

1 ST PRINTING

SEGA[®]

G-LOC
AIR BATTLE
LOSS OF CONSCIOUSNESS BY G FORCE

**Owners
Manual
Supplement**

SEGA ENTERPRISES, INC.

Manual No. 999-0021-02

Control Adjustment

CONTROLLER'S V.R. ADJUSTMENT

DIAGNOSTIC VER. 1.00 INPUT TEST

COIN #1 OFF START OFF
COIN #2 OFF SERVICE OFF

VULCAN OFF
MISSILE OFF
BURNER OFF

STICK RIGHT LEFT 80H (1)
STICK UP DOWN 80H (2)
SPEED 30H (3)

PUSH TEST BUTTON

With the CONTROLLER in an "as is" free condition, display the screen in the SELF-TEST mode.

- (1) CONTROLLER'S LEFT / RIGHT DIRECTIONS
- (2) CONTROLLER'S UP / DOWN DIRECTIONS
- (3) SPEED UP / DOWN

ADJUSTMENTS IN LEFT / RIGHT DIRECTIONS

- 1) Loosen the 6 SCREWS "A" which are shown by the arrow marks in Fig. 1, and detach the SIDE BRACKET from the CONTROLLER UNIT in a manner as shown in Fig. 2.
- 2) Loosen the two SCREWS "B" which secure the V.R. BRACKET and disengage the ADJUST GEAR and PINION GEAR. At this time, turn the V.R. shaft so that the variable value 1 becomes 80H, and make backlash adjustments.
- 3) In the case where fine adjustments are necessary, secure the V.R. BRACKET, loosen the ADJUST GEAR'S SCREW "C" and make adjustment in a manner so that the variable value 1 becomes 80H 4H.

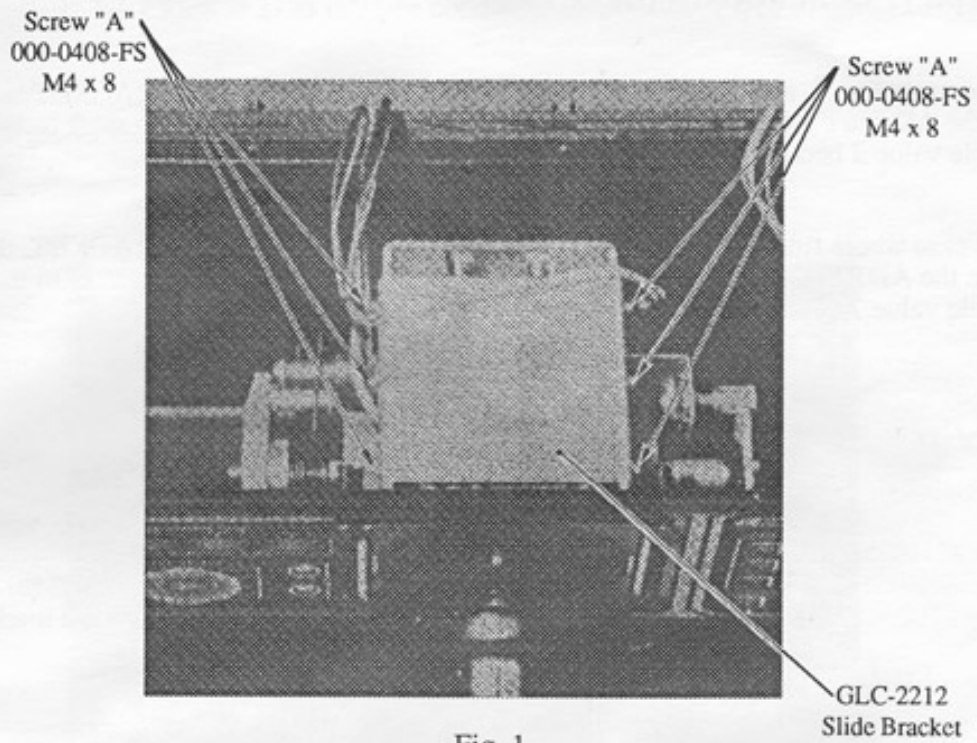


Fig. 1

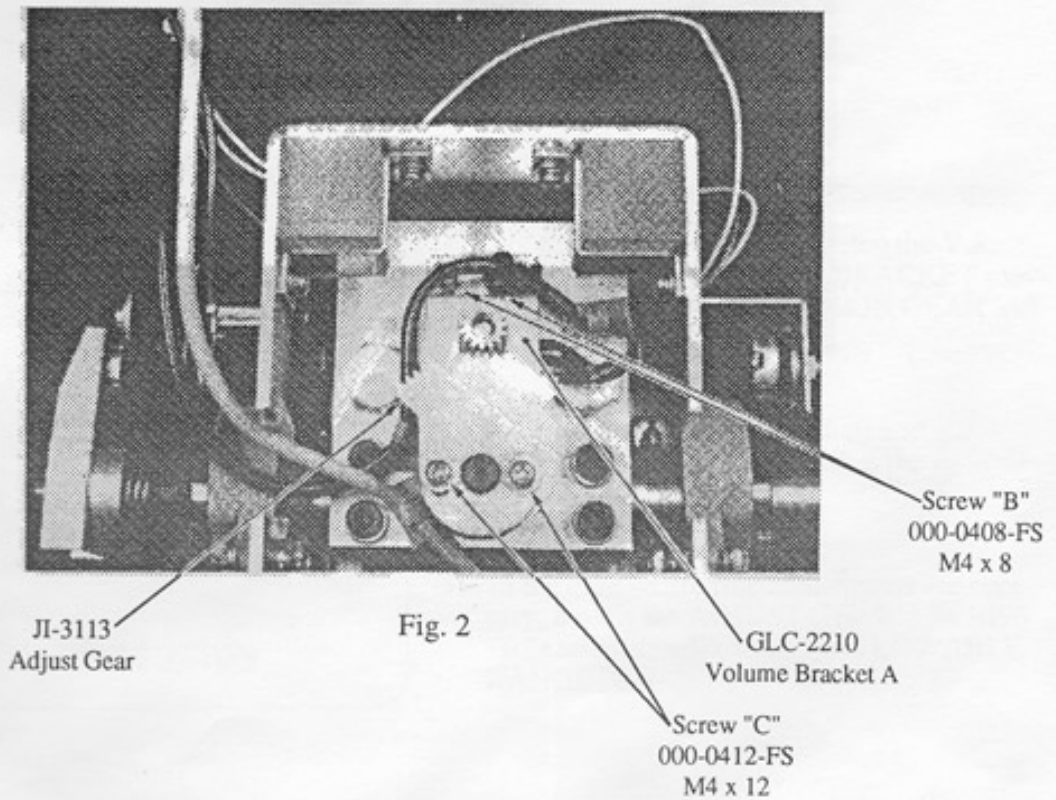


Fig. 2

ADJUSTMENT IN UP / DOWN DIRECTION

- 1) As shown in Fig. 3, loosen the 2 SCREWS "A" which fasten the V.R. BRACKET, and disengage the ADJUST GEAR and PINION GEAR. At this time, turn the V.R. shaft so that the variable value 2 becomes 80H, and make backlash adjustments.
- 2) In the case where fine adjustments are necessary, first secure the V.R. BRACKET, then loosen the ADJUST GEAR'S SCREW "B" and make adjustments in a manner so that the variable value 2 becomes 80H 4H.

