

SEGA

Temporary Manual

LINE of FIRE UPRIGHT



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SPECIFICATIONS	
• INSTALLATION SPACE	: ¹⁸⁰⁰ 2160 mm ⁷¹ 85 in (D) × ¹⁰⁵⁰ 1070 mm ⁴¹³ 42 in (W)
• HEIGHT	: ¹⁸⁰⁰ 1650 mm ⁷¹ 64 in
• POWER	: ²⁰¹ 630 W
• C. R. T	: 26 INCH
• WEIGHT	: ²³⁰ 350 kg ⁵⁰⁷ 772 lbs.)

NOTE :

Descriptions herein contained may be subject to improvement changes without notice.

INTRODUCTION OF 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 comments together with all the necessary information covering the operation in general of electronic assemblies, electromechanicals servicing control, spare parts, etc. as regards the ^{LINE OF FIRE} SUPER-MONACO-GP a new SEGA product. The manual is intended for those who have knowledge of electricity and technical expertise especially in ICs, CRTs, microprocessors, etc. Carefully read so as to acquire sufficient knowledge before working on the machine. Should there be a malfunction, non-technical personnel should under no circumstance touch the interior system.

1. HANDLING PRECAUTIONS

When installing or inspecting, be very careful of the following points and pay attention to ensure that the player can enjoy the game safely.

- o Be sure to turn the power off before working on the machine.
- o To insert or pull out the plug quickly is dangerous.
- o It is necessary to make sure that the power cord or the grounding wire is not exposed on the road, etc. in a manner so as to be dangerous. Make sure that grounding connections are made safely at the position where so specified.
- o Do not use any fuse that does not meet the specified rating.
- o Make complete connections for the IC board and other connectors. Insufficient insertion is very dangerous.

Also, for the IC board circuit inspections, only the logic tone is allowed. The use of a tester is not permitted, so be careful in this regard. After confirming that there are no irregularities, turn the power ON.

2. PREVENTION OF COUNTERFEITING AND CONVERSION

LABELLING

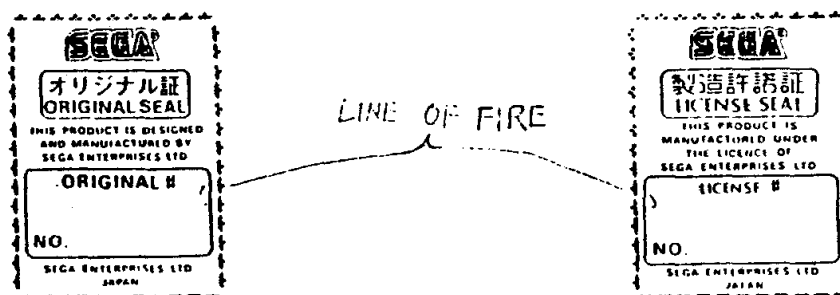
To prevent counterfeits and conversions, the following labels are put on all the SEGA products. When handling such goods, be sure to confirm the labels. They are used to prevent illegal acts such as the unauthorized copying of the products and the printed circuit boards thereof or carrying on business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



COPYRIGHT NOTICE

This SEGA product has the copyright notice as follows:

(C) SEGA 1989

This signifies that this work was disclosed in 1989 and is the property of SEGA ENTERPRISES, LTD.

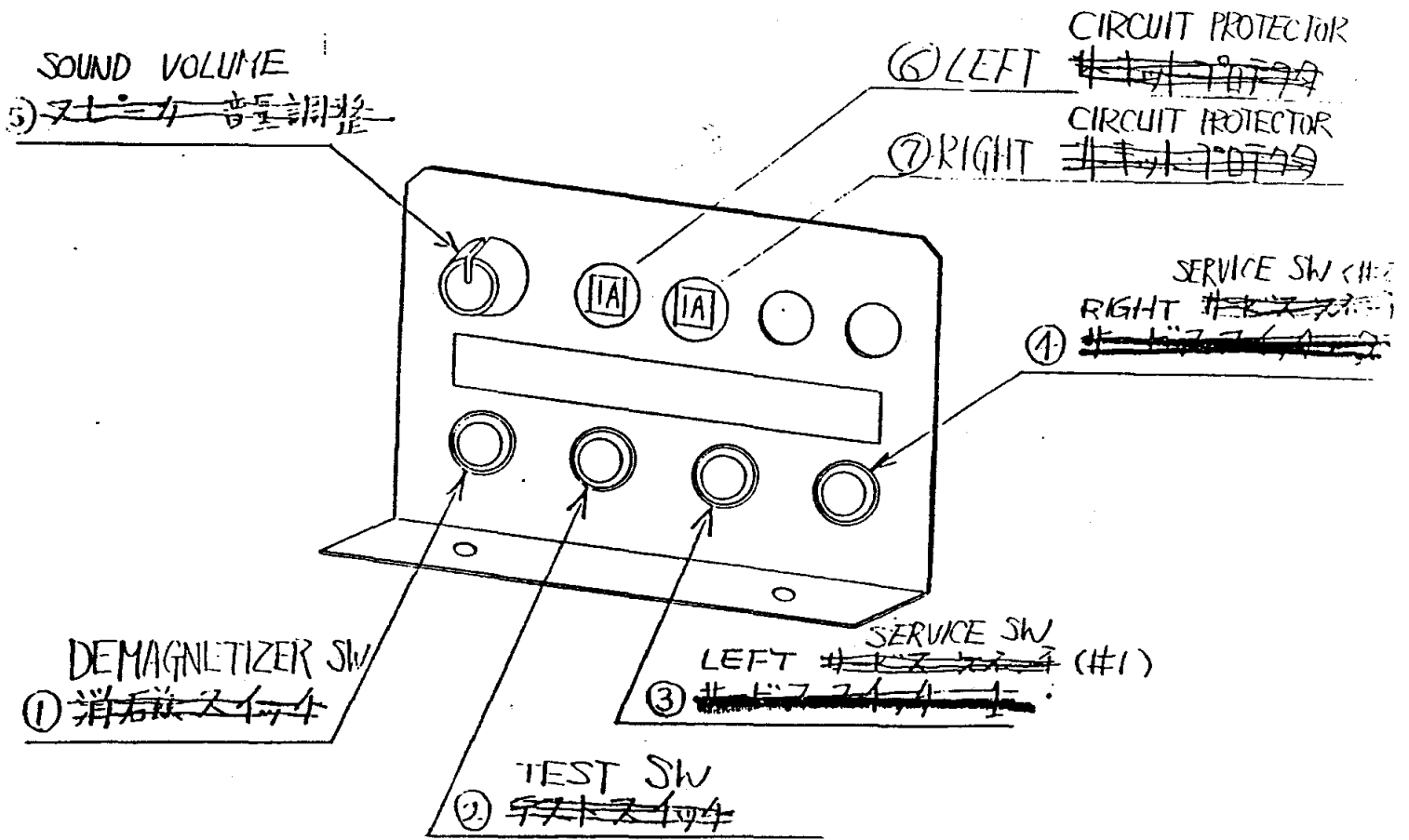
3. PRECAUTIONS CONCERNING THE PLACE OF INSTALLATION

LINE OF FIRE S/D

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

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

8
~~機~~ SERVICE SWITCH



Opening the coin chute door allows the service switch to operate.

The function of each switch is as follows:

- | | |
|---|--|
| ① DEMAGNETIZER SW | Used for removing the on-screen color unevenness. |
| ② スイッチ TEST SWITCH | Used for displaying SELF-TBST screen modes. |
| ③ LEFT SERVICE SW (#1) }
④ RIGHT SERVICE SW (#2) } | Used for the purpose of servicing and increasing the credits without registering on the meter. |
| ⑤ スピーカー SOUND VOLUME | Used for adjusting the speaker's sound volume. |

- ⑥ LEFT CIRCUIT PROTECTOR }
⑦ RIGHT CIRCUIT PROTECTOR }.....Used to prevent overcurrent of the GUN UNIT SOLENOID. When the center button is in a projected position, first turn the power OFF, push the button back to its original position and turn the power back ON again.
- *When the SOLENOID does not function, check to see if the CIRCUIT PROTECTOR is functioning.

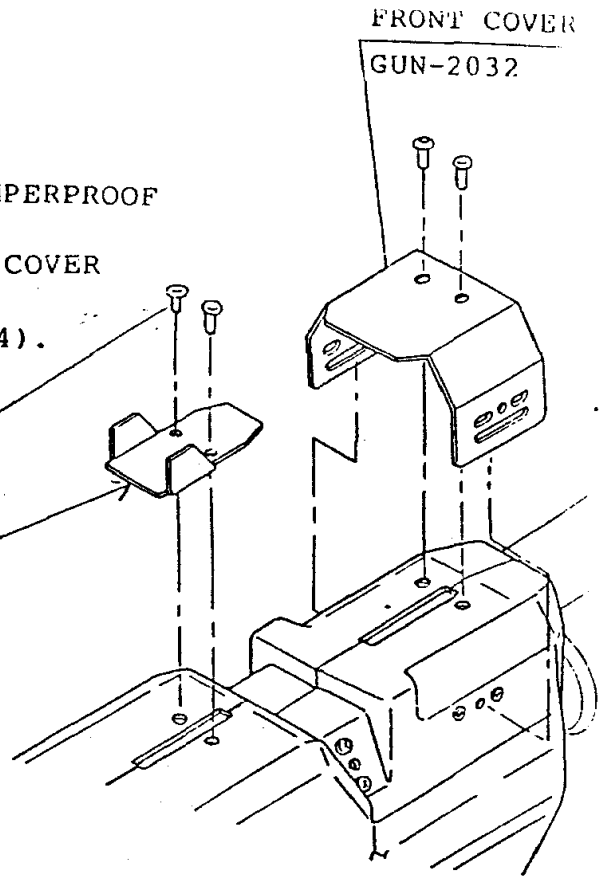
12. REPLACING THE ELECTROMAGNETIC SOLENOID

* Removing the Gun Unit Cover:

- o As shown, take off the M4 TAMPERPROOF SCREWS, and remove the FRONT COVER (GUN-2032) and SIGHT (GUN-2034).

