

Owner's Manual  
Manual Part No. 420-0979

**SEGA**<sup>®</sup>  
THE ARCADE EXPERTS



# Bongo



## Owner's Manual

Manufactured By

**SEGA®**

TLX 910-335-1621

Congo Bongo™ Owner's Manual

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## Table of Contents

List of Illustrations	
Introduction . . . . .	1
Important Notes . . . . .	2
Game Concept . . . . .	3
Scoring . . . . .	4
Option Selection . . . . .	5
Theory of Operation . . . . .	7
Self-Test . . . . .	10
Parts Catalog . . . . .	20
700-0134 Top Assembly . . . . .	21
Ground Plane Assembly . . . . .	28
Volume Control Block Assembly . . . . .	30
Game Electronics . . . . .	32
Interface Board Assembly . . . . .	34
700-0137 T-8 Cocktail Top Assembly . . . . .	36
T-8 Cabinet Accessory Assembly . . . . .	40
Control Panel Assembly . . . . .	43
8-Way Joystick Assembly . . . . .	45
Power Supply Assembly . . . . .	47
Regulator Unit . . . . .	49
Nanao MC-2000-S . . . . .	51
700-0138 Top Assembly . . . . .	65
700-0139 Top Assembly . . . . .	72
Component Shelf Assembly . . . . .	79
Operator Control Block Assembly . . . . .	81
Common Assemblies . . . . .	83
AC Junction Box Assembly . . . . .	84
EMI Transformer Assembly . . . . .	87
Flourescent Lamp Assembly . . . . .	89
Control Panel Assembly . . . . .	91
8-Way Joystick Assembly . . . . .	94
Color Monitor Assembly . . . . .	96
Electrohome G07-907 . . . . .	98
Wells Gardner 19K4675 . . . . .	106
Wells Gardner 19K4961 . . . . .	123
834-5197 IC Board Assembly (3-board assembly) . . . . .	140
834-5198 IC Board Assembly (2-board assembly) . . . . .	142

## Table of Contents (cont.)

Control Board Assembly . . . . .	144
Control Board 2 Assembly . . . . .	149
Video Board Assembly . . . . .	154
Sound Board Assembly . . . . .	158
G-80 Power Supply Assembly . . . . .	162
G-80 Power Supply PC Assembly . . . . .	166
Schematics . . . . .	169
Comments Mailer	

## List of Illustrations

DIP Switch Location . . . . .	5
Diagnostics Organization . . . . .	10
Assembly Organization . . . . .	17
700-0134 Top Assembly . . . . .	25
Ground Plane Assembly . . . . .	29
Volume Control Block Assembly . . . . .	31
Game Electronics Assembly . . . . .	33
Interface Board Assembly . . . . .	35
700-0137 T-8 Cocktail Top Assembly . . . . .	39
T-8 Cabinet Accessory Assembly . . . . .	42
Control Panel Assembly . . . . .	44
8-Way Joystick Assembly . . . . .	46
Power Supply Assembly . . . . .	48
Regulator Unit . . . . .	50
Nanao MC-2000-S . . . . .	60
700-0138 Top Assembly . . . . .	69
700-0139 Top Assembly . . . . .	76
Component Shelf Assembly . . . . .	80
Operator Control Block Assembly . . . . .	82
Common Assemblies	
AC Junction Box Assembly . . . . .	86
EMI Transformer Assembly . . . . .	88
Flourescent Lamp Assembly . . . . .	90
Control Panel Assembly . . . . .	92
8-Way Joystick Assembly . . . . .	95
Color Monitor Assembly . . . . .	97
Electrohome G07-907 . . . . .	103
Wells Gardner 19K4675 . . . . .	119
Wells Gardner 19K4961 . . . . .	138
834-5197 IC Board Assembly (3-board assembly) . . . . .	141
834-5198 IC Board Assembly (2-board assembly) . . . . .	143
Control Board Assembly . . . . .	148
Control Board 2 Assembly . . . . .	153
Video Board Assembly . . . . .	157
Sound Board Assembly . . . . .	161
G-80 Power Supply Assembly . . . . .	165
G-80 Power Supply PC Assembly . . . . .	168

## List of Illustrations (cont.)

Schematics . . . . .	169
700-0134 Cabinet Wiring Diagram . . . . .	170
700-0137 T-8 Cocktail Wiring Diagram . . . . .	171
700-0138 Cabinet Wiring Diagram . . . . .	172
700-0139 Cabinet Wiring Diagram . . . . .	173
EMI Transformer	
AC Junction Box	
Operator Control Block . . . . .	174
Regulator Board	
Regulator Unit . . . . .	175
Control Board . . . . .	176
Control Board 2 . . . . .	180
Video Board . . . . .	186
Sound Board . . . . .	190
Electrohome G07-907 . . . . .	192
Wells Gardner 19K4675 . . . . .	193
Nanao MC-2000-S . . . . .	194
Wells Gardner 19K4961 . . . . .	195
G-80 Power Supply . . . . .	196
Switching Regulator . . . . .	197

## Introduction

CONGO BONGO<sup>TM</sup> is a micro-processor based coin-operated electronic game, that makes extensive use of digital integrated circuitry and television monitor concepts. This manual is intended for the use of maintenance technicians who possess a general working knowledge of solid-state circuitry and video monitor theory. Any individual NOT knowledgeable in these areas SHOULD NOT attempt repair of the electronic portions of the game.

In addition to this manual and training in electronics, troubleshooting and repair will be facilitated by: access to general electronic type handtools, a multimeter, a 50 to 100 MHz oscilloscope and a logic probe would be helpful.

Technical assistance is available toll-free by calling:

1-800-854-1938 outside California

1-800-722-8576 inside California

Parts Information assistance is available toll-free by calling:

1-800-854-1900 outside California

1-800-722-8575 inside California

Questions or comments concerning CONGO BONGO<sup>TM</sup> or any of our games are welcome and should be directed to:

Customer Service Manager  
SEGA Electronics, Inc.  
16250 Technology Drive  
San Diego, California 92127-1985

## Important Notes

The following note is included in compliance with FCC rules:

WARNING: This equipment generates and uses radio frequency energy and if not installed and used properly, i.e., in strict accordance with the instruction manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

## Other Notes

NEVER replace any components with anything other than exact replacement parts.

NEVER remove circuit board connections while power is on.

DO NOT replace fuses with anything other than the proper value. A blown fuse indicates an overload condition within the game. Replacing fuses with a higher value can cause severe damage to internal components if an overload occurs.

ALWAYS consult the manual before attempting repairs.

SPARE PARTS will be maintained at SEGA Electronics, Inc. for a period of five (5) years after the date of manufacture of the game concerned.

## Game Concept

Jungle drums pound as CONGO BONGO<sup>TM</sup>, the cartoon adventure that pits man against monkey, takes you on the craziest, most action-packed safari ever! With fantastic 3-dimensional-like graphics and wonderful native sounds, SEGA's CONGO BONGO lures explorers of all ages to chase Bongo, the mischievous gorilla, through four vivid scenes of jungle fun. By use of an 8-way joystick and a jump button, the player maneuvers his hunter through the various scenes and avoids obstacles and dangers in his path.

In the first scene, Bongo roars defiantly from the top of Steep Peak as the hunter approaches. The hunter must climb the treacherous cliffside to reach the bridge above, while avoiding the bouncing coconuts Bongo throws down. Once across the bridge, the hunter must slide down a slope and knock the green monkey off the ledge. Green monkeys will block the hunter's path and if not pushed over a cliff or jumped over, the hunter cannot pass.

Next the hunter must jump over a perilous, collapsing chasm and climb the cliff to Primate Plateau. Here several friendly-looking monkeys scamper about playfully. Be careful though, as the cheerful chimps will cling to the hunter, slowing him down. By using the jump button, the player can shake the chimps off the hunter, but it must be done quickly, because if three chimps grab the hunter, they will pick the hunter up and throw him over the side and into the river. Once past the monkeys, the hunter must jump the river again and climb up to the top where a chagrined Bongo loses his smile and runs off into the jungle.

In the second scene, Bongo taunts the hunter from across Snake Lake. Immediately scorpions descend upon the hunter and he must decide which route to take quickly. Snake Lake is a maze of bridges and islands with snakes guarding every route. The hunter must avoid the snakes by jumping over them. The hunter should attempt to reach the island nearest Bongo and jump onto the back of the hippo and then safely to shore. Beware of the hippo as he dives and surfaces. Once safely to shore, Bongo gets worried and scampers off again.

The third scene opens with the hunter in a mole hole on Rhino Ridge. A herd of charging rhinos must be avoided in the hunter's attempt to capture Bongo. The hunter can avoid the rhinos by jumping over them or ducking into a mole hole. When ducking into a mole hole, the player must depress the jump button for the hunter to duck down and avoid the rhinos.

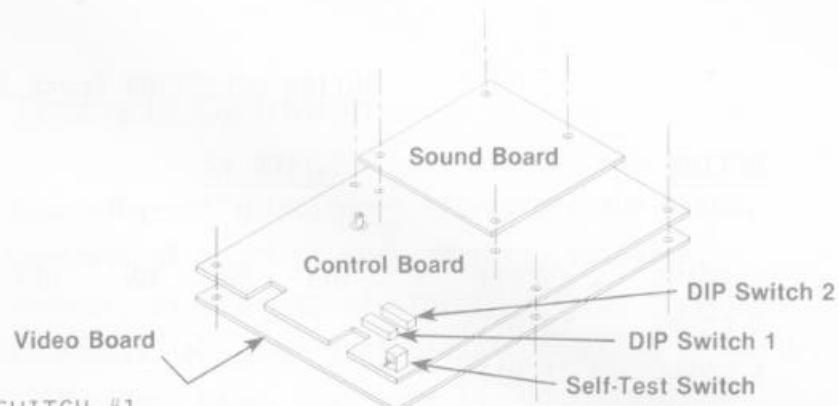
In the fourth scene, a weary Bongo naps in a chair on the far side of Lazy Lagoon. To reach Bongo, the hunter must cross Lazy Lagoon by jumping on lily pads, hippos and fish, that might sink at minute. Once across Lazy Lagoon, the hunter must dodge the last charging rhinos and climb the last bluff to capture Bongo. After Bongo is captured, the scenes repeat with increasing difficulty.

CONGO BONGO is a one or two player game with players alternating at the loss of each hunter. Each scene is timed by the bonus counter in the upper left corner of the screen. As time passes, the bonus decreases. If the bonus counter reaches zero, the player loses that hunter, the bonus counter is reset and play continues if he has other hunters available. Game ends with the loss of the last hunter.

### Scoring

	<u>POINTS</u>
EACH STEP TAKEN	10
JUMPING ONTO HIPPO, FISH OR LILY PAD (INCREASES BY 50 EACH ROUND)	100
JUMPING INTO A MOLE HOLE	1000
JUMPING ACROSS A CHASM	500
AT THE SUCCESSFUL COMPLETION OF EACH ROUND, THE PLAYER IS AWARDED THE NUMBER OF POINTS REMAINING IN THE BONUS BOX.	

