

SEGA[®]

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:

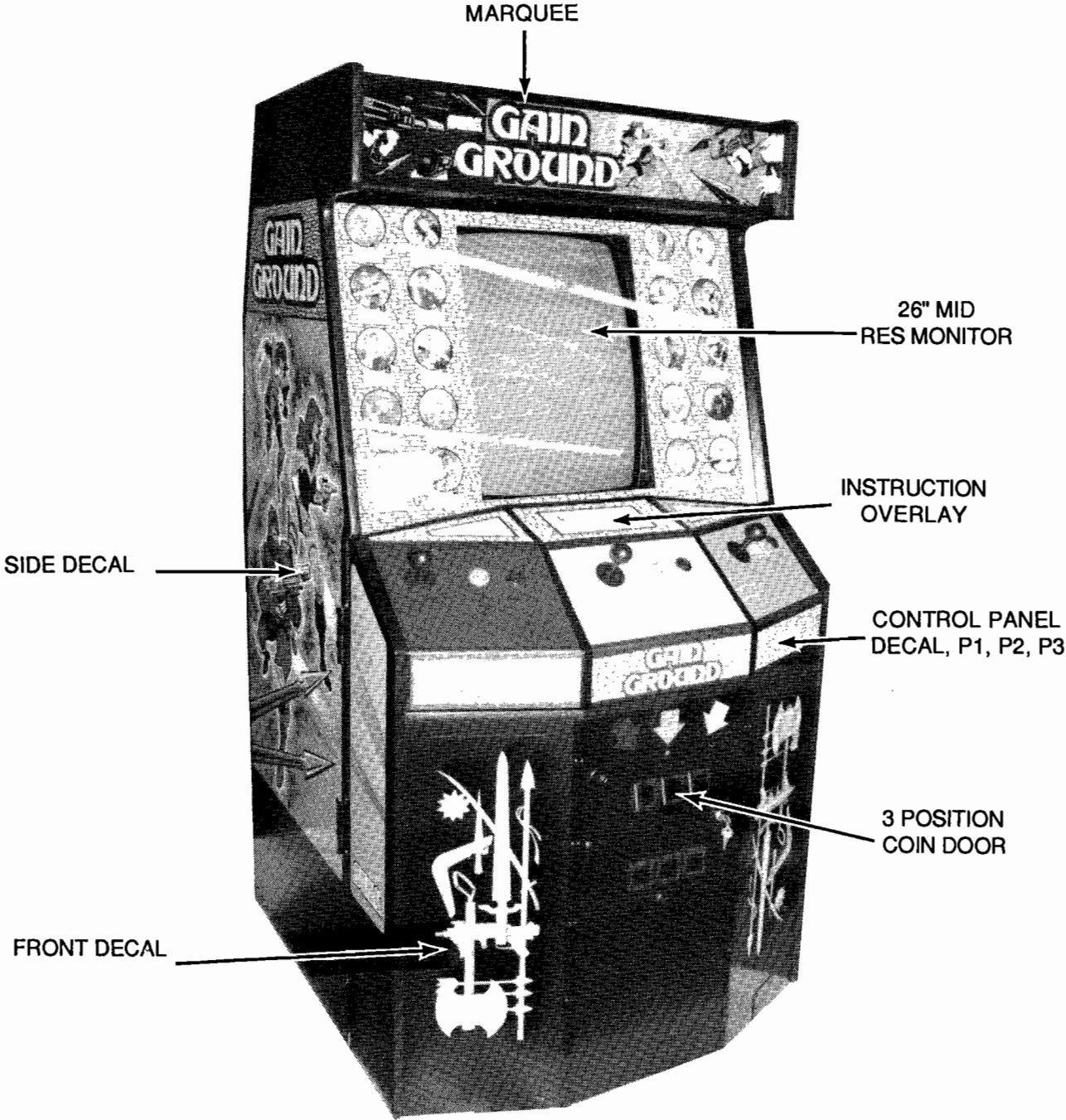
- Places subject to rain or water leakage, or condensation due to humidity.
- In the proximity of an indoor swimming pool and/or shower.
- Places subject to direct sunlight.
- Places subject to heat sources from heating units, etc., or hot air.
- Vicinity of highly inflammable/volatile chemicals or hazardous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

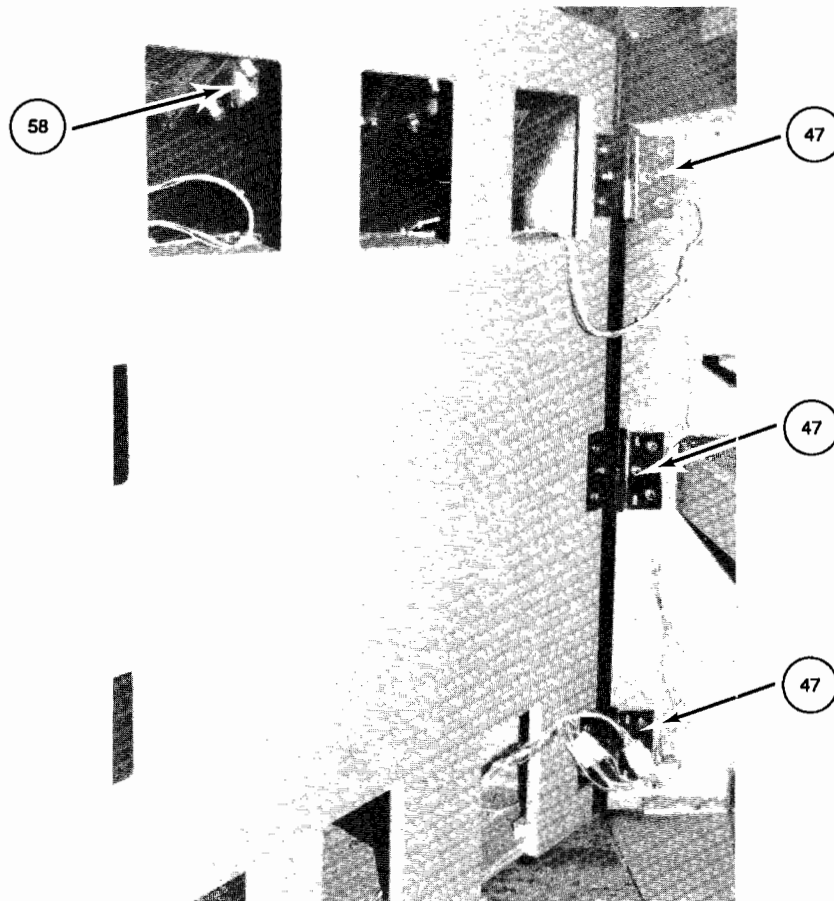
To open the front door of the GAIN GROUND 3 PLAYER TYPE, follow the steps mentioned below:

