

16. REPLACING THE FLUORESCENT LAMPS



WARNING

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



CAUTION

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

There is 1 fluorescent lamp inside each of the light boxes located on the top and bottom of the back of the cabinet.

Upper Lamp

- ① Turn off the power.
- ② Remove the 8 truss screws and then remove the upper light box plate.
- ③ Once the upper light box plate has been removed, the lamp can be replaced.

LIGHT BOX PLATE UPPER
TRUSS SCREW (8)
M4×8, flat washer used, chrome

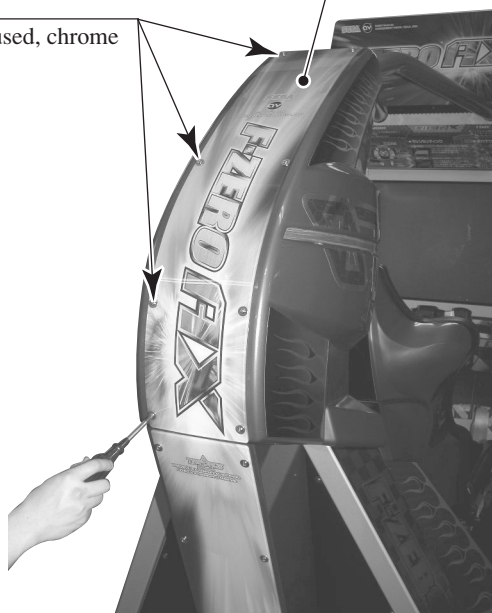


PHOTO 16 a



PHOTO 16 b

FLUORESCENT LAMP 20W WHITE: 390-5251-20-01
GLOW BULB: 390-5638-1P

Lower Lamp

- ① Turn off the power.
- ② Remove the 8 truss screws and then remove the lower light box plate.

TRUSS SCREW (8)
M4×8, flat washer used, chrome

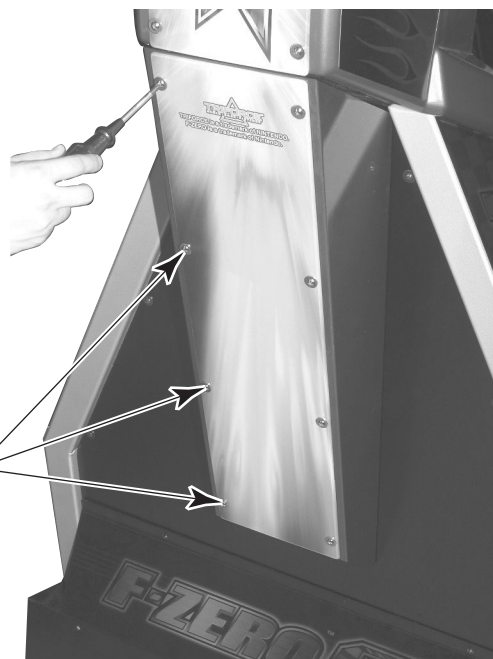


PHOTO 16 c

- ③ Once the lower light box plate has been removed, the lamp can be replaced.

LIGHT BOX PLATE LOWER

FLUORESCENT LAMP 20W WHITE: 390-5251-20-01
GLOW BULB: 390-5638-1P

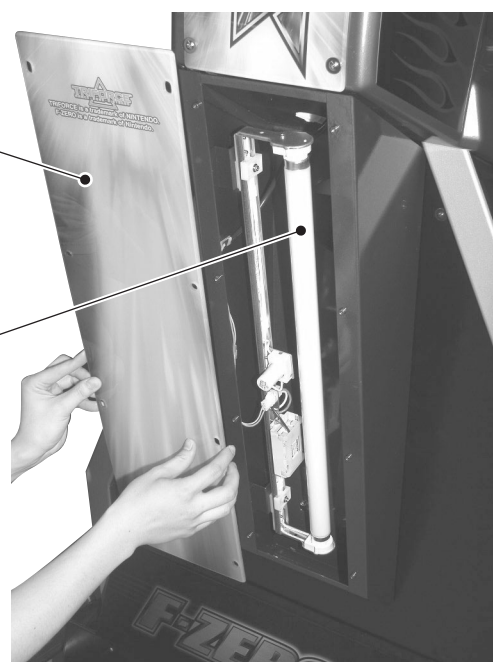


PHOTO 16 d

17. PERIODIC INSPECTION TABLE

The items listed below require periodic check and maintenance to retain the performance of this machine and to ensure safe business operation.

When handling the controller, the player will be in direct contact with it . In order to always allow the player to enjoy the game, be sure to clean it regularly. Also, it is advisable to provide wet tissue, etc. available for player use.



- 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 fire and electric shock hazards.
- Never use a water jet, etc. to clean inside and outside the cabinet. If wetness occurs for any reason, do not use the product until it has completely dried.
- Periodically once a year, request the place of contact herein stated or the Distributor, etc. where the product was purchased from, as regards the internal 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.
- Contact the office listed In this manual or the product's point of purchase once a year for regular maintenance of the seat motion mechanism. Failure to service the mechanism may result in sudden breakdown and accidents.

TABLE 17

ITEMS	DESCRIPTION	PERIOD	REFERENCE
CABINET	Check Adjusters'contact with surface.	Daily	3
CARD READER/WRITER	Head cleaning	Every 151 counts of the card reader/writer or Daily	7
STEERING UNIT	Inspection of VR	Monthly	10, 11
	Inspection of adjusting gear mesh	Trimonthly	11-1, 12-1, 12-2
	Greasing	Trimonthly	11-3, 12-3
ACCEL. & BRAKE	Inspection of VR	Monthly	10, 13
	Gear and Spring portion greasing	Trimonthly	13-2
MONITOR	SCREEN cleaning.	Weekly	15-2
	Check adjustments.	Monthly or when moving.	6, 10, 15
COIN CHUTE DOOR	Inspection of COIN SW	Monthly	10
	Coin insertion test	Monthly	14
	Cleaning of COIN SELECTOR	Trimonthly	14
SEAT	Greasing to the seat rail	Trimonthly	FIG.17
GAME BD	MEMORY TEST	Monthly	10
	Check settings.	Monthly	10
POWER SUPPLY PLUG	Inspection and cleaning	Annually	See above.
INTERIOR	Cleaning		
CABINET SURFACES	Cleaning	As necessary	Next Page
MOVING MECHANISM	Maintenance	Annually	12-4

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.

SEAT (Greasing to Seat Rail Portion)

Move the Seat to the rearmost position and apply spray greasing to the portion shown at the right once every 3 months by using NOK KLUBER L60 or GREASE MATE SEGA PART No. 090-0066. After greasing, move the Seat a few times forward and backward so as to allow the grease to be applied all over uniformly. Be sure to wipe grease which attaches to the surfaces of the PROTECT RUBBER on the Seat Rail, or any excess grease.

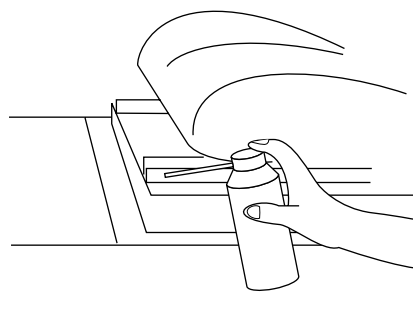


FIG. 17

18. TROUBLESHOOTING



- If an error code is displayed, have the site maintenance individual or other skilled professional resolve it. If someone without specialized or technical knowledge attempts to rectify the problem, electric shock, short circuits or fire may result. If there is no site maintenance individual or technician available, turn the power OFF immediately, and contact your retailer or the office listed in this manual.
- If problems other than those noted in this manual occur, or the countermeasures suggested result in no improvement, do not try to rectify the problem by other means. Turn the power OFF immediately, and contact your retailer or the office listed in this manual. Careless countermeasures can result in unexpected accidents.

18 — 1 CARD READER/WRITER



- If an error occurs in the card reader/writer, the machine will not be able to update data on cards. There is also a chance that card data may have been damaged.
Attempting to use a card with damaged data will trigger another error. Explain to the player that in order to determine whether the card can be used or not, he or she must play the game again. If the player wishes to play again, press the SERVICE Button to give him or her a credit.
- If errors occur repeatedly, perform a head cleaning.

If the machine detects a problem while the machine's card reader/writer is in use, it will display an error message from Table 18.1a. The message will also be displayed if a problem is detected while testing the reader/writer. (see 10-3F.)

If an error occurs in the card reader/writer, the machine will not be able to update data on cards. There is also a chance that card data may have been damaged. Attempting to use a card with damaged data will cause the same error message to be displayed again.

Explain to the player that in order to determine whether the card can be used or not, he or she must play the game again.

If there is data left over from an update in progress, the machine will display a message from Table 18.1b. By following the instructions contained in the message, the data can be transferred to a new card from the dispenser.

Table 18.1a

ERROR MESSAGES	COUNTERMEASURES
Error occurred. Please notify the store attendant. Read-Error.	Eject the card and ask the player to play again to determine whether the card can be used the next time he or she plays.
Error occurred. Please notify the store attendant. Write-Error.	Eject the card and ask the player to play again to determine whether the card can be used the next time he or she plays.
Error occurred. Please notify the store attendant. Print-Error.	Eject the card and ask the player to play again to determine whether the card can be used the next time he or she plays.
Shutter-Error. Please remove the card from the entry of the card reader. Press the VIEW-CHANGE-BUTTON after the card is removed.	Eject the card and return it to the player. The player's results have been recorded on the card. Check to make sure there are no foreign objects stuck in the card reader/writer. If there are no foreign objects, press the "View Change" button.
Error occurred. Please notify the store attendant. Card jam. Remove the card.	Remove the jammed card (see 7-3). Ask the player to play again to determine whether the card can be used the next time he or she plays.
Error occurred.	Displayed when a problem is detected during the power-up test. Check the wire connections on the card reader/writer.
Error occurred. Please notify the store attendant. The dispenser is out of the F-ZERO LICENSE CARD. Please refill the dispenser with the F-ZERO LICENSE CARD.	Refill the card dispenser as the message instructs (see 7-1).

Table 18.1b

MESSAGES
The last data of the F-ZERO LICENSE CARD still remains in the card reader. Writing the data will cost a new F-ZERO LICENSE CARD. Press START to write the data to the F-ZERO LICENSE CARD or step on the ACCELERATION-PEDAL to skip.

If a time has been set for card play to be turned off, the messages in Table 18.1c will be displayed at the selected time and players will no longer be able to use cards (see 10-3F).
If card play is disabled at a different time from the one intended, the time settings need to be revised.
The TRIFORCE contains an internal clock. If this clock is not set to the correct time, card play will be disabled at a time different from the actual time.

Table 18.1c

F-ZERO LICENSE CARDS will be out of service as the store is closing soon.
F-ZERO LICENSE CARDS cannot be used or purchased at this time.



When sending the machine's TRIFORCE out for repairs, do not disassemble it or remove the key chip.

TRIFORCE displays on-screen error messages indicating various types of malfunction. Games cannot be played when error messages are displayed. Below are listed some causes and countermeasures.

The TRIFORCE consists of a media board mounted on a main board. The TRIFORCE in this machine uses a DIMM board as its media board.

MEDIA BOARD IS NOT FOUND.

[DISPLAY]

MEDIA BOARD IS NOT FOUND.

[CAUSE]

MAIN BOARD or MEDIA BOARD is broken.

[COUNTERMEASURES]

With the MEDIA BOARD still attached to the MAIN BOARD, send the TRIFORCE for repair.

Error 01

[DISPLAY]

Error 01

[CAUSE]

This game is not acceptable by main board.

[COUNTERMEASURES]

MEDIA BOARD is not inserted (completely) into the MAIN BOARD.

Power off the unit, then reinsert the MEDIA BOARD. Should the problem persist, the BOARD may be damaged. Send the TRIFORCE to be repaired. Do not disassemble it.

Error 02

[DISPLAY]

Error 02

[CAUSE]

Main board malfunctioning.

[COUNTERMEASURES]

MAIN BOARD is inoperative.

Verify that the MAIN BOARD is connected properly. If this does not remedy the situation, send the TRIFORCE to be repaired. Do not disassemble it.

Error 03

[DISPLAY]

Error 03

[CAUSE]

Bad serial number on main board.

[COUNTERMEASURES]

Unable to read MAIN BOARD serial ID.

Disconnect the MEDIA BOARD from the MAIN BOARD and send the MAIN BOARD for repair. Send the TRIFORCE to be repaired. Do not disassemble it.

Error 04

[DISPLAY]

Error 04

[CAUSE]

Bad serial number on media board.

[COUNTERMEASURES]

Unable to read MEDIA BOARD serial ID.

With the MEDIA BOARD still attached to the MAIN BOARD, send the TRIFORCE for repair.

