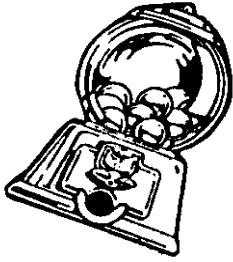
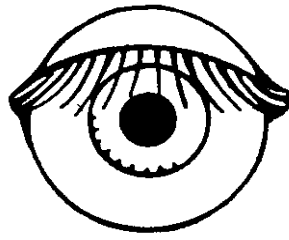


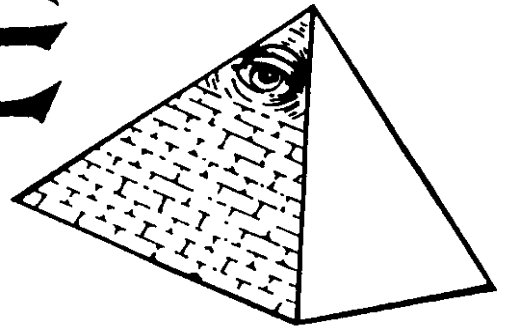
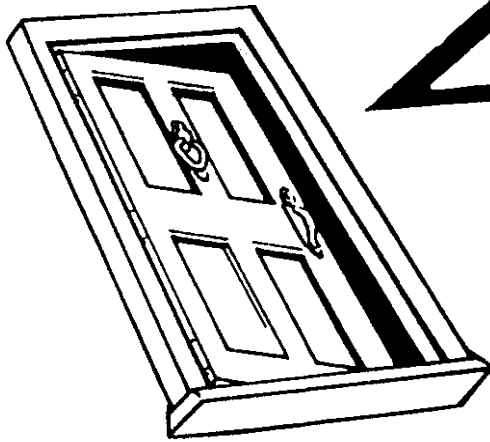
Bally®

April 1993  
16-50020-103



$E=mc^2$

# TWILIGHT ZONE



## Operators Handbook

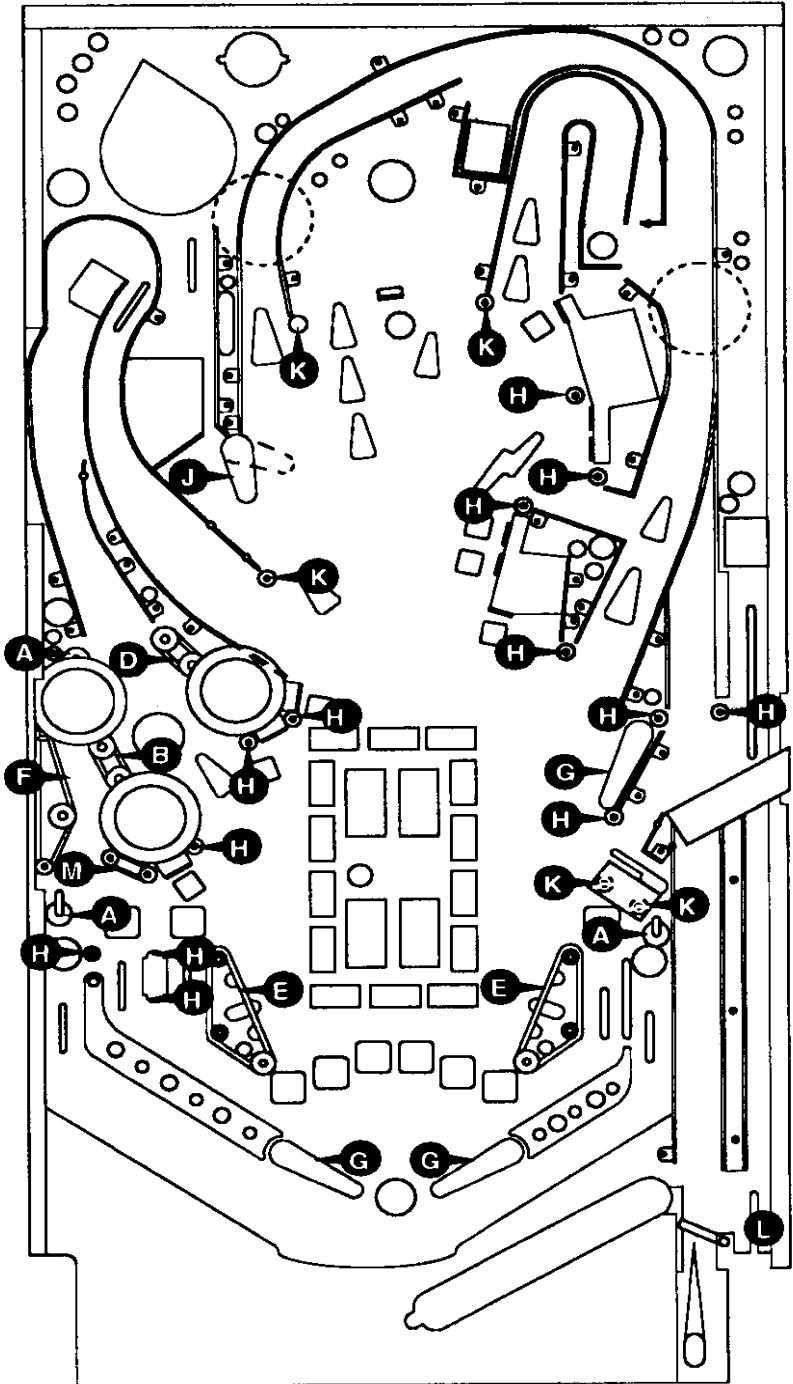
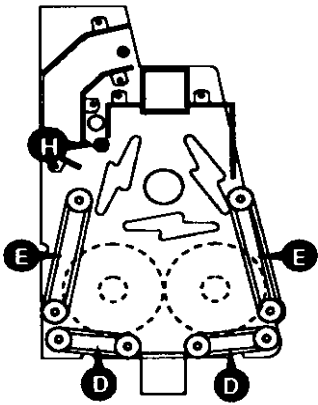
Midway Manufacturing Company  
3401 North California Avenue  
Chicago, Illinois 60618

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# RUBBER PARTS

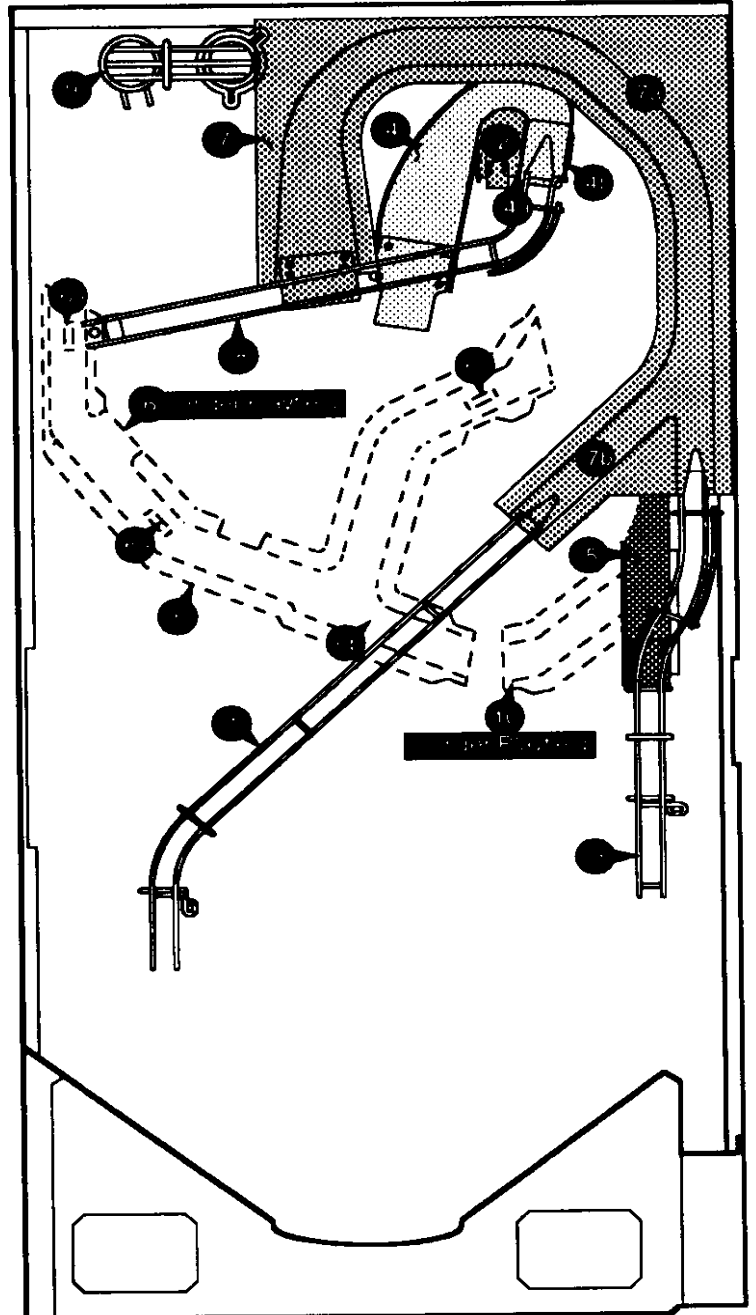
ITEM	PART NO.	QTY	DESCRIPTION
A.	23-6300	6	5/16" Rubber Ring
B.	23-6301	4	3/4" Rubber Ring
C.	23-6302	2	1" Rubber Ring
D.	23-6303	2	1 1/4" Rubber Ring
E.	23-6305	4	2" Rubber Ring
F.	23-6306	2	2 1/2" Rubber Ring
G.	23-6519-4	3	Flipper Rubber, Red
H.	23-6535	15	Bumper
J.	23-6553-4	1	Small Flipper Rubber, Red
K.	23-6556	5	Rubber Sleeve, Black
L.	23-6327	1	Shooter Tip
M.	23-6599	4	7/16" Rubber Ring
N.	23-6686	3	*Round Bumper Pad



