TH CRM M4×16	
209	068-441616-0C	FLT WSHR CRM 4.4-16×1.6	
210	000-T00410-0C	M SCR TH CRM M4×10	

SECTION X-X

SEE A

SEE A

Both Sides

For EARTH

OPPOSITE SIDE

AIR
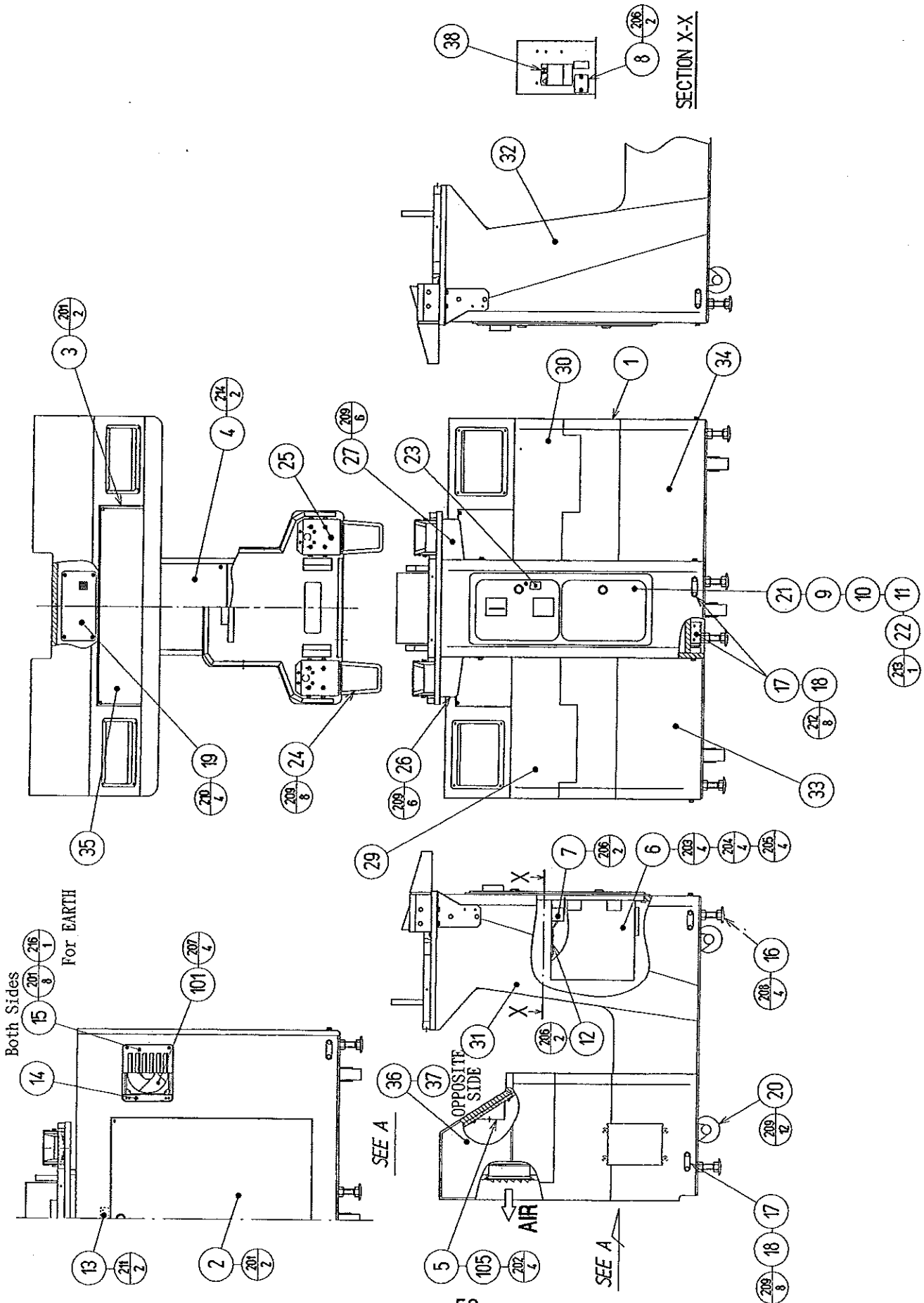
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	CPT-1002	WOODEN FRONT CABINET	
2	CPT-1050	ASSY BACK LID	
3	CPT-1003	MAINTENANCE LID UPPER	
4	CPT-1004	MAINTENANCE LID LOWER	
5	CPT-1012	SHIELD CASE BASE MOUNT BRKT	
6	105-5106	CASH BOX COVER	
7	105-5107	CHUTE	
8	105-5188	HOLE COVER	
9	DP-1167	TNG LKG	
10	220-5380	MAGNETIC LOCK MASTER W/O KEY	
11	220-5046-91	MAGNETIC LOCK W/KEYS	
12	105-5170	LOCK BRACKET S	
13	117-5098	TNG RETAINER PLATE	
14	HN-1042X	FAN BRKT	
15	UP-1018	AIR VENT	
16	601-5699X	LEG ADJUSTER BOLT M16×75	
17	ARC-1006	LEG BRACKET	
18	117-5191	PLATE	
19	117-5279	GUARD PLATE 96×196	
20	601-6224	CASTER 75	
21	220-5237-92- ～	ASSY C.C 2DOOR ～	
22	421-7501-02	STICKER 6.3V 0.15A	
24	CPT-1019	HOLDER	
25	CPT-1020	HOLDER BRKT	
26	CPT-1021	SIDE BRKT L	
27	CPT-1022	SIDE BRKT R	
28	CPT-1450	ASSY WIRE DX	
29	ZMB-1003	STICKER F L ZMB DX	
30	ZMB-1004	STICKER F R ZMB DX	
31	ZMB-1005	STICKER TOWER L ZMB DX	
32	ZMB-1006	STICKER TOWER R ZMB DX	
33	ZMB-1007	STICKER F UNDER L ZMB DX	
34	ZMB-1008	STICKER F UNDER R ZMB DX	
35	ZMB-1009	STICKER MAINTE DOOR ZMB DX	
36	ZMB-1010	STICKER F SIDE UP L ZMB DX	
37	ZMB-1011	STICKER F SIDE UP R ZMB DX	
38	440-WS0002XEG	STICKER W POWER OFF ENG	
101	260-0011-02	AXIAL FLOW FAN AC100V 50-60Hz	
102	280-5009-01	CORD CLAMP 21	
103	280-5275-SR10	CORD CLAMP SR10	
104	310-5029-F20	SUMITUBE F F 20MM	
105	280-5190-02	EDGE SADDLE ES-1916	
201	000-T00430-0B	M SCR TH BLK M4×30	
202	000-P00412-W	M SCR PH W/FS M4×12	
203	000-P00406	M SCR PH M4×6	
204	060-S00400	SPR WSHR M4	
205	060-F00400	FLT WSHR M4	
206	000-P00410-W	M SCR PH W/FS M4×10	
207	000-P00312	M SCR PH M3×12	
208	050-H01600	HEX NUT M16	

ITEM NO.	PART NO.	DESCRIPTION	NOTE
209	030-000630-SC	HEX BLT W/S CRM M6×30	
210	000-T00420-0B	M SCR TH BLK M4×20	
211	011-T00312	TAP SCR TH 3×12	
212	030-000650-SC	HEX BLT W/S CRM M6×50	
213	008-T00408-0B	TMP PRF SCR TH BLK M4×8	
214	000-T00440-0C	M SCR TH CRM M4×40	
215	010-P00310-F	S-TITE SCR PH W/F M3×10	
216	050-F00400	FLG NUT M4	
217	011-F00312	TAP SCR #1 FH 3×12	
301	600-6656-06	WIRE HARN AC FAN	
302	600-6455-02	WIRE HARN C.C DOOR SINGLE	
303	600-6455-03	WIRE HARN EARTH	
304	600-6656-28	WIRE HARN EARTH AC FAN	
305	600-6656-07	WIRE HARN SW REGU AC IN	

⑤ ASSY BACK LID (CPT-1050)
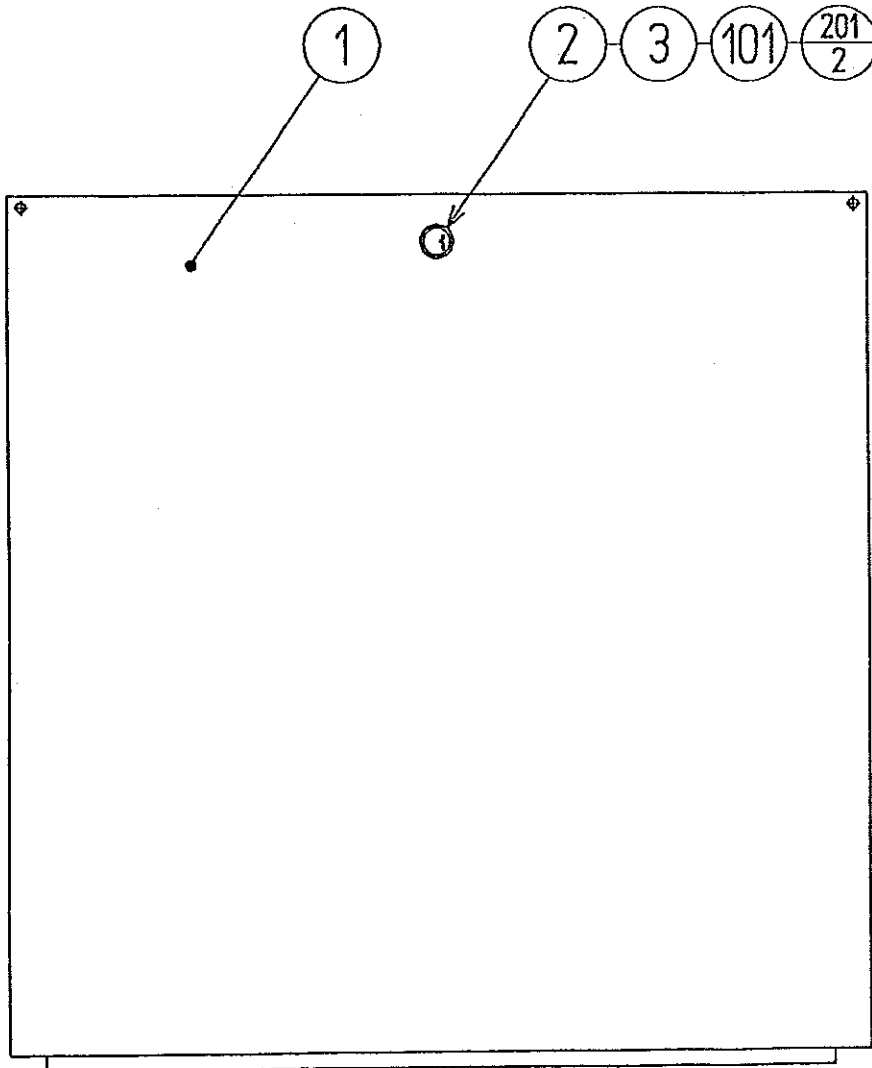
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	CPT-1005	MAINTENANCE LID BACK	
2	DP-1148X	LKG TNG	
3	117-0062	PLATE LOCK RETAINER	
101	220-5380	MAGNETIC LOCK MASTER W/O KEY	
201	011-T00312	TAP SCR TH 3×12	

⑥ ASSY WIRE DX (CPT-1450)

ITEM NO.	PART NO.	DESCRIPTION	NOTE

ASSY WIRE DX (CPT-1450) is comprised of the following wire harnesses.
An ASSY DRG. is unavailable.