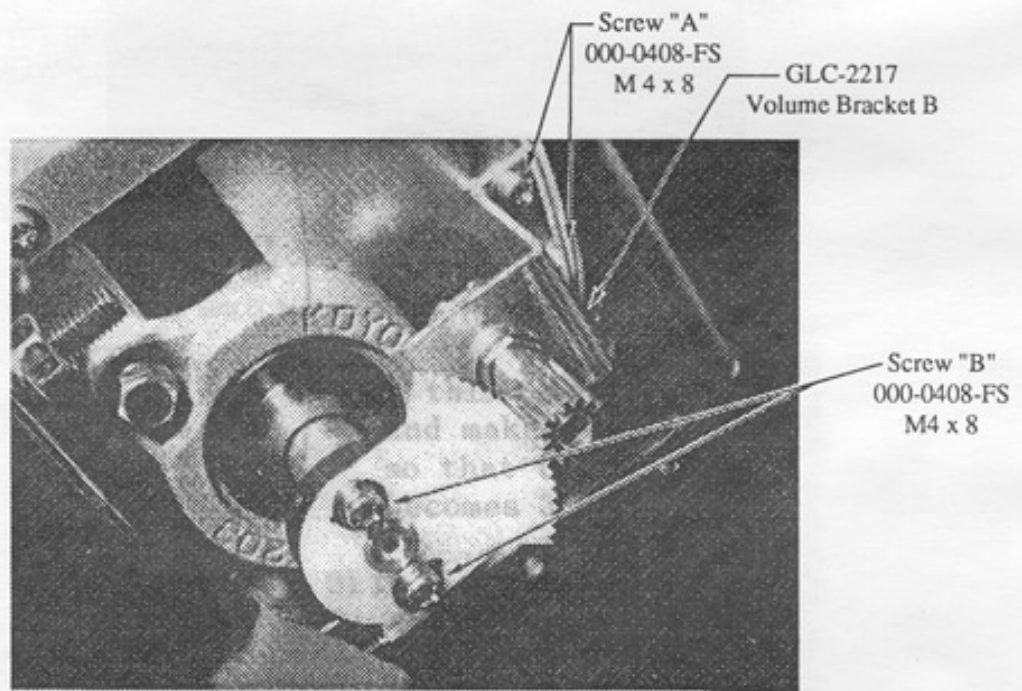
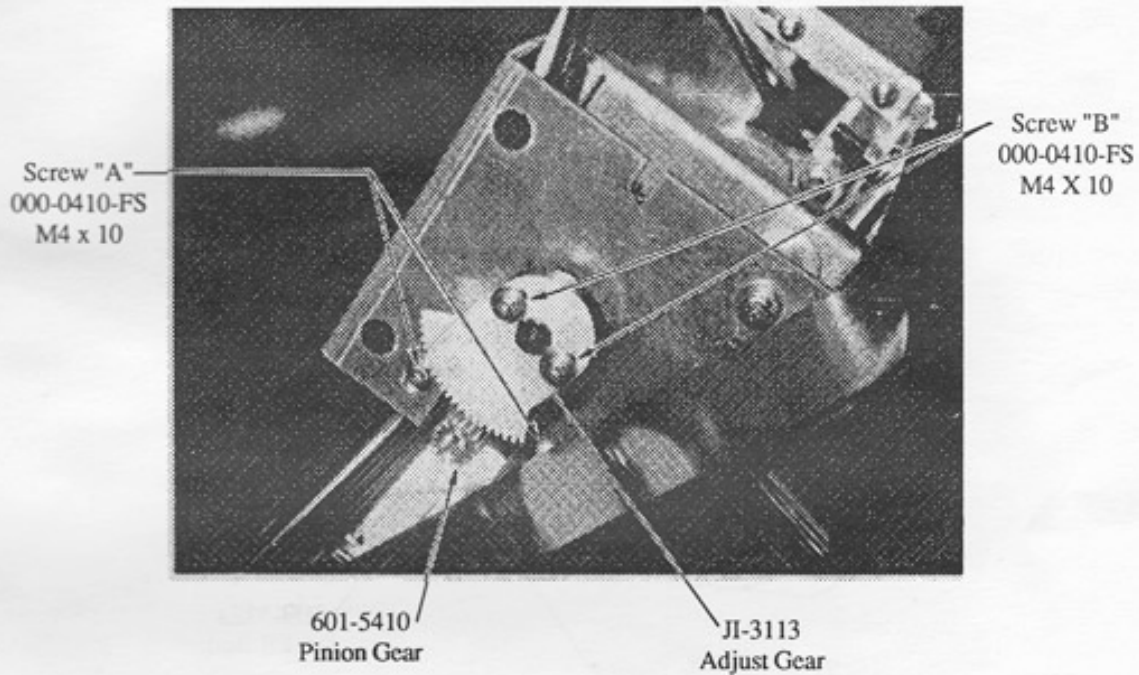


Fig. 3

THROTTLE ADJUSTMENT

With the THROTTLE LEVER in a "as is", free condition, display the screen in the SELF TEST mode.

At this time, if the variable value is 30H, it is OK.



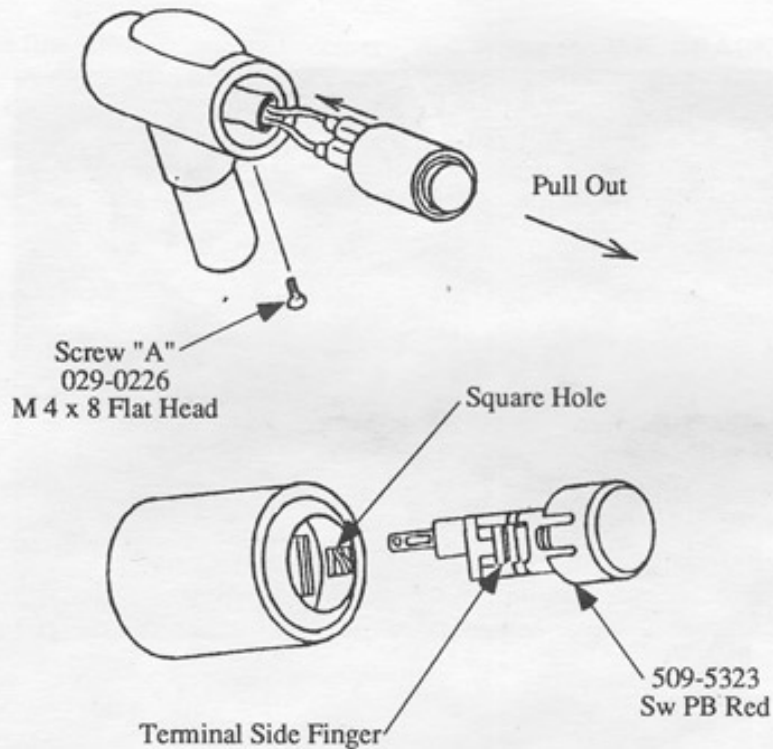
INPUT TEST			
COIN #1	OFF	START	OFF
COIN #2	OFF	SERVICE	OFF
VULCAN	OFF		
MISSILE	OFF		
BURNER	OFF		
STICK RIGHT LEFT			80H (1)
STICK UP DOWN			80H (2)
SPEED			30H (3)
PUSH TEST BUTTON			