## Option Selection



<u>OPTION</u>	<u>SWITCH #1</u>							
	1	2	3	4	5	6	7	8
UPRIGHT	X	X	X	X	X	X	X	OFF
TABLE	X	X	X	X	X	X	X	ON
SOUND ON	X	X	X	X	X	X	ON	X
SOUND OFF	X	X	X	X	X	X	OFF	X
FREE PLAY	X	X	X	X	OFF	OFF	X	X
5 EXTRA HUNTERS	X	X	X	X	OFF	ON	X	X
4 EXTRA HUNTERS	X	X	X	X	ON	OFF	X	X
3 EXTRA HUNTERS	X	X	X	X	ON	ON	X	X
DIFFICULTY: EASY	X	X	ON	ON	X	X	X	X
MEDIUM	X	X	ON	OFF	X	X	X	X
HARD	X	X	OFF	ON	X	X	X	X
HARDEST	X	X	OFF	OFF	X	X	X	X
BONUS AT: 10,000	ON	ON	X	X	X	X	X	X
20,000	ON	OFF	X	X	X	X	X	X
30,000	OFF	ON	X	X	X	X	X	X
40,000	OFF	OFF	X	X	X	X	X	X

<u>OPTION</u>	<u>SWITCH #2</u>							
	1	2	3	4	5	6	7	8
4 COINS 1 CREDIT	ON	ON	ON	ON	ON	ON	ON	ON
3 COINS 1 CREDIT	ON	ON	ON	OFF	ON	ON	ON	OFF
2 COINS 1 CREDIT	ON	ON	OFF	ON	ON	ON	OFF	ON
1 COIN 1 CREDIT	ON	ON	OFF	OFF	ON	ON	OFF	OFF
1 COIN 2 CREDITS	ON	OFF	ON	ON	ON	OFF	ON	ON
1 COIN 3 CREDITS	ON	OFF	ON	OFF	ON	OFF	ON	OFF
1 COIN 4 CREDITS	ON	OFF	OFF	ON	ON	OFF	OFF	ON
1 COIN 5 CREDITS	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
1 COIN 6 CREDITS	OFF	ON	ON	ON	OFF	ON	ON	ON

## OPTION SELECTION (cont.)

<u>OPTION</u>		SWITCH #2							
		1	2	3	4	5	6	7	8
2 COINS	1 CREDIT	OFF	ON	ON	OFF	OFF	ON	ON	OFF
4 COINS	2 CREDITS								
5 COINS	3 CREDITS								
6 COINS	4 CREDITS								
2 COINS	1 CREDIT	OFF	ON	OFF	ON	OFF	ON	OFF	ON
3 COINS	2 CREDITS								
4 COINS	3 CREDITS								
1 COIN	1 CREDIT	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
2 COINS	2 CREDITS								
3 COINS	3 CREDITS								
4 COINS	4 CREDITS								
5 COINS	6 CREDITS								
1 COIN	1 CREDIT	OFF	OFF	ON	ON	OFF	OFF	ON	ON
2 COINS	2 CREDITS								
3 COINS	3 CREDITS								
4 COINS	5 CREDITS								
1 COIN	1 CREDIT	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF
2 COINS	3 CREDITS								
1 COIN	2 CREDITS	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON
2 COINS	4 CREDITS								
3 COINS	6 CREDITS								
4 COINS	8 CREDITS								
5 COINS	11 CREDITS								
1 COIN	2 CREDITS	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2 COINS	4 CREDITS								
3 COINS	6 CREDITS								
4 COINS	9 CREDITS								

## Theory of Operation

CONGO BONGO™ is a "state-of-the-art" electronic microprocessor based, video game. The result of hundreds of hours of work, design, research, experiment and more work. However, as with any electronic device, component failure or other problems can result in a game that doesn't function properly, or doesn't function at all. In either case, your game is "down", and so critically, are your profits.

Your objective is to fix it as quickly as possible, and logical troubleshooting goes a long way toward that repair. Although many troubleshooting methods may be familiar to you, procedural logic is common among them, and might be stated in this order: visual inspection, symptom recognition, symptom isolation, function isolation, component isolation and repair. Familiarity with the equipment in question will allow you to bypass one or more of these steps, as any particular problem may be obvious to you, or may have happened before. In general though, these 6 steps form a good premise upon which to approach your "down" game.

An extremely important item in our procedure is the first mentioned, giving the gear the "once over". A large percentage of failures found in electronics, show themselves visually and often a great deal of time can be saved by inspecting for burnt or blown components, loose or disconnected wiring or connectors, or PCB traces burnt or pulled up. Thorough visual inspections become increasingly important the closer you get to the faulty item, and should be repeated each time another portion of the game is eliminated. Symptom recognition (as with all electronic troubleshooting) in your CONGO BONGO™ depends first, on knowing what a proper display is, and second, knowing how your display differs from a normal one. Symptom isolation follows naturally; (i.e., "I have no picture", "I have no sound", "I have no control over the ship", "the picture is scrambled"), ergo, a video, audio, input or logic problem. Function isolation, such as a sync problem with the video, requires that you consider those functions that go to make up video sync. Is it a monitor problem, or an "on-the-board" problem? A monitor input check to verify the signal will tell you. Does the board have the voltage (from the power supply) that it needs? Yes? We must have a board failure, as we've just isolated down to function. Taking our sync problem further, before we begin our search for an individual component, let's reapply that first item in

our "Logical Troubleshooting Procedure". Look at the board. Open resistors, diodes, and capacitors often give themselves away.

Noticing a trace literally burned open can save you serious "down-time". The board looks OK, so on we go. Specific component isolation relates to the specific nature of the failure, component commonality, proper inputting (both signal and power) and proper outputting (as in the case of an output held high, low, or floating by input port failure in the succeeding state). More general problems (such as a total loss of video sync) requires the more involved procedure of systematic elimination of possibilities. This operation can be expedited however, by dividing the circuit in half, establishing a "go-no/go" at that point, and again dividing the suspect circuit portion in half. The largest possible areas can be eliminated in this manner, dividing and subdividing until the individual component failure is found.

CONGO BONGO™ is a microprocessor based, digital-integrated circuit computer video game. The heart of the computer is the CPU (U4, Zone 7-C, Sht. 1, Control Bd., 834-5166), a Z80A (P/N 315-0041). The Alpha type device MUST ALWAYS be used, as the Z80 is not fast enough to run the programs.

Master timing is IC-driven by U122, a G501533 that provides a stable frequency for J-K flip flops U46 & U47, located on the Video Board, Zone 4-B of Sht. 2 (834-5167). The "Phase Three X" signal (03X) is applied to U-15 P-2 (Zone 3-D, Sht. 3, 834-5167) & is clocked out at pin 13 as the 1H frequency that appears thru P3 p-9 at the input to the CPU. U6 & Q10 (Zone 8-D, Sht. 1 of the Control Bd. 834-5166) polarize & reference 1H for input timing for U4 (Zone 7-C, Sht. 1, Control Board, 834-5166).

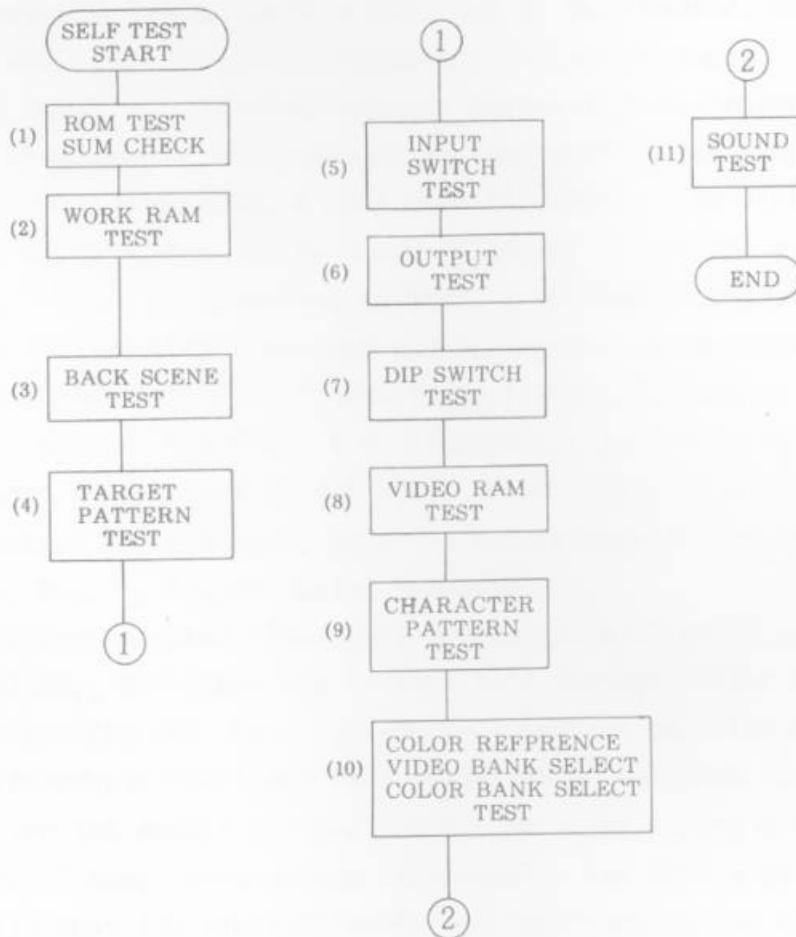
Manual system reset (Power-On) appears as a LO at P5 p-L (Zone 8-D, Sht. 2, Control Bd., 834-5166) and is then felt through filter BF8, & is applied to pin-26 of the CPU (U4, Sht. 1, Zone 7-C, Control Bd., 834-5166). Normal program interrupts (INT) are felt at pin-16 of the Z80A (an edge-triggered LO), and are the result of Input/Output activity timing with vertical blanking (an approx. 2 msec. instruction interrupt). The WAIT signal is used to synchronize that I/O activity during an interrupt to the CPU. U5 and 7 (Zone 7-C, Sht. 1, Control Bd., 834-5166) are address bus drivers. Three of the sixteen address lines pass through U56 (Zone 5-C, Sht. 1, Control Bd., 834-5166) and subsequently drive the Chip Enable inputs of EPROM IC's 32-35 and RAM IC's 36 & 37 (Sht. 1, Control Bd., 834-5166). U48 & 9, 62 & 63 (Sht. 4, Control Bd., 834-5166) are input ports on the data bus. U64 supplies service switch, game start and coinage to the input ports. U14 and 18 input

Coin B, and U15 and 18 input Coin A. U16 & 19 input service switch, while U64 & drives player start to I/O processor U9 (Zone 5-C, Sht. 1, Control Bd., 834-5166). IC111, 112 and 114 accesses/buffers Player Left/Right data, IC111 and 113 interfaces Fire data, and Option Selection is shared by all 4 74LS244's. Located on the Control Board is the Self-Test switch. When closed, it applies a LO to U4 p-17 (Zone 7-C, Sht. 1, Control Bd., 834-5166) initiating a systems/function verification outlined on the following page:

## Self-Test

CONGO BONGO™ is equipped with a diagnostics self-testing program that is initiated by pressing the Self-Test button located on the Control Board Assembly. The test is used to detect malfunctions in Video alignment, I/O interface and P.C.B. electronics.

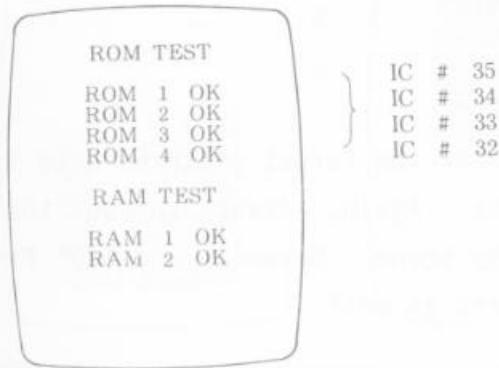
The test will appear in the following order, with the words "OK" or "BAD" being displayed on the screen in accordance with the condition of the tested circuit. Self-Test step sequencing is done by pressing the Player 1 button after each individual test.



