

1st PRINTING NOV 01

SEGA



OWNER'S MANUAL



SEGA ENTERPRISES, INC. USA

MANUAL NO. 999-1375

VISIT OUR WEBSITE!

The screenshot shows a web browser window with the address bar displaying <http://www.seu.segasevice.com/>. The browser's toolbar includes buttons for Back, Forward, Refresh, Stop, Home, Sherlock, Preferences, Larger, Smaller, and Stop. The address bar also shows a 'go' button and a list of bookmarks including Apple, Central.Sega.com, Sega.com, SegaService.com, Yahoo!, and Yahoo! Maps and Driving Directions.

The website content is displayed in a frame. On the left is a vertical navigation menu with the following items: Favorites, History, Search, Scrapbook, and Page Holder. The main content area features the 'SEGA SERVICE' logo in large, stylized blue letters. To the left of the logo is a portrait of a man with the text 'Ask Dave!' below it. To the right of the logo is a list of site features: • Bulletins, • Darl's Office, • Game Manuals, • Search, and • What's New.

Below the logo area, a counter indicates '5564 people have visited this page since 3/16/01'. A message follows: 'If you have any questions or comments about this site please E-Mail to Darl.Davidson@seu.sega.com'. Below this is a banner for 'THIS WEB SITE POWERED BY WebSTAR 4.3 Mac OS'. A list of site links is provided: [\[what's new\]](#), [\[manuals\]](#), [\[bulletins\]](#), [\[assemblies\]](#), [\[Search\]](#), [\[staff\]](#), [\[Darl's office\]](#), [\[technical service\]](#), [\[customer service\]](#), [\[corporate info\]](#), [\[plugins\]](#), and [\[Non-framed page\]](#).

A notice states: 'You will need the following items to view this page in its entirety.' Below this are three icons: 'Get Acrobat Reader' (All Platforms), 'Get Microsoft Internet Explorer' (Windows), and 'Get Microsoft Internet Explorer' (Macintosh).

The browser's status bar at the bottom left shows 'Internet zone'.

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 WARNING, CAUTION, etc. are used. Be sure to understand the contents of the displays before reading the text.



WARNING!

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



CAUTION!

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

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.

○ 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. SEGA shall not be held responsible for any accidents, compensation for damage to a third party, resulting from the specifications not designated by SEGA.

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

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

○ **Be sure to adjust the monitor (projector) properly. (Applies only to the product w/monitor.)**

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

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

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

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

INSPECTIONS IMMEDIATELY AFTER TRANSPORTING THE PRODUCT TO THE LOCATION.

Normally, at the time of shipment, SEGA products are in a status allowing for usage immediately after transporting to the location. Nevertheless, an irregular situation may occur during transportation. Before turning on 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:

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SPECIFICATIONS

Installation space	: 56in [1,435 mm] (W) X 123in[3120 mm] (D)
Height	: 87.4 in. [2,220 mm]
Weight	: 1,194 lbs. [543 kg.]
Power, maximum current	: 1,250 W 11.5 A (AC 120V 60 Hz AREA) 1,150 W 6.4 A (AC 220V 50 Hz AREA) 1,240 W 7.0 A (AC 220V 60 Hz AREA) 1,150 W 5.8 A (AC 230V 50 Hz AREA) 1,140 W 5.6 A (AC 240V 50 Hz AREA)
For TAIWAN	
Power, current	: 1,250 W 12.5 A (MAX.) 750 W 7.0 A (MIN.)
MONITOR	: 50 TYPE PROJECTION DISPLAY

INTRODUCTION OF THE OWNER'S MANUAL

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 product, **WAVERUNNER GP.**

This manual is intended for the owners, personnel and managers in charge of operation of the product. Operate the product after carefully reading and sufficiently understanding the instructions. If the product fails to function satisfactorily, non-technical personnel should under no circumstances touch the internal system. Should any malfunctioning occur, turn the power off and unplug the Power Cord (AC Cable), and contact where the product was purchased from.

Use of this product is unlikely to cause physical injuries or damages to property. However, where special attention is required this is indicated by a thick line, the word "IMPORTANT" and its sign in this manual.



Indicates that mishandling the product by disregarding this display can cause the product's intrinsic performance not to be obtained, resulting in malfunctioning.

IMPORTANT!

SEGA ENTERPRISES, INC. (U.S.A.)/CUSTOMER SERVICE
45133 Industrial Drive, Fremont, California 94538, U.S.A.
Phone: (415) 701-6580
Facsimile: (415) 701-6594

DEFINITION OF LOCATION'S 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.

General Precautions

Follow Instructions: All operating and use instructions should be followed.

Attachments: Do not use attachments not recommended by the product manufacturer as they may cause hazards.

Accessories: Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use only mounting accessories recommended by the manufacturer.

Moving the Product: This product should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product to overturn.

Ventilation: Slots and openings in the cabinet are provided for ventilation, to ensure reliable operation of the product and to protect it from overheating; these openings must not be blocked or covered. The openings should never be blocked by placing the product in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

Power Sources: This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your location, consult your local power company. For products intended to operate from battery power or other sources, refer to the operating instructions.

Grounding or Polarization: This product is equipped with a three-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

Power Cord Protection: Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

Overloading: Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

Object and Liquid Entry: Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

Servicing: Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Damage Requiring Service: Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- a) If the power cord or plug is damaged;
- b) If liquid has been spilled, or objects have fallen into the product;
- c) If the product has been exposed to rain or water;
- d) If the product does not operate normally when following the operating instructions. Adjust only those controls that are explained in the operating instructions. An improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation;
- e) If the product has been dropped or damaged in any way;
- f) When the product exhibits a distinct change in performance; this indicates a need for service.

Replacement Parts: When replacement parts are required, be sure the service technician has used replacements parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

Safety Check: Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

Heat: The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

Lithium Battery- Dispose of batteries only in accordance with the battery manufacturer's recommendations. Do not dispose in an open flame condition, since the battery may explode.

Cleaning: When cleaning the monitor glass, use water or glass cleaner and a soft cloth. Do not apply chemicals such as benzene, thinner, etc.

Location: This is an indoor game machine, DO NOT install it outside. To ensure proper usage, avoid installing indoors in the places mentioned below:

- Places subject to rain/water leakage, or condensation due to humidity;
- In close proximity to a potential wet area;
- Locations receiving direct sunlight;
- Places close to heating units or hot air;
- In the vicinity of highly inflammable/volatile chemicals or hazardous matter;
- On sloped surfaces;
- In the vicinity of emergency response facilities such as fire exits and fire extinguishers;
- Places subject to any type of violent impact;
- Dusty places.

INSTALLATION PRECAUTIONS

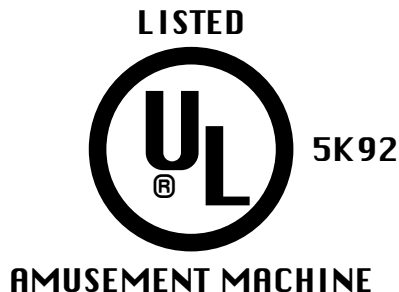
- Verify the amperage of the branch circuit outlet before plugging in the power plug. Do not overload the circuit.
- Avoid using an extension cord. If one is required, use an extension cord of type SJT, 16/3 AWG rated min. 120 VAC, 7A.
- Moving this unit requires a minimum clearance (of doors, etc.) of 32" (W) by 77" (H).
- For the operation of this machine, secure a minimum area of 64" (W) by 97" (D).

REGULATORY APPROVALS

This game has been tested and found to comply with the Federal Communications Commission Rules.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This game has been tested and listed by Underwriters Laboratories, Inc., to ANSI/UL22.



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 work, be sure to turn power off. Performing the work without turning power off can cause an electric shock or short circuit. In the case work should be performed in the status of power on, this manual always states to that effect.
- To avoid electric shock or short circuit, do not plug in or unplug quickly.
- To avoid electric shock, do not plug in or 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.
- Specification changes, removal of equipment, conversion and/or addition, not designated by SEGA are not permitted.
 - Failure to observe this may cause a fire or an electric shock. Non-compliance with this instruction can have a bad influence upon physical conditions of the players or the lookers-on, or result in injury during play.
 - SEGA shall not be held responsible for damage, compensation for damage to a third party, caused by specification changes not designated by SEGA.
- Be sure to perform periodic maintenance inspections herein stated.



IMPORTANT

- For the IC board circuit inspections, only the logic tester is allowed. The use of a multiple-purpose tester is not permitted, so be careful in this regard.
- 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.
- Some parts are the ones designed and manufactured not specifically for this game machine. The manufacturers may discontinue, or change the specifications of, such general-purpose parts. If this is the case, Sega cannot repair or replace a failed game machine whether or not a warranty period has expired.

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° to 30°.

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 Electrical 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 15A or higher (AC single phase 100 ~ 120V area), and 8A 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 15A or higher (AC 100 ~ 120V area) and 8A or higher (AC 220 ~ 240V area). Using a cord rated lower than the specified rating can cause a fire and electric shock.

OPERATION AREA



WARNING!

- For the operation of this machine, secure a minimum area of 1.6m (W) X 3.1m (D). In order to prevent injury resulting from the falling down accident during game play, be sure to secure the minimum area for operation.
- Be sure to provide sufficient space so as to allow this product's ventilation fan to function efficiently. To avoid machine malfunctioning and a fire, do not place any obstacles near the ventilation opening.
- SEGA shall not be held responsible for damage, compensation for damage to a third party, resulting from the failure to observe this instruction.



IMPORTANT!

For transporting the machine into the location's building, the minimum necessary dimensions of the opening (of doors, etc.) are 1.45m(W) and 1.68m(H).

Electric current consumption

MAX. 11.5 A (AC 120V 60 Hz)
MAX. 6.4 A (AC 220V 50 Hz)
MAX. 7.0 A (AC 220V 60 Hz)
MAX. 5.8 A (AC 230V 50 Hz)
MAX. 5.6 A (AC 240V 50 Hz)
MAX. 12.5 A (For TAIWAN)

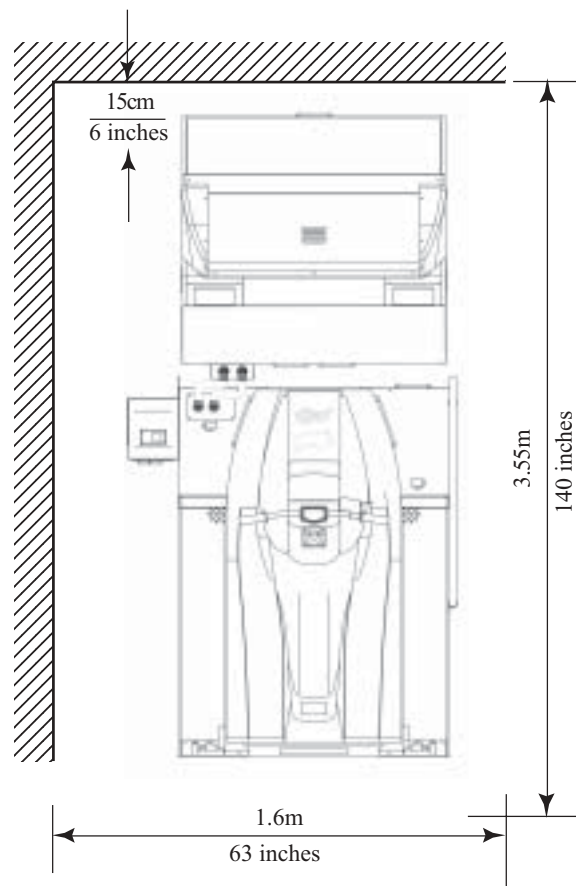


FIG. 2

3. OPERATION

PRECAUTIONS TO BE HEEDED BEFORE STARTING THE OPERATION

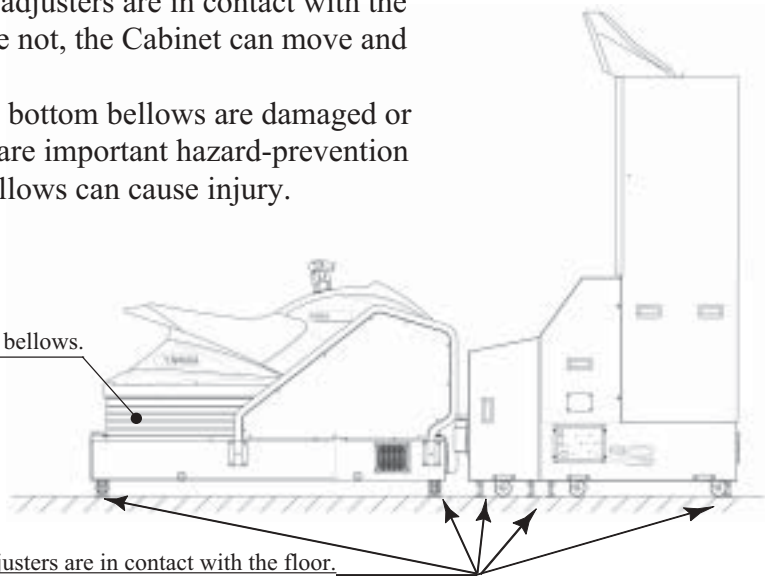
To avoid injury and trouble, be sure to constantly give careful attention to the behavior and manner of the visitors and players.



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

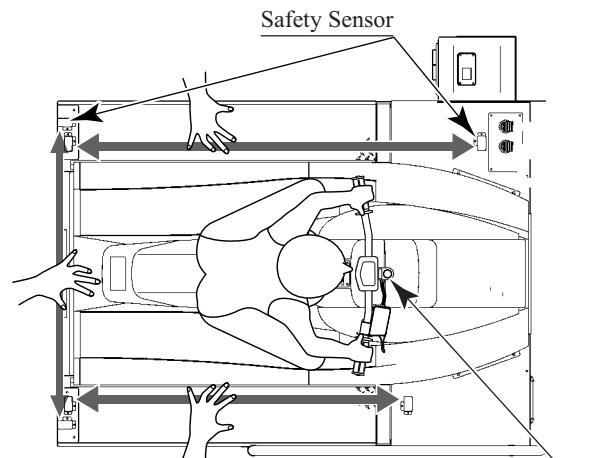
- To ensure maximum safety for the players and the customers, ensure that where the product is operated has sufficient lighting to allow any warnings to be read. Operation under insufficient lighting can cause bodily contact with each other, hitting accident, and or trouble between customers.
- Be sure to perform appropriate adjustment of the monitor (projector). For operation of this machine, do not leave monitor's flickering or deviation as is. Failure to observe this can have a bad influence upon the players' or the customers' physical conditions.
- It is suggested to ensure a space allowing the players who feel sick while playing the game to take a rest.
- Check if all of the adjusters are in contact with the surface. If they are not, the Cabinet can move and cause an accident.
- Check to see if the bottom bellows are damaged or omitted. Bellows are important hazard-prevention parts. Irregular bellows can cause injury.

Check bellows.



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

- Before commencing operation, execute test run to check if the Safety Sensor and the Motion Stop Switch are satisfactorily functioning to stop the machine movements during game. The Safety Sensor and the Motion Stop Switch are important hazard-prevention parts. Irregular important parts can cause injury.



Check for the Safety Sensor's function to stop movements.

Motion Stop Switch



WARNING!

- 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.



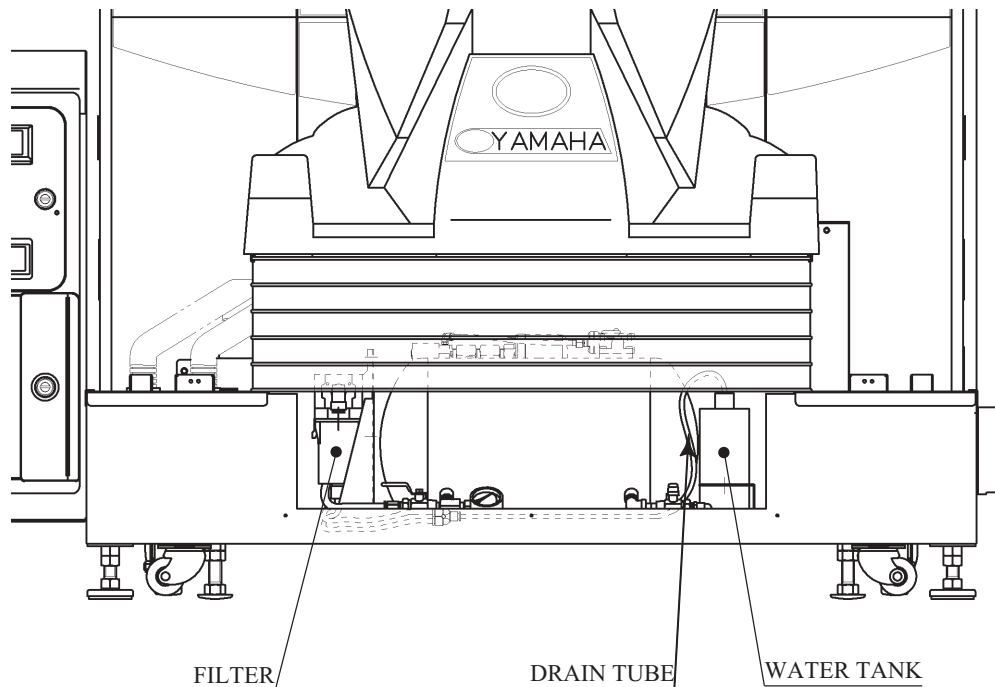
CAUTION!

To avoid injury, be sure to provide sufficient space by considering the potentially crowded situation at the installation location. Insufficient installation space can cause making bodily contact with each other, hitting accidents, and or trouble between customers.



IMPORTANT!

Be sure to periodically dewater the Air Drive and dispose of the drain water. Excessively gathered water can cause the Air Drive Mechanism to malfunction and get out of order.



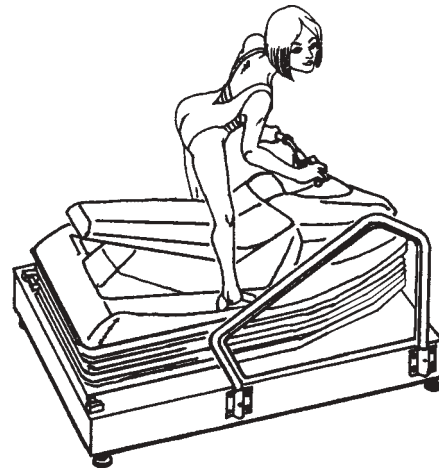
PRECAUTIONS TO BE HEDED DURING OPERATION (PAYING ATTENTION TO CUSTOMERS)

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



- To avoid injury and accidents, those who fall under the following categories are not allowed to play the game.
 - Those who need assistance such as the use of an apparatus when walking.
 - Those who have high blood pressure or a heart problem.
 - Those who have experienced muscle convulsion or loss of consciousness when playing video game, etc.
 - Those who have a trouble in the neck and or spinal cord.
 - Intoxicated persons.
 - Pregnant women or those who are in the likelihood of pregnancy.
 - Persons susceptible to motion sickness.
 - Persons whose act runs counter to the product's warning displays.
- A player who has never been adversely affected by light stimulus might experience dizziness or headache depending on his physical condition when playing the game. Especially, small children can be subject to those conditions. Caution guardians of small children to keep watch on their children during play.
- Instruct those who feel sick during play to have a medical examination.
- To avoid 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.

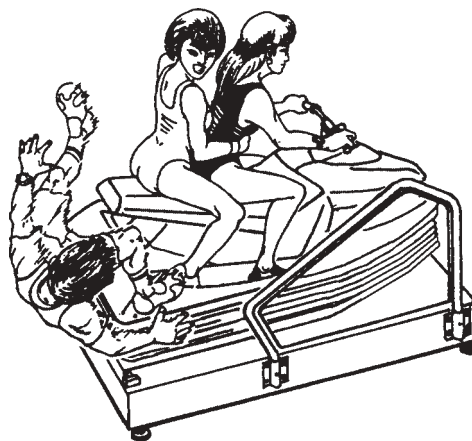
- The player whose feet can not be placed on the base could fall down and cause injury. To avoid injury, instruct persons of short stature to refrain from playing the game.





WARNING!

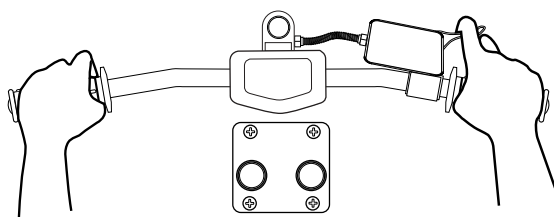
- To avoid injury and parts damage, instruct players that only up to two persons are allowed to ride.



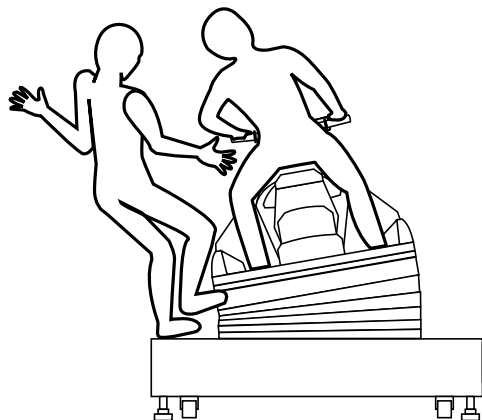
- To avoid injury resulting from falling down, and electric shock due to spilled drinks, instruct the player not to place heavy items or drinks on the product.



- Instruct the player to take a firm grip of the handle Bars during play. This machine reacts as per the contents of the game. To avoid injury, instruct the players to refrain from single-handed taking grip of the handle Bar (which is very likely to cause potentially hazardous situation, should he attempt to do so).



- To avoid injury and trouble resulting from coming into contact with each other, instruct persons other than the players to keep away from the mechanism base. The Safety Sensor functions to stop only the machine movement from the Compressor. The ride can be moved by the player.





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.
- When riding in tandem, firmly hold on to the front player. To avoid injury, do not stand driving the ride.



4. NAME OF PARTS

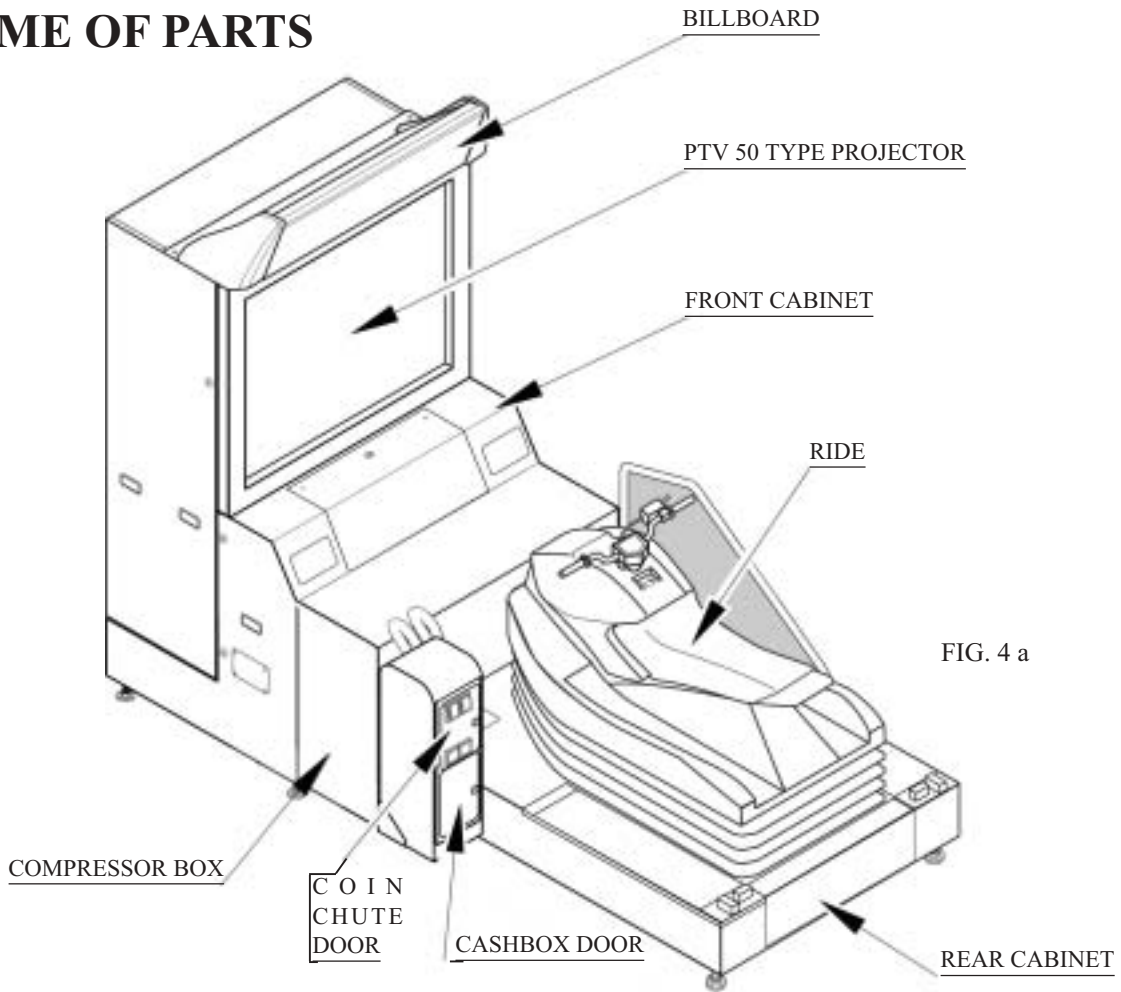


FIG. 4 a

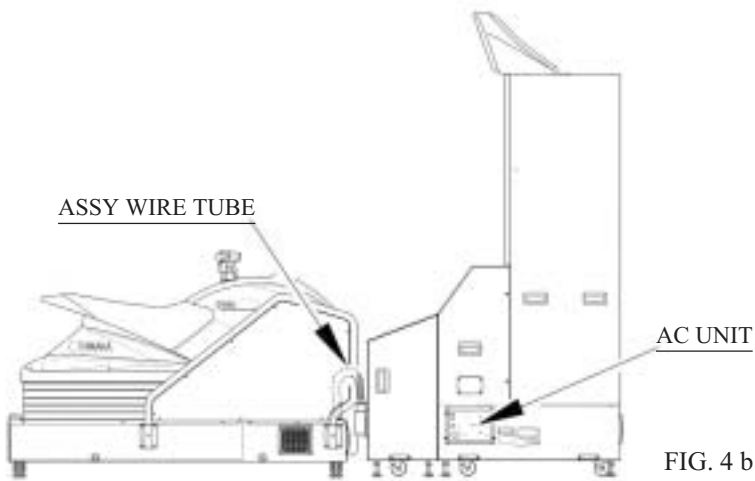


FIG. 4 b

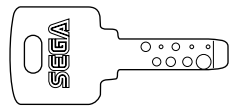
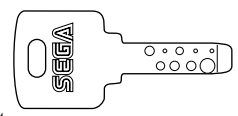
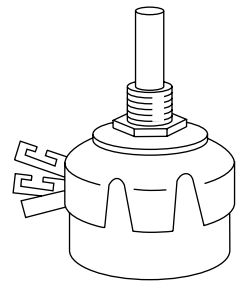
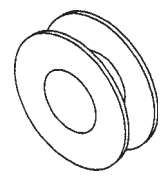
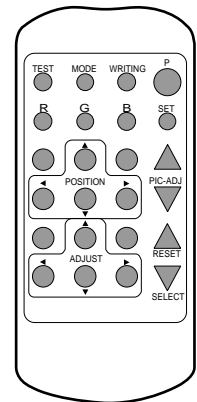
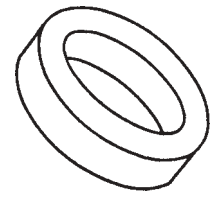
TABLE 4 Dimensions and Weights

Items	Width X Depth X Height	Weight
PTV	44.9in[1,140mm](W) X 9.98in[253.5mm](D) X 65.75in[1,670mm](H)	242-lbs[110kg]
BILLBOARD	45.4in[1,152mm](W) X 17.9in[454mm](D) X 11.7in[297mm](H)	33-lbs[15kg]
FRONT CABINET	45.3in[1,150mm](W) X 35.3in[896mm](D) X 39.6in[1,005mm](H)	215.6-lbs[98kg]
REAR CABINET	56.5in[1,435mm](W) X 65.6in[1,665mm](D) X 42.5in[1,080mm](H)	545.6-lbs[248kg]
COMPRESSOR BOX	43.9in[1,115mm](W) X 20.3in[514mm](D) X 30.5in[775mm](H)	156-lbs[71kg]

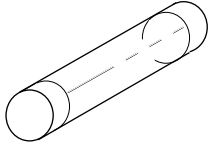
5. ACCESSORIES

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

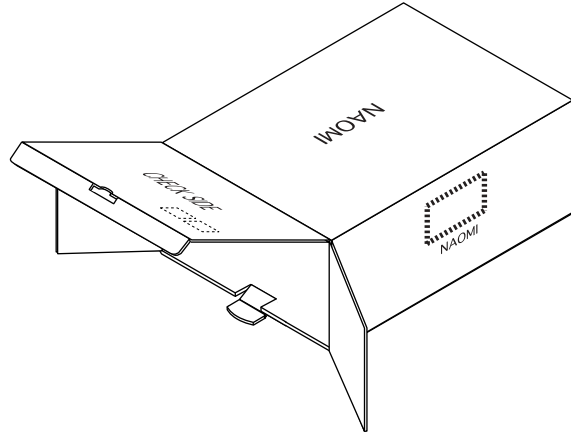
TABLE 5 a ACCESSORIES

<p>DESCRIPTION Part No. (Qty.) Note</p>	<p>OWNERS MANUAL 420-6659-01 (1)</p>	<p>KEY MASTER 220-5576 (2) For opening/closing the doors</p>	
<p>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 (2) For the CASHBOX DOOR The Keys are inside the Coin Chute Door at the time of shipment from the factory.</p>	
	<p>SERVICE MANUAL NAOMI ENG 420-6455-01 (1) INSTRUCTION MANUAL FOR THE GAME BOARD</p>	<p>VOL CONT B-5K OHM 220-5373 220-5484⁽²⁾ Spare, see Section 12.</p>	
	<p>SEAL TAPE 090-0037 (1) Used for the maintenance of Air Drive, for air leakage prevention.</p>		
			<p>Remote Controller used for adjustment of the projector. See Section 14. 200-5536(1) The Remote Controller is attached to the Projector at the time of shipment.</p>
	<p>AIR CLEANER 601-8188 (2) For spare, refer to Section 10.</p>		
			

FUSE 7A
514-5036-7000 (1)
Spare, see Section 17.



CARTON BOX
601-10532 (1)
Used for transporting the GameBoard.
See FIG 5.



HOW TO USE THE CARTON BOX



IMPORTANT!

When requesting for the replacement/repair of this product's Game Board (NAOMI BOARD), follow the instructions below. Transporting the Game Board in an undesignated status is unacceptable. An erroneous handling can cause parts damage.

- Put the Game Board in the Carton Box together with the Shield Case. Do not unnecessarily disassemble nor remove parts.
- By paying careful attention to the following Figure and the direction shown by on-Carton-Box printing, put the Shield Case in the Carton Box.
- When putting the Shield Case in the Carton Box, do not remove Leg Brackets.
- The projected portions of the packing material is intended for cushioning. Therefore, do not bend the projected portions.

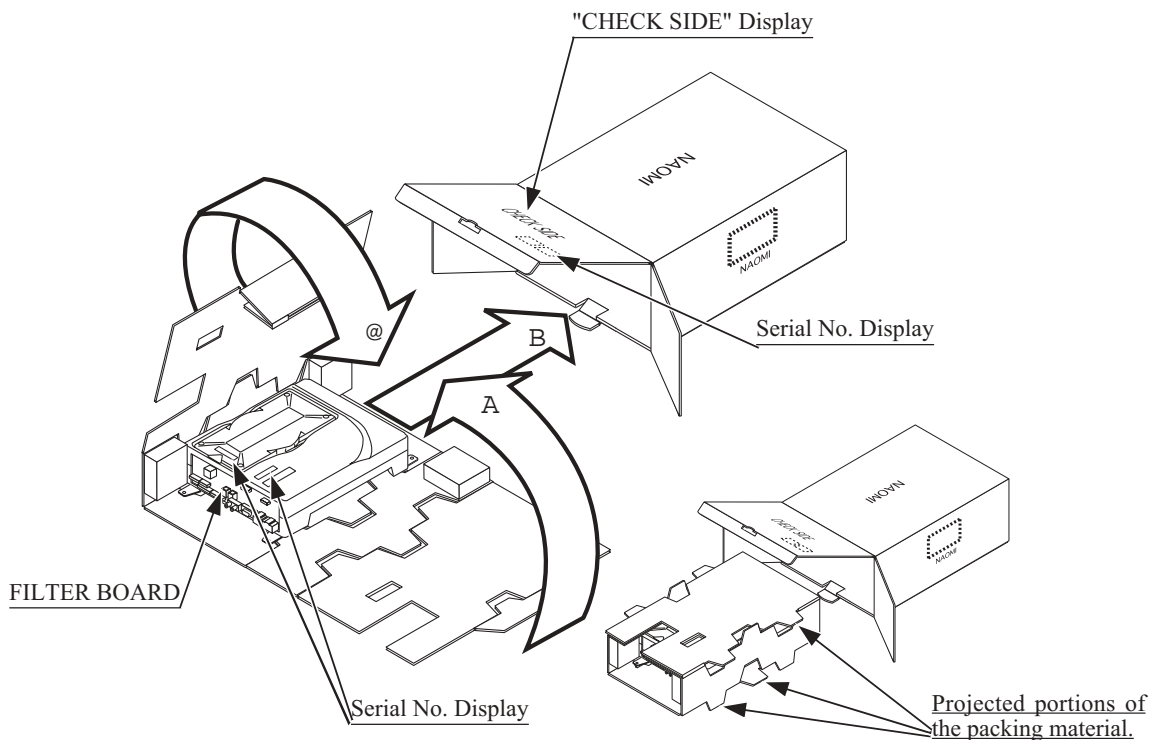
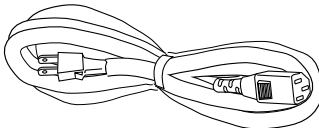
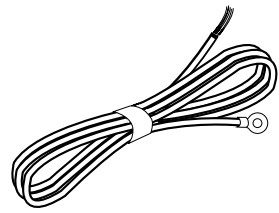
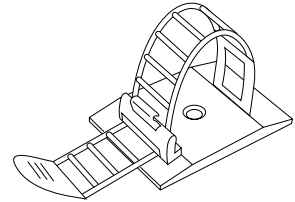


FIG. 5

Bend the packing material in numerical order, and wrap the Shield Case with the packing material and put it in the Carton Box as shown. Putting it upside down or packing otherwise in the manner not shown can damage the Game Board and the parts.


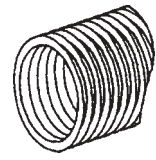
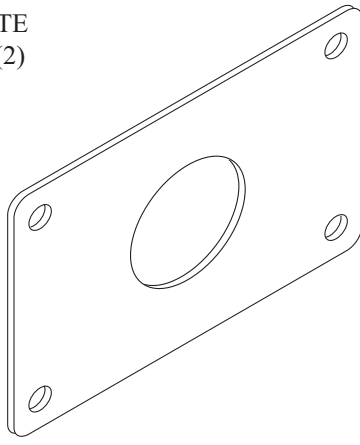
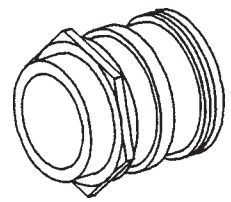
The following Table 5b lists the parts that had been separately packed when the product was shipped from the factory but are necessary when you use the product. These parts will be mounted on the product when installing and assembling it.

TABLE 5 b

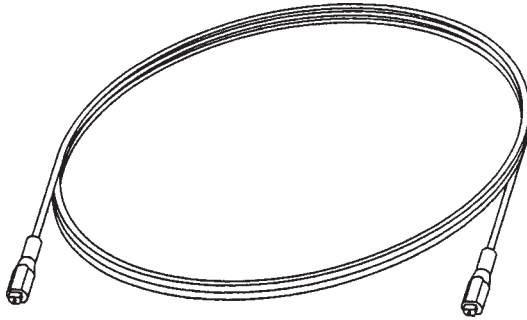
<p>AC Cable (Power Cord) 600-6729 } (1) <For TAIWAN> 600-7228 } 600-6695 (1) <For USA> 600-6619 (1) <AC 220V HONG KONG> 600-6618 (1) <AC 220 ~ 240V AREA> Used for installation, see 5 of Section 6.</p>	<p>WIRE HARN EARTH W/LUG M6 600-6664-02 (1) <For TAIWAN> Used for installation, see 5 of Section 6.</p>	<p>CORD CLAMP 280-5009-01 (1) Used for installation, see 5 of Section 6.</p>
		

The following Table 5c lists the parts that are necessary when setting for the communication play. Flex Tube, Connector 29 and Fiber Plate had been assembled when the product was shipped from the factory. (See Section 20.)

TABLE 5 c

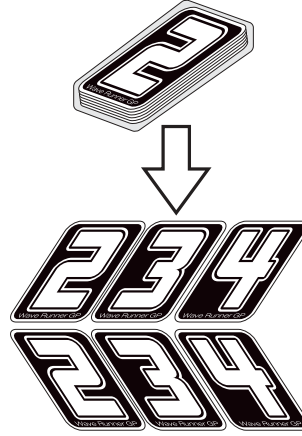
	<p>FLEX TUBE 310-5285-290100 (1)</p>
<p>Assembled Flex Tube</p>	
<p>FIBER PLATE WRG-0502 (2)</p>	<p>CONN 29 310-5286-29 (2)</p>
	

ASSY FIBER CABLE
600-6275-0700 (2)



NUMBER STICKER
WRG-0003 (1)

1 set of every two sheet sticker, the number 2, 3 and 4.



6. ASSEMBLING AND INSTALLATION



- Perform assembly work by following the procedure herein stated. Failing to comply with the instructions can cause electric shock hazard.
- Perform assembling as per this manual. Since this is a complex machine, erroneous assembling can cause an electric shock, machine damage and or not functioning as per specified performance.
- When assembling, be sure to use plural persons. Depending on the assembly work, there are some cases in which working by one person alone can cause personal injury or parts damage.
- Ensure that connectors are accurately connected. Incomplete connections can cause electric shock hazard.
- Be careful so as not to damage wirings. Damaged wiring can cause electric shock and short circuit hazards.
- Do not carelessly push the PTV. Pushing the PTV carelessly can cause the PTV to fall down.
- This work should be performed by the Location's Maintenance Man or Serviceman. Performing work by non-technical personnel can cause a severe accident such as electric shock. Failing to comply with this instruction can cause a severe accident such as electric shock to the player during operation.
- Provide sufficient space so that assembling can be performed. Performing work in places with narrow space or low ceiling may cause an accident and assembly work to be difficult.
- To perform work safely and avoid serious accident such as the cabinet's falling down, do not perform work in places where step-like grade differences, a ditch, or slope exist.

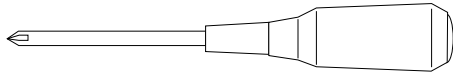


To perform work safely and securely, be sure to prepare a step which is in a secure and stable condition. Performing work without using the step can cause violent falling down accidents.

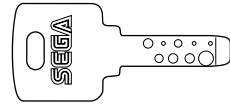
When carrying out the assembling and installation, follow the following 7-item sequence.

- 1 ASSEMBLING THE PTV
- 2 WIRING CONNECTIONS BETWEEN THE CABINETS
- 3 SECURING IN PLACE (ADJUSTER ADJUSTMENT)
- 4 REMOVING THE SHIPPING BRACKET
- 5 POWER SUPPLY, AND EARTH CONNECTION
- 6 TURNING POWER ON
- 7 ASSEMBLY CHECK

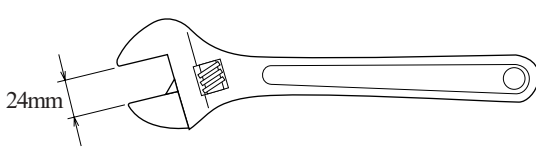
Tools required for the work



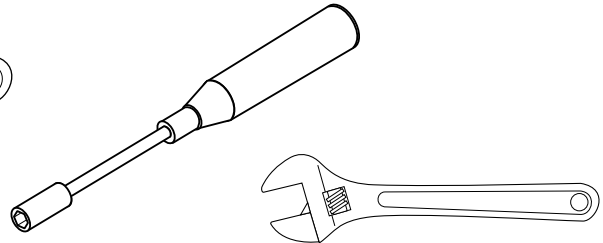
Phillips type screwdriver (for M4, M5 screw)



KEY MASTER



WRENCH (for M16 hexagon bolt)



Box nut screwdriver (for M4 hexagon nut) or WRENCH

1

ASSEMBLING THE PTV

- ① Fix the two mask holders onto the PTV top panel each with the 2 countersunk-head screws.
- ② Insert the TV mask from the underside as illustrated below, and secure with a total of 6 screws.
- ③ Fix two PTV holders onto the PTV front side each with the 2 screws.

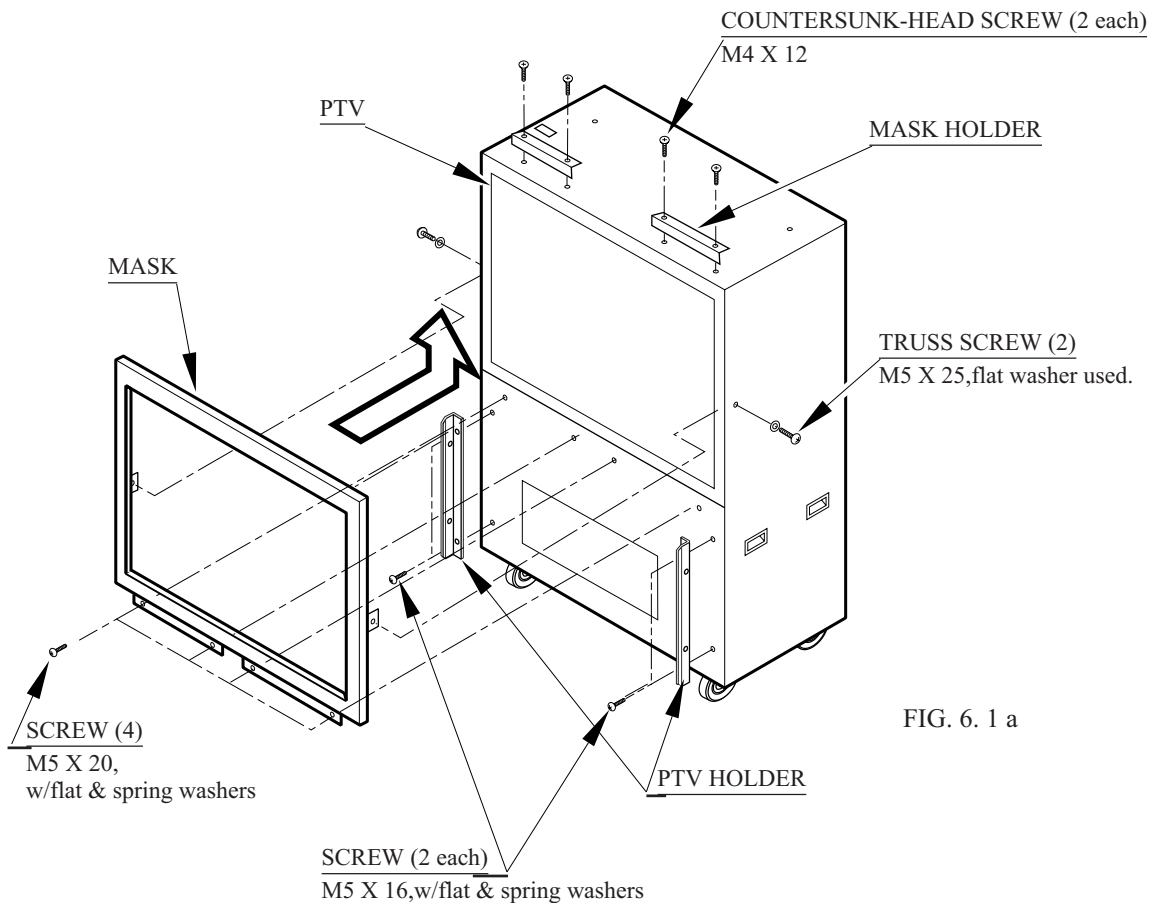


FIG. 6. 1 a

- ④ Mount the PTV onto the Front Cabinet. When performing this work, be sure to use 4 or more persons.

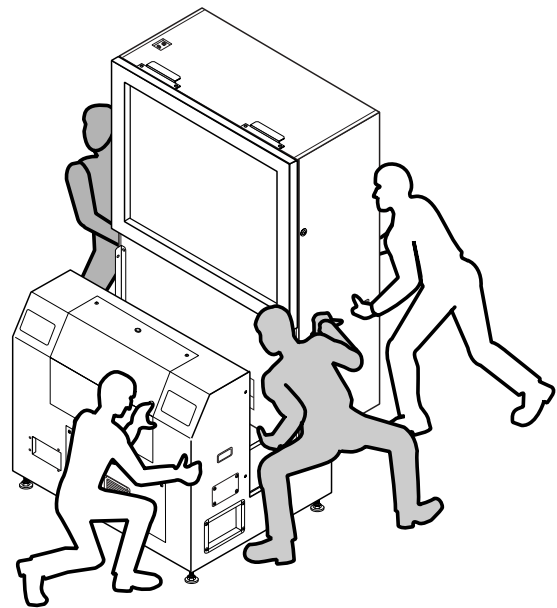


FIG. 6. 1 b

- ⑤ Fix between the PTV and the Front Cabinet on the Cabinet's both sides with 2 screws for each.
- ⑥ While supporting the Billboard by 2 persons, another person using a step is to connect the Billboard wire connector into the terminal board of the PTV top panel.

SCREW (2)
M5 X 16,w/flat & spring washers

Connect the Connector.

BILLBOARD

TRUSS SCREW (2 each)
M5 X 30,flat washer used.

FIG. 6. 1 d

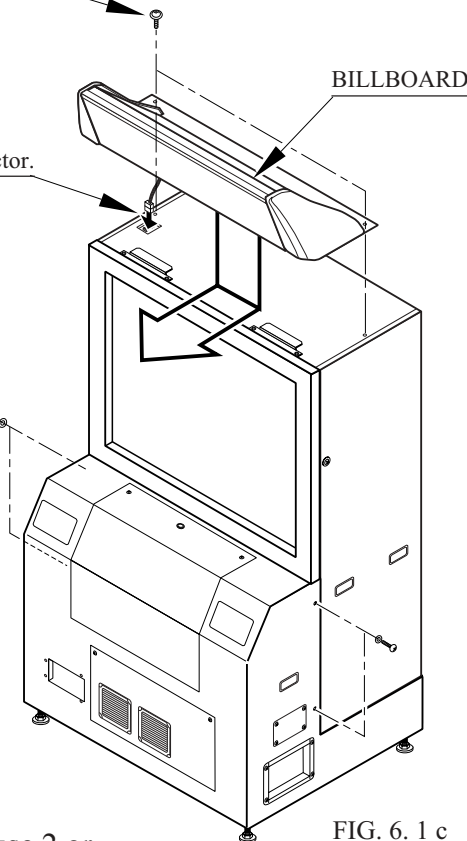
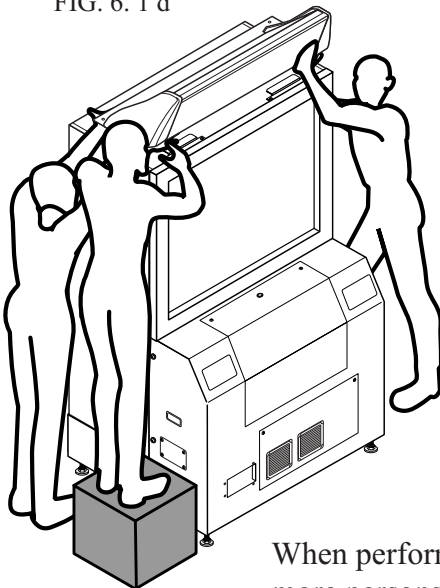


FIG. 6. 1 c

When performing this work, be sure to use 2 or more persons and be sure to use a step.

- ⑦ Insert the Billboard into the holder bracket, fix to PTV with the 2 screws.
- ⑧ Remove the 2 truss screws; dismount the lower lid form the Front Cabinet's face side.

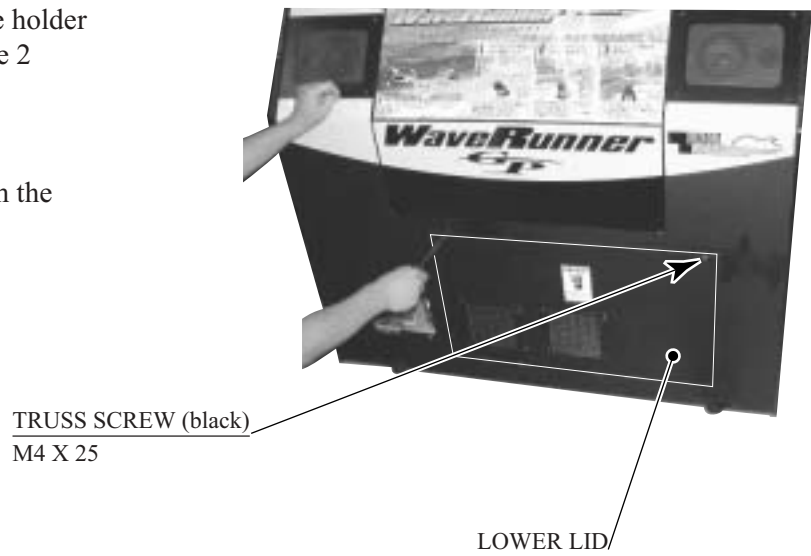


PHOTO 6. 1 a

- ⑨ Connect two wire-connectors inside the Front Cabinet into the PTV connector panel. The connection angle is fixed. Easy to fix them arranging the angle and the orientation of each connector. Be sure of the correct connection in order to prevent the damage of the connector or the terminal portion. There are fixed screws both sides of the Video signal (D-sub) connector. Fasten them securely.

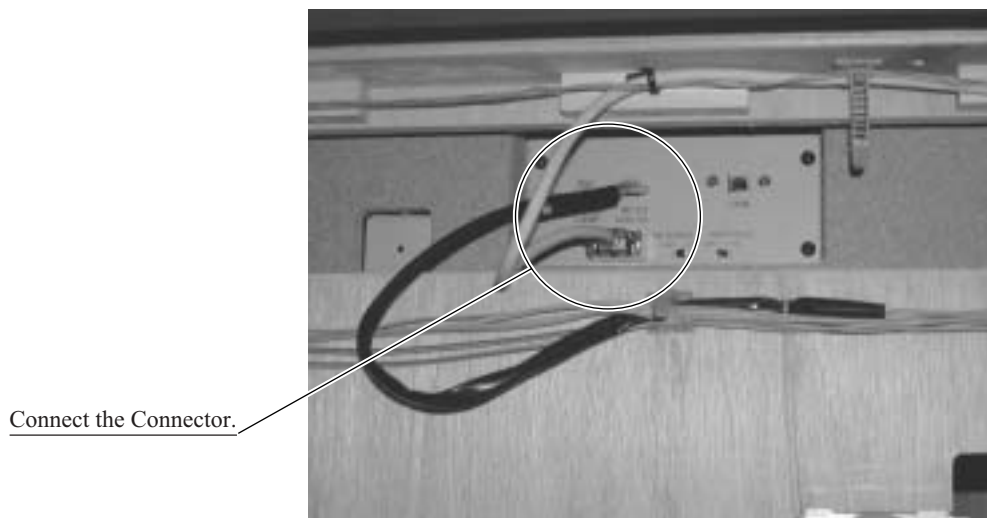


PHOTO 6. 1 b

2

WIRING CONNECTIONS BETWEEN THE CABINETS

Perform the cabinet-to-cabinet wiring. With the ASSY Wire Tube, which installed to the Rear Cabinet at the time of shipment, connect between the Front Cabinet and the Rear Cabinet.

- ① Remove the fixed 4 truss screws and remove the front cabinet side Tube Bracket of the ASSY Wire Tube from the Rear Cabinet.
- ② Reinstall the removed 4 truss screws into the Rear Cabinet.

TRUSS SCREW (4),black
M4 X 12



PHOTO 6. 2 a

- ③ There are one earth wire and a total of seven wire connectors in the front cabinet side of the ASSY Wire Tube. Connect the earth wire to the earth terminal stud on the Connector Panel of the Front Cabinet. Fasten with the hexagon nut in the order of the round earth terminal, the flat washer and the spring washer.
- ④ Connect the seven wire connectors to each terminal on the Connector Panel of the Front Cabinet.

HEXAGON NUT
M4,flat & spring washers used.

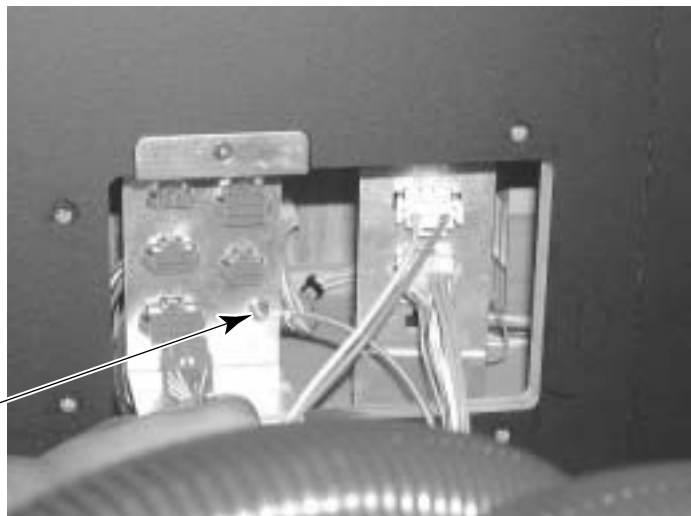


PHOTO 6. 2 b

- ⑤ Install the Tube Bracket to the Front Cabinet, and fix it with the 4 truss screws by using care so as not to damage the wiring.

TRUSS SCREW (4),black
M5 X 20

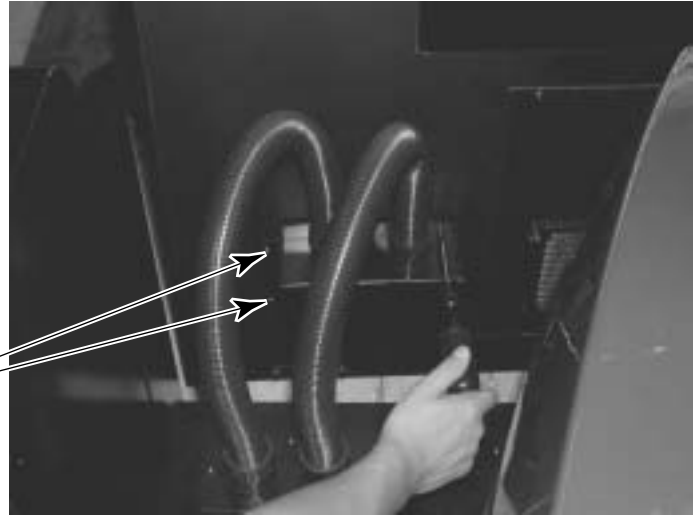


PHOTO 6. 2 c

3

SECURING IN PLACE (ADJUSTER ADJUSTMENT)



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

This product has 8 casters (4 for FRONT CABINET, 4 for REAR CABINET) and 8 Adjusters (4 for FRONT CABINET, 4 for REAR CABINET). (FIG. 6. 3a) 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 Transport the product to the installation position. Be sure to provide adequate space allowing the player to get on and off.
- ② Have all of the Adjusters make contact with the floor. Adjust the Adjuster's height by using a wrench so that the machine position is kept level.
- ③ After making adjustment, fasten the Adjuster Nut upward and secure the height of Adjuster (FIG. 6. 3 b).

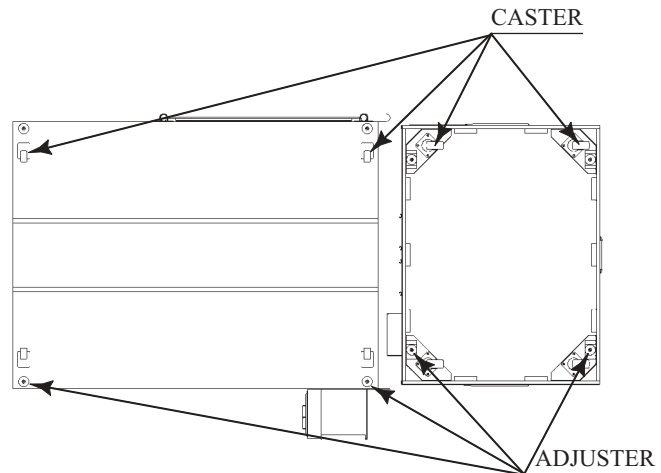


FIG. 6. 3 a BOTTOM VIEW

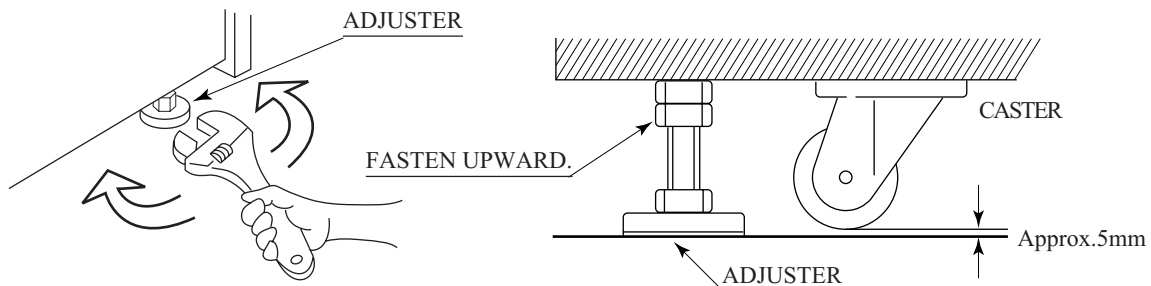


FIG. 6. 3 b ADJUSTER

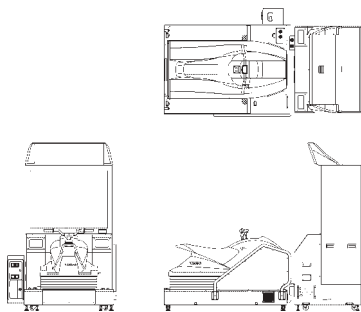


FIG. 6. 3 c

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

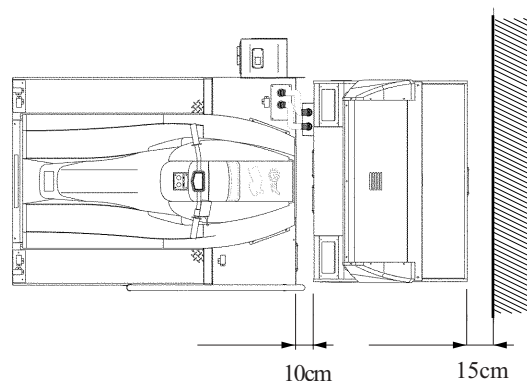


FIG. 6. 3 d

Be sure to provide space as shown between the Air Vent and the wall surface.