ADJUSTMENT PROCEDURE

- 1) Loosen SCREW "A" that fasten the V.R. BRACKET resulting in the BRACKET moving and disengaging the PINION GEAR and ADJUST GEAR.
- 2) At this time, turn the V.R. shaft and make adjustments in a manner so that the variable value (3) becomes 30H.
- 3) In the case where fine adjustments are necessary, loosen the ADJUST GEAR'S SCREW "B" and make adjustment. (ALLOWABLE RANGE 2EH~30H)

REPLACING THE THROTTLE SWITCH

In the INPUT TEST mode, if the BURNER does not go ON even when the THROTTLE SWITCH is pushed, replace the THROTTLE SWITCH by using the following procedure:



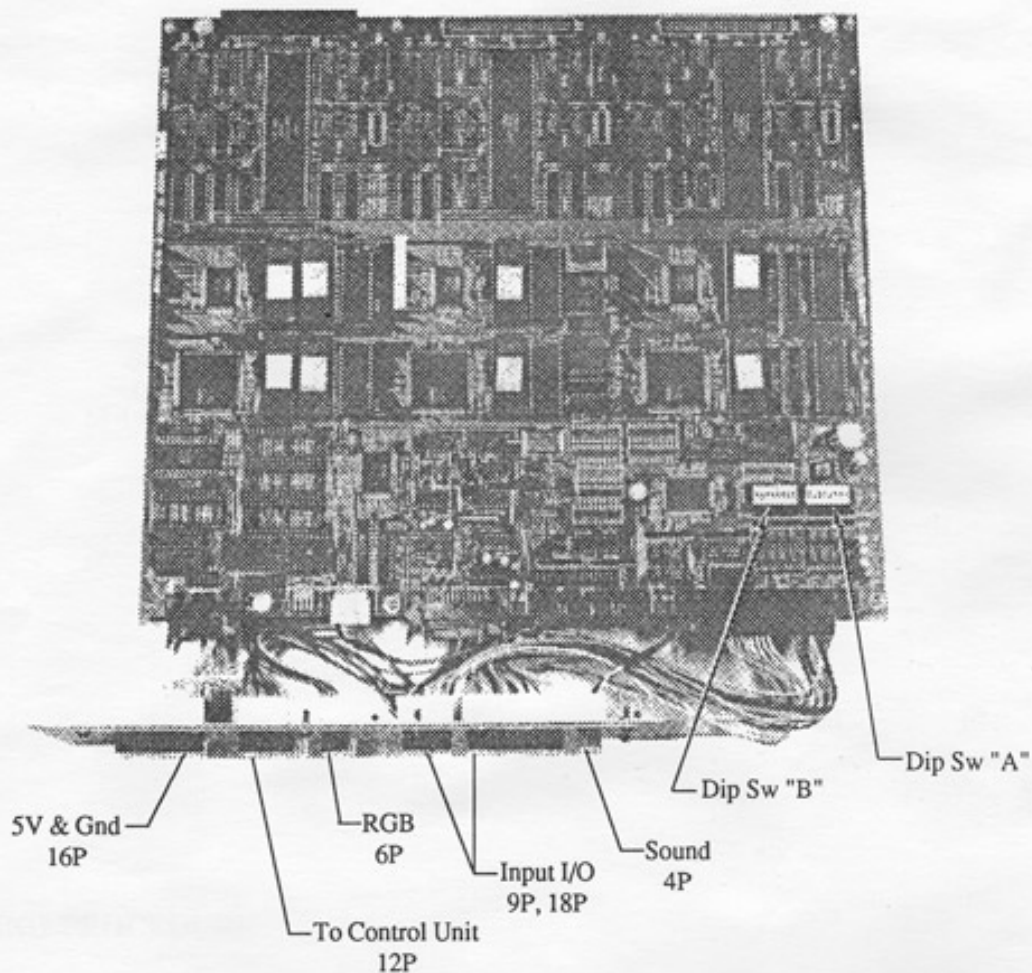
REPLACING PROCEDURE

- 1) Take off SCREW "A" which secures the SWITCH COLLAR.
- 2) Pull out the PUSH SWITCH together with the SWITCH COLLAR.
- 3) Pull out the PUSH SWITCH FASTON and while pushing in the terminal side's FINGER, remove the PUSH SWITCH.
- 4) Install the SPARE PARTS (509-5323-01) in the direction as shown.
- 5) Assemble it in the procedure opposite from the above.

NOTE: After replacing the switch, if the BURNER in the INPUT TEST does not go ON, then check for wiring, CONNECTORS, etc.

PCB ROM & DIP Switch

G-LOC Supplement
I.C. Board

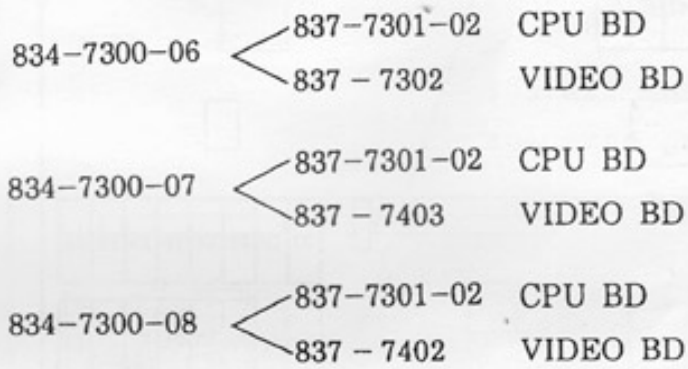


WARNING: TURN OFF POWER BEFORE PLUGGING IN OR REMOVING CONNECTORS.