\* Not shown

# RAMPS

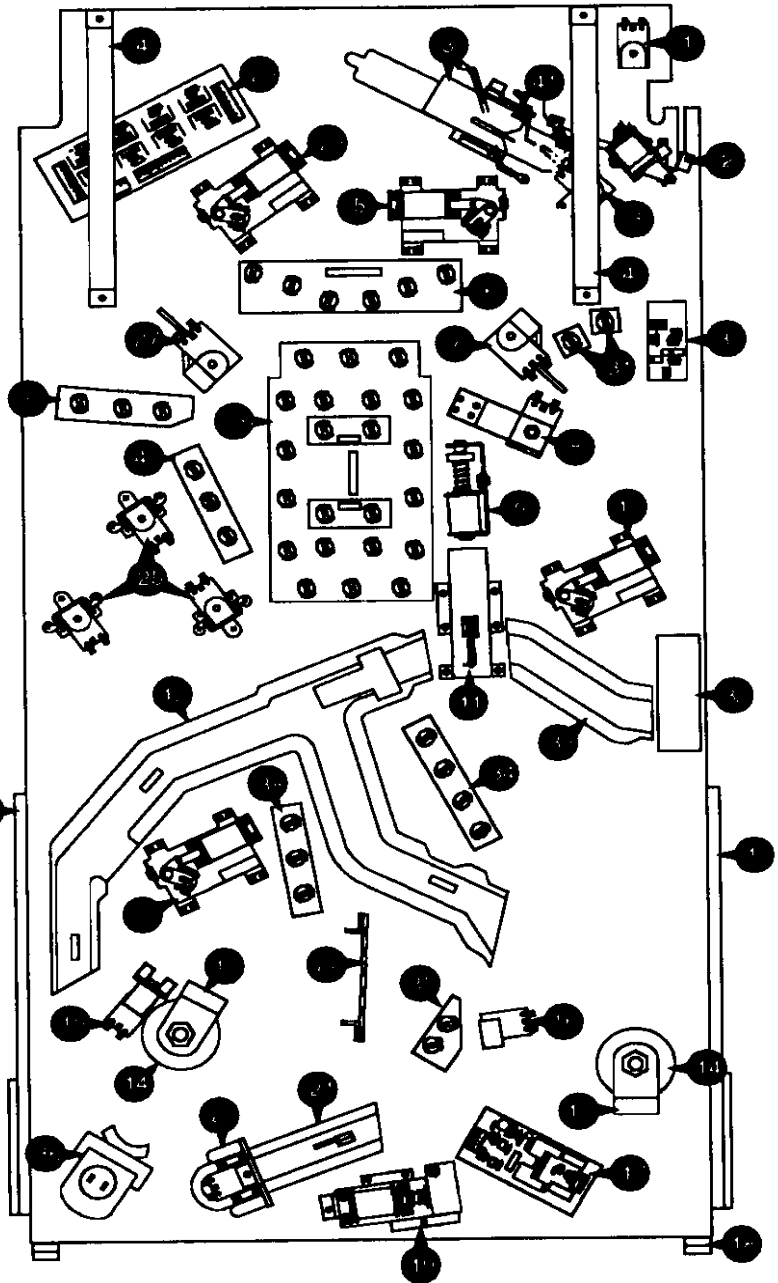
Item	Part Number	Part Number
1.	A-16059	Cross-Over Chute Assy.
2.	A-16164	Lock-Up Ramp Assembly
3.	A-16056	Right Chute Assembly
4.	A-16062	Center Ramp & Opto's Assy.
a)	03-8506	Opto Mtg. Base - Black
b)	03-8506-1	Opto Mtg. Base - White
5.	A-16174	Shooter Ramp Assembly
6.	A-16133	Main Chute Ass. (Under plfd.)
a)	5647-12693-13	Miniature Switch ( 3 used)
b)	A-16535	Ramp Prox Opto Sensor PCB
7.	A-16060	Main Ramp Assembly
a)	5647-12693-21	Miniature Switch
b)	A-13827-2	Switch Gate Assembly
8.	12-7104	Mini-Feed Wire Chute
9.	A-16058	Mini-Inside Wire Chute Assy.
10.	03-8826	Small Chute Assy. (Under plfd.)



# LOWER PLAYFIELD PARTS

*Underside of Playfield, Viewed In Raised Position*

Item	Part Number	Part Number
1.	A-16713	Metal Kicker
	A-16647	Coil & Bracket Assembly
2.	A-16338	Shooter Diverter Assembly
3.	C-9638	Multiball Eject Assembly
	10-128	Spring
	A-16766	Coil & Bracket Assembly
4.	01-10523	Safety Bracket (2 Used)
5.	A-15205-R-4	Lower Right Flipper Assembly
6.	A-16328	6-Lamp Board
7.	B-12665	Kicker Arm (Slingshot) Assy., Right
	A-16645-R	Coil & Bracket Assembly
8.	A-16713	Kicker Assembly V-Pad
	A-16647	Coil & Bracket Assembly
9.	A-16434	Kicker Assembly
10.	A-15205-R-3	Upper Right Flipper Assembly
11.	A-16381	Right Deflector Assembly
12.	A-16133	Main Chute Assembly
13.	A-16460	Bracket & Nut Assembly (2 used)
14.	20-9247	Coil Magnet (2 used)
15.	A-16737-2	Pfkd. Slide Mechanism, Right
16.	A-16307	Eject Assembly
17.	A-16120	D.C. Motor Assembly
18.	01-10726	Rear Guide Leg (2 used)
19.	A-16313	Rear Diverter Assembly
20.	A-16312	Ball Popper Assembly
21.	A-16216	Rear Trough Assembly
22.	A-16807	10-Switch Opto PC Board
23.	A-15205-L-1	Upper Left Flipper Assembly
24.	A-16637-1	Pfkd. Slide Mechanism, Left
25.	A-9415-2	Jet Bumper Coil Assembly (3 used)
	B-12030-2	Switch & Diode Assembly (3 used)
26.	A-16327	19-Lamp Board Assy.
27.	B-12665	Kicker Arm (Slingshot) Assy., Left
	A-16645-L	Coil & Bracket Assembly
28.	A-15205-L-4	Lower Left Flipper Assembly
29.	A-16116	8-High Power Driver PC Board
30.	C-11615	Micro-Switch Plate Assembly
31.	B-12224	Single Lamp Board
32.	A-16119	Right Deflector
33.	03-8826	Small Chute Assembly
34.	A-16514	4-Lamp Board
35.	A-16515	3-Lamp Board
36.	A-16132	Gumball Machine Assembly
37.	A-16516	3-Lamp Board
38.	A-16329	3-Lamp Board
39.	A-16534	Prox Opto Sensor Assembly
40.	A-16517	3-Lamp Board
41.	A-16533	Ball Sensor Assembly