<p>Error 05 [DISPLAY]</p> <p>[CAUSE]</p> <p>[COUNTERMEASURES]</p>	<p>Error 05</p> <p>This game is not acceptable by main board. The game is a foreign edition. Use the domestic version of the game.</p>
<p>Error 11 [DISPLAY]</p> <p>[CAUSE]</p> <p>[COUNTERMEASURES]</p>	<p>Error 11</p> <p>JVS I/O board is not connected to main board. (1) I/O BOARD is not connected. (2) Unreliable connection between MAIN BOARD and I/O BOARD. (1) Connect the I/O BOARD to the MAIN BOARD. Verify that the power cable is connected to I/O BOARD. (2) Reconnect or replace the JVS CABLE that connects the I/O BOARD to the MAIN BOARD.</p>
<p>Error 12 [DISPLAY]</p> <p>[CAUSE]</p> <p>[COUNTERMEASURES]</p>	<p>Error 12</p> <p>JVS I/O board does not fulfill the game spec. Correct I/O BOARD is not connected. Use an I/O BOARD that provides the proper input/output for the game.</p>
<p>Error 21 [DISPLAY]</p> <p>[CAUSE]</p> <p>[COUNTERMEASURES]</p>	<p>Error 21</p> <p>This game is not acceptable by main board. Game data loaded from the GD-ROM to the DIMM BOARD is corrupted. Verify the GD-ROM DRIVE and TRIFORCE connection. Check the GD-ROM disc for scratches, dust or dirt.</p>
<p>Error 22 [DISPLAY]</p> <p>[CAUSE]</p> <p>[COUNTERMEASURES]</p>	<p>Error 22</p> <p>Communication error occurred between main board and media board. No response from DIMM BOARD to MAIN BOARD. Ensure that the DIMM BOARD and the GD INTERFACE BOARD are properly connected. Should the problem persist, the DIMM BOARD or GD INTERFACE BOARD may be damaged. Send the TRIFORCE to be repaired. Do not disassemble it.</p>
<p>Error 23 [DISPLAY]</p> <p>[CAUSE]</p> <p>[COUNTERMEASURES]</p>	<p>Error 23</p> <p>GD-ROM drive cover is open. The GD-ROM DRIVE cover is open. Ensure the GD-ROM DRIVE cover is firmly closed.</p>

<p>Error 24</p> <p>[DISPLAY]</p> <p>[CAUSE]</p> <p>[COUNTERMEASURES]</p>	<p>Error 24</p> <p>GD-ROM is not found.</p> <p>GD-ROM disc is not found.</p> <p>Insert the GD-ROM disc correctly.</p> <p>Verify that the disc is a TRIFORCE GD-ROM disc.</p> <p>Check the GD-ROM disc for scratches, dust or dirt.</p>
<p>Error 25</p> <p>[DISPLAY]</p> <p>[CAUSE]</p> <p>[COUNTERMEASURES]</p>	<p>Error 25</p> <p>Cannot access GD-ROM drive.</p> <p>(1) Unable to access GD-ROM DRIVE.</p> <p>(2) The GD-ROM DRIVE cover is open.</p> <p>(1) Verify that the GD CABLE and the power cable are properly connected to the GD-ROM DRIVE.</p> <p>(2) Close the GD-ROM cover securely.</p> <p>Should the problem persist, the GD-ROM DRIVE may be damaged.</p>
<p>Error 26</p> <p>[DISPLAY]</p> <p>[CAUSE]</p> <p>[COUNTERMEASURES]</p>	<p>Error 26</p> <p>Media board malfunctioning.</p> <p>KEY CHIP is not found.</p> <p>Attach the proper KEY CHIP for the game.</p> <p>Insert the KEY CHIP securely.</p>
<p>Error 27</p> <p>[DISPLAY]</p> <p>[CAUSE]</p> <p>[COUNTERMEASURES]</p>	<p>Error 27</p> <p>DIMM memory is not enough.</p> <p>(1) Insufficient DIMM MEMORY on DIMM BOARD.</p> <p>(2) DIMM MEMORY is not connected securely.</p> <p>(1) Provide a suitable amount of DIMM MEMORY for the software.</p> <p>(2) Verify that the DIMM MEMORY is connected securely to the DIMM BOARD.</p> <p>This error cannot occur in this machine. In the unlikely event that it does occur, send the TRIFORCE to be repaired. Do not disassemble it.</p>

Error 31
[DISPLAY]

[CAUSE]

[COUNTERMEASURES]

Error 31

This game is not acceptable by main board.

The game has not been downloaded into the DIMM BOARD from the HOST MACHINE.

Check network connections.

Verify that the PC is connected to the network.

Reset the main power. Wait until the game is displayed on the main screen, then turn the satellite power on and reboot.

In Test Mode, select NETWORK SETTING from the SYSTEM MENU and check that the NETWORK TYPE is set to ETHER.

In Test Mode, select NETWORK SETTING from the SYSTEM MENU, go to SET IP ADDRESS and verify that the REMOTE setting is appropriate for the game in use.

Check the internal DIMM BOARD battery is functioning correctly.

This error cannot occur in this machine. In the unlikely event that it does occur, send the TRIFORCE to be repaired. Do not disassemble it.

Error 32
[DISPLAY]

[CAUSE]

[COUNTERMEASURES]

Error 32

DIMM memory is not enough.

(1) Insufficient DIMM MEMORY on DIMM BOARD.

(2) DIMM MEMORY is not connected securely.

(1) Ensure there is sufficient DIMM MEMORY for the software.

(2) Verify that the DIMM MEMORY is connected securely to the DIMM BOARD.

This error cannot occur in this machine. In the unlikely event that it does occur, send the TRIFORCE to be repaired. Do not disassemble it.

Error 33
[DISPLAY]

[CAUSE]

[COUNTERMEASURES]

Error 33

Gateway is not found.

HOST MACHINE is not found.

Attach the KEY CHIP designed to support the game. Make certain that the KEY CHIP is inserted completely.

This error cannot occur in this machine. In the unlikely event that it does occur, send the TRIFORCE to be repaired. Do not disassemble it.

Caution 51
[DISPLAY]

[CAUSE]

[COUNTERMEASURES]

Caution 51

Wrong video output setting of horizontal scanning frequency.

The game does not support horizontal sync frequency setting.

Change the No. 6 DIPSW on the CONNECTOR BOARD.

ON is 31 kHz, OFF is 15 kHz.

The monitor must support these frequencies.

This option must be set to ON for this machine.

Caution 52
[DISPLAY]

[CAUSE]

[COUNTERMEASURES]

Caution 52

Wrong video output setting of horizontal/vertical screen.
The game does not support the vertical/horizontal screen settings.

Change the No. 4 DIPSW on the CONNECTOR BOARD.
ON is for vertically placed monitor screens, OFF is for horizontally placed monitor screens.

Change the monitor placement from vertical to horizontal or vice versa if necessary.

This option must be set to OFF for this machine.



This section deals with the interior of the machine when electric current is flowing through it. Avoid accidentally touching any part of the machine. Doing so may result in electric shock and/or short circuits.



Do not change the values of the dipswitches on the machine's motherboard from their factory settings. Doing so will disrupt the machine's functions when using or operating the machine.

If an error is detected during the initialization process that occurs when the machine is turned on, a message will be displayed on the drive board's 7-segment display. These messages are described below; use them as reference to identify and resolve the problem.

The drive board is located on the assembly I/O board in the base interior.

With the power turned on, remove the 2 truss screws securing floor L and then remove the floor to reach the assembly I/O board.

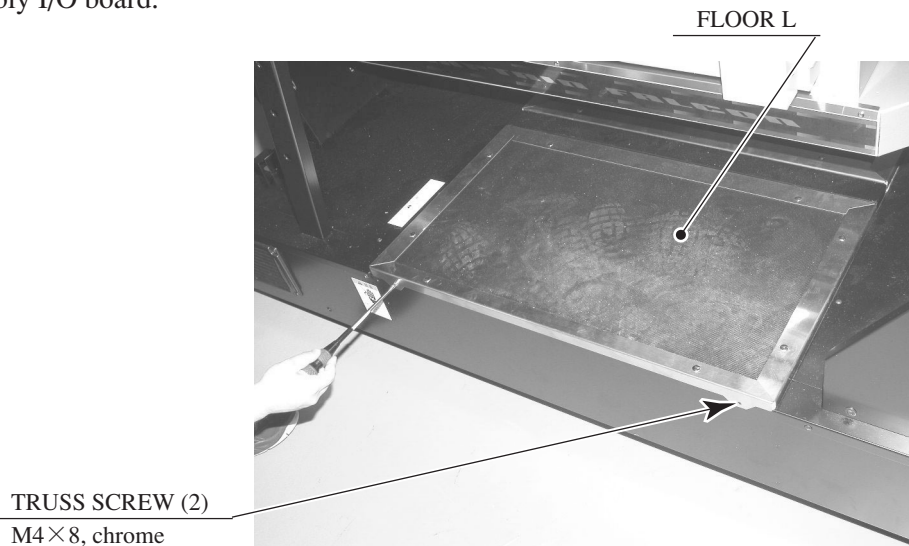


PHOTO 18.3 a

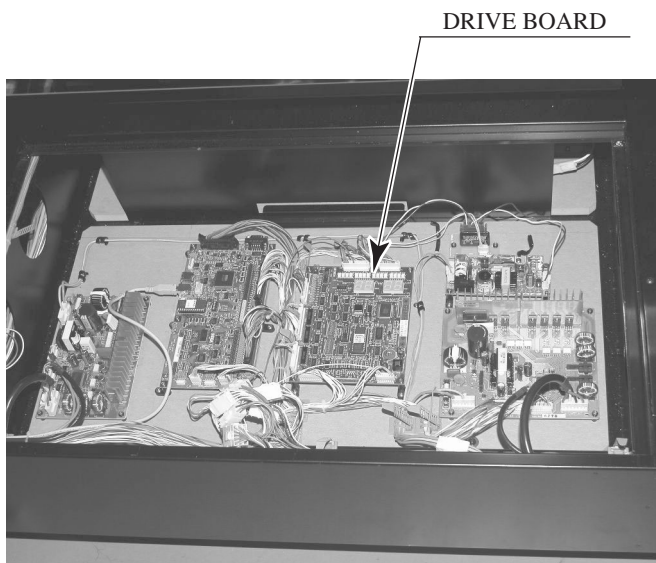


PHOTO 18.3 b ASSY I/O BD

【MESSAGE】 【CAUSE】 【COUNTERMEASURES】	Er01: RAM Error There is a problem with the RAM on the drive board. If the error persists after turning the power off and on again, send the board to be repaired.
【MESSAGE】 【CAUSE】 【COUNTERMEASURES】	Er02: ROM Error There is a problem with the ROM on the drive board. If the error persists after turning the power off and on again, send the board to be repaired.
【MESSAGE】 【CAUSE】 【COUNTERMEASURES】	Er03: Interrupt Error There is a problem with an interrupt on the drive board. If the error persists after turning the power off and on again, send the board to be repaired.
【MESSAGE】 【CAUSE】 【COUNTERMEASURES】	Er20: Starting Point Error The motor's starting point cannot be found. Check to see if there are any objects impeding the motor's movement and then turn the power off and on again.
【MESSAGE】 【CAUSE】 【COUNTERMEASURES】	Er22: Centering Error One or more variable resistor values are not changing correctly. Check to make sure the VR values are correct.
【MESSAGE】 【CAUSE】 【COUNTERMEASURES】	Er23: Encoder Error Error in the encoder data. Check all the wiring to the encoder.
【MESSAGE】 【CAUSE】 【COUNTERMEASURES】	Er24: Excess Current Error The motor experienced excess current flow. Check to see if there are any problems with the wires connected to the motor.
【MESSAGE】 【CAUSE】 【COUNTERMEASURES】	Er25: Overload Error The motor's thermal element was activated. Wait for the temperature to cool and then turn the power off and on again.

18 — 4 OTHER MECHANICAL ERROR MESSAGES (EXCL. CARD READER/WRITER)

If a mechanical error occurs somewhere other than the card reader/writer, the screen will read "Error XX Occurred".

The following list contains descriptions of each error and how to deal with them.

Error01

【CONTENTS】

Cabinet - I/O Error

The machine is unable to communicate with the board that controls seat motion. Check the wiring.

Error02

【CONTENTS】

Cabinet - Overheat/Overload Error

【COUNTERMEASURES】

The thermal element on the motor responsible for seat motion was activated. Wait for it to cool down and then restart the machine.

Error03

【CONTENTS】

Cabinet - Encoder Error

【COUNTERMEASURES】

There is a problem with the data in the seat's motion encoder. Check to see if there are any problems with the wires connected to the encoder.

Error04

【CONTENTS】

Cabinet - Excess Current Error

【COUNTERMEASURES】

The motor responsible for seat motion experienced excess current flow. Check to see if there are any problems with the wires connected to the motor.

Error05

【CONTENTS】

Steering - I/O Error

【COUNTERMEASURES】

The machine is unable to communicate with the steering unit's reaction control board. Check the wiring.

Error06

【CONTENTS】

Steering - Overheat/Overload Error

【COUNTERMEASURES】

The thermal element on the steering unit's reaction motor was activated. Wait for it to cool down.

Error07

【CONTENTS】

Steering - Encoder Error

【COUNTERMEASURES】

There is a problem with the data in the steering unit's reaction encoder. Check to see if there are any problems with the wires connected to the encoder.

Error08

【CONTENTS】

Steering - Excess Current Error

【COUNTERMEASURES】

The steering unit's reaction motor experienced excess current flow. Check to see if there are any problems with the wires connected to the motor.