## SELF-TEST (cont.)

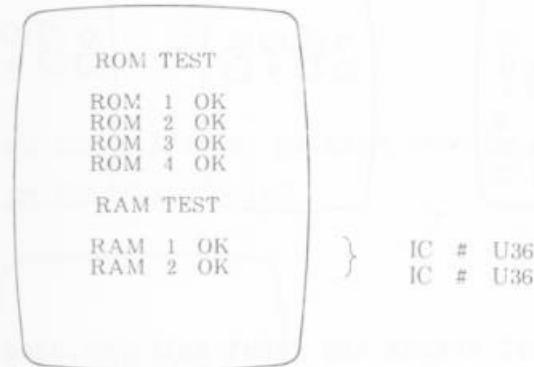
### 1. ROM Test

This test checks the four main program EPROMs by performing individual "check sum" tests. These EPROMs are located on the Control Board.



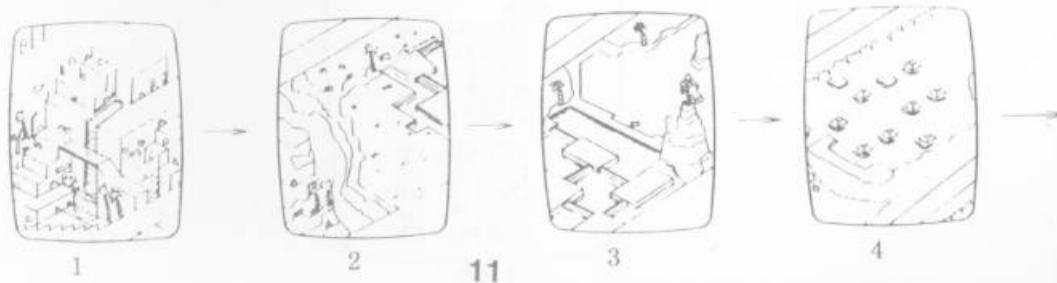
### 2. RAM Test

This test checks RAM 1 and RAM 2 by performing a cross-talk test between each adjacent bit in the RAMs. These RAMs are located on the Control Board.



### 3. Background Scene Test

This test checks the background displays of the game in eight (8) individual steps. Advance through the steps by pressing the Player 1 button, until the eighth display (a blank screen) is reached.



## SELF-TEST (cont.)

### 6. Output Test

This test verifies output ports used to interface computer software to game hardware.

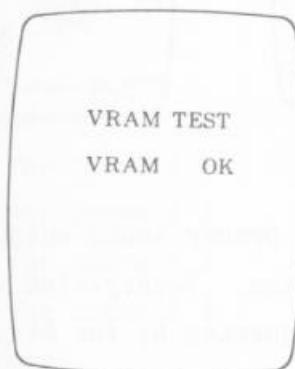


### 7. DIP Switches

Operation of the DIP Switches are checked here, internally, by simultaneously turning on, and then off, all odd switch positions, followed by all even switch positions. "Test 1" is displayed at the end of the cycle. Pressing the Player 1 button initiates "Test 2" for DIP Switch 2.

### 8. Video RAM Test

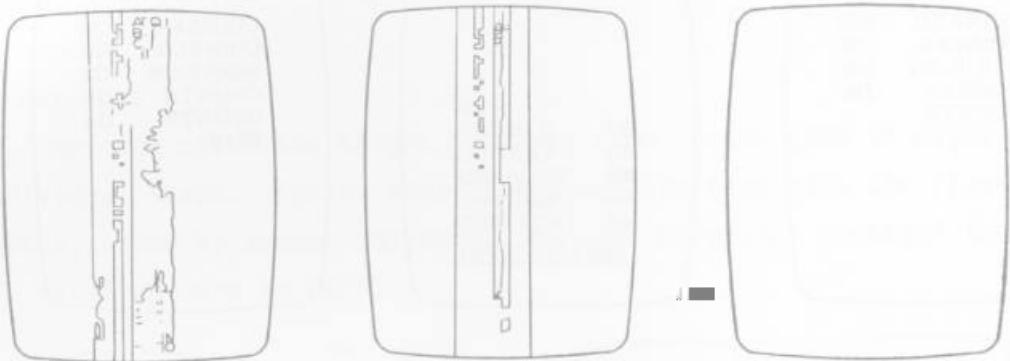
Here Video RAMs used for character pattern display are tested. These RAMs are located on the Video Board.



## SELF-TEST (cont.)

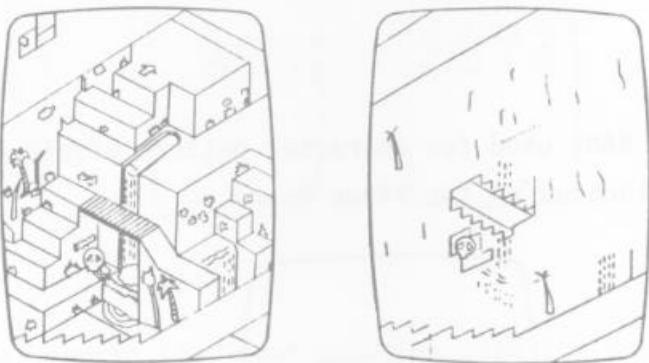
### 9. Character Pattern Test

This test checks the ROMs used for character patterns and picture patterns. During this test all the patterns contained within each ROM will be displayed. Character pattern ROMs are located on the Video Board.



### 10. Color Control Reference Test

Character pattern and background picture color control is checked here by color reference changes with each pressing of the Player 1 button.



### 11. Sound Port Test

This test verifies that proper sound outputs are generated with each pressing of the Player 1 button. Twenty-nine individual sounds are generated, one at a time, sequenced by the Player 1 button, and appear in order on the following page.



SELF-TEST (cont.)

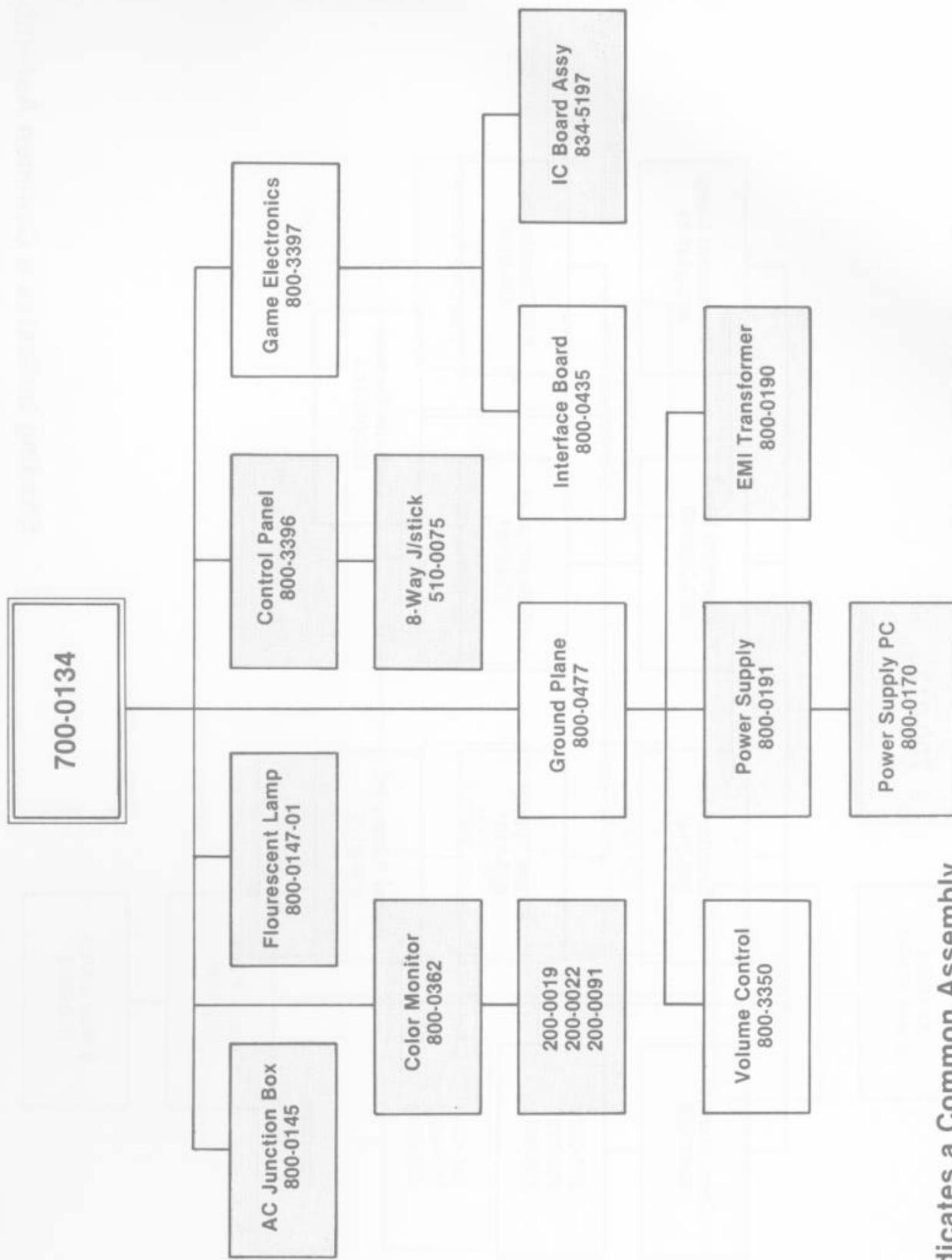
11. Sound Port Test (cont.)

- 01 No sound
- 02 Gorilla lullaby
- 03 Player victory music
- 04 Player clear music
- 05 "Player goes to Heaven" music (in the water)
- 06 "Player goes to Heaven" music (other than in the water)
- 07 Fire
- 08 Player step sound
- 09 Player drop sound
- 10 Player jump sound
- 11 "Monkey on my back" sound
- 12 Held by monkey sound
- 13 Hit by coconuts sound
- 14 "Crumbling crevasse" sound
- 15 Passage of snake sound
- 16 Rush of rhino sound (A)
- 17 Rush of rhino sound (B)
- 18 Rhino screeching to a stop sound
- 19 Player digging sound
- 20 Fish sound
- 21 Special Bonus sound
- 22 Credit sound
- 23 Gorilla laughing
- 24 Hippo sinking sound
- 25 Background music for scene # 1
- 26 Background music for scene # 2
- 27 Background music for scene # 3
- 28 Background music for scene # 4
- 29 Bonus score up sound

Due to the striking graphics employed in CONGO BONGO<sup>TM</sup>, memory requirements for background generation are significant. On the VIDEO Bd. (834-5167) there are nine (9) 2764-30 64K X 8 EPROMs that hold video character, positioning, color and timing information, in addition to the five (5) program 2764-30's on the Control Bd. Background generation accessible memory (RAM) is provided by TTL IC's U12 and U53 (Zone 7-C and 3-D respectively, Sht. 2, on the VIDEO Bd., 834-5167), in addition to U59 on Sht. 4 of the Control Board (834-5166). RGB color data is found fully processed at P5 pins w, 19 and X respectively, on the Control Board (Zone 6-D, Sheet 2, 834-5166). Video COMPSYN (Composite Synchronization) can be found at the same location. U68 (Sht. 2, Zone 4-D, 834-5166) is the primary color PROM.