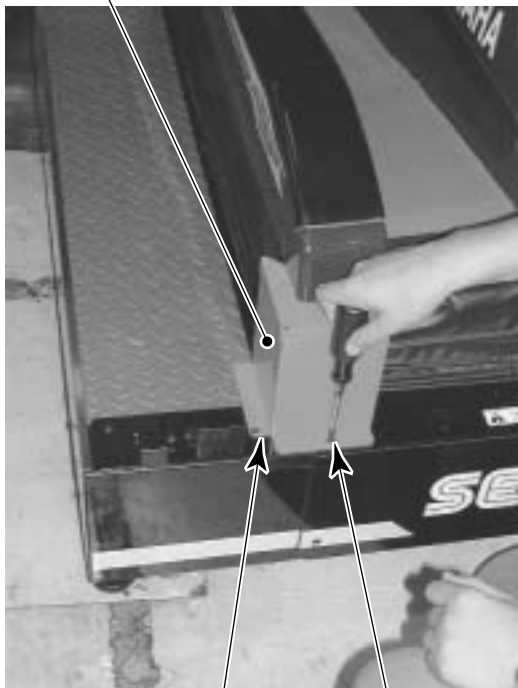
4

REMOVING THE SHIPPING BRACKET

- Before turning the power on, be sure to remove the Shipping Brackets. Turning power on without removing the Shipping Brackets may cause the parts damage.
- Keep the Shipping Brackets carefully. Removing the product without the Shipping Brackets can cause parts damage.

At the time of shipment, the Shipping Brackets are secured to rear both sides of the Ride. By taking out 2 screws from each bracket, remove the Shipping Brackets. Reinstall the removing screws as before.

SHIPPING BRACKET L (OPPOSITE SIDE: R)



TRUSS SCREW (1)
M4 X 8

TRUSS SCREW (1)
M4 X 12

PHOTO 6. 4



- 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 electric leakage occurs.
- Ensure that the "accurately grounded indoor earth terminal" and the earth wire cable are available (except in the case where a power cord plug with earth is used). 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 electric shock and short circuit accidents. Ensure that the wiring position is not in the customer's passage way or the wiring has protective covering.
- After wiring power cord on the floor, be sure to protect the power cord. Exposed power cord is susceptible to damage and causes an electric shock accident.

The AC Unit is mounted on the right side of the machine. The AC Unit has Main SW, Circuit Protector, Earth Terminal and the Inlet which connects the Power Cord.

- ① Ensure that the Main SW is OFF.

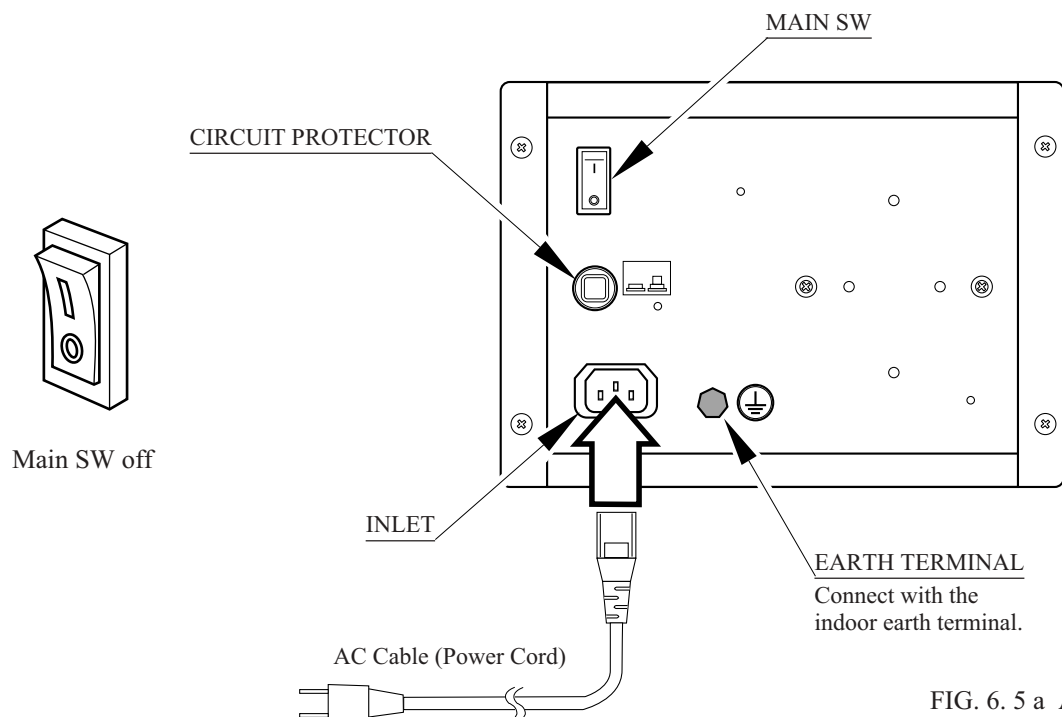


FIG. 6. 5 a AC UNIT

- 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 end of earth wire through the Bolt, and fasten the Nut.
- ③ 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.

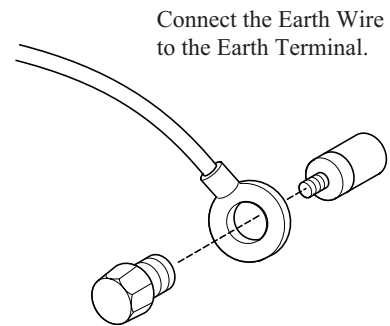


FIG. 6. 5 b Earth Wire Connection

- ④ Firmly insert the power plug into the socket outlet. Insert the opposite side of Power Cord plug to the AC Unit's connector ("INLET").
- ⑤ Perform wiring for the Power Cord and Earth Wire. Install protective covering for the Power Cord and Earth Wire.

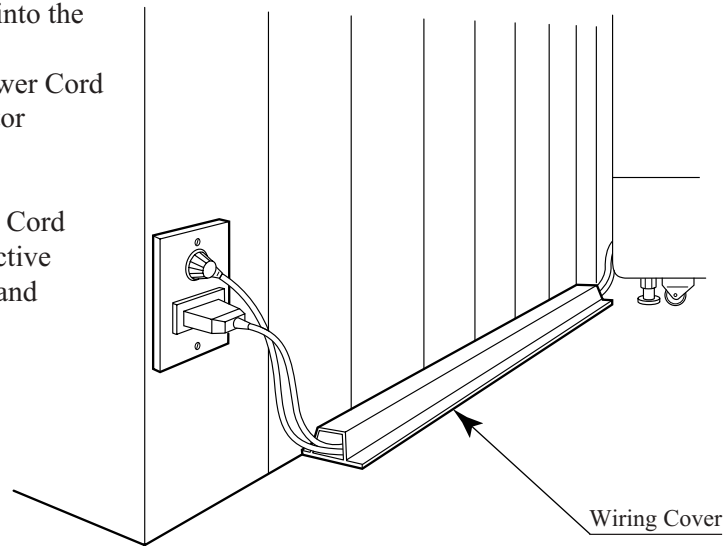
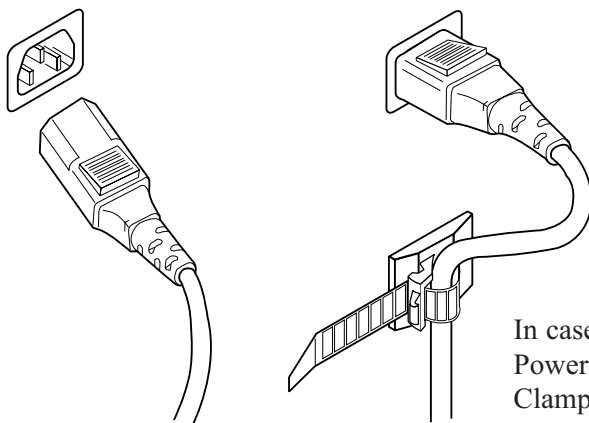


FIG. 6. 5 c Connecting Power Cord and Earth Wire



In case the Power Plug is apt to come out of place, secure the Power Cord to the periphery of the AC Unit with the Cord Clamp (an accessory).

HOW TO USE THE CORD CLAMP

6

TURNING POWER ON



- When the power is turned on, the ride portion moves. To prevent injury, first check for safety in the periphery of the ride and then turn power on.
- If ERROR is displayed in the ADVERTISE mode, do not operate the machine. Operating the machine when ERROR is displayed can cause serious hazard.



During initialization settings, do not touch the ride portion. Wait until the initialization settings are automatically finished. Touching the ride portion during setting can cause inaccurate settings and unsatisfactory functioning during game play.

Turn the AC Unit Main SW ON to turn on the machine's power supply. At the same time the power is turned on for the power supply, the machine starts the initialization setting movements and displays the screen on which the setting is being made. Do not touch the Ride until the initialization setting movements are automatically finished.

- ① Approximately 5 seconds after the power is turned on, the compressor starts to operate. If the pressure inside the tank is insufficient, it takes several minutes to attain the preset pressure. At the time of installation assembly, it takes approximately 3 minutes. When operation is being continued, it takes approximately one and half minutes due to the prestress.
- ② The ride portion secures the left/right inclination to the center.
- ③ The front of the ride portion lowers.
- ④ The front of the ride portion is raised.
- ⑤ The front of the ride portion moves to the intermediate position in the up/down movement.
- ⑥ The front of the ride portion lowers.
- ⑦ The compressor stops.

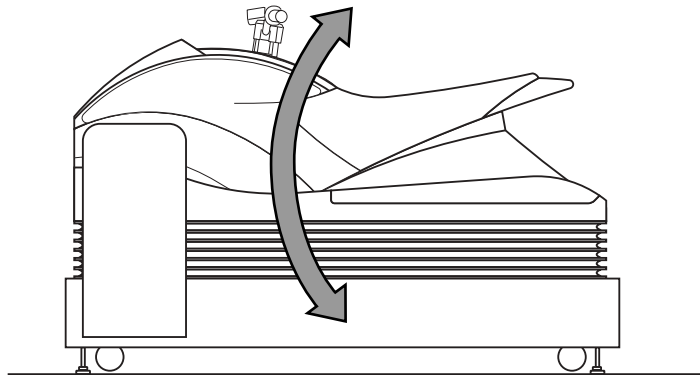


FIG. 6. 6

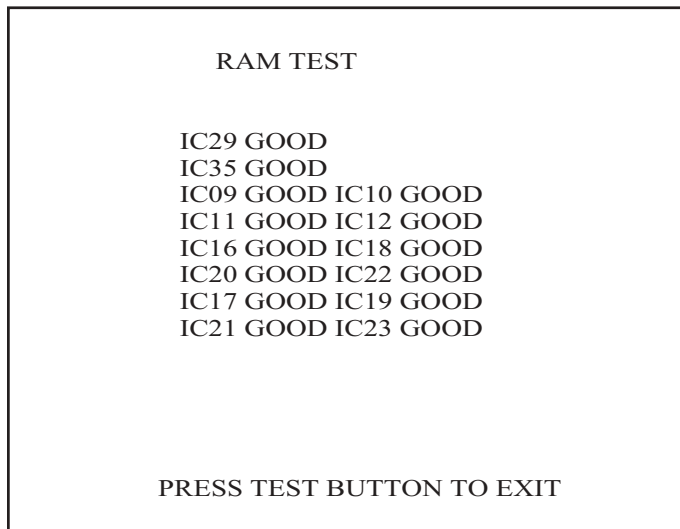
After finishing the initialization setting movements, the ADVERTISE mode returns. During the setting movements, if any irregularity, malfunctioning, etc. of the moving mechanism are found, ERROR display is shown on the lower part of the ADVERTISE mode screen. In this case, the machine will not operate satisfactorily. Please contact the Distributor, etc. where this product was purchased from. In the case where several machines are connected, network check is performed after initialization settings are finished, and the screen displays to the effect that the check is being conducted. After checking, the ADVERTISE mode returns. Normally the network checking takes 1 ~ 3 minutes. If there is any irregularity in the communication connection, check screen display will continue.

7 ASSEMBLY CHECK

In the TEST MODE, ascertain that the assembly has been made correctly and IC BD is satisfactory (refer to Section 9).

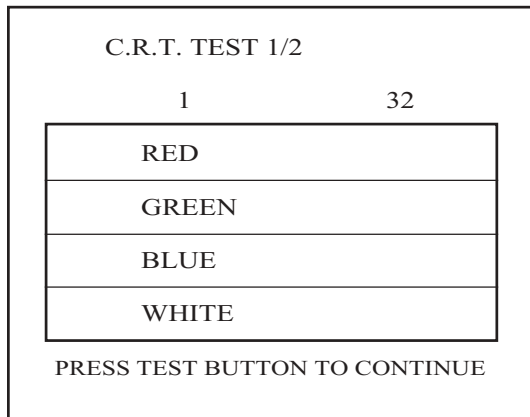
In the test mode, perform the following test:

(1) MEMORY TEST

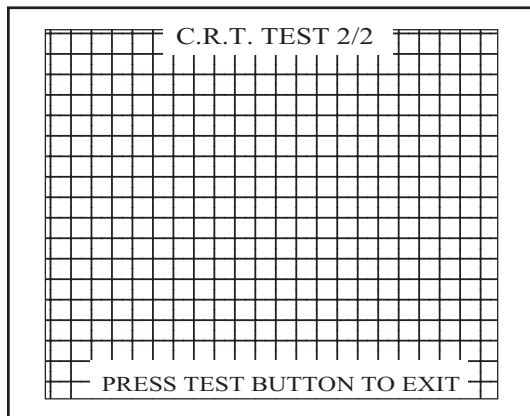


Selecting the RAM TEST in the test mode menu causes the on-board memory to be tested automatically. The game board is satisfactory if the display beside each IC No. shows GOOD.

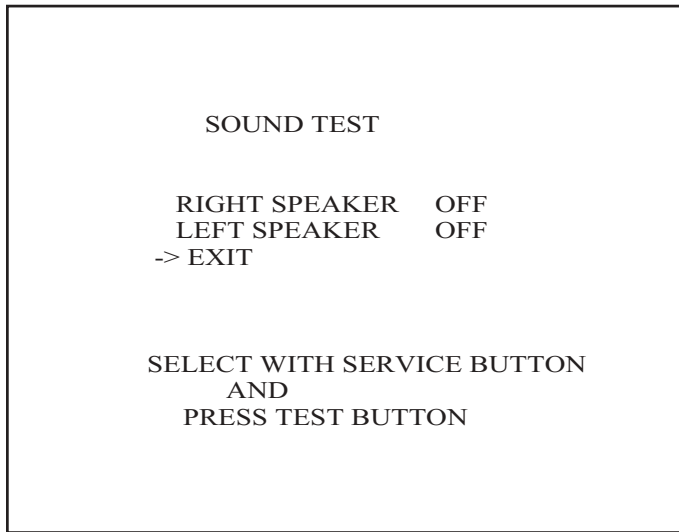
(2) C.R.T. TEST



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 14.



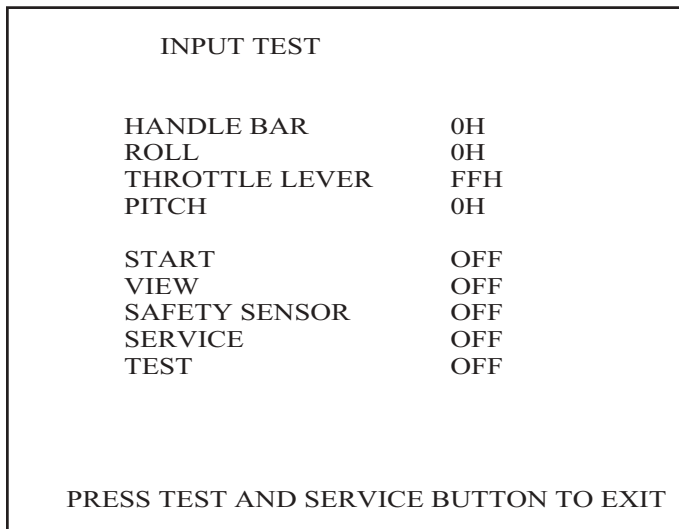
(3) SOUND TEST



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.

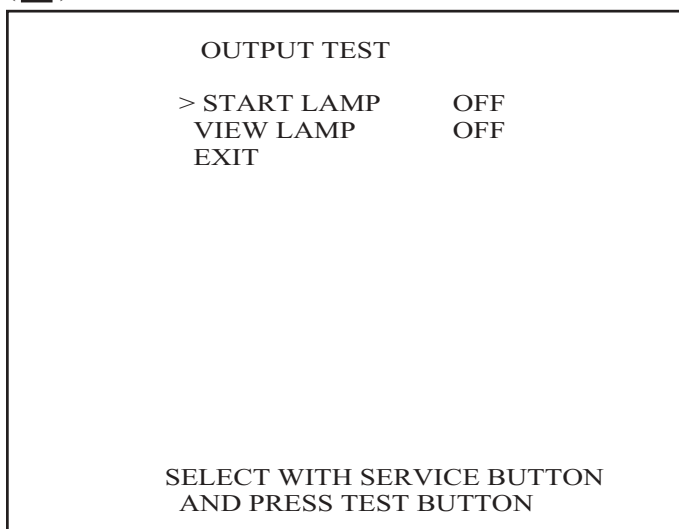
(4) INPUT TEST



Selecting the INPUT TEST on the test mode menu screen causes the screen (on which each switch and V. R. are tested) to be displayed. Press each switch. If the display beside each switch indicates "ON," the switch and wiring connections are satisfactory.

Check the display of each V.R. value. If the V. R. is malfunctioning, refer to Sections 11 & 12.

(5) OUTPUT TEST



In the output test mode, carry out lamp test to ascertain that each lamp lights up satisfactorily.

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

7. PRECAUTIONS TO BE HEEDED WHEN MOVING THE MACHINE



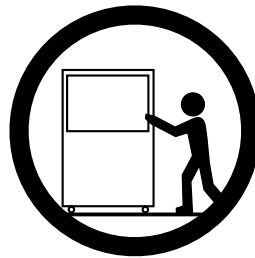
WARNING!

- 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 cause the power cord to be damaged, resulting in a fire and or electric shock.
- When moving the machine on the floor, retract the Adjusters and ensure that 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 etc. In case the floor has slanted surfaces or step-like differences, be sure to move the machine by 2 or more persons.



CAUTION!

Keep the Sipping Brackets carefully. Removing the product without the Sipping Brackets can cause parts damage.



Do not push PTV from the back. Pushing the PTV from the back can cause the PTV to fall down. Push it from the side.

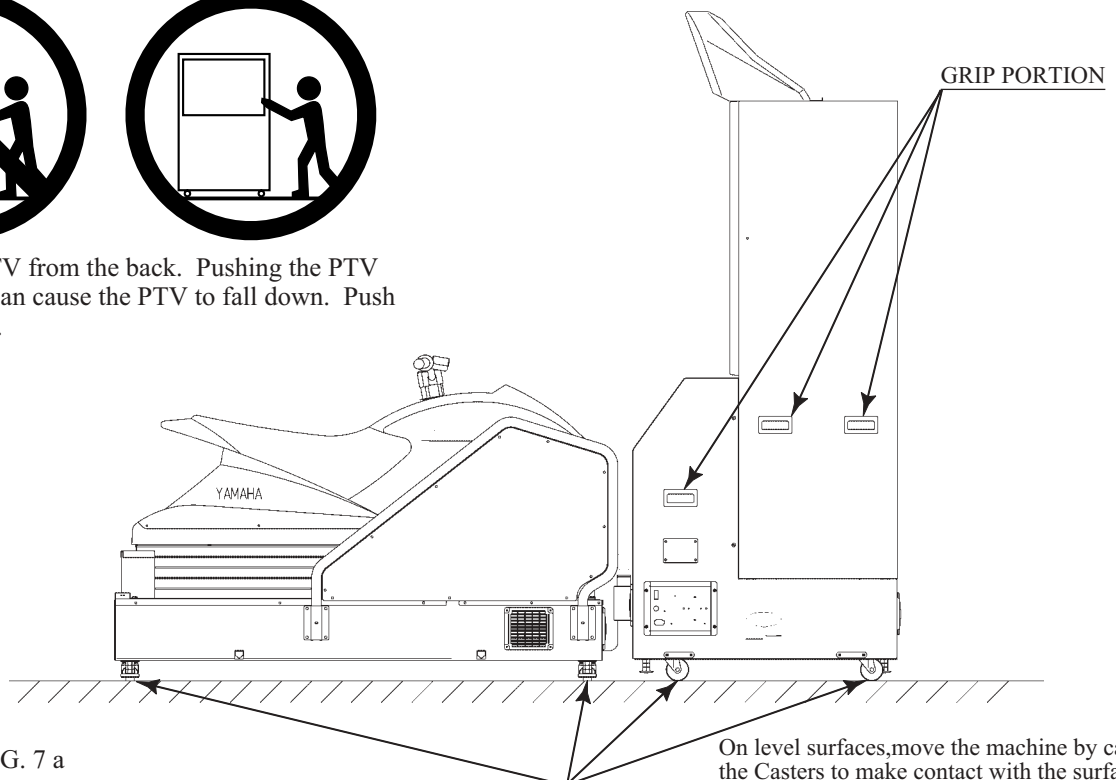


FIG. 7 a

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

When transporting the product in places with steps or step-like differences in grade, disassemble into each unit before transporting.

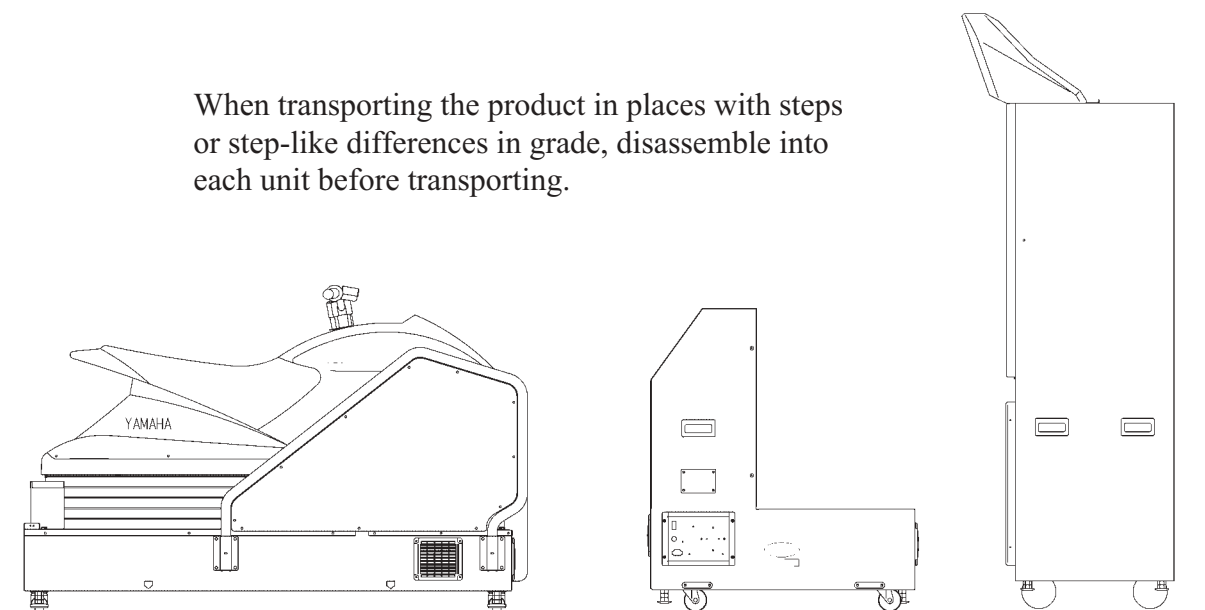


FIG. 7 b

8. CONTENTS OF GAME

The following explanations apply to the case the product is functioning satisfactory. 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 therefore to ensure satisfactory operation.

System Behavior in Advertising (Plying-for-Hire) Mode

While the power is connected to the system, the fluorescent light on the billboard is kept on. In an advertising mode, the system opens an operation explanation screen or a ranking data screen. The view button flashes when the screen explains how to operate the view button. Located on the left and right ends of the cabinet, the speakers output audio information. You may set the ADVERTISE SOUND item to OFF on the GAME ASSIGNMENTS screen so that this audio output function is disabled in an advertising mode. The start button flashes when the screen displays the PRESS START BUTTON message. This PRESS START BUTTON message appears in two cases; when the credit reaches a game-startable level in an advertising mode and shortly after opening the operation explanation screen.

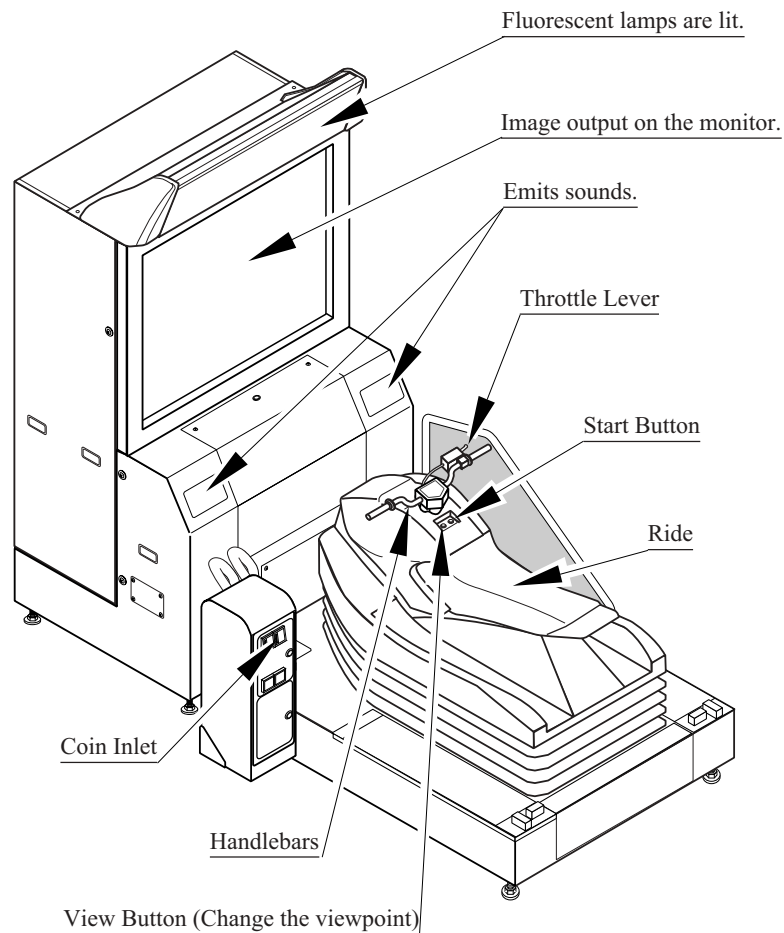


FIG. 8 a External View of the Cabinet

Features of the WaveRunner GP

It provides several marine scenes where a cruising course appearance varies from play to play. The WaveRunner GP game features:

- **Effects of Stern Wave**
A stern wave is the wave produced on the wake of a boat. If your boat runs on the stern waves produced by another boat, it may jump unexpectedly, reduce its speed, or meet any other navigating difficulty. You must prevent your boat from running on the stern waves and navigate it with attention to where and how other boats are moving.
- **Water-Level-Depending Jumps**
A large jump (or a group of small jumps) may appear on the course when a water level is lower (or higher). The jump that was submerged on your first round cruise may be above the water on your second round cruise. Therefore, you must navigate your boat differently and/or change a cruising path, from cruise to cruise, so that you can use an approaching jump.

How to Play

- Insert the coin(s).
- Make sure that the screen shows the PRESS START BUTTON message and that the start button flashes, and then climb onto the seat.
- Press the start button, and make sure that the operation explanation screen appears. (See the note 1 below.)
- Wait until the time is counted down to 0 (zero) on the operation explanation screen or alternately press the start button to exit the screen. In either case the COURSE SELECT screen appears.

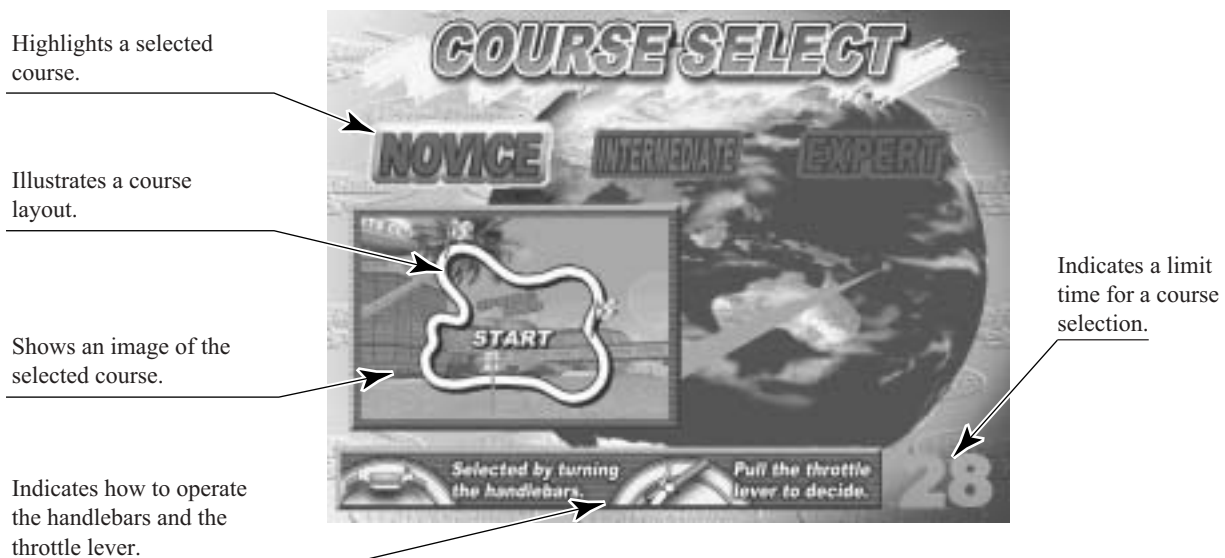
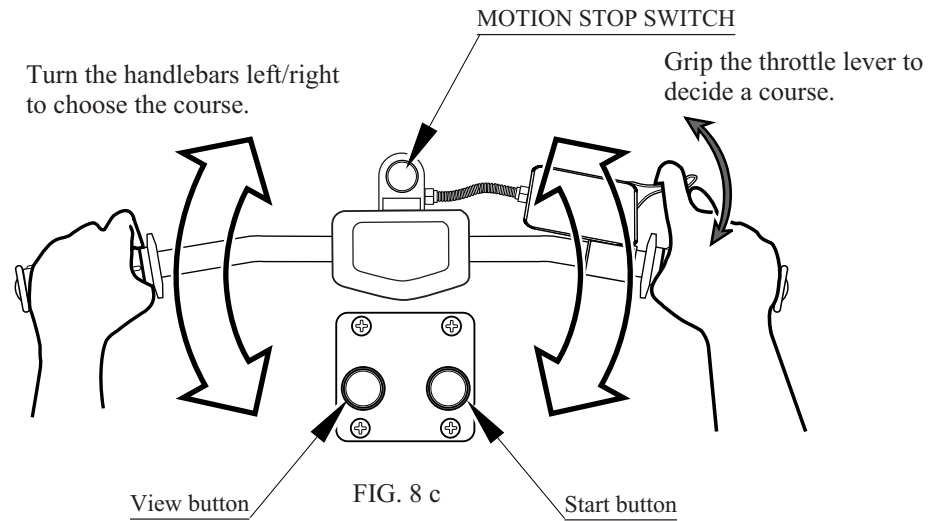


FIG. 8 b

- The system provides three courses: NOVICE, INTERMEDIATE, and EXPERT. These are displayed on the upper part of the screen. The selected course is highlighted. To migrate from one course to another, turn the handlebars leftwards or rightwards. To decide a course, squeeze the throttle lever. (See the note 2 below.)



- Wait until the time is counted down to 0 (zero) on the screen, and then the game starts. (See the note 3 below.)
- Make sure that the boat starts to move at this moment.
- The screen shows some information; your ranking position among the players (on its upper right part), a limit time (upper middle), your lap time, best lap time record, and best total time record (upper left), a tachometer and a speed meter (bottom right), and a speed-down gauge (bottom left). The speed-down gauge indicates a reduction of the cruising speed as a result of your boat running on the stern waves. It is dimmed when your boat is not running on the stern waves.



- When your boat runs on the stern waves, the speed-down gauge is undimmed and its triangle becomes filled with shade. If you keep your boat running on the stern waves, the triangle is shaded more and more. When the triangle is fully shaded, a warning message "Get out of the wake!" appears on the screen. If you make your boat off the stern waves at this moment, the speed-down gauge is again dimmed. If not, it is initialized to 0 (zero) and becomes filled with shade again.

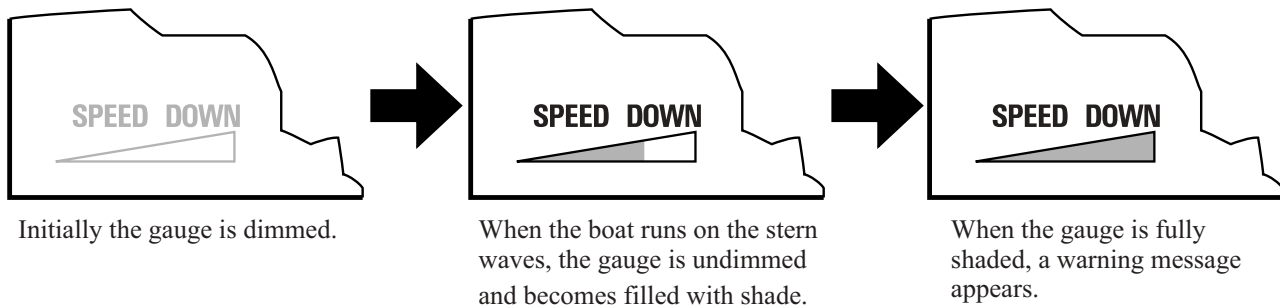


FIG 8 e

- When the game starts, the system starts counting down the limit time. If you successfully pass a checkpoint on the course within the limit time, the bonus time is added to the remaining time. If not, the game is over. (See the note 4 below.)
- For any course of NOVICE, INTERMEDIATE, or EXPERT. When you have successfully cruised around it two times, you reach the goal and the game is over. (See the note 5 below.)
- To navigate the boat while playing the game, use the throttle lever and the handlebars, and tilt up the boat by shifting your body. To increase a cruising speed, squeeze the throttle lever while to decrease un-squeeze. To turn the boat leftwards and rightwards, turn the handlebars leftwards and rightwards respectively. To quickly turn the boat, turn the handlebars and then tilt up the boat to a turning direction of the handlebars. Note that just tilting up the boat without turning the handlebars does not enable to turn the boat. Press the view button to toggle a view-point between a navigator's point and a rearward point.
- When reaching the goal, you can register your name if your lap time is good. Your registered name will be on a screen's ranking list in an advertising mode.

NOTES:

- 1) For an interactive communication play. Insert the one-play worth of coin(s) on the operation explanation screen and press the start button to enter the race. The system opens the entry screen where you wait until an opposition will enter the race by also inserting the one-play worth of coin(s) and pressing the start button. The entry screen closes and the operation explanation screen opens automatically, when a limit time is counted down to 0 (zero).
- 2) For an interactive communication play. When every player, after entering the race, has finished selecting a course, the racing course is decided by majority. In case of a tie, the course with a lower difficulty level is chosen.
- 3) Alternately, you can press the start button to decide a course.
- 4) For an interactive communication play. The bonus time is added to the remaining time when a leading player passes a checkpoint. The place of a player is indicated as 'place/the number of players' (e.g. 2/4 for a 4-player race, 1/2 for 2-player race). A player number, as 1P and 2P, is shown above the head of a playing character on the screen.
- 5) You cannot change the number of rounding cruises.

Outline of the Courses

Three cruising courses are provided as below. Note that they are different from each other not only in the difficulty level but also in the appearance and device.

- Novice Course

This course gives the image of a tropical island against a blue sky where the hot sun grills white beaches. Generally, this novice course curves very gently.

There are three checkpoints including a starting point.

When your boat approaches a palm tree, the coconuts will fall down on your cruising path.

Three dolphins may appear on the way and accompany your boat.

The key part for reaching the goal is located at the end of the course that is sharply curved and enclosed with the cliffs.

- Intermediate Course

This course gives the image of a thick rainforest with mysterious remains. Generally, this intermediate course is a very narrow river with rather many curves.

There are four checkpoints including a starting point.

The highlight of this course is a jump from the 50-meter giant waterfall.

In the mangrove woodlands, tall mangroves block your boat. You must be careful not to let it hit against them.

Big snakes and giant fishes produce an atmosphere of rainforest.

The key parts for reaching the goal are the curves located short of the giant waterfall, in the mangrove woodlands, and in the cave at the end of the course. You must navigate your boat with careful attention to these curved spots.

- Expert Course

This course gives the image of a waterfront where the surrounding skyscrapers are blazing in the evening darkness. This expert course features several combinations of a straight path and a sharp curve.

There are four checkpoints including a starting point.

All the scenes (the likes of the Brooklyn Bridge, the Statue of Liberty, and the Broadway with loud neon signs and large illumination bulletin boards) produce an atmosphere of big city.

The key part for reaching the goal is the sharp curves located immediately after the straight paths.

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.

NAOMI GAME BOARD is used for the product. The system of this game board allows another game to be played by replacing the ROM Board Case mounted on the NAOMI CASE. As such, the Test Mode of this system consists of the System Test Mode for the system to execute SELF-TEST, COIN ASSIGNMENTS, etc. used in common for the machines employing the NAOMI BOARD, and the Game Test Mode for the specific product to execute Input/Output test for the operation equipment, difficulty setting, etc.



IMPORTANT!

When the 2 or more machines are linked for communication play, be careful to enter the TEST mode. If one of the machines linked enters the TEST mode, all others display the NETWORK CHECK screen.

TABLE 10 EXPLANATION OF TEST MODE

ITEMS	DESCRIPTION	REFERENCE SECTIONS
INSTALLATION OF MACHINE	<p>When the machine is installed, perform the following:</p> <ol style="list-style-type: none"> 1. Check to see that each setting is as per standard setting made at the time of shipment. 2. In the INPUT TEST mode, check such input devices as each SW, V.R., etc. 3. In the OUTPUT TEST mode, check such output devices as lamps, motors, etc. 4. In the self-test mode, check ICs on the IC Board. 	<p>SERVICE MANUAL 9-3d</p> <p>9-3b</p> <p>9-3c</p> <p>SERVICE MANUAL</p>
MEMORY	<p>Choose the board test item in the MENU mode to allow the self-test to be performed. In this test, PROGRAM RAMs, ROMs, and ICs on the IC Board are checked.</p>	<p>SERVICE MANUAL</p>
PERIODIC SERVICING	<p>Periodically perform the following:</p> <ol style="list-style-type: none"> 1. Self-Test 2. Ascertain each setting. 3. In the INPUT TEST mode, test the control device. 4. In the OUTPUT TEST mode, check such output devices as lamps, motors, etc. 	<p>SERVICE MANUAL 9-3d, e</p> <p>9-3b</p> <p>9-3c</p>
CONTROL SYSTEM	<ol style="list-style-type: none"> 1. In the INPUT TEST mode, check such input devices as each SW, V.R., etc. 2. Adjust or replace each SW and VR. 3. If the problem can not be solved yet, check the control's moves. 	<p>SERVICE MANUAL</p> <p>9-3e</p> <p>11,12</p>
MONITOR	<p>In the MONITOR ADJUSTMENT mode, check to see if the PROJECTOR adjustment is appropriately made.</p>	<p>SERVICE MANUAL 14</p>
IC BOARD	<ol style="list-style-type: none"> 1. Self-Test 2. In the SOUND TEST mode, check the sound related ROMs. 	<p>SERVICE MANUAL SERVICE MANUAL</p>
DATA CHECK	<p>Check such data as game play time and histogram to adjust the difficulty level, etc.</p>	<p>SERVICE MANUAL 9-3h</p>

9 - 1 SWITCH UNIT AND COIN METER



WARNING!

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



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.

SWITCH UNIT

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

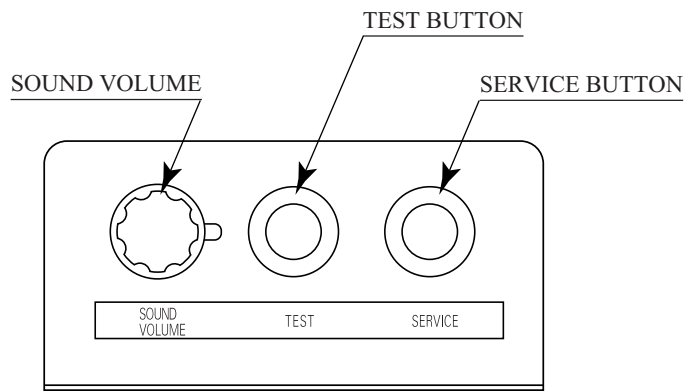


FIG. 9. 1 a SWITCH UNIT

- TEST BUTTON** (TEST) : For the handling of the test button, refer to the following pages.
- SERVICE BUTTON** (SERVICE) : Gives credits without registering on the coin meter.
- SOUND VOLUME** (SOUND VOLUME) : Adjust the Speaker Volume.

COIN METER

Open the Cashbox Door with the exclusively used key and the COIN METER will appear underneath the Cashbox.

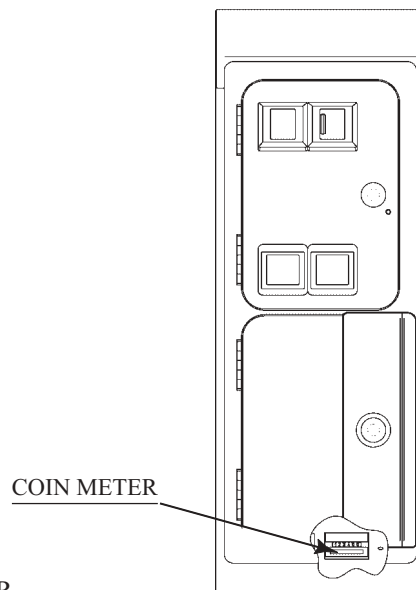


FIG. 9. 1 b COIN METER



IMPORTANT!

- The contents of settings changed in the TEST mode are stored when the test mode is finished from EXIT in the menu mode. If the power is turned off before the TEST mode is finished, the contents of setting change become ineffective.
- Executing "BACKUP DATA CLEAR" in the SYSTEM TEST MODE does not clear the BOOKKEEPING data in the GAME TEST mode.
- Entering the TEST mode clears fractional number of coins less than one credit and BONUS ADDER data.
- Perform setting as per specified in this manual for operation. If setting not specified is performed for operation, proper function of this product may not be obtained.

In the SYSTEM TEST MODE, IC BD functioning can be checked, the monitor adjusted, and the coin setting performed.

Refer to NAOMI SERVICE MANUAL for the details. Note that the setting of the following items need to be performed in accordance with the instruction given.

- CABINET TYPE: 1PLAYER(S)
- MONITOR TYPE: HORIZONTAL
- SERVICE TYPE: COMMON
- COIN CHUTE TYPE: COMMON

The SEQUENCE SETTING items of COIN ASSIGNMENTS are as follows.

- SEQUENCE SETTING
 - SEQUENCE 1: Number of credits required for starting the game.
 - SEQUENCE 2: Number of credits required for continuing the play.
 - SEQUENCE 3 ~ 8: NOT USED

9 - 3 GAME TEST MODE



CAUTION!

As soon as it enters the Game Test mode, the Ride starts moving. Before entering the Game Test Mode, be sure to keep away a person(s) from the Ride. Since the Ride moves momentarily, it may cause accidents.

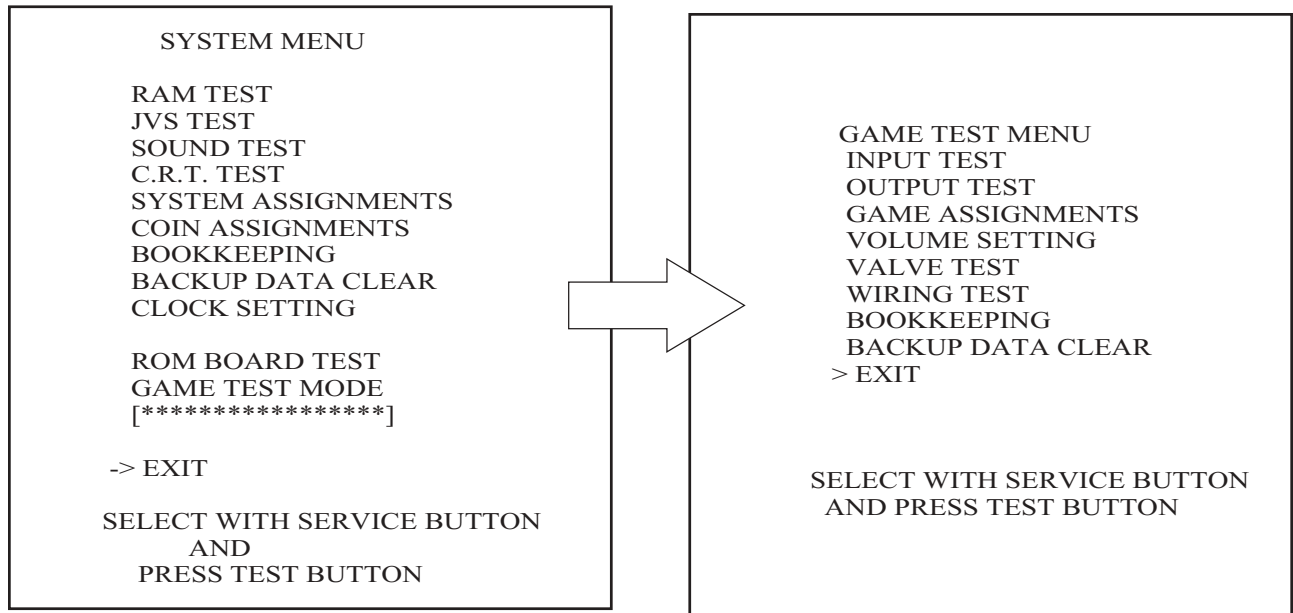


IMPORTANT!

- The new settings will not take effect until the Game Test Mode is exited. When you make change to the settings, exit the Game Test Mode by proper operation.
- You must not attempt to demonstrate this game (for the selling purpose) with any other settings other than those specified in this document. Use of such settings may cause malfunctions or bad operation on the machine.

GAME TEST MENU

By selecting GAME TEST MODE from the System Test Menu Screen, the Game Test Mode Menu Screen is displayed as follows.



System Test Menu Screen

FIG. 9. 3 a Game Test Menu Screen

- Press the TEST Button to cause the following Test Menu to be displayed on the monitor.
- Press the SERVICE Button until the pointer ">" is moved to the desired item to make a selection.
- Bring the pointer ">" to the desired item and press the TEST Button to enter the selected item's test.
- In the Test mode, the Start button instead of Test button and the View button instead of Service button can be used. These, however, can not be used in the INPUT TEST.
- After the test is complete, move ">" to "EXIT" and press the TEST Button to return to the System Test Menu Screen.

INPUT TEST

When INPUT TEST is selected, the following screen appears on the monitor. The screen allows the status of each SW and the value of each V.R. of the cabinet to be viewed. On this screen, periodically check the status of each switch & V.R.

INPUT TEST	
HANDLE BAR	0H
ROLL	0H
THROTTLE LEVER	FFH
PITCH	0H
START	OFF
VIEW	OFF
SAFETY SENSOR	OFF
SERVICE	OFF
TEST	OFF
PRESS TEST AND SERVICE BUTTON TO EXIT	

- By pressing each switch, if the display on the right-hand side of the name of each switch changes to ON from OFF, the SW and the wiring connections are satisfactory.
- When checking the SAFETY SENSOR, be sure to intercept the 3 Sensors on the step.
- Simultaneously pressing the Service button and the Test button returns the Game Test Menu screen.

FIG. 9. 3 b a INPUT TEST Screen

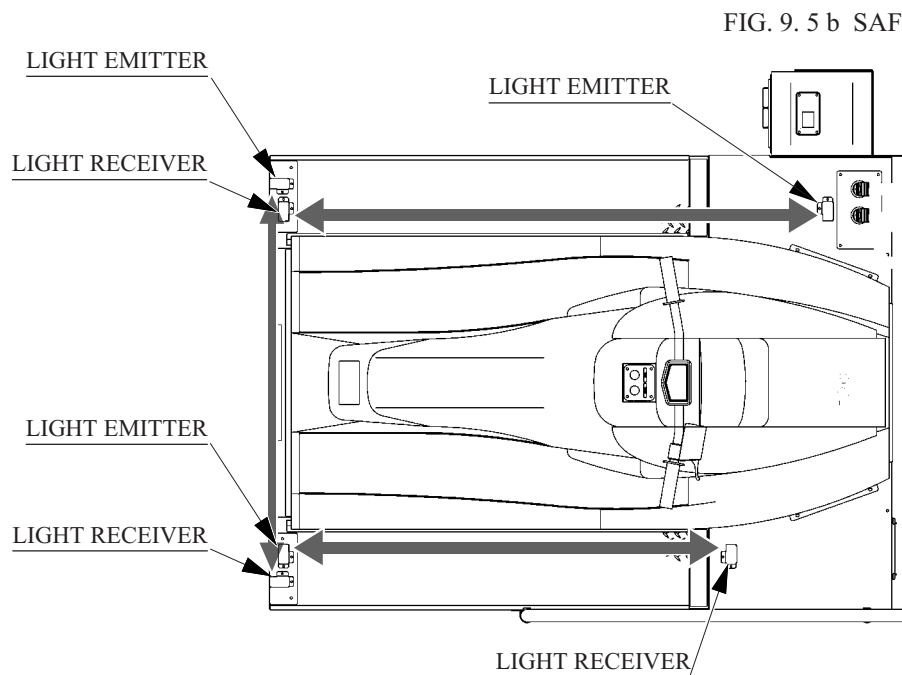


FIG. 9. 5 b SAFETY SENSOR

The standard values for adjusting each V. R. are as follows:

In this product, the item of VOLUME SETTING allows V. R. values except for PITCH to be set.

HANDLE BAR:	8 0 H \pm 9 (centering position)
ROLL:	8 0 H \pm 9 (centering position)
THROTTLE LEVER:	e 0 H \pm 9 (lever released)
PITCH:	Over 7 0 H (When the Ride is lowered) ~ Under e 0 H (When the Ride is raised)

OUTPUT TEST

The OUTPUT TEST allows the function of each lamp to be checked.

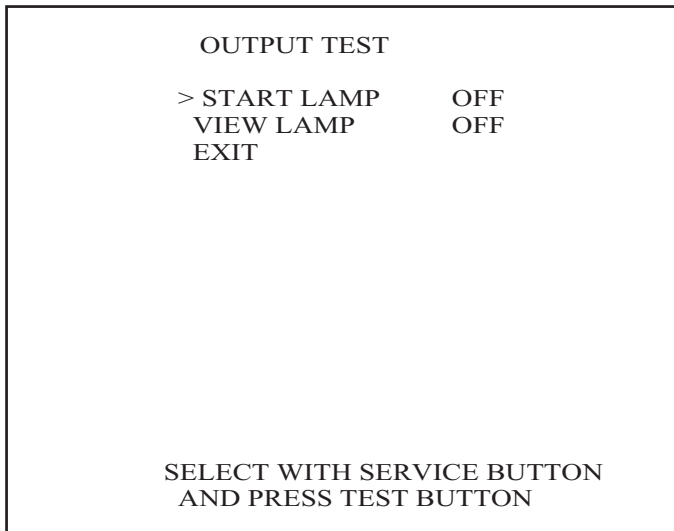


FIG. 9. 3 c OUTPUT TEST Screen

TEST PROCEDURE

- ① Press the SERVICE Button to bring the arrow to the lamp item to be tested.
- ② Pressing the TEST Button causes "ON" to be displayed and the corresponding lamp lights up. Pressing the TEST Button again causes "OFF" to be displayed and the lamp goes off.
- ③ Bring the arrow to EXIT and press the TEST Button to return to the Game Test Menu screen.

GAME ASSIGNMENTS

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

If the COMMUNICATION MODE is set to NO LINK, the items HANDICAP and CABINET ID will not appear.

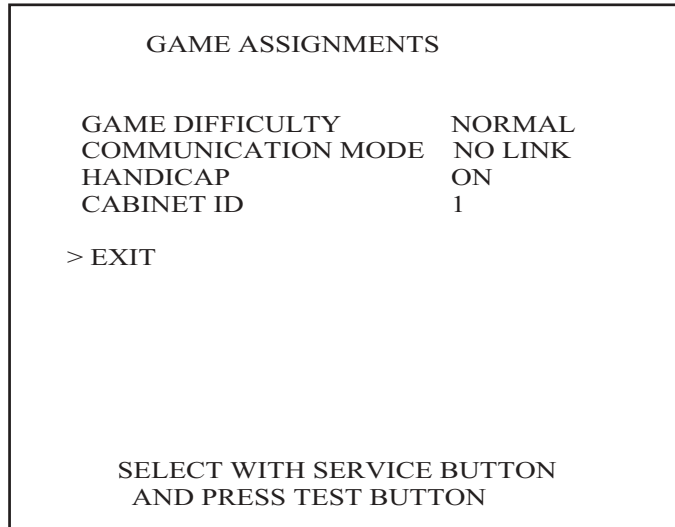


FIG. 9. 3 d GAME ASSIGNMENTS Screen

- **GAME DIFFICULTY:** The game difficulty can be differentiated by varying Time at the time of starting the race and Time at the time of passing the checkpoint. Choose one from among 3 categories, i.e., EASY, NORMAL and HARD.
- **COMMUNICATION MODE:** Set up whether the communication (interactive) play is enabled. There are 3 categories, i.e. MASTER (for one machine/ player only), SLAVE (for communication play), and NO LINK (not for communication play).
- **HANDICAP:** In the communication vs. play, this sets whether correction should be made so that player boat in the second or lower positions increase the speed. Correction is used with ON and use of correction is cancelled with OFF.
- **CABINET ID:** When linked for communication play, allocate the numbers sequentially in order starting from the leftmost end.

For Communication play, refer to Section 20 "COMMUNICATION PLAY".

SETTING CHANGE PROCEDURE

- ① Press the SERVICE Button to bring the arrow (>) to the desired setting change item.
- ② Press the TEST Button to choose the desired setting item.
- ③ Bring the arrow to EXIT and press the TEST Button to return to the Game Test Menu screen.

VOLUME SETTING

In this setting item, each V. R. value of the Handlebars, Roll, and Throttle can be set.



CAUTION!

Performing settings while riding on the Ride is dangerous as the Ride moves. Use the Start button instead of Test button, and the View button instead of Service button.



IMPORTANT!

When V. R. adjustment or replacement has been made, be sure to perform the setting in that particular V. R. value setting item.

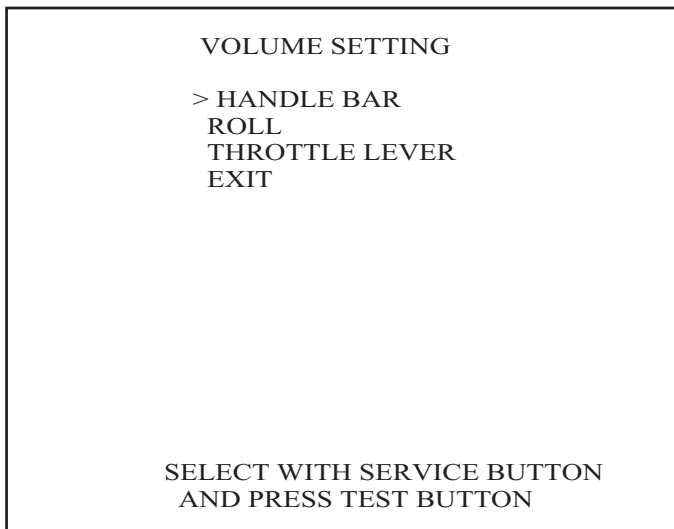


FIG. 9.3 e a VOLUME SETTING Screen

(1) HANDLE BAR VOLUME SETTING

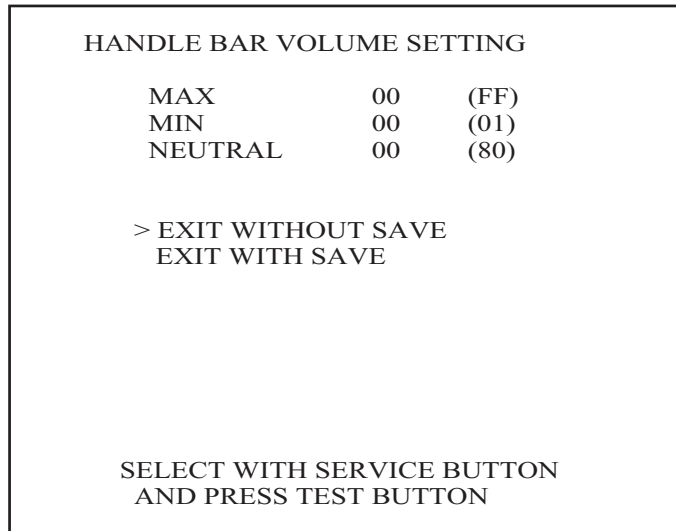
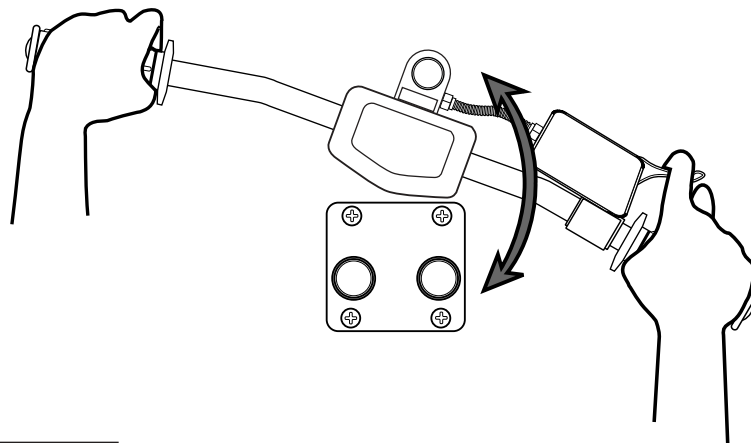


FIG. 9. 3 e b HANDLE BAR VOLUME SETTING Screen



SETTING PROCEDURE

- ① In the V. R. setting menu screen, press the SERVICE Button to bring the arrow to HANDLE BAR.
- ② Press the TEST Button to cause the HANDLE BAR VOLUME setting screen to appear.
- ③ Turn the Handlebars fully to the left/right and then release.
- ④ Press the SERVICE Button to bring the arrow to EXIT WITH SAVE.
- ⑤ Press the TEST Button to have the Volume Setting Menu screen return to the screen.
- ⑥ When setting other Volume values also, select the applicable select item.
- ⑦ Press the SERVICE Button to move the arrow to EXIT and press the TEST Button to return to the Game Test Menu screen.