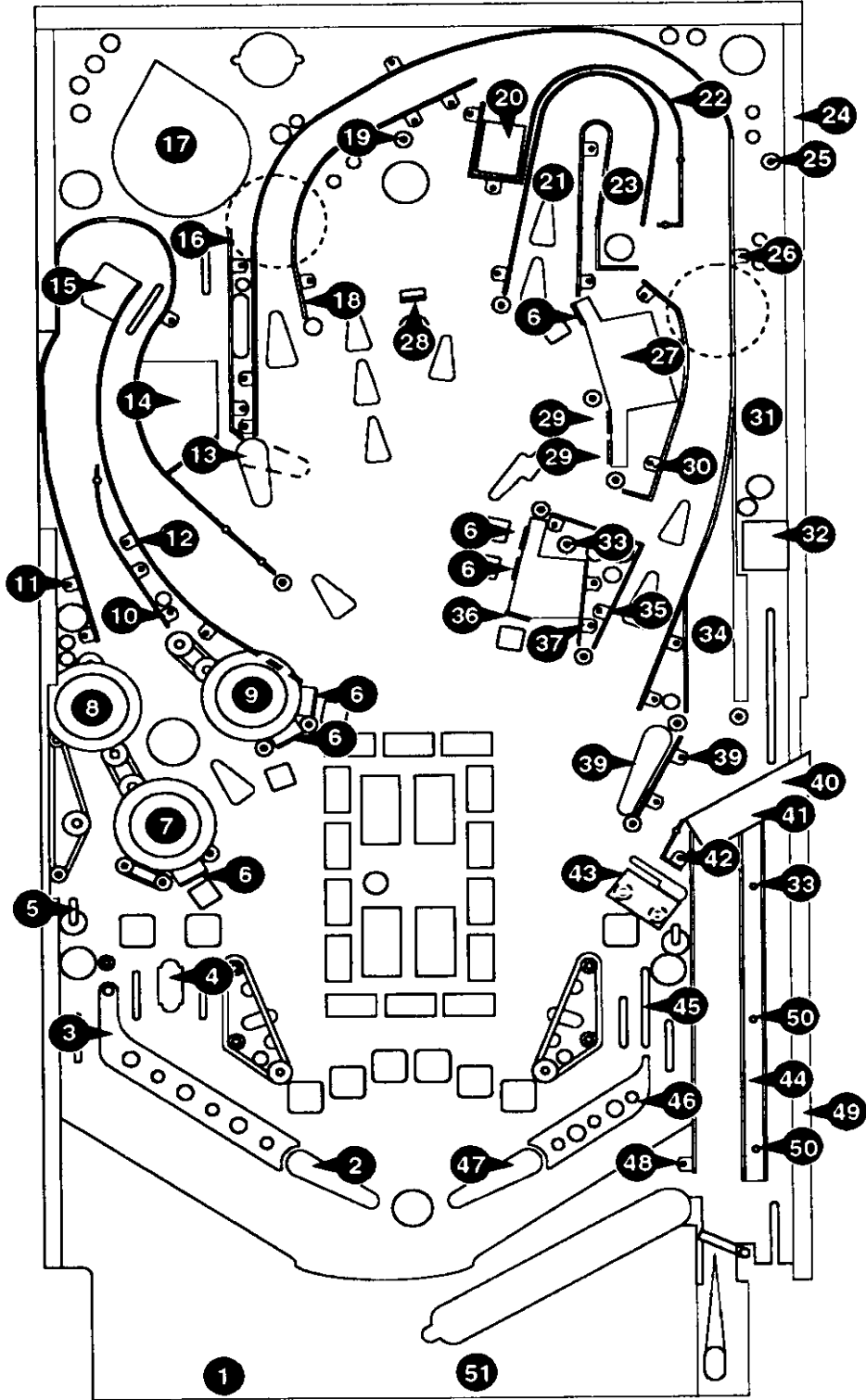


## UPPER PLAYFIELD PARTS LIST

<b>Item</b>	<b>Part Number</b>	<b>Description</b>	<b>Not Shown:</b>
1	01-11401	Playfield Hanger Brackets (2)	A-13204-50020 Bottom Arch Assembly
2	20-9250-6	Flipper & Shaft, Yellow	A-13769-50020 Screened Playfield
3	A-16203-2	Flipper Ball Guide Assy., Left	A-14632-2 Mounting Brkt. Clamp Assy. 1/2"
4	03-8318-16	Double Light Hood, Yellow	A-14632-3 Mounting Brkt. Clamp Assy. 3/4"
5	01-9510	#8 Post Adjustment Plate (2)	A-14632-4 Mounting Brkt. Clamp Assy. 1"
6	A-14691-6	Standup Target, Yellow	A-16513 Bridge Diverter Gate
7	03-8254-16	Jet Bumper Cap, Yellow	A-16651-1 Playfield Plastic Assembly
	B-9414-3	Jet Bumper Assembly	A-16651-2 Playfield Plastic Assembly
	A-12753-2	Lug & Diode Assembly	A-16651-3 Playfield Plastic Assembly
8	03-8254-9	Jet Bumper Cap, Red	A-16651-4 Playfield Plastic Assembly
	B-9414-3	Jet Bumper Assembly	A-16651-5 Playfield Plastic Assembly
	A-12753-2	Lug & Diode Assembly	A-16651-6 Playfield Plastic Assembly
9	03-8254-8	Jet Bumper Cap, Amber	A-16651-7 Playfield Plastic Assembly
	B-9414-3	Jet Bumper Assembly	A-16651-8 Playfield Plastic Assembly
	A-12753-2	Lug & Diode Assembly	A-8645 Wire Form & Bracket Assembly
10	A-16185	Ball Guide Assembly	B-8623 Runway Ball Guide w/Baffle
11	A-16186	Ball Guide Assembly	01-3569-1 Ball Return Runway
12	A-16184	Ball Guide Assembly	01-5575 Bottom Arch Mounting Brackets
13	20-9264-6	Small Flipper & Shaft, Yellow	01-10599 Runway Ball Guide, Long
14	01-11067	Flipper Deflector	01-10621 Strike Plate
15	01-11064	Left Deflector	01-11426 Mini-playfield Support Bracket
	01-11207	Impact Bracket	01-11427 Mini-playfield Inner Bracket
16	01-11151	Ball Guide	01-11428 Mini-playfield Outer Bracket
17	A-16132	Gumball Machine	01-11429 Mini-playfield Rear Bracket
18	01-11164	Ball Guide Assembly	01-11640 Ramp Guard Left
19	02-4611-4	Standoff 3 1/8"	01-11648 Ball Deflector
20	01-11186	Rear Deflector	01-11548 Ramp Guard Right
21	A-16164	Lock-up Ramp Assembly	02-4335-8 Standoff 1 7/16"
22	A-16785	Ball Guide Assembly	12-6542 Runway Gate Wire
23	A-16170	Lock-up Trough Assembly	31-1743 Shooter Gauge
24	A-12258-2	#8-32 Stud Plate Assembly	50020-Plastic Playfield Plastic Set
25	02-4436-10	Standoff 2 1/2"	
26	A-16796	Ball Guide Assembly	
27	A-16124	Clock Assembly	
	01-11063	Center Deflector	
28	A-15658-2	Oblong Standup Target, Green	
29	A-14691-4	Standup Target, Red	
30	A-16794	Ball Guide Assembly	
31	A-16064	Right Diverter Assembly	
32	A-16119	Right Deflector Assembly	
33	02-4611-3	Standoff 2 1/8"	
34	A-16174	Shooter Ramp Assembly	
35	01-11581	Ball Guide	
36	A-15658-6	Oblong Standup Target, Yellow	
37	01-11149	Ball Guide	
38	01-11149	Ball Guide	
39	20-9250-6	Flipper & Shaft, Yellow	
40	A-16433	Shooter Gate Assembly	
41	02-4611-2	Standoff 1 11/16"	
42	A-16751	Ball Guide Assembly	
43	01-11518	Ball Guide	
44	01-11219	Ball Guide, Shooter	
45	12-6466-8	2" Wire Guide	
46	A-16203-1	Flipper Ball Guide Assy., Right	
47	20-9250-6	Flipper & Shaft, Yellow	
48	A-16851	Ball Guide Assembly	
49	A-15802-P	Level Assembly	
50	02-4611-5	Standoff 1 1/4"	
51	A-8039-3	Ball Release Assembly	

\*Twilight Zone has a special hardcoat playfield and does not require a full mylar. However, mylars can be purchased through your local Bally Distributor (ref. #03-7960-50020-1).

