[Table of Contents] [Next Page]

SPECIFICATIONS		
WIDTH	62.5 in	
DEPTH	59 in	
HEIGHT	72 in	
WEIGHT	Approx. 475 kg. (1200 Ibs.)	
POWER, MAXIMUM CURRENT	900W 7.5A (AC 120V 60 Hz AREA)	
MONITOR	25 INCH MEDIUM RESOLUTION	
MONTOR	COLOR MONITOR X 2	

NOTE: Descriptions in this manual are subject to change without prior notice.

INTRODUCTION OF THE OWNER'S MANUAL

SEGA ENTERPRISES, LTD., supported by its high electronic technology of LSI's, microprocessors, etc. and a wealth of experience, has for more than 30 years been supplying various innovative and popular game machines to the world market. This Owner's Manual is intended to provide detailed descriptions together with all the necessary information covering the general operation of electronic assemblies, electromechanicals, servicing control, spare parts, etc. as regards DAYTONA USA TWIN TYPE, a new SEGA product.

This manual is intended for those who have knowledge of electricity and technical expertise especially in ICs, CRTs, microprocessors, etc. Carefully read this manual to acquire sufficient knowledge before working on the machine. Should there be a malfunction, non-technical personnel should under no circumstances touch the interior system. Should such a case arise, contact our Main Office or the closest branch office listed as follows:

SEGA ENTERPRISES, INC. (U.S.A.) / CUSTOMER SERVICE 45133 Industrial Drive, Fremont, California 94538, U.S.A.

Phone: (650) 632-7500 Fax: (650) 632-7594

DAYTONA USA TWIN TABLE OF CONTENTS

	Introduction of the Owner's Manual	2	
1.	Handling Precautions		
 1. 2. 3. 	Prevention of Counterfeiting and Conversion		
3.	Precautions Concerning Installation Location	5	
4.	Name of Parts	6	
4.5.6.	<u>Accessories</u>	7	
6.	Moving the Machine	8	
7.	Assembling the Machine	9	
7-1	Assembling Your Daytona USA Twin Game	9	
7-2	Billboard Installation	13	
7-3	Securing to the Installation Position (Leg Adjuster Adjustment)	14	
7-4	Power Supply and Earth Connection	15	
7-5	Turning the Power On	15	
7-6	Assembly Check	16	
7-7	How to Play	18	
8.	Explanation of Test and Data Display	20	
8-1	Switch Unit	21	
8-2	<u>Test Mode</u>	22	
8-3	Bookeeping	23	
8-4	Game System	25	
8-5	Coin Assignment	26	
8-6	<u>Input Test</u>	28	
8-7	Output Test	29	
8-8	<u>Drive DB Test</u>	30	
8-9	Sound Test	32	
8-10	TGP Test	33	
8-11	Memory Test	33	
8-12	Backup RAM Clear	34	
9.	Control Panel (Handle Mecha)	35	
10.	Accelerator & Brake	37	
11.	4 Speed Shifter	38	
12.	Coin Selector	41	
13.	Monitor Adjustments	42	
14.	Replacing the Fluorescent Lamp, and Lamps	43	
15.	Periodic Check	43	
16.	Troubleshooting	44	
17.	Game Board	46	

18.	Communication Play	48
19.	Design Related Parts	52
20.	Parts List	54
	ASSY BILLBOARD	57
	ASSY CONT PNL TWIN (DYN-12001)	58
	ASSY HANDLE MECHA (DYN-1250)	60
	ASSY VIRTUAL BUTTON TWIN (DYN-1290)	63
	ASSY SEAT TWIN	64
	SEAT WOOFER	65
	SPEAKER ASSEMBLY LEFT & RIGHT	66
	ASSY 4 SPEED SHIFTER (DYN1-2150)	67
	ASSY ACCEL & BRAKE (DYN-1300)	69
	ASSY BASE BOX	71
	Wire Color Code Table	72
22.	Wiring Diagram	72

Accessories Page 1 of 1

[Table of Contents] [Previous Page] [Next Page]

5. ACCESSORIES

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

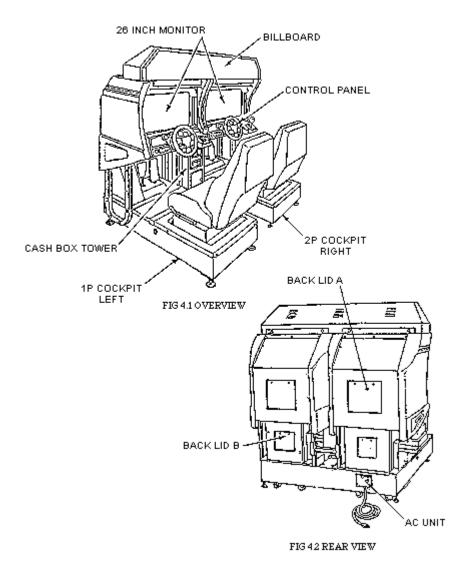
TABLE 5 ACCESSORIES

QTY.	PART NAME
2	KEY
1	OWNERS MANUAL DAYTONA TWIN
1	500 CM OPTO CABLE
1	T15 TAMPER PROOF WRENCH
1	T20 TAMPER PROOF WRENCH
1	T25 TAMPER PROOF WRENCH
1	T27 TAMPER PROOF WRENCH
1	SEAT LABELS 3-8

Name of Parts Page 1 of 1

[Table of Contents] [Previous Page] [Next Page]

4. NAME OF PARTS



3. PRECAUTIONS CONCERNING INSTALLATION LOCATION

The DAYTONA USA TWIN TYPE is an indoor game machine. Absolutely do not install it outside. Even indoors, avoid installing in places mentioned below so as to ensure proper usage:

- o Places subject to rain or water leakage, or condensation due to humidity.
- In the proximity of an indoor swimming pool and/or shower.
- Places subject to direct sunlight.
- o Places subject to heat sources from heating units, etc., or hot air.
- Vicinity of highly inflammable/volatile chemicals or hazardous matter.
- Sloped surfaces.
- Vicinity of anti-disaster facilities such as fire exits and fire extinguishers.
- Places subject to any type of violent impact.
- Dusty places.

INSTALLATION PRECAUTIONS

- o 1) Do not insert more than one electrical plug into the power plug socket.
 - 2) The per unit standard voltage/amperage is 100~120V/15A.
 - 3) Use of extension cables should be avoided. If you must use, ensure the extension cables are rated at 15A or higher for 100~120 volt areas or 10A.
 - 4) Note that for transporting the machine into the location's building, the minimum necessary dimensions of the opening (of doors, etc.) are 36 in (W) and 80 in (H).
 - 5) For the operation of this machine, secure a minimum area of 80 in (W) x 70 in (D).

ELECTRIC CURRENT CONSUMPTION

MAX. 7.5 A (AC 120V 60HZ)

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.

- Be sure to turn the power off before working on the machine.
- To insert or pull out the plug quickly is dangerous.
- It is necessary to make sure that the power cord or the grounding wire is not exposed on the road, etc. in a manner so as to be dangerous. Make sure that grounding connections are made safely at the position where so specified.
- o Do not use any fuse that does not meet specified rating.
- Make complete connections for the IC board and other connectors. Insufficient insertion is very dangerous.
- The operating (ambient) temperature range is from 5°C to 40°C.
- o When cleaning the CRT surfaces, use a soft, dry cloth. Do not apply chemicals such as thinner, benzene, etc.

Also, for the IC board circuit inspections, only the logic tester is allowed. The use of a tester is not permitted, so be careful in this regard.

After confirming that there are no irregularities, turn the power ON.

2. PREVENTION OF COUNTERFEITING AND CONVERSION

LABELING

To prevent counterfeits and conversions, the following labels are put on all SEGA products. When handling such goods, be sure to confirm the labels. They are used to prevent illegal acts such as the unauthorized copying of the products and the printed circuit boards thereof or carrying on business by manufacturing similar merchandise or by converting, selling or using such products or printed circuit boards.

ORIGINAL SEAL: The left seal is put on the machines manufactured by SEGA. **LICENSE SEAL:** The right seal is put on all SEGA kits, such as the printed circuit board.





COPYRIGHT NOTICE

This SEGA product has the copyright notice as follows:

(C) SEGA 1994

This signifies that this work was disclosed in 1994 and is the property of SEGA ENTERPRISES, LTD.

