

**Fuse List:**

Wire in	Value	Wire out	description	location
Blk-Red-Red (022)	5 Amp Slo-Blo	Blk-Bm-Brn (011)	115V Primary Fuse	Bottom Board
	2 1/2 Amp Slo-Blo		230V Primary Fuse	Bottom Board
Blk-Orn-Orn (033)	1 Amp Slo-Blo	Brn	Small transformer primary fuse	Bottom Board
Yel-Blk-Blk (400)	1 Amp Slo-Blo	Yel-Yel-Yel (444)	Sound Board Fuse	Bottom Board
Yel-Blu-Blu (466)	1/4 Amp Slo-Blo	Grn-Blk-Blk (500)	Displays 69VAC	Bottom Board
Blk-Blu-Blu (066)	5 Amp Slo-Blo	Red-Slt-Slt (288)	Coils 25VAC	Bottom Board
Orn-Blk-Blk (300)	5 Amp Slo-Blo	Orn-Brn-Brn (311)	Controlled lamps 8VAC	Bottom Board
Red-Blu-Blu (266)	7 1/2 Amp	Red-Orn-Orn (233)	G.I. Playfield (via Tilt Relay) & Coin Chute 6VAC	Bottom Board
Red-Blu-Blu (266)	10 Amp	Red-Red-Red (222)	G.I. Name & Scene Lights 6VAC	Bottom Board
Red-Pur-Pur (277)	2 Amp Slo-Blo	Wht (9)	Blue (Left) Drop Target Bank Reset	Playfield
			Green (Right) Drop Target Bank Reset	
			Roto Unit	

*D. Gottlieb & Co.*

**TORCH**

**Switch Matrix**

	RETURN 0 A1J7-12 & A1J6-3 Blk-Blu-Blu (066)	RETURN 1 A1J7-13 Brn-Blk-Blk (100)	RETURN 2 A1J7-14 Brn-Red-Red (122)	RETURN 3 A1J7-17 Brn-Orn-Orn (133)	RETURN 4 A1J7-16 Brn-Yel-Yel (144)	RETURN 5 A1J7-15 Brn-Grn-Grn (155)	RETURN 6 A1J7-11 Brn-Blu-Blu (166)	RETURN 7 A1J7-10 Orn-Blu-Blu (366)
<b>STROBE 0</b> A1J7-2 A1J6-8 Blk-Bm-Brn (011)	Test Button  Brn-Blk-Blk (100) SW.00	Left Blue Rollover  Orn-Pur-Pur (377) SW.10	Left Green Rollover  Orn-Orn-Orn (333) SW.20	10 Point Contacts (2)  Blk-Pur-Pur (077) SW.30	Left Kicking Rubber  Blu-Bm-Brn (611) SW.40	Right Kicking Rubber  Blu-Slt-Slt (688) SW.50	#1 Right Drop Target Yel-Blk-Blk (400) SW.60	#1 Left Drop Target Red-Brn-Brn (211) SW.70
<b>STROBE 1</b> A1J7-3 A1J6-4 Blk-Red-Red (022)	#1 Coin Chute  Brn-Red-Red (122) SW.01	Pop Bumpers (2)  Orn-Yel-Yel (344) SW.11	Rollunder  Orn-Brn-Brn (311) SW.21	Left Roto and Bottom Rollover Pur-Blu-Blu (766) SW.31	Center Roto  SW.41	Right Roto  SW.51	#2 Right Drop Target Yel-Brn-Brn (411) SW.61	#2 Left Drop Target Red-Red-Red (222) SW.71
<b>STROBE 2</b> A1J7-4 A1J6-5 Blk-Orn-Orn (033)	#2 Coin Chute  Brn-Orn-Orn (133) SW.02	Special Target  Red-Blu-Blu (266) SW.12	Not Used  SW.22	Roto Unit  SW.32	Roto Unit  SW.42	Roto Unit  SW.52	#3 Right Drop Target Yel-Red-Red (422) SW.62	#3 Left Drop Target Red-Orn-Orn (233) SW.72
<b>STROBE 3</b> A1J7-7 A1J6-6 Blk-Yel-Yel (044)	Replay Button  Brn-Yel-Yel (144) SW.03	Right Blue Rollover  Orn-Slt-Slt (388) SW.13	Right Green Rollover  Orn-Grn-Grn (355) SW.23	Not Used  SW.33	Not Used  SW.43	Not Used  SW.53	#4 Right Drop Target Yel-Pur-Pur (477) SW.63	#4 Left Drop Target Red-Yel-Yel (244) SW.73
<b>STROBE 4</b> A1J7-6 Blk-Grn-Grn (055)	Tilt  Blu-Blu-Blu (666) SW.04	Left Extra Ball Rollover Grn-Yel-Yel (544) SW.14	Right Extra Ball Rollover Grn-Blu-Blu (566) SW.24	Roto Unit  SW.34	Roto Unit  SW.44	Roto Unit  SW.54	#5 Right Drop Target Yel-Slt-Slt (488) SW.64	#5 Left Drop Target Red-Grn-Grn (255) SW.74