(2) ROLL VOLUME SETTING

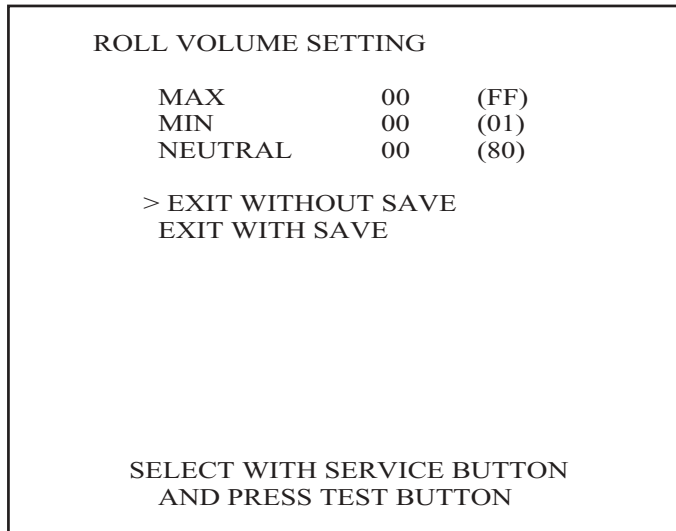


FIG. 9. 3 e c ROLL VOLUME SETTING Screen



SETTING PROCEDURE

- ① In the Volume Setting Menu mode, press the SERVICE Button to bring the arrow to ROLL.
- ② Press the TEST Button to have the ROLL VOLUME setting screen appear on the screen.
- ③ Incline the Ride fully to the left/right and then cause it to be in the level position.
- ④ Press the SERVICE Button to bring the arrow to EXIT WITH SAVE.
- ⑤ Press the TEST Button to have the Volume Setting Menu return to the screen.
- ⑥ When setting other Volume values also, choose the applicable setting item.
- ⑦ Press the SERVICE Button to move the arrow to EXIT and press the TEST Button to return to the Game Test Menu screen.

(3) THROTTLE LEVER VOLUME SETTING

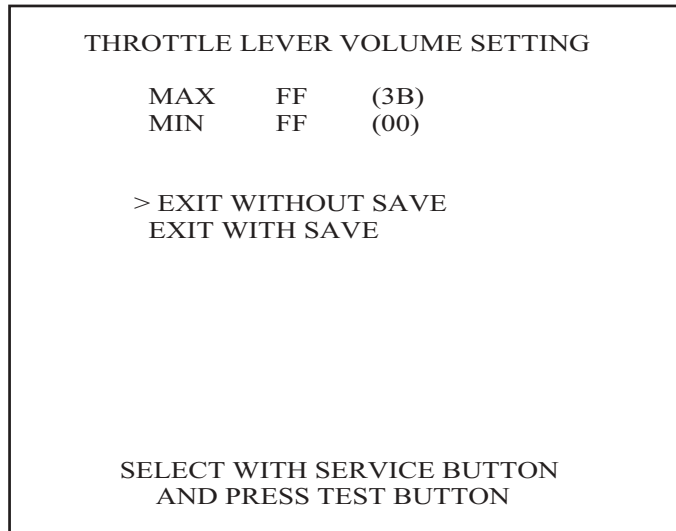
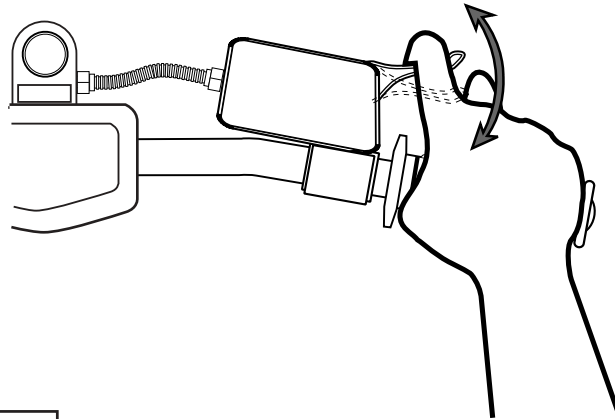


FIG. 9. 3 e d THROTTLE LEVER VOLUME SETTING Screen



SETTING PROCEDURE

- ① In the Volume Setting Menu, press the SERVICE Button and bring the arrow to THROTTLE LEVER.
- ② Press the TEST Button to have the THROTTLE VOLUME SETTING screen appear.
- ③ Fully grip the Throttle Lever and then release.
- ④ By pressing the SERVICE Button, bring the arrow to EXIT WITH SAVE.
- ⑤ Press the TEST Button to have the Volume Setting Menu return on the screen.
- ⑥ When setting other Volume values also, choose the applicable setting item.
- ⑦ Press the SERVICE Button to move the arrow to EXIT and press the TEST Button to return to the Game Test Menu screen.

VALVE TEST

This test allows the functioning of each Air Valve, Limit SW and Volume to be checked.



Performing settings while riding on the Ride is dangerous as the Ride moves. Use the Start button instead of Test button, and the View button instead of Service button.

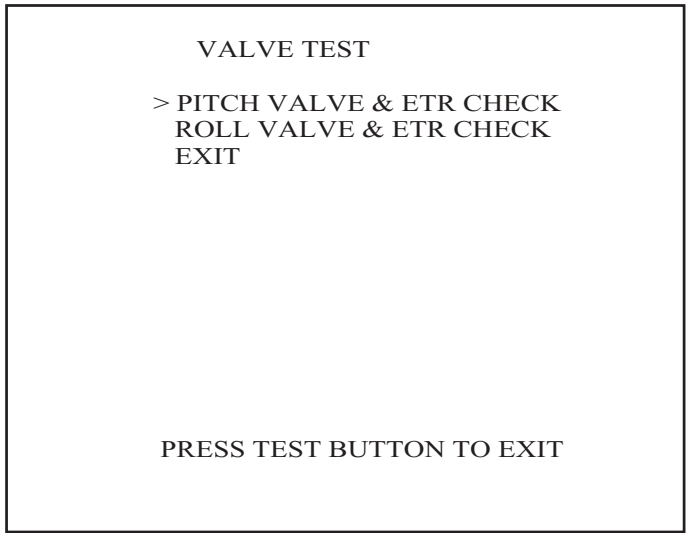


FIG. 9. 3 f a VALVE TEST Screen

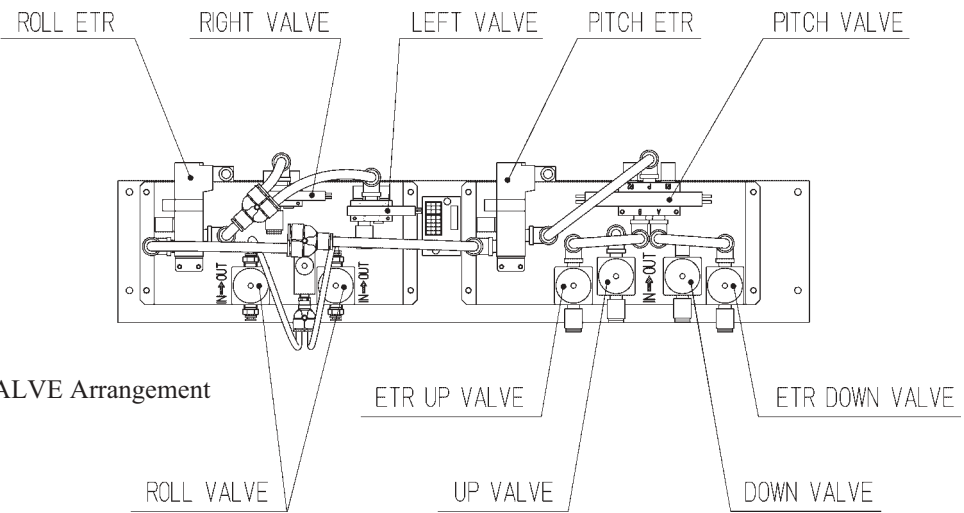


FIG. 9. 3 f b VALVE Arrangement

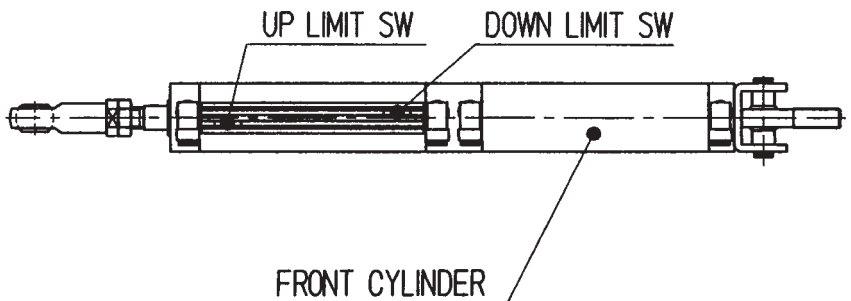


FIG. 9. 3 f c LIMIT SW Arrangement

(1) PITCH VALVE & ETR CHECK

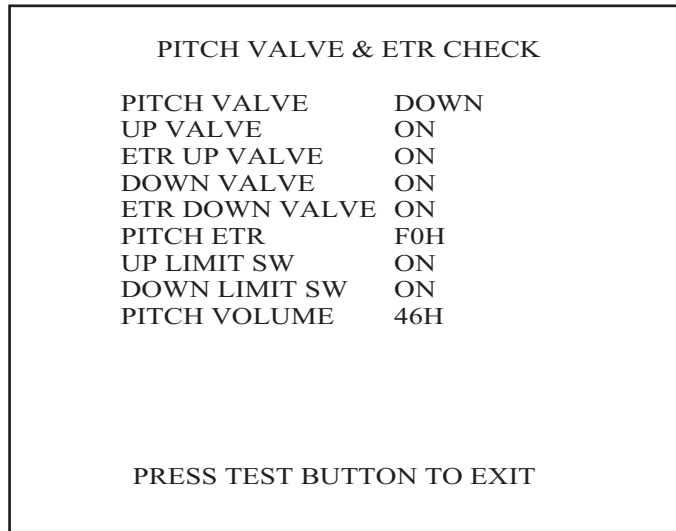


FIG. 9. 3 f b PITCH VALVE & ETR CHECK Screen

TEST PROCEDURE

- ① In the VALVE TEST MENU, press the SERVICE Button and bring the arrow to PITCH VALVE & ETR CHECK.
- ② Press the TEST Button to have the PITCH VALVE TEST screen appear.
- ③ Turn the Handlebars to the right to raise the Ride.
- ④ Turn the Handlebars to the left to lower the Ride.
- ⑤ Position the Handlebars in the center to stop the Ride.
- ⑥ Gripping the Throttle Lever during ③ ~ ⑤ above increases the air pressure and releasing the Throttle Lever decreases the air pressure.
- ⑦ During ③ ~ ⑥, check the functioning of each Air Valve and Limit SW.
- ⑧ Press the TEST Button to return to the VALVE TEST Menu.
- ⑨ Choose EXIT and press the TEST Button to return to the Game Test Menu screen.

(2) ROLL VALVE & ETR CHECK

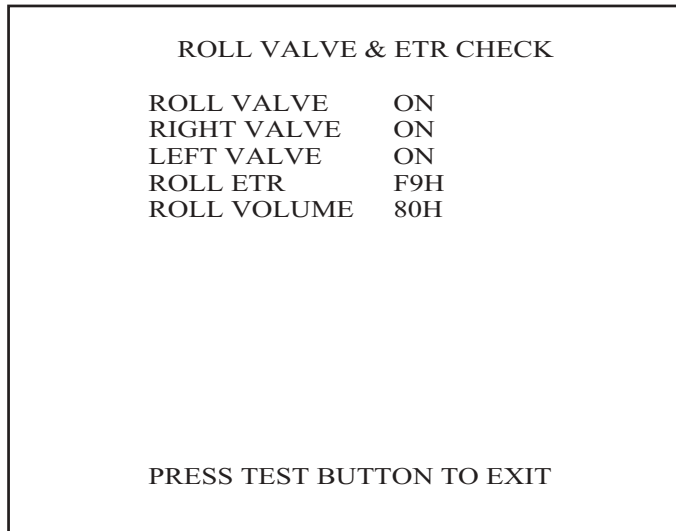


FIG. 9. 3 f c ROLL VALVE & ETR CHECK Screen

TEST PROCEDURE

- ① In the VALVE TEST MENU, press the SERVICE Button and bring the arrow to ROLL VALVE & ETR CHECK.
- ② Press the TEST Button to have the PITCH VALVE TEST screen appear.
- ③ Turn the Handlebars to the right, and the Ride is subject to the centering force from the right only.
- ④ Turn the Handlebars to the left, and the Ride is subject to the centering force from the left only.
- ⑤ Position the Handlebars in the center to stop the centering movement.
- ⑥ Gripping the Throttle Lever during áBÁ`áD above increases the air pressure and releasing the Throttle Lever decreases the air pressure.
- ⑦ During áBÁ`áE, check the functioning of each Air Valve.
- ⑧ Press the TEST Button to return to the VALVE TEST Menu.
- ⑨ Choose EXIT and press the TEST Button to return to the Game Test Menu screen.

WIRING TEST

Selecting WIRING TEST allows the communication between GAME BD and DRIVE BD to be checked automatically. If the communication is satisfactorily conducted, "OK" is displayed and if any irregularity is found, "ERROR" will be displayed.

```
WIRING TEST
ok : (f0 -> 11111110)
ok : (f1 -> 11111101)
ok : (f2 -> 11111011)
ok : (f3 -> 11110111)
ok : (f4 -> 11101111)
ok : (f5 -> 11011111)
ok : (f6 -> 10111111)
ok : (f7 -> 01111111)
ok : (f8 -> 10111111)
ok : (f9 -> 11011111)
ok : (fa -> 11101111)
ok : (fb -> 11110111)
ok : (fc -> 11111011)
ok : (fd -> 11111101)
ok : (fe -> 11111110)
ok : (ff -> 11111111)
ok : (0f -> 01111111)
ok : (1f -> 10111111)
ok : (2f -> 11011111)
ok : (3f -> 11101111)
ok : (4f -> 11110111)
ok : (5f -> 11111011)
ok : (6f -> 11111101)
ok : (7f -> 11111110)
ok : (8f -> 11111101)
ok : (9f -> 11111011)
ok : (af -> 11110111)
ok : (bf -> 11101111)
ok : (cf -> 11011111)
ok : (df -> 10111111)
ok : (ef -> 01111111)
ok : (ff -> 11111111)

PRESS TEST BUTTON TO EXIT
```

FIG. 9. 3 g WIRING TEST Screen

- After finishing the test, if the above Figure is displayed, it is satisfactory.
- After finishing the test, press the TEST Button to return to the Game Test Menu screen.

BOOKKEEPING

Selecting the BOOKKEEPING in the menu mode displays the bookkeeping data up to the present on the following 12 screens. Press the TEST Button again to proceed to the next page. When you press the TEST Button during the display of this mode, you return to the Game Test Menu.

BOOKKEEPING 1/12	
NUMBER OF GAMES	94
PLAY TIME(TOTAL)	0D 2H 11M 11S
PLAY TIME(1P)	0D 2H 4M 2S
PLAY TIME(VS)	0D 0H 7M 9S
AVERAGE PLAY TIME	0H 1M 23S
LONGEST PLAY TIME	0H 3M 47S
SHORTEST PLAY TIME	0H 0M 2S
PRESS TEST BUTTON TO CONTINUE	

FIG. 9. 3 h a BOOKKEEPING (1/12) Screen

- NUMBER OF GAMES: Number of games played.
- TOTAL TIME(TOTAL): Total energized time.
- PLAY TIME(1P): Total playtime of one player game only.
- PLAY TIME(VS): Total playtime of communication game play.

(1) PLAY TIME HISTOGRAM

The time that players have been timeout is displayed in graph. It's a total of 2 screens.

BOOKKEEPING 2/12	
PLAY TIME HISTOGRAM 1/2	
0M00S ~ 0M09S	22
0M10S ~ 0M19S	3
0M20S ~ 0M29S	1
0M30S ~ 0M39S	0
0M40S ~ 0M49S	2
0M50S ~ 0M59S	1
1M00S ~ 1M09S	5
1M10S ~ 1M19S	27
1M20S ~ 1M29S	1
1M30S ~ 1M39S	2
1M40S ~ 1M49S	3
1M50S ~ 1M59S	2
2M00S ~ 2M09S	2
2M10S ~ 2M19S	2
2M20S ~ 2M29S	3
2M30S ~ 2M39S	2
2M40S ~ 2M49S	2
2M50S ~ 2M59S	0

PRESS TEST BUTTON TO CONTINUE

BOOKKEEPING 3/12	
PLAY TIME HISTOGRAM 2/2	
3M00S ~ 3M09S	4
3M10S ~ 3M19S	3
3M20S ~ 3M29S	3
3M30S ~ 3M39S	3
3M40S ~ 3M49S	1
3M50S ~ 3M59S	0
4M00S ~ 4M09S	0
4M10S ~ 4M19S	0
4M20S ~ 4M29S	0
4M30S ~ 4M39S	0
4M40S ~ 4M49S	0
4M50S ~ 4M59S	0
OVER 5M00S	0

PRESS TEST BUTTON TO CONTINUE

FIG. 9. 3 h b BOOKKEEPING (2 - 3/12) Screen

(2) CLEAR TIME HISTOGRAM

The clear time of the player, which has made a goal, is displayed in graph. Screens are two screens in NOVICE, INTERMEDIATE and EXPERT, respectively. So it's a total of 6 screens.

BOOKKEEPING 4/12	
CLEAR TIME HISTOGRAM 1/2	
NOVICE	
0M00S ~ 0M09S	0
0M10S ~ 0M19S	0
0M20S ~ 0M29S	0
0M30S ~ 0M39S	0
0M40S ~ 0M49S	0
0M50S ~ 0M59S	0
1M00S ~ 1M09S	0
1M10S ~ 1M19S	0
1M20S ~ 1M29S	0
1M30S ~ 1M39S	0
1M40S ~ 1M49S	0
1M50S ~ 1M59S	0
2M00S ~ 2M09S	0
2M10S ~ 2M19S	0
2M20S ~ 2M29S	0
2M30S ~ 2M39S	0
2M40S ~ 2M49S	0
2M50S ~ 2M59S	0

PRESS TEST BUTTON TO CONTINUE

BOOKKEEPING 5/12	
CLEAR TIME HISTOGRAM 2/2	
NOVICE	
3M00S ~ 3M09S	0
3M10S ~ 3M19S	0
3M20S ~ 3M29S	0
3M30S ~ 3M39S	2
3M40S ~ 3M49S	1
3M50S ~ 3M59S	0
4M00S ~ 4M09S	0
4M10S ~ 4M19S	0
4M20S ~ 4M29S	0
4M30S ~ 4M39S	0
4M40S ~ 4M49S	0
4M50S ~ 4M59S	0
OVER 5M00S	0

PRESS TEST BUTTON TO CONTINUE

BOOKKEEPING 6/12	
CLEAR TIME HISTOGRAM 1/2	
INTERMEDIATE	
0M00S ~ 0M09S	0
0M10S ~ 0M19S	0
0M20S ~ 0M29S	0
0M30S ~ 0M39S	0
0M40S ~ 0M49S	0
0M50S ~ 0M59S	0
1M00S ~ 1M09S	0
1M10S ~ 1M19S	0
1M20S ~ 1M29S	0
1M30S ~ 1M39S	0
1M40S ~ 1M49S	0
1M50S ~ 1M59S	0
2M00S ~ 2M09S	0
2M10S ~ 2M19S	0
2M20S ~ 2M29S	0
2M30S ~ 2M39S	0
2M40S ~ 2M49S	0
2M50S ~ 2M59S	0

PRESS TEST BUTTON TO CONTINUE

BOOKKEEPING 7/12	
CLEAR TIME HISTOGRAM 2/2	
INTERMEDIATE	
3M00S ~ 3M09S	0
3M10S ~ 3M19S	0
3M20S ~ 3M29S	0
3M30S ~ 3M39S	0
3M40S ~ 3M49S	0
3M50S ~ 3M59S	0
4M00S ~ 4M09S	0
4M10S ~ 4M19S	0
4M20S ~ 4M29S	0
4M30S ~ 4M39S	0
4M40S ~ 4M49S	0
4M50S ~ 4M59S	0
OVER 5M00S	0

PRESS TEST BUTTON TO CONTINUE

BOOKKEEPING 8/12	
CLEAR TIME HISTOGRAM 1/2	
EXPERT	
0M00S ~ 0M09S	0
0M10S ~ 0M19S	0
0M20S ~ 0M29S	0
0M30S ~ 0M39S	0
0M40S ~ 0M49S	0
0M50S ~ 0M59S	0
1M00S ~ 1M09S	0
1M10S ~ 1M19S	0
1M20S ~ 1M29S	0
1M30S ~ 1M39S	0
1M40S ~ 1M49S	0
1M50S ~ 1M59S	0
2M00S ~ 2M09S	0
2M10S ~ 2M19S	0
2M20S ~ 2M29S	0
2M30S ~ 2M39S	0
2M40S ~ 2M49S	0
2M50S ~ 2M59S	0

PRESS TEST BUTTON TO CONTINUE

BOOKKEEPING 9/12	
CLEAR TIME HISTOGRAM 2/2	
EXPERT	
3M00S ~ 3M09S	0
3M10S ~ 3M19S	0
3M20S ~ 3M29S	0
3M30S ~ 3M39S	0
3M40S ~ 3M49S	0
3M50S ~ 3M59S	0
4M00S ~ 4M09S	0
4M10S ~ 4M19S	0
4M20S ~ 4M29S	0
4M30S ~ 4M39S	0
4M40S ~ 4M49S	0
4M50S ~ 4M59S	0
OVER 5M00S	0

PRESS TEST BUTTON TO CONTINUE

FIG. 9. 3 h c BOOKKEEPING (4 - 9/12) Screen

(3) Detailed data of each course

Allows for checking the detailed data of each course; NOVICE, INTERMEDIATE and EXPERT. It's a total of 3 screens on each course 1 screen.

BOOKKEEPING 10/12			
NOVICE		68	
1st	6	8th	1
2nd	0	9th	2
3rd	0	10th	0
4th	0	11th	0
5th	0	12th	1
6th	0	13th	0
7th	2	14th	56
CHECK1	17	AVR.	43S
CHECK2	15	AVR.	37S
CHECK3	11	AVR.	36S
CHECK4	8	AVR.	27S
CHECK5	4	AVR.	34S
CHECK6	2	AVR.	36S
PRESS TEST BUTTON TO CONTINUE			

- 2nd line of the screen:
Indicates the course name and the total playing time.

- 1st - 14th:
Indicates the ranking at the play end time. (It's not whether the game was cleared or not.)

- CHECK 1-6 or 8:
Indicates the number of players, which arrived at each check-point.

- AVR:
Indicates the average time of each checkpoint section.

BOOKKEEPING 11/12			
INTERMEDIATE		15	
1st	0	8th	0
2nd	0	9th	1
3rd	0	10th	1
4th	0	11th	1
5th	0	12th	0
6th	0	13th	1
7th	1	14th	10
CHECK1	9	AVR.	34S
CHECK2	7	AVR.	27S
CHECK3	6	AVR.	27S
CHECK4	5	AVR.	26S
CHECK5	4	AVR.	20S
CHECK6	1	AVR.	27S
CHECK7	0	AVR.	0S
CHECK8	0	AVR.	0S
PRESS TEST BUTTON TO CONTINUE			

BOOKKEEPING 12/12			
EXPERT		8	
1st	1	8th	1
2nd	0	9th	0
3rd	0	10th	0
4th	0	11th	1
5th	0	12th	0
6th	0	13th	0
7th	0	14th	5
CHECK1	5	AVR.	31S
CHECK2	5	AVR.	31S
CHECK3	4	AVR.	25S
CHECK4	4	AVR.	32S
CHECK5	3	AVR.	25S
CHECK6	1	AVR.	30S
CHECK7	0	AVR.	0S
CHECK8	0	AVR.	0S
PRESS TEST BUTTON TO EXIT			

FIG. 9. 3 h d BOOKKEEPING (10 - 12/12) Screen

BACKUP DATA CLEAR

Clears the contents of BOOKKEEPING. When clearing the data, use the SERVICE Button to bring the arrow to "YES (CLEAR)" and press the TEST Button. When clearing is finished, "COMPLETED" is displayed. Press the TEST Button again to return to the Game Test Menu screen. Bring the arrow to "NO (CANCEL)" and press the TEST Button to have the Game Test Menu screen return on the screen without clearing the data. Note that this operation does not affect the contents of the game setting.

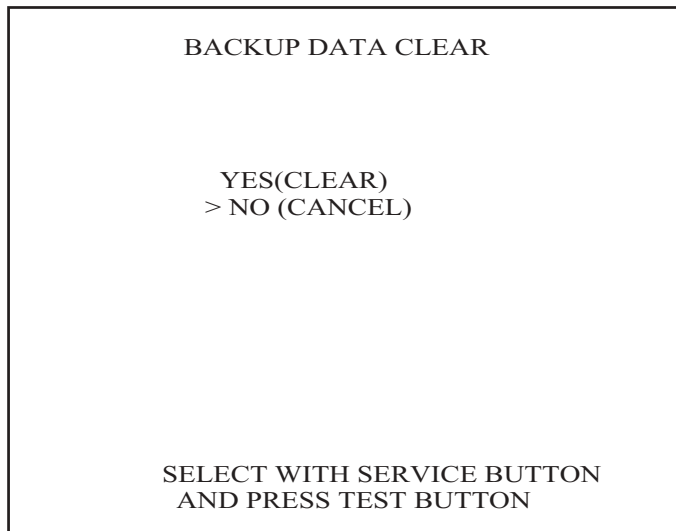


FIG. 9. 3 h c BACKUP DATA CLEAR Screen

10. AIR DRIVE



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.
- Do not touch undesignated places. Touching places not designated can cause electric shock or short circuit.
- This work should be performed by the Location's Maintenance Man or Serviceman. Performing work by non-technical personnel can cause electric shock hazard.
- Do not insert hand into the mechanism so as not to cause hand and fingers pinched in. Failure to observe this can cause a serious injury such as a fracture.
- When performing work such as parts replacement other than those specified in this manual, be sure to contact where you purchased the product from and confirm the work procedures and obtain precautions prior to performing work. Inappropriate parts replacement and/or installing with erroneous adjustment can cause an overload or the parts to come into contact, resulting in an electric shock, a short circuit, and a fire.



CAUTION!

- Hot compressor can cause burn. After turning power off, wait until hot portions cool off to start working.
- Setting to an undesignated pressure can cause malfunctioning and trouble. Be sure to use the designated pressure.



IMPORTANT!

- Perform dewatering periodically. Gathered water can have compressor load become greater and cause malfunctioning.
- When the set pressure is adjusted, be sure to check if the adjustment is appropriate.

10 - 1 OVERVIEW OF AIR DRIVE SYSTEM

This product uses the compressor. Be sure to turn off the main switch of the AC Unit and start working after checking that the compressor motor has stopped.

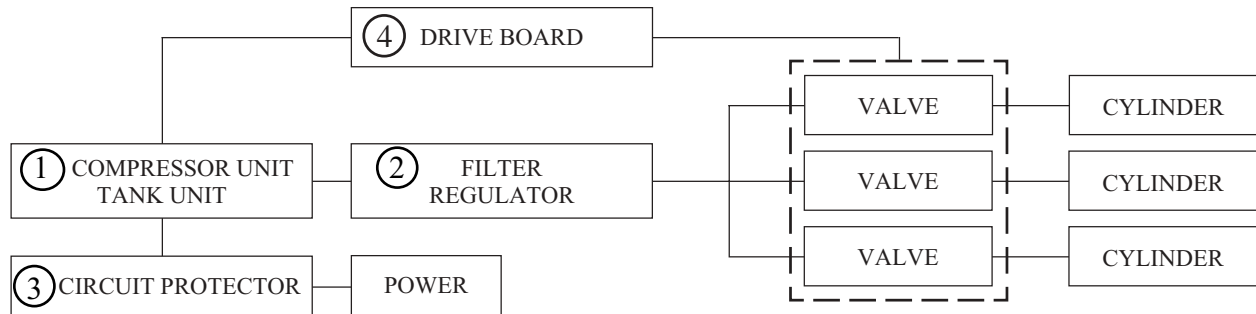


FIG. 10.1 a Air Drive System Schematic

- ① COMPRESSOR UNIT / TANK UNIT
Compresses and stores air by causing the AC Motor to turn the Compressor.
- ② FILTER / REGULATOR
Filters foreign matter consisting of fine particles, and water contents in the compression air (primary side) stored in the COMPRESSOR UNIT and governs the compressed air to a preset pressure (secondary side). Two Regulators are equipped with: One for high pressure and the other for low pressure.
- ③ CIRCUIT PROTECTOR
Protects the AC motor for the compressor from overcurrent.
- ④ DRIVE BOARD (inside the Front Cabinet)
The DRIVE BOARD controls the entire Air Drive System by activating or stopping the Compressor depending on the pressure inside the Compressor Unit, and by sending a signal to open/close each valve in accordance with the progress of game play.

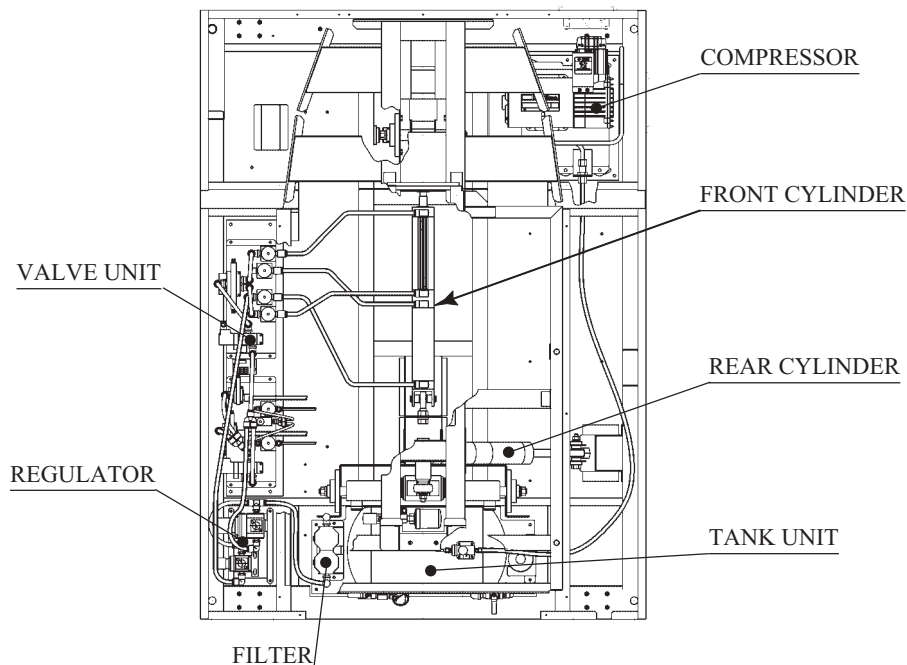


FIG. 10.1 b Overview of air drive system

10 - 2 DEWATERING FROM THE AIR FILTER

Remove the Rear Lid of the Mechanism Base to have the water tank appear in the inner portion on the right-hand side. Although the Air Drive Mechanism of the product automatically dewateres the water from inside the Air Filter, dispose the water from inside the Air Filter by periodically dewatering (every day in the period of high humidity). Since the oilless compressor is used for this machine, the drain water can be discharged into a sewer system.

DEWATERING PROCEDURE

- ① Turn the main switch of the AC Unit off.
- ② Take out the 5 screws to remove the Rear Lid of the Mechanism Base (FIG. 10. 2 a).

TRUSS SCREW (5)
M4 X 12, black

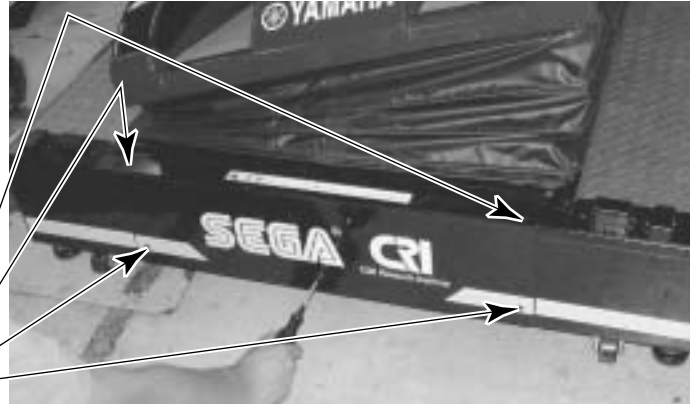
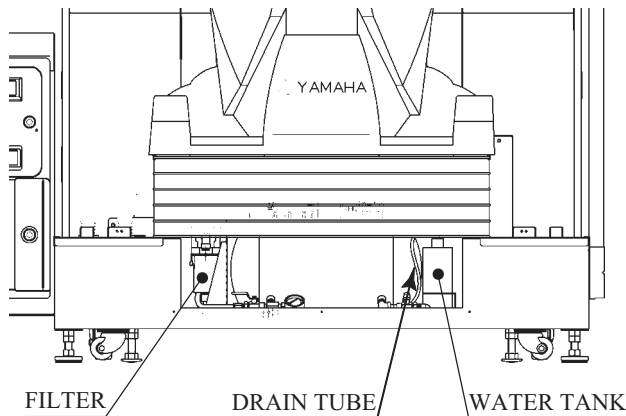


FIG. 10. 2 a

- ③ The Drain Tube from the Filter is connected to the water tank. Remove the Water Tank from the Mechanism Base by firmly holding the Drain Tube so as not to allow the tube to come off from the water tank.



- ④ When turning and loosening the drain nozzle underneath the filter in the horizontal direction, water will gush out together with the compressed air. Be sure to firmly hold the Drain Tube so as not to allow the water can splash out in the periphery (FIG. 10. 2 b).

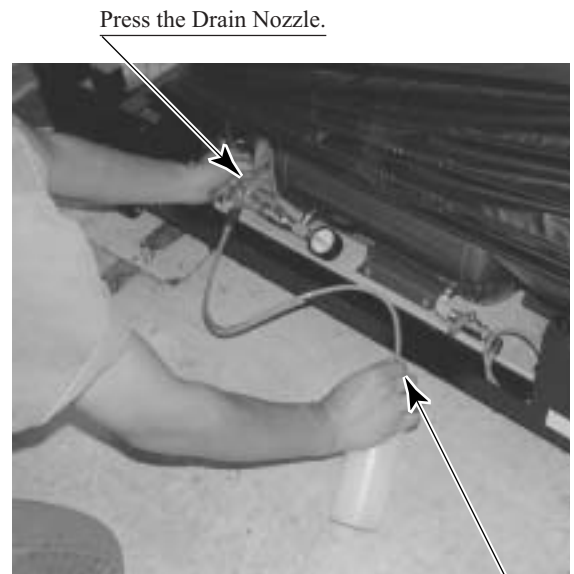
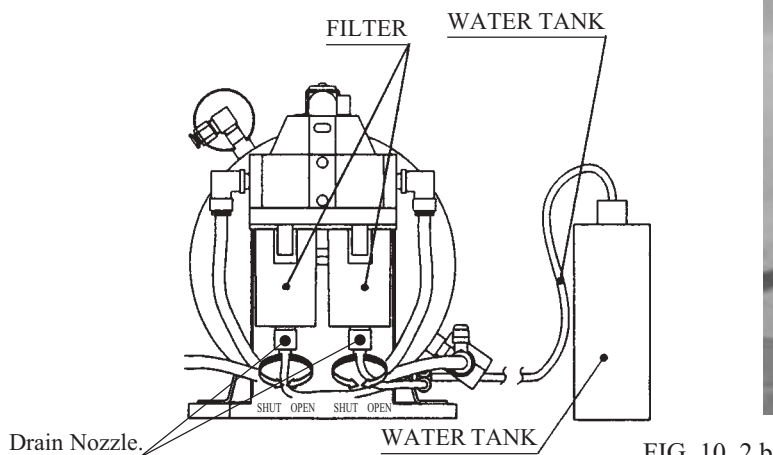


FIG. 10. 2 b

- ⑤ The drained water can be discharged into a sewer system.
- ⑥ After dewatering is finished, tighten the drain nozzle. Shake the end of the Drain Tube off to remove water thoroughly, put the tube end into the water tank, and return the water tank to the Mechanism Base.

10 - 3 DEWATERING FROM THE AIR TANK

Water accumulated in the tank increases the load on the Compressor, which may cause malfunctioning. The Tank should be dewatered at least once a week. Since the oilless compressor is used for this machine, the drain water can be discharged into a sewer system.

- ① Turn the main switch of the AC Unit off.
- ② Open the Rear Lid (refer to 10 - 2).

- ③ The Drain Cock and Drain Tube are located on this side of the Air Tank. Pull out the Tube and insert the end of the Tube into the Accessory Water Tank or an appropriate container (FIG. 10. 3 a).

DRAIN COCK

WATER TANK

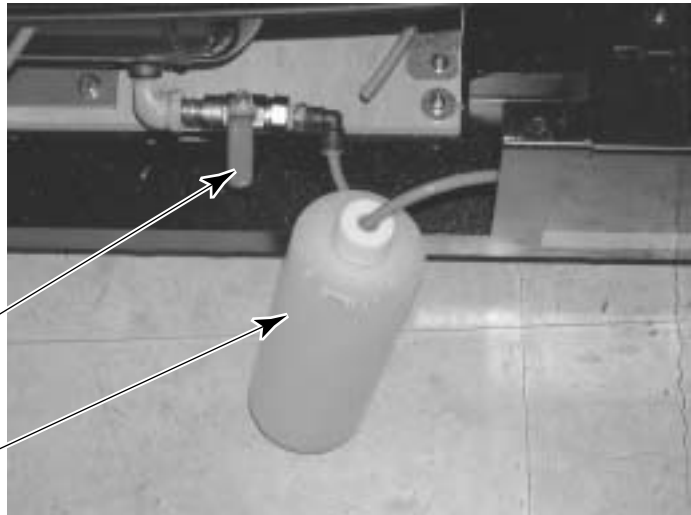


FIG. 10. 3 a

- ④ Turn the Drain Cock by 90 degrees to have the compressed air and water discharged. If the cock is not transferred little by little, water will splash out. At this time, hold the tube tight so water may not splash out or on your body (FIG. 10. 3 b).

Hold the end of tube tight.

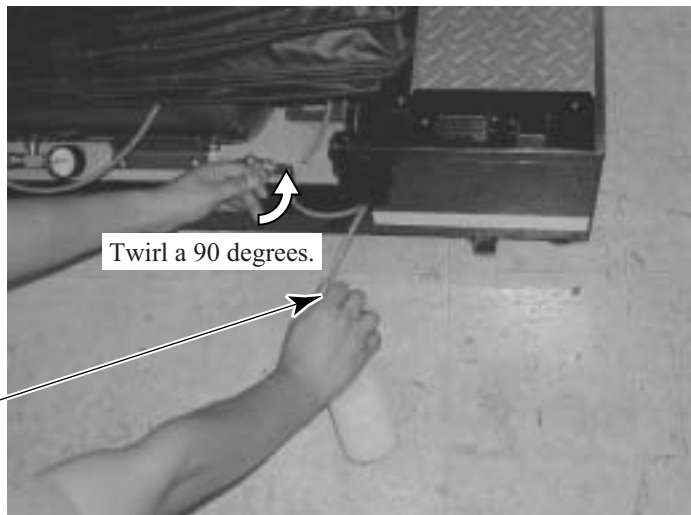


FIG. 10. 3 b

- ⑤ After the water is discharged, close the Drain Cock, remove the remaining water from the end of the air tube and put the tube into the cabinet.
- ⑥ The drain water can be discharged into a sewer system.

10 - 4 REGULATOR

The compressed air (primary side) in the air tank is governed to preset pressures by regulators before the air pressure is sent to the cylinders. Check set pressure every 2 months.

Remove Lid Left from the Mechanism Base (refer to 11-1) to have the Regulator Unit appear, and check the pressure with the Pressure Gauge attached to each Regulator. If the pressure within the Compressor is insufficient, the Regulator's Pressure Gauge will not indicate the correct value. When checking, first turn the Main SW on and wait until the Compressor operation stops. Pressure settings given at the time of shipment are shown in FIG. 10. 4.

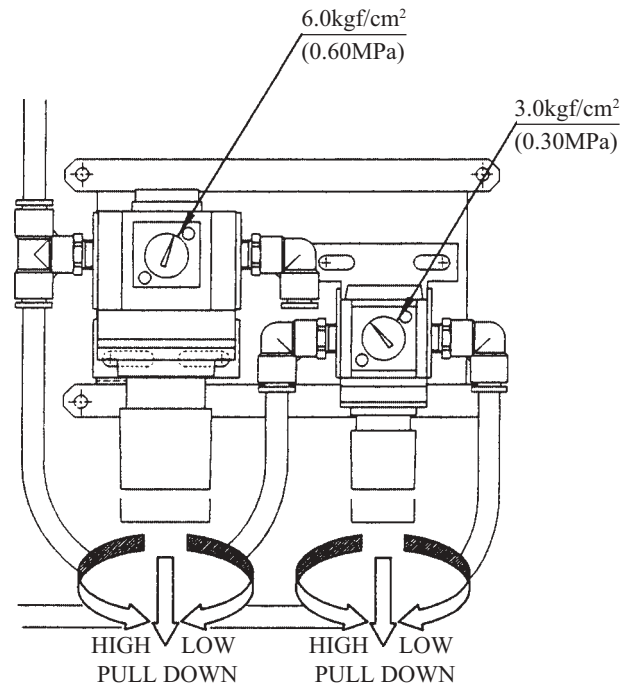


FIG. 10. 4

If the actual pressure is different from the set pressure, adjust it as follows:

Before proceeding the work, be sure to turn the Main SW off. However, if the pressure within the Compressor is insufficient, adjustments can not be performed correctly. First, turn the Main SW on, and after the Compressor operation stops, turn the SW off, and then proceed the work.

Method of adjustment

- ① Pull down the Adjustment Knob of the Regulator until a click is heard.
- ② Turn the Adjustment Knob to make adjustment to the preset pressure.
- ③ When the correct setting is established, push up the adjustment knob until a click is heard.
- ④ After the setting is finished, play game and check the regulator's pressure gauge once again.

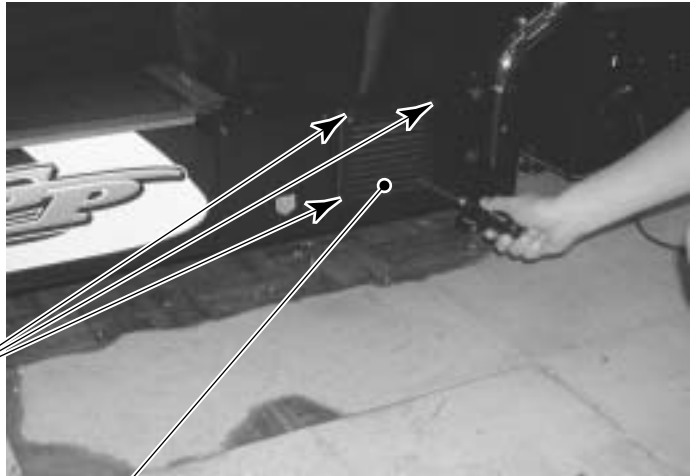
10 - 5 AIR CLEANER

The Compressor for this machine is the oilless type and so oil replenishment is not necessary. However, if the Air Cleaner for protecting the Compressor becomes dirty, the Compressor's operation efficiency will decrease, and this may cause malfunctioning. Two spare Air Cleaners are available. Check the Air Cleaners every 2 months.

- ① Turn the main switch of the AC Unit off.
- ② Take out the 4 truss screws and remove the Air Vent on the right side of the Rear Cabinet.

TRUSS SCREW (4)
M4 X 8, BLACK

PHOTO 10. 5 a

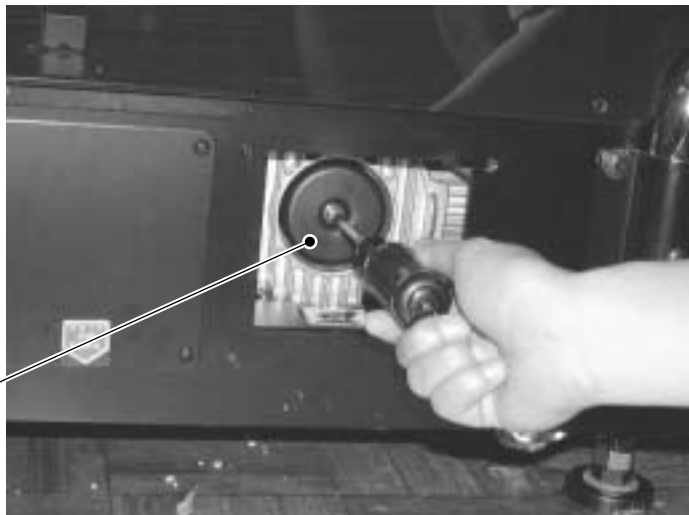


AIR VENT

- ③ Removing the Air Vent, the Compressor's Cleaner Cover is appeared. Taking out the fixed screws, remove the Cleaner Cover.

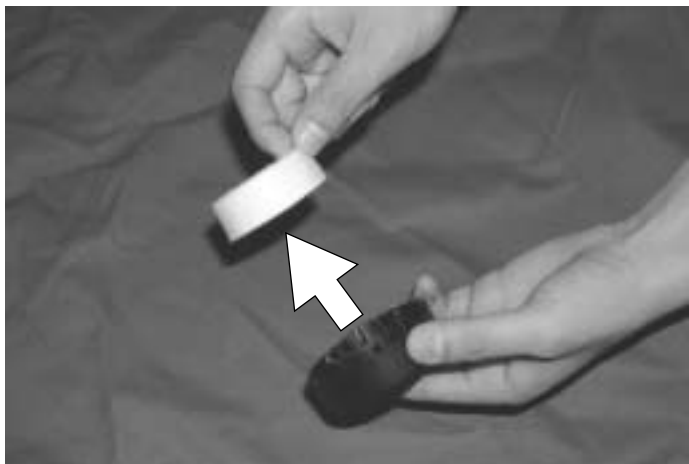
CLEANER COVER

PHOTO 10. 5 b



- ④ Check the Air Cleaner inside the Compressor. If dirty, replace the Air Cleaner.

PHOTO 10. 5 c



11. MAINTENANCE OF MECHANISM UNIT



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.
- After the power is turned off, close the Main Cock, and then start working. The Main Cock not closed can cause serious accidents resulting from cylinder movement, etc., due to some cause.
- Periodically retighten the designated bolts. Continuing business operation with the bolts as is loosened can cause serious accidents.
- 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.
- Do not touch undesigned places. Touching places not designated can cause electric shock or short circuit.
- This work should be performed by the Location's Maintenance Man or Serviceman. Performing work by non-technical personnel can cause electric shock hazard.
- Do not insert hand into the mechanism so as not to cause hand and fingers pinched in. Failure to observe this can cause a serious injury such as a fracture.
- When performing work such as parts replacement other than those specified in this manual, be sure to contact where you purchased the product from and confirm the work procedures and obtain precautions prior to performing work. Inappropriate parts replacement and/or installing with erroneous adjustment can cause an overload or the parts to come into contact, resulting in an electric shock, a short circuit, and a fire.



CAUTION!

- Immediately replace the important parts, which are intended for hazard prevention, if damaged or omitted. Non- replacement of these parts can cause accidents.
- Hot Compressor can cause burn. After turning the power off, wait until the high temperature portions cool off to start working.

The mobile parts of this machine need greasing once every 6 months. At the same time, retighten each installation bolts. Perform the above maintenance work after removing each Lid and the Bellows Brackets, as per the following procedure.

11 - 1 REMOVE THE LID & THE BELLOWS BEFORE SARTING MAINTENANCE WORK

- ① Turn the main switch of the AC Unit off.
- ② Take out the 5 screws to remove the Rear Lid. (See 10 - 2.)
- ③ There are 2 Air Cocks inside the Rear Lid. Close the Main Cock on the left side by turning 90 degrees. (Fig. 11.1)

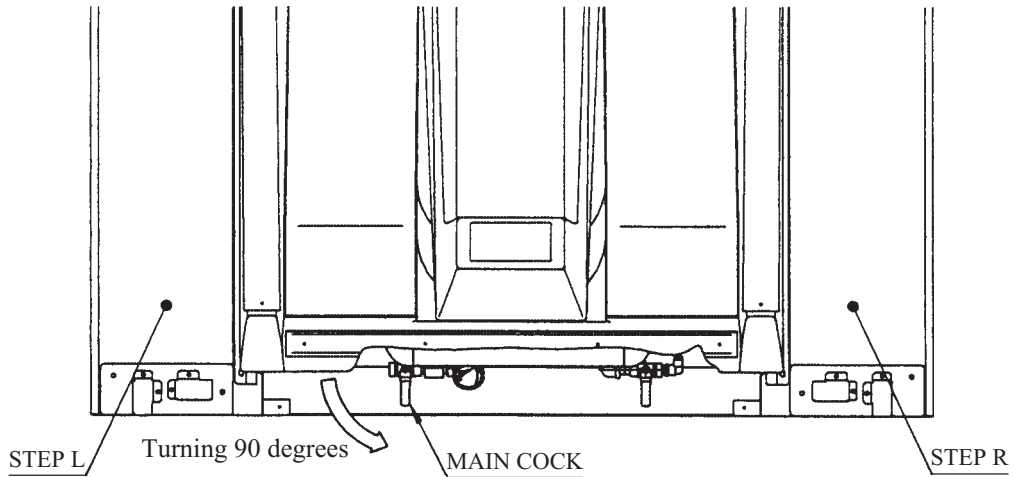


FIG. 11. 1

- ④ Take out the 3 truss screws to remove Sash L (L type fitting). (Photo 11.1a)

TRUSS SCREW (3)
M4 X 12,chrome plated

SASH L

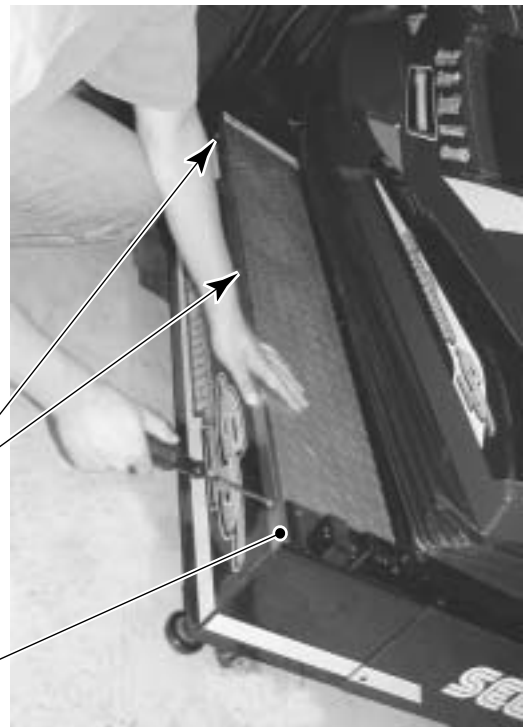


PHOTO 11. 1 a

- ⑤ Take out the 3 truss screws. (Photo 11.1b)

TRUSS SCREW (3),black
M5 X 12

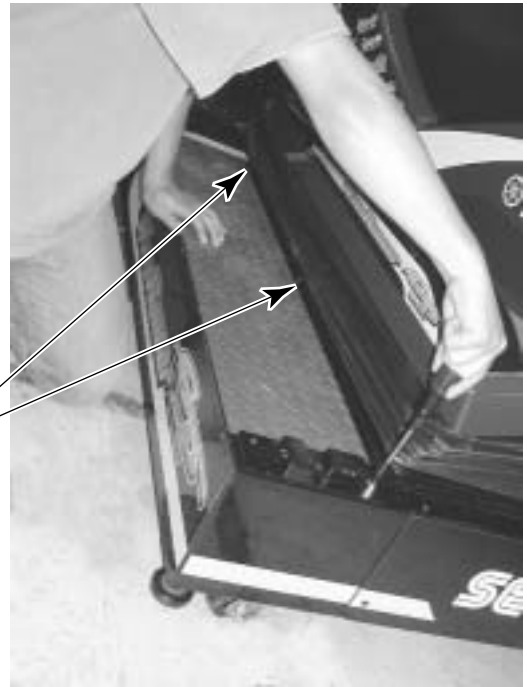


PHOTO 11. 1 b

- ⑥ Remove Step L slowly. Use care when removing the Step L so as not to damage the wiring inside the Lid. Removing the Step L, the Regulator is appeared. (Photo 11.1c)
- ⑦ Pull off the 2 Connectors. (Photo 11.1c)



STEP L

CONNECTOR (2)

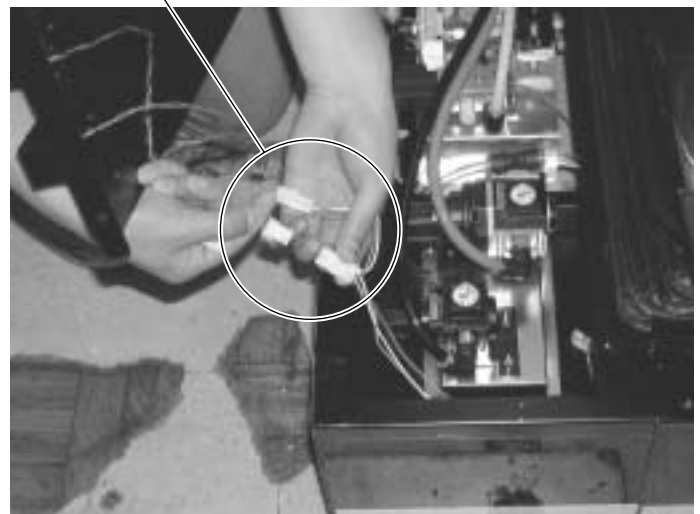


PHOTO 11. 1 c

⑧ Take out the 3 truss screws to remove Sash R (L type fitting). (Photo 11.1d)

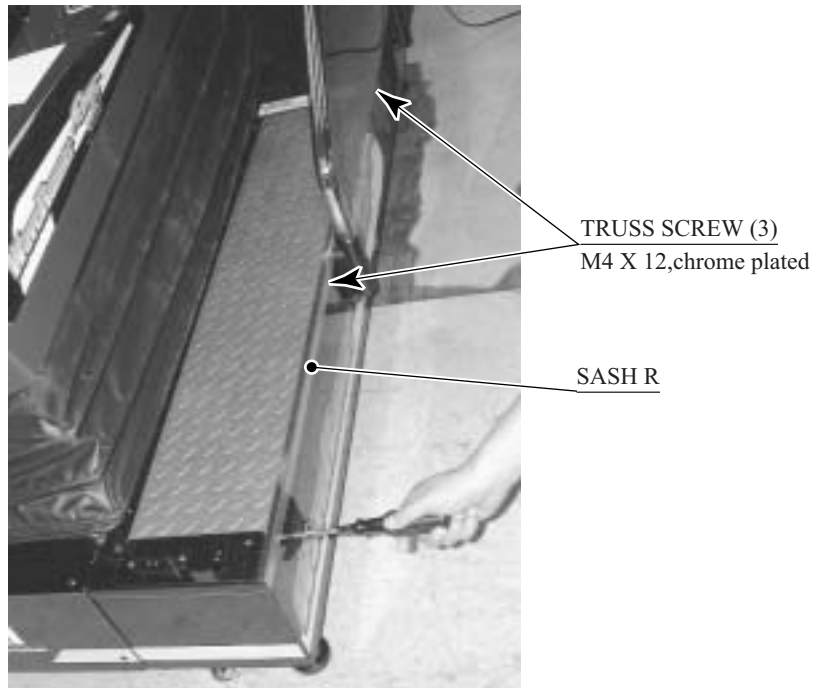


PHOTO 11. 1 d

⑨ Take out the 3 truss screws. (Photo 11.1e)

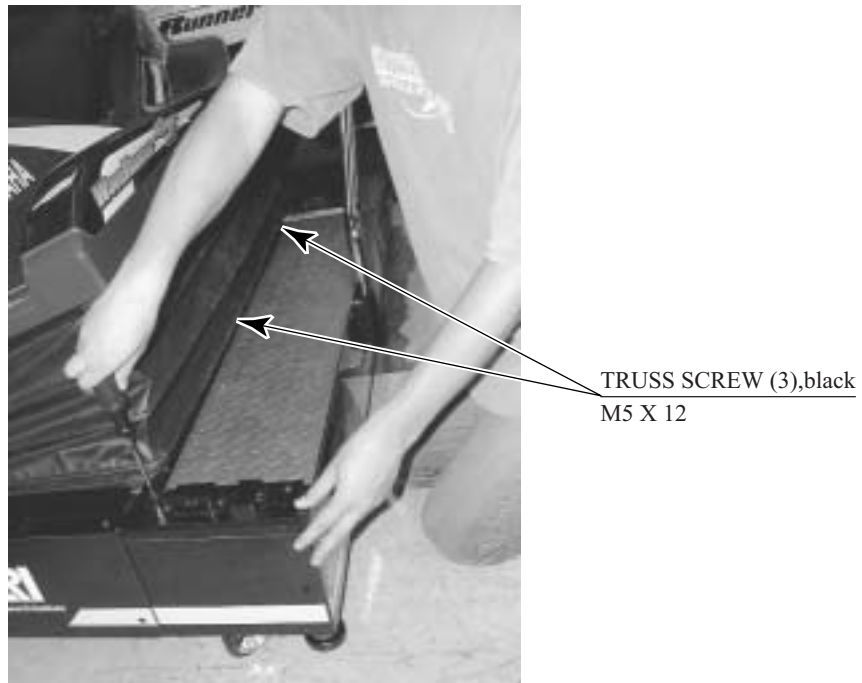


PHOTO 11. 1 e

⑩ Remove Step R slowly. Use care when removing the Step R so as not to damage the wiring inside the lid. (Photo 11.1f)

⑪ Pull out the 2 Connectors. (Photo 11.1g)



PHOTO 11.1 f



PHOTO 11.1 g

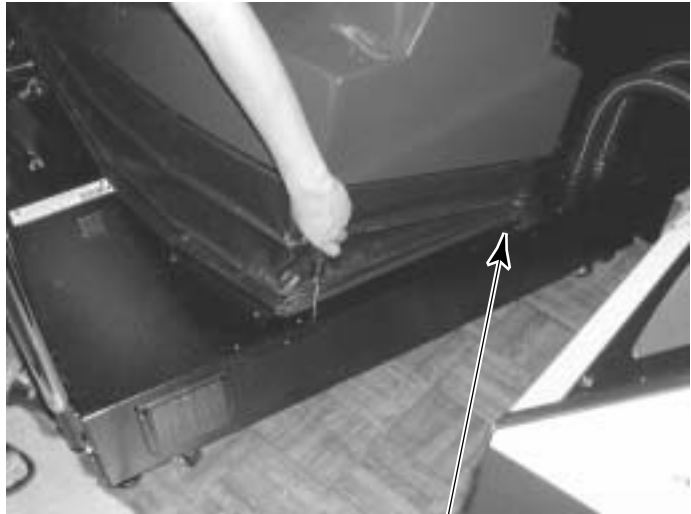
⑫ Take out the 2 truss screws to remove the Bellows Bracket A on both sides ahead of the Ride. (Photo 11.1h)



TRUSS SCREW (2),black
M5 X 12

PHOTO 11.1 h

- ⑬ Take out the 2 truss screws to remove the Bellows Bracket Front. (Photo 11.1i)



TRUSS SCREW (2),black
M4 X 12

PHOTO 11. 1 i

11 - 2 GREASING AND RETIGHTENING THE BOLTS



IMPORTANT!