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

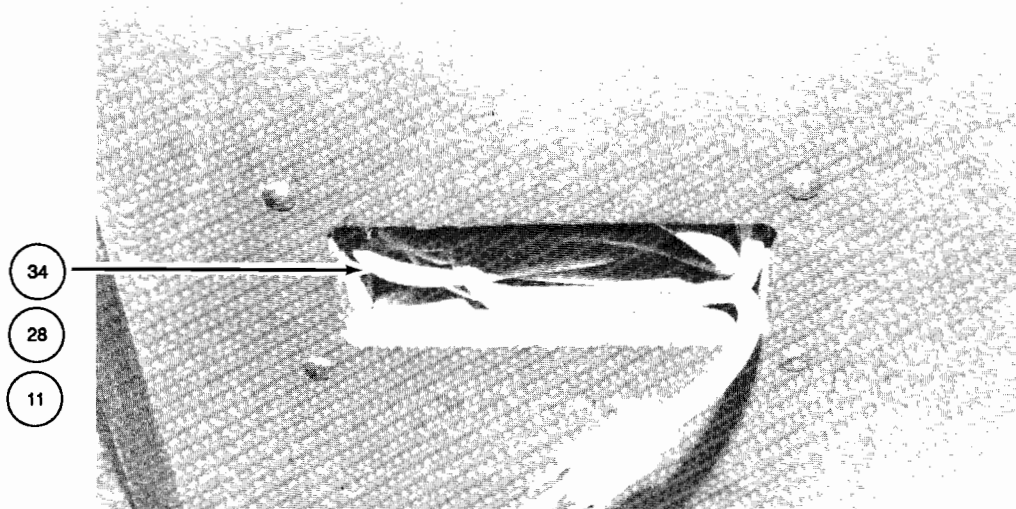
5. NAME OF PARTS



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

