

BEAST BUSTERS

1. GENERAL INFORMATION

A. Introduction.

Thank you for selecting this fine SNK product. We are sure that it will offer you many years of profitable service. You have also acquired the support of SNK's Customer Service Department. We are only a telephone call away, ready to answer any questions pertaining to the operation of our products.

In addition to telephone support, we offer direct mailing of Service Bulletins and update information simply by returning the Response Card found in the back of this manual. We also use this card to collect feedback from operators of our products to help shape our future products. I will elaborate on several of the features that operators have requested and that have been designed into this game:

•SERVICE PANEL

The Service Panel contains the Coin Counter, Service Switch, and Test Switch. It is located just inside the coin door on the Right front wall. The Coin Counter increments once for each coin drop through any of the three coin chutes. Pushing the Service switch will add a credit to each player without incrementing the Coin Counter. The Test switch allows technicians to freeze the game video at any time for assisting with trouble-shooting the game electronics.

•PLYWOOD CABINET CONSTRUCTION

The cabinet features a plywood Base and front Coin Door mounting panels. This should ensure maximum security for the Coin Door and make for a durable, long lasting cabinet. We have also added L-Brackets along the front and bottom to protect the wood edges from chip damage, and there are Rollers mounted on the cabinet floor to aid in moving the game.

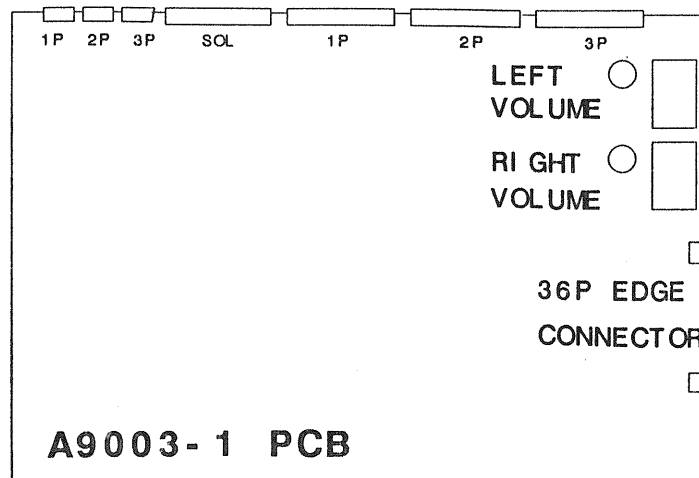
●HEAVY-DUTY PLAYER CONTROLS

The player controls the action via a realistic appearing machine gun, featuring solenoid activated recoil effect and X-Y control potentiometers for aim control. The gun has been designed to withstand the rough treatment expected from players. A complete breakdown of the replacement parts is included in this manual and may be ordered from your local SNK authorized dealer.

B. Set-up Procedures

This game ships from the factory ready for operation. It has been factory configured for 2 coin operation (1 coin to continue play). In the cashbox you will find 3MM and 4MM Hex key wrenches. These are included in the event service is required on the Gun assemblies.

The *On/Off switch* is located under the Right side gun on the lower right front of the cabinet. Refer to the Dip-Switch Options on the following page and make the required changes to suit your location preferences. Adjust the Sound Volume at this time. The Dip-Switches and Sound Volume Controls can be found on the A9003-1 PCB, mounted on the Access Drawer on the floor of the cabinet (see figure 1).



C. Dipswitch Options

The Beast Busters™ game can be configured to suit the location which it is to be operated. Please refer to the tables in figure 2 for the specific options available.

DIPSWITCH 1		1	2	3	4	5	6	7	8
CONTINUE MODE (1 COIN TO CONTINUE)	YES	OFF							
	NO	ON							
NUMBER OF MAGAZINES & GRENADES	7 & 3		OFF	OFF					
	5 & 2		ON	OFF					
	9 & 4		OFF	ON					
	12 & 5		ON	ON					
PLAY PRICING	1 COIN = 1 CREDIT 1 TO CONTINUE				OFF	OFF	OFF		
	2 COIN = 1 CREDIT 1 TO CONTINUE				ON	OFF	OFF		
	1 COIN = 2 CREDIT 1 TO CONTINUE				OFF	ON	OFF		
	2 COIN = 1 CREDIT 2 TO CONTINUE				ON	ON	OFF		
	3 COIN = 1 CREDIT 1 TO CONTINUE				OFF	OFF	ON		
	3 COIN = 1 CREDIT 2 TO CONTINUE				ON	OFF	ON		
	4 COIN = 3 CREDIT 1 TO CONTINUE				OFF	ON	ON		
	FREE PLAY MODE				ON	ON	ON		
BLOOD COLOR	RED								OFF
	GREEN								ON