# UPPER PLAYFIELD PARTS LOCATIONS



# SOLENOID TABLE

Sol. No.	Function	Solenoid Type	Voltage Connections			Drive Transistor	Drive Connections			Drive Wire Color	Solenoid Part Number Flashlamp Type	
			Playfield	Backbox	Cabinet		Playfield	Backbox	Cabinet		Playfield	Backbox
01	Slot Kickout	High Power	J130-1			Q82	J107-3			Vio-Brn	AE-24-800	
02	Rocket Kicker	High Power	J130-2			Q80	J107-3			Vio-Red	AL-23-800	
03	Auto-Fire Kicker	High Power	J130-4			Q78	J107-3			Vio-Org	AL-23-800	
04	Gumball Popper	High Power	J130-5			Q76	J107-3			Vio-Yel	AE-23-800	
05	Right Ramp Diverter	High Power	J130-6			Q64	J107-3			Vio-Grn	AE-26-1200	
06	Gumball Diverter	High Power	J130-7			Q66	J107-3			Vio-Blu	AE-26-1500	
07	Knocker	High Power		J130-8		Q68		J107-3		Vio-Blk		AE-23-800
08	Outhole	High Power	J130-9			Q70	J107-3			Vio-Gry	AE-27-1200	
09	Ball Release	Low Power	J127-1			Q58	J107-2			Bm-Blk	AE-26-1200	
10	Right Slingshot	Low Power	J127-3			Q56	J107-2			Bm-Red	AE-27-1200	
11	Left Slingshot	Low Power	J127-4			Q54	J107-2			Bm-Org	AE-27-1200	
12	Lower Jet Bumper	Low Power	J127-5			Q52	J107-2			Bm-Yel	AE-26-1200	
13	Left Jet Bumper	Low Power	J127-6			Q50	J107-2			Bm-Grn	AE-26-1200	
14	Right Jet Bumper	Low Power	J127-7			Q48	J107-2			Bm-Blu	AE-26-1200	
15	Lock Release	Low Power	J127-8			Q46	J107-2			Bm-Vio	AE-27-1200	
16	Shooter Diverter	Low Power	J127-9			Q44	J107-2			Bm-Gry	SZ-33-3000	
17	Bumpers (2)	Flasher	J125-1			Q42	J107-6			Blk-Bm	#906	
18	Power Payoff (2)	Flasher	J125-2			Q40	J107-6			Blk-Red	#906	
19	Mini-Playfield (2)	Flasher	J125-3			Q38	J107-6			Blk-Org	#906	
20	Upper Left Ramp	Flasher	J125-5			Q36	J107-6			Blk-Yel	#906	
21	Left Magnet	Flasher	J125-6			Q28	J109-5			Blu-Grn	20-9247	
22	Not Used	Flasher	----			Q30	---			Blu-Blk	----	
23	Lower Right Magnet	Flasher	J125-8			Q34	J109-5			Blu-Vio	20-9247	
24	Gumball Motor	Flasher	J125-9			Q32	J107-6			Blu-Gry	14-7884	
25	Left Mini Magnet	Gen. Purpose	J124-1			Q26	J109-5			Blu-Brn	20-9247	
26	Right Mini Magnet	Gen. Purpose	J124-2			Q24	J109-7			Blu-Red	20-9247	
27	Left Ramp Diverter	Gen. Purpose	J124-3			Q22	J109-7			Blu-Red	20-9247	
28	Inside Ramp	Gen. Purpose	J124-5			Q20	J107-6			Blk-Org	AR-26-1500	
37	Upper Right Flipper	Flasher	*J4-1				J107-6			Brn-Whi	#906	
38	Gumball Machine Hl	Flasher	*J4-2				J107-6			Red-Whi	#906	
39	Gumball Machine Mid	Flasher	*J4-3				J107-6			Org-Whi	#906	
40	Gumball Machine Low	Flasher	*J4-5				J107-6			Yel-Whi	#906	
41	Upper Right Ramp	Flasher	*J3-5				J107-6			Grn-Whi	#906	
42	Clock Reverse	Flasher	**J1-2				**J1-5			Blk-Whi	A-16120	
43	Clock Forward	Flasher	**J1-1				**J1-5			Vio-Whi	A-16120	
44	Clock Switch Strobe	Flasher	*J5-1				J107-6			Gry-Whi	---	

**General Illumination**

01	Playfield Left	G.I.	J-121-1			Q18	J-121-7			Whi-Brn	24-8549	
02	Mini-playfield & Insert	G.I.	J-121-2	J-120-2		Q19	J-121-8	J-120-8		Whi-Org	24-8768	24-8768
03	Clock & Insert	G.I.	J-121-3	J-120-3		Q14	J-121-9	J-120-9		Whi-Yel	24-8828	24-8768
04	Insert Main	G.I.		J-120-5		Q16		J-120-10		Whi-Grn		24-8768
05	Playfield Right	G.I.	J-121-6			Q12	J-121-11			Whi-Vio	24-8549	

**Flipper Circuits**

Flipper Circuits	Lwr. Lt. Power	Lwr. Lt. Hold	Lwr. Rt. Power	Lwr. Rt. Hold	Voltage Connections		Drive Transistors		Drive Connections		Drive Wire Colors		Coil Part Number	Coil Colors
					Playfield	Power	Hold	Playfield	Power	Hold				
Lower Left Flipper					J907-7 (Gry-Yel)	Q3	Q9	J902-8	Blu-Gry				FL-15411	ORANGE
					J907-7 (Gry-Yel)			J902-7	Org-Blu					
Lower Right Flipper					J907-9 (Blu-Yel)	Q4	Q11	J902-13	Blu-Vio				FL-15411	ORANGE
					J907-9 (Blu-Yel)			J902-11	Org-Grn					
Upper Left Flipper					J907-1 (Gry-Yel)	Q1	Q5	J902-3	Blk-Blu				FL-11753	YELLOW
					J907-1 (Gry-Yel)			J902-1	Org-Gry					
Upper Right Flipper					J907-4 (Blu-Yel)	Q2	Q7	J902-6	Blk-Yel				FL-11722	GREEN
					J907-4 (Blu-Yel)			J902-4	Org-Vio					

