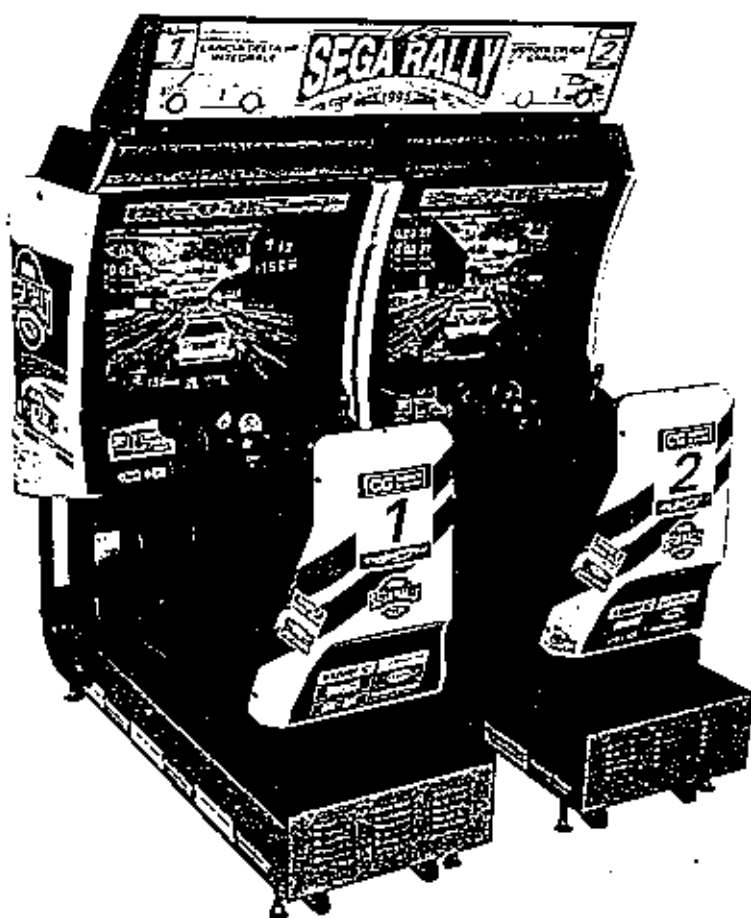


SEGA

SEGA RALLY

CHAMPIONSHIP

OWNER'S MANUAL



SEGA ENTERPRISES, LTD.

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SPECIFICATIONS

Installation space	: 1,640 mm (W) × 1,700 mm (D) (64.6 in. × 66.9 in.)
Height	: 1,920 mm (75.6 in.)
Weight	: Approx. 480 kg. (1,058 lbs.)
Power, maximum current	: 861W 9.5A (AC 110V 50 Hz AREA) 826W 8.7A (AC 110V 60 Hz AREA) 790W 7.8A (AC 120V 60 Hz AREA) 886W 5.0A (AC 220V 50 Hz AREA) 871W 4.9A (AC 220V 60 Hz AREA) 852W 4.5A (AC 240V 50 Hz AREA) 825W 4.3A (AC 240V 60 Hz AREA)
For TAIWAN Power, current	: 930W 10.6A (MAX.) 520W 5.9A (MIN.)
MONITOR	: 29 INCH COLOR MONITOR × 2

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

INTRODUCTION TO THE OWNER'S MANUAL

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

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Phone : (923) 265893
Fax : (923) 265913

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 surface (floor, ground, etc.) in a manner so as to be dangerous. Make sure that grounding connections are made safely at the position where so specified.
- Do not use any fuse that does not meet specified rating.
- Make complete connections for the IC board and other connectors.
Incomplete insertion is very dangerous.
- The operating (ambient) temperature range is from 5°C to 40°C.
- When cleaning the CRT surfaces, use a soft, dry cloth. Do not apply chemicals such as thinner, benzine, etc.

Also, for the IC board circuit inspections, only a 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.

CONCERNING COMMUNICATION PLAY:

Sections in this manual mainly describe the use of the machine when used alone. This game, when linked with other units, allows multiple persons to enjoy "communication play" simultaneously. For communication play, refer to Section 19.

2. PREVENTION OF COUNTERFEITING AND CONVERSION

■ LABELLING

To prevent counterfeits and conversions, the following labels are put on all the 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 following seal is put on the machines manufactured by SEGA.



LICENSE SEAL

The following seal is put on all SEGA kits, such as the printed circuit board.



■ COPYRIGHT NOTICE

This SEGA product has the copyright notice as follows:

© SEGA 1994

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

3. PRECAUTIONS CONCERNING INSTALLATION LOCATION

The SEGA RALLY CHAMPIONSHIP 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:

- 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.
- 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

- Do not insert more than one electrical plug into the power plug socket.
- The per unit standard voltage/amperage is 100~120V/15A and 200~240V/10A.
- 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 or higher for 200~240 volt areas.
- Note that for transporting the machine into the location's building, the minimum necessary dimensions of the opening (of doors, etc.) are 0.85 m (W) and 1.55 m (H).
- For the operation of this machine, secure a minimum area of 2 m (W) × 1.8 m (D).

Electric current consumption

MAX. 9.5A (AC 110V 50 Hz)
MAX. 8.7A (AC 110V 60 Hz)
MAX. 7.8A (AC 120V 60 Hz)
MAX. 5.0A (AC 220V 50 Hz)
MAX. 4.9A (AC 220V 60 Hz)
MAX. 4.5A (AC 240V 50 Hz)
MAX. 4.3A (AC 240V 60 Hz)
MAX. 10.6A (For TAIWAN)

4. NAME OF PARTS

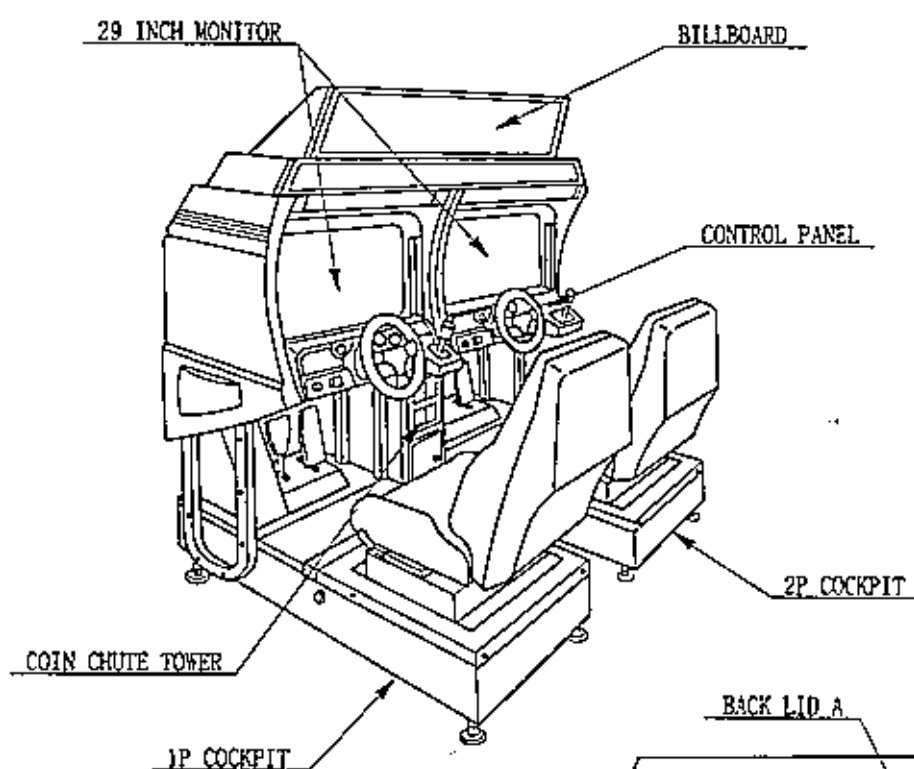


FIG. 4.1 OVERVIEW

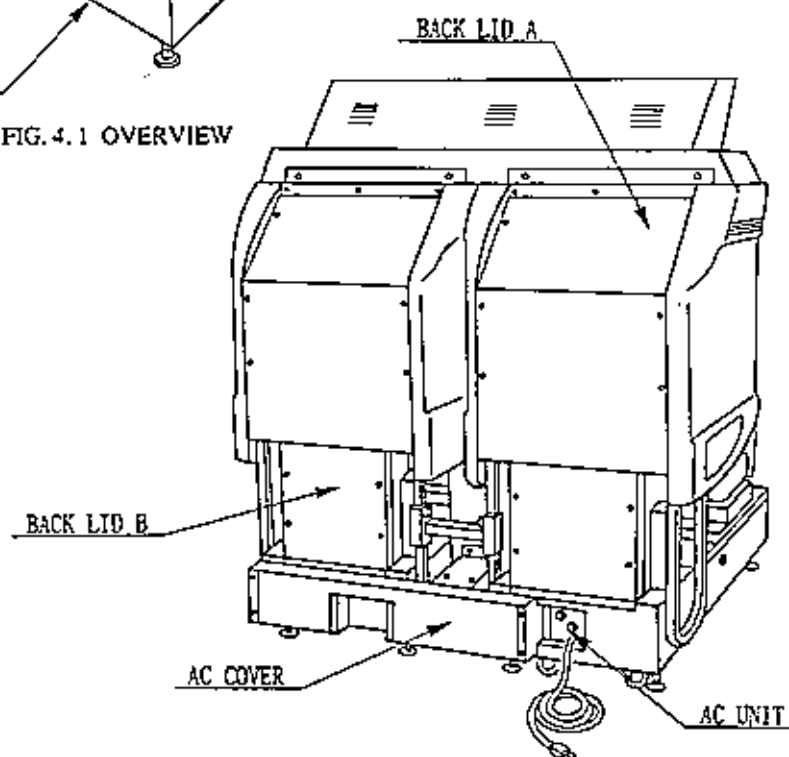


FIG. 4.2 REAR VIEW

TABLE 4

	Width		Length		Height (mm.)	Weight (kg.)
COCKPIT (per seat)	820	×	1,500	×	1,520	214.5
COIN CHUTE TOWER	305	×	330	×	570	13.5
BILLBOARD	1,600	×	460	×	405	30.0
When assembled	1,640	×	1,700	×	1,920	480.0

5. ACCESSORIES

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

TABLE 5 ACCESSORIES

Part No.	Qty.	Part name	Note
090-0074	1	STATICIDE (300ml)	Refer to the note below.
220-5373	1	VOL CONT B-5K OHM	For spare, refer to Section 9, 10.
220-5484		VOL CONT B-5K OHM	
220-5381	2	KEY MASTER FOR 220-5380	For opening/closing the doors
	2	KEY	For CASHBOX DOOR
420-6150-03	1	OWNERS MANUAL SEGA RALLY C.S. TWIN ENG	
509-5636	3	SW MICRO TYPE SS-5GL2T	For spare, refer to Section 11.
514-5036-7000	1	FUSE 6.4 ϕ \times 30 7000mA 125V	For spare, refer to Section 16.
540-0007-01	1	WRENCH FOR TAMP PRF SCR DUAL TYPE M5	Tool
540-0009-01	1	WRENCH FOR TAMP PRF SCR DUAL TYPE M8	Tool
310-5050-220090	1	FLEX TUBE 22-0090CM	For communications play, refer to Section 19.
310-5051-22	2	CONN 22	
421-8778	1	STICKER CAR NO TWIN	
421-8794	1	STICKER BILLBOARD TWIN	

- Periodically once every two months as standard, apply the "STATICIDE" (an antistatic spray agent) to the SEATs and wipe with a dry cloth.

TOOL

(TAMPERPROOF WRENCH)

M5 540-0007-01

M8 540-0009-01

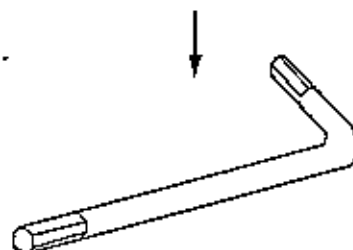


FIG. 6 TAMPERPROOF WRENCH

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

WARNING:

- Perform the assembly work by following the procedure herein stated. Failing to comply with the instructions, for example, inserting the plug into an outlet at the stage not mentioned in this manual might cause an electric shock accident.
- 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.
- When assembling, be sure to perform the work by plural persons.

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

- 1 ASSEMBLING THE COCKPIT
- 2 SECURING IN PLACE (LEG ADJUSTER ADJUSTMENT)
- 3 INSTALLING THE BILLBOARD
- 4 INSTALLING THE AC COVERS (WIRING CONNECTION)
- 5 POWER SUPPLY, AND EARTH CONNECTION
- 6 TURNING THE POWER ON
- 7 ASSEMBLY 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 in 1 above after adjusting the leg adjusters as per 2. Make sure that until the leg adjuster adjustments are made, keep the hexagon bolts tightened temporarily.

1 ASSEMBLING THE COCKPIT

- ① Place the two cockpits side by side. Position the 1P cabinet which has the power cord at the left-hand side as viewed facing the monitor. STICKER "L" is attached on the back of 1P cabinet, and STICKER "R" on the back of 2P cabinet (Fig. 6.1).

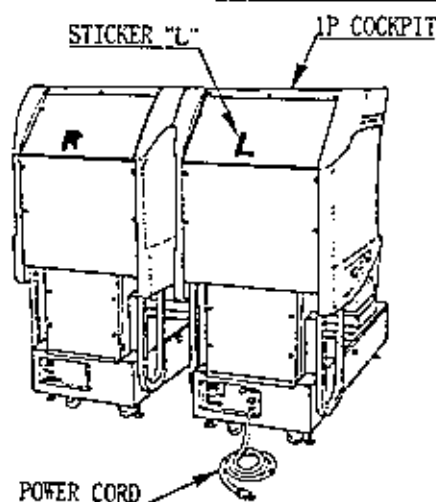


FIG. 6.1

- ② Install the coin chute tower in between both cabinets. Open the coin chute door and the cashbox door to secure with the 4 hexagon bolts from inside the doors. At this time, make sure that the bolts are fastened temporarily (Fig. 6.2).

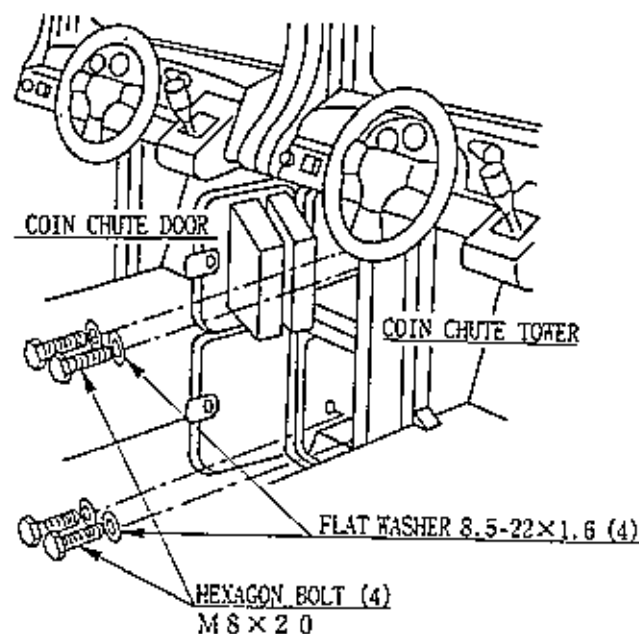


FIG. 6.2

- ③ Install the joint pipe on to the back-side of both cabinets by securing with 4 hexagon bolts (at this time, temporarily) (Fig. 6.3)

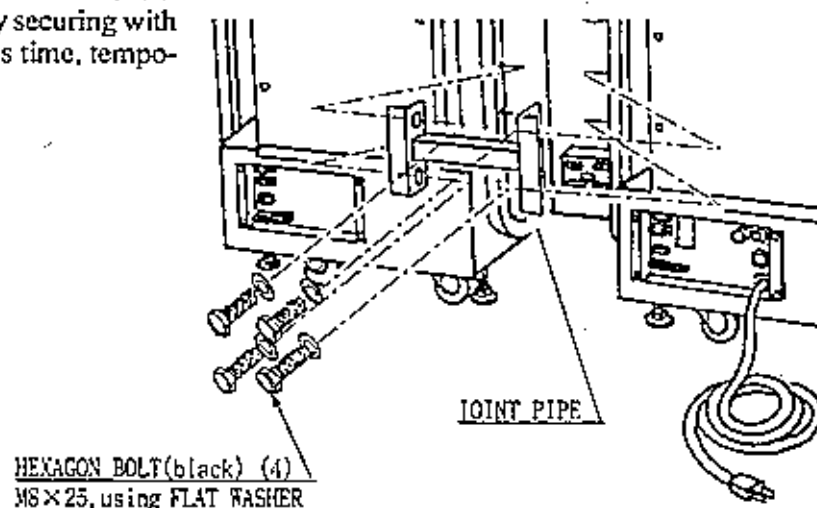


FIG. 6.3

- ④ Attach the blind cap to the head of each hexagon bolt (6 bolts on each side of the monitor... a total of 12) by pressing it in.

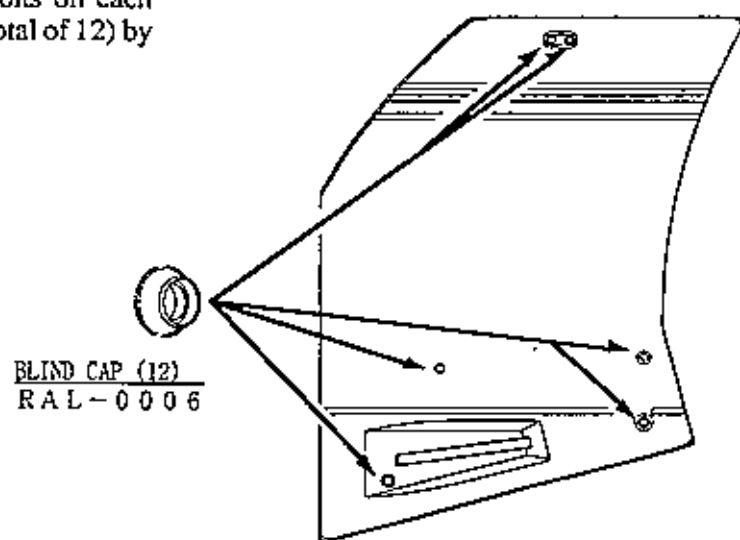


FIG. 6.4

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. 6.5). 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. 6.6).

- 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. 6.7).

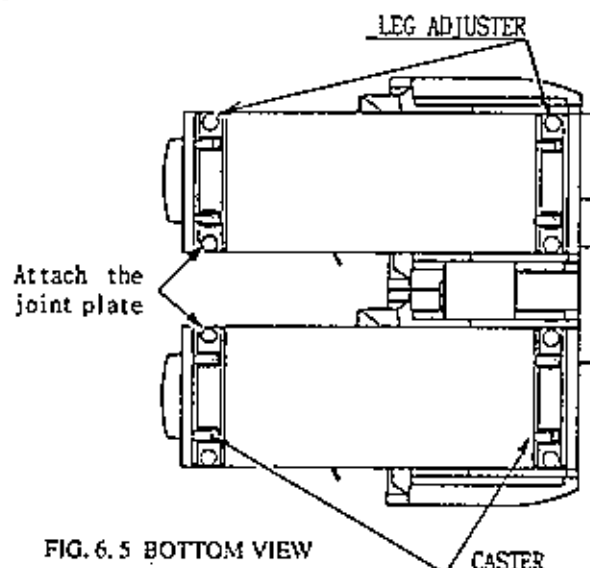


FIG. 6.5 BOTTOM VIEW

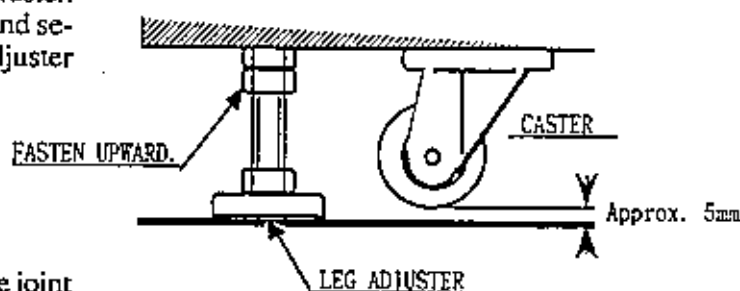


FIG. 6.6 LEG ADJUSTER

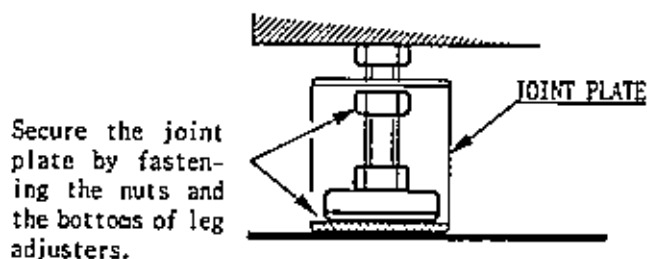
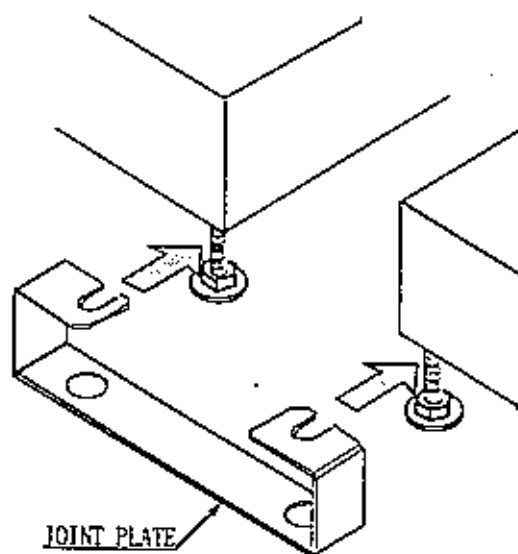


FIG. 6.7 JOINT PLATE



After securing the height of the adjusters, tighten all of the hexagon bolts which were fastened temporarily as per **1** above.

3 INSTALLING THE BILLBOARD

CAUTION! It is difficult for one person to perform the billboard installation. Make sure that the work is carried out by plural persons.

When the billboard plate is transported as is attached to the billboard case, first take out the upper holder to remove the billboard plate from the billboard case. When installing the billboard plate, perform the work after making leg adjuster adjustments.

- ① Take out the 3 truss screws, open Billboard Upper and remove the 2 Lamp Lids.
- ② Mount the Billboard over the 2 Cabinets and secure with the 4 Hexagon Bolts. When fastening the Bolts, be careful of the lamp position. If it is difficult to carry out the work with the lamps in place, perform the work by temporarily removing the lamps.
- ③ Connect a total of 3 connectors which are inside the billboard case.
- ④ Attach the two billboard holders to the backside of the billboard case by securing with 4 hexagon bolts for each.

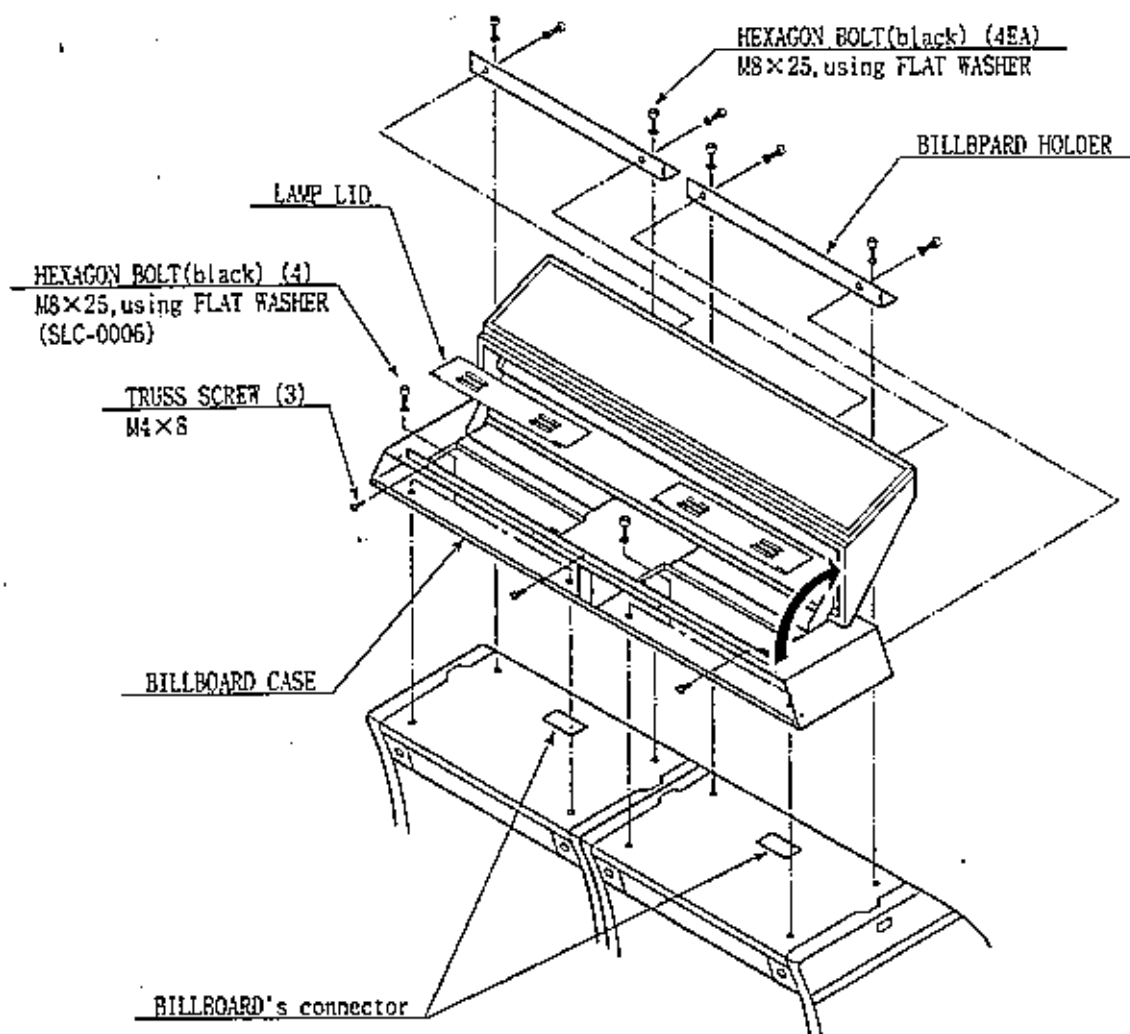


FIG. 6.8 ASSEMBLING THE BILLBOARD

4

INSTALLING THE AC COVERS (WIRING CONNECTION)

The AC cover is used for protecting the wiring and optic fiber cables. When performing the work, be very careful so as not to cause damage by catching them. Pay due attention to handling optic fiber cables in particular. Ensure not to cause breakage to the cables due to excessive bending.

- ① Attach AC COVER A to the back of the cabinet (Fig. 6.9) by securing with 5 screws.
- ② Make wiring connections between both cabinets & the coin chute tower. Insert the supplied wiring connectors to the corresponding ones which have an identical color and the same number of pins.
- ③ Insert the optic fiber cables to the optic fiber connectors in a manner as applicable. There are "TX" and "RX" connectors. Make sure to connect the "TX" connector of one cabinet to the "RX" connector of the other cabinet (Fig. 19).
- ④ Secure the wiring and optic fiber cable with cord clamps in AC COVER A.
- ⑤ Insert AC COVER B to AC COVER A from above and secure with 2 screws.
- ⑥ Secure AC COVER C and AC COVER D with 4 screws each.

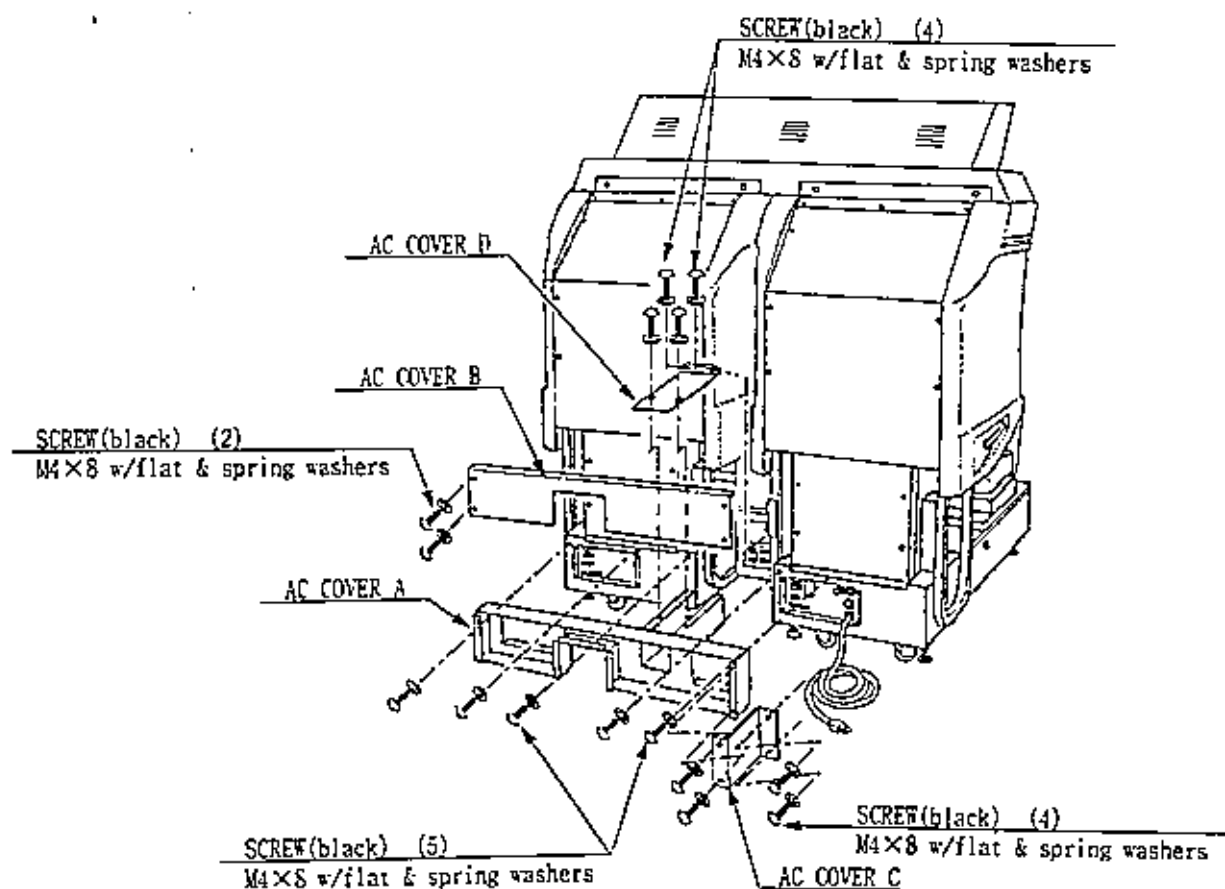


FIG. 6.9

5 POWER SUPPLY, AND EARTH CONNECTION

CAUTION!

Ground the EARTH TERMINAL (this, however, is not required in the case where a power cord plug with earth is used). Check to make sure that the power cord or the ground wire is not exposed out in the open where it may be dangerous.

The AC UNIT is located on the back of the IP cockpit (cabinet). By using an earth wire, connect the AC UNIT EARTH TERMINAL and the securely grounded indoor EARTH TERMINAL.

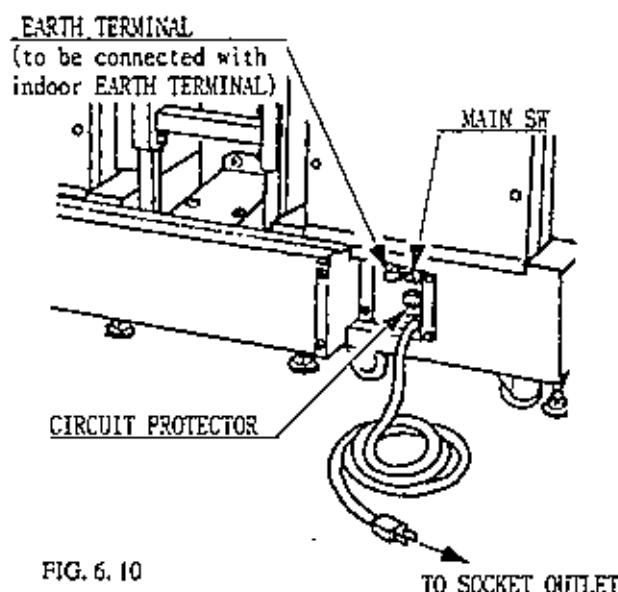


FIG. 6. 10

6 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 abnormal 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. When NETWORK CHECKING is finished, the DEMO mode will appear on the monitor screen.

After 10 seconds, if the network check is not finished, check connections for Communication.