**Lamps and solenoids**

transistor	connector	code	description	wire code	wire color	transistor type
Q01	J5-18	L01	Game Over Relay (Q)	400	Yel-Blk-Blk	MPS-U45
Q Relay			Match / Game Over Light	366	Orn-Blu-Blu	
Q Relay			Ball in Play	255	Red-Grn-Grn	
Q02	J5-19	L02	Tilt Relay (T)	411	Yel-Brn-Brn	MPS-U45
T Relay			Tilt Light	822	Slt-Red-Red	
Q03	J5-17	L03	High Game to Date	422	Yel-Red-Red	MPS-U45
Q04	J5-15	L04	Same Player Shoot Again	433	Yel-Orn-Orn	MPS-U45
Q05	J5-13	L05	"B1"	455	Yel-Grn-Grn	MPS-A13
Q06	J5-14	L06	"B3"	466	Yel-Blu-Blu	MPS-A13
Q07	J5-12	L07	"A3"	500	Grn-Blk-Blk	MPS-A13
Q08	J5-11	L08	"A2"	511	Grn-Brn-Brn	MPS-A13
Q09	J5-9	L09	Special	522	Grn-Red-Red	MPS-A13
Q10	J5-10	L10	"A1"	533	Grn-Orn-Orn	MPS-A13
Q11	J5-8	L11	10X	544	Grn-Yel-Yel	MPS-A13
Q12	J5-7	L12	Right Green Rollover	566	Grn-Blu-Blu	MPS-A13
Q13	J5-5	L13	"C" Hit	600	Blu-Blk-Blk	MPS-A13
Q14	J5-6	L14	Left Green Rollover	611	Blu-Brn-Brn	MPS-A13
Q15	J5-4	L15	"B" Hit	622	Blu-Red-Red	MPS-A13
Q16	J5-3	L16	"A" Hit	633	Blu-Orn-Orn	MPS-A13
Q17	J5-1	L17	Right Blue Rollover	644	Blu-Yel-Yel	MPS-A13
Q18	J5-2	L18	Left Blue Rollover	655	Blu-Grn-Grn	MPS-A13
Q19	J3-20	L19	Left Extra Ball	700	Pur-Blk-Blk	MPS-A13
Q20	J3-18	L20	Right Extra Ball	711	Pur-Brn-Brn	MPS-A13
Q21	J3-16	L21	Left Drop Target	722	Pur-Red-Red	MPS-A13
Q22	J3-17	L22	Right Drop Target	733	Pur-Orn-Orn	MPS-A13
Q23	J3-15	L23	1000 Bonus	744	Pur-Yel-Yel	MPS-A13
Q24	J3-14	L24	2000 Bonus	755	Pur-Grn-Grn	MPS-A13
Q33	J3-12	L25	3000 Bonus	800	Slt-Blk-Blk	MPS-A13
Q34	J3-13	L26	4000 Bonus	811	Slt-Brn-Brn	MPS-A13
Q35	J3-11	L27	5000 Bonus	822	Slt-Red-Red	MPS-A13
Q36	J3-9	L28	6000 Bonus	833	Slt-Orn-Orn	MPS-A13
Q37	J3-7	L29	7000 Bonus	844	Slt-Yel-Yel	MPS-A13
Q38	J3-8	L30	8000 Bonus	855	Slt-Grn-Grn	MPS-A13
Q39	J3-6	L31	9000 Bonus	111	Bm-Brn-Brn	MPS-A13
Q40	J3-5	L32	10,000 Bonus	333	Orn-Orn-Orn	MPS-A13
Q41	J3-4	L33	20,000 Bonus and Score 10 Bonus	444	Yel-Yel-Yel	MPS-A13 - TIP115
Q42	J3-3	L34	"C3"	555	Grn-Grn-Grn	MPS-A13
Q43	J3-2	L35	"C2"	666	Blu-Blu-Blu	MPS-A13
Q44	J3-1	L36	"C1"	777	Pur-Pur-Pur	MPS-A13
Q32	J4-6	Solenoid 1	Outhole Kicker	200	Red-Blk-Blk	2N6043
Q25	J2-1	Solenoid 2	Knocker	211	Red-Brn-Brn	2N6043
Q26	J2-2	Solenoid 3	10's chime	311	Orn-Brn-Brn	2N6043
Q27	J2-3	Solenoid 4	100's chime	244	Red-Yel-Yel	2N6043
Q28	J2-4	Solenoid 5	1000's chime	255	Red-Grn-Grn	2N6043
Q31	J4-5	Solenoid 6	Blue (Left) Drop Target Bank Reset	266	Red-Blu-Blu	2N6043 - 2N5875
Q30	J4-4	Solenoid 7	Green (Right) Drop Target Bank Reset	300	Orn-Blk-Blk	2N6043 - 2N5875
Q29 - Q45	J4-2	Solenoid 8	Roto Unit	311	Orn-Brn-Brn	MPS-U45 - 2N3055

