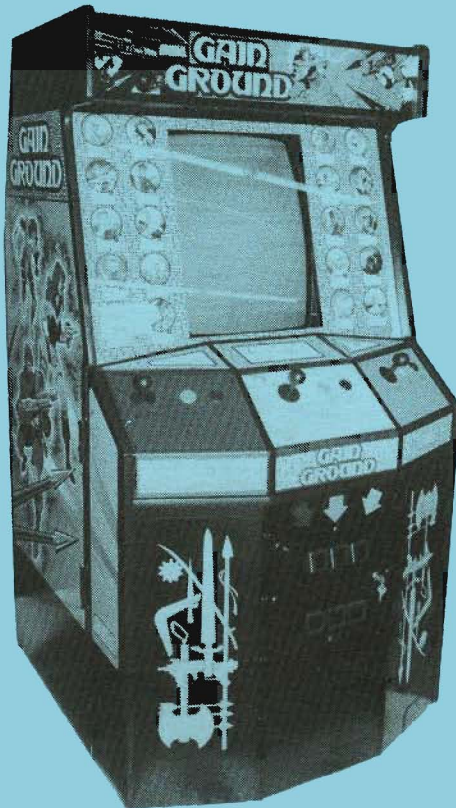


**SEGA<sup>®</sup>**

# **GAIN GROUND**

**3 PLAYER TYPE**

**OWNER'S MANUAL**



**SEGA ENTERPRISES, LTD.**



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### SPECIFICATIONS

INSTALLATION SPACE	: 38 in. W × 42 in. D
HEIGHT	: 72 in.
POWER	: 201 W
C.R.T.	: 26 MONITOR
WEIGHT	: 180 kg (394.5 lbs.)

#### NOTE

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

### INTRODUCTION TO THE OWNER'S MANUAL

SEGA ENTERPRISES, LTD., supported by its high electronic technology of LSIs, micro-processors, 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 GAIN GROUND 3 PLAYER TYPE, 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 circumstances 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.

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

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:

© SEGA 1988

This signifies that this work was disclosed in 1988 and is the property of SEGA ENTERPRISES, LTD.

### **3. PRECAUTIONS CONCERNING THE PLACE OF INSTALLATION**

The GAIN GROUND 3 PLAYER 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:

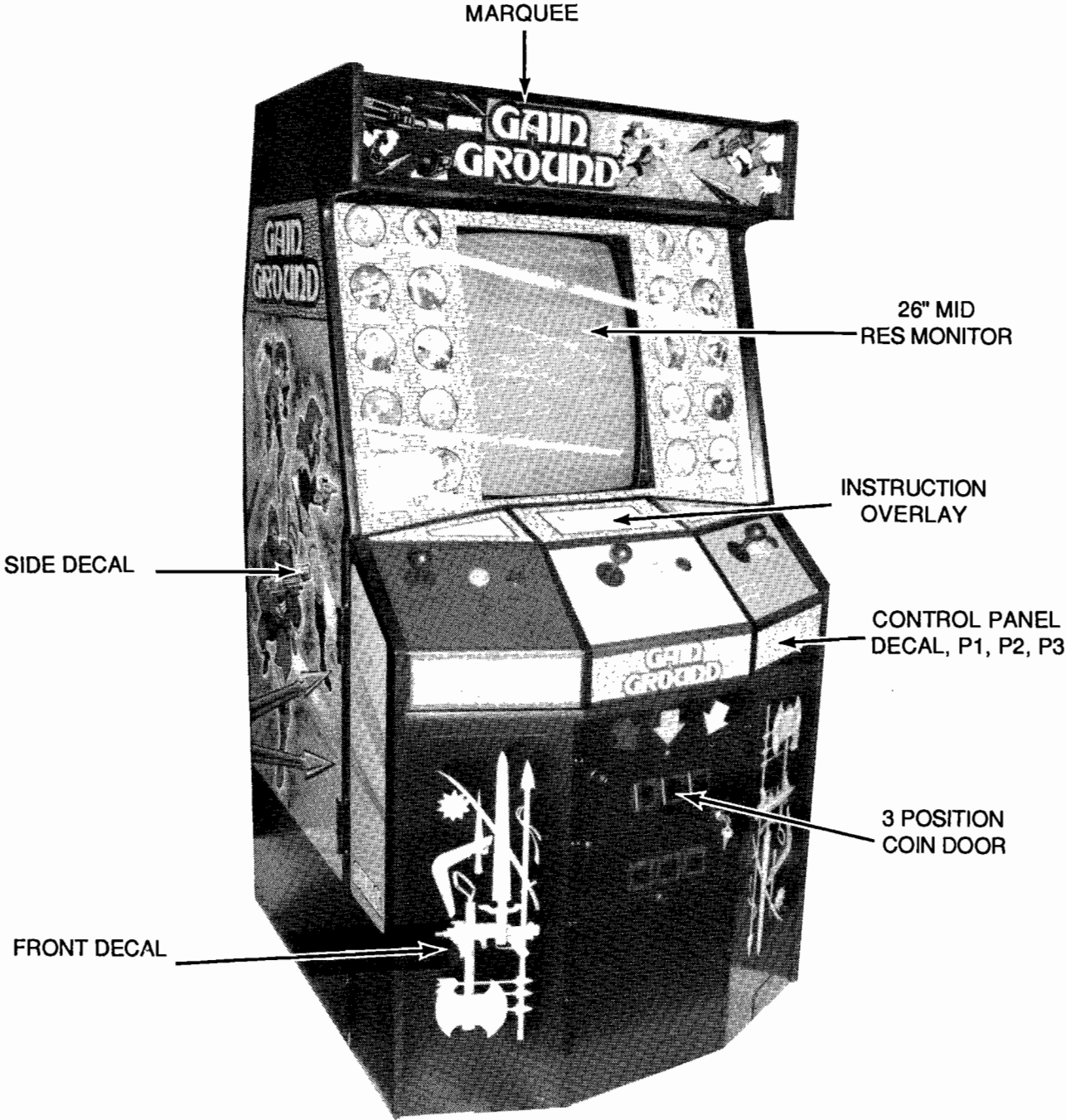
- Places subject to rain or water leakage, or condensation due to humidity.
- In the proximity of an indoor swimming pool and/or shower.
- Places subject to direct sunlight.
- Places subject to heat sources from heating units, etc., or hot air.
- Vicinity of highly inflammable/volatile chemicals or hazardous 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.