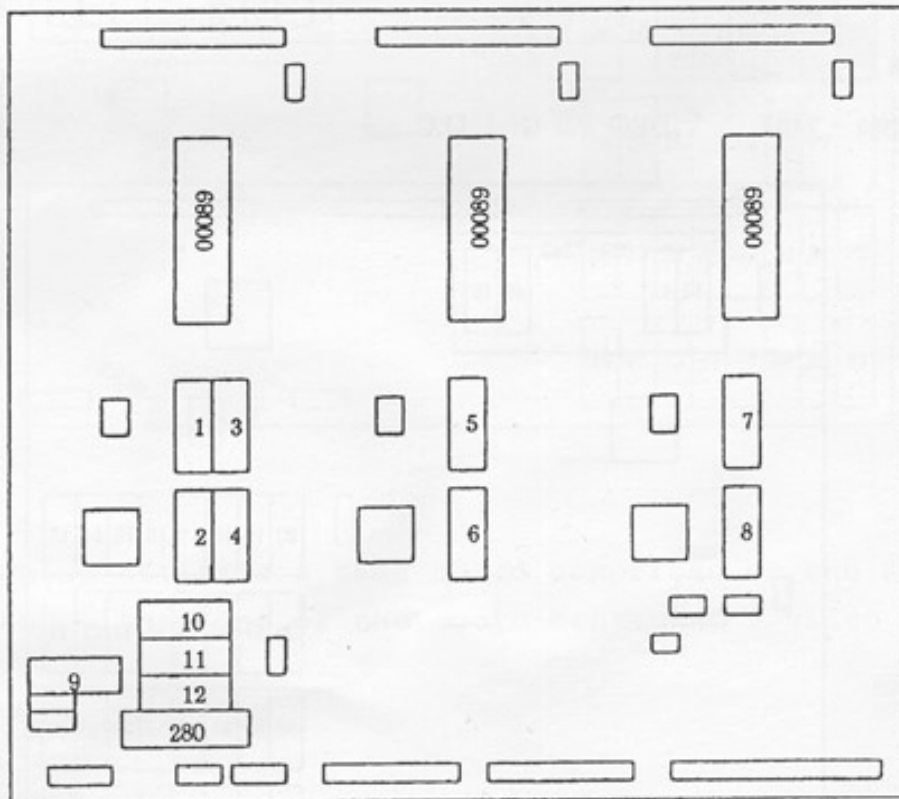
ROMLOCATIONS

(1) 834 - 7300 - ~ GAME BD G-L.O.C.

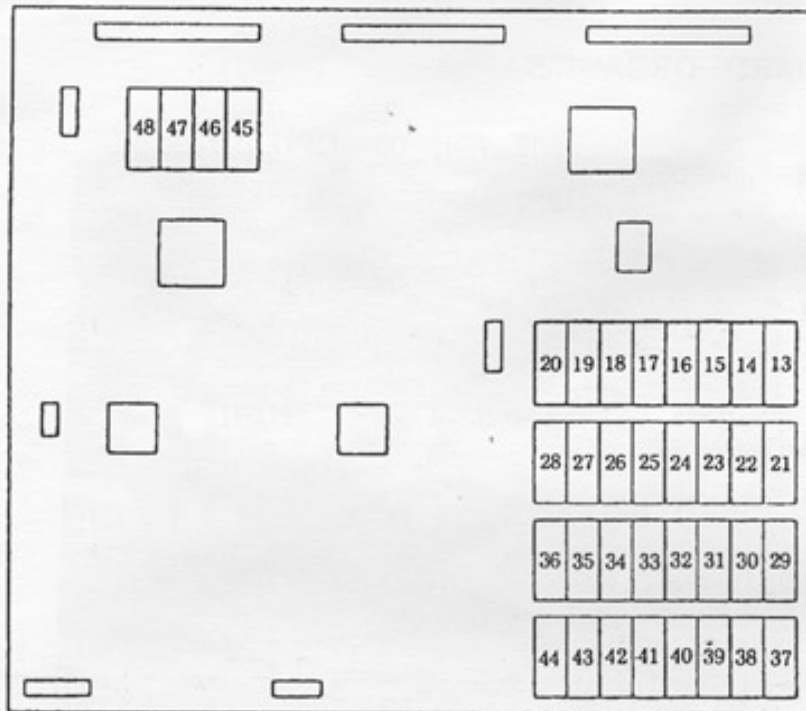
IC BOARD ORGANIZE



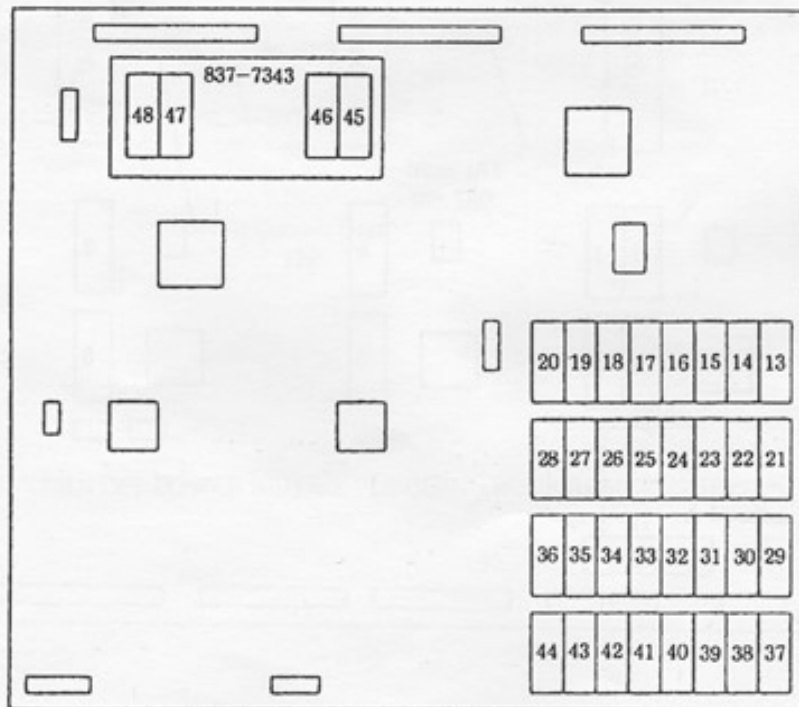
837 - 7301 CPU BD G-L.O.C.