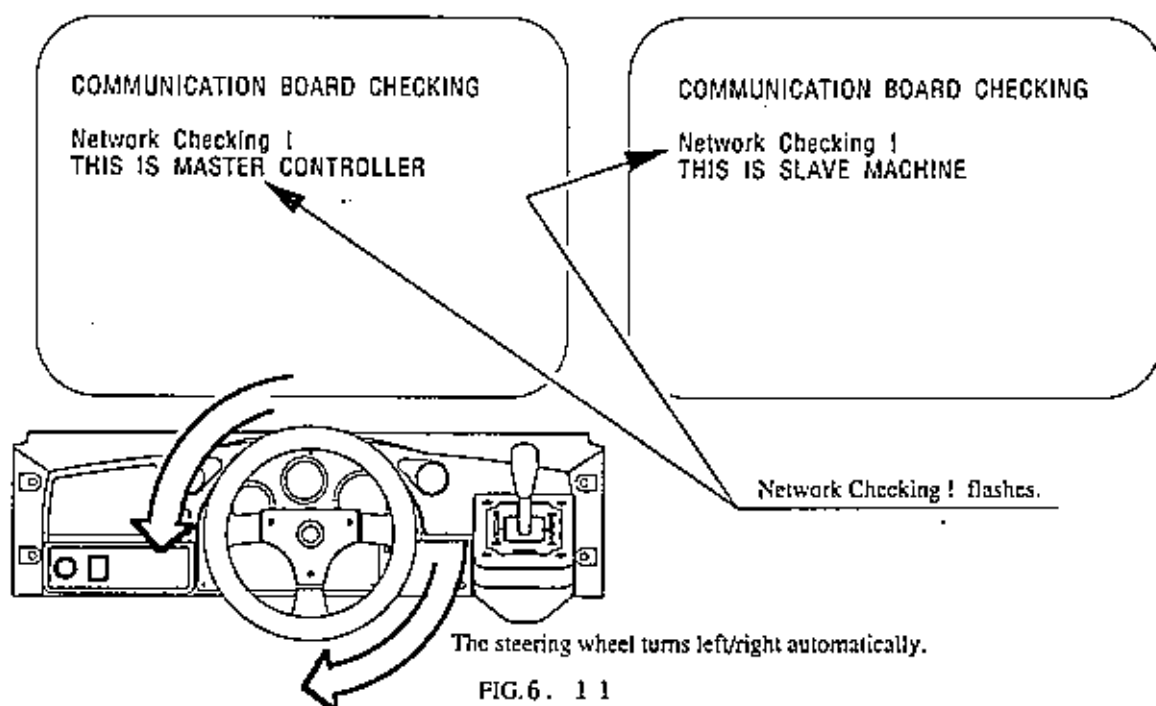


FIG. 6. 11

7 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:

(1) MEMORY TEST

MEMORY TEST		
IC06 GOOD	IC07 GOOD	IC08 GOOD
IC09 GOOD	IC10 GOOD	IC11 GOOD
IC12 GOOD	IC13 GOOD	
IC45 GOOD	IC46 GOOD	IC47 GOOD
IC48 GOOD	IC49 GOOD	IC50 GOOD
IC54 GOOD	IC55 GOOD	

PUSH TEST BUTTON TO EXIT

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

(2) INPUT TEST

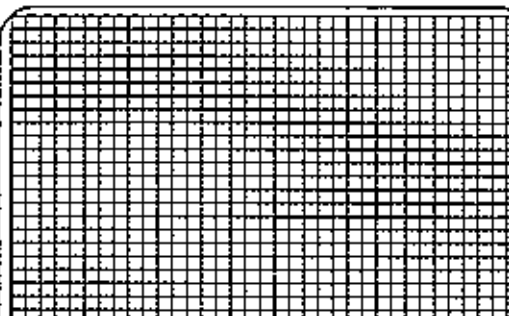
INPUT TEST	
CHUTE1	: OFF
CHUTE2	: OFF
SHIFT1	: OFF
SHIFT2	: OFF
SHIFT3	: OFF
SHIFT4	: OFF
VR	: OFF
START	: OFF
TEST SW	: OFF
SERVICE	: OFF
HANDLE	: XXH
ACCEL	: XXH
BRAKE	: XXH
HANDLE(DRIVE)	: XXH

PUSH TEST BUTTON TO EXIT

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.

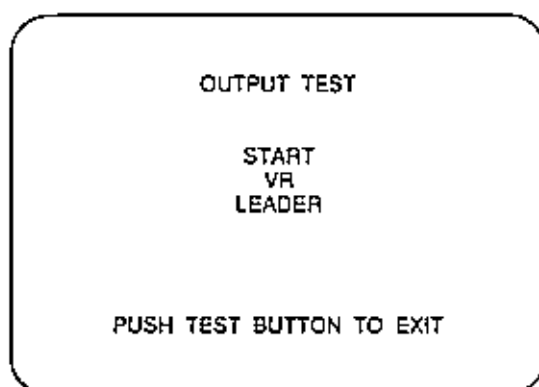
(3) C.R.T TEST



PUSH START BUTTON TO CONTINUE

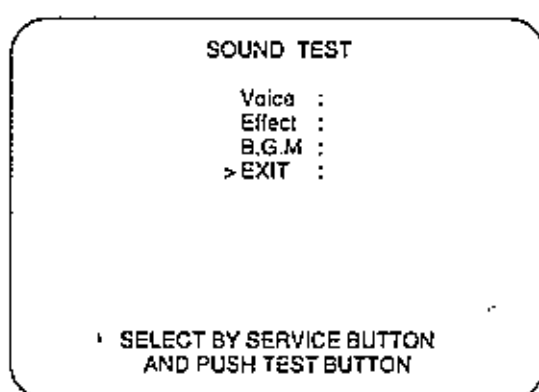
In the TEST mode menu, selecting C.R.T TEST allows the screen (on which the monitor is tested) to be displayed. Although the monitor adjustments have been made at the time of shipment from the factory, make judgment (by watching the test mode screen) as to whether an adjustment is needed. If it is necessary,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

(4) OUTPUT TEST



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

(5) SOUND TEST



In the TEST mode, selecting SOUND TEST causes the screen (on which sound related BD and wiring connections are tested) to be displayed. Voice and BGM (background music) are emitted from the tweeter speakers (a round type), one each on both sides (right/left) of the control panel and also from the front speakers (a square type), one each on both sides (right/left). Sound effects are emitted from all of the speakers. Be sure to check if the sound is satisfactorily emitted from each speaker and the sound volume is appropriate.

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

Machine movement

Since this machine is a heavy structure of approximately 480kg., its leg adjusters should be retracted when moving the machine over the floor.

Where the floor changes in level, be sure to separate the 1P COCKPIT and 2P COCKPIT from each other. Lifting the cabinet with 1P and 2P cockpits being still connected may cause damage to the cabinet.

7. HOW TO PLAY

■ "VS." INTERACTIVE PLAY

- 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 projector screen) of the seat.
- ② The Coin Chute Door is located at the center in the front of the Cabinet. Insert a coin.
- ③ At this time, displays which indicate waiting for participant's entry and countdown to start are shown on the other players' monitors and a countdown to start will begin. The person who desires to compete with the other player(s) must insert a coin into the coin entry for his seat within the specified time. If there is no competitor, the player will play as 1P player.
- ④ The Car Select Screen appears. Starting from the left, the select items are sequentially in order of CELICA GT-FOUR Manual, Automatic, DELTA Manual and Automatic. Turn the Steering Wheel to select the desired item and make the selection by stepping on the Accelerator.
- ⑤ The Course Selection Screen appears. Starting from the left, the select items are DESERT (Easy), FOREST (Middle) and MOUNTAIN (Expert). Turn the Steering Wheel to select the desired course and make the selection by stepping on the Accelerator. The course selection is determined by the majority of the players participating in the "vs." competition race. In case of a tie, an easier course will be selected. In any case, it does not mean that the person who selects a desired course first has preference to the course selection.
- ⑥ After the above selection procedure, the game starts.
- ⑦ The on-screen upper left-hand side, the upper middle downwards, the upper right-hand side and the lower left-hand side respectively indicates Total Time & Lap Time, the achievement meter / rear mirror / remaining time / Navigation Icon, the player's present position, and Tachometer / Shift / Speed.
- ⑧ After the game is started, the allotted time decreases. Passing a checkpoint within the time limit allows the game to continue with the previous remaining time added to the time limit up to the next checkpoint. If you fail to pass a checkpoint within the time limit with remaining time (if any) added, the game will be over.
- ⑨ Finishing 3 laps, 2 laps, and also 2 laps respectively for "DESERT" (Easy), "FOREST" (Middle) and "MOUNTAIN" (Expert) enables you to proceed to the next course. The lap setting can be changed (refer to Section 8).

■ 1P PLAY

If the player inserts a coin while on-screen display indicating waiting for participant entry is shown, he automatically participates in the "vs." interactive play. For 1P play, insert a coin when on-screen display indicating waiting for participant's entry is not shown.

- 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 projector screen) of the seat.
- ② Insert a coin(s). Inserting a coin(s) for one play causes the Game Select mode to appear on the screen. Up to 9 credits can be registered at any one time, and the credits are displayed only in this mode and not thereafter.
- ③ The left-hand side of the Game Select mode refers to the Championship mode and the right-hand side, the Practice mode. Turn the steering wheel to select the Championship mode or Practice mode and make the selection by stepping on the Accelerator.

■ WHEN PLAYING IN THE CHAMPIONSHIP MODE:

- ① The Car Select mode appears on the screen. There are 4 different combinations to choose from (2 different cars, Celica and Delta and 2 different Shifts, AUTO and MANUAL). Turn the steering wheel to select the desired combination and make the selection by stepping on the Accelerator.
- ② After the above selection procedure, the game starts.
- ③ The on-screen upper left-hand side, the upper middle downwards, the upper right-hand side and the lower left-hand side respectively indicates Total Time & Lap Time, the achievement meter / rear mirror / remaining time / Navigation Icon, the player's present position, and Tachometer / Shift / Speed.
- ④ After the game is started, the allotted time decreases. Passing a checkpoint within the time limit allows the game to continue with the previous remaining time added to the time limit up to the next checkpoint. If you fail to pass a checkpoint within the time limit with extra time (if any) added, the game will be over.
- ⑤ Finishing one lap each of for "DESERT" (Easy), "FOREST" (Middle) and "MOUNTAIN" (Expert) allows you to proceed to the next course. The player whose results are superior is allowed to proceed to a hyper course. The lap setting can be changed (refer to Section 8).
- ⑥ The player with the best results can register his name. Turn the steering wheel to choose the alphabetical letters and step on the Accelerator to make the selection. The name will be displayed on the DEMO screen.

■ WHEN PLAYING IN THE PRACTICE MODE:

- ① The Car Select screen appears. Turn the steering wheel to choose one from 4 combinations (2 different cars and 2 kinds of shifts) and make the selection by stepping on the Accelerator.
- ② The Course Select mode showing "DESERT," "FOREST," and "MOUNTAIN" sequentially in order starting from the left appears on the screen. Turn the steering wheel to select the course and make the selection by stepping on the Accelerator.
- ③ After the above course selection, the game starts.
- ④ The screen display during game is the same as in the Championship mode.
- ⑤ The relationship between the remaining time and clearing a checkpoint after the game start is also the same as in the Championship mode. The game will be over if you fail to pass the checkpoint before the remaining time becomes zero.
- ⑥ When you finish 3 laps, 2 laps and 2 laps respectively for "DESERT," "FOREST" and "MOUNTAIN," the game will be over. The lap setting can be changed.

During play, "DRIVER'S EYE" and "VIEW FROM BEHIND" perspective can be alternated by using the View Change SW.

The steering wheel reacts to surface status and car movements. The seat vibrates depending on surface status, etc. When one game is finished, if any credit(s) sufficient for playing another game remains, the Game Select mode appears.

PLAYING TECHNIQUE

It is recommended that you choose AUTOMATIC if you are not so familiar with the game. Find out the best way to pass the corners by referring to navigation icons.

When MANUAL SHIFT is chosen, refer to the Tachometer for shifting. SHIFTING UP when the indicator indicates a point before the red zone allows the acceleration to be made in the most efficient manner.

REMAINING TIME

ACHIEVEMENT METER

TOTAL TIME

5'28"96

LAP TIME

1 1'18'55

2 1'03'34

3 1'18'55

POSITION

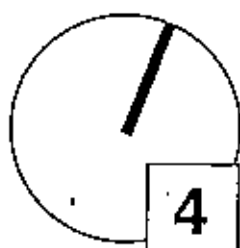
1/4

REAR VIEW MIRROR

30 TIME LIMIT



NAVIGATION ICON



TACHOMETER
SHIFT
SPEED

4

123km/h

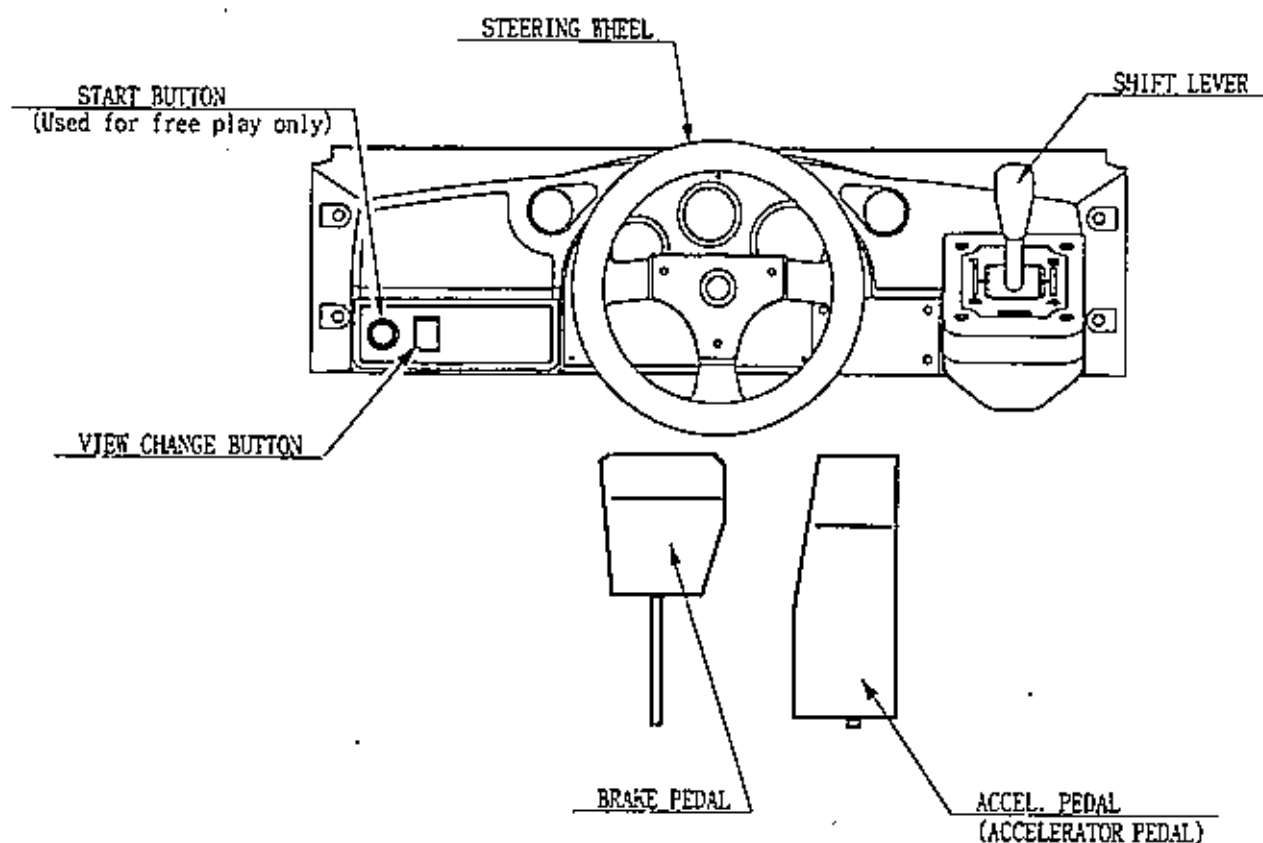


FIG. 7

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 the 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 MACHINE	When the machine is installed, perform the following: 1. Check to see that each setting is as per standard setting made at the time of shipment. 2. In the INPUT TEST mode, check each SW and VR. 3. In the OUTPUT TEST mode, check each of lamps. 4. In the SELF-TEST mode, check ICs on the IC Board.	8-7, 8-8 8-4 8-9 8-3
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.	8-3
PERIODIC SERVICING	Periodically perform the following: 1. MEMORY TEST 2. Ascertain each setting. 3. In the INPUT TEST mode, test the CONTROL device 4. In the OUTPUT TEST mode, check each of lamps.	8-3 8-7, 8-8 8-4 8-9
CONTROL SYSTEM	1. In the INPUT TEST mode, check each SW and VR. 2. Adjust or replace each SW and VR. 3. If the problem can not be solved yet, check the CONTROL's moves.	8-4 9.10.11
MONITOR	In the MONITOR ADJUSTMENT mode, check to see if the MONITOR adjustment is appropriately made.	8-6 13
IC BOARD	1. MEMORY TEST 2. In the SOUND TEST mode, check the sound related ROMs.	8-3 8-5
DATA CHECK	Check such data as game play time and histogram to adjust the difficulty level, etc..	8-11

8-1 SWITCH UNIT

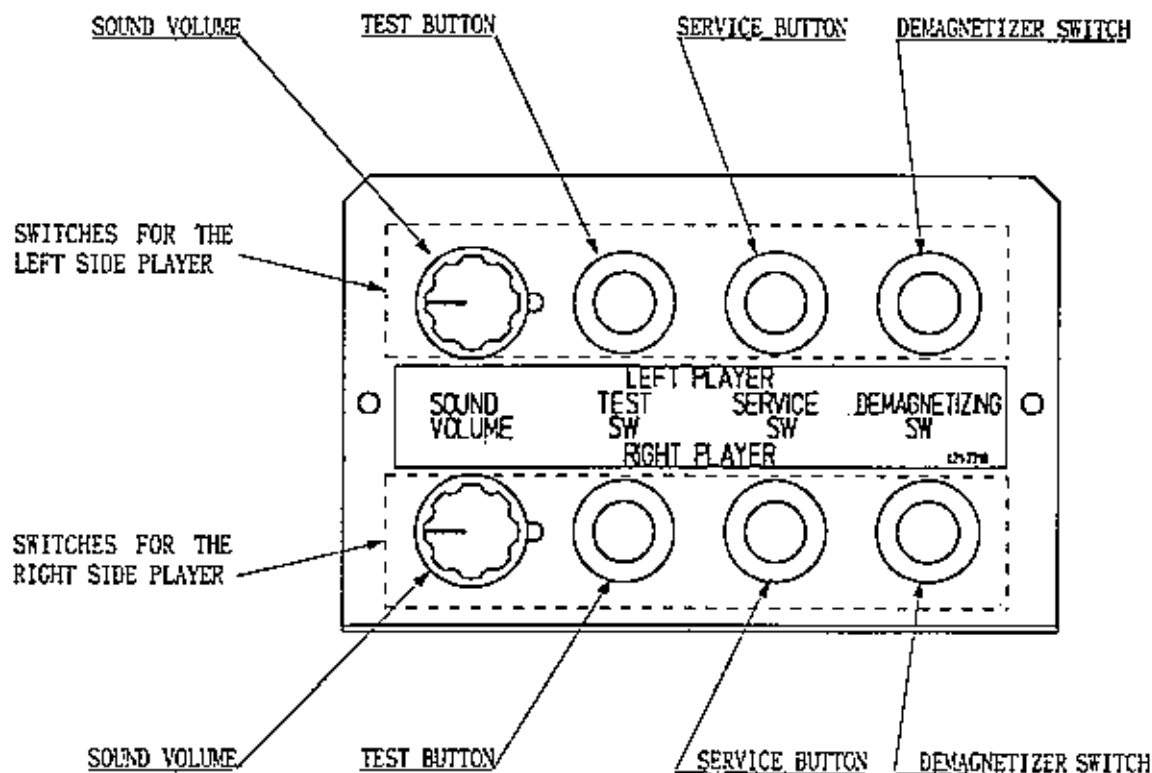


FIG. 8.1 SWITCH UNIT

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

TEST BUTTON:
TEST SW

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

SERVICE BUTTON:
SERVICE SW

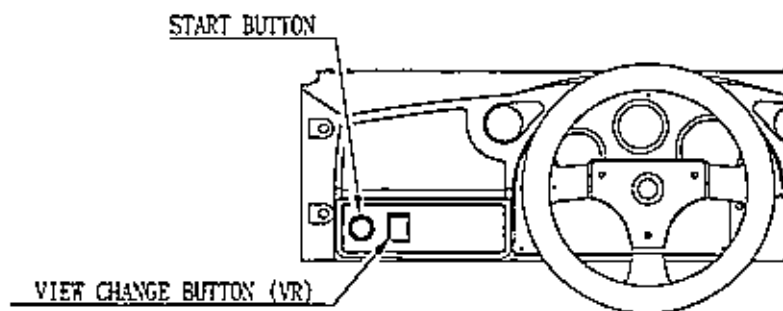
Gives credits without registering on the coin meter.

SOUND VOLUME:
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.
DEMAGNETIZER SWITCH

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



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 BUTTON to cause the following Test Menu to be displayed on the monitor. (FIG. 8.2)
- Press the SERVICE BUTTON or VIEW CHANGE BUTTON (VR) until the pointer ">" is moved to the desired item to make a selection.
- Bring the pointer ">" to the desired item and press either the TEST BUTTON or START BUTTON to cause the selected item's test to start.

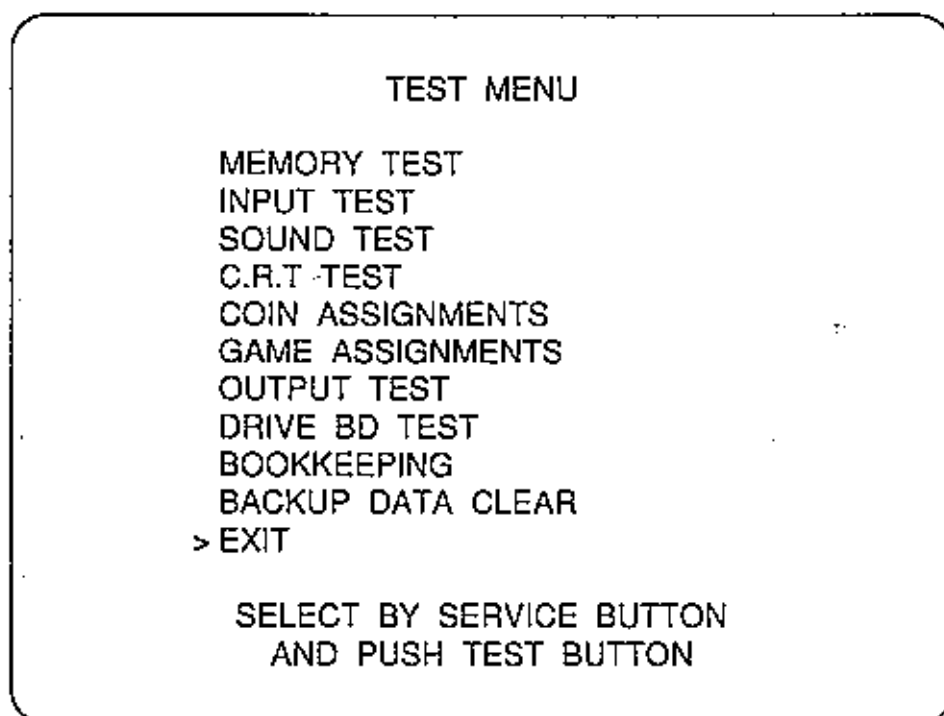


FIG. 8.2 TEST MENU

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

8-3 MEMORY TEST

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

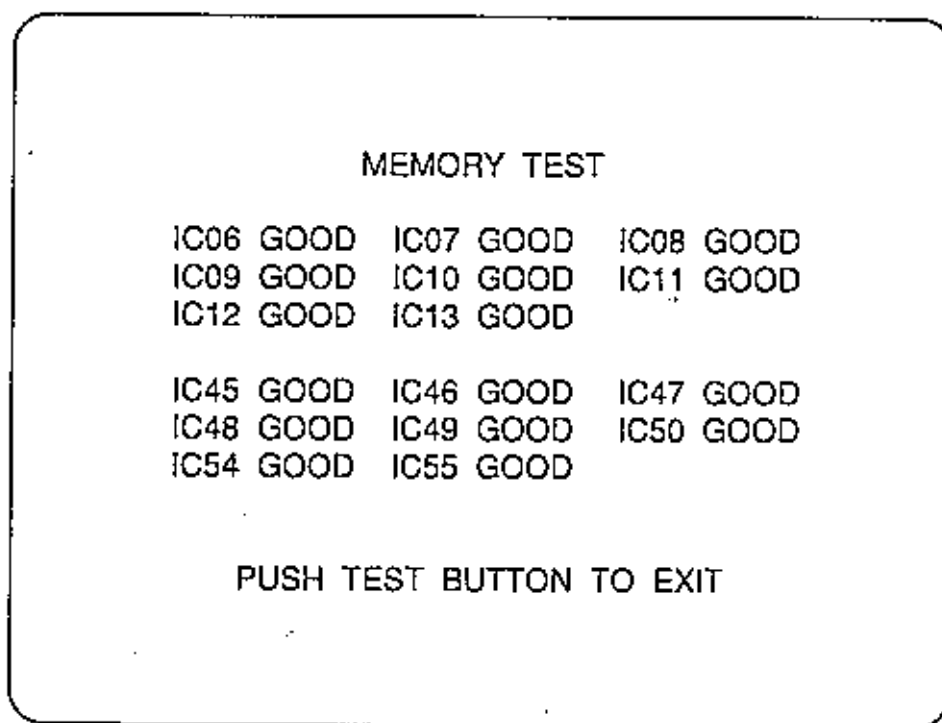


FIG. 8.3 MEMORY TEST

- When the test is completed, if the results are as shown above, it is satisfactory.
- It takes approximately thirty seconds to complete the test. If the TEST exceeds thirty seconds, the board may have malfunctioned.
- After finishing the test, pressing the TEST BUTTON or START BUTTON to return to MENU mode.

8-4 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) in the slot.
- To return to the MENU mode, press the TEST BUTTON or simultaneously press the START BUTTON & VIEW CHANGE BUTTON (VR).

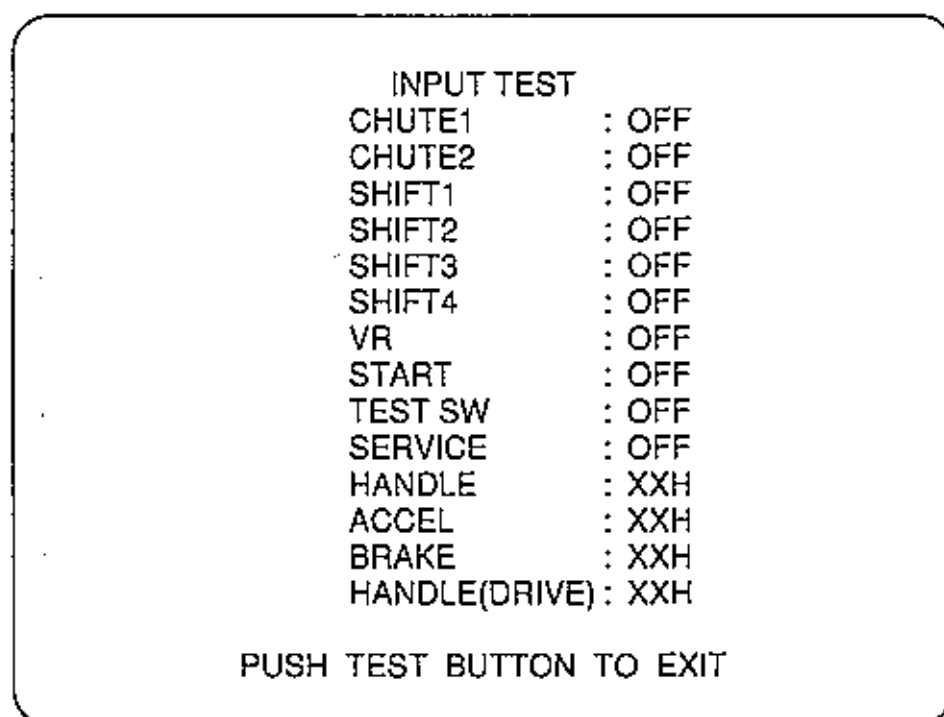


FIG. 8.4 INPUT TEST

The appropriate values of each V. R. are as follows:

HANDLE				
HANDLE(DRIVE):	Under 2DH	← 7D~83H →		Over D3H
	left	(Centering position)		right
ACCEL:	Under 30H	→		Over C0H
BRAKE:	Under 30H	→		Over C0H
	(the pedal released)			(the pedal stepped)

8-5 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 GAME BD, AMP BD and each speaker to be checked.

Press the SERVICE BUTTON or VIEW CHANGE BUTTON to bring the pointer ">" to the desired test item. Pressing the TEST BUTTON or START BUTTON allows the selected sound test to be performed.

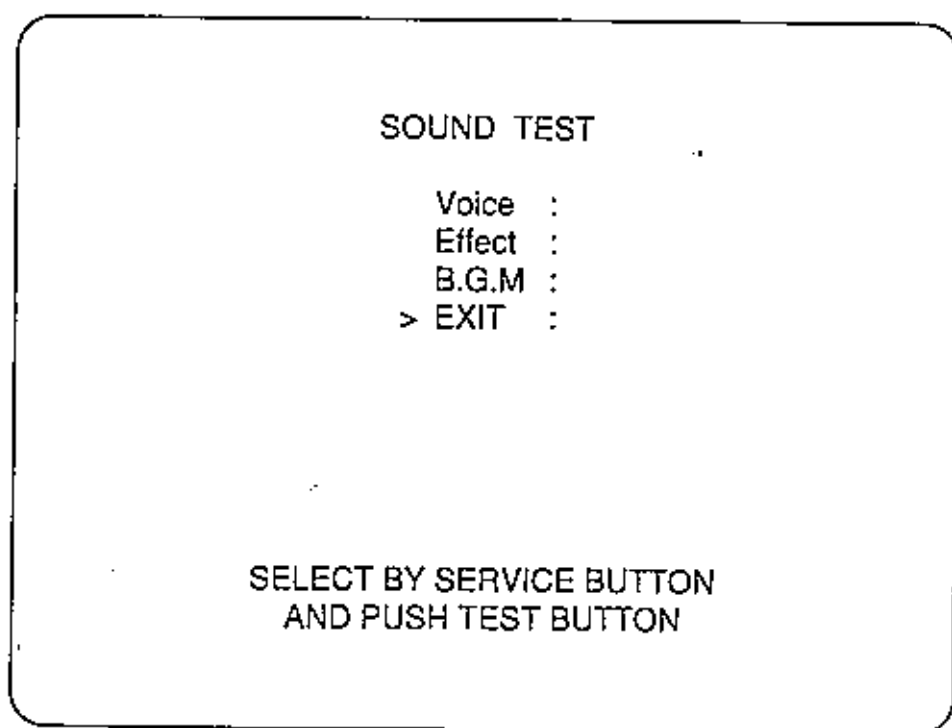


FIG. 8.5 SOUND TEST

- Voice Voice of announcement & navigation.
- Effect Sound effects during game.
- B.G.M Background music during game.
- EXIT Causes the menu mode to return on to the screen.

8-6 C. R. T. TEST

Choose C. R. T. TEST to cause the following screen (upper) for monitor adjustment to appear.

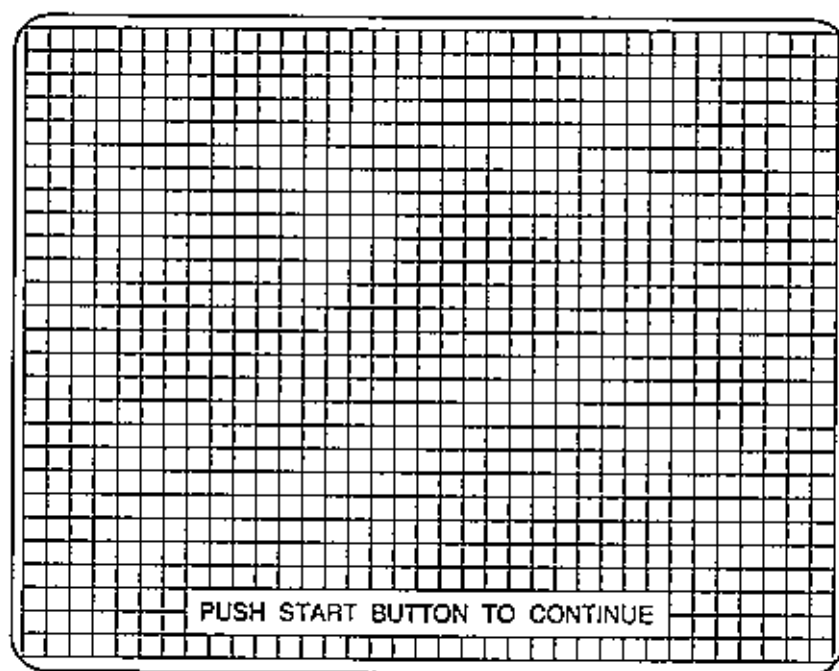


FIG. 8. 6a C. R. T. TEST

In the above screen as per FIG. 8.6 a, 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 TEST button or START button to have the following color bar screen appear. The C. R. T. TEST as shown in FIG. 8.6 b allows for monitor color checking. Each of the R (red), G (green) and B (blue) and white is darkest at the left-hand end and becomes brighter towards the right-hand end.

Press the TEST button or START button to have the MENU return to the screen.

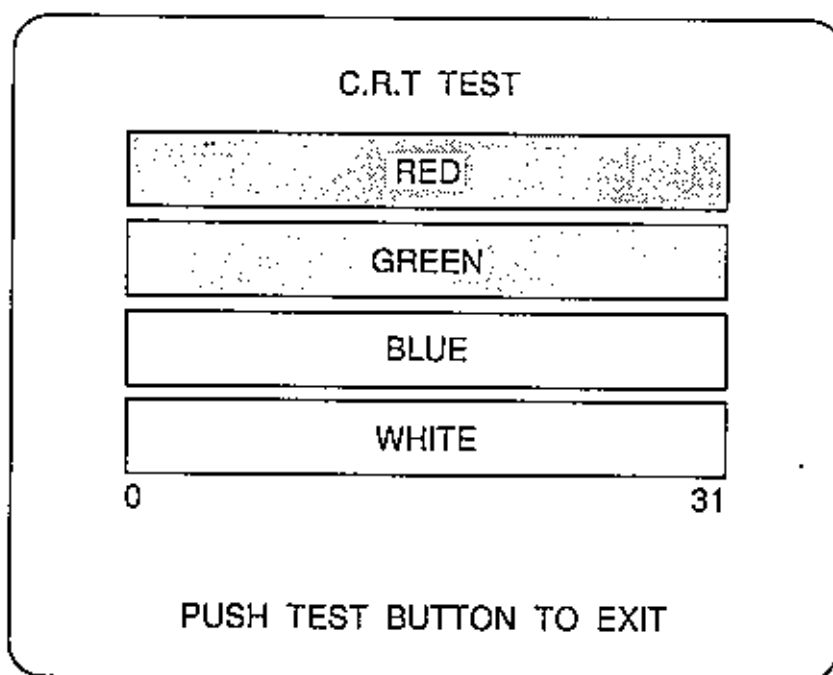


FIG. 8. 6b C. R. T. TEST

8-7 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."