M4 TAMPERPROOF SCREWS (4)

SIGHT
GUN-2034

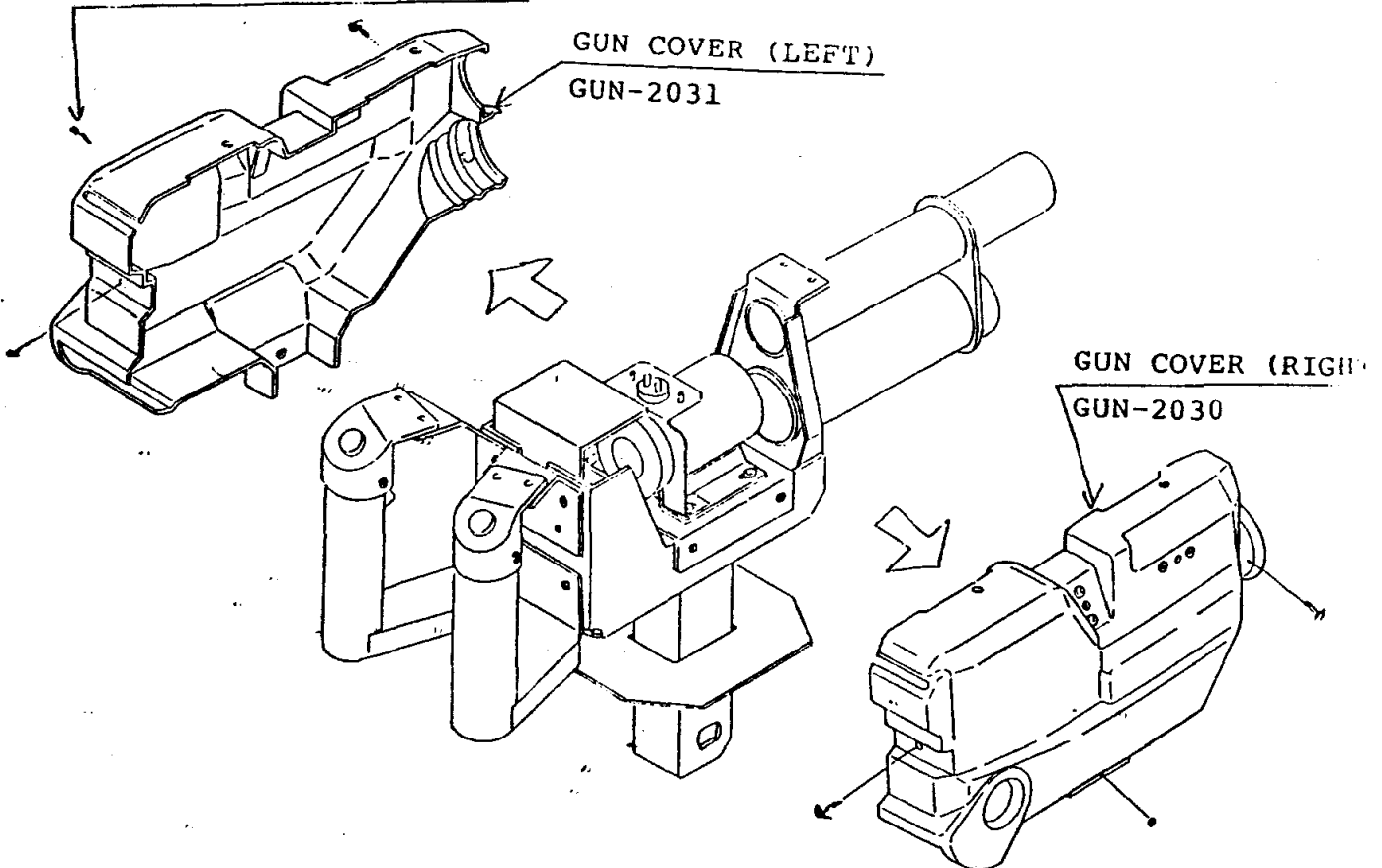


- o Take off the SIX M4 TAMPERPROOF SCREWS and remove the GUN COVER.

M4 TAMPERPROOF SCREWS (6)

GUN COVER (LEFT)
GUN-2031

GUN COVER (RIGHT)
GUN-2030

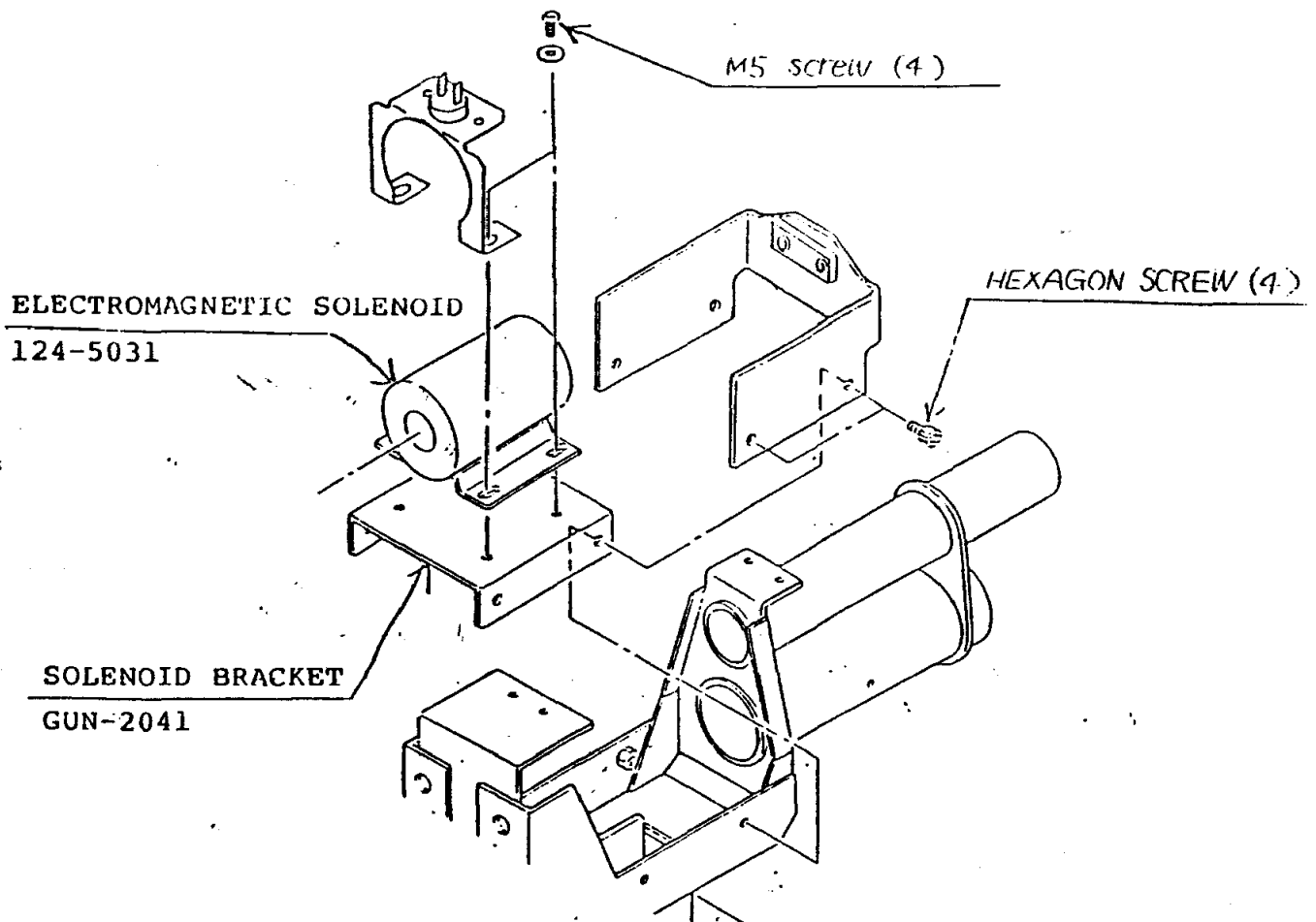


Note: The threads of the TAMPERPROOF SCREWS used for the GUN COVERS, etc. have been applied with special NYLON RESIN for the purpose of preventing the screws from loosening. Although repeated usage of the screws are possible, when they are subject to excessively frequent fastening/unfastening, the effect of the step taken to prevent the loosening of the screws will decrease.

- o By using a hexagonal wrench, take off the 4 hexagon screws and remove the electromagnetic solenoid together with the bracket.

Note: When reassembling, use an ordinary loosening prevention agent which is available on the market, for said hexagon screws.

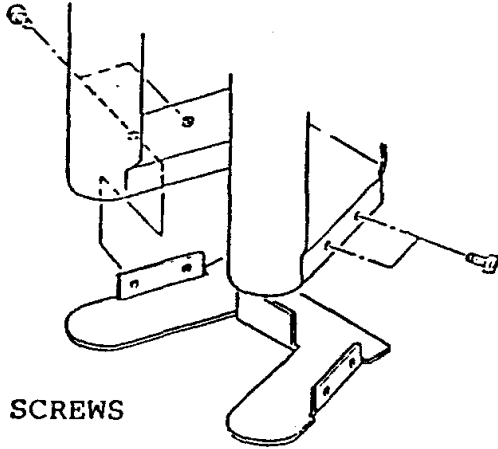
- o The SOLENOID can be removed by taking out the loosening prevention pins from the screws which secure the SOLENOID to the BRACKET, and then removing the nuts.



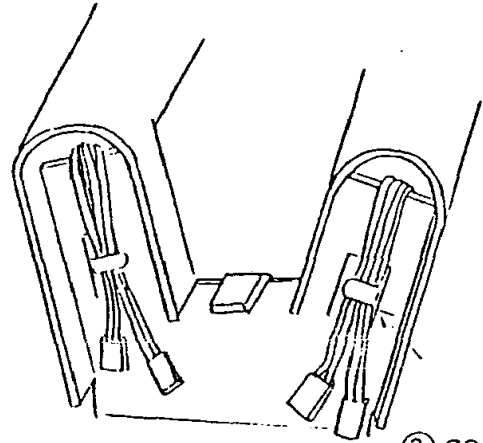
13. REMOVING THE GRIP UNIT AND REPLACING THE SWITCH

o Removing the Grip Unit

- ① Take off the 4 TAMPERPROOF SCREWS and remove the GRIP's LOWER COVER (GUN-2029).
- ② Disengage the GRIP UNIT (ASSY GRIP: GUN-2100) wiring from the CORD CLAMPS and disconnect the UNIT's wiring connectors.

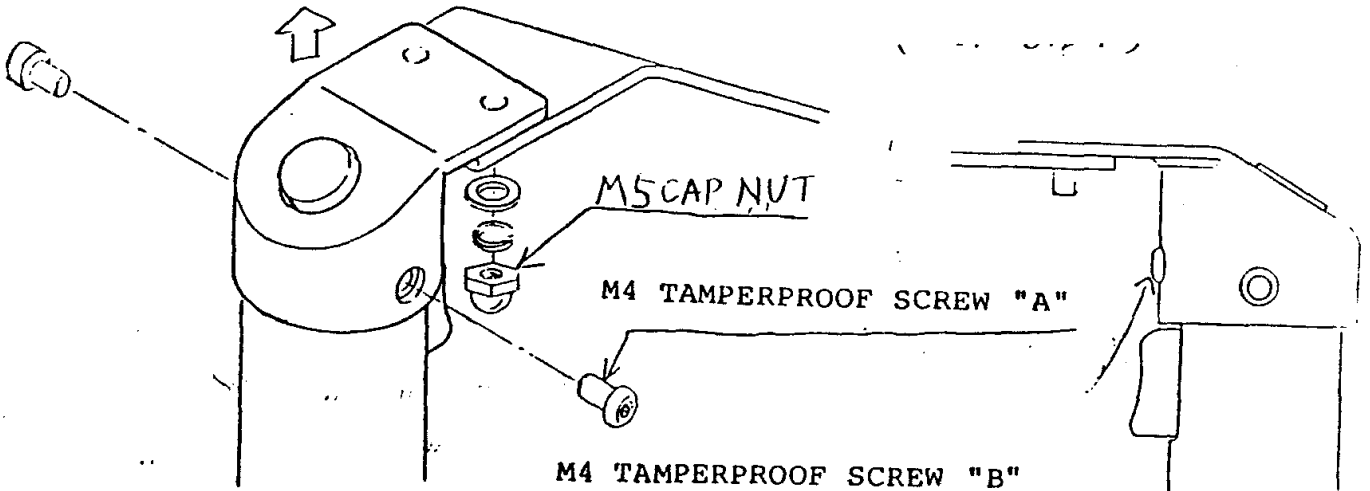


① M4 TAMPERPROOF SCREWS

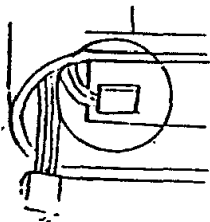


② CORD CLAMPS

- ③ As per the illustration, take off the M5 U NUTS and M4 TAMPERPROOF SCREWS "A", unfasten the M4 TAMPERPROOF SCREW "B", and pull the GRIP UNIT out in an upward position.