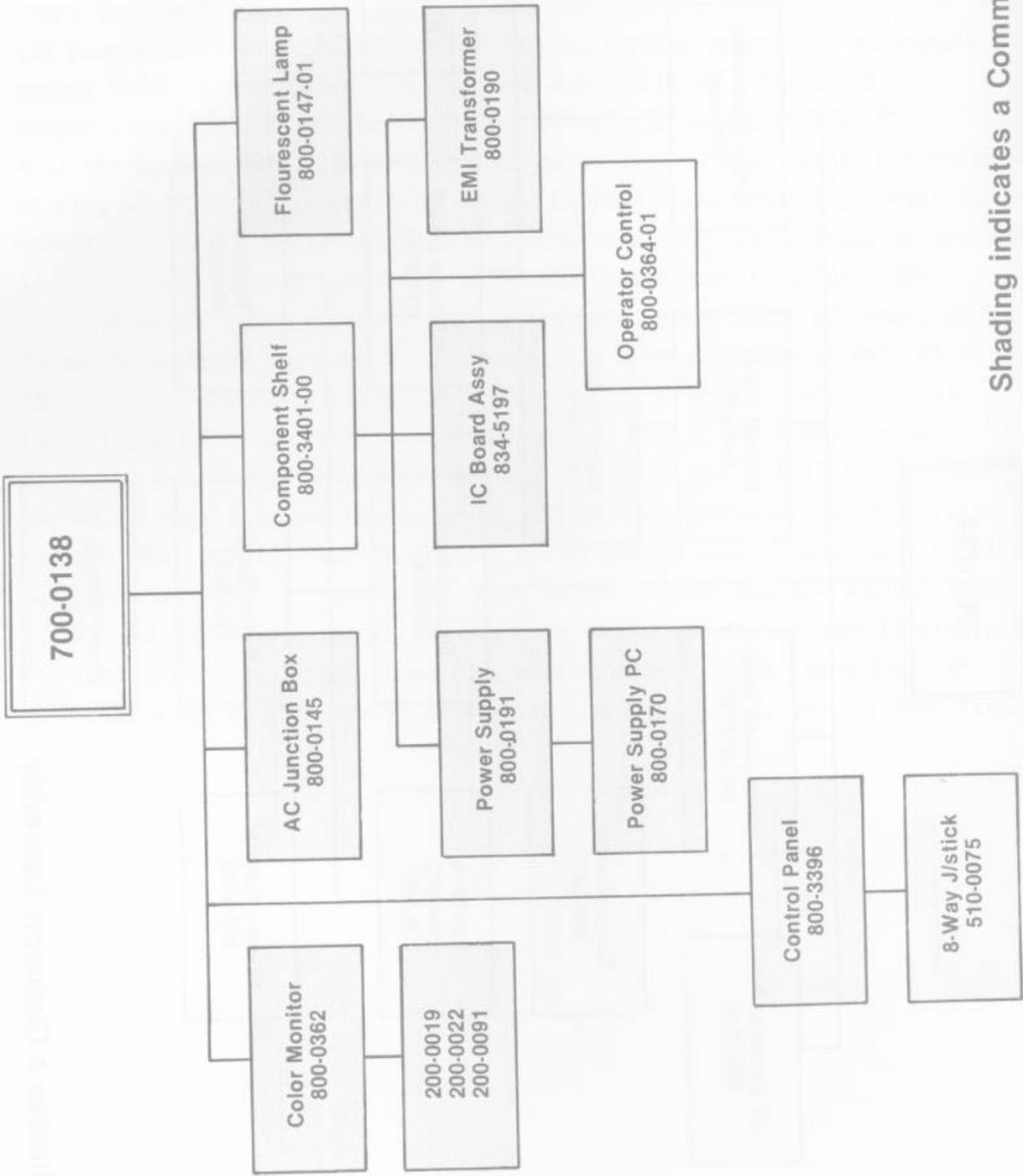
Just as the microprocessor Z80A is the heart of the game computer, so too is the Sound Board equipped with its own Z80A microprocessor as well as an 8255A-C Sound Generator (Zone 4-C & 7-C, Sht. 1, 834-5168, respectively). Employing a 4.00 MHz crystal-driven (Zone 6-D, Sht. 1 834-5168) timing frequency at pin 6, U3 processes program data held by U10 & 11 to set enable parameters used by Sound Generator U1. U1 in turn processes external noise sources (Sht. 2, 834-5168) to produce an integrated sound output felt at P1 p-9 (Zone 8-C, Sht. 1, 834-5168). Back on the Control Board, P4 pin-3 (Sht. 3, Zone 5-C, 834-5166) inputs our sound to OP Amp U2, thru Volume Control pot. VR1 (Zone 8-D, Sht. 3, 834-5166) to the Audio Amplifier U1 (Zone 7-C, Sht. 3, 834-5166) & out to the speaker at P5 pins H & 7 (Zone 8-B, Sht. 3, 834-5166).

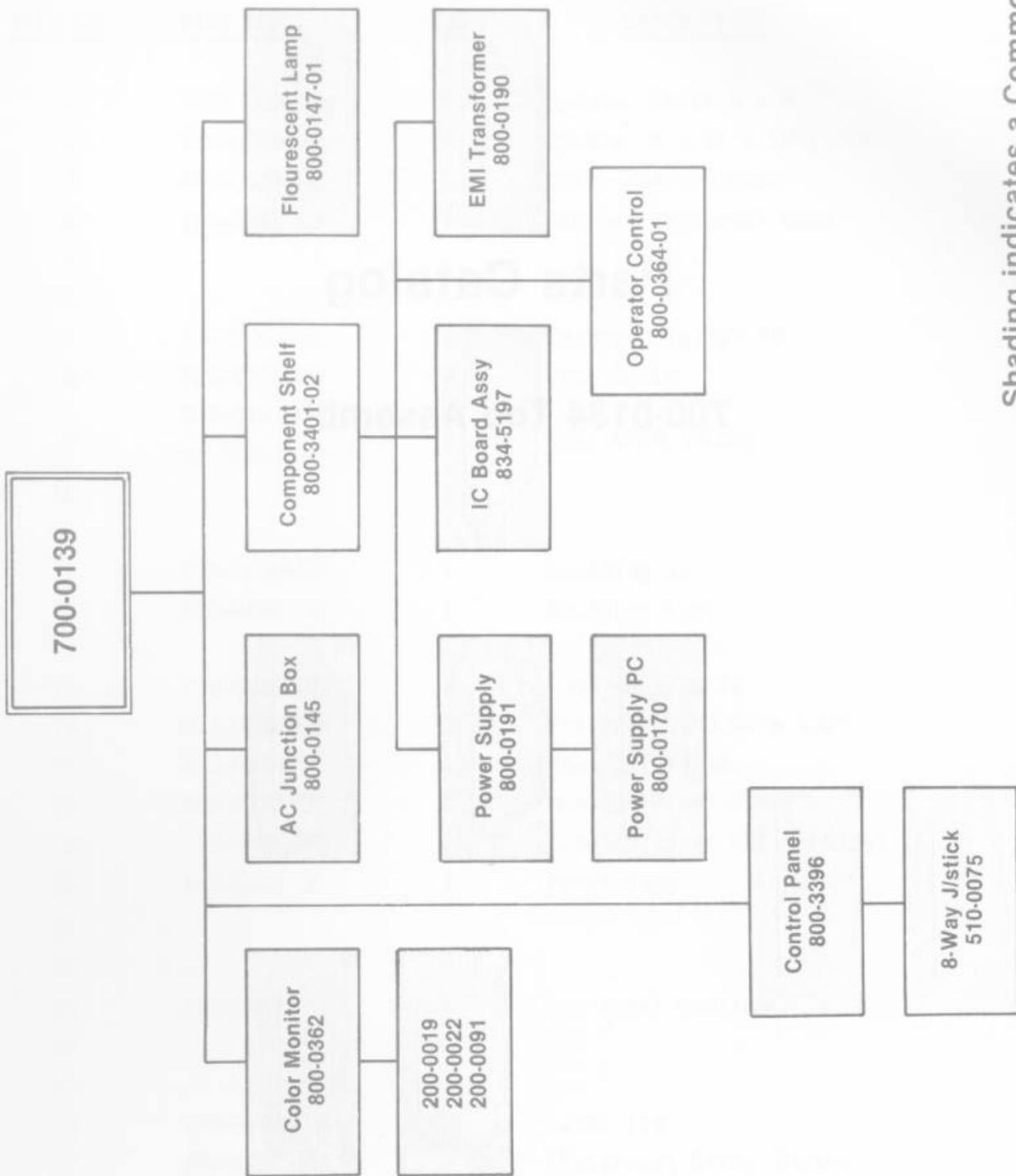
# Assembly Organization



Shading indicates a Common Assembly

Shading indicates a Common Assembly





Shading indicates a Common Assembly

# **Parts Catalog**

**700-0134 Top Assembly**

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY.</u>	<u>REQD.</u>	<u>DESCRIPTION</u>
1	130-0002-00	1		Speaker Cover 6 x 9
2	130-0020-00	1		Speaker 6 x 9, 8 OHM, 10W
3	140-0021-00	1		Cover Junction Box
4	140-0055-03	1		Cabinet Universal Game
5				
6				
7	220-0008-00	1		Counter Digital 6V
8	220-0178-00	2		Draw Catch
	220-0194-00			
9	or 220-0195-00	2		Coin MECH W/Lamp
10				
11				
12	250-0038-00	1		Moulding Strip
13	250-0492-00	1		Moulding Logo
14				
15	253-0222-00	2		Coin Receptacle
16	253-0238-00	1		Plastic Bag 3.00 x 4.00
17	253-0254-00	1		Mask CRT 19 IN.
18	253-0228-00	1		Monitor Panel Clear
19	253-0284-00	1		Bezel Plastic CRT Vertical
20	253-0328-00	1		Panel logo
21				
22				
23	260-0001-00	1		Fan Axial Cooling
24				
25				
26	280-0005-00	40		Cable Tie
27	280-0362-00	2		Electrical Crimp Sleeve
28	280-0475-00	30		Staple
29	280-0495-00	1		Spring, CPRSN .360 OD
30				