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

Once every 6 months, apply greasing to (a) ~ (f) mobile parts. Use Spray Grease (Part No. 090 - 0025). Apply Spray Greasing to the Rod End and Bearing from the Grease Nipple. At the same time, check to see if the nuts which secure (a) ~ (f) each bearing and Rod End are loosened. If loosened, retighten the nuts.

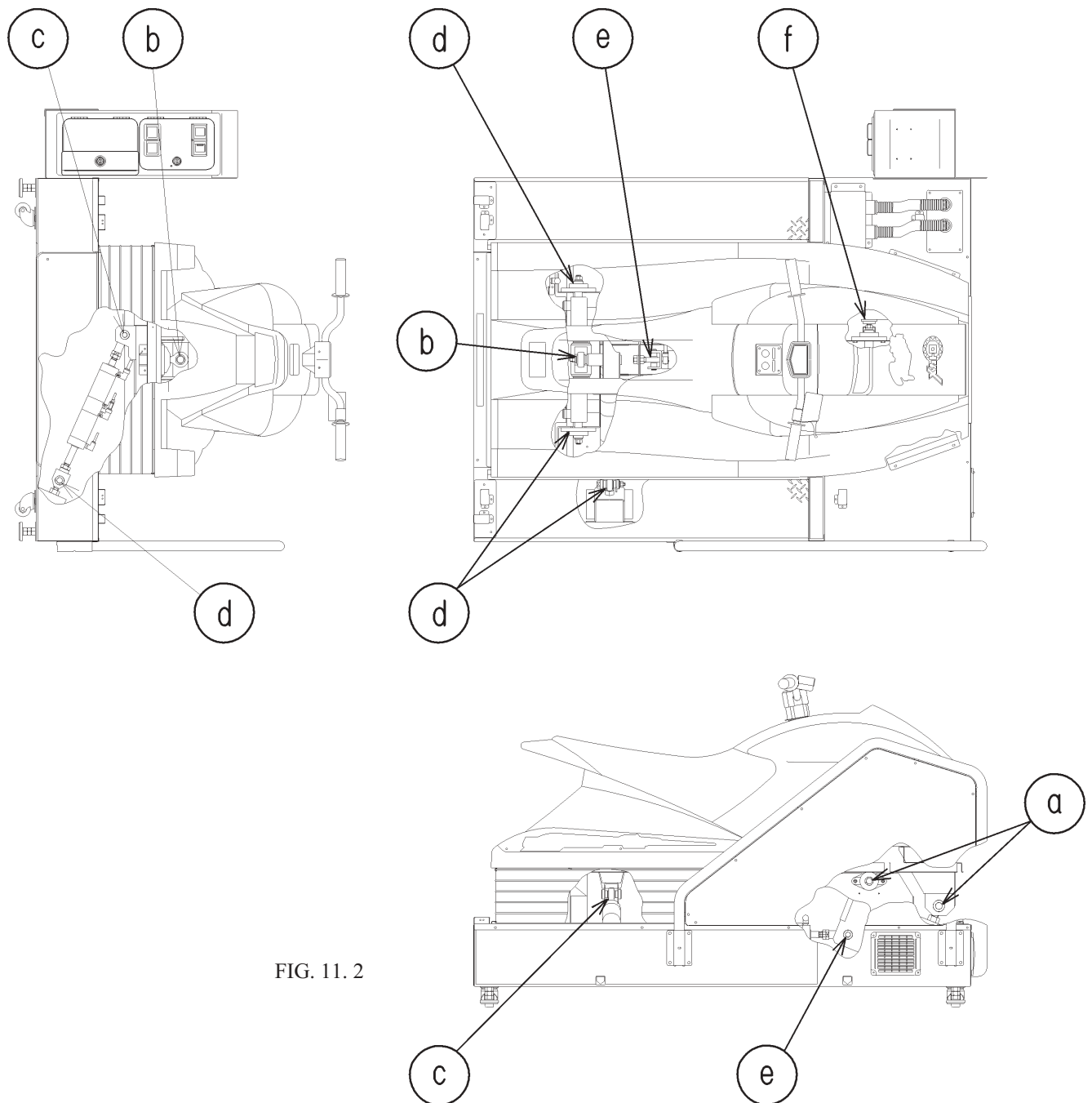
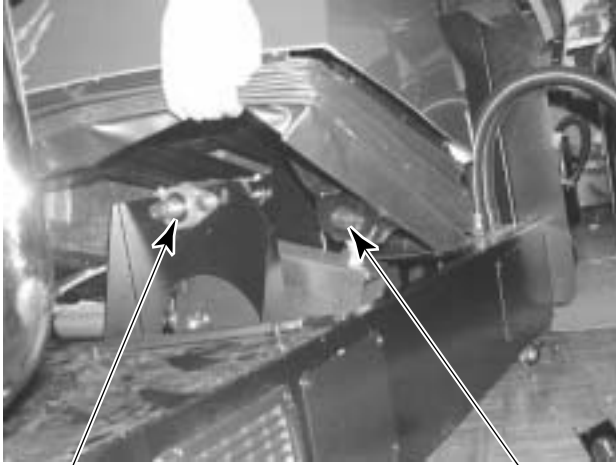


FIG. 11.2

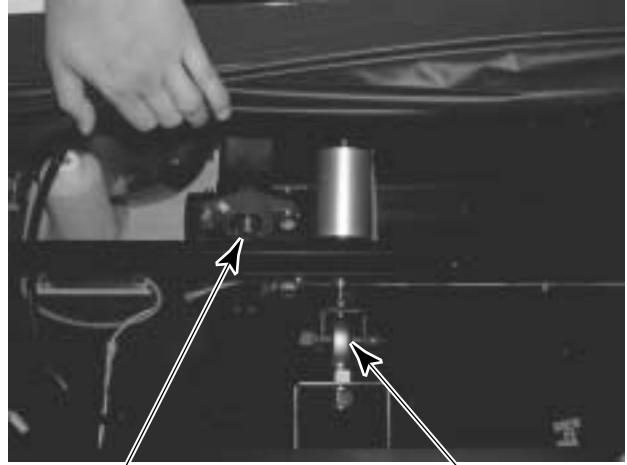
(a) CRANK PORTION



BEARING (BOTH SIDES)

ROD END

(d) LOWER PART OF LINK & LOWER PART OF REAR CYLINDER



BEARING

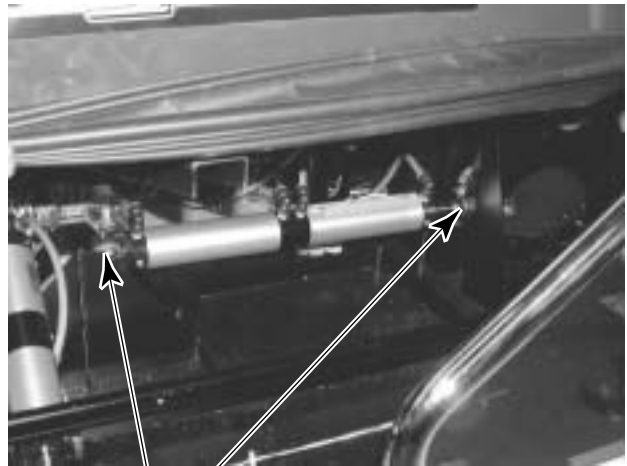
ROD END of CYLINDER

(b) UPPER PART OF LINK



ROD END

(e) FRONT CYLINDER PORTION



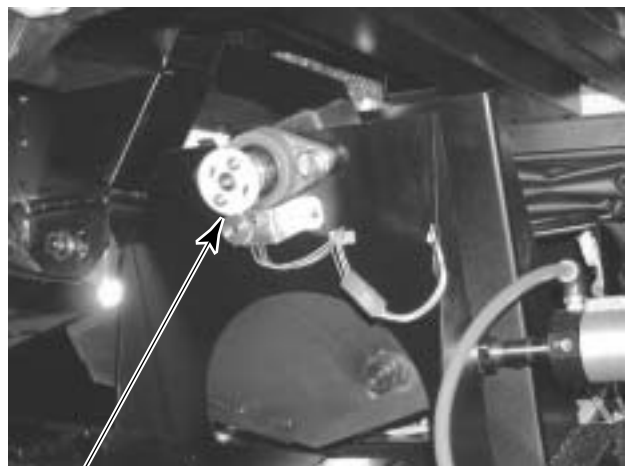
ROD END

(c) UPPER PART OF REAR CYLINDER



ROD END

(f) PITCH VOLUME PORTION



GEAR PORTION

PHOTO 11. 2

11 - 3 ADJUSTMENT AND REPLACEMENT OF PITCH VOLUME

During game, in the cases where the vertical movements of the Ride is irregular or the Volume indicates abnormal values, Pitch Volume Gear mesh may be wrong, or Volume malfunctioning may be the cause. Make adjustments or replace as per the following procedure:

- ① Turn the main switch of the AC Unit off.
- ② Remove the Rear Lid of the Mechanism Base, and close the Main Cock.
- ③ Remove the Lid Left of the Mechanism Base. The Pitch Volume can be seen on the side of the lower front part of the Ride (FIG. 11. 3).

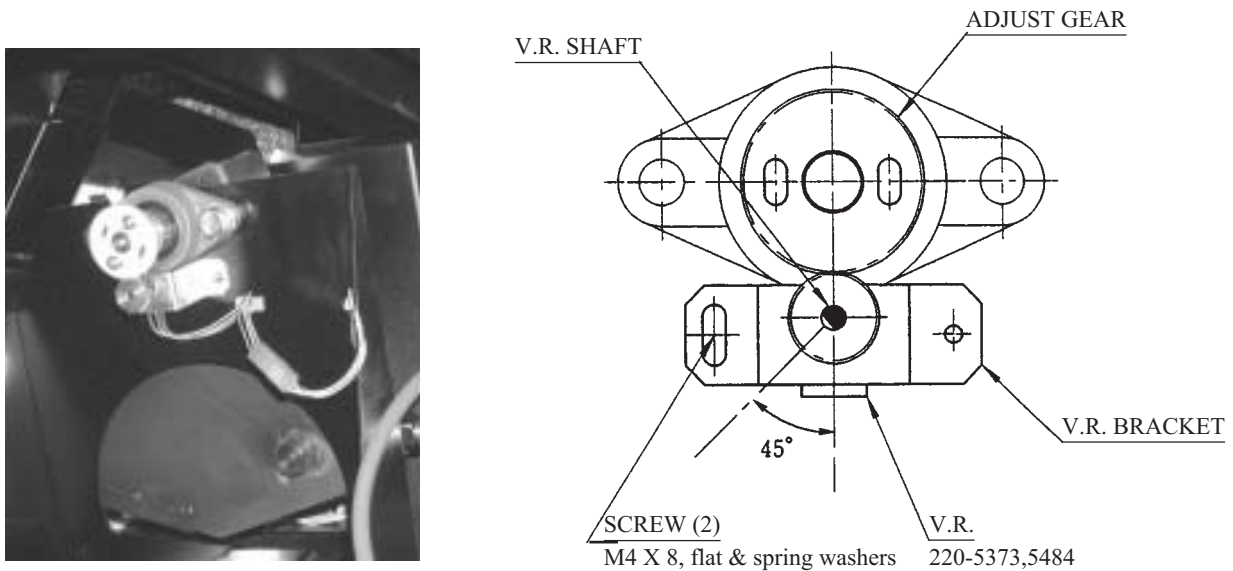


FIG. 11. 3

- ④ Loosen the 2 screws which secure the V. R. Bracket to move the V. R. Bracket.
- ⑤ Move the Volume Bracket to disengage gear mesh, turn the Volume Shaft in the manner so that the Volume Shaft cut portion faces 45 degrees lower left as shown.
- ⑥ Have the gears meshed and tighten the 2 screws to secure the Volume Bracket.
- ⑦ When the Volume is malfunctioning, first disconnect the connectors connected to the Volume, take out the 2 screws which secure the Volume Bracket, and remove the Volume Bracket with the Volume as is attached.
- ⑧ Remove the gear from the Volume Shaft and replace the Volume.

11 - 4 REMOVE THE INCLINATION SENSOR

The Inclination Sensor detects the inclination of right and left of the Ride. Malfunctioning the Ride toward right-and-left direction can cause a failure of the Inclination Sensor. Replace the Sensor, which located in the bottom behind the Ride, in the following procedure.

- ① Turn the main switch of the AC Unit off.
- ② Remove the Rear Lid, the Step L and the Step R (see 11 - 1).
- ③ Pull off the Inclination Sensor Connector.

Disconnect the connector.

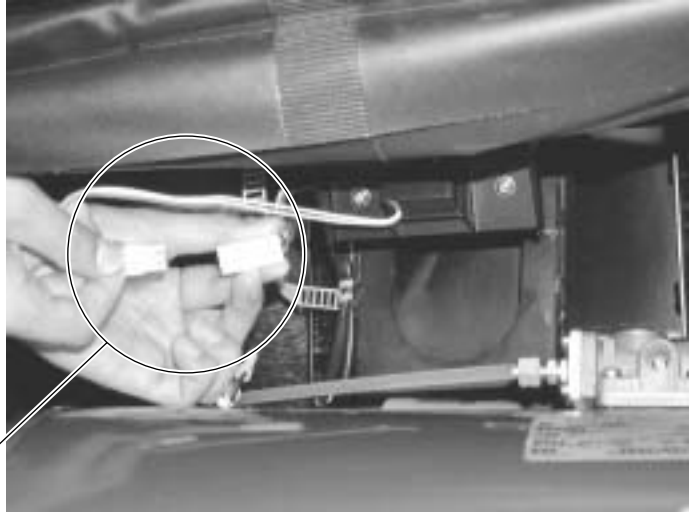


PHOTO 11. 4 a

- ④ Take out the 2 screws and remove the whole bank bracket of the Sensor.

SCREW (2)
M4 X 8,w/flat & spring washers



PHOTO 11. 4 b

- ⑤ Take out the 2 screws and remove the Sensor from the bracket to replace it.

INCLINATION SENSOR
370-5130

SCREW (2)
M3 X 8

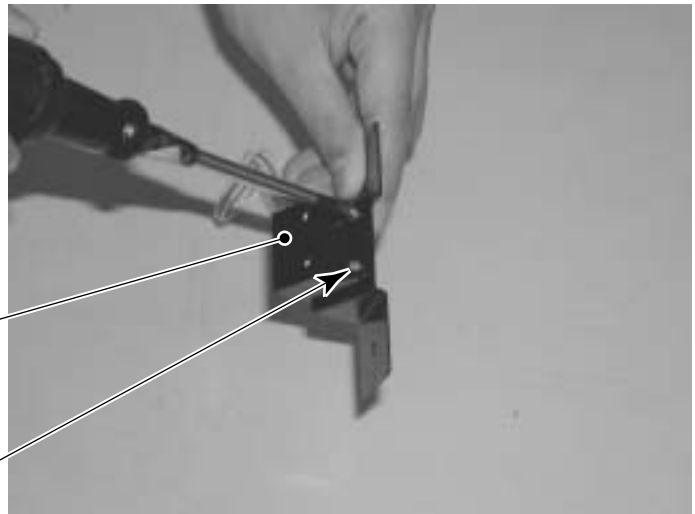


PHOTO 11. 4 c

- ⑥ After the replacement, be sure to perform the Roll Volume Setting in the Test Mode (see 9-3 e).

12. HANDLE MECHANISM



WARNING!

- Before starting to work, ensure that the Power SW is OFF. Failure to observe this can cause electric shock or short circuit.
- Use care so as not to damage wirings. Damaged wiring can cause electric shock or short circuit.
- Do not touch undesignated places. Touching places not designated can cause electric shock or short circuit.
- This work should be performed by the Location's Maintenance Man or Serviceman. Performing work by non-technical personnel can cause electric shock hazard.
- Do not insert hand into the mechanism so as not to cause hand and fingers pinched in. Failure to observe this can cause a serious injury such as a fracture.
- When performing work such as parts replacement other than those specified in this manual, be sure to contact where you purchased the product from and confirm the work procedures and obtain precautions prior to performing work. Inappropriate parts replacement and/or installing with erroneous adjustment can cause an overload or the parts to come into contact, resulting in an electric shock, a short circuit, and a fire.



CAUTION!

Be careful when handling the plastic made parts. Failure to observe this may cause injury due to damage or fragments resulting from damage.

In the Test mode, if the variations in Volume (V. R.) values of the Handle Bar, etc. can not be set within the allowable range, Volume installation position (gear mesh) adjustment or Volume replacement is needed. Once every 3 months, be sure to apply greasing to gear mesh and spring portions.

12 - 1 ADJUSTING AND REPLACING THE THROTTLE V.R.

This work requires a Phillips type screwdriver for M4 screws and a box nut screwdriver for M4 hexagon nut or a wrench.

- ① Take out a total of 3 Truss Screws to remove ACCEL. COVER B.

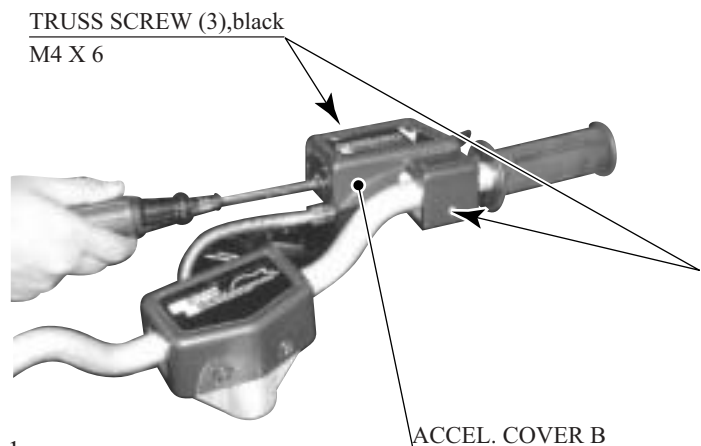


PHOTO 12. 1 a

- ② Take out a total of 4 Truss Screws to remove ACCEL. COVER A.

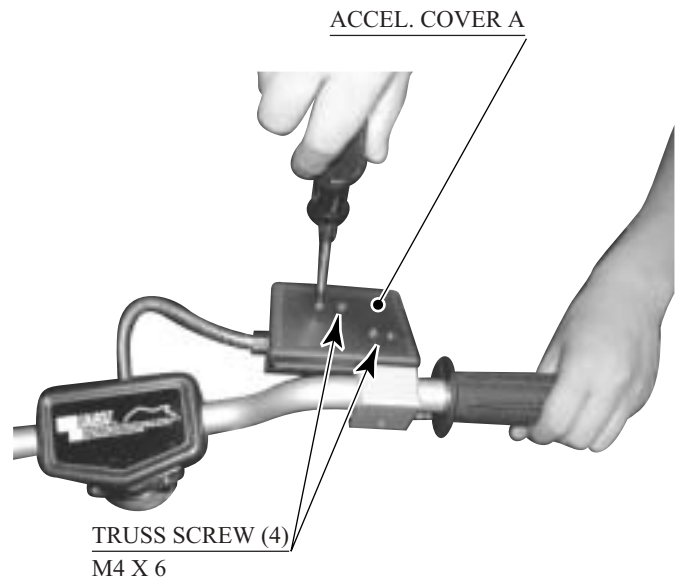


PHOTO 12.1 b

- ③ Take out 2 Truss Screws to remove the VR Cover.

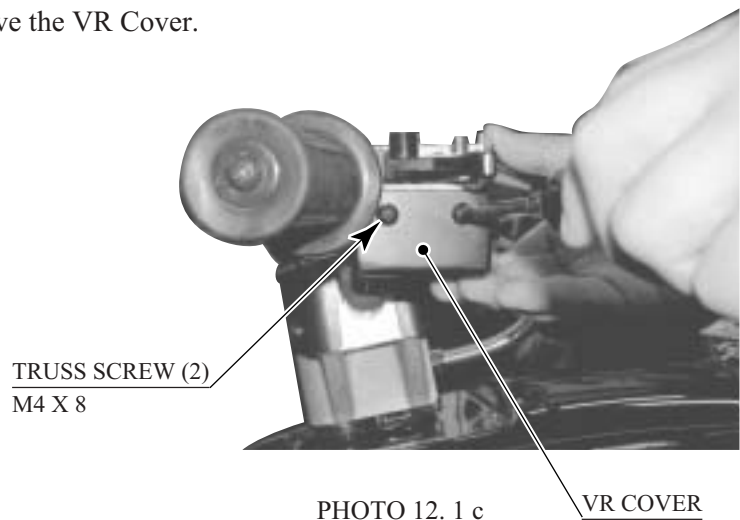


PHOTO 12.1 c

- ④ Loosen the 2 Nuts which secure the Volume Bracket to move the Volume Bracket. (FIG. 12. 1).

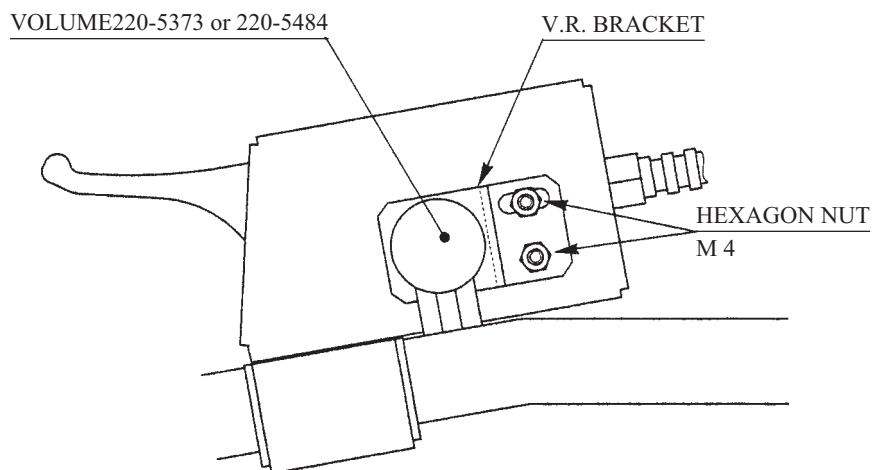


FIG. 12. 1

- ⑤ Moving the Volume Bracket causes Adjust Gear mesh to be disengaged.
- ⑥ Adjust gear mesh and tighten the 2 Nuts.
- ⑦ Grip the Throttle Lever and check to ensure that the V. R. value variations are within the rotatable range of the Volume Shaft.
- ⑧ After finishing adjustments, be sure to perform Throttle Volume setting on the Volume Setting screen in the Test mode (see 9 - 3e).

REPLACING THE THROTTLE VOLUME

- ① Turn the power off.
- ② Perform the above adjustment procedure ① ~ ③.
- ③ Disconnect the connector connected to the Throttle Volume. (PHOTO 12. 1 d)

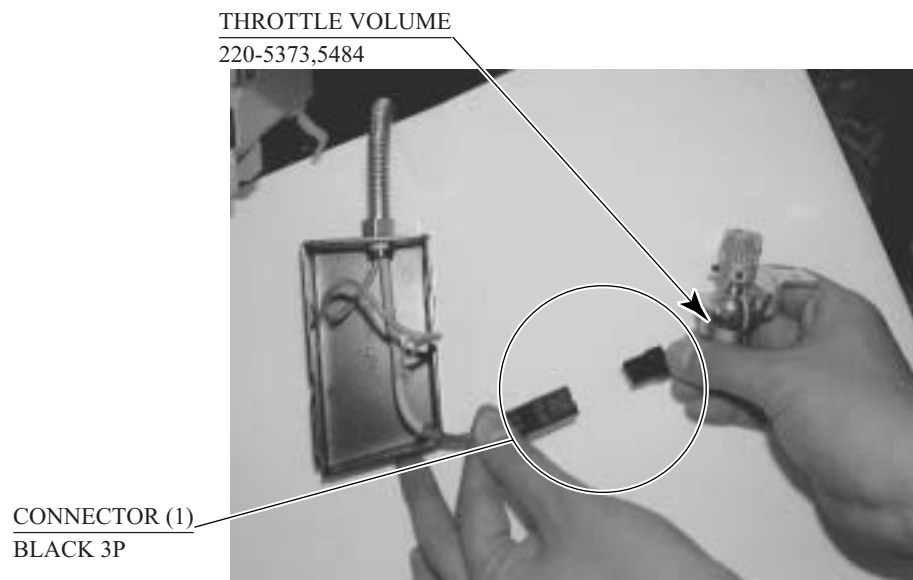


PHOTO 12. 1 d

- ④ Take out the 2 Nuts which secure the Volume Bracket, and remove the Volume Bracket with the Volume as is attached.
- ⑤ Remove the Volume Gear from the Volume Shaft, and replace the Volume by removing from the Bracket.
- ⑥ After the replacement, perform Volume Setting in the Test mode (see 9 - 3e).

12 - 2 ADJUSTING OR REPLACING THE HANDLE V.R.

Adjust or replace the Handle Volume in the following procedure.

This work requires a Phillips screwdriver for M5 screws and a short Phillips screwdriver for M4 screws.

- ① Take out the 3 fixed truss screws and remove the cover of one side so as not to put the power excessively.

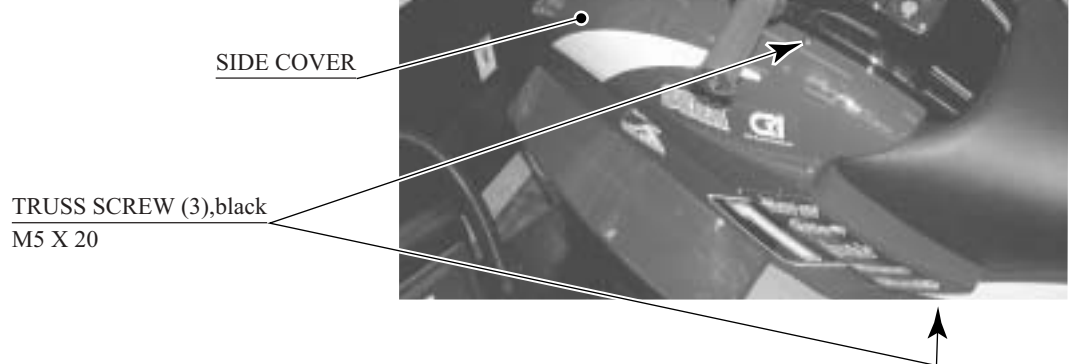


PHOTO 12. 2 a

- ② Removing the side cover, the Handle Volume is appeared. Perform this work using a short Phillips screwdriver.



PHOTO 12. 2 b

- ③ Loosen the 2 screws that secure the V.R. Bracket to move the V.R. Bracket.
- ④ Move the V. R. Bracket to disengage the Adjust Gear mesh and move the V.R. shaft so that the cut part of the shaft may turn to the opposite side of the Adjuster Gear as shown.
- ⑤ Engage the gear and tighten the 2 screws.
- ⑥ Carefully turn the Handle Shaft to the left/right and ensure that the V.R. value variations are within the range of the Volume.
- ⑦ After finishing adjustments, be sure to perform the Handlebars Volume Setting in the Test Mode (see 9-3 e).

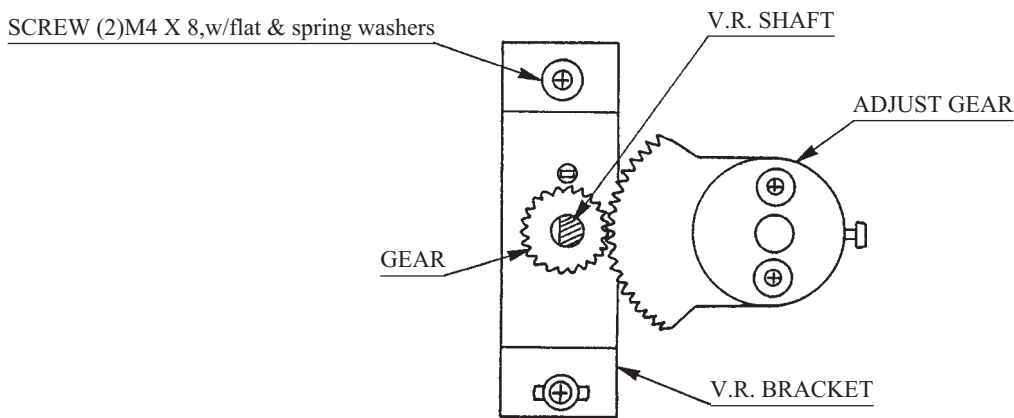


FIG. 12. 2

V. R. REPLACEMENT

- ① Take out the 2 screws that secure the Volume Bracket to remove the Volume Bracket.
- ② Remove the Volume Gear from the V. R. to replace the V.R.

SCREW (2)
M4 X 8,w/flat & spring washers

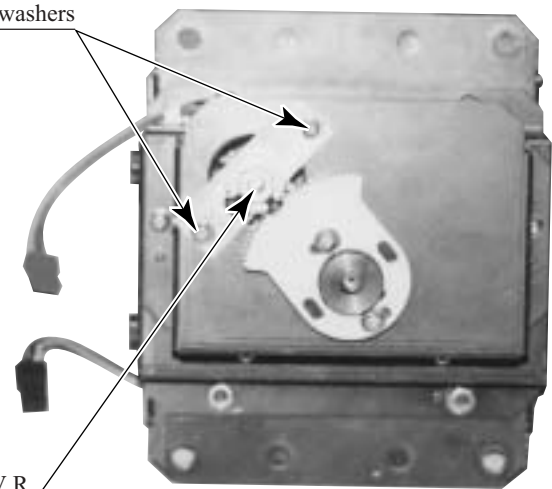


PHOTO 12. 2 c

- ③ After the replacement, be sure to perform the Handlebars Volume Setting in the Test Mode (see 9-3 e).

12 - 3 GREASING



IMPORTANT!

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

Once every 3 months, apply greasing to the following portions. For spray grease, use GREASE MATE (PART No. 090-0066).

Gear mesh portion

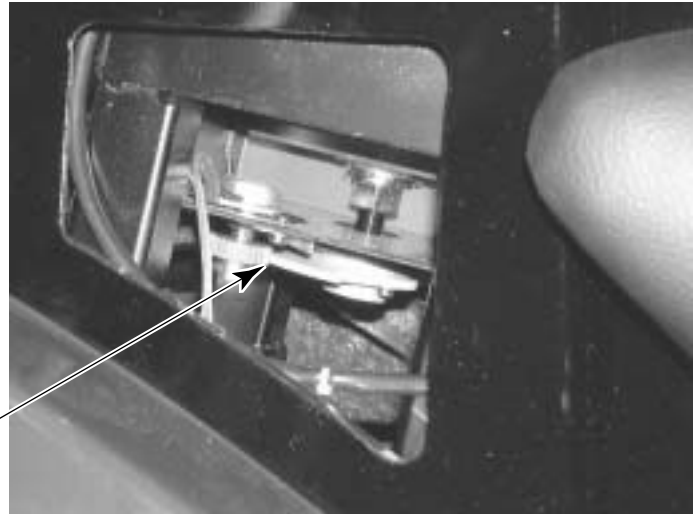


PHOTO 12. 3 a

Torsion Spring portion

Gear mesh portion

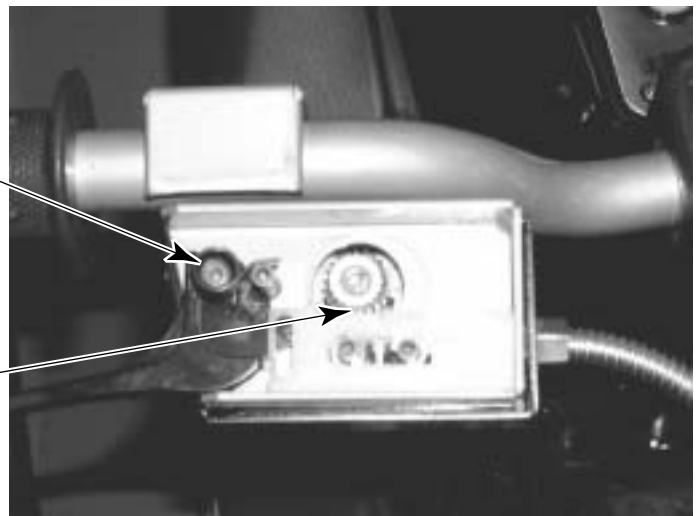


PHOTO 12. 3 b

13. 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



IMPORTANT!

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

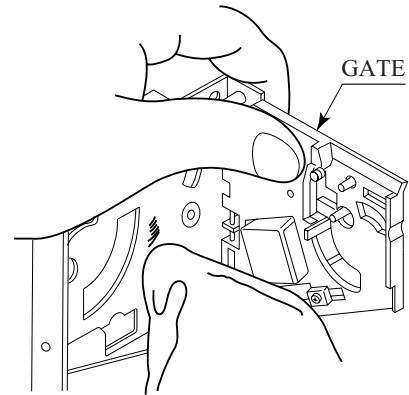


FIG. 13 a

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

- 1 Turn the power for the machine OFF. Open the coin chute door.
- 2 Remove the coin selector from the coin chute door.
- 3 Open the gate and dust off by using a soft brush (made of wool, etc.).
- 4 Remove and clean smears by using a soft cloth dipped in water or diluted chemical detergent and then squeezed dry.
- 5 Remove the CRADLE.

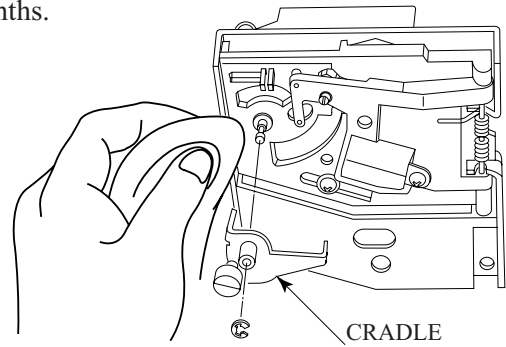


FIG. 13 b

- When removing the retaining ring (E ring), be very careful so as not to bend the rotary shaft.
- 6 Remove stain from the rotary shaft and shaft receiving portions by wiping off with a soft cloth, etc.
 - 7 After wiping off as per above, further apply a dry cloth, etc. to cause the coin selector to dry completely.

COIN INSERTION TEST

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

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

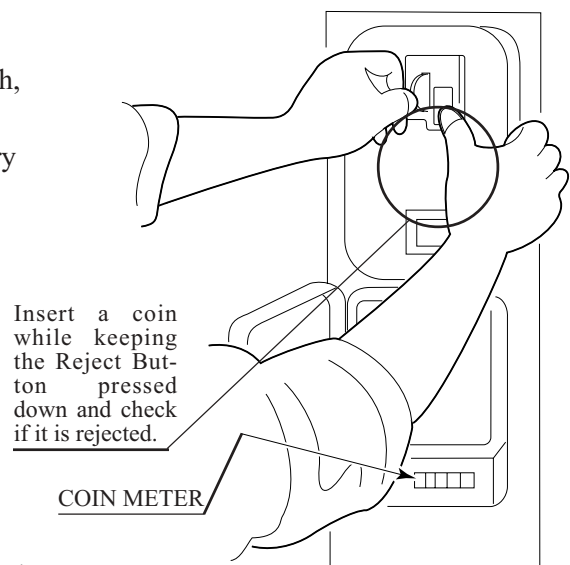
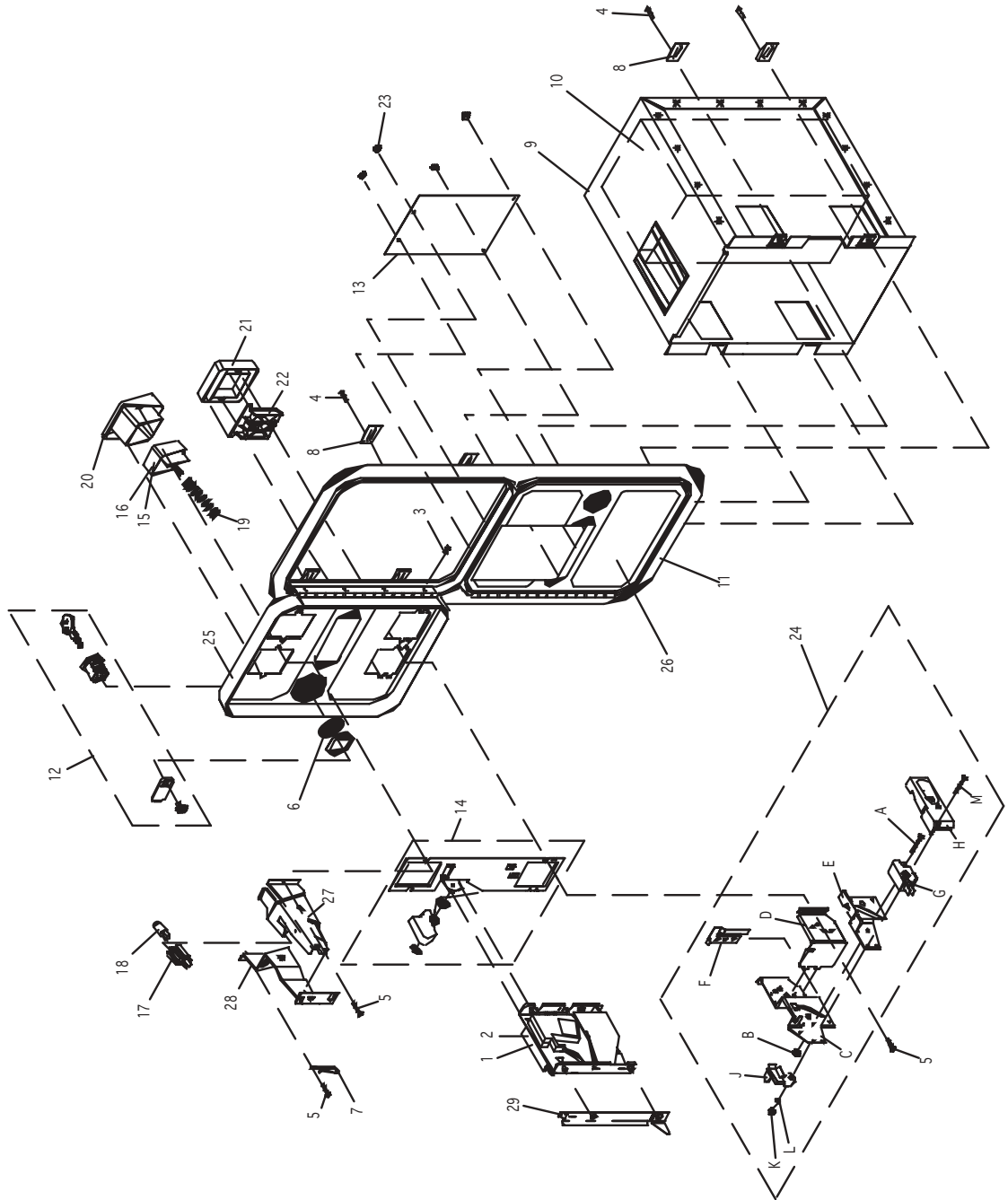


FIG. 13 c

WGD15-2110-01
 OVER/UNDER MINI DOOR
 2 ENTRIES WITH BILL
 VALIDATOR BOTTOM DOOR
 & SPECIAL ENCLOSURE

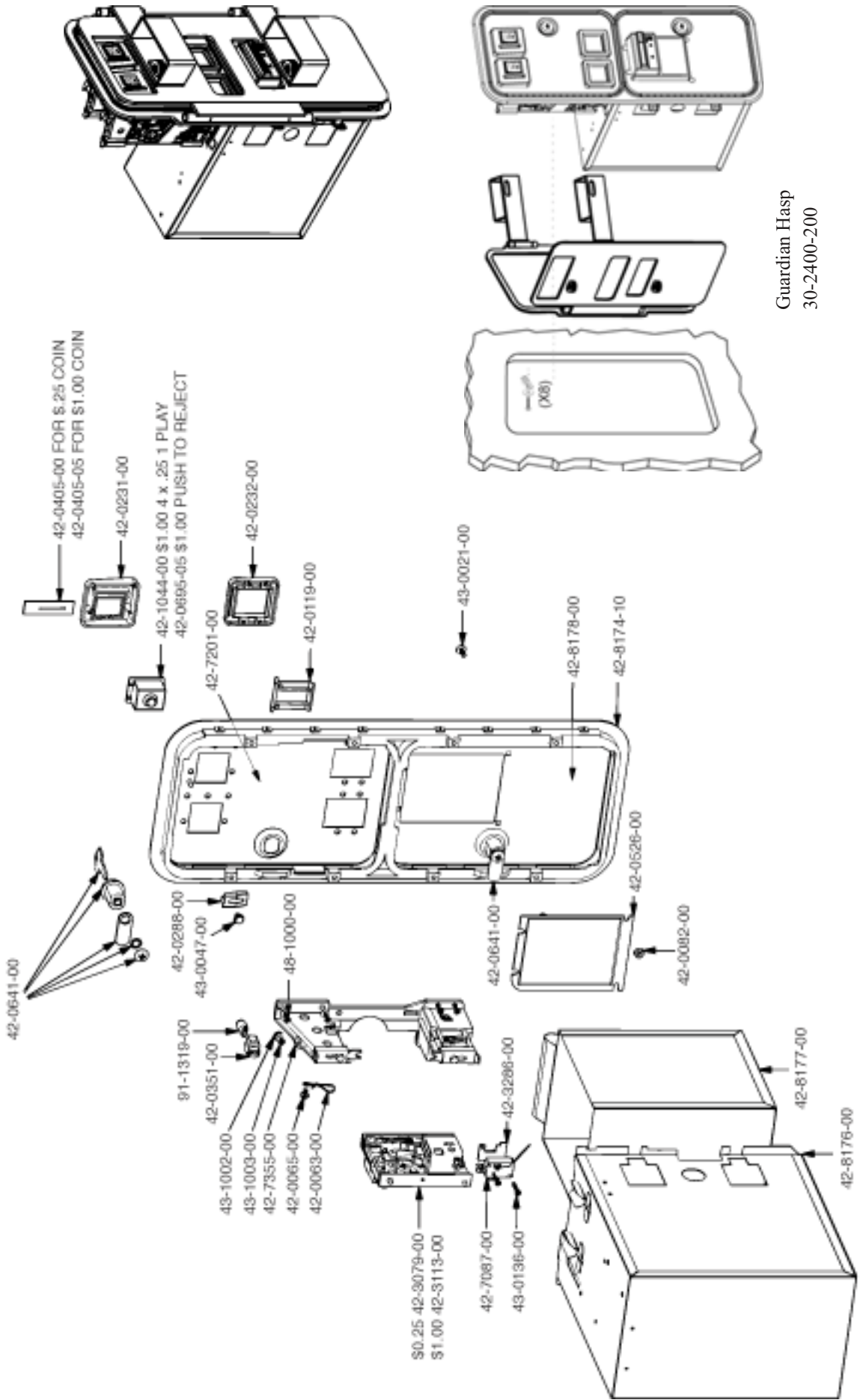
WELLS-GARDNER
 ELECTRONICS CORPORATION
 2701 N. KILDARE CHICAGO, IL 60639
 1-800-336-6630
 WWW.WGEC.COM

#	W.G. PART #	DESCRIPTION
1	812-4150-011	S-7 US 25c COIN MECH LEFT
2	812-4050-011	S-10 US \$1 COIN MECH RIGHT
3	890-1002-00	HINGE SCREW
4	890-1003-00	CLAMP SCREW
5	890-1017-00	SCREW TRILOBULAR
6	890-1019-00	WASHER INTERNAL TOOTH 3/4"
7	890-1300-00	KEYHOOK
8	891-0514-00	CLAMP UK 5/8" CABINET
9	025X3711-001	ENCLOSURE W/CHUTE
10	025X3712-001	METAL CASHBOX
11	891-0509-162	DOUBLE FRAME
12	891-0547-00	LOCK SINGLE BIT
13	891-0100-4016	COVER PLATE
14	891-1008-107	BASE PLATE ASSEMBLY
15	891-1113-03	E/R BUTTON US 4x25c/\$1 LEFT
16	891-1113-011	E/R BUTTON US \$1 COIN RIGHT
17	891-1117-00	LAMPHOLDER
18	891-1118-00	LAMP WEDGE BASE 6 VOLT
19	891-1121-00	SPRING, E/R BUTTON
20	891-1311-16	BUTTON BEZEL, NYLON
21	891-1312-16	REJECT BEZEL, NYLON
22	891-1109-16	REJECT FLAP
23	020X1877-005	NUTKETS #8-32 X 5/16 HEX
24	891-2216-16	MICROSWITCH ASSEMBLY
24A	890-1007-00	SCREW, FLAT HEAD W/S
24B	890-1206-02	KEP NUT
24C	891-1105-01	REJECT CUP SIDE PLATE
24D	891-1106-00	REJECT CUP BASE PLATE
24E	891-1107-00	BRACKET, MICROSWITCH
24F	891-1110-00	ADJUSTER, COIN
24G	891-1116-16	MICROSWITCH, BLACK - MED.
24H	891-1125-00	COVER, PLASTIC
24J	892-1002-07	CLIP, SNAP-ON
24K	892-1002-08	ELASTIC SNAP NUT
24L	892-1002-09	SLEEVE, SNAP-ON
24M	892-1002-11	SCREW, PAN HEAD
25	891-0604-16	MINI DOOR 2 ENTRIES
26	891-0614-16	MINI DOOR W/DBV C/O
27	892-1002-01	BRACKET, LAMP SIDE
28	892-1002-021	BRACKET, COVERSIDE
29	892-1002-10	BRACKET, HOLD DOWN



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 Visit our website <http://www.happcontrols.com>

Ph: 847-593-6161 ext. 107
 Fax: 847-956-2091



Guardian Hasp
 30-2400-200

OPTIONAL DOLLAR BILL ACCEPTOR

- THE COIN DOOR ASSEMBLY USED ON **WAVERUNNER GP** COMES EQUIPPED TO ACCEPT A DOLLAR BILL ACCEPTOR. ALL NEEDED WIRING CONNECTIONS ARE CONVIENENTLY LOCATED INSIDE THE GAME FOR THIS APPLICATION.
- THE COIN DOOR CAN ACCCOMMODATE THE FOLLOWING VALIDATOR(S):

FORWARD-MOST
HOLE POSITION

Mars 2000 series

**42-1155-00 MARS VALIDATOR \$1, 2, 5 300 CAP

The frame and cashbox enclosure on this coindoor has been modified to accomodate a Mars 2000 series upstacker. A 2000 series stacker can be added by simply removing the cut-out plate. This one entry door can be ordered through Happ Controls or one of Happ Controls authorized distributors. The part number is 40-6000-10EX. The Mars stacker can be obtained through an atherized Mars distibutor.

Note: Your game may have either Happ Controls Coin Door Assembly or the Wells Gardner Coin Door Assembly (not shown).

**Happ part number

Security Locking Bar/Bracket Set Part No.# 999-0966

Modified Cash Box (For use when DBA installed)
Part No. # 999-1106

Plastic Cash Box - Full Size Part No. # 999-1177

14. PROJECTOR



CAUTION!

Since the Projector has been adjusted at the time of shipment, avoid making further adjustments without good reason.



IMPORTANT!

The Projector is subject to color deviation due to Convergence deviation caused by the geomagnetism at the installation location and peripheral magnetic field. After the installation of machine, and before commencing operation, check for Convergence deviation and if deviated, make adjustments.

Projector adjustments are stored. Due to distortion or color deviation in the TEST mode, if an adjustment is necessary, use the Remote Control to make adjustments.

14 - 1 CLEANING THE SCREEN



CAUTION!

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

When the screen surface becomes dirty with dust, etc., clean it by using a soft cloth such as gauze. When water, and volatile chemicals such as 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.

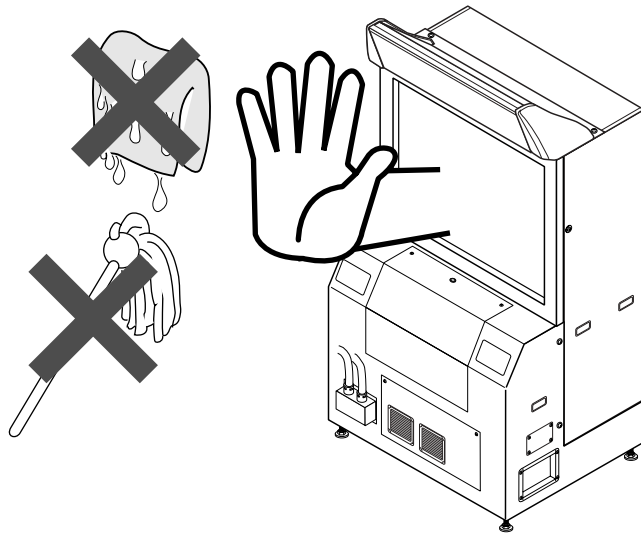


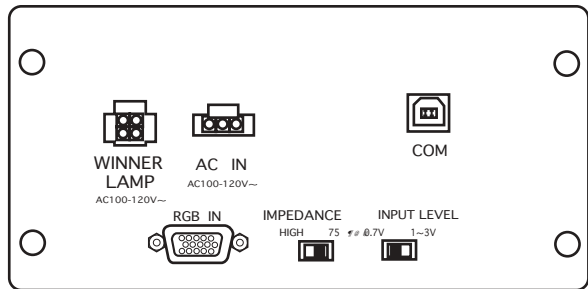
FIG. 14. 1

SETTING THE INTERFACE



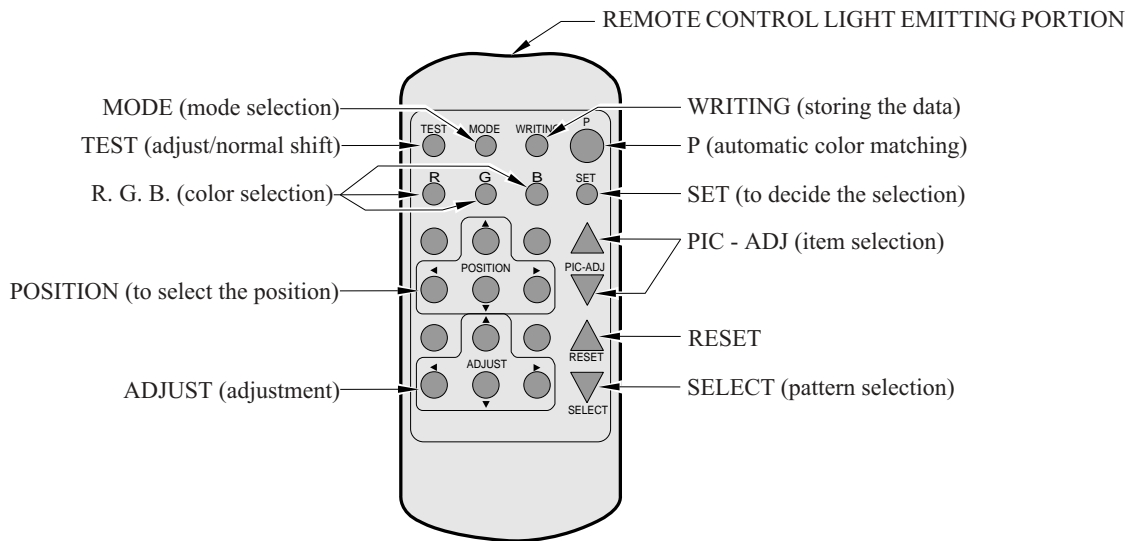
In this product, set to INPUT LEVEL: 0.7V and IMPEDANCE: 75Ω. Failure to observe this can cause CRT membrane to burn or Shutdown device to function resulting in power off.

The Projector's Connector Panel contains the Interface setting SW.



REMOTE CONTROL BUTTONS

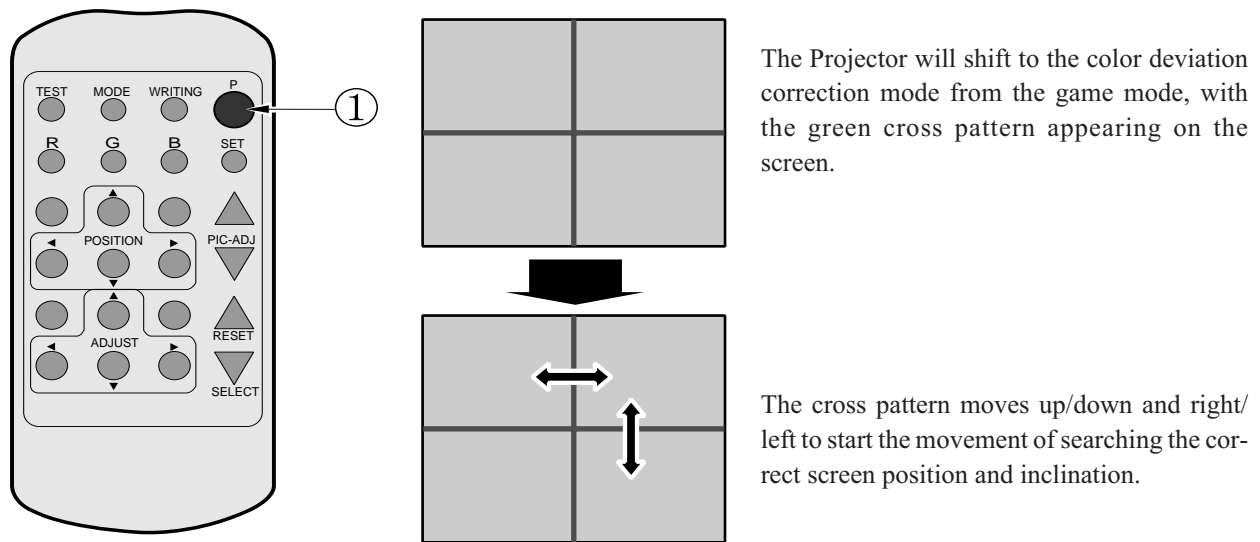
When adjusting the Projector, direct the Remote Control's light emitting portion towards the Projector Screen.



AUTOMATIC COLOR MATCHING

The Projector may be subject to color deviations affected by earth magnetism, the building steel frames, etc. When the Projector is initially installed or the Projector's installation position is changed, have the color matching performed automatically.

- ① Keep pressing the P button (red) for approximately 3 seconds to have the ensuing movements performed automatically.

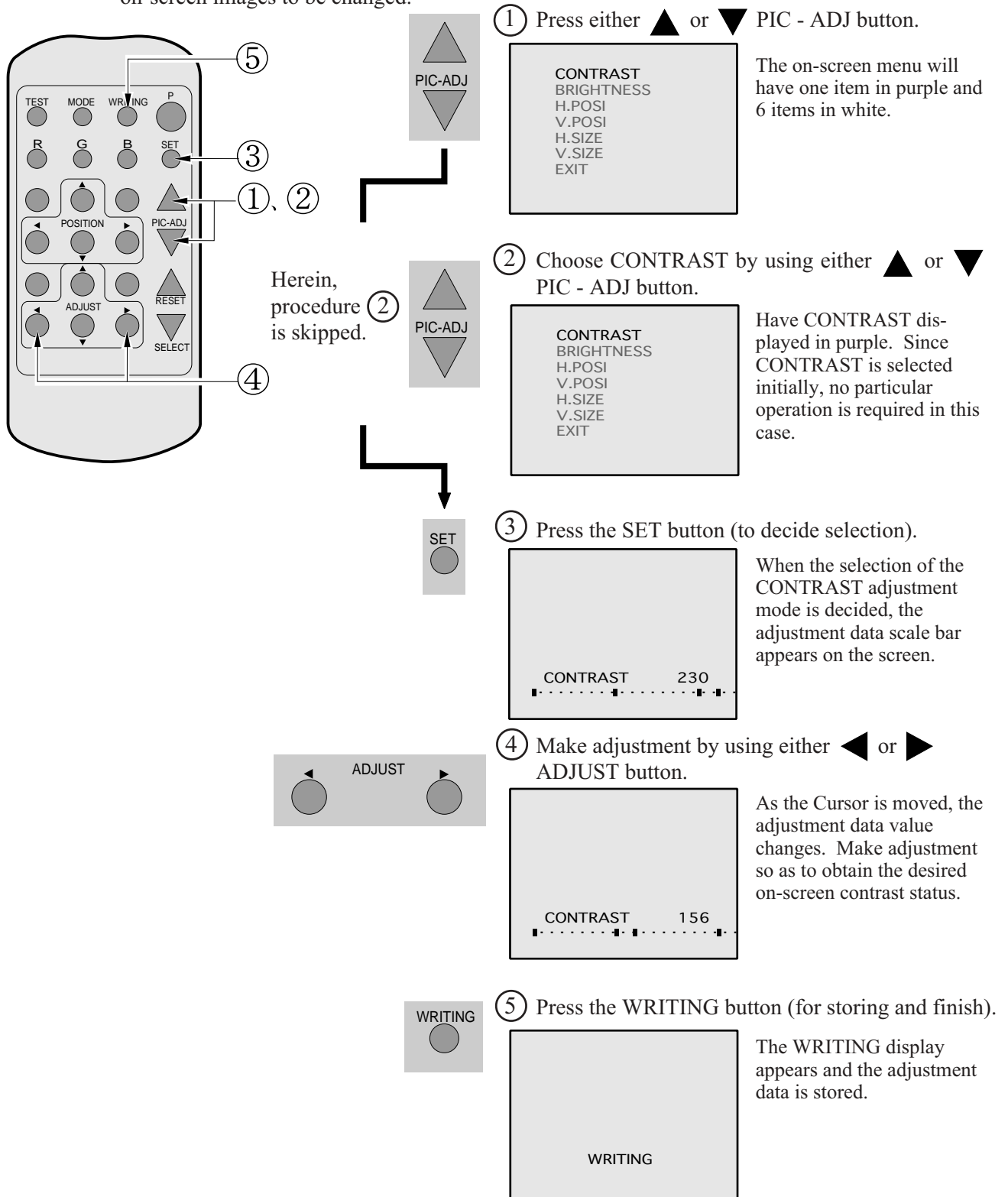


When the green cross pattern movements are finished, similar detection is performed sequentially in order of red and then blue cross movements. After detecting by green, red and blue cross movements, the game mode returns with the color deviation status being corrected.

- Although very rarely, the TRY AGAIN error display in red may appear. At this time, press the P button (red) for approximately 3 seconds. Even after the above operation is repeated, if the error condition still exists, then the display shifts to PLEASE ADJ. In this case, the auto color matching function can not be used. Contact the place of contact herein stated or where the product was purchased from.
- If the automatic color matching indicates an error, color matching can manually be performed. Refer to CONVERGENCE ADJUSTMENT (manual color matching).

ADJUSTING THE ON-SCREEN CONTRAST

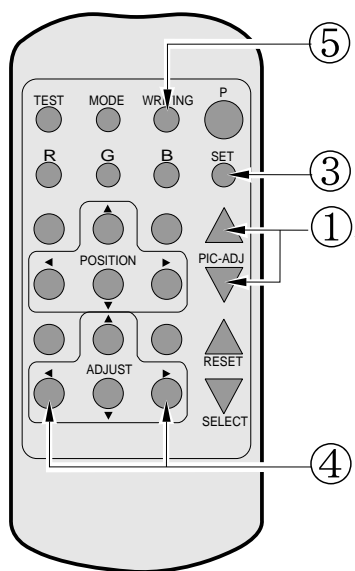
Although the on-screen picture quality has been adjusted at the time of shipment from the factory, the on-screen contrast can be readjusted if desired. When the Game Board is replaced, readjustment may be necessary. Changing the CONTRAST causes the light and shade of the on-screen images to be changed.