### **4. OPENING THE FRONT DOOR OF THE GAIN GROUND 3 PLAYER**

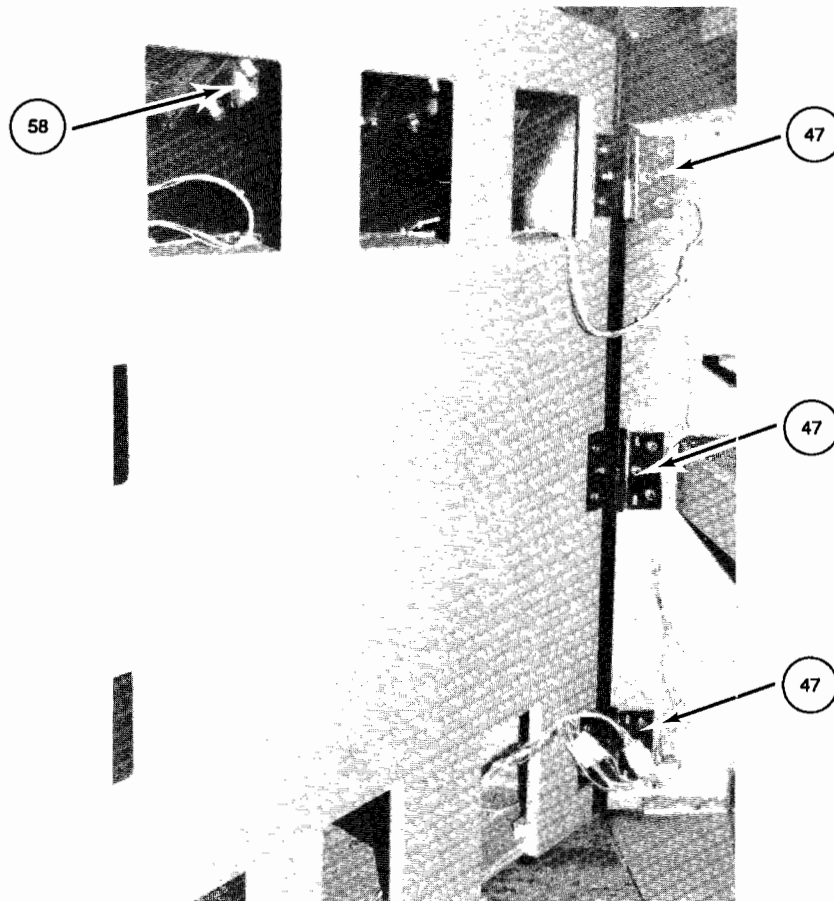
To open the front door of the GAIN GROUND 3 PLAYER TYPE, follow the steps mentioned below:

- Open the 3 slot Coin Door.
- Locate 3 latches equally spaced on the right inside cabinet.
- Carefully open the door to the left.