COIN ASSIGNMENTS

COIN/CREDIT SETTING#17

COIN CHUTE # 1 "

 3 COINS 1 CREDIT

COIN CHUTE # 2

 3 COINS 1 CREDIT

MANUAL SETTING

> EXIT

SELECT BY SERVICE BUTTON
AND PUSH TEST BUTTON

FIG. 8. 7a COIN ASSIGNMENTS

- COIN/CREDIT SETTING "How many coins correspond to how many credits."
In this machine, selection as per Table 8.2 is possible.
- MANUAL SETTING Allows for finer settings.

SETTING CHANGE PROCEDURE

- ① Press the SERVICE button or VIEW CHANGE button to move the arrow (>) to the desired setting change item.
- ② Press the TEST button or START button to make a setting change selection.
- ③ Move the arrow to EXIT and press TEST button or START button to return to the MENU mode.

TABLE 8.2 COIN/CREDIT SETTING (COIN CHUTE COMMON TYPE)

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

MANUAL SETTING

COIN ASSIGNMENTS
MANUAL SETTING

COIN TO CREDIT 3 COINS 1 CREDIT

BONUS ADDER NO BONUS ADDER

COIN CHUTE #1 MULTIPLIER 1 COIN COUNTS AS 1 COIN

COIN	1	2	3	4	5	6	7	8	9
CREDIT	0 1/3	0 2/3	1	1 1/3	1 2/3	2	2 1/3	2 2/3	3

COIN CHUTE #2 MULTIPLIER 1 COIN COUNTS AS 1 COIN

COIN	1	2	3	4	5	6	7	8	9
CREDIT	0 1/3	0 2/3	1	1 1/3	1 2/3	2	2 1/3	2 2/3	3

> EXIT

SELECT BY SERVICE BUTTON
AND PUSH TEST BUTTON

FIG. 8. 7b COIN ASSIGNMENTS

- COIN TO CREDIT Determines COIN/CREDIT setting.
- BONUS ADDER This sets how many COINS should be inserted to obtain one SERVICE COIN.
- COIN CHUTE #X MULTIPLIER This sets how many tokens one COIN represents.

TABLE 8.3 MANUAL SETTING

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

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

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

8-8 GAME ASSIGNMENTS

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. Settings at the time of shipment are as follows:

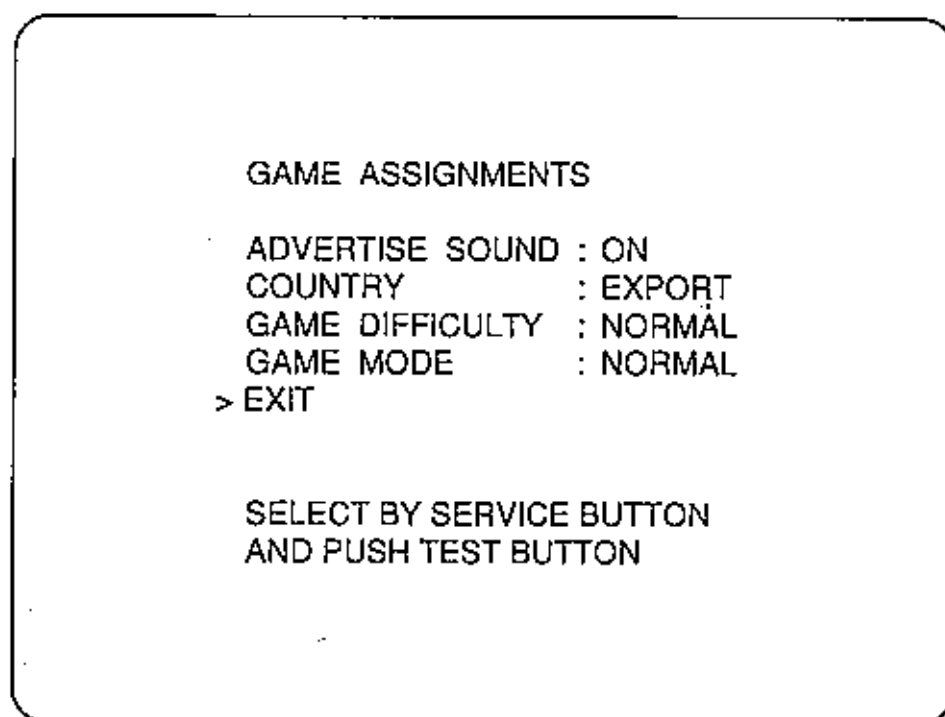


FIG. 8. 8 GAME ASSIGNMENTS

- | | |
|-------------------|---|
| ● ADVERTISE SOUND | Advertising sound during standby. Sound is produced with "ON," and no sound with "OFF." |
| ● COUNTRY | Message language (select USA for the U. S. A., and EXPORT for other countries. |
| ● CABINET TYPE | Setting of cabinet. Set to "TWIN" for this machine. |
| ● LINK TYPE | Communication setting.
Normally, set "CAR 1" for 1P Seat, and "CAR 2" for 2P Seat. Set to "NOT LINK" for 1P play at each Seat. |
| ● GAME DIFFICULTY | The game difficulty is classified into 4 different categories from EASY to HARDEST. Standard setting is "NORMAL." |
| ● GAME MODE | Selection of laps from among NORMAL, SHORT, LONG, and LONG-EST. |

SETTING CHANGE PROCEDURE

- ① Press the SERVICE button or VIEW CHANGE button to move the arrow (>) to the desired setting change item.
- ② Press the TEST button or START button to make a setting change selection.
- ③ Move the arrow to EXIT and press TEST button or START button to return to the MENU mode.

8-9 OUTPUT TEST

Choose OUTPUT TEST to have the following screen appear. Entering this mode allows the status of each lamp to be checked. In this test, periodically check the status of each lamp.

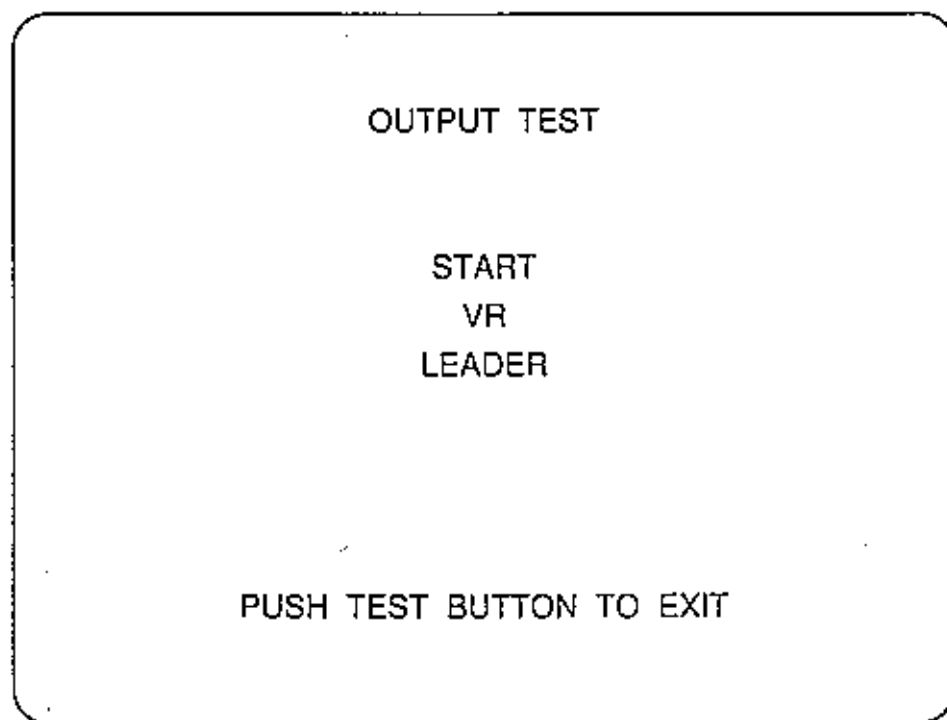


FIG. 8.9 OUTPUT TEST

Press the TEST button or the START button to return to the MENU mode.

8-10 DRIVE BD TEST

Choosing DRIVE BD TEST allows the strength of steering wheel reaction to be adjusted.

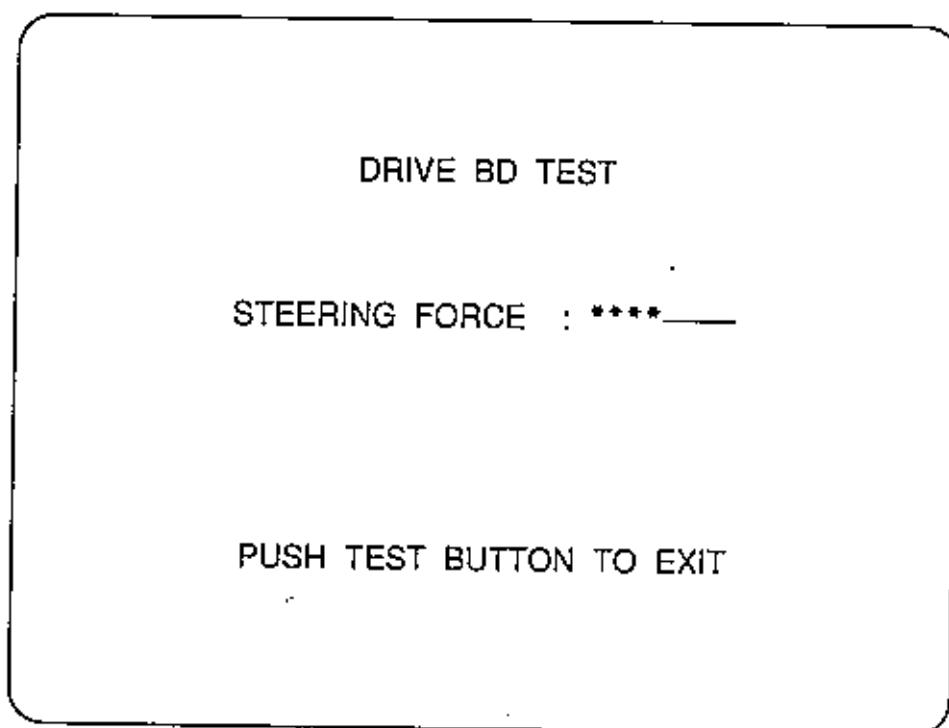


FIG. 8. 10a DRIVE BD TEST

The strength of steering wheel reaction can be adjusted in 8 steps by using the SERVICE button or VIEW CHANGE button.

The steering wheel operates as per the designated setting. Press the TEST button or START button to return to the MENU mode.

DIP SW SETTING TABLE

CAUTION!

- Make sure that DIP SW Nos. 4~8 are set to OFF.
- When changing DIP SW setting, ensure that the power is OFF.

The strength of steering wheel reaction can also be adjusted via on-DRIVE BD DIP SW setting.

The DRIVE BD is mounted on the ASSY PWR SPLY TWIN. Refer to 17-1 when changing the settings.

DIP SW SETTING

NOTE: The shaded portion refers to the setting at the time of shipment.

1	2	3	FUNCTION
OFF	OFF	OFF	Light
ON	OFF	OFF	
OFF	ON	OFF	
ON	ON	OFF	
OFF	OFF	ON	
ON	OFF	ON	
ON	ON	ON	Heavy

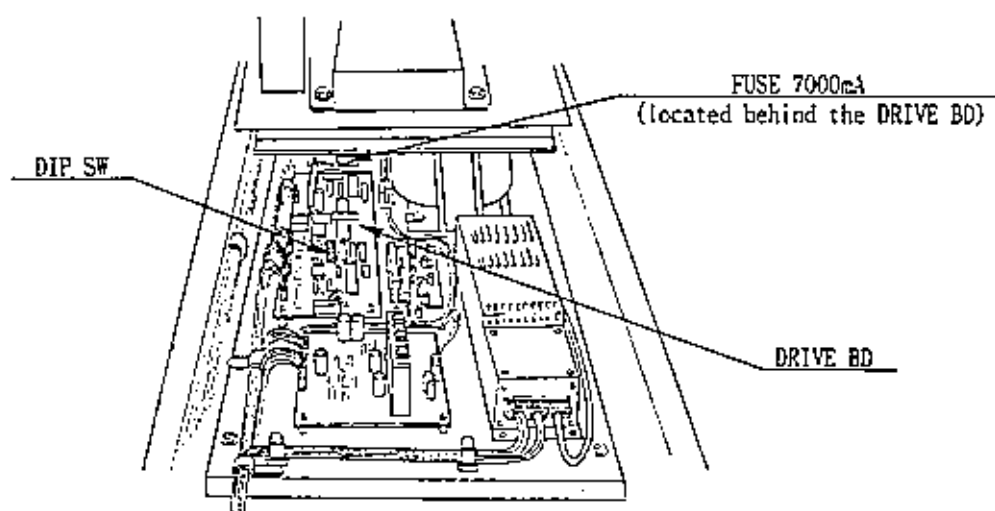


FIG. 8. 10b PWR SPLY TWIN

DRIVE BD ERROR DISPLAY

When malfunctioning occurs in the DRIVE BD, testing will not be performed even if DRIVE BD TEST is selected. In this case, the error No. will be displayed by the 7-SEG display on the DRIVE BD.

Also, when a POWER-ON CHECK ERROR occurs, the 7-SEG. display data repeatedly flashes. First check the handle mecha's V. R., the motor, clutch, etc.

8-11 BOOKKEEPING

Selecting the BOOKKEEPING in the menu mode displays the bookkeeping data up to the present on the following 2 pages.

Press the TEST button again to proceed to the next page.

```

COIN CHUTE#1      .....
COIN CHUTE#2      .....
TOTAL COINS       .....

COIN   CREDITS     .....
SERVICE CREDITS   .....
TOTAL   CREDITS     .....

NUMBER OF GAMES   .....

TOTAL TIME        XXXD XXH XXM XXS
GAME PLAY TIME    XXH XXM XXS
AVERAGE GAME TIME XXM XXS
LONGEST GAME TIME  XXM XXS
SHORTEST GAME TIME XXM XXS

TIME HISTOGRAM
0M 0S - 0M29S ....XXXXXXXX
0M30S - 0M59S ....XXXXXXXX
1M 0S - 1M29S ....XXXXXXXX
1M30S - 1M59S ....XXXXXXXX
2M 0S - 2M29S ....XXXXXXXX
2M30S - 2M59S ....XXXXXXXX
3M 0S - 3M29S ....XXXXXXXX
3M30S - 3M59S ....XXXXXXXX
4M 0S - 4M29S ....XXXXXXXX
4M30S - 4M59S ....XXXXXXXX
5M 0S - 5M29S ....XXXXXXXX
5M30S - 5M59S ....XXXXXXXX
6M 0S - 6M29S ....XXXXXXXX
6M30S - 6M59S ....XXXXXXXX
7M 0S - 7M29S ....XXXXXXXX
7M30S - 7M59S ....XXXXXXXX
8M 0S - 8M29S ....XXXXXXXX
9M30S - 9M59S ....XXXXXXXX
10M 0S -          ....XXXXXXXX

PUSH TEST BUTTON TO CONTINUE

```

FIG. 8. 11a 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 button
- TOTAL CREDITS: Total number of credits (COIN CREDITS + SERVICE CREDITS)
- TOTAL TIME: The total energized time.
- TIME HISTOGRAM: By - playtime play frequency.

```

DESSERT COURSE
  TOTAL PLAY GAMES ...   XXXXX GAME
    GOALS ...   XXXXXX GOAL
    TIME ... XX H XX M XX S
  FASTEST GOAL TIME ...   XX M XX S
  AVERAGE PLAY TIME ...   XX M XX S

FOREST COURSE
  TOTAL PLAY GAMES ...   XXXXX GAME
    GOALS ...   XXXXXX GOAL
    TIME ... XX H XX M XX S
  FASTEST GOAL TIME ...   XX M XX S
  AVERAGE PLAY TIME ...   XX M XX S

MOUNTAIN COURSE
  TOTAL PLAY GAMES ...   XXXXX GAME
    GOALS ...   XXXXXX GOAL
    TIME ... XX H XX M XX S
  FASTEST GOAL TIME ...   XX M XX S
  AVERAGE PLAY TIME ...   XX M XX S

CHAMPIONSHIP
  TOTAL PLAY GAMES ...   XXXXX GAME
    GOALS ...   XXXXXX GOAL
    TIME ... XX H XX M XX S
  FASTEST GOAL TIME ...   XX M XX S
  AVERAGE PLAY TIME ...   XX M XX S

      PUSH TEST BUTTON TO EXIT

```

FIG. 8. 11b BOOKKEEPING

The steering wheel operates as per the designated setting. Press the TEST button or START button to return to the MENU mode.

8-12 BACKUP DATA CLEAR

Clears the contents of BOOKKEEPING. When clearing, bring ">" to "YES (CLEAR)" and press the TEST button. When the data has been cleared, "COMPLETED" will be displayed. Bring ">" to "NO (CANCEL)" and press the TEST button or START button to return to the menu mode.

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

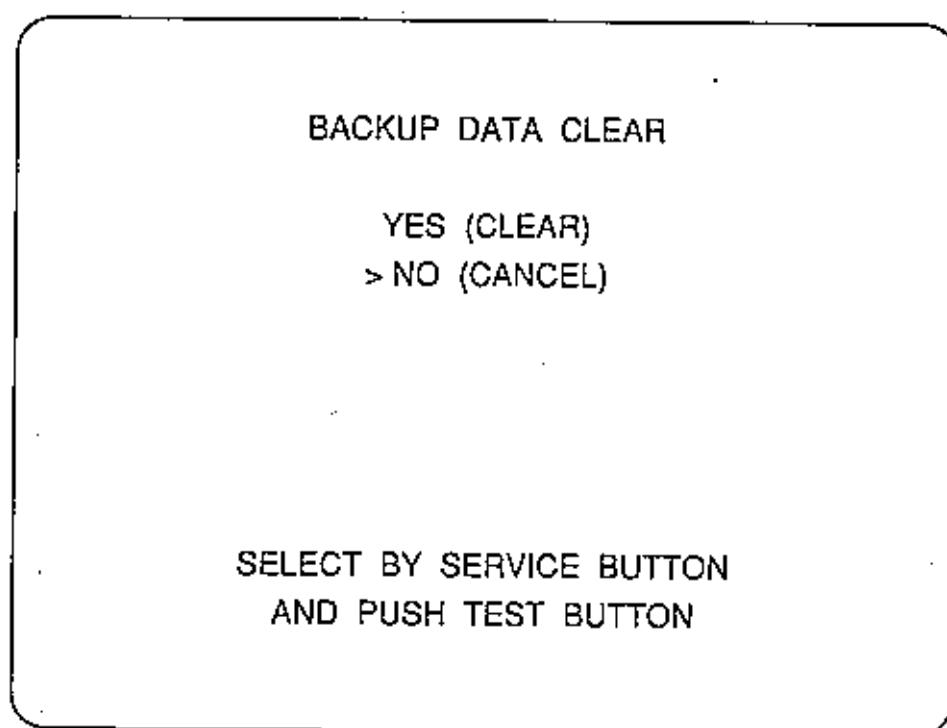


FIG. 8. 12 BACKUP DATA CLEAR

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 9 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.

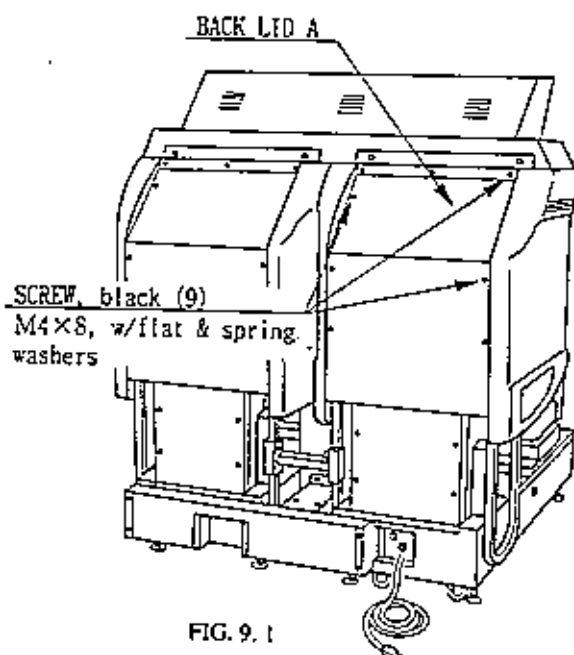


FIG. 9.1

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~83H	→	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 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.

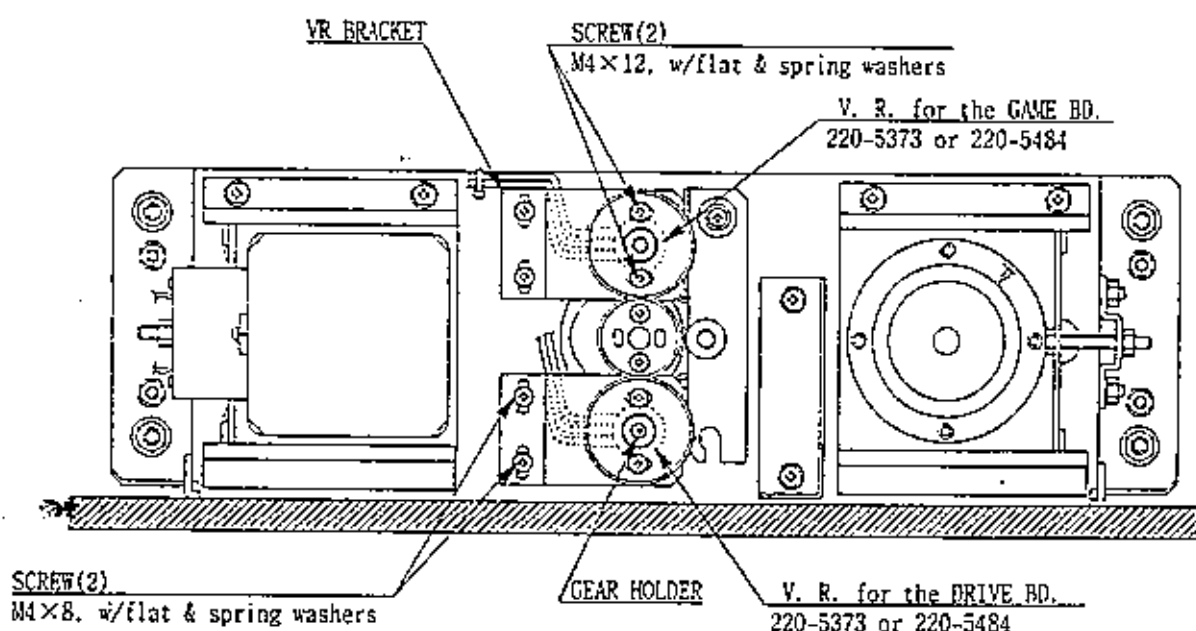


FIG. 9.2

Method of V. R. adjustment

- ① Loosen the 2 screws which secure the V. R. BRACKET, move the V. R. BRACKET and detach the gears.
- ② Adjust the V. R. so that it is consistent with the value near the centering position.
- ③ Cause the gears to be engaged and secure the V. R. BRACKET. At this time, make sure that an appropriate backlash is obtained.
- ④ If the V. R. value is not appropriate when the steering wheel is at the centering position, loosen the 2 screws which secure the V. R. gear, turn the gear holder to make a fine adjustment so that the V. R. value is within the allowable range.
- ⑤ Check the V. R. value variations by turning the handle.

9-2 GREASING

Once every 3 months, grease the gears, bearings, springs, and cam & arm's sliding portions.

9-3 REMOVING THE CONTROL PANEL

For ordinary maintenance as mentioned above, it is not necessary to remove the control panel. However, in the cases where passage space cannot be provided behind the cabinets, the entire control panel is to be replaced, or the monitor adjustments are to be made, remove the control panel by using the following procedure:

- ① Take off a total of 4 tamperproof screws from the right-hand side and left-hand side of the control panel's front portion.
- ② Take off 2 tamperproof screws underneath the control panel.
- ③ Wiring connectors are connected in the control panel. Pull out the control panel by paying careful attention so as not to damage the wiring.
- ④ Remove the wiring connectors.
- ⑤ When the control panel is removed, the monitor adjustment board appears.

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 4 screws and remove BACK LID B from the back of the cockpit.

SCREW, black (4)
M4×8, w/flat & spring washers

BACK LID B

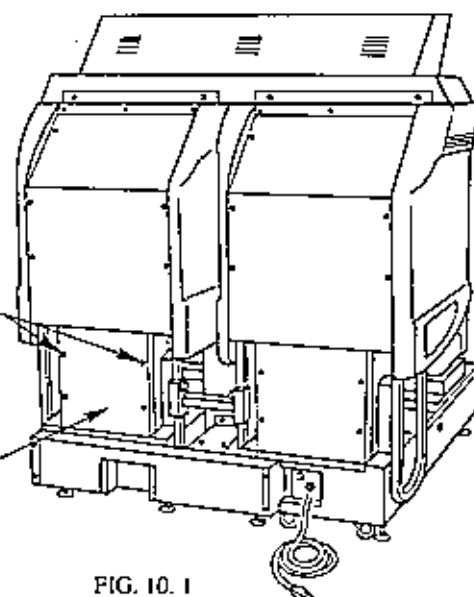


FIG. 10. 1

10-1 ADJUSTMENT AND REPLACEMENT OF VOLUME

The ACCEL. & BRAKE MECHA can be seen by removing the BACK LID B. The ACCEL. V. R. is on the left-hand side and the BRAKE V. 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 30H	↔	Over C0H
BRAKE:	Under 30H	↔	Over C0H

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.

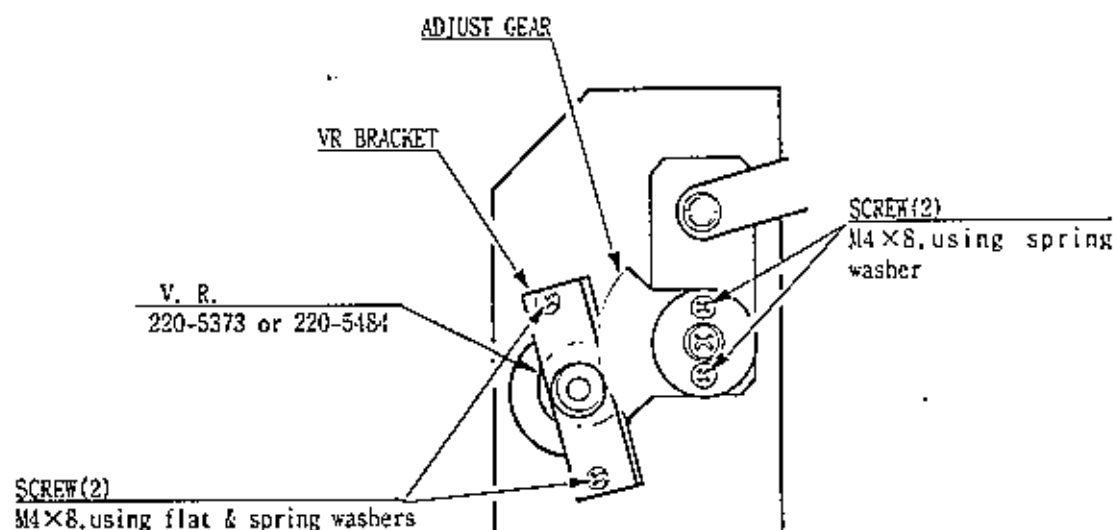


FIG. 10. 2

Method of V. R. adjustment

- ① Loosen the 2 screws which secure the V. R. BRACKET and move the V. R. BRACKET to 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. Also, grease the MECHA's shafts or sliding portions once every 3 months as a standard. When performing the work, remove the shift lever unit.

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 the SHIFT LEVER UNIT upward by paying careful attention so as not to cause damage to the wiring.
- ③ Disconnect the 2 connectors to allow the unit to be removed.

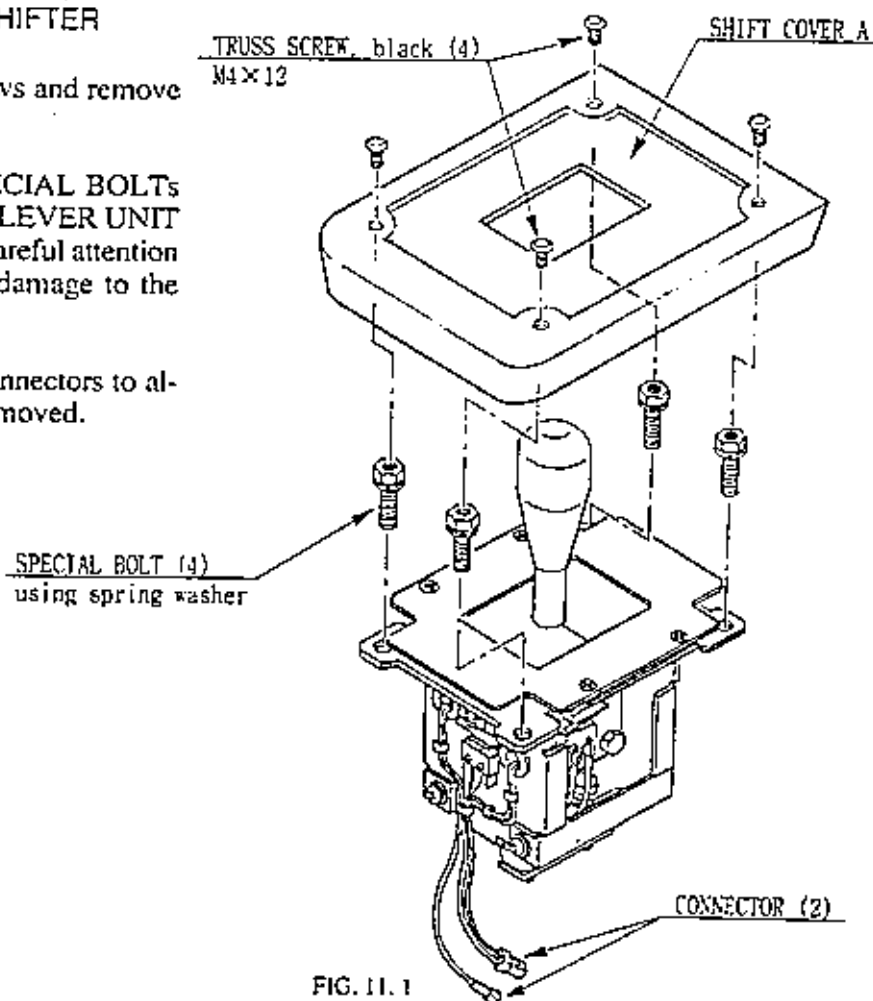
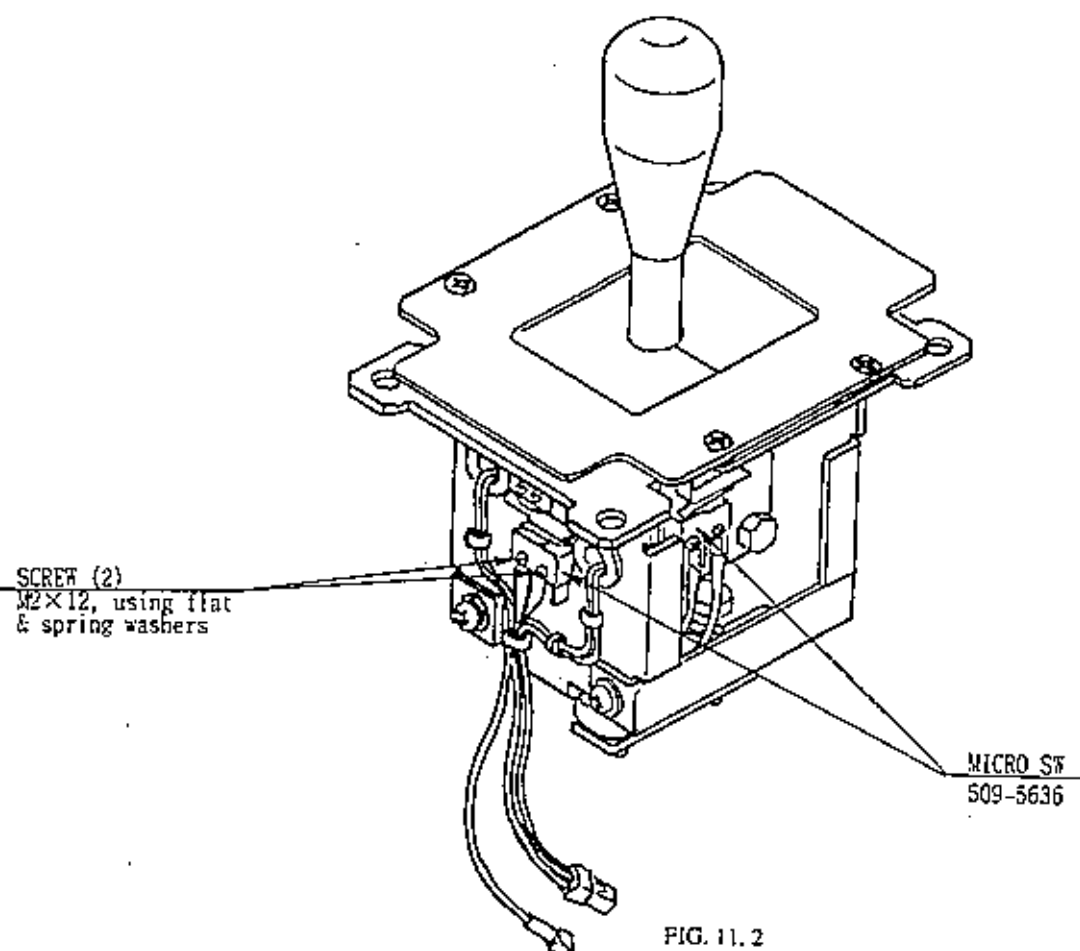


FIG. 11.1

11-2 REPLACEMENT AND ADJUSTMENT OF SWITCH

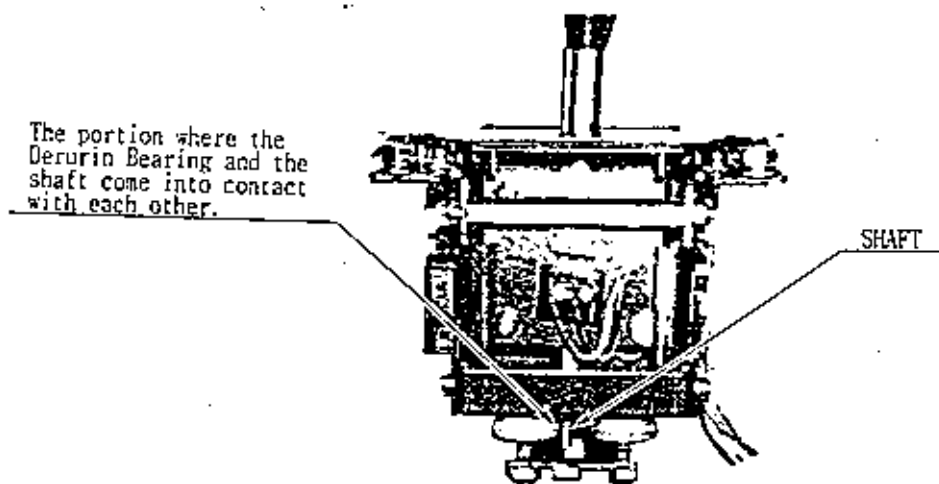
Method of replacement

- ① Disconnect the wiring connector of the SW to be replaced.
- ② Take off the 2 screws which secure the SW, and replace the SW.



