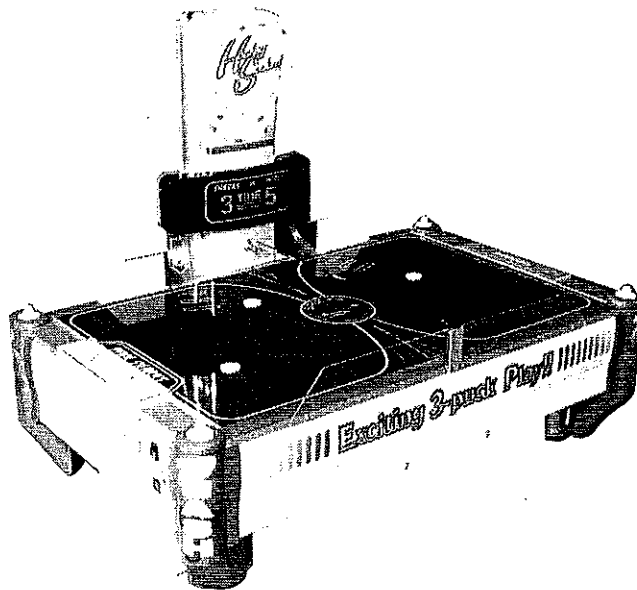


SEGA™

Hockey Stadium 3PUCKS

OWNER'S MANUAL

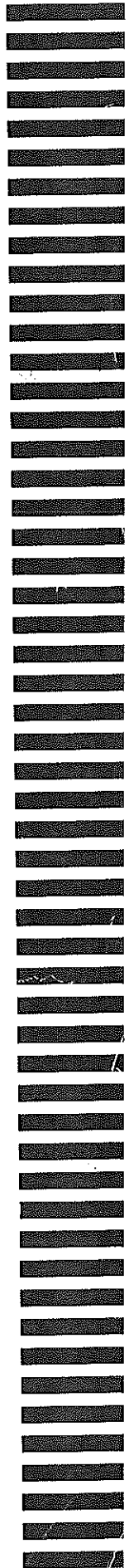


IMPORTANT!

- Before using this product, read this OWNER'S MANUAL carefully to understand the contents herein stated.
- After reading this manual, be sure to keep it available nearby the product or elsewhere convenient for referring to it anytime when necessary.

SEGA ENTERPRISES, LTD.

MANUAL NO. 420 - 6271 - 01



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.



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



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



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



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.

- **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.
- **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.
- **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.
- **Ensure that the Power Supply used is equipped with an Earth Leakage Breaker.**
This product does not incorporate the Earth Leakage Breaker. Using a power supply which is not equipped with the Earth Leakage Breaker can cause a fire when earth leakage occurs.
- **Be sure to use fuses which meet the specified rating.** (only for the machines which use fuses).
Using fuses exceeding the specified rating can cause a fire and 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?

TABLE OF CONTENTS

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

TABLE OF CONTENTS

INTRODUCTION OF THE OWNER'S MANUAL

1. HANDLING PRECAUTIONS.....	1 ~ 2
2. PRECAUTIONS CONCERNING INSTALLATION LOCATION.....	3 ~ 4
3. PRECAUTIONS TO BE HEEDED FOR OPERATION.....	5 ~ 6
4. NAME OF PARTS.....	7
5. ACCESSORIES.....	8
6. ASSEMBLING AND INSTALLATION.....	9 ~19
7. PRECAUTIONS TO BE HEEDED WHEN MOVING THE MACHINE.....	20
8. CONTENTS OF GAME.....	21~22
9. SETTING DIP SW (DIP SWITCH).....	23~25
10. EXPLANATIONS OF TEST AND DATA DISPLAY.....	26~31
10-1 SWITCH UNIT AND COIN METER.....	27
10-2 TEST MODE.....	28
10-3 INPUT TEST.....	28~30
10-4 OUTPUT TEST.....	30~31
10-5 SOUND TEST.....	31
10-6 MATRIX.....	31
10-7 PUCK OUT.....	31
11. APPLY GREASING TO MECHANISM.....	32~34
11-1 STOCK MECHANISM.....	32
11-2 TRANSFER MECHANISM.....	33
11-3 POINT SOLENOID.....	34
12. COIN SELECTOR.....	35
13. REPLACEMENT OF FLUORESCENT LAMP AND LAMPS.....	36~37
13-1 REPLACEMENT OF FLUORESCENT LAMP.....	36
13-2 LAMP REPLACEMENT.....	37
14. PERIODIC MAINTENANCE INSPECTION LIST.....	38~40
15. TROUBLESHOOTING.....	41~43
15-1 ERROR MESSAGE.....	41
15-2 COUNTERMEASURES AGAINST MALFUNCTIONING.....	41~43
16. DESIGN RELATED PARTS.....	44~45
17. PARTS LIST.....	46~85
18. WIRE COLOR CODE TABLE.....	86
19. WIRING DIAGRAM.....	87~94

SPECIFICATIONS

Installation space	: 1,830 mm (W) × 2,660 mm (D) (72.1 in. × 104.7 in.)
Height	: 2,100 mm (82.7 in.)
Weight	: 375 kg. (826.7 lbs.)
Power, maximum current	: 278 W 3.1 A (AC 110V 50 Hz AREA) 308 W 3.0 A (AC 110V 60 Hz AREA) 313 W 2.8 A (AC 120V 60 Hz AREA) 326 W 1.9 A (AC 220V 50 Hz AREA) 332 W 1.6 A (AC 220V 60 Hz AREA) 325 W 1.8 A (AC 230V 50 Hz AREA) 333 W 1.5 A (AC 230V 60 Hz AREA) 320 W 1.7 A (AC 240V 50 Hz AREA) 334 W 1.5 A (AC 240V 60 Hz AREA)
For TAIWAN	
Power, current	: 307 W 3.08 A (MAX.) 50 W 0.65 A (MIN.)

INTRODUCTION OF THE OWNER'S MANUAL

This 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 product, **Hockey Stadium**

This manual is intended for the Owner of the product, the location staff and the Owner's operators of the product. Be sure to carefully read this manual and sufficiently understand the contents thereof before using the product. If satisfactory functioning can not be obtained, non-technical personnel other than the serviceman herein referred to should under no circumstances touch the internal system. Contact where the product was purchased from or the following office.

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



Non-technical personnel who do not have technical knowledge and expertise should refrain from performing such work that this manual requires the location's maintenance man or a serviceman to carry out, or work which is not explained in this manual. Failing to comply with this instruction can cause a severe accident such as electric shock.

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.



- 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 a 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.



- 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.
- When you clean the surface of the Play Field, use soft and dry cloth. Don't use any chemicals like paint thinner or benzine.

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.

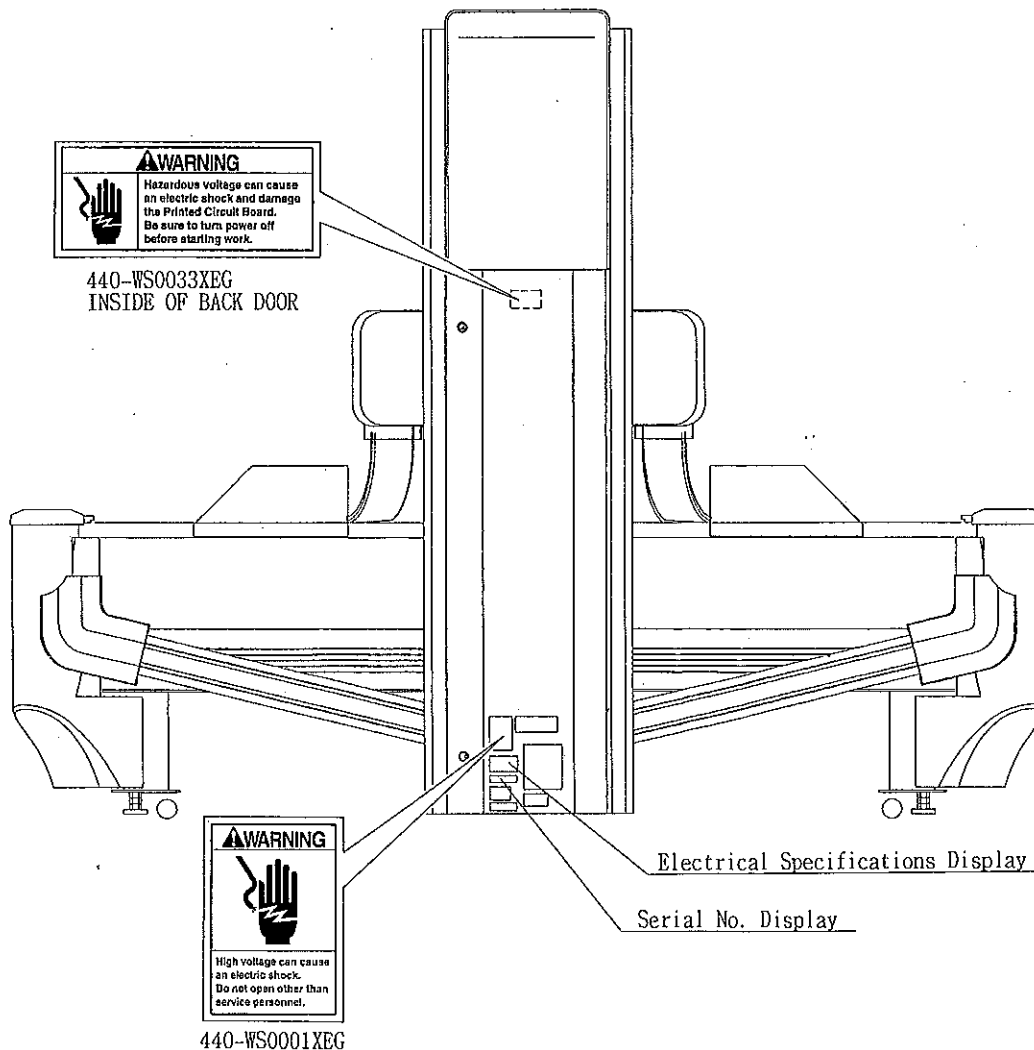
When inquiring about or asking for repair, mention the Serial No. and Name of Machine indicated on the Sticker. The Serial No. indicates the product register. Identical machines could have different parts depending on the date of production. Also, improvements and modifications might have been made after 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.



2. PRECAUTIONS CONCERNING INSTALLATION LOCATION



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°C to 40°C.
Only in the case a projector is employed, the temperature range is from 5°C to 30°C.

LIMITATIONS OF USAGE REQUIREMENTS



- 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 1.7m(W) and 0.8m(H).
- For the operation of this machine, secure a minimum area of 2.2m (W)×4m (D).

Electric current consumption

MAX.	3.1 A	(AC 110V	50 Hz)
MAX.	3.0 A	(AC 110V	60 Hz)
MAX.	2.8 A	(AC 120V	60 Hz)
MAX.	1.9 A	(AC 220V	50 Hz)
MAX.	1.6 A	(AC 220V	60 Hz)
MAX.	1.8 A	(AC 230V	50 Hz)
MAX.	1.5 A	(AC 230V	60 Hz)
MAX.	1.7 A	(AC 240V	50 Hz)
MAX.	1.5 A	(AC 240V	60 Hz)
(For TAIWAN)			
MAX.	3.08 A		

Ensure that the Power Cord and Earth Wire are not in the direction the player is standing.

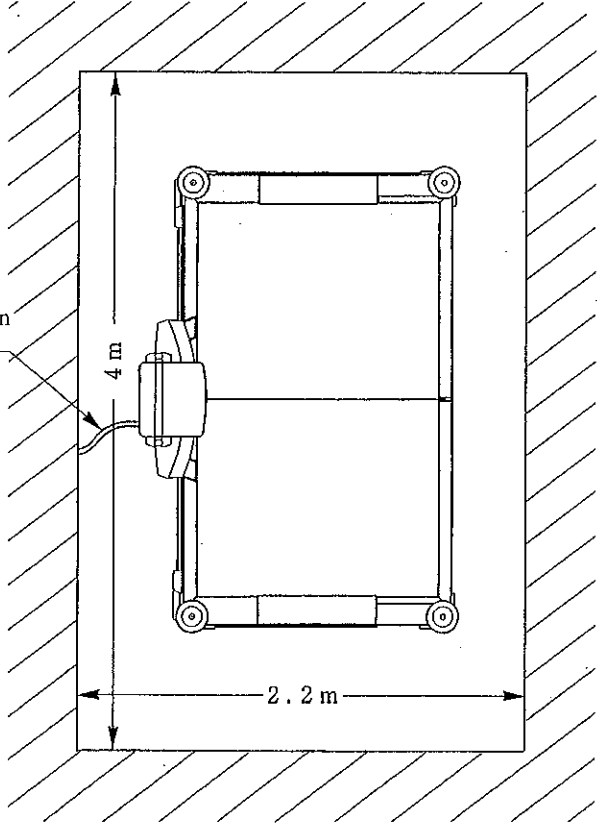


FIG. 2

3. PRECAUTIONS TO BE HEEDED FOR OPERATION

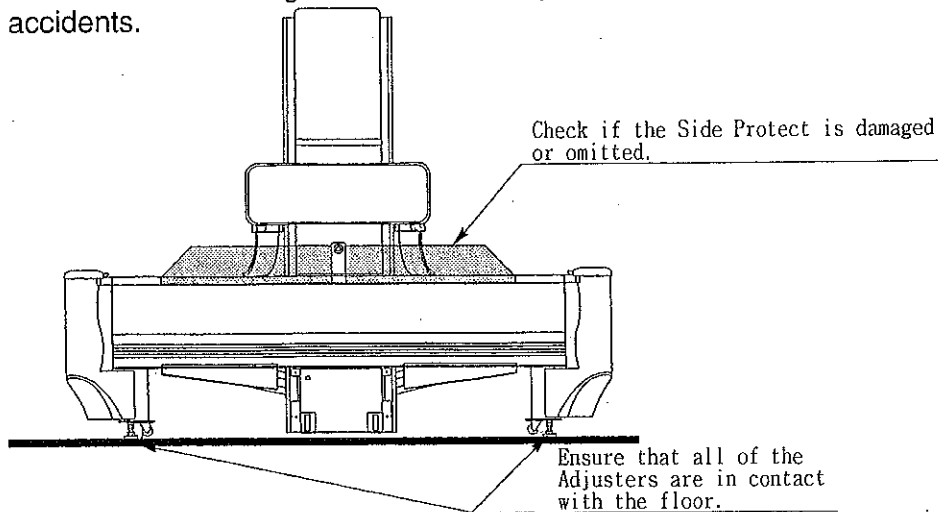
For the safe operation of the product, be sure to comply with the following precautions.

BEFORE STARTING OPERATION



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

- Check if all of the casters are lifted from the floor and if all of the adjusters are in contact with the surface. If the adjusters are not in contact with the surface, the Cabinet can move and cause an accident.
- Check if the Side Protect (a transparent resinous part) is damaged or omitted. If it is damaged or omitted, the puck will fly out and cause accidents.



- 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, check to see if door & cover parts are damaged or omitted.
- To avoid electric shock, short circuit and or parts damage, do not put the following items on or in the periphery of the product.
Flower vases, flowerpots, cups, water tanks, cosmetics, and receptacles/containers/vessels containing chemicals and water.



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.



From the characteristic point of view of the product, Mallets and Pucks could be stolen. Keep Mallets and Pucks in an appropriate place(s) as much as possible so that the location staff can watch them against theft.

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.



- 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.

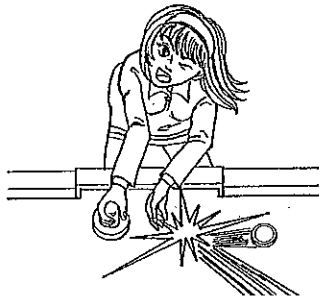


- Immediately stop such violent acts as hitting and kicking the product. Such violent acts can cause parts damage or falling down, resulting in injury due to fragments and falling down.

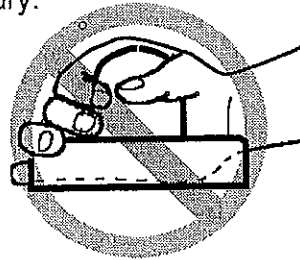
- Instruct those who wear high-heeled shoes to refrain from playing the game by explaining that playing game with high-heeled shoes is very likely to cause potentially hazardous situation.