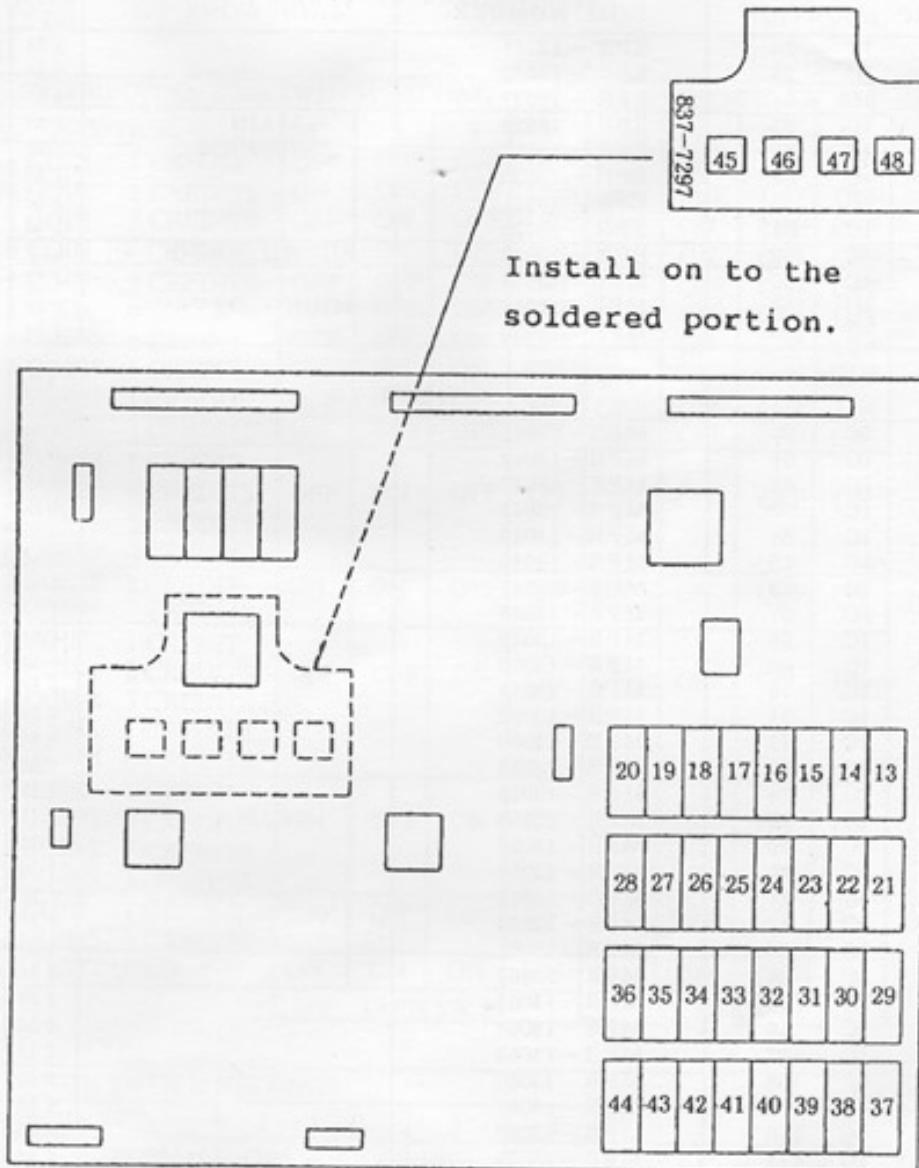
837 - 7302 VIDEO BD G-L.O.C.



837 - 7402 VIDEO BD G-L.O.C.



837 - 7403 VIDEO BD G-L.O.C.



Install on to the soldered portion.

* This machine utilizes a game board comprised of the 837-7301 CPU BD and either one of the above-mentioned 3 video BDs.

834 - 7300 -- GAME BD G-L.O.C.

837- 7301			CPU BD		CAPA CITY
	IC LOCATION		ROM NUMBER	MAIN WORK	
1	IC	24	EPR - 13171	MAIN PROGRAM	1 M
2	IC	25	EPR - 13172		1 M
3	IC	26	EPR - 13027		1 M
4	IC	27	EPR - 13028		1 M
5	IC	53	EPR - 13029		1 M
6	IC	54	EPR - 13030		1 M
7	IC	80	EPR - 13031		1 M
8	IC	81	EPR - 13032		1 M
9	IC	102	EPR - 13033	SOUND PROG	512
10	IC	105	MPR - 13034	SOUND DATA	4 M
11	IC	106	MPR - 13035		4 M
12	IC	107	MPR - 13036		4 M

				VIDEO BD	CAPA CITY	
13	IC	60	MPR - 13041	OBJECT	4 M	
14	IC	61	MPR - 13042		4 M	
15	IC	62	MPR - 13043		4 M	
16	IC	63	MPR - 13044		4 M	
17	IC	64	MPR - 13045		4 M	
18	IC	65	MPR - 13046		4 M	
19	IC	66	MPR - 13047		4 M	
20	IC	67	MPR - 13048		4 M	
21	IC	68	MPR - 13049		4 M	
22	IC	69	MPR - 13050		4 M	
23	IC	70	MPR - 13051		4 M	
24	IC	71	MPR - 13052		4 M	
25	IC	72	MPR - 13053		4 M	
26	IC	73	MPR - 13054		4 M	
27	IC	74	MPR - 13055		4 M	
28	IC	75	MPR - 13056		4 M	
29	IC	79	MPR - 13057		4 M	
30	IC	80	MPR - 13058		4 M	
31	IC	81	MPR - 13059		4 M	
32	IC	82	MPR - 13060		4 M	
33	IC	83	MPR - 13061		4 M	
34	IC	84	MPR - 13062		4 M	
35	IC	85	MPR - 13063		4 M	
36	IC	86	MPR - 13064		4 M	
37	IC	107	MPR - 13065		4 M	
38	IC	108	MPR - 13066		4 M	
39	IC	109	MPR - 13067		4 M	
40	IC	110	MPR - 13068		4 M	
41	IC	111	MPR - 13069		4 M	
42	IC	112	MPR - 13070		4 M	
43	IC	113	MPR - 13071		4 M	
44	IC	114	MPR - 13072		4 M	
45	IC	14	MPR - 13037		LINE OBJ	4 M
46	IC	15	MPR - 13038			4 M
47	IC	16	MPR - 13039	4 M		
48	IC	17	MPR - 13040	4 M		
837- 7297			FLAT PIGGY		CAPA CITY	
45	IC	1	MPR - 13037 - F	LINE OBJ	4 M	
46	IC	2	MPR - 13038 - F		4 M	
47	IC	3	MPR - 13039 - F		4 M	
48	IC	4	MPR - 13040 - F		4 M	
837- 7343			PIGgy BD		CAPA CITY	
45	IC	14	MPR - 13037	LINE OBJ	4 M	
46	IC	15	MPR - 13038		4 M	
47	IC	16	MPR - 13039		4 M	
48	IC	17	MPR - 13040		4 M	

G LOC

DIP SWITCH ASSIGNMENT

COIN / CREDIT OPTION SWITCH SETTING		DIP SW #1							
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								
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								
NOT USED		ON	ON	ON	ON	ON	ON	ON	ON
COIN SW #1					COIN SW #2				

GAME OPTION SWITCH SETTINGS		DIP SW #2							
OPTION		1	2	3	4	5	6	7	8
GAME DIFFICULTY	NORMAL	OFF	OFF						
	EASY	ON	OFF						
	HARD	OFF	ON						
	HARDEST	ON	ON						
ADVERTISE SOUND				OFF					
				ON					
GAME TYPE	MOVING				OFF	OFF			
	COCKPIT				ON	OFF			
	UPRIGHT/SIT DOWN				OFF	ON			
	NOT USED				ON	ON			
CONTINUE GAME	YES						OFF		
	NO						ON		
INITIAL/CONTINUE	2 / 1 CREDIT							OFF	OFF
	3 / 2 CREDITS							ON	OFF
	1 / 1 CREDIT							OFF	ON
	4 / 3 CREDITS							ON	ON

Self Test

TEST MODE

This test mainly checks the operation of the game PCB's, discovers defects if any, and also enables the monitor colors to be adjusted and the audio to be checked, etc.