11-3 GREASING

Grease the following specified points once every 3 months as a standard.



12. COIN SELECTOR

HANDLING A COIN JAM

If the REJECT button is pressed, and the coin is still 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

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

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

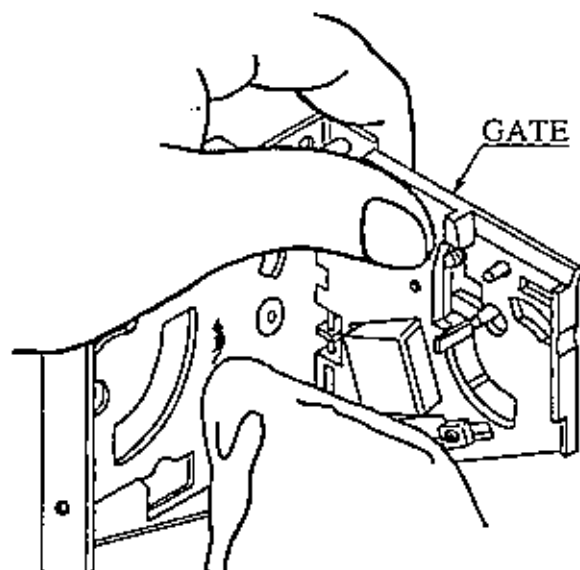


FIG. 12. 1

Never apply machine oil, etc. to the coin selector.

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

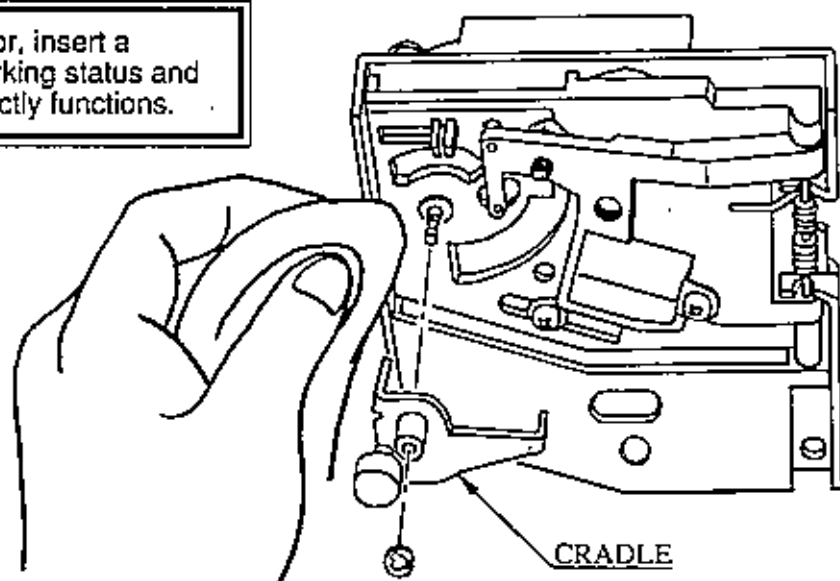


FIG. 12. 2

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 the control panel to make the monitor adjustments (refer to 9-3).

There are two different manufacturers (NANAO and SANWA) for the 29 INCH MONITORS. Each of the manufacturers has their own adjustment method. Therefore, when making adjustments, ascertain the name of the maker by referring to the part No. below and follow the applicable method.

NANAO monitor: 2 0 0 - 5 2 4 2 - 2 4 - 0 4 (24K mode)

① ② ③ ④ ⑪ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

R-G	G-G	B-G	BRI	S.S	H.S	H.H	H.P	V.S	V.H	V.P
R-GAIN		B-GAIN		SS.SW	H.SIZE		H.POSI		V.HOLD	
	G-GAIN	BRIGHT			H.HOLD		V.SIZE		V.POSI	

SANWA monitor: 2 0 0 - 5 2 4 3 - 2 4 (24K mode)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

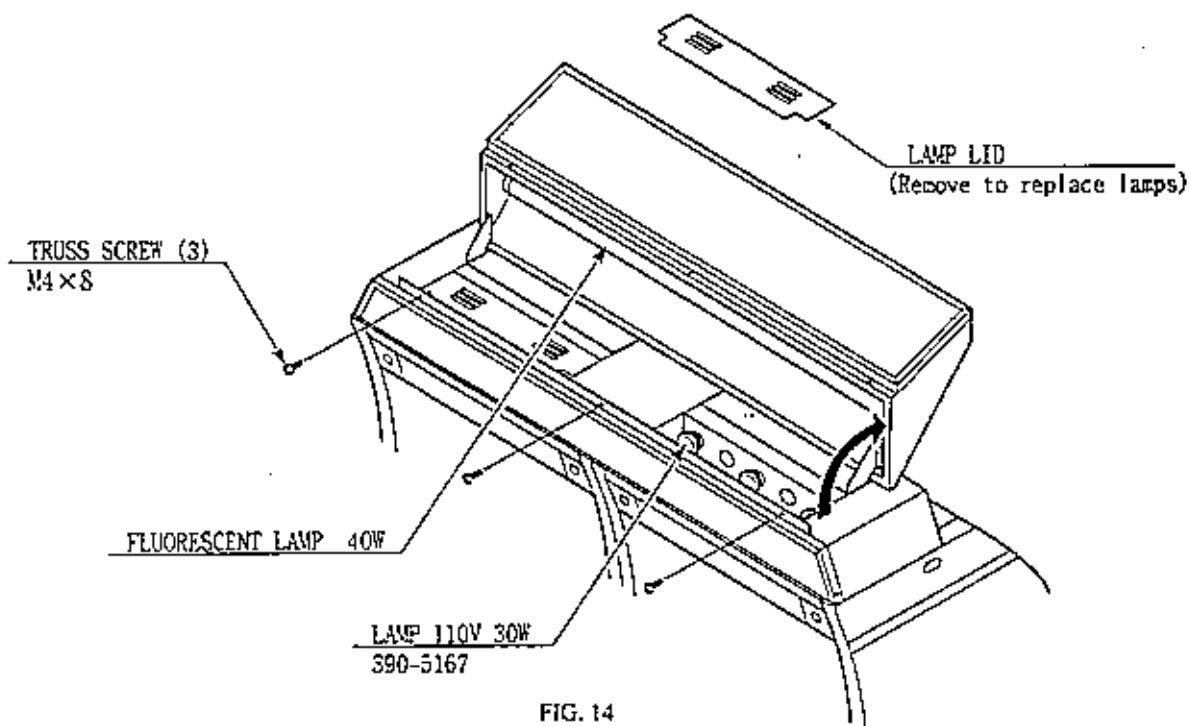
R GAIN	G GAIN	B GAIN	BRIGHT	H SIZE	H HOLD	H POSI	V SIZE	V HOLD	V POSI
--------	--------	--------	--------	--------	--------	--------	--------	--------	--------

- ① R-GAIN
- ② G-GAIN Controls colors.
- ③ B-GAIN
- ④ BRIGHT Controls screen 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 SS. SW Controls the visual quality. (Only applies to Nanao.)

A: Ordinary B: Super-sharpness

14. REPLACING THE FLUORESCENT LAMP, AND LAMPS

Open the Billboard as shown to replace the Fluorescent Lamp and Lamps.



CAUTION: Immediately after the lamps are lit, they become very hot. Be very careful when replacing them.

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 PANEL	Check lamp.	Monthly	8
	Check VOLUME VALUE.	Monthly	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
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

16. TROUBLESHOOTING

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

PROBLEMS	CAUSE	COUNTERMEASURES
When the main SW is turned ON, the machine is not activated.	The power is not ON. Incorrect power source/voltage. AC UNIT CIRCUIT PROTECTOR functioned due to instantaneous overcurrent.	Firmly insert the plug into the outlet. Make sure that the power supply/voltage are correct. First, remove the cause of overcurrent and reinstate the circuit protector to its original status (refer to Sec. 6).
MONITOR screen is blackened and the fluorescent lamp does not light up.	Power supply unit fuse blown off due to instantaneous overcurrent.	First remove the cause of overcurrent, then replace the fuse (refer to Sec. 17). 514-5036-7000 FUSE 6.4 ϕ \times 30 7000mA 125V
MONITOR screen is all blue.	Defective connections in between each board.	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 not operable satisfactorily.	V. R. position deviated, or V. R. malfunctioning. ADJUST GEAR's engagement is not correct.	Adjust or replace the V. R. (see Sec. 9 & 10). Adjust the engagement of ADJUST GEAR (see Sec. 9 & 10).
SHIFT LEVER doesn't operate satisfactorily.	Switch malfunctioning.	Replace the Switch (see Sec. 11). 509-5636 SW MICRO TYPE SS-5GL2T
Steering Wheel reaction strength is insufficient.	POWER ON CHECK not performed correctly. V. R. position deviated, or V. R. malfunctioning. Reaction mecha's secular change.	First turn the power off and then turn it back on again. Complete the POWER ON CHECK. Adjust or replace the V. R. (see Sec. 9). Change DRIVE BD DIP SW setting (see Sec. 8 & 17).
Fluorescent lamp doesn't light up.	Fluorescent lamp needs replacement. The connector is disconnected.	Replace the fluorescent lamp (see Sec. 14). Check connector connections in the billboard case (see Sec. 6).
The LEADER lamp does not light up.	The lamp is burnt out. The connector is disconnected.	Replace the lamp (see Sec. 14). Part No. 390-5167 Check connector connections in the billboard case (see Sec. 6).
Interactive play is not possible.	Communication cable is disconnected. Cable connections are not correct. Settings for communication play are not correct.	Connect the cable. Connect the cable correctly (see Sec. 19). Ensure that GAME ASSIGNMENTS settings are correct (see Sec. 8).
Sound is not emitted.	Sound volume adjustment is not correct. Malfunctioning of sound BD and memory.	Adjust the SWITCH UNIT's sound adjustment volume (control) (see Sec. 8). Perform SOUND TEST (see Sec. 8).



CIRCUIT PROTECTOR

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

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 from damage by using a cloth, etc. on the floor surfaces.

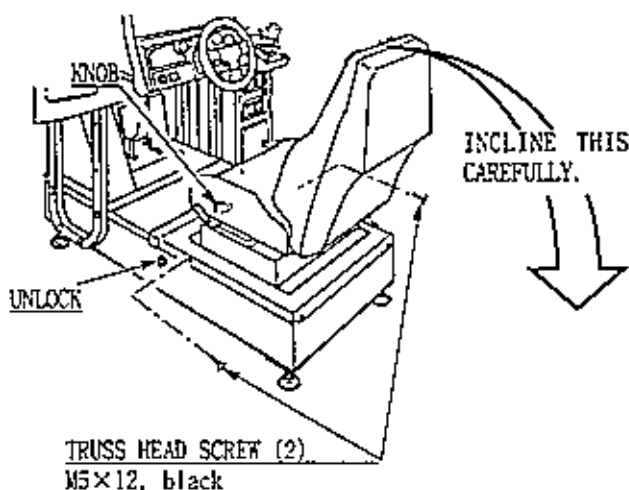


FIG. 17.1

- 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 LID F. Removing BASE LID F allows the power supply unit, drive BD and sound BD to be checked.

Fuse is placed in the power supply.
(FIG. 8. 10b)

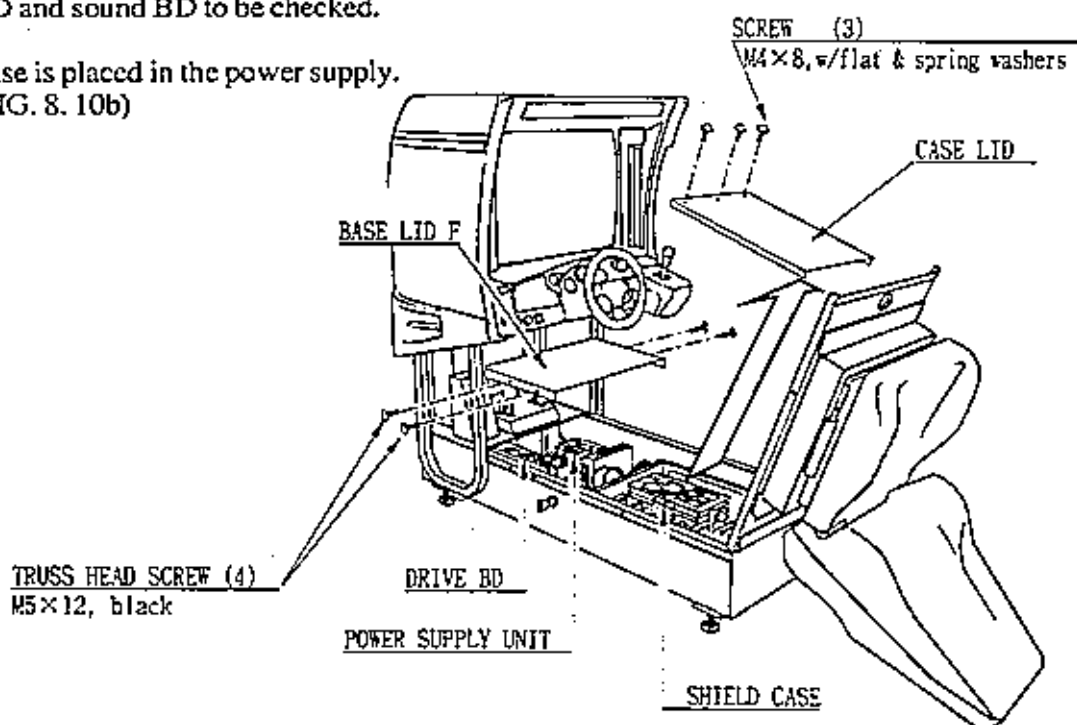
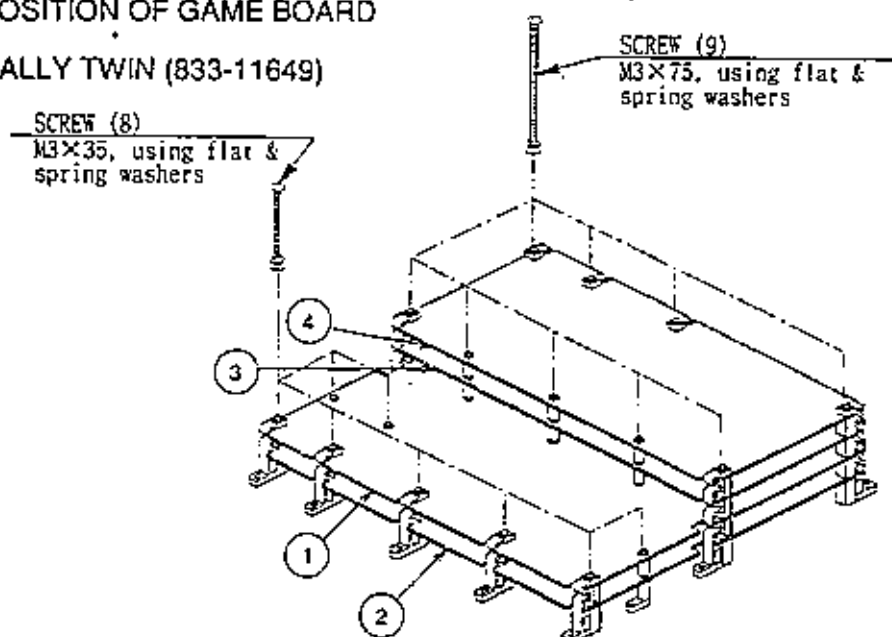


FIG. 17.2

17-2 COMPOSITION OF GAME BOARD

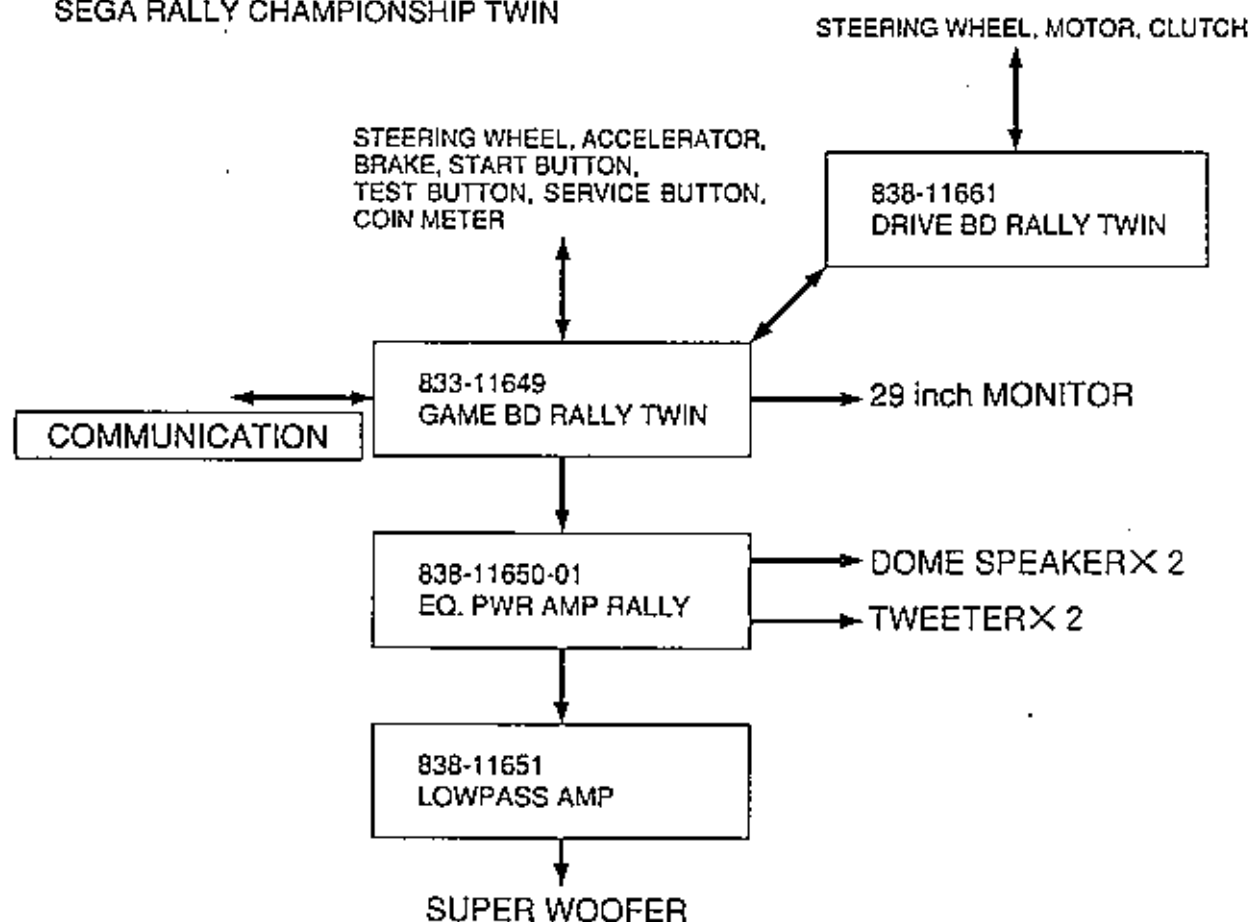
GAME BD RALLY TWIN (833-11649)



No.	PART No.	DESCRIPTION
1	837-10848-91	MODEL2 A-CRX CPU BD COM
	837-10848-01-91	MODEL2 A-CRX CPU BD COM
2	837-10849-01	MODEL2 A-CRX VIDEO BD COM
	837-10849-02	MODEL2 A-CRX VIDEO BD COM
3	834-11618	ROM BD RALLY TWIN
4	837-11572	COMM BD RALLY

17-3 INPUT AND OUTPUT RELATIONS

SEGA RALLY CHAMPIONSHIP TWIN



18. DESIGN RELATED PARTS

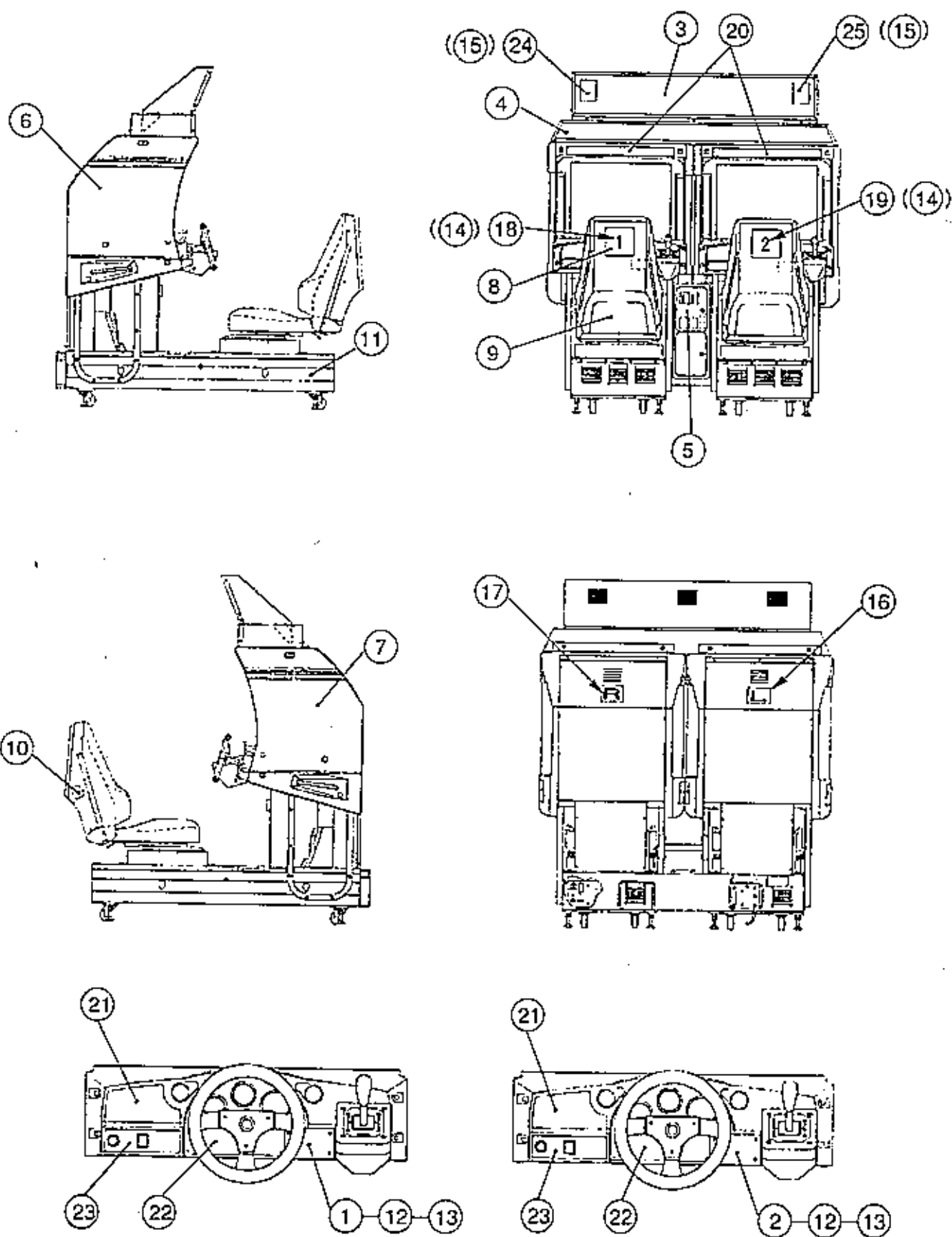


FIG. 18

TABLE 18

No.	PART No.	DESCRIPTION
1	DYN-0010	DENOMI PLATE
2	DYN-0011	DENOMI PLATE W/O ORIGINAL
3	423-0232	BILLBOARD PLATE UPPER
4	423-0233	BILLBOARD PLATE LOWER
5	DYN-0303	STICKER COIN ENTRY
6	RAL-1031-B	STICKER SIDE L
7	RAL-1041-B	STICKER SIDE R
8	RAL-2084-B	STICKER SEAT BACK A
9	RAL-2084-C	STICKER SEAT BACK B
10	RAL-2084-D	STICKER SEAT BACK C
11	RAL-2002-B	STICKER BASE
12	421-7308~	DENOMINATION SHEET 1 GAME~
13	421-7308~	DENOMINATION SHEET 1 GAME~
14	421-8778	STICKER CAR NO TWIN
15	421-8794	STICKER BILLBOARD TWIN
16	421-8543	STICKER CABINET L
17	421-8544	STICKER CABINET R
18	421-8766	STICKER CAR NO 1
19	421-8767	STICKER CAR NO 2
20	422-0511-01	PLAY INSTR RALLY TWIN ENG
21	422-0510-01	PLAY INSTR V. R BUTTON ENG
22	421-8768	STICKER METER PANEL
23	RAL-1292	SHEET START SW
24	421-8792	STICKER BILLBOARD NO 1
25	421-8793	STICKER BILLBOARD NO 2

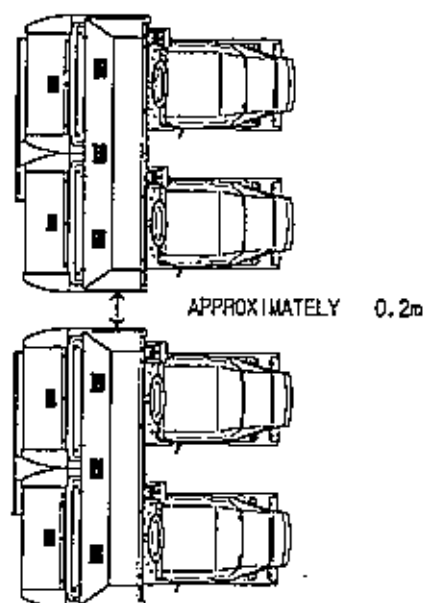
- No. 14 and No. 15 Stickers are used when plural machines are connected for communication play (refer to Section 19).

19. COMMUNICATION PLAY

For this game, two machines can be connected to allow up to 4 players to play simultaneously.

19-1 INSTALLATION PRECAUTIONS

- 1) When linking a number of machines, be sure to supply sufficient power for the corresponding number of machines. The per unit standard voltage/ampereage is 100~120V/15A and 200~240V/10A.
- 2) Due to the length of the communications cable, the distance in between the machines will be approximately 0.2 meters or less.



19-2 CONNECTING THE COMMUNICATION CABLES

The PROTECT TUBE is used to link plural machine units and the communication cables are caused to pass through the PROTECT TUBE. Depending on the number of machine units to be linked, connect the communication cables (optic fiber cables) in the manner shown in Figures 19.6 and 19.7.

- ① Take off the 4 screws and remove AC COVER B (Fig. 19.1).
- ② The HOLE LID is attached to the AC COVER HOLE into which the PROTECT TUBE is to be installed. By taking off 2 screws, remove the HOLE LID of the side where the PROTECT TUBE is to be installed.

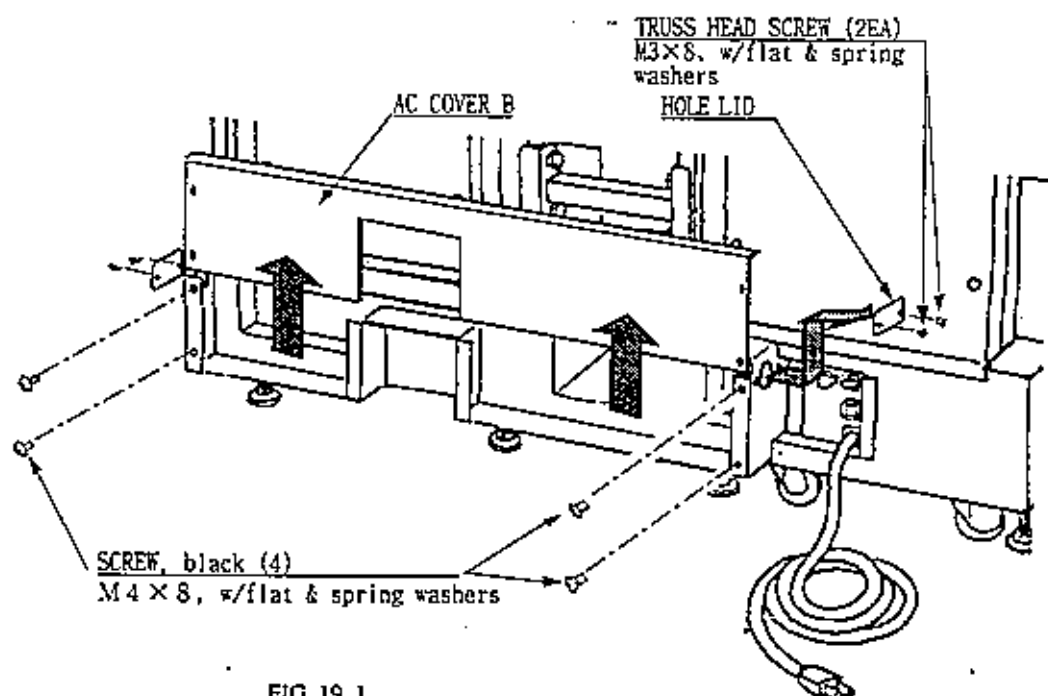


FIG. 19.1

- ③ Attach CONNECTOR 22 to the both ends of FLEX TUBE, and assemble the PROTECT TUBE. First, disassemble CONNECTOR 22 (Fig. 19.2).
- ④ First pass the plastic nut through the flex tube. Otherwise, the following work can not be performed and therefore, be very careful of this point.
- ⑤ Install the holder and then the "insert" for both ends of the flex tube by turning them as in bolts and nuts (Fig. 19.3).
- ⑥ Tighten the plastic nut to the connector. At this time, pass the optic fiber cable through the flex tube ahead of time so as to allow the following work to be performed easily (Fig. 19.4).
- ⑦ Install the PROTECT TUBE into the AC COVER HOLE. Insert the connector into the AC COVER HOLE, put the seal washer through and fasten the metal nut (Fig. 19.5).

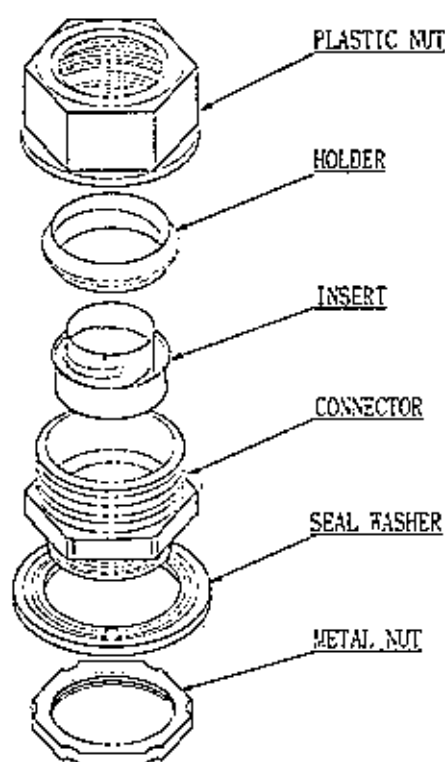


FIG. 19.2

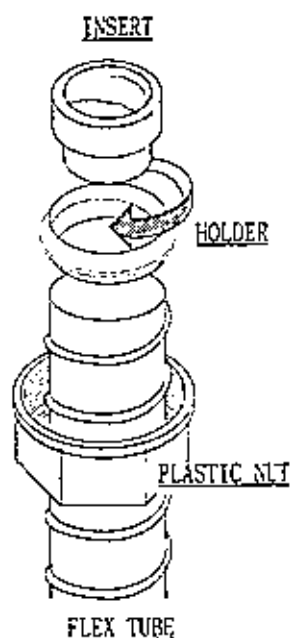


FIG. 19.3

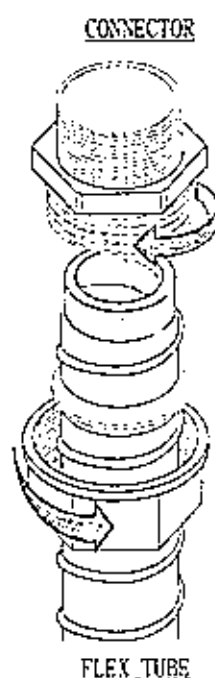


FIG. 19.4

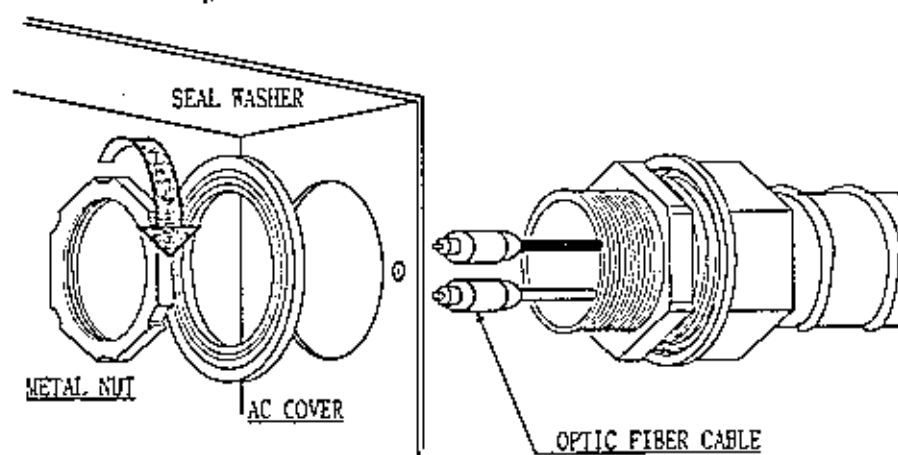


FIG. 19.5

- ⑧ Connect the communication cable. Redo the connection which is currently made for TWIN (for 2P LINK) to change it for usage by 4P.