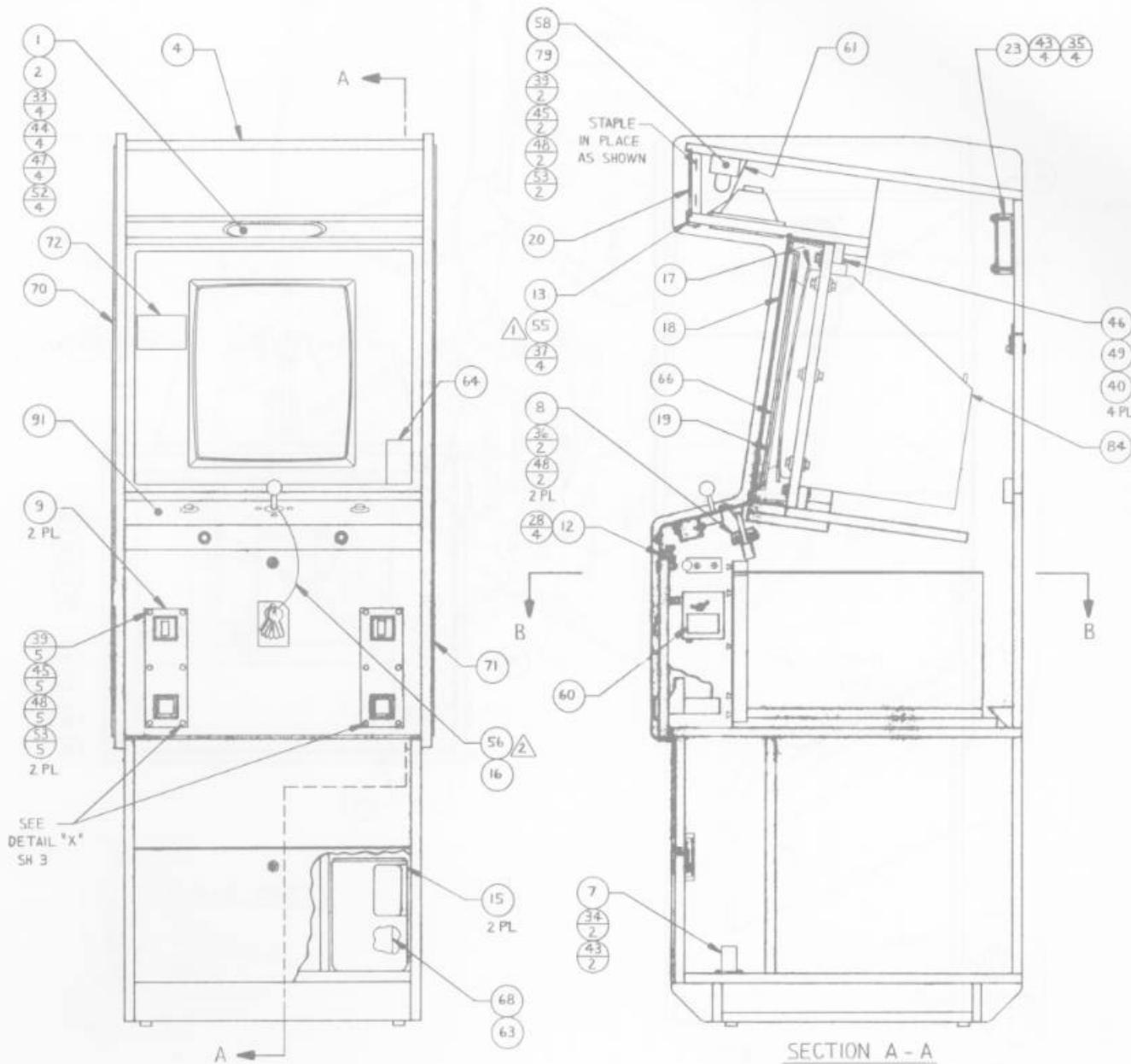
<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY.</u>	<u>REQD.</u>	<u>DESCRIPTION</u>
31	281-0004-12	1		SCR 8-32 x .750 PN HD PHIL MACH
32	281-0006-08	4		SCR 10-32 x .500 PN HD PHIL MACH
33	281-0014-28	4		SCR 8-32 x 1.75 OVH PHIL MACH
34	281-0042-12	2		SCR 6-20 x .750 PN HD PHIL Sheet Metal Type AB
35	281-0042-32	4		SCR 6-20 x 2.00 PN HD PHIL Sheet Metal Type AB
36	281-0045-12	15		SCR 10-16 x .750 PN HD PHIL Sheet Metal Type AB
37	281-0134-12	4		SCR 8-18 x .750 PN HD PHIL Sheet Metal Type AB, Black
38	283-0062-05	1		Washer #8 Lock INT Tooth
39	282-0005-20	14		Bolt 10-24 x 1.25 CRG HD, MACH, Black
40	282-0017-24	4		Bolt 1/4-20 x 1.50 HEX HD MACH
41	283-0060-23	1		Washer #8 Flat, STL, Wide
42	283-0060-24	2		Washer #10 Flat, STL, Narrow
43	283-0060-18	6		Washer #6 Flat, STL, Narrow
44	283-0060-22	5		Washer #8 Flat, STL REG
45	283-0060-25	26		Washer #10 Flat, STL, REG
46	283-0060-34	4		Washer # 1/4 Flat, STL, LGE
47	283-0061-05	4		Washer #8 Lock, Split, STL
48	283-0061-06	33		Washer #1- Lock, Split, STL
49	283-0061-08	4		Washer # 1/4 Lock, Split, STL
50	283-0072-16	1		Nut 10-32 HEX MACH
51	283-0071-14	1		Nut 10-24 Wing, STL, MACH
52	283-0072-13	5		Nut 8-32 HEX, MACH
53	283-0072-15	14		Nut 10-24 HEX, MACH
54	289-0002-02	2		Cable Clamp .250 Nylon
55	320-0020-00	2		Sealant Foam
56	320-0051-00	1'		Tie Ribbon Wire Plastic Coated
57				

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY.</u>	<u>REQD.</u>	<u>DESCRIPTION</u>
58	390-0019-00	1		Lamp Fluorescent
59				
60	420-0030-00	1		Decal Caution 115V
61	420-0624-00	1		Light Baffle
62	420-0793-00	1		Decal Toll Free No.
63	420-0912-00	1		Decal FCC Rules Compliance
64	420-0914-07	1		Decal Original Game Seal
65	420-0917-00	1		Decal FCC Warning
66	420-0977-00	1		Graphic Interior
67	420-0978-00	1		Decal, Box
68	420-0979-00	1		Manual
69	420-0982-0	1		Decal Dip SW Settings
70	420-0993-00	1		Graphic Side Right
71	420-0994-00	1		Graphic Side Left
72	420-1007-00	1		Decal Game Instructions
73				
74				
75				
76				
77				
78	800-0145-00	1		Assy. AC Junction Box
79	800-0147-01	1		Fluorescent Lamp Assy. 2 UL
80	800-0232-00	1		Assy. Harn. GND
81	800-0322-00	1		Assy. Cord Fan
82	800-0329-00	1		Assy. Harn. Monitor AC
83	800-0330-00	1		Assy. Harn. GND Monitor
84	800-0362-00	1		Assy. Monitor CLR Vertical
85	800-0370-00	1		GND Strap
86	800-0371-00	1		Assy. Speaker Harn.
87	800-0372-00	1		Harn. Coin MECH
88	800-0423-06	1		Assy. GND Strap

## TOP ASSEMBLY

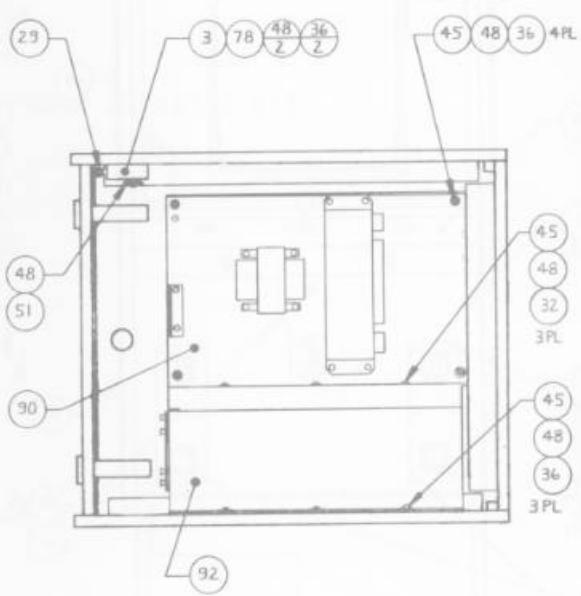
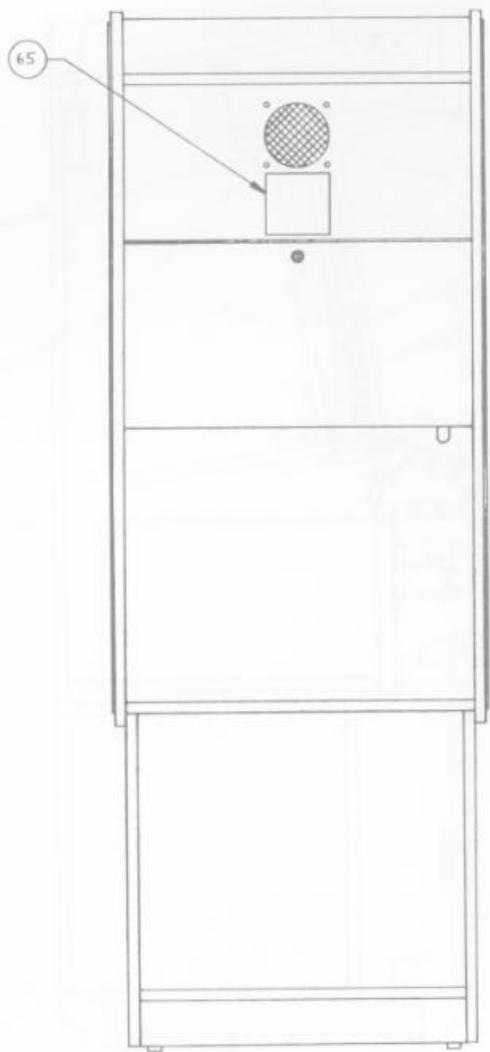
DRAWING NUMBER 700-0134

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY.</u>	<u>REQD.</u>	<u>DESCRIPTION</u>
89	800-0423-07	1		Assy. GND Strap
90	800-0477-00	1		Assy. Ground Plane
91	800-3396-00	1		Control Panel Assy.
92	800-3397-00	1		Assy. Game Electronics
93	800-3399-00	1		Master Harn. Assy.
94	800-0478-00	1		Power Harn. Assy.