- To avoid injury, do not allow the player to put his or her hand on the Play Field.



- Ensure that the Player holds the catch portion of the Mallet. Playing by holding the outer periphery of Mallet (which comes in direct contact with the puck when hitting) can cause injury.



Instruct the player not to put beverages on the Play Field. Should drinks be spilled, immediately wipe off. Spilled drinks can infiltrate into the wooden board of the Play Field and cause the wooden board to be deformed, resulting in unsatisfactory playing.



4. NAME OF PARTS

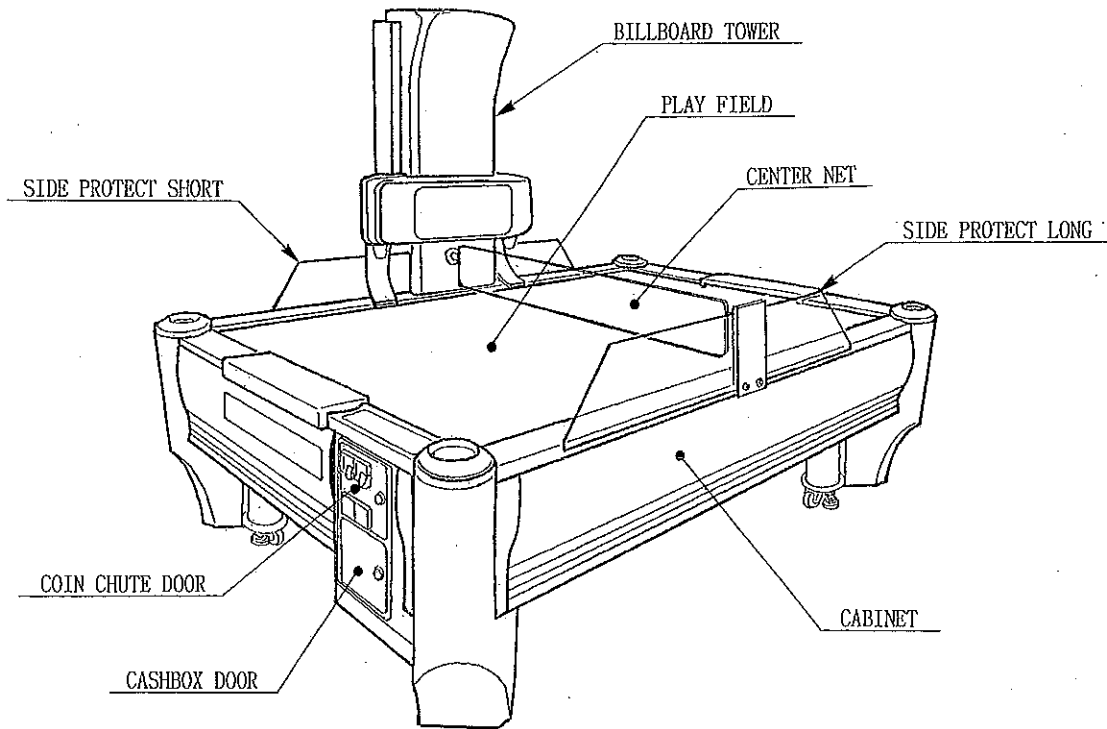


FIG. 4 a

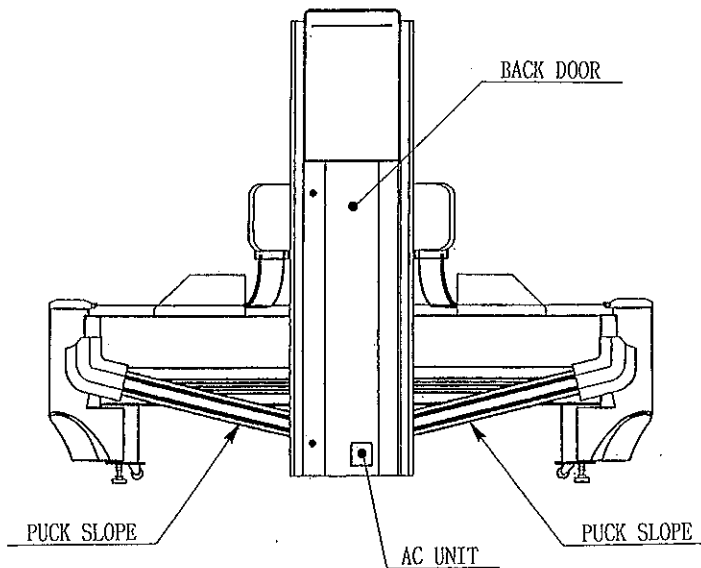


FIG. 4 b


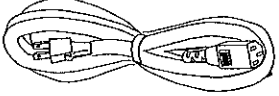
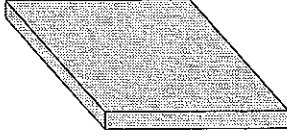
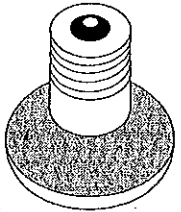
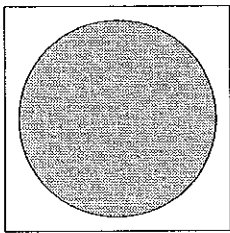
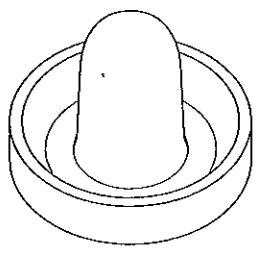
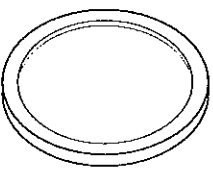
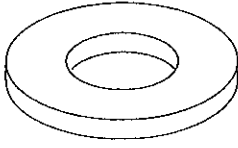
TABLE 4

	Width	Length	Height (mm.)	Weight (kg.)
CABINET	1,620	2,660	790	275
BILLBOARD TOWER	940	300	2,050	86
When assembled	1,830	2,652	2,060	Approx. 375

5. ACCESSORIES

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

TABLE 5 ACCESSORIES

<p>DESCRIPTION OWNERS MANUAL Part No. (Qty.) 420-6271-01 (1) Note 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.</p>	<p>KEY MASTER 220-5381 (2) For opening/closing the doors</p>	<p>KEY (2) For the CASHBOX DOOR</p>
		
<p>AC CABLE CONNECT TYPE 600-6724 (1): AC 110V AREA 600-6729 600-6695 (1): AC 120V AREA 600-6695-01 600-6618 (1): AC 220~240V AREA Used for installation. (see [5], Sec. 6)</p> 	<p>GRIND BASE AHR-0039 (2) Wooden Board for installation (see [1], Sec. 6). After installation, used as Base for polishing Pucks and Mallets (see Section 14).</p> 	
<p>LAMP 110V 15W 390-5257 (1) For spare, refer to Section 13.</p> 	<p>SANDPAPER 601-9343 (1) For spare, refer to Section 14.</p> 	
<p>MALLET 601-6323 601-6323-01 (4)</p>	<p>PUCK 601-7156 (10)</p>	<p>SPACER AHR-0036 (2) Used for adjustment (See [3], Sec. 6).</p>
		

6. ASSEMBLING AND INSTALLATION

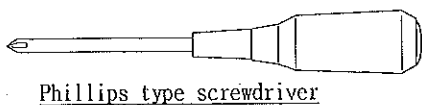


- Perform the assembly work by following the procedure herein stated. Failing to comply with the instructions, for example, inserting the plug into an outlet at the stage not mentioned in this manual can cause an electric shock accident.
- Assembling should be performed as per this manual. Since this 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.

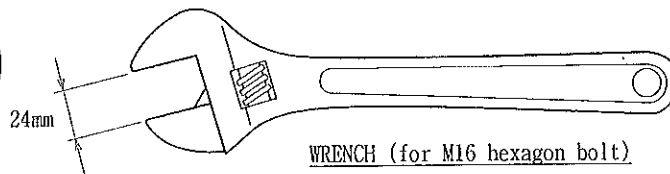
When carrying out the assembly work, follow the procedure in the following 7-item sequence:

- 1 INSTALLING THE BILLBOARD TOWER
- 2 INSTALLING THE SLOPE
- 3 INSTALLING THE CENTER NET AND SIDE PROTECT
- 4 SECURING IN PLACE (ADJUSTER ADJUSTMENT)
- 5 POWER SUPPLY, AND EARTH CONNECTION
- 6 TURNING POWER ON
- 7 INITIALIZING

When assembling, the Master Key (an accessory), 2 accessory GRIND BASES (wooden board), and Level are needed in addition to such tools as a Phillips type screwdriver, wrench (for M16 hexagon bolt) and socket wrench (for M8 hexagon bolt).

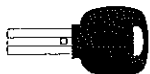


Phillips type screwdriver



24mm

WRENCH (for M16 hexagon bolt)

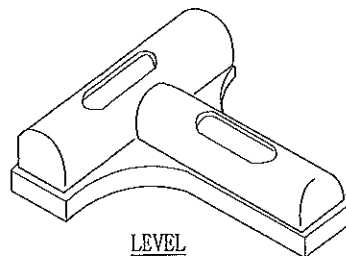


Master key

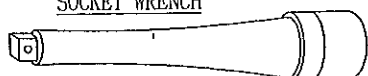


Socket for M8 (width across flats: 13mm)

SOCKET WRENCH



LEVEL



Prepare an extension tool.

1

INSTALLING THE BILLBOARD TOWER



Installing by one person is difficult. Be sure to use plural persons to perform work safely and accurately.

- ① By inclining the Billboard Tower, lay the two GRIND BASEs underneath as shown.

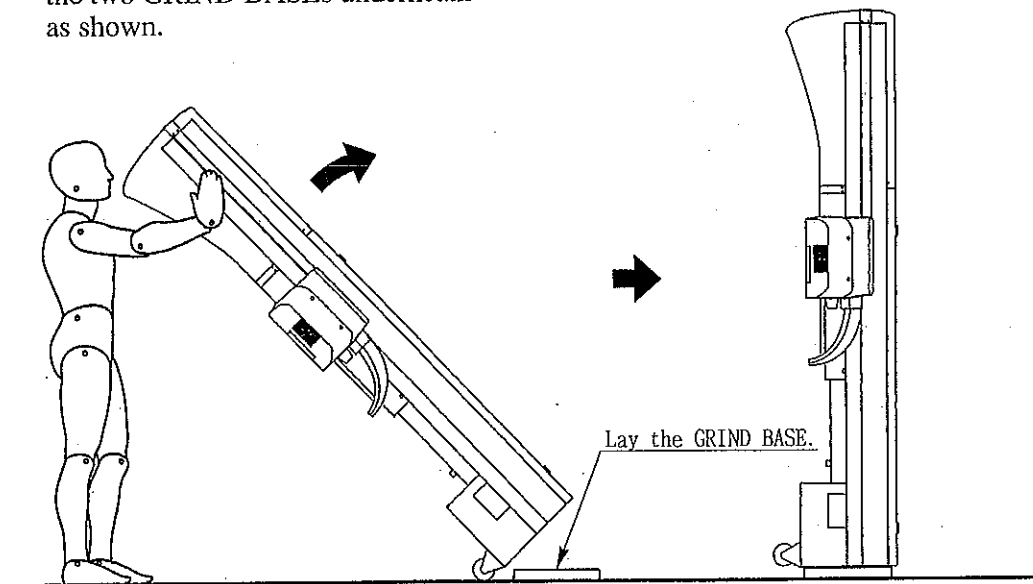


FIG. 6.1 a

- ② Join the Billboard Tower with the Cabinet.

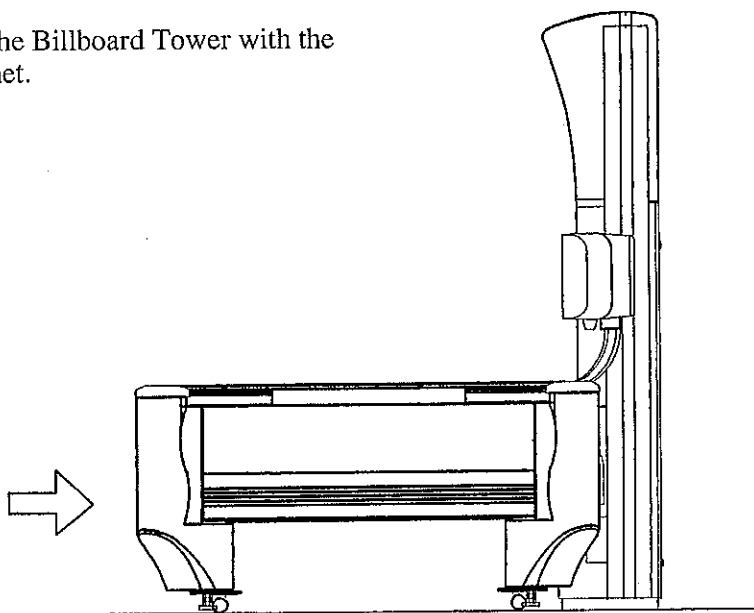


FIG. 6.1 b

- ③ Open the Back Lid of the Billboard Tower.

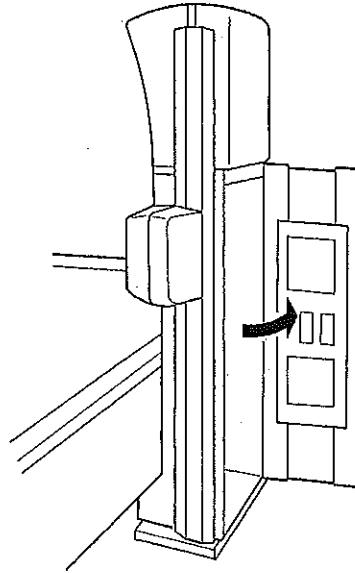
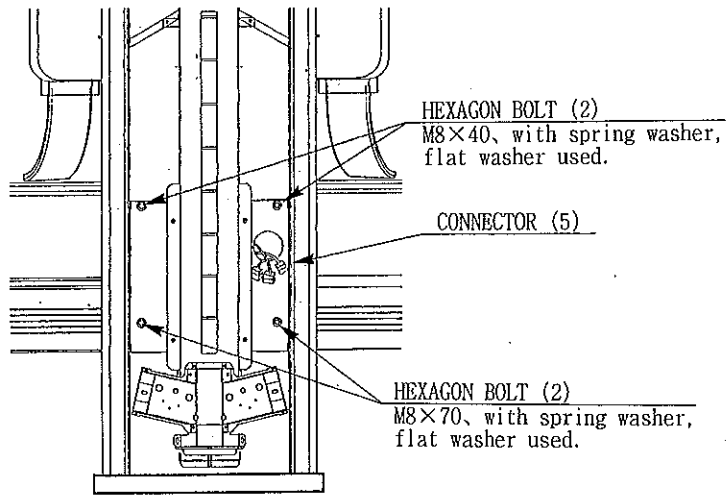


FIG. 6. 1 c

- ④ By using the 4 hexagon bolts, secure the Billboard Tower to the Cabinet. Depending on the place of use (upper/lower), the bolt length varies.



- ⑤ Connect the wiring between the Cabinet and the Billboard Tower. The Connectors to be connected are on the right-hand side as shown. Ensure that the connectors of identical color & number of pins are connected with each other. Be sure to secure the wire with Cord Clamp.

FIG. 6. 1 d

- ⑥ Secure the shooter to the Cabinet with 2 screws.

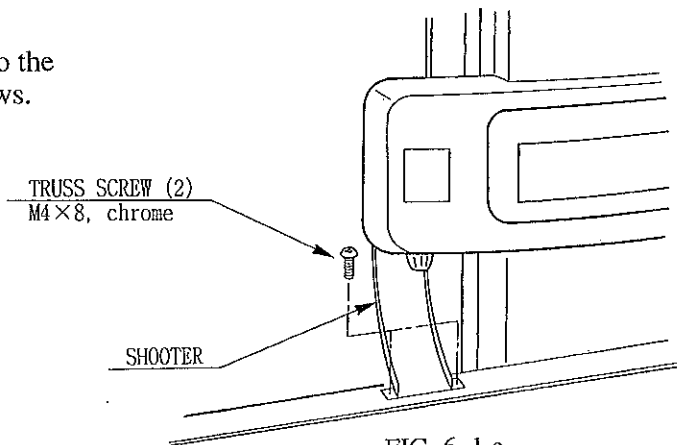


FIG. 6. 1 e

2

INSTALLING THE SLOPE

- ① Insert the SLOPE into the square hole on the lower side of the Billboard Tower (FIG. 6.2 a). Insert the SLOPE's part with notch into the square hole.