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

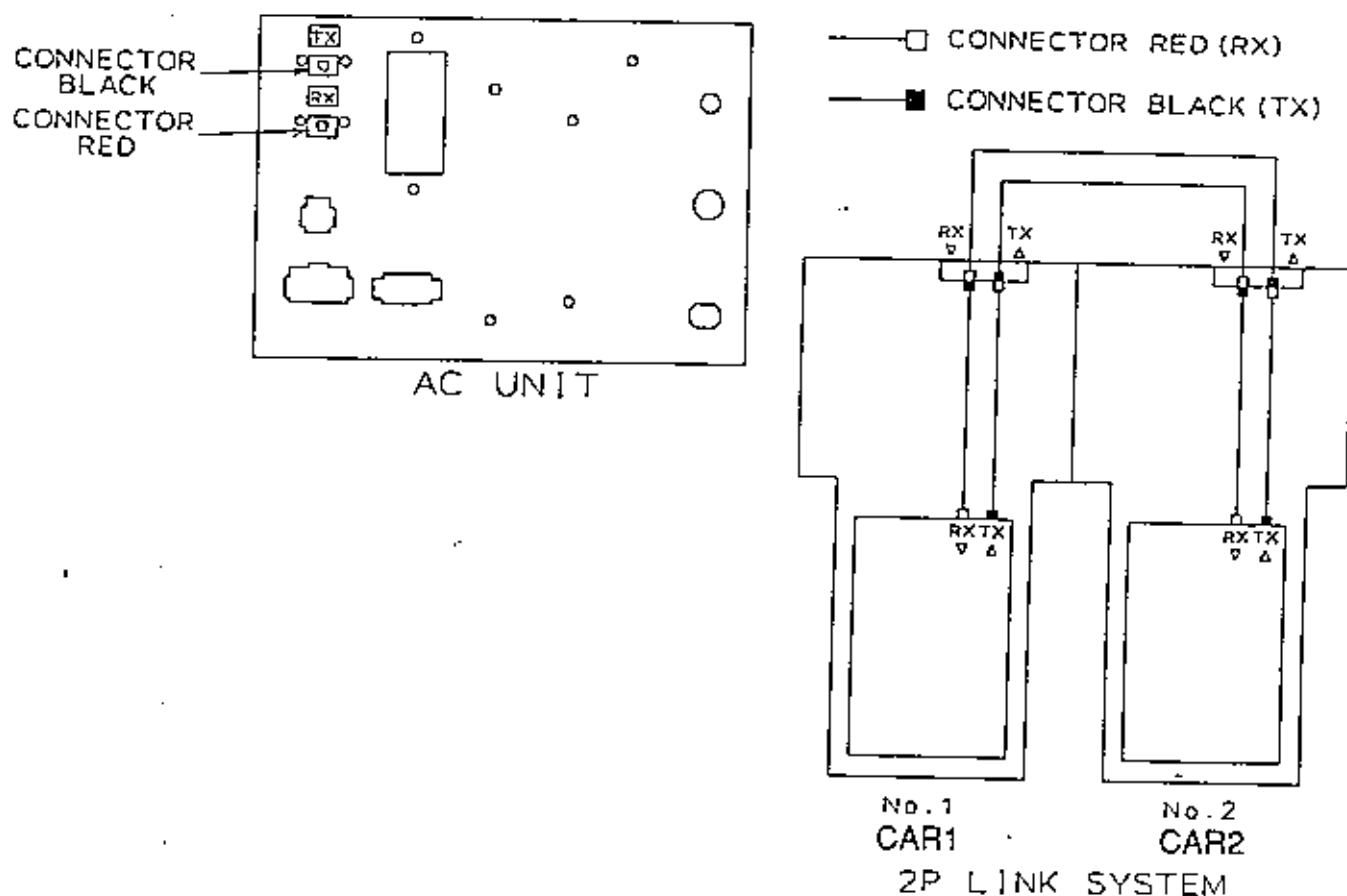


FIG. 19.6

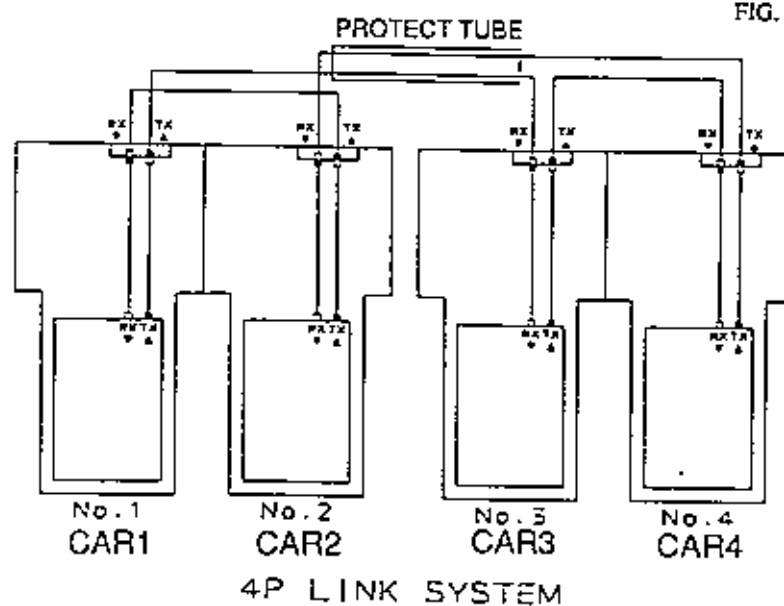
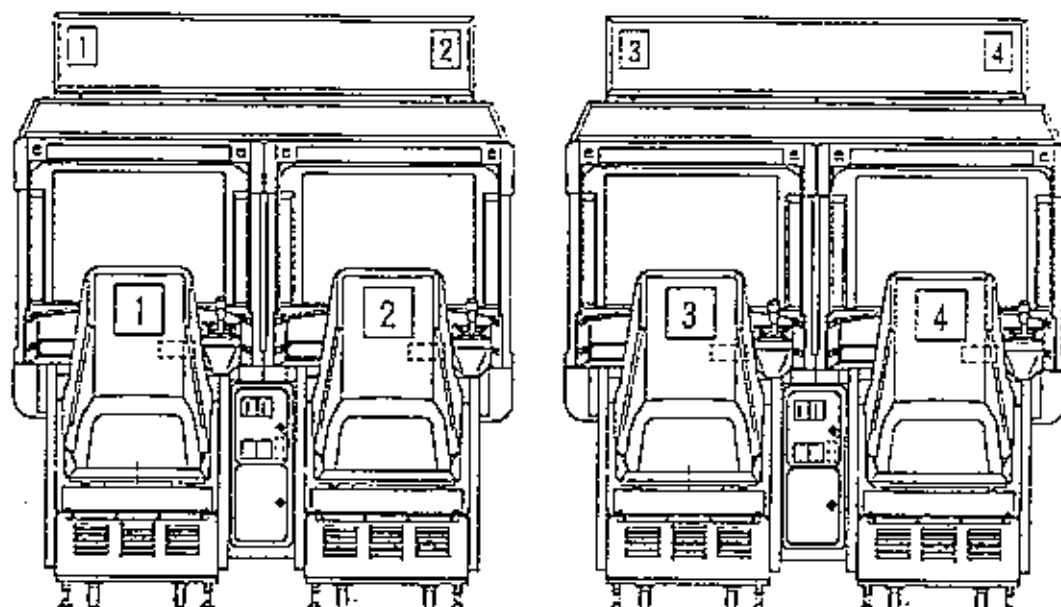


FIG. 19.7

- ⑨ Apply Seat No. Stickers in the manner corresponding to seats and billboards as applicable. The seats are numbered sequentially in order of 1, 2, 3, ... starting from the left facing the front of the Monitor (refer to Section 18).



19-3 SETTING FOR COMMUNICATION PLAY

Cause all of the machines to enter the test mode and change the game setting for each seat in a manner so as to meet the communication play. When changing the setting, refer to explanations mentioned in Section 8.

- ① Press the TEST button to enter the test mode and choose "GAME ASSIGNMENT."
- ② Press SERVICE button or VIEW CHANGE button to bring the arrow (>) mark to "LINK TYPE."
- ③ Press the TEST button or START button to set the Seat numbers sequentially in order of "CAR 1," "CAR 2," "CAR 3," ... starting from the left facing the front of the monitor. If the same number is set for 2 or more cabinets, or if the sequential order is incorrect, the game display, etc. will be confused (different from the actual status). Therefore, be careful of this point.

For communication play, the game difficulty is set by "CAR 1" Seat. The setting made (or changed) by "CAR 1" applies to all of the other Seats. Even if the setting is changed by any of "CAR 2" - "CAR 4" Seats, the setting change is ineffective and not reflected for the game.

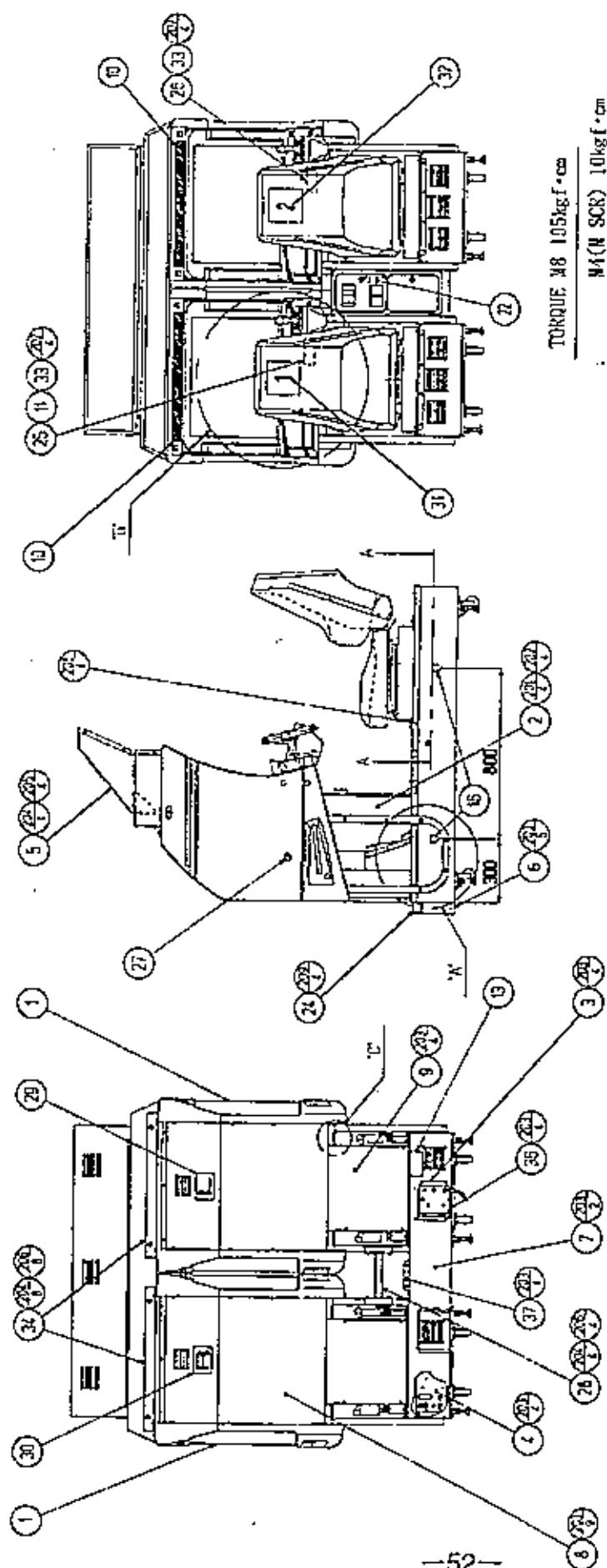
19-4 CAUTIONS TO BE HEEDED WHEN USING THE TEST MODE:

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.

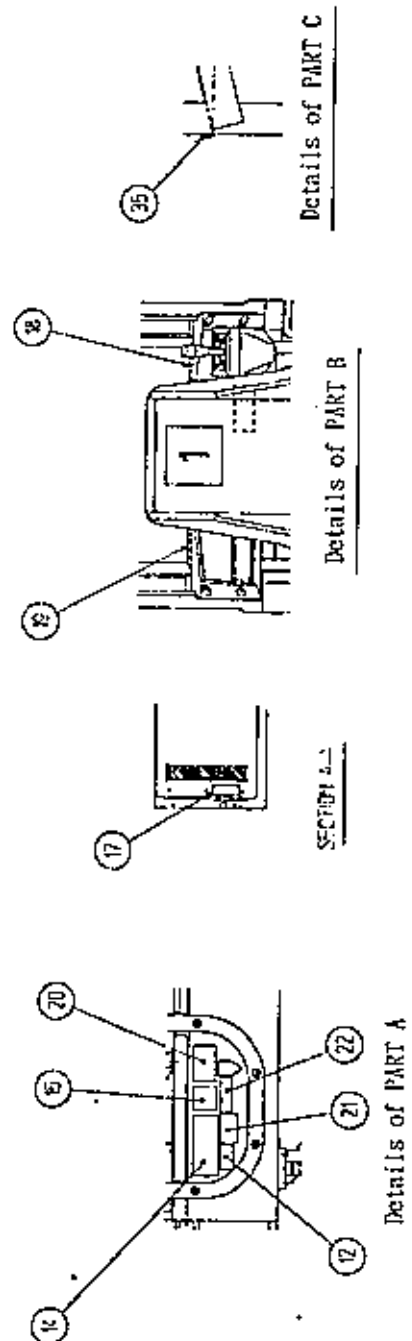
20. PARTS LIST

① TOP ASSY SEGA RALLY C.S TWIN

(D-1/3)



TORQUE M8 105kgf·cm
M4(N SCR) 10kgf·cm



Details of PART C

Details of PART B

SECTION 2

Details of PART A

① TOP ASSY SEGA RALLY C.S TWIN

(D-2/3)

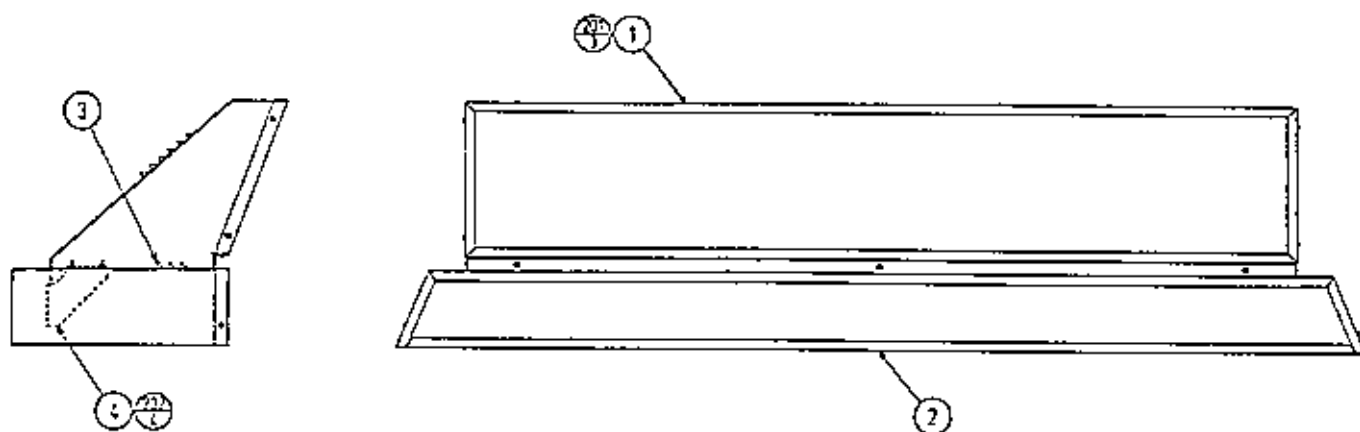
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	RAL-10001	ASSY COCKPIT	
2	DYN-0300	ASSY COINCHUTE TOWER	
3	DYN-0400	AC UNIT MAIN	
4	DYN-0700	AC UNIT SUB	
5	RAL-0200	ASSY BILLBOARD	
6	DYN-0005	AC COVER A	
7	DYN-0006X	AC COVER B	
8	DYN-0007X	BACK LID A	
9	DYN-0008	BACK LID B	
10	422-0511-01	PLAY INSTR RALLY TWIN ENG	
11	421-5800-249	ORIGINAL SEAL SEGA RALLY CHAMPIONSHIP	
12	421-6594-91	STICKER CERTIFICATE	
16	421-7020	STICKER CAUTION FORK	
17	421-6709	STICKER SERVICE INSTR ENG	
20	421-7987	STICKER ELEC SPEC	OTHERS
	421-8408	STICKER ELEC SPEC FOR TAIWAN	TAIWAN
22	421-7988-91	STICKER SERIAL NUMBER	
23	SGM-3863	POLYETHYLENE COVER 1800×950×1700	
24	DYN-0009	HOLE LID	
25	DYN-0010	DENOMI PLATE	
26	DYN-0011	DENOMI PLATE W/O ORIGINAL	
27	RAL-0006	BLIND CAP	
28	DYN-0013	JOINT PIPE	
29	421-8543	STICKER CABINET L	
30	421-8544	STICKER CABINET R	
31	421-8766	STICKER CAR NO 1	
32	421-8767	STICKER CAR NO 2	
33	421-7308~	DENOMINATION SHEET 1 GAME ~	OTHERS
	421-7308-55	NOT USED	FOR MARS
34	DYN-0014	BILLBOARD HOLDER	
35	OUT-1044	CUSHION	
36	DYN-0018	AC COVER C	
37	DYN-0019	AC COVER D	
/	421-6690-03	STICKER 220V	KOREA, HONG KONG, SINGAPORE, THAILAND
/	421-6690-05	STICKER 240V	AUSTRALIA, FOR MARS
/	421-6690-06	STICKER 110V	TAIWAN
101	600-6275-0500	ASSY FIBER CABLE ϕ 5 0500CM	
102	280-5009	CORD CLAMP ϕ 21	
201	030-000820-S	HEX BLT W/S M8×20	
202	068-852216	FLT WSHR 8.5-22×1.6	
203	000-P00408-WB	M SCR PH W/FS BLK M4×8	
204	030-000825-SB	HEX BLT W/S BLK M8×25	
205	SLC-0006	FLAT WASHER 8.4-25×2	
206	060-F00800-OB	FLT WSHR BLK M8	
207	000-T00416-OC	M SCR TH CRM M4×16	
208	000-T00512-OB	M SCR TH BLK M5×12	
209	000-P00308-WB	M SCR PH W/FS BLK M3×8	
/	600-6373-75	WIRE HARN MARS SELECT	FOR MARS

① TOP ASSY SEGA RALLY C.S TWIN

(D-3/3)

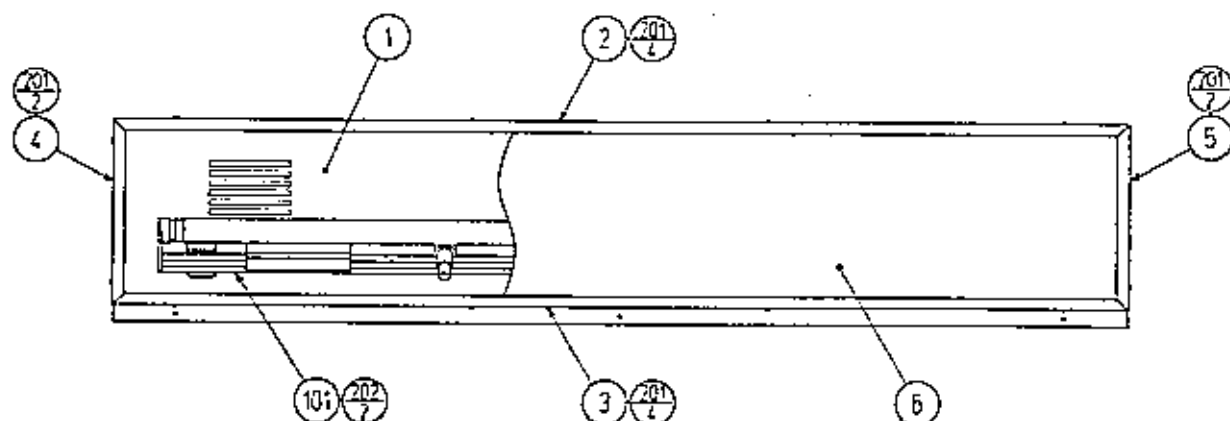
ITEM NO.	PART NO.	DESCRIPTION	NOTE
301	600-6373-47	WIRE HARN EXT COIN&SW LEFT	
302	600-6373-56-91	WIRE HARN EXT COIN&SW RIGHT	
303	600-6373-59	WIRE HARN AC 100V	
401	601-6604-70	CARTON BOX 70	
402	420-6150-03	OWNERS MANUAL SEGA RALLY C.S TWIN ENG	
403	SGM-2675	POLYETHYLENE BAG 240×370	
404	220-5381	KEY MASTER FOR 220-5380	
405	SGM-4111	KEY BAG	
407	540-0007-01	WRENCH FOR TAMP PRF SCR DUAL TYPE M5	
408	540-0009-01	WRENCH FOR TAMP PRF SCR DUAL TYPE M8	
409	509-5636	SW MICRO TYPE SS-5GL2T	
410	220-5373	VOL CONT B-5K OHM	
	220-5484	VOL CONT B-5K OHM	
411	514-5036-7000	FUSE 6.4 ϕ × 30 7000mA 125V	
412	310-5050-220090	FLEX TUBE 22-0090CM	
413	310-5051-22	CONN 22	
414	090-0074	STATICIDE (300ml)	
415	421-8778	STICKER CAR NO TWIN	
416	DYN-0020	JOINT PLATE	
417	421-8794	STICKER BILLBOARD TWIN	

② ASSY BILLBOARD (RAL-0200)



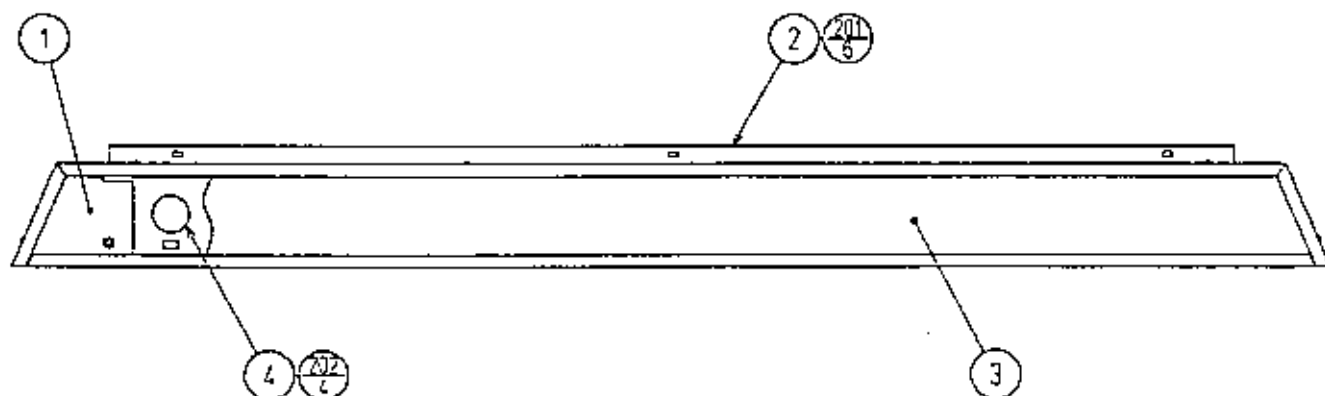
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	RAL-Q210	ASSY BILLBOARD UPPER	
2	RAL-Q220	ASSY BILLBOARD LOWER	
3	RAL-Q201	LAMP LID	
4	RAL-Q202	STAY BRKT	
201	000-T00408-0C	M SCR TH CRM M4×8	
202	050-F00400	FLG NUT M4	

③ ASSY BILLBOARD UPPER (RAL-0210)



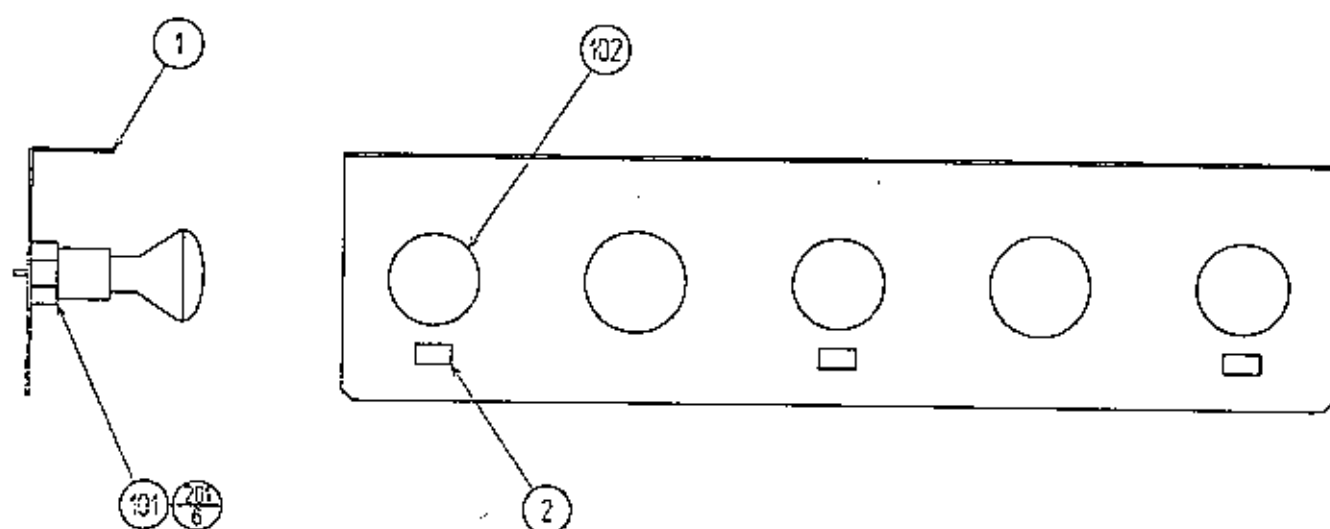
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	RAL-0211	BILLBOARD CASE UPPER	
2	RAL-0212	CORNER EDGE UPPER	
3	RAL-0213	CORNER EDGE LOWER	
4	RAL-0214	CORNER EDGE LEFT	
5	RAL-0215	CORNER EDGE RIGHT	
6	423-0232	BILLBOARD PLATE UPPER	
101	390-5538-40EX	ASSY FL 40W EX W/CONN HIGH	
102	280-5008	CORD CLAMP $\phi 15$	
103	601-0460	PLASTIC TIE BELT 100MM	
201	000-T00408-0C	M SCR TH CRM M4 \times 8	
202	000-P00416-W	M SCR PH W/FS M4 \times 16	
301	600-6555-06	WIRE HARN FL	

④ ASSY BILLBOARD LOWER (RAL-0220)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	RAL-0221	BILLBOARD CASE LOWER	
2	RAL-0222	CORNER EDGE	
3	423-0233	BILLBOARD PLATE LOWER	
4	RAL-0230	LAMP UNIT	
101	280-5008	CORD CLAMP $\phi 15$	
201	000-T00408-OC	M SCR TH CRM M4 \times 8	
202	000-P00408-W	M SCR PH W/FS M4 \times 8	

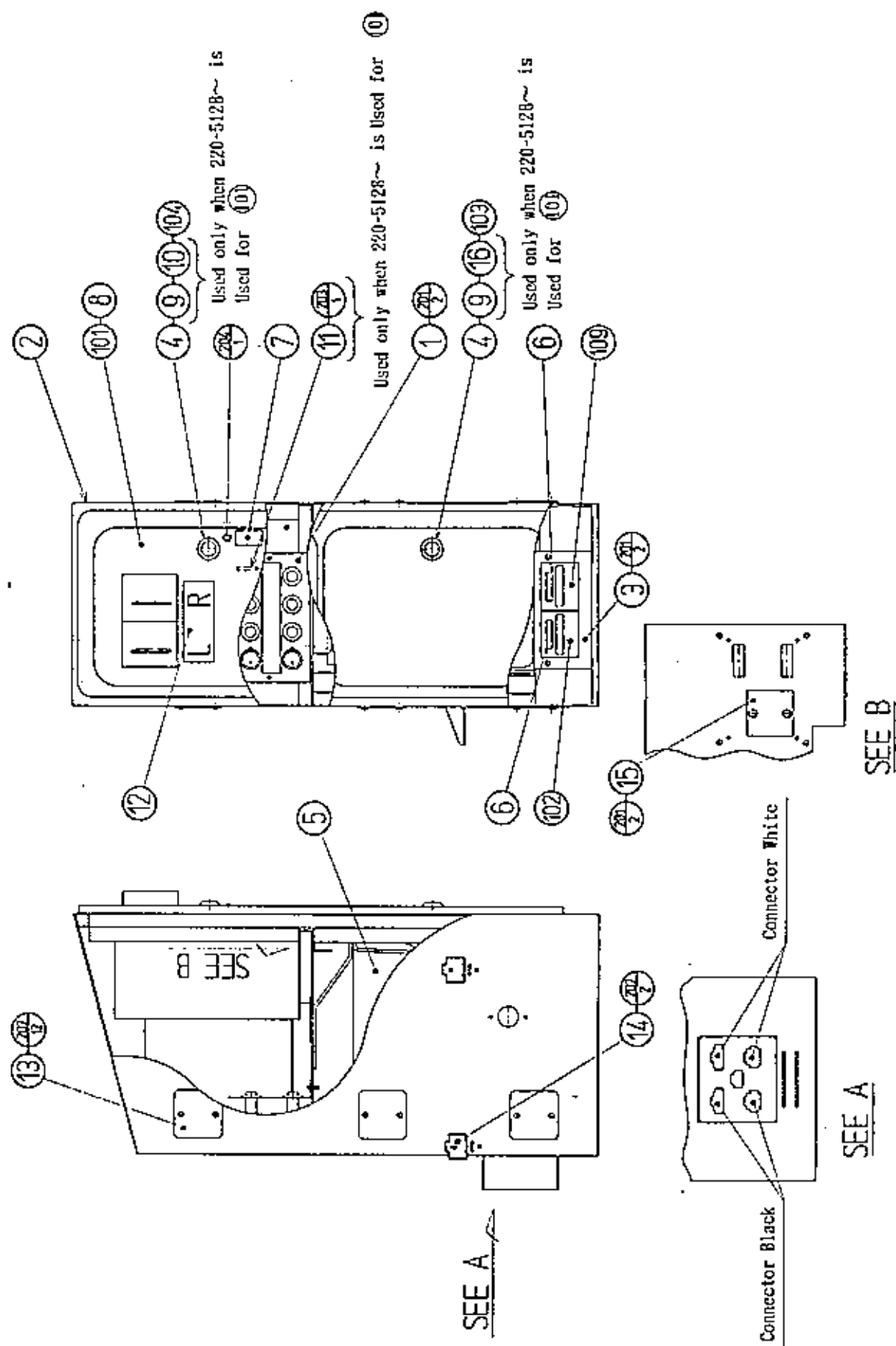
⑤ LAMP UNIT (RAL-0230)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	RAL-0231	LAMP PANEL	
2	421-7501-16	STICKER 110V 30W	
101	214-0110	BULB SOCKET	
102	390-5167	LAMP 110V 30W	
103	601-0460	PLASTIC TIE BELT 100MM	
104	280-0425	CORD CLAMP ϕ 10	
201	000-P00316	M SCR PH M3 \times 16	
301	600-6555-07	WIRE HARN LAMP UNIT	

⑥ ASSY COINCHUTE TOWER (DYN-0300)

(0-1/3)



⑥ ASSY COINCHUTE TOWER (DYN-0300)

(D-2/3)