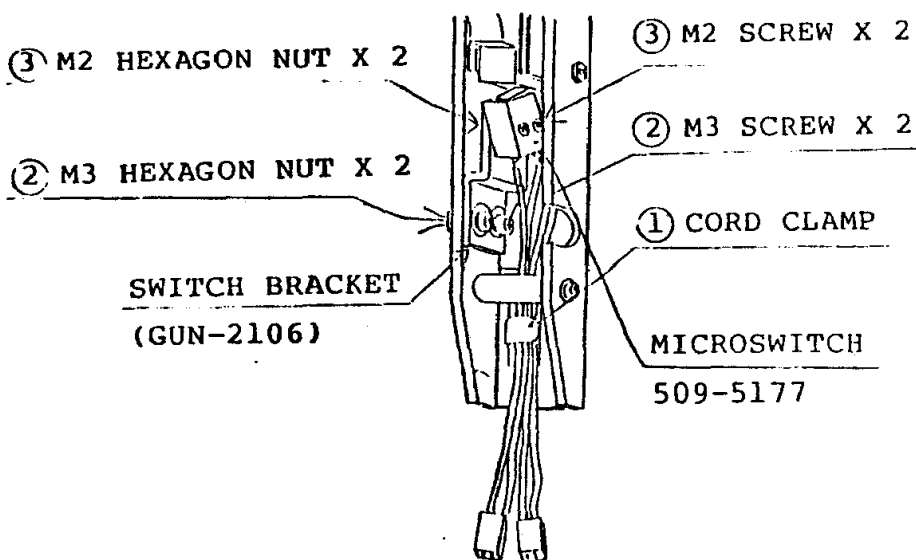
Note: At this time, pay careful attention so that the GRIP UNIT's wiring CONNECTORS will not catch in the GRIP BASE portion, which is marked with a circle in the illustration.



o Replacing the Microswitch

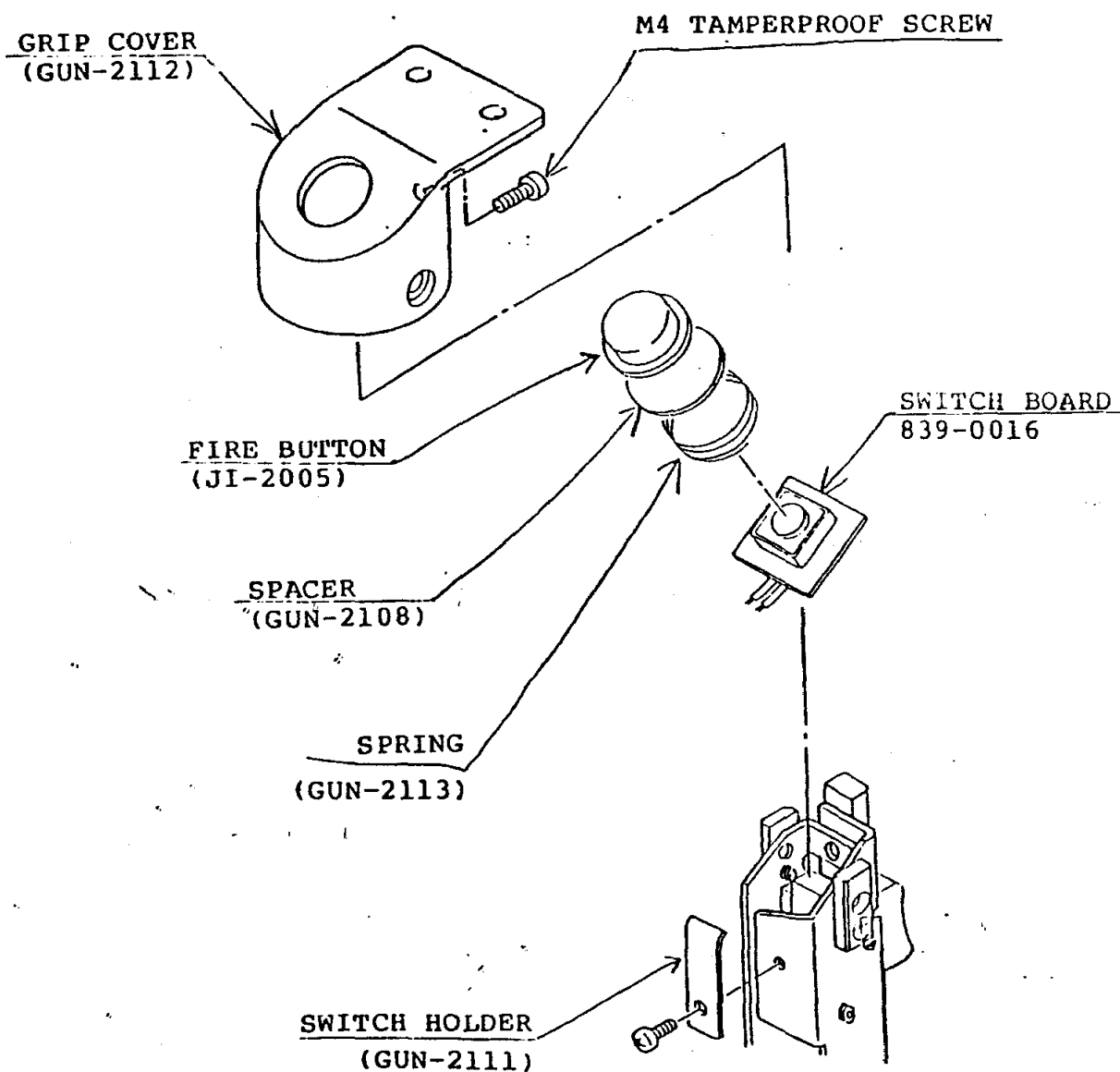
o Microswitch for Trigger

- ① Disengage the wiring from the CORD CLAMP.
- ② Take off the two M3 screws and the two M3 hexagon nuts, and remove the SWITCH BRACKET (GUN-2106).
- ③ Take off the two M2 screws and the two M2 hexagon nuts, then remove the switch from the bracket.
- ④ With the M4 screw in a loosened condition, the fine adjustments of the switch can be made by moving the switch and bracket together.

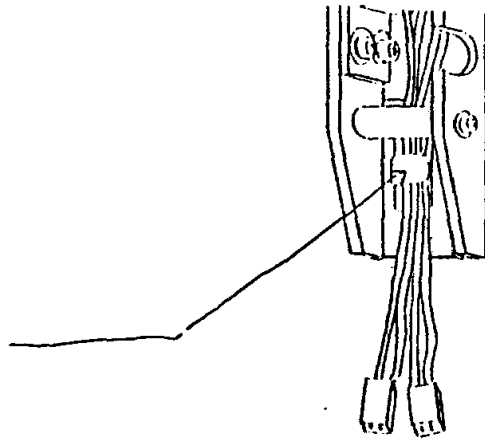


o SWITCH FOR MISSILE (GRENADE LAUNCHER) BUTTON

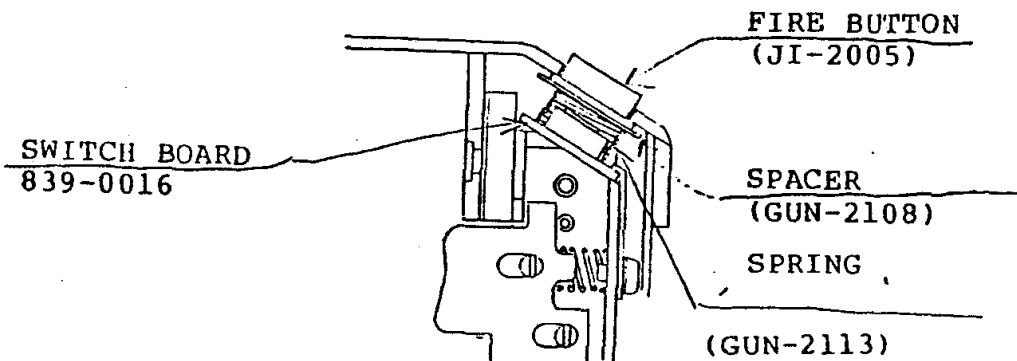
- ① Take off the M4 TAMPERPROOF SCREW and remove the GRIP COVER (GUN-2112), FIRE BUTTON (JI-2005), SPACER (GUN-2108) and SPRING (GUN-2113).
- ② Disengage the wiring from the CORD CLAMP.
- ③ Loosen the M3 SCREW of SWITCH HOLDER (GUN-2111) and remove the SWITCH.



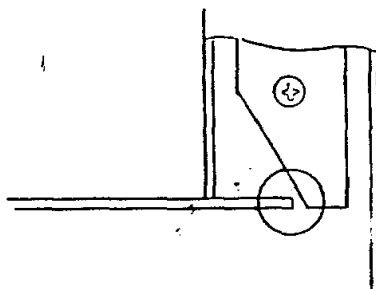
Note: o When reassembling, firmly secure the wiring with the CORD CLAMP.



o When reinstalling the GRIP COVER (GUN-2112), assemble the FIRE BUTTON (JI-2005), SPACER (GUN-2108), SPRING (GUN-2113) and SWITCH BOARD (839-0016) in a manner so that they will be positioned as shown. In the case where the SPRING deviates from its correct position, you may not be able to push the FIRE BUTTON smoothly.



o When reinstalling the GRIP UNIT to the GRIP BASE, make sure that the wiring does not catch in the inner part of said GRIP BASE.



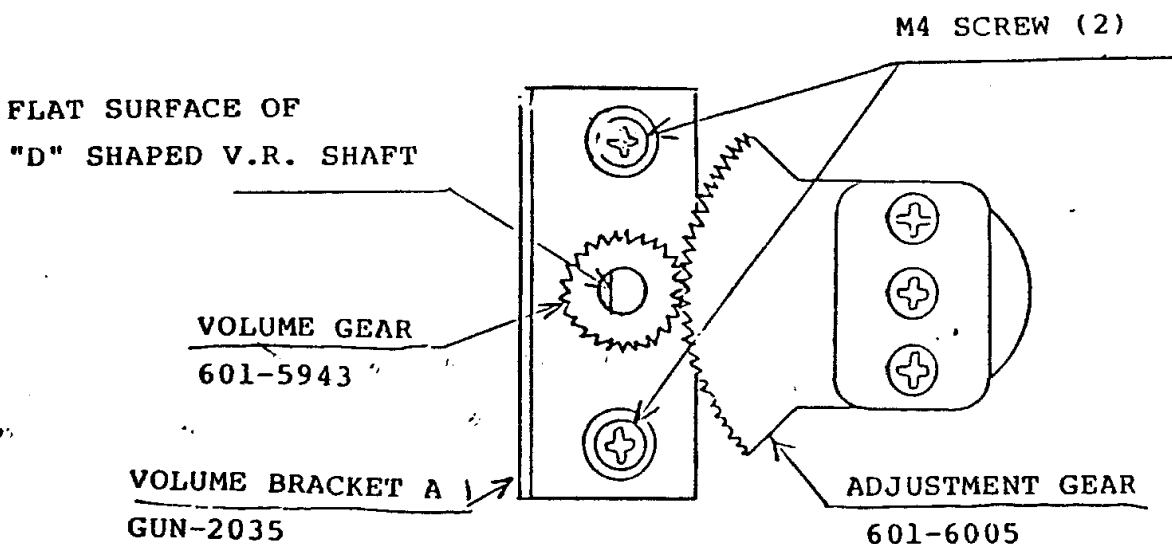
16. GUN UNIT V.R. (VARIABLE RESISTOR) ADJUSTMENT

o Precautions

This machine allows, during the test mode, the GUN UNIT's sight to be electronically adjusted and therefore, V.R. adjustments are normally not required. However, when the electronically adjustable scope is exceeded, or the V.R. GEAR is idly racing, make the following adjustments.