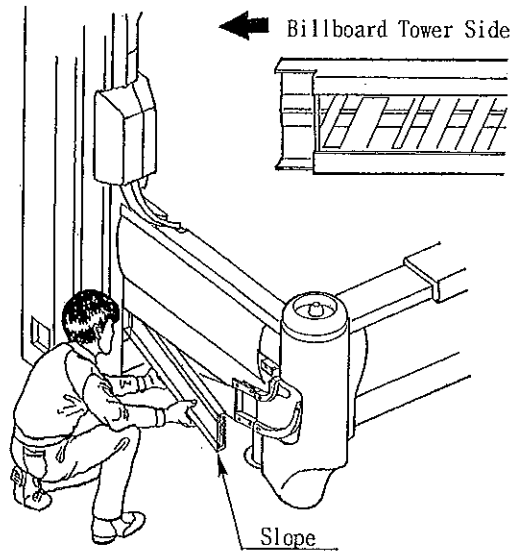


FIG. 6.2 a

- ② Secure the SLOPE underside with 3 screws (FIG. 6.2 b).

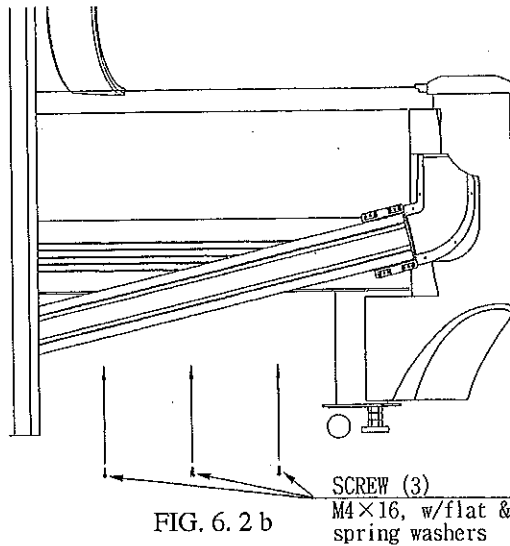


FIG. 6.2 b

- ③ Secure the Corner Slope Lid with the 4 screws (Photo 6.2 a).
- ④ Secure the SLOPE COVER with 4 screws (Photo 6.2 b).
- ⑤ Also install the opposite side SLOPE in the same procedure.

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

CORNER SLOPE LID

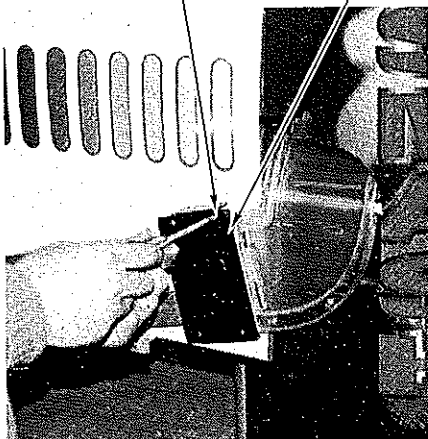


Photo 6.2 a

SLOPE COVER

TRUSS SCREW
M4x16, chrome,
flat washer used.

TRUSS SCREW (2)
M4x8, chrome,
flat washer used.

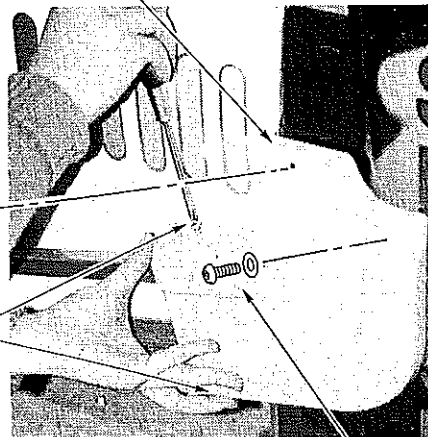


Photo 6.2 b

TRUSS SCREW
M4x20, chrome,
flat washer used.

3 INSTALLING THE CENTER NET AND SIDE PROTECT

- ① Pass the Lid through the Billboard Tower Pole and secure with the 3 screws.

TRUSS SCREW (3)
M4 × 12, chrome

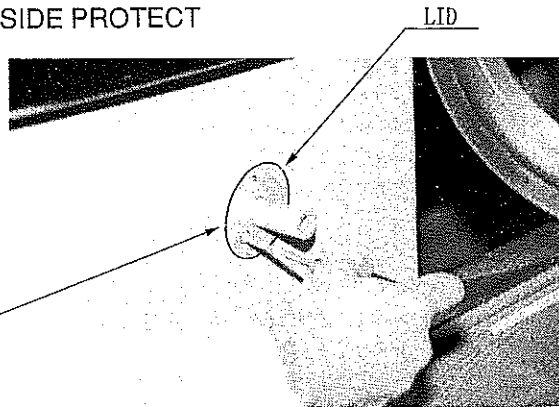


Photo 6. 3 a

- ② Install Bearing 10 to the edge of the Pole.

Bearing 10

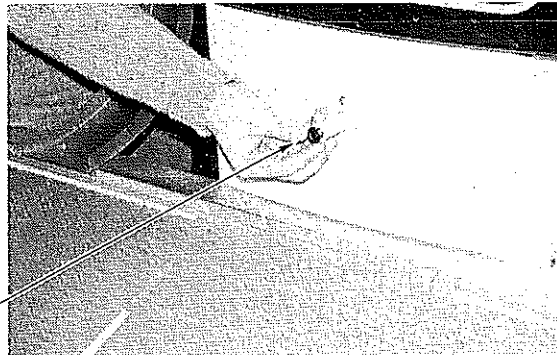


Photo 6. 3 b

- ③ Install Bearing 10 to the Support Holder.

Bearing 10

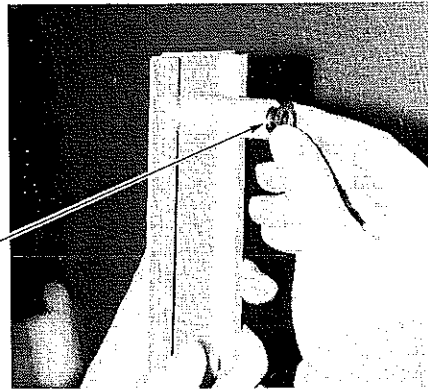


Photo 6. 3 c

- ④ Insert the Center Net Shaft into the Pole.

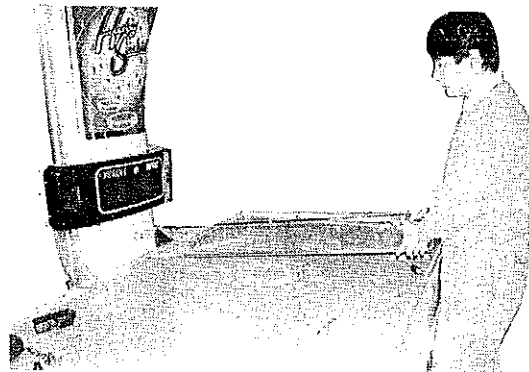


Photo 6. 3 d

- ⑤ Insert the Center Net Shaft into the Support Holder Pole. Take out the 2 screws which are previously applied to the Cabinet and use them to secure the Support Holder (Photo 6.3 e).

At this time, if there is a gap between the shaft and the Support Holder, make adjustment by putting the accessory spacer into the Center Net Shaft (Photo 6.3 f).

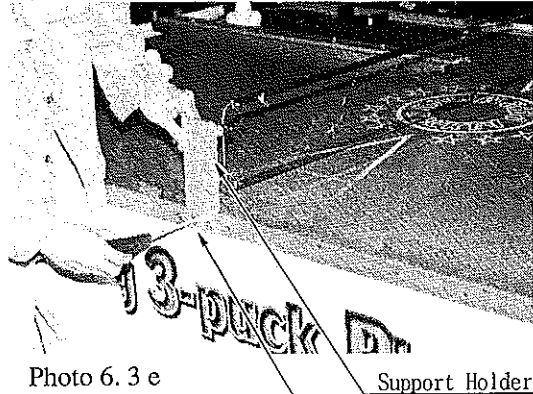
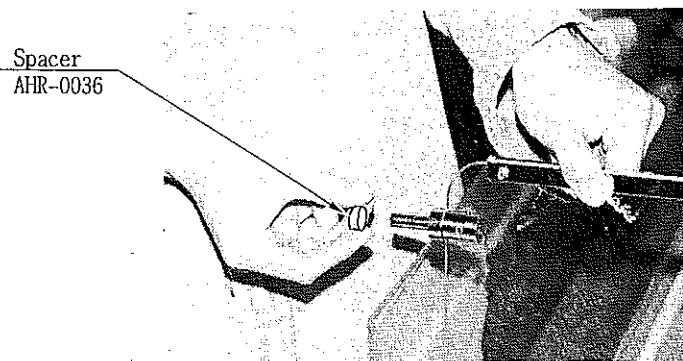


Photo 6.3 e

Support Holder

TRUSS SCREW (2)
M5×20, chrome,
flat washer used.



Spacer
AHR-0036

Photo 6.3 f

As in the case of the Support Holder, take out the screws previously applied to the Cabinet and use them to secure the Side Protect.

- ⑥ Insert Side Protect Long into the groove on the side of Support Holder, and secure with 3 screws. At this time, ensure that the Sticker which is applied to the Side Protect faces outward.

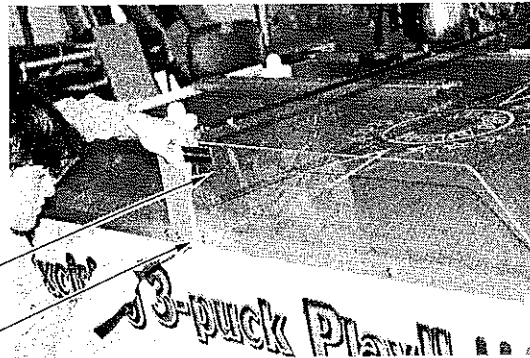


Photo 6.3 g

Side Protect Long.

TRUSS SCREW (2)
M5×20, chrome,
flat washer used.

- ⑦ Secure Side Protect Short with the 2 screws.

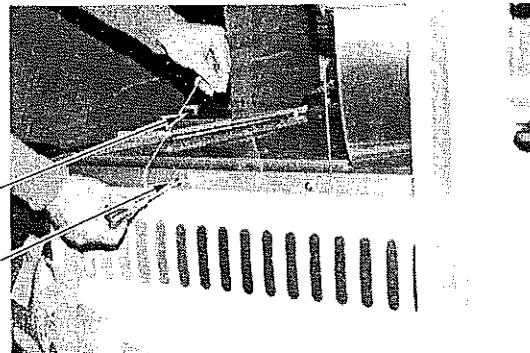


Photo 6.3 h

Side Protect Short

TRUSS SCREW (2)
M5×20, chrome,
flat washer used.

4

SECURING IN PLACE (ADJUSTER ADJUSTMENT)



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 (FIG. 6.4 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 Bring the product to the place of installation. When installing the product close to the wall, be sure to provide sufficient space for the player to play game.
- ② Apply a Level on the Play Field to check horizontality.
- ③ After making adjustments, fasten the adjuster nut upward and secure the height of the adjuster.

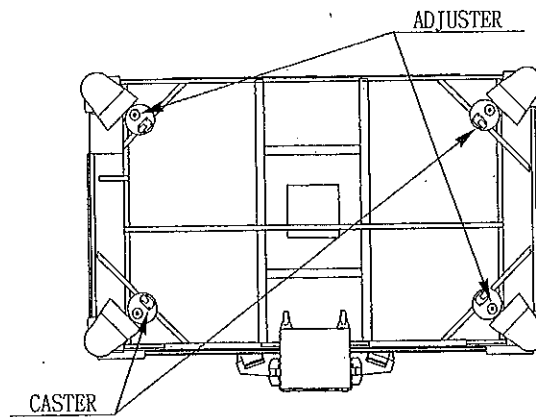


FIG. 6.4 a BOTTOM VIEW

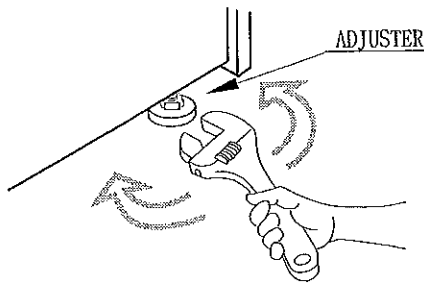


FIG. 6.4 b ADJUSTER

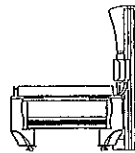
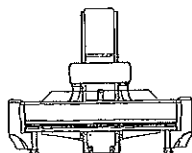
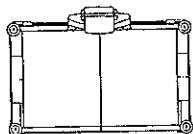
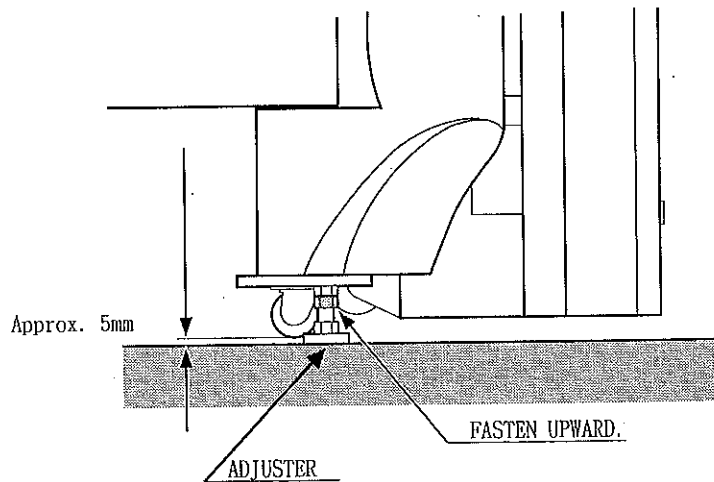


FIG. 6.4 c
Refer to this Fig. (Scale:1/100)
for the layout of the place of
installation.

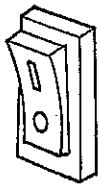
5 POWER SUPPLY, AND EARTH CONNECTION



- 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 Billboard Tower has the AC Unit. The AC Unit incorporates the Main SW, Circuit Protector, Earth Terminal and Inlet. Firmly insert the Power Plug into the Socket Outlet and the other side of the cord to the Inlet.

- ① Ensure that the Main SW is OFF.



Main SW is OFF.

- 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.

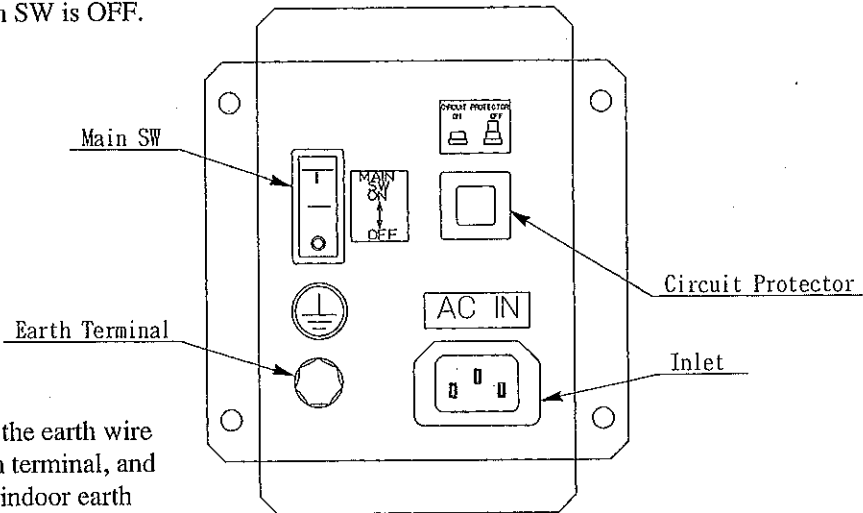


FIG. 6.5 a AC Unit

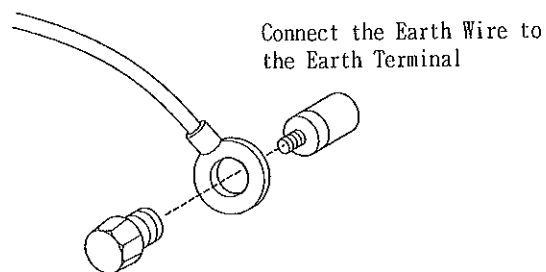


FIG. 6.5 b Earth Wire Connection

- ③ Firmly insert the power cord into the socket outlet and inlet.