1. Selection of TEST ITEMS

(1) Push the TEST SW to cause the following TEST ITEM MENU to appear:

—> INDIVIDUAL
MEMORY TEST
INPUT TEST
OUTPUT TEST
MOTOR TEST
SOUND TEST
CRT TEST
DIP SW. ASSIGNMENT
BOOKKEEPING
BACKUP RAM CLEAR
EXIT

SELECT BY SERVICE AND PUSH TEST BUTTON

(2) By pushing the SERVICE button, bring the arrow mark “—>” to the desired item and press the TEST button.

(3) When the test has been completed, bring “—>” to EXIT and push the TEST button.

Bring “—>” to “INDIVIDUAL” and push the TEST button to change it to “CONTINUE.”
Bringing “—>” to “CONTINUE” and pushing the TEST button without pressing the SERVICE button will change the screen sequentially.

MEMORY TEST

Checks the PCB's MEMORY IC's. When the IC is in good operating condition, "GOOD" will be indicated. If there exists any malfunctioning of the IC's, "BAD" will be indicated.

MEMORY TEST			
ROM TEST			
IC. 24	GOOD	IC. 26	GOOD
IC. 25	GOOD	IC. 27	GOOD
IC. 80	GOOD	IC. 53	GOOD
IC. 81	GOOD	IC. 54	GOOD
RAM TEST			
IC. 28	GOOD	IC. 55	GOOD
IC. 29	GOOD	IC. 56	GOOD
IC. 84	GOOD	IC. 82	GOOD
IC. 85	GOOD	IC. 83	GOOD
IC. 86	GOOD	IC. 87	GOOD
VIDEO BOARD RAM TEST			
IC. 3	GOOD	IC. 27	GOOD
IC. 4	GOOD	IC. 29	GOOD
IC.104	GOOD	IC. 28	GOOD
IC.105	GOOD	IC. 30	GOOD
PUSH TEST BUTTON			

INPUT TEST

Indicates the condition of each switch and POTENTIOMETER.

INPUT TEST			
COIN #1	OFF	TEST	OFF
COIN #2	OFF	SERVICE	OFF
VULCAN	OFF	MISSILE	OFF
BURNER	OFF	START	OFF
STICK RIGHT	LEFT	(2)	80H
STICK UP	DOWN	(3)	80H
SPEED		(4)	30H
PUSH TEST BUTTON			

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

- (2) It is satisfactory if data values increase when the handle grip is moved to the right, decrease when it is moved to the left, and indicate "80H" when released.

Decrease <----- left 80H ----- right -----> Increase

- (3) It is satisfactory if data values increase when the handle grip is moved upward, decrease when it is moved downward, and indicate "80H" when released.

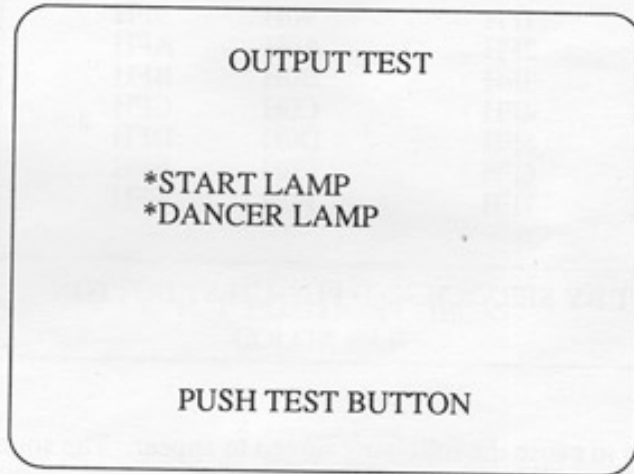
Decrease <----- downward 80H ----- upward -----> Increase

- (4) It is satisfactory if the data values increase when the THROTTLE LEVER is moved forward and indicate "30H" when released.

30H ----- forward -----> Increase

OUTPUT TEST

THE START LAMP and DANGER LAMP will flash.



SOUND TEST

By pushing the SERVICE button, bring the “—>” to the desired position and push the TEST button.

SOUND TEST

—> 00H	0FH	80H	8FH
10H	1FH	90H	9FH
20H	2FH	A0H	AFH
30H	3FH	B0H	BFH
40H	4FH	C0H	CFH
50H	5FH	D0H	DFH
60H	6FH	E0H	EFH
70H	7FH	F0H	FFH

SELECT BY SERVICE AND PUSH TEST BUTTON

Push the TEST button to cause the following screen to appear. The sound check can be carried out by pushing the SERVICE button to bring “—>” to the desired position and then pressing the TEST button.

**00H
SOUND TEST**

—> 00H	08H
01H	09H
02H	0AH
03H	0BH
04H	0DH
05H	0EH
07H	0FH
	EXIT

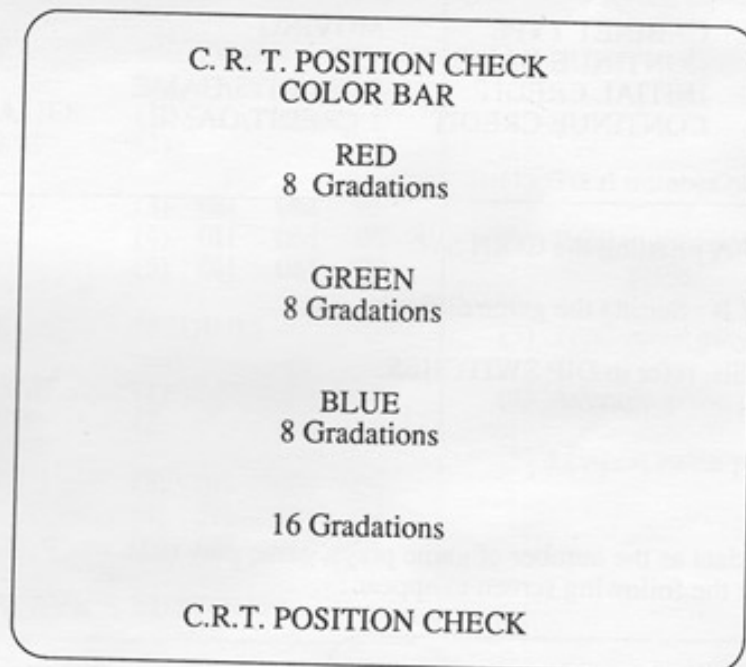
SELECT BY STICK PUSH START BUTTON

To return to the previous screen, bring “—>” to “EXIT” and push the TEST button.