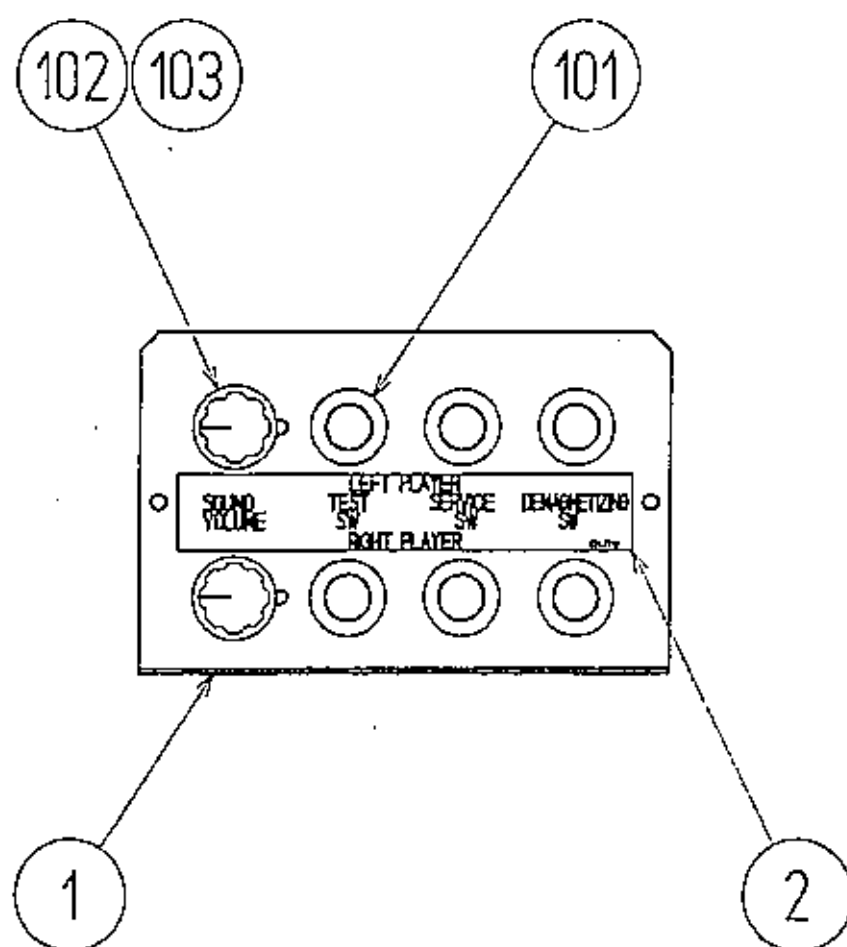
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	DYN-0350	SW UNIT	
2	DYN-0301X	COIN CHUTE TOWER	
3	DYN-0302Y	COIN METER BRKT	
4	DP-1167	TNG LKG NOT USED	OTHERS FOR MARS
5	253-5366	CASH BOX	
6	421-6591-01	STICKER COIN METER	
8	421-7501-02	STICKER 6.3V 0.15A NOT USED	OTHERS FOR MARS
9	HN-1050	SPACER RING NOT USED	OTHERS } Used only when FOR MARS } 220-5128~ in
11	109-0045-91	KEY HOLDER NOT USED	OTHERS } used (101) FOR MARS }
12	DYN-0303X	STICKER COIN ENTRY NOT USED	OTHERS FOR MARS
13	DYN-0304	HOLE COVER	
14	DYN-0305	TOWER BRKT	
15	105-5202	HOLE COVER	OTHERS
	105-5173	CHUTE PLATE MARS	FOR MARS
16	105-5201	MAGNETIC LOCK BRKT FOR ASAHI	Used only when 220-5128~ in used (101)
101	220-5128~ 220-5374	ASSY COIN CHUTE 2DOOR ~ TWIN DOUBLE DOOR FRAME W/CASH DOOR	OTHERS FOR MARS
102	220-5412 200-5217-01	MAG CNTR W/CONN MAG CNTR 6DIG DC12V	OTHERS FOR MARS
103	220-5046-91	MAGNETIC LOCK W/KEYS NOT USED	OTHERS FOR MARS
104	220-5380	MAG LOCK MASTER W/O KEY NOT USED	OTHERS FOR MARS
105	280-0425	CORD CLAMP $\phi 10$	
106	280-5009	CORD CLAMP $\phi 21$	-01 also acceptable.
107	601-0460	PLASTIC TIE BELT 100mm	
108	310-5029-F20	SUMITUBE F F20MM	
109	220-5412-01	MAG CNTR W/CONN BLACK NOT USED	OTHERS FOR MARS
110	280-5008	CORD CLAMP $\phi 15$	Used only when 220-5128~ in used (101)
111	601-6231-C045	EDGING NEW TYPE	
201	000-P00412-W	M SCR PH W/FS M4 \times 12	
202	000-T00408-0B	M SCR TH BLK M4 \times 8	
203	000-P00306-W	M SCR PH W/FS M3 \times 6	OTHERS
205	010-P00408-F	S-TITE SCR PH W/F M4 \times 8	FOR MARS
301	600-6373-48	WIRE HARN COIN METER LEFT	
302	600-6373-49	WIRE HARN COIN METER RIGHT	
303	600-6373-50	WIRE HARN COIN LEFT NOT USED	OTHERS FOR MARS

⑥ ASSY COINCHUTE TOWER (DYN-0300)

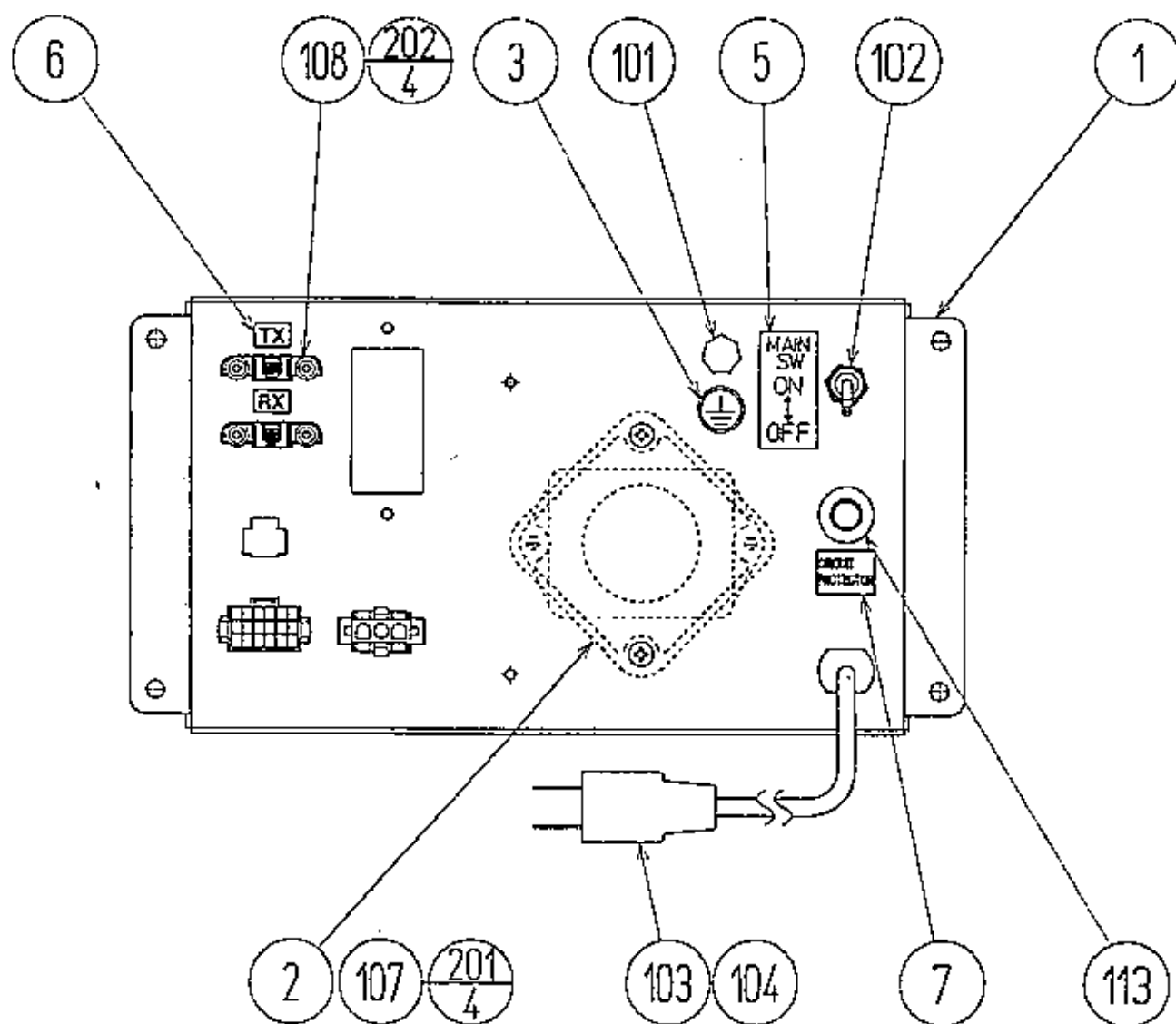
(D-3/3)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
304	600-6373-51	WIRE HARN COIN RIGHT NOT USED	OTHERS FOR MARS
305	600-6373-52	WIRE HARN EXT SW UNIT LEFT	
306	600-6373-66	WIRE HARN EXT SW UNIT RIGHT	
307	600-6373-71	WIRE HARN EARTH COIN CHUTE NOT USED	OTHERS FOR MARS
/	600-6373-72	WIRE HARN MARS DC IN	} FOR MARS
/	600-6373-73	WIRE HARN MARS COIN	
/	600-6373-74	WIRE HARN MARS COIN WETER	
/	600-6373-75	WIRE HARN MARS SELECT	
/	600-6373-79	WIRE HARN METER JUMPER 1	
/	600-6373-80	WIRE HARN METER JUMPER 2	

⑦ SW UNIT (DYN-0350)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	UCQ-1035	SWITCH BRACKET	
2	421-7718	STICKER SW INSTR 2P	
101	509-5028	SW PB 1M	
102	220-5179	VOL CONT B-5K OHM	
103	601-0042	KNOB 22mm	
104	601-0460	PLASTIC TIE BELT 100MM	
105	310-5029-F20	SUMITUBE F F20MM	
301	600-6373-53	WIRE HARN TEST&SERVICE LEFT	
302	600-6373-55	WIRE HARN VOL. LEFT	
303	600-6373-67	WIRE HARN TEST&SERVICE RIGHT	
304	600-6373-68	WIRE HARN VOL. RIGHT	

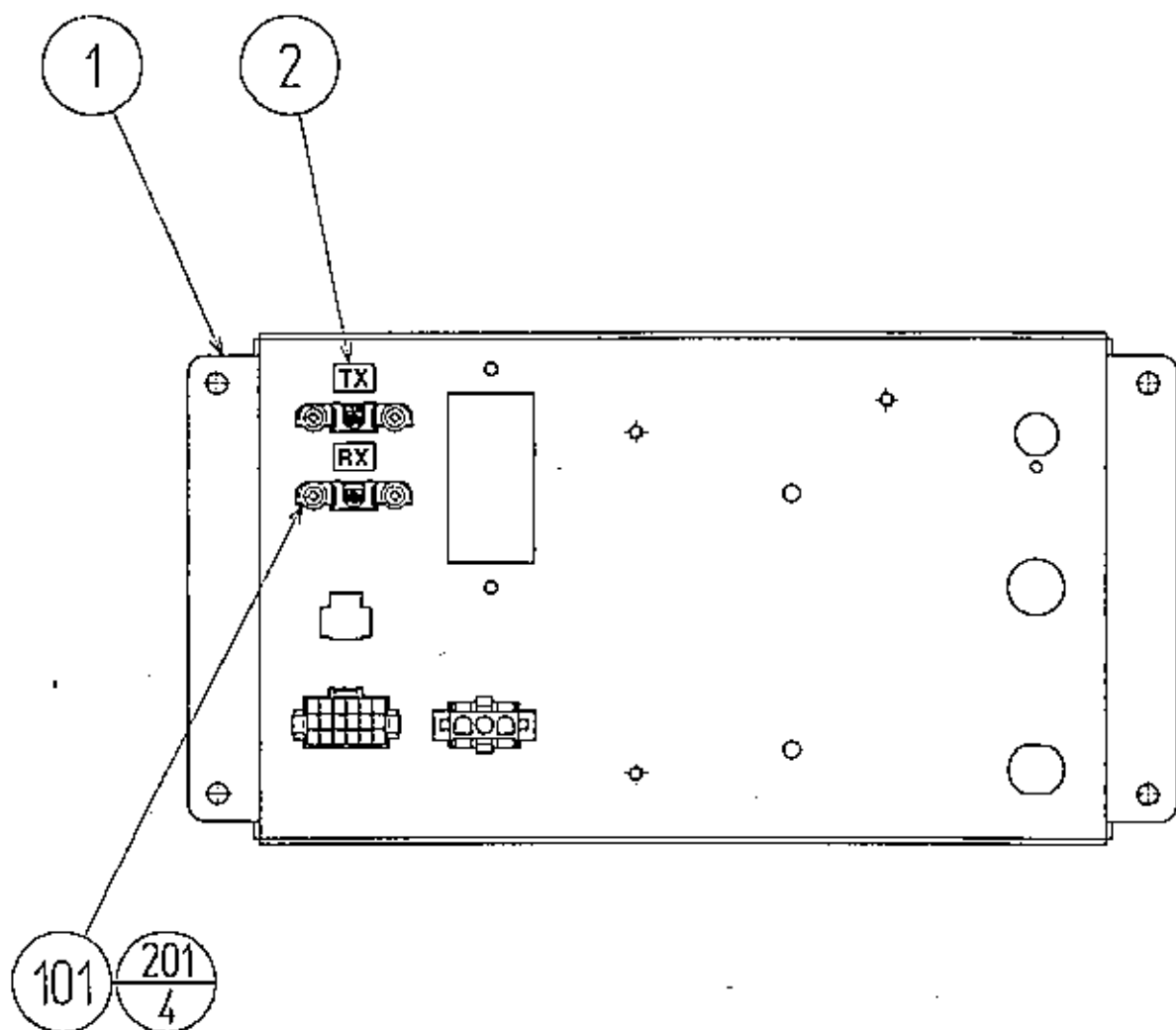


⑧ AC UNIT MAIN (DYN-0400)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	DYN-0401	AC BRKT	
2	DYN-0402	NOISE FILTER BASE	
3	421-8202	STICKER EARTH MARK	
5	421-6526	STICKER ON OFF	
6	421-7515	STICKER FIBER CABLE TX/RX	
7	421-7468	STICKER C. P.	
101	280-0417	TERMINAL BINDING POST BLACK	
102	509-5234	SW TOGGLE 25A	
103	280-5134-6N34	BUSHING STRAIN RELIEF 6N34	AC100~110V AREA
	280-5134-6N4	BUSHING STRAIN RELIEF 6N4	AC220~240V AREA
104	600-5843-25	CA & PLUG ASSY 15A W/-F- L=2.5M	AC100~110V AREA
	600-5007	CABLE & PLUG ASSY W/EARTH	AC220~240V AREA
107	270-5026	NOISE FILTER 20A	
108	211-5479	CONN OPT JOINT	
109	601-0460	PLASTIC TIE BELT 100mm	
110	280-5009	CORD CLAMP ϕ 21	-01 also acceptable.
111	310-5029-F20	SUMITUBE F F20MM	ϕ 4
112	209-0032	CONN CLOSED END	LARGE TYPE
113	512-5033-15000	CIRCUIT PROTECTOR 15000mA	AC100~110V AREA
	512-5033-10000	CIRCUIT PROTECTOR 10000mA	AC220~240V AREA
201	012-P00408	TAP SCR PH 4×8	
202	000-P00312-W	M SCR PH W/FS M3×12	
301	600-6373-61	WIRE HARN EXT MAIN SW	
302	600-6373-62	WIRE HARN EXT N. FILTER	
303	600-6373-63	WIRE HARN EXT SUB	
304	600-6373-64	WIRE HARN EXT MAIN	

⑨ AC UNIT SUB (DYN-0700)

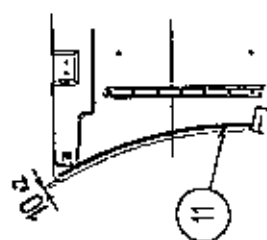
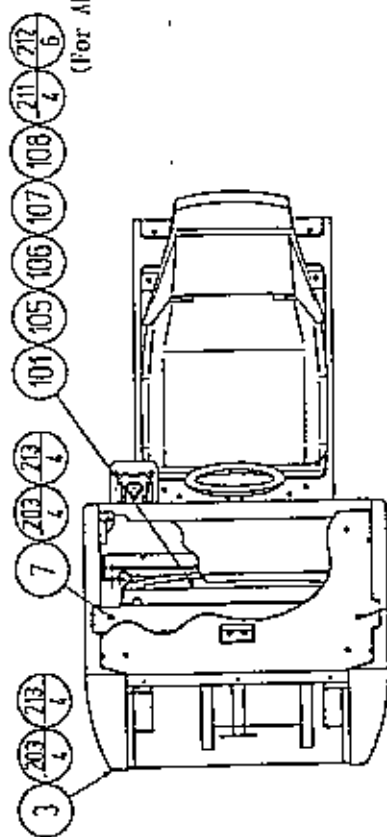


ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	DYN-0401	AC BRKT	
2	421-7515	STICKER FIBER CABLE TX/RX	
101	211-5479	CONN OPT JOINT	
201	000-P00312-W	M SCR PH W/PS M3×12	
301	600-6373-60	WIRE HARN AC100V SUB	

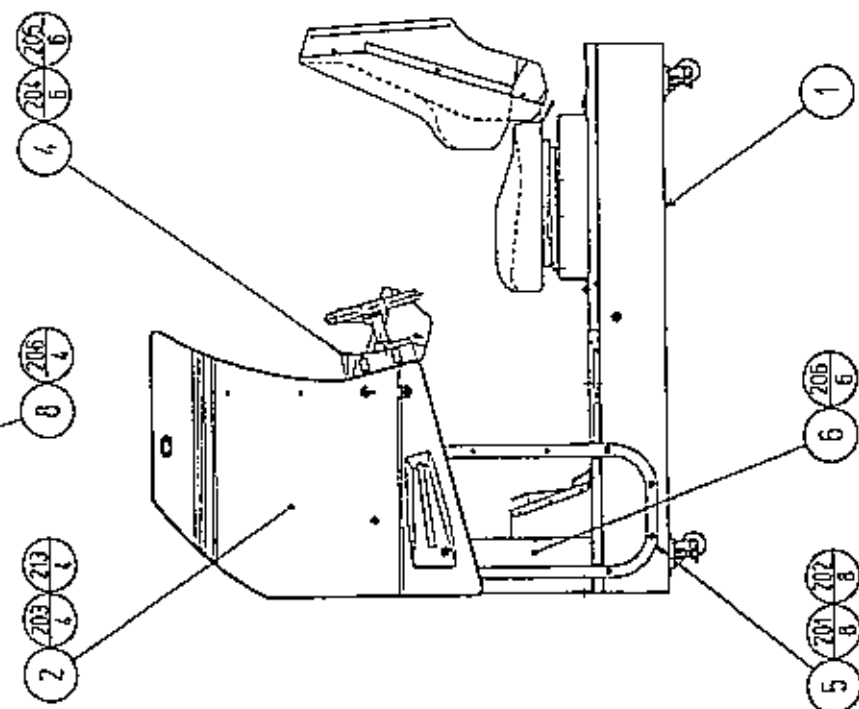
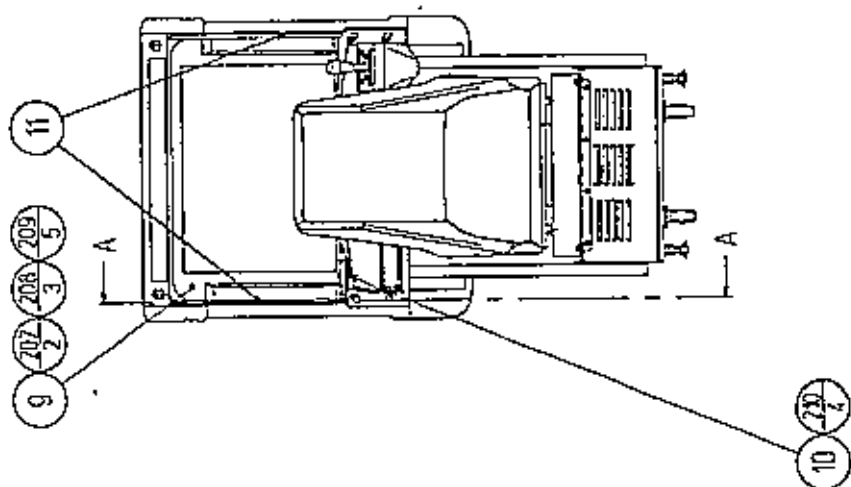
⑩ ASSY COCKPIT (RAL-10001)

(D-1/2)

(For Adjustment)



TORQUE NB 195kgf·cm
M(N SCR) 10kgf·cm

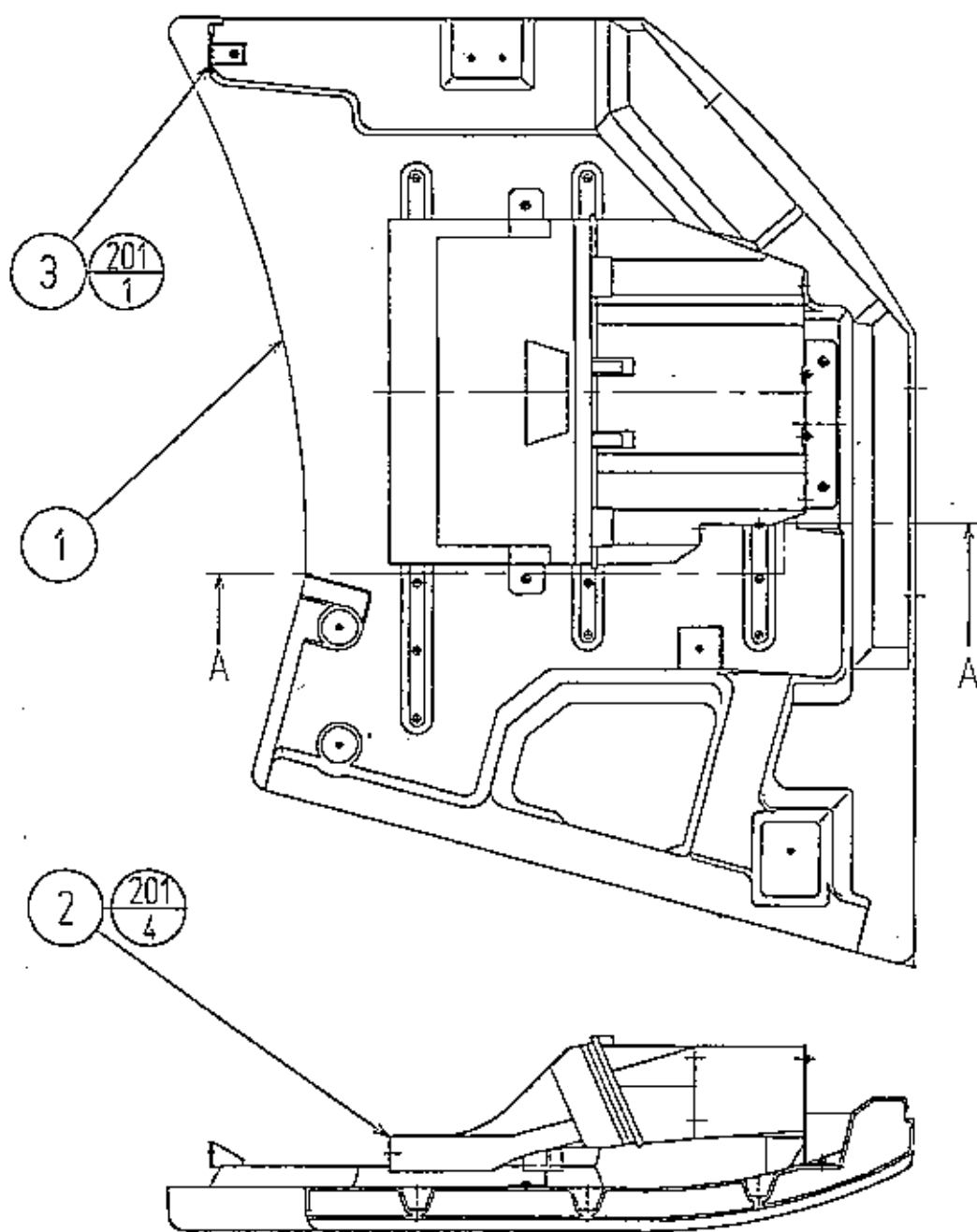


⑩ ASSY COCKPIT (RAL-10001)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	RAL-20001	ASSY MAIN BASE	
2	RAL-1030	ASSY MONITOR COVER L	
3	RAL-1040	ASSY MONITOR COVER R	
4	RAL-12002	ASSY CONT PNL TWIN ENG	OTHERS FOR MARS
	RAL-12003	ASSY CONT PNL TWIN MARS	
5	RAL-1012	MONITOR STAND	
6	DYN-1013	WIRE COVER BOX	
7	DYN-1014	MONITOR SUPPORT	
8	DYN-1015X	ROOF LID	
9	DYN-1016	MONITOR MASK	
10	DYN-1017	MASK HOLDER	
11	DYN-1025	RUBBER CUSHION	
101	200-5242-24-04	ASSY CLR DSPR 29 TYPE 24K 100V	
	200-5243-24	ASSY CLR DSPR 29 TYPE 24K 100V	
102	280-5009	CORD CLAMP ϕ 21	
103	280-0425	CORD CLAMP ϕ 10	
104	601-0460	PLASTIC TIE BELT 100MM	
105	280-5112	BUSH FOR TV	
106	280-5113	COLLAR FOR TV	
107	280-5114	SPACER 6.4-25 \times 2	
108	601-7467	L-LOCK BK	
201	030-000850-SB	HEX BLT W/S BLK M8 \times 50	
202	068-852216-OB	FLT WSHR BLK 8.5-22 \times 1.6	
203	030-000840-SB	HEX BLT W/S BLK M8 \times 40	
204	060-F00800-OB	FLT WSHR BLK M8	
205	008-B00830-OB	TMP PRF SCR BH BLK M8 \times 30	
206	000-P00408-WB	M SCR PH W/FS BLK M4 \times 8	
207	000-T00530-OB	M SCR TH BLK M5 \times 30	
208	000-T00512-OB	M SCR TH BLK M5 \times 12	
209	068-552016-OB	FLT WSHR BLK 5.5-20 \times 1.6	
210	000-F00508	M SCR FH M5 \times 8	
211	050-F00600	FLG NUT M6	
212	000-P00310-WB	M SCR PH W/FS BLK M3 \times 10	
213	DYN-1019	FLT WASHER M8	
301	600-6373-31	WIRE HARN MONITOR	
302	600-6373-32	WIRE HARN EXT SPEAKER	
303	600-6373-36-91	WIRE HARN EXT FL&LAMP	
304	600-6373-39	WIRE HARN EXT CLUTCH	
305	600-6373-40	WIRE HARN EXT STEERING	
306	600-6373-44	WIRE HARN BUTTON&SHIFT	
/	600-6373-77	WIRE HARN PLAYER SELECT EXT B	FOR MARS

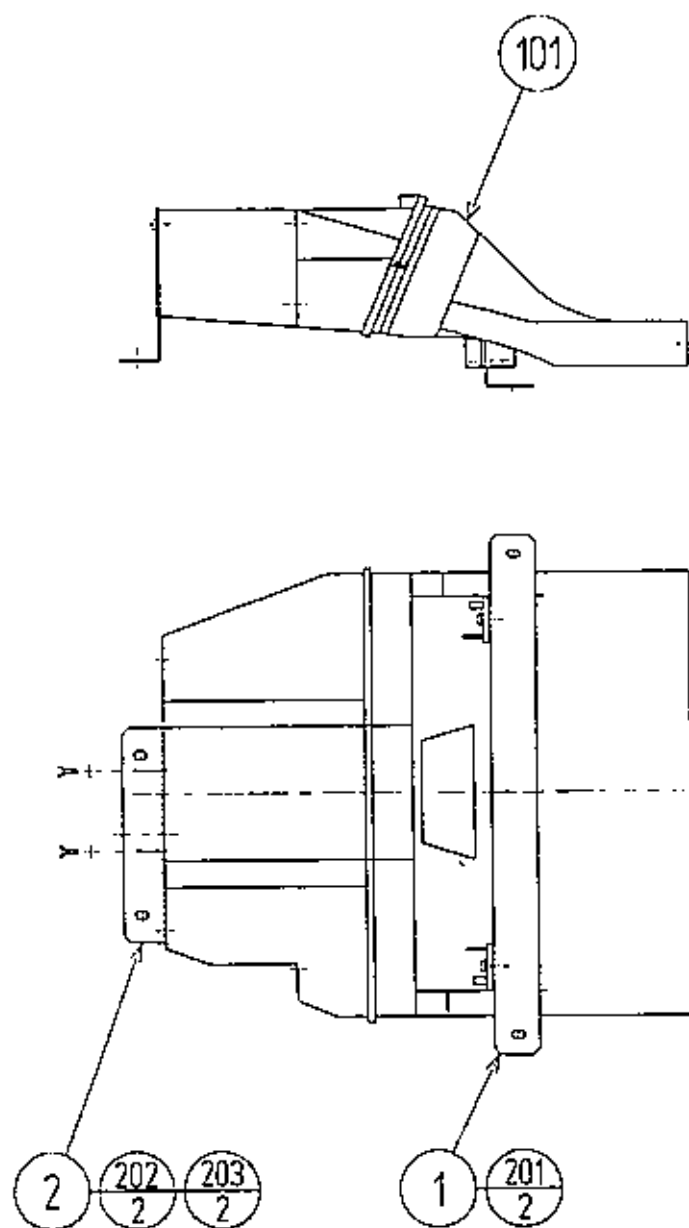
⑪ ASSY MONITOR COVER L (RAL-1030)



SECTION A-A

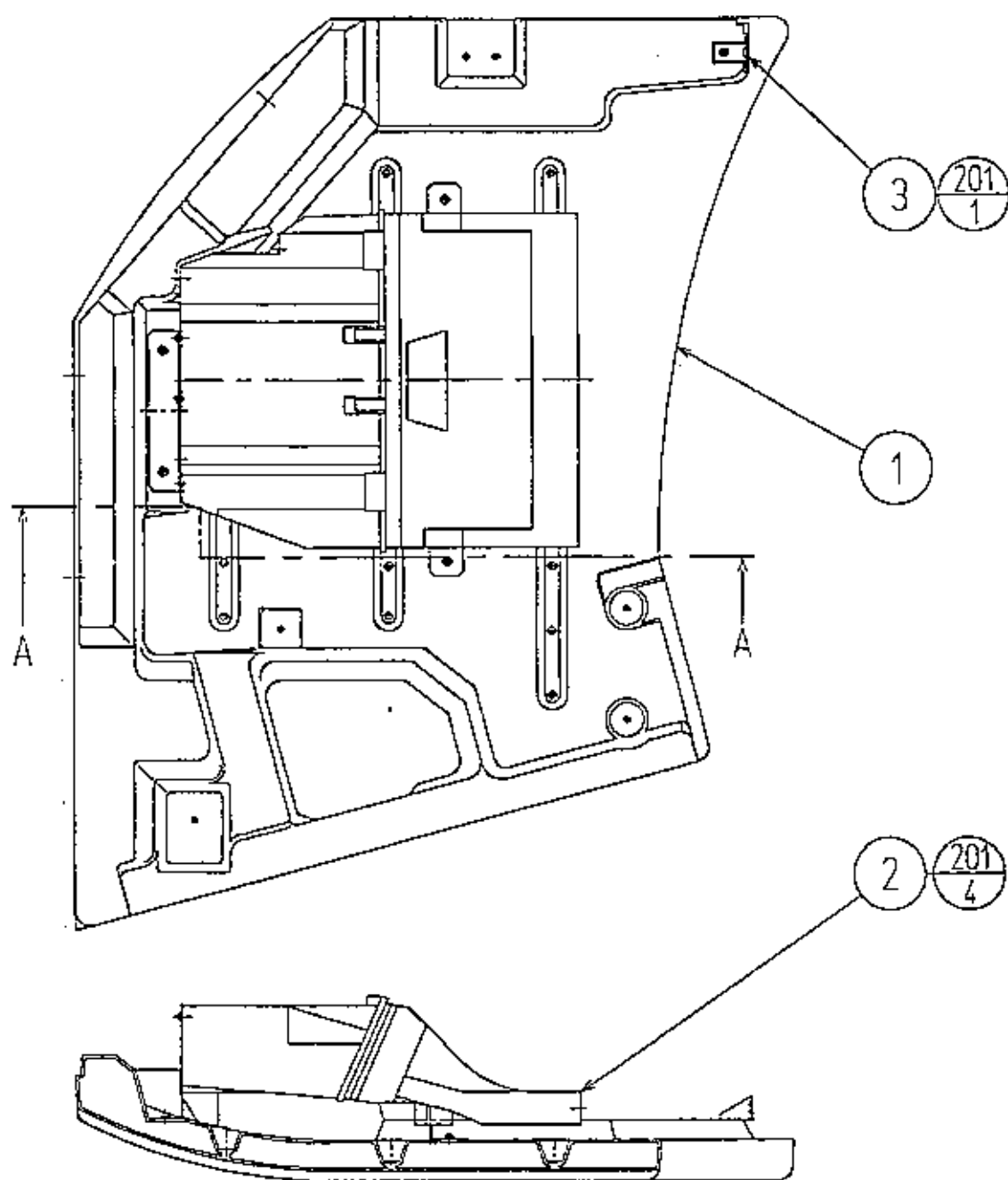
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	RAL-1031	COVER PANEL L	
2	DYN-1500	ASSY SPEAKER L	
3	DYN-1032	MASK BRKT	
201	000-P00408-W	M SCR PH W/FS M4×8	

⑫ ASSY SPEAKER L (DYN-1500)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	DYN-1501	SP BRKT F	
2	DYN-1502	SP BRKT R	
101	130-5113	SPEAKER BOX DOME	
102	280-0425	CORD CLAMP $\phi 10$	
201	000-P00412-W	M SCR PH W/FS M4x12	
202	011-P00412	TAP SCR PH 4x12	
203	060-F00400	FLT WSHR M4	

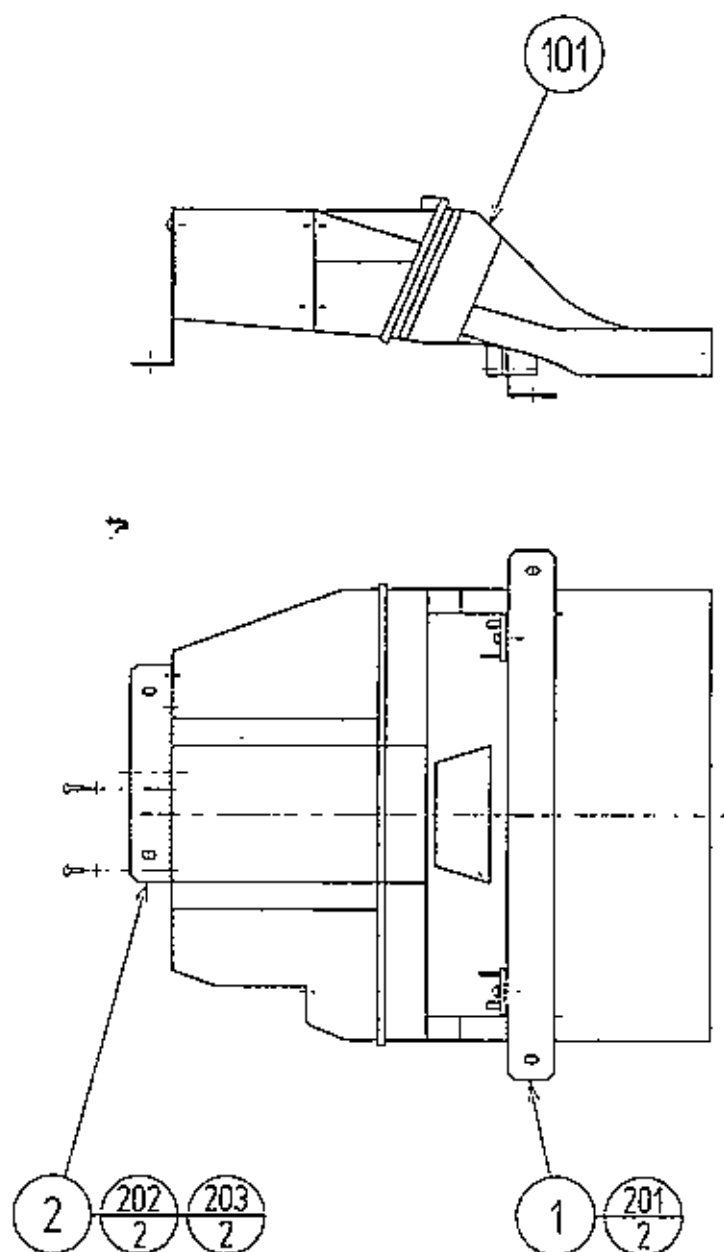
⑬ ASSY MONITOR COVER R (RAL-1040).