- 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 the event that a problem cannot be resolved by employing the procedures listed in this Manual, be sure to request service from the office shown on this Manual or the dealer from whom the product was originally purchased. Attempts to employ procedures other than those specified in this Manual can cause electrical shock, shorting, or fire.
- In the event of a problem that is not described here, be sure to contact the office shown on this Manual or the dealer from whom the product was originally purchased. Careless attempts at repair can result in electrical shock, shorting, or fire.

If a problem occurs, first check to make sure that the wiring connectors are properly connected.

TABLE 18. 5

PROBLEM	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 [4], Refer to the following.)
	The fuse of the fuse holder was blown out due to momentary overcurrent.	After eliminating the cause of overload, replace the specified rating fuse. (Fig. 18. 5 c)
Fluorescent lamp inside light box doesn't light up.	Connector connection fault.	Check connector connections between the Cabinet and the light box.
	Fluorescent lamp and Glow lamp need replacement.	Replace the fluorescent lamp and the glow lamp. (See Section 16.)

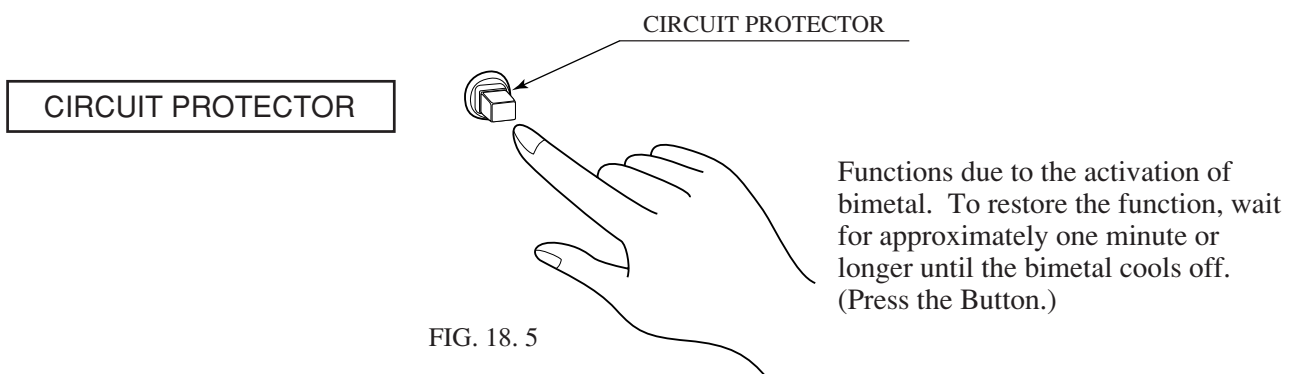


FIG. 18. 5

TABLE 18. 5

PROBLEM	CAUSE	COUNTERMEASURES
Sounds are emitted and the lamps are lit, but the screen is black.	Faulty connections for the visual signal connector or the monitor power connector.	Check the connections for the monitor and game board connectors.
	Broken monitor.	Contact the company from whom the unit was purchased.
Sound is not emitted.	Sound volume adjustment is not correct.	Adjust the Switch Unit's sound adjustment volume . (See Section 10.)
	Faulty connections for various connectors.	Check the connections for the game board, amp, speakers and Volume connectors.
	Malfunctioning BD, Amp. and Speaker.	Perform SOUND TEST. (See Section 10.)
Irregular/uneven colors on the monitor screen.	Magnetization of the CRT.	Press the Demag. switch on the switch unit. (See Section 10.)
Colors on the monitor screen are strange.	Faulty connection for the visual signal connector.	Check the visual signal connector connection and make sure it is secured properly.
	Screen adjustment is not appropriate.	Make adjustment appropriately. (See Section 15.)
The on-screen image sways and/or shrinks.	The power source and voltage are no correct.	Make sure that the power supply and voltage are correct.
Does not accept input from any switch or volume.	Faulty connector connections.	Check the connection for the I/O Board and Cabinet connector.
		Check the power for the I/O Board.
STEERING (Servomotor) response is incorrect.	Incomplete power on check.	Power on and verify that the power on check completes properly. (See [5] of Section 6.)
	Deviation of the volume value.	Adjust the calibration in the Test Mode. (See Section 10.)
	Volume gear engagement fault.	Adjust the engagement of the gear. (See Sections 10, 11 & 12.)
	Volume malfunctioning.	Replace the volume. (See Sections 11 & 12.)
	Detached wires.	Check for faulty wire connections around moving parts. When replacing wires, secure them so that they do not touch any moving parts.

TABLE 18. 5

PROBLEM	CAUSE	COUNTERMEASURES
The seat's motion is unsatisfactory.	Incomplete power on check.	Power on and verify that the power on check completes properly. (See [5] of Section 6.)
	Deviation of the volume value.	Adjust the calibration in the Test Mode. (See Section 10.)
	Volume gear engagement fault.	Adjust the engagement of the gear. (See Sections 10, 11 & 12.)
	Volume malfunctioning.	Replace the volume. (See Sections 11 & 12.)
	Detached wires.	Check for faulty wire connections around moving parts. When replacing wires, secure them so that they do not touch any moving parts.
	The sensor is being triggered.	Check to see if there are any objects blocking the sensor.
	The sensor is malfunctioning.	Go into Test mode and check to make sure the sensor is functioning properly. (See Section 10.)
No response from Steering (Servomotor).	Failure of power-on checking procedure.	Reconnect the power and complete a power-on checking procedure. (See [5] of Section 6.)
	Faulty connector connections.	Check the connections for the connectors between the Game Board and Servodriver and between the Servodriver and the Servomotor.
	Thermal element in the Servomotor is operating.	Occurs when the internal temperature reaches 70°C (158°F) and corrects automatically when the unit cools.
	Momentary overload caused a fuse on the Servodriver to blow.	Contact the company from whom the unit was purchased.
Unsatisfactory Accel and Brake operation.	Incorrect volume setting.	Adjust the volume value in the Test Mode. (See Section 10.)
	Faulty Volume attachment or adjust gear alignment.	Adjust the volume attachment and verify in Test Mode. (See Sections 10 & 13.)
	Faulty connector connection.	Check the connections for the Accel and Brake connectors and the connectors between the Accel, Brake and Cabinet.
	Failure of the volume.	Replace the volume. (See Section 13.)

TABLE 18. 5

PROBLEM	CAUSE	COUNTERMEASURES
Failure of the network play.	Network play is wrongly set.	Reset correctly. (See Section 20.)
	Network cables are disconnected.	Reconnect the cables. (See Section 20.)
	Network cables are wrongly connected.	
	Damage of network cables.	Replace the cables. Contact the company from whom the unit was purchased.
Memory cards and license cards cannot be used.	The machine is set not to accept cards.	Change the settings in Test mode. (See Section 10.)

REPLACING FUSES



- 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.
- 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.
- For operations that require more than one person to perform, be sure to have the indicated number of personnel on hand. These operations cannot be performed safely or reliably with fewer people than indicated.

The fuses are located at the rear of the AC unit inside the base.

- ① Turn the main switch off and unplug the power cord from the outlet.
- ② Remove the front floor of the base. The front floor is more than 80 cm wide. At least 2 people are needed to perform this operation safely and reliably. Remove the 10 truss screws holding the front floor in place.

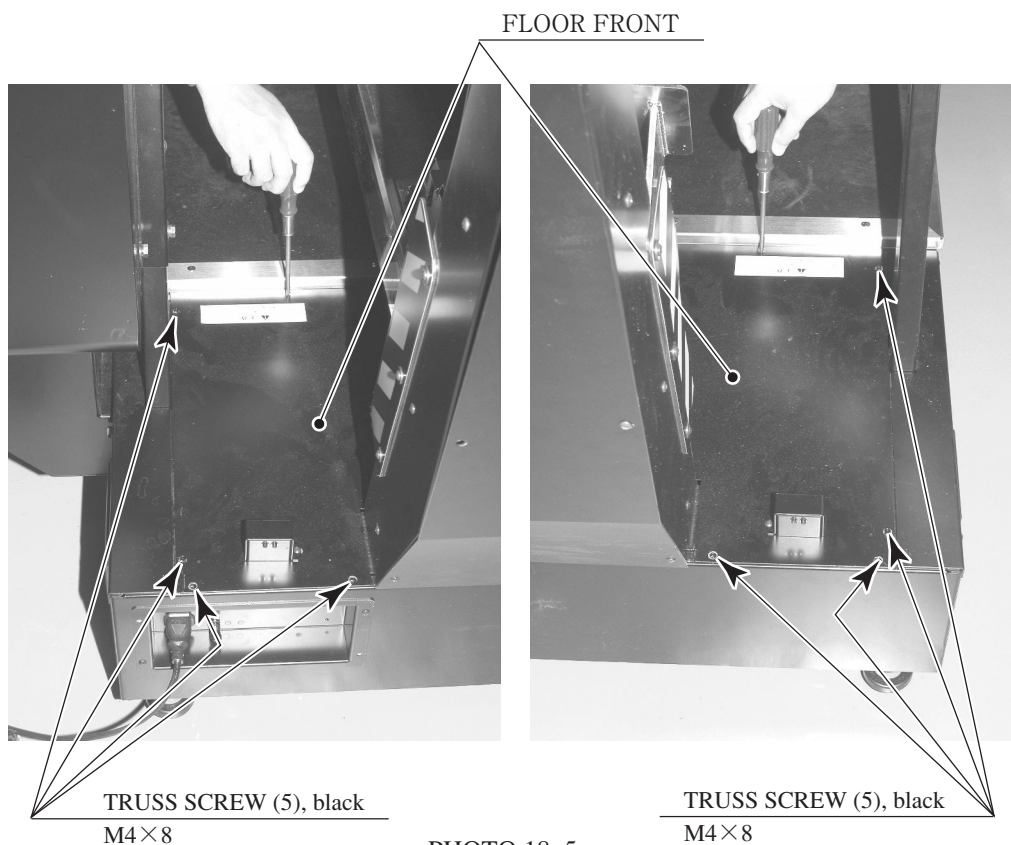


PHOTO 18. 5 a

- ③ There is a wire connection on the inside of the front floor. Lift the rear of the front floor (the side opposite the AC unit) and, holding it in a tilted position, unplug the single connector.

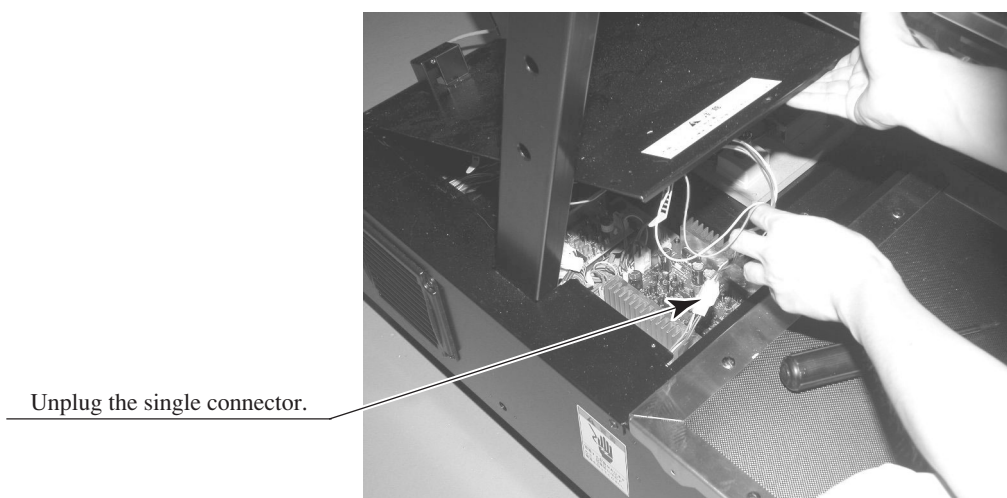


PHOTO 18. 5 b

- ④ Remove the front floor from the base.
- ⑤ The fuses are located within the base on the same side as the AC unit.

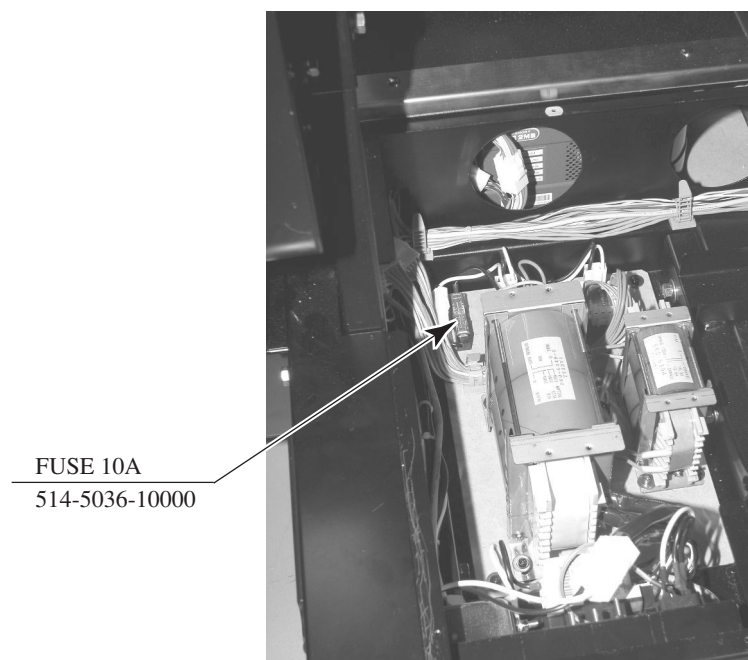


PHOTO 18. 5 c

19. GAME BOARD



- In order to prevent electric shock and short circuit hazards, be sure to turn power off before performing work.
- Be careful not to damage the wires. Damaged wires may cause electric shock or short circuit or present a fire risk.
- Do not expose the Game BD, etc. without a good reason. Failure to observe this can cause electric shock hazard or malfunctioning.
- Do not use this product with connectors other than those that were connected and used with the Game Board at the time of shipping. Do not carelessly connect wires to connectors that were not used at the time of shipping, as this may cause overheating, smoke or fire damage.