DIPSWITCH 2		1	2	3	4	5	6	7	8
LEVEL OF DIFFICULTY	3 HARD	OFF	OFF						
	4 HARDEST	ON	OFF						
	1 EASY	OFF	ON						
	2 NORMAL	ON	ON						
ATTRACT MODE SOUND	YES			OFF	OFF				
	NO			ON	OFF				
NEVER FINISH			OFF	ON					
FREEZE SCREEN			ON	ON					
TEST MODE	NO								OFF
	YES								ON

Figure 2

2. TECHNICAL INFORMATION

A. Test Mode Operation

Each time the power is applied to the game, the Main CPU executes a series of tests to ensure that all of its circuitry is operational. This is referred to as the Power-Up Self Test. The CPU checks all program memory ROMs and RAMS and displays the status of each. If an error occurs, the test will stop and display a relevant error condition on the screen.

To place the game into manual Test Mode, access the A9003-1 PCB, flip Switch 8 of Dipswitch 2 *ON*, and turn the game power on. The game will run the Power-Up Self Test, and then display the first test screen. To access the next test screen, press the *Start* button on the *Left Gun* assembly. The various tests are described below:

1. GRID TEST

Displays a black screen with a white grid pattern to be used for setting overall screen size and convergence.

2. COLOR TEST

Displays 4 boxes that are colored Red, Green, Blue, and White on a Black background.

3. SWITCH TEST

Displays a black screen with all input switch functions listed. As each switch is activated, it's on-screen indicator will change from a "0" to a "1".

4. GUN POSITION

This test allows you to calibrate the aim function of each gun. The screen displays three targets, carefully aim the first (Left) gun at the target indicated by the arrow and pull the Trigger. After completing the three targets, perform the same procedure for the

Center and Right side guns. The screen will display a message indicating the EEPROM (Electrically Erasable Programmable Read-Only Memory) has been updated. Perform this test whenever a gun, monitor, or PCB has been serviced, replaced, or the guns are not aiming accurately.

4. MODE

This screen displays the current Dip Switch options, and shows the status of each dip switch.

5. FONT VIDEO 1 & 2

Displays various Front Video images.

6. BACK1 VIDEO

Displays a Background image from the Back1 Roms.