- When discontinuing the adjustment, choose EXIT from the menu at the stage of procedure ② and press the SET button.
- To continue adjusting other menu items, repeat procedure ② ~ ④ .
- Unless the adjustment data is stored, the data in the adjusted-status will be erased at the time the power is turned off and the pre-adjustment status will remain when the power is turned on next time.

ADJUSTING THE SCREEN BRIGHTNESS

Although the on-screen picture quality has been adjusted at the time of shipment from the factory, readjustment can be made if desired. When the Game Board is replaced, readjustment may be necessary. Changing the BRIGHTNESS causes the brightness of the on-screen images of black portions to be changed.




- ①** Press either ▲ or ▼ PIC - ADJ button.

CONTRAST
 BRIGHTNESS
 H.POSI
 V.POSI
 H.SIZE
 V.SIZE
 EXIT


The on-screen menu will have one item in purple and 6 items in white.
- ②** Choose BRIGHTNESS by using either ▲ or ▼ PIC - ADJ button.

CONTRAST
BRIGHTNESS
 H.POSI
 V.POSI
 H.SIZE
 V.SIZE
 EXIT

Have the BRIGHTNESS displayed in purple.
- ③** Press the SET button (to decide selection).

BRIGHTNESS 128


When the selection of the BRIGHTNESS adjustment mode is decided, the adjustment data scale bar appears on the screen.
- ④** Make adjustment by using either ◀ or ▶ ADJUST button.

BRIGHTNESS 156


As the Cursor is moved, the adjustment data value changes. Make adjustment so as to obtain the desired on-screen brightness status.
- ⑤** Press the WRITING button (for storing and finish).

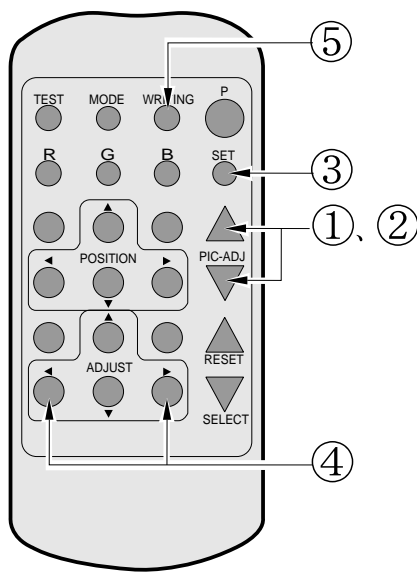
WRITING

The WRITING display appears and the adjustment data is stored.

- When discontinuing the adjustment, choose EXIT from the menu at the stage of procedure ② and press the SET button.
- To continue adjusting other menu items, repeat procedure ② ~ ④
- Unless the adjustment data is stored, the data in the adjusted status will be erased at the time the power is turned off and the pre-adjustment status will remain when the power is turned on next time.

ADJUSTING THE ON-SCREEN DISPLAY POSITION

Although the on-screen display position (H. POSI, V. POSI) has been adjusted at the time of shipment from the factory, readjustment can be made if desired. When the Game Board is replaced, readjustments may be necessary.



① Press either ▲ or ▼ PIC - ADJ button.

CONTRAST
 BRIGHTNESS
 H.POSI
 V.POSI
 H.SIZE
 V.SIZE
 EXIT

The on-screen menu will have one item in purple and 6 items in white.

② Choose H. POSI or V. POSI by using either ▲ or ▼ PIC ADJ button.

CONTRAST
 BRIGHTNESS
 H.POSI
 V.POSI
 H.SIZE
 V.SIZE
 EXIT

Have the H. POSI or V. POSI displayed in purple. The Figure shows the status in which H. POSI is selected.

③ Press the SET button (to decide selection).

H.POSI 128
 ■ ■

When the selection of the H. POSI or V. POSI is decided, the adjustment data scale bar appears on the screen.

④ Make adjustment by using either ◀ or ▶ ADJUST button.

H.POSI 156
 ■ ■

As the Cursor is moved, the adjustment data value changes. Make adjustment so as to obtain the desired on-screen position status.

When making adjustments in vertical directions, also use either ◀ or ▶ ADJUST button.

⑤ Press the WRITING button (for storing and finish).

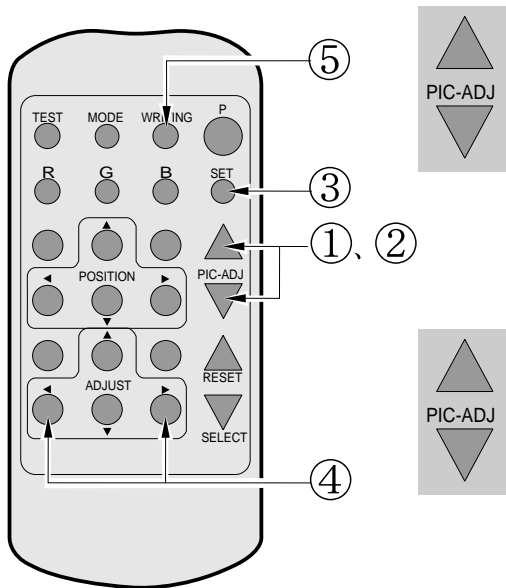
WRITING

The WRITING display appears and the adjustment data is stored.

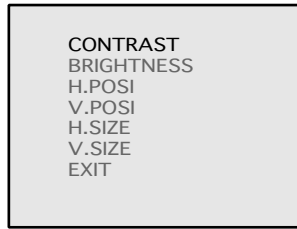
- When discontinuing the adjustment, choose EXIT from the menu at the stage of procedure ② and press the SET button.
- To continue adjusting other menu items, repeat procedure ② ~ ④.
- Unless the adjustment data is stored, the data in the adjusted status will be erased at the time the power is turned off and the pre-adjustment status will remain when the power is turned on next time.

ADJUSTING THE SCREEN SIZE

Although the on-screen size (H. SIZE, V. SIZE) has been adjusted at the time of shipment from the factory, readjustment can be made if desired. When the Game Board is replaced, readjustments may be necessary.



① Press either ▲ or ▼ PIC - ADJ button.



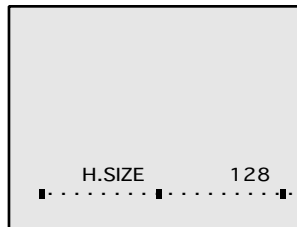
The on-screen menu will have one item in purple and 6 items in white.

② Choose H. SIZE or V. SIZE by using either ▲ or ▼ PIC - ADJ button.



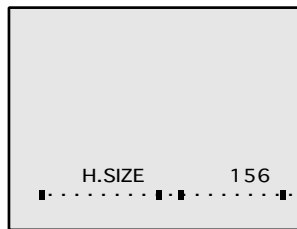
Have the H. SIZE or V. SIZE displayed in purple. The Figure shows the status in which H. SIZE is selected.

③ Press the SET button (to decide selection).

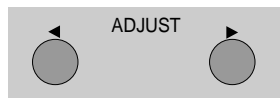


When the selection of the H. SIZE or V. SIZE adjustment mode is decided, the adjustment data scale bar appears on the screen.

④ Make adjustment by using either ◀ or ▶ ADJUST button.

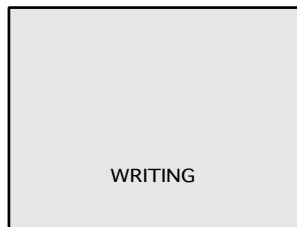


As the Cursor is moved, the adjustment data value changes. Make adjustment so as to obtain the desired on-screen position status.



When making adjustments in vertical directions, also use either ◀ or ▶ button.

⑤ Press the WRITING button (for storing and finish).



The WRITING display appears and the adjustment data is stored.

- When discontinuing the adjustment, choose EXIT from the menu at the stage of procedure ② and press the SET button.
- To continue adjusting other menu items, repeat procedure ② ~ ④.
- Unless the adjustment data is stored, the data in the adjusted status will be erased at the time the power is turned off and the pre-adjustment status will remain when the power is turned on next time.

CONVERGENCE ADJUSTMENT (manual color matching)



To avoid circuitry malfunctioning due to electrical load increase, never utilize CONVERGENCE ADJUSTMENT (Line Convergence Adjustment in particular) for adjusting screen size changes.

There is no means to restore the Convergence Adjustment data once stored, to its original state. To avoid changing the screen size by erroneously using convergence adjustment, do not perform the green Line Convergence Adjustment.

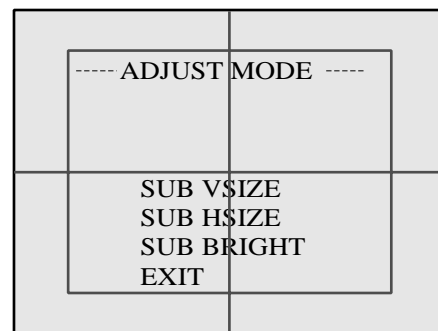
As such, be sure to perform the adjustment work from this page onward by the Technical staff and the location's Maintenance Personnel who are well versed in such adjustment work. In the Static Convergence Adjustments, if satisfactory adjustments can not be performed, do not make another convergence adjustments inadvertently. Contact the office herein stated or where the product was purchased from.



- To avoid making the adjustment work ineffective, do not press the RESET button during adjustment.
- To discontinue adjustment work, keep pressing the TEST button for approximately 3 seconds at the stage before storing the adjustment data by pressing the WRITING button.
- Should the screen be abnormally disturbed by noise due to static electricity, etc., turn the power off without storing the adjustment data.
- Pressing the ▲ or ▼ PIC - ADJ button in the Convergence Adjustment mode status will display the Adjustment Menu shown right. Do not utilize this Adjustment Menu as this is the one applied at the factory.

Adjusting this menu causes the Customer's adjustment range to be deviated.

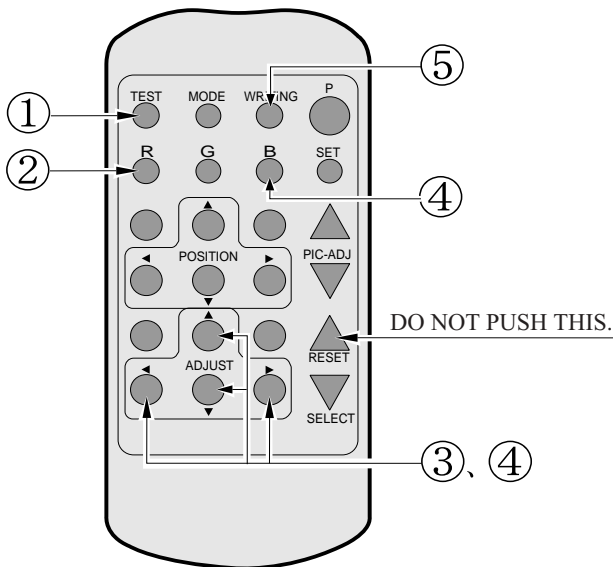
Should the menu shown right be displayed by mistake, first choose EXIT by using either ▲ or ▼ PIC - ADJ button and then press the SET button.



Adjustment menu used in the factory.

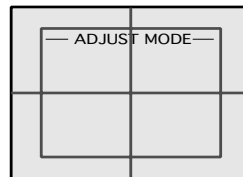
STATIC CONVERGENCE ADJUSTMENT

In the static convergence adjustment, each of red and blue images is comprehensively moved to and superimposed on the green color. If automatic color matching function is not sufficiently satisfactory, perform this adjustment. Be sure to perform automatic color matching before starting the above adjustment.



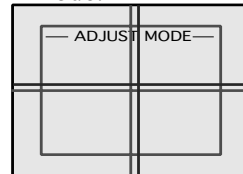
When either of (2) ~ (4) COLOR SELECT buttons (R, B) is pressed, if the color desired to be adjusted disappears, press that particular button again. For example, if the red color needs to be adjusted again at the stage of (4), the R button need to be pressed twice.

- Keep pressing the TEST button for approximately 3 seconds.



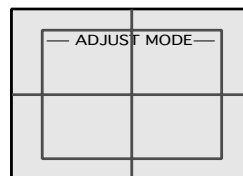
The screen will change to ADJUST mode from the Game mode to cause the green test pattern to be displayed on the screen.

- Press the R button to have the red adjustment mode.



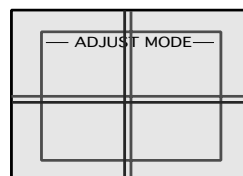
The red test pattern is added to the display. The frame color turns red and this signifies the red adjustment mode.

- Make adjustment by using the ▲ ▼ ◀ ▶ ADJUST buttons.



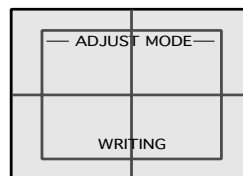
Make adjustment so as to have red superimposed on green. When red is superimposed on green, the color becomes yellow.

- Press the B button to have the blue adjustment mode.



Similarly as in the case of red, adjust the blue color. When green, red, and blue are superimposed, the color becomes white.

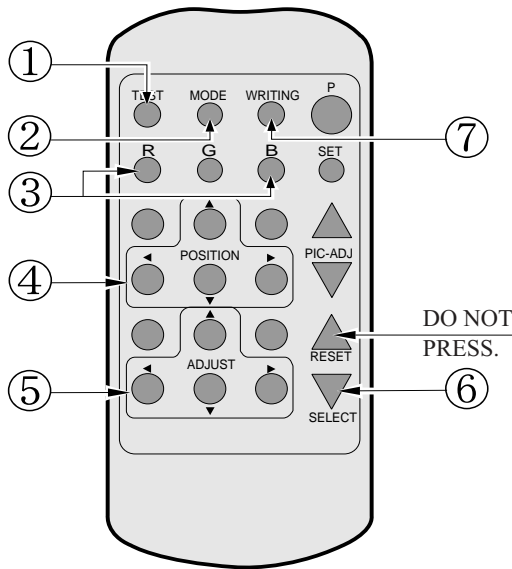
- Press the WRITING button (for storing and finish).



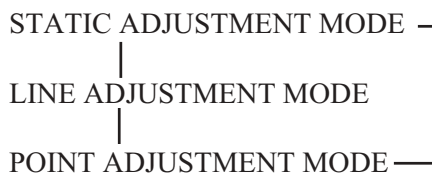
The WRITING display appears and the adjustment data is stored. After the data is stored, the Game mode returns.

POINT CONVERGENCE ADJUSTMENT

In the POINT CONVERGENCE adjustment, each of red, green and blue images is partially moved for color matching. The adjustment may be necessary when the Game Board is replaced or changed, or screen size is changed. Be sure to perform automatic color matching before starting the adjustment.



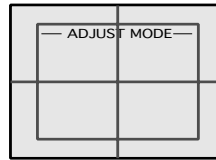
Note 1 When the MODE button is repeatedly pressed, the adjustment modes will circulate as follows:



Note 2 When either of the COLOR SELECT buttons (R, B) is pressed, if the desired color to be adjusted disappears, press that particular button again.

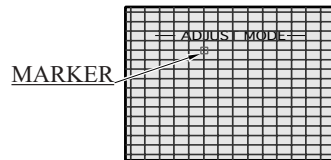
Note 3 By repeatedly pressing the SELECT button, only the Projector's TEST pattern screen and the screen superimposing the Game Board Test pattern can be alternately displayed.

- ① Keep pressing the TEST button for approximately 3 seconds.



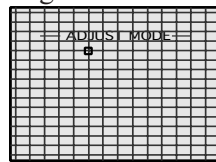
The screen changes to ADJUST mode from the Game mode and displays the green test pattern.

- ② Press the MODE button twice to have the POINT ADJUSTMENT mode. Note 1



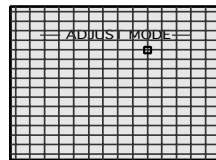
The crosshatch test pattern appears and the MARKER indicating the adjustment point is displayed.

- ③ Using either R or B button, select the desired color to be adjusted. Note 2 By using the G button, the green color can also be selected.



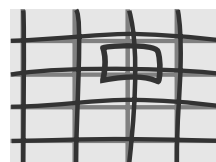
The selected color is displayed by superimposing on green. The MARKER will be in the color selected.

- ④ By using the ▲ ▼ ◀ ▶ ADJUST buttons, move the MARKER to the position to be adjusted.



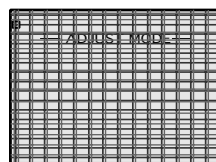
The MARKER moves in the direction of the button's arrow. However, the movable point is predetermined.

- ⑤ Make adjustment by using the ▲ ▼ ◀ ▶ ADJUST buttons.



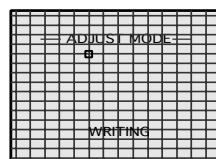
Although the direct vicinity of the MARKER's center moves most conspicuously, make adjustment by paying attention to the periphery area also. Shown left is the magnified MARKER periphery.

- ⑥ Press the SELECT button as necessary to superimpose Game Board images. Note 3



If the test pattern is not displayed in the periphery of the screen, adjustments can be made by pressing the SELECT button to superimpose the test pattern and the Game Board's CRT test screen.

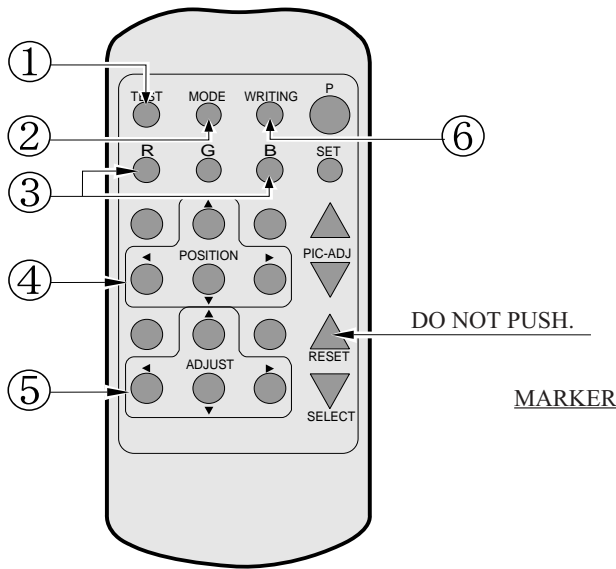
- ⑦ Press the WRITING button (for storing and finish).



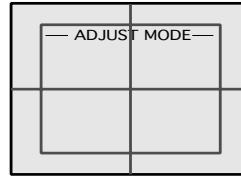
WRITING is displayed and the adjustment data is stored. After the data is stored, the Game Board screen returns.

LINE CONVERGENCE ADJUSTMENT

In the LINE CONVERGENCE ADJUSTMENT, the adjustment point of the column line (vertical) or row line (horizontal) is comprehensively moved for color matching. It is convenient to utilize this adjustment when the color of the column line or row line is uniformly deviated.

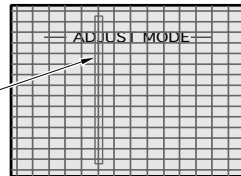


- ① Keep pressing the TEST button for approximately 3 seconds.



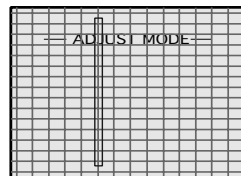
The screen changes to ADJUST mode from the Game Board mode and displays the green test pattern.

- ② Press the MODE button once to have the POINT ADJUSTMENT mode. Note 1



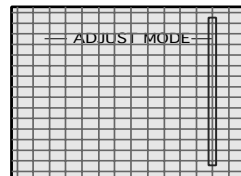
The crosshatch test pattern appears and the vertically long MARKER is shown.

- ③ Using either R or B button, select the desired color to be adjusted. Note 2 Although the green color can also be selected by using the G button, to avoid the screen size change adjustment, do not choose green.

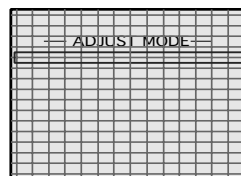


The selected color is displayed by superimposing on green. The MARKER will be in the color selected.

- ④ By using the ▲ ▼ ◀ ▶ POSITION buttons, move the MARKER to the position to be adjusted.

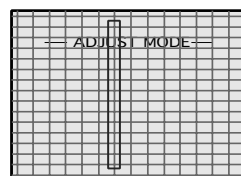


Use the ◀ ▶ buttons to select the column line, and the MARKER moves in the right/left direction. However, the movable range is predetermined.



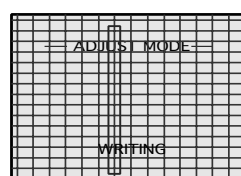
Use the ▲ ▼ buttons to select the row line and the MARKER moves in the up/down direction. However, the movable range is predetermined.

- ⑤ Make adjustment by using the ▲ ▼ ◀ ▶ ADJUST buttons.



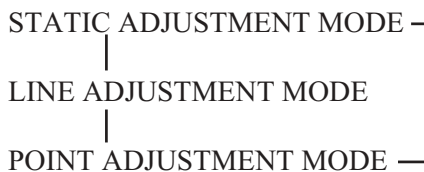
The selected column line or row line (shown left is the column line) can be moved in the desired up/down or right/left directions as applicable.

- ⑥ Press the WRITING button (for storing and finish).



WRITING is displayed and the adjustment data is stored. After the data is stored, the Game Board screen returns.

Note 1 When the MODE button is repeatedly pressed, the adjustment modes will circulate as follows:



Note 2 When either of the COLOR SELECT buttons (R, B) is pressed, if the desired color to be adjusted disappears, press that particular button again.

15. REPLACEMENT OF FLUORESCENT LAMP



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. Performing work without using the step can cause violent falling down accidents.
- Be careful when handling the plastic made parts. Failure to observe this may cause injury due to damage or fragments resulting from damage.

- ① Remove the 3 screws which secure the Holder on the upper part of Billboard.
- ② Pull out the Holder to the upper side of the Billboard, and replace the fluorescent lamp (32W).

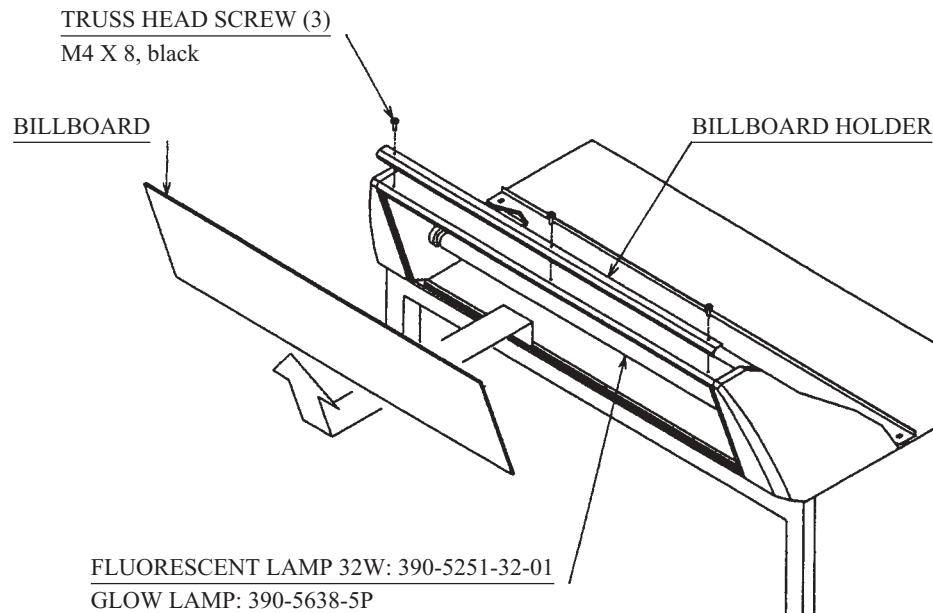


FIG. 15 a

When performing work,
prepare a step.

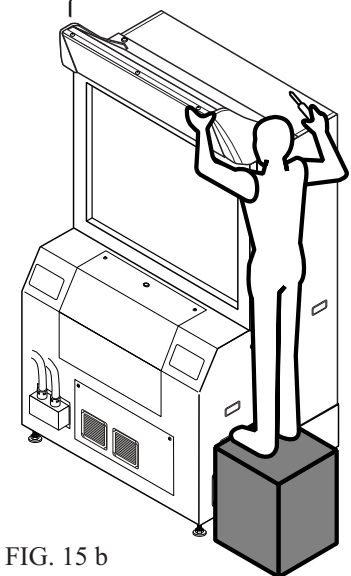


FIG. 15 b

16. PERIODIC INSPECTION TABLE

The Air Compressor employed in this product drives the Ride during game. The items listed below require periodic check and maintenance to retain the performance of this machine and to ensure safe business operation.



- 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.

TABLE 16

ITEMS	DESCRIPTION	PERIOD	REFERENCE
CABINET	Check LEG ADJUSTER adjustments.	Daily	3
AIR DRIVE SYSTEM	Dewatering of FILTER.	Weekly	1 0 - 2
	Dewatering from AIR TANK.	Weekly	1 0 - 3
	Check Regulator's set pressure.	Bi-monthly	1 0 - 4
	Check AIR CLEANER.	Bi-monthly	1 0 - 5
MECHANISM	Check SAFETY SENSOR.	Daily	3
	Check BELLOWS.	Daily	3
	Greasing for each of Pillow Block and Rod End.	Biannually	1 1 - 2
	Tightening the Bolts further.	Biannually	1 1 - 2
HANDLE MECHA	Check VOLUME VALUE.	Monthly	9
	Greasing of GEAR and bearing.	Tri-monthly	1 2
COIN CHUTE TOWER	Check COIN SWes.	Monthly	9
	Coin insertion test.	Monthly	1 3
	Cleaning of COIN SELECTOR.	Tri-monthly	1 3
POWER SUPPLY PLUG	Inspection and cleaning	Annually	See above.
INTERIOR	Cleaning		
CABINET	Cleaning		

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.

17. TROUBLESHOOTING

17 - 1 TROUBLESHOOTING



- In order to prevent electric shock and short circuit, be sure to turn power off before performing work.
- Be careful so as not to damage wirings. Damaged wiring can cause electric shock or short circuit.
- After removing the cause of the functioning of the Circuit Protector, reinstate the Circuit Protector. Depending on the cause of the functioning, using the Circuit Protector as is without removing the cause can cause generation of heat and fire hazard.

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

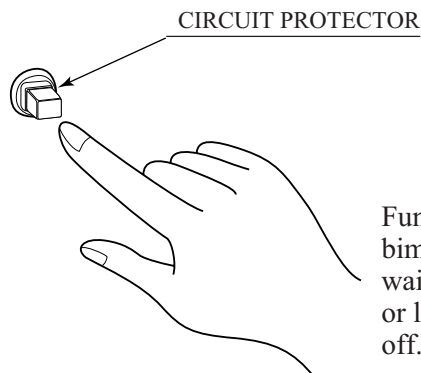
TABLE 17 a

PROBLEMS	CAUSE	COUNTERMEASURES
When the main SW is turned ON, the machine is not activated.	The power is not ON.	Firmly insert the plug into the outlet.
	Incorrect power source/voltage.	Make sure that the power supply/voltage are correct.
	The CIRCUIT PROTECTOR functioned due to momentary overcurrent.	After eliminating the cause of overload, have the Circuit Protector of the AC Unit restored. (See Section 6 and Next page)
	The fuse of the connect board was blown out due to momentary overcurrent.	After eliminating the cause of overload, replace the specified rating fuse (514-5036-7000, FUSE 6.4 ø X 30 7000mA 125V). (PHOTO 17. 1 b)
The color on the PTV screen is not correct.	Screen adjustment is not appropriate.	Make adjustment appropriately. (See Section 14)
PTV screen has a color deviation.	Affected by the periphery, such as other machines, location building's steel frames, etc.	Make convergence adjustments. (See Section 14)
		Change installation direction/ position.
		Move the other machines which cause the problem.
No PTV screen image.	Connector connection fault.	Check connector connection between the PTV and Cabinet. (See Section 6)
Sound is not emitted.	Sound volume adjustment is not correct.	Adjust the SWITCH UNIT's sound adjustment volume control. (See 9 - 1)
	Malfunctioning BD. and Amp.	Perform SOUND TEST. (NAOMI Service Manual)
During game play, the Compressor does not operate.	Circuit Protector functioned due to momentary overload.	After eliminating the cause of overload, have the power supply Circuit Protector restored. (PHOTO 17. 1 b)
During game, the Ride does not operate.	Safety Sensor functioned.	Remove the foreign article.
	Air Tank Cock is closed.	Open the Cock. (See 11-1)
	Preset pressure is incorrect.	Make pressure adjustment. (See 10-4)
	Air leakage.	Check the Air Drive System.
	Communication fault between the Main BD and the I/O BD.	Check in the wiring test. (See 9-3g)

TABLE 17 b

PROBLEMS	CAUSE	COUNTERMEASURES
During game, the Ride does not turn when the Handlebars are turned.	Deviation of Handle Volume.	Adjust the Volume value in the test mode. (See 9-3e)
	Malfunctioning of Handle Volume.	Replace the Volume. (See 12-2)
When gripping the Throttle Lever, the Ride does not advance.	Deviation of Throttle Volume.	Adjust Volume values in the Test mode. (See 9-3e)
	Malfunctioning of Throttle Volume.	Replace the Volume. (See 12-1)
Vertical movements of the Ride during game is weak and irregular.	Initial setting is wrong.	Turn power off and then turn it back on again to perform initial setting movement. (See 6 Section 6)
	Malfunctioning of Pitch Volume.	Replace Volume. (See 11-3)
	Preset pressure is incorrect.	Make pressure adjustment. (See 10-4)
	Air leakage.	Check the Air Drive System.
	Communication fault between the I/O BD and Drive BD.	Check in the wiring test. (See 9-3g)
	Air Damper adjustment fault.	Air Damper adjustment. (See the end of this Section)
Left/right movements of the Ride is weak and irregular.	Deviation of Roll Volume.	Adjust Volume values in the Test mode. (See 9-3e)
	Preset pressure is incorrect.	Make pressure adjustment. (See 10-4)
	Air leakage.	Check the Air Drive System.
	Communication fault between I/O BD and Drive BD.	Check in the wiring test. (See 9-3g)
	Malfunctioning of Inclination Sensor.	Replace the Inclination Sensor. (See 11-4)
Communication play not possible.	Communication cable connection is incorrect.	Connect the communication cables correctly. (See 20-2)
	Communication settings are wrong.	Correct the settings. (See 20-3)
Fluorescent lamp doesn't light up.	Connector connection fault.	Check connector connections between the Billboard and PTV. (See Section 6)
	Fluorescent lamp need replacement.	Replace the fluorescent lamp. (See Section 15)

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. (Press the Button.)

CIRCUIT PROTECTOR and FUSE REPLACEMENT



- In case fuse replacements other than those stated in this manual are necessary, contact where you purchased the product from for inquiries regarding this matter.
- Fuse replacements other than those specified can cause accidents and are strictly forbidden.
- In order to prevent an electric shock, be sure to turn power off and unplug from the socket outlet before performing work by touching the internal parts of the product.
- Be careful so as not to damage wirings. Damaged wiring can cause electric shock and short circuit accidents.
- Be sure to use fuses meeting specified rating. Using fuses exceeding the specified rating can cause fire and electric shock accidents.
- After eliminating the cause of the blowing of fuse, replace the fuse. Depending on the cause of fuse blowing, continued use with the fuse as is blown can cause generation of heat and fire hazard.

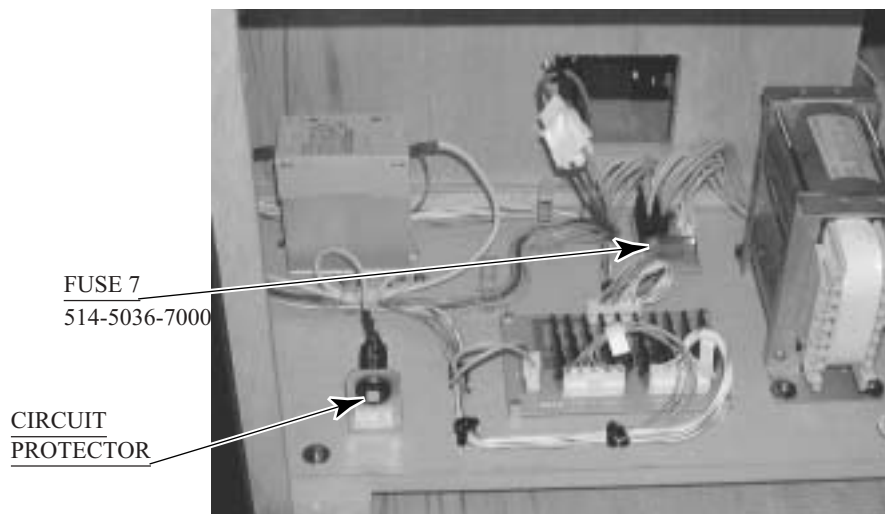
Remove the 2 truss screws and dismount the lower lid from the front cabinet. The fuse and the circuit protector for the air drive are installed on the ASSY PWR SPLY unit inside the front cabinet.

PHOTO 17. 1 a



TRUSS SCREW, black
M4 X 25

LOWER LID



FUSE 7
514-5036-7000

CIRCUIT
PROTECTOR

PHOTO 17. 1 b

AIR DAMPER ADJUSTMENT

In this machine, the Cylinders are equipped with air dampers to soften the impact created by the Ride movements. If the Cylinder's amplitude of vibration or the impact is excessive, adjust the air dampers in the following procedure.



WARNING!

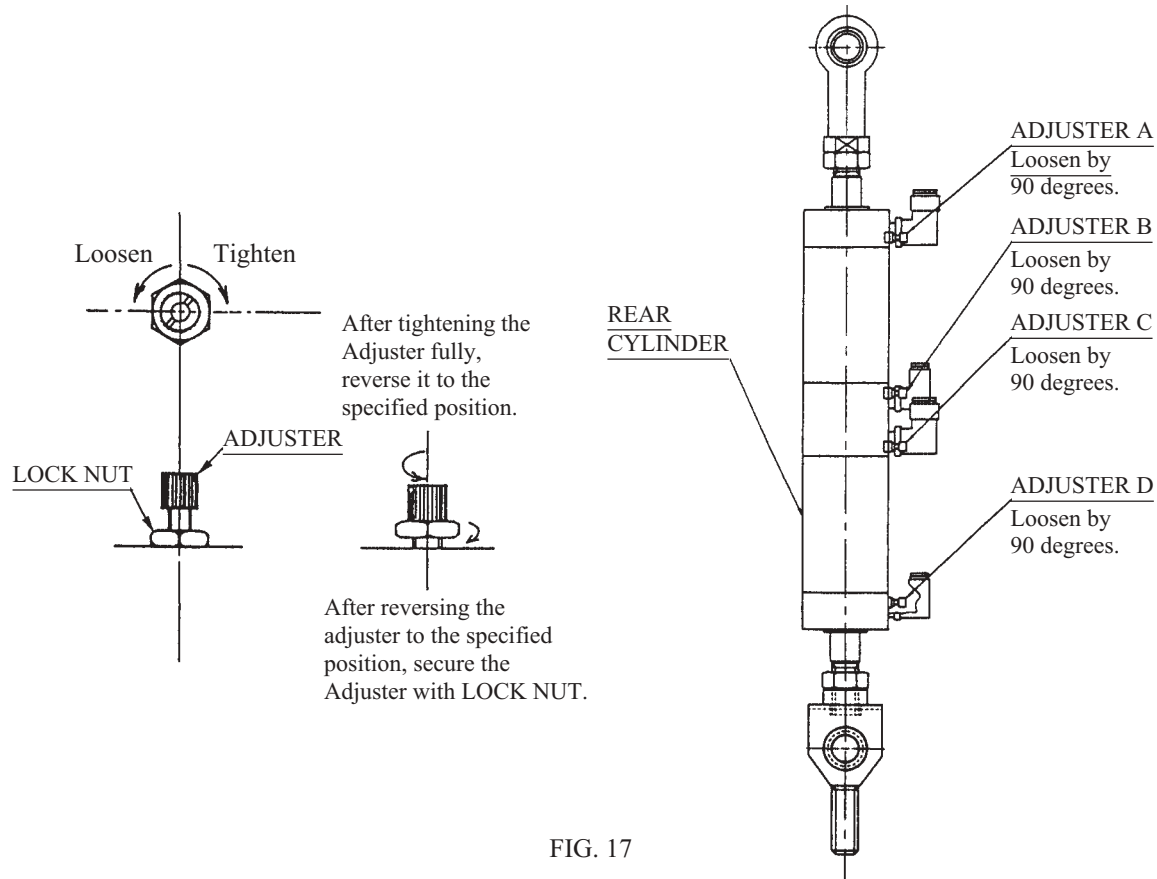
After turning the power off, close the Main Cock to start working. Starting work without closing the Main Clock can cause serious injury.



IMPORTANT!

Make adjustments as specified. Adjusting in the manner not specified can cause malfunctioning and parts damage.

- ① Turn off power and turn the Circuit Protector inside the Front Cabinet OFF (see 10-1).
- ② Remove the Rear Lid from the Mechanism Base and close the Main Cock (see 11-1).
- ③ Remove the Step R (see 11-1).
- ④ Loosen the Lock Nut of the Rear Cylinder's Adjuster fully to the bottom of the Adjuster.
- ⑤ Loosen the A, B, C, and D Adjusters by 90 degrees from the fully tightened point.
- ⑥ Tighten the lock nut so the adjuster will not rotate.
- ⑦ After making adjustments, play the game and check to see that the adjustments made are correct.





- This work should be performed by the Location's Maintenance Man or Serviceman. Performing work by non-technical personnel can cause accidents.
- Should any errors other than listed by this manual or by NAOMI Service Manual occur, contact where the product was purchased from or an office described in this manual. Failing to comply with this instruction can cause accidents.

This product displays the error on the screen if the faulty is detected. If an error is displayed, be sure to take action against it according to the appropriate cause and countermeasures listed below.

It may be displayed the error other than listed by this manual or by NAOMI Service Manual. In that case, contact where the product was purchased from or an office described in this manual without operating it selfishly.

- | | |
|--|--|
| <input type="checkbox"/> DISPLAY ○
<input type="checkbox"/> CAUSE ○
<input type="checkbox"/> COUNTERMEASURES ○ | <p>NETWORK ERROR: NO MASTER SITE</p> <p>No MASTER setting in Communication Mode.</p> <p>Perform the Communication Mode setting in the Game Assignments. Set one of the machines to MASTER and all others to SLAVE. (9-3 d) (20-3)</p> |
| <input type="checkbox"/> DISPLAY ○
<input type="checkbox"/> CAUSE ○
<input type="checkbox"/> COUNTERMEASURES ○ | <p>NETWORK ERROR: DUPLICATE MASTER SITE</p> <p>MASTER setting is duplicated in Communication Mode.</p> <p>Perform the Communication Mode setting in the Game Assignments. Set one of the machines to MASTER and all others to SLAVE.</p> |
| <input type="checkbox"/> DISPLAY ○
<input type="checkbox"/> CAUSE ○
<input type="checkbox"/> COUNTERMEASURES ○ | <p>NETWORK ERROR: NO SLAVE SITE</p> <p>No SLAVE setting in Communication Mode.</p> <p>Perform the Communication Mode setting in the Game Assignments. Set one of the machines to MASTER and all others to SLAVE. (9-3 d) (20-3)</p> |
| <input type="checkbox"/> DISPLAY ○
<input type="checkbox"/> CAUSE ○
<input type="checkbox"/> COUNTERMEASURES ○ | <p>NETWORK ERROR: TOO MANY NODES SITE</p> <p>Too many machines are connected.</p> <p>Up to 4 machines can be connected to allow to enjoy communication play.</p> |
| <input type="checkbox"/> DISPLAY ○
<input type="checkbox"/> CAUSE ○
<input type="checkbox"/> COUNTERMEASURES ○ | <p>NETWORK ERROR: DUPLICATE CABINET ID</p> <p>The number of Cabinet ID is duplicated in Communication Mode.</p> <p>Change the number of Cabinet ID for every seat in the Game Assignments. (9-3 d) (20-3)</p> |
| <input type="checkbox"/> DISPLAY ○
<input type="checkbox"/> CAUSE ○
<input type="checkbox"/> COUNTERMEASURES ○ | <p>DRIVE BD ERROR: E2H</p> <p>The Ride is not centering with the right value.</p> <p>Ensure that the Ride is slanted or the connector of ASSY Wire Tube is connected securely. (Section 6)</p> |

- DISPLAY ○ DRIVE BD ERROR: E3H
- CAUSE ○ The Down Limit Switch is not changed to ON.
- COUNTERMEASURES ○ Ensure that the Ride is down fully or the connector of ASSY Wire Tube is connected securely. (Section 6)

- DISPLAY ○ DRIVE BD ERROR: E4H
- CAUSE ○ The Up Limit Switch is not changed to ON.
- COUNTERMEASURES ○ Ensure that the Ride is up fully or the connector of ASSY Wire Tube is connected securely. (Section 6)

- DISPLAY ○ DRIVE BD ERROR: E7H
- CAUSE ○ The pressure of the air tank is not sufficient.
- COUNTERMEASURES ○ Be sure of the compressor's function or the air leakage.

- DISPLAY ○ NO DRIVE BOARD
- CAUSE ○ The connection of the Drive Board is not correct.
- COUNTERMEASURES ○ Ensure that the connectors inside of the front cabinet are connected securely.

18. GAME BOARD



- In order to prevent electric shock and short circuit hazards, be sure to turn power off before performing work.
- Be careful so as not to damage wirings. Damaged wiring can cause fire, electric shock and short circuit hazards.
- Do not expose the Game BD, etc. without a good reason. Failure to observe this can cause electric shock hazard or malfunctioning.
- To perform work safely and securely, be sure to use 2 or more workers.



The electronic parts on the IC Board could be damaged due to human body's static electricity. Before performing IC Board related work, be sure to discharge physically accumulated statics by touching grounded metallic surfaces, etc.



Put the Game Board in the Carton Box (an accessory) together with the Shield Case when requesting for the replacement or repair. Transporting the Game Board in an undesignated status for replacement/repair is unacceptable. In this manual, how to remove the Game Board is explained for convenience. However, this work should be performed by SEGA SERVICEMAN.

18 - 1 REMOVING THE GAME BOARD

The Game Board is installed inside the Front Cabinet.

- ① Turn the main switch of the AC Unit off.
- ② Push aside the Rear Cabinet to keep a workspace.
- ③ Take out the 2 truss screws that secure the Service Lid on the upper front part of the Front Cabinet.

SERVICE LID

TRUSS SCREW (2),black
M4 X 16

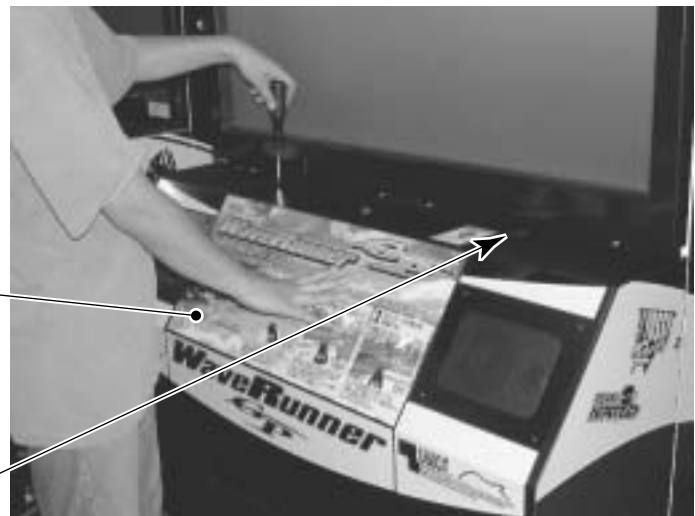


PHOTO 18. 1 a

- ④ Unlock the Service Lid and lift it up a little, and take out the nut securing the earth wire carefully to remove the Service Lid.

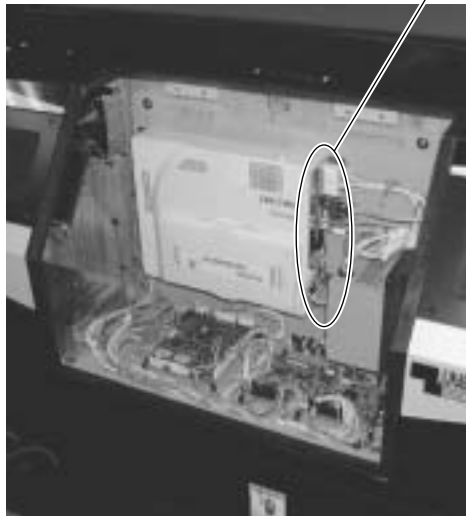
Unlock



PHOTO 18. 1 b

- ⑤ Disconnect all the connectors of the NAOMI Game Board installed inside the Cabinet.
- ⑥ Take out the 4 screws securing the Game Board to remove it. Taking out the screws, the Game Board will fall down. Be sure to take out the screws supporting the Board firmly.

Disconnect the connector.



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

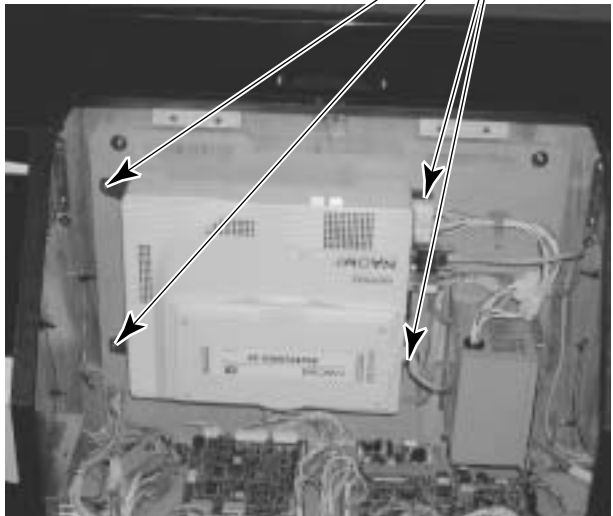


PHOTO 18. 1 c

18 - 2 COMPOSITION OF GAME BOARD



Ensure that the DIP SW setting is performed as designated. Failure to observe this may cause functioning not suitable for the actual operation, or malfunctioning.

- ASSY CASE NAO WRG USA (840-0064D-01) : USA
- ASSY CASE NAO WRG EXP (840-0064D-02) : OTHERS
- ASSY CASE NAO WRG KOR (840-0064D-03) : KOREA
- ASSY CASE NAO WRG AUS (840-0064D-04) : AUSTRALIA

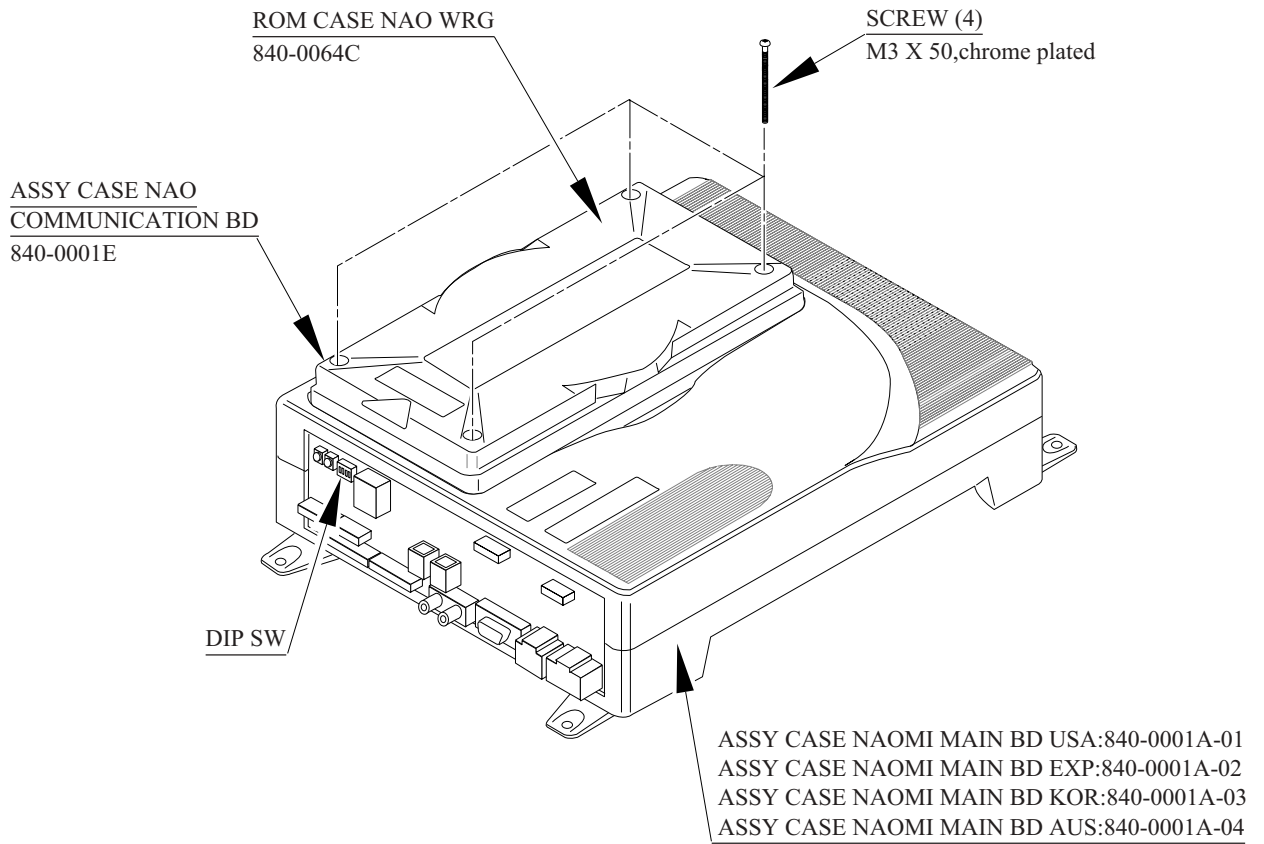


FIG. 18. 2 a

DIP SW SETTING

In this product, set all of the DIP SWes to OFF.

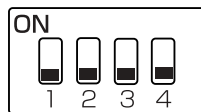
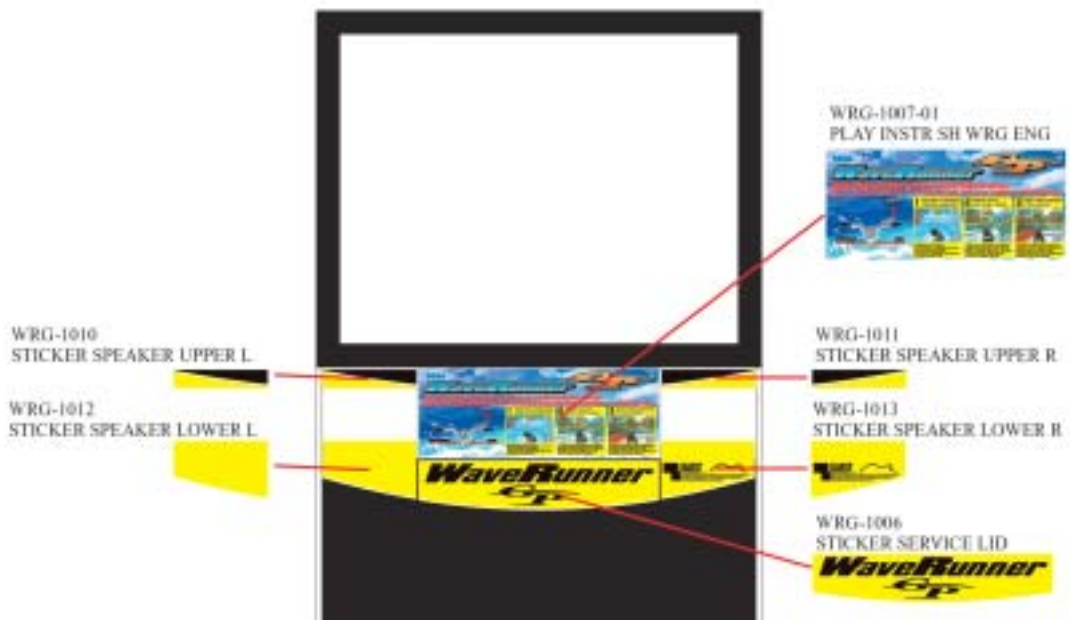
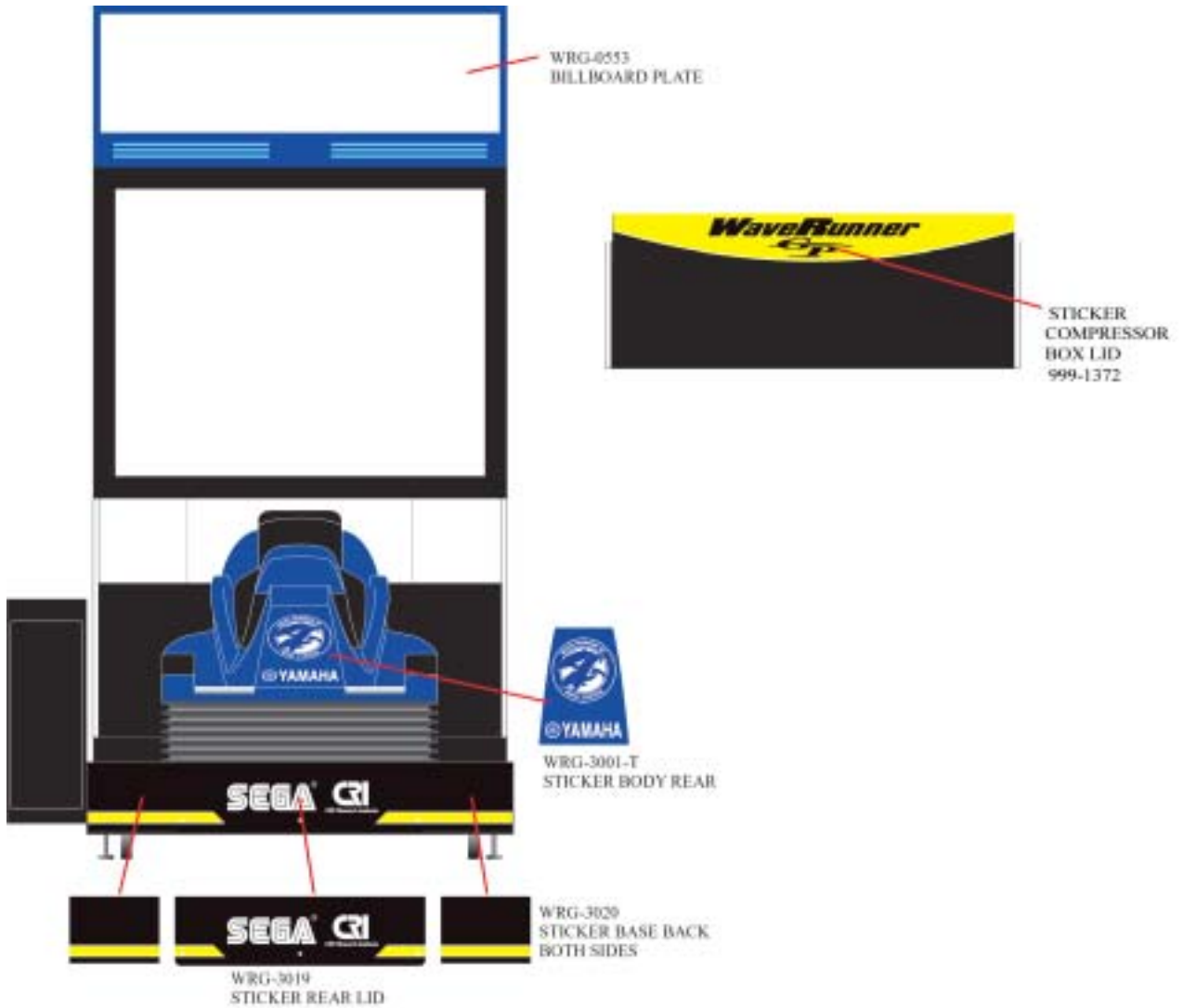


FIG. 18. 2 b

19. DESIGN RELATED PARTS

For the Warning Display stickers, refer to Section 1.