ITEM NO.	PART NO.	DESCRIPTION
101	601-0460	PLASTIC TIE BELT 100MM
301	600-6656-08	WIRE HARN EARTH CONT PNL
302	600-6656-09	WIRE HARN AC AMP
303	600-6656-10-92	WIRE HARN DC OUT 1
304	600-6656-11	WIRE HARN DC OUT 2
305	600-6656-12	WIRE HARN RGB SENS IN
306	600-6656-14-91	WIRE HARN SENS COMM
307	600-6656-15	WIRE HARN AMP AUDIO
308	600-6656-16	WIRE HARN EXT COIN&METER
309	600-6656-17	WIRE HARN EXT START SW
310	600-6656-18	WIRE HARN EXT SW UNIT
311	600-6656-19-92	WIRE HARN EXT GUN
312	600-6656-27-92	WIRE HARN EXT SPEAKER
313	600-6656-29	WIRE HARN EARTH SP. L
314	600-6656-30-92	WIRE HARN EARTH SP. R
315	600-6656-31-91	WIRE HARN SW UNIT

⑦ ASSY SPEAKER (CPT-1060)
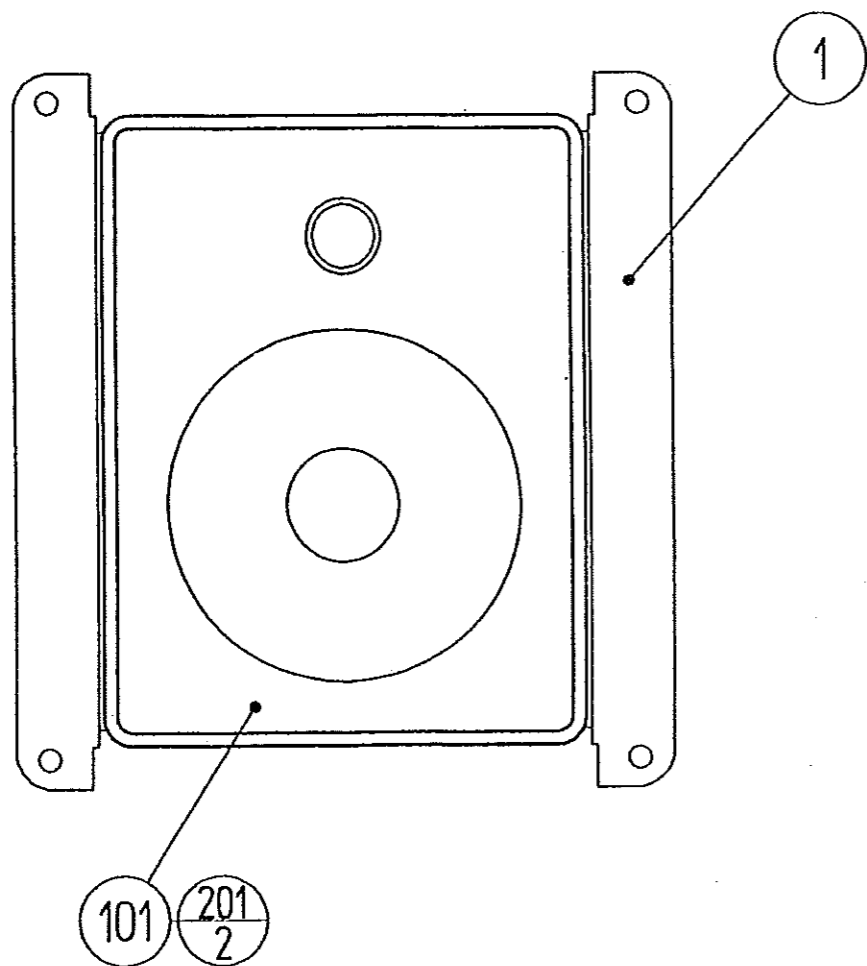
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	CPT-1061	SPEAKER BRKT	
101	130-5096	ASSY SERVO SPEAKER BOX	
201	000-P00512-W	M SCR PH W/FS M5×12	
301	600-6341-44	WIRE HARN RIGHT SPEAKER	
302	600-6656-32	WIRE HARN EARTH SPEAKER	

⑧ AC UNIT (ZMB-1070)
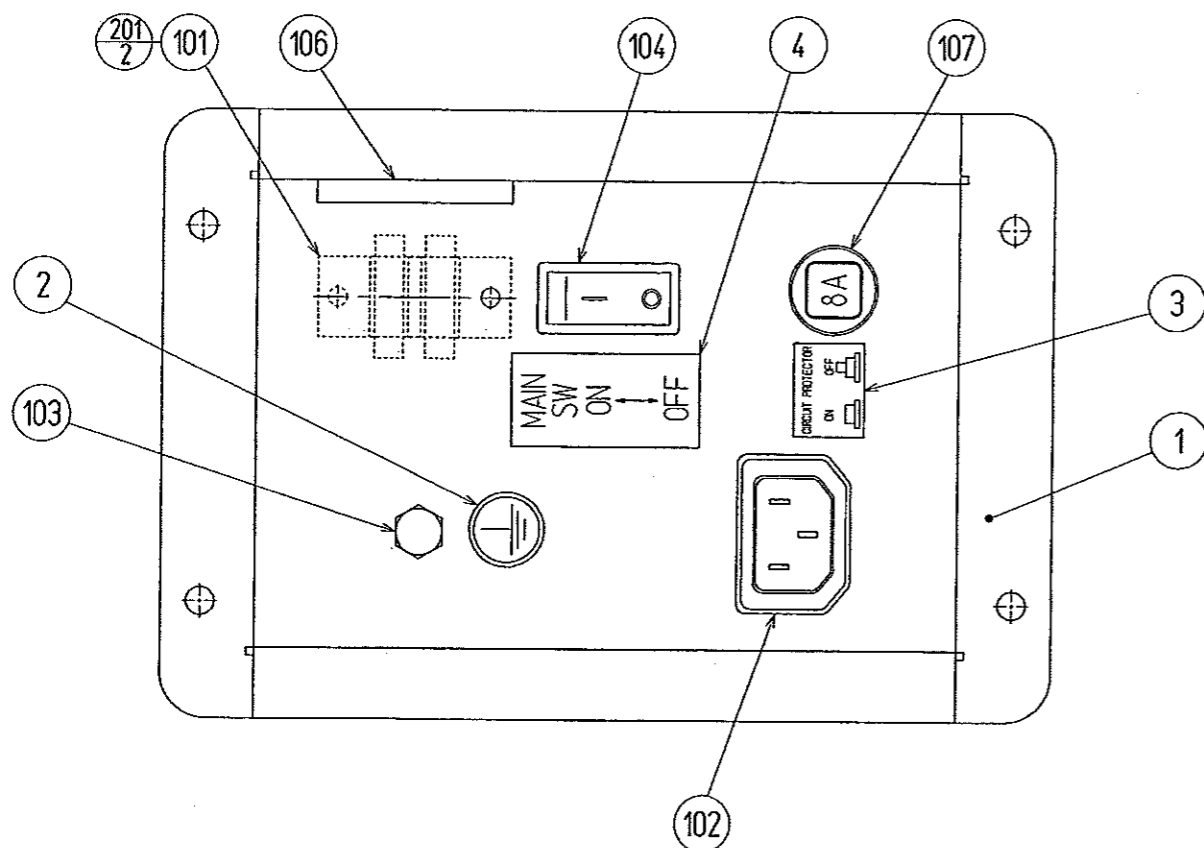
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	CPT-1071-01	AC BRKT EXP	
2	421-8202	STICKER EARTH MARK	
3	421-7468	STICKER C.P	
4	421-6526	STICKER ON OFF	
101	117-5182	TERMINAL PLATE 2P	
102	214-0202	AC INLET PANEL TYPE	
103	280-0417	TERMINAL BINDING POST BLACK	
104	509-5453-V-B	SW ROCKER J8 V-B	
105	601-0460	PLASTIC TIE BELT 100MM	
106	253-5185	CAP SW 30PH	
107	512-5033-5000	CIRCUIT PROTECTOR 5000mA	AC 220～240V AREA
	512-5033-8000	CIRCUIT PROTECTOR 8000mA	AC 110V AREA
108	310-5029-H20	SUMITUBE F H 20MM	
201	010-P00312-F	S-TITE SCR PH W/F M3×12	
301	600-6656-44	WIRE HARN AC IN EXP	
302	600-6656-02	WIRE HARN MAIN SW	

⑨ SW UNIT (CPT-1080)
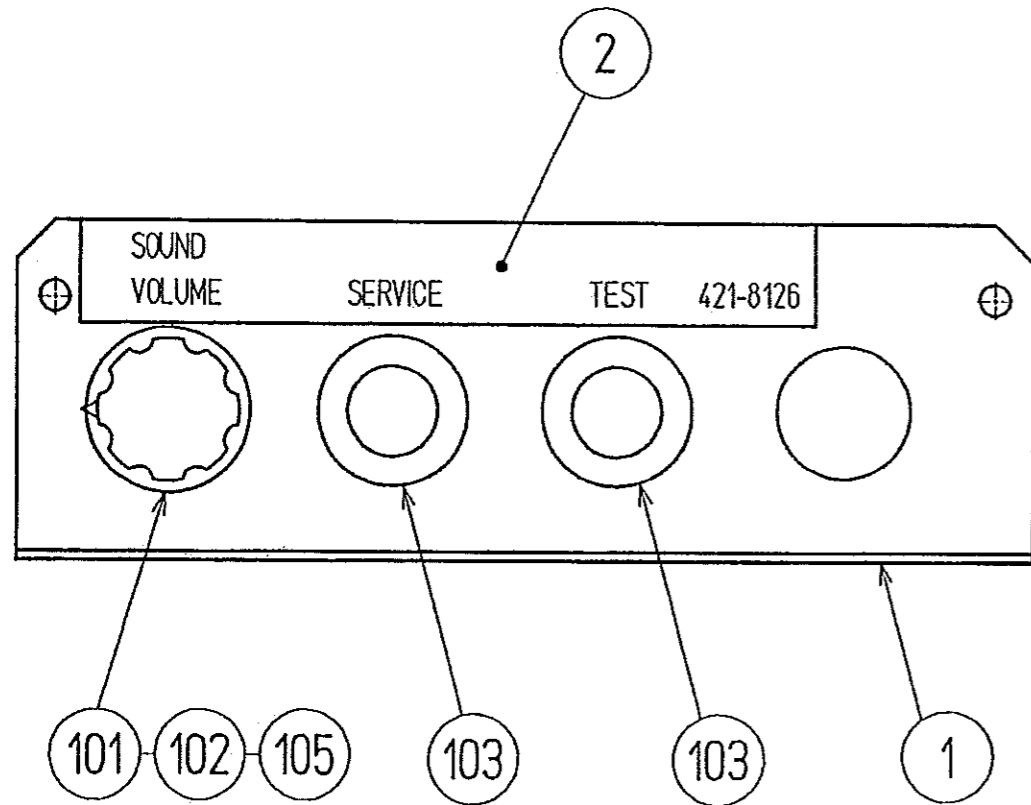
ITEM NO.	PART NO.	DESCRIPTION
1	KR-1060	SW BRKT
2	421-8126	STICKER SWITCH PANEL
101	220-5179	VOL CONT B-5K OHM
102	601-0042	KNOB 22MM
103	509-5028	SW PB 1M
104	601-0460	PLASTIC TIE BELT 100MM
105	310-5029-015	SUMITUBE F D15MM
301	600-6656-21	WIRE HARN SW UNIT