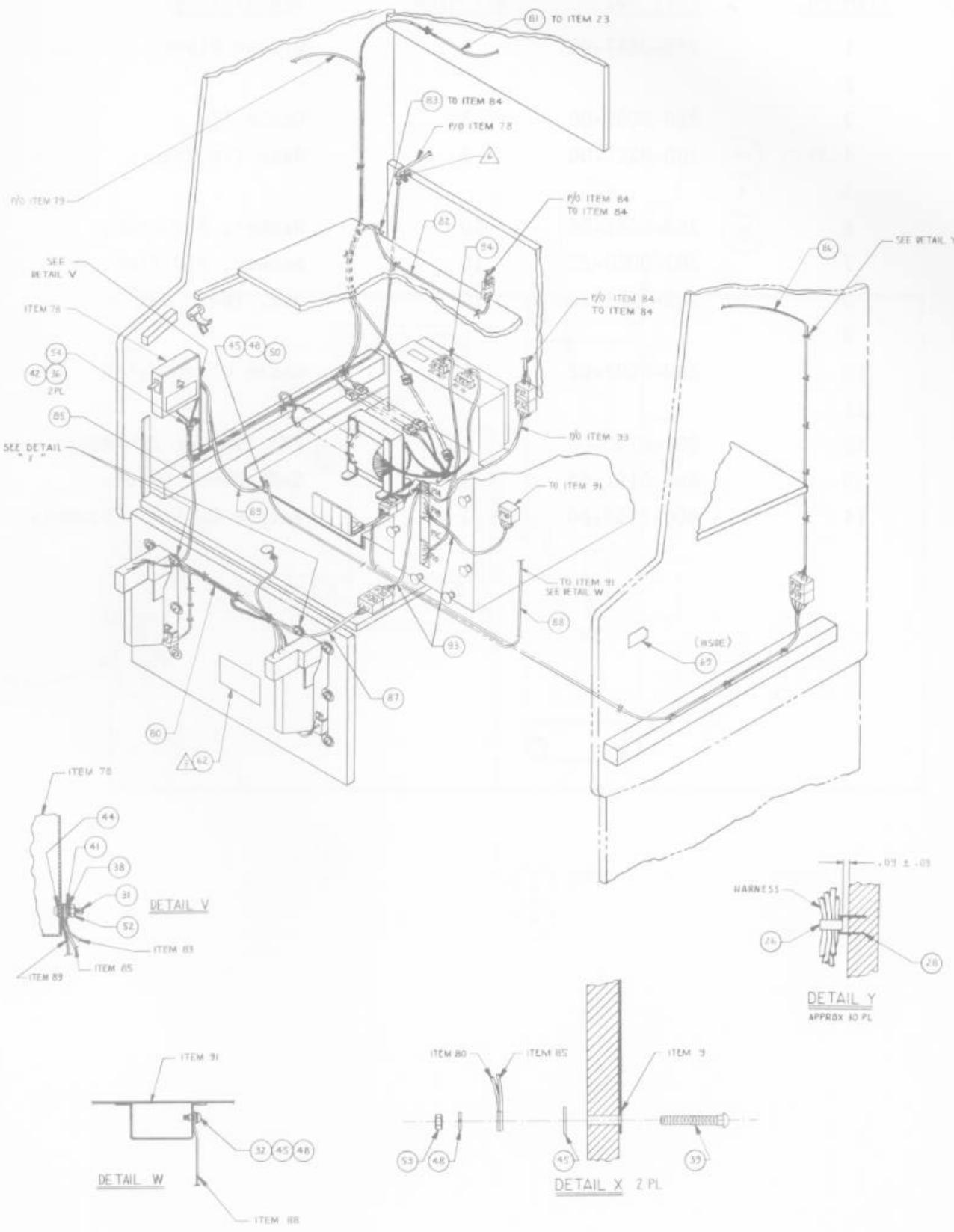
## Top Assembly

700-0134



## Top Assembly

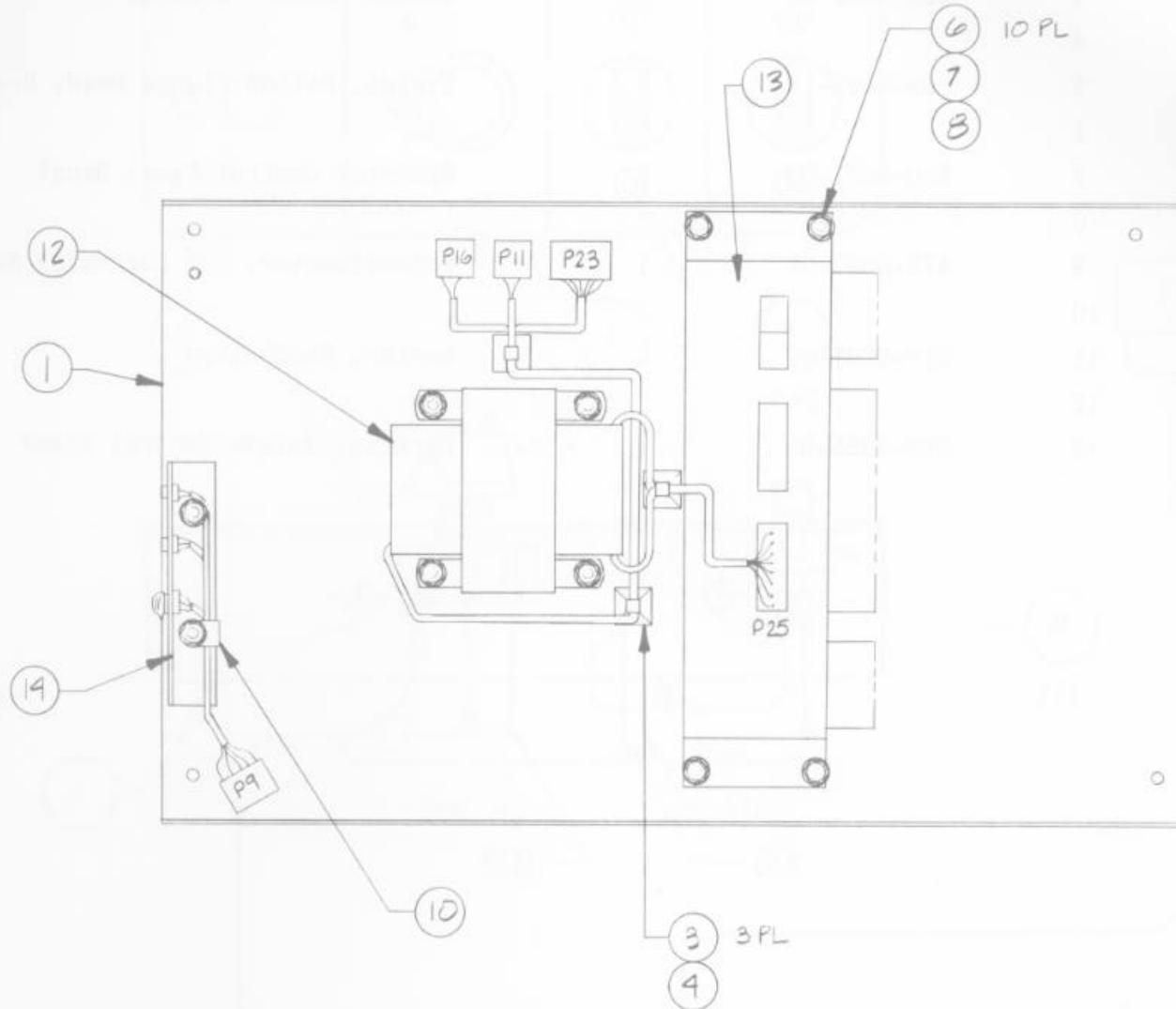
700-0134



## GROUND PLANE ASSEMBLY

DRAWING NUMBER 800-0477

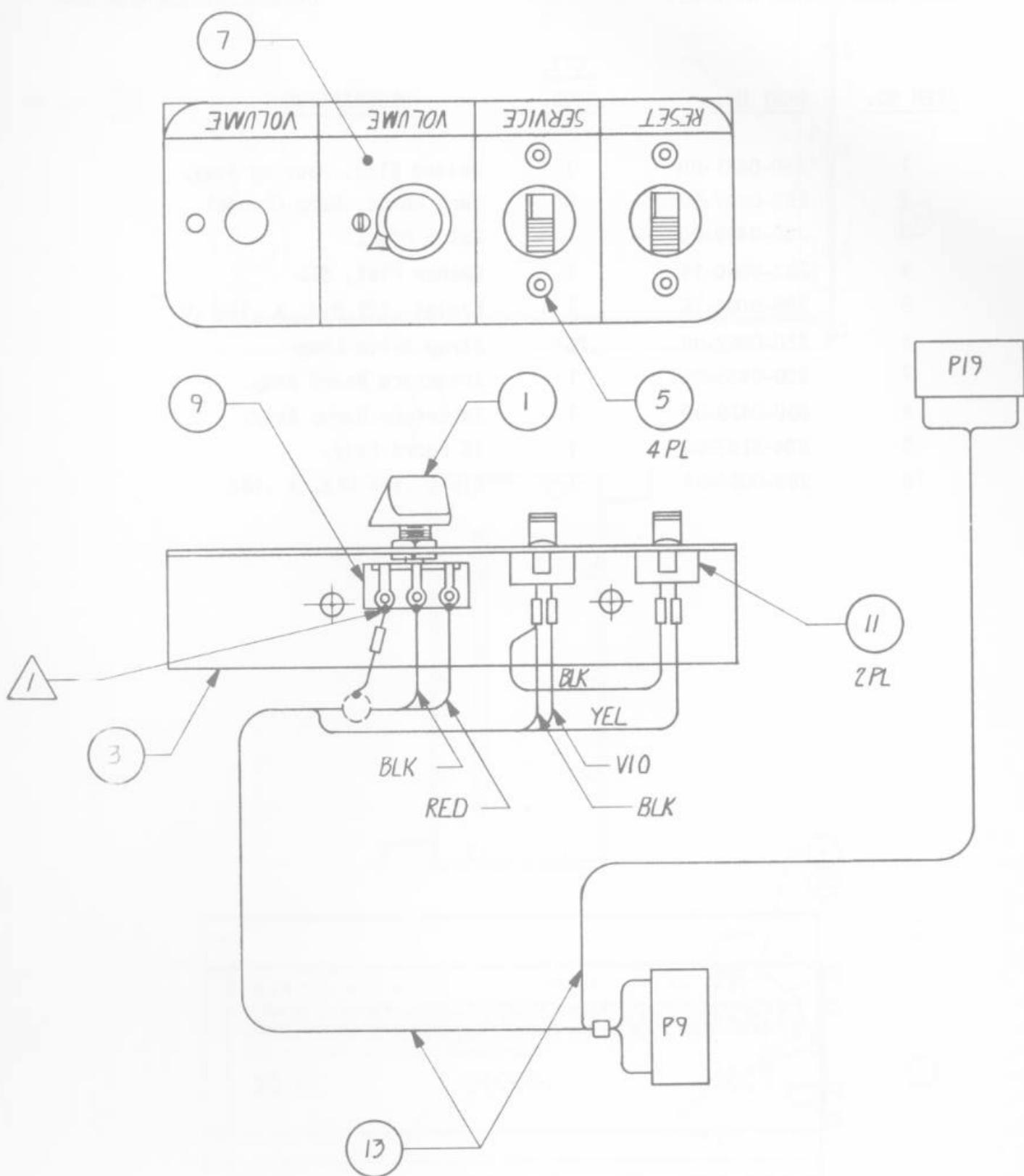
<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY REQD.</u>	<u>DESCRIPTION</u>
1	250-0647-00	1	Ground Plane
2			
3	280-0005-00	3	Cable Tie
4	280-0327-00	3	Base Tie Wrap
5			
6	283-0061-06	10	Washer, #10 Lock.
7	283-0060-25	10	Washer, #10 Flat
8	283-0072-16	10	Nut, 10-32 Hex
9			
10	289-0002-02	1	Cable Clamp Nylon
11			
12	800-0190-00	1	EMI Xformer Assembly
13	800-0191-04	1	G-80 Power Supply
14	800-3350-00	1	Volume Control Assembly