SECTION A-A

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	RAL-1041	COVER PANEL R	
2	DYN-1600	ASSY SPEAKER R	
3	DYN-1032	MASK BRKT	
201	000-P00408-W	M SCR PH W/FS M4×8	

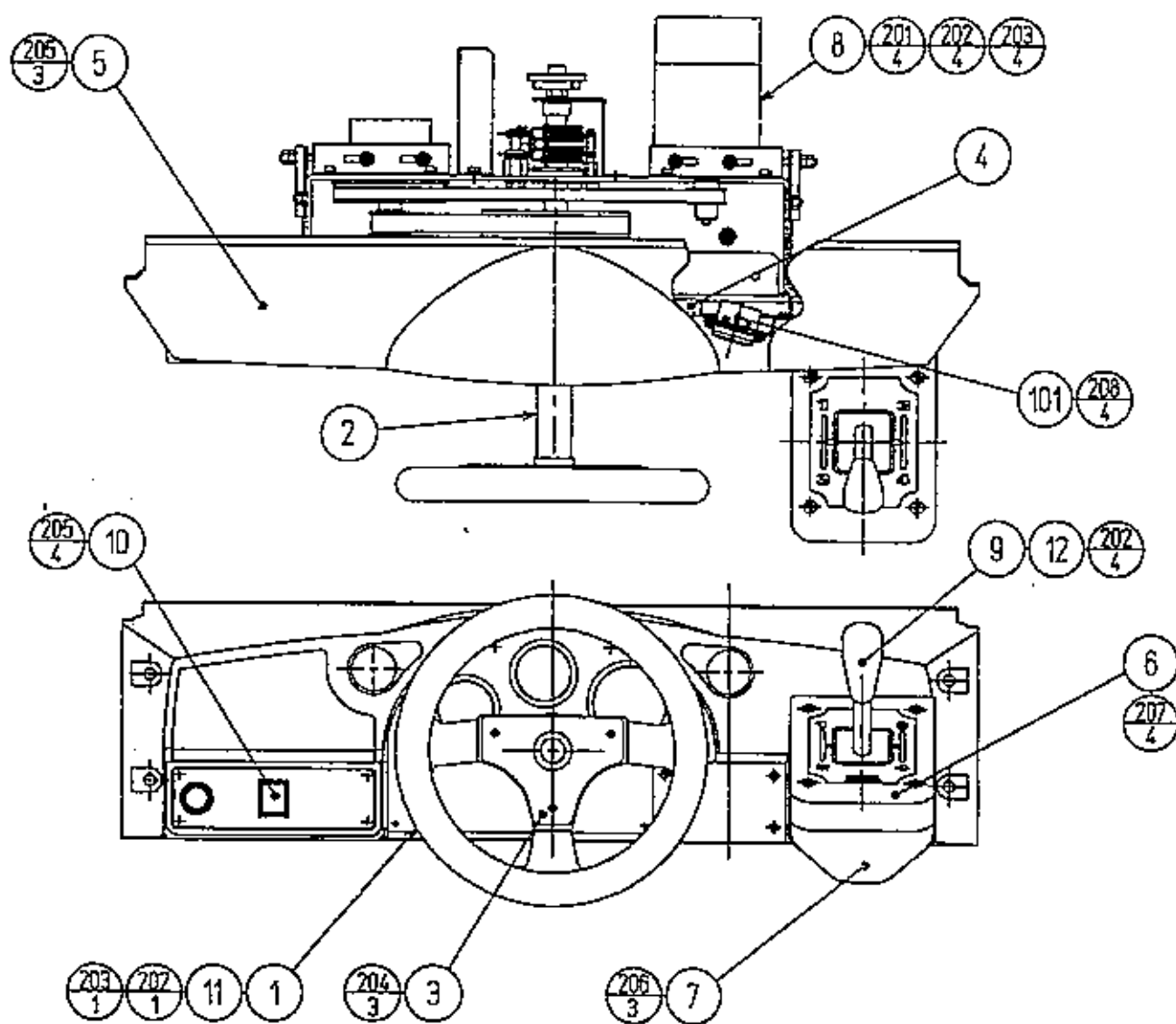
⑭ ASSY SPEAKER R (DYN-1600)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	DYN-1501	SP BRKT F	
2	DYN-1502	SP BRKT R	
101	130-5113	SPEAKER BOX DOME	
102	280-0425	CORD CLAMP ϕ 10	
201	000-P00412-W	M SCR PH W/FS M4 \times 12	
202	011-P00412	TAP SCR PH 4 \times 12	
203	060-F00400	PLT WSHR M4	

⑮ ASSY CONT PNL TWIN ENG (RAL-12002)

(D-1/4)



TORQUE 200kgfcm

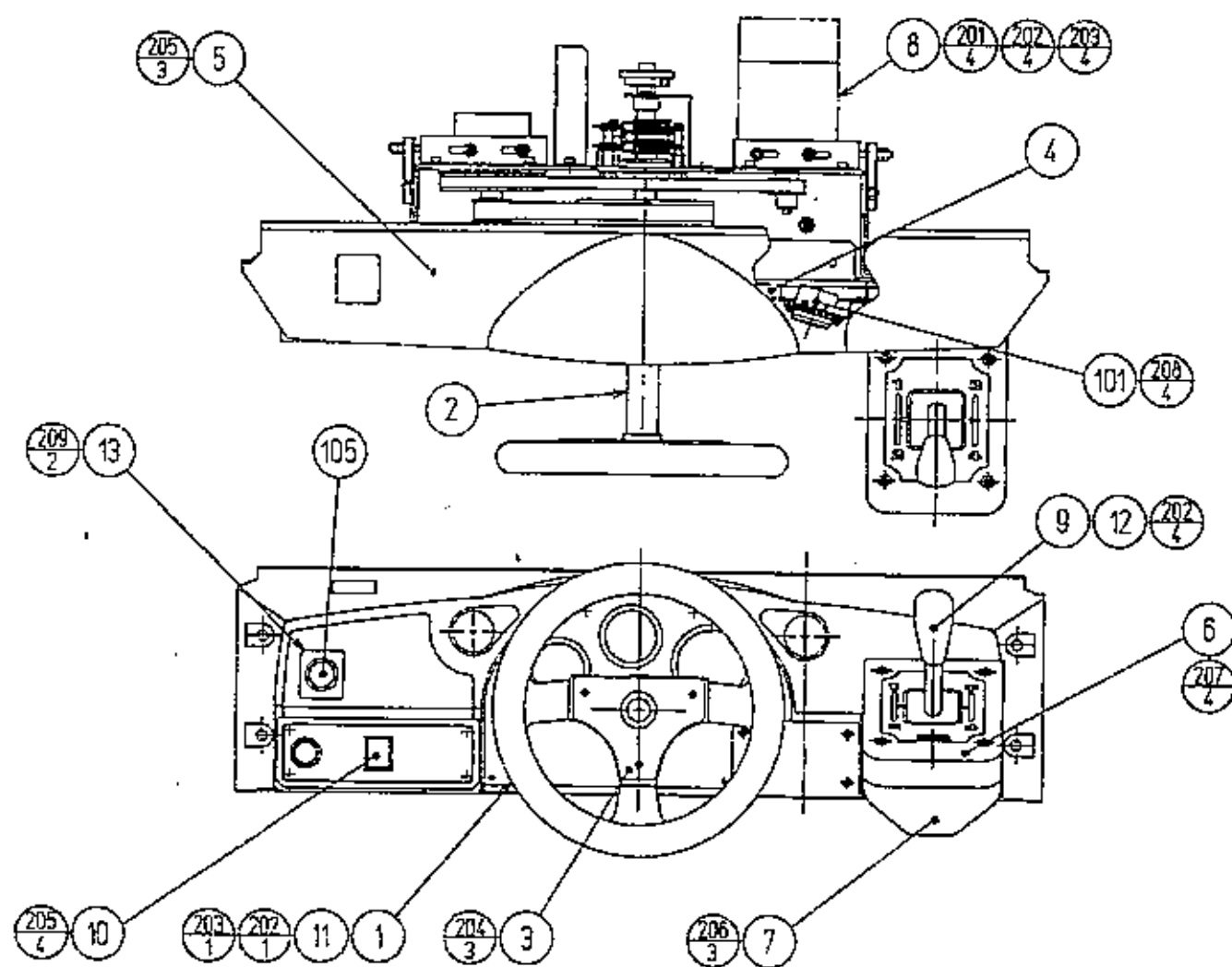
⑮ ASSY CONT PNL TWIN ENG (RAL-12002)

(D-2/4)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	DYN-1201	STEERING WHEEL	
2	DYN-1209	HANDLE COLLAR	
3	RAL-1201	STEERING EMBLEM	
4	DYN-1212	CONTROL PANEL BRKT TWIN	
5	RAL-1205-01	CONTROL PANEL COVER ENG	
6	DYN-1222	SHIFT COVER A	
7	DYN-1223	SHIFT COVER B	
8	DYN-1250	ASSY HANDLE MECHA	
9	RAL-2150	ASSY 4 SPEED SHIFTER	
10	RAL-1290	ASSY VIRTUAL BUTTON TWIN	
11	OUT-2026	SPACER	
12	DYN-1224	SPL BLT M8	
101	130-5112	TWEETER SOHM 2W ϕ 35	
102	601-0460	PLASTIC TIE BELT 100MM	
103	280-5009	CORD CLAMP ϕ 21	
104	280-0419	HARNES LUG	
201	060-F00800	FLT WSHR M8	
202	060-S00800	SPR WSHR M8	
203	050-H00800	HEX NUT M8	
204	008-T00508-0C	TMP PRF SCR TH CRM M5 \times 8	
205	000-T00416-0B	M SCR TH BLK M4 \times 16	
206	000-P00412-W	M SCR PH W/FS M4 \times 12	
207	000-T00412-0B	M SCR TH BLK M4 \times 12	
208	000-P00308-W	M SCR PH W/FS M3 \times 8	
301	600-6373-33	WIRE HARN EXT TWEETER	
302	600-6373-45	WIRE HARN EXT SHIFT	
303	600-6373-46	WIRE HARN VIRTUAL BUTTON	

⑮ ASSY CONT PNL TWIN MARS (RAL-12003)

(D-3/4)



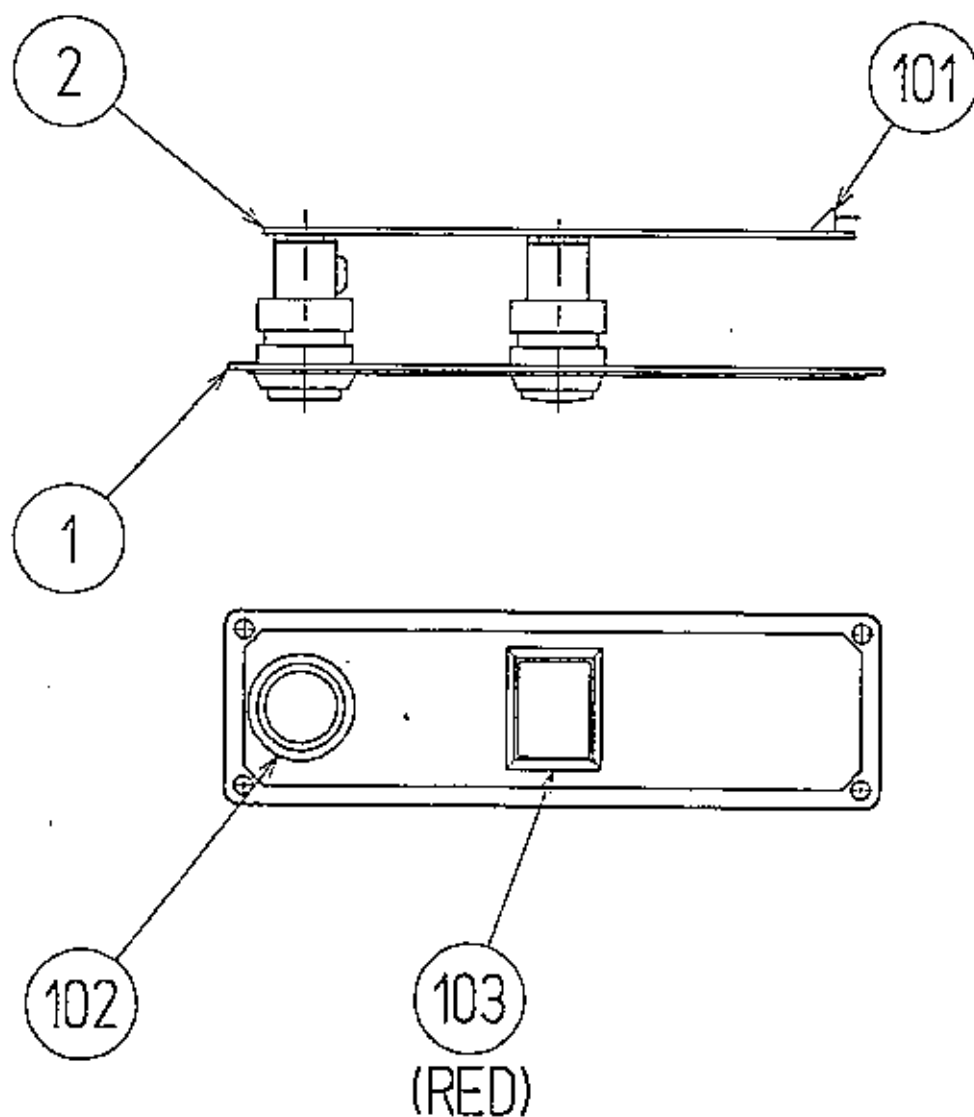
TORQUE 200kgfcm

⑮ ASSY CONT PNL TWIN MARS (RAL-12003)

(0-4/4)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	DYN-1201	STEERING WHEEL	
2	DYN-1209	HANDLE COLLAR	
3	RAL-1201	STEERING EMBLEM	
4	DYN-1212	CONTROL PANEL BRKT TWIN	
5	RAL-1205-02	CONTROL PANEL COVER MARS	
6	DYN-1222	SHIFT COVER A	
7	DYN-1223	SHIFT COVER B	
8	DYN-1250	ASSY HANDLE MECHA	
9	RAL-2150	ASSY 4 SPEED SHIFTER	
10	RAL-1290	ASSY VIRTUAL BUTTON TWIN	
11	OUT-2026	SPACER	
12	DYN-1224	SPL BLT M8	
13	117-5164	START PLATE 37×42	
101	130-5112	TWEETER 80HM 2W ϕ 35	
102	601-0460	PLASTIC TIE BELT 100MM	
103	280-5009	CORD CLAMP ϕ 21	
104	280-0419	HARNESS LUG	
105	509-5440	PUSH BTN SW 1T GREEN W/L DC14V	
201	060-F00800	FLT WSHR M8	
202	060-S00800	SPR WSHR M8	
203	050-H00800	HEX NUT M8	
204	008-T00508-0C	TMP PRF SCR TH CRM M5×8	
205	000-T00416-0B	M SCR TH BLK M4×16	
206	000-P00412-W	M SCR PH W/FS M4×12	
207	000-T00412-0B	M SCR TH BLK M4×12	
208	000-P00308-W	M SCR PH W/FS M3×8	
209	050-F00300	FLG NUT M3	
301	600-6373-33	WIRE HARN EXT TWEETER	
302	600-6373-45	WIRE HARN EXT SHIFT	
303	600-6373-46	WIRE HARN VIRTUAL BUTTON	
304	600-6373-78	WIRE HARN PLAYER SELECT SW	

①⑥ ASSY VIRTUAL BUTTON TWIN (RAL-1290)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	RAL-1291	VR BUTTON BRKT	
2	171-6478B	PC BD LIGHTING SWX5	
101	212-5205-12	CONN JST M 12P RTA	
102	509-5560-Y	PB SW W/L 6V 1L Y	YELLOW
103	509-5561-R	PB SW W/L 6V 5L R	RED

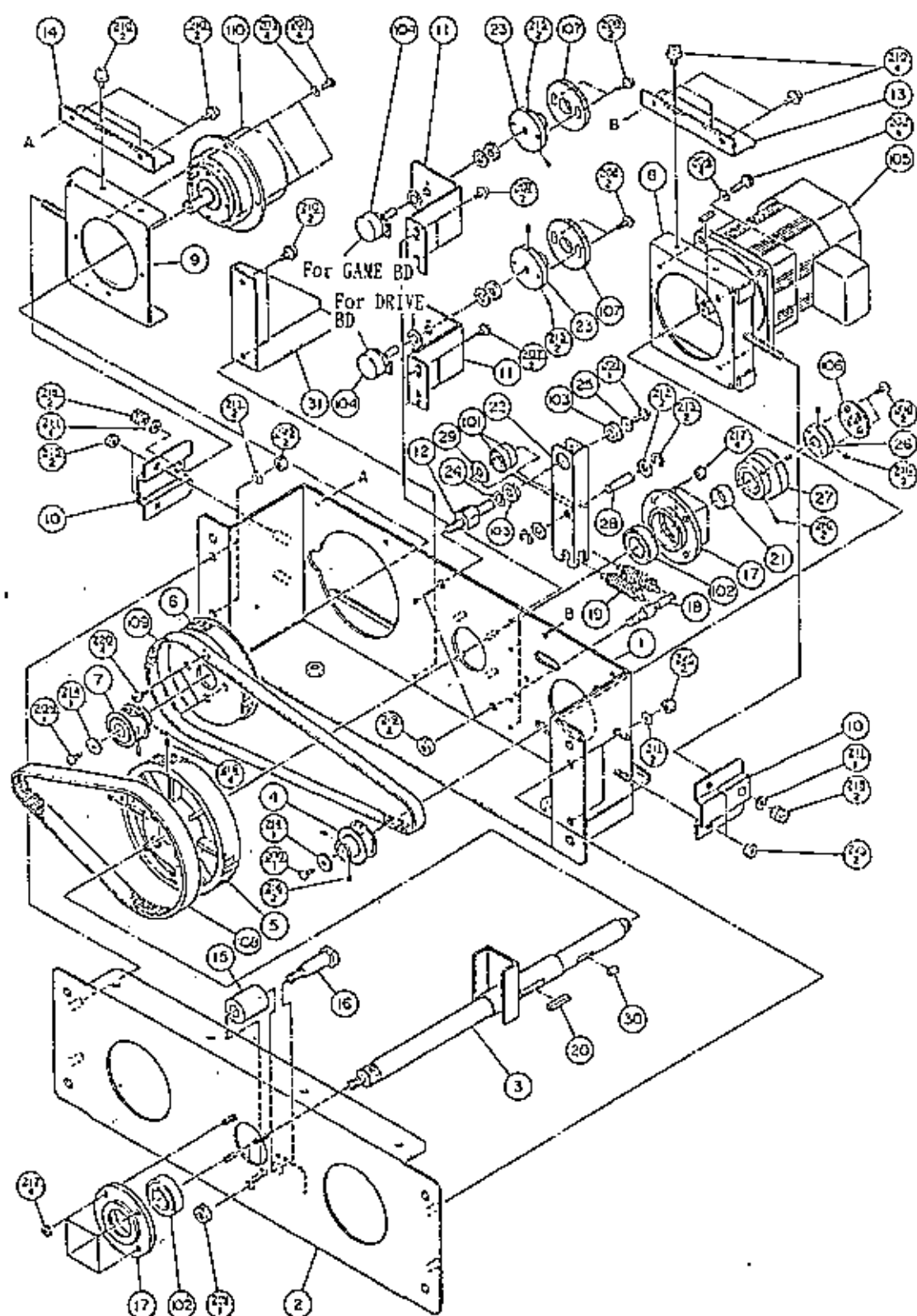
①7 ASSY 4 SPEED SHIFTER (RAL-2150)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	RAL-2151	SHIFT KNOB	
2	RAL-2152	REAR BASE	
3	RAL-2153	FRONT BASE	
4	RAL-2154	SHAFT CASE A	
5	RAL-2155	SHAFT CASE B	
6	RAL-2156	SLIDE PLATE BASE	
7	RAL-2157	RUBBER CASE	
8	RAL-2158	RUBBER CASE LID	
9	RAL-2159	ROLLER SUPPORT PLATE	
10	RAL-2160	SW CAM	
11	RAL-2161	FLT WSHR 8.1-14×1.2	
12	RAL-2162	SIDE SUPPORT PLATE	
13	RAL-2163	SLIDE PLATE COVER	
14	RAL-2164	JOINT BAR	
15	RAL-2165	STOPPER BAR	
16	RAL-2166	COLLAR φ10	
17	RAL-2167	COLLAR φ6.2	
18	RAL-2168	COLLAR φ8	
19	RAL-2169	CENTERING BLOCK	
20	RAL-2170	SPACER PLATE	
21	RAL-2171	STOPPER RUBBER	
22	RAL-2172	SLIDE PLATE	
23	RAL-2173	RUBBER RING φ29	
24	RAL-2174	RUBBER BLOCK 45	
25	RAL-2175	RUBBER BLOCK 65	
101	509-5636	SW MICRO TYPE SS-5GL2T	
102	100-5188	DERURIN ROLLER φ26H6.35	
103	100-5193	GROMMET φ11	
104	280-5257	TAI BASE TAI88	
105	280-5251	SELF MOUNT TIE 2.5	
106	601-0460	PLASTIC TIE BELT 100MM	
201	000-P00408-W	M SCR PH W/FS M4×8	
202	000-P00514-W	M SCR PH W/FS M5×14	
203	000-F00408	M SCR FH M4×8	
204	000-P00212	M SCR PH M2×12	
205	050-U00600	U NUT M6	
206	060-P00200	FLT WSHR M2	
207	060-S00200	SPR WSHR M2	
301	600-6445-45	WIRE HARN SHIFT MECHA	
302	600-6445-65	WIRE HARN EARTH SHIFT MECHA	

18 ASSY HANDLE MECHA (DYN-1250)

(D-1/3)



⑱ ASSY HANDLE MECHA (DYN-1250)

(D-2/3)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	DYN-1251	HANDLE BASE	
2	DYN-1252	BASE LID	
3	DYN-1253	HANDLE SHAFT	
4	DYN-1254	DRIVE PULLEY	
5	DYN-1255	HANDLE PULLEY	
6	DYN-1256	CLUTCH PULLEY A	
7	DYN-1257	CLUTCH PULLEY B	
8	DYN-1258	MOTOR BRACKET	
9	DYN-1259	CLUTCH BRACKET	
10	DYN-1260	TENSIONER BRACKET	
11	DYN-1261	VR BRACKET	
12	DYN-1262	SWING ARM SHAFT	
13	DYN-1263	GUIDE HOLDER A	
14	DYN-1264	GUIDE HOLDER B	
15	DYN-1265	STOPPER RUBBER	
16	DYN-1266	STOPPER BOLT	
17	DYN-1267	HOUSING	
18	DYN-1268	SPRING HOOK	
19	DYN-1269	EXT SPRING	
20	DYN-1270	STOPPER KEY	
21	DYN-1272	SPACER RING	
22	DYN-1273	SWING ARM	
23	BVG-1221	GEAR HOLDER	
24	BVG-1340	FLT WSHR 8.1-12×2	
25	BVG-1341	FLT WSHR 4.1-12×2	
26	SLC-1130	ADJUST RING	
27	SLC-1141X	WHITE CAM	
28	SOR-2112	BEARING SHAFT	
29	SOR-2113	SPACER	
30	SOR-2115	KEY 5×10	
31	DYN-1274	GUARD BRKT	
101	100-5018	BALL BEARING $\phi 8$ (NSK 608ZZ)	
102	100-5112	BEARING $\phi 17$ (NSK 6003ZZ)	
103	100-5041	BEARING (NSK F688ZZ)	
104	220-5373	VOL CONT B-5K OHM	
104	220-5484	VOL CONT B-5K OHM	
105	350-5235	MOTOR AC100V 1250/1550rpm W/H	
105	350-5294	MOTOR AC100V 60W	
106	601-6172	GEAR 48	
107	601-6959	GEAR 64	
108	601-7487	TIMING BELT (150 5M 550)	
109	601-7488	TIMING BELT (100 5M 750)	
110	601-7489	PARTICLE CLUTCH BRAKE	
111	310-5029-F20	SUMITUBE F F20MM	
112	601-0460	PLASTIC TIE BELT 100mm	
114	209-0023	CONN CLOSED END	SMALL TYPE
201	020-000410-HZ	HEX SKT CAP SCR BLK OZ M4×10	
202	020-000512-HZ	HEX SKT CAP SCR BLK OZ M5×12	
203	060-S00400	SPR WSHR M4	
204	060-S00500	SPR WSHR M5	

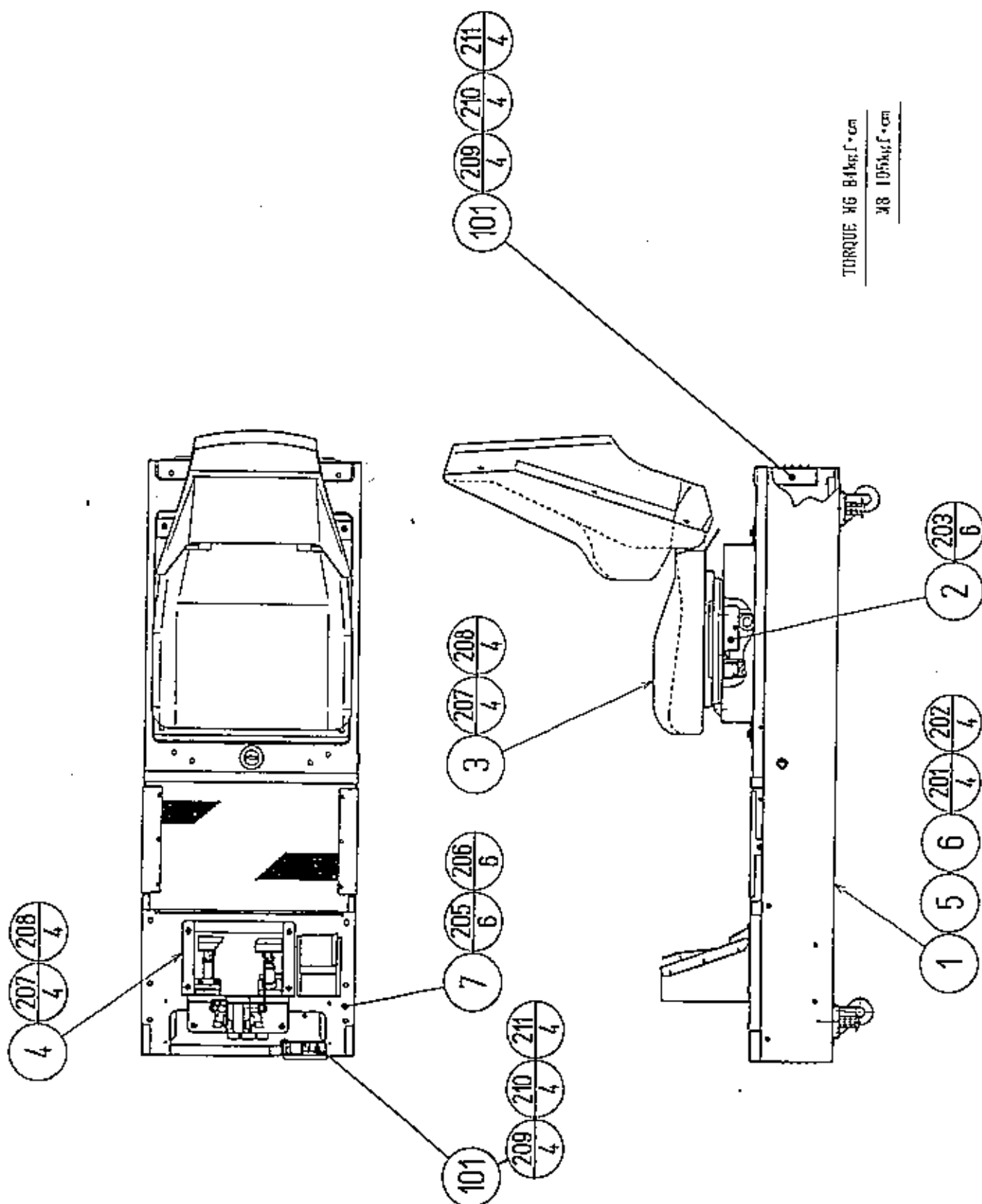
⑱ ASSY HANDLE MECHA (DYN-1250)

(D-3/3)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
207	000-P00408-W	M SCR PH W/FS M4×8	
208	000-P00412-W	M SCR PH W/FS M4×12	
209	000-P00416-S	M SCR PH W/S M4×16	
210	000-P00508-W	M SCR PH W/FS M5×8	
211	060-F00600	FLT WSHR M6	
212	060-F00800	FLT WSHR M8	
213	065-E00700	B RING 7MM	
214	068-441616	FLT WSHR 4.4-16×1.6	
215	028-A00308-P	SET SCR HEX SKT CUP P M3×8	
216	028-A00408-P	SET SCR HEX SKT CUP P M4×8	
217	050-U00500	U NUT M5	
218	050-H00600	HEX NUT M6	
219	050-U00800	U NUT M8	
220	000-P00408-S	M SCR PH W/S M4×8	
221	000-P00310	M SCR PH M3×10	
222	060-F00300	FLT WSHR M3	
223	060-S00300	SPR WSHR M3	
225	050-U00600	U NUT M6	
301	600-6363-64	WIRE HARN HANDLE MECHA	
302	600-6363-65	WIRE HARN STEERING	
303	600-6363-85	WIRE HARN EARTH HANDLE MECHA	

①9 ASSY MAIN BASE (RAL-20001)

(D-1/2)

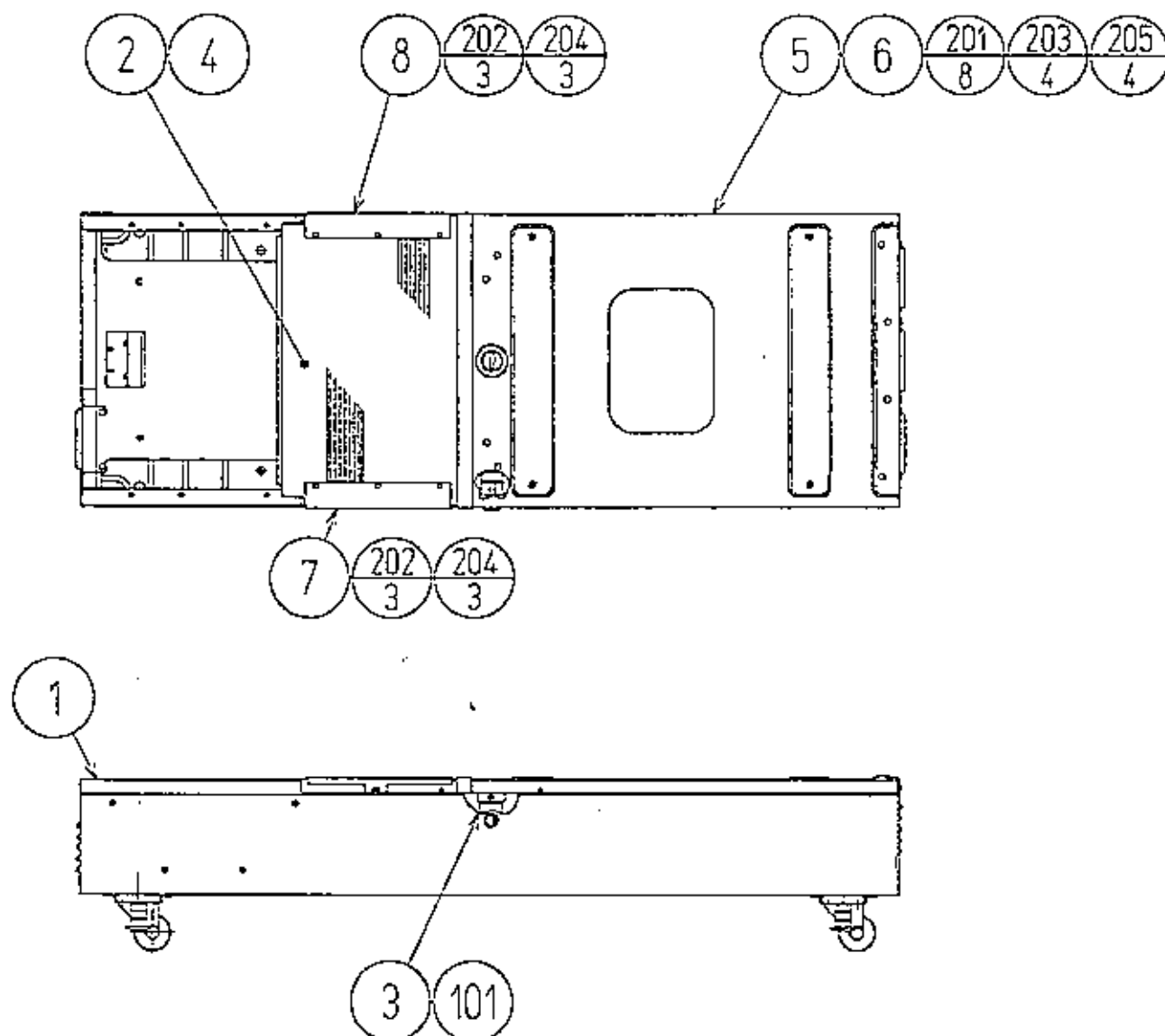


①9 ASSY MAIN BASE (RAL-20001)