⑩ METER UNIT (COP-1590)
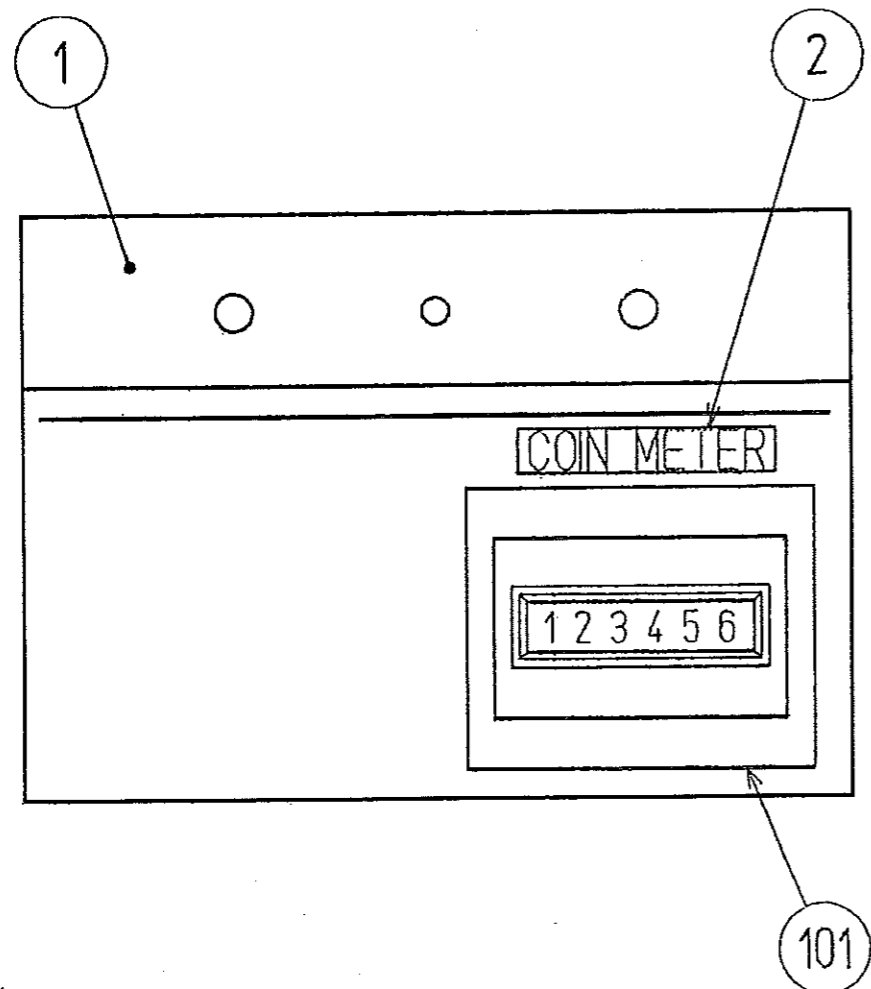
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	105-5108X	METER BRACKET	
2	421-6591-01	STICKER COIN METER	
101	220-5412	MAG CNTR W/CONN	

(11) ASSY AMP BD (CPT-1400)
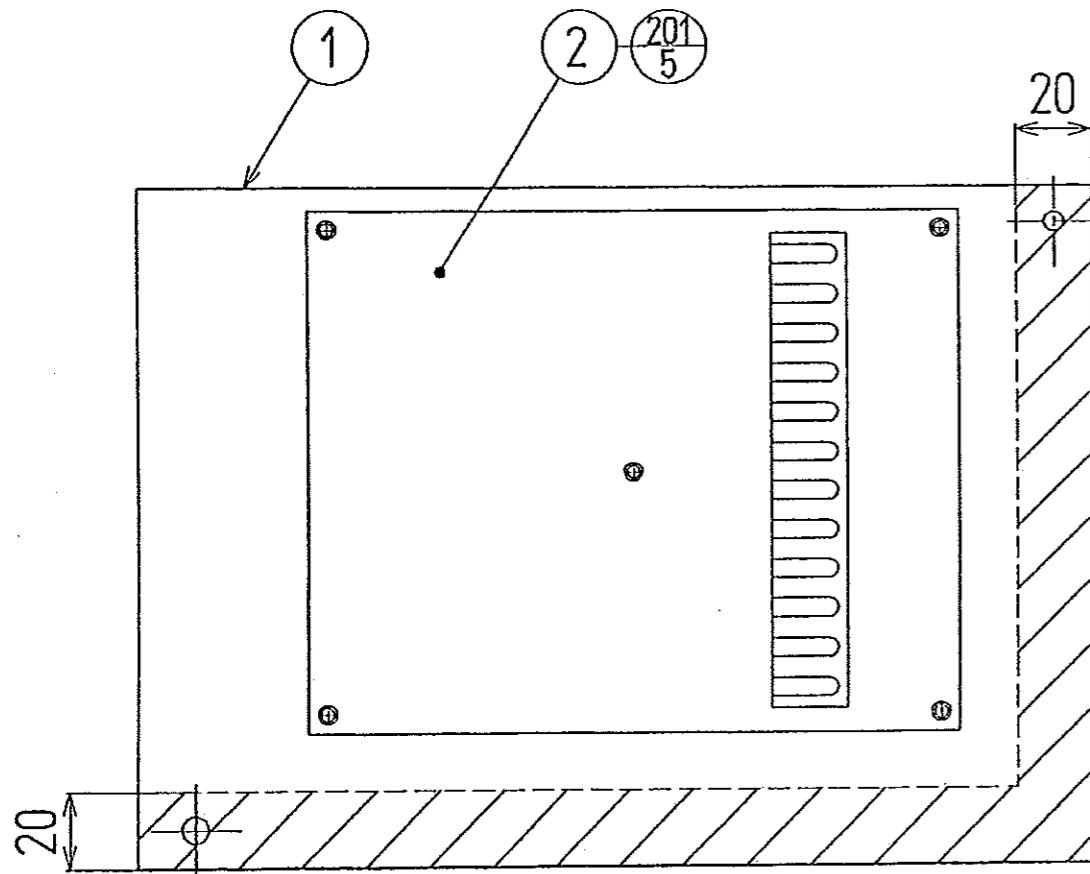
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	CPT-1401	WOODEN BASE AMP	
2	838-10018	AMP BD SERVO	
201	011-P00325	TAP SCR PH 3×25	

(12) ASSY BUFFER BD (CPT-1410)
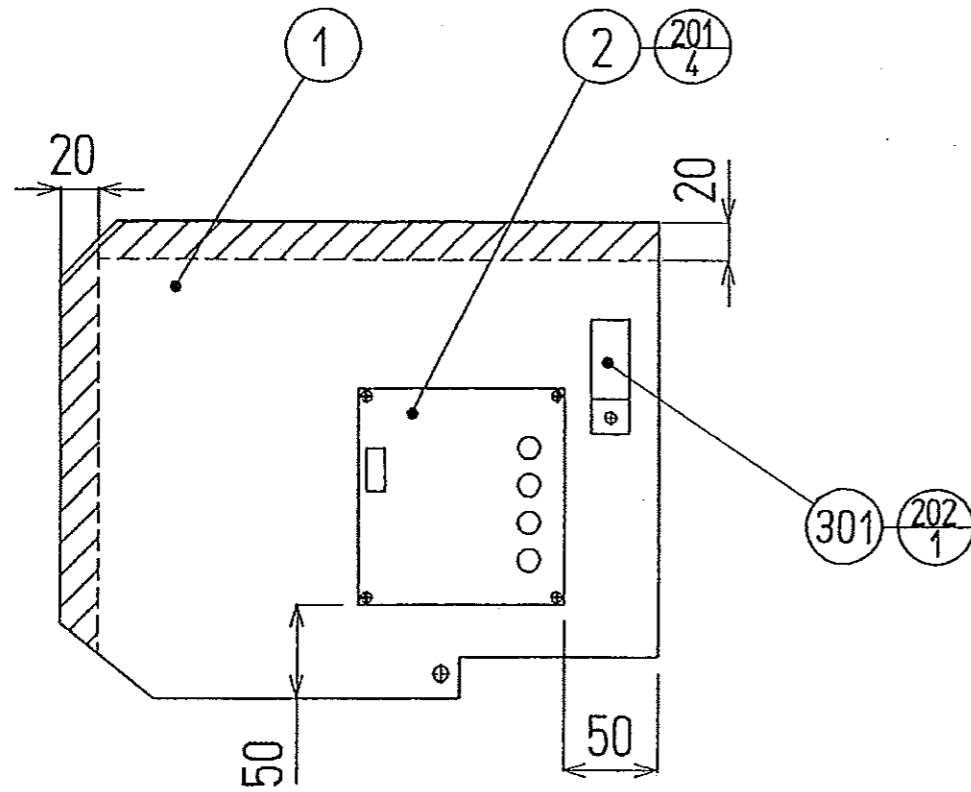
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	CPT-1411	WOODEN BASE VF	
2	839-0582	VPM BUFFER BD	
102	280-0419	HARNESS LUG	
201	011-P00325	TAP SCR PH 3×25	
202	011-T03512	TAP SCR TH 3.5×12	
301	600-6656-13	WIRE HARN RGB BUFFER IN	

(13) ASSY I/O BD (CPT-1420)

| CN 1 |
| CN 2 |
| CN 3 |
| CN 5 |
| CN 4 |

20

20
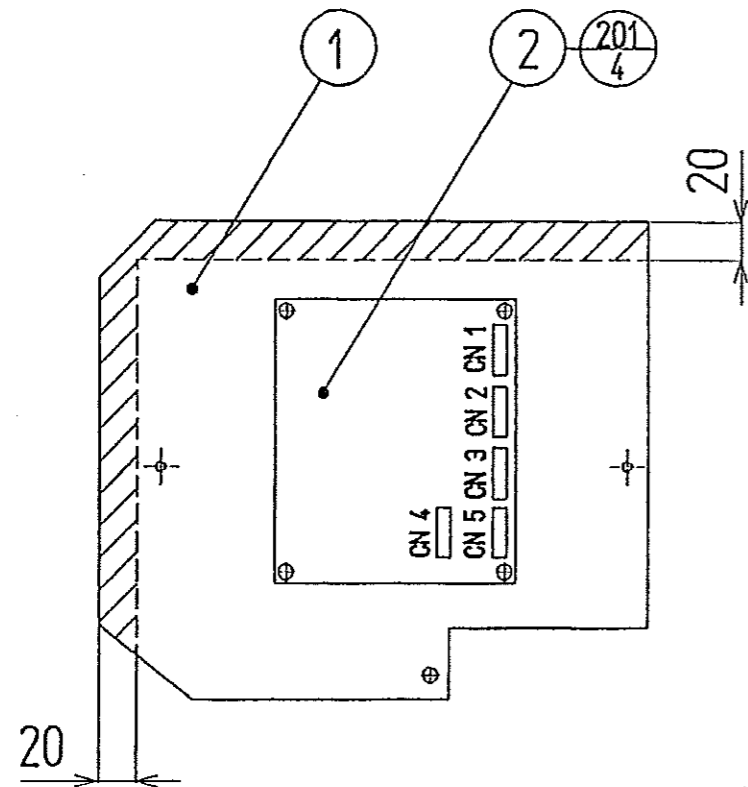
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	CPT-1421	WOODEN BASE I/O	
2	837-12079	IC BD GUN SENS A-CRX/B-CRX	
201	011-P00325	TAP SCR FH 3×25	