6. PRECAUTIONS TO BE HEEDED WHEN ASSEMBLING AND MOVING THE MACHINE

WARNING:

- 1. Perform the assembly work by following the procedure herein stated. Failing to comply with the instructions, for example, inserting the plug into an outlet at the stage not mentioned in this manual might cause an electric shock accident.
- 2. Assembling should be performed as per this manual. Since this is a complex machine, erroneous assembling may cause damage to the machine, or malfunctioning to occur.
- 3. When assembling, be sure to perform the work by plural persons.

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

ASSEMBLING THE COCKPIT

INSTALLING THE BILLBOARD

SECURING IN PLACE (LEG ADJUSTER ADJUSTMENT)

INSTALLING THE AC COVERS (WIRING CONNECTION)

POWER SUPPLY, AND EARTH CONNECTION

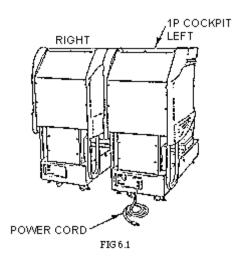
TURNING THE POWER ON

ASSEMBLING CHECK

Note that the master key and the cashbox door key (accessories) in addition to the tools such as a plus screwdriver, wrench for M16 hexagon bolt and socket wrench are required for the assembly work.

CAUTION:

Perform the tightening of hexagon bolts described above after adjusting the leg adjusters. Make sure that until the leg adjuster adjustments are made, keep the hexagon bolts tightened temporarily.



7. ASSEMBLING THE MACHINE

(1) ASSEMBLING YOUR DAYTONA USA TWIN GAME

To assemble your Daytona driving game locate the Left cabinet (side with on/off switch), Cash Box Tower, and Right side cabinet.

In the parts bag located in the cash box locate the Opto cable. This will be needed later, to connect together the opto connections on the rear of Cash Box Tower. The hardware needed to assemble your Daytona driving game has game threaded into the proper holes. This was done to insure the bolts thread properly into the T nuts in the cabinet.

At this time remove the rear cover of the Cash Box Tower.

Notice the wire harness taped to the sides of the cabinets and Cash Box Tower. On the wire harness connections Black is for Left side, Yellow is for Right side viewed from front. Locate Left side cabinet (on/off switch) and Cash Box Tower. (Fig 6.1A). Connect the 15, 4, and 2 position connectors together. At this time connect the Opto cable (without white label) to the Opto connection nearest to the Left side of cabinet (viewed from front). These Opto connections are in the rear of the Cash Box Tower.

You may elect not connect the connector at this time, but carefully push the connectors in the hole so they are still accessible form the outside of the cabinet.

There are 4 bolts in NON SLOTTED holes, on the side of the cabinet, the 2 on top under the ledge must be removed. The 2 on the bottom must be loosened about a 1/4 inch. Lift up the Cash Box Tower and using the 2 lower slotted holes on the bottom of the cash box slip them over the lower protruding bolts and slide the cash box into place. Open the coin door and install the 2 upper bolts through the cash box into the cabinet. Tightened all 4 bolts.

The Right side cabinet gets installed the same way as left side (Fig. 6.1B).

Don't forget to connect all the connectors described above. The opto cables with the white labels get connected together inside the rear Cash Box Tower. The 2 remaining opto cables get connected to the 2 external opto connectors on the rear of the Cash Box Tower. This is used for linking 2 or more games (Fig. 6.1C). Replace the Cash Box Tower rear cover.

7. ASSEMBLING THE MACHINE

(1) ASSEMBLING YOUR DAYTONA USA TWIN GAME

To assemble your Daytona driving game locate the Left cabinet (side with on/off switch), Cash Box Tower, and Right side cabinet.

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The Right side cabinet gets installed the same way as left side (Fig. 6.1B).

Don't forget to connect all the connectors described above. The opto cables with the white labels get connected together inside the rear Cash Box Tower. The 2 remaining opto cables get connected to the 2 external opto connectors on the rear of the Cash Box Tower. This is used for linking 2 or more games (Fig. 6.1C). Replace the Cash Box Tower rear cover.

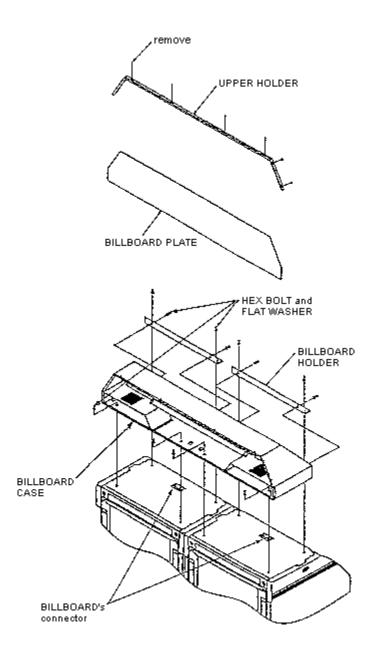
Billboard Installation Page 1 of 2

[Table of Contents] [Previous Page] [Next Page]

BILLBOARD INSTALLATION

- 1. Remove billboard form carton and remove upper holder and billboard plate. Remove billboard holders and hardware package from inside billboard case.
 - Remove (8) 5/16 in hex bolts from top of cabinet.
- 2. Attach billboard holders to rear of billboard case thru vertical slots with (4) 5/16 18 x 1" lg hex bolts and flat washers, lightly tighten.
- 3. Mount billboard case across top of both cabinets and attach with (4) 5/16 18 x 1" lg hex bolts and flat washers thru mtg. holes. Do not tighten.
- 4. Loosen billboard holders on rear of case and align over mtg. holes. Secure with (4) 5/16 -18 x 1" lg hex bolts and flat washers.
- 5. Align billboard case and tighten all mtg. bolts.
- 6. Connect the (3) billboard connectors. Two (blue & white) connectors on left side, 9 (blue) on right side. There is a extra white connector on Right side that is not used.
- 7. Replace billboard plate and upper holder.

Billboard Installation Page 2 of 2



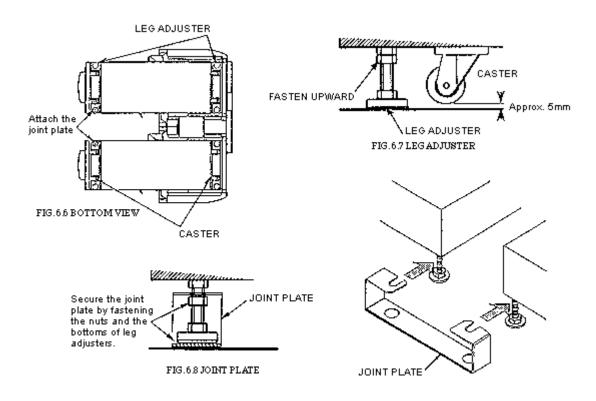
(3) SECURING TO THE INSTALLATION POSITION (LEG ADJUSTER ADJUSTMENT)

WARNING!

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

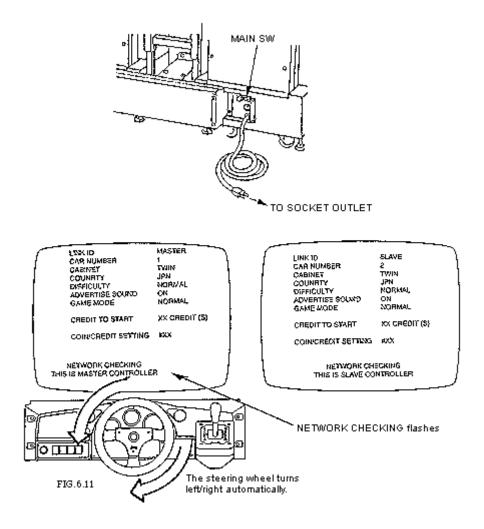
This machine has eight casters and eight leg adjusters (Fig 6.6). When the installation position is determined, cause the leg adjusters to come into contact with the floor directly, make adjustments in a manner so that the casters will be raised approximately 5 mm. from the floor and make sure that the machine position is level.