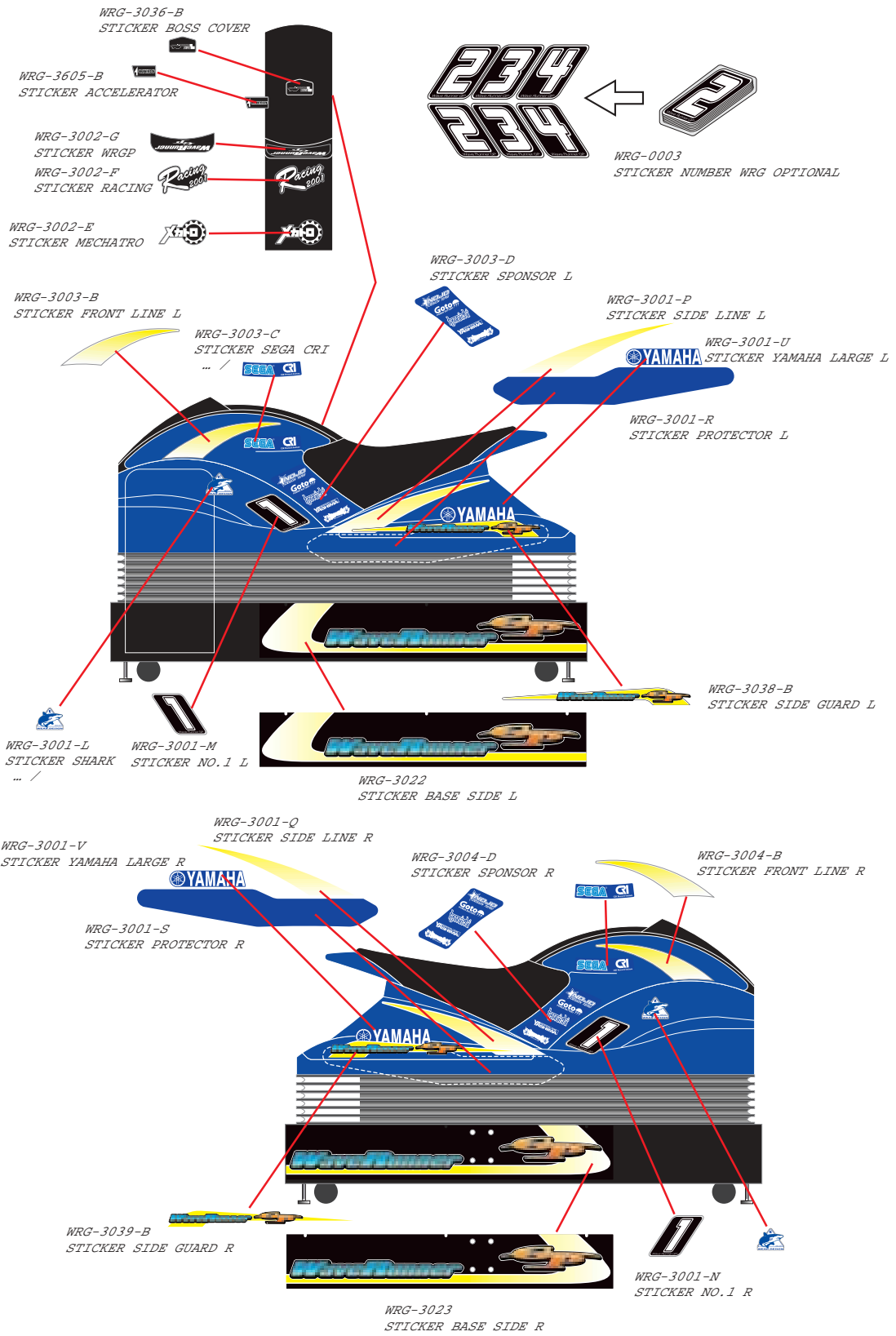


FIG. 19 b

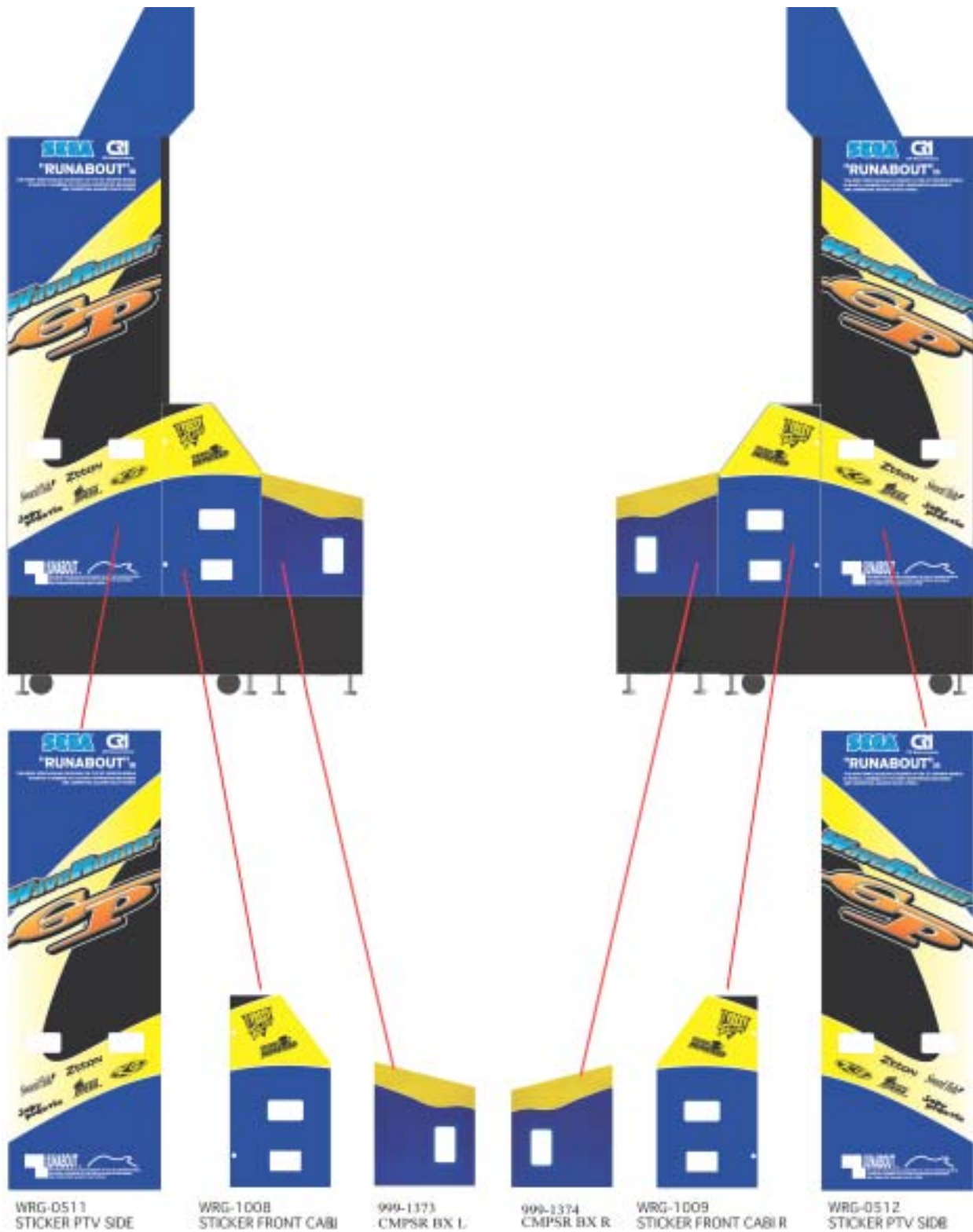


FIG. 19 c

20. COMMUNICATION PLAY

For this game, up to 4 machines can be connected to allow up to 4 players to play simultaneously. In this instance, connecting the communication cable and setting for the communication play are required.

20 - 1 INSTALLATION PRECAUTIONS



WARNING!

- Before starting to work, ensure that the Power SW is OFF. Failure to observe this can cause electric shock or short circuit.
- Use care so as not to damage wirings. Damaged wiring can cause electric shock or short circuit.
- Do not touch undesignated places. Touching places not designated can cause electric shock or short circuit.
- This work should be performed by the Location's Maintenance Man or Serviceman. Performing work by non-technical personnel can cause electric shock hazard.
- When linking a number of machines, be sure to supply sufficient power for the corresponding number of machines. Be sure to secure per machine current as stated in this manual. Failure to observe this can cause a fire and an electric shock accident.
- Due to the length of the communication cable, the distance in between the machines is limited. However, to avoid accidents, be sure to secure space in excess of 70 cm between the machines.
- In order to avoid personal injury, when separating the machine into each Cabinet, pay attention so as not to cause the PTV to fall down.
- To perform work safely and avoid serious accident such as the cabinet's falling down, do not perform work in places where step-like grade differences, a ditch, or slope exist.



CAUTION!

To perform work safely, be sure to secure the space corresponding to number of machines to be linked. Failure to observe this can cause accident.



IMPORTANT!

The optic fiber cable is used for the communication linkage. Excessive bending may damage the communication cable. Be very careful in this regard.

Since 2 or more machines are to be linked, sufficient power corresponding to the number of machines used need to be supplied. Note that as a standard, the per machine capacity should be 15A for the 100 ~ 120V area, and 8A for the 220 ~ 240V area.

DISTANCE BETWEEN MACHINES

Be sure to secure space in excess of 70cm between machines.

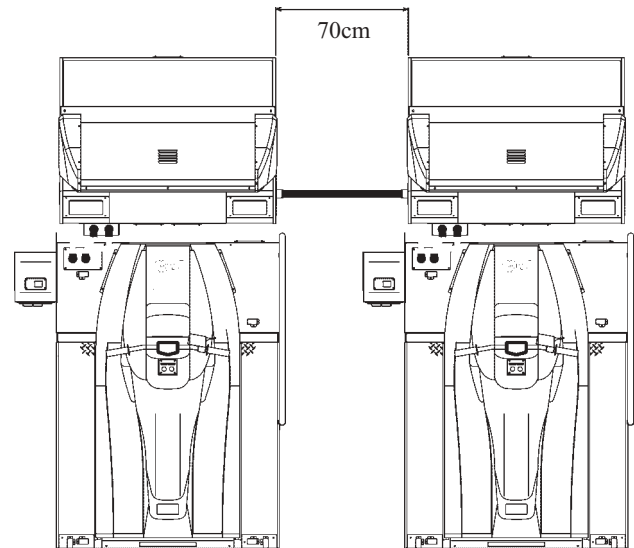


FIG. 20. 1

20 - 2 CONNECTING THE COMMUNICATION CABLE

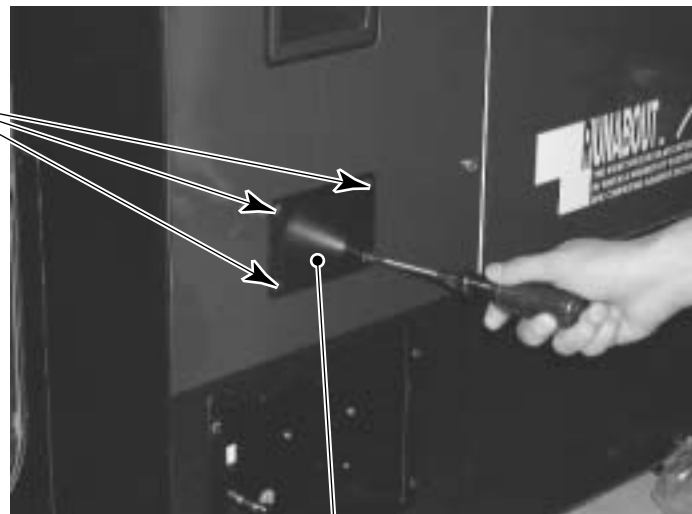
To enable the game machines to serve in a communication play, you must interconnect their game boards with the communication cables (optical fiber cables).

For this wiring, prepare the parts described in Table 5c of Section 5 and a short Phillips screwdriver for M4 screws.

- ① Turn off power and disconnect the plug. Disconnect the power cord so as not to damage it.
- ② Referring to Section 7, uncouple and align the machines keeping the workspace in front of the Front Cabinet.
- ③ Remove the Service Lid on the upper front part of the Front Cabinet (see 18-1).
- ④ Take out the 2 truss screws and remove the Lower Lid in front of the Front Cabinet.

- ⑤ Take out the 4 truss screws and remove the Side Lid on the side of the Front Cabinet. In this instance, remove the Side Lid that lets the communication cable pass. Depending on the number and arrangement of the interconnected game machines, you may remove either or both of the two Side Lids.

TRUSS SCREW (4),black
M4 X 16



SIDE LID

PHOTO 20. 2 a

- ⑥ Insert the communication cable into the assembled flex tube. Depending on the number of the interconnected game machines, the method of the interconnection varies.

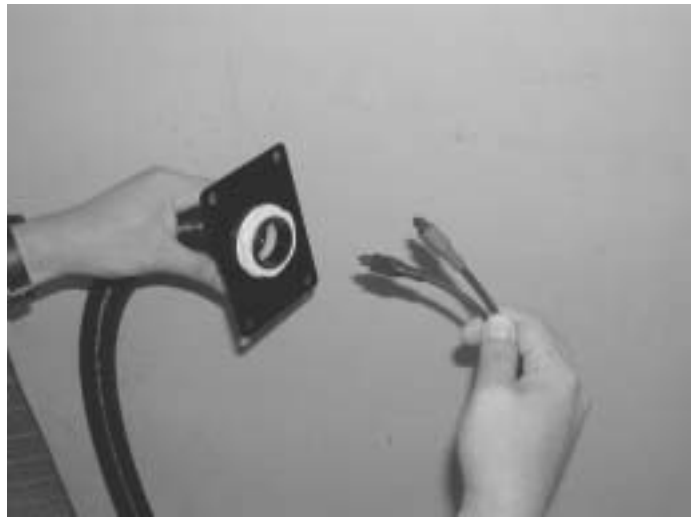
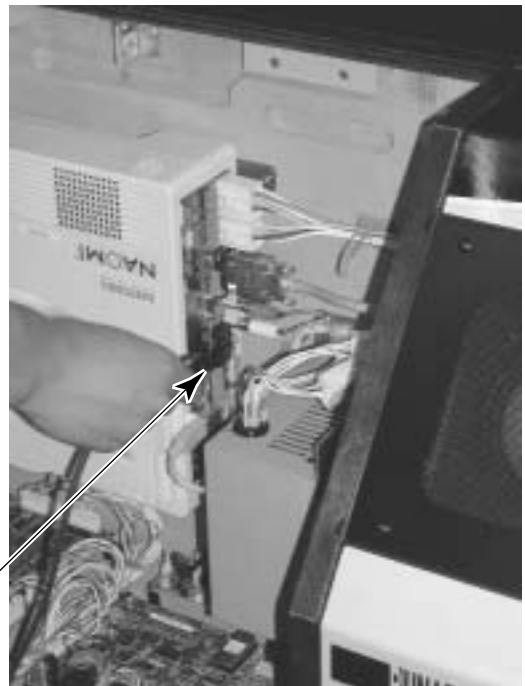


PHOTO 20. 2 b

- ⑦ Connect the communication cable to each game board. Pass the communication cable through the round hole on the side of the Front Cabinet and connect to the game board connectors. A connecting method varies depending on the number of the interconnected game machines (see Fig. 20.2b). Always connect the red connector to RX and the black connector to TX, and thereby make a loop of the communication cable.



Connect the communication cable.

PHOTO 20. 2 c

- ⑧ Fix the Fiber Plate on the side of the Front Cabinet using the 4 truss screws that secured the Side Lid previously.

TRUSS SCREW (4),black
M4 X 16

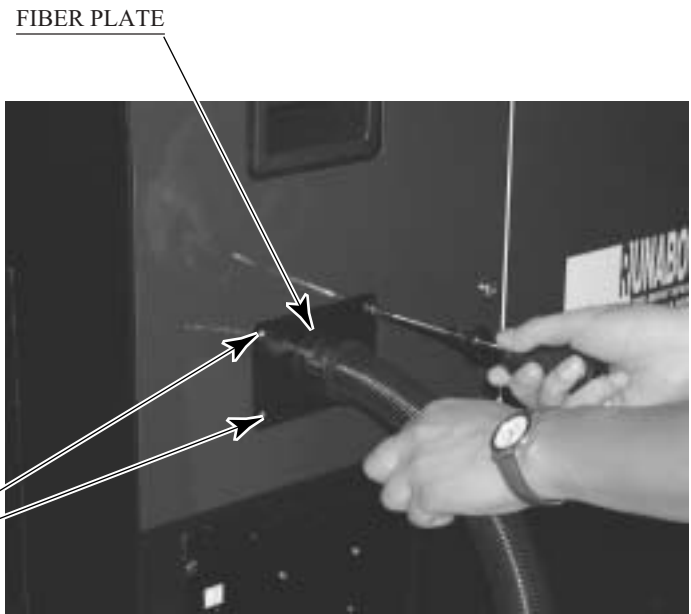


PHOTO 20. 2 d

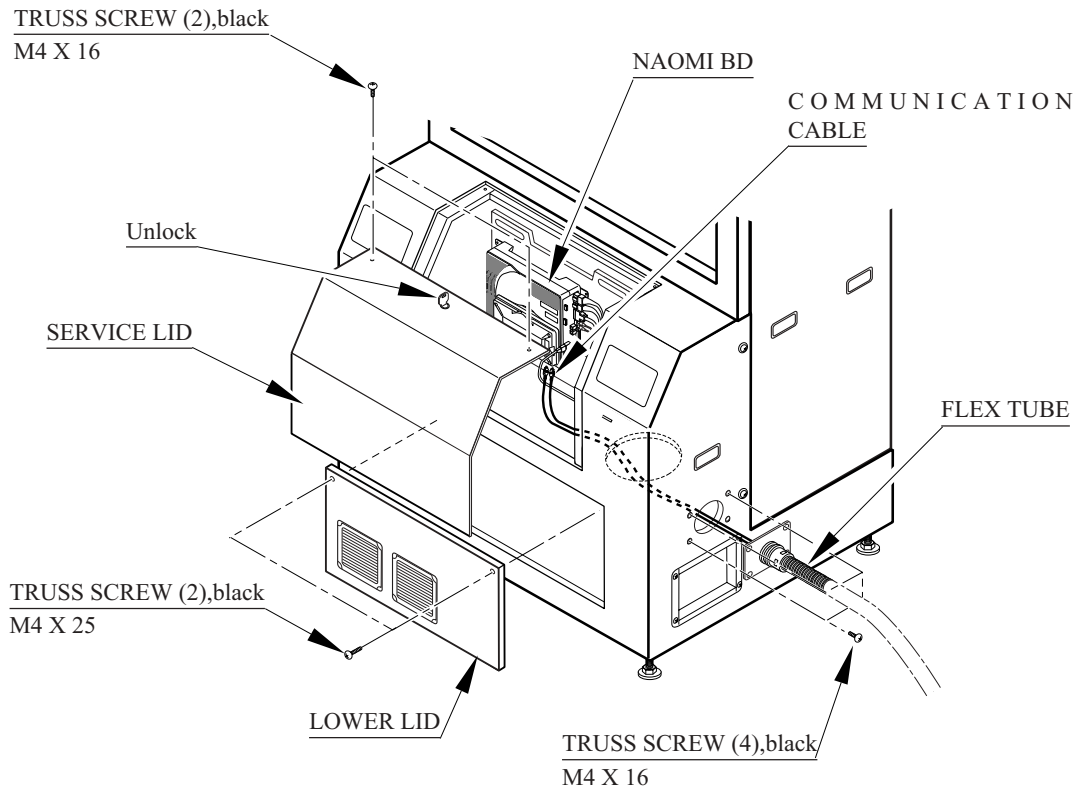


FIG. 20. 2 a

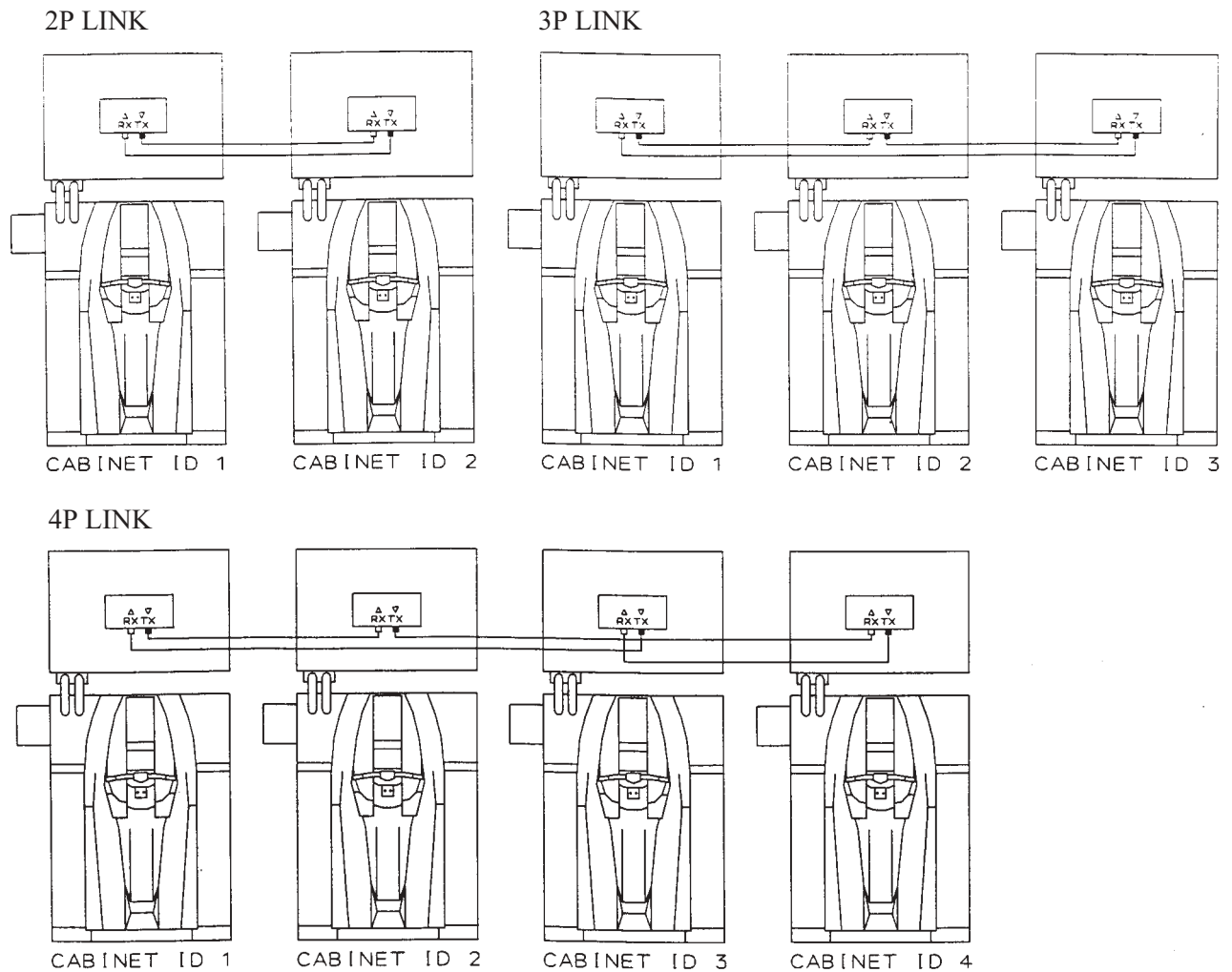


FIG. 20. 2 b Connecting method of the communication cable

- ⑨ Install the Service Lid on the Front Cabinet and lock it.
- ⑩ Arrange the interconnected game machines. Keep a space between the game machines as wide as possible.
- ⑪ Make the adjusters of all the game machines come into contact with the floor (see Section 6 3).
- ⑫ Connect the power cords and the earth wires (see Section 6 5).
- ⑬ Put the number stickers on both sides of the Ride. Facing the PTV screens, put the stickers '1', '2', '3', '4' from left to right.

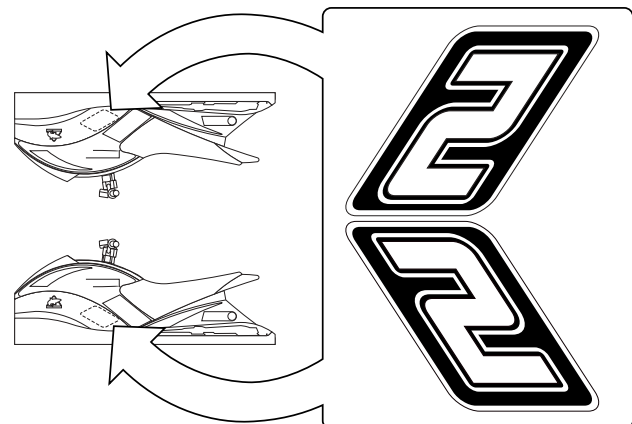


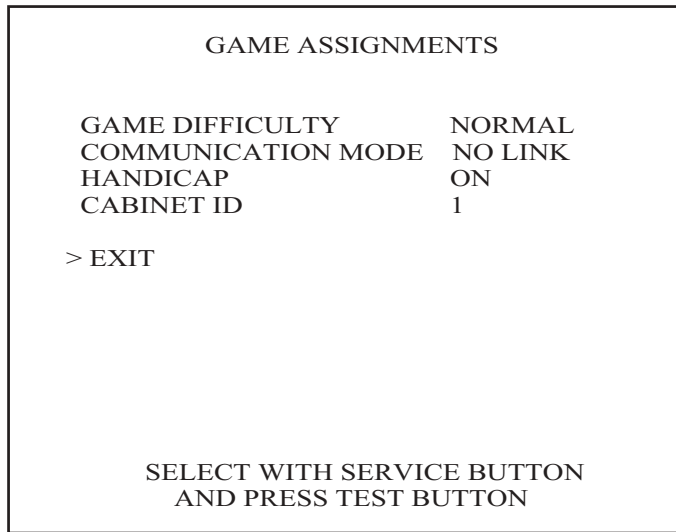
FIG. 20. 2 c

20 - 3 SETTING FOR COMMUNICATION PLAY

Change the game setting for each seat in manner so as to meet communication play. If the setting is not correct, communication play cannot be played.

SETTING FOR COMMUNICATION PLAY

- ① Turn the linked machines' power on.
- ② Cause all of the machines to enter the test mode (see Section 9).
- ③ Select the GAME ASSIGNMENTS (see 9-3 d).



If it is set to SLAVE, GAME DIFFICULTY and HANDICAP are disappeared on the screen.

FIG. 20. 3 GAME ASSIGNMENTS Screen

- ④ Perform the COMMUNICATION MODE setting in the GAME ASSIGNMENTS screen. Set one of the machines to MASTER and all others to SLAVE.
- ⑤ Perform the CABINET ID setting in the GAME ASSIGNMENTS screen. Set the machines to 1, 2, 3 and 4 sequentially in order starting from the leftmost machine facing the screen. Set every number correctly without duplicating.
- ⑥ Cause all of the machines to exit from the test mode by selecting EXIT in the System Test Menu.
- ⑦ Exiting from the test mode causes the unit to perform the network check automatically. The Network Check screen appears on the screen.
- ⑧ When finishing the network check successfully, the Advertise Screen appears. Normally the network check finishes within several 10 seconds. If the screen does not proceed from the Network Check screen, some sorts of errors such as the error of the setup, the error of cable connection, and malfunctioning the communication cables, etc. can be considered.

20 - 4 CAUTIONS TO BE HEEDED DURING COMMUNICATION PLAY



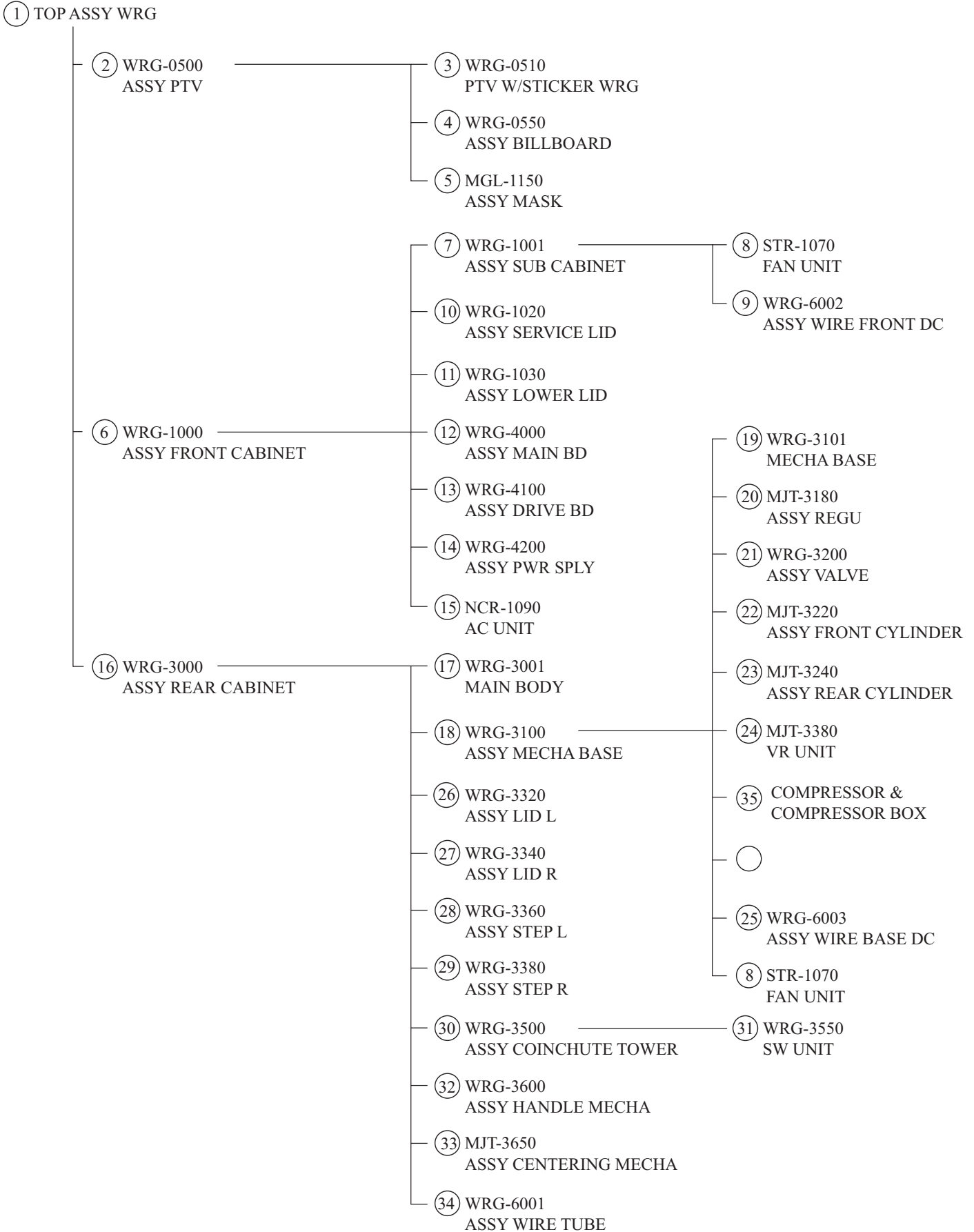
IMPORTANT!

- During communication play, if communication is interrupted due to some cause, the game is discontinued and the Network Check screen is displayed.
- If one of the linked machines enters the Test Mode, all others display the Network Check screen.
- Even if it has set to the communication play, you can setup a different charge for every machine.
A wrong charge setup may cause the problems of income and outgo.

Machine's operation when linked for communication play alters comparing to that of when independently operated. Be careful of this point.

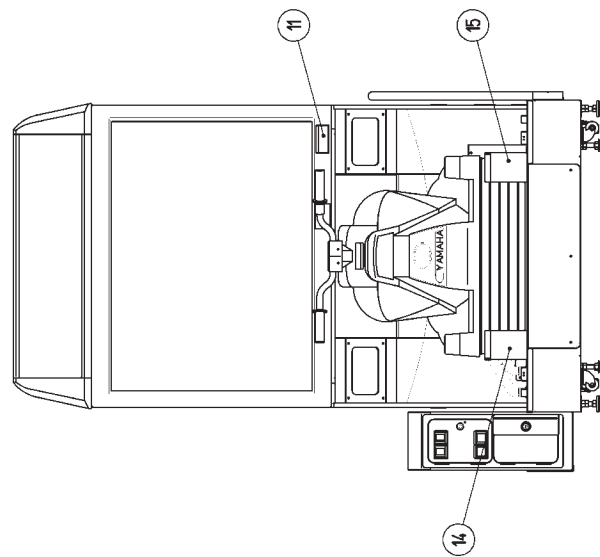
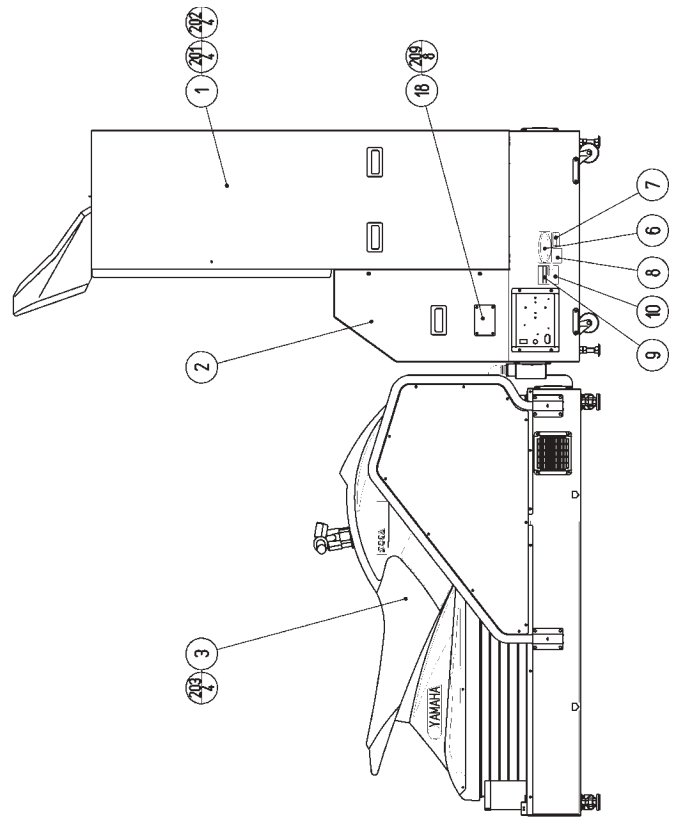
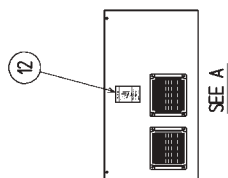
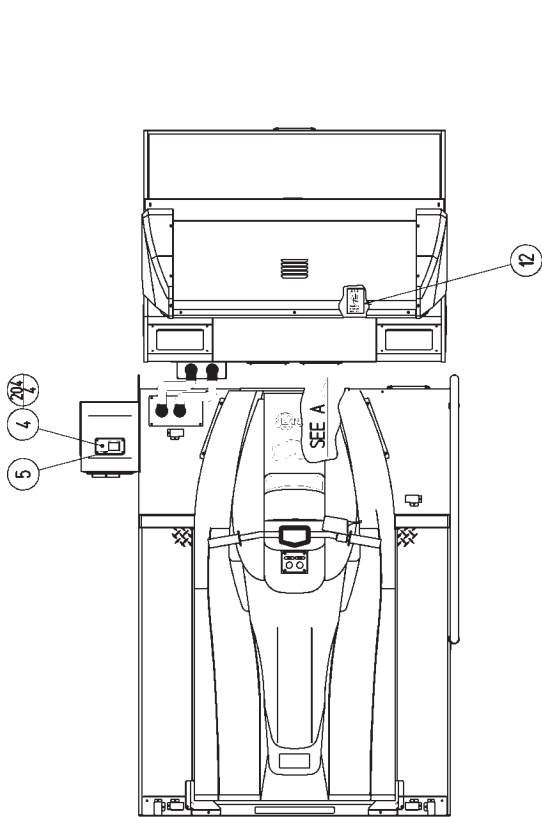
When any game machine is in a Test Mode, a Network Check screen appears on the other game machines interconnected for a communication play. While a guest is using any one of the interconnected game machines, therefore, do not activate a Test Mode even on the unused game machine.

21. PARTS LIST



① TOP ASSY WRG

(D-1/2)

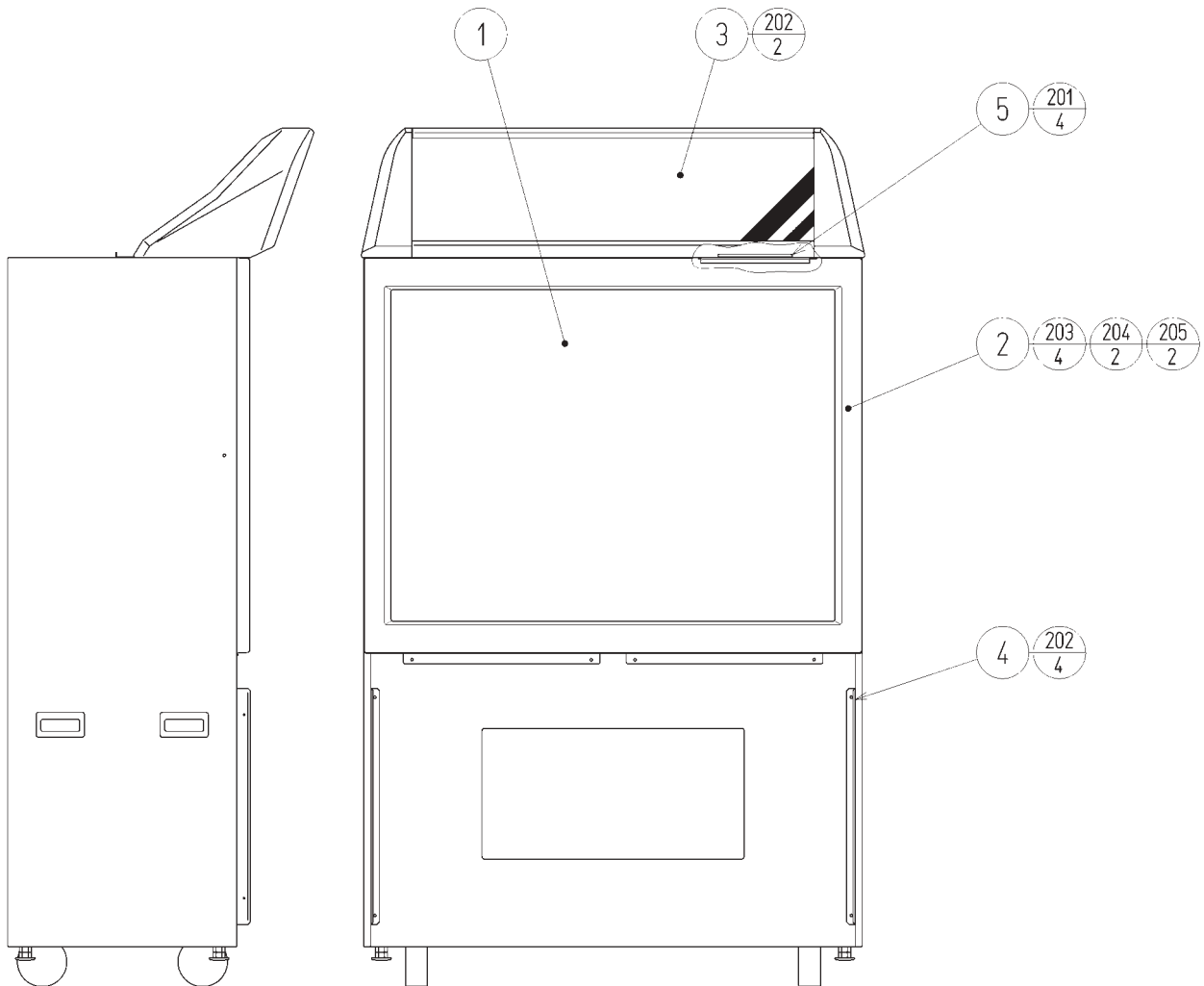


① TOP ASSY WRG

(D-2/2)

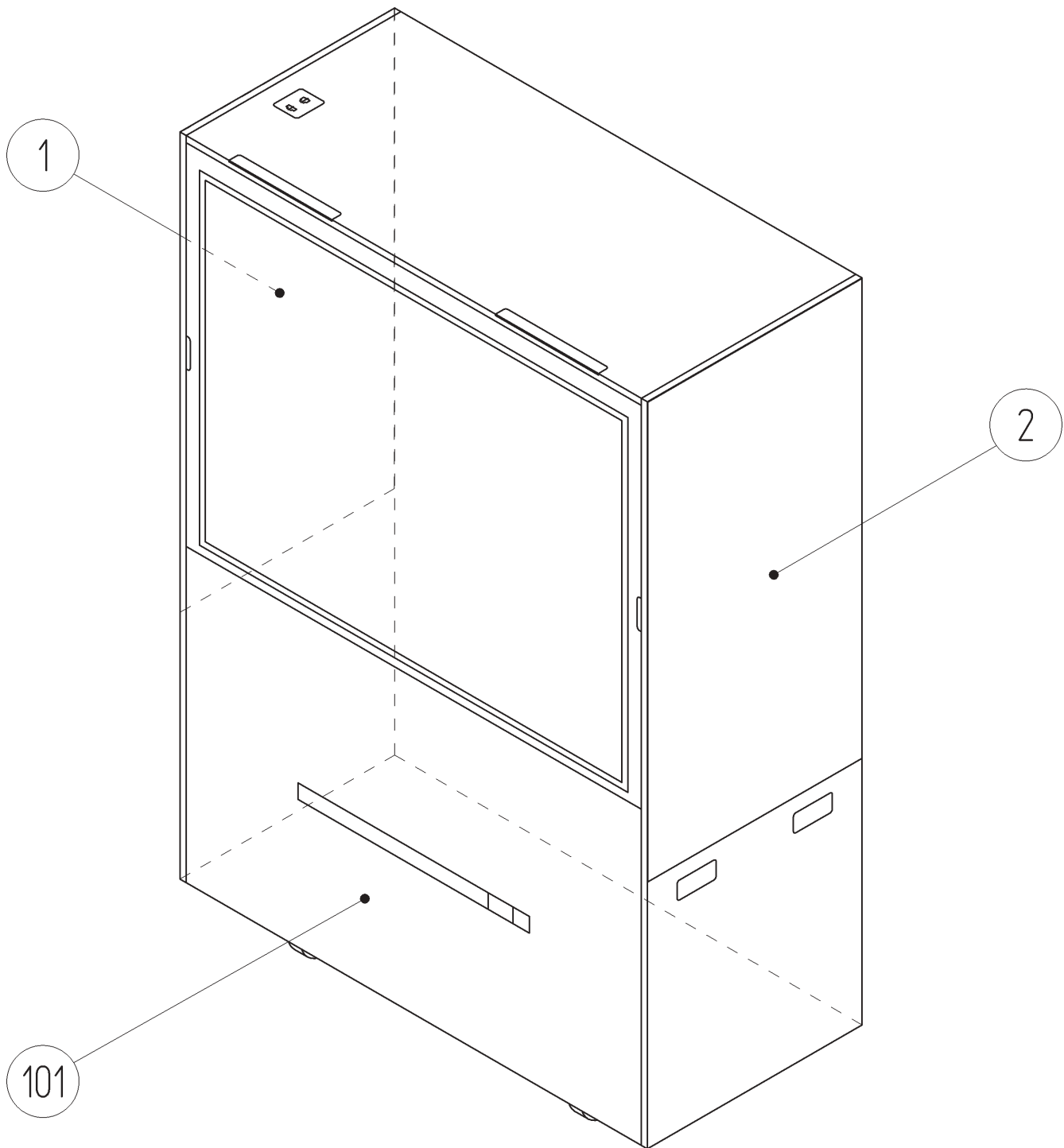
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-0500	ASSY PTV	
2	WRG-1000	ASSY FRONT CABINET	
3	WRG-3000	ASSY REAR CABINET	
4	DYN-0011	DENOMI PLATE W/O ORIGINAL	OTHERS
		Locally supplied.	USA
5	421-7308~	DENOMI SH 1GAME ~	OTHERS
		Locally supplied.	USA
11	440-CS0186-EG	STICKER C EPILEPSY 40 ENG	
12	440-WS0002XEG	STICKER W POWER OFF ENG	
13	421-8479-01	STICKER INSTR SUNLIGHT ENG	
14	MJT-0004	SHIPPING BRKT L	
15	MJT-0005	SHIPPING BRKT R	
16	SGM-4357	POLY COVER 1600 X 1300 X 1050	
17	SGM-4390	POLY COVER 1150 X 400 X 650	
18	WRG-0501	SIDE LID	
19	421-11466-01	INSTR SH TRANSPORT WRG ENG	
201	000-T00530-0B	M SCR TH BLK M5 X 30	
202	068-552016-0B	FLT WSHR BLK 5.5-20 X 1.6	
203	000-T00520-0B	M SCR TH BLK M5 X 20	
204	000-T00408-0C	M SCR TH CRM M4 X 8	OTHERS
		Locally supplied.	USA
205	008-T00412-0B	TMP PRF SCR TH BLK M4 X 12	OTHERS
		Locally supplied.	USA
401	601-6604-70	CARTON BOX 70	
402	420-6659-01	OWNERS MANUAL WRG ENG	
403	420-6455-01	SERVICE MANUAL NAOMI ENG	
404	SGM-2675X	POLYETHYLENE BAG 240 X 370	
405	220-5576	KEY MASTER FOR 220-5575	
406	SGM-4111X	KEY BAG	
407	WRG-0003	STICKER NUMBER WRG OPTIONAL	
409	220-5373	VOL CONT B-5K	
	220-5484	VOL CONT B-5K OHM	
410	514-5036-7000	FUSE 6.4 X 30 7000MA 125V	
411	090-0037	SEAL TAPE	
412	600-6275-0700	ASSY FIBER CABLE 5 0700CM	
413	310-5285-290100	FLEX TUBE 29-0100CM	
414	310-5286-29	CONN 29	
415	WRG-0502	FIBER PLATE	
416	600-7228	AC CABLE CONNECT TYPE 15A	} TAIWAN HONG KONG AC 220 ~ 240V AREA USA
	600-6729	AC CABLE CONNECT TYPE 15A	
	600-6619	AC CABLE CONNECT TYPE FOR UK	
	600-6618	AC CABLE CONNECT TYPE FOR EXP	
	600-6695	AC CABLE CONNECT TYPE USA 15A	
417	600-6664-02	WIRE HARN EARTH W/LUG M6	TAIWAN
		NOT USED	OTHERS
418	280-5009-01	CORD CLAMP 21	
/	105-5356	SHIPPING BRKT	
/	421-8740	CAUTION INSTR COP U/R	
/	421-6690-06	STICKER 110V	AC 110V AREA
/	421-6690-01	STICKER 120V	AC 120V AREA
/	421-6690-03	STICKER 220V	AC 220V AREA
/	421-6690-05	STICKER 240V	AC 240V AREA
/	421-6119-91	STICKER FCC	} USA
/	421-6120-93	STICKER SEGA USA	

② ASSY PTV (WRG-0500)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-0510	PTV W/STICKER WRG	
2	MGL-1150	ASSY MASK	
3	WRG-0550	ASSY BILLBOARD	
4	HOD-1101	PTV HOLDER	
5	RAL-0501	MASK HOLDER	
201	000-F00412	M SCR FH M4 X 12	
202	000-P00516-W	M SCR PH W/FS M5 X 16	
203	000-P00520-WB	M SCR PH W/FS BLK M5 X 20	
204	000-T00525-0B	M SCR TH BLK M5 X 25	
205	068-552016-0B	FLT WSHR BLK 5.5-20 X 1.6	

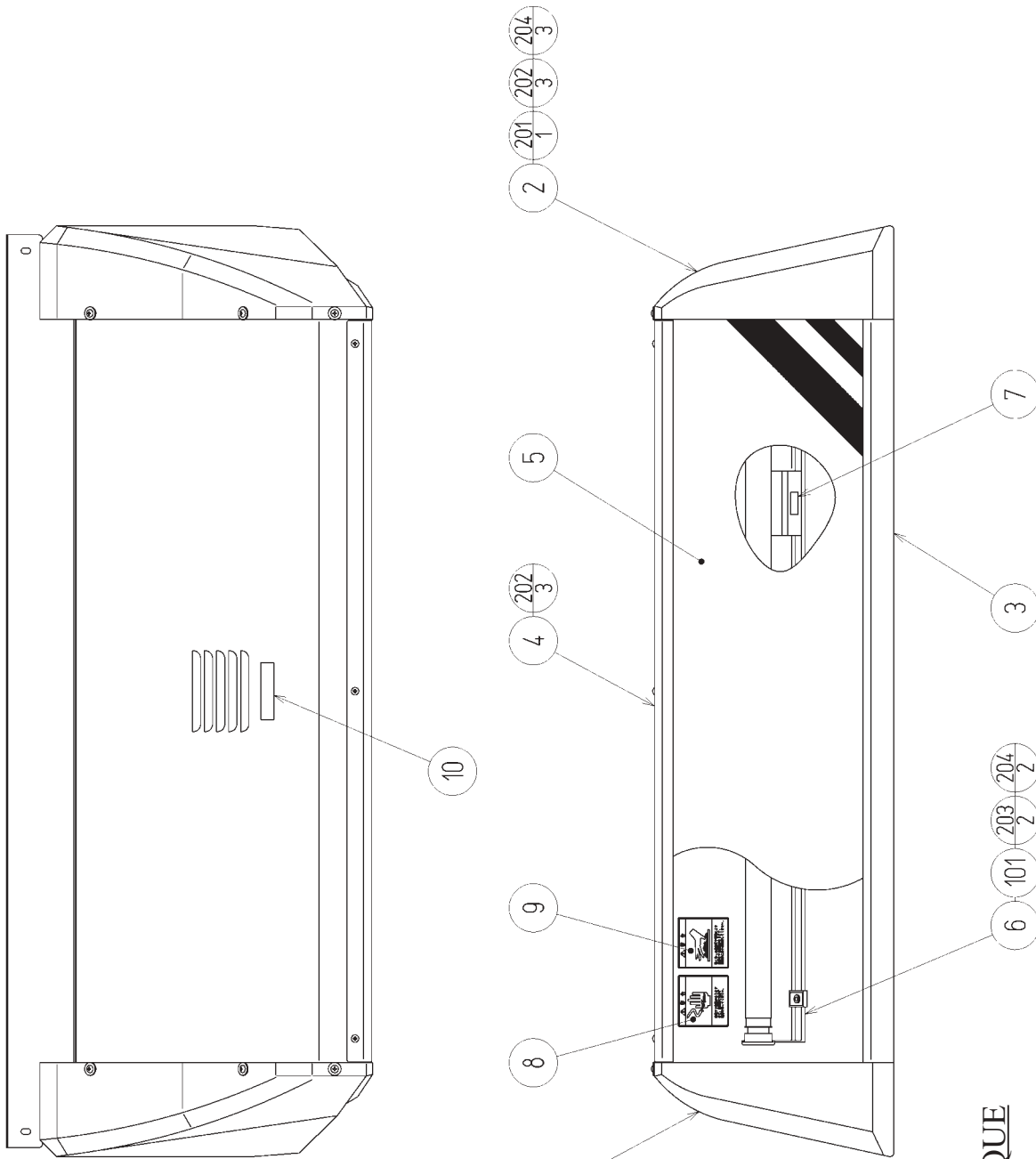
③ PTV W/STICKER WRG (WRG-0510)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-0511	STICKER PTV SIDE L	
2	WRG-0512	STICKER PTV SIDE R	
101	200-5788-31	PROJECTION DSPL T 50TYPE 31K	

④ ASSY BILLBOARD (WRG-0550)

(D-1/2)



SCREW FASTENING TORQUE

TO BE

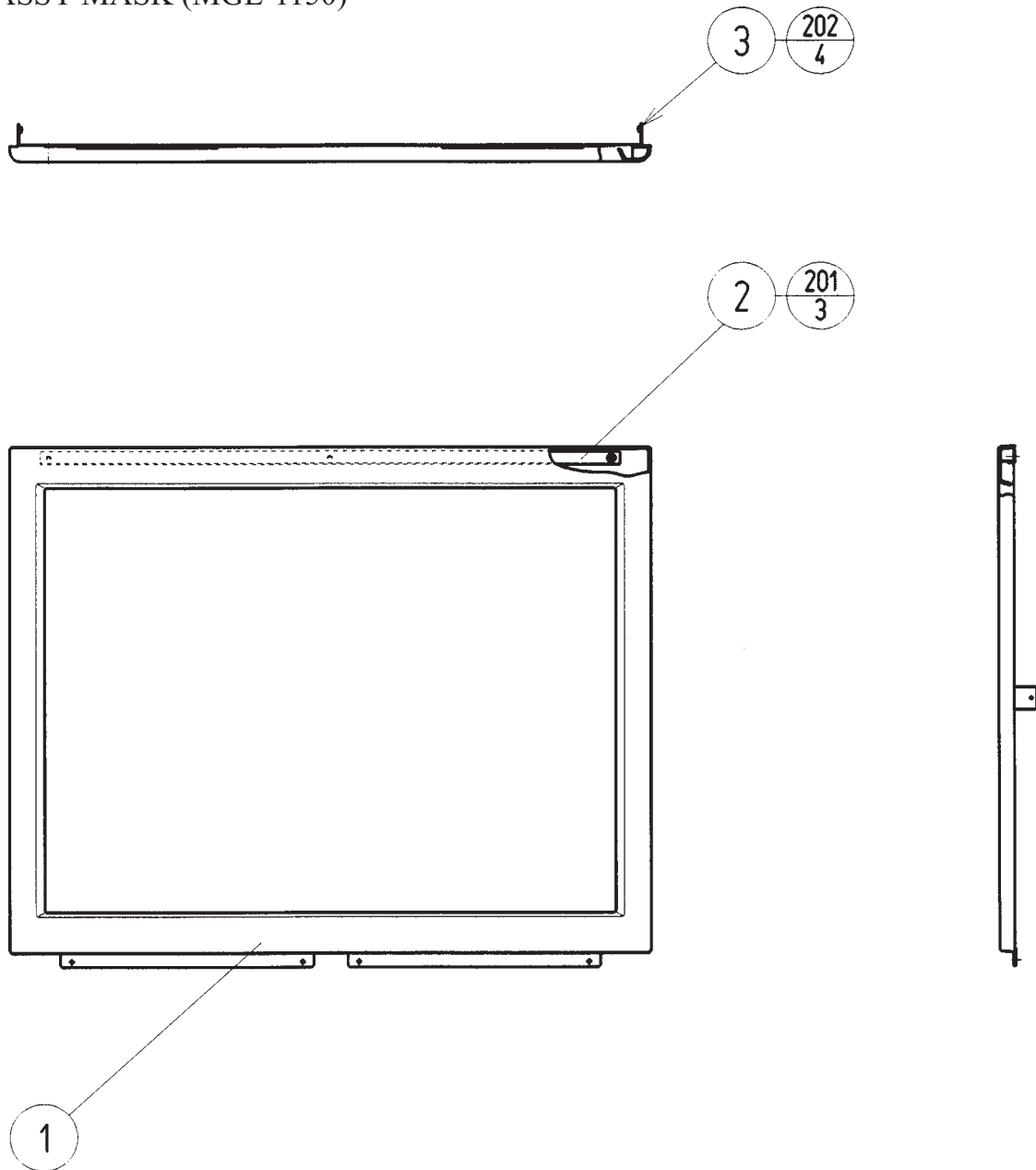
M4: 1.8 N•m

④ ASSY BILLBOARD (WRG-0550)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-0551	LEFT COVER	
2	WRG-0552	RIGHT COVER	
3	ASK-1224	BILLBOARD BOX	
4	ASK-1225	BILLBOARD HOLDER	
5	WRG-0553	BILLBOARD PLATE	
6	253-5457	FL HOLDER Locally supplied.	OTHERS USA
7	421-7501-18	STICKER FL32W Locally supplied.	OTHERS USA
8	440-WS0002XEG	STICKER W POWER OFF ENG	
9	440-WS0012XEG	STICKER W HIGH TEMP ENG	
101	390-6659-32EX	ASSY FL32W EX W/CONN HIGH S CE Locally supplied.	OTHERS USA
102	280-5009-01	CORD CLAMP 21	
201	000-F00410	M SCR FH M4 X 10	
202	000-T00408-0B	M SCR TH BLK M4 X 8	
203	000-P00430-S	M SCR PH W/S M4 X 30 Locally supplied.	OTHERS USA
204	068-441616-0B	FLT WSHR BLK 4.4-16 X 1.6	
205	000-P00408-W	M SCR PH W/FS M4 X 8	
301	WRG-60057	WH FL	

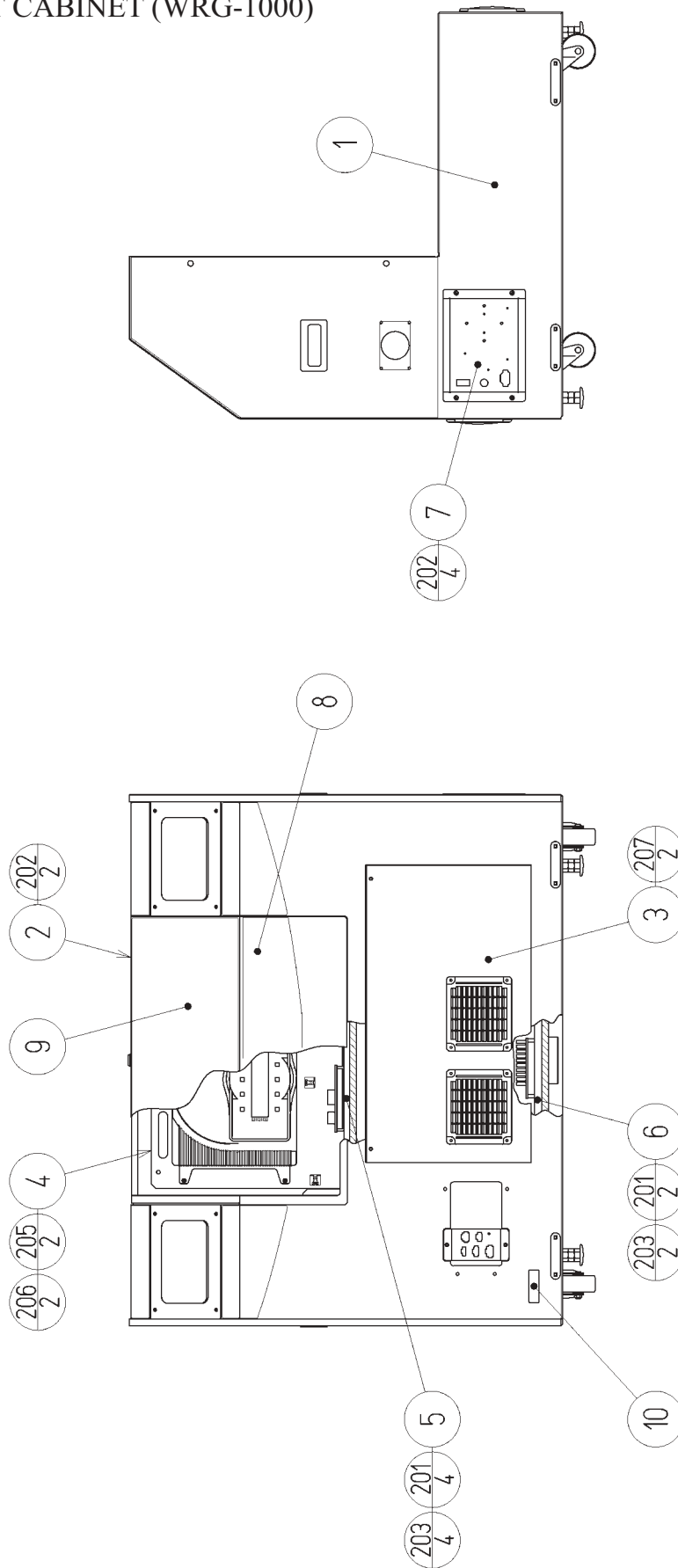
⑤ ASSY MASK (MGL-1150)



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 4 X 8	
202	000-F00410	M SCR FH M4 X 10	

⑥ ASSY FRONT CABINET (WRG-1000)

(D-1/2)



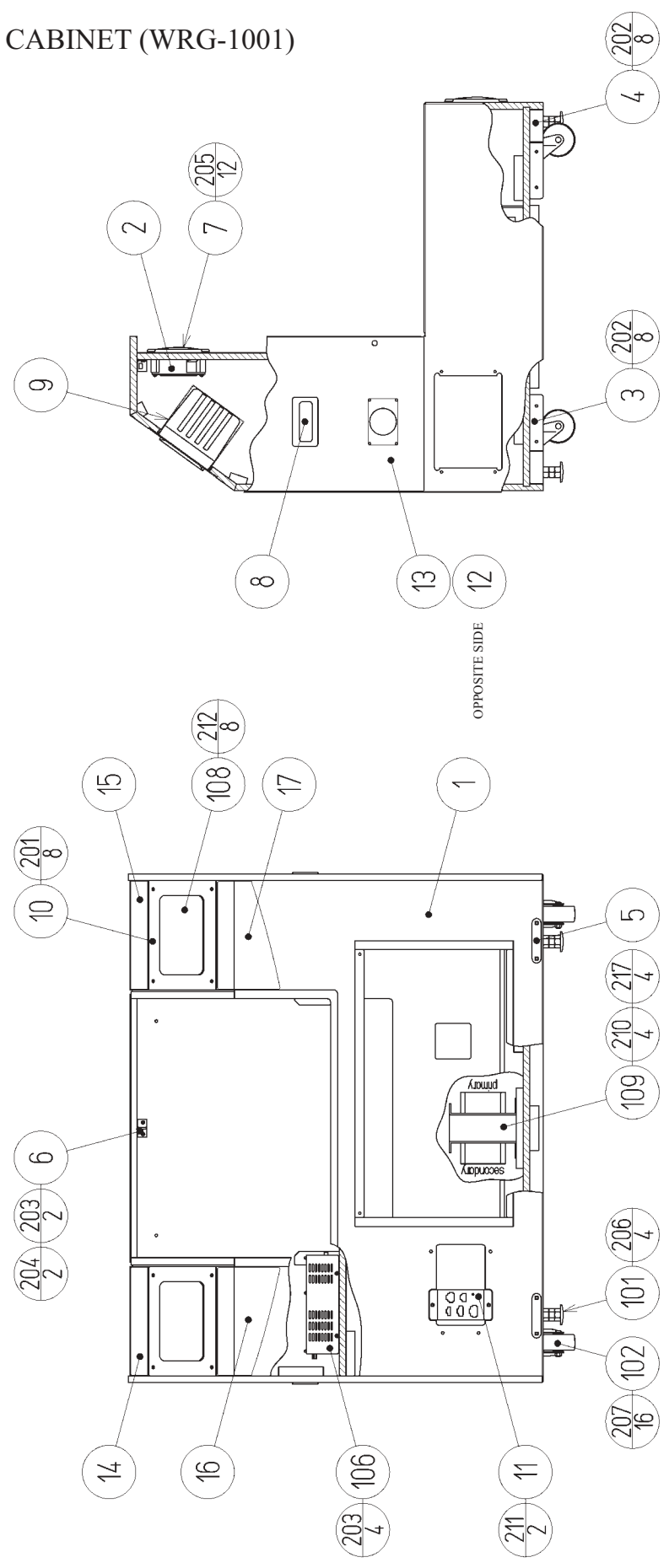
⑥ ASSY FRONT CABINET (WRG-1000)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-1001	ASSY SUB CABINET	
2	WRG-1020	ASSY SERVICE LID	
3	WRG-1030	ASSY LOWER LID	
4	WRG-4000	ASSY MAIN BD	
5	WRG-4100	ASSY DRIVE BD	
6	WRG-4200	ASSY PWR SPLY	
7	NCR-1090	AC UNIT	
8	WRG-1006	STICKER SERVICE LID	
9	WRG-1007-01	PLAY INSTR SH WRG ENG	
201	000-P00435-S	M SCR PH W/S M4 X 35	
202	000-T00416-0B	M SCR TH BLK M4 X 16	
203	068-441616	FLT WSHR 4.4-16 X 1.6	
204	000-P00408-W	M SCR PH W/FS M4 X 8	
205	000-P00535-S	M SCR PH W/S M5 X 35	
206	068-552016	FLT WSHR 5.5-20 X 1.6	
207	000-T00425-0B	M SCR TH BLK M4 X 25	