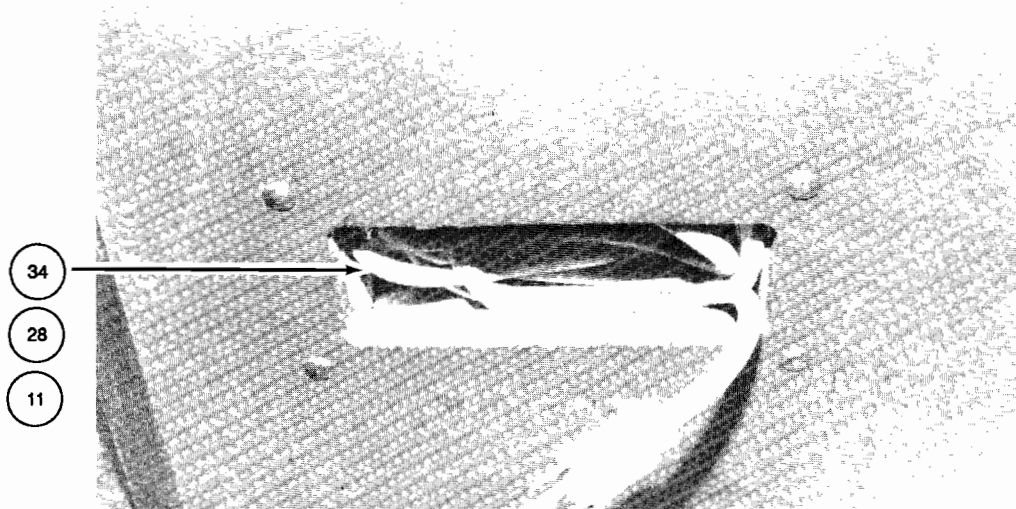
5. NAME OF PARTS



**6. REAR VIEW OF STEERING ASSEMBLY, FOOT PEDAL ASSEMBLY, REMOVABLE HINGES & CONTROL PANEL ASSEMBLY**

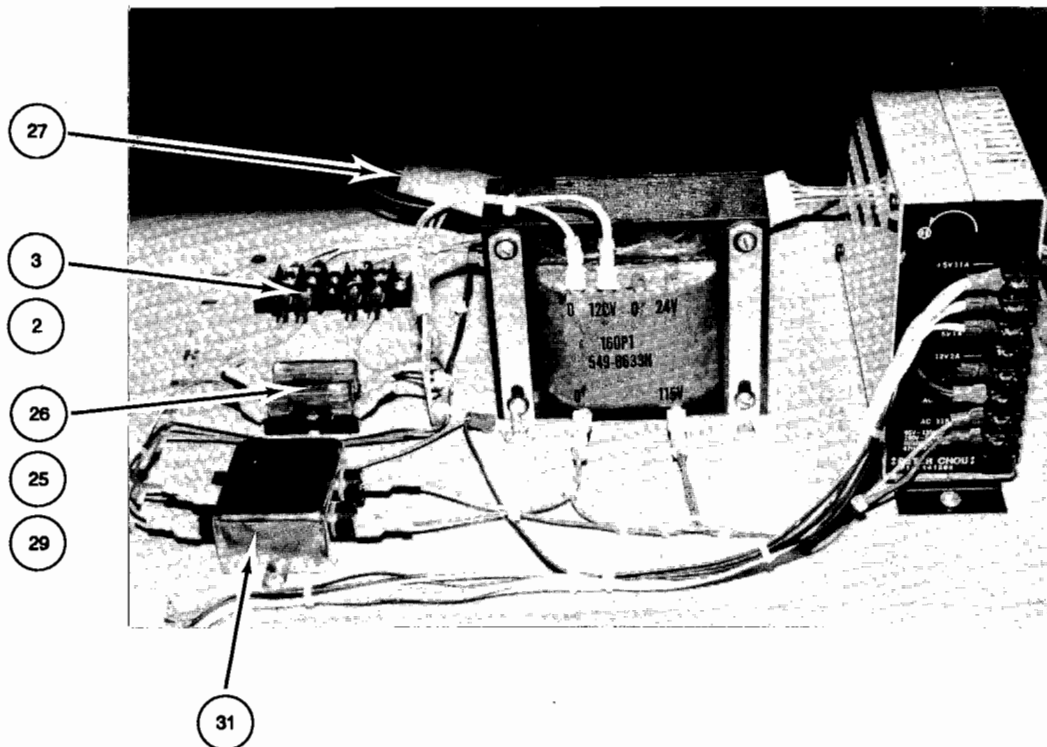


**Power Cord Box**

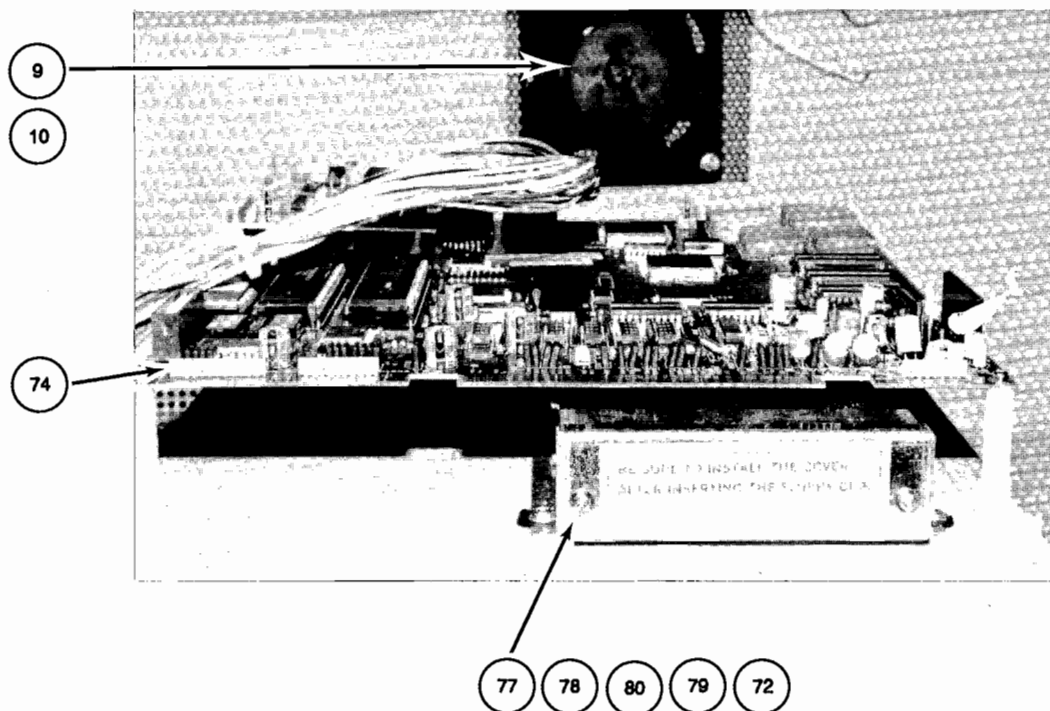


## 7. SERVICING THE POWER SUPPLY UNIT AND FUSE

### Power Supply Assembly

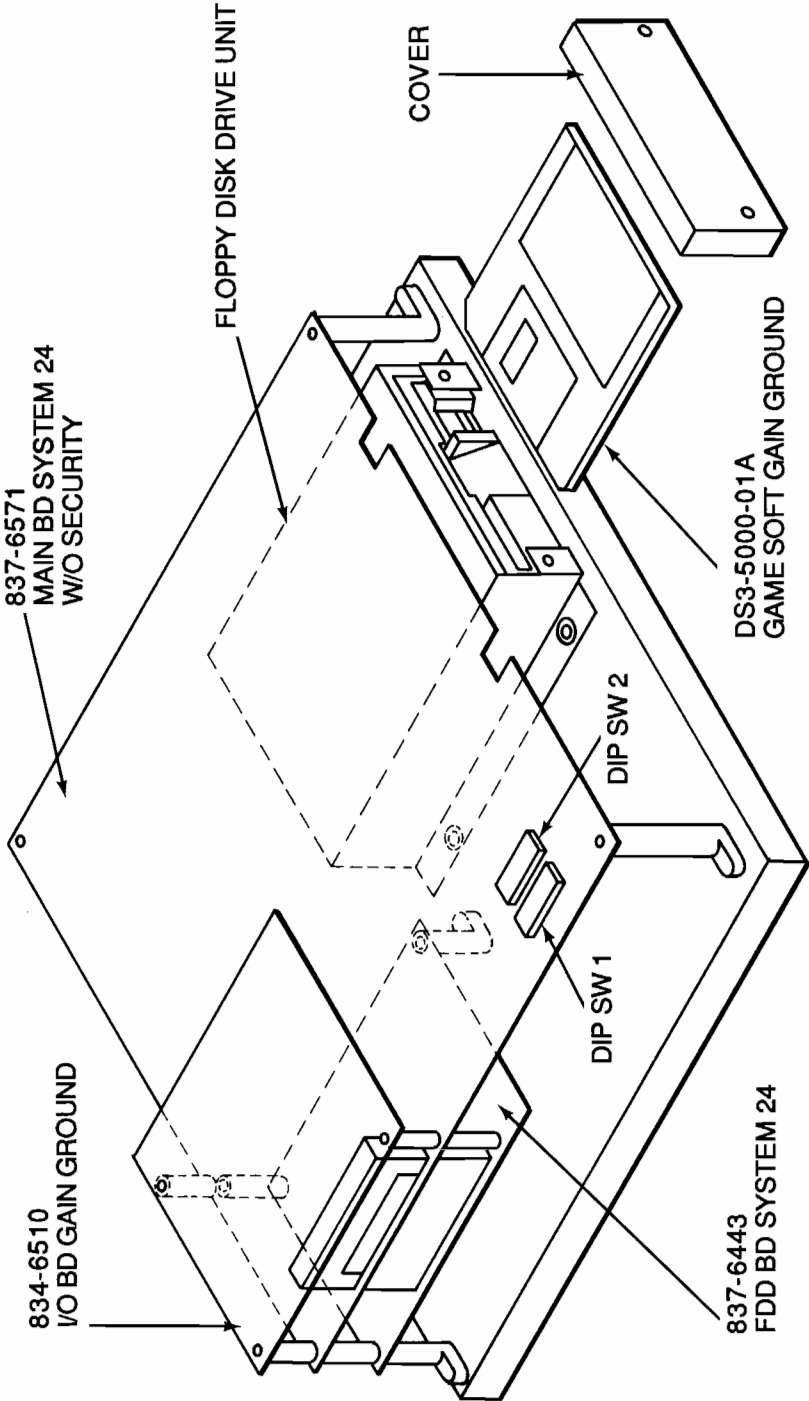


## 8. P.C. BOARD ASSEMBLY



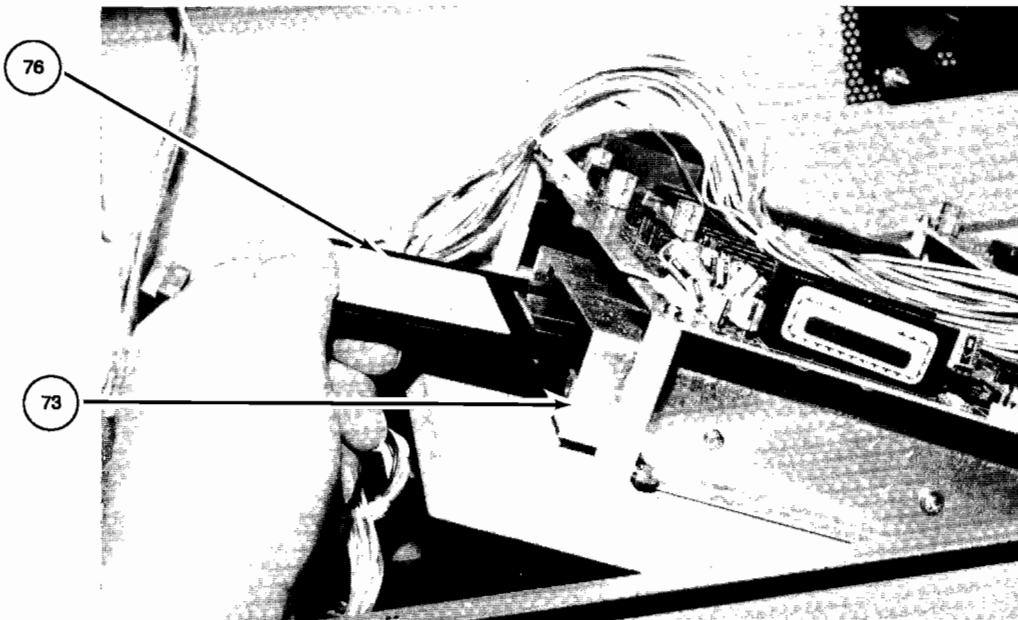
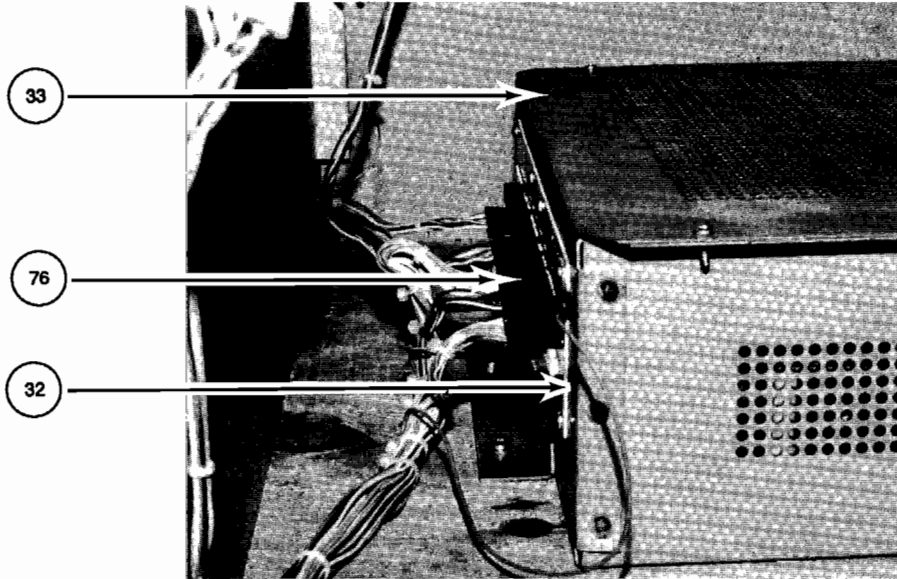