- 1. Move the machine to the installation position. When installing the machine against or close to a wall, be sure to secure a passage space to enable the player to take a ride in the machine.
- 2. Attach the joint plate for the 2 internal leg adjusters shown. First, cause the other 6 leg adjusters to come into contact with the floor. Make leg adjuster adjustments with a wrench in a manner to ensure the machine's position is level (Fig. 6.6).
- 3. After making adjustments, fasten the leg adjuster nut upward and secure the height of the leg adjuster (Fig. 6.7).
- 4. Insert the notch portions of the joint plate to the 2 leg adjusters.
- 5. Lower the leg adjuster and fasten the nut upward. Secure the joint plate with the nuts and the bottoms of the leg adjuster (Fig. 6.8).



(4) POWER SUPPLY AND EARTH CONNECTION

The AC UNIT is located on the back of the 1P cockpit (cabinet).



(5) TURNING THE POWER ON

Turning the AC UNIT'S MAIN SW on will cause the machine to start the POWER ON check and NETWORK check automatically.

In the POWER ON check, the steering wheel turns left and right, then returns to the centering position and stops. In this check, the values of V.R. inside the control panel are corrected. Until the check is finished (the steering wheel stops automatically), do not touch the steering wheel or play the game.

If you do, the steering wheel reaction during the game (reaction at the time of a course-out or crashing) can not be obtained correctly.

In a case of a strange reaction during the game, turn the power on again from the beginning and complete the power-on check.

During network checking, "NETWORK CHECKING" flashes on the screen. At this time, current settings are displayed on the screen. When NETWORK CHECKING is finished, the DEMO mode will appear on the monitor screen.

Assembly Check Page 1 of 1

[Table of Contents] [Previous Page] [Next Page]

(6) ASSEMBLY CHECK

In the TEST MODE, ascertain that the assembly has been made correctly and IC BD., is satisfactory (refer to Section 8).

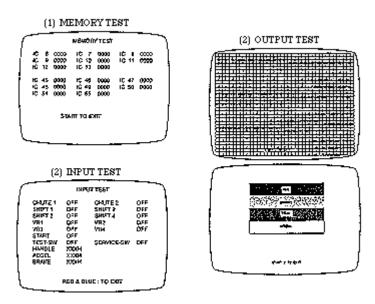
In the test mode, perform the following test:

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

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. For the coin switch test, insert a coin from the coin inlet with the coin chute door being open. If the display beside each switch indicates "ON", the switch and wiring connections are satisfactory.

Ascertain the display of V.R. value for the steering wheel and accelerator & brake. If the V.R. values are not satisfactory, refer to Sections 9 & 10.

In the TEST mode menu, selecting OUTPUT TEST allows the screen (on which the monitor is tested) to be displayed. Although the monitor adjustments have been made at the time of shipment from the factory, make judgment (by watching the test mode screen) as to whether an adjustment is needed. If it is necessary, adjust the monitor by referring to Section 13.



How to Play Page 1 of 2

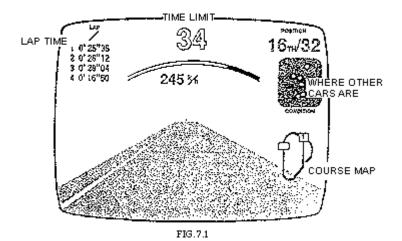
[Table of Contents] [Previous Page] [Next Page]

7-1 HOW TO PLAY

The following explanations apply to the case that each seat has an independent coin entry. In the case where a coin entry is used in common by 2 seats, the starting procedure is different.

- 1. Take a ride in the machine. The seat position can be adjusted forward and backward. For adjustments, pull the lever which is positioned on the lower left-hand side (facing the monitor screen) of the seat.
- 2. The coin chute door is located at the center in the front of the cabinet. Insert a coin into the corresponding coin entry and press the start button.
 - 3 courses appear on the screen in the sequence of Beginner, Advanced and Expert starting form the left.
- 3. At this time, "WAITING FOR YOUR ENTRY" is displayed on the other players' monitors and a countdown of 14 seconds to start will begin. The person who desires to compete with the first player is to insert a coin into the coin entry for his seat within the 14 seconds.
- 4. By turning the steering wheel, chose a course and make the selection effective by stepping on the Accelerator. The course selection is determined by the majority of the players participating in the "vs." competition race and not by the person who inserted a coin first.
- 5. SHIFT CHANGE SELECTION screen appears. Choose AUTO or MANUAL by turning the steering wheel and effectuate the selection by stepping on the Accelerator. This selection is made by each seat independently. While pressing the start button, if you step on the Accelerator, only the "vs." competitor's car appears and other competitor cars will not appear. This is also determined by the majority of the players participating in the "vs." competition.
- 6. When AUTO or MANUAL is determined, the game starts. Choosing the Beginner course results in a rolling start, the same as in the Daytona race. When the Advanced or Expert course is chosen, be sure to step on the Accelerator to start the machine.
- 7. The on-screen upper right-hand side, below the upper right, the upper middle, below the upper middle, the upper left- hand side and the lower right respectively indicates the player's present position, where other cars are, time limit, speed & tachometer, lap time and course map.

How to Play Page 2 of 2



8. 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 tile explanations given in this section. The following shows tests and modes that should be utilized as applicable.

CAUTIONS TO BE HEEDED WHEN USING THE TEST MODE

Exiting from the test mode causes the unit to perform the network check automatically. During this time, all of the linked units will not allow the game to be played in normal status. Therefore, be sure not to enter the test mode if any one of the units is in play. On the other hand, if even one unit is in the mode, make sure that other machines are not in play.

TABLE 8.1 EXPLANATION OF TEST MODE

ITEMS	DESCRIPTION	REFERENCE SECTIONS	
INSTALLATION OF	When the machine is installed, perform the following:		
MACHINE	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 each SW and VR.	8 - 6, 8 - 8	
	3. in the OUTPUT TEST mode, check each of lamps.	8 - 7	
	4. In the SELF-TEST mode, check ICs on the IC Board.	8 -10, 8-11	
MEMORY	Choose MEMORY TEST in the MENU mode to allow the memory test to be performed. In this test, PROGRAM RAMs, ROMs, and ICs on the IC Board are checked.	8 - 10, 8 - 11	
PERIODIC	Periodically perform the following:		
SERVICING	1. MEMORY TEST	8 - 10, 8 - 11	
2. Ascertain each setting.3. In the INPUT TEST mode, test the CONTROL device.		8 - 4, 8 - 5	
		8 - 6, 8 - 8	
	4. In the OUTPUT TEST mode, check each of lamps.		
CONTROL SYSTEM	1. In the INPUT TEST mode, check each SW and VR.	8 - 6, 8 - 8	
	2. Adjust or replace each SW and VR.	9, 10, 11	
	3. If the problem can not be solved yet, check the CONTROL's moves.		
MONITOR	In the MONITOR ADJUSTMENT mode, check to see if the MONITOR adjustment is appropriately made.	8 - 7, 13	
IC BOARD	C BOARD 1. MEMORY TEST		
2. In the SOUND TEST mode, check the sound related ROMs.		8 - 9	

DATA CHECK	Check such data as game play time and histogram to adjust the difficulty level, etc.	8 - 3	
------------	--	-------	--

Switch Unit Page 1 of 1

[Table of Contents] [Previous Page] [Next Page]

8-1 SWITCH UNIT

FIG. 8.1 SWITCH UNIT

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

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

SERVICE SWITCH: Gives credits without registering on the coin meter.

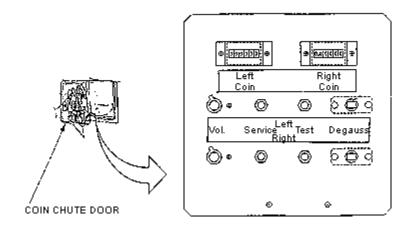
SOUND VOLUME: Adjusts the volume of the monitor's right-hand side and left-hand side

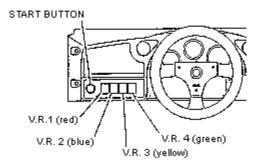
speakers, the control panel's right/left tweeters and the superwoofer under the

seat.

DEMAGNETIZER SWITCH:

Eliminates color unevenness from the screen.





The control panel switches are also used in the test mode. For each functioning, refer to the following page and onward.