7 ASSY SUB CABINET (WRG-1001)

(D-1/2)

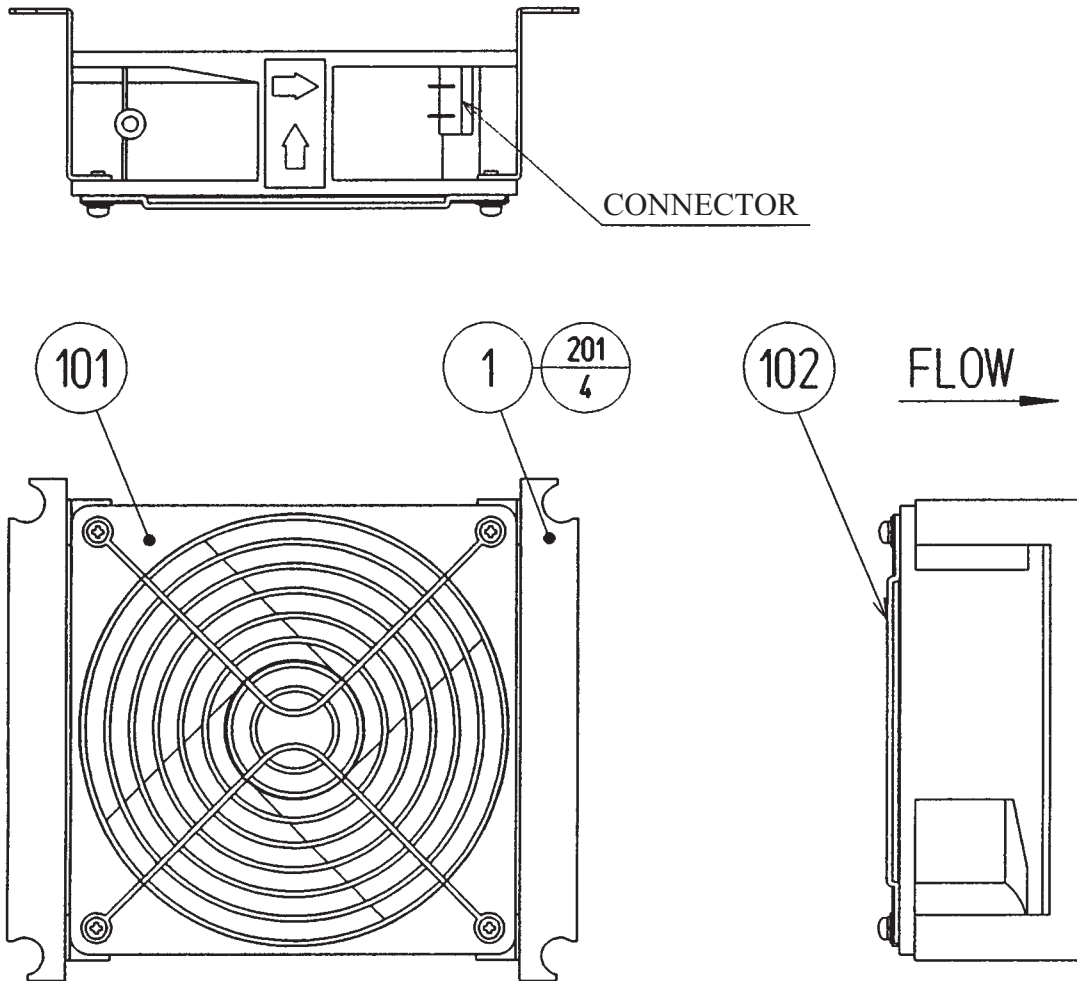


⑦ ASSY SUB CABINET (WRG-1001)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-1002	WOODEN FRONT CABINET	
2	STR-1070	FAN UNIT	
3	FRQ-1009	LEG CASTER BRKT A	
4	FRQ-1012	LEG CASTER BRKT B	
5	117-5284	PLATE 6-80 BLACK	
6	HOD-1003	LOCKING BRKT HOD	
7	253-5460-01	AIR VENT BLACK	
8	253-5396-91	CABINET HANDLE	
9	WRG-1003	SPEAKER BRKT	
10	WRG-1004	SPEAKER PLATE	
11	WRG-1005	CONNECTOR PNL BRKT CABI	
12	WRG-1008	STICKER FRONT CABI L	
13	WRG-1009	STICKER FRONT CABI R	
14	WRG-1010	STICKER SPEAKER UPPER L	
15	WRG-1011	STICKER SPEAKER UPPER R	
16	WRG-1012	STICKER SPEAKER LOWER L	
17	WRG-1013	STICKER SPEAKER LOWER R	
101	601-5699X	LEG ADJUSTER BOLT M16 X 75	
102	601-9377	CASTER FAI=75	
	601-6224	CASTER 75	
103	280-5009-01	CORD CLAMP 21	
104	280-0419	HARNESS LUG	
105	601-0460	PLASTIC TIE BELT 100 MM	
106	601-10369	STEREO PWR AMP 47	
107	117-5402-06-91	EARTH TERMINAL PLATE 6P	
108	130-5228	SPEAKER BOX 4OHM 40W	
109	560-5459	XFMR 100-120V 100V10A (NM)	AC 110 ~ 120V AREA
	560-5446-H	XFMR 220-240V 100V 10A CE (NM)	AC 220 ~ 240V AREA
201	008-T00416-0B	TMP PRF SCR TH BLK M4 X 16	
202	030-000630-SB	HEX BLT BLK W/S M6 X 30	
203	000-P00420-W	M SCR PH W/FS M4 X 20	
204	050-F00400	FLG NUT M4	
205	000-T00416-0B	M SCR TH BLK M4 X 16	
206	050-H01600-0B	HEX NUT BLK M16	
207	030-000616-W	HEX BLT W/FS M6 X 6	
208	011-F00312	TAP SCR #1 FH 3 X 12	
209	011-T03512	TAP SCR TH 3.5 X 12	
210	000-P00516-S	M SCR PH W/S M5 X 16	
211	000-F00416	M SCR FH M4 X 16	
212	012-P00512-0B	TAP SCR #2 PH BLK 5 X 12	
213	000-P00408-W	M SCR PH W/FS M4 X 8	
214	050-H00400	HEX NUT M4	
215	060-F00400	FLT WSHR M4	
216	060-S00400	SPR WSHR M4	
217	068-552016	FLT WSHR 5.5-20 X 1.6	
301	WRG-6002	ASSY WIRE FRONT DC	
302	WRG-60018	WH EXT AC UNIT	
303	WRG-60019	WH FRONT AC	
304	WRG-60059	WH EXT XFMR A	
305	WRG-60060	WH EXT XFMR B	
306	600-7009-1000	ASSY RGB CA D-SUB 15P 1000MM	
307	600-6972-1900	WIRE HARN EARTH ID5 1900MM	
308	600-6972-1800	WIRE HARN EARTH ID5 1800MM	
309	600-6972-1100	WIRE HARN EARTH ID5 1100MM	

8 FAN UNIT (STR-1070)



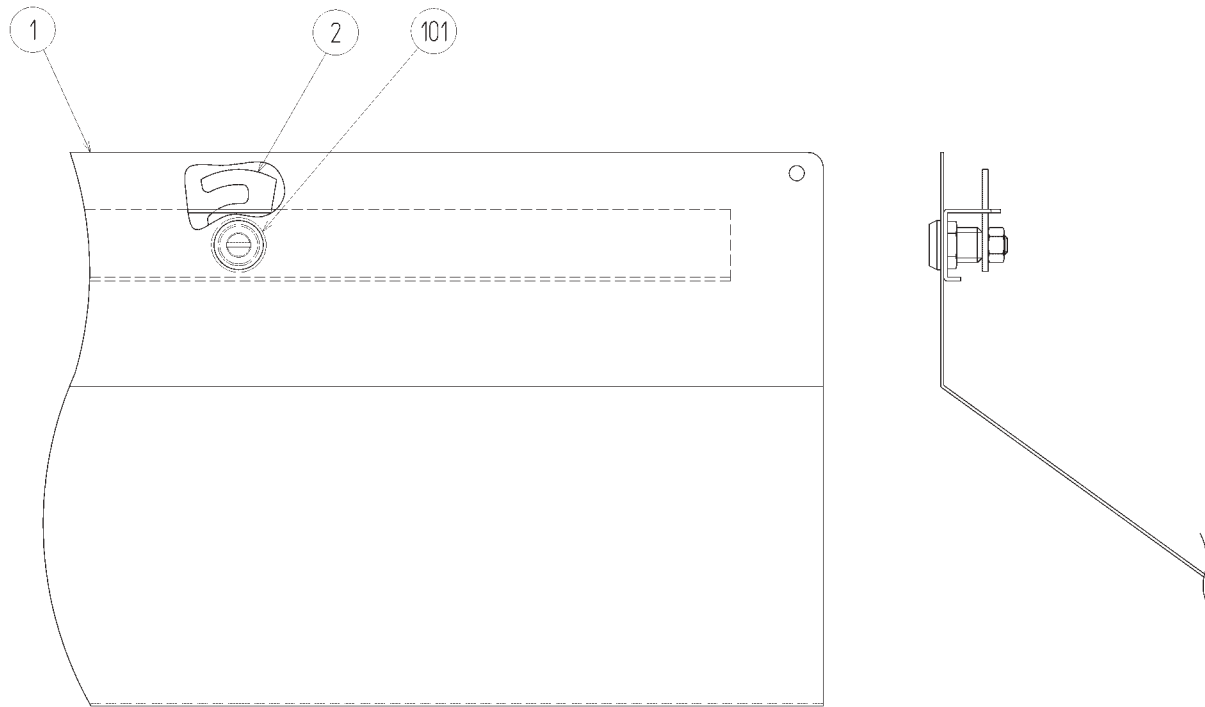
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	105-5340-01	FAN BRKT LONG	
101	260-0011-02	AXIAL FLOW FAN AC100V 50-60HZ	
102	601-8543	FAN GUARD	
201	000-P00312-W	M SCR PH W/FS M3 X 12	

⑨ ASSY WIRE FRONT DC (WRG-6002)

ASSY WIRE FRONT DC (WRG-6002) is comprised of the following wire harnesses.
An ASSY DRG. is unavailable.

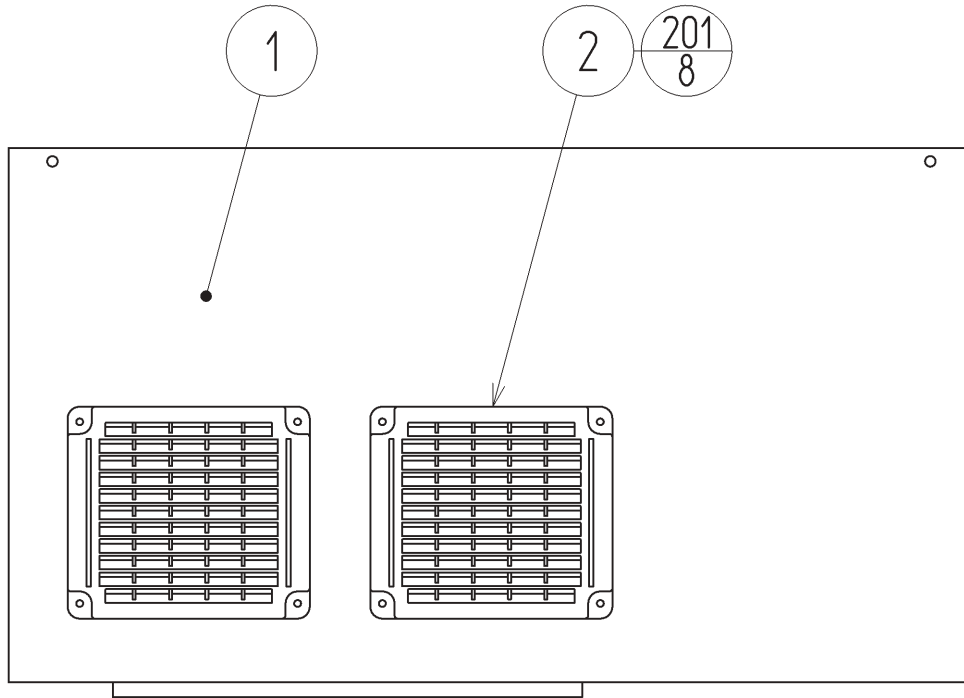
ITEM NO.	PART NO.	DESCRIPTION	NOTE
101	601-0460	PLASTIC TIE BELT 100 MM	
301	WRG-60020	WH AMP AUDIO	
302	WRG-60021	WH AMP VR	
303	WRG-60022	WH SPEAKER L	
304	WRG-60023	WH SPEAKER R	
305	WRG-60024	WH EXT SSR BD SIG	
306	WRG-60025	WH EXT ETR F	
308	WRG-60026	WH EXT I/O F	
309	WRG-60027	WH EXT COINCHUTE F	
310	WRG-60028	WH EXT VR F	

⑩ ASSY SERVICE LID (WRG-1020)



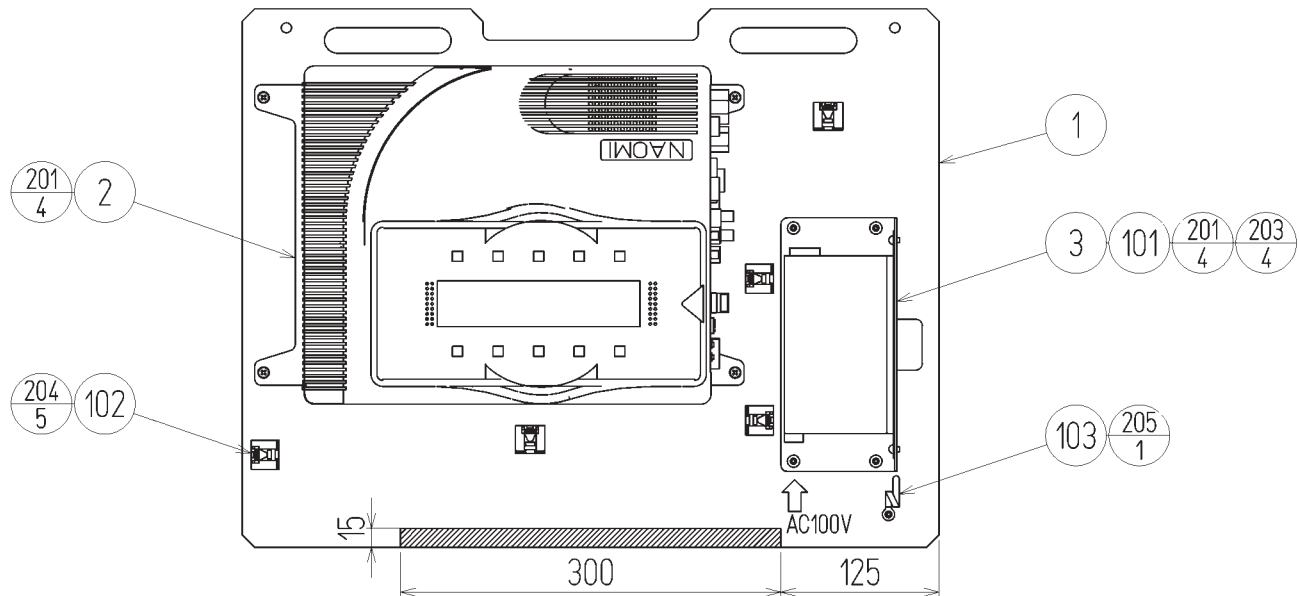
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-1021	SERVICE LID	
2	TH-1015	LOCKING TONGUE	
101	220-5575	CAM LOCK MASTER W/O KEY	

⑪ ASSY LOWER LID (WRG-1030)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-1031	LOWER LID	
2	253-5460-01	AIR VENT BLACK	
201	000-T00416-0B	M SCR TH BLK M4 X 16	

12 ASSY MAIN BD (WRG-4000)

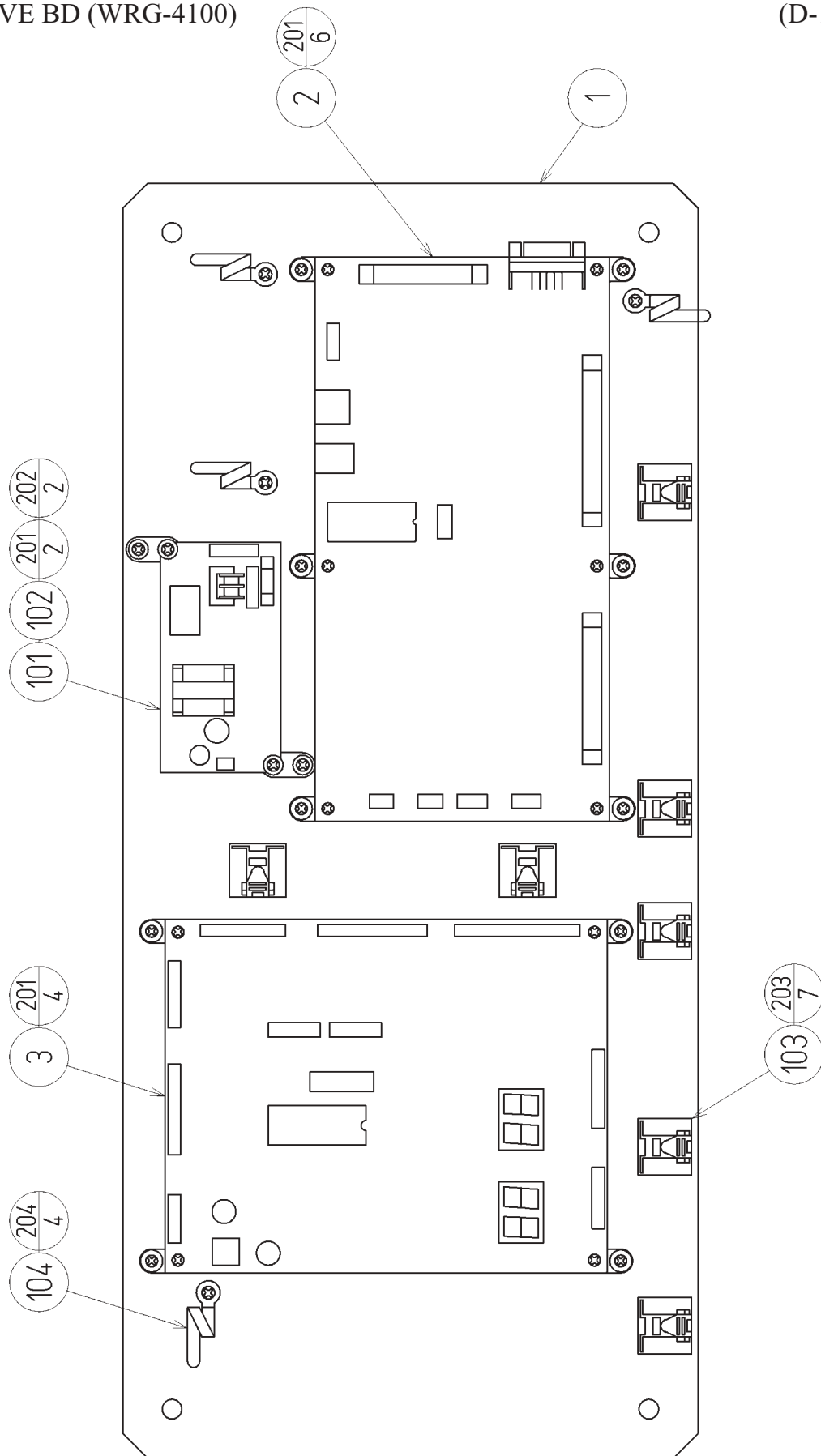


NOTE : MAKE SURE THAT THERE IS NO WIRING, ETC.
IN THE SLASH MARK PORTIONS.

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-4001	WOODEN BASE MAIN BD	
2	840-0064D-01	ASSY CASE NAO WRG USA	USA
	840-0064D-02	ASSY CASE NAO WRG EXP	OTHERS
	840-0064D-03	ASSY CASE NAO WRG KOR	KOREA
	840-0064D-04	ASSY CASE NAO WRG AUS	AUSTRALIA
3	TMB-4003	SW REGU BRKT	
101	400-5397-01	SW REGU FOR JVS VA	
102	280-5277	CORD CLAMP 18	
103	280-0419	HARNESS LUG	
104	601-0460	PLASTIC TIE BELT 100 MM	
201	000-P00416-W	M SCR PH W/FS M4 X 16	
203	000-P00406-W	M SCR PH W/FS M4 X 6	
204	011-F00312	TAP SCR #1 FH 3 X 12	
205	011-T03512	TAP SCR TH 3.5 X 12	
301	WRG-60009	WH NAOMI SW REGU AC	
302	WRG-60010	WH NAOMI SW REGU DC	
303	WRG-60011	WH NAOMI AUDIO	
304	600-7141-050	CABLE JVS TYPE A-B 050CM	
305	600-7159-020	WIRE HARN JVS PWR 020CM	

13 ASSY DRIVE BD (WRG-4100)

(D-1/2)



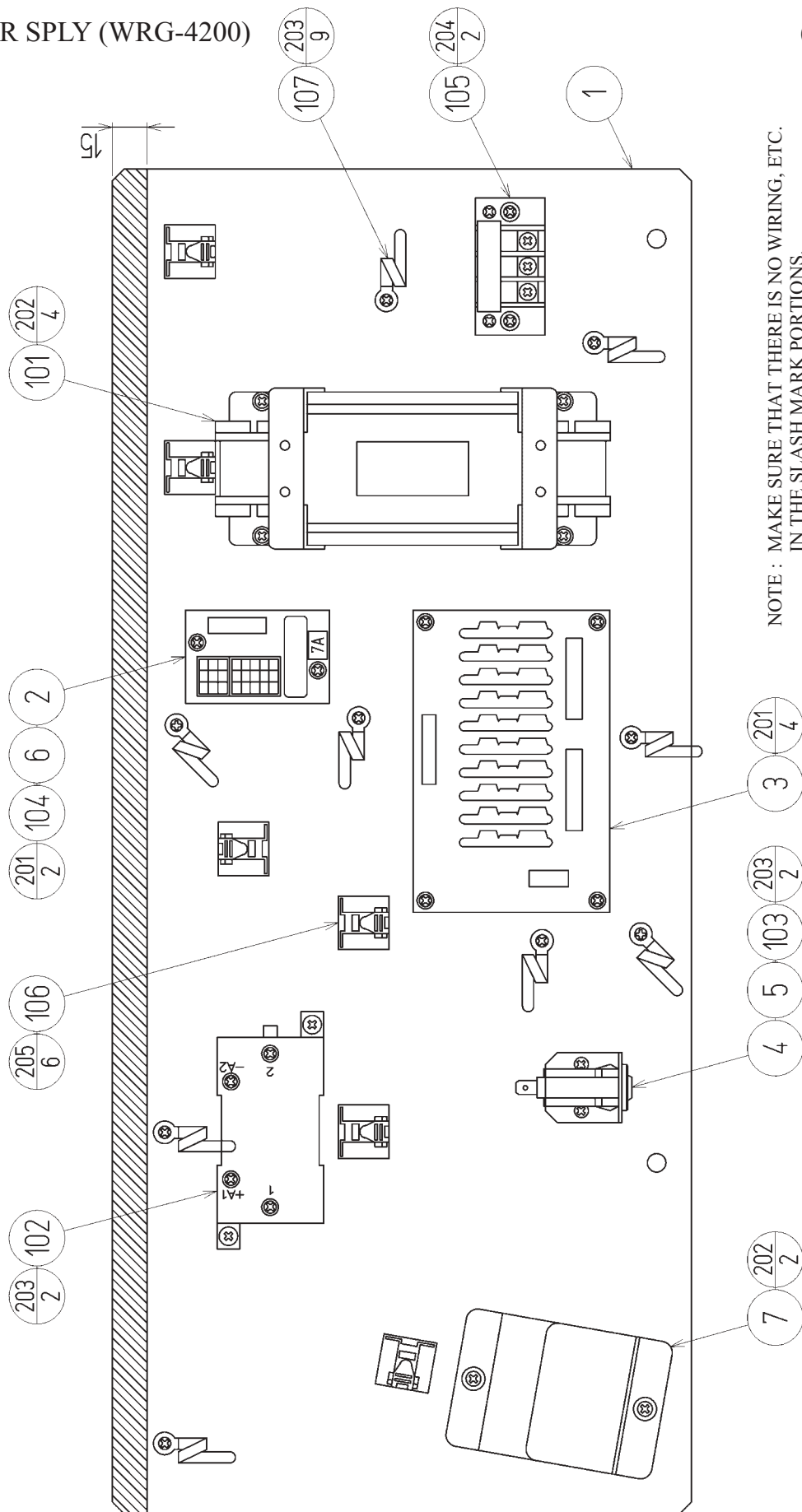
⑬ ASSY DRIVE BD (WRG-4100)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-4101	WOODEN BASE DRIVE BD	
2	837-13844	I/O CONTROL BD 2 FOR JVS FRI	
	837-13844-02	I/O CONTROL BD 2 W/O 232C DOG	
3	838-12801	DRIVE BD WAVERUNNER	
101	400-5421-01024Y	SW REGU LCA10S-24-Y	
102	601-7467	L-LOCK BK	
103	280-5277	CORD CLAMP 18	
104	280-0419	HARNESS LUG	
105	601-0460	PLASTIC TIE BELT 100 MM	
201	011-T00316	TAP SCR TH 3 X 16	
202	000-P00308-W	M SCR PH W/FS M3 X 8	
203	011-F00312	TAP SCR #1 FH 3 X 12	
204	011-T03512	TAP SCR TH 3.5 X 12	
301	WRG-60012	WH DRIVE DC	
302	WRG-60013	WH DRIVE I/O	
303	WRG-60015	WH DRIVE 24V	
304	WRG-60016	WH DRIVE SIG	
305	WRG-60017	WH DRIVE SW REGU AC	

14 ASSY PWR SPLY (WRG-4200)

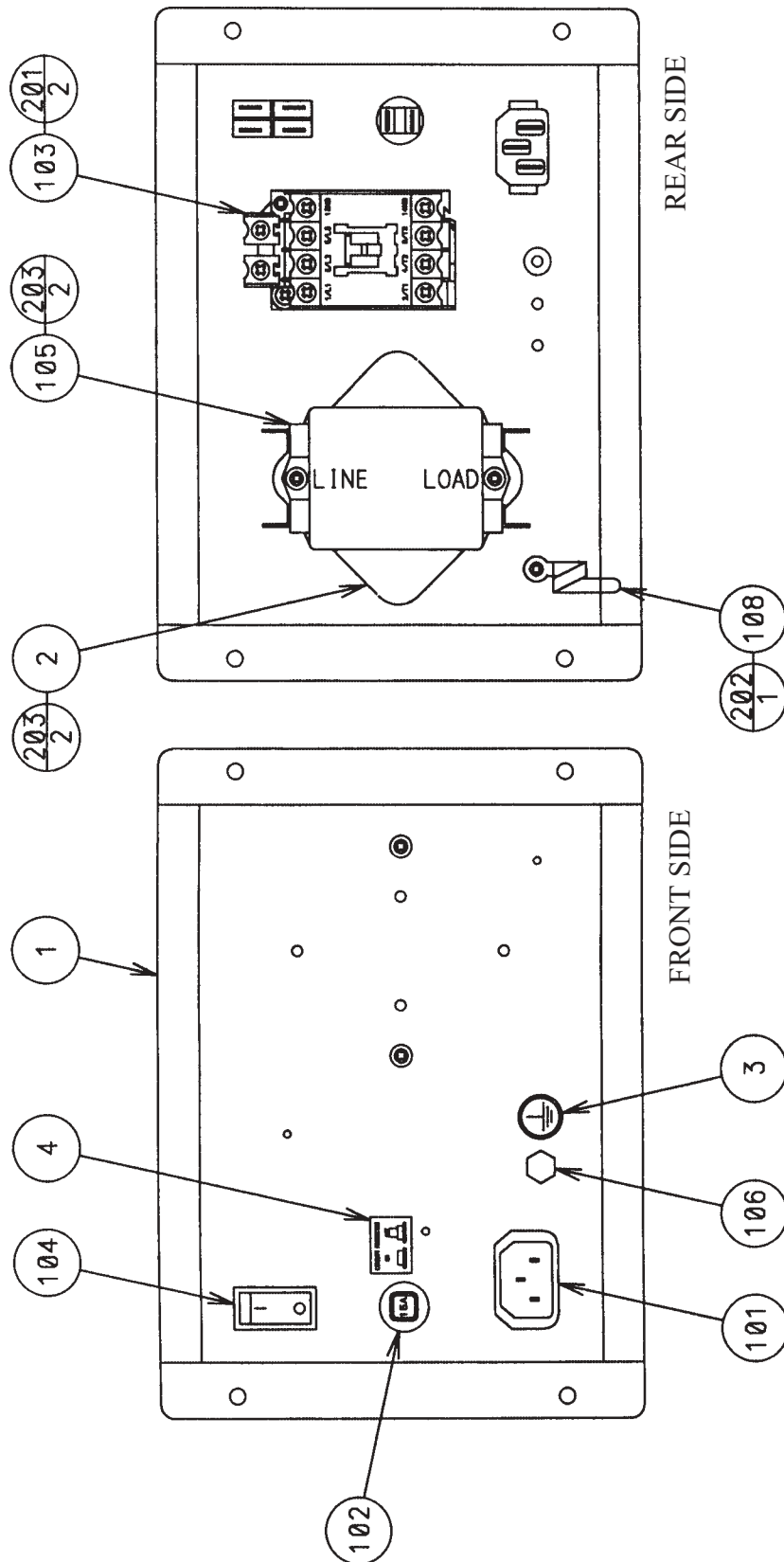
(D-1/2)



⑭ ASSY PWR SPLY (WRG-4200)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-4201	WOODEN BASE PWR SPLY	
2	838-11856-01-UL	CONNECT BD W/FUSE & COVER UL	
3	839-0619	SSR BD 10	
4	NCR-4202	C.P.BRKT	
5	421-7468-01	STICKER C.P W/PIC	
6	421-6595-11	STICKER 7A	
7	WRG-4202	CONNECTOR PNL BRKT PWR SPLY	
101	560-5426-V	XFMR 100-120V 100V5.5A	AC 110 ~ 120V AREA
	560-5422-V	XFMR 200-240V 100V5.5A CE	AC 220 ~ 240V AREA
102	450-5138	SSR AC 40A	
103	512-5046-10000	C.P 10000MA CE UL	
104	514-5036-7000	FUSE 6.4 X 30 7000MA 125V	
105	117-5225	TERMINAL 3P 20A	
106	280-5277	CORD CLAMP 18	
107	280-0419	HARNESS LUG	
108	601-0460	PLASTIC TIE BELT 100 MM	
201	011-P00325	TAP SCR PH 3 X 25	
202	000-P00416-W	M SCR PH W/FS M4 X 16	
203	011-T03512	TAP SCR TH 3.5 X 12	
204	011-T00316	TAP SCR TH 3 X 16	
205	011-F00312	TAP SCR #1 FH 3 X 12	
301	WRG-60001	WH PWR SPLY AC A	
302	WRG-60002	WH PWR SPLY AC B	
303	WRG-60003	WH PWR SPLY AC C	
304	WRG-60004	WH COMP CP A	
305	WRG-60005	WH CONN BD IN	
306	WRG-60006	WH CONN BD OUT A	
307	WRG-60007	WH CONN BD OUT B	
308	WRG-60008	WH SSR BD SIG	
309	WRG-60014	WH COMP CP B	



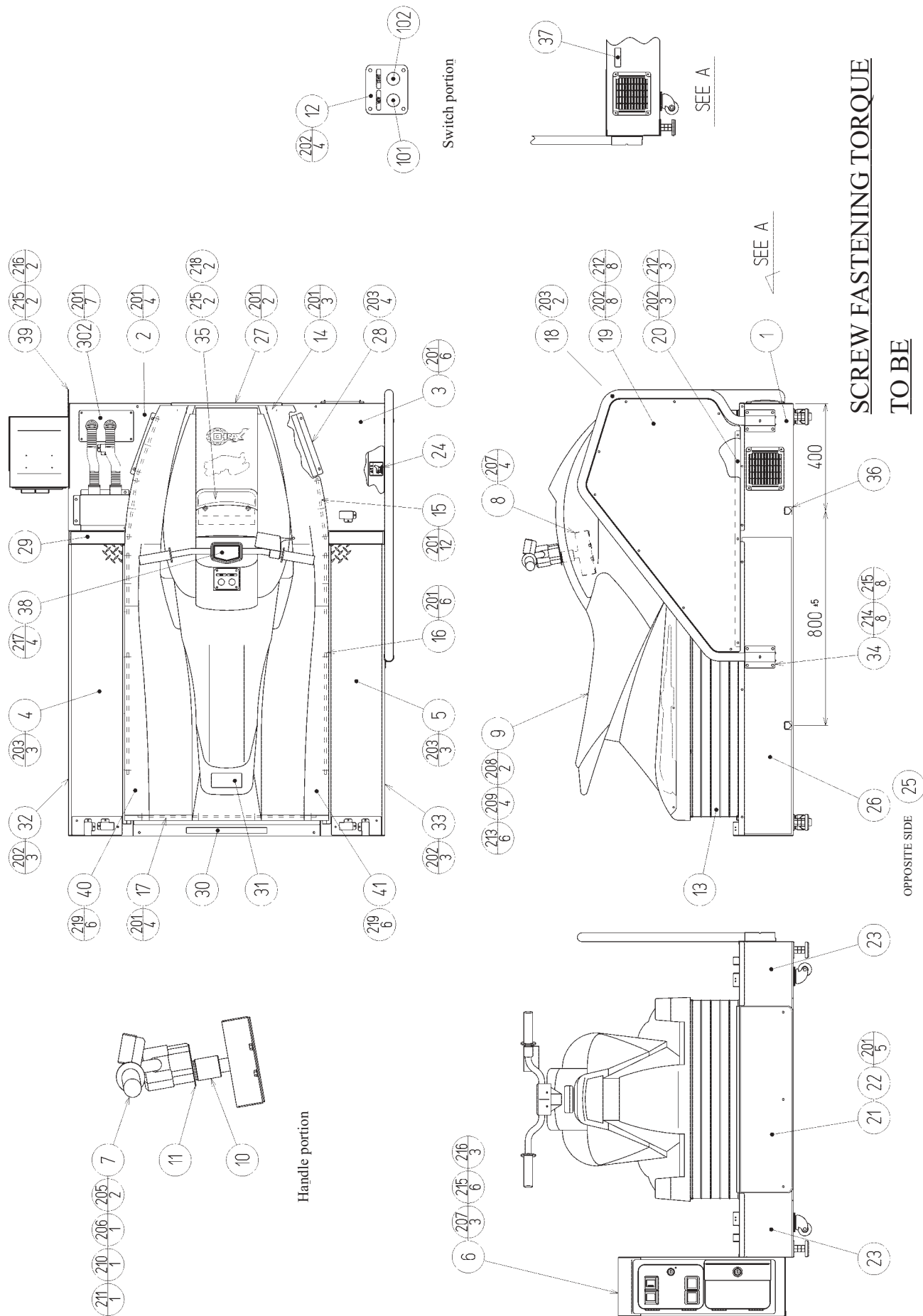
⑮ AC UNIT (NCR-1090)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	JBA-1031	AC BRKT	
2	DYN-0402	NOISE FILTER BASE	
3	421-8202	STICKER EARTH MARK	
4	421-7468-01	STICKER C.P W/PIC	
101	214-0202	AC INLET PANEL TYPE	
102	512-5046-15000	C.P 15000MA CE UL	AC 110 ~ 120V AREA
	512-5046-8000	C.P 8000MA CE UL	AC 220 ~ 240V AREA
103	450-5126	MAGNET CONTACT S-N10CX	TAIWAN
	450-5134	MAGNET CONTACT S-N10CX AC 230V	OTHERS
	450-5133	MAGNET CONTACT S-N10CX AC 200V	KOREA
	450-5135	MAGNET CONTACT S-N10CX AC120V	USA
104	509-5453-91-V-B	SW ROCKER J8 V-B	
105	270-5115	NOISE FILTER 15A GT-215J	
106	280-0417	TERMINAL BINDING POST BLACK	TAIWAN
		NOT USED	OTHERS
107	310-5029-K20	SUMITUBE F K 20MM	
108	280-0419	HARNESS LUG	
109	601-0460	PLASTIC TIE BELT 100 MM	
201	000-P00416-WB	M SCR PH W/FS BLK M4 X 16	
202	000-P00408-WB	M SCR PH W/FS BLK M4 X 8	
203	012-P00408	TAP SCR #2 PH 4 X 8	
204	060-F00400	FLT WSHR M4	
205	060-S00400	SPR WSHR M4	
206	050-H00400	HEX NUT M4	
301	NCR-60001	WIRE HARN AC UNIT IN	
302	NCR-60002	WIRE HARN MAIN SW	
303	NCR-60003	WIRE HARN M.CONTACT & N.FILTER	
304	NCR-60004	WIRE HARN AC UNIT OUT	
305	NCR-60056	WIRE HARN EARTH INLET	

16 ASSY REAR CABINET (WRG-3000)

(D-1/3)



16 ASSY REAR CABINET (WRG-3000)

(D-2/3)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-3100	ASSY MECHA BASE	
2	WRG-3320	ASSY LID L	
3	WRG-3340	ASSY LID R	
4	WRG-3360	ASSY STEP L	
5	WRG-3380	ASSY STEP R	
6	WRG-3500	ASSY COINCHUTE TOWER Locally supplied.	OTHERS USA
7	WRG-3600	ASSY HANDLE MECHA	
8	MJT-3650	ASSY CENTERING MECHA	
9	WRG-3001	MAIN BODY	
10	MJT-3005	CALLAR	
11	MJT-3006	SLIDE PLATE	
12	WRG-3007	SW PLATE	
13	WRG-3009	BELLOWS	
14	MJT-3010	BELLOWS STOPPER FRONT	
15	MJT-3011	BELLOWS STOPPER A	
16	MJT-3012	BELLOWS STOPPER B	
17	MJT-3013	BELLOWS STOPPER REAR	
18	WRG-3015	SIDE PIPE R	
19	WRG-3016	PARTITION PLATE	
20	WRG-3017	PLATE GUARD	
21	MJT-3018	REAR LID	
22	WRG-3019	STICKER REAR LID	
23	WRG-3020	STICKER BASE BACK	
24	440-WS0179-EG	STICKER W HI TEMP M ENG	
25	WRG-3022	STICKER BASE SIDE L	
26	WRG-3023	STICKER BASE SIDE R	
27	MJT-3024	BELLOWS BRKT FRONT	
28	MJT-3025	BELLOWS BRKT A	
29	440-WS0082-EG	STICKER W BASE A ENG	
30	440-CS0083-EG	STICKER C BASE B ENG	
31	440-CS0084-EG	STICKER C SEAT END ENG	
32	MJT-3029	SUSH L	
33	WRG-3030	SASH R	
34	WRG-3031	PIPE HOLDER	
35	WRG-3032	BODY HOLDER	
36	421-11416	STICKER CAUTION FORK	
38	WRG-3036	HANDLE BOSS COVER	
39	WRG-3037	TOWER HOLDER	
40	WRG-3038	SIDE GUARD L	
41	WRG-3039	SIDE GUARD R	
101	509-5764	PUSH BUTTON SW 1T GREEN W/LAMP	
102	509-0161	SW PB TYPE 1T YEL W/LAMP	

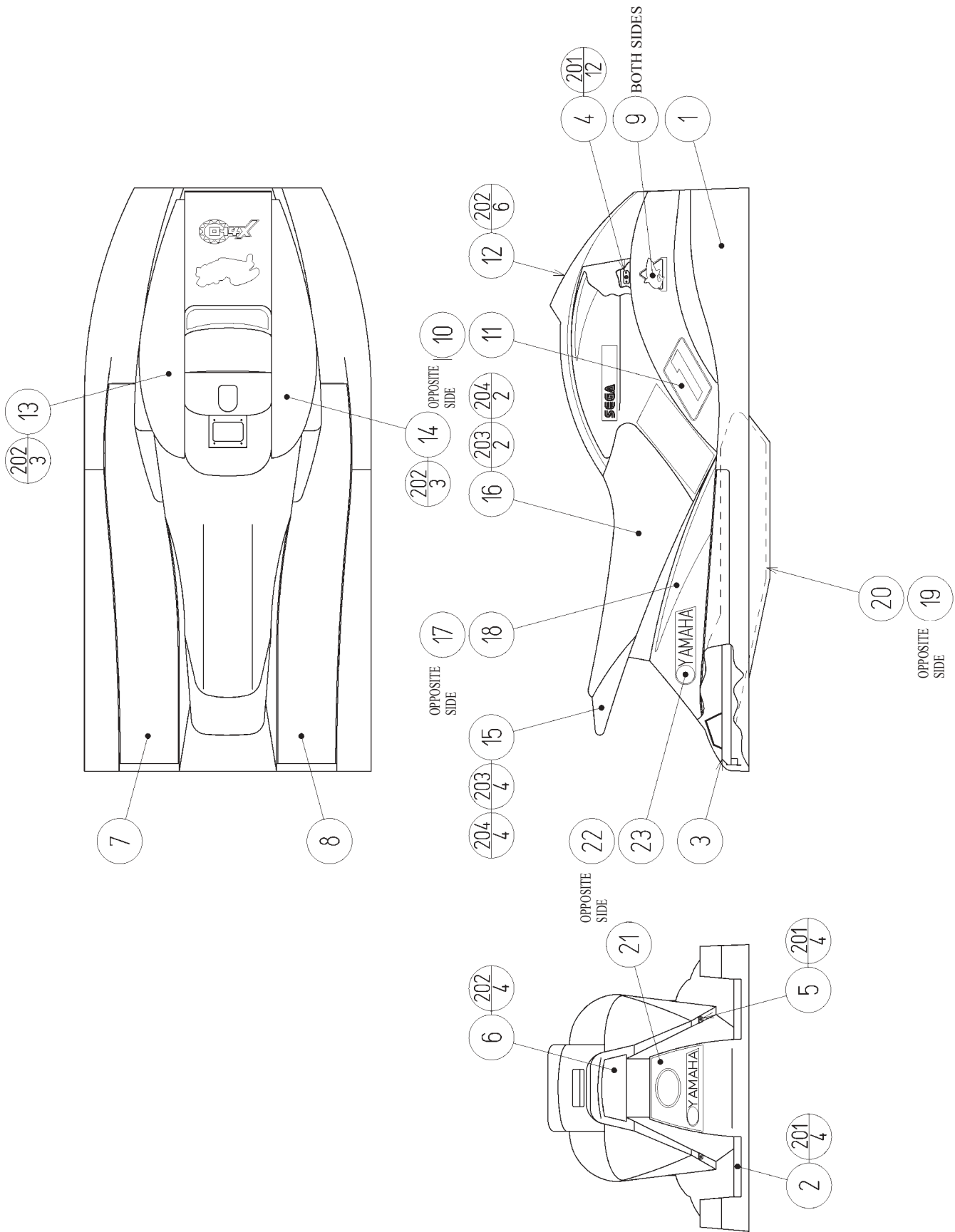
16 ASSY REAR CABINET (WRG-3000)

(D-3/3)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
201	000-T00412-0B	M SCR TH BLK M4 X 12	
202	000-T00412-0C	M SCR TH CRM M4 X 12	
203	000-T00512-0B	M SCR TH BLK M5 X 12	
205	060-F01800-0B	FLT WSHR BLK M18	
206	020-001020-0Z	HEX SKT CAP SCR BLK 0Z M10 X 20	
207	030-000820-S	HEX BLT W/S M8 X 20	
208	030-001025-S	HEX BLT W/S M10 X 25	
209	030-001060-S	HEX BLT W/S M10 X 60	
210	060-F01000-0B	FLT WSHR BLK M10	
211	060-S01000-0B	SPR WSHR BLK M10	
212	068-441616-0C	FLT WSHR CRM 4.4-16 X 1.6	
213	068-A52820	FLT WSHR 10.5-28 X 2	
214	030-000820-SB	HEX BLT W/S BLK M8 X 20	
215	060-F00800-0B	FLT WSHR BLK M8	
216	008-B00820-0B	TMP PRF SCR BH BLK M8 X 20	
217	000-T00408-0B	M SCR TH BLK M4 X 8	
218	030-000850-S	HEX BLT W/S M8 X 50	
219	FAS-120001	TAP SCR #2 TH BLK 4 X 10	
301	WRG-60048	WH START & VIEW	
302	WRG-6001	ASSY WIRE TUBE	

17 MAIN BODY (WRG-3001)

(D-1/2)



17 MAIN BODY (WRG-3001)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-3001-A	MAIN BODY BLANK	
2	WRG-3001-D	REAR GUARD	
3	WRG-3001-E	JOINT FRAME	
4	WRG-3001-F	NUT PLATE A	
5	WRG-3001-G	SIDE COVER HOLDER	
6	WRG-3001-H	REAR LID	
7	WRG-3001-J	FOOT MAT L	
8	WRG-3001-K	FOOT MAT R	
9	WRG-3001-L	STICER SHARK	
10	WRG-3001-M	STICER NO.1 L	
11	WRG-3001-N	STICER NO.1 R	
12	WRG-3002	CENTER COVER	
13	WRG-3003	SIDE COVER L	
14	WRG-3004	SIDE COVER R	
15	WRG-3005	SEAT BASE	
16	WRG-3006	SEAT	
17	WRG-3001-P	STICKER SIDE LINE L	
18	WRG-3001-Q	STICKER SIDE LINE R	
19	WRG-3001-R	STICKER PROTECTOR L	
20	WRG-3001-S	STICKER PROTECTOR R	
21	WRG-3001-T	STICKER BODY REAR	
22	WRG-3001-U	STICKER YAMAHA LARGE L	
23	WRG-3001-V	STICKER YAMAHA LARGE R	
201	047-PA3217-0	RVT OPEN TYPE AL 3.2 X 17.0	
202	000-T00520-0B	M SCR TH BLK M5 X 20	
203	030-000820-S	HEX BLT W/S M8 X 20	
204	068-852216	FLT WSHR 8.5-22 X 1.6	

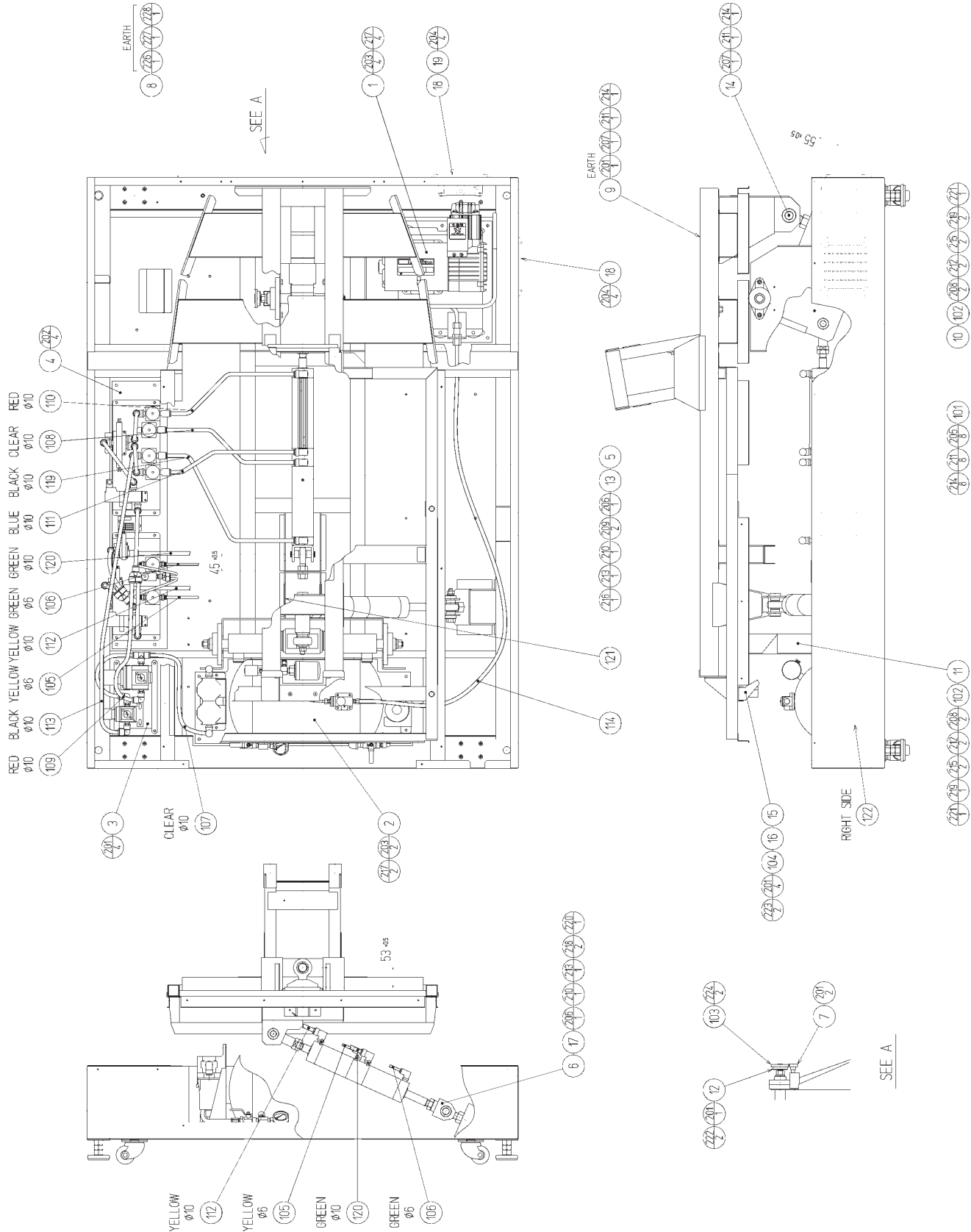
18 ASSY MECHA BASE (WRG-3100)

(D-1/3)

Apply greasing to sphere portions of the rod end

TORQUE

M10:	27 N•m
M12:	48 N•m
M14:	76 N•m
M16:	95 N•m
M18:	110 N•m
M22:	170 N•m



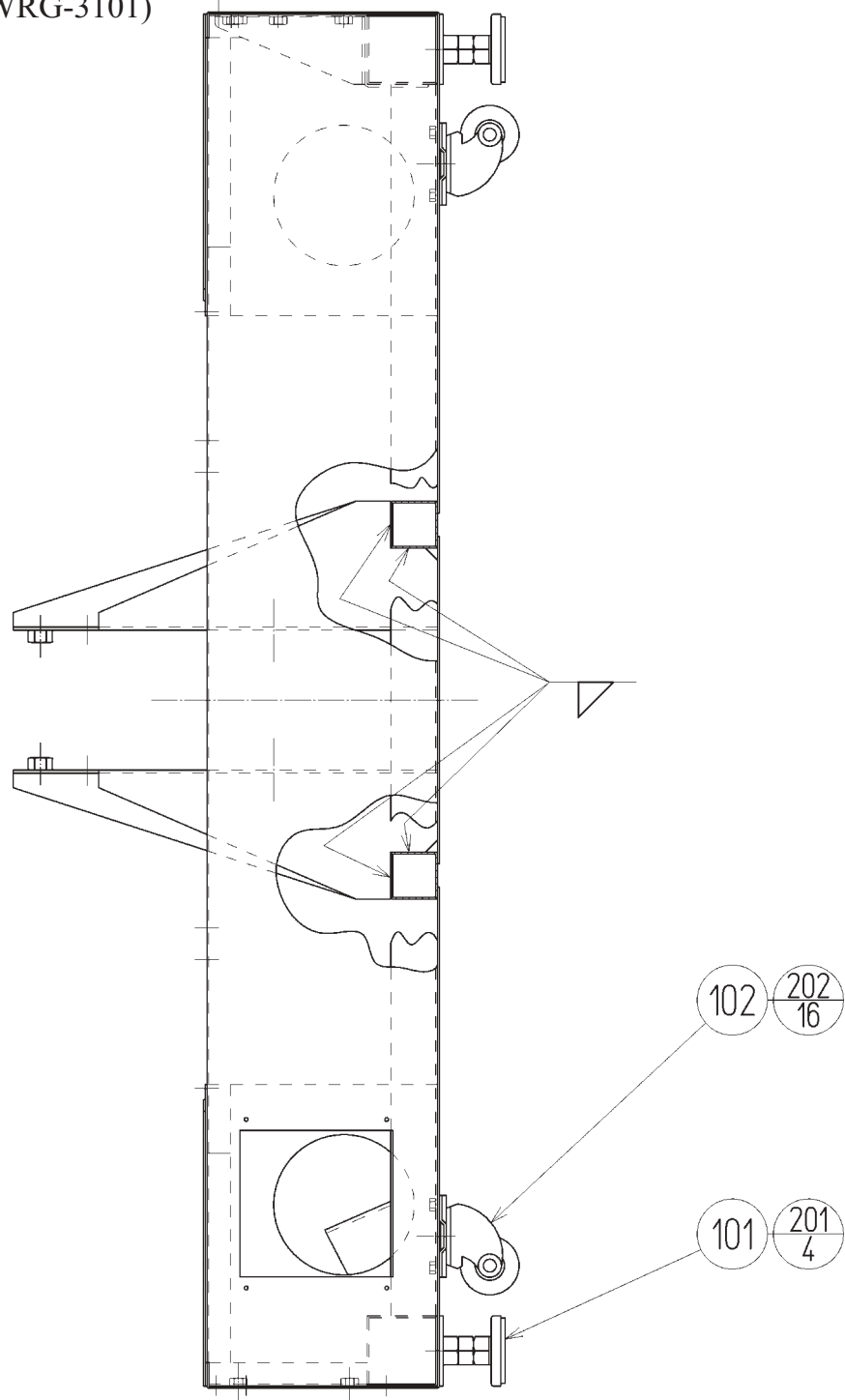
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-3140	ASSY COMP Locally supplied.	OTHERS USA
2	MJT-3160	ASSY TANK Locally supplied.	OTHERS USA
3	MJT-3180	ASSY REGU	
4	WRG-3200	ASSY VALVE	
5	MJT-3220	ASSY FRONT CYLINDER	
6	MJT-3240	ASSY REAR CYLINDER	
7	MJT-3380	VR UNIT	
8	WRG-3101	MECHA BASE	
9	WRG-3102	RIDE FRAME	
10	MJT-3103	CRANK	
11	MJT-3104	LINK	
12	MJT-3105	GUIDE RING	
13	MJT-3106	SHOULDER SCREW 18	
14	MJT-3107	SHOULDER SCREW 22	
15	WRG-3108	BANK BRKT HOLDER	
16	WRG-3109	SENSOR BRKT BANK	
17	GLC-3016	ROD SCREW	
18	253-5460-01	AIR VENT BLACK	
19	STR-1070	FAN UNIT	
101	100-5025	BEARING UNIT	
102	111-0019	ROD END 22 THK POS 22	
103	601-6959	GEAR 64	
104	370-5130	INCLINATION SENSOR	
105	601-6843-30570	AIR TUBE 6-YELLOW-570	
106	601-6843-40720	AIR TUBE 6-GREEN-720	
107	601-6844-00400	AIR TUBE 10-CLEAR-400	
108	601-6844-00540	AIR TUBE 10-CLEAR-540	
109	601-6844-10400	AIR TUBE 10-RED-400	
110	601-6844-10540	AIR TUBE 10-RED-540	
111	601-6844-20540	AIR TUBE 10-BLUE-540	
112	601-6844-30580	AIR TUBE 10-YELLOW-580	
113	601-6844-80850	AIR TUBE 10-BLACK-850	
114	601-8898	AIR TUBE	
115	280-5009-01	CORD CLAMP 21	
116	280-5169	CORD CLAMP TL-20S	
117	280-5275-SR10	CORD CLAMP SR10	
118	280-5188-1N	WIRE SADDLE WS-1N NIKKO WS-1N	
119	601-6844-80540	AIR TUBE 10-BLACK-540	
120	601-6844-40720	AIR TUBE 10-GREEN-720	
121	601-6231-C135	EDGING NEW TYPE	
122	601-5526-370	BUSH 1.6T L=370MM	
123	601-0460	PLASTIC TIE BELT 100 MM	

18) ASSY MECHA BASE (WRG-3100)

(D-3/3)