⑭ ASSY SW REGU (ZMB-1430)
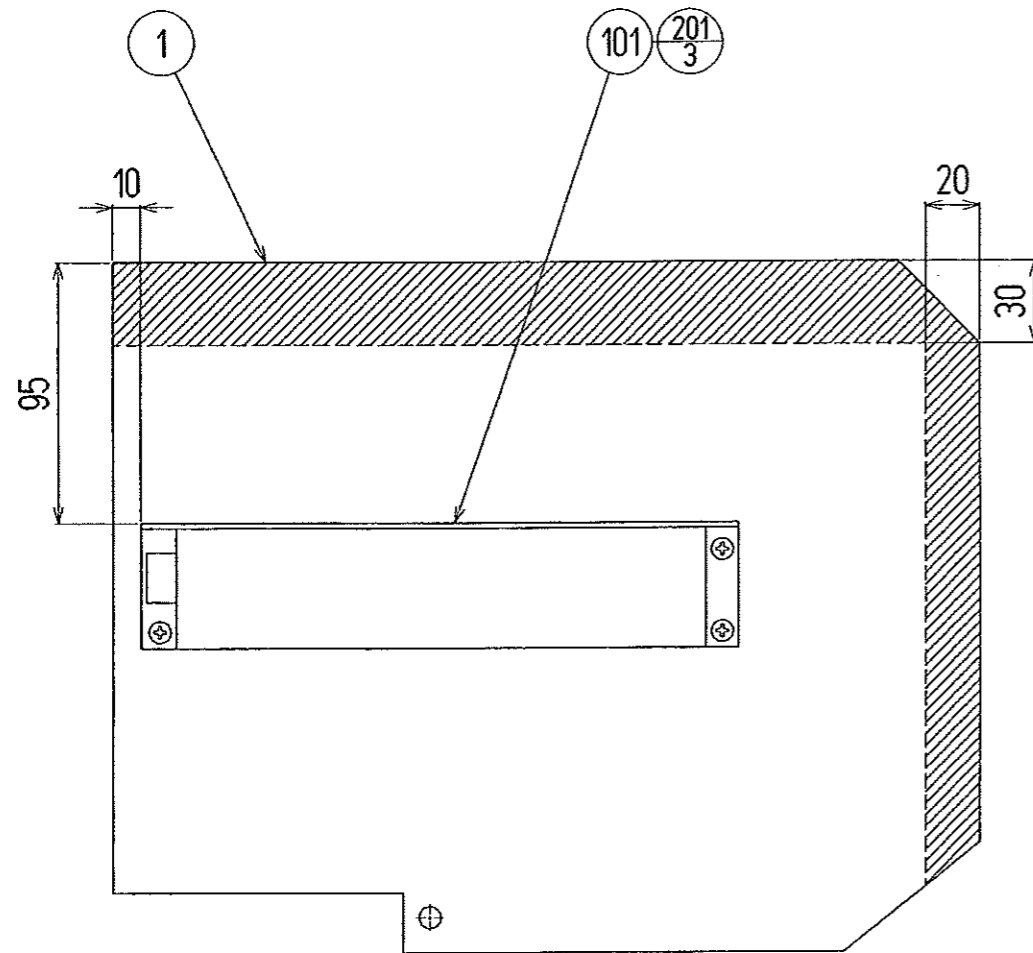
Note:make sure that there is no wiring,
etc. in the slash mark portions.

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	ZMB-1431	WOODEN BASE SW	
101	400-5306-01	SW REGU +5V12A12V1.5A-5V1A	
201	011-P03516	TAP SCR PH 3.5×16	

(15) ASSY AC SPLY (ZMB-1440)

Note: make sure that there is no wiring,
etc. in the slash mark portions.

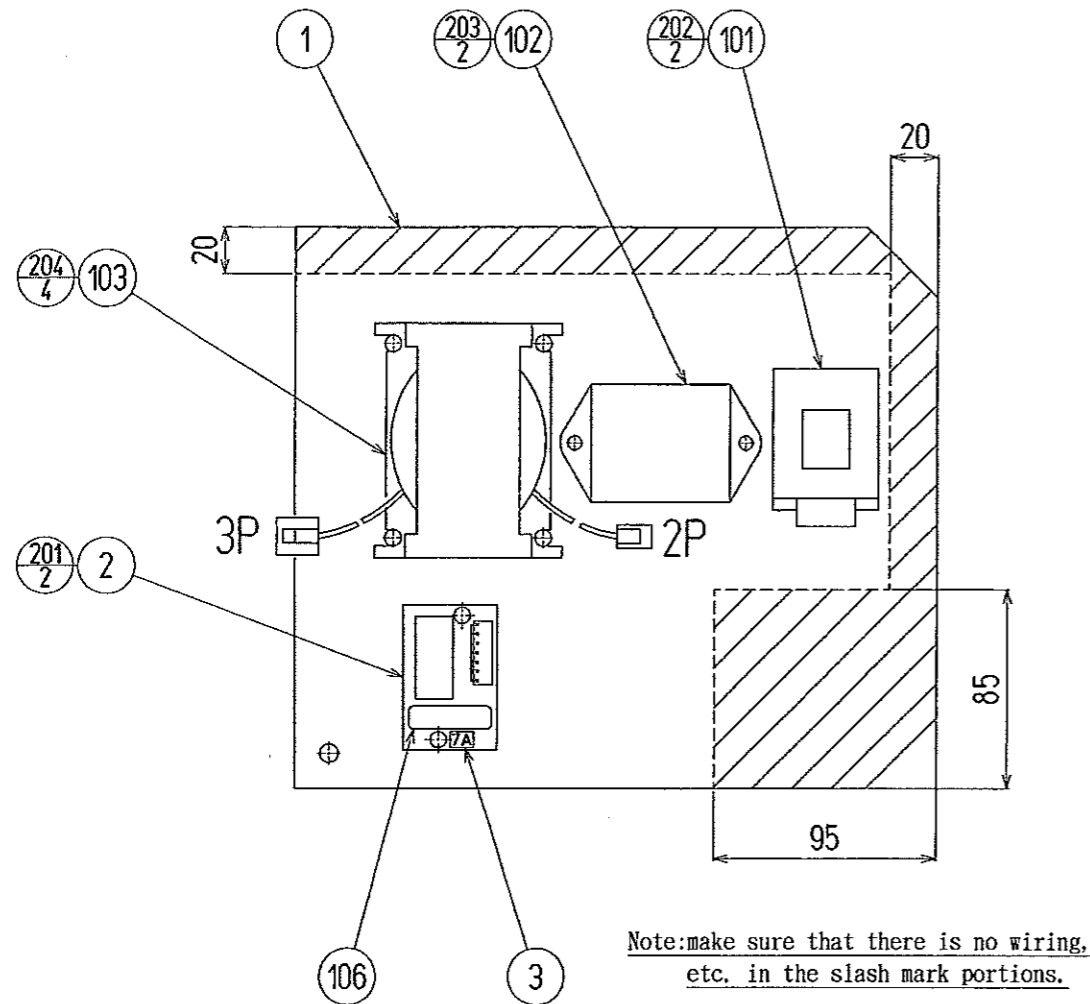| ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	CPT-1441	WOODEN BASE AC SPLY	
2	838-11856-01	CONNECT BD W/FUSE & COVER	
3	421-6595-11	STICKER 7A	
101	450-5126	MAGNET CONTACT S-N10CX	AC 110V AREA
	450-5133	MAGNET CONTACT S-N10CX AC200V	AC 220V 60Hz AREA
	450-5134	MAGNET CONTACT S-N10CX AC230V	AC 220V 50Hz, AC 240V AREA
102	270-5022-01	NOISE FILTER 20A GA1B-20	
103	560-5250	XFMR AC100V 12.8V 6A	
104	280-0419	HARNESS LUG	
105	601-0460	PLASTIC TIE BELT 100MM	
106	514-5036-7000	FUSE 6.4×30 7000mA 125V	
201	011-P00320	TAP SCR PH 3×20	
202	011-T03516	TAP SCR TH 3.5×16	
203	011-T00312	TAP SCR TH 3×12	
204	000-P00412-W	M SCR PH W/FS M4×12	
301	600-6888-001	WIRE HARN AC SPLY	
302	600-6888-002	WIRE HARN MAG. FLT	
304	600-6888-003	WIRE HARN FLT. CONN	