00H ~ 0FH	}	SOUND EFFECT	80H ~ 8FH	VOICE	
10H ~ 1FH			90H ~ 9FH	B.G.M	
20H ~ 2FH			A0H ~ AFH	SOUND EFFECT	
30H ~ 3FH			B0H ~ BFH	}	VOICE
40H ~ 4FH			C0H ~ CFH		
50H ~ 5FH			D0H ~ DFH		
60H ~ 6FH			E0H ~ EFH		
70H ~ 7FH			F0H ~ FFH		

CRT TEST

Monitor Adjustment Check



- (1) Checks the C.R.T. position. Make sure that the on-screen corners are consistent and then make size adjustments.
- (2) RGB color check
(The color becomes brighter from the right to the left.)
- (3) Brightness check
Becomes brighter from the right (black) to the left (white).

DIP SW ASSIGNMENT

The following shows the assignment of DIP SW A and B.

DIP SWITCH ASSIGNMENT								
	1	2	3	4	5	6	7	8
DIP SW A	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
DIP SW B	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF
.A1234	COIN SW #1			1 COIN 1 CREDIT				
.A5678	COIN SW #2			1 COIN 1 CREDIT				
.B12	GAME DIFFICULTY			NORMAL				
.B3	ADVERTISE SOUND			OFF				
.B4								
.B5	CABINET TYPE			MOVING				
.B6	CONTINUE GAME			YES				
.B78	INITIAL CREDIT			2 CREDITS/GAME				
	CONTINUE CREDIT			1 CREDIT/GAME				

DIP SW A : Setting the COIN SW

DIP SW B : Setting the game difficulty, etc.

For details, refer to DIP SWITCHES.

BOOKKEEPING

Displays such data as the number of game plays, game play time, etc. Push the SERVICE button to cause the following screen to appear :

BOOKKEEPING (1/4)		
COIN CHUTE #1	(1)	979
COIN CHUTE #2	(2)	0
COIN CREDITS	(3)	979
SERVICE CREDITS	(4)	1050
TOTAL CREDITS	(5)	2029
TOTAL TIME	(6)	97H 38M 16S
PUSH SERVICE BUTTON		

- (1) Number of coins put in COIN CHUTE 1
- (2) Number of coins put in COIN CHUTE 2
- (3) Number of coin credits
- (4) Number of credits obtained by using the SERVICE SW
- (5) Sum of (3) and (4)
- (6) Total time during which the machine was energized

BOOKKEEPING		(2/4)
NUMBER OF GAMES	(1)	832
CONTINUE GAMES	(2)	0
GAME TIMES		
TOTAL	(3)	49H 27M 33S
AVERAGE	(4)	0H 3M 34S
LONGEST	(5)	0H 25M 21S
PUSH SERVICE BUTTON		

Displays the data of all courses and each course.

Screen (2/4)

Total of all courses

Screen (3/4)

BEGINNER
MEDIUM

BOOKKEEPING		(3/4)
COURSE BEGINNER		
NUMBER OF GAMES	(1)	0
CONTINUE GAME	(2)	0
TOTAL	(3)	0H 0M 0S
AVERAGE	(4)	0H 0M 0S
LONGEST	(5)	0H 0M 0S
COURSE MEDIUM		
NUMBER OF GAMES	(1)	0
CONTINUE GAME	(2)	0
TOTAL	(3)	0H 0M 0S
AVERAGE	(4)	0H 0M 0S
LONGEST	(5)	0H 0M 0S
PUSH SERVICE BUTTON		

Screen (4/4)

EXPERT

- (1) Total number of game plays
- (2) Total number of CONTINUE game plays
- (3) Total game play time
- (4) Average game play time
- (5) Longest game play time

BOOKKEEPING		(4/4)
COURSE EXPERT		
NUMBER OF GAMES	(1)	0
CONTINUE GAME	(2)	0
TOTAL	(3)	0H 0M 0S
AVERAGE	(4)	0H 0M 0S
LONGEST	(5)	0H 0M 0S
PUSH SERVICE BUTTON		

BACKUP RAM CLEAR

The BOOKKEEPING data can be cleared. When clearing, bring "—>" to "YES" and when not clearing, to "NO," by using the SERVICE SW, and then push the TEST button.