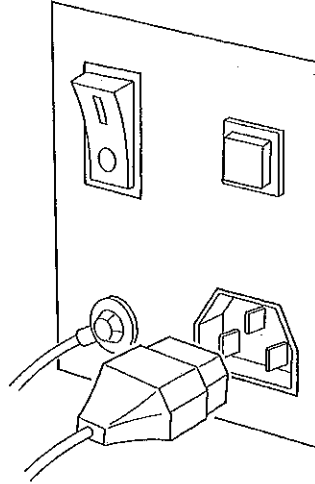


FIG. 6. 5 c

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

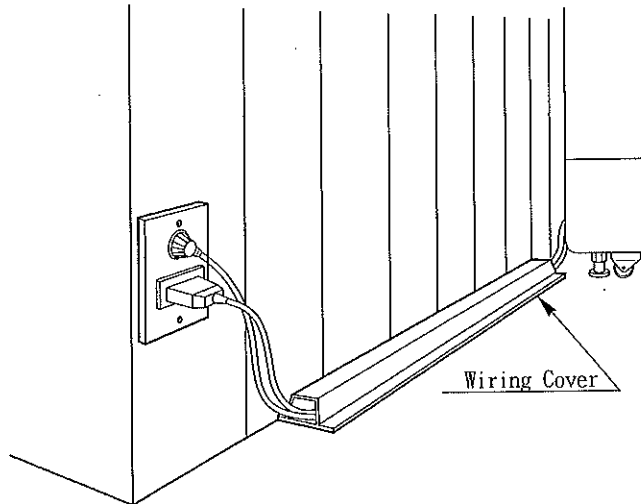


FIG. 6. 5 d Wiring for Power Cord and Earth Wire

- ⑤ Insert the power plug into the plug socket below the Billboard Tower (FIG. 6.5 e, Photo 6.5).

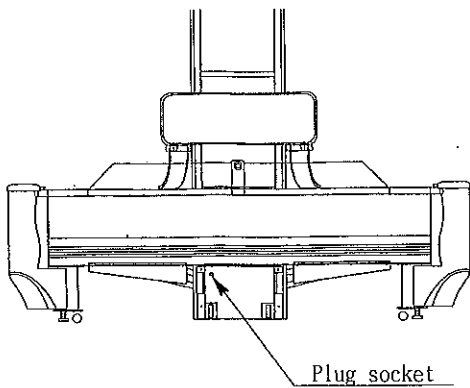


FIG. 6. 5 e

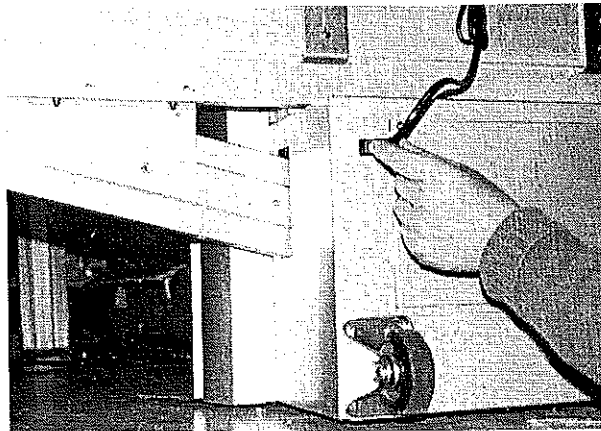


Photo 6. 5

6 TURNING POWER ON

Turn power on by turning the AC Unit Main SW on. The Fluorescent Lamp in the Billboard Tower lights up and ADVERTISE sound is emitted. Characters and pictures are displayed on the Dot Matrix which is positioned further downward below the Billboard.

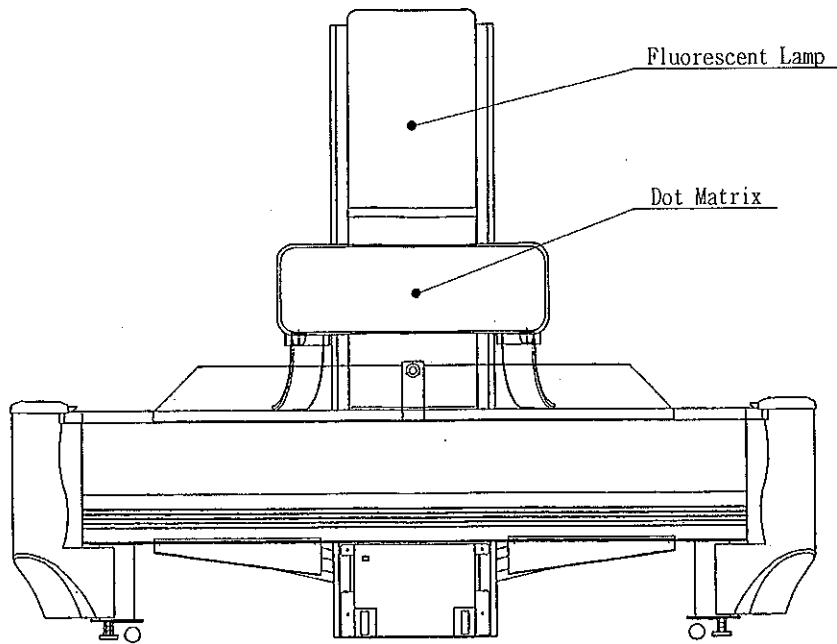


FIG. 6. 6

7

INITIALIZING



Do not put 13 or more pucks in the product. Ensure that the maximum and minimum number of pucks put in the product are 12 and 7 respectively. Putting 13 or more pucks in the product can cause malfunctioning and machine damage.

This product should be initialized before playing game. After reading Section 10, enter the test mode and then exit from the test mode. Initializing is performed automatically.

- ① Put 5 pucks for each of the green side and pink side goals (Photo 6.7 a).
- ② Keep Mallets in place at the 4 corners (Photo 6.7 b).

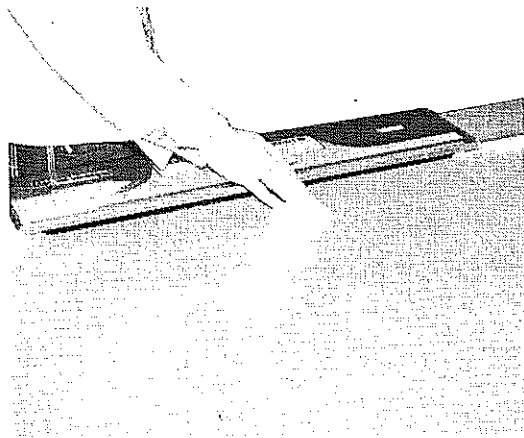


Photo 6.7 a

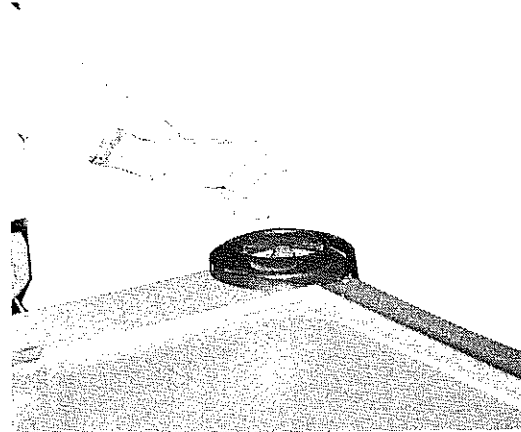


Photo 6.7 b

- ③ Open the Coin Chute Door to have the Switch Unit appear inside.
- ④ Press the Test button above the Switch Unit to enter the test mode. The Dot Matrix displays the Test Menu.
- ⑤ First ensure that the arrow indicates "EXIT" and then press the Test button. Exiting from the Test mode starts initializing automatically.
- ⑥ When initializing is complete, the display on the Dot Matrix returns to the status of ADVERTISE (showing characters and pictures).

Once game is played, pucks move inside the product and are accommodated by the belt within the Billboard Tower. Thus, when the above operation is performed and the Test mode is exited, 4 pucks are released. At the time of installation, since the pucks are not moved to such an extent of puck release, pucks are not released.

7. PRECAUTIONS TO BE HEDED WHEN MOVING THE MACHINE



- 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 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.
- When lifting the Cabinet, be sure to hold the bottom part. Lifting the Cabinet by holding other portions can damage parts or installation portions due to the empty weight of the Cabinet and cause injury.
- The weight of this product is 375 kg. In the case where there is a step or step-like difference in grade, be sure to hold the bottom part of the Cabinet by 6 or more persons to move the product.



If the opening (doors, entrance, etc.) is narrow, be sure to separate the Billboard Tower and the Cabinet. The Billboard is moved with the Casters in contact with the surface. Holding the plastic portions at this time can damage such (plastic) parts. Therefore, use care in this regards.

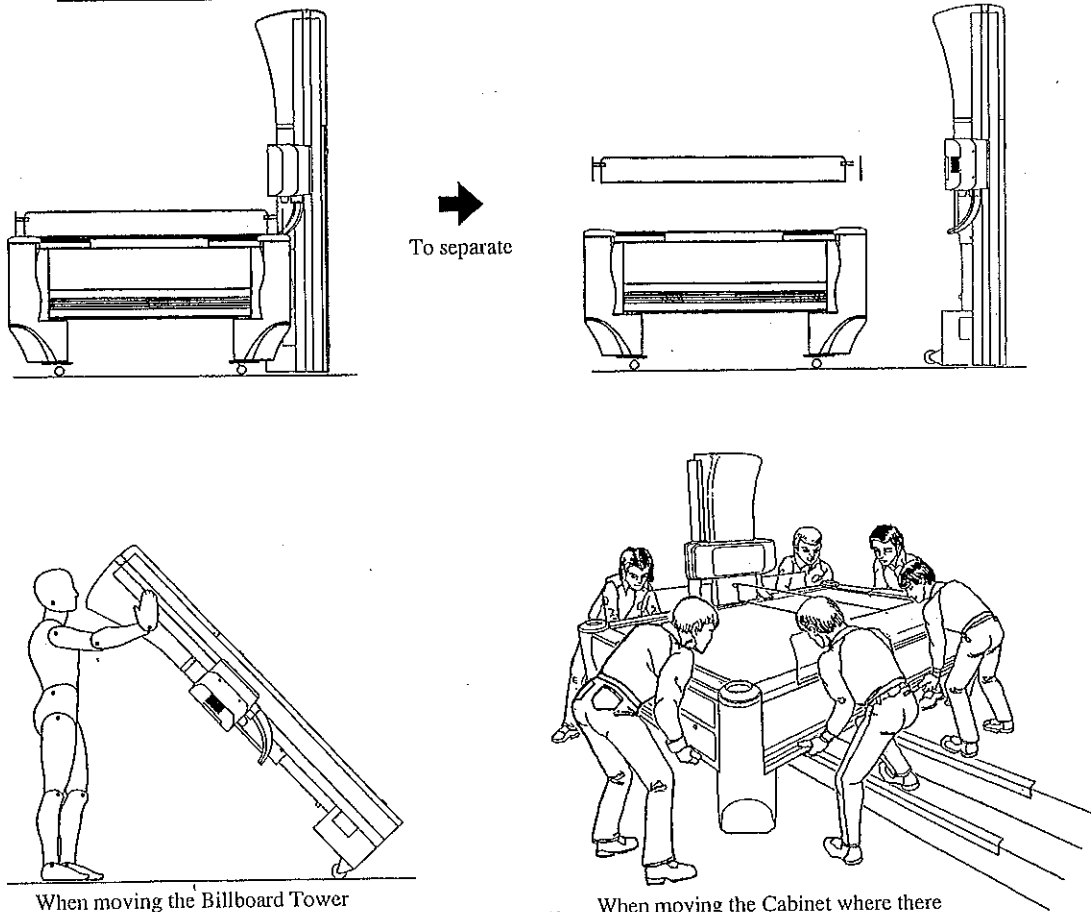


FIG. 7. When moving the Cabinet where there is a step or step-like difference

8. CONTENTS OF GAME

The following explanations apply to the case the product is functioning satisfactorily. Should there be any moves different from the following contents, some sort of faults may have occurred. Immediately look into the cause of the fault and eliminate the cause thereof to ensure satisfactory operation.

The Fluorescent Lamp in the Billboard Tower is always lit when energized. During ADVERTISE, the Dot Matrix of the Billboard Tower repeats displaying characters and pictures in series of loops, and the background music (BGM) is emitted from the speaker (Note 1.). Note that BGM output alternates OUTPUT Yes/No in harmony with the Matrix Loop.

① Input coin(s). Coin inserting sound is emitted. Inserting one play worth of coins starts game automatically. Up to 9 credits can be counted at a time. Coins inserted after counting 9 credits are not counted or returned.

② After the "READY" voice is emitted, the lamp above the Shooter flashes and the puck is ejected from the Shooter. At this time, the Dot Matrix displays "READY?" "SERVER" in the loop series. During game, the Dot Matrix display changes to a strip shaped score and time display.

③ When game starts, the ADVERTISE BGM changes to the BGM during game. Note 2

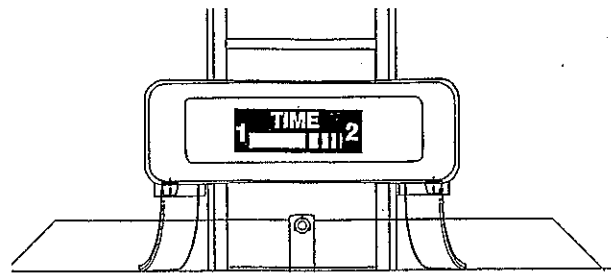
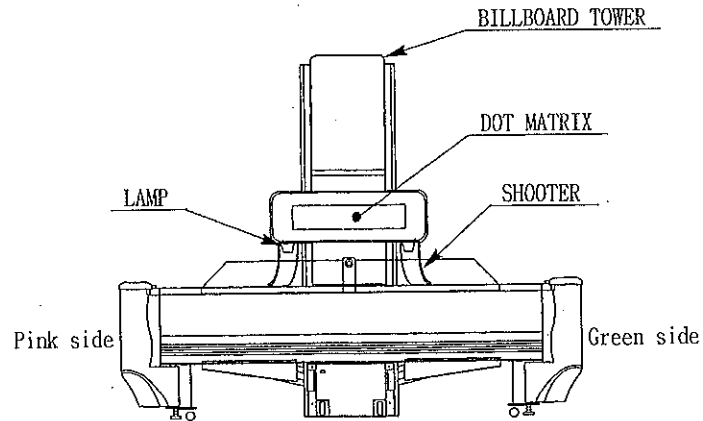
④ Aiming at the opponent's Goal, the player hits the puck with Mallet.

When the puck hits the side wall of Play Field, reverberating sound is emitted. Note 3

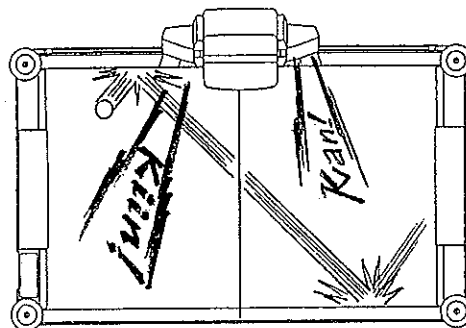
⑤ When the puck enters the Goal, the player earns a score. The Dot Matrix displays scoring and GOAL.

⑥ When the puck enters the goal, the opponent's lamp flashes and the puck is ejected from the Shooter.

⑦ When game time (preset time) elapses, Note 4 the "LAST PLAY" voice is emitted and the BGM changes. The Dot Matrix displays "LAST PLAY." After "LAST PLAY" is displayed, the puck will no longer be ejected.



Dot Matrix displaying Score and Time.



When the puck hits the Play Field's side wall, reverberating sound is emitted.

- ⑧ If no puck is on the Play Field, or 30 seconds elapses after the "LAST PLAY" voice is emitted, the game is over. The 30 seconds applies to any preset time.