⑯ ASSY CONT PANEL DX (ZMB-2000)
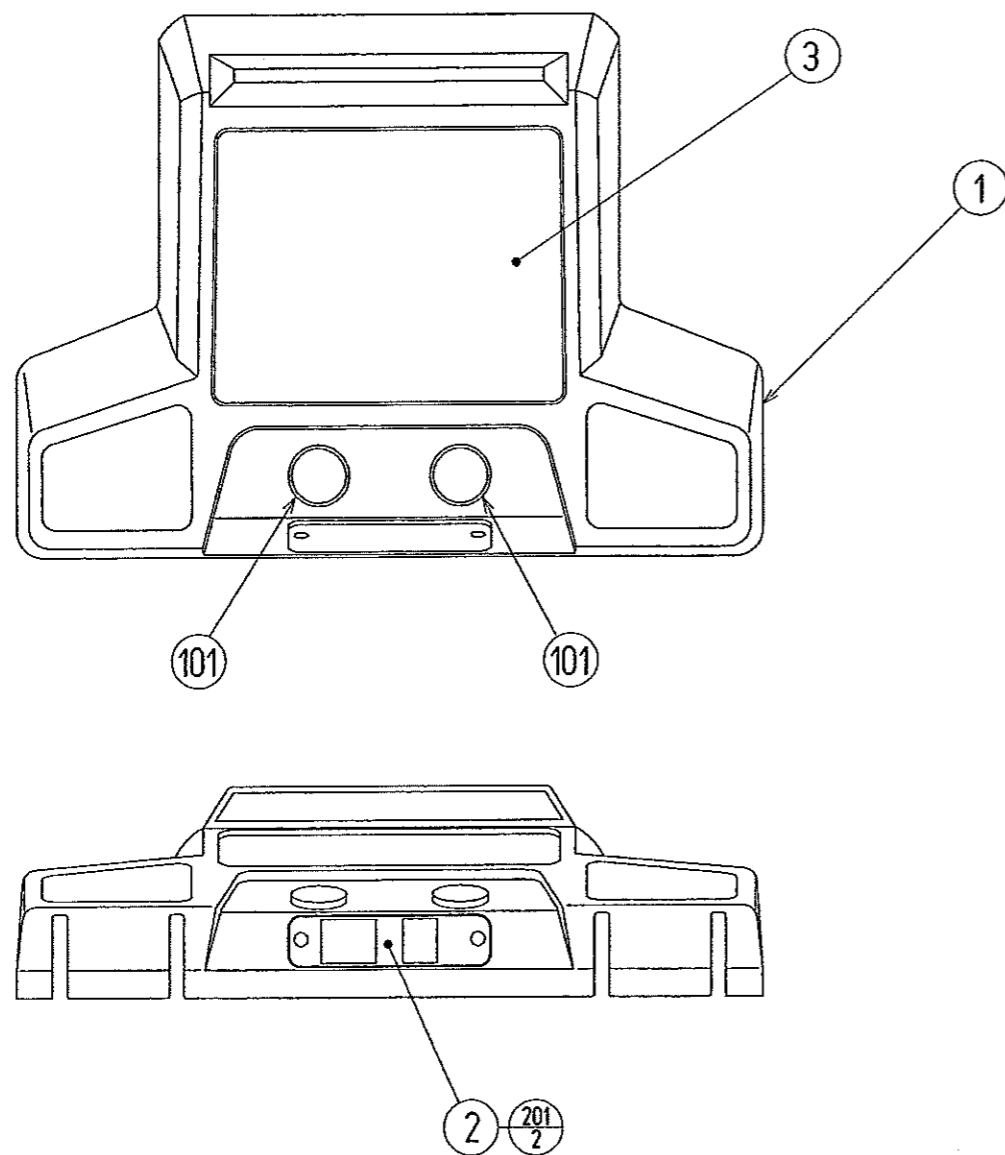
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	ZMB-2001	CONT PNL	
2	CPT-2003	DENOMI PLATE	
3	ZMB-2004-01	INST PLATE ZMB DX ENG	
101	509-5712-01	SW PB W/L 6V YELLOW	
201	008-T00416-0B	TMP PRF SCR TH BLK M4×16	
301	600-6656-20	WIRE HARN START SW & LAMP	

(17) CONTROL UNIT 1P (ZMB-2300)
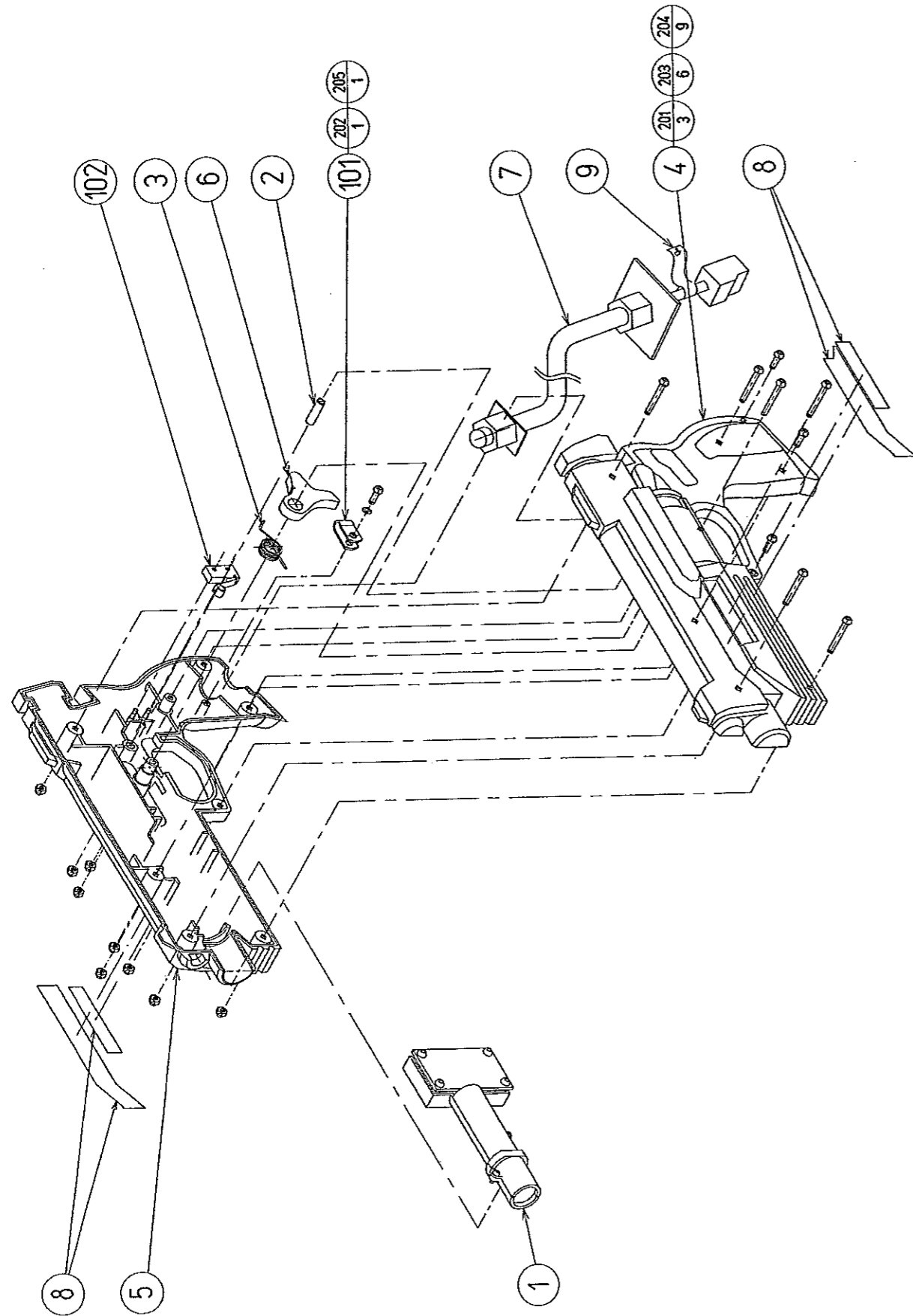
⑰ CONTROL UNIT 1P (ZMB-2300)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	COP-2020	SENSOR UNIT	
2	COP-2005	STOPPER PIN	
3	125-5124	TORSION SPRING	
4	253-5404-01	COVER LEFT BLUE	
5	253-5405-01	COVER RIGHT BLUE	
6	253-5406-01	TRIGGER BLUE	
7	601-7974	PROTECT TUBE NEW	
8	ZMB-2301	STICKER CONTROLLER 1P	
9	421-9512-01	STICKER 1P LONG	
101	280-5124-03	NYLON CLAMP NK03	
102	509-5080	SW MICRO TYPE	
103	601-0460	PLASTIC TIE BELT 100MM	
201	000-P00308-0B	M SCR PH BLK M3×8	
202	012-P00308	TAP SCR #2 PH 3×8	
203	FAS-000015	M SCR PH BLK M3×25	
204	FAS-500006	CAP NUT TYPE 3 BLK M3	
205	060-F00300	FLT WSHR M3	
301	600-6456-30	WIRE HARN CONTROL UNIT	