(D-2/2)

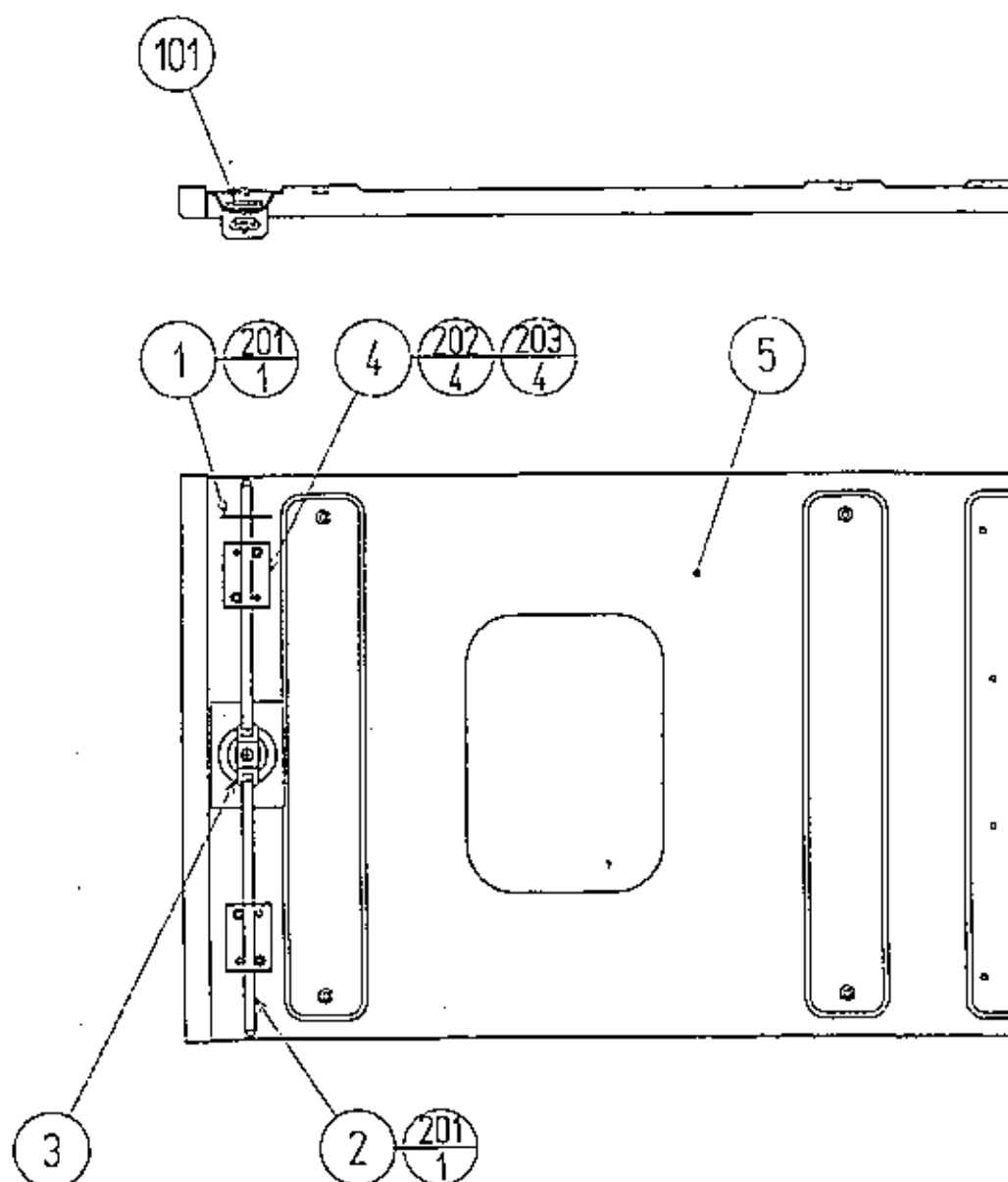
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	RAL-2001	ASSY BASE BOX	
2	DYN-2060	ASSY WOOFER	
3	RAL-2080	ASSY SEAT TWIN	
4	DYN-1300	ASSY ACCEL & BRAKE	
5	RAL-2400	ASSY SHIELD CASE TWIN	
6	RAL-40001	ASSY PWR SPLY TWIN	
7	DYN-2008X	PEDAL BASE	
101	260-0056	AXIAL FLOW FAN AC115V 50-60Hz	
	260-0011-02	AXIAL FLOW FAN AC100V 50-60Hz	
102	600-6275-0300	ASSY FIBER CABLE $\phi 5$ 0300CM	
103	601-0460	PLASTIC TIE BELT 100MM	
104	280-5009	CORD CLAMP $\phi 21$	
105	280-0425	CORD CLAMP $\phi 10$	
106	280-5169	CORD CLAMP TL-20S	
201	000-P00425-W	M SCR PH W/FS M4 \times 25	
202	068-441616	FLT WSHR 4, 4-16 \times 1.6	
203	000-P00412-W	M SCR PH W/FS M4 \times 12	
204	050-F00500	FLG NUT M5	
205	030-000616-SB	HEX BLT W/S BLK M6 \times 16	
206	060-F00600-0B	FLT WSHR BLK M6	
207	030-000816-SB	HEX BLT W/S BLK M8 \times 16	
208	060-F00800-0B	FLT WSHR BLK M8	
209	000-P00350	M SCR PH M3 \times 50	
210	060-S00300	SPR WSHR M3	
211	060-P00300	FLT WSHR M3	
301	600-6373-28	WIRE HARN EXT RGB	
302	600-6373-35	WIRE HARN AC FAN	
303	600-6373-41	WIRE HARN ACCEL&BRAKE	
304	600-6373-42	WIRE HARN EXT COIN	
305	600-6373-43	WIRE HARN EXT BUTTON&SHIFT	
306	600-6373-12-91	WIRE HARN AC FAN REAR	
307	600-6373-81	WIRE HARN EARTH REAR	
308	600-6559-19	WIRE HARN WOOFER	

②① ASSY BASE BOX (RAL-2001)



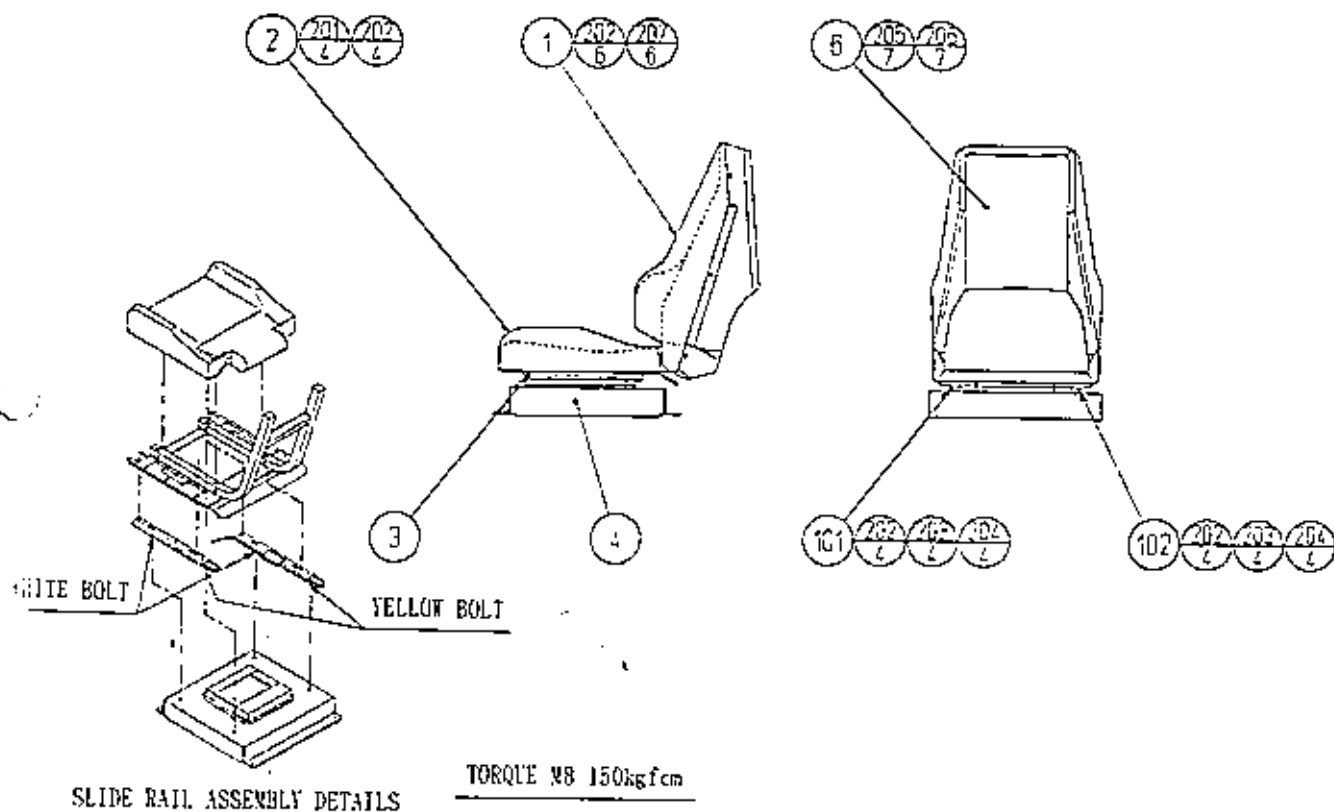
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	RAL-2002	MAIN BASE	
2	DYN-2003	BASE LID F	
3	DYN-2004	LOCK TNG	
4	DYN-2005X	FLOOR MAT	
5	RAL-2006	HINGE 480	
6	DYN-2010	ASSY BASE LID R	
7	DYN-2007	LID EDGE L	
8	DYN-2009	LID EDGE R	
101	220-5380	MAG LOCK MASTER W/O KEY	
201	000-T00512-0B	M SCR TH BLK M5×12	
202	031-000414-0C	CRG BLT CRM M4×14	
203	031-000514-0B	CRG BLT BLK M5×14	
204	050-F00400	FLG NUT M4	
205	050-F00500	FLG NUT M5	

② ASSY BASE LID R (DYN-2010)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	DYN-2011	LOCK ROD A	
2	DYN-2012	LOCK ROD B	
3	DYN-2013	LOCK ARM	
4	DYN-2014	ROD HOLDER	
5	DYN-2015	BASE LID R	
101	601-7551	LOCK HANDLE (TAKIGEN A-88)	
201	045-C02520	COT PIN 2.5×20	
202	031-000510-0B	CRG BLT BLK M5×10	
203	050-F00500	FLG NUT M5	

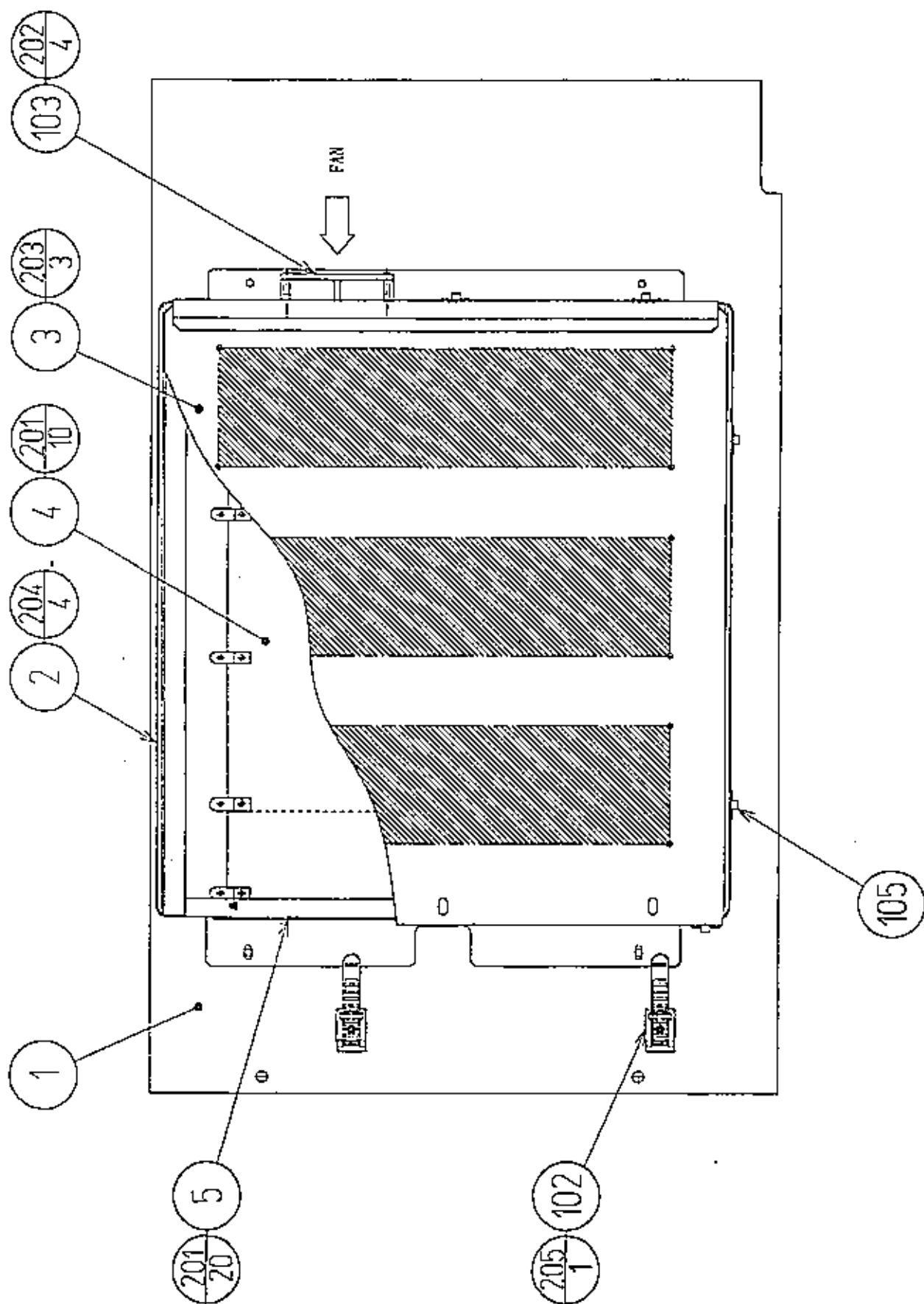
22 ASSY SEAT TWIN (RAL-2080)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	DYN-2131	UPPER SEAT	
2	DYN-2132	LOWER SEAT	
3	RAL-2081	SEAT FRAME TWIN	
4	RAL-2082	SEAT BASE	
6	RAL-2084	SEAT BACK COVER	
101	601-7942	SEAT RAIL AL L	
102	601-7981	SEAT RAIL AL R	
201	030-000850-SB	HEX BLT W/S BLK M8×50	
202	060-F00800-OB	FLT WSHR BLK M8	
203	060-S00800-OB	SPR WSHR BLK M8	
204	050-H00800-OB	HEX NUT BLK M8	
205	000-T00412-OC	M SCR TH CRM M4×12	
206	068-441616-OC	FLT WSHR CRM 4, 4-16×1.6	
207	030-000845-S	HEX BLT W/S M8×45	

②③ ASSY SHIELD CASE TWIN (RAL-2400)

(D-1/2)



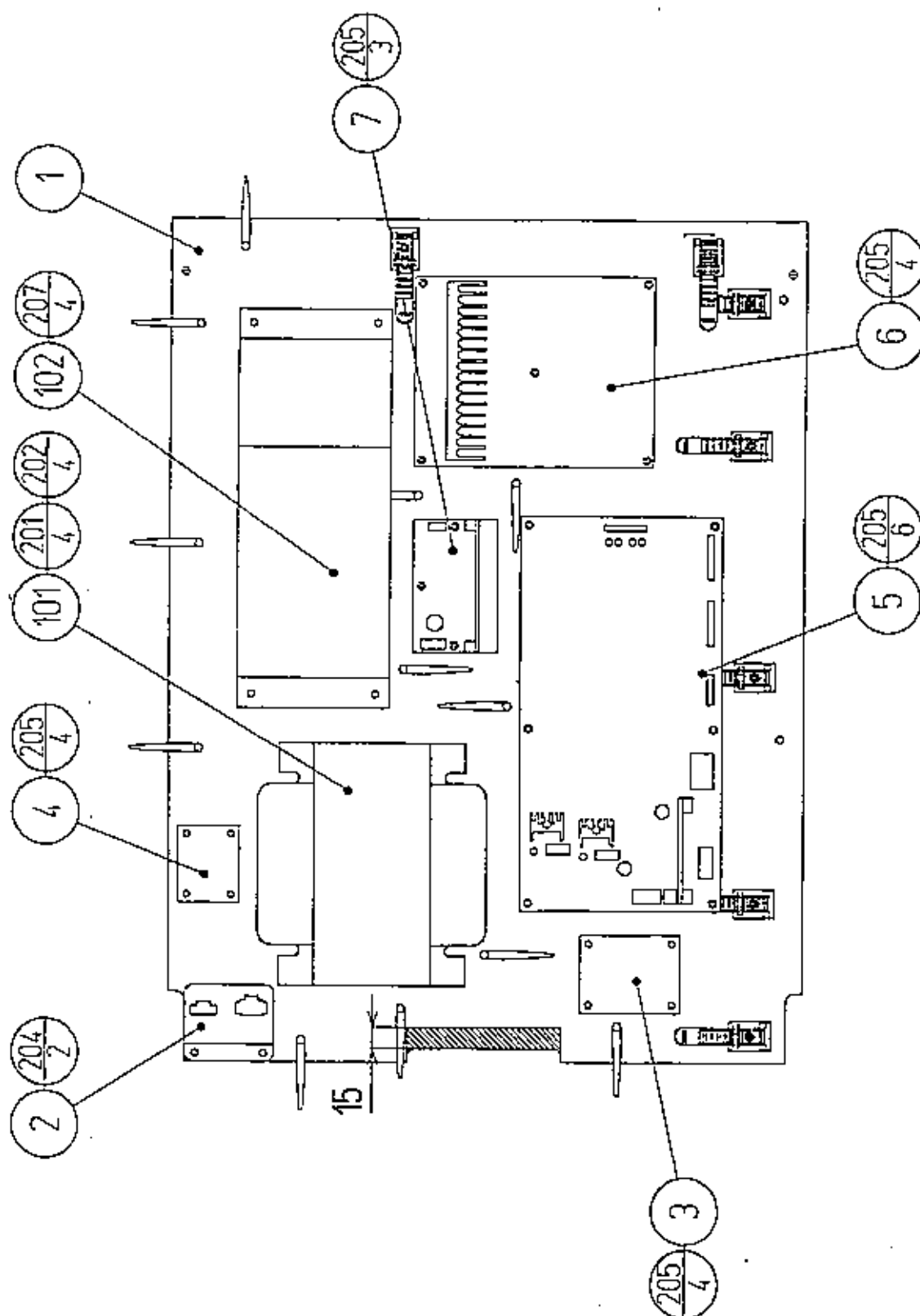
②3 ASSY SHIELD CASE TWIN (RAL-2400)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	RAL-2401	WOODEN BASE	
2	NMG-0202X	SHIELD CASE MAIN A	
3	NMG-0203	SHIELD CASE LID A	
4	833-11649	GAME BD RALLY TWIN	
5	839-0744	FILTER BD A-CRX RALLY	
101	601-0460	PLASTIC TIE BELT 100MM	
102	280-5009	CORD CLAMP ϕ 21	
103	260-0055	FAN MOTOR DC5V	
104	209-0023	CONN CLOSED END	SMALL TYPE
105	280-0425	CORD CLAMP ϕ 10	
201	010-P00308-F	S-TITE SCR PH W/F M3 \times 8	
202	000-P00330-W	M SCR PH W/FS M3 \times 30	
203	000-P00408-W	M SCR PH W/FS M4 \times 8	
204	000-P00414-W	M SCR PH W/FS M4 \times 14	
205	011-F00310	TAP SCR PH 3 \times 10	
301	600-6363-81	WIRE HARN DC FAN B	
302	600-6559-01	WIRE HARN SHIELD CASE DC PWR	
303	600-6559-02	WIRE HARN SHIELD CASE SOUND	
304	600-6559-03	WIRE HARN SHIELD CASE RGB	
305	600-6559-04	WIRE HARN SHIELD CASE ETC	

24 ASSY PWR SPLY TWIN (RAL-40001)

(D-1/2)



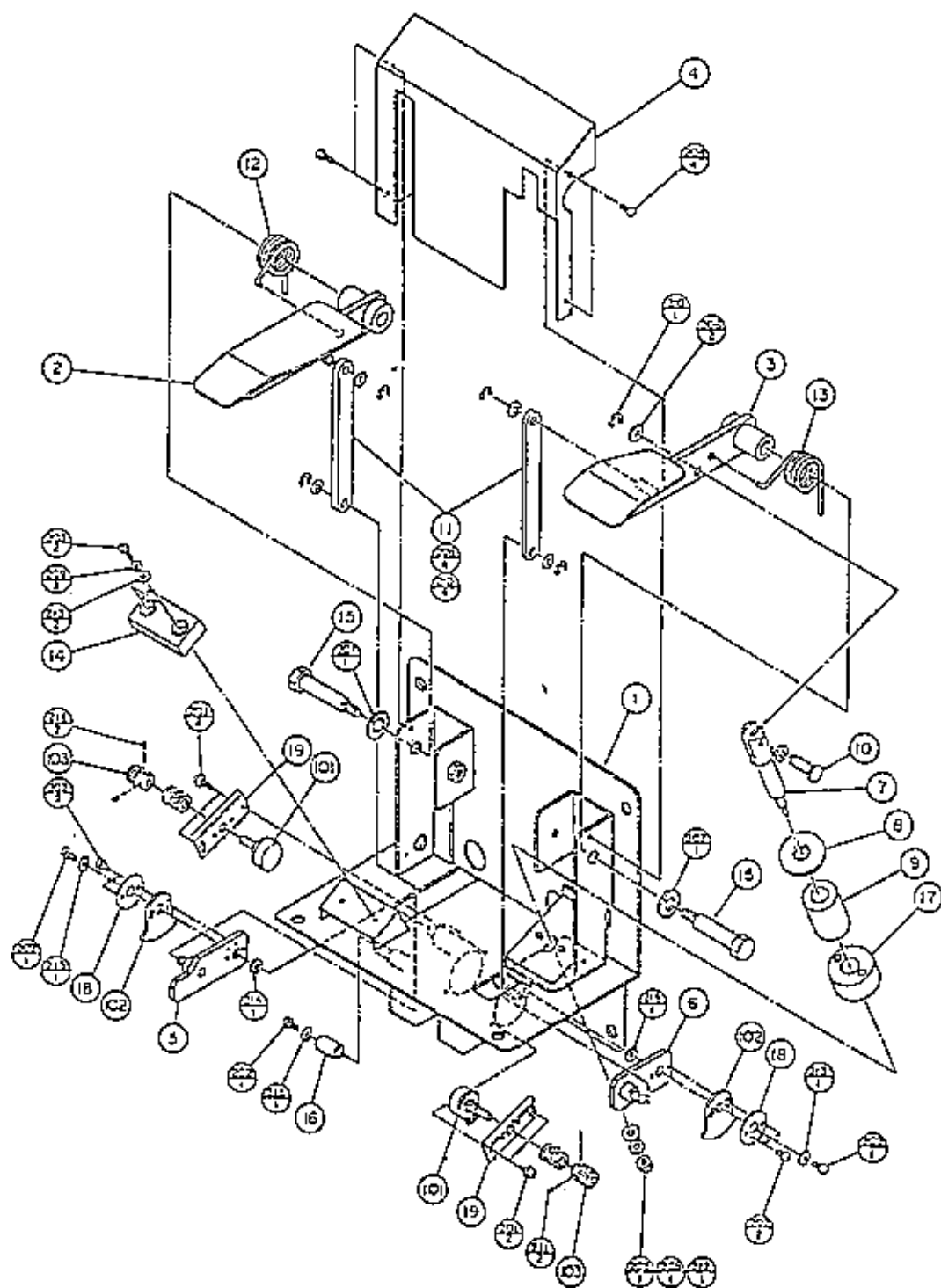
②4 ASSY PWR SPLY TWIN (RAL-40001)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	DYN-4002X	WOODEN BASE	
2	DYN-4003	CONN BRKT	
3	838-10801	CONN BD B	
4	838-10802	CONN BD C	
5	838-11661	DRIVE BD RALLY TWIN	
6	838-11650-01	EQ. PWR AMP RALLY	
7	838-11651	LOWPASS AMP	
101	560-5266	PWR XFMR 705VA	
	560-5267	PWR XFMR 705VA	
102	400-5264	SW REGU +5V12A. +12V1.5A. -5V. 1A	
103	280-5009	CORD CLAMP ϕ 21	
104	601-0460	PLASTIC TIE BELT 100MM	
105	280-0419	HARNES LUG	
201	000-P00416-S	M SCR PH W/S M4 \times 16	
202	068-441616	FLT WSHR 4.4-16 \times 1.6	
203	011-P00310	TAP SCR FH 3 \times 10	
204	011-P03510	TAP SCR PH 3.5 \times 10	
205	011-P00325	TAP SCR PH 3 \times 25	
206	011-P00310	TAP SCR PH 3 \times 10	
207	000-P00414-W	M SCR PH W/FS M4 \times 14	
301	600-6373-01	WIRE HARN CONN BD C	
302	600-6373-02	WIRE HARN XFMR IN	
303	600-6559-05	WIRE HARN SW REGU IN	
304	600-6559-06	WIRE HARN PWR AMP AC IN	
305	600-6559-07	WIRE HARN DRIVE BD AC19V IN	
306	600-6559-08	WIRE HARN XFMR 100V OUT	
307	600-6559-09	WIRE HARN SW REGU DC OUT 12P	
308	600-6559-10	WIRE HARN SW REGU DC OUT 18P	
309	600-6559-11	WIRE HARN SOUND OUT	
310	600-6559-12	WIRE HARN PWR AMP VOL. OUT	
311	600-6559-13	WIRE HARN LOWPASS AMP OUT	
312	600-6559-14	WIRE HARN PWR AMP IN	
313	600-6559-15	WIRE HARN RX	
314	600-6559-16	WIRE HARN TX	
315	600-6559-17	WIRE HARN CLUTCH OUT	
316	600-6559-18	WIRE HARN LAMP SSR	

②⑤ ASSY ACCEL & BRAKE (DYN-1300)

(D-1/2)

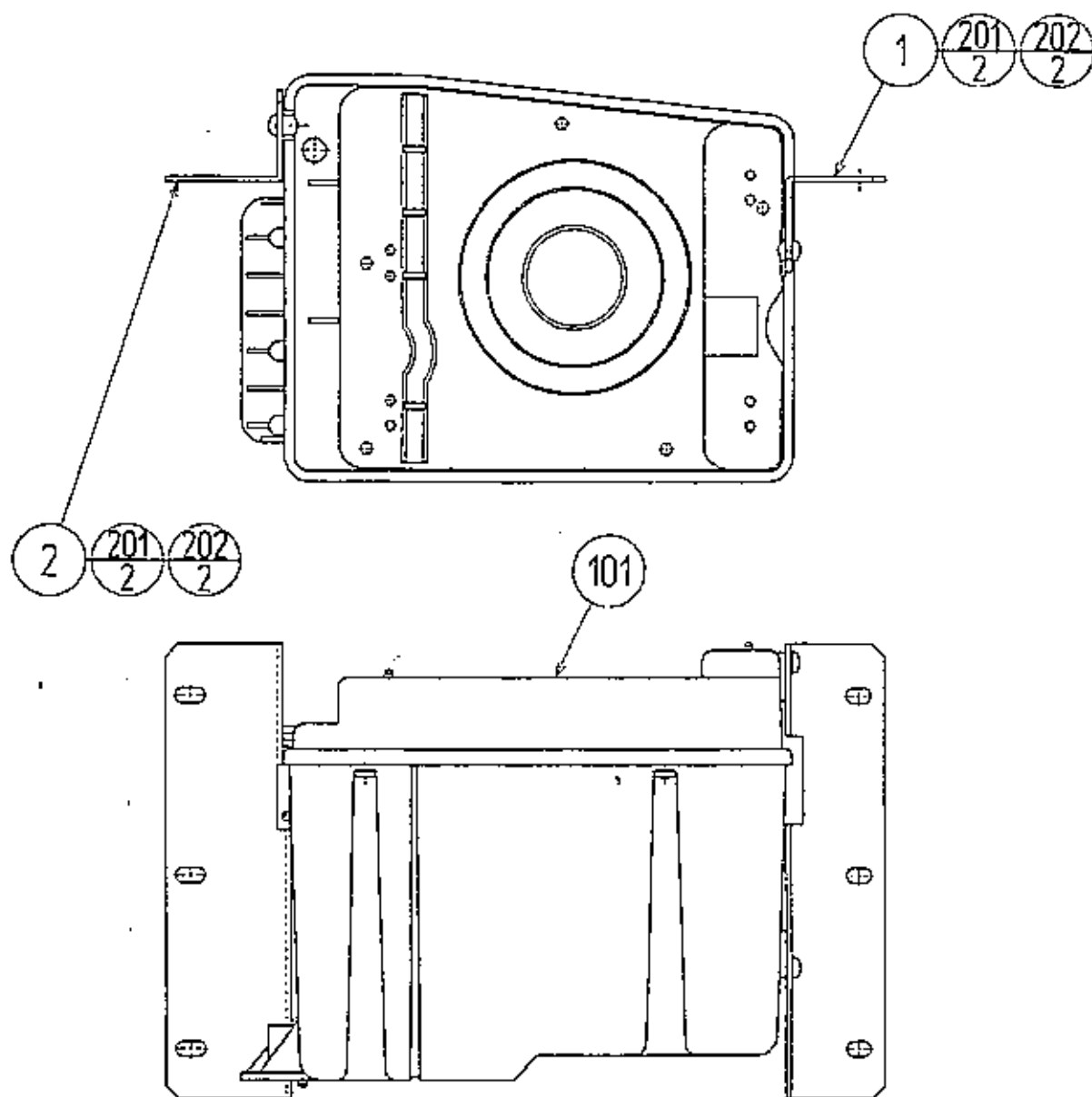


(25) ASSY ACCEL & BRAKE (DYN-1300)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	DYN-1301	PEDAL BASE	
2	BVG-1402	ACCEL PEDAL	
2	DYN-1306	ACCEL PEDAL AL	
3	BVG-1403	BRAKE PEDAL	
3	DYN-1307	BRAKE PEDAL AL	
4	BVG-1404	PEDAL COVER	
5	BVG-1405	SWING ARM A	
6	BVG-1406	SWING ARM B	
7	BVG-1407	PUSH ROD	
8	BVG-1408	PUSH PLATE	
9	DYN-1302	RUBBER DUMPER	
10	BVG-1410	PUSH ROD PIN	
11	BVG-1411	LINK ROD	
12	DYN-1303	TORSION SPRING ACCEL	
13	BVG-1413	TORSION SPRING B	
14	BVG-1414	RUBBER STOPPER	
15	BVG-1415	PEDAL SHAFT	
16	BVG-1416	SWING ARM STOPPER	
17	BVG-1417	SPACER	
18	GLC-2122	GEAR PLATE	
19	RDM-1210	VR BRACKET	
101	220-5373	VOL CONT B-5K OHM	
101	220-5484	VOL CONT B-5K OHM	
102	601-6005	ADJUST GEAR	
103	601-5943	GEAR 20 ϕ 15	
104	310-5029-F20	SUMITUBE F F20MM	ϕ 4
105	601-0460	PLASTIC TIE BELT 100mm	
106	280-5009	CORD CLAMP ϕ 21	-01 also acceptable.
201	000-P00408-W	M SCR PH W/FS M4 \times 8	
202	000-P00408-S	M SCR PH W/S M4 \times 8	
203	000-P00416-08	M SCR PH BLK M4 \times 16	
204	008-T00408-08	TMP PRF SCR TH BLK M4 \times 8	
205	050-H00600	HEX NUT M6	
206	060-F00800-08	FLT WSHR BLK M8	
207	060-S01200-08	SPR WSHR BLK M12	
208	060-S00600	SPR WSHR M6	
209	060-S00400-08	SPR WSHR BLK M4	
210	065-E00600	E RING 6MM	
211	028-A00308-P	SET SCR HEX SKT CUP P M3 \times 8	
212	068-652016	FLT WSHR 6.5-20 \times 1.6	
213	DYN-1304	FLT WSHR BLK 4.4-12 \times 1.6	
214	DYN-1305	FLT WSHR 12.2-22 \times 0.5	
301	600-6178-54	WIRE HARN ACCEL & BRAKE	
302	600-6178-113	WIRE HARN EARTH ACCEL & BRAKE	

②⑥ ASSY WOOFER (DYN-2060)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	DYN-2061	WOOFER BRKT L	
2	DYN-2062	WOOFER BRKT R	
101	130-5114	SPEAKER BOX SUB WOOFER	
102	280-0425	CORD CLAMP $\phi 10$	
201	012-P00412	TAP SCR PH 4 \times 12	
202	060-F00400	FLT WSHR M4	

21. WIRE COLOR CODE TABLE

THE WIRE COLOR CODE is as follow:

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

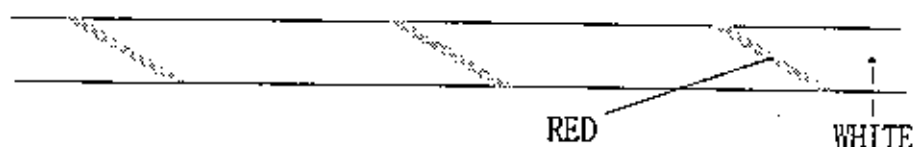
Wires other than those of any of the above 5 single colors will be displayed by 2 alphanumeric characters.

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

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

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

<Example> 51 WHITE / RED



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

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