## VOLUME CONTROL BLOCK ASSEMBLY

DRAWING NUMBER 800-3350

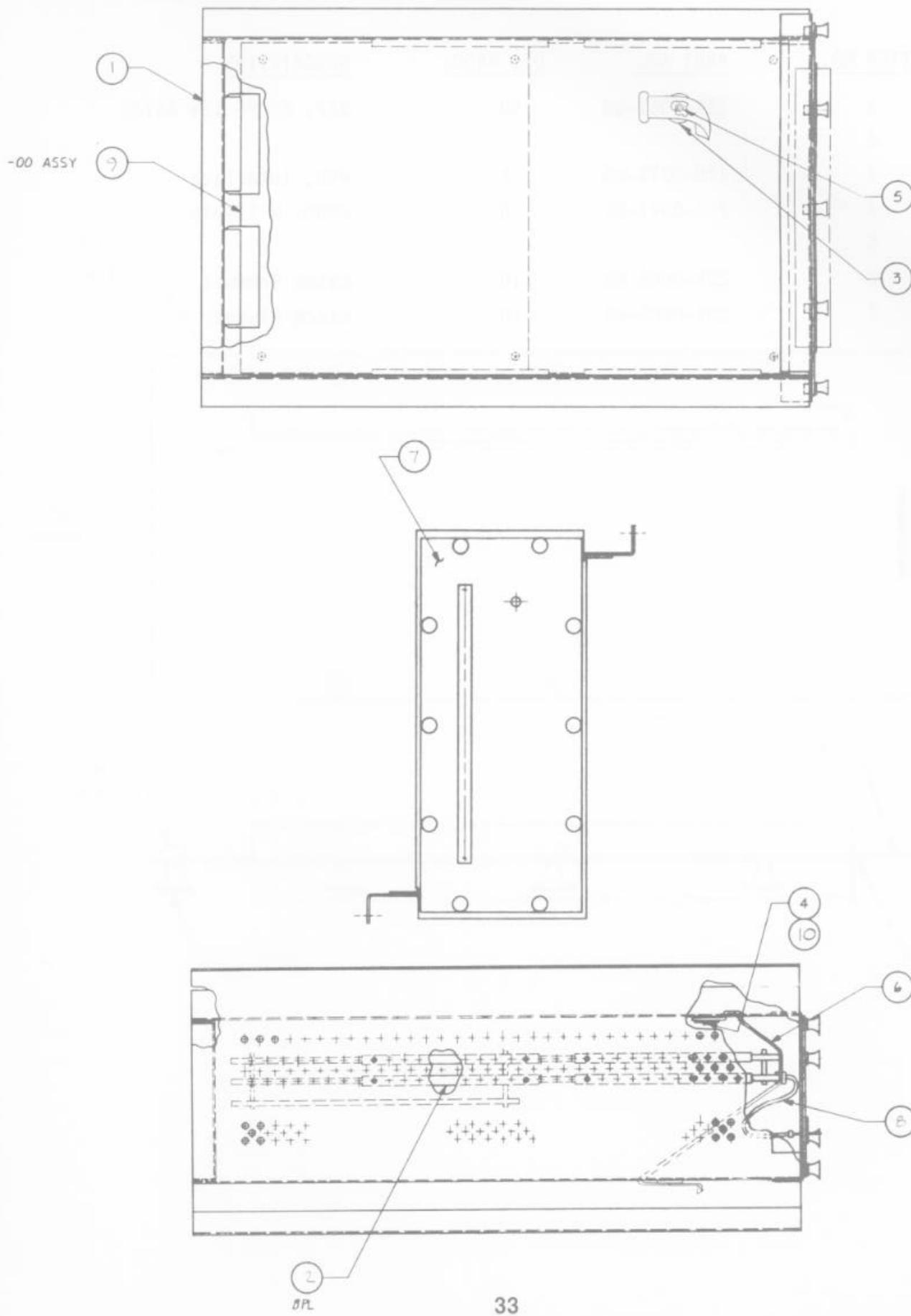
<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY REQD.</u>	<u>DESCRIPTION</u>
1	240-0001-00	1	Volume Control Knob
2			
3	250-0462-00	1	Volume Control Bracket
4			
5	289-0003-18	4	Eyelet, Rolled Flange Head, Brass
6			
7	420-0623-00	1	Operator Control Panel Decal
8			
9	475-0007-00	1	Potentiometer, 10K Car Panel Mnt.
10			
11	510-0051-00	2	Switch, Pushbutton
12			
13	800-3355-00	1	Harness, Volume Control Block



## GAME ELECTRONICS ASSEMBLY

DRAWING NUMBER 800-3397

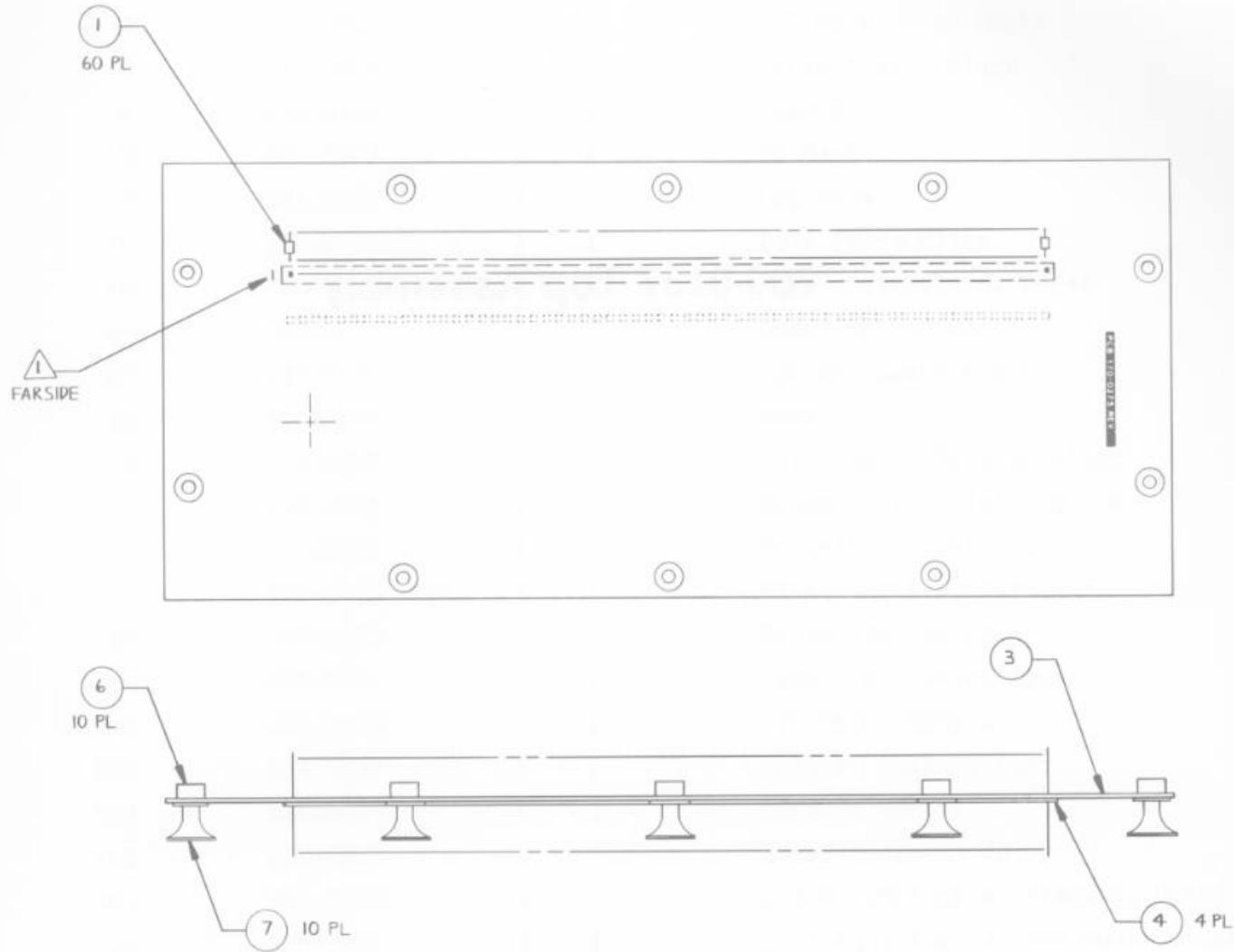
<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY.</u>	<u>REQD.</u>	<u>DESCRIPTION</u>
1	250-0621-00	1		Welded Elec. Housing Assy.
2	253-0309-00	8		Card Guide, Deep Channel
3	280-0499-00	1		Velco Disc.
4	283-0060-14	1		Washer Flat, STL
5	289-0003-16	1		Eyelet .121 Dia. x .187 LG
6	320-0062-00	.75'		Strap Velco Loop
7	800-0435-00	1		Interface Board Assy.
8	800-0479-00	1		Interface Harn. Assy.
9	834-5197-00	1		IC Board Assy.
10	283-0064-04	1		Rivet .125 Dia. x .187



## INTERFACE BOARD ASSEMBLY

DRAWING NUMBER 800-0435

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY REQD.</u>	<u>DESCRIPTION</u>
1	151-0061-00	60	CAP, 220PF 16V AXIAL
2			
3	170-0275-00	1	PCB, Interface
4	212-0021-00	6	CONN. M 10-pin
5			
6	289-0005-05	10	Latch Grommet
7	289-0005-06	10	Latch Plunger



**700-0137 Top Assembly**

ITEM NO.	PART NO.	QTY REQD.		DESCRIPTION
		-00	-01	
1	834-0327	1	1	T8 Cabinet Accessory Assy
2	220-0190	2	2	Lower Coin Chute
3	601-0662	1	1	CRT Mask, Grey Smoke
4	275-0078	1	1	Table Glass, Black
5	220-0191	1	1	Cash Box
8	601-0663	1	1	TV Mask
9	601-0664	2	2	Leg Assy
15	117-0169	1	1	Coin Entry Plate
16	420-1010	1	1	Play Instructions Decal
20	420-0755	1	1	Denomination Decal
22	117-0170	1	1	Speaker Guard Plate
23	601-0542	1	1	Hook
25	220-0084	2	2	Coin Chute, Rejector-type
30	117-0202	1	1	Denomination Plate, 25¢ X 2
	117-0171	1	1	Denomination Plate, 25¢
31	834-0125	1	1	Cable and Plug Assy
32	240-0120	2	2	Reject Button Assy
39	834-5165	1	1	Game Electronics Assy
40	200-0039	1	1	19" Color Monitor
102	509-0039	1	1	Switch, Push Button
103	420-0379	1	1	Owner's Manual
106	130-0017	1	1	Speaker, 8ohm, 3W
107	601-0444	1	1	C & R Combination Element, 0.1uf
108	509-0117	1	1	Switch, Illum. Yellow Push Button
109	601-0429	1	1	Noise Filter, AC 250V, 4A
111	420-1008	1	1	Volume Control Decal
	420-0982	1	1	DIP Switch Decal
	420-0914-07	1	1	Game Seal Decal
	420-0912	1	1	FCC Compliance Decal
	117-0234	1	1	Control Panel Overlay
	117-0204	-	1	8-Way Guide Plate
	250-0656	-	1	Bracket (WF-0001X)
	250-0657	-	1	Bracket (WF-0002)