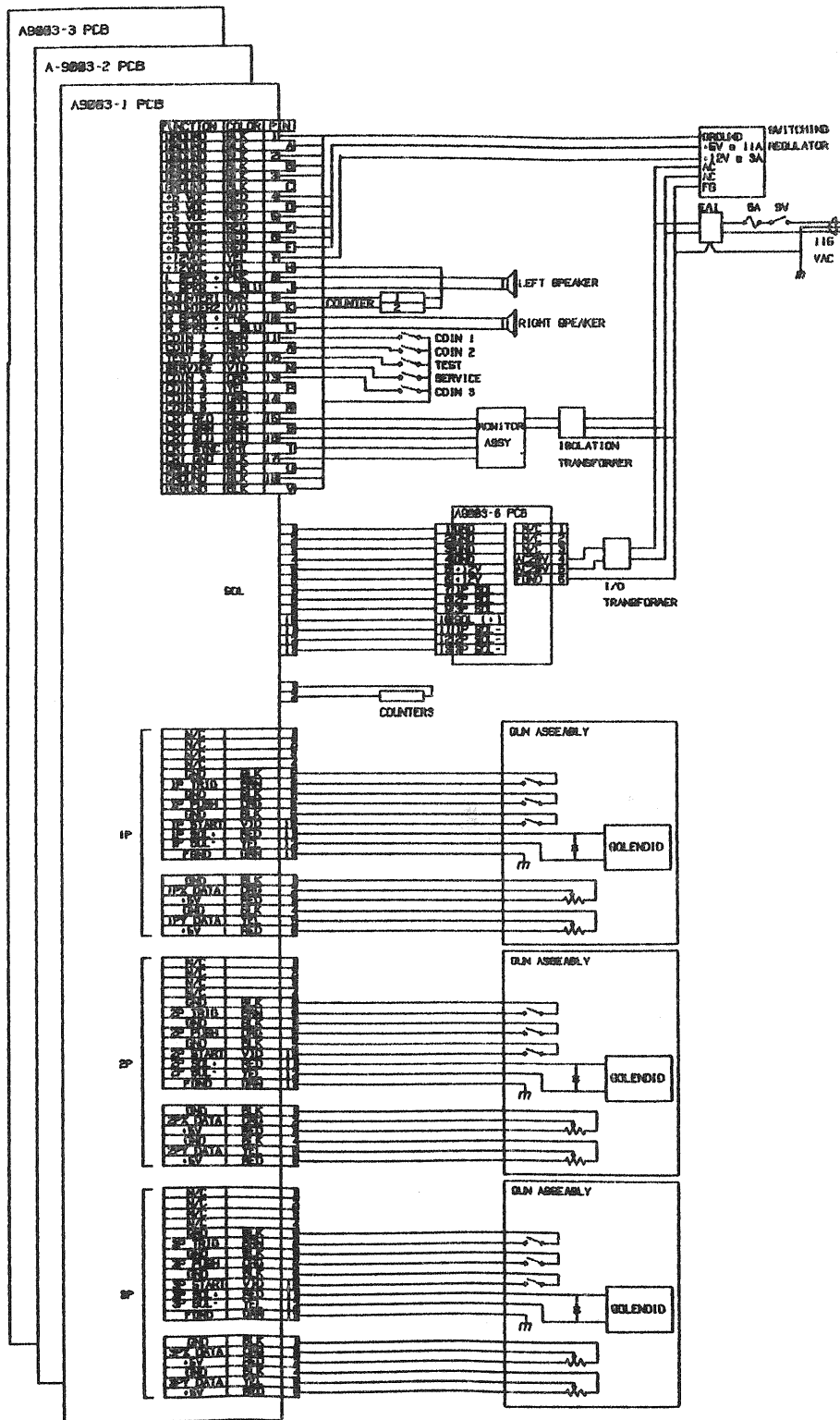
7. BACK2 VIDEO

Displays a Background image from the Back2 Roms.

8. SOUND TEST

Allows you to select a Sound Code with the Trigger Switch, and generate that sound by pressing the Grenade pushbutton.

B. Wiring Diagram.



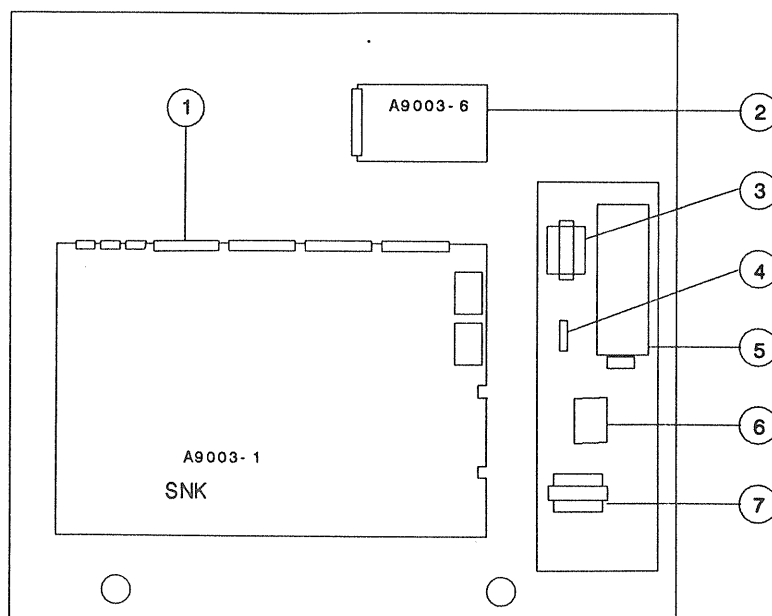
FUNCTION	COLOR	PIN	PARTS	EDGE CONNECTOR
GROUND	BLK	1		(non jamma)
GROUND	BLK		A SOLDER	
GROUND	BLK	2		
GROUND	BLK		B	
GROUND	BLK	3		
GROUND	BLK		C	
+5 VDC	RED	4		
+5 VDC	RED		D	
+5 VDC	RED	5		
+5 VDC	RED		E	
+5 VDC	RED	6		
+5 VDC	RED		F	
+12 VDC	YEL	7		
+12 VDC	YEL		H	
L SPKR +	PNK	8		
L SPKR -	L BLU		J	
COUNTER1	GRN	9		
COUNTER2	VIO		K	
R SPKR +	PNK	10		
R SPKR -	L BLU		L	
COIN 1	GRN	11		
COIN 2	RED		M	
TEST SW	GRY	12		
SERVICE	VIO		N	
COIN 3	ORG	13		
COIN 4	YEL		P	
COIN 5	GRN	14		
COIN 6	BLU		R	
CRT RED	RED	15		
CRT GRN	GRN		S	
CRT BLU	BLU	16		
CRT SYNC	WHT		T	
CRT GND	BLK	17		
GROUND	BLK		U	
GROUND	BLK	18		
GROUND	BLK		V	