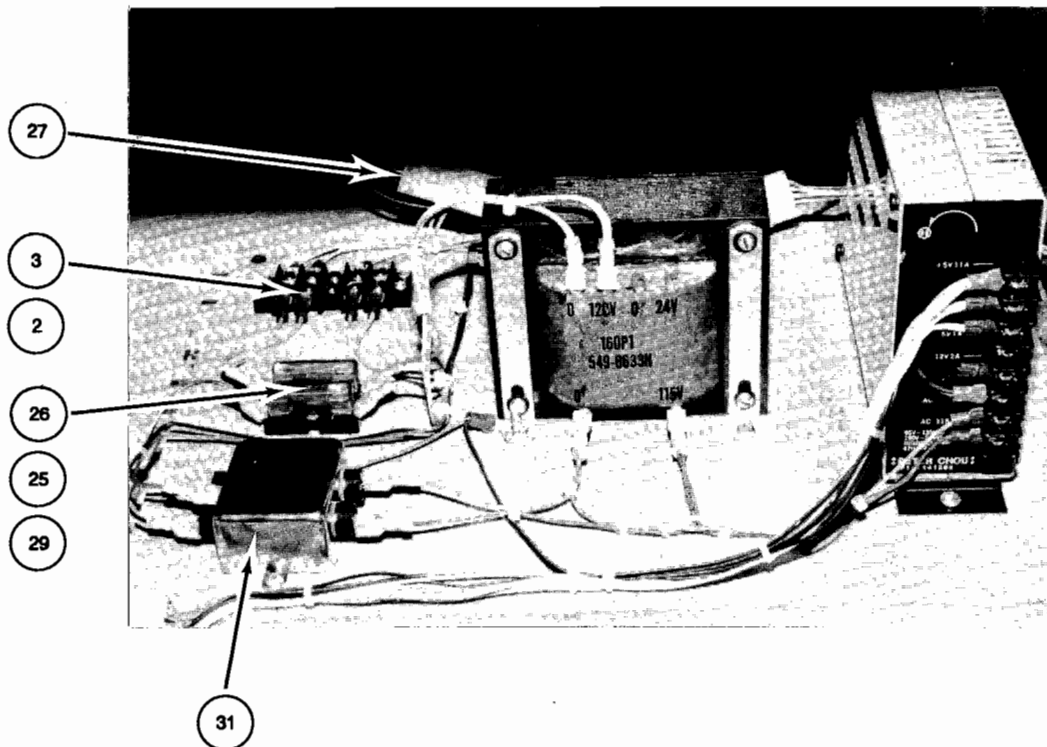


Power Cord Box

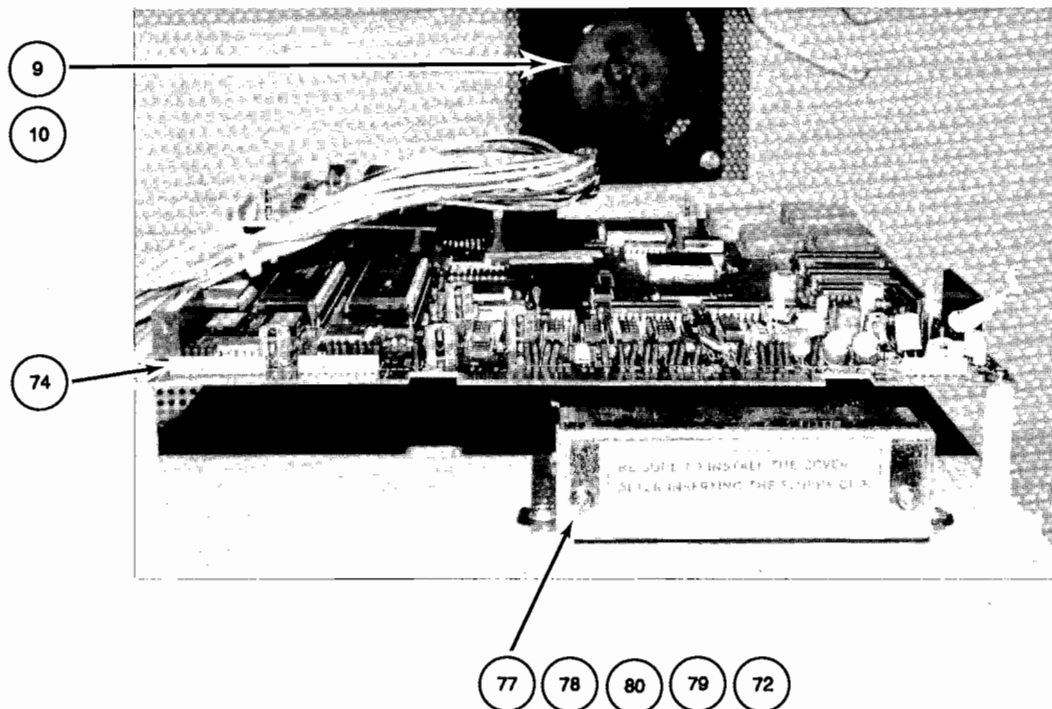


7. SERVICING THE POWER SUPPLY UNIT AND FUSE