- In this product, setting changes are made during the test mode. The Game BD need not be operated. Use the Game BD, etc. as is with the same setting made at the time of shipment so as not to cause electric shock and malfunctioning.
- Static electricity from your body may damage some electronics devices on the IC board. Before handling the IC board, touch a grounded metallic surface so that the static electricity can be discharged.



When having the game board replaced or repaired, use the included carton box to ship it. Do not disassemble it. If the board is not received in the proper condition, it may not be eligible for repair or replacement, or extra service charges may be applied.

The disassembly procedure for the game board is described in this manual for the purpose of replacing the battery inside the board. Do not disassemble the board when sending it in for replacement or repair.

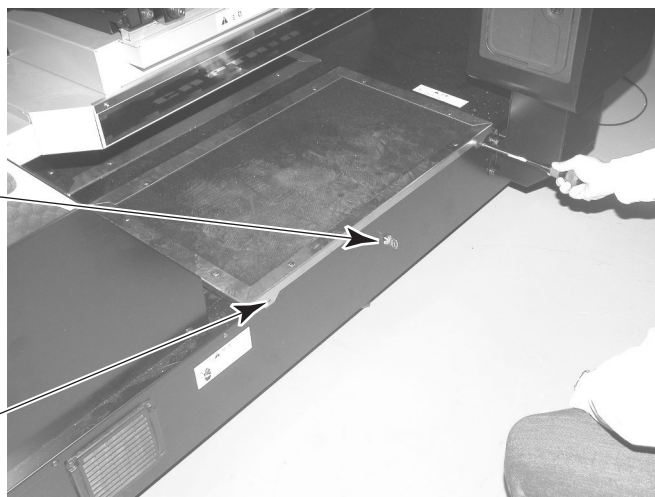
19 — 1 REMOVING THE GD-ROM DRIVE

- ① Turn off the power

- ② Remove the right floor from the side of the base next to the coin chute tower. To unlatch the floor, remove the 2 truss screws.

Unlock.

TRUSS SCREW (2)
M4×8, chrome



FLOOR R

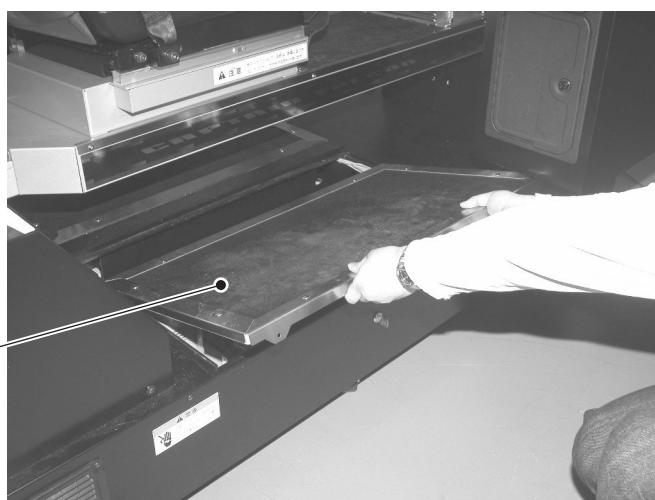


PHOTO 19. 1 a

- ③ Unfasten the 2 cord clamps securing the wires inside the base.

CORD CLAMP

GD CABLE

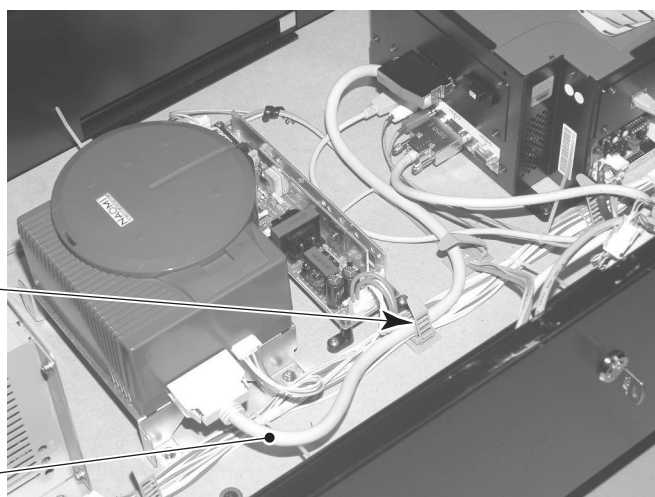


PHOTO 19. 1 b

- ④ Unplug the GD cable connector from the GD-ROM drive.

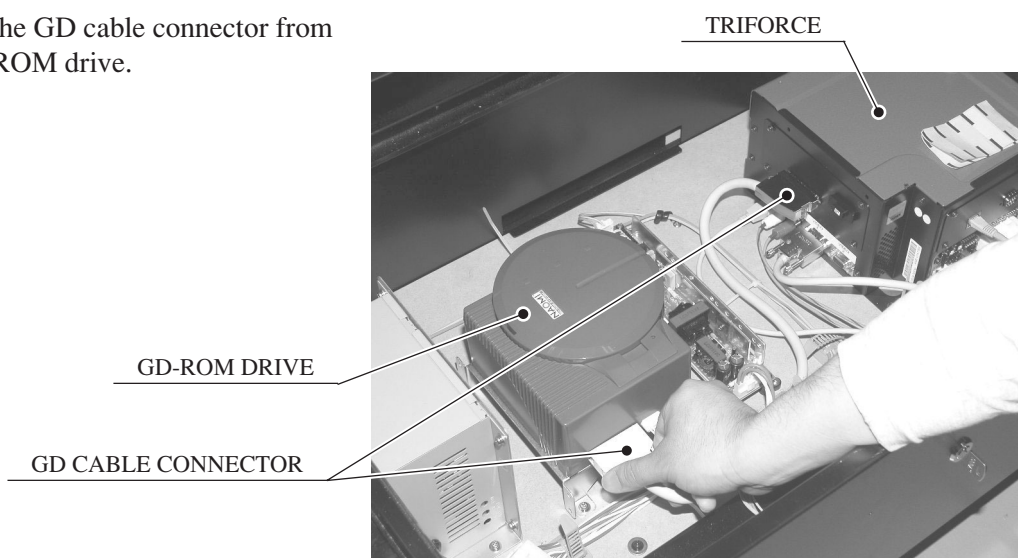


PHOTO 19.1 c

- ⑤ Unplug the power cable connector from the GD-ROM drive.

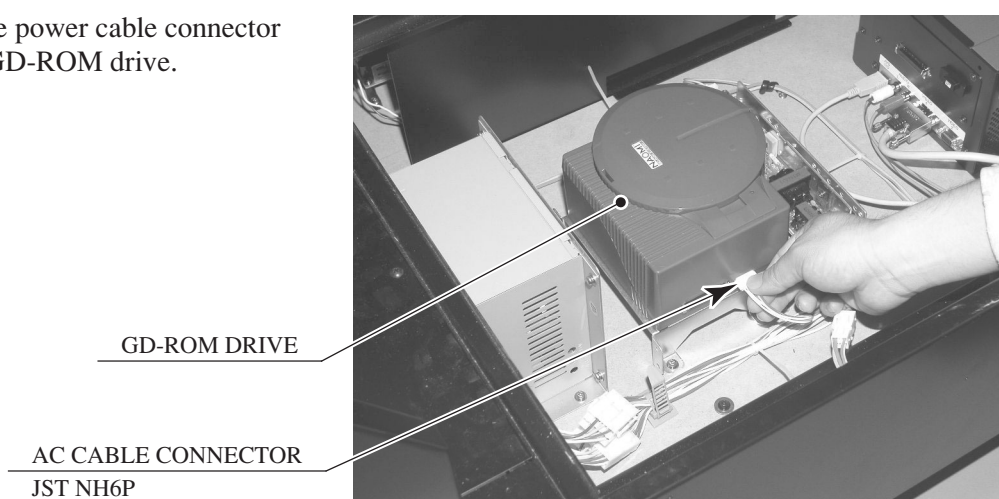


PHOTO 19.1 d

- ⑥ Remove the 3 screws and then remove the GD-ROM drive.

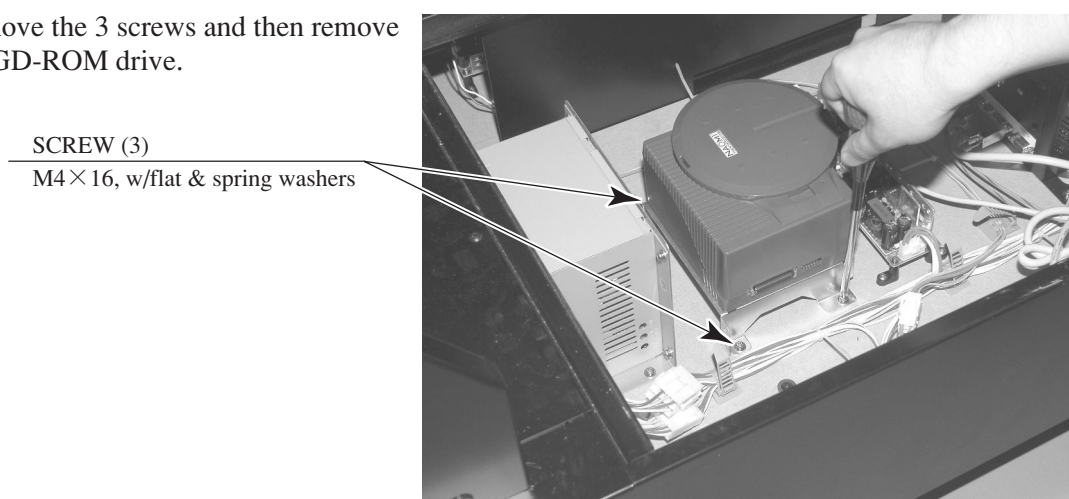


PHOTO 19.1 e

19 — 2 REMOVING THE GAME BOARD (TRIFORCE)



- When returning the game board for replacement or repair, make sure that the connectors are attached correctly. Incorrect connections can lead to accidents such as electric shock, short circuits, and/or fire.
- When plugging in connectors, pay close attention to the direction of the connection. The connectors are designed to be connected in a specific direction. Attempting to plug in a connector by applying excessive force may damage the connector or its terminal clasp, possibly resulting in electric shock, short circuits, and/or fire.

- ① Follow steps 1 through 3 of the GD-ROM drive removal procedure.
- ② Unplug all connectors from the game board (TRIFORCE).

Unplug all connectors.

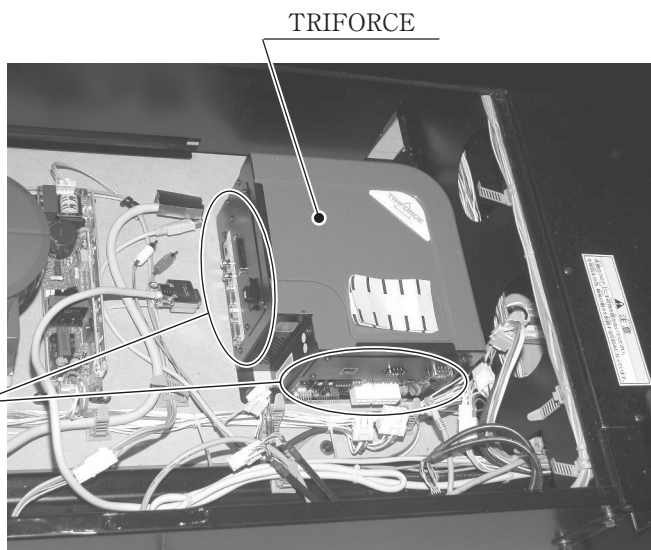


PHOTO 19.2 a

- ③ Once the 3 screws holding the game board in place have been removed, the board itself can be removed.

SCREW (3)
M4×16, w/flat & spring washers

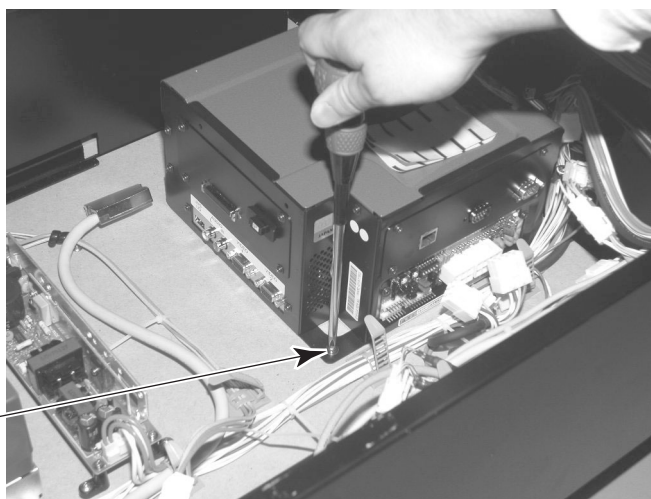


PHOTO 19.2 b



IMPORTANT

With the key chip installed, the TRIFORCE board becomes a proprietary game board for this product.