N/C		1	
N/C		2	
N/C		3	
N/C		4	
GND	BLK	5	
TRIG	GRN?/BRN?	6	
GND	BLK	7	
PUSH	ORG	8	
GND	BLK	9	
START	VIO	10	
SOL +	RED	11	
SOL -	YEL	12	
<i>F GND</i>	GRN?/BRN?	13	
GND	BLK	1	
X DATA	ORG	2	
+5V	RED	3	
GND	BLK	4	
Y DATA	YEL	5	
+5V	RED	6	

GUN & BUTTON CONNECTORS
(same for all players)

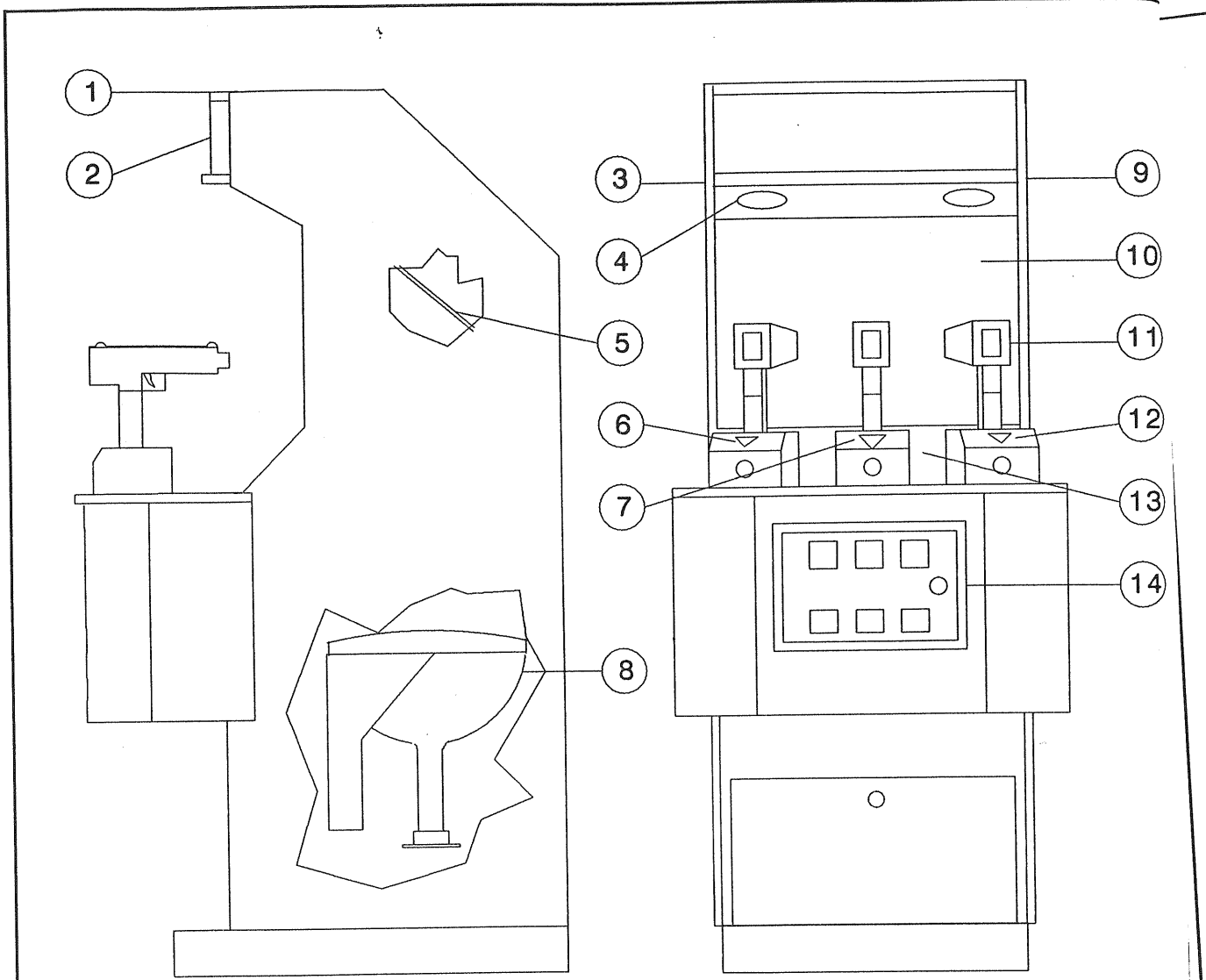
3. REPLACEMENT PARTS LIST

In the event replacement parts are required for your game, we have included the following section to assist in determining and ordering the proper parts. These parts are available from SNK through any authorized SNK dealer. When ordering replacement parts, please give the Game Name and the complete description of the part as indicated in this section.