(18) SENSOR UNIT (COP-2020)
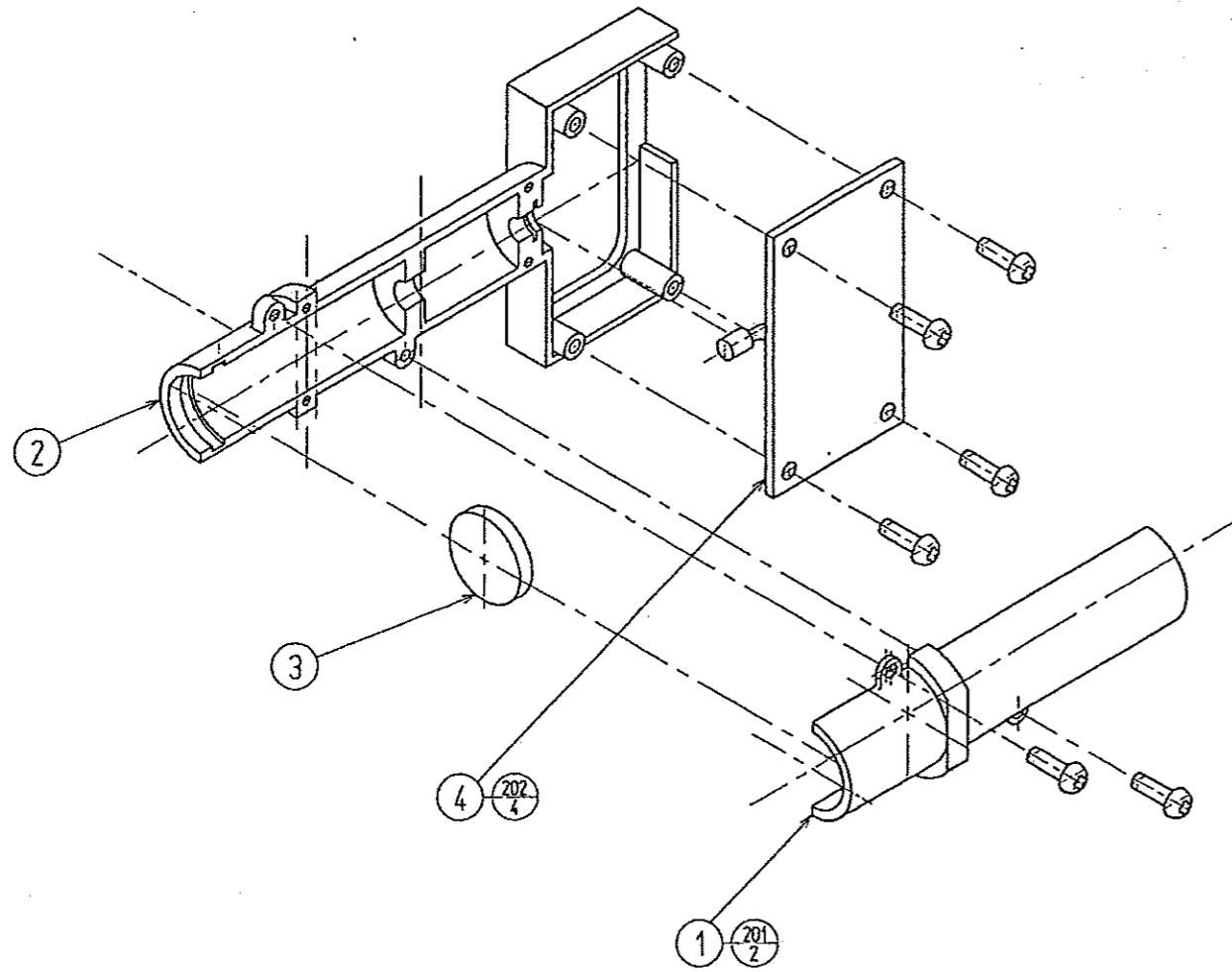
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	COP-2003	LENS HOLDER L	
2	COP-2004	LENS HOLDER R	
3	380-5003	LENS LP	
4	838-11145	SENSOR BD	
201	012-P02606	TAP SCR PH 2.6×6	
202	012-P00306	TAP SCR PH 3×6	
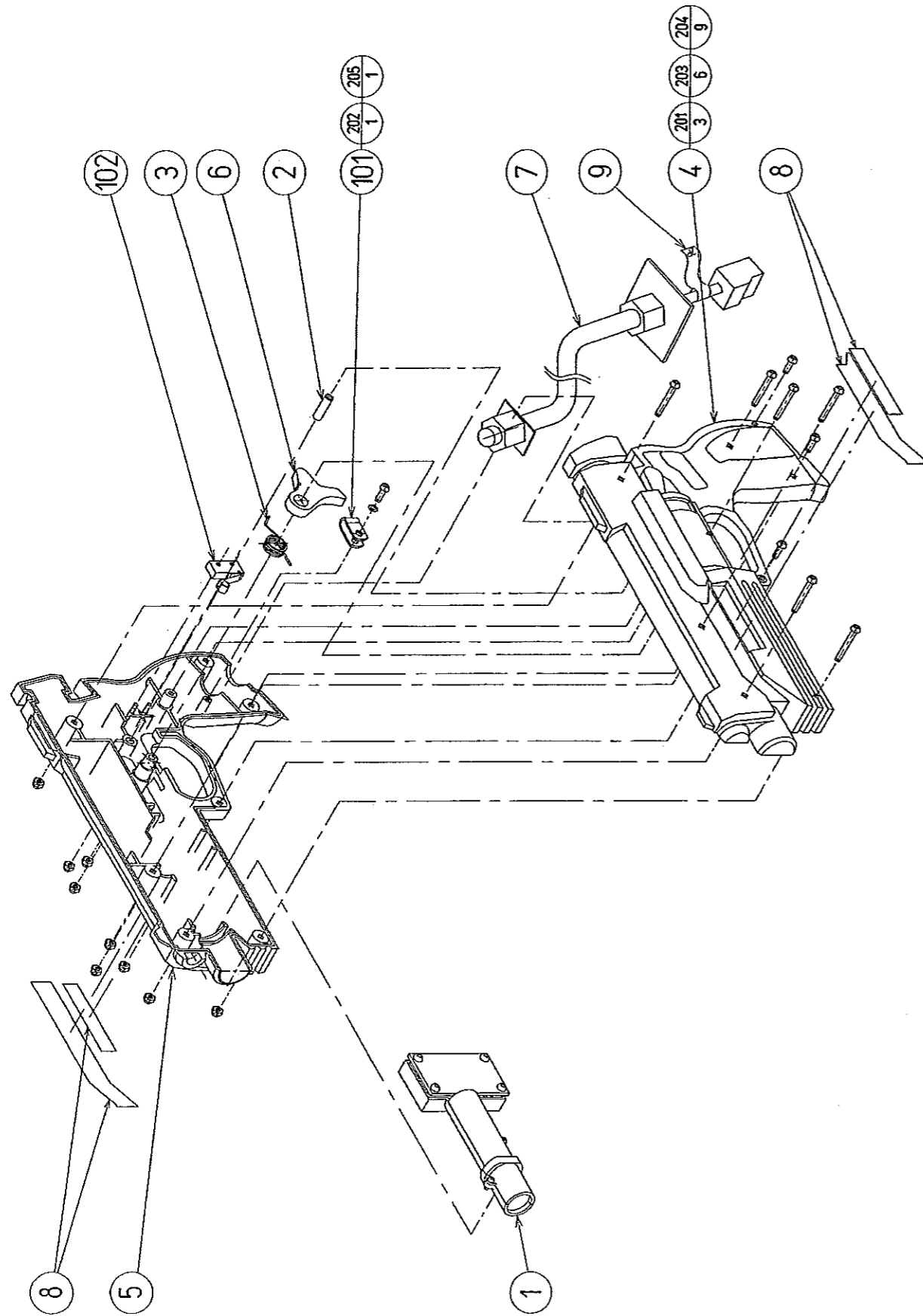
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	COP-2020	SENSOR UNIT	
2	COP-2005	STOPPER PIN	
3	125-5124	TORSION SPRING	
4	253-5404-01	COVER LEFT BLUE	
5	253-5405-01	COVER RIGHT BLUE	
6	253-5406-01	TRIGGER BLUE	
7	601-7974	PROTECT TUBE NEW	
8	ZMB-2351	STICKER CONTROLLER 2P	
9	421-9512-02	STICKER 2P LONG	
101	280-5124-03	NYLON CLAMP NK03	
102	509-5080	SW MICRO TYPE	
103	601-0460	PLASTIC TIE BELT 100MM	
201	000-P00308-0B	M SCR PH BLK M3×8	
202	012-P00308	TAP SCR #2 PH 3×8	
203	FAS-000015	M SCR PH BLK M3×25	
204	FAS-500006	CAP NUT TYPE 3 BLK M3	
205	060-F00300	FLT WSHR M3	
301	600-6456-30	WIRE HARN CONTROL UNIT	

㉑ ASSY PTV (ZMB-1100)
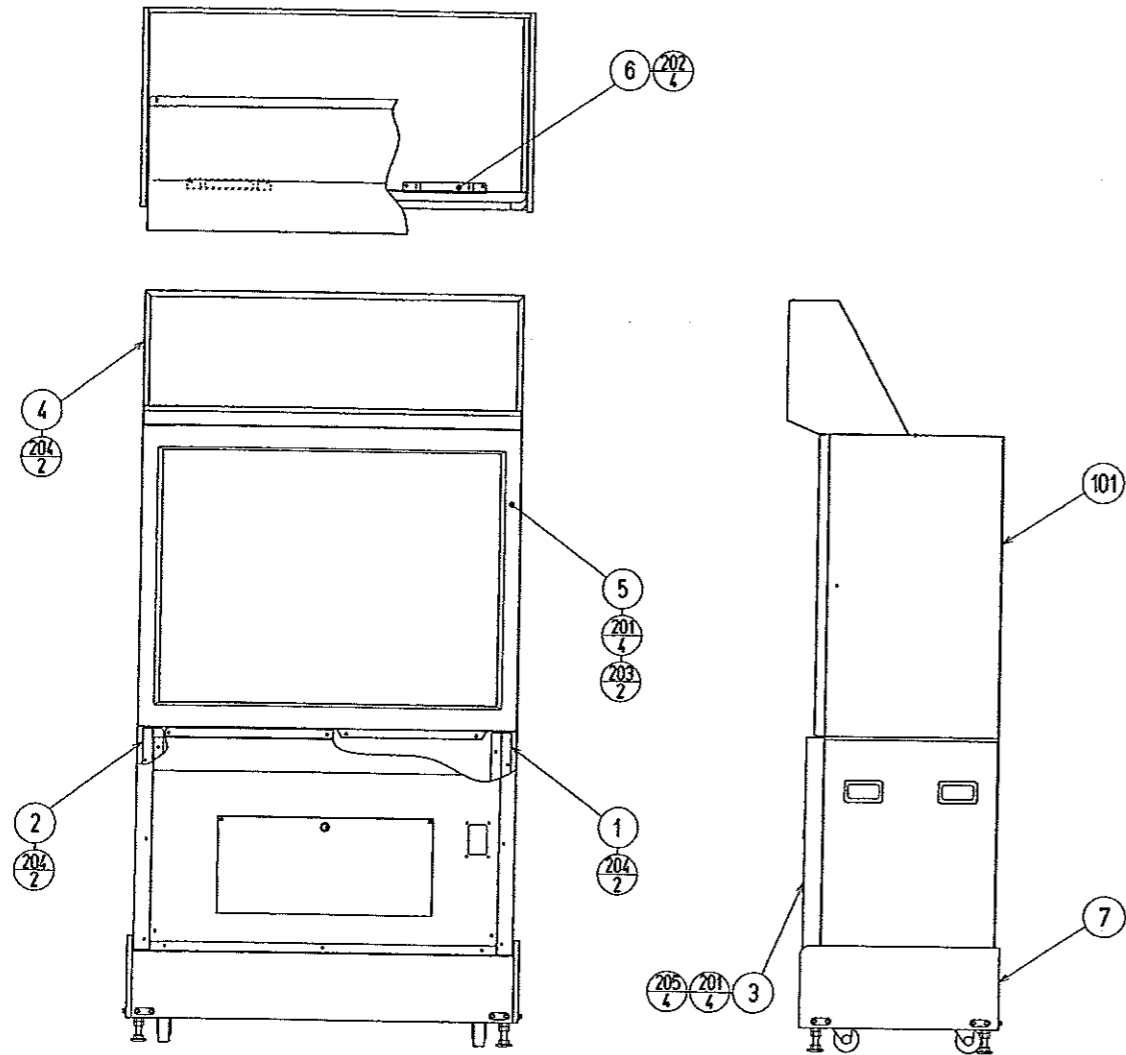
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	DYN-0501	PANEL MOUNT BRKT L	
2	DYN-0502	PANEL MOUNT BRKT R	
3	ZMB-1200	ASSY FRONT PANEL	
4	ZMB-1300	ASSY BILLBOARD	
5	MGL-1150	ASSY MASK	
6	RAL-0501	MASK HOLDER	
7	ZMB-1101	PTV BASE	
8	ZMB-1102	BLIND SHEET	FOR TOSHIBA PTV
101	200-5315-01-ZMB	ASSY PROJECTION DISPLAY ZMB	
201	000-T00520-0B	M SCR TH BLK M5×20	
202	000-F00414	M SCR FH M4×14	
203	000-T00525-0B	M SCR TH BLK M5×25	
204	000-P00516-W	M SCR PH W/FS M5×16	
205	068-552016-0B	FLT WSHR BLK 5.5-20×1.6	