Test Mode Page 1 of 1

[Table of Contents] [Previous Page] [Next Page]

8-2 TEST MODE

- The Test Menu allows the functioning of each part of the Cabinet to be checked, the MONITOR to be adjusted, and the coins and game related various settings to be performed.
- Press the TEST SWITCH to cause the following Test Menu to be displayed on the monitor. (FIG. 8.2)
- Press the SERVICE SWITCH until the pointer ">>" is moved to the desired item Also, note that pressing VR1 (red) causes the arrow to move downward and pressing VR4 (green) causes the arrow to move upward.
- Bring the pointer ">>" to the desired test item and press either the TEST SWITCH or START BUTTON to cause the selected item's test to start.

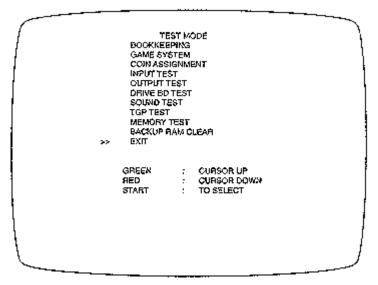


FIG. 8.2 TEST MENU

After the test is complete, move ">>" to "EXIT" and press the TEST SWITCH or START BUTTON to return to the Game Mode.

Bookkeeping Page 1 of 1

[Table of Contents] [Previous Page] [Next Page]

8-3 BOOKKEEPING

Selecting the BOOKKEEPING in the menu mode causes the bookkeeping data up to the present to be displayed on 2 pages.

- Press the TEST SW or START BUTTON to return to the MENU mode screen.
- Press VR1 (red) to proceed to the other page.

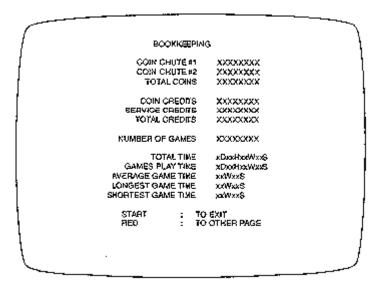


FIG. 8.3a BOOKKEEPING

- COIN CHUTE #*: Number of coins put in. As seen from the front of the cabinet, the right-hand side is #1 and the left-hand side is #2.
- TOTAL COINS: Total number of activations of coin chutes.
- COIN CREDITS: Number of credits registered by inserting coins.
- SERVICE CREDITS: Credits registered by the SERVICE switch.
- TOTAL CREDITS: Total number of credits (COIN CREDITS + SERVICE CREDITS)
- TOTAL TIME: The total energized time.

Game System Page 1 of 2

[Table of Contents] [Previous Page] [Next Page]

8-4 GAME SYSTEM

Selecting the GAME SYSTEM 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.



FIG. 8.4 GAME SYSTEM

LINK ID:	For communication (interactive) play, set one seat to "MASTER" and the rest of the seats to "SLAVE". The game setting and coin setting, etc. of the MASTER seat apply to the slave seats also. Note that setting changes made by the SLAVE seats are not effective for the game.	
CAR NUMBER:	For interactive play between 2 or more machines (cabinets), the cabinets (starting from the left, facing the monitor screen) are numbered in the sequential order of No. 1, No. 2, No. 3, No. 4, If the same number is used for 2 or more cabinets or cabinets are numbered in an incorrect sequence, on-screen display may be confused.	
CABINET:	Setting of cabinet. Set to "TWIN" for this machine.	
COUNTRY:	Message language (select USA for the U.S.A., and EXPORT for other countries).	
DIFFICULTY:	The game difficulty is classified into 4 different categories from EASY to HARDEST. Standard setting is "NORMAL". ADVERTISE SOUND: Advertisement sound during standby. No sound is produced with "OFF". Standard setting is "OFF".	
GAME MODE:	Selection of laps. Allows laps to be changed for specific attraction event purposes. NORMAL (8,4 and 2 laps respectively for Beginner, Advanced and Expert.) GRAND PRIX (20,10 and 5 laps respectively for Beginner, Advanced and Expert). ENDURANCE (80, 40 and 20 laps respectively for Beginner, Advanced and Expert).	
RIVAL ARROW:	Selection of ARROW(s) indicating rival car(s). ON to display. OFF not to display.	

SETTING CHANGE PROCEDURE

- 1. Press the SERVICE SW or VR1 (red), or VR 4 (green) to move the arrow (>>) to the desired item.
- 2. Choose the desired setting change item by using any one of VR2 (blue), VR3 (yellow), TEST SW and START BUTTON.

Game System Page 2 of 2

3. To return back to the MENU mode, move the arrow to EXIT and press the TEST SW or START

Coin Assignment Page 1 of 1

[Table of Contents] [Previous Page] [Next Page]

8-5 COIN ASSIGNMENT

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

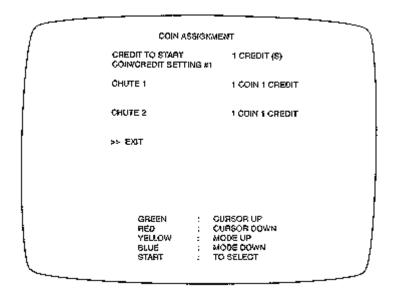


FIG. 8.5 COIN ASSIGNMENTS

- CREDIT TO START: Number of credits required for starting game (1-5 credits are selected.)
- COIN/CREDIT SETTING: "How many coins correspond to how many credits." In this machine, selection as per Table 8.2 is possible.

SETTING CHANGE PROCEDURE

- 1. Press the SERVICE SW or VR1 (red), or VR4 (green) to move the arrow (>>) to the desired item.
- 2. Choose the desired setting change item by using any one of VR2 (blue), VR3 (yellow), TEST SW and START BUTTON.
- 3. To return back to the MENU mode, move the arrow to EXIT and press the TEST SW or START BUTTON.

Input Test Page 1 of 1

[Table of Contents] [Previous Page] [Next Page]

8-6 INPUT TEST

When INPUT TEST is selected, the monitor will show the following, allowing you to watch the status of each switch and the value of each V.R. of the CONTROL PANEL.

On this screen, periodically check the status of each switch & V.R.

- 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.
- To check CHUTE 1 & CHUTE 2 coin switches, open the COIN CHUTE DOOR and insert a coin (s) from the coin entry.
- To return back to the MENU mode, simultaneously press VR1 & VR2, or press the TEST SW.

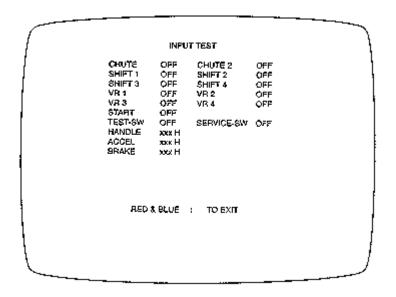


FIG. 8.6 INPUT TEST

An appropriate value of each V.R. is as follows:

HANDLE	: Under 2DH	< /D~83H>	Over D3H
	left	(Centering position)	right
ACCEL:	Under 30H	>	Over COH
BRAKE:	Under 30H	>	Over D2H
	(the pedal released))	(the pedal stepped)

Output Test Page 1 of 2

[Table of Contents] [Previous Page] [Next Page]

8-7 OUTPUT TEST

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

The first FIG. below shows the menu mode of OUTPUT TEST. Press the SERVICE SW or VR4 (green) / VR1 (red) and bring the arrow (>>) to the desired test item.

Press the TEST SW or START BUTTON to cause the test mode screen below to appear. To return back to the menu mode, bring the arrow to EXIT and press the TEST SW or START BUTTON (FIG. 8.2)

Choose CRT SIZE to cause the crosshatch screen to appear.

Adjust the monitor to make sure that the crosshatch lines do not go beyond the screen size and crosshatch distortion does not occur. Press the START BUTTON to return to the above OUTPUT TEST menu screen.

Choose CRT COLOR to cause the colored-bar screen shown below to appear. This test allows the on-screen color adjustment to be performed. The color of a color bar (for each of the 4 colors, i.e., red, green, blue, and white) is darkest at the left most end and brightest at the rightmost end. Press the START BUTTON to return to the above OUTPUT TEST menu screen.

Choose LAMP to cause the last screen shown below to appear. This enables the status of each lamp to be checked. Causes the START button lamp, the lamp of each V.R. switch, and LEADER lamp to light up in a sequential order. Press the START button to return to the above OUTPUT TEST menu screen.