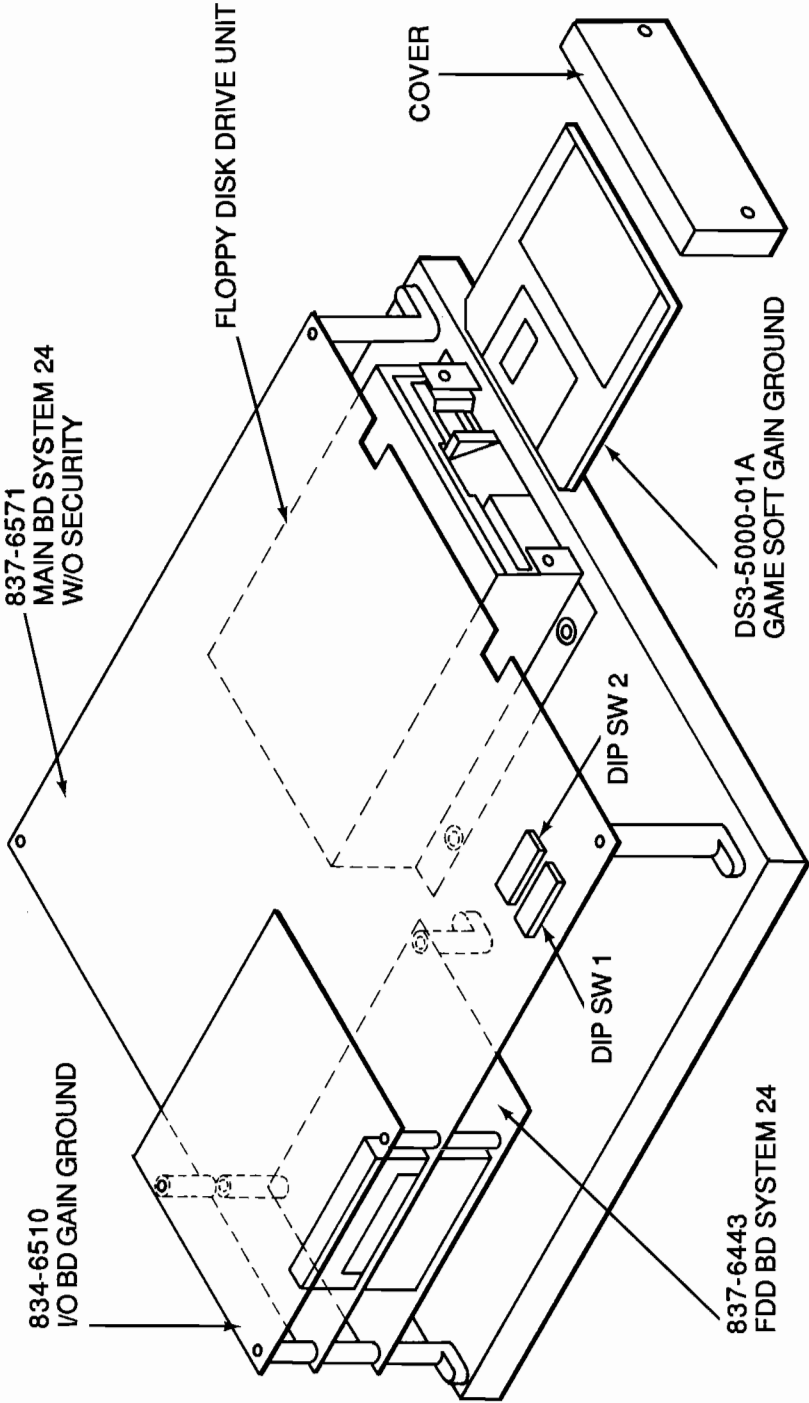
Power Supply Assembly



8. P.C. BOARD ASSEMBLY

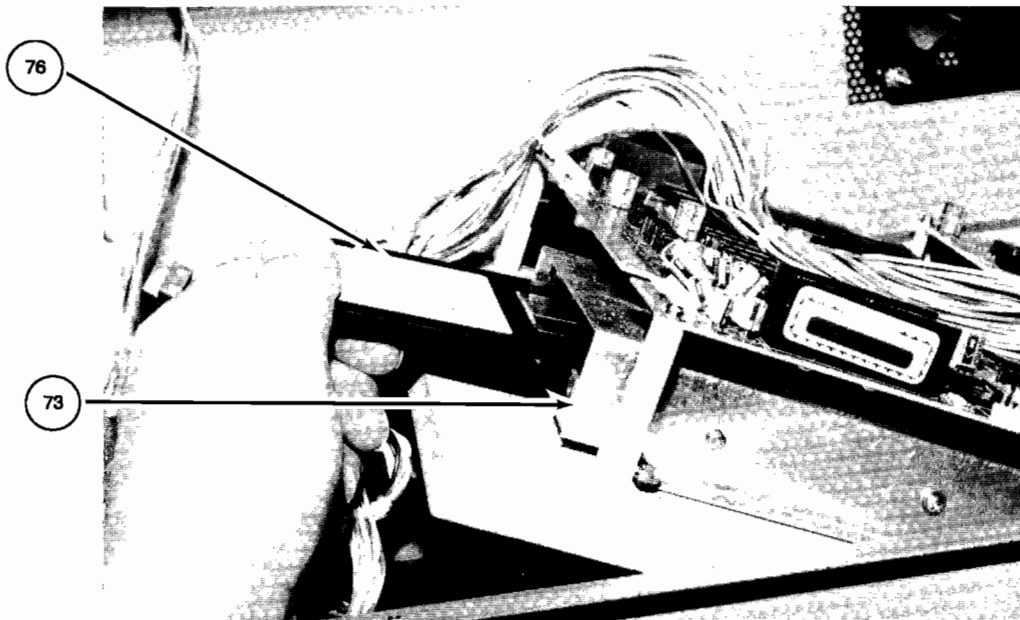
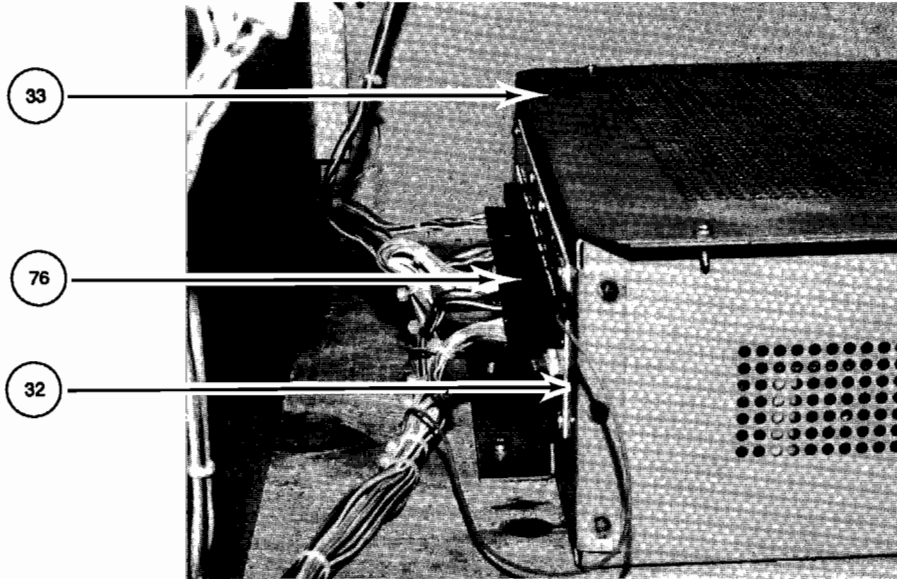