\*From 8 Driver P.C.B., A-16100  
 \*\*From D.C. Motor Control Assembly, A-16120



# UPPER PLAYFIELD PARTS LOCATIONS

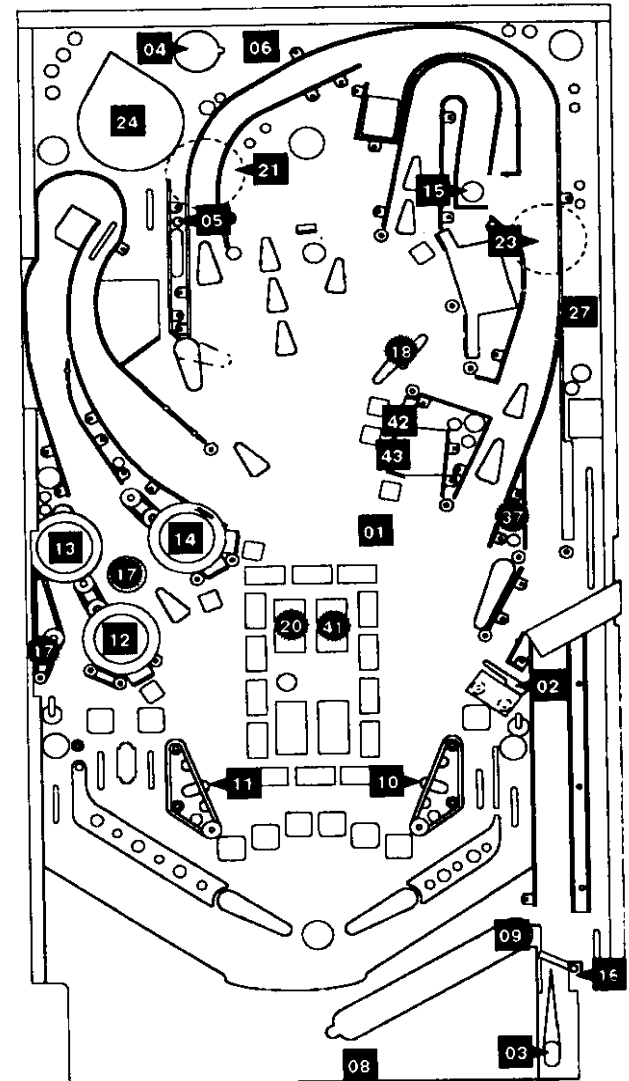
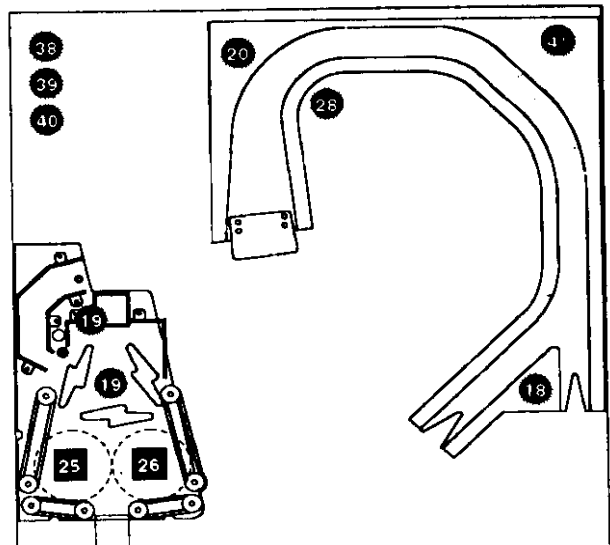
Item	Coil/Flasher Number	Assembly Number	Description
01	AE-24-900	A-16434	Slot Kickout
02	AL-23-800	A-16647	Rocket Kicker
03	AL-23-800	A-16647	Auto-Fire Kicker
04	AE-23-800	A-16312	Gumball Popper
05	AE-26-1200	A-16361	Right Ramp Diverter
06	AE-26-1500	A-16313	Gumball Diverter
07	AE-23-800	B-10686-1	Knocker
08	AE-27-1200	A-8039-3	Outhole
09	AE-26-1200	A-16766	Ball Release
10	AE-27-1200	A-16645-R	Right Slingshot
11	AE-27-1200	A-16645-L	Left Slingshot
12	AE-26-1200	A-9415-2	Lower Jet Bumper
13	AE-26-1200	A-9415-2	Left Jet Bumper
14	AE-26-1200	A-9415-2	Right Jet Bumper
15	AE-27-1200	A-16307	Lock Release
16	SZ-33-3000	A-16338	Shooter Diverter
17	24-8802	A-12336-1	Bumpers (2)
18	24-8802	A-12336-1	Power Payoff (2)
	24-8802	A-16060	
19	24-8802	A-12336-1	Mini-playfield (2)
20	24-8802	A-16330	Upper Left Ramp (2)
	24-8802	A-16060	
21	20-9247	----	Left Magnet
22	----	----	Not Used
23	20-9247	----	Lower Right Magnet
24	14-7984	A-16132	Gumball Motor
25	20-9247	A-16749	Left Mini-playfield Magnet
26	20-9247	A-16749	Right Mini-playfield Magnet
27	AE-26-1500	A-16064	Left Ramp Diverter
28	24-8802	A-16060	Inside Ramp
			Gumball Machine High
			Gumball Machine Middle
			Gumball Machine Low
37	24-8802	A-12336-1	Upper Right Flipper
38	24-8802	A-16651-4	Gumball Machine High
39	24-8802	A-16651-4	Gumball Machine Middle
40	24-8802	A-16651-4	Gumball Machine Low
41	24-8802	A-16330	Upper Right Ramp
	24-8802	A-16060	
42	----	A-16120	Clock Reverse
43	----	A-16120	Clock Forward
44	----	A-16100	Clock Strobe

## General Illumination Circuits

*01	Playfield Left	24-6549	GI String 1
*02	Mini-playfield & Insert	24-8768	GI String 2
*03	Clock & Insert	24-8829, 24-8768	GI String 3
*04	Insert Main	24-8768	GI String 4
*05	Playfield Right	24-6549	GI String 5

## Flipper Coils

Flipper Coils	Assembly	Description
FL-15411 (Orange)	A-15205-L-4	Lower Left Flipper
FL-15411 (Orange)	A-15205-R-4	Lower Right Flipper
FL-11753 (Yellow)	A-15205-L-1	Upper Left Flipper
FL-11722 (Green)	A-15205-R-3	Upper Right Flipper