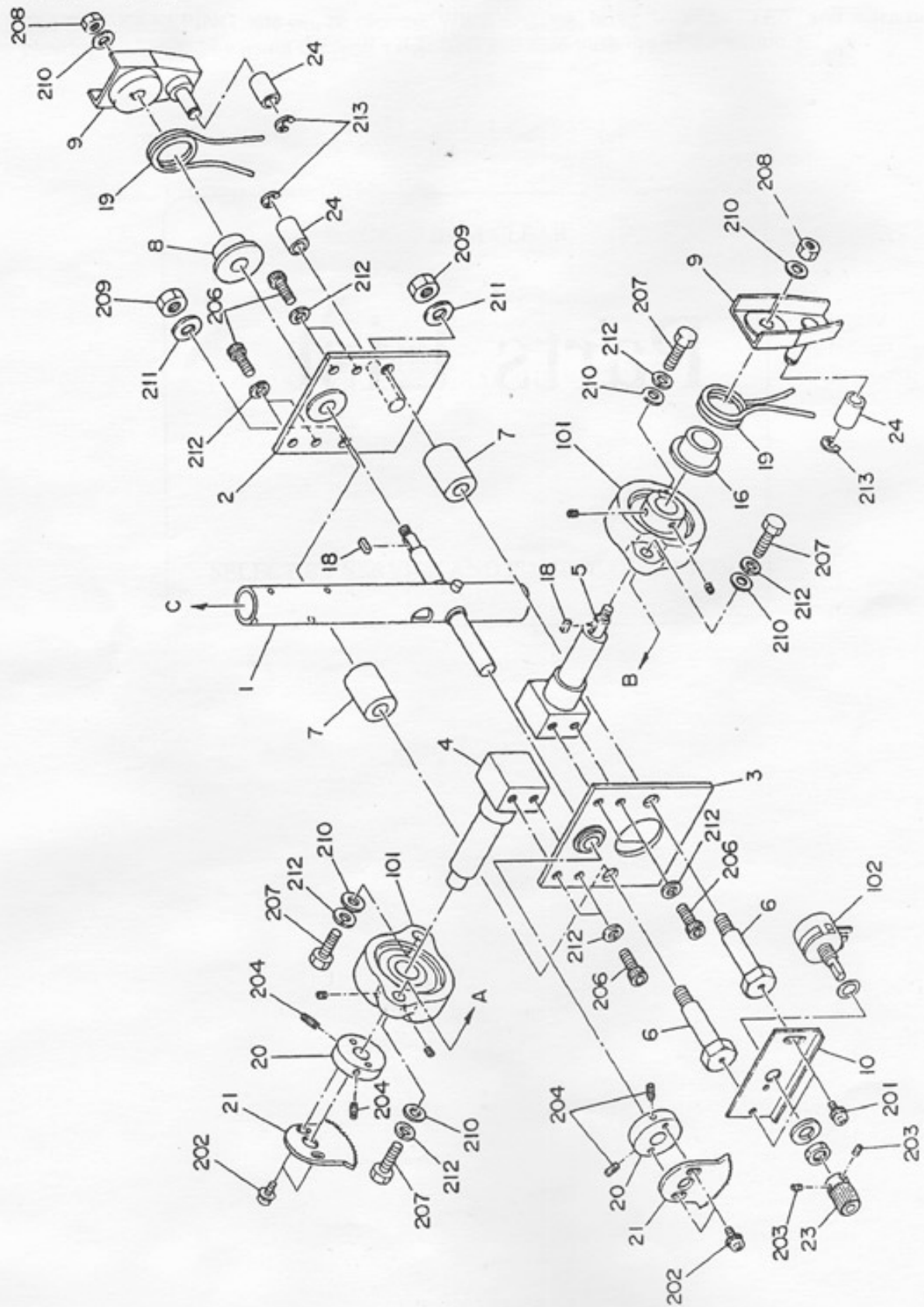
BACKUP RAM CLEAR

—> NO
YES

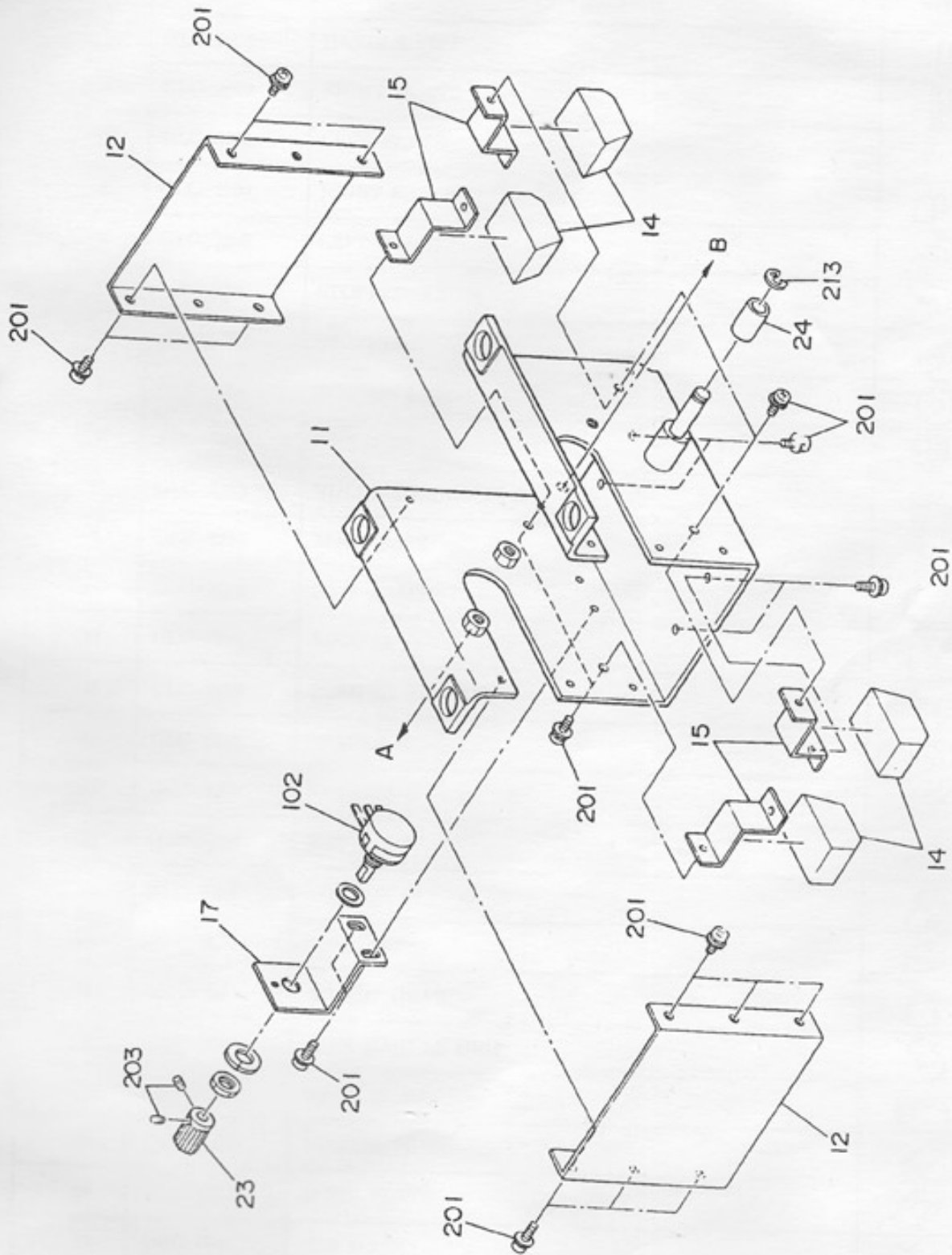
SELECT BY SERVICE AND PUSH TEST BUTTON

Parts List

GLC-2200 (1/5)





























GLC-2200 (2/5)



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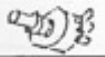
GLC-2200 (3GLC-2200 (4/5)/

GLC-2200 (4/5)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	GLC-2201	HANDLE PIPE	
2	GLC-2202	RIGHT PLATE	
3	GLC-2203	LEFT PLATE	
4	GLC-2204	RIGHT SHAFT	
5	GLC-2205	LEFT SHAFT	
6	GLC-2206	STOPPER SCREW	
7	GLC-2207	STOPPER	
8	GLC-2208	SPACER A	
9	GLC-2209	SWING ARM	
10	GLC-2210	VOLUME BRACKET A	
11	GLC-2211	MAIN BASE	
12	GLC-2212	SIDE BRACKET	
14	GLC-2214	BUMPER B	
15	GLC-2215	BUMPER BRACKET	
16	GLC-2216	SPACER B	
17	GLC-2217	VOLUME BRACKET B	
18	GLC-2218	KEY 3x3x7	
19	GLC-2219	TORSION SPRING	
20	J1-3113	GUIDE RING	
21	601-6005	ADJUST GEAR	
22	GLC-2030	ASSY HANDLE GRIP	
23	601-5410	GEAR 15 ϕ 6	
24	GLC-2220	RUBBER PIPE	
25	GLC-2221	MASK PLATE	
26	GLC-2222	SUB MASK	
27	GLC-2223	MASK	

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ITEM NO.	PART NO.	DESCRIPTION	NOTE
101	100-5116	BEARING ϕ 15	
102	220-5130	VOL CONT B-5K OHM	
201	000-0408-FS	M SCR PH W/FS M4x8	
202	000-0412-FS	M SCR PH W/FS M4x12	
203	028-0002	SET SCR PH SPCL M3x6	
204	028-0008	SET SCR PH SPCL M4x12	
205	029-0052	TMP PRF SCR PH M5x10	
206	029-0283	HEX SKT H CAP SCR BLK M6x16	
207	030-0625	HEX BLT M6x25	
208	054-0006	U-NUT M6	
209	054-0008	U-NUT M8	
210	060-0006	FLT WSHR M6	
211	060-0008	FLT WSHR M8	
212	061-0006	SPR WSHR M6	
213	065-0006	E-RING 6mm	