DRAWER ASSEMBLY

- 1 PCB SET, A9003
- 2 I/O PCB, A9003-6
- 3 I/O TRANSFORMER, 20 VAC
- 4 FUSE, 5 AMP
- 5 SWITCHING REGULATOR, 15AMP
- 6 EMI FILTER
- 7 ISOLATION TRANSFORMER

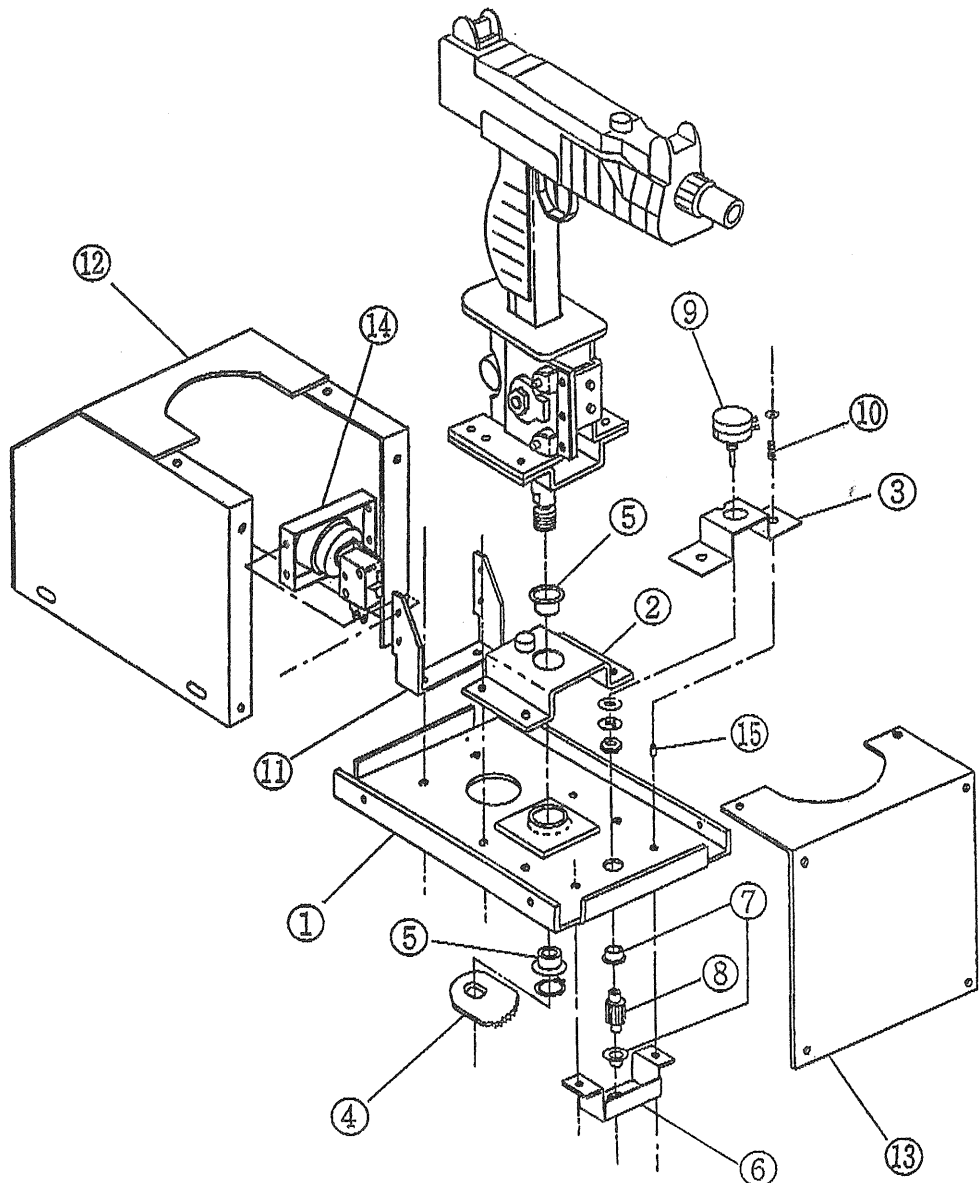


FINAL ASSEMBLY

- 1 Logo Plex Bracket
- 2 Logo Plex
- 3 Side Decal, Left
- 4 Speaker, 4" round, 8 ohm
- 5 Mirror, 23 5/8 x 23 5/8 x 1/8"
- 6 Decal, Johnny Start, Red
- 7 Decal, Paul Start, Blue