Output Test Page 2 of 2

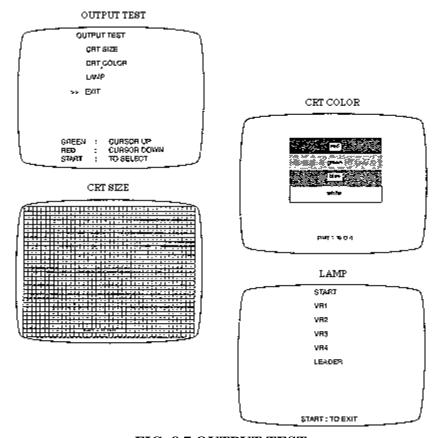


FIG. 8.7 OUTPUT TEST

Drive BD Test Page 1 of 1

[Table of Contents] [Previous Page] [Next Page]

8-8 DRIVE BD TEST

Choosing DRIVE BD TEST allows the reaction mechanism of the steering wheel to be checked. Also, this enables the V.R. value for the steering wheel's DRIVE BD and the setting status of the DIP SWes on the Drive BD to be checked.

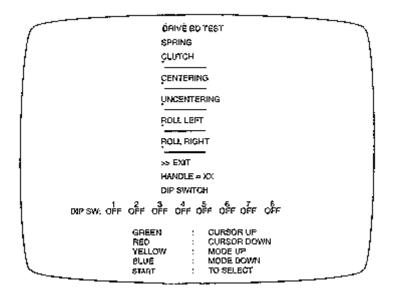


FIG. 8.8 DRIVE BD

Bring the arrow (>>) to the desired item by using the SERVICE SW or VR1 (red) or VR4 (green). The steering wheel functions to the setting selected by the arrow. Pressing VR2 (blue) or VR3 (yellow) allows the force transmitted to the steering wheel to increase or decrease.

SPRING: Status in which the motor and clutch are not activated. Centering of the handle is

caused by only the spring inside the handle mechanism.

CLUTCH: Status in which the clutch is activated. The handle is fixed.

CENTERING: Status in which the handle (of itself) returns to the center position.

UNCENTERING: Status in which the handle is caused not to be in the center.

ROLL LEFT: Status in which the handle is rotated in the left-hand side direction ROLL RIGHT: Status in which the handle is rotated in the right-hand side direction.

EXIT: Causes the menu mode to return on to the screen.

Sound Test Page 1 of 2

[Table of Contents] [Previous Page] [Next Page]

8-9 SOUND TEST

Choosing SOUND TEST causes the following mode to appear on the screen. This allows the desired sound (BGM, announcement and sound effects) to be chosen and heard. Enables the SOUND BD, AMP BD and each speaker to be checked.

Press the SERVICE SW or VR1 (red) or VR4 (green) and bring the arrow (>>) to the desired sound item to be tested. Pressing the TEST SW or START BUTTON allows the selected sound test to be performed.

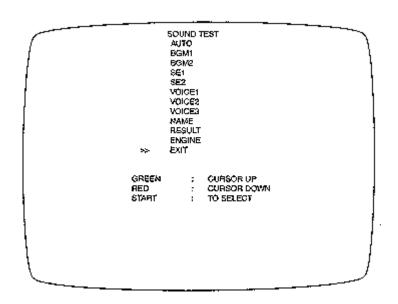


FIG. 8.9 SOUND TEST

- AUTO: Auto play covering from BGM to RESULT.
 Bring the arrow to this item and press TEST SW or START BUTTON to cause SOUND TEST covering from BGM to RESULT will be automatically and repeatedly be performed.
- BGM: Background music during game.
- SE: Sound effects during game.
- VOICE: Announcement and comment during game.
- NAME: Announcement and comment during name entry.
- RESULT: Announcement during the display of the results.
- ENGINE: Engine/Slip/Brake sounds can be emitted by using the ACCEL. pedal, HANDLE pedal and BRAKE pedal respectively.

Sound Test Page 2 of 2

• EXIT: Causes the menu mode to return on to the screen.

8-10 TGP TEST

In this test, TGP (on-screen display related IC) is checked. As shown below, if "GOOD" is displayed for all, it is satisfactory. Press TEST SW or START BUTTON to return to the menu screen.

FIG. 8.10 TGP TEST

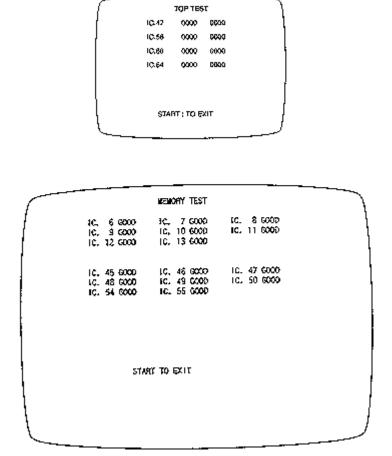


FIG. 8.11 MEMORY TEST

8-11 MEMORY TEST

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

- When the test is completed, if the results are shown as above, it is satisfactory.
- It takes approximately thirty seconds to complete the test. If the period exceeds thirty seconds, this may have been caused by board malfunctioning.

• After finishing the test, pressing the TEST SW or START BUTTON allows the MENU mode to return on to the screen.

Backup RAM Clear Page 1 of 1

[Table of Contents] [Previous Page] [Next Page]

8-12 BACKUP RAM CLEAR

Clears the contents of BOOKKEEPING.

When clearing, bring ">>" to "YES" and when not clearing, to "NO", by using the SERVICE SW or VR1 (red)/VR4 (green), and then push the TEST SW or START BUTTON.

When the data has been cleared, "COMPLETED" will be displayed. Bring ">>" to "NO" and press the TEST SW to cause the Menu mode to return on to the screen.

Also, note that the game setting contents are not affected by BACKUP RAM CLEAR operation.

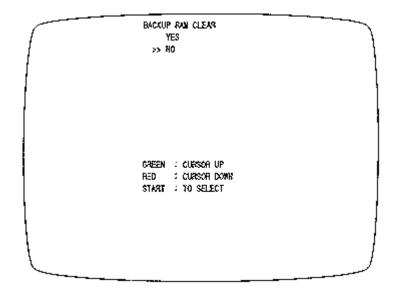
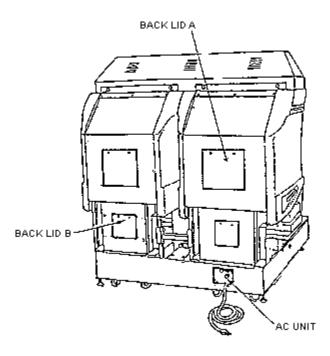


FIG. 8.12 BACKUP RAM

9. CONTROL PANEL (HANDLE MECHA)

In the TEST mode, if the steering wheel V.R. value variations are not within the allowable range, an adjustment of the V.R. installation position or replacement of the V.R. are needed. Also, apply grease to the steering wheel mechanism's shaft and sliding portions once every 3 months.

To perform the above work, take off the 2 screws and remove BACK LID A from the back of the cockpit.



CAUTION! Removing BACK LID A causes the monitor's high tension portion to be exposed. When performing the following work. Be very careful in this regard.

9-1 REPLACING AND ADJUSTING THE HANDLE'S (STEERING WHEEL'S) V.R.

The upper side V.R. of the HANDLE MECHA is for the GAME BD., and the lower side one, for the DRIVE BD.

Check the value of the V.R. for the DRIVE BD. The appropriate value of each V.R. is as follows:

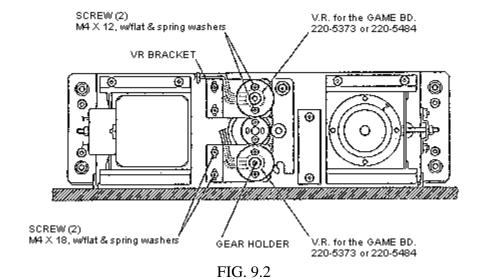
V.R. for the GAME BD.: Under 2 DH <-- 7DH~33H --> Over D3H

V.R. for the DRIVE BD.: Under 2 DH <-- 7DH~83H --> Over D3H

METHOD OF V.R. REPLACEMENT

To replace the V.R., after taking off the connector form the V.R. to be replaced, take out the 2 screws

which secure the VR BRACKET, and remove the V.R. together with the bracket and gear. After the replacement, check the V.R. value variations in the test mode.