ASSY TRF FZR USA (842-02DD511U): USA

ASSY TRF FZR EXP (842-02DD511E): OTHERS

ASSY TRF FZR ASIA (842-04DD511E): ASIA

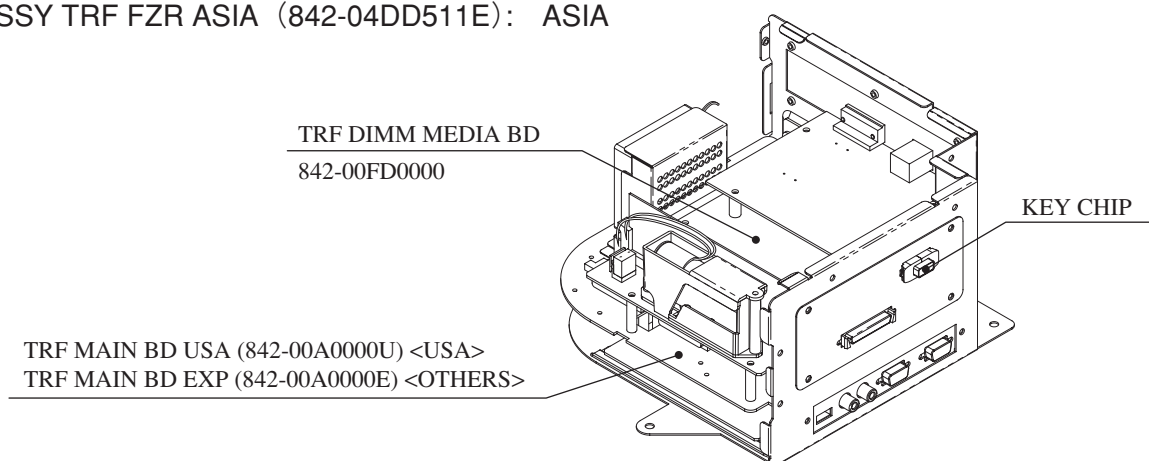


FIG. 19.3 a

DIP SW SETTING

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

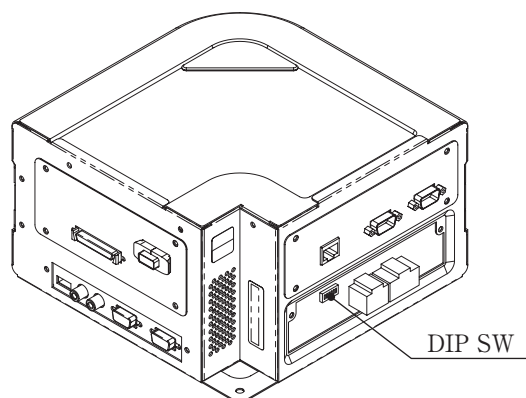


FIG. 19.3 b



- To prevent overheating, explosion, or fire:
 - Do not recharge, disassemble, heat, incinerate, or short the battery.
 - Do not allow the battery to come into direct contact with metallic objects or other batteries.
 - To preserve the battery, wrap it in tape or other insulating material.
- Follow local regulations when disposing of the battery. Improper disposal can damage the environment.



- To avoid risk of malfunction and damage:
- Make sure the positive and negative ends are aligned correctly.
 - Use only batteries approved for use with this unit.



If an error appears indicating that the battery power is very low within the first year of use, it is usually an indication of a problem or abnormality with something other than the battery. Be sure to inspect the board that the battery is connected to.

- ① Remove the 5 screws holding the TRIFORCE and its cover in place.
- ② Slide the cover off of the TRIFORCE, being careful of the hook that holds them together.

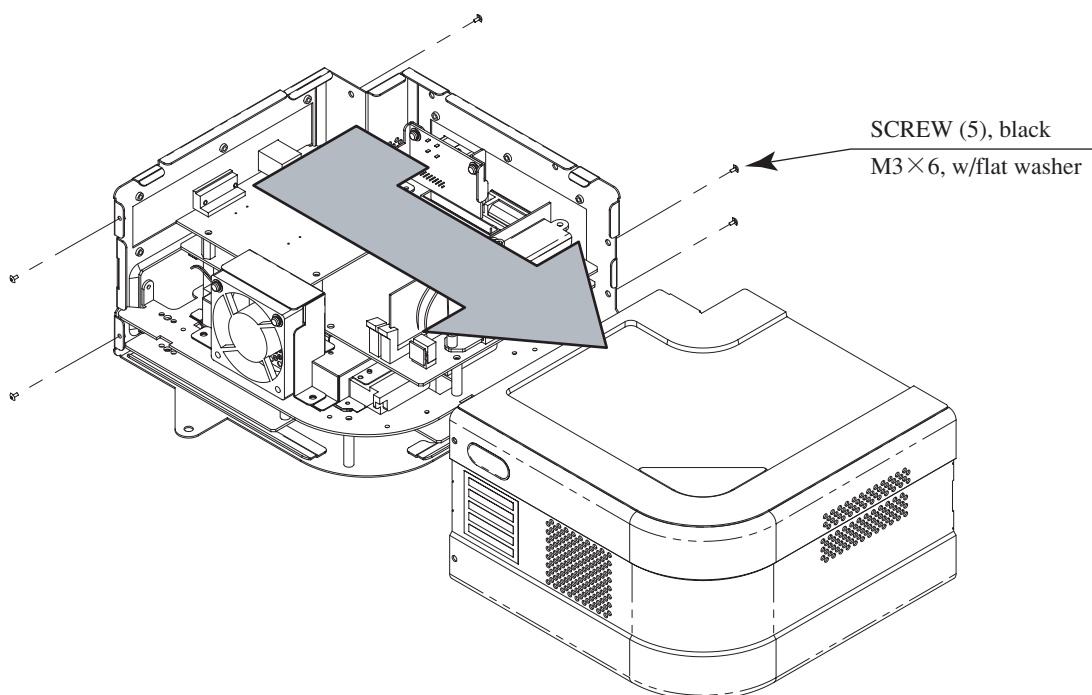


FIG. 19. 4 a

- ③ Gently remove the battery from the battery holder. The battery holder is located on the very bottom of the main board.
- ④ Insert the new battery (CR2032) so that the + terminal is pointing upward.

Removed batteries should be disposed of in accordance with relevant national laws and/or local regulations.

TRIFORCE MAIN BOARD BATTERY

SEGA PART No.: 401-0065

SEGA PART NAME: BATTERY CR2032 HITACHI

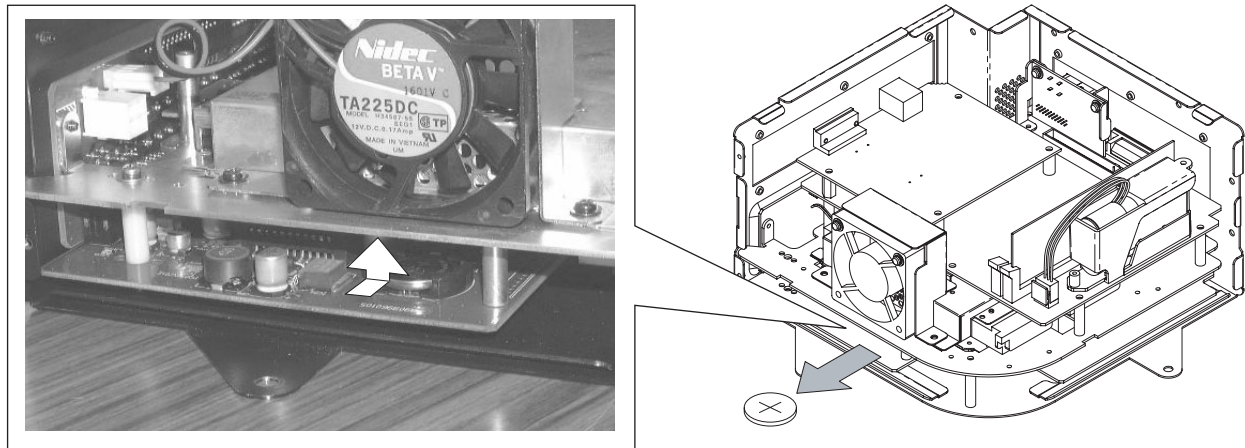


FIG. 19. 4 b

WARNINGS AND RESTRICTIONS CONCERNING USE OF BATTERY PACK

Observe the following precautions when handling the DIMM board's battery pack. Sega cannot assume responsibility for any problems that arise from handling the battery pack in disregard of the guidelines set forth in the manual.



- Do not disassemble the battery pack and the batteries.
If you should fail to observe this instruction, the internal wires and/or protective devices may be damaged; as a result the safety system may not function when discharging and recharging, eventually causing an overheating, fire and explosion. If you should disassemble the batteries, the generated gases may harm your throat and the negative plate may overheat and make a fire.
- Do not make an external short circuit of the battery pack and the batteries.
If you should fail to observe this instruction, the batteries may overheat, make a fire, and explode.
- Do not fire the battery pack and the batteries.
If you should fail to observe this instruction, the batteries may make a fire and explode.
Do not leave the battery pack and the batteries nearby the heat source (fire or heater) or under the intense direct sunlight and flaming sun. If you should fail to observe this instruction, the batteries may reduce the service life and in the worst case may overheat, make a fire, and explode.
- Do not leave the battery pack and the batteries in water or seawater.
Also do not apply water or seawater onto the battery pack and the batteries. If you should fail to observe this instruction, the internal wires and/or protective devices may be damaged; as a result the safety system may not function when discharging and recharging, eventually causing an overheating, fire and explosion. Also water may be electrolyzed into oxygen and hydrogen, and eventually the battery's sealed section may be corroded and the internal liquid may leak.
- Do not solder on the battery pack's terminals.
If you should fail to observe this instruction, the armor may be heated and melted or the internal wires may be damaged, eventually causing an overheating, fire and explosion. Also, when the battery's temperature reaches to 100°C or more, the battery may leak its internal liquid due to destruction of its plastic parts (gasket, separator, etc.), or may overheat, make a fire, or explode due to internal short-circuit.
- Do not insert or connect the battery in a reversal polarity.
If you should fail to observe this instruction, the battery may be externally short-circuited and eventually overheat, make a fire, or explode, depending on the device you connect with.



- Do not tightly seal the battery pack when installing it onto an external device.
Flammable gas is generated from the battery when its safety mechanism has functioned. If you should fail to observe the above-described instruction, sparks from motors, switches, etc. may cause the gas to fire. Therefore, install the battery pack so that the gas can be quickly released from the external device.
- Do not use the battery pack for the device/usage other than this game system.
If you should fail to observe this instruction, the battery and/or the device may be damaged due to non-applicable specifications.
- Do not strike a nail in, hammer, step on, or apply any other forms of pressures and shocks on, the battery.
If you should fail to observe this instruction, the battery may be deformed. As a result, the battery may burst at its sealed sections to leak the internal liquid, or may be short-circuited internally to overheat, make a fire, and explode.
- Do not use a battery charger because any battery charger is not usable for this battery pack.
If you should fail to observe this instruction, the gas may be suddenly generated in the battery and eventually the battery may overheat, make a fire or explode.
- If the battery in use or in keeping shows an abnormal indication (deformation, change of color, bursting of the armor cover, etc.), immediately stop using or keeping it. If it leaks and smells abnormally, immediately keep it away from fire and put it in a safety box.
- If the liquid leaks from the battery and gets in your eyes, do not rub your eyes but immediately wash them with clean water (city water etc.); and consult a medical doctor for a treatment. If you should fail to observe this instruction, the liquid may harm your eyes.
- The battery pack armor (a polyvinyl chloride tube) may be damaged or deformed by external force or heat. When transporting the battery pack or replacing it with a new one, therefore, be careful not to drop or excessively shock it. Do not continue to use any damaged or deformed battery pack. If you should fail to observe this instruction, the battery may overheat, make a fire, or explode.
- The battery pack contains a printed circuit board (PCB) for protective circuitry. It may be destroyed by the static electricity. When handling or servicing the battery pack, therefore, take preventive measures against the static electricity.
If your battery pack has shown destruction of a protective circuitry PCB, do not continue to use it. If you should fail to observe this instruction, the battery may overheat, make a fire, or explode.
- When wiring the battery pack to a device, be careful not to apply excessive force onto the connectors and lead wires. The battery may overheat, make a fire, or explode if the connectors and lead wires are damaged.
- Do not do away with the used battery packs carelessly because they may contaminate the environment. Submit them to an industrial waste disposal plant.
- Be sure to dispose of the used battery pack in accordance with relevant national laws and/or local regulations.