**Solenoids**

	Solenoid description	Solenoid Type	Power Wire	Fuse	Transfer Wire	Coil Wire Color	Connector	Driver Transistor	Transistor Type	Coil Type
L01	Game Over Relay	Controlled	Red-Pur-Pur (277)			Yel-Blk-Blk (400)	A3J5-18	Q01	MPS-U45	A-16890
L02	Tilt Relay	Controlled	Red-Pur-Pur (277)			Yel-Brn-Brn (411)	A3J5-19	Q02	MPS-U45	A-16890
Sol. 1	Outhole	Controlled	Red-Pur-Pur (277)			Red-Blk-Blk (200)	A3J4-6	Q32	2N6043	A-16570
Sol. 2	Knocker	Controlled	Red-Pur-Pur (277)			Red-Brn-Brn (211)	A3J2-1	Q25	2N6043	A-5195
Sol. 3	10's chime	Controlled				Orn-Brn-Brn (311)	A3J2-2	Q26	2N6043	Sound Board
Sol. 4	100's chime	Controlled				Red-Yel-Yel (244)	A3J2-3	Q27	2N6043	Sound Board
Sol. 5	1000's chime	Controlled				Red-Grn-Grn (255)	A3J2-4	Q28	2N6043	Sound Board
Sol. 6	Blue Drop Target Bank Reset	Controlled				Red-Blu-Blu (266)	A3J4-5	Q31 - UPT	2N6043 - 2N5875	A-17891
Sol. 7	Green Drop Target Bank Reset	Controlled	Red-Pur-Pur (277)	2 Amp Slo-Blo	Wht (9)	Orn-Blk-Blk (300)	A3J4-4	Q30 - UPT	2N6043 - 2N5875	A-17891
Sol. 8	Roto Unit	Controlled				Orn-Brn-Brn (311)	A3J4-2	Q29 - Q45	MPS-U45 - 2N3055	A-17891
	Left Pop Bumper	Directly	Orn-Red-Red (322)					Switch		A-1496
	Right Pop Bumper	Directly	Orn-Red-Red (322)					Switch		A-1496
	Left Kicking Rubber	Directly	Orn-Red-Red (322)					Switch		A-5194
	Right Kicking Rubber	Directly	Orn-Red-Red (322)					Switch		A-5194
	Coin Lockout	Directly	Red-Pur-Pur (277)				A6J1-11			A-16890
	Left Flipper	Directly	Orn-Yel-Yel (344)				A6J5-4	Button		A-17875
	Right Flipper	Directly	Orn-Grn-Grn (355)				A6J5-5	Button		A-17875

2N6043 can be replaced with a TIP 102

UPT = Under Playfield Transistor