Drawing of PC Assembly



## 9. SERVICING THE FLOPPY DISK

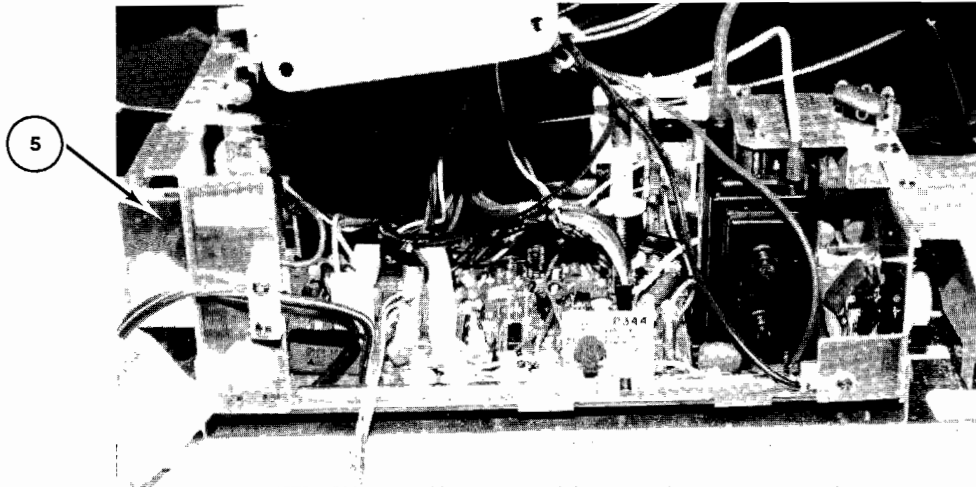
### Shield Case



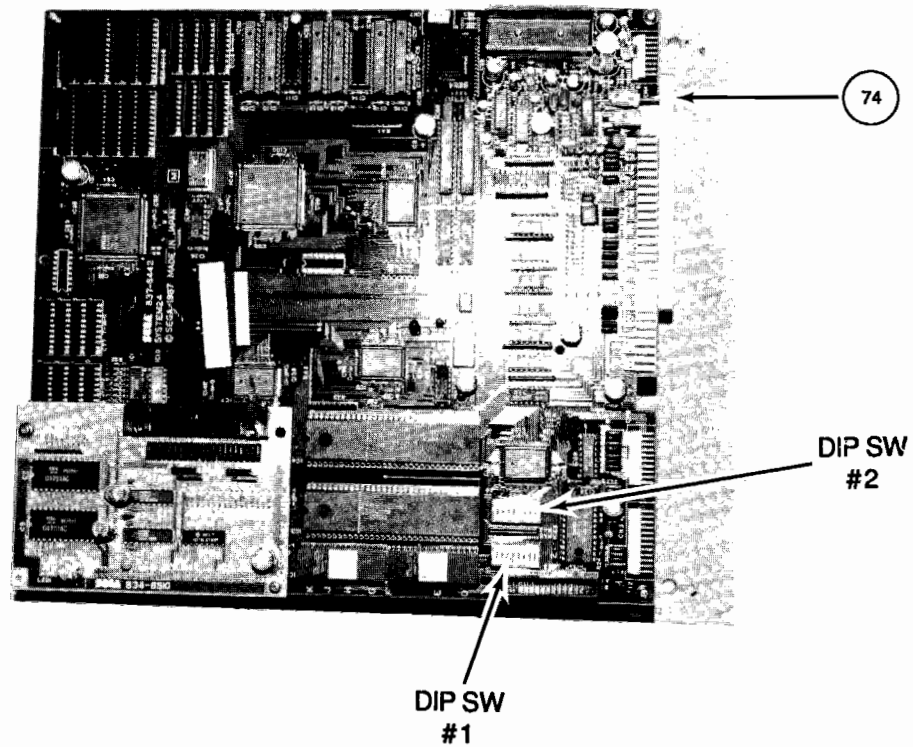
**REMOVE THE LID of the SHIELD CASE.** Remove the sheet metal and pull out the game board unit in a manner so that both ends of it will meet the shield case. Open the FDD (Floppy Disk Drive) LID by taking off the 2 (M3 x 8) SCREWS when replacing the FLOPPY DISK.