㉑ ASSY MASK (MGL-1150)
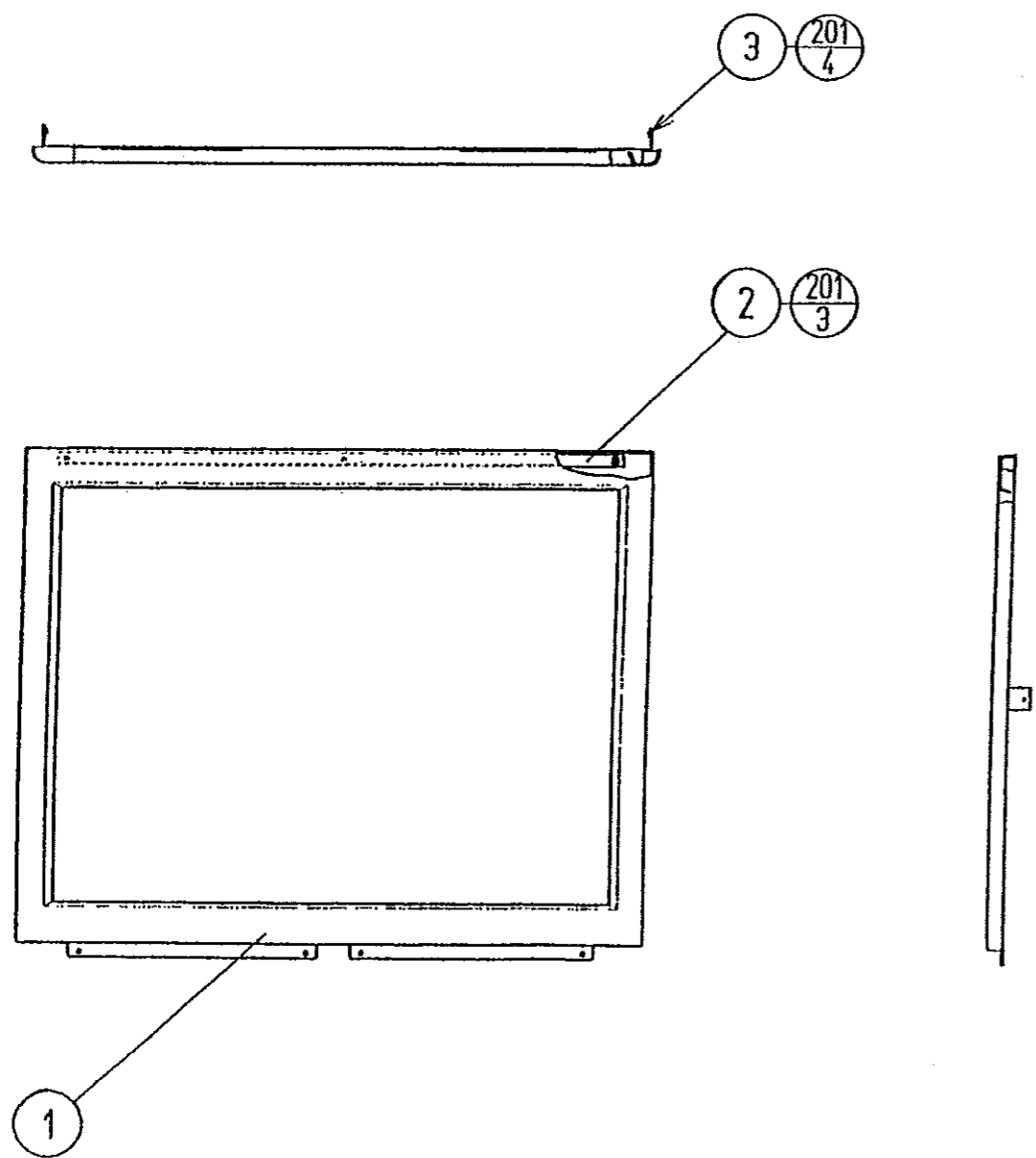
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	MGL-1102	TV MASK	
2	MGL-1151	SLIT PLATE	
3	MGL-1152	MASK SIDE HOLDER	
201	012-F00408-0B	TAP SCR FH BLK M4×8	
202	000-F00410	M SCR FH M4×10	

㉒ PTV BASE (ZMB-1101)
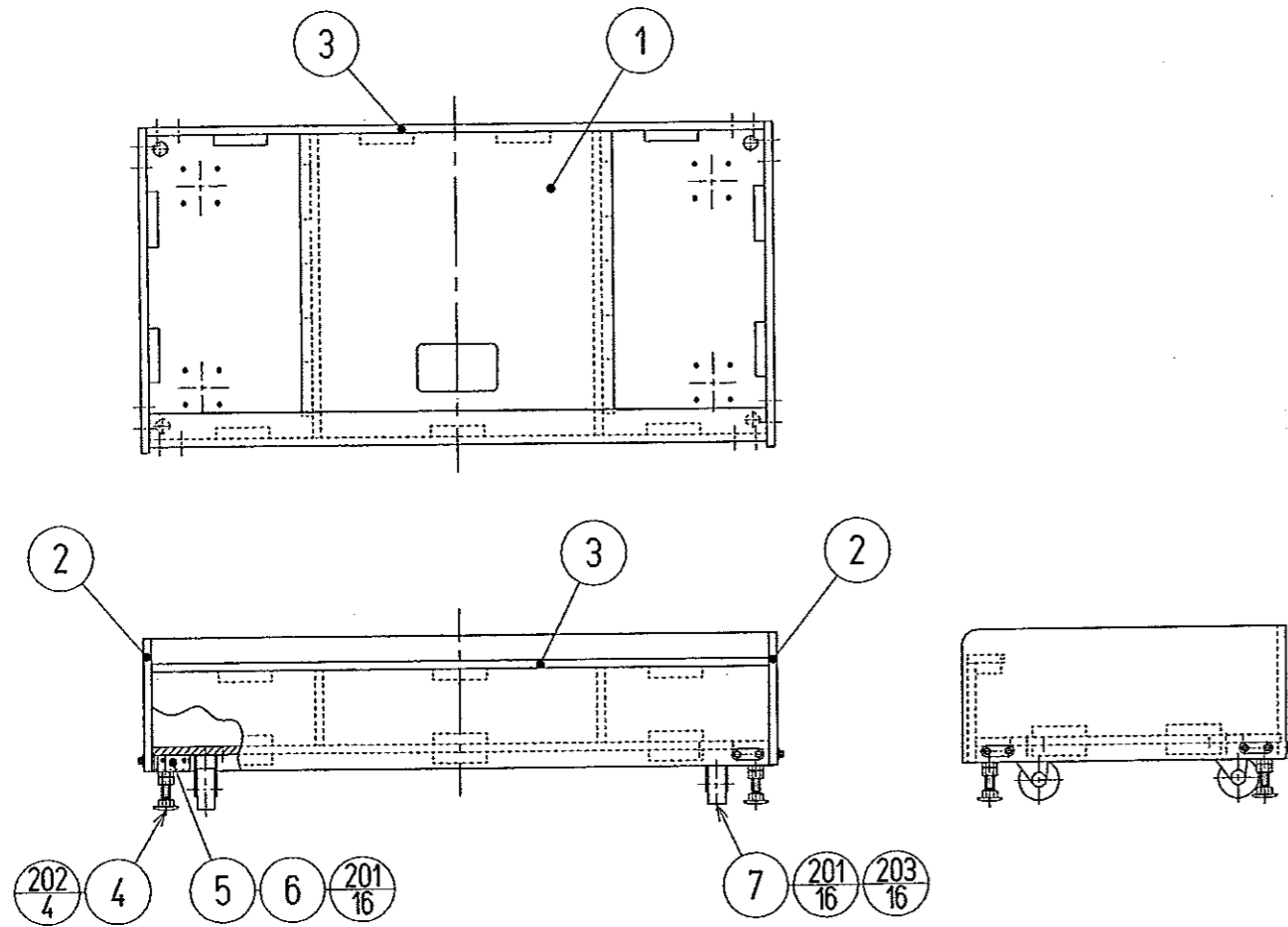
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	ZMB-1101-A	PTV BASE BLANK	
2	CPT-1101-B	ORNAMENT EDGE A	
3	CPT-1101-C	ORNAMENT EDGE B	
4	601-5699X	LEG ADJUSTER BOLT M16×75	
5	ARC-1006	LEG BRACKET	
6	117-5233	PLATE LEG BRACKET BLACK	
7	601-6224	CASTER ϕ75	
201	030-000630-SB	HEX BLT W/S BLK M6×30	
202	050-H01600	HEX NUT M16	
203	060-F00600	FLT WSHR M6	

㉓ ASSY FRONT PANEL (ZMB-1200).

Before apply to the sticker,
in to the notch of ×mark(2place).
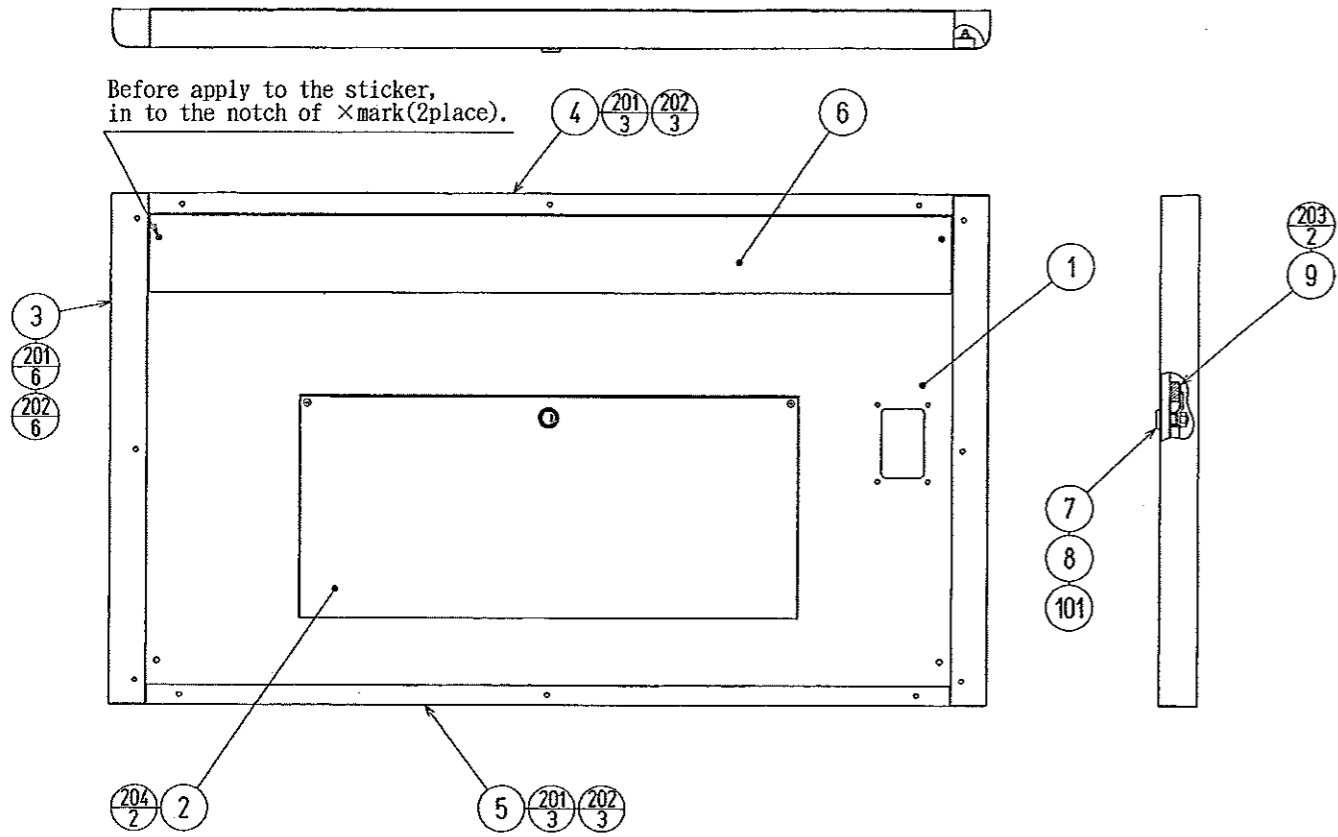
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	ZMB-1201	FRONT PANEL	
2	ZMB-1202	SERVICE DOOR	
3	EZT-0603	SIDE BRKT	
4	EZT-0604	BRKT UPPER	
5	EZT-0605	BRKT LOWER	
6	ZMB-1206	STICKER PTV FRONT ZMB DX	
7	DP-1148X	LKG TNG	
8	117-0062	PLATE LOCK RETAINER	
9	117-5098	TNG RETAINER PLATE	
101	220-5380	MAGNETIC LOCK MASTER W/O KEY	
201	068-552016	FLT WSHR 5.5-20×1.6	
202	050-F00500	FLG NUT M5	
203	011-T00312	TAP SCR TH 3×12	
204	000-T00430-0B	M SCR TH BLK M4×30	