■ Square indicates coil, P.C.B. or Magnet  
● Circle indicates flasher

# LAMP MATRIX

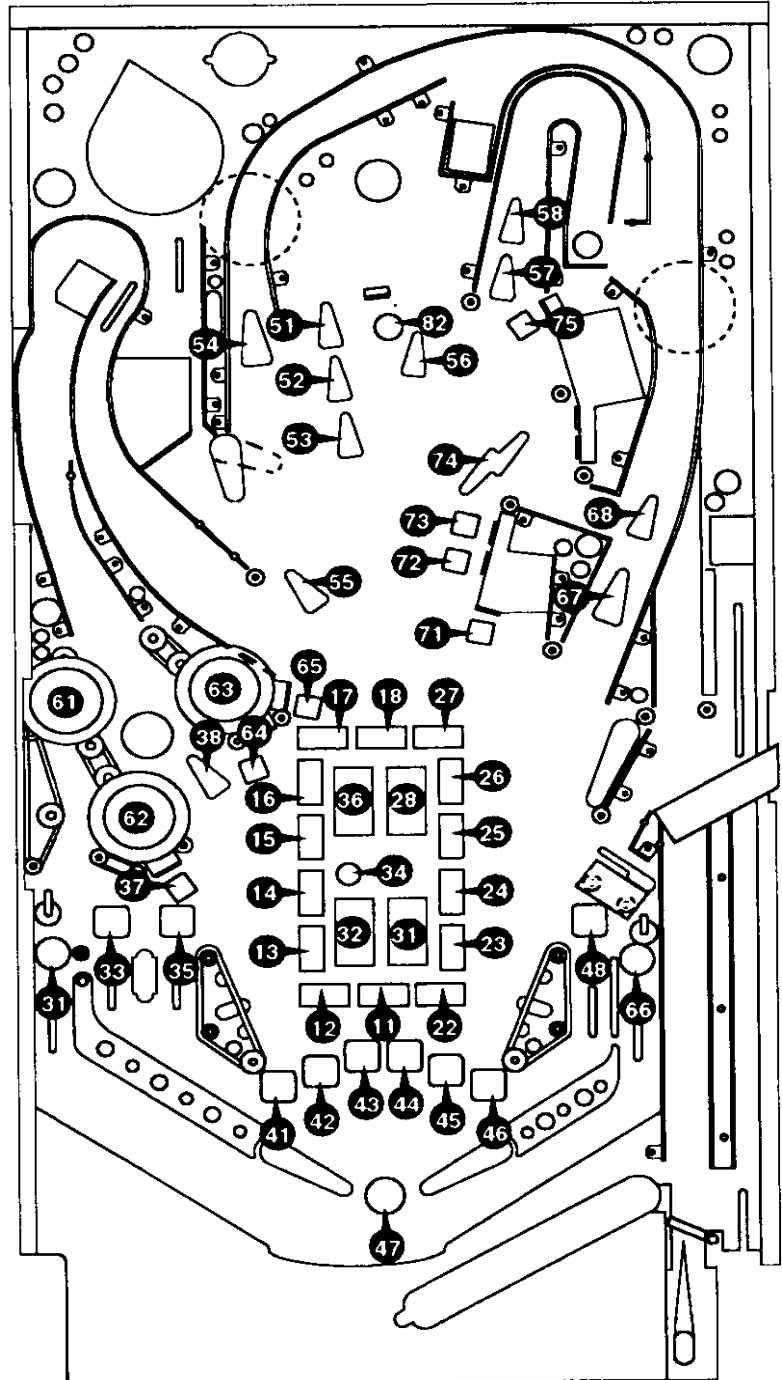
Yellow (B+)  Red

Column \ Row	1 Yellow-Brown J137-1 Q98	2 Yellow-Red J137-2 Q97	3 Yellow-Orange J137-3 Q96	4 Yellow-Black J137-4 Q95	5 Yellow-Green J137-5 Q94	6 Yellow-Blue J137-6 Q93	7 Yellow-Violet J138-7 Q92	8 Yellow-Gray J138-9 Q91
1 Red-Brown J133-1 Q90	Camera (Door) 11	Door Panel "Lock 2" 21	Left Extra Ball 31	Spiral "2 Million" 41	Left Ramp Bonus X 51	Left Jet Bumper 61	Lower Right 5 Million 71	Left Spiral 81
2 Red-Black J133-2 Q89	Hitch Hicker (Door) 12	Greed (Door) 22	Door Panel "Lock 1" 32	Spiral Left Battle Power 42	Left Ramp Multiball 52	Lower Jet Bumper 62	Middle Right 5 Million 2 72	Clock Millions 82
3 Red-Orange J133-4 Q88	Clock Chaos (Door) 13	10 Million (Door) 23	Left Inlane 1 33	Spiral "4 Million" 43	Left Ramp "Super Skill" 53	Right Jet Bumper 63	Middle Right 5 Million 1 73	Piano Yellow 83
4 Red-Yellow J133-5 Q87	Super Skill (Door) 14	Battle The Power (Door) 24	Door Handle 34	Spiral Right Battle Power 44	Left Powerball 54	Middle Left 5 Million 64	Power Payoff 74	Piano Red 84
5 Red-Green J133-6 Q86	Fast Lock (Door) 15	The Spiral (Door) 25	Left Inlane 2 35	Spiral "10 Million" 45	The Camera 55	Upper Left 5 Million 65	Upper Right 5 Million 75	Slot Machine 85
6 Red-Blue J133-7 Q85	Lite Gumball (Door) 16	Clock Million (Door) 26	Door Panel "Gum" 36	Spiral "Extra Ball" 46	Right Ramp The Power 56	Right Special 66	Mini Playfield 500,000 76	Right Lane Gumball 86
7 Red-Violet J133-8 Q84	Town Square Madness (Door) 17	Super Slot (Door) 27	Lower Left 5 Million 37	Shoot Again 47	Lock Extra Ball 57	Right Powerball 67	Mini Playfield 1,000,000 77	Buy-In Button 87
8 Red-Gray J133-9 Q83	Lite Extra Ball (Door) 18	Door Panel "Ball" 28	Dead End 38	Right Inlane 48	Lock Arrow 58	Right Lane Spiral 68	Mini Playfield 750,000 78	Start Button 88

J1XX = Power Driver Board

# LAMP LOCATIONS

Item No.	Bulb No.	Lamp Assy. No.	Description
11	24-8768	A-16327	Camera (Door)
12	24-8768	A-16327	High-Kicker (Door)
13	24-8768	A-16327	Clock Chaos (Door)
14	24-8768	A-16327	Super Skill (Door)
15	24-8768	A-16327	Fast Lock (Door)
16	24-8768	A-16327	Lite Gumbell (Door)
17	24-8768	A-16327	Town Square Madness (Door)
18	24-8768	A-16327	Lite Extra Ball (Door)
21	24-8768	A-16327	Door Panel "Lock 2"
22	24-8768	A-16327	Greed (Door)
23	24-8768	A-16327	10 Million (Door)
24	24-8768	A-16327	Battle the Power (Door)
25	24-8768	A-16327	The Spiral (Door)
26	24-8768	A-16327	Clock Million (Door)
27	24-8768	A-16327	Super Slot (Door)
28	24-8768	A-16327	Door Panel "Ball"
31	24-8768	A-16327	Left Extra Ball
32	24-8768	A-16516	Door Panel "Lock 1"
33	24-8768	A-16327	Left Inlane 1
34	24-8768	A-16516	Door Handle
35	24-8768	A-16327	Left Inlane 2
36	24-8768	A-16516	Door Panel "Gurr"
37	24-8768	A-16517	Lower Left 5 Million
38	24-8768	A-16517	Dead End
41	24-8768	A-16328	Spiral "2 Million"
42	24-8768	A-16328	Spiral Left Battle Power
43	24-8768	A-16328	Spiral "4 Million"
44	24-8768	A-16328	Spiral Right Battle Power
45	24-8768	A-16328	Spiral "10 Million"
46	24-8768	A-16328	Spiral "Extra Ball"
47	24-6549	A-11754	Shoot Again
48	24-6549	A-11271	Right Inlane
51	24-8768	A-16329	Left Ramp Bonus X
52	24-8768	A-16329	Left Ramp Multiball
53	24-8768	A-16329	Left Ramp Super Skill
54	24-6549	A-11271	Loft Powerball
55	24-6549	A-11754	The Camera
56	24-6549	A-11271	Right Ramp The Power
57	24-8768	A-16515	Lock Extra Ball
58	24-8768	A-16515	Lock Arrow
61	24-8768	B-9414-3	Left Jet Bumper
62	24-8768	B-9414-3	Lower Jet Bumper
63	24-8768	B-9414-3	Right Jet Bumper
64	24-8768	A-16517	Middle Left 5 Million
65	24-6549	A-11271	Upper Left 5 Million
66	24-6549	A-11271	Right Special
67	24-6549	A-11754	Right Powerball
68	24-6549	A-11271	Right Lane Spiral
71	24-8768	A-16514	Lower Right 5 Million
72	24-8768	A-16514	Middle Right 5 Million 2
73	24-8768	A-16514	Middle Right 5 Million 1
74	24-8768	A-16514	Power Payoff
75	24-8768	A-16515	Upper Right 5 Million
76	24-8768	A-12887	*Mini-playfield 500,000
77	24-8768	A-12887	*Mini-playfield 1,000,000
78	24-8768	A-12887	*Mini-playfield 750,000
81	24-8768	A-12887	*Left Spiral
82	24-6549	A-11271	Clock Millions
83	24-8768	A-12887	*Piano Yellow
84	24-8768	A-12887	*Piano Red
85	24-6549	A-11905	*Slot Machine
86	24-8768	B-12224	*Right Lane Gumbell
87	....	20-9083-9	Buy-In Button
88	....	20-9083-1	Credit Button