## 10. MONITOR ADJUSTMENTS AND GAME BOARD SERVICING

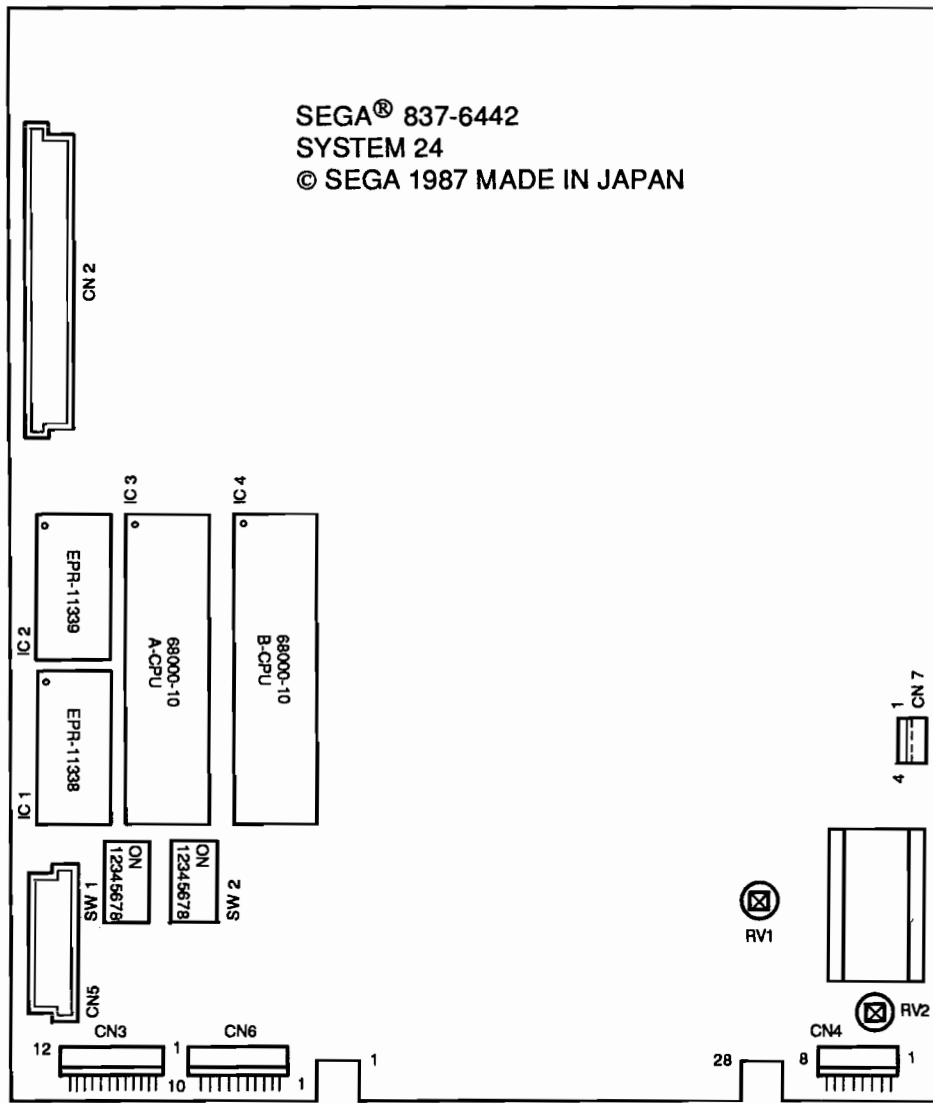
### Monitor Adjustment



### Gain Ground Printed Circuit Board



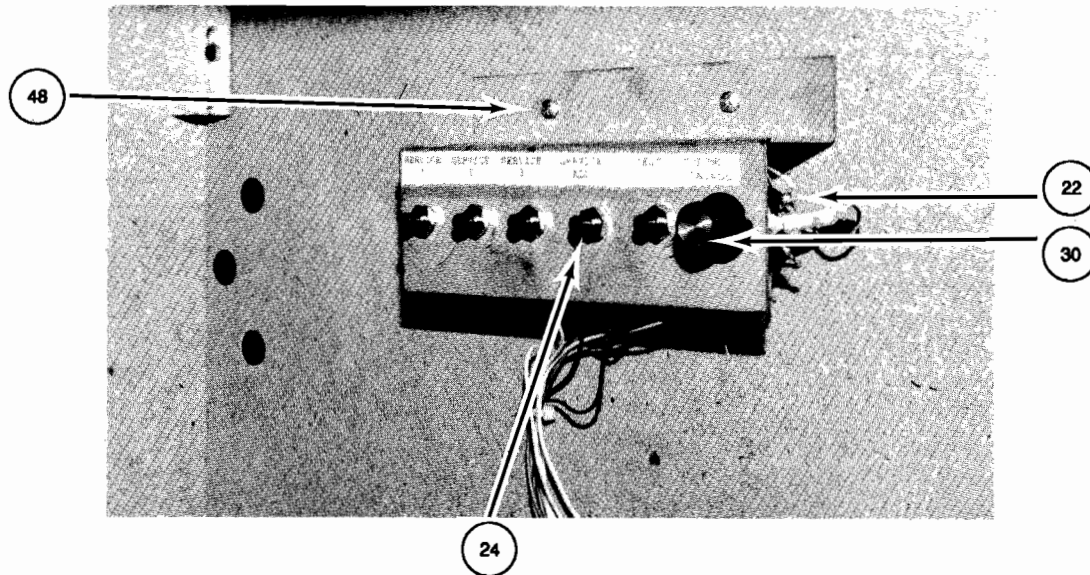
# 11. PC BOARD COMPONENT LOCATIONS



## MAIN BD SY 24

- IC 1 EPR-12186 (IC MB27C1000-15) FOR SYSTEM
- IC 2 EPR-12187 (IC MB27C1000-15) FOR SYSTEM
- IC 3 IC 68000
- IC 4 IC SECURITY CPU 68000 OR IC 68000 FOR GAME PROGRAM
- SW 1 DIP SW
- SW 2 DIP SW
- CN 2
- CN 5
- CN 3 DATA COMMUNICATION CONNECTOR
- CN 6 RESERVE POWER CONNECTOR
- CN 7 INPUT (SOUND) CONNECTOR
- CN 8 HEADPHONE OUTPUT CONNECTOR
- RV 1 MAIN SOUND VOLUME
- RV 2 HEADPHONE SOUND VOLUME

## 12. SERVICE SWITCH ADJUSTMENT

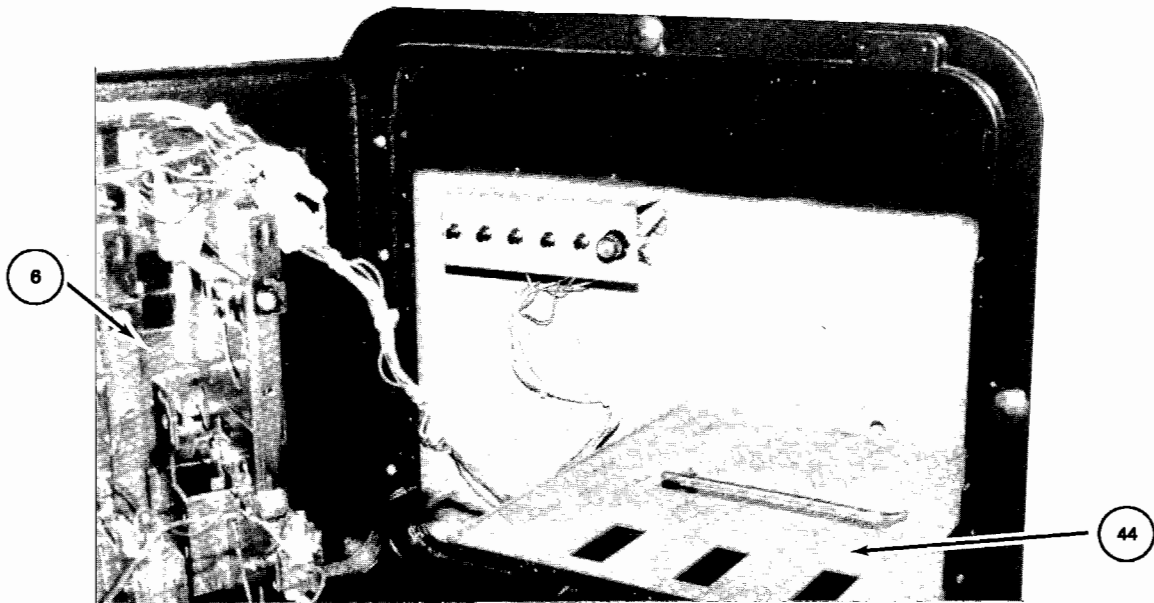


- **SERVICE SW (MAIN)**  
Not used for the purpose of servicing (see below)
- **SERVICE SW 1, 2, 3**  
Used for the purpose of servicing and increasing the credits without registering on the meter (this allows you to check the game).
- **TEST SW**  
For operating this switch, see SELF-TEST.
- **VOLUME CONTROL**  
Controls the speaker volume.
- **SERVICE SW (MAIN)**  
\* As regards the FLOPPY DISK BACKUP
- The SYSTEM 24 BD used for the GAIN GROUND is provided with a game disk's BACKUP mode. Use the supplied disk as a master disk and prepare the 3.5" 2HD TYPE for WRITE.