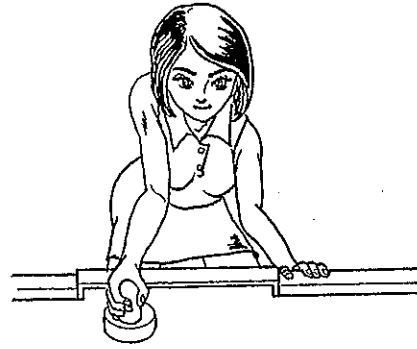
During "LAST PLAY," if all of the pucks enter the Goal, the Dot Matrix displays "GAME SET" & "GAME OVER" and the game is over.

Unless all of the pucks enter the Goal within the LAST PLAY of 30 seconds, the Dot Matrix displays "TIME UP, " "GAME OVER" and then displays scoring and "INSERT PUCKS" alternately for 40 seconds. During this 40 second period, if the puck is returned to the Goal, the Dot Matrix displays scores for 5 seconds and then the ADVERTISE status applies.

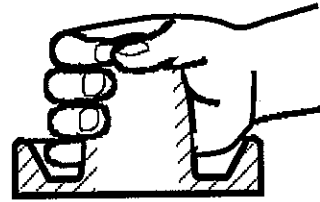
- ⑨ After one play is finished, with some credits still remaining, if all of the pucks enter the Goal, credits will be displayed first and then the game will proceed to the next play.

Even if not all of the pucks enter the Goal, when credits still remain, the game proceed to the next play.

- ⑩ When one third of game time (preset time) elapses, the puck is additionally ejected and a total of 3 pucks are on the Play Field. During one third and seven ninth of the game time, when the puck enters your Goal, no additional puck is ejected. From the seven ninth of game time up to the LAST PLAY, a total of 3 pucks will be available on the Play Field, and every time a puck enters the Goal, a puck is ejected. Note 5



Do not put your hand on the Play Field.



Play game by holding the catch portion of Mallet.

The above Note 1 to Note 5 can be changed by DIP SW setting (see Section 9).

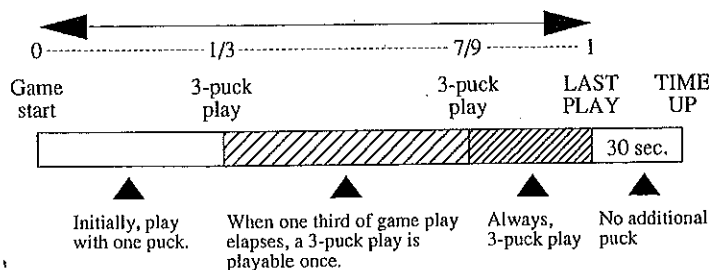
Note 1: Setting which disables BGM output during ADVERTISE is possible.

Note 2: Setting which disables BGM output during game is possible.

Note 3: Setting which disables the reverberating sound is possible.

Note 4: Setting the game time to one min. (the shortest time), two & a half min., 3 min. and then on up to 15 min. with an increments of one min. can be selected.

Note 5: Setting without the 3 puck game is possible.



9. SETTING DIP SW (DIP SWITCH)



- 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.



When changing DIP SW setting, be sure to turn power off. DIP SW setting is not effective unless power is turned off and then on again after the setting changes. Be sure to turn power off before making setting changes for the above-mentioned safety purpose, also.

Open the Back Door, then you see the Game Board inside the door.

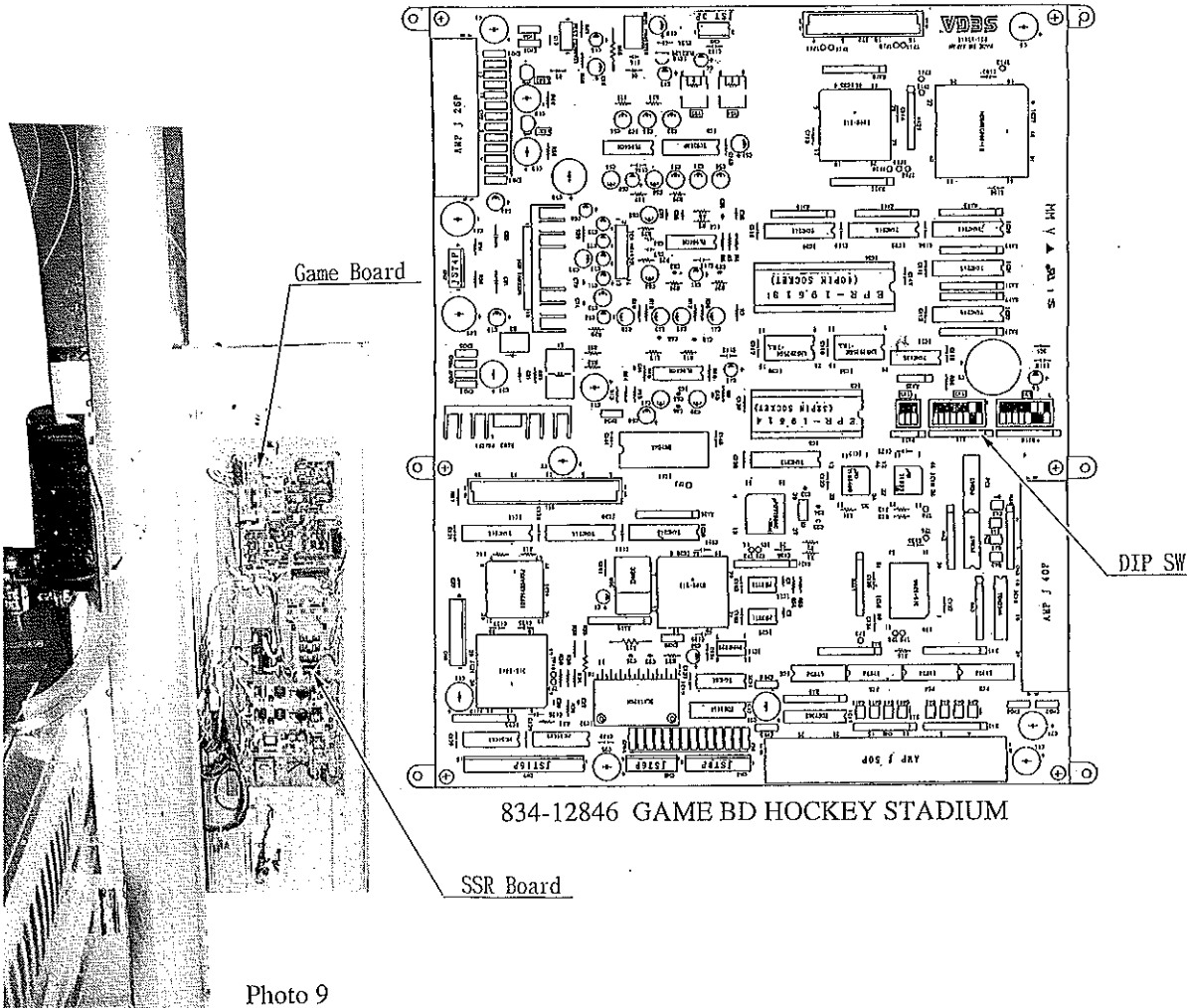


Photo 9

By using the DIP SW on the Game Board, Coin Credits, Game Play Time, and Sound can be set.

DIP SW 1 (Coin Credits Setting)

DIP SWITCH 1								
OPTION	COIN SW 1				COIN SW 2			
	1	2	3	4	5	6	7	8
1 COIN 1 CREDIT	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
1 COIN 2 CREDITS	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
1 COIN 3 CREDITS	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
1 COIN 4 CREDITS	ON	ON	OFF	OFF	ON	ON	OFF	OFF
1 COIN 5 CREDITS	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF
1 COIN 6 CREDITS	ON	OFF	ON	OFF	ON	OFF	ON	OFF
2 COINS 1 CREDIT	OFF	ON	ON	OFF	OFF	ON	ON	OFF
2 COINS 3 CREDITS	ON	ON	ON	OFF	ON	ON	ON	OFF
2 COINS 5 CREDITS	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON
3 COINS 1 CREDIT	ON	OFF	OFF	ON	ON	OFF	OFF	ON
3 COINS 2 CREDITS	OFF	ON	OFF	ON	OFF	ON	OFF	ON
4 COINS 1 CREDIT	ON	ON	OFF	ON	ON	ON	OFF	ON
4 COINS 3 CREDITS	OFF	OFF	ON	ON	OFF	OFF	ON	ON
5 COINS 1 CREDIT	ON	OFF	ON	ON	ON	OFF	ON	ON
5 COINS 2 CREDITS	OFF	ON	ON	ON	OFF	ON	ON	ON
5 COINS 3 CREDITS	ON	ON	ON	ON	ON	ON	ON	ON

* Note that Coin SW 2 settings are ineffective.

DIP SW 2 (Game Setting)

		DIP SWITCH 2							
OPTION		1	2	3	4	5	6	7	8
Game Time (preset)	1 minute	OFF	OFF	OFF	OFF				
	2 minutes	ON	OFF	OFF	OFF				
2 minutes and 30 seconds (standard)		OFF	ON	OFF	OFF				
	3 minutes	ON	ON	OFF	OFF				
	4 minutes	OFF	OFF	ON	OFF				
	5 minutes	ON	OFF	ON	OFF				
	6 minutes	OFF	ON	ON	OFF				
	7 minutes	ON	ON	ON	OFF				
	8 minutes	OFF	OFF	OFF	ON				
	9 minutes	ON	OFF	OFF	ON				
	10 minutes	OFF	ON	OFF	ON				
	11 minutes	ON	ON	OFF	ON				
	12 minutes	OFF	OFF	ON	ON				
	13 minutes	ON	OFF	ON	ON				
	14 minutes	OFF	ON	ON	ON				
	15 minutes	ON	ON	ON	ON				
ADVERTISE BGM	ON					OFF			
	OFF					ON			
DURING PLAY BGM	ON						OFF		
	OFF						ON		
PUCK SOUND	ON							OFF	
	OFF							ON	
GAME MODE	3 PUCKS								OFF
	1 PUCK								ON

ADVERTISE BGM ON: BGM (background music) is emitted after a certain time elapses during ADVERTISE.

ADVERTISE BGM OFF: BGM is not played during ADVERTISE.

BGM ON DURING PLAY: BGM is emitted during play.

BGM OFF DURING PLAY: BGM is not emitted during play.

PUCK SOUND ON: The reverberating sound of Puck is emitted.

PUCK SOUND OFF: The reverberating sound of Puck is not emitted.

GAME MODE 3 PUCKS: A new game playable with 3 pucks.

GAME MODE WITH 1 PUCK: The game which has the same rules as the conventional hockey games.

* Note that since DIP SW 3 is not used, any setting is alright.

◇SETTING THE GAME TIME:

In the case of Standard Setting (2'30"), the actual game time covers from 2'30" to 3'00".

Refer to HOW TO PLAY THE GAME.

10. EXPLANATIONS OF TEST AND DATA DISPLAY

By manipulating the switch unit, test the machine and check the data regularly. When you install the game machine for the first time, when you collect the money, and if the machine doesn't work correctly, check the machine following the procedures below.

The table below explains which test or what screen to use for different problems.

TABLE 10 Explanation of Test Mode

Problem	Explanation	Reference
INSTALLATION OF MACHINE	When the product is installed, perform the following: 1. First enter the Test mode once and immediately exit from the test to have Initializing performed. 2. In the Input Test, check each of Switches and Sensors. 3. In the Output Test, check each of Lamps, Motors, and Solenoid.	6. 7 , 10-2 10-3 10-4
PERIODIC SERVICING	Perform the following test and check regularly. 1. In the Input Test mode, test each of Switches and Sensors. 2. In the Output Test, check each of Lamps, Motors, and Solenoid.	10-3 10-4
CONTROL SYSTEM	In the Input Test, check each of Switches and Sensors.	10-3
IC BOARD	In Sound Test, check the ROM of Sound System.	10-5

10-1 SWITCH UNIT AND COIN METER



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



- 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 and coin meter shown appears. The functioning of each SW is as follows:

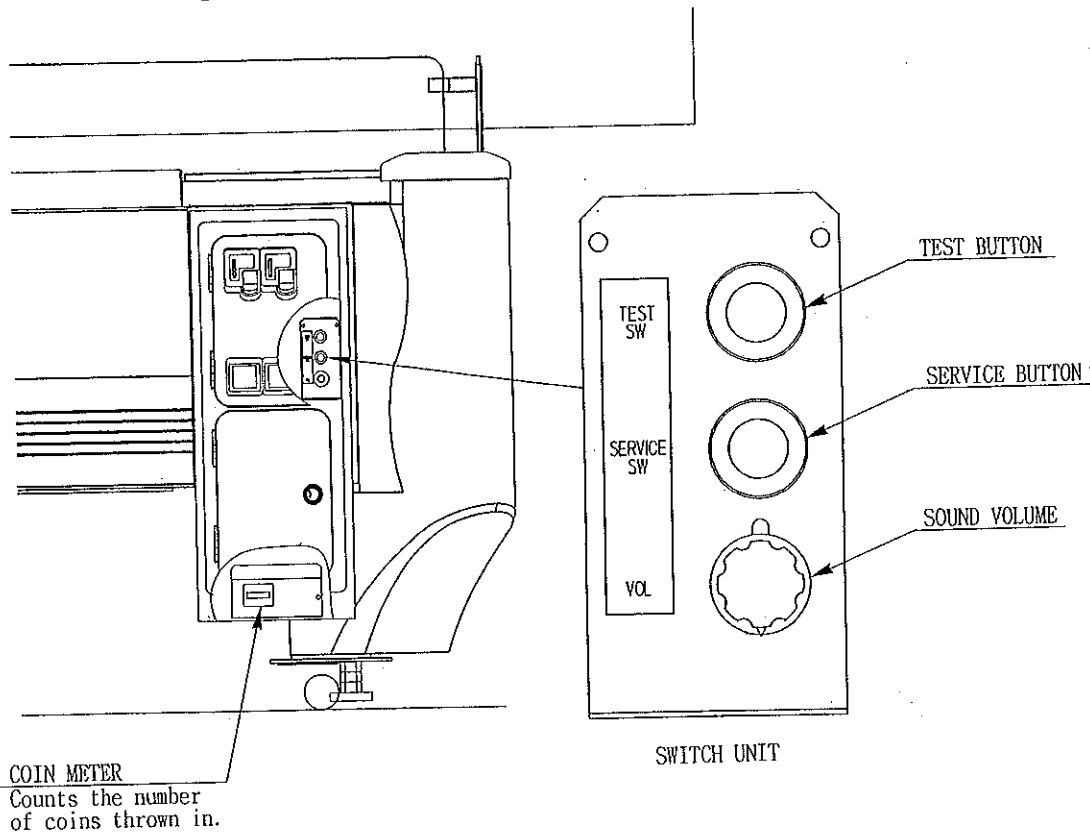


FIG.10

TEST BUTTON : For the handling of the test button, refer to the following pages.
TEST SW

SERVICE BUTTON : Gives credits without registering on the coin meter.
SERVICE SW

SOUND VOLUME : This modulates the volume of speaker.
VOL

10-2 TEST MODE



- Hot motor can cause burns. Use care so as not to touch the hot motor.
- To avoid injury, use care so as not to be caught between parts or caught in the machine when testing motors or solenoids.

In the Test mode, the game Board is mainly checked for accurate functioning.

SELECTION OF TEST ITEM

- 1) Press the Test button to have the following test item menu displayed on the Dot Matrix of the Billboard Tower.

INPUT	OUTPUT
SOUND	MATRIX
PUCKOUT	→EXIT

- 2) Press the Service button to move the arrow. Bring the arrow to the desired test item and press the Test button.

- 3) When the test is finished, move the arrow to EXIT and press the Test button. At this time, 4 pucks in the machine are ejected from the Pink Side Shooter. Immediately return the 4 pucks to either Goal.

In this case, if 4 pucks are not ejected, some sort of trouble may have occurred. Check the puck movement related Solenoids or Motors to investigate the malfunctioning.
 (② OUTPUT Solenoids and Motors)

10-3 INPUT TEST

In this test, the status of each switch, button and sensor is displayed.

TEST	Off	..... Test button
SERVICE	Off	..... Service button
Coin	Off	..... Coin Switch

1/3

When the SW button is pressed, if "Off" changes to "On," it is satisfactory. To check the Coin SW, open the Coin Chute Door and insert a coin from the inlet. Press the Test button to turn the page.