Drawing of PC Assembly



9. SERVICING THE FLOPPY DISK

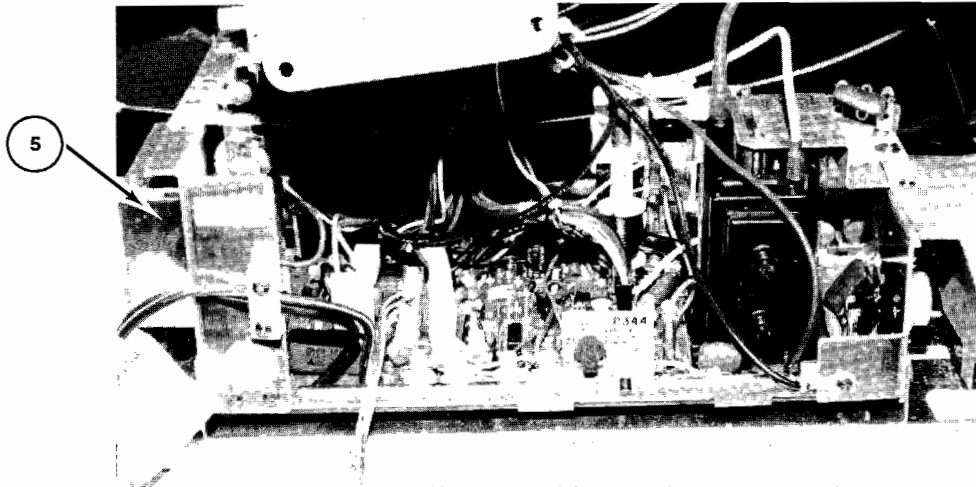
Shield Case



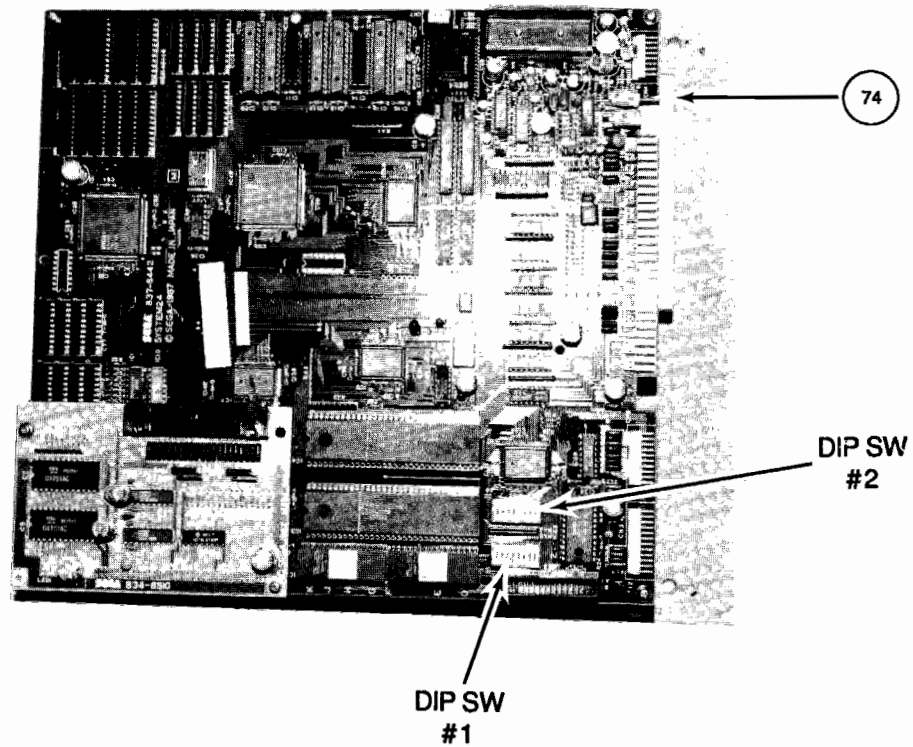
REMOVE THE LID of the SHIELD CASE. Remove the sheet metal and pull out the game board unit in a manner so that both ends of it will meet the shield case. Open the FDD (Floppy Disk Drive) LID by taking off the 2 (M3 x 8) SCREWS when replacing the FLOPPY DISK.