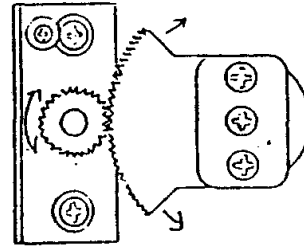
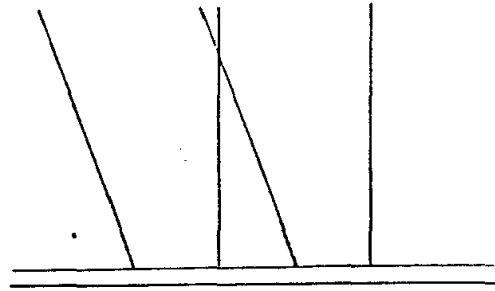
o V.R. Adjustments in Vertical Directions

- ① Loosen the two M4 screws to move V.R. BRACKET "A", (GUN-2035).
- ② When the V.R. BRACKET is moved, the V.R. GEAR and the ADJUSTMENT GEAR will be disengaged. At this time, turn the V.R. GEAR and make sure that the "D" shaped V.R. SHAFT's flat surface faces the opposite side of the ADJUSTMENT GEAR, as shown.



- ③ Fasten the M4 SCREWS. At this time, make the backlash adjustments.

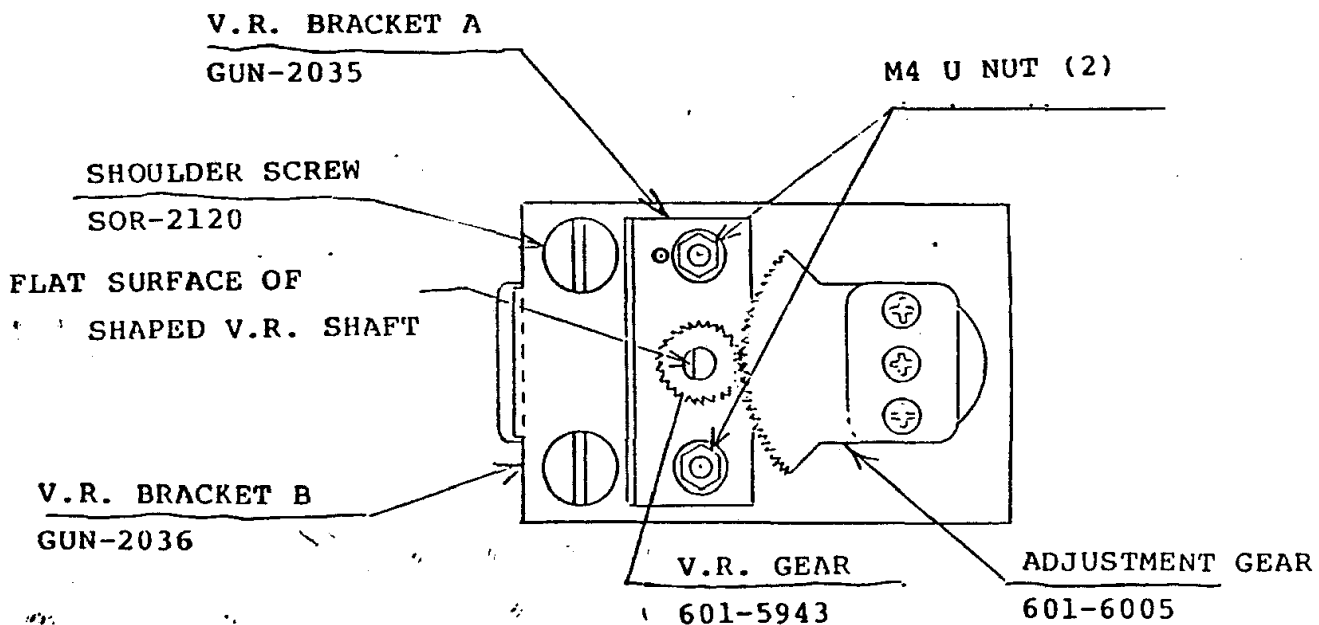
- ④ Slowly swing the GUN UNIT's upper portion back and forth and check to see that the electronically adjustable scope of the V.R. is not exceeded.



- ⑤ Fine adjustments are electronically made.

V.R. ADJUSTMENTS

(horizontal)

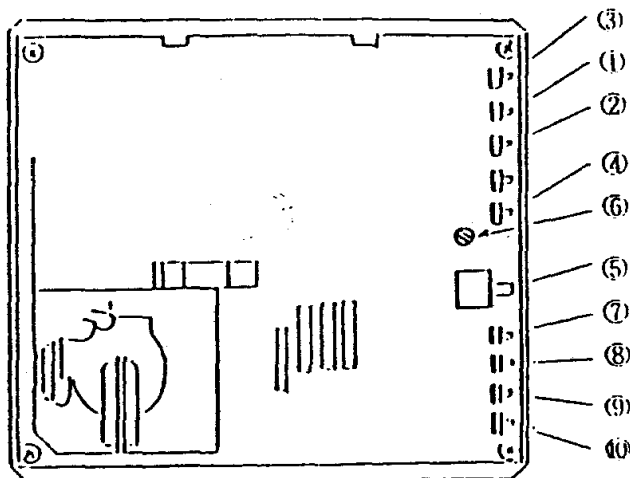


- ① Loosen the M4 U NUTS and move V.R. BRACKET A (GUN-2035)
- ② When the V.R. BRACKET is moved, the V.R. GEAR (601-5943) and ADJUSTMENT GEAR (601-6005) will be disengaged. At this time, turn the V.R. GEAR in a manner so that the "D" shaped V.R. SHAFT's flat surface faces the opposite side of the ADJUSTMENT GEAR as shown in the illustration.

- ③ Fasten the M4 U NUTs. At this time, make backlash adjustments.
- ④ Slowly swing the UNIT's upper portion in the horizontal directions (left/right) and check to see that the electronically adjustable scope is not exceeded.
- ⑤ Fine adjustments are electronically made during the test mode.

17. DESCRIPTION OF 26 INCH MONITOR

26 INCH MONITOR (NANA0)



- (1) V. HOLD (Vertical synchronizing adjustment)
Allows the on-screen image's vertical distortion to be adjusted.
- (2) V. SIZE (Vertical size adjustment)
Adjusts the screen's vertical size.
- (3) V. POSI (Vertical position adjustment)
Adjusts the image's vertical position.
- (4) H. HOLD (Horizontal synchronizing adjustment)
Makes adjustments when correcting horizontal distortions.
- (5) H. SIZE (Horizontal size adjustment)
Makes adjustments when the horizontal size is too wide or too narrow.
- (6) H. POSI (horizontal position adjustment)
Allows the image's horizontal position to be adjusted.
- (7) BRIGHT
Allows the image's brightness to be adjusted.
- (8) B. GAIN
Allows blue color contrast to be adjusted.
- (9) G. GAIN
Allows green color contrast to be adjusted.
- (10) R. GAIN
Allows red color contrast to be adjusted.

(11) FOCUS ADJUSTMENTS

(12) SCREEN

★ In normal cases, do not adjust the FOCUS and SCREEN.

18. SELF - TEST

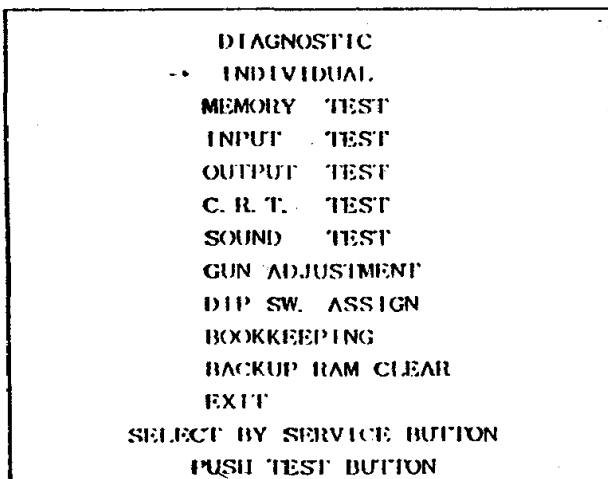
This test mainly checks the operation of game PCB's, discovers defects if any, and also checks monitor colors and audio quality. In addition, the test indicates dip SW assignment and has a Bookkeeping function.

TEST PROGRAM

- (1) Memory Test : Checks the EPROM programs and RAM Area.
- (2) Input Test : Tests the operation of COIN, SHOT, MISSILE, SERVICE switches, etc.
- (3) Output Test : To check SOLENOID function
- (4) CRT Test : Checks colors displayed.
- (5) Sound Test : Checks the quality of the synthesized sound transmitted from the PCB.
- (6) GUN ADJUSTMENT : GUN SIGHTING ADJUSTMENT
- 7) Dip Switch Assignment : Indicates dip switch assignments.
- 8) Bookkeeping : Indicates data on average score and play time.
- 9) Backup RAM Clear : Clears Bookkeeping memory.

1. TEST OPERATION

- (1) Push the TEST SW button to display the test menu (Fig. 1).



- (2) Push the SERVICE SW button and bring the arrow to the desired position. Press the TEST SW button again to display the desired test.
- (3) When each test is finished, press the TEST SW button again to display the test menu (Fig. 1). To end the test program, bring the arrow to EXIT and push the TEST SW button.

FIG. 1

* INDIVIDUAL and CONTINUE can be selected by pushing the ~~TEST~~ button when the arrow is at the top position.

INDIVIDUAL : Indicates only the item which the arrow points to. Push the TEST SW button again to display the test menu (Fig. 1).

CONTINUE : After displaying the item which the arrow points to, push the ~~TEST~~ SW button again to proceed to the following test in the order as indicated in the Fig. 1 test menu.

2. TEST ITEMS AND DESCRIPTION

(1) Memory Test

DIAGNOSTIC MEMORY TEST					
** ROMS TEST **					
IC 20	GOOD	IC 29	GOOD	IC 58	GOOD
		IC 30	GOOD		
		IC 63	GOOD		
** RAMS TEST **					
IC 22	GOOD	IC 31	GOOD	IC 38	GOOD
		IC 32	GOOD	IC 39	GOOD
IC 55	GOOD	IC 60	GOOD	IC 125	GOOD
		IC 61	GOOD	IC 126	GOOD
IC 132	GOOD	IC 134	GOOD	IC 150	GOOD
IC 133	GOOD	IC 135	GOOD	IC 151	GOOD
** CUSTOM IC TEST **					
IC 37	GOOD	IC 41	GOOD	IC 53	GOOD
IC 107	GOOD	IC 108	GOOD		
PUSH TEST BUTTON TO EXIT					

Checks the game PCB's ⁶ main ROMs, 18 RAMs and 5 CUSTOM IC's.

GOOD means the IC is in "GOOD" operating condition.