	PINK SIDE	GREEN SIDE	
SoSe	Off	Off	..... Sound Sensor
Goal	Off	Off	..... Goal Sensor
Stock	Off	Off	..... Stock Sensor

2/3

When each Sensor is caused to function, if "Off" changes to "On," it is satisfactory. If the puck is on the Slope, the Stock Sensor is On. Press the Test button to turn the page.

Undersens	Off	..... Under Sensor
Beltsens	Off	..... Belt Sensor

3/3

When each Sensor is caused to function, if "Off" changes to "On," it is satisfactory. If the puck moves satisfactorily, the Under Sensor is "On." Press the Test button to return to the menu.

For each Sensor position, refer to the following and the next page.

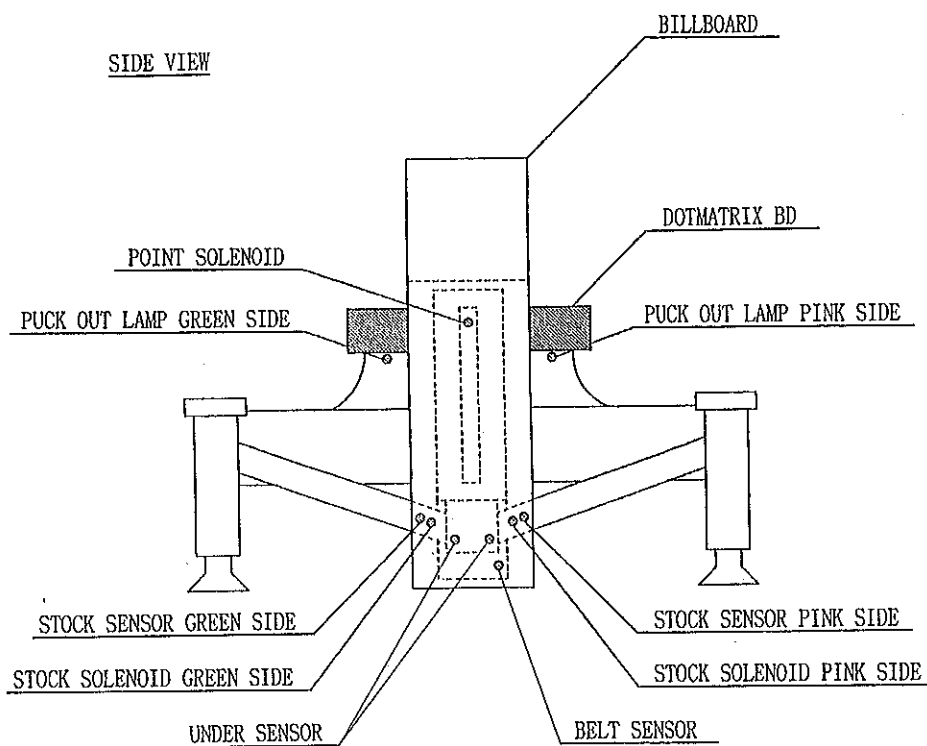


FIG. 10.3 a

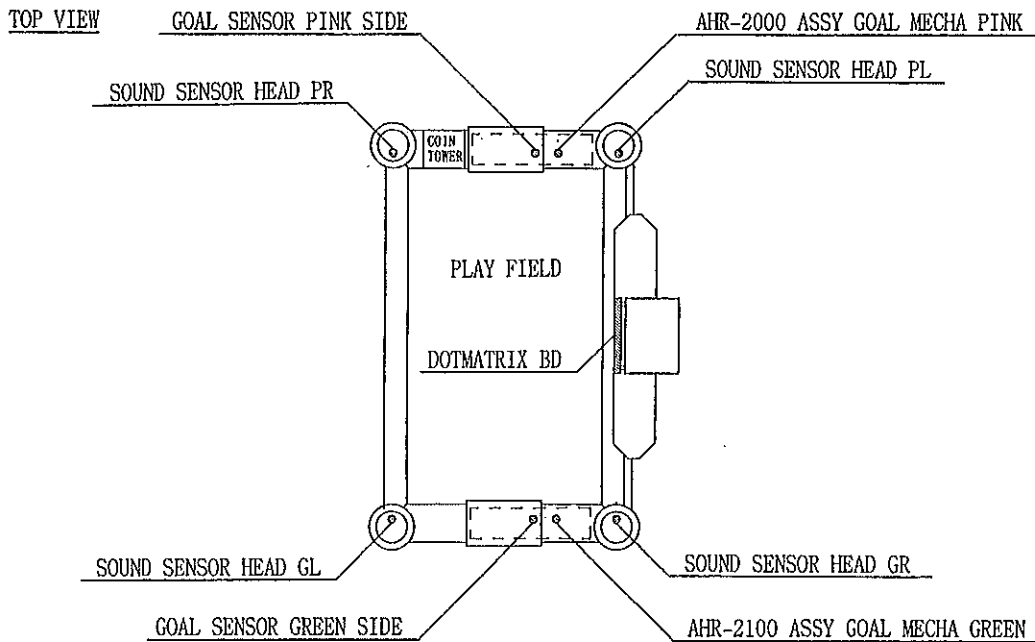


FIG. 10. 3 b

10-4 OUTPUT TEST

This test allows each of Lamps, Motors, and Solenoids to be checked. Press the Service button to select the test item and press the Test button to perform the test. Bring the arrow to the lowest item of each page and press the Service button to proceed to the next page.

→ EXIT		
PuckLamp	P	..... a)
PuckLamp	G	..... b)
		1/4

- a) The Pink Side Lamp lights up.
- b) The Green Side Lamp lights up.

→ StockSol	P	..... c)
StockSol	G	..... d)
SteppingMoto		..... e)
		2/4

- c) The Pink Side Stock Solenoid functions.
- d) The Green Side Stock Solenoid functions. When c) and d) are performed, the belt in the Billboard Tower moves by one puck size and one puck in each Slope moves to the underside of the belt. Thus one puck is ejected from the Pink Side Shooter.
- e) The Stepping Motor functions and the Belt in the Billboard Tower moves while the Test button is pressed.

Normally, the Belt accommodates 4 pucks and therefore, when the Belt is continuously moved, the 4 pucks are ejected from the Pink Side Shooter.

→ PointSol	..... f)
BlowerMotor	..... g)
	3/4

- f) The Point Solenoid functions. To check the Point Solenoid's functioning, the Score Cover needs to be removed (see 11-3).
- g) The Blower Motor functions and air comes out from the Field.

→ Goalmotor	P	..... h)
Goalmotor	G	..... i)
		4/4

- h) The Pink Side Goal Motor functions.
- i) The Green Side Goal Motor functions.
Drive the puck into the Goal and ensure that the puck rolls out to the Slope.

Bring the arrow to EXIT and press the Test button to return to the menu mode.

10-5 SOUND TEST

In this Test mode, the sound volume, sound and BGM used in the game are checked.

SOUND	NO. 00
-------	--------

Press the Service button to increase the SOUND NO. by one and cause BGM, etc. to be emitted.
Press the Test button to return to the menu mode.

10-6 MATRIX

In this test, DOT MATRIX LED is checked. Selecting this item causes all LED to light up. Press the Test button to return to the menu mode.

10-7 PUCK OUT

This test allows all of the pucks in the machine to be brought onto the Play Field.

PressService
To PuckOut
Test To Exit

In the above status, pressing the Service button causes all of the pucks in the machine to be brought onto the Play Field. Press the Test button to return to the Test menu.

11. APPLY GREASING TO MECHANISM



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



- Hot motor can cause burns. Use care so as not to touch the hot motor.
- To avoid injury, use care so as not to be caught between parts or caught in the machine when testing motors or solenoids.



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

11-1 STOCK MECHANISM

Once a month, apply greasing to the Solenoid Mechanism Spring and Rotary Shaft portion. For spray greasing, use GREASE MATE (PART No. 090-0066).

- ① Turn the Power SW OFF.
- ② Take out the 4 Screws to remove the Cover Lid from the lower part of the Billboard Tower. (Photo 11.1 a)
- ③ Apply grease to the Solenoid Mechanism. (Photo 11.1 b)
- ④ After the application of grease, have the Solenoid function in the Test mode to ensure grease lubrication is smooth and satisfactory.

TRUSS SCREW (4)
M4×10, chrome

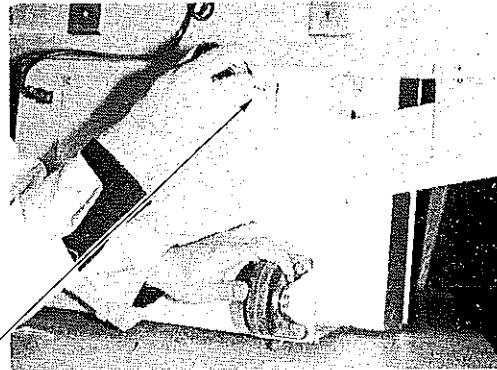


Photo 11.1 a

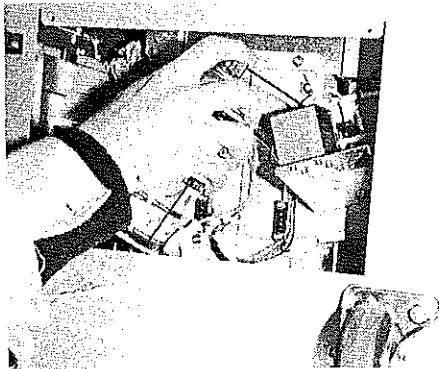
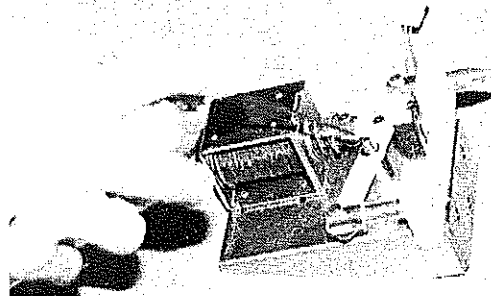


Photo 11.1 b



*Photo 11.1 c

*Note: To make it easier to understand where greasing is to be applied, the Photo shows the greasing portion exposed. Actually, however, it is not necessary to take it out.

11-2 TRANSFER MECHANISM

Once every three months, apply greasing to the gear engagement portion of the Motor on the lower part of the Transfer Mechanism. For greasing, use GREASE MATE (PART No. 090-0066).

- ① Turn the Power SW off.
- ② Open the Back Door of Billboard Tower and apply greasing to the TRANSFER MECHANISM gears.

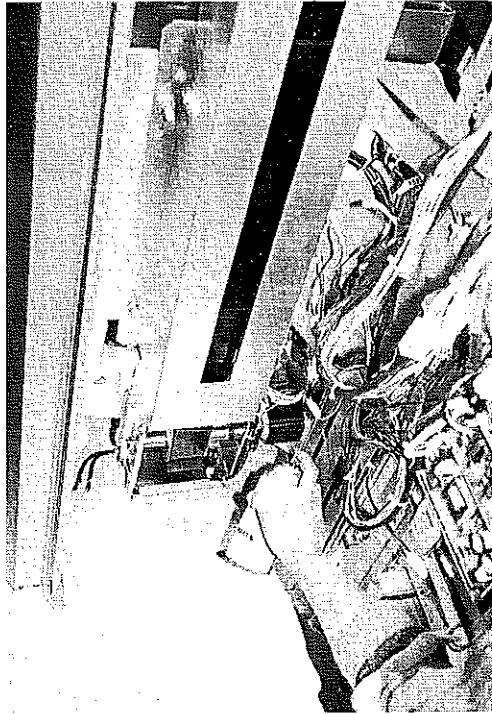


Photo 11. 2

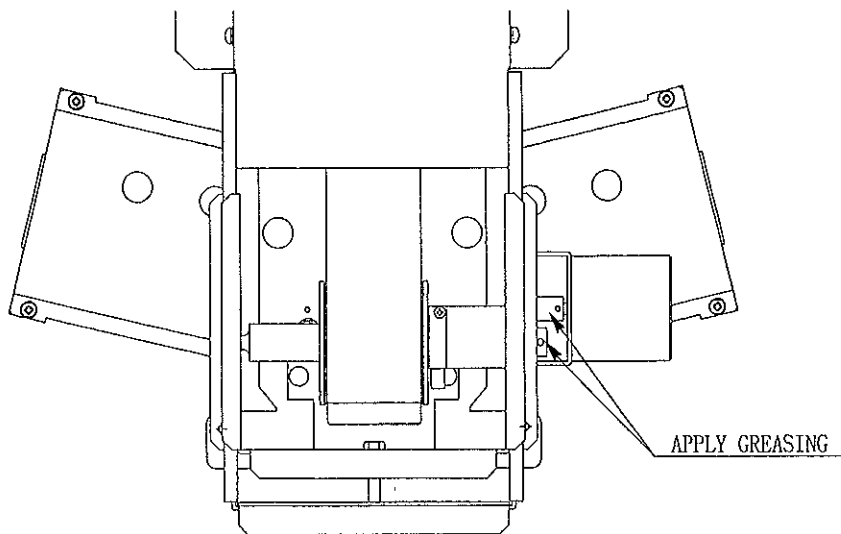


FIG. 11. 2

11-3 POINT SOLENOID

Once every 3 months, apply greasing to the Solenoid Mechanism's Spring and Rotary Shaft portion within the Billboard Tower.

For the spray grease, use GREASE MATE (PART No. 090-0066).

- ① Turn off power.
- ② Open the Back Door of Billboard Tower.
- ③ Disconnect the 2 Connectors.
(Photo 11.3 a)
- ④ Take out the 10 Screws to remove the Score Cover.
(Photos 11.3 b and 11.3 c)
- ⑤ The Solenoid is positioned on the Dot Matrix. Apply greasing to the Spring and Rink Mechanism Rotary Shaft.
(Photo 11.3 d and FIG. 11.3)
- ⑥ By using the opposite procedure, reinstall the parts, have the Point Solenoid function in the test mode to ensure that grease lubrication is smooth and satisfactory.

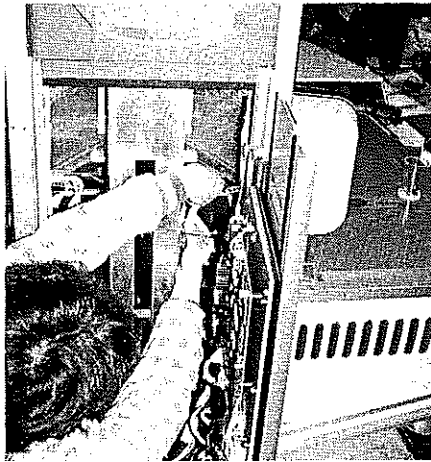


Photo 11.3 a

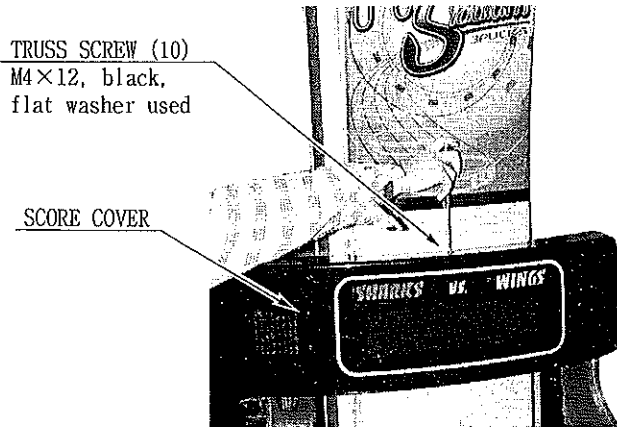


Photo 11.3 b

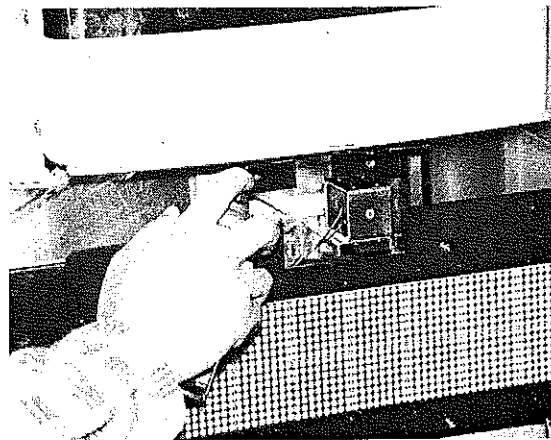


Photo 11.3 d

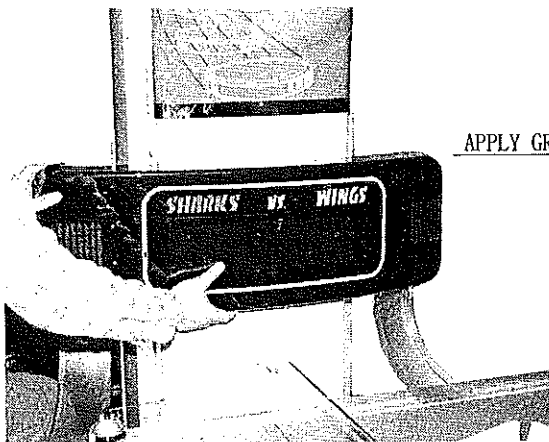


Photo 11.3 c

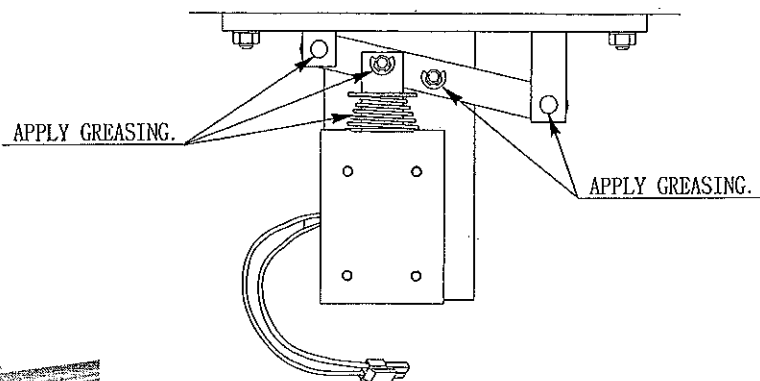


FIG 11.3

12. COIN SELECTOR

HANDLING THE COIN JAM

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

CLEANING THE COIN SELECTOR

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.