- 8 Monitor, 25" Wells-Gardner
- 9 Side Decal, Right
- 10 Smoke Glass
- 11 Gun Assy, Beast Buster
- 12 Decal, Sammy Start, Green
- 13 Decal, Instruction
- 14 Coin Door, 3 Entry

- 9
- 10
- 11
- 12
- 13
- 14

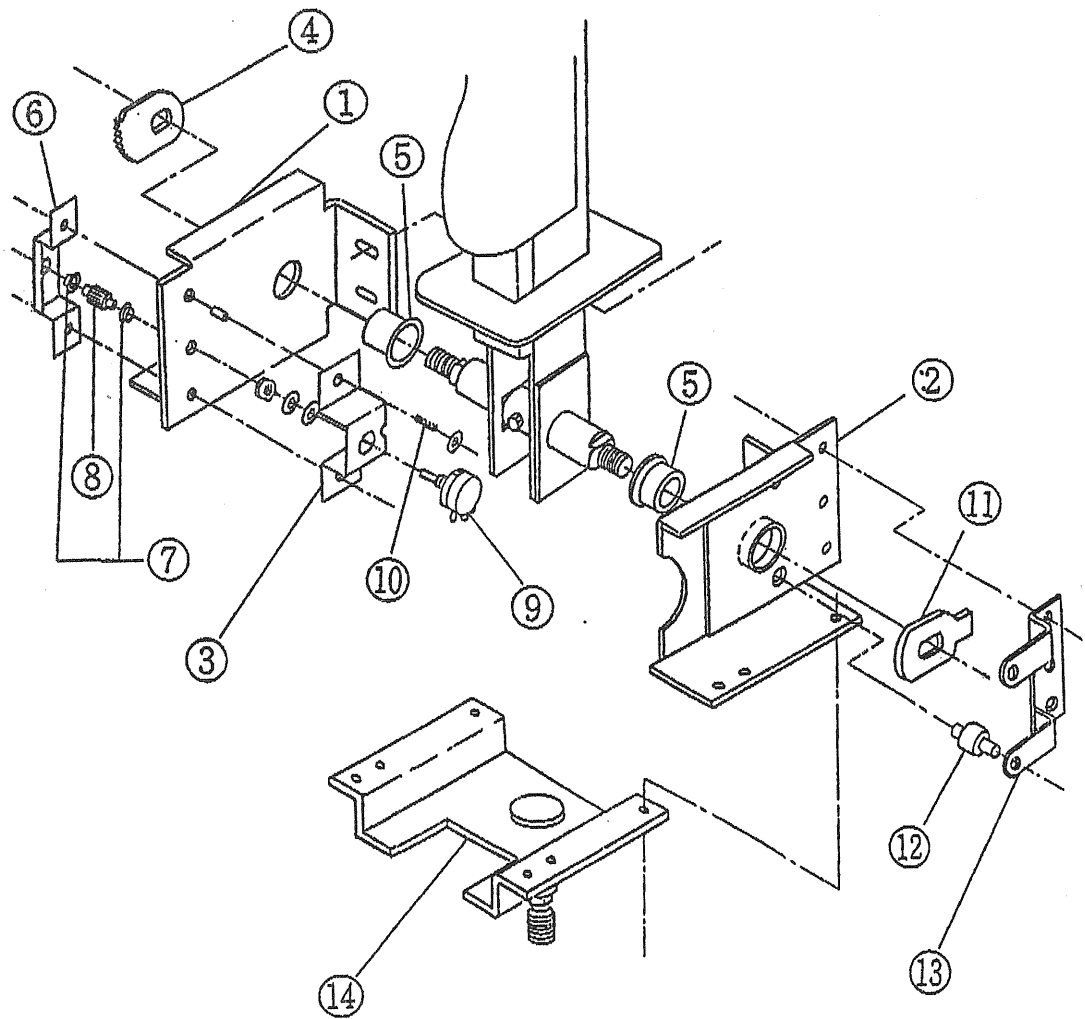


BASE-1 ASSEMBLY

- | | | | |
|-------------|--------------------|--------------|----------------|
| 1 A9003-301 | Box Base | 8 A9003-507 | VR-Pinion |
| 2 A9003-302 | Gun Base assy | 9 A9003-501 | Potentiometer |
| 3 A9003-502 | VR-Bracket | 10 A9003-505 | VR-Spring |
| 4 A9003-506 | VR-Gear | 11 A9003-703 | Switch Bracket |
| 5 A9003-305 | Bushing (80F-1810) | 12 A9003-701 | Box Rear |
| 6 A9003-503 | Pinion Bracket | 13 A9003-702 | Box Front |
| 7 A9003-508 | Bushing (80F-0905) | 14 A8002-038 | Start Switch |