\*Not Shown

24-8768 = #555 Bulb  
24-6549 = #44 Bulb

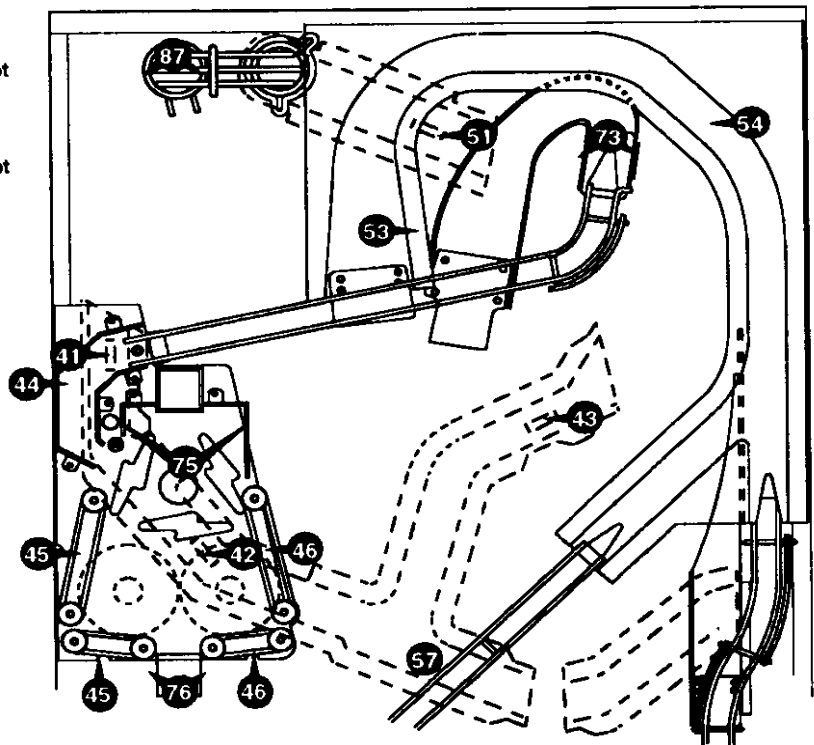
# SWITCH MATRIX

Dedicated Grounded Switches	Column Row	White ← → Green									Flipper Grounded Switches
		1 Green-Brown J208-1 U20-18	2 Green-Red J208-2 U20-17	3 Green-Orange J208-3 U20-16	4 Green-Yellow J208-4 U20-15	5 Green-Black J208-5 U20-14	6 Green-Blue J208-6 U20-13	7 Green-Violet J208-7 U20-12	8 Green-Gray J208-9 U20-11	9 Gray-White * J5-1	
Orange-Brown (1) J205-1 Left Coin Chute D1	1 White-Brown J208-1 U18-11	Right Inlane	Slam Tilt	Left Jet Bumper	Dead End	Gumball Popper Lane	Lower Skill	Not Used	Lower Right Magnet	Clock 15 Minutes	Black-Green J908-1 Right Flipper End of Stroke F1
Orange-Red (2) J205-2 Center Coin Chute D2	2 White-Red J208-2 U18-9	Right Outlane	Coin Door Closed	Right Jet Bumper	The Camera	High-Hiker	Center Skill	Auto-Fire Kicker	Not Used	Clock 0 Minutes	Blue-Violet J905-1 Right Flipper Opto F2
Orange-Black (3) J205-3 Right Coin Chute D3	3 White-Orange J208-3 U18-5	Start Button	Buy-In Button	Lower Jet Bumper	Player Piano	Left Ramp Enter	Upper Skill	Right Ramp	Left Magnet	Clock 45 Minutes	Black-Blue J908-3 Left Flipper End of Stroke F3
Orange-Yellow (4) J205-4 4th Coin Chute D4	4 White-Yellow J208-4 U18-7	Plumb Bob Tilt	Always Closed	Left Slingshot	Mini Playfield Enter	Left Ramp	Upper Right 5 Million	Gumball Popper	Center Lock	Clock 30 Minutes	Blue-Gray J905-2 Left Flipper Opto F4
Orange-Green (5) J205-6 Normal Function Service Credits Escape D5	5 White-Green J208-5 U19-11	Right Trough	Far Left Trough	Right Slingshot	Mini Playfield Left (2)	Gumball Geneva	Power Payoff (2)	Mini Playfield Top	Upper Lock	Clock Hour 1	Black-Violet J908-4 Upper Right Flipper End of Stroke F5
Orange-Blue (6) J205-7 Normal Function Volume Down Down D6	6 White-Blue J208-7 U19-9	Center Trough	Trough Proximity	Left Outlane	Mini Playfield Right (2)	Gumball Exit	Middle Right 5 Million 1	Mini Playfield Exit	Not Used	Clock Hour 2	Black-Yellow J905-3 Upper Right Flipper Opto F6
Orange-Violet (7) J205-8 Normal Function Volume Up D7	7 White-Violet J208-8 U19-5	Left Trough	Ball Shooter	Left Inlane 1	Clock Millions	Slot Proximity	Middle Right 5 Million 2	Middle Left 5 Million	Gumball Enter	Clock Hour 3	Black-Gray J908-5 Upper Left Flipper End of Stroke F7
Orange-Gray (8) J205-9 Normal Function Begin Test Enter D8	8 White-Gray J208-9 U19-7	Outhole	Rocket Kicker	Left Inlane 2	Lower Left 5 Million	Slot Kickout	Lower Right 5 Million	Upper Left 5 Million	Lock Lower	Clock Hour 4	Black-Blue J905-5 Upper Left Flipper Opto F8

J20X = CPU Board, J90X = Fliptronic II Board \* Located on B Driver P.C.B., A-16100, in backbox.

## SWITCH LOCATIONS

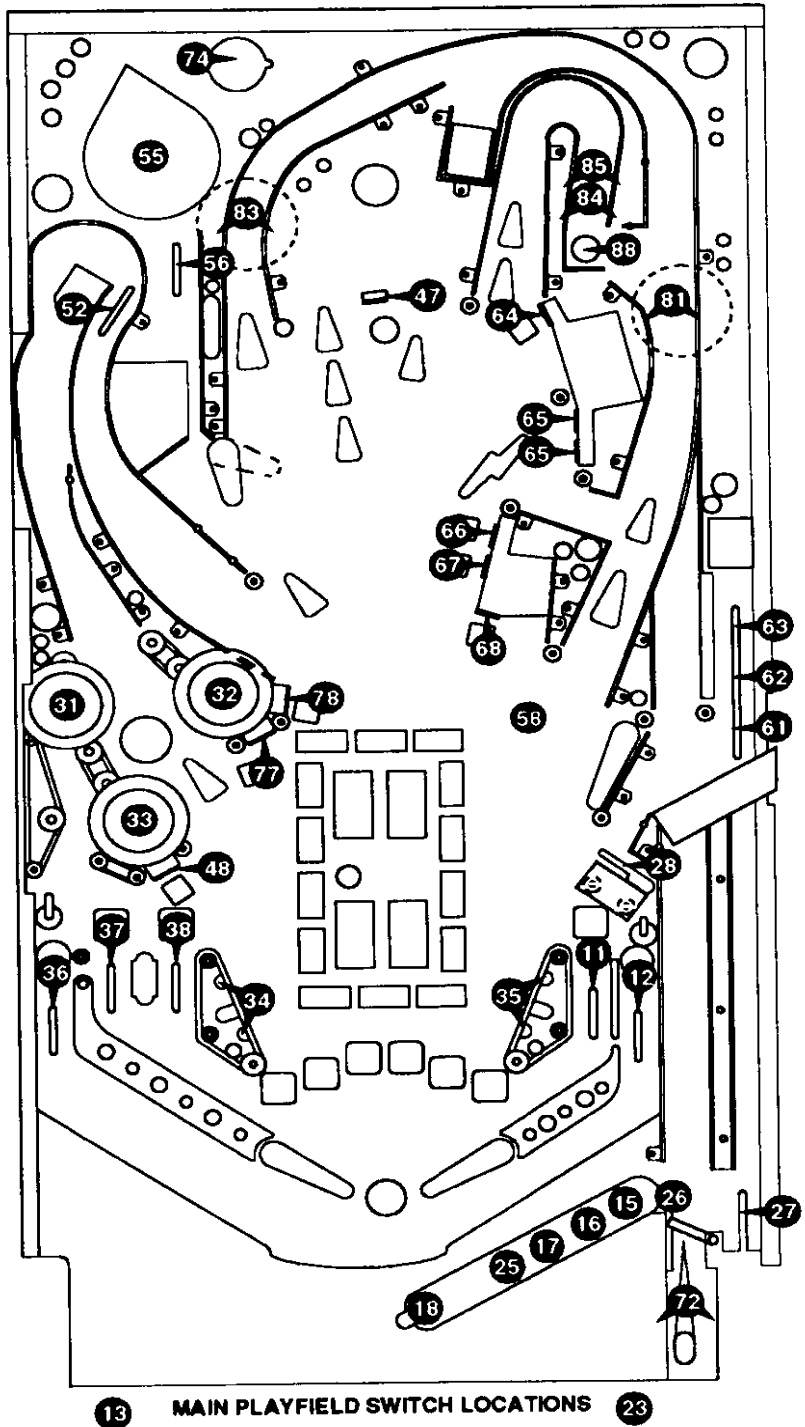
Item	Switch Part #	Where Used
F1	5490-12451-00	*Lower Right Flipper EOS
F2	A-15894	*Lower Right Flipper Cabinet
F3	5490-12451-00	*Lower Left Flipper EOS
F4	A-15894	*Lower Left Flipper Cabinet
F5	5490-12451-00	*Upper Right Flipper EOS
F6	A-15894	*Upper Right Flipper Cabinet
F7	5490-12451-00	*Upper Left Flipper EOS
F8	A-15894	*Upper Left Flipper Cabinet
11	5647-12693-19	Right Inlane
12	5647-12693-19	Right Outlane
13	20-9663-1	Start Button
14	A-15361	*PlumbBob Tilt
15	5647-12693-08	Right Trough
16	5647-09957-00	Center Trough
17	5647-09957-00	Left Trough
18	5647-12133-12	Outhole
21	27-1066	*Slam Tilt
22	5643-09288-00	*Coin Door Closed
23	20-9663-9	Buy-In Button
24	---	Always Closed
25	5647-09957-00	Far Left Trough
26	A-16528	†Trough Proximity
27	5647-12693-04	Ball Shooter
28	5647-12693-55	Rocket Kicker
31	SW-11A-37	Left Jet Bumper
32	SW-11A-37	Right Jet Bumper
33	SW-11A-37	Lower Jet Bumper