## Coin Door Assembly

- COIN MECH
- 3 COIN CHUTES
- SERVICE SWITCH BRACKET

## Coin Door and Service Switch



## 13. PARTS LIST

### CABINET ASSEMBLY PARTS LIST

ITEM	PARTS NUMBER	DESCRIPTION
1	1050-0064	MAIN SWITCH BRACKET
2	1170-5131A	TERMINAL
3	1170-5131	TERM BLK, 5P
4	1300-5018	SPEAKER, 8-OHM 10W
5	2001-5125-24	MONITOR 26
6	2200-0001	COIN DOOR, 3 SLOT
7	2200-0101-A	DECAL, 3 PLAYER COIN INPUT
8	2201-5130	5K OHM, LONG LIFE, LINEAR
9	2600-0011-1	FAN, AXIAL
10	2600-0011-2	FINGER GUARD
11	2800-0418	STRAIN RELIEF
12	3901-0002A	40 WATT CLEAR LAMP
13	3901-0003	DUAL LAMP FIXTURE
14	4001-5072	PWR SUPPLY 5V-7A, 12V-2A
15	4201-5000-3D	MANUAL GAIN GROUND
16	4211-6592	STICKER ON/OFF
17	4211-6671	STICKER, DANGER HIGH VOLTAGE
18	4211-6682	STICKER, SERVICE INSTRUCTION
19	4211-7224	STICKER, FUSE INST 5A, 5A
20	4211-7228	STICKER, SWITCH UNIT
21	4231-0000-3D	MARQUEE GAIN GROUND U/R
22	4750-0049	RHEOSTAT, 100 OHM 10W
23	5090-0039	SWITCH, ON/OFF
24	5090-5028	SWITCH, PB MOM.
25	5140-0034	FUSE, 5A
26	5140-0064	FUSE HOLDER, 2P
27	5601-5126	TRANSFORMER, 160P1
28	6000-0078	POWER CORD 10 FT
29	6010-0001	FUSE COVER
30	6010-0043	KNOB, 1/8
31	6010-0420	LINE FILTER, 5A
32	HL1-4101	SHIELD CASE
33	HL1-4102	SHIELD LID
34	MO1-1215Y	POWER CORD BOX
35	UP1-0001	MARQUEE BRACKET (TOP)
36	UP1-0002	SPEAKER BRACKET, MARQUEE (LOWER)
37	UP1-0003	CONTROL PANEL
38	UP1-0103-A	DECAL, P1 CONT. PNL.
39	UP1-0103-B	DECAL, P2 CONT. PNL.
40	UP1-0103-C	DECAL, P3 CONT. PNL.
41		
42	UP1-0005	FRONT TRIM (VERTICAL)

CABINET ASSEMBLY PARTS LIST

ITEM	PARTS NUMBER	DESCRIPTION
43	UP1-0006	CASH BOX LOCK BRACKET
44	UP1-0007	CASH BOX ASSY.
45	UP1-0008	SERVICE SWITCH BRACKET
46	UP1-0009	GLASS BRACKET (BOTTOM)
47	UP1-0010	HINGE, REMOVABLE TYPE
48	UP1-0011	LATCH BRACKET
49	UP1-1102-A	SIDE DECAL, LEFT (REAR)
50	UP1-1102-B	SIDE DECAL, RIGHT (REAR)
51	UP1-1102-C	SIDE DECAL, LEFT (FRONT)
52	UP1-1102-D	SIDE DECAL, RIGHT (FRONT)
53	UP1-1102 E	FRONT DECAL, LEFT (FLAGS)
54	UP1-1102 F	FRONT DECAL, RIGHT (FLAGS)
55	UP1-1015-1	GLASS, FRONT
56		
57	UP1-1115-3	MONITOR BEZEL, WITH INST
58		
59	UP1-8888	PACKAGING ASSY
60	000-0308-FS	M SCR PH W/FS M5 X 8
61	117-5123	NAME PLATE ELEC SPEC
62	421-5800-87	ORIGINAL SEAL GAIN GROUND
63	421-6119-91	STICKER FCC
64	421-6594	STICKER SERIAL NO. INFO
65	421-6709	STICKER SERVICE INSTRUCTION
66	4201-0000-00	ADJUST INST SH GAIN GROUND
67	421-7209-01	STICKER FDD COVER ENG
68	600-5661	CONN FEM 4P X 2
69		
70		
71	600-5672	ASSY FEM & FL CA 34P (L=250)
72	601-6073	RUBBER GROMMET
73	610-0198	ASSY FDD UNIT 3.5 TYPE
74	835-6570-01	GAME BD SYSTEM 24
75	839-0141	FILTER BD GAIN GROUND
76	DS3-5000-3D	GAME SOFT GAIN GROUND 3P
77	HL-4202	FDD BASE
78	HL-4203	FDD COVER
79	HL-4205	SASH RUBBER 110
80	HL-4304	FDD LID



# 14. ADJUSTMENT INSTRUCTION SWITCH SETTING SHEET

## 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	<b>NOT USED (ALL OFF)</b>			
1 COIN	2 CREDITS	ON	OFF	OFF	OFF				
1 COIN	3 CREDITS	OFF	ON	OFF	OFF				
1 COIN	4 CREDITS	ON	ON	OFF	OFF				
1 COIN	5 CREDITS	OFF	OFF	ON	OFF				
1 COIN	6 CREDITS	ON	OFF	ON	OFF				
2 COINS	1 CREDIT	OFF	ON	ON	OFF				
3 COINS	1 CREDIT	ON	ON	ON	OFF				
4 COINS	1 CREDIT	OFF	OFF	OFF	ON				
2 COINS	3 CREDITS	ON	OFF	OFF	ON				
2 COINS	1 CREDIT	OFF	ON	OFF	ON				
4 COINS	2 CREDITS	ON	ON	OFF	ON				
5 COINS	3 CREDITS	ON	ON	OFF	ON				
6 COINS	4 CREDITS	ON	ON	OFF	ON				
2 COINS	1 CREDIT	ON	ON	OFF	ON				
4 COINS	3 CREDITS	ON	ON	OFF	ON				
1 COIN	1 CREDIT	OFF	OFF	ON	ON				
2 COINS	2 CREDITS	ON	OFF	ON	ON				
3 COINS	3 CREDITS	ON	ON	ON	ON				
4 COINS	5 CREDITS	ON	ON	ON	ON				
1 COIN	1 CREDIT	OFF	ON	ON	ON				
2 COINS	3 CREDITS	ON	ON	ON	ON				
FREE PLAY		ON	ON	ON	ON	ON	ON	ON	ON
					COIN SW. #1		COIN SW. #2		

### PIN ASSIGNMENT

COMPONENT SIDE		SOLDER SIDE
GND	1 A	GND
GND	2 B	GND
+5V	3 C	+5V
+5V	4 D	+5V
+12V	5 E	+12V
COIN METER 1	6 F	COIN METER 2
(NOT USED)	7 H	(NOT USED)
(NOT USED)	8 J	(NOT USED)
1P WEAPON 1	9 K	2P WEAPON 1
1P WEAPON 2	10 L	2P WEAPON 2
1P SERVICE	11 M	2P SERVICE
1P DOWN	12 N	2P DOWN
1P UP	13 P	2P UP
1P RIGHT	14 R	2P RIGHT
1P LEFT	15 S	2P LEFT
COIN 3	16 T	3P DOWN
3P WEAPON 1	17 U	3P UP
3P WEAPON 2	18 V	3P RIGHT
3P SERVICE	19 W	3P LEFT
COIN 1	20 X	(NOT USED)
COIN 2	21 Y	(NOT USED)
TEST	22 Z	(NOT USED)
ALL SERVICE)	23 a	(NOT USED)
SPEAKER (+)	24 b	SPEAKER (-)
RED	25 c	GREEN
BLUE	26 d	CMP. SYNC
GND	27 e	GND
GND	28 f	GND