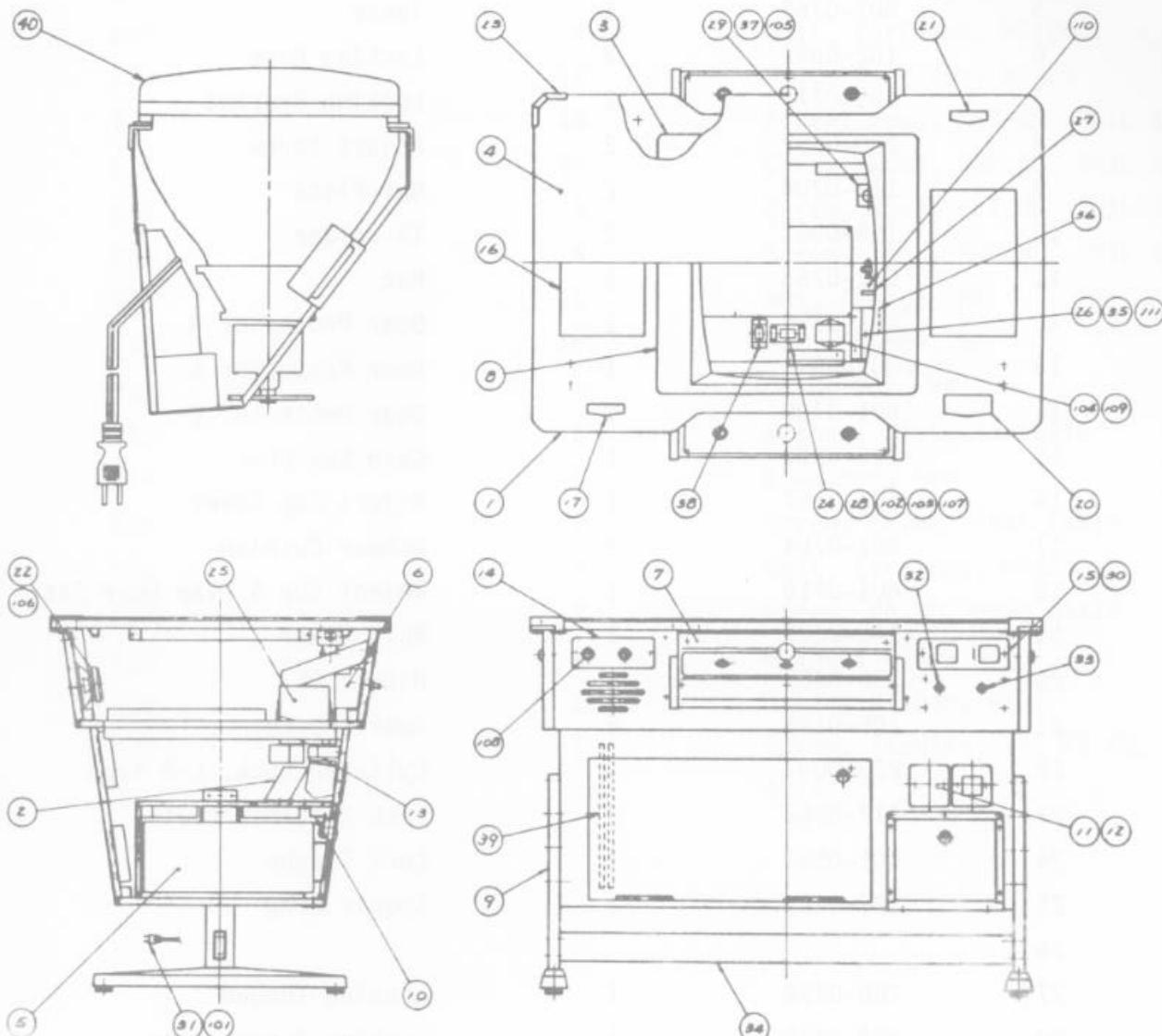
## TOP ASSEMBLY

DRAWING NUMBER 700-0137

ITEM NO.	PART NO.	QTY REQD.		DESCRIPTION
		-00	-01	
250-0658		-	1	Bracket (WF-0003)
283-0072-07		6	-	Nut, 4-40 Hex
283-0060-13		6	-	Washer, #4 Flat
283-0061-02		6	-	Washer, #4 Lock
211-0173-00		6	-	Shorting Clip

## Top Assembly

700-0137



## T8 CABINET ACCESSORY ASSEMBLY

DRAWING NUMBER 834-0327

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY REQD.</u>	<u>DESCRIPTION</u>
1	140-0074	1	Wooden Cabinet, T8
2	601-0761	1	Service Door
3	280-0451	2	Hinge, 95
4	105-0275	2	Cabinet Support Bracket
5	601-0762	1	Table
6	102-0047	2	Locking Base
7	105-0276	2	Locking Bracket
8	280-0452	2	Adjust Screw
9	117-0200	2	Nut Plate
10	109-0057	2	TV Holder
11	601-0763	1	Net
12	601-0698	1	Door Protector A
13	601-0699	1	Door Protector B
14	601-0700	1	Door Protector C
15	220-0204	1	Cash Box Door
16	601-0657	1	Reject Cup Cover
17	601-0764	2	Rubber Cushion
18	601-0416	1	Reject Cup & Flap Door Assy
19	140-0075	2	Hole Cover
20	280-0405	2	Hinge, 95
21	105-0198	4	Hook Bracket
22	220-0097	1	Cylinder Lock, L-S type
23	117-0062	3	Lock Retainer Plate
24	601-0587	1	Lock Tongue
25	280-0453	1	Spacer Ring
26			
27	280-0454	1	Locking Tongue
28	834-0328	1	Locking Tongue Assy
29			
30	109-0058	1	Stay Holder
31	280-0463	2	Locking Tongue
32			
33	117-0201	1	Guard Plate

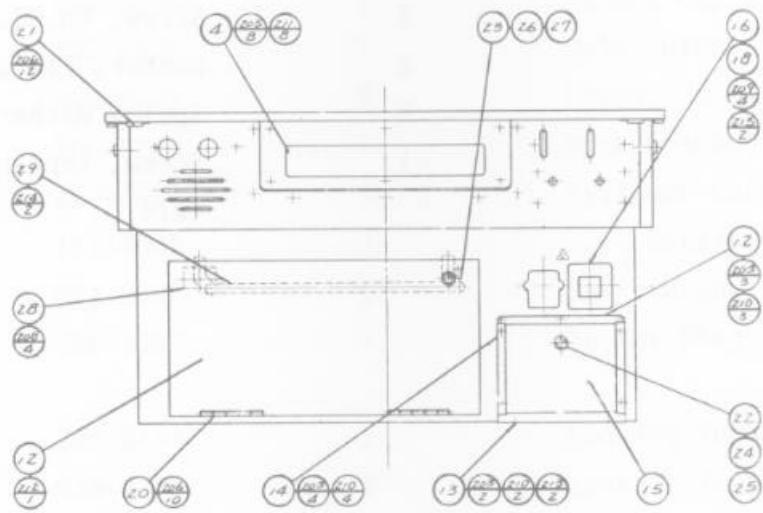
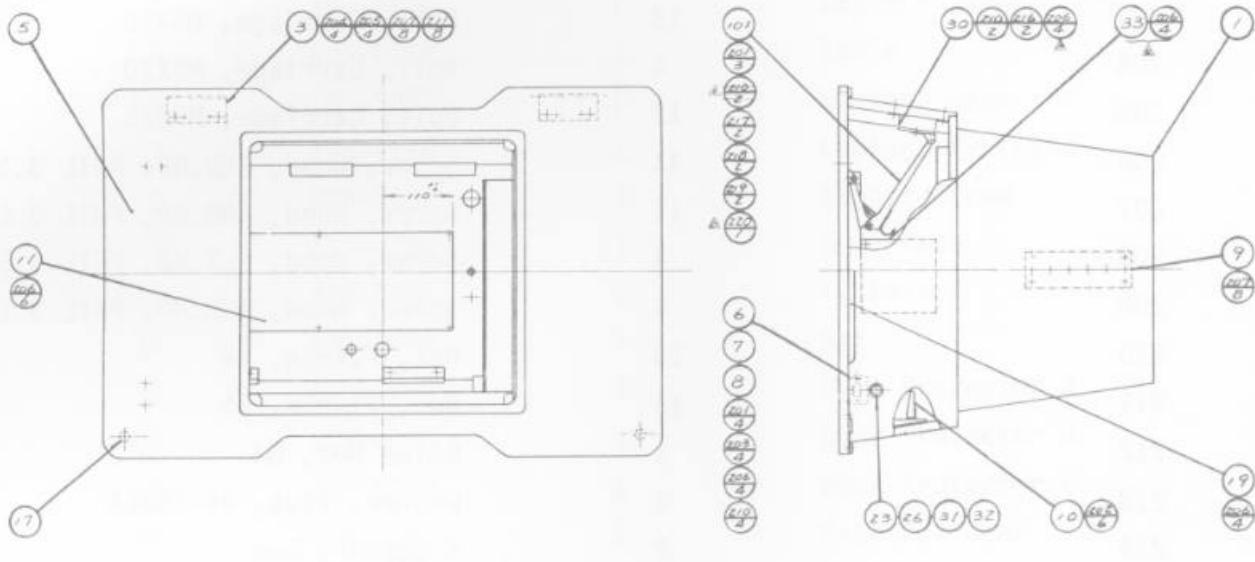
## T8 CABINET ACCESSORY ASSEMBLY

DRAWING NUMBER 834-0327

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY REQD.</u>	<u>DESCRIPTION</u>
101	601-0765	1	Stay
201		7	Screw, M4X10 PN.HD. PHIL
202		6	Screw, M5X10 PN.HD. PHIL
203		13	Bolt, Carriage, M4X20
204		4	Bolt, Carriage, M5X20
205		12	Bolt, Carriage, M5X25
206		44	Screw, Wood, RND.HD. PHIL 3.5X13
207		16	Screw, Wood, RND.HD. PHIL 3.5X16
208		4	Screw, Wood, FLT.HD. PHIL 3.5X13
209		4	Screw, Wood, RND.HD. PHIL 3.1X13
210		15	Nut, Flange, M4
211		16	Nut, Flange, M5
212		1	Onime Nut, M4
213		2	Washer, Flat, 44-16X16
214		2	E Washer, 5mm
215		2	Screw, PN.HD. PHIL M3X14
216		2	Bolt, Carriage, M4X25
217		2	Screw, PN.HD. PHIL M4X18
218		2	Washer, Flat, M4
219		2	Spring Washer, M4
220		1	Screw, Tapping, #1, PN.HD. PHIL 4X14

## T8 Cabinet Accessory Assembly

834-0327



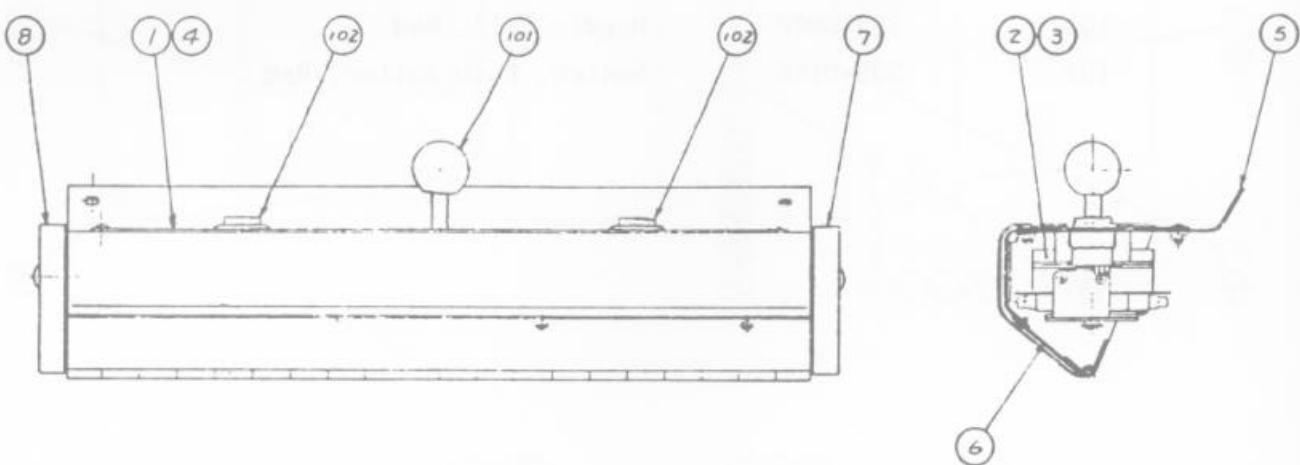
## CONTROL PANEL ASSEMBLY

DRAWING NUMBER 834-0330

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	117-0203	Control Panel Plate
2	834-0331	8-Way Joystick Assembly
3	117-0164	Slider Plate
4		
5	102-0048	Control Panel Base, Upper
6	102-0049	Control Panel Base, Lower
7	601-0766	Ornament Board, A
8	601-0767	Ornament Board, B
101	109-0042	Handle Ball, Red
102	509-0146	Switch, Push Button, Red

# Control Panel Assembly

834-0330



## 8-WAY JOYSTICK ASSEMBLY

DRAWING NUMBER 834-0031

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	105-0277	Bracket
2	117-0204	Guide Plate, 8-Way
3	834-0332	Handle Assembly
4	601-0768	Sleeve
5	125-0102	Compression Spring
6	104-0007	Actuator
7	834-0333	Bracket w/Bearing Assembly
8		
9	117-0164	Slider Plate
10	280-0455	Plastic Washer
101	509-0131	Switch, Micro-type