10. MONITOR ADJUSTMENTS AND GAME BOARD SERVICING

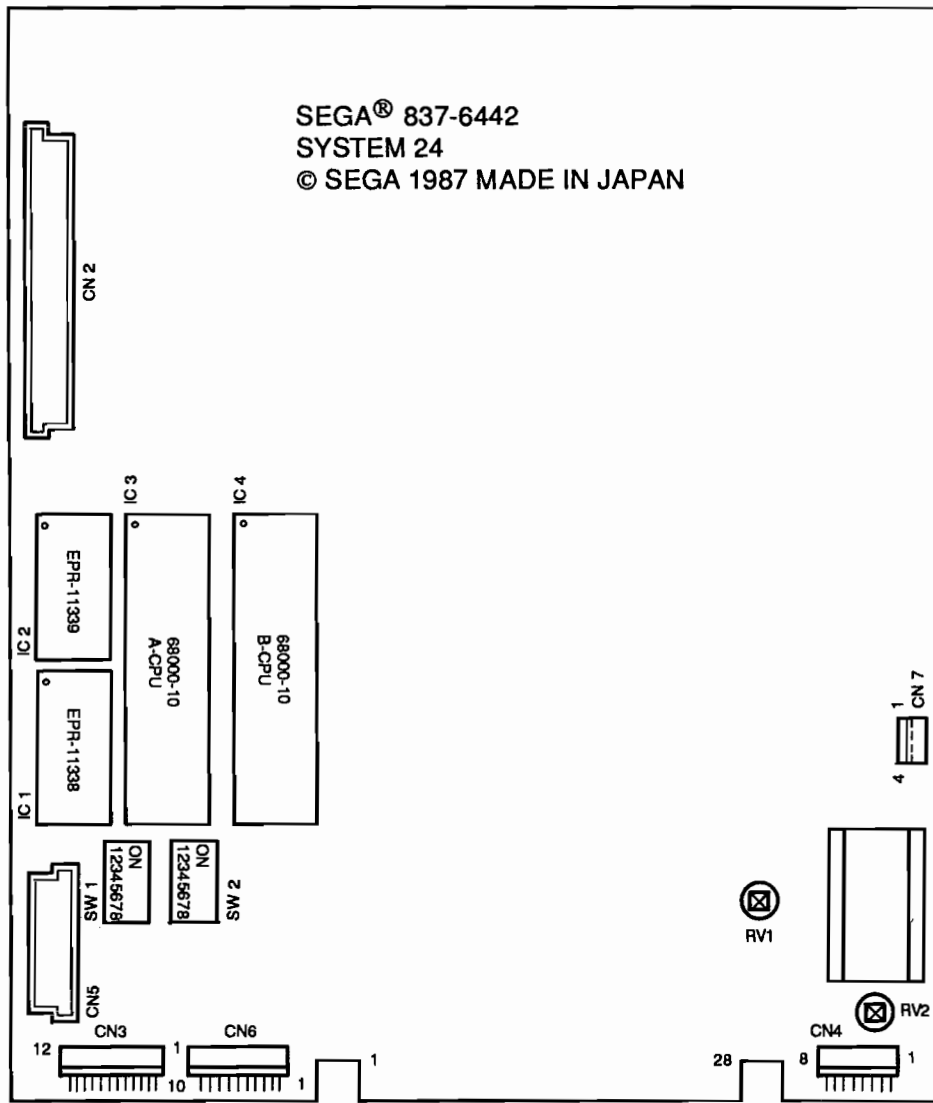
Monitor Adjustment



Gain Ground Printed Circuit Board



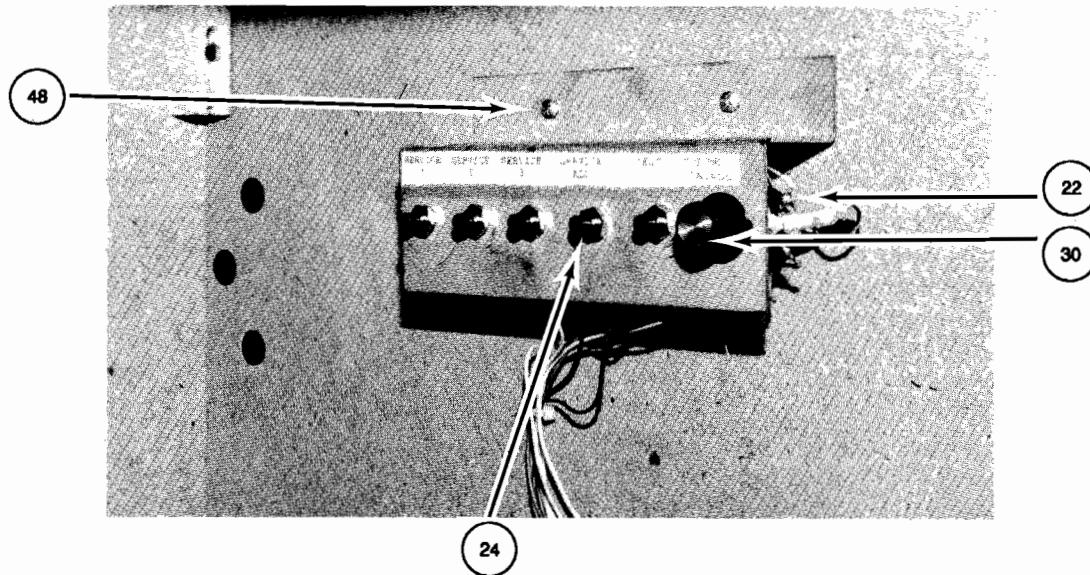
11. PC BOARD COMPONENT LOCATIONS



MAIN BD SY 24

- IC 1 EPR-12186 (IC MB27C1000-15)
- 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

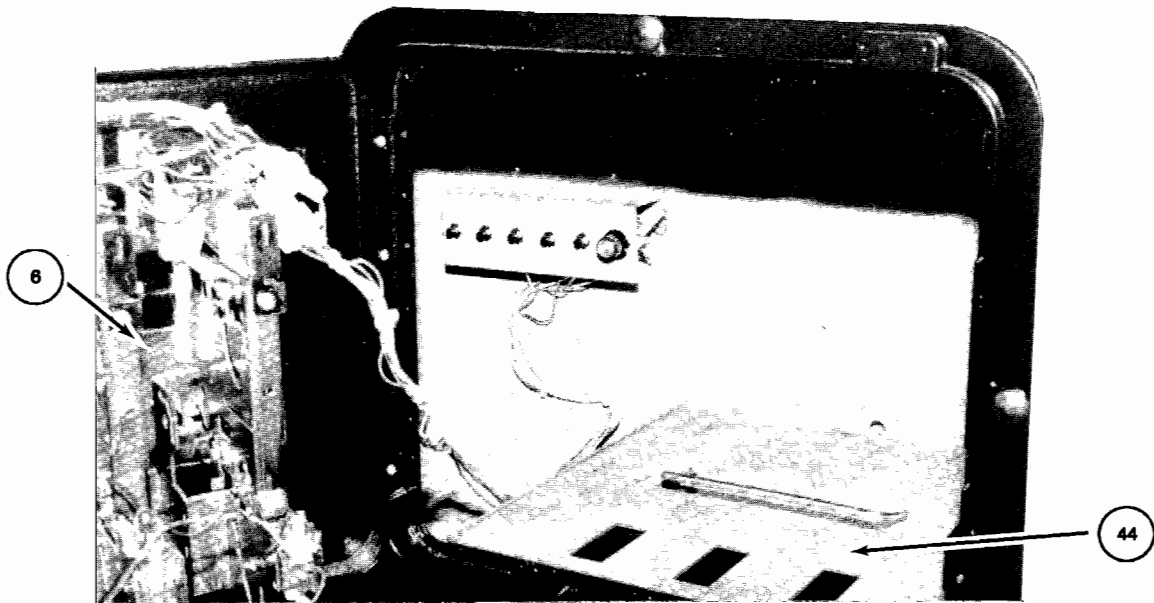


- **SERVICE SW (MAIN)**
Not used for the purpose of servicing (see below)
- **SERVICE SW 1, 2, 3**
Used for the purpose of servicing and increasing the credits without registering on the meter (this allows you to check the game).
- **TEST SW**
For operating this switch, see SELF-TEST.
- **VOLUME CONTROL**
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	NOT USED (ALL OFF)			
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				
1 COIN	1 CREDIT	ON	ON	ON	ON				
2 COINS	2 CREDITS	ON	ON	ON	ON				
3 COINS	3 CREDITS	ON	ON	ON	ON				
4 COINS	4 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