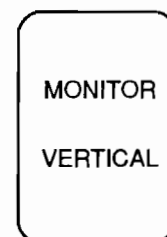
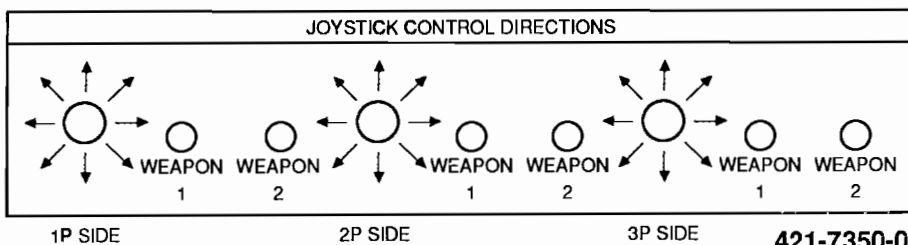
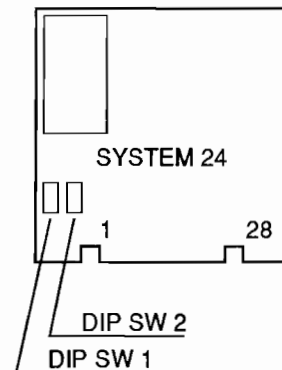
## GAME OPTION SWITCH SETTING

### DIP SW #2

OPTION		1	2	3	4	5	6	7	8
MONITOR	NORMAL	OFF							
FLOP	TURNED	ON							
NOT USED			OFF						
GAME	MODERATE			OFF	OFF	OFF			
	LITTLE HARD			OFF	OFF	ON			
	HARD			OFF	ON	OFF			
	HARDEST			OFF	ON	ON			
	LITTLE EASY			ON	OFF	OFF			
DIFFICULTY	EASY			ON	OFF	ON			
	EASIER			ON	ON	OFF			
	EASIEST			ON	ON	ON			
TIME LIMIT	MODERATE						OFF	OFF	
	EASY						ON	ON	
	EASIEST						OFF	ON	
	HARD						ON	ON	
CLOCK OF	1 = 1.0S								OFF
	TIME LIMIT	1 = 0.8S							ON

56P P : 3.96mm

BARE BD NO.  
171-5553~



421-7350-02

GAIN GROUND (834-6570-03~)

## 15. DISK INSTALLATION

### IMPORTANT

#### INSTALLATION INSTRUCTIONS

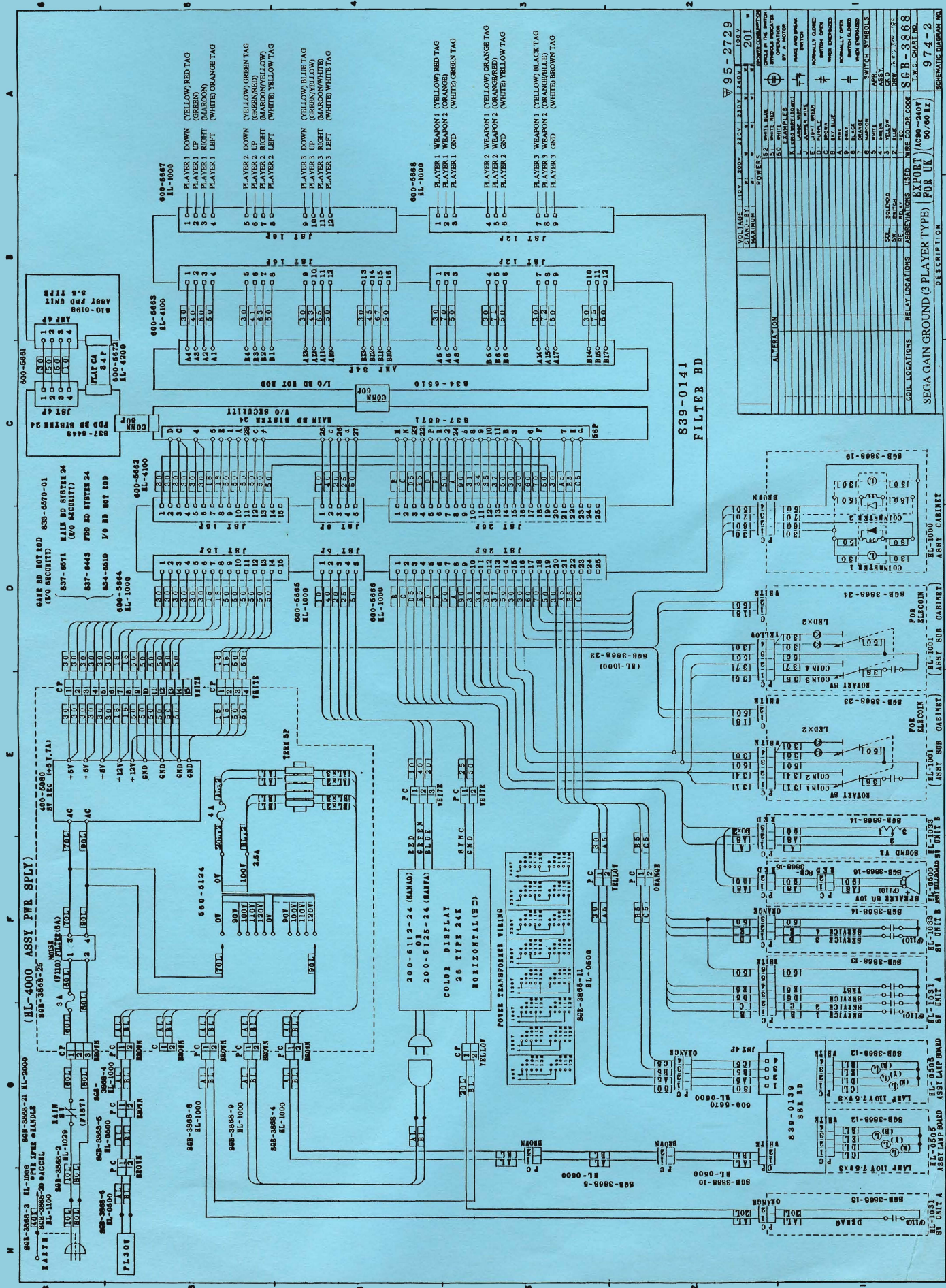
Gain Ground contains a revolutionary new memory system for video games. This memory system is a Floppy Disk System which is housed in the RF Cage. This system allows Sega to give you more memory at a cost effective price.

To insure that no damage occurs to this delicate system during transit, we have packaged the Floppy Disk separately which must be installed upon receipt of the game. Please follow the listed instruction for the installation of the disk.