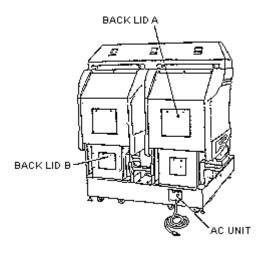
Accelerator & Brake Page 1 of 2

[Table of Contents] [Previous Page] [Next Page]

10. ACCELERATOR & BRAKE

In the test mode, if the ACCEL. & BRAKE V.R. value is not within the allowable range, an adjustment of V.R. installation position, or a replacement of V.R. is needed. Also, grease the MECHA's shafts and sliding portions once every 3 months.

To perform the above work, take off the 2 screws and remove BACK LID B from the back of the cockpit.



10-1 ADJUSTMENT AND REPLACEMENT OF VOLUME

The ACCEL. & BRAKE MECHA can be seen by removing the front lid. The ACCEL. V.R. is on the left- hand side and the BRAKE F.R. is on the right-hand side of the MECHA. Check the V.R. value in the test mode. The appropriate value of each V.R. is as follows:

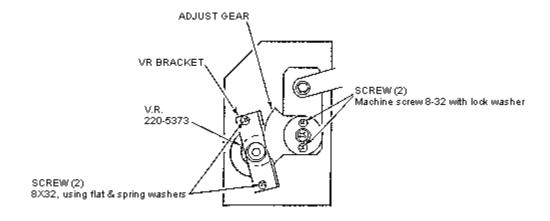
When released: When stepped on:

ACCEL.: Under 2 DH <---> Over D3H BRAKE: Under 2 DH <---> Over D3H

METHOD OF V.R. REPLACEMENT

To replace the V.R., after taking off the connector from the V.R. to be replaced, take out the 2 screws which secure the VR BRACKET, and remove the V.R. together with the bracket and gear. After the replacement, check the V.R. value variations in the test mode.

Accelerator & Brake Page 2 of 2



4 Speed Shifter Page 1 of 2

[Table of Contents] [Previous Page] [Next Page]

METHOD OF V.R. ADJUSTMENT

- 1. Loosen the 2 screws which secure the V.R. BRACKET, move the V.R. BRACKETS and disengage the gears.
- 2. Cause the V.R. value to match with the value obtained when the pedal is released.
- 3. Cause the gears to be engaged and secure the V.R. BRACKET. At this time, be sure to obtain an appropriate backlash.
- 4. Step on the pedal and check the V.R. value variation.

10-2 GREASING

Grease the gears and bearings once every 3 months as a standard.

11. 4 SPEED SHIFTER

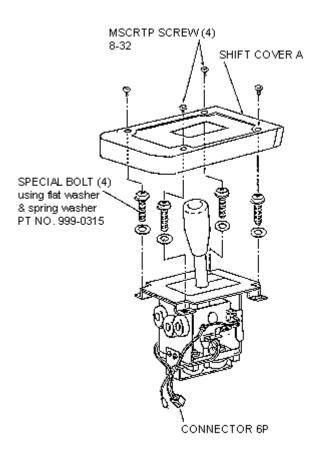
In the test mode, if the shift lever input is found to be irregular, replace the switch or adjust the switch installation position. Also, grease the MECHA's shafts or sliding portions once every 3 months as a standard.

When performing the above work, remove the shift lever unit.

11-1 REMOVING THE SHIFTER

- 1. Take off the 4 screws and remove SHIFT COVER A.
- 2. Take out the 4 SPECIAL BOLTs and pull out the SHIFT LEVER UNIT upward by paying careful attention so as not to cause damage to the wiring.
- 3. Disconnect CONNECTOR 6P and remove the shift lever unit.

4 Speed Shifter Page 2 of 2



Coin Selector Page 1 of 2

[Table of Contents] [Previous Page] [Next Page]

12. COIN SELECTOR

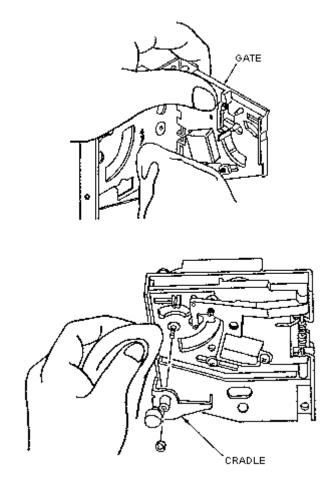
HANDLING THE COIN JAM

Even when the REJECT button is pressed, if the coin is not rejected, 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

- 1. Turn the power for the machine OFF. Open the coin chute door.
- 2. Open the gate and dust off by using a soft brush (made of wool, etc.).
- 3. Remove stain by wiping with a soft cloth which contains water or chemicals detergent.
- 4. Remove the CRADLE. When removing the retaining ring (E ring), b very careful so as not to bend the shaft.
- 5. Remove stain from the shaft and pillow portions by wiping off with a soft cloth, etc.
- 6. After wiping off a per 5 above, further apply a dry cloth, etc. to cause the coin selector to dry completely.

Coin Selector Page 2 of 2



NOTE:

Absolutely do not apply machine oil, etc. to the coin selector.

After cleaning the coin selector, insert a regular coin in the normal working status and ascertain that the selector correctly functions.

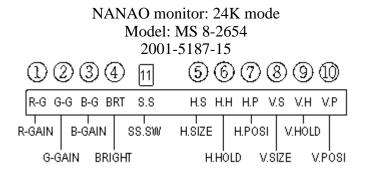
[Table of Contents] [Previous Page] [Next Page]

13. MONITOR ADJUSTMENTS

CAUTION!

- Do not operate the ADJUSTMENT knobs without good reason.
- A certain portion of the monitor is subject to a high voltage and therefore be very careful of this point.
- When making adjustment, utilize a resinous Alignment Screwdriver.

Remove LID A on rear of cabinet to make the monitor adjustments (refer to 9.3).



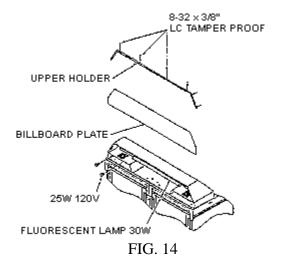
- (1) R-GAIN
- (2) G-GAIN Controls colors.
- (3) B-GAIN
- (4) BRIGHT Controls horizontal brightness.
- (5) H. SIZE Controls horizontal screen size.
- (6) H. HOLD Provides horizontal synchronization, i.e., controls right/left blurring of image.
- (7) H. POSI Controls horizontal display position on screen.
- (8) V. SIZE Controls vertical screen size.
- (9) V. HOLD Provides vertical synchronization, i.e., controls up-down scrolling of image.
- (10) V. POSI Controls vertical display position on screen.
- [11] H. POSI Controls the visual quality. (Only applies to Nanao.)
 - A: Ordinary, B: Super-sharpness

Lamps Page 1 of 1

[Table of Contents] [Previous Page] [Next Page]

14. REPLACING THE FLUORESCENT LAMP, AND LAMPS

In a manner as shown below, remove the parts and replace the fluorescent lamp.