- 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?

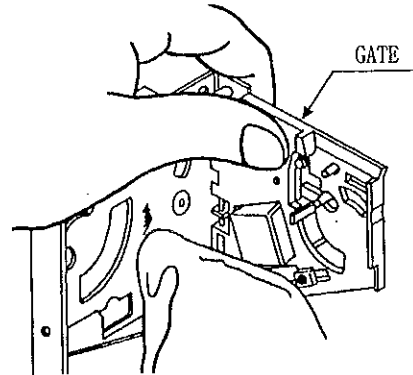


FIG. 12 a

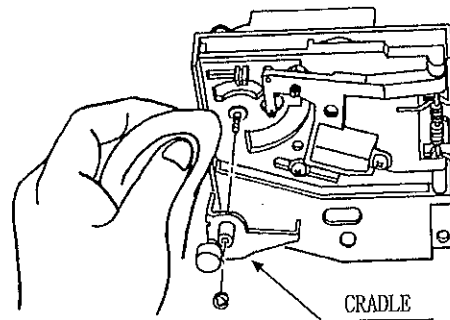


FIG. 12 b

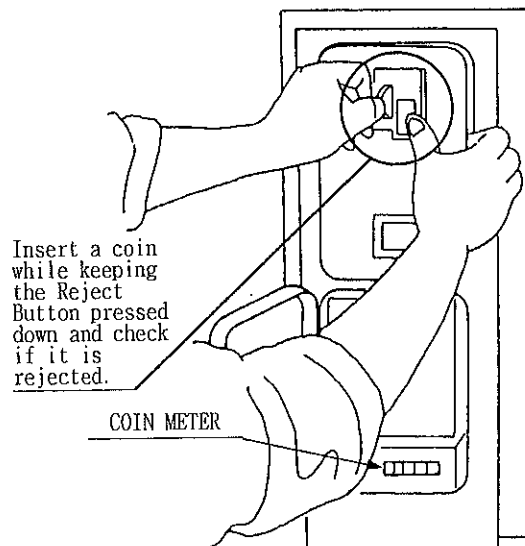


FIG. 12 c

13. REPLACEMENT OF FLUORESCENT LAMP AND LAMPS



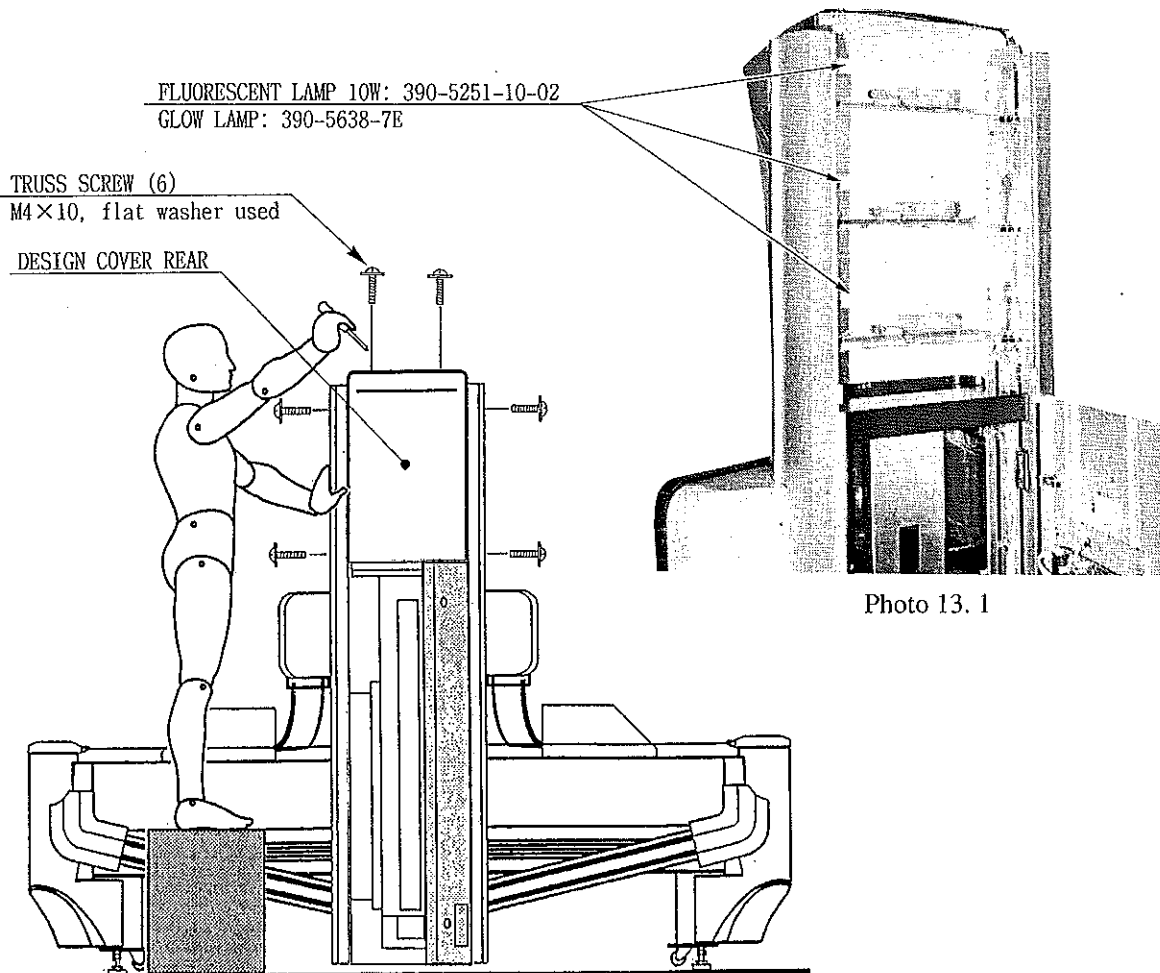
- When performing the work, be sure to turn power off. Working with power on can cause an electric shock or short circuit accident.
- The Fluorescent Lamp, when it gets hot, can cause burns. Be very careful when replacing the Fluorescent Lamp.



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 REPLACEMENT OF FLUORESCENT LAMP

- ① Turn the Power SW off.
- ② Open the Back Door, take out the 6 Truss Screws and remove Design Cover Rear.



When performing work,
prepare a step.

FIG. 13. 1

13-2 LAMP REPLACEMENT

- ① Turn power off.
- ② Open the Back Door.
- ③ Disconnect the 2 Connectors .
(Photo 13.2 a)
- ④ Take out the 10 Screws to remove the Score Cover.
(Photos 13.2 b and 13.2 c)
- ⑤ Remove the Lamp Cover .
(Photos 13.2 d and 13.2 e)

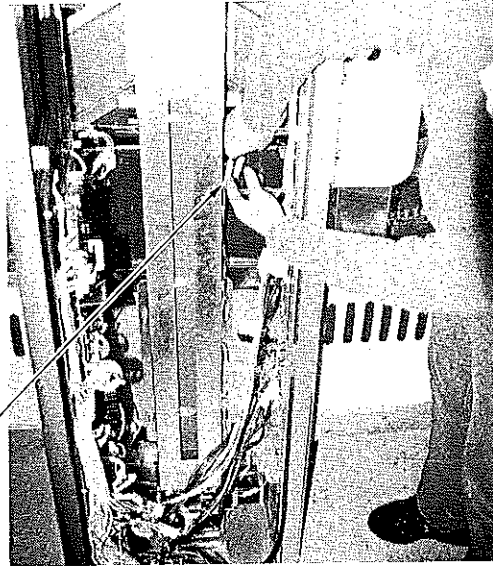


Photo 13. 2 a

TRUSS SCREW (10)
M4×12, black,
flat washer used

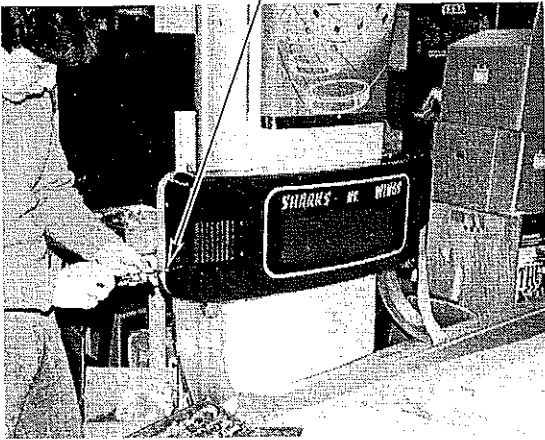


Photo 13. 2 b

SCORE COVER

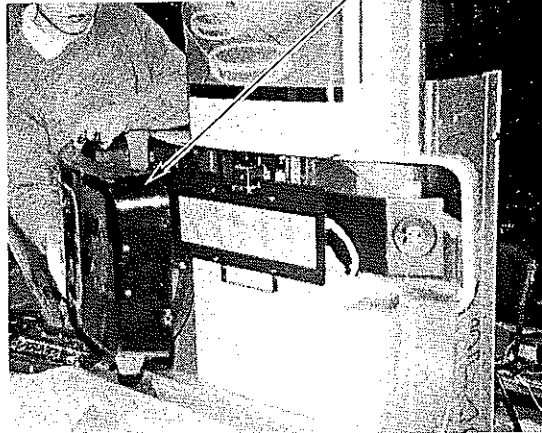


Photo 13. 2 c

SCREW (2)
M3×16

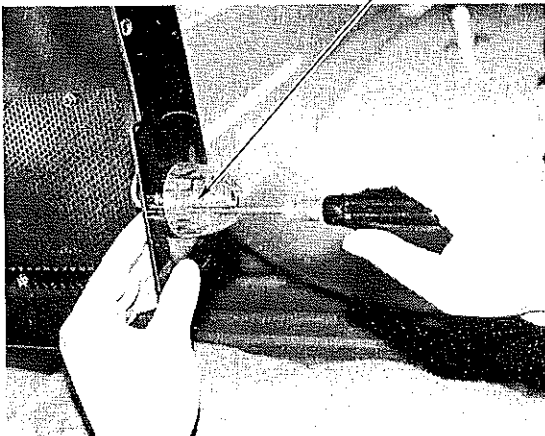


Photo 13. 2 d

LAMP
390-5257

LAMP COVER

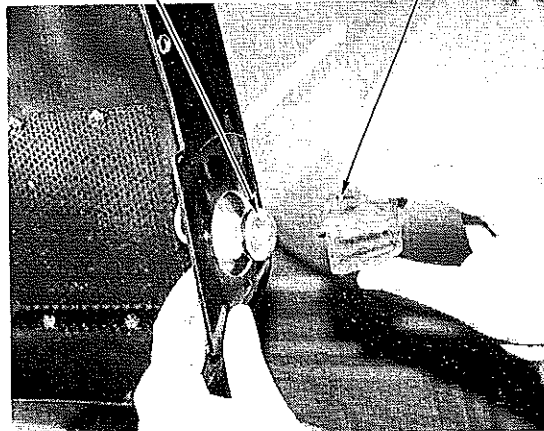


Photo 13. 2 e

14. PERIODIC MAINTENANCE INSPECTION LIST

In order to maintain the performance of this product and ensure the safe operation, be sure to inspect and perform maintenance for the following items periodically.



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.



IMPORTANT!

Taking food and drink on or over the Play Field is strictly prohibited. Should beverages be spilled, wipe off immediately. Leaving spilled juice, etc. as is without wiping off, the beverages will come inside through the air perforation holes, infiltrate into the woodwork and cause the Play Field to be warped, resulting in an unsatisfactory playing. Instruct the customers not to put food and drinks on the Play Field.

TABLE 14

	Item	Interval	Reference
Puck and Mallet	Check the number of pucks.	Weekly	Section 10
	Polish Pucks and Mallets	Biannually	Section 14, next page onward
	Cleaning of Pucks and Mallets	Biannually	
Play Field	Surface cleaning	Weekly	
	Horizontal adjustment	Monthly	
	Check air perforation holes	Biannually	
	Filter replacement	Annually	
Billboard Tower	Apply greasing to Stock Mechanism Spring and Rotary Shaft portion.	Monthly	11-1
	Apply greasing to Transfer Mechanism Motor Gear engagement portion.	Trimonthly	11-2
	Apply greasing to Point Solenoid Spring and Rotary Shaft portion.	Trimonthly	11-3
Coin Chute	Check COIN SW.	Monthly	Section 10
	Coin insertion test	Monthly	Section 12
	Cleaning of COIN SELECTOR	Trimonthly	Section 12
Power Supply Plug	Inspection and cleaning	Annually	See above
INTERIOR	Cleaning	Annually	

CLEANING THE PLAY FIELD

- Once every week or more often, be sure to wipe off Play Field surfaces with alcohol or a neutral Glass Cleaner.
Do not use silicon, wax or anything that might block air perforation holes.
- Once every six months, check if the air perforation holes are blocked and if blocked, perform cleaning with a thin item like a safety pin.
When checking the air perforation holes, slide the puck over the Play Field in a status the Blower Motor is revolving. If the puck slides smoothly, it is satisfactory. If the puck is caught on the Play Field, pass the Safety Pin, etc. through the air holes several times and then slide the puck again to ensure the puck is not caught on the Play Field.

POLISHING MALLETS AND PUCKS

Pucks and Mallets can wear out and cause sliding to become more difficult. In such a case, slightly sandpaper by applying the supplied sandpaper (which has 2-sided adhesive tape on the back side) onto the wooden board, an accessory or onto a level place. Even then, if it is still hard to slide the puck, check the Play Field's air holes.

Note: The coarseness of the sandpaper is that of No. 320 of JIS Standard. If Japanese sandpaper is utilized, be sure to use sandpaper of an identical No. Also, note that even if a sandpaper of the identical No. of foreign makes is used, the coarseness may not be the same as that of JIS Standard.