#### DISK INSTALLATION

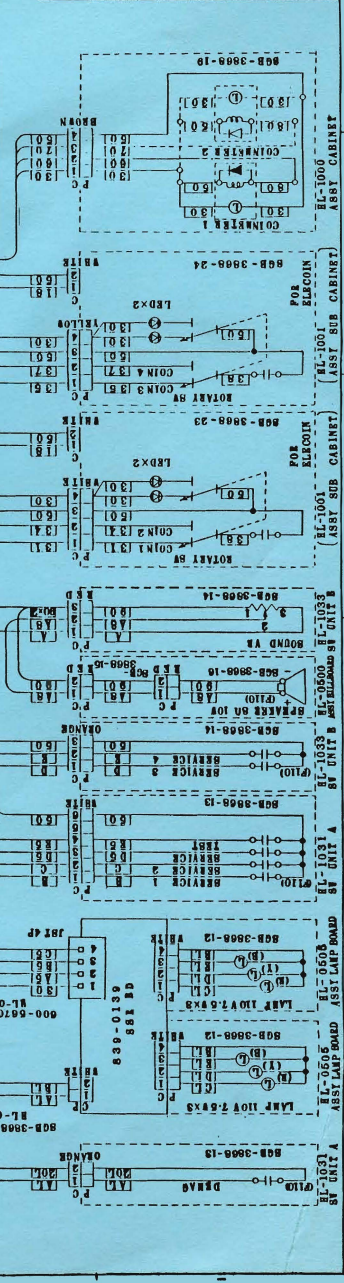
1. Open Coin Door and remove Cash Box.
2. Open Cash Box and remove Floppy Disk. (NOTE: It is housed in a plastic protection cover.)
3. Reach thru the Coin Door opening and unlatch the three spring latches which hold the front assembly securely to the rear assembly of the game. These latches are located on the right, inside of the front assembly.
4. Once the three latches are unlocked, pull on the far right steering wheel and the front assembly will swing open to the left. This allows front access to the three player controls, PCB Assembly and Power Supply Assembly.
5. Remove the cover of the PCB RF Cage by removing the four sheet metal screws.
6. Remove the two screws located on the left side of the wooden base of the PCB Assembly.
7. Lift the left side of the PCB Assembly. This will allow access to the disk drive, which is located underneath the PCB.
8. Remove the disk from the plastic protection case and install it into the disk drive label side up with the metal cover protection slide installed first. The disk should slide in and snap down to indicate that it is securely inserted.
9. Replace the two screws that you removed in Step #7 to secure the Wooden PCB base to the RF Cage.
10. Replace the lid of the RF Cage using the four sheet metal screws that were removed from the assembly in Step #6.
11. Close the front assembly and latch.
12. Apply power to the game and verify proper operation. This completes the Drive Assembly.
13. For protection of the disk, please remove it from the machine prior to relocation.

# 16. SCHEMATIC DIAGRAM



95-2729

VOLTAGE		WIRE COLOR CODE	
WIRE NO.	WIRE COLOR	WIRE NO.	WIRE COLOR
1	WHITE	1	WHITE
2	BLACK	2	BLACK
3	BROWN	3	BROWN
4	RED	4	RED
5	ORANGE	5	ORANGE
6	YELLOW	6	YELLOW
7	GREEN	7	GREEN
8	BLUE	8	BLUE
9	PURPLE	9	PURPLE
10	PINK	10	PINK
11	GRAY	11	GRAY
12	TEAL	12	TEAL
13	CYAN	13	CYAN
14	NAVY	14	NAVY
15	SLATE	15	SLATE
16	INDIGO	16	INDIGO
17	VIOLET	17	VIOLET
18	PURPLE	18	PURPLE
19	PINK	19	PINK
20	RED	20	RED
21	ORANGE	21	ORANGE
22	YELLOW	22	YELLOW
23	GREEN	23	GREEN
24	BLUE	24	BLUE
25	PURPLE	25	PURPLE
26	PINK	26	PINK
27	RED	27	RED
28	ORANGE	28	ORANGE
29	YELLOW	29	YELLOW
30	GREEN	30	GREEN
31	BLUE	31	BLUE
32	PURPLE	32	PURPLE
33	PINK	33	PINK
34	RED	34	RED
35	ORANGE	35	ORANGE
36	YELLOW	36	YELLOW
37	GREEN	37	GREEN
38	BLUE	38	BLUE
39	PURPLE	39	PURPLE
40	PINK	40	PINK
41	RED	41	RED
42	ORANGE	42	ORANGE
43	YELLOW	43	YELLOW
44	GREEN	44	GREEN
45	BLUE	45	BLUE
46	PURPLE	46	PURPLE
47	PINK	47	PINK
48	RED	48	RED
49	ORANGE	49	ORANGE
50	YELLOW	50	YELLOW
51	GREEN	51	GREEN
52	BLUE	52	BLUE
53	PURPLE	53	PURPLE
54	PINK	54	PINK
55	RED	55	RED
56	ORANGE	56	ORANGE
57	YELLOW	57	YELLOW
58	GREEN	58	GREEN
59	BLUE	59	BLUE
60	PURPLE	60	PURPLE
61	PINK	61	PINK
62	RED	62	RED
63	ORANGE	63	ORANGE
64	YELLOW	64	YELLOW
65	GREEN	65	GREEN
66	BLUE	66	BLUE
67	PURPLE	67	PURPLE
68	PINK	68	PINK
69	RED	69	RED
70	ORANGE	70	ORANGE
71	YELLOW	71	YELLOW
72	GREEN	72	GREEN
73	BLUE	73	BLUE
74	PURPLE	74	PURPLE
75	PINK	75	PINK
76	RED	76	RED
77	ORANGE	77	ORANGE
78	YELLOW	78	YELLOW
79	GREEN	79	GREEN
80	BLUE	80	BLUE
81	PURPLE	81	PURPLE
82	PINK	82	PINK
83	RED	83	RED
84	ORANGE	84	ORANGE
85	YELLOW	85	YELLOW
86	GREEN	86	GREEN
87	BLUE	87	BLUE
88	PURPLE	88	PURPLE
89	PINK	89	PINK
90	RED	90	RED
91	ORANGE	91	ORANGE
92	YELLOW	92	YELLOW
93	GREEN	93	GREEN
94	BLUE	94	BLUE
95	PURPLE	95	PURPLE
96	PINK	96	PINK
97	RED	97	RED
98	ORANGE	98	ORANGE
99	YELLOW	99	YELLOW
100	GREEN	100	GREEN
101	BLUE	101	BLUE
102	PURPLE	102	PURPLE
103	PINK	103	PINK
104	RED	104	RED
105	ORANGE	105	ORANGE
106	YELLOW	106	YELLOW
107	GREEN	107	GREEN
108	BLUE	108	BLUE
109	PURPLE	109	PURPLE
110	PINK	110	PINK
111	RED	111	RED
112	ORANGE	112	ORANGE
113	YELLOW	113	YELLOW
114	GREEN	114	GREEN
115	BLUE	115	BLUE
116	PURPLE	116	PURPLE
117	PINK	117	PINK
118	RED	118	RED
119	ORANGE	119	ORANGE
120	YELLOW	120	YELLOW
121	GREEN	121	GREEN
122	BLUE	122	BLUE
123	PURPLE	123	PURPLE
124	PINK	124	PINK
125	RED	125	RED
126	ORANGE	126	ORANGE
127	YELLOW	127	YELLOW
128	GREEN	128	GREEN
129	BLUE	129	BLUE
130	PURPLE	130	PURPLE
131	PINK	131	PINK
132	RED	132	RED
133	ORANGE	133	ORANGE
134	YELLOW	134	YELLOW
135	GREEN	135	GREEN
136	BLUE	136	BLUE
137	PURPLE	137	PURPLE
138	PINK	138	PINK
139	RED	139	RED
140	ORANGE	140	ORANGE
141	YELLOW	141	YELLOW
142	GREEN	142	GREEN
143	BLUE	143	BLUE
144	PURPLE	144	PURPLE
145	PINK	145	PINK
146	RED	146	RED
147	ORANGE	147	ORANGE
148	YELLOW	148	YELLOW
149	GREEN	149	GREEN
150	BLUE	150	BLUE



SEG A GAIN GROUND (3 PLAYER TYPE) FOR UK EXPORT (AC90-240V) P.A.C. SERIAL NO. SGB-3568 974-2

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