If there exists any malfunctioning of the IC's, "BAD" will be indicated.

(2) INPUT TEST

DIAGNOSTIC INPUT TEST		
LEFT	SWITCH	RIGHT
	(2) COIN CHUTE (1)	
	SERVICE SW	
	SHOT	
	MISSILE	
	VOLUME	
80	HORIZONTAL	A0
90	VERTICAL	B9

① Operate each switch. When the "OFF" condition is changed to "ON", the corresponding switch is in good working order.

② When the gun is pointed to the left, if V.R. data increases; and when it is pointed to the right, if the V.R. data decreases; it is satisfactory.

③ When the gun is pointed upward, if the V data increases; and when it is pointed downward, if the V.R. data decreases; it is satisfactory.

*Make the GUN SIGHTING ADJUSTMENTS in the GUN ADJUSTMENT mode.

(3) OUTPUT TEST

DIAGNOSTIC
OUTPUT TEST

LEFT RIGHT

SOLENOID

PUSH SERVICE #1 TO ONE MORE
PUSH TEST BUTTON TO EXIT

To check the GUN's SOLENOID function.
When repeating the test, press SERVICE SW #1.

(4) C. R. T. TEST

DIAGNOSTIC
C. R. T. TEST

RED
[]

GREEN
[]

BLUE
[]

WHITE
[]

C. R. T. POSITION CHECK

① Checks the C.R.T. position. Make sure that
the on-screen corners are consistent, and
then make size adjustments.

② Color check.

(5) SOUND TEST

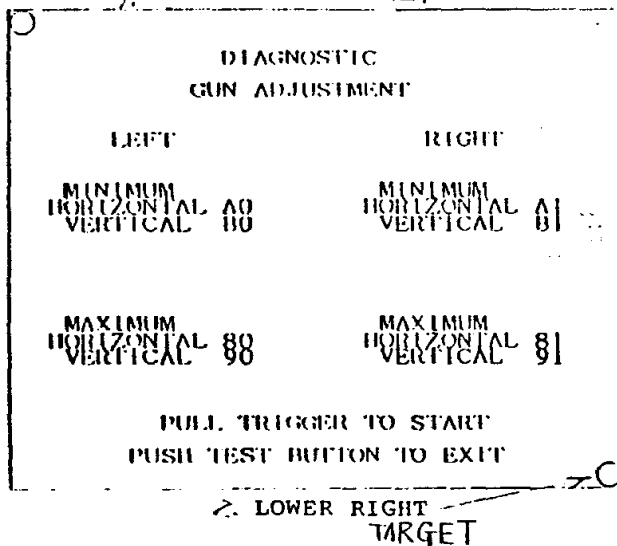
DIAGNOSTIC
SOUND TEST

SOUND NUMBER 0

PUSH SERVICE BUTTON
PUSH TEST BUTTON TO EXIT

When the test has been
completed push ~~GUN~~
button. TEST SW

(6) GUN ADJUSTMENT
 1. UPPER LEFT TARGET

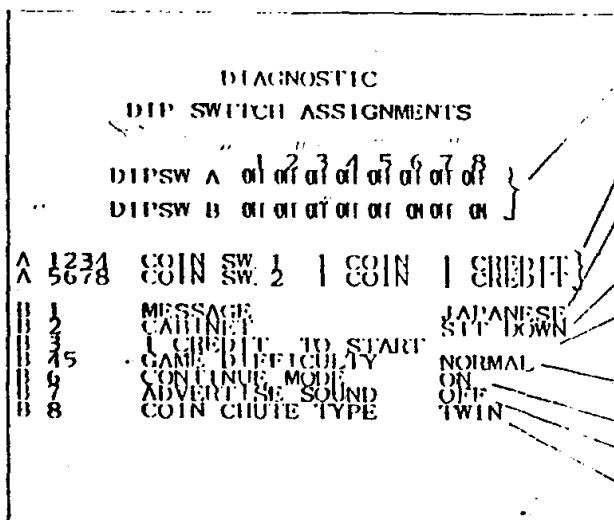


If the GUN has been replaced and the GUN UNIT repaired, be sure to make GUN SIGHTING adjustments in this mode.

*ADJUSTMENT PROCEDURE

Pull the TRIGGER of the left-hand side GUN. The target will appear on the upper left-hand side. Direct the GUN fully to the upper left and then pull the TRIGGER. Then, the target will appear on the lower right-hand side. Direct the GUN fully to the lower right and pull the TRIGGER. Make similar adjustments for the right-hand side GUN. After the adjustments, press the TEST SW. To repeat the adjustments, pull the TRIGGER.

7
 (6) DIP SWITCH ASSIGNMENTS



- (1) Present setting of each dip switch
- (2) Coin switch setting
- (3) OFF: Expressions in Japanese.
ON: Expressions in English.
- (4) Cabinet type
- (5) OFF: Starts with 1 CREDIT
ON: Starts with 2 CREDITS,
Continues with 1 CREDIT
- (6) Game difficulty
- (7) To continue game or not
- (8) Advertise sound
- (9) ON: TWIN (normal use)

(X) Bookkeeping

DIAGNOSTIC BOOKKEEPING (PAGE 1) CREDIT REPORT	
COIN SW#1 (RIGHT)	15
COIN SW#2 (LEFT)	12
COIN CREDITS	27
SERVICE #1 (LEFT)	3
SERVICE #2 (RIGHT)	5
SERVICE CREDITS	8
TOTAL CREDITS	35
PUSH SERVICE BUTTON	

- ① Operation frequency of coin chute 1
- ② Operation frequency of coin chute 2
- ③ Number of coin credits
- ④ Usage frequency of service switch 1
- ⑤ Usage frequency of service switch 2
- ⑥ Number of service credits
- ⑦ Number of credits in total

Press the SERVICE SW button to display the following:

DIAGNOSTIC BOOKKEEPING (PAGE 2) TIME REPORT	
TOTAL TIME	10H 10M 10S
GAME TIME	
TOTAL	1H 10M 10S
AVERAGE	0H 1M 0S
LONGEST	0H 8M 12S
PUSH SERVICE BUTTON	

- ① Total working time (00 H 00 M 00 S)
- ② Total game play time
- ③ Average game play time
- ④ Longest game play time

Press the SERVICE SW button to display the following:

DIAGNOSTIC BOOKKEEPING (PAGE 3) SCORE REPORT	
AVG. SCORE	106333
TOP SCORE	3456789
LOW SCORE	89012
NUMBER OF GAME	20
PUSH TEST BUTTON	

- ① All players' average score
- ② Highest score
- ③ Lowest score
- ④ Total number of game plays

9
(7) BACK UP RAM CLEAR

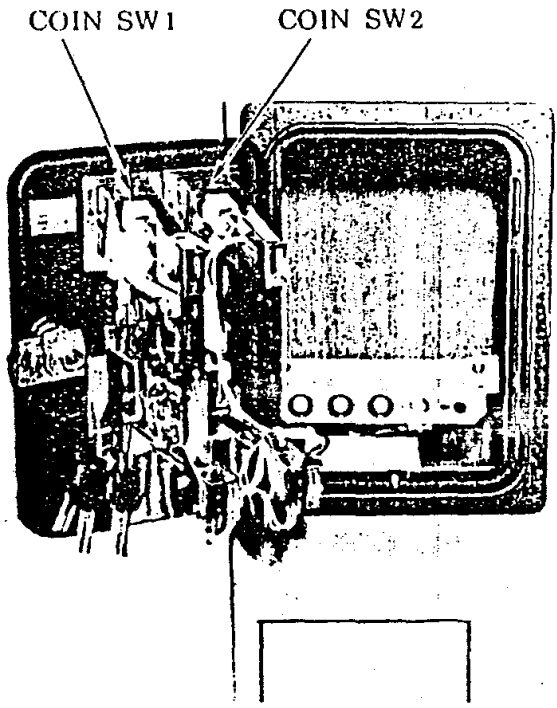
Bookkeeping data is stored for at least 3 days after the power is turned off. When clearing, bring the arrow to YES and push the TEST button.

DIAGNOSTIC
BACKUP RAM CLEAR
→ NO
YES

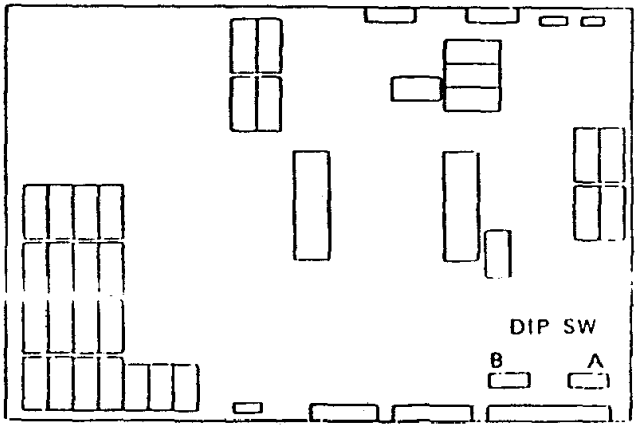
SELECT BY SERVICE BUTTON
PUSH TEST BUTTON

17. DIP SWITCH SETTING

COIN/CREDIT OPTION SWITCH SETTING		DIP SW A							
OPTION		1	2	3	4	5	6	7	8
1 COIN	1 CREDIT	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
1 COIN	2 CREDITS	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
1 COIN	3 CREDITS	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
1 COIN	4 CREDITS	ON	ON	OFF	OFF	ON	ON	OFF	OFF
1 COIN	5 CREDITS	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF
1 COIN	6 CREDITS	ON	OFF	ON	OFF	ON	OFF	ON	OFF
2 COINS	1 CREDIT	OFF	ON	ON	OFF	OFF	ON	ON	OFF
3 COINS	1 CREDIT	ON	ON	ON	OFF	ON	ON	ON	OFF
4 COINS	1 CREDIT	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON
2 COINS	3 CREDITS	ON	OFF	OFF	ON	ON	OFF	OFF	ON
2 COINS	1 CREDIT	ON	ON	OFF	ON	ON	ON	OFF	ON
4 COINS	2 CREDITS	OFF	ON	OFF	ON	ON	ON	ON	ON
5 COINS	3 CREDITS	ON	ON	ON	ON	ON	ON	ON	ON
6 COINS	4 CREDITS	ON	ON	ON	ON	ON	ON	ON	ON
2 COINS	1 CREDIT	ON	ON	OFF	ON	ON	ON	OFF	ON
4 COINS	2 CREDITS	ON	ON	ON	ON	ON	ON	ON	ON
1 COIN	1 CREDIT	ON	ON	ON	ON	ON	ON	ON	ON
2 COINS	2 CREDITS	ON	ON	ON	ON	ON	ON	ON	ON
3 COINS	3 CREDITS	ON	ON	ON	ON	ON	ON	ON	ON
4 COINS	4 CREDITS	ON	ON	ON	ON	ON	ON	ON	ON
5 COINS	5 CREDITS	ON	ON	ON	ON	ON	ON	ON	ON
1 COIN	1 CREDIT	ON	ON	ON	ON	ON	ON	ON	ON
2 COINS	2 CREDITS	ON	ON	ON	ON	ON	ON	ON	ON
3 COINS	3 CREDITS	ON	ON	ON	ON	ON	ON	ON	ON
4 COINS	5 CREDITS	ON	ON	ON	ON	ON	ON	ON	ON
1 COIN	1 CREDIT	OFF	ON	ON	ON	OFF	ON	ON	ON
2 COINS	3 CREDITS	ON	ON	ON	ON	ON	ON	ON	ON
FREE PLAY		ON	ON	ON	ON	ON	ON	ON	ON