If the GD-ROM drive appears to be taking too long to read the disc, the battery pack on the DIMM board may need replacing. The battery pack should last approximately 16 months under normal usage.

There is no recharging unit for the battery pack.

Follow the steps listed below to replace the battery pack.

- ① Follow steps 1 and 2 in Section 19-4 to remove the cover.
- ② Unplug the battery pack's connector.
- ③ Remove the single tapping screw and slide the battery holder cover to remove it.
- ④ Remove the battery pack.
- ⑤ Repeat the above steps in reverse to install the new battery pack.

The used battery pack is considered industrial waste.

As such, it should be disposed of in accordance with relevant national laws and/or local regulations.

DIMM BOARD BATTERY PACK

SEGA PART No.: 401-0081

SEGA PART NAME: BATTERY PACK CGR-B/246A

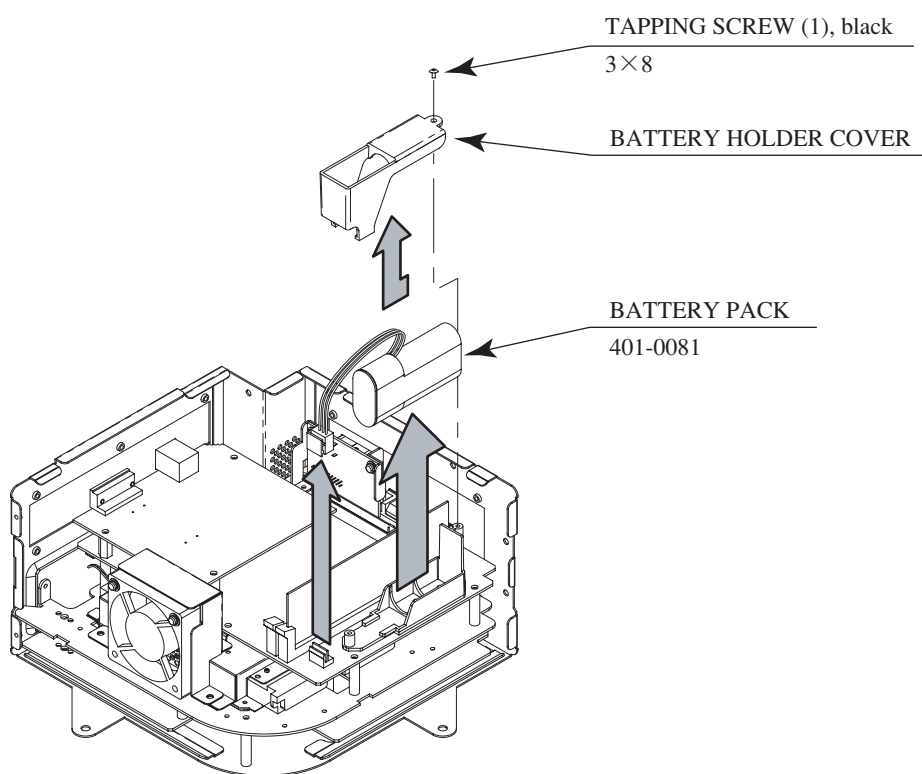


FIG. 19. 5

19 — 6 SHIPPING THE GAME BOARD AND GD-ROM DRIVE

Observe the following precautions when sending the TRIFORCE or GD-ROM drive out for servicing or repairs.

The carton boxes (included) are needed to ship these parts, and should therefore be stored in a safe place to ensure that they are not lost.

- When sending parts in for repairs, they should be configured as follows:
 - (1) TRIFORCE:
 - Leave the key chip installed in the board.
 - (2) GD-ROM drive:
 - Remove the drive bracket.
 - Eject the GD-ROM disc, place it in its case, and store in a safe place.
- Remove the wire harnesses and cables from the TRIFORCE and GD-ROM drive before sending them in for repairs.
- Do not disassemble the TRIFORCE or GD-ROM drive. Place them in the carton box as is when sending them in for repairs.
- Provide a clear, detailed description of the game used and the observed problems when sending to the indicated repair center.

HOW TO USE THE TRIFORCE CARTON BOX

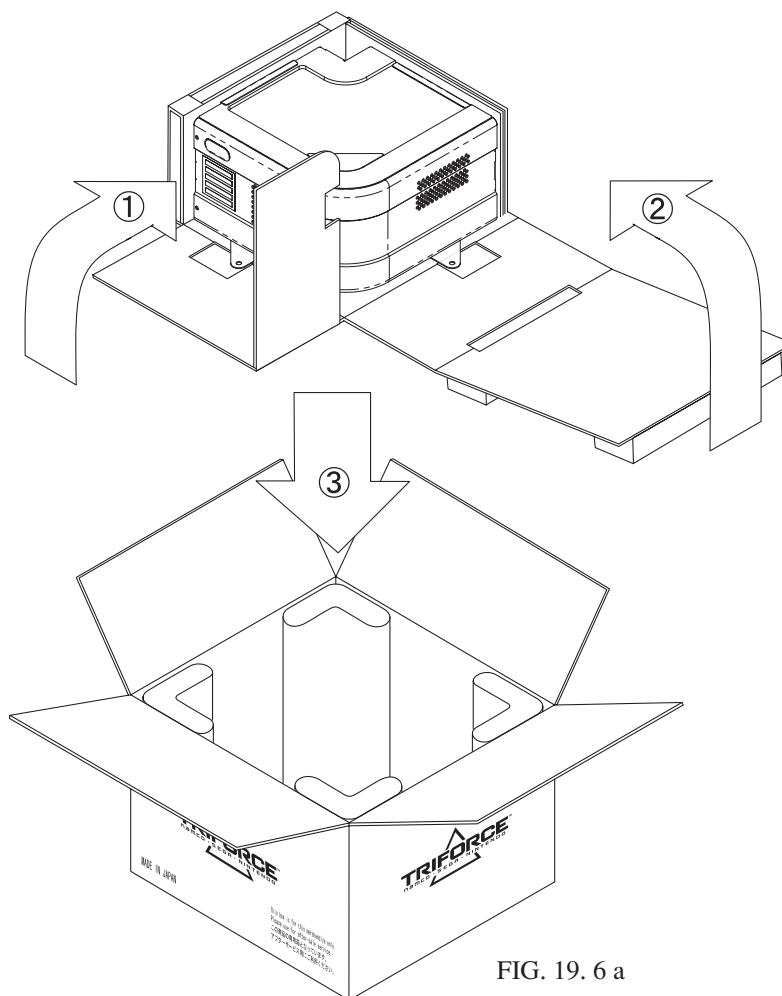


FIG. 19. 6 a

Fold the packaging in the order specified in the diagram and wrap it around the TRIFORCE, making sure that board and box are aligned correctly. Finally, place it in the carton box. Failure to wrap the product as specified in the diagram may cause damage to parts.

HOW TO USE THE CARTON BOX (GD-ROM DRIVE)



When you want to order for replacing or repairing service of the GD-ROM drive that is used by the product, pack it in a carton box as instructed below, and then deliver the carton box to a service agent. If you do not observe the instruction, your order may not be accepted or may be charged additionally. If you handle the GD-ROM drive differently from the following instructions, its components may be damaged.

- Contain the GD-ROM drive in a dedicated carton box. Do not disassemble it or remove any part from it unless otherwise instructed.
- Before containing the GD-ROM drive in a dedicated carton box, attach the GD-ROM drive lid (DISC LID) onto the drive and fix the lid with a screw.
- Before containing the GD-ROM drive in a dedicated carton box, remove the GD-ROM disc from the drive. Do not attempt to move the GD-ROM drive with a GD-ROM disc inside.
- Before containing the GD-ROM drive in a dedicated carton box, remove the GD-ROM drive bracket. Carefully keep the GD-ROM drive bracket and the 4 set screws, because they will be reused.
- When inserting the GD-ROM drive into a dedicated carton box, be careful about an inserting direction as illustrated below.
- The packing materials in a carton box are used as a cushion. Use them always when inserting the GD-ROM drive into a dedicated carton box. Do not bend them.

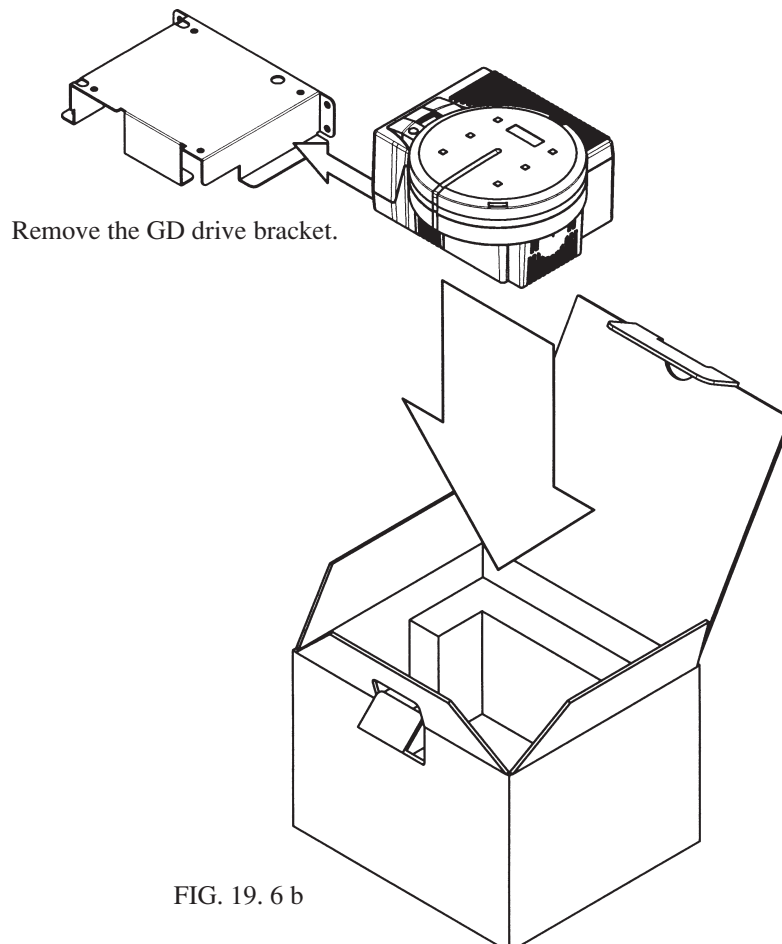
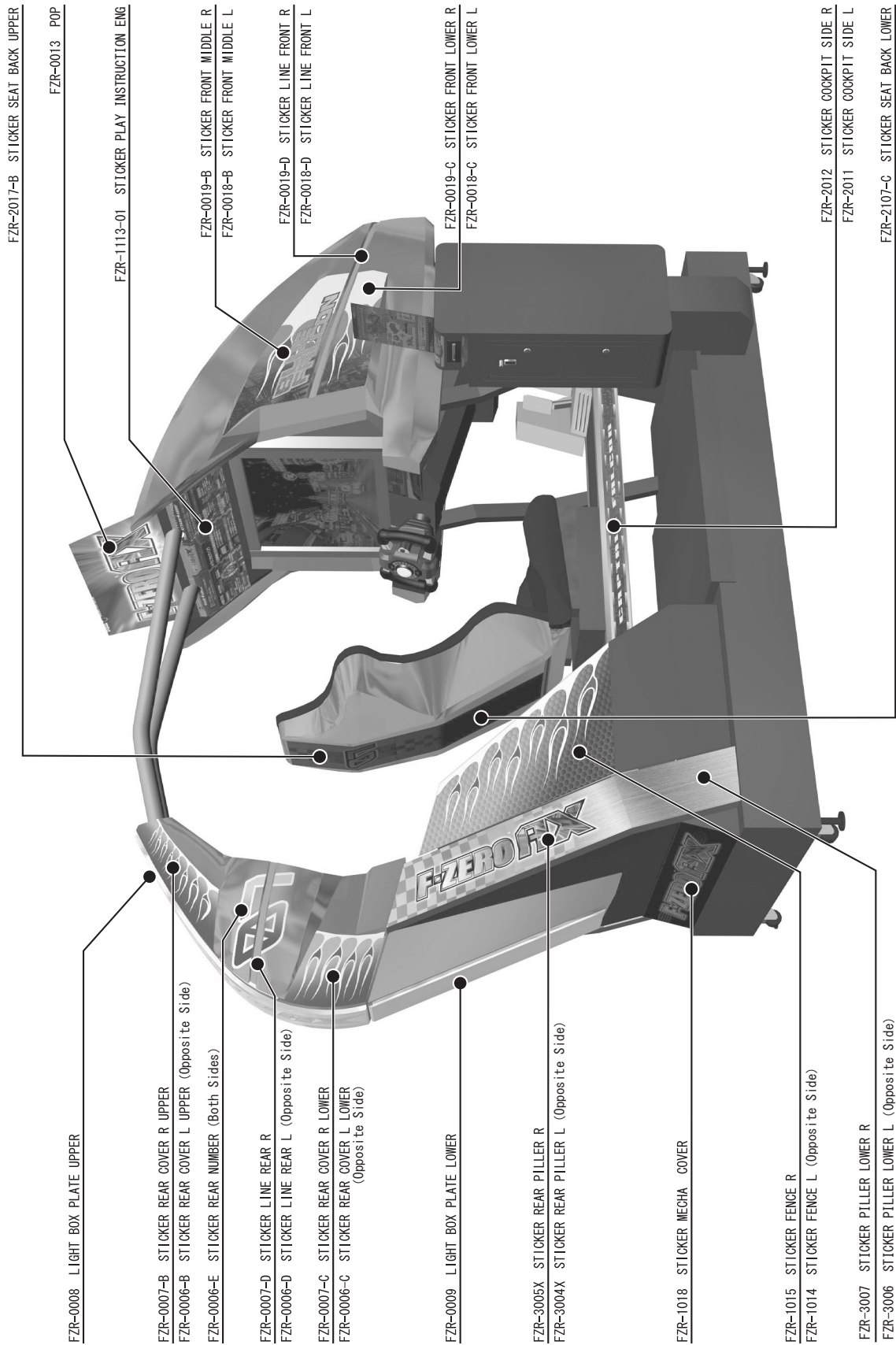
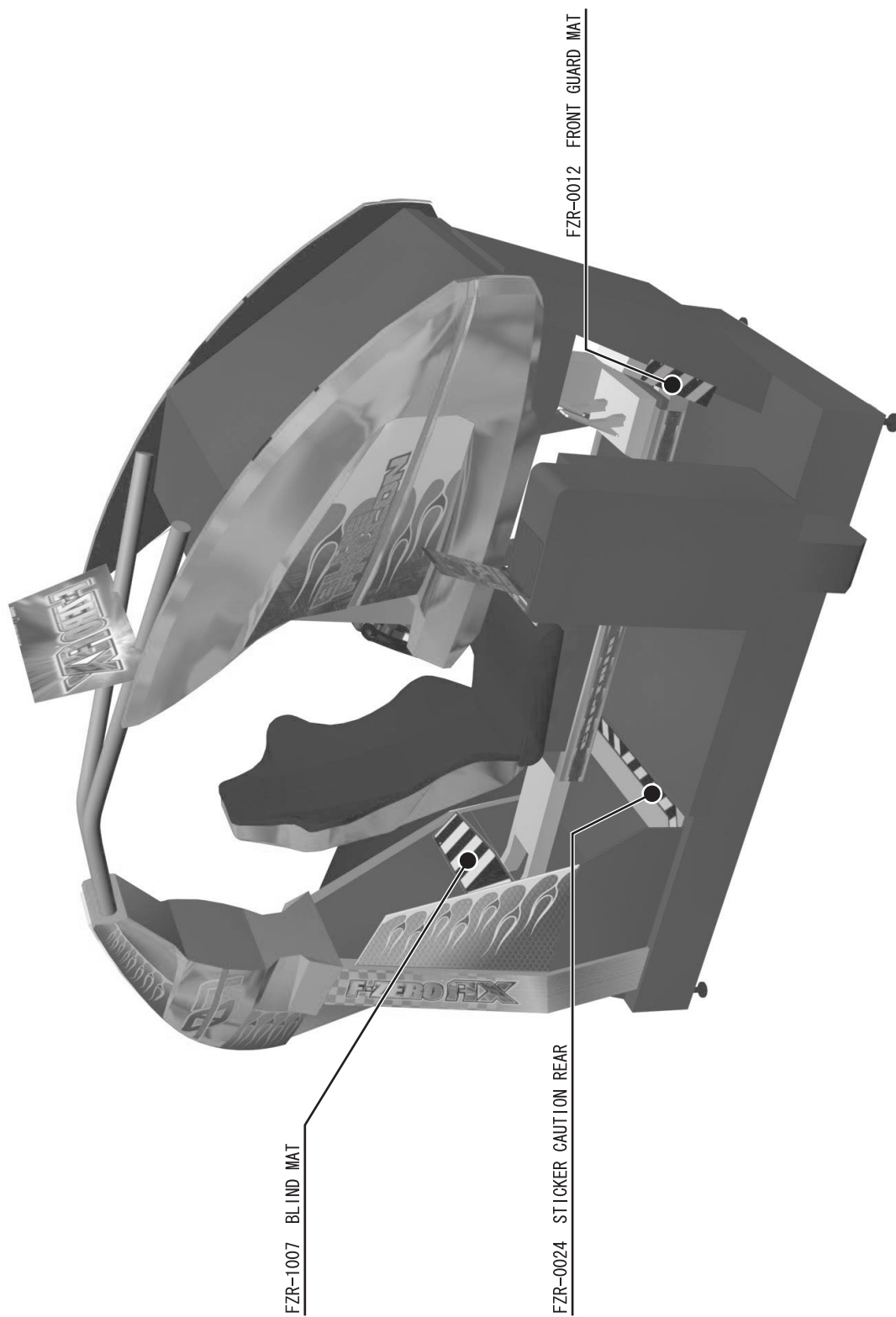