㉔ ASSY BILLBOARD (ZMB-1300)
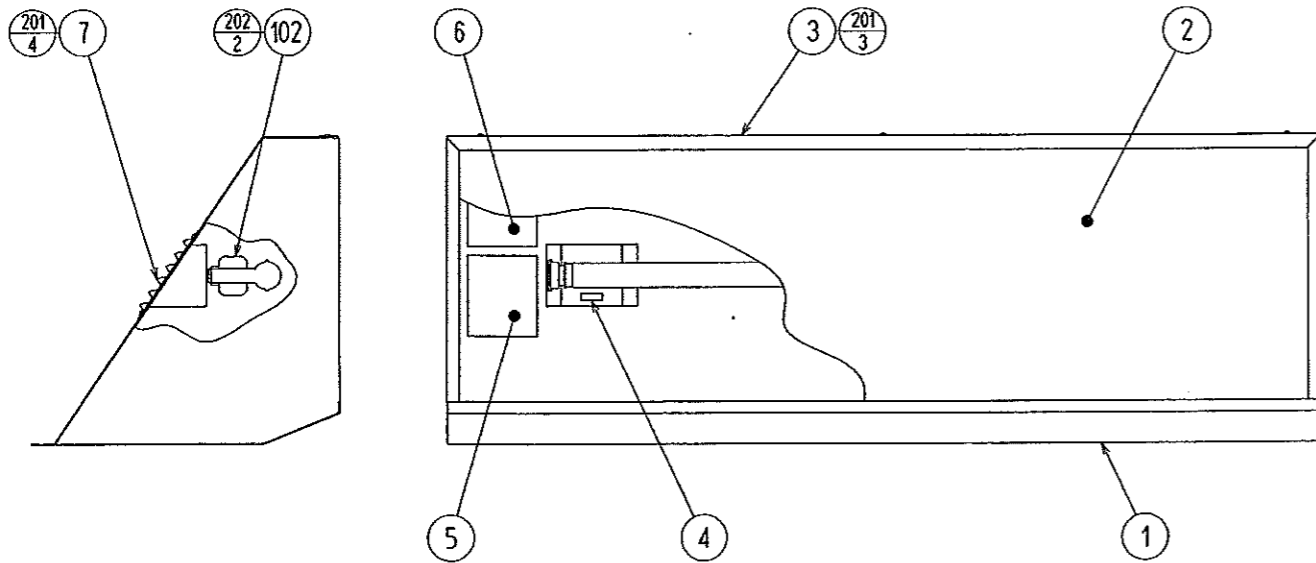
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	ZMB-1301	BILLBOARD BOX	
2	ZMB-1302	BILLBOARD ZMB DX	
3	ZMB-1303	SASH	
4	421-7501-18	STICKER FL32W	
5	440-WS0002XEG	STICKER W POWER OFF ENG	
6	440-WS0012XEG	STICKER W HIGH TEMP ENG	
7	UP-1018	AIR VENT	
101	280-5009	CORD CLAMP 21	
102	390-5538-32EX	ASSY FL32W EX W/CONN HIGH L	
	390-5636-32EX	ASSY FL32W EX W/CONN HIGH S	
	390-5637-32EX	ASSY FL32W EX W/CONN HIGH T	
201	000-T00408-0B	M SCR TH BLK M4×8	
202	000-P00416-W	M SCR PH W/FS M4×16	
301	600-6445-46-91	WIRE HARN BILLBOARD	

19. WIRE COLOR CODE TABLE

THE WIRE COLOR CODE is as follow:

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

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

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

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

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

<Example> 51 ········ WHITE / RED

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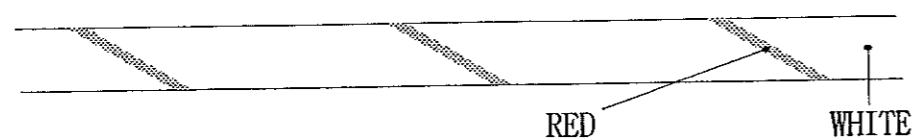
Note 2: The character following the wire color code indicates the size of the wire.

K:	AWG18, UL1015
L:	AWG20, UL1007
None:	AWG22, UL1007

20. WIRING DIAGRAM (D-1/2)

EXPORT TYPE

CERCUIT PROTECTOR
8A (AC100~120V AREA)
5A (AC200~240V AREA)
(F250)

600-6656-02

600-6888-001

600-6888-002
270-5022-01

NOISE
FILTER

600-6618 (EXP)
600-6619 (U.K.)
(F187) INLET

600-6656-44 (#1~3)
(F250)

MAIN SW
(ROCKER TYPE)
509-5453-V-B

600-6656-44 (#4)

MAGNET CONTACT S-N10CX
450-5126   AC100V 50/60Hz
           AC110V 60Hz
450-5135   AC110~120V 50Hz
           AC115~120V 60Hz
450-5133   AC200V 50Hz
           AC200~220V 60Hz
450-5134   AC220~240V 50Hz
           AC230~240V 60Hz

600-6888-003

FCR 600-6657-07
(1/2) C1 POS.

ZMB-1070   AC UNIT

EARTH TERMINAL

838-11856-01
CONNECT BD
W/FUSE & COVER

FUSE 7A

600-6888-001

0V BLACK
0V BLACK
100V RED
110V BLUE
120V YELLOW
200V WHITE
220V ORANGE
230V PURPLE
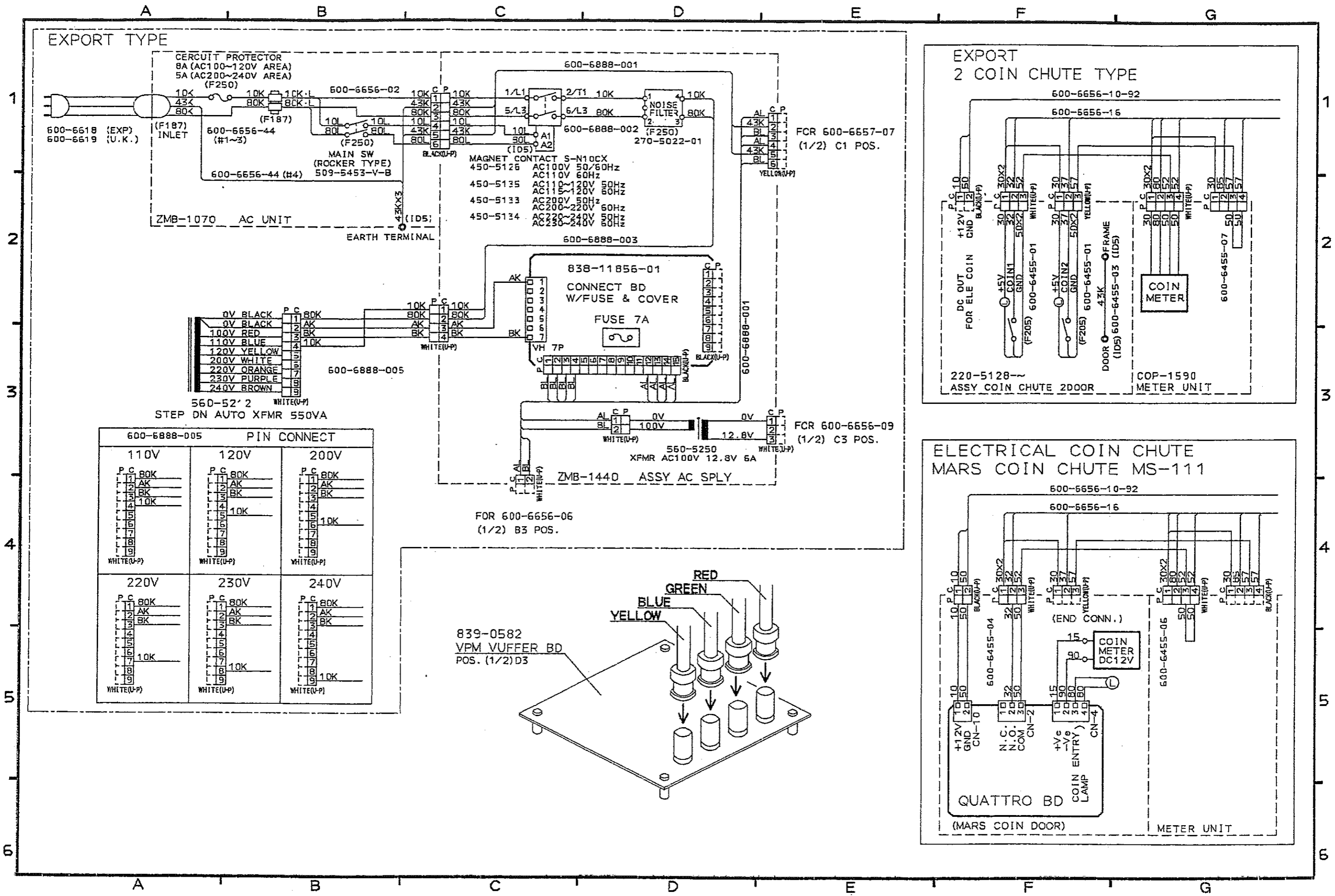240V BROWN

560-52'2
STEP DN AUTO XFMR 550VA

600-6888-005

FCR 600-6656-09
(1/2) C3 POS.

560-5250
XFMR AC100V 12.8V 6A

ZMB-1440   ASSY AC SPLY

FOR 600-6656-06
(1/2) B3 POS.

600-6888-005	PIN CONNECT

110V	120V	200V
80K AK BK 10K	80K AK BK 10K	80K AK BK 10K

220V	230V	240V
80K AK BK 10K	80K AK BK 10K	80K AK BK 10K

RED
GREEN
BLUE
YELLOW

839-0582
VPM VUFFER BD
POS. (1/2) D3

EXPORT
2 COIN CHUTE TYPE

600-6656-10-92
600-6656-16

DC OUT
FOR ELE COIN

COIN1
COIN2

600-6455-01
600-6455-01

COIN
METER

600-6455-07

220-5128-~
ASSY COIN CHUTE 2DOOR

COP-1590
METER UNIT

ELECTRICAL COIN CHUTE
MARS COIN CHUTE MS-111

600-6656-10-92
600-6656-16

(END CONN.)

600-6455-04

COIN
METER
DC12V

600-6455-06

N.C.
N.O.
COM
CN-2

+Vc
-Vs
CN-4

COIN ENTRY
LAMP

+12V
GND
CN-10

QUATTRO BD

(MARS COIN DOOR)

METER UNIT

20. WIRING DIAGRAM (D-2/2)