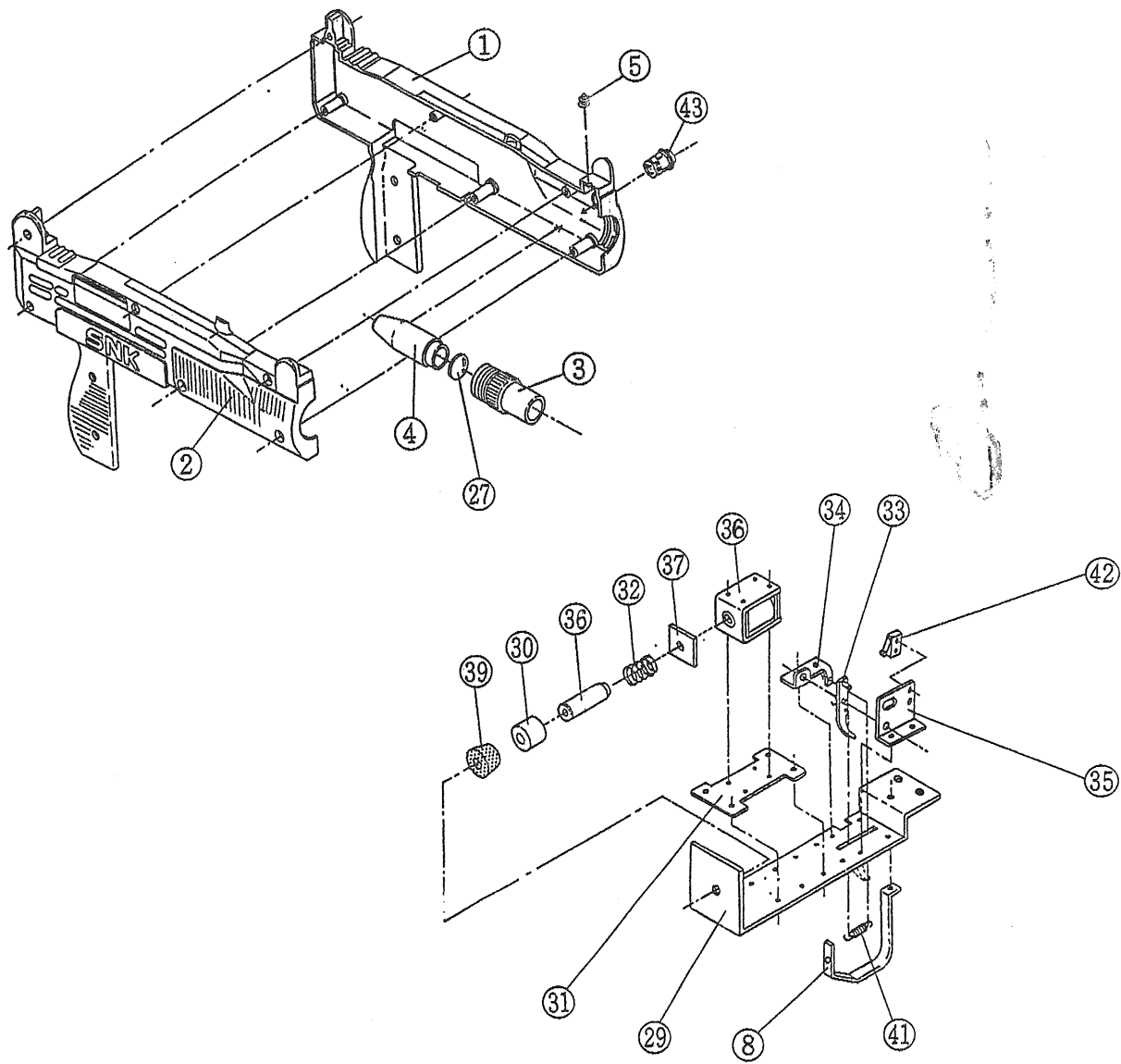
-Gardner

uster
rt, Green



BASE-2 ASSEMBLY

- | | | | | | |
|---|-----------|--------------------|----|-----------|-----------------|
| 1 | A9003-202 | Side Bracket, L | 8 | A9003-507 | VR-Pinion |
| 2 | A9003-201 | Side Bracket, R | 9 | A9003-501 | Potentiometer |
| 3 | A9003-502 | VR-Bracket | 10 | A9003-505 | VR-Spring |
| 4 | A9003-506 | VR-Gear | 11 | A8002-022 | Cam |
| 5 | A9003-402 | Bushing (80F-1510) | 12 | A9003-603 | V-Stopper |
| 6 | A9003-503 | Pinion Bracket | 13 | A9003-602 | Stopper Support |
| 7 | A9003-508 | Bushing (80F-0905) | 14 | A9003-203 | Turn Table assy |



MECHA ASSEMBLY

- | | | | | | |
|----|-----------|----------------|----|-----------|-----------------|
| 1 | A8002-001 | Gun Housing, L | 32 | A8002-032 | Weight Spring |
| 2 | A8002-002 | Gun Housing, R | 33 | A8002-033 | Trigger |
| 3 | A8002-003 | Gun Barrel A | 34 | A8002-034 | Trigger Base, L |
| 4 | A8002-004 | Gun Barrel B | 35 | A8002-035 | Trigger Base, R |
| 5 | A8002-005 | Gun Sight | 36 | A8002-036 | Solenoid assy |
| 8 | A8002-008 | Trigger Cover | 37 | A8002-037 | Weight Sheet |
| 27 | A8002-027 | Lens | 39 | A8002-043 | Rubber Leg |
| 29 | A8002-029 | Mecha Base | 41 | A8002-042 | Trigger Spring |
| 30 | A8002-030 | Weight | 42 | A8002-041 | Trigger Switch |
| 31 | A8002-031 | Solenoid Base | 43 | A8002-039 | Grenade Button |

SNK *Beast Busters* Gun Calibration

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PROBLEM

We have recently received a number of *Beast Buster* PCBs for warranty repair that have had no hardware problems. These PCBs were simply in need of proper Gun Aim Calibration. If the Gun Aim Calibration test is performed in the Manual Test Mode, and one or more Gun Assemblies are defective, the game will freeze upon power up. This is due to improper Gun Aim data stored in the EPROM on the Main PCB.

1. Open the back of the cabinet, unsnap the cable holder, separate the cables and unplug all three guns.

2. Plug gun #1 (THE GUN ON THE FAR LEFT AS YOU FACE THE GAME) into the P1 connectors (Figure 1).