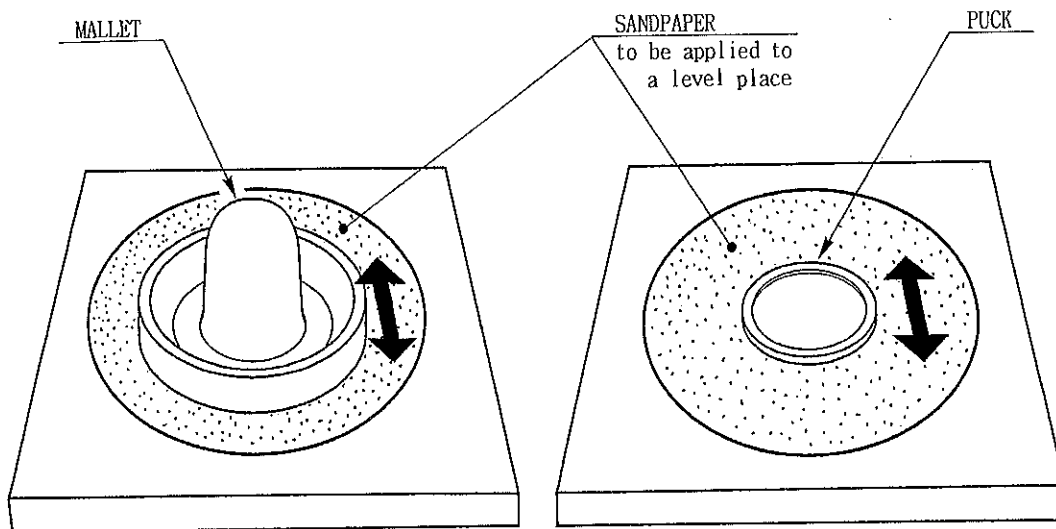


FIG. 14 POLISHING THE MALLET AND PUCK

CLEANING THE MALLET AND PUCK

When badly soiled, the puck will not slide smoothly and the game can not be played satisfactorily. Perform cleaning by wiping off with alcohol or neutral detergents. If soils can not be removed, replace the puck.

FILTER REPLACEMENT



Before you start work, turn power off in order to perform work safely.

Replace the Filter annually or every 18 months depending on the environmental situation of the installation location.

The Filter is on the side of the Blower Box under the Play Field.

- ① Turn power off.
- ② Take out the 4 screws to remove the Filter Holder.
(Photos 14 a and 14 b)
- ③ Replace the Filter.

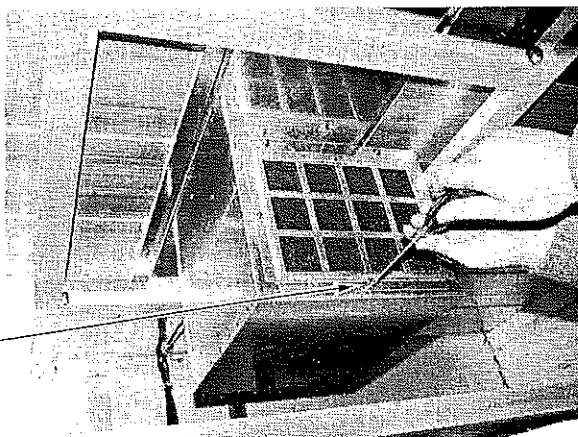


Photo 14 a

SCREW (4)
M4 x 16, w/flat &
spring washers

filter holder

filter
AHR-1010

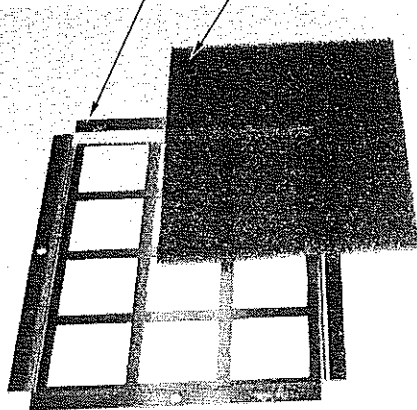


Photo 14 c



Photo 14 b

15. TROUBLESHOOTING



- When performing the work, be sure to turn power off. Working with power on can cause an electric shock or short circuit accident.
- Restart the circuit protector after eliminating the cause of its movement. If you continue using without eliminating the cause, that will generate heat or cause a fire depending on the cause.

When performing operation check, opening the Cabinet Door while the machine is energized or removing parts can cause electric shock or accidents in which you can be caught between or in the mechanism parts. Therefore, use extreme care in this regard.

15-1 ERROR MESSAGE

The internal sensor of this product detects the movements of the puck. If the sensor detects an irregularity, ERROR Message is displayed on the Dot Matrix of Billboard Tower.

Table 15.1

ERROR MESSAGE	CAUSE	COUNTERMEASURES
ERROR 1 NO PUCK	Insufficient number of pucks in the Cabinet. (Less than 7)	Check the number of pucks and replenish so that 7 or more pucks are in the cabinet. Up to 12 pucks can be accommodated.
ERROR 2 G GOAL ⇒SLOPE	The puck(s) stops between the Green Side Goal and Slope.	After removing the puck, ensure that extraneous matter such as dust does not exist.
ERROR 2 P GOAL ⇒SLOPE	The puck(s) stops between the Pink Side Goal and Slope.	After removing the puck, ensure that extraneous matter such as dust does not exist.
ERROR 3 IN TOWER	The puck(s) is jammed in the Tower.	Check the Lift Belt in the Billboard Tower and in the periphery of the Lift Belt.

When the ERROR MESSAGE is displayed, first eliminate the cause of trouble, enter the test mode, choose EXIT to exit from the Test mode. Initializing is automatically performed. At this time, the 4 pucks accommodated by the Lift Belt in the Billboard Tower are ejected. Drive the puck into the Goal.

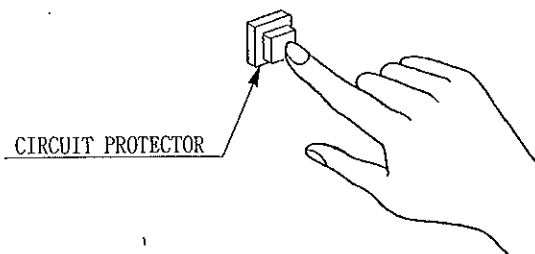
15-2 COUNTERMEASURES AGAINST MALFUNCTIONING

When something is wrong, check the following. Be sure to turn power off before you start checking, in order not to have any accidents.

- Does the wiring connection portion have an irregularity?
The irregularity such as connector loosening, connector fitting & Wiring connection defects and defective soldering can first be considered as the causes of trouble. To begin with, check the wiring connection part.
- Isn't there any extraneous matter on the IC Board?
The second cause that can be considered is IC Board (such as game BD) malfunctioning. Even if there is no irregularity in the Board itself, malfunctioning can be caused by some extraneous matter such as screws, dust, etc. Be sure to maintain the IC Board always in clean condition.
- Isn't there anything wrong with the mechanism?
This product has the system of moving the mechanism. Looseness and wear of the parts by using them for a long time could cause malfunctioning. Check the part of mechanism which might be the cause of the trouble.

Table 15. 2

TROUBLE	CAUSE	COUNTERMEASURES
When the main SW is turned ON, the machine is not activated.	The power is not ON. Incorrect power source/voltage. AC UNIT CIRCUIT PROTECTOR functioned due to instantaneous overcurrent.	Firmly insert the plug into the outlet. Make sure that the power supply/voltage are correct. Check circuit protector. Remove the cause of overload to reinstate the circuit protector.
The Fluorescent Lamp lights up but nothing is displayed on the Dot Matrix.	Dot Matrix Board is damaged. Game Board is damaged.	Replace 839-0919 DOT MATRIX BD. Replace 834-12846 GAME BD HOCKEY STADIUM (see Sec. 9).
When the game is started, the puck(s) does not come out.	Setting of puck(s) is incorrect.	Perform INITIALIZING (7 of Sec. 6 and Sec. 10).
No sound	The volume of switch unit is minimum.	Set adequate sound volume.
The Fluorescent Lamp doesn't turn on.	The pipe of Fluorescent Lamp or lighting pipe is damaged. The life of these pipes is over.	Replace the Fluorescent pipe or lighting pipe (see Sec. 13).
The puck enters the Goal but no scoring.	The Scoring Sensor is damaged. Extraneous matter exists in the Goal.	Replace the Sensor. Eliminate the extraneous matter.
The puck(s) comes out only from the Pink Side.	The Point Solenoid fault and malfunctioning.	Check or replace the Point Solenoid (see 11-3).
Pucks do not move within the machine.	Extraneous matter exists, or several pucks are piled up simultaneously on top of another, and jammed.	Remove the Goal Mouth and Slope Cover to eliminate extraneous matter so that pucks flow smoothly (see FIGs. 15 a and 15 b).
No air blowing out.	The Power Plug is not inserted in the Billboard Tower's plug outlet.	Accurately insert the Power Plug into the Plug Outlet (see 5 of Section 6).



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

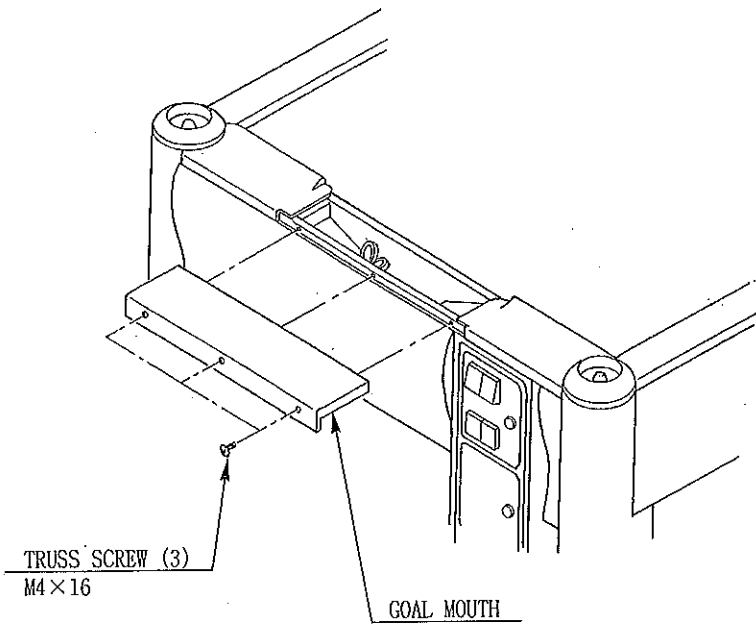
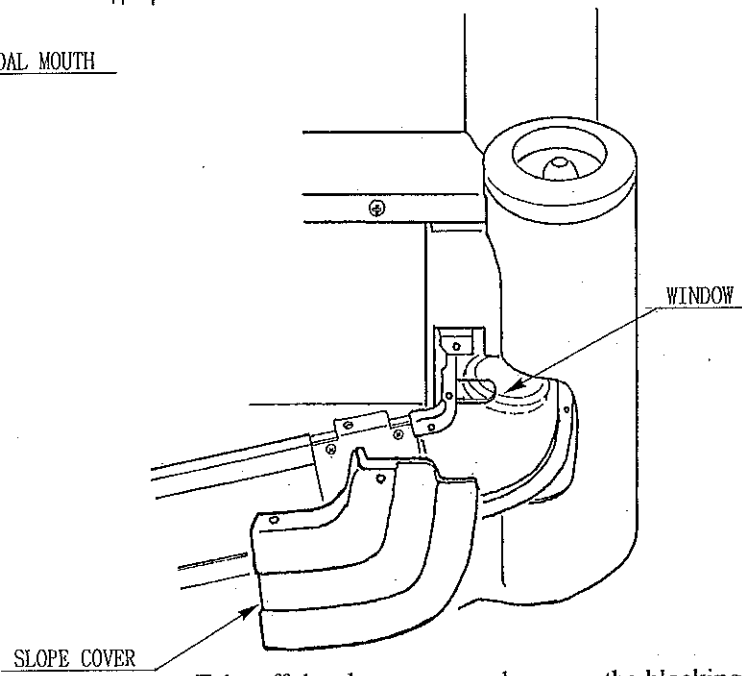


FIG. 15 a

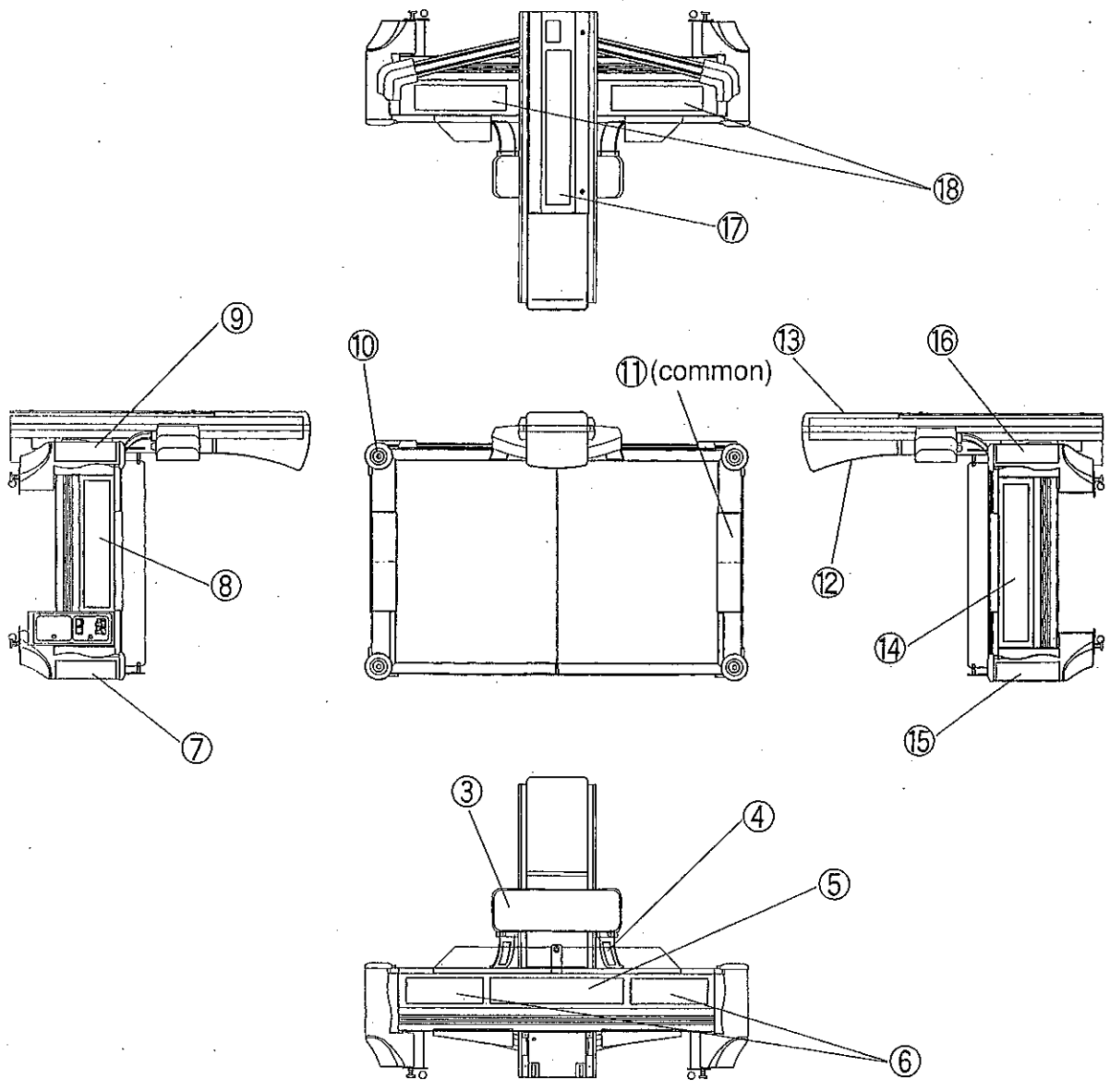


Take off the slope cover and remove the blocking puck(s) through the window of puck chute.

FIG. 15 b

16. DESIGN RELATED PARTS

For the Warning Display stickers, refer to Section 1.



No.	PART No.	DESCRIPTION
③	AHR-1540	SCORE COVER FRONT
④	AHR-1529	STICKER PUCK SLOPE
⑤	AHR-1051	STICKER 3-PUCK
⑥	AHR-1052	STICKER PATTERN FRONT
⑦	AHR-1039	STICKER CORNER C
⑧	AHR-0018	STICKER GOAL END PINK
⑨	AHR-1038	STICKER CORNER B
⑩	AHR-0017-01	STICKER PADDLE HOLDER ENG
⑪	AHR-0003X-01	GOAL MOUTH PLATE ENG
⑫	AHR-1515	DESIGN COVER F
⑬	AHR-1516X	DESIGN COVER R
⑭	AHR-0019	STICKER GOAL END GREEN
⑮	AHR-1039	STICKER CORNER D
⑯	AHR-1037	STICKER CORNER A
⑰	AHR-1605	STICKER DOOR COVER
⑱	AHR-1053	STICKER PATTERN REAR