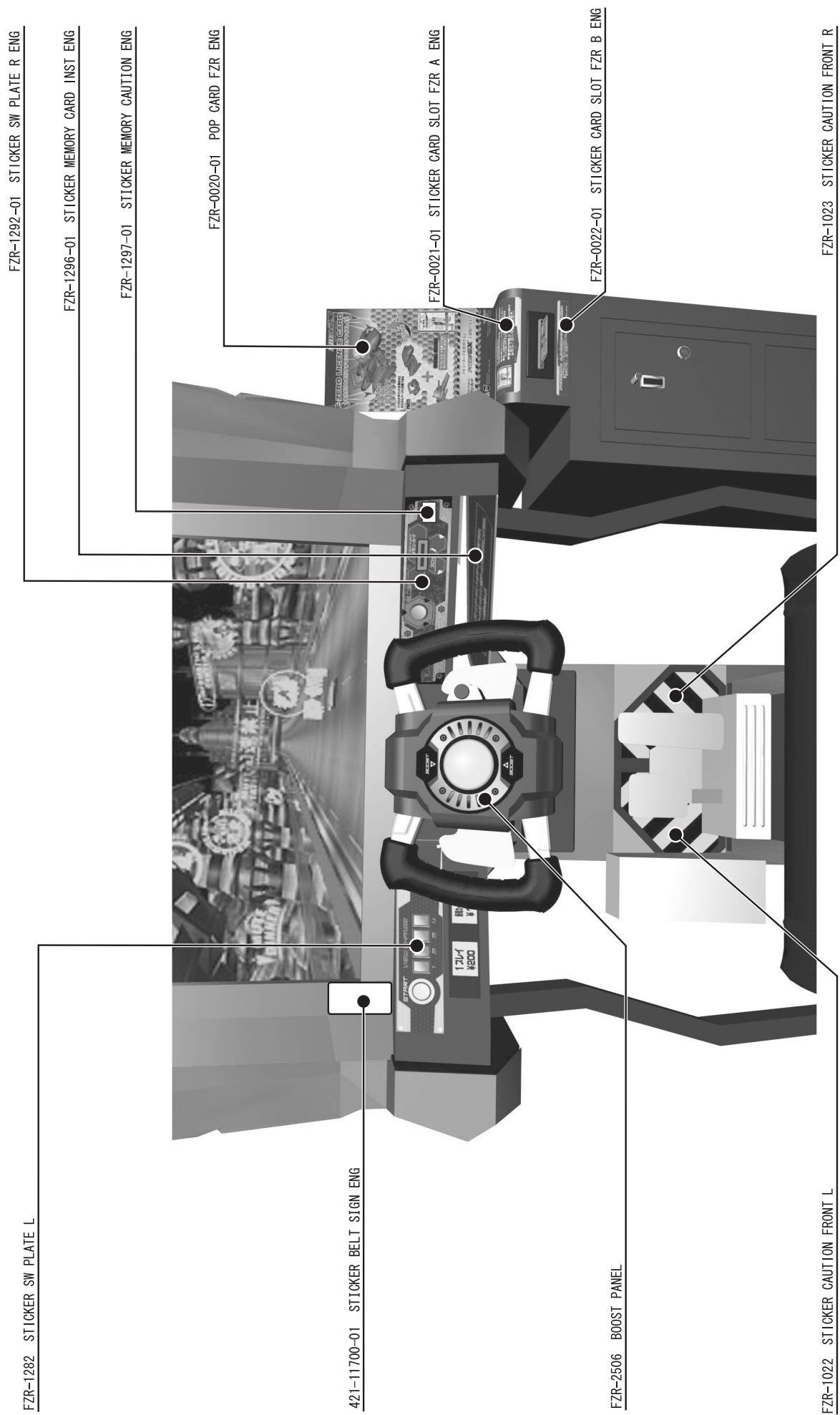
FIG. 19.6 b

20. DESIGN RELATED PARTS

For the warning display stickers, refer to Section 1.







21. NETWORK PLAY

Up to 4 machines can be linked for network play. Properly connected network cables and correct network play settings are required for network play.

21 — 1 PRECAUTIONS REGARDING NETWORK PLAY SETUP



- 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 site maintenance individual or other skilled professional. 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 network 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.
- 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, be sure to secure the space corresponding to number of machines to be linked. Failure to observe this can cause accident.
- To avoid accidents, use a cable cover that will not cause patrons to trip when laying network cables in areas of heavy foot traffic.
- To prevent accidents and acts of vandalism, cover the network cables with the strongest cover possible.



Network play is not possible between game machines with different cabinet types.

When connecting several games machines together, make sure that a sufficient amount of electrical power is available for each machine. Plan on providing 15A for each machine in 100-120V locations, and 7A in 220-240V locations.

SPACING OF GAME MACHINES

Leave at least 70 cm of space between game machines.

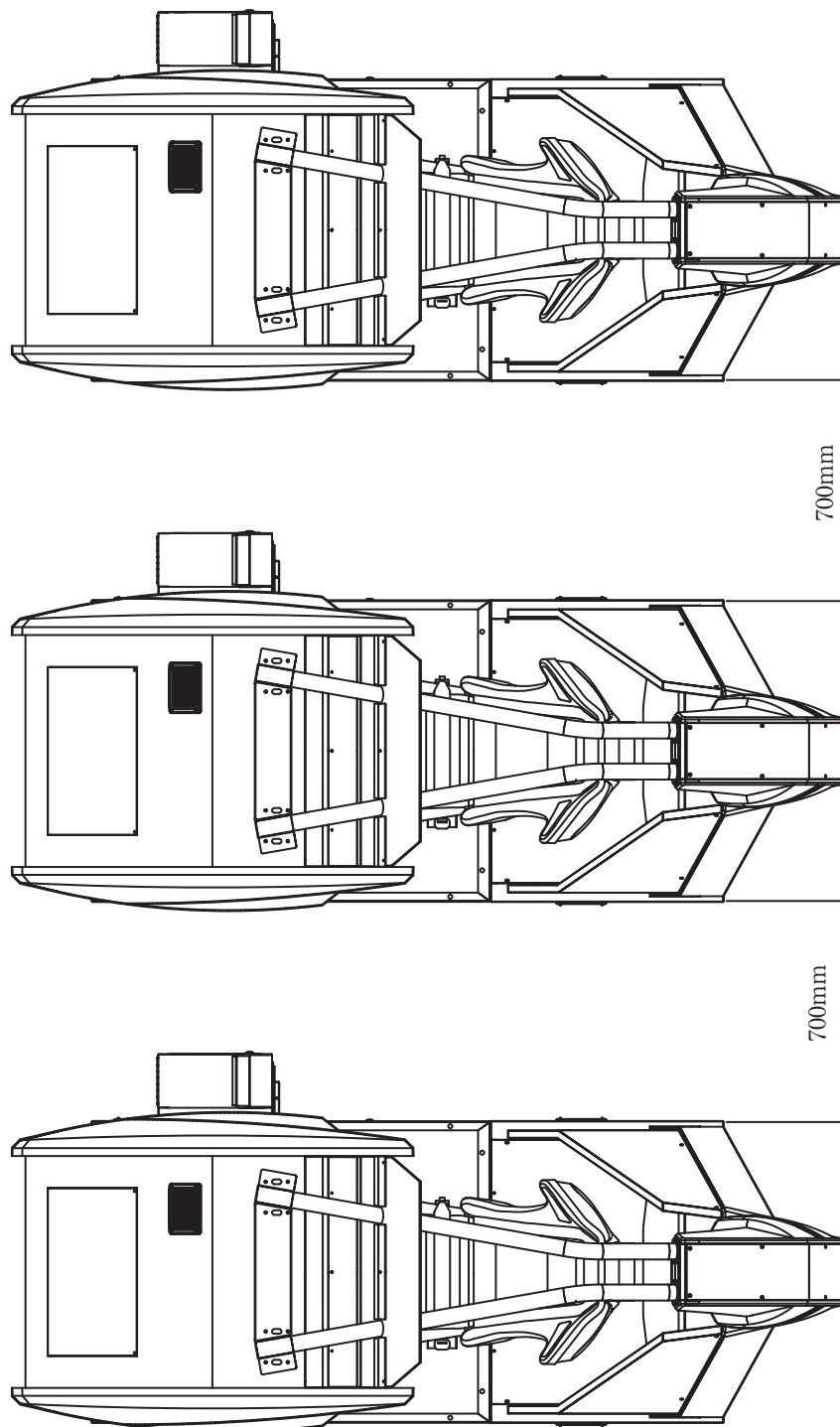


FIG. 21. 1

21 — 2 CONNECTING NETWORK CABLES

To enable network play, the hubs inside each of the game machines involved must be connected with network (LAN) cables. Connect the hub inside one of the machines to the hubs in each of the other machines using LAN cables. There is no need to connect the other machines to each other.