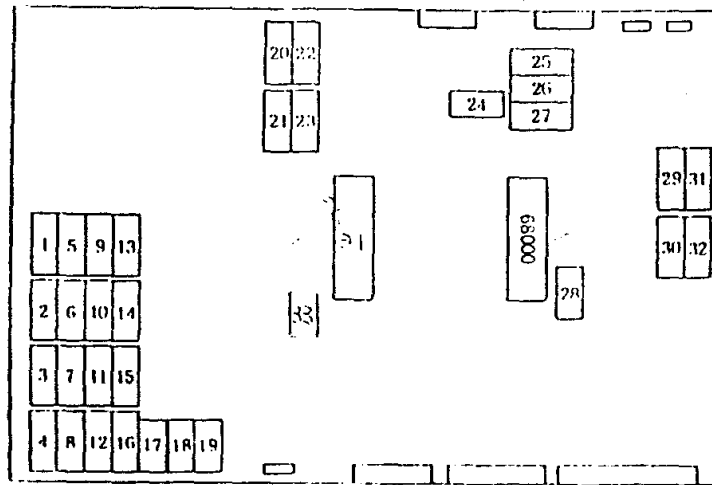
GAME OPTION SWITCH SETTING		DIP SWITCH B							
OPTION		1	2	3	4	5	6	7	8
JAPANESE	ENGLISH	OFF							
CABINET	SEE DOWN UPRIGHT	OFF	ON						
1 CREDIT TO START	2 CREDITS TO START			OFF	ON				
1 CREDIT TO CONTINUE									
GAME DIFFICULTY	NORMAL EASY HARD				OFF	ON	OFF	ON	
CONTINUE MOD	OFF ON						OFF	ON	
ADVERTISING SOUND	OFF ON							OFF	ON
COIN CHUTE TYPE	SINGLE TWIN								OFF



*COIN CHUTE TYPE
 SINGLE ~~Refers to the one COIN CHUTE TYPE CABINET.~~
 TWIN ~~Refers to the 2 COIN CHUTE TYPE CABINET.~~
 Refers to the one COIN CHUTE TYPE CABINET. in which each chute can accept coins. Make sure that the settings of COIN SW #1 and COIN SW #2 are identical.

ROM LOCATIONS

GAME ID ~~THUNDRIK STATE~~ ^{CENT OF FIRE 834-7218} ~~834-6493~~

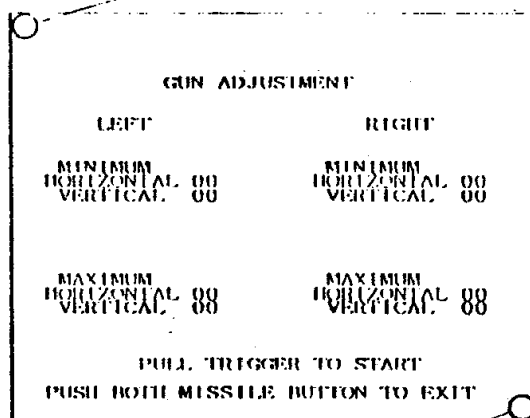


POS.	MAIN WORK	IC No.	GAME ID No.		
			834-7218	834-7218-01	834-7218-02
1	OBJECT (1H-20)	IC 93	I PR-12775	←	←
2		IC 97	I PR-12776	←	←
3		IC 101	I PR-12777	←	←
4		IC 105	I PR-12778	←	←
5		IC 92	I PR-12779	←	←
6		IC 96	I PR-12780	←	←
7		IC 100	I PR-12781	←	←
8		IC 104	I PR-12782	←	←
9		IC 91	I PR-12783	←	←
10		IC 95	I PR-12784	←	←
11		IC 99	I PR-12785	←	←
12		IC 103	I PR-12786	←	←
13		IC 90	I PR-12787	←	←
14		IC 94	I PR-12788	←	←
15		IC 98	I PR-12789	←	←
16		IC 102	I PR-12790	←	←
17	FIX (512K)	IC 154	OPR-12791	←	←
18		IC 153	OPR-12792	←	←
19		IC 152	OPR-12793	←	←
20	MAIN PROGRAM (1H-20)	IC 58	I PR-12794	I PR-12847	I PR-12849
21		IC 63	I PR-12795	I PR-12848	I PR-12850
22		IC 57	XXXXXXXX	XXXXXXXX	XXXXXXXX
23		IC 62	XXXXXXXX	XXXXXXXX	XXXXXXXX
24	SOUND PRO(512K)	IC 17	I PR-12798	←	←
25	SOUND DATA (1H-20)	IC 11	I PR-12799	←	←
26		IC 12	I PR-12800	←	←
27		IC 13	I PR-12801	←	←
28	ROAD (512K)	IC 40	XXXXXXXX	XXXXXXXX	XXXXXXXX
29	SUB PROGRAM (1H-20)	IC 21	I PR-12802	←	←
30		IC 30	I PR-12803	←	←
31		IC 20	I PR-12804	←	←
32		IC 29	I PR-12805	←	←
33	CUSTOM CHIP	IC 127	315-5304	←	←
34	SECURITY CPU	IC 118	317-0134	317-0135	317-0136
NOTE			JAPAN	USA	EXPORT

21. When the game mode does not appear on the screen (i.e. when in the GUN ADJUSTMENT mode):

In this game, GUN SIGHTING data is stored in the BACKUP MEMORY. However, due to installation or transportation when the machine is not energized for more than one week, or after making the MAIN BD adjustments, the following (but not the game mode) will appear. In this case, make the following adjustments:

1. UPPER LEFT TARGET

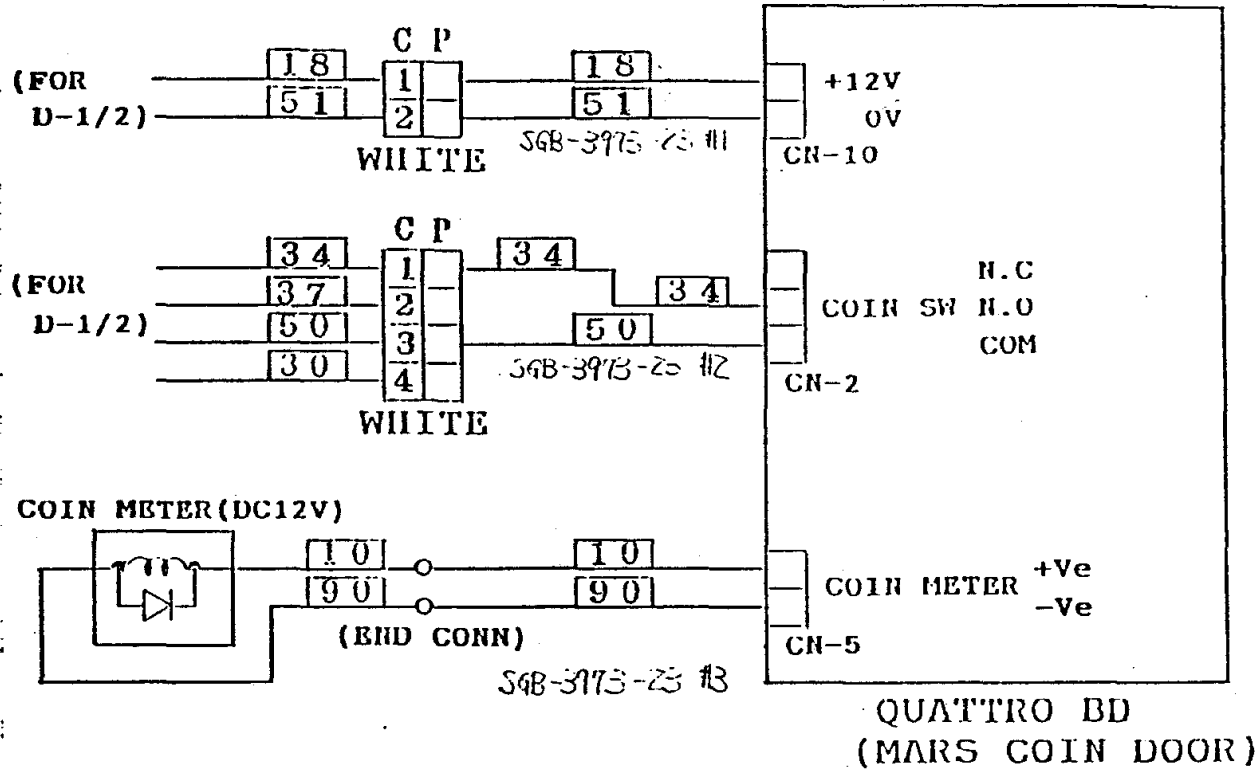


2. LOWER RIGHT TARGET

- Pull the left-hand side gun's trigger, and the target appears on the upper left side. Direct the gun towards the target (fully to the upper left side) and pull the TRIGGER.
2. The target appears on the lower right side. Direct the gun towards the target (fully to the lower right side) and pull the TRIGGER.
 3. Make similar adjustments to the right-hand side gun sighting.
 4. After the adjustments, simultaneously push both guns' MISSILE buttons and the game mode will appear.

*Ordinary GUN SIGHTING adjustments can be made by performing the SELF-TEST (refer to the ~~OWNER'S~~ **SELF-TEST**).