15. PERIODIC CHECK

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

	ITEM	INTERVAL	REFERENCE
CONTROL	Check lamp.	Monthly	8
	Check VOLUME VALUE.		6, 8
	Check ADJUST GEAR engagement.	Trimonthly	9 -1
	Greasing of GEAR and bearing.	Trimonthly	9 - 2
ACCEL. & BRAKE	Check VOLUME VALUE.	Monthly	6, 8
	Check ADJUST GEAR engagement.	Trimonthly	10 - 1
	Greasing of GEAR and bearing.	Trimonthly	10 - 2
4 SPEED SHIFTER	Check SW.	Monthly	6, 8
	Greasing of bearing.	Trimonthly	11 - 3
	Check RUBBER STOPPERs.		11 - 4
COIN CHUTE TOWER	Check COIN SW.	Monthly	8
	Cleaning of COIN SELECTOR.	Trimonthly	12
MONITOR	Check adjustments.	Monthly	6, 8, 13
SEAT	Antistatic measures.	Bimonthly	5
GAME BD	MEMORY TEST.	Monthly	8
	Check settings.	Monthly	8

Troubleshooting Page 1 of 1

[Table of Contents] [Previous Page] [Next Page]

16. TROUBLESHOOTING

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

PROBLEMS	CAUSES	COUNTERMEASURES
When the main SW is	The power is not ON.	Firmly insert the plug into the outlet.
turned ON, the machine is not activated.	Incorrect power source/voltage.	Make sure that the power supply/voltage are correct.
		First, remove the cause of overcurrent and reinstate the circuit protector to it's original status (refer to Sec. 6).
MONITOR screen is blackened and the fluorescent lamp does not light up.		First remove the cause of overcurrent, then replace the fuse (refer to Sec. 17). FUSE 10A 250V
MONITOR screen is all blue.		Make sure of correct connections in between each board.
The color of image on MONITOR screen is incorrect.	Incorrect monitor adjustment.	Make appropriate adjustments (see Sec. 13).
The on-screen image of the monitor sways and/or shrinks.	The power source and voltage are not correct.	Make sure that the power supply and voltage are correct.
Control panel and pedal are not satisfactorily	V.R. position deviated, or V.R. malfunctioning.	Adjust or replace the V.R. (see Sec. 9 & 10).
operable.	ADJUST GEAR's engagement is not correct.	Adjust the engagement of ADJUST GEAR (see Sec. 9 & 10).
SHIFT LEVER doesn't operate satisfactorily.	Switch position deviated, or switch malfunctioning.	Adjust or replace the Switch (see Sec. 11). SW MICRO TYPE
Steering Wheel reaction strength is insufficient.	POWER ON CHECK not performed correctly.	First turn the power off and then turn it back on again. Complete the POWER ON CHECK.
	V.R. position deviated, or V.R. malfunctioning.	Adjust or replace the V.R. (see Sec. 9).
	Reaction mecha's secular change.	Change DRIVE BD DIP SW setting (see Sec. 8 & 17).

Game Board Page 1 of 2

[Table of Contents] [Previous Page] [Next Page]

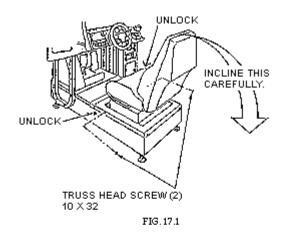
17. GAME BOARD

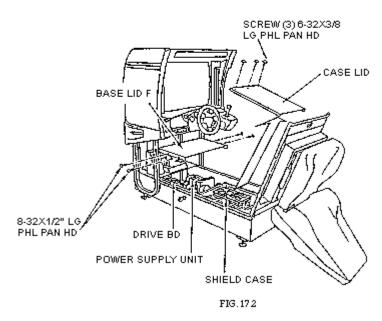
17-1 REMOVING THE BOARD

To replace the IC BD (such as Game BD, Drive BD, etc.), or to change DIP SW settings, take out the IC BD by using the following procedure:

- 1. Turn the MAIN SW off.
- 2. Unlock and take off the 2 truss screws from the side of the base as shown.
- 3. Turn the knob to unlock. The seat can be inclined in the direction shown. When inclining the seat, be careful so as not to damage the seat parts. Carefully cause the backrest portion of the seat to come into contact with the floor.
 - If the floor has hard surfaces, protect the seat form damage by using a cloth, etc. on the floor surfaces.
- 4. Take off the 3 screws to remove the case lid. The GAME BD and I/O BD are incorporated in the shield case.
- 5. Take off a total of 4 screws from both sides with the seat being in an inclined state and remove BASE UD F. Removing BASE LIS F allows the power supply unit, drive BD and sound BD to be checked.
 - Fuses are placed in the power supply.

Game Board Page 2 of 2





Communication Play Page 1 of 1

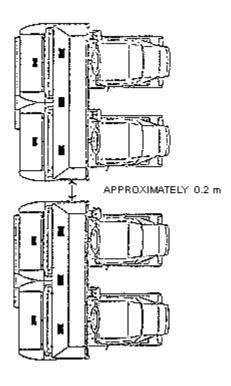
[Table of Contents] [Previous Page] [Next Page]

18. COMMUNICATION PLAY

This machine allows up to 8 persons to play simultaneously by linking plural units.

18-1 INSTALLATION PRECAUTIONS

- 1. When linking a number of machines, be sure to supply sufficient power for the corresponding number of machines. The pre unit standard voltage/amperage is 100~120V/15A.
- 2. Due to the length of the communications cable, the distance in between the machines will be approximately 8 in. or less.



[Table of Contents] [Previous Page] [Next Page]

19. DESIGN RELATED PARTS

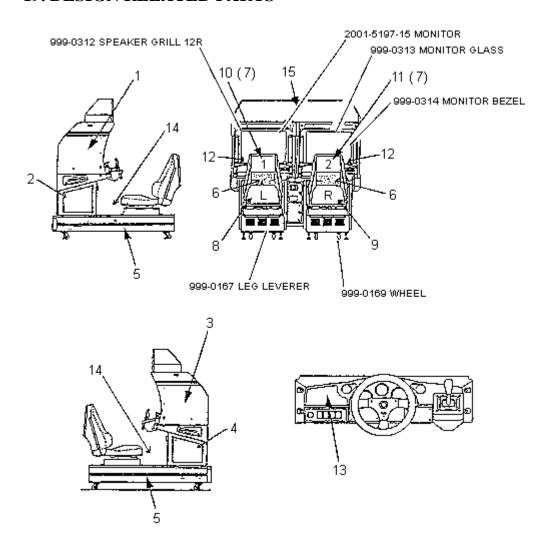


FIG. 19

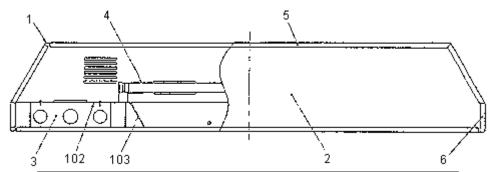
[Table of Contents] [Previous Page] [Next Page]

ITEM	PART NUMBER	DESCRIPTION
1		Fuse 10A* 5A s/o, 6A
2	999-0307	Power Transformer
3	999-0102	150W Power Supply
4	838-10646	Motor Driver BD
5	950-0045 or 450-5054	Solid State Rely
6	838-10141-03	Mixer Seq. Amp for S. Woofer
7	601-6227-01	Power Amp

^{*} Note 10A fuse not used on right side. Always replace fuse with same type and rating for continued protection against risk of fire.

[Table of Contents] [Previous Page] [Next Page]

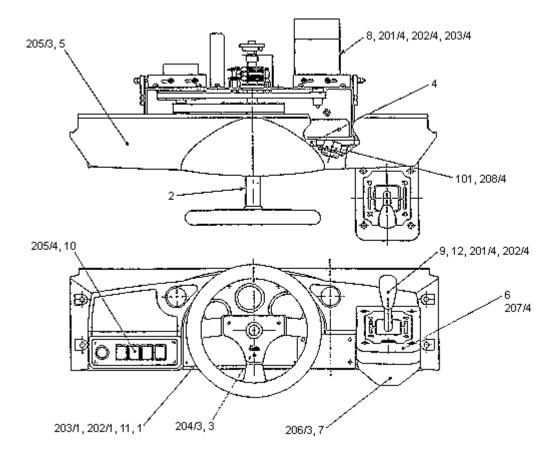
(2) ASSY BILLBOARD



ITEM	PART NUMBER	DESCRIPTION
1	DYN1-0201	BILLBOARD CASE
2	DYNO-0202	BILLBOARD PLATE
3		LAMP UNIT
4		FL UNIT 30W
5	DYN1-0203	UPPER HOLDER
6	DYN1-0204	SIDE HOLDER
		INCANDESCENT BULB 25W 120V

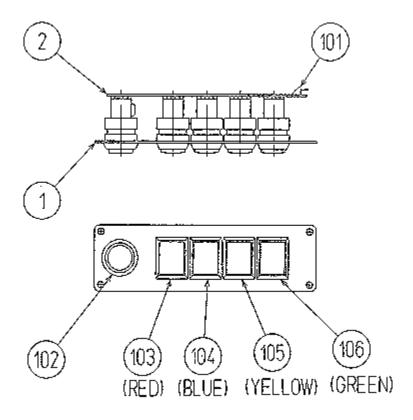
[Table of Contents] [Previous Page] [Next Page]