Do not connect LAN cables to game machines when they are not used for network play.

The following procedure requires the included LAN cables, the master key, a M4-size screwdriver, and a 24 mm diameter spanner.

- ① Turn off the power and unplug the power cord from the outlet. Place the power cord so as not to damage it while working.
- ② Using Section 8 of this manual as reference, move the machines so that they are lined up. Leave enough space on the front lid side of the machine to perform the rest of the operations in this procedure.
- ③ Remove the 6 truss screws securing the front lid to the front of the machine and then remove the lid.

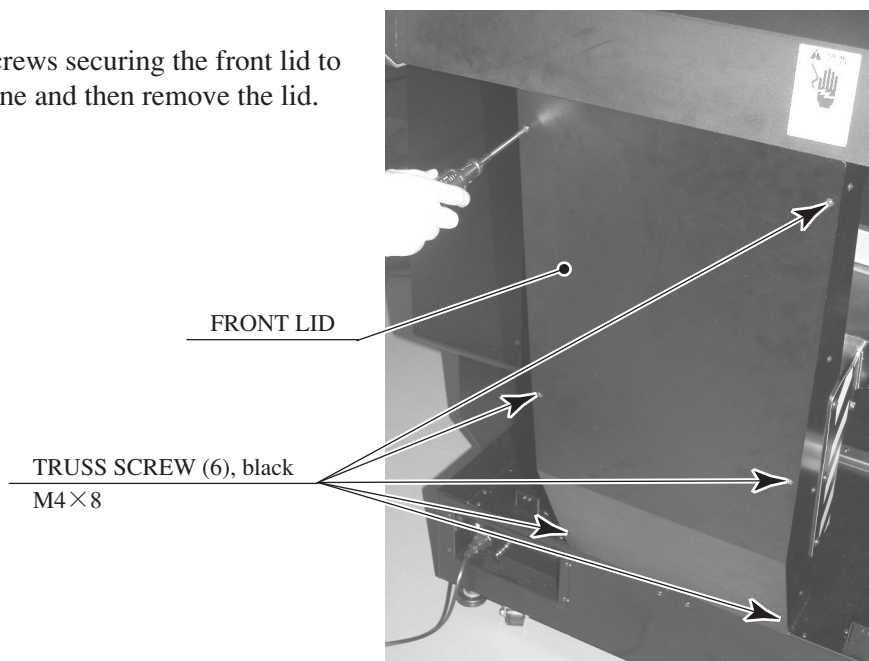


PHOTO 21. 2 a

- ④ Loosen 2 of the truss screws on the cable cover and shift the cover downward.

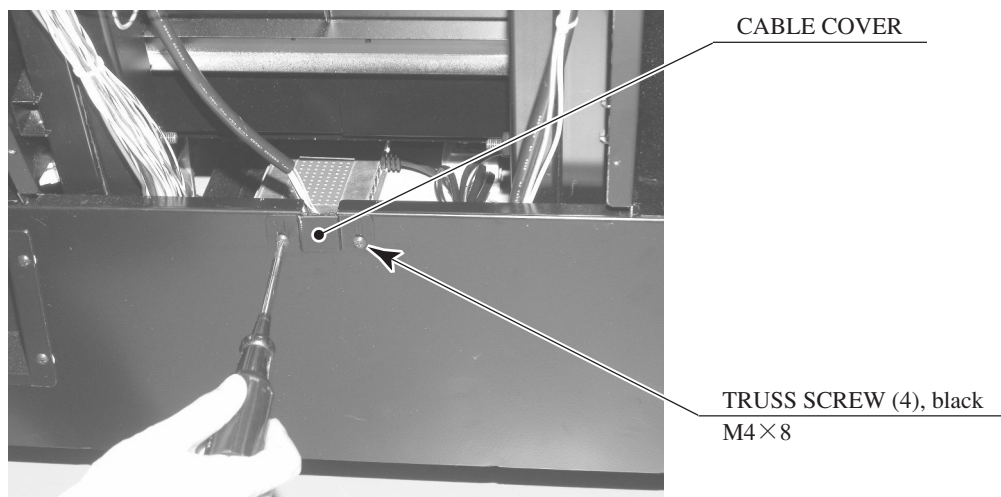


PHOTO 21. 2 b

- ⑤ Tighten the 2 loosened truss screws to secure the cable cover in place.

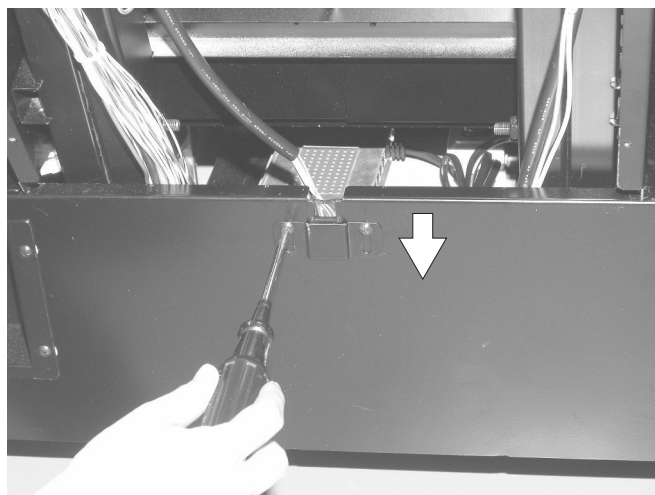


PHOTO 21. 2 c

- ⑥ Pass the LAN cable through the edge holder (the rectangular frame-shaped plastic part.) Pressing down on the edge holder from above will cause it to stretch elastically and open up.

EDGE HOLDER

LAN CABLE



PHOTO 21. 2 d

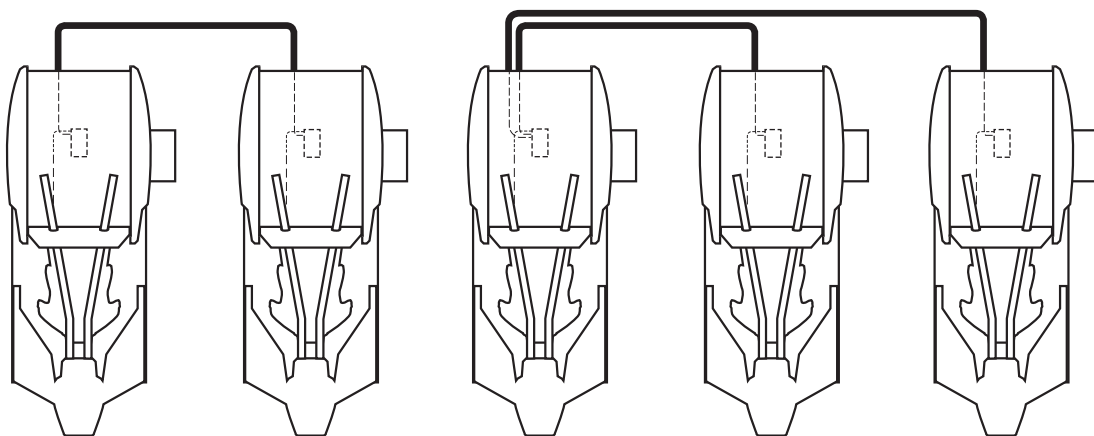
- ⑦ Plug the connector on the end of the LAN cable into port 2 or above on the hub. Port 1, located at the front closest to the front lid, is connected to the TRIFORCE in the base interior. Any of the ports 2 or above can be used to connect to any of the other game machines. Since the hub in one machine will be connected to the hubs in each of the other machines via LAN cables, only one machine needs to be fitted with enough LAN cables for all machines involved. The other machines will only have 2 cable connections each. *Note: In the photo, the front floor has been removed for better visibility. It does not need to be removed during the actual procedure.*

HUB

Connect to port 2 or above.

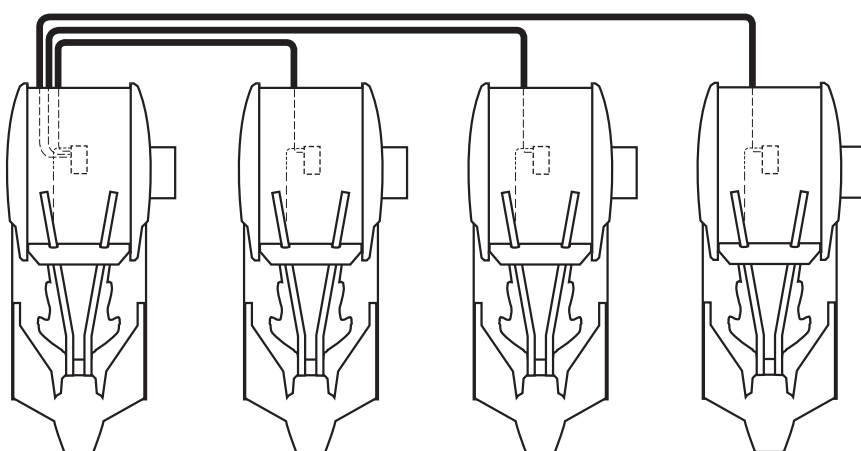


PHOTO 21. 2 e



2 machines linked together

3 machines linked together



4 machines linked together

FIG. 21. 2

- ⑧ Replace the front lid.
- ⑨ Once the machines have been linked for network play, line them up. Leave as much space as possible between the machines.
- ⑩ Secure all adjusters on each machine. (See [2](#) of Section 6.)
- ⑪ Connect the power cord and grounding wire for each machine. (See [4](#) of Section 6.)

21 — 3 NETWORK PLAY SETTINGS

Each of the linked machines must be set up for network play. If the machines are not set up correctly, network play will not be possible.

HOW TO SET UP A MACHINE FOR NETWORK PLAY

- ① Turn off the power on each machine to be used in network play.
- ② Enter Test mode on each machine. (See 10-2.)
- ③ Select GAME TEST MODE and press the TEST Button. The machine will enter Game Test mode and the screen will display the Game Test menu. (See 10-3.)
- ④ Select NETWORK SETTINGS from the Game Test menu and press the TEST Button. The Network Settings screen will appear. Network settings are carried out on this screen.

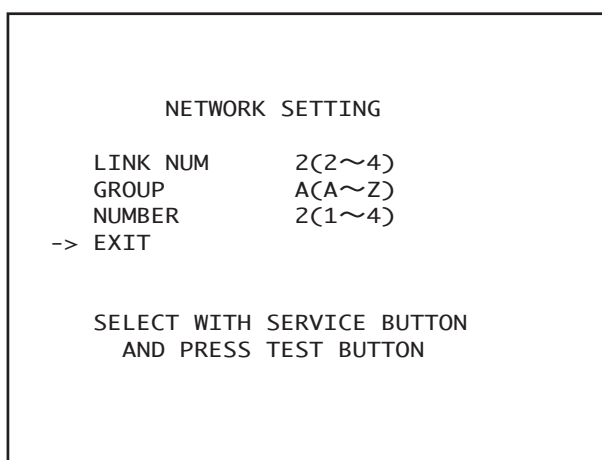


FIG. 21. 3

- ⑤ Set the LINK NUM setting on the Network Settings screen to the number of game machines linked for network play.
- ⑥ Set up the GROUP setting on the Network Settings screen. The GROUP setting is used to divide the machines linked for network play into groups. For example, a network of 4 machines could be divided into 2 groups of 2 machines.
- ⑦ Set the NUMBER setting on the Network Settings screen so that each machine within a group has a different number. Make sure that one machine in each group is set to "1".
- ⑧ Exit Test mode on each machine. Be sure to choose EXIT from the System Test Menu to exit Test mode properly.
- ⑨ Once each machine has exited Test mode and gone through initialization, it will begin a network test. During the network test, the monitor will display a network test screen. If there are no problems with network play settings or cable connections, the machine will enter Advertising mode.
- ⑩ If the advertising screen appears after the network test is finished, network settings are complete.
The network test should last roughly 20 to 30 seconds. If the network test screen fails to disappear, the problem is most likely due to one of the following: incorrect settings, an improperly connected LAN cable, a faulty LAN cable connection, or a severed wire.



- When setting up machines for network play, settings such as the game's difficulty level will be derived from the machine whose "NUMBER" is set to "1". If settings on machine "1" are changed, the other machines will have their settings changed accordingly. On machines other than "1", settings derived from machine "1" will not be displayed on screen and cannot be changed.
- Should a network connection fail during network play, gameplay will be suspended and the Network Error Screen will be displayed.
- If one of the units attached for network play enters Test Mode, the other unit will display the same Test Mode Screen.
- Even when units are connected for network play, each seat, each game may be given different cost settings. Incorrect cost settings may cause budget balancing problems.

Note that when 2 or more machines are linked together for network play, some functions are different than for stand-alone machines.

Whenever Test mode is used on a machine linked for network play, all machines connected to the network will display the network test screen. When patrons are engaged in network play, do not enter Test mode on any of the machines in the network, even if the machine is not in use. However, machines whose GROUP setting is different from that of the machine entering Test mode will not be affected.