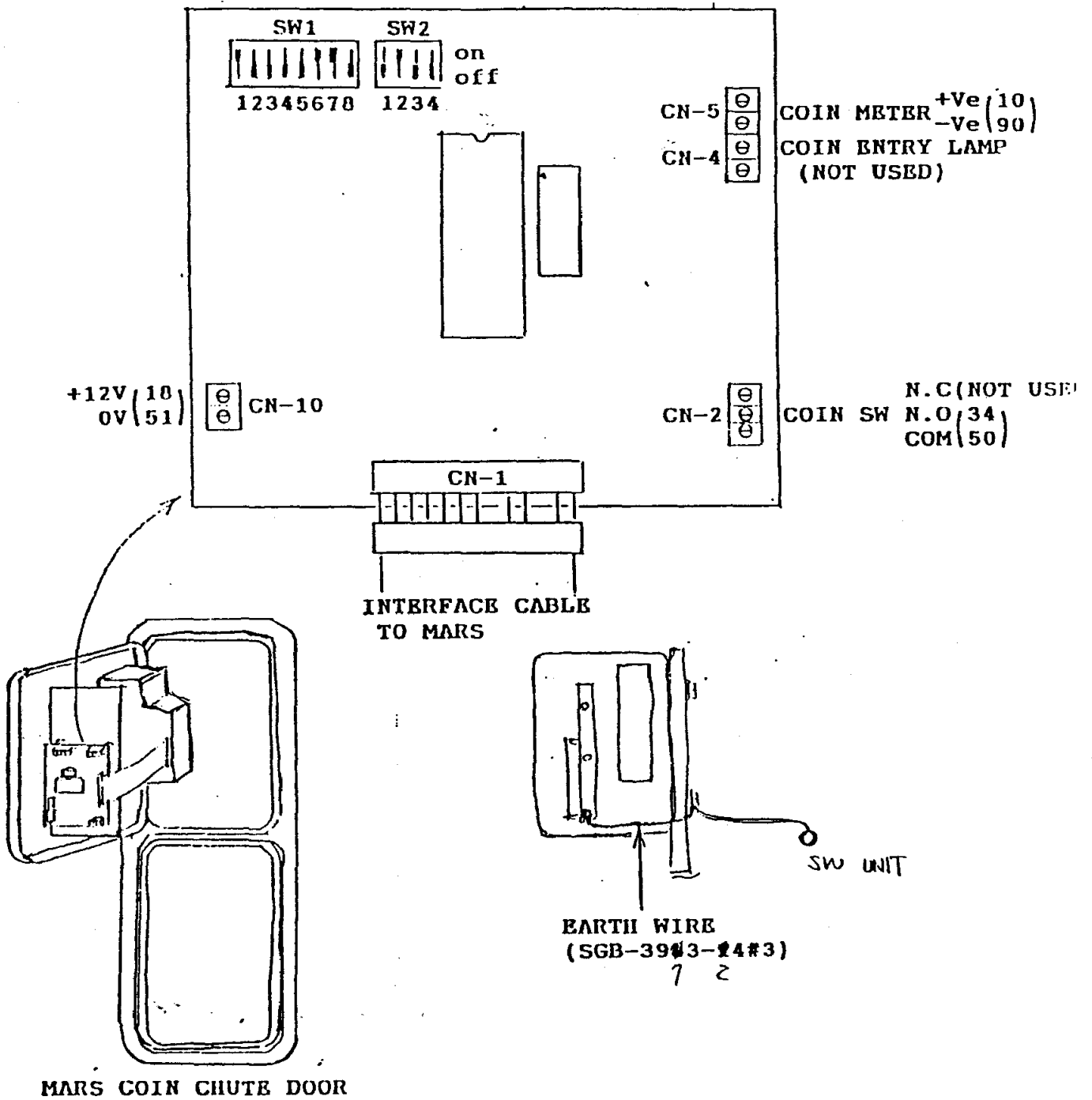
MARS COIN CHUTE DOOR



COIN DOOR ○ ——— 40K ——— ○ DOOR BASE
 (TERM LUG) (TERM LUG)

SW UNIT ○ ——— 40k ——— ○ DOOR BASE

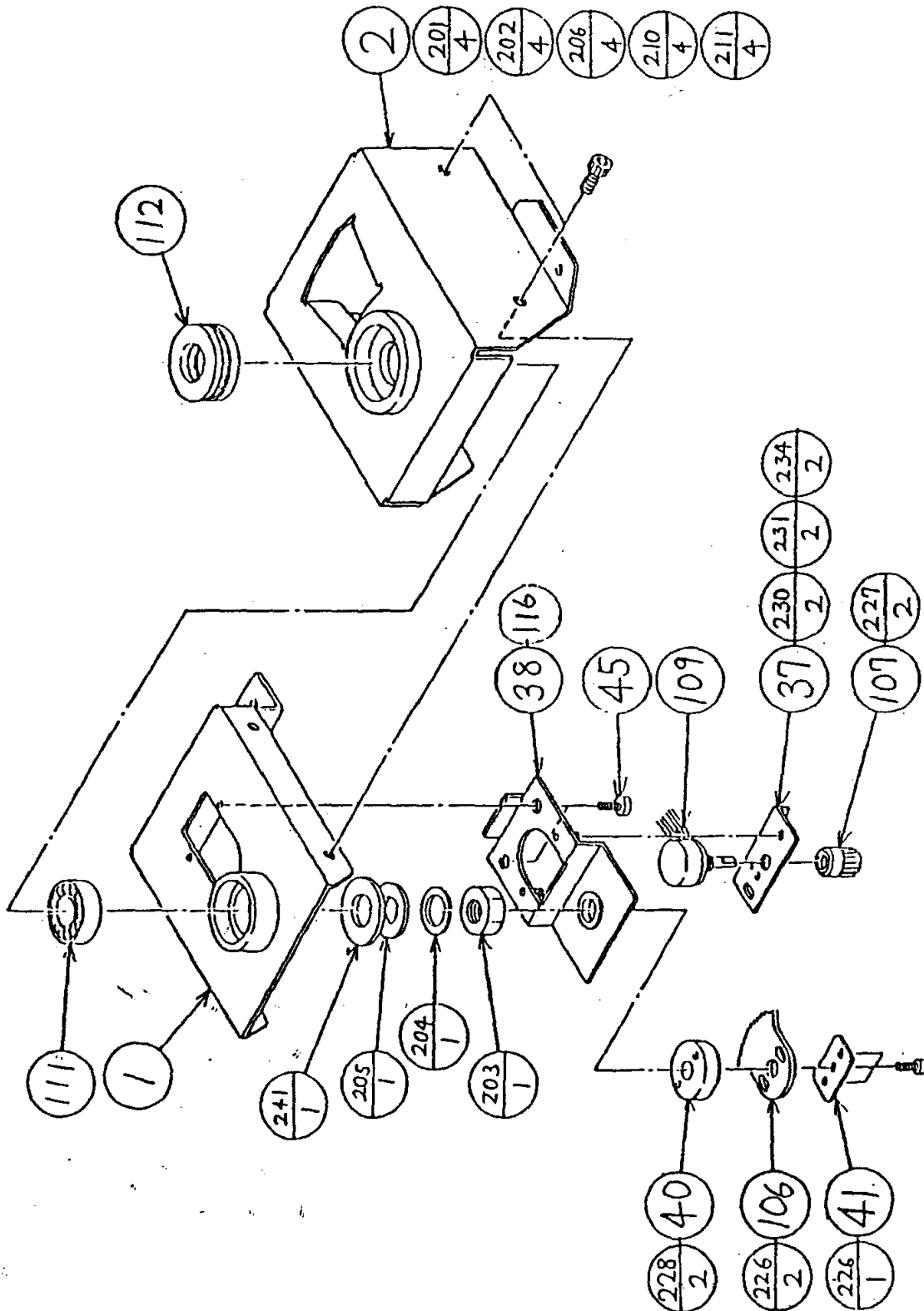
QUATTRO BD



13

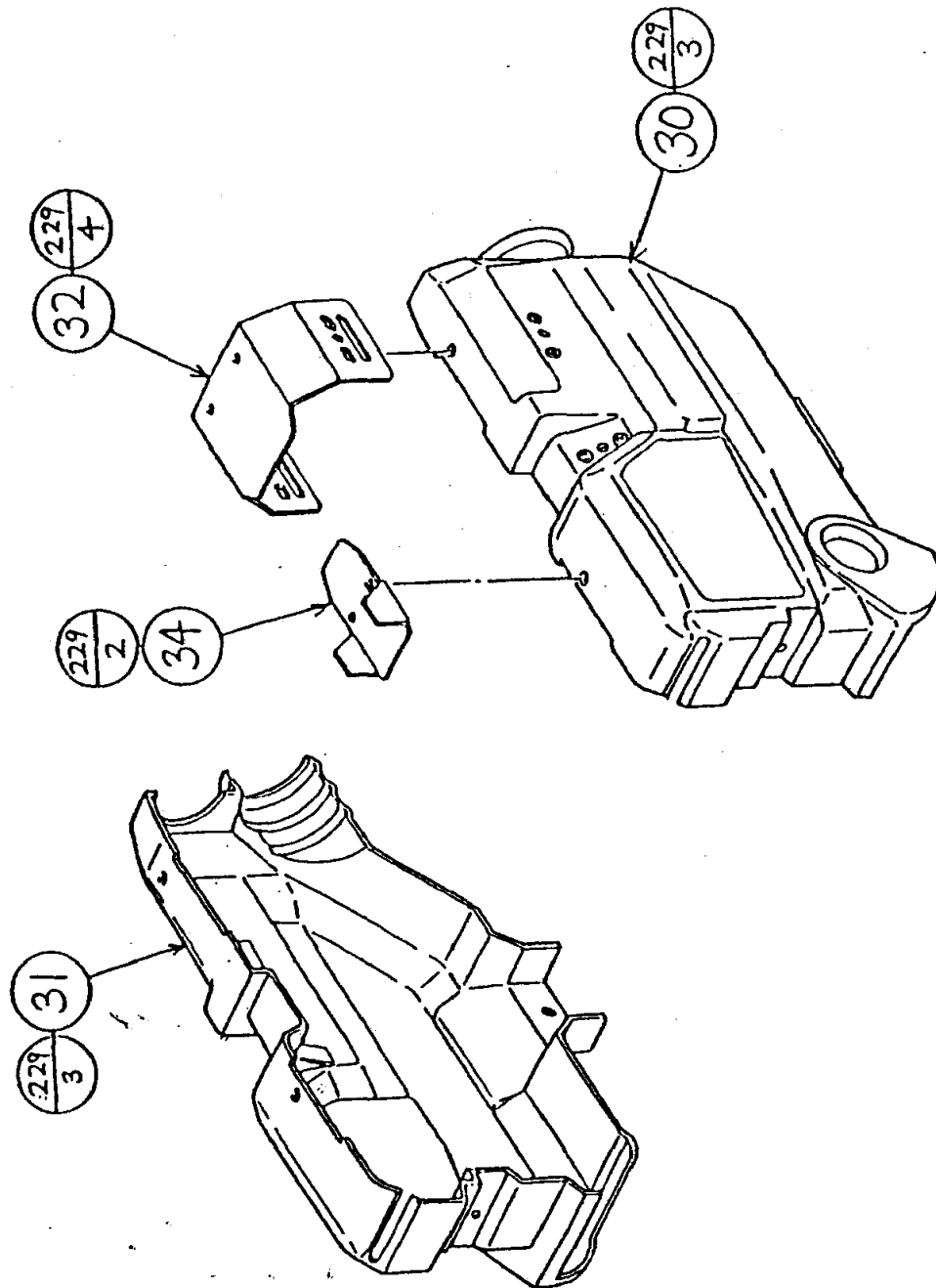
GUN UNIT (GUN-2000)

(D-1/9)















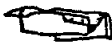













⑬ GUN UNIT (GUN-2000)

(D-4/9)



⑬ GUN UNIT (GUN-2000)

(D-5/9)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	GUN-2001	BASE BRACKET LOWER	
2	GUN-2002	BASE BRACKET UPPER	
3	GUN-2003	MOVING BASE	
4	GUN-2004	STOPPER RUBBER ϕ 26-25	
5	GUN-2005	MOVING BRACKET RH	
6	GUN-2006	MOVING BRACKET LH	
7	GUN-2007	SHOULDER SCREW	
8	GUN-2008	STOPPER RUBBER ϕ 26-41	
9	GUN-2009	GUN BASE	
10	GUN-2010	MAIN SHAFT	
11	GUN-2011	TORSION SPRING	
22	GUN-2022	GRIP BASE	
23	GUN-2023	UPPER HOLDER	
26	GUN-2026	PLATE SHAFT	
27	GUN-2050	SLIDE COVER	
29	GUN-2029	LOWER COVER	
30	GUN-2030X	COVER GUN RIGHT	
31	GUN-2031X	COVER GUN LEFT	
32	GUN-2032	FRONT COVER	
34	GUN-2034	SIGHT	
36	GUN-2100	ASSY GRIP	
37	GUN-2035	VR BRACKET A	
38	GUN-2036	VR BRACKET B	
39	GUN-2037	SPACER SHAFT	
40	GUN-2038	ADJUST RING	
41	GUN-2039	PLATE GEAR	

13

GUN UNIT (GUN-2000)