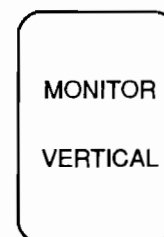
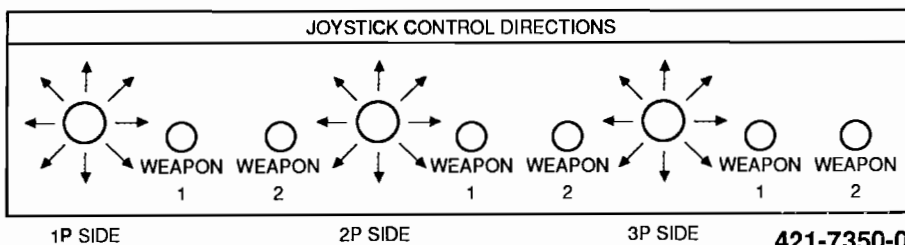
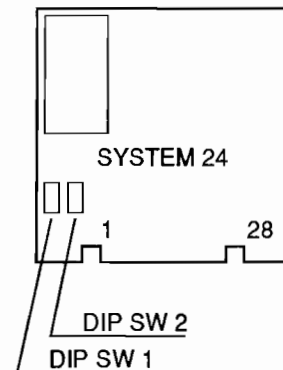
GAME OPTION SWITCH SETTING

DIP SW #2

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

56P P : 3.96mm

BARE BD NO.
171-5553~



421-7350-02

GAIN GROUND (834-6570-03~)

15. DISK INSTALLATION

IMPORTANT

INSTALLATION INSTRUCTIONS

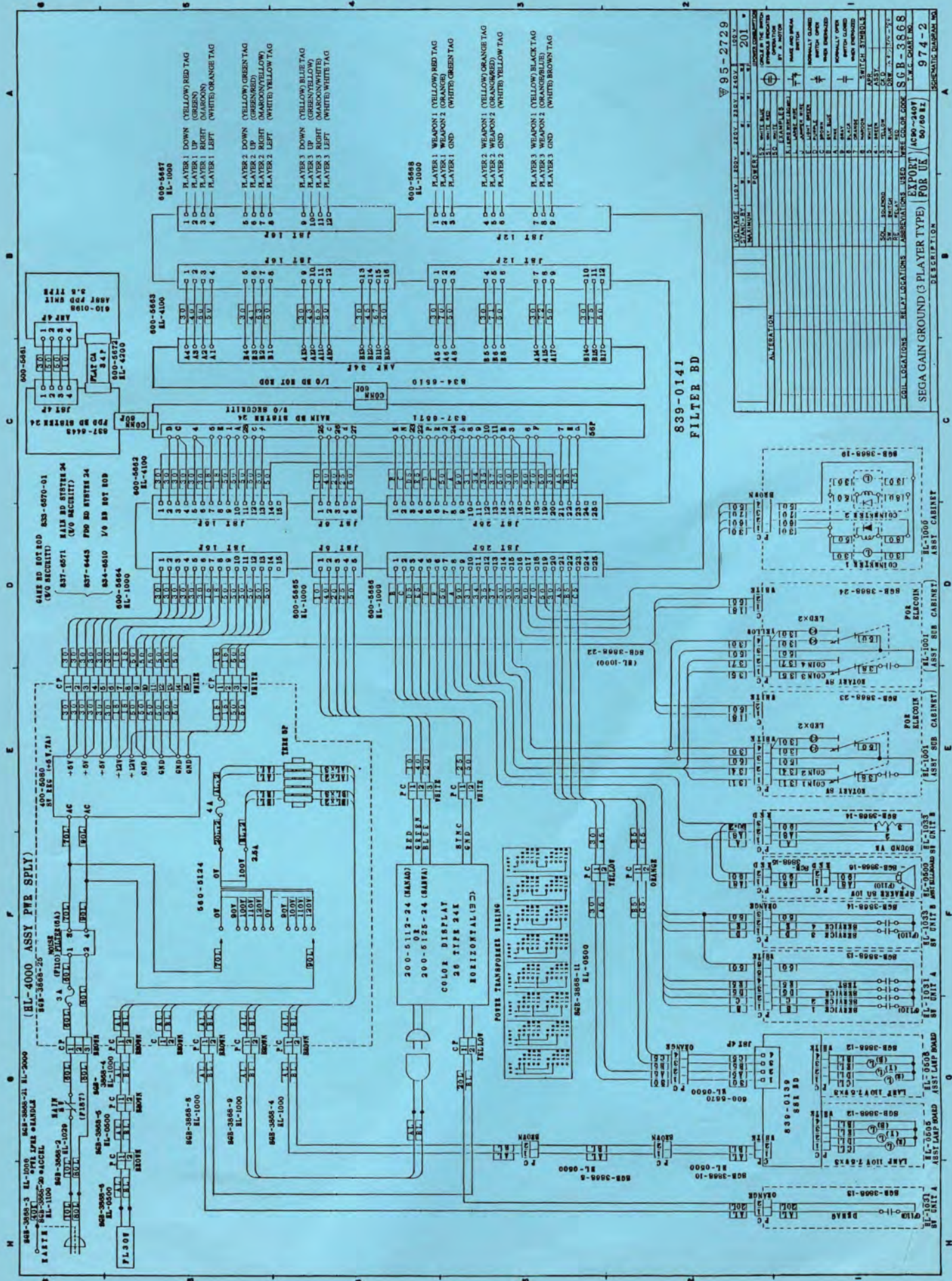
Gain Ground contains a revolutionary new memory system for video games. This memory system is a Floppy Disk System which is housed in the RF Cage. This system allows Sega to give you more memory at a cost effective price.