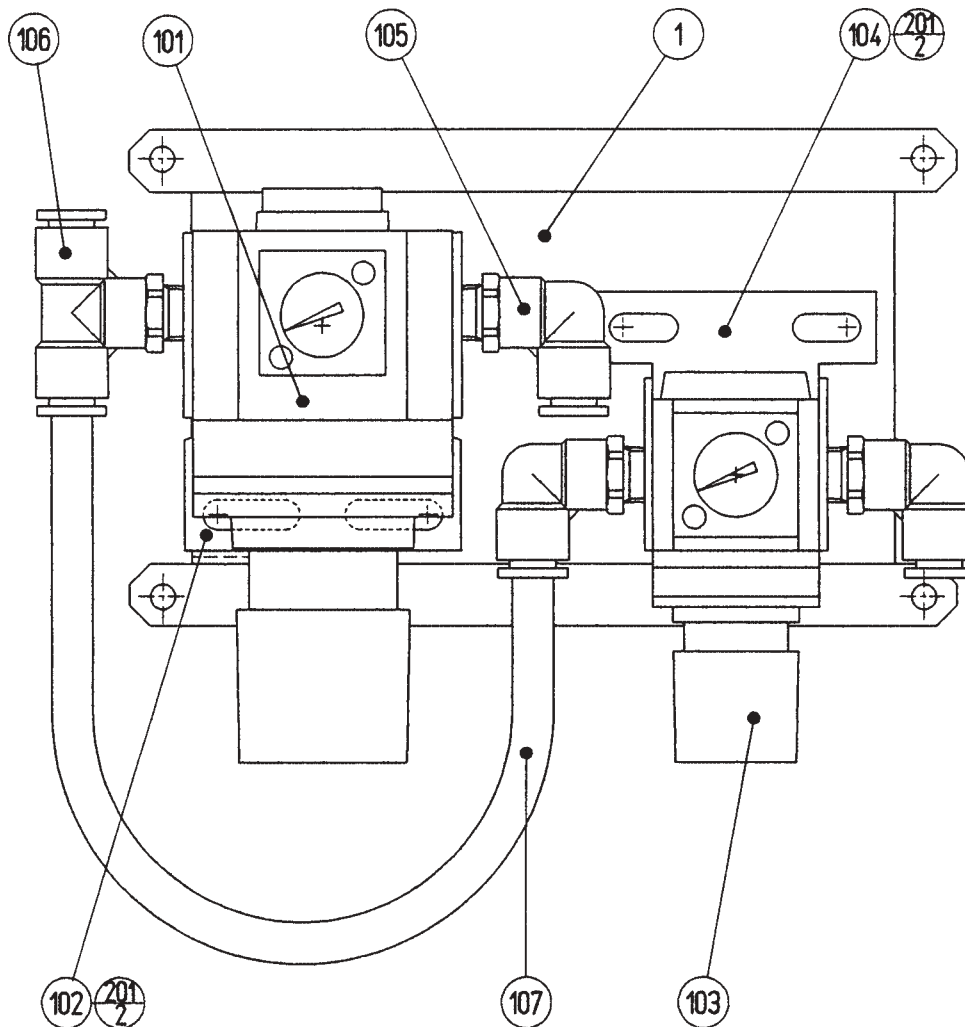
ITEM NO.	PART NO.	DESCRIPTION	NOTE
201	000-P00408-W	M SCR PH W/FS M4 X 8	
202	000-P00420-W	M SCR PH W/FS M4 X 20	
203	000-P00520-S	M SCR PH W/S M5 X 20	
204	000-T00408-0B	M SCR TH BLK M4 X 8	
205	030-001240	HEX BLT M12 X 40	
206	050-H01000	HEX NUT M10	
207	050-H01200	HEX NUT M12	
208	050-H01400	HEX NUT M14	
209	050-H01600	HEX NUT M16	
210	060-F01000	FLT WSHR M10	
211	060-F01200	FLT WSHR M12	
212	060-F01400	FLT WSHR M14	
213	060-S01000	SPR WSHR M10	
214	060-S01200	SPR WSHR M12	
215	060-S01400	SPR WSHR M14	
216	060-S01600	SPR WSHR M16	
217	068-552016	FLT WSHR 5.5-20 X 1.6	
218	FAS-500004	HEX NUT P1.5 M18	
219	FAS-500005	HEX NUT P1.5 #1 M22	
220	FAS-600002	SPR WSHR M18	
221	FAS-600003	SPR WSHR M22	
222	028-A00412-P	SET SCR HEX SKT CUP P M4 X 12	
223	000-P00308	M SCR PH M3 X 8	
224	000-P00412-W	M SCR PH W/FS M4 X 12	
226	050-H00400	HEX NUT M4	
227	060-F00400	FLT WSHR M4	
228	060-S00400	SPR WSHR M4	
301	WRG-6003	ASSY WIRE BASE DC	
302	WRG-60036	WH EXT COMP R	
303	WRG-60037	WH EXT VALVE R	
304	WRG-60040	WH EXT VR U	
305	WRG-60041	WH EXT INCLI SENSOR	
306	WRG-60045	WH EXT BUTTON	
308	WRG-60062	WH FAN	
309	600-6972-0900	WIRE HARN EARTH ID5 0900MM	

19) MECHA BASE (WRG-3101)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
101	601-5882	LEG ADJUSTER \varnothing 60	
102	601-6056-01	CASTER \varnothing 50	
201	050-H01600-3	HEX NUT TYPE 3 M16	
202	030-000620-S	HEX BLT W/S M6 X 20	

20 ASSY REGU (MJT-3180)



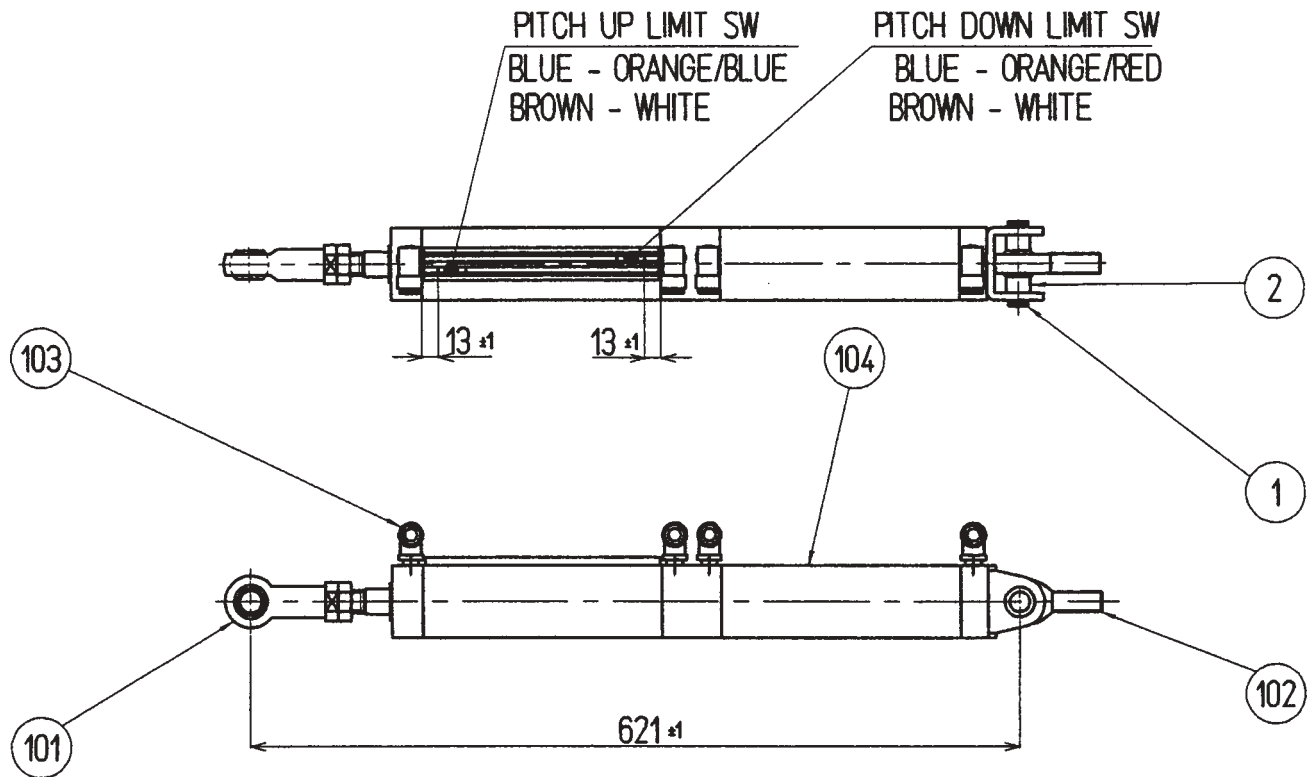
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	MJT-3181	REGU BRKT	
101	601-6077	REGULATOR	
102	601-6079	BRKT REGULATOR	
103	601-6933	REGULATOR R1000	
104	601-6934	BRKT REGULATOR C-TYPE120	
105	601-6274	AIR JOINT	
106	601-6862	AIR JOINT T-TYPE ET 10PT 1/4	
107	601-6844-00200	AIR TUBE 10-CLEAR-200	
201	000-P00410-W	M SCR PH W/FS M4 X 10	

21 ASSY VALVE (WRG-3200)

(D-2/2)

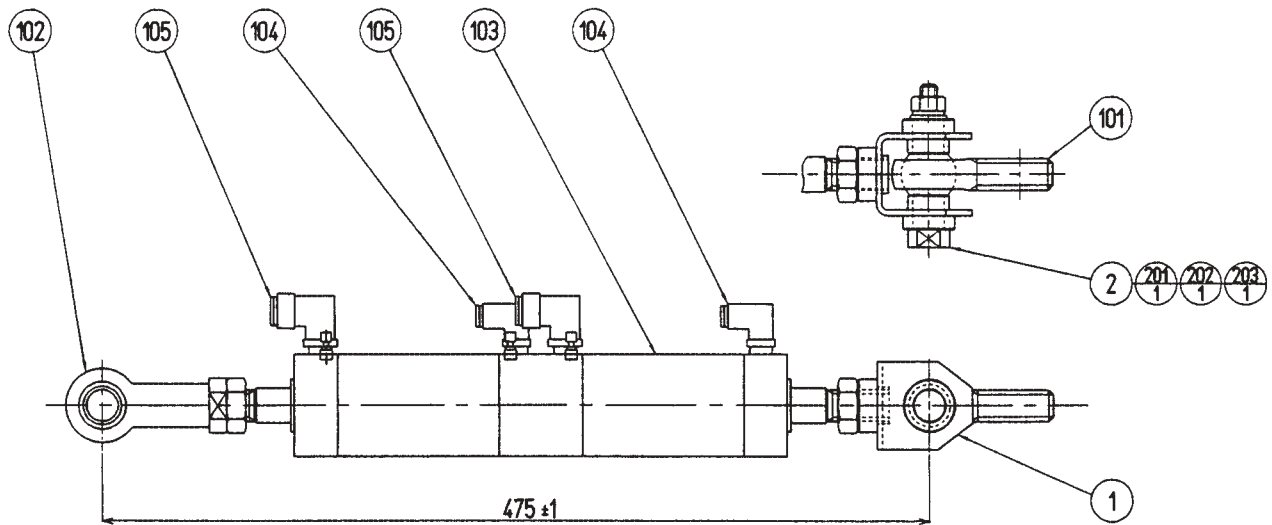
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-3201	WOODEN BASE VALVE	
2	WRG-3202	VALVE BRKT F	
3	WRG-3203	VALVE BRKT R	
4	MJT-3204	REGU BRKT	
5	838-11856	CONNECT BD	
101	601-6246	SPEED CONTROLLER 1/8	
102	601-6247-01	SILENCER 1/8	
103	601-6249	AIR VALVE 2 PORT	
104	601-11063	AIR VALVE	
105	601-6281-01	SILENCER 1/4	
106	601-8848	AIR REGURATOR	
107	601-11064	AIR VALVE	
108	601-6083	AIR JOINT	
109	601-6253	AIR JOINT	
110	601-6254	AIR JOINT	
111	601-6258	AIR JOINT	
112	601-6260	AIR JOINT	
113	601-6274	AIR JOINT	
114	601-6719	PLUG 1/8	
115	601-8855	AIR JOINT	
116	601-6843-30260	AIR TUBE 6-YELLOW-260	
117	601-6843-40260	AIR TUBE 6-GREEN-260	
118	601-6844-10200	AIR TUBE 10-RED-200	
119	601-6844-20200	AIR TUBE 10-BLUE-200	
120	601-6844-30200	AIR TUBE 10-YELLOW-200	
121	601-6844-40200	AIR TUBE 10-GREEN-200	
122	209-0023	CONN CLOSED END	
123	280-0419	HARNESS LUG	
124	280-5009-01	CORD CLAMP 21	
125	601-0460	PLASTIC TIE BELT 100 MM	
126	601-6844-30120	AIR TUBE 10-YELLOW-120	
201	000-P00308-S	M SCR PH W/S M3 X 8	
202	000-P00408-S	M SCR PH W/S M4 X 8	
203	000-P00330-S	M SCR PH W/S M3 X 30	
204	000-P00414-W	M SCR PH W/FS M4 X 14	
205	000-P00430-S	M SCR PH W/S M4 X 30	
206	000-P00510-S	M SCR PH W/S M5 X 10	
207	011-T00325	TAP SCR TH 3 X 25	
208	011-T03512	TAP SCR TH 3.5 X 12	
209	011-F00312	TAP SCR #1 FH 3 X 12	
301	WRG-60049	WH VALVE A	
302	WRG-60050	WH VALVE B	
303	WRG-60051	WH VALVE C	
304	WRG-60052	WH VALVE D	
305	WRG-60053	WH PITCH ETR	
306	WRG-60054	WH ROLL ETR	

② ASSY FRONT CYLINDER (MJT-3220)



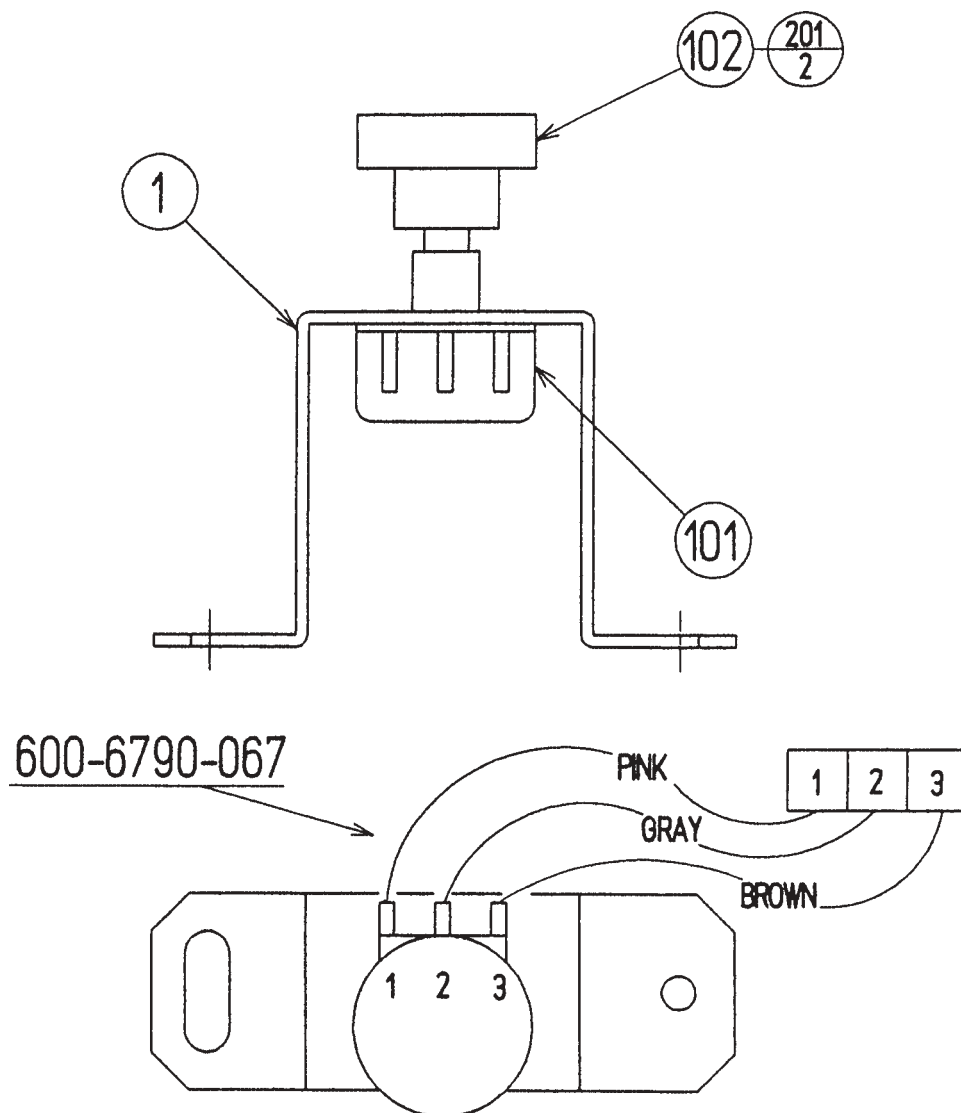
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	MJT-3221	PIN	
2	MJT-3222	COLLAR	
101	111-0026	ROD END PHS 18	
102	111-0049	ROD END 16	
103	601-6274	AIR JOINT	
104	601-8852	AIR CYLINDER W4-50-150	
105	209-0023	CONN CLOSED END	
106	601-0460	PLASTIC TIE BELT 100 MM	
301	600-6790-056	WIRE HARN LIMIT SW	

23 ASSY REAR CYLINDER (MJT-3240)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	MJT-3241	ROD END HOLDER	
2	GLC-3016	ROD SCREW	
101	111-0018	ROD END 18 THK POS 18	
102	111-0026	ROD END PHS 18	
103	601-8853	AIR CYLINDER B-50-50-50	
104	601-6715	AIR JOINT 6-1/4 L TYPE	
105	601-6274	AIR JOINT	
201	050-H01000	HEX NUT M10	
202	060-F01000	FLT WSHR M10	
203	060-S01000	SPR WSHR M10	

②④ VR UNIT (MJT-3380)



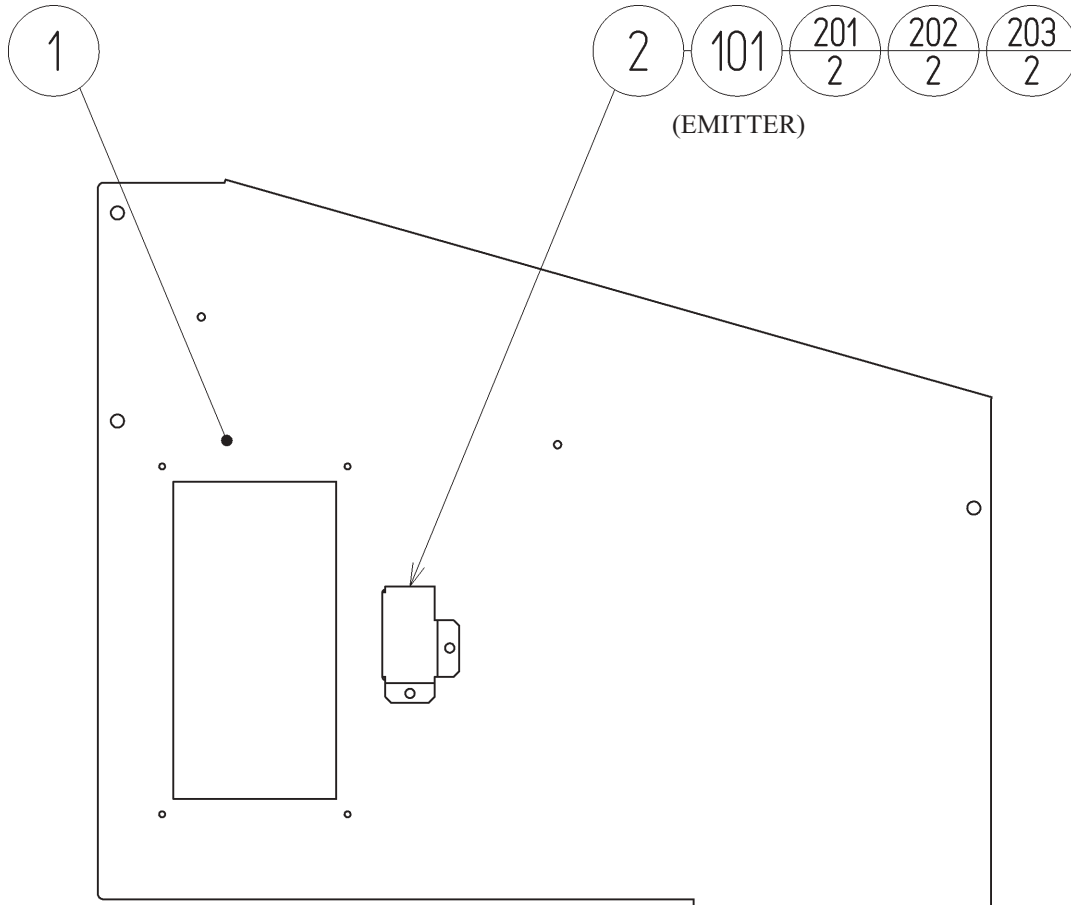
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	MJT-3381	VR BRKT	
101	220-5373 220-5484	VOL CONT B-5K VOL CONT B-5K OHM	
102	601-6555	GEAR Z=30 M=0.75	
103	310-5029-D20	SUMITUBE F D 20 MM	
104	601-0460	PLASTIC TIE BELT 100 MM	
201	028-C00408-P	SET SCR CH CUP P M4 X 8	
301	600-6790-067	WIRE HARN PITCH VR	

25 ASSY WIRE BASE DC (WRG-6003)

ASSY WIRE BASE DC (WRG-6003) is comprised of the following wire harnesses.
An ASSY DRG. is unavailable.

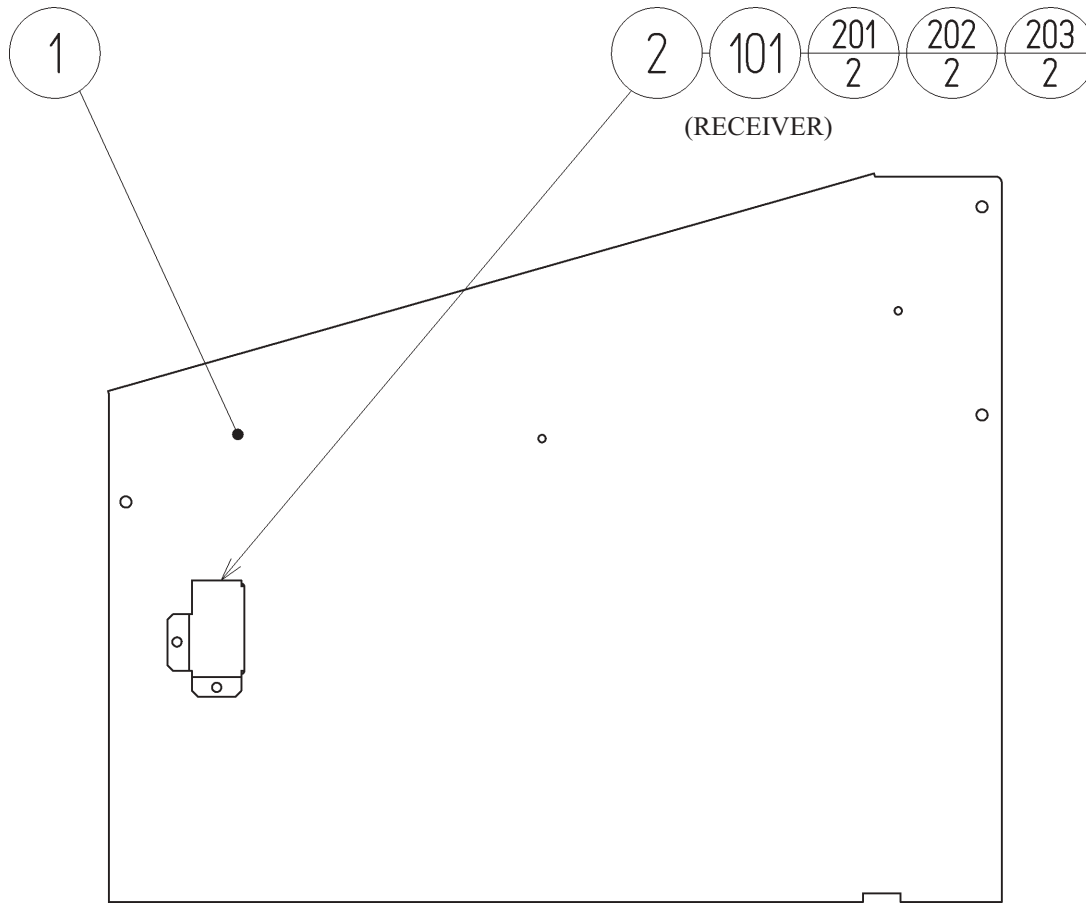
ITEM NO.	PART NO.	DESCRIPTION	NOTE
101	601-0460	PLASTIC TIE BELT 100 MM	
301	WRG-60038	WH EXT ETR R	
302	WRG-60039	WH EXT VR R	
305	WRG-60044	WH EXT I/O R	

②⑥ ASSY LID L (WRG-3320)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-3321	BASE LID L	
2	MJT-3363X	SENSOR BRKT R	
101	370-5071-01	BEAM SENSOR	
102	280-5275-SR10	CORD CLAMP SR10	
201	000-P00316-WB	M SCR PH W/FS BLK M3 X 16	
202	000-T00408-0B	M SCR TH BLK M4 X 8	
203	050-H00300	HEX NUT M3	

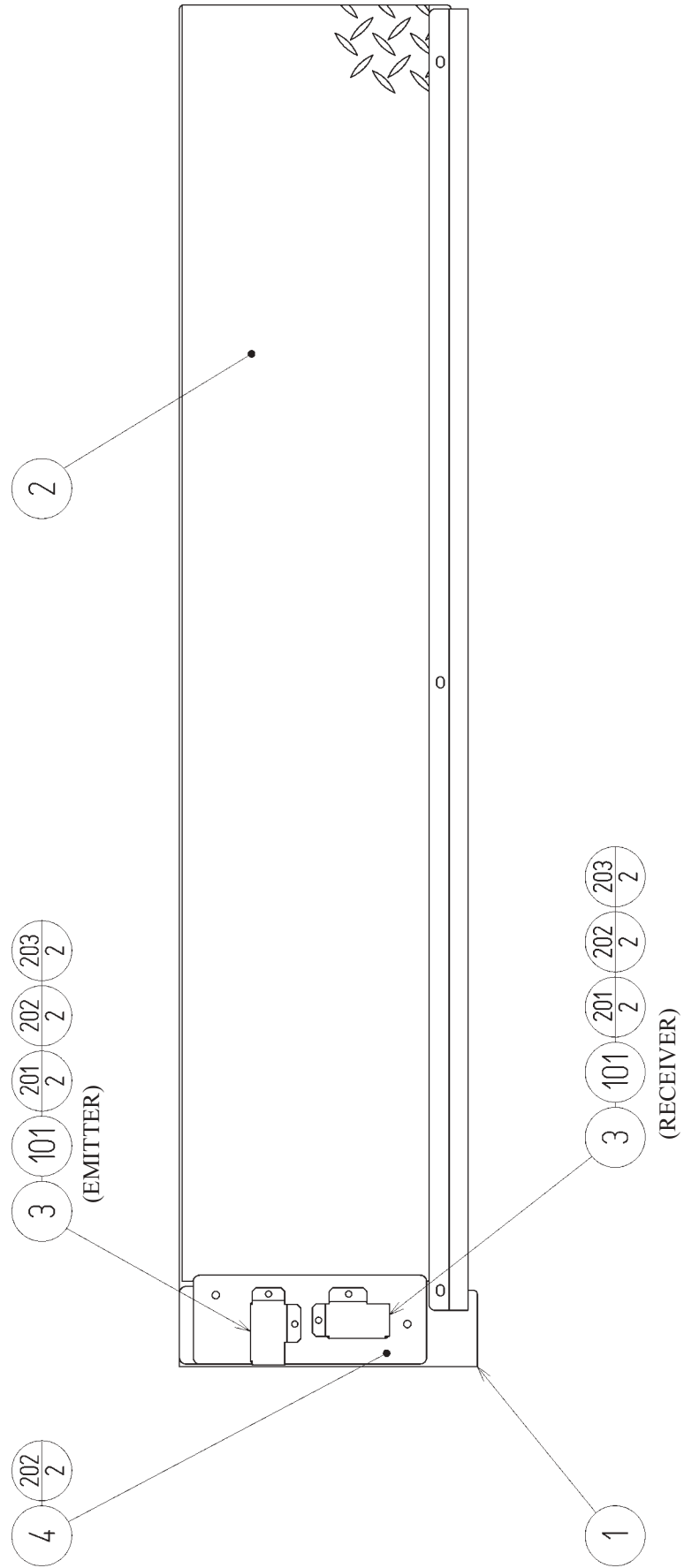
27 ASSY LID R (WRG-3340)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-3341	BASE LID R	
2	MJT-3343X	SENSOR BRKT L	
101	370-5071-02	BEAM SENSOR	
102	280-5275-SR10	CORD CLAMP SR10	
201	000-P00316-WB	M SCR PH W/FS BLK M3 X 16	
202	000-T00408-0B	M SCR TH BLK M4 X 8	
203	050-H00300	HEX NUT M3	

28 ASSY STEP L (WRG-3360)

(D-1/2)



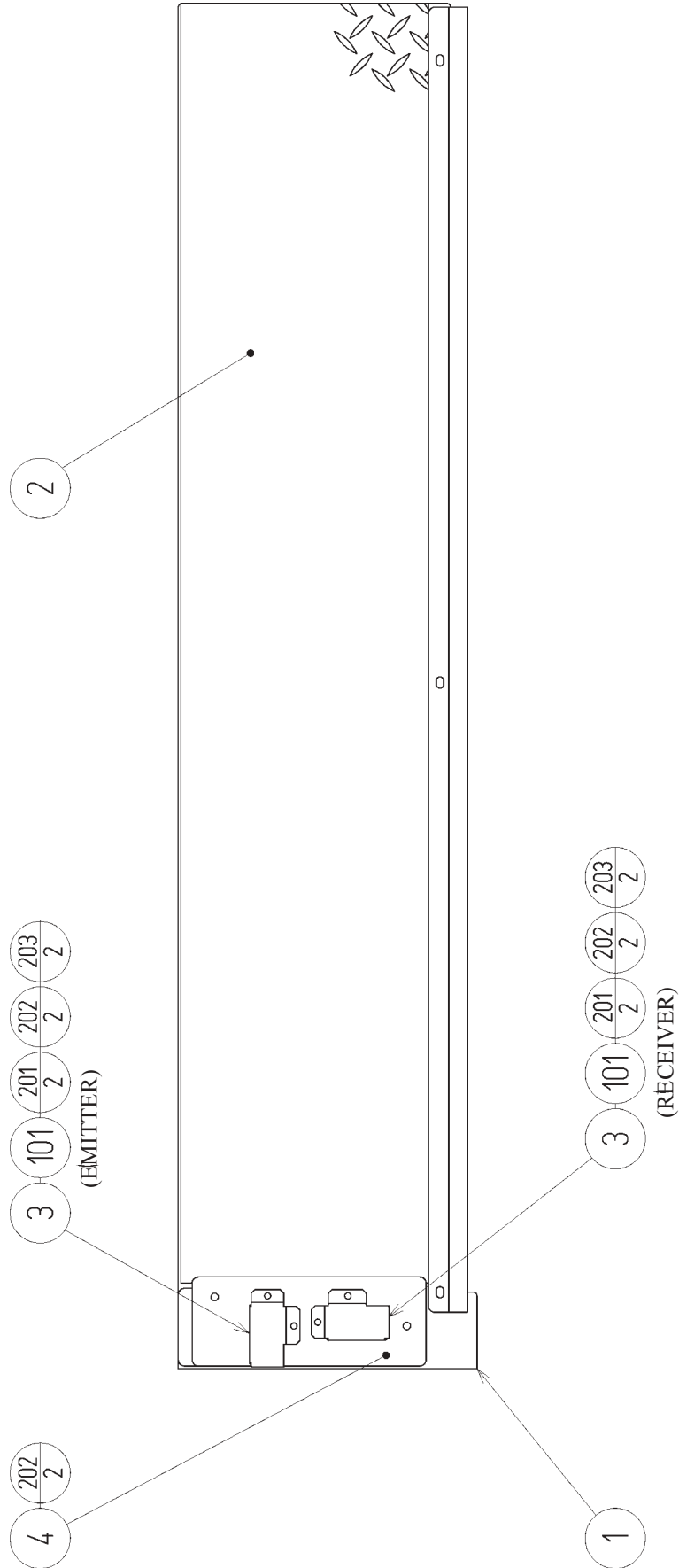
28 ASSY STEP L (WRG-3360)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-3361	STEP BASE L	
2	MJT-3342	SIDE MAT	
3	MJT-3343X	SENSOR BRKT L	
4	MJT-3344X	SENSOR PLATE L	
101	370-5071	BEAM SENSO	
201	000-P00316-WB	M SCR PH W/FS BLK M3 X 16	
202	000-T00408-0B	M SCR TH BLK M4 X 8	
203	050-H00300	HEX NUT M3	

29 ASSY STEP R (WRG-3380)

(D-1/2)



29 ASSY STEP R (WRG-3380)

(D-1/2)

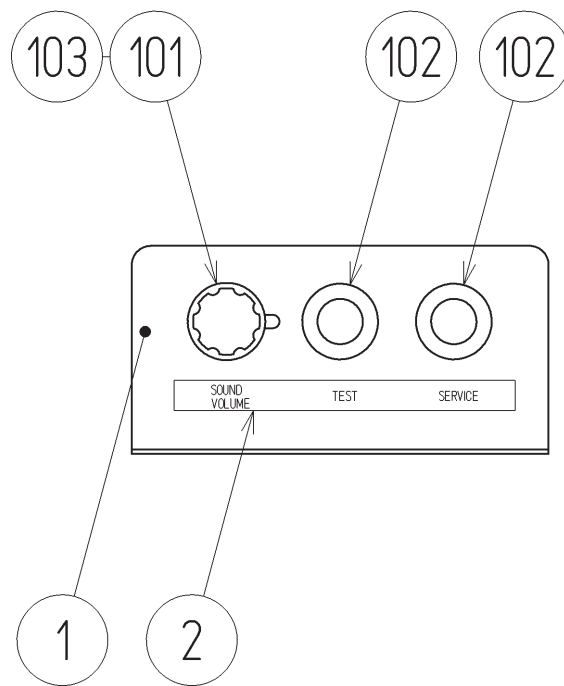
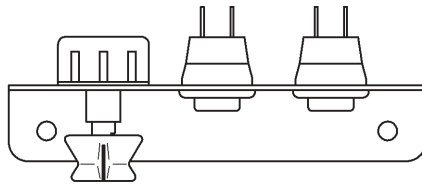
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-3361	STEP BASE L	
2	MJT-3342	SIDE MAT	
3	MJT-3343X	SENSOR BRKT L	
4	MJT-3344X	SENSOR PLATE L	
101	370-5071	BEAM SENSO	
201	000-P00316-WB	M SCR PH W/FS BLK M3 X 16	
202	000-T00408-0B	M SCR TH BLK M4 X 8	
203	050-H00300	HEX NUT M3	

30 ASSY COINCHUTE TOWER (WRG-3500)

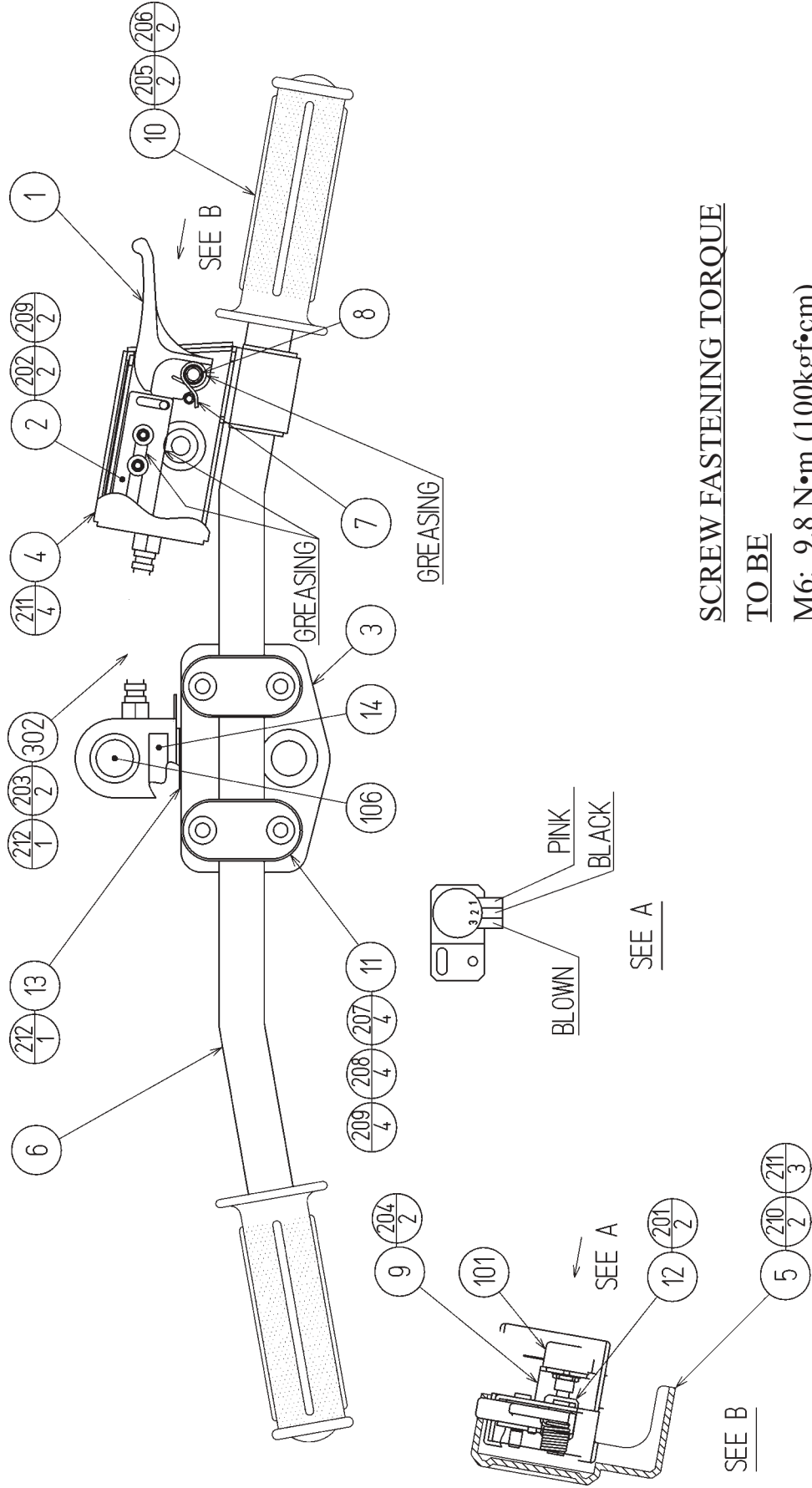
(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-3550	SW UNIT	
2	WRG-3501	COIN CHUTE TOWER	
3	BSS-1471	METER BRKT	
4	BSS-1472	METER HOLE LID	
5	DP-1167	TNG LKG	
6	105-5171	CHUTE PLATE SINGLE	
7	253-5366	CASH BOX	
8	421-6591-01	STICKER COIN METER	
9	421-7501-02	STICKER 6.3V 0.15A	
101	220-5237-92- ~	ASSY C.C 2DR ~	
102	220-5643-01	MAG CNTR DC5V 6P WH MZ-674-D04	
103	220-5575	CAM LOCK MASTER W/O KEY	
104	220-5574	CAM LOCK W/KEYS	
105	280-5009-01	CORD CLAMP 21	
106	280-5275-SR10	CORD CLAMP SR10	
107	310-5029-F20	SUMITUBE F F 20MM	
108	601-0460	PLASTIC TIE BELT 100 MM	
201	000-P00408-W	M SCR PH W/FS M4 X 8	
301	600-6455-02	WIRE HARN C.C DOOR SINGLE	
302	600-6972-0150	WIRE HARN EARTH ID5 0150MM	
303	WRG-60046	WH EXT SOUND VR C	
304	WRG-60047	WH EXT COINCHUTE C	

③ SW UNIT (WRG-3550)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-3551	SW BRKT	
2	421-11430	STICKER SW UNIT	
101	220-5179	VOL CONT B-5K OHM	
102	509-5028	SW PB 1M	
103	601-0042	KNOB 22 MM	
104	310-5029-D20	SUMITUBE F D 20 MM	
105	601-0460	PLASTIC TIE BELT 100 MM	
301	WRG-60055	WH SOUND VR	
302	WRG-60056	WH TEST & SERVICE	



SCREW FASTENING TORQUE

TO BE

M6: 9.8 N•m (100kgf•cm)

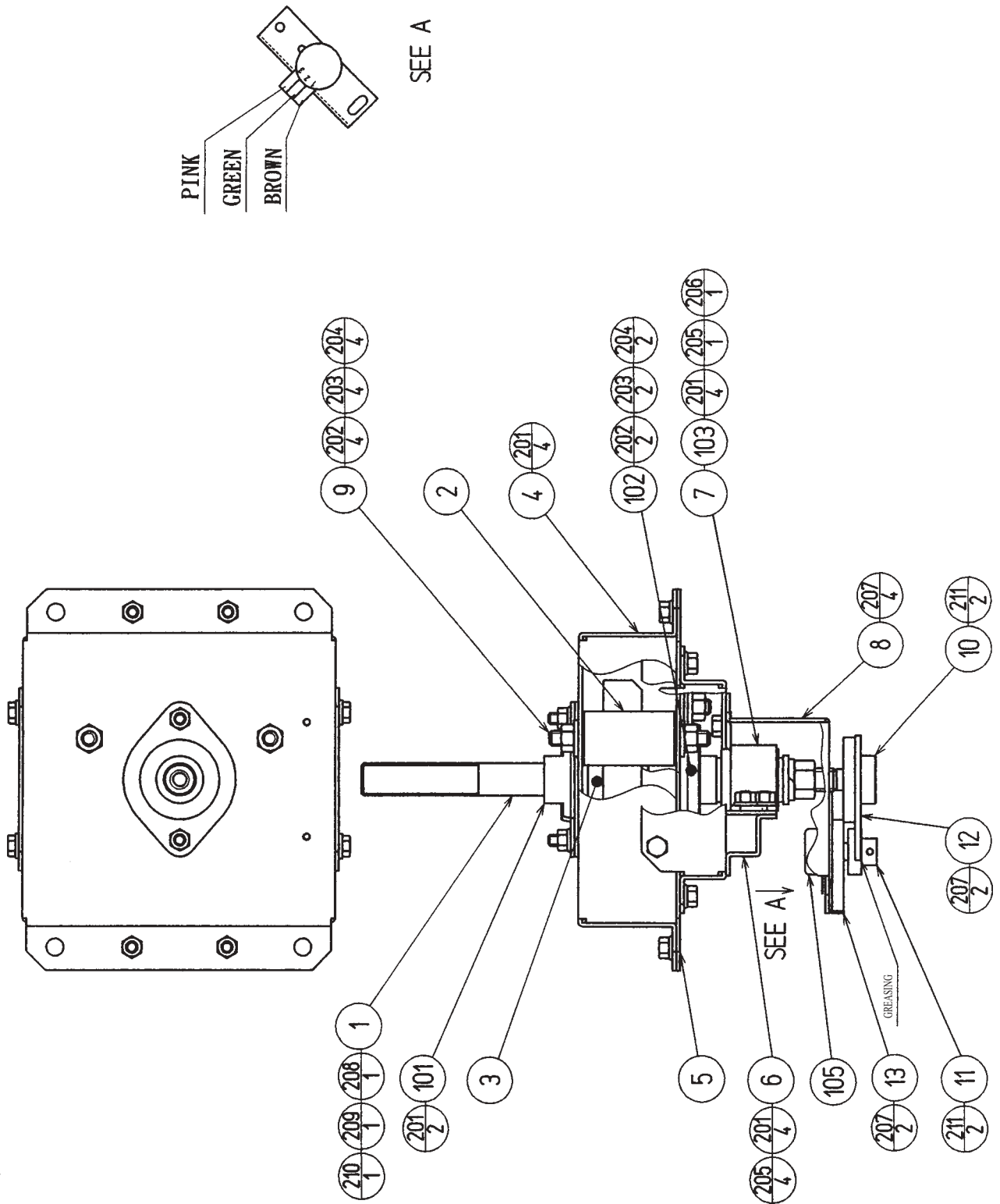
32 ASSY HANDLE MECHA (WRG-3600)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	MJT-3601	ACCEL LEVER	
2	MJT-3602	RACK GEAR	
3	WRG-3603	MOUNT BLOCK	
4	MJT-3604	ACCEL COVER A	
5	WRG-3605	ACCEL COVER B WRG	
6	WRG-3606	HANDLE SHAFT	
7	MJT-3607	TORSION SPRING	
8	MJT-3608	COLLAR ACCEL	
9	MJT-3610	VR BRKT	
10	MJT-3611	HANDLE GRIP	
11	MJT-3612	HANDLE HOLDER	
12	601-7945	GEAR 20	
13	WRG-3614	SPACER	
14	WRG-3609-E	STICKER MOTION STOP	
101	220-5373	VOL CONT B-5K	
	220-5484	VOL CONT B-5K OHM	
102	310-5029-F20	SUMITUBE F F 20MM	
103	280-5275-SR10	CORD CLAMP SR10	
104	610-5027-1001	INSL SLIT TUBE ID 10	
105	601-0460	PLASTICK TIE BELT 100 MM	
106	509-5329	PUSH BUTTON SW 1T RED	
201	028-A00308-P	SET SCR HEX SKT CUP P M3 X 8	
202	065-E00400	E RING 4MM	
203	000-T00408-0B	M SCR TH BLK M4 X 8	
204	050-F00400	FLG NUT M4	
205	068-552016-0B	FLT WSHR BLK 5.5-20 X 1.6	
206	000-T00525-0B	M SCR TH BLK M5 X 25	
207	020-000620-0Z	HEX SKT H CAP SCR BLK 0Z M6 X 20	
208	060-S00600-0B	SPR WSHR BLK M6	
209	060-F00600-0B	FLT WSHR BLK M6	
210	068-441616-0B	FLT WSHR BLK 4.4-16 X 1.6	
211	000-T00406-0B	M SCR TH BLK M4 X 6	
212	000-T00308-0C	M SCR TH CRM M3 X 8	
301	600-6790-074	WIRE HARN ACCEL VR	
302	600-6790-121	WIRE HARN EXT ACCEL VR IEC	
303	600-6790-096	WIRE HARN EXT EMERGENCY SW	
304	600-6790-097	WIRE HARN EMERGENCY SW	

33 ASSY CENTERING MECHA (MJT-3650)

(D-1/2)

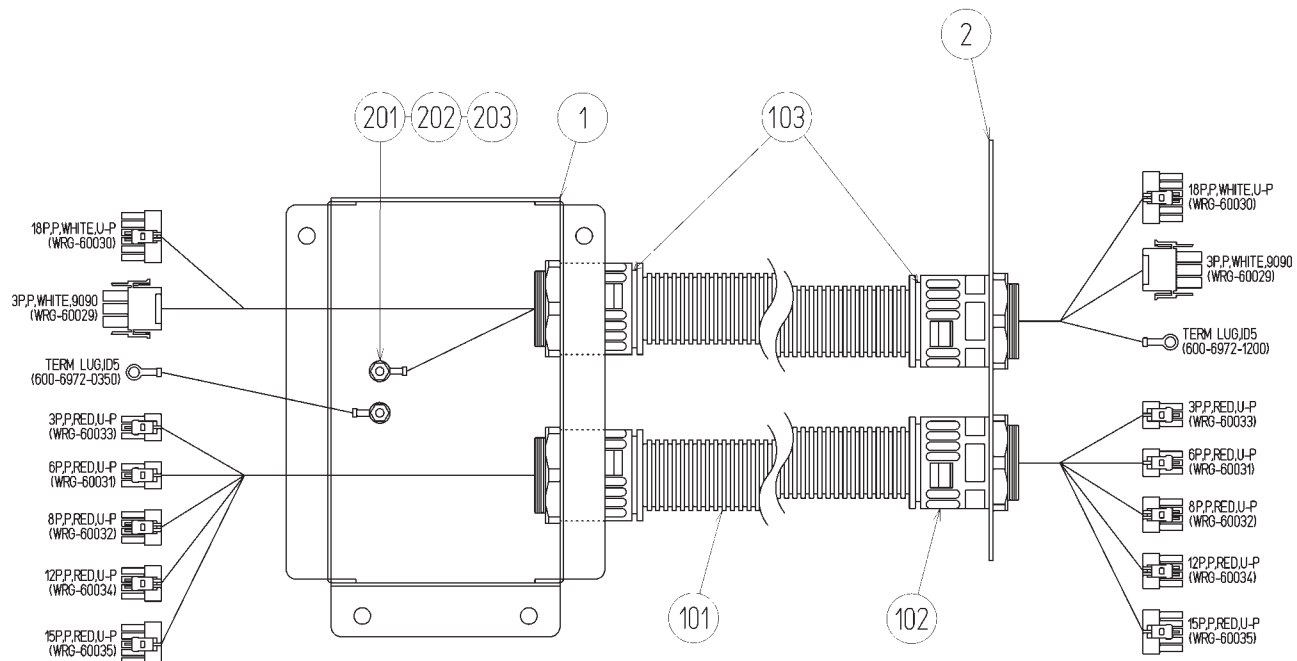


33 ASSY CENTERING MECHA (MJT-3650)

(D-2/2)

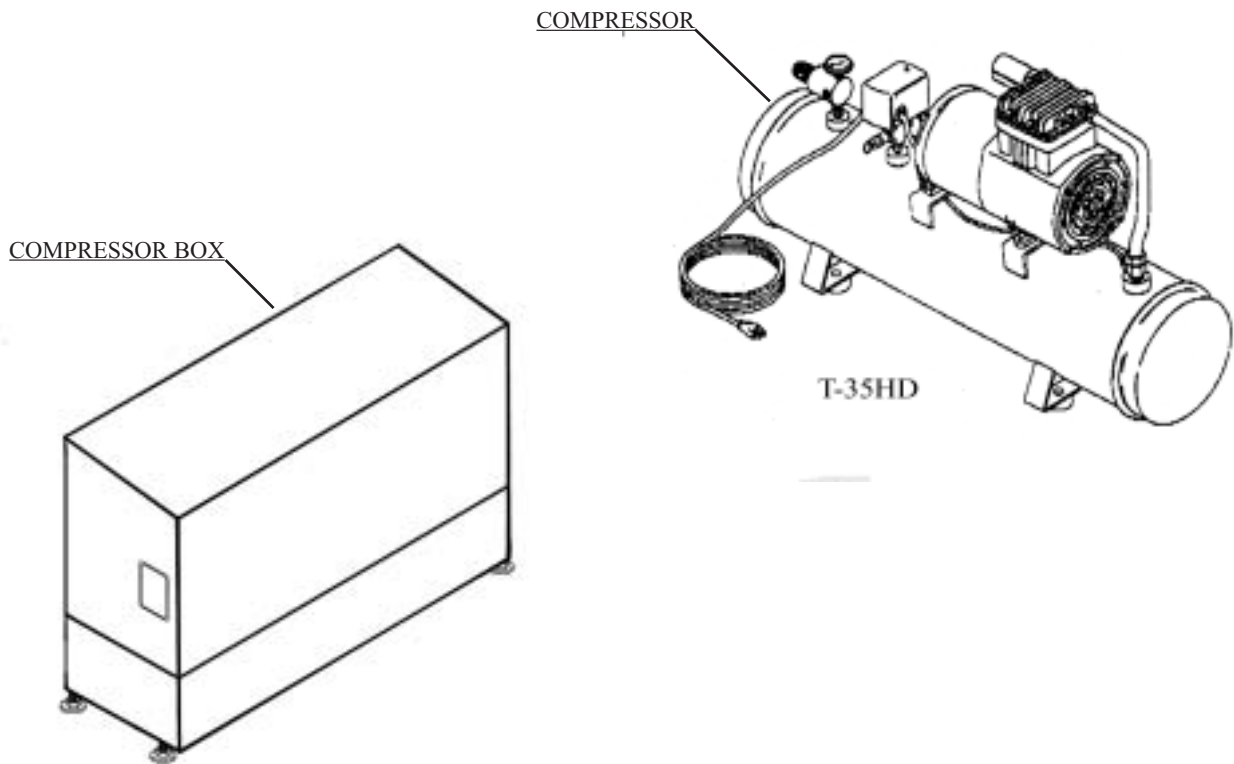
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	MJT-3651	MAIN SHAFT	
2	MJT-3652	STOPPER	
3	MJT-3653	COLLAR B	
4	MJT-3654	MECHA CASE A	
5	MJT-3655	MECHA CASE B	
6	MJT-3656	LOSTA HOLDER	
7	MJT-3657	HOLDER	
8	MJT-3658	VR HOLDER	
9	MJT-3659	SHAFT	
10	TTR-2010	GEAR HOLDER 110	
11	601-6555	GEAR Z=30 M=0.75	
12	601-6450	GEAR 110	
13	RDY-2106	VR BRACKET	
101	100-5096	BEARING 17	
102	100-5043	BEARING 25 FYH SBP FL 205	
103	601-8847	LOSTA DR-S-18 X 30	
104	310-5029-F20	SUMITUBE F F 20MM	
105	220-5373	VOL CONT B-5K	
	220-5484	VOL CONT B-5K OHM	
106	280-5275-SR10	CORD CLAMP SR10	
201	050-F00600	FLG NUT M6	
202	060-F00800	FLT WSHR M8	
203	060-S00800	SPR WSHR M8	
204	050-H00800	HEX NUT M8	
205	030-000612-SB	HEX BLT W/S BLK M6 X 12	
206	060-F00600	FLT WSHR M6	
207	000-P00408-W	M SCR PH W/FS M4 X 8	
208	060-F01200	FLT WSHR M12	
209	060-S01200	SPR WSHR M12	
210	050-H01200	HEX NUT M12	
211	028-A00410-P	SET SCR HEX SKT CUP P M4 X 10	
301	600-6790-072	WIRE HARN STEERING VR	

34 ASSY WIRE TUBE (WRG-6001)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	WRG-0001	TUBE BRKT FRONT	
2	WRG-0002	TUBE BRKT REAR	
101	310-5285-290060	FLEX TUBE 29-0060CM	
102	310-5286-29	CONN 29	
103	601-10360-29	STOPPER RING 29	
201	050-H00400	HEX NUT M4	
202	060-F00400	FLT WSHR M4	
203	060-S00400	SPR WSHR M4	
301	WRG-60029	WH EXT COMP T	
302	WRG-60030	WH EXT VALVE T	
303	WRG-60031	WH EXT ETR T	
304	WRG-60032	WH EXT VR T	
305	WRG-60033	WH EXT SOUND VR T	
306	WRG-60034	WH EXT COINCHUTE T	
307	WRG-60035	WH EXT I/O T	
308	600-6972-0350	WIRE HARN EARTH ID5 0350MM	
309	600-6972-1200	WIRE HARN EARTH ID5 1200MM	

35 COMPRESSOR & COMPRESSOR BOX



PART NO.	DESCRIPTION	QTY
999-0167	LEVELER LEG 1/2-13 X 3" L 45 0T-08302-21PC	2
999-0169	CASTER 160-2 1/2 #25188 SWIVEL	4
NO PART NUMBER	S/A; PLATE LEG LEVELER	2
NO PART NUMBER	WOOD BOX COMPRESSOR	1
LOCAL PURCHASE	OUTLET POWER AC RECEPTACLE	1
LOCAL PURCHASE-CKD	1" TUBING BLACK 2 FEET	1
LOCAL PURCHASE-CKD	CONNECTOR 1" DIA. STRAIGHT ANGLE	2
LOCAL PURCHASE-GRN	FAN 110/120 VAC 17/15 W SINWAN S109AP 11-1	2
NO PART NUMBER	WOOD DOOR COMPRESSOR	1
LOCAL PURCHASE-CKD	TUBING BLACK 7.250	1
LOCAL PURCHASE -CKD	TUBING BLACK 24"	1
LOCAL PURCHASE -CKD	JOINT (COMPRESSOR)R/A 1/4 CKD #GWL 10-8	1
LOCAL PURCHASE -CKD	JOINT (COMPRESSOR)ST 3/8" FEMALE CKD #GWS-10-8-M	1
LOCAL PURCHASE -CKD	FILTER AIR CKD-F3000-10-F1	1
LOCAL PURCHASE -CKD	FILTER OIL MIST CKD-M3000-10-F1	1
LOCAL PURCHASE -CKD	JOINT (COMPRESSOR) R/A 3/8 CKD #GWL 10-10	1
LOCAL PURCHASE -CKD	JOINT (COMPRESSOR)ST 3/8" FEMALE CKD #GWS-10-10	1
NO PART NUMBER	WOOD BOARD COMPONENT COMPRESSOR	1
999-1373	ARTWORK COMPRESSOR BOX LEF	1
999-1374	ARTWORK COMPRESSOR BOX RIGHT	1
999-1372	ART WORK COMPRESSOR BOX LID	1
LOCAL PURCHASE-GRN	COMPRESSOR THOMAS #T-35HD GRAINGER #6B515	1

WAVERUNNER GP COMPRESSOR TANK

There is a petcock provided on the bottom of the compressor box to enable draining of accumulated condensation from the compressor tank. It is recommended to drain any moisture from the tank at least once a week to minimize oxidation and extend the life of the tank.

The petcock is located on the bottom of the cabinet on the players left and may be accessed without opening the compressor box lid.



Figure 1 Top View - Drain from tank

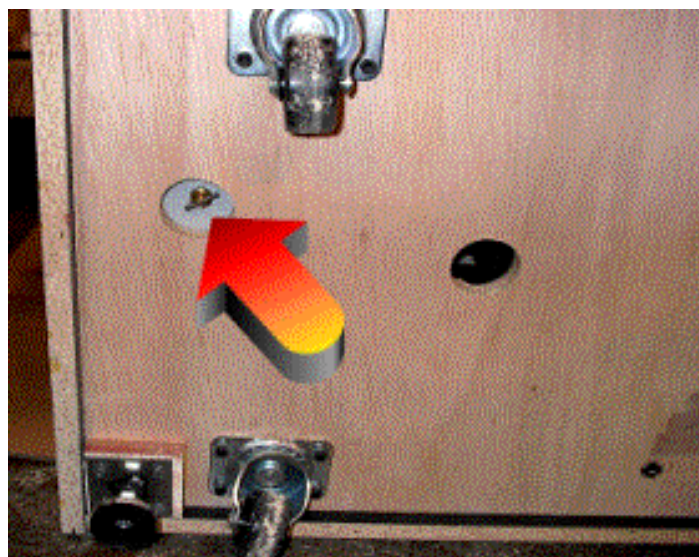


Figure 2 Bottom View - Petcock Access

22. WIRE COLOR CODE TABLE

THE WIRE COLOR CODE is as follow:

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

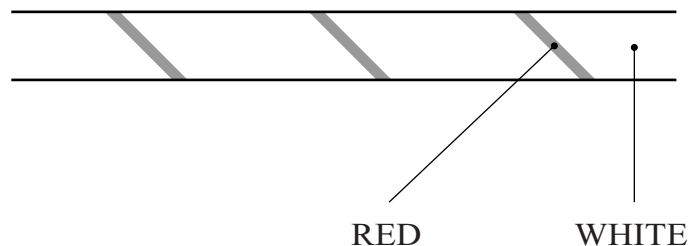
Wires other than those of any of the above 5 single colors will be displayed by 2 alphanumeric characters.

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



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

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

Warranty

Your new Sega Product is covered for a period of 90 days from the date of shipment. This certifies that the Printed Circuit Boards, Power Supplies and Monitor are to be free of defects in workmanship or materials under normal operating conditions. This also certifies that all Interactive Control Assemblies are to be free from defects in workmanship and materials under normal operating conditions. No other product in this machine is hereby covered.

Sellers sole liability in the event a warranted part described above fails shall be, at its option, to replace or repair the defective part during the warranty period. For Warranty claims, contact your Sega Distributor.

Should the Seller determine, by inspection that the product was caused by Accident, Misuse, Neglect, Alteration, Improper Repair, Installation or Testing, the warranty offered will be null and void.

Under no circumstances is the Seller responsible for any loss of profits, loss of use, or other damages.

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