3. Move switch #8 of dipswitch #2 to the "On" position.

4. Turn the game ON. (DO NOT TURN GAME OFF UNTIL YOU REACH STEP 11).

5. Press the start button on gun #1 three times. This will bring up the first calibration screen.

6. Calibrate the first screen by aiming first at the upper left bullet splat and pulling the trigger, then the middle bullet splat and pulling the trigger and finally the lower right bullet splat and pulling the trigger.

7. Move the gun harness connectors of gun #1 from the P1 connectors to the P2 connectors (Figure 2).

CAUSE

As this problem can be caused by a failure of the Gun Assembly, we should not assume that changing the main PCB will solve the problem. A perfectly good PCB will show the same symptom anytime the Gun Aim Calibration is performed with a defective gun.

SOLUTION

If your *Beast Busters* passes the power-up Self Test and then locks up, determine first whether you have a defective Gun Assembly or Main PCB using the following procedure:

8. Calibrate the second screen by aiming first at the upper left bullet splat and pulling the trigger, then the middle bullet splat and pulling the trigger and finally the lower right bullet splat and pulling the trigger.

9. Move the gun harness connectors of gun #1 from the P2 connectors to the P3 connectors (Figure 3).

10. Calibrate the third screen by aiming first at the upper left bullet splat and pulling the trigger, then the middle bullet splat and pulling the trigger and finally the lower right bullet splat and pulling the trigger.

11. After a slight hesitation, the message EPROM WRITE COMPLETE should come up on the screen.

12. Turn the game OFF.

13. Move switch #8 of dipswitch #2 to the "OFF" position and turn the game on.

14. If the GUN and PCB are good, the game should go into the Attract Mode.

15. Repeat this procedure with Gun #2 and Gun #3.

16. If the game fails to go into the

attract mode on all three guns, either all three guns have a problem or the problem is on the PCB. If the game fails to go into the Attract Mode with one or two guns, the problem is most likely in that gun or guns.