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



VOLTAGE		WAVEFORM		FREQUENCY		PERIOD		DUTY		REMARKS	
NO.	POINT	NO.	POINT	NO.	POINT	NO.	POINT	NO.	POINT	NO.	POINT
1	AC	1	AC	1	AC	1	AC	1	AC	1	AC
2	50V	2	50V	2	50V	2	50V	2	50V	2	50V
3	50V	3	50V	3	50V	3	50V	3	50V	3	50V
4	50V	4	50V	4	50V	4	50V	4	50V	4	50V
5	50V	5	50V	5	50V	5	50V	5	50V	5	50V
6	50V	6	50V	6	50V	6	50V	6	50V	6	50V
7	50V	7	50V	7	50V	7	50V	7	50V	7	50V
8	50V	8	50V	8	50V	8	50V	8	50V	8	50V
9	50V	9	50V	9	50V	9	50V	9	50V	9	50V
10	50V	10	50V	10	50V	10	50V	10	50V	10	50V
11	50V	11	50V	11	50V	11	50V	11	50V	11	50V
12	50V	12	50V	12	50V	12	50V	12	50V	12	50V
13	50V	13	50V	13	50V	13	50V	13	50V	13	50V
14	50V	14	50V	14	50V	14	50V	14	50V	14	50V
15	50V	15	50V	15	50V	15	50V	15	50V	15	50V
16	50V	16	50V	16	50V	16	50V	16	50V	16	50V
17	50V	17	50V	17	50V	17	50V	17	50V	17	50V
18	50V	18	50V	18	50V	18	50V	18	50V	18	50V
19	50V	19	50V	19	50V	19	50V	19	50V	19	50V
20	50V	20	50V	20	50V	20	50V	20	50V	20	50V
21	50V	21	50V	21	50V	21	50V	21	50V	21	50V
22	50V	22	50V	22	50V	22	50V	22	50V	22	50V
23	50V	23	50V	23	50V	23	50V	23	50V	23	50V
24	50V	24	50V	24	50V	24	50V	24	50V	24	50V
25	50V	25	50V	25	50V	25	50V	25	50V	25	50V
26	50V	26	50V	26	50V	26	50V	26	50V	26	50V
27	50V	27	50V	27	50V	27	50V	27	50V	27	50V
28	50V	28	50V	28	50V	28	50V	28	50V	28	50V
29	50V	29	50V	29	50V	29	50V	29	50V	29	50V
30	50V	30	50V	30	50V	30	50V	30	50V	30	50V
31	50V	31	50V	31	50V	31	50V	31	50V	31	50V
32	50V	32	50V	32	50V	32	50V	32	50V	32	50V
33	50V	33	50V	33	50V	33	50V	33	50V	33	50V
34	50V	34	50V	34	50V	34	50V	34	50V	34	50V
35	50V	35	50V	35	50V	35	50V	35	50V	35	50V
36	50V	36	50V	36	50V	36	50V	36	50V	36	50V
37	50V	37	50V	37	50V	37	50V	37	50V	37	50V
38	50V	38	50V	38	50V	38	50V	38	50V	38	50V
39	50V	39	50V	39	50V	39	50V	39	50V	39	50V
40	50V	40	50V	40	50V	40	50V	40	50V	40	50V
41	50V	41	50V	41	50V	41	50V	41	50V	41	50V
42	50V	42	50V	42	50V	42	50V	42	50V	42	50V
43	50V	43	50V	43	50V	43	50V	43	50V	43	50V
44	50V	44	50V	44	50V	44	50V	44	50V	44	50V
45	50V	45	50V	45	50V	45	50V	45	50V	45	50V
46	50V	46	50V	46	50V	46	50V	46	50V	46	50V
47	50V	47	50V	47	50V	47	50V	47	50V	47	50V
48	50V	48	50V	48	50V	48	50V	48	50V	48	50V
49	50V	49	50V	49	50V	49	50V	49	50V	49	50V
50	50V	50	50V	50	50V	50	50V	50	50V	50	50V

NO.	POINT	DESCRIPTION
1	AC	AC INPUT
2	50V	50V AC
3	50V	50V AC
4	50V	50V AC
5	50V	50V AC
6	50V	50V AC
7	50V	50V AC
8	50V	50V AC
9	50V	50V AC
10	50V	50V AC
11	50V	50V AC
12	50V	50V AC
13	50V	50V AC
14	50V	50V AC
15	50V	50V AC
16	50V	50V AC
17	50V	50V AC
18	50V	50V AC
19	50V	50V AC
20	50V	50V AC
21	50V	50V AC
22	50V	50V AC
23	50V	50V AC
24	50V	50V AC
25	50V	50V AC
26	50V	50V AC
27	50V	50V AC
28	50V	50V AC
29	50V	50V AC
30	50V	50V AC
31	50V	50V AC
32	50V	50V AC
33	50V	50V AC
34	50V	50V AC
35	50V	50V AC
36	50V	50V AC
37	50V	50V AC
38	50V	50V AC
39	50V	50V AC
40	50V	50V AC
41	50V	50V AC
42	50V	50V AC
43	50V	50V AC
44	50V	50V AC
45	50V	50V AC
46	50V	50V AC
47	50V	50V AC
48	50V	50V AC
49	50V	50V AC
50	50V	50V AC

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