MINI-PLAYFIELD, TOP AND BOTTOM RAMP SWITCH LOCATIONS

## SWITCH LOCATIONS CONTINUED

Item	Switch Number	Where Used
34	SW-1A-114 SW-1A-120	Left Slingshot (kicker) Left Slingshot (score)
35	SW-1A-114 SW-1A-120	Right Slingshot (kicker) Right Slingshot (score)
36	5647-12693-19	Left Outlane
37	5647-12693-19	Left Inlane 1
38	5647-12693-19	Left Inlane 2
41	5647-12693-13	Dead End
42	5647-12693-13	Mini-playfield Top Hole
43	5647-12693-13	Player Piano
44	5647-12693-19	Mini-playfield Enter
45	5647-12693-11	Mini-playfield Left (2)
46	5647-12693-11	Mini-playfield Right (2)
47	A-15658-2	Clock Millions
48	A-14691-6	Lower Left 5 Million
51	5647-12693-13	Gumball Popper Lane
52	5647-12693-19	Hitch-hicker
53	5647-12693-11	Left Ramp Enter
54	5647-12693-21	Left Ramp
55	5647-12393-08	†Gumball Geneva
56	5647-12693-19	Gumball Exit
57	A-16535	†Slot Proximity
58	5647-12693-25	†Slot Kickout
61	5647-12693-32	Lower Skill
62	5647-12693-53	Center Skill
63	5647-12693-54	Upper Skill
64	A-14691-6	Upper Right 5 Million
65	A-14691-4	Power Payoff (2)
66	A-14691-6	Middle Right 5 Million 1
67	A-14691-6	Middle Right 5 Million 2
68	A-15658-6	Lower Right 5 Million
71	---	Not Used
72	5647-09957-00	Auto-Fire Kicker
73	A-14231 (LED)	Right Ramp
	A-14232 (Trans)	
74	A-14231 (LED)	Gumball Popper
	A-14232 (Trans)	
75	A-14231 (LED)	Mini-playfield Top
	A-14232 (Trans)	
76	A-14231 (LED)	Mini-playfield Exit
	A-14232 (Trans)	
77	A-14691-6	Middle Left 5 Million
78	A-14691-6	Upper Left 5 Million
81	A-14231 (LED)	Lower Right Magnet
	A-14232 (Trans)	
82	---	Not Used
83	A-14231 (LED)	Left Magnet
	A-14232 (Trans)	
84	A-14231 (LED)	Lock Center
	A-14232 (Trans)	
85	A-14231 (LED)	Lock Upper
	A-14232 (Trans)	
86	---	Not Used
87	A-14231 (LED)	Gumball Enter
	A-14232 (Trans)	
88	5647-12133-11	Lock Lower
91	A-16220	*Clock 15 Minutes
92	A-16220	*Clock 0 Minutes
93	A-16220	*Clock 45 Minutes
94	A-16220	*Clock 30 Minutes
95	A-16219	*Clock Hour 1
96	A-16219	*Clock Hour 2
97	A-16219	*Clock Hour 3
98	A-16219	*Clock Hour 4



\* Not shown.

† Located on underside of playfield.

## MENU SYSTEM OPERATION

This game operates on a Menu System. The Main Menu allows you to choose from several main categories, which in turn lead to other menus to choose from. To enter the Menu System, open the coin door and press the Begin Test button. The displays show the Game I.D. Mode. Press the Enter button and the Main Menu appears. To cycle through the Main Menu selections press either the Up or Down button. Activate any selection by pressing the Enter button when the desired selection appears in the displays. Return to the Attract Mode or a previous menu selection, press the Escape button. Press the Start button for HELP at any time.

### Main Menu

#### B. Bookkeeping Menu

B.1 Main Audits
B.2 Earnings Audits
B.3 Standard Audits
B.4 Feature Audits
B.5 Histograms
B.6 Time-Stamps

#### P. Printouts Menu

P.1 Earnings Data
P.2 Main Audits
P.3 Standard Audits
P.4 Feature Audits
P.5 Score Histograms
P.6 Game Time Histograms
P.7 Time-Stamps
P.8 All Data

#### T. Test Menu

T.1 Switch Edges
T.2 Switch Levels
T.3 Single Switches
T.4 Solenoid Test
T.5 Flasher Test
T.6 General Illumination
T.7 Sound & Music Test
T.8 Single Lamps
T.9 All Lamps
T.10 Lamp & Flasher Test
T.11 Display Test
T.12 Flipper Test
T.13 Ordered Lamp Test
T.14 Clock Test
T.15 Gumball Test
T.16 Magnet Test

#### U. Utilities Menu

U.1 Clear Audits
U.2 Clear Coins
U.3 Reset H.S.T.D.
U.4 Set Time & Date
U.5 Custom Message
U.6 Set Game I.D.
U.7 Factory Adjustments
U.8 Factory Resets
U.9 Presets
U.10 Clear Credits
U.11 Auto Burn-In

#### A. Adjustments Menu

A.1 Standard Adjustments
A.2 Feature Adjustments
A.3 Pricing Adjustments
A.4 H.S.T.D. Adjustments
A.5 Printer Adjustments

#### Press Escape

To move out of a menu selection.

#### Press Enter

To get into a menu selection.

#### Press Up

Increases sequence; Example A.1, A.2, A.3, A.4.

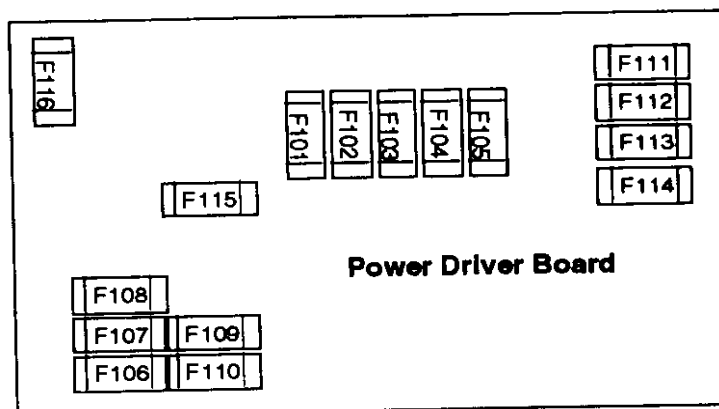
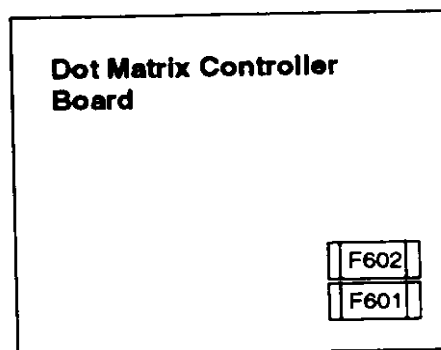
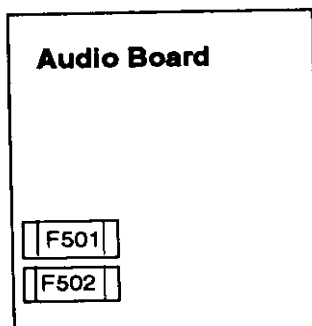
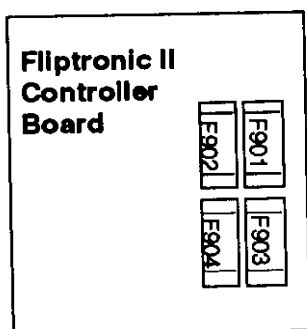
#### Press Down

Decreases Sequence; Example A.4, A.3, A.2, A.1.

Use Up and Down to cycle through the selections in a menu.

Use Escape and Enter to move into and out of the selected menu

## FUSE LIST



### Audio Board

F501	-25V Circuit	3A, S.B.
F502	+25V Circuit	3A, S.B.

### Dot Matrix Controller Board

F601	+62V Circuit	3/8A, S.B.
F602	-113V and -125V Circuits	3/8A, S.B.

### Power Driver Board

F101	Left Flipper	3A, S.B. (Not Used)
F102	Right Flipper	3A, S.B. (Not Used)
F103	Solenoid #25-#28	3A, S.B.
F104	Solenoid #9-#16	3A, S.B.
F105	Solenoid #1-#8	3A, S.B.
F106	G.I. #5 Wht-Vio	5A, S.B.
F107	G.I. #4 Wht-Grn	5A, S.B.
F108	G.I. #3 Wht-Yel	5A, S.B.
F109	G.I. #2 Wht-Org	5A, S.B.
F110	G.I. #1 Wht-Brn	5A, S.B.
F111	Flasher Secondary	5A, S.B.
F112	Solenoid Secondary	7A, S.B.
F113	+5V Logic	5A, S.B.
F114	+18V Lamp Matrix	8A, N.B.
F115	+12V Switch Matrix	3/4A, S.B.
F116	+12V Secondary	3A, S.B.

### Fliptronic II Controller Board

F901	Upper Left Flipper	3A, S.B.
F902	Upper Right Flipper	3A, S.B.
F903	Lower Left Flipper	3A, S.B.
F904	Lower Right Flipper	3A, S.B.

### Line Filter

Domestic Game	8A
Foreign Game	5A, S.B.

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