(10) ASSY CONT PNL TWIN (DYN-12001)



[Table of Contents] [Previous Page] [Next Page]

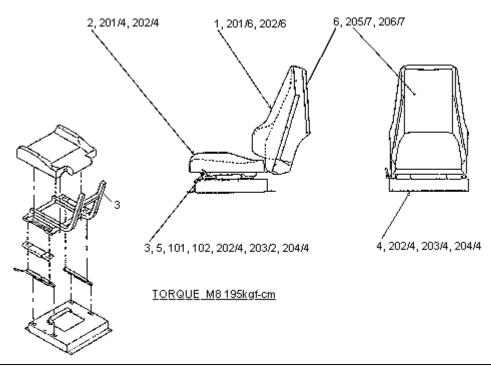
ASSY VIRTUAL BUTTON TWIN (DYN-1290)



ITEM	PART NUMBER	DESCRIPTION	NOTE
1	DYN-1291	VR BUTTON BRKT	
2	III / I - 6Δ / XR	PC BD LIGHTNING SWX5	
101	212-5205-12	CONN JST M 12P RTS	
102	509-5560-12	PB SW W/L 6V 1L 7	YELLOW
103	509-5561-R	PB SW W/L 6V 5L R	RED
104	509-5561-S	PB SW W/L 6V 5L S	BLUE
105	509-5561-Y	PB SW W/L 6V 5L Y	YELLOW
106	509-5561-G	PB SW W/L 6V 5L G	GREEN

[Table of Contents] [Previous Page] [Next Page]

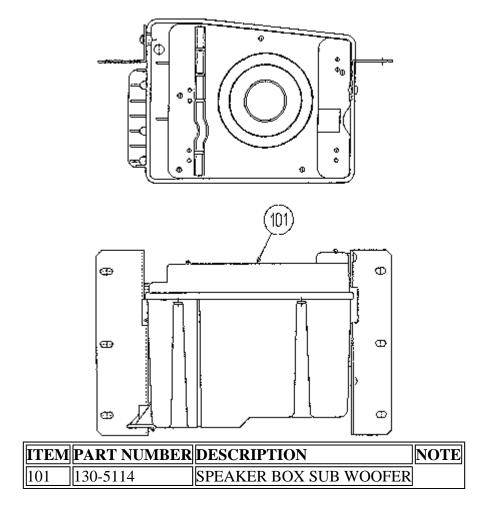
ASSY SEAT TWIN



ITEM	PART NUMBER	DESCRIPTION	NOTE
1	DYNO-2131	UPPER SEAT	
2	DYNO-2132	LOWER SEAT	
3	DYN1-2081	SEAT FRAME TWIN	
4	DYN1-2082	SEAT BASE	
5	DYN1-2084	SEAT BACK COVER	
101	6011-7493	SEAT RAIL L	
102	6011-7494	SEAT RAIL R W ADJUSTER	

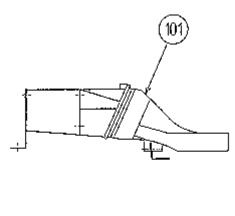
[Table of Contents] [Previous Page] [Next Page]

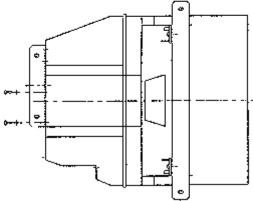
SEAT WOOFER



[Table of Contents] [Previous Page] [Next Page]

SPEAKER ASSEMBLY LEFT & RIGHT

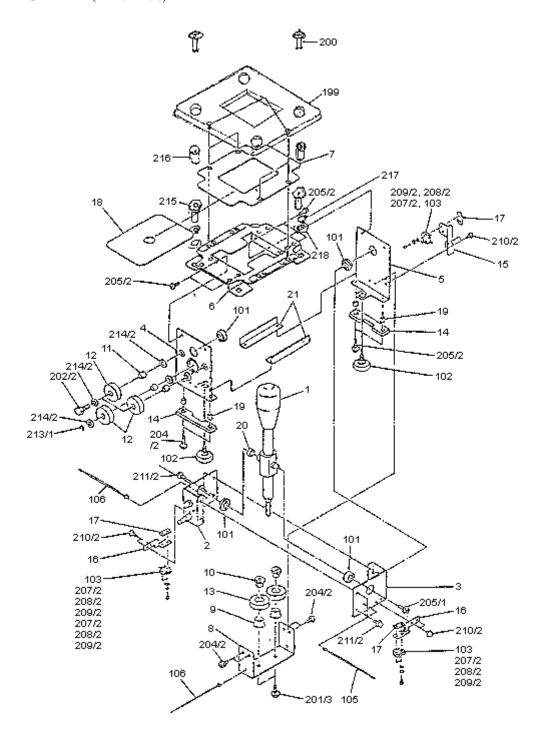




ITEM	PART NUMBER	DESCRIPTION	NOTE
101	130-5113	SPEAKER BOX DOME	

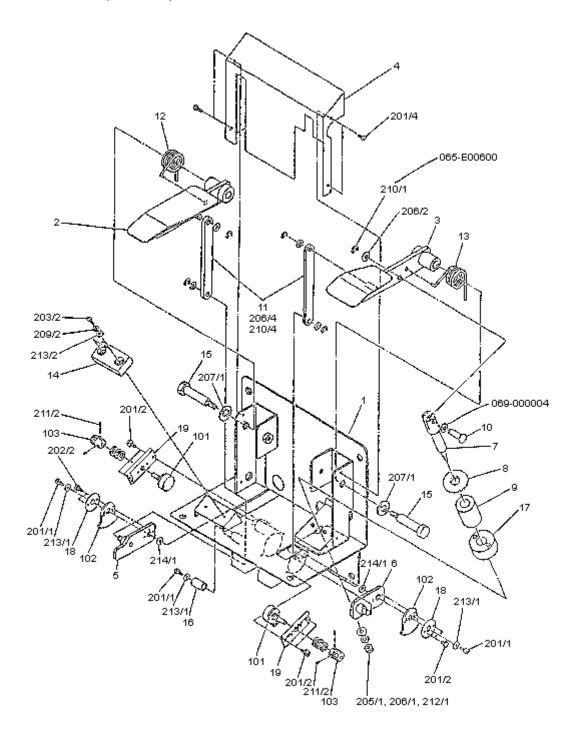
[Table of Contents] [Previous Page] [Next Page]

ASSY 4 SPEED SHIFTER (DYN1-2150)



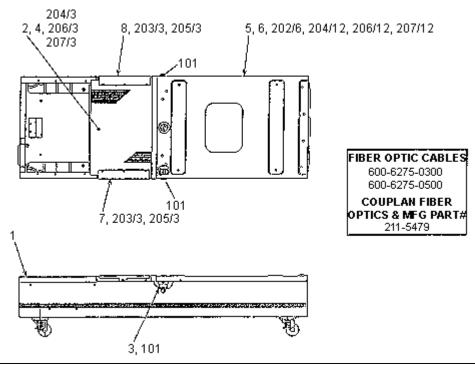
[Table of Contents] [Previous Page] [Next Page]

ASSY ACCEL & BRAKE (DYN-1300)



[Table of Contents] [Previous Page] [Next Page]

ASSY BASE BOX



ITEM	PART NUMBER	DESCRIPTION	NOTE
1	DYN1-2002	MAIN BASE	
2	DYN1-2003	BASE LID F	
3	DYN1-2004	LOCK TNG	
4	DYN1-2005	FLOOR MAT	
5	DYN1-2006	HINGE 480	
6	DYN1-2010	ASSY BASE LID R	
7	DYN1-2007	LID EDGE L	
8	DYN1-2009	LID EDGE R	
202	999-0168	LOCK & KEY #399	SCREW MS 5 ST 08 32X12 56 8T TP
204	031-000514-OB	BOLT CB S NP 010- 32X20 SQ	
206	050-F00500	NUT LOCK ZN 010-24 ELHSS	
		WASHER FL ZN 1/2 O.D.	
	999-0309	LOCK CAM RIGHT	
	999-0310	LOCK CAM LEFT	