(D-6/9)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
42	GUN-2040	COM SPRING ϕ 26	
43	GUN-2041	SOLENOID BRACKET	
45	SOR-2120	SHOULDER SCREW	
46	GUN-2043	PLUNGER SPACER	
47	GUN-2044	BRACKET THERMO	
48	GUN-2045	COM SPRING ϕ 29	
49	GUN-2046	SPRING HOLDER	
50	GUN-2047	STOPPER BRACKET	
51	GUN-2048	STOPPER	
104	100-5057	BEARING ϕ 15	
106	601-6005	ADJUST GEAR	
107	601-5943	GEAR 20	
109	220-5130	VOL CONT B-5K OHM	
111	100-5070	BEARING ϕ 15	
112	100-5110	BEARING THRUST ϕ 20	
113	601-6334	RUBBER LEG	
114	124-5031	SOLENOID DC 24V DUTY 1/4	
115	601-6405	THERMOSTAT 75°C	
	090-0012	SCREW LOCK	
	090-0013	GREASE	
116	601-5526-030	BUSH 1.6t ($L=30$ mm)	
	090-0002	GLUE. CEMEDINE No.3000 RS	
117	601-5962-020	BUSH 3.3t ($L=20$ mm)	
201	029-0295	HEX SKT CAP SCR W/HOLE M6x18	
202	054-0006	U NUT M6	

⑬

GUN UNIT (GUN-2000)

(D-7/9)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
203	059-0050	HEX NUT H=7 P=1.75 (3種) M12	
204	061-0012	SPR WSHR M12	
205	069-0020	FLT WSHR M12	
206	045-0004	COT PIN 1.6×15	
207	000-0510-S	M SCR PH W/S MS×10	
208	069-0001	FLT WSHR 5.5-20×1.6	
209	029-0286	HEX SKT H CAP SCR M6×10	
210	061-0006	SPR WSHR M6	
211	060-0006	FLT WSHR M6	
212	059-0047	HEX NUT SLOTTED & CASTLE M8 (高形1種)	
213	061-0008	SPR WSHR M8	
214	029-0296	S-TITE SCR PH BLK M3×6	
215	029-0288	HEX SKT H CAP SCR M5×10	
216	029-0297	M SCR PH W/HOLE M5×14	
218	060-0005	FLT WSHR M5	
219	061-0005	SPR WSHR M5	
220	000-0516-FS	M SCR PH W/FS M5×16	
221	054-0005	U UNT M5	
222	045-0032	COT PIN 2×18	
223	029-0291	TMP PRF SCR PH W/LOCK M4×12	
224	069-0103	FLT WSHR BLK 5.5-14×1	
226	000-0412-S	M SCR PH W/S M4×12	
227	028-0003	SET SCR PH SPCL M3×8	
228	028-0019	SET SCR HEX SKT CP UNBR M4×8	
229	029-0289	TMP PRF SCR TH W/LOCK M4×10	
230	054-0004	U NUT M4	

13

GUN UNIT (GUN-2000)

(D-8/9)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
231	060-0004	FLT WSHR M4	
232	000-0408-FS	M SCR PH W/FS M4x8	
233	045-0031	COT PIN 1.2x12	
234	061-0004	SPR WSHR M4	
235	000-0310	M SCR PH M3x10	
236	000-0314	M SCR PH M3x14	
237	054-0003	U NUT M3	
238	060-0003	FLT WSHR M3	
	090-0041	GLUE CEMEDINE 188	
239	059-0029	CAP NUT TYPE 3 BLACK M5	
240	069-0089	SPR WSHR BLK M5	
241	069-0105	FLT WSHR 15-30x2.6	
301	SGB-3973-6	WIRE HARN EXT SOLENOID	
	211-5282-02RE	CONN PLUG 9090 02P-RE	
	211-5283-02RE	CONN CAP 9090 02P-RE	
	310-5028-5.8	VINYL TUBE ø5.8	
302	SGB-3973-7	WIRE HARN SOLENOID	
	211-5282-02RE	CONN PLUG 9090 02P-RE	
	209-0023	CONN CLOSED END	
	310-5028-5.8	VINYL TUBE ø5.8	
304	SGB-3973-12	WIRE HARN V VR	
	211-5282-03WH	CONN PLUG 9090 03P-WH	
	310-5028-5.2	VINYL TUBE ø5.2	
305	SGB-3973-13	WIRE HARN H VR	
	211-5282-03RE	CONN PLUG 9090 03P-RE	

LINE OF FIRE (834-7218-~)

COIN/CREDIT OPTION SWITCH SETTING

DIP SWITCH A

OPTION		1	2	3	4	5	6	7	8
1 COIN	1 CREDIT	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
1 COIN	2 CREDITS	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
1 COIN	3 CREDITS	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
1 COIN	4 CREDITS	ON	ON	OFF	OFF	ON	ON	OFF	OFF
1 COIN	5 CREDITS	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF
1 COIN	6 CREDITS	ON	OFF	ON	OFF	ON	OFF	ON	OFF
2 COINS	1 CREDIT	OFF	ON	ON	OFF	OFF	ON	ON	OFF
3 COINS	1 CREDIT	ON	ON	ON	OFF	ON	ON	ON	OFF
4 COINS	1 CREDIT	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON
2 COINS	3 CREDITS	ON	OFF	OFF	ON	ON	OFF	OFF	ON
2 COINS	1 CREDIT	OFF	ON	OFF	ON	OFF	ON	OFF	ON
4 COINS	2 CREDITS								
5 COINS	3 CREDITS	OFF	ON	OFF	ON	OFF	ON	OFF	ON
6 COINS	4 CREDITS								
2 COINS	1 CREDIT	ON	ON	OFF	ON	ON	ON	OFF	ON
4 COINS	3 CREDITS								
1 COIN	1 CREDIT	OFF	OFF	ON	ON	OFF	OFF	ON	ON
2 COINS	2 CREDITS								
3 COINS	3 CREDITS								
4 COINS	4 CREDITS								
5 COINS	6 CREDITS								
1 COIN	1 CREDIT	ON	OFF	ON	ON	ON	OFF	ON	ON
2 COINS	2 CREDITS								
3 COINS	3 CREDITS								
4 COINS	5 CREDITS								
1 COIN	1 CREDIT	OFF	ON	ON	ON	OFF	ON	ON	ON
2 COINS	3 CREDITS								
FREE PLAY		ON	ON	ON	ON	ON	ON	ON	ON
				COIN SWITCH #1		COIN SWITCH #2			

GAME OPTION SWITCH SETTING

DIP SWITCH B

OPTION		1	2	3	4	5	6	7	8
JAPANESE		OFF							
ENGLISH		ON							
CABINET	SIT DOWN		OFF						
	UPRIGHT		ON						
1 CREDIT TO START				OFF					
2 CREDITS TO START &				ON					
1 CREDIT TO CONTINUE									
GAME DIFFICULTY	NORMAL				OFF	OFF			
	EASY				ON	OFF			
	HARD				OFF	ON			
	HARDEST				ON	ON			
CONTINUE MODE	OFF						OFF		
	ON						ON		
ADVERTISE SOUND	OFF							OFF	
	ON							ON	
COIN CHUTE TYPE	SINGLE								OFF
	TWIN								ON

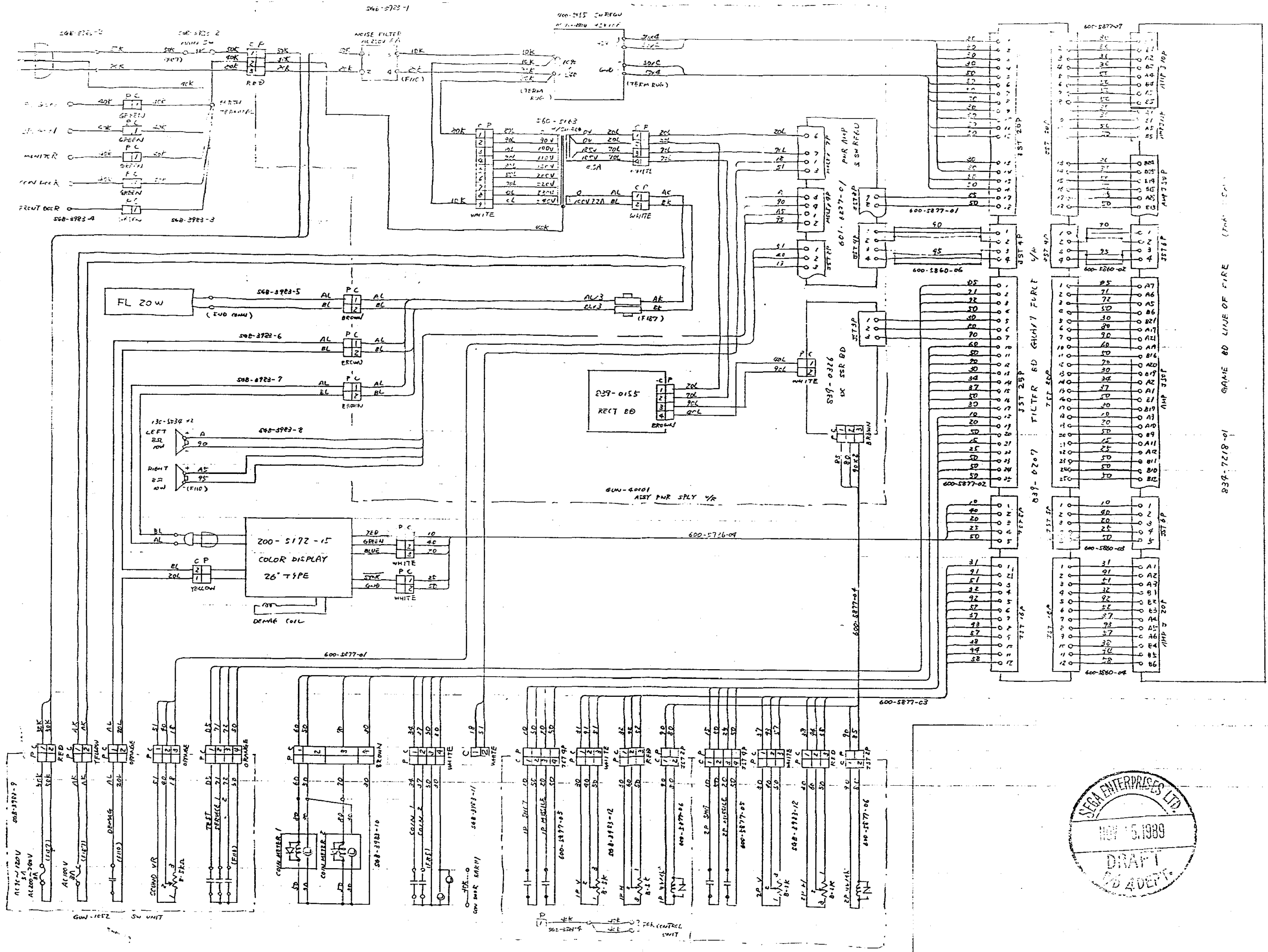
*COIN CHUTE TYPE

SINGLE コインシュートが1個の筐体タイプ用です。

Refers to the one COIN CHUTE TYPE CABINET.

TWIN コインシュートが2個あり、それぞれがコインを受け付ける事ができる筐体タイプ用です。通常はこのモードで使用します。COIN SW #1, COIN SW #2は同じ設定にして下さい。

Refers to the 2 COIN CHUTE TYPE CABINET., in which each chute can accept coins. Make sure that the settings of COIN SW #1 and COIN SW #2 are identical.



839-7218-01 GAME 80 LINE OF FIRE (T.M. C.)

