

# Gottlieb's Counterforce

## Switch Matrix

	RETURN 0 A1J6-10 Blu-Blk-Blk (600)	RETURN 1 A1J6-11 Blu-Brn-Brn (611)	RETURN 2 A1J6-12 Blu-Red-Red (622)	RETURN 3 A1J6-13 Blu-Orn-Orn (633)	RETURN 4 A1J6-14 Blu-Yel-Yel (644)	RETURN 5 A1J6-15 Blu-Grn-Grn (655)	RETURN 6 A1J5-8 / A1J6-16 Blu-Blu-Blu (666)	RETURN 7 A1J5-1 / A1J6-17 Blu-Pur-Pur (677)
<b>STROBE 0</b> A1J5-2 / A1J6-1 Yel-Blk-Blk (400)	#1 Drop Target Grn-Blk-Blk (500) SW.00	#1 Target (Special) Blk-Blk-Blk (000) SW.01	Not Used SW.02	Left Side Rollover Blk-Pur-Pur (077) SW.03	Not Used SW.04	Not Used SW.05	Not Used SW.06	Test Button Grn-Blk-Blk (500) SW.07
<b>STROBE 1</b> A1J5-3 / A1J6-2 Yel-Brn-Brn (411)	#2 Drop Target Grn-Brn-Brn (511) SW.10	#2 Target #2 Top Rollover Blk-Slt-Slt (088) SW.11	Not Used SW.12	Left Outside Rollover Red-Blk-Blk (200) SW.13	Not Used SW.14	Not Used SW.15	Not Used SW.16	Left Coin Chute Grn-Brn-Brn (511) SW.17
<b>STROBE 2</b> A1J5-4 / A1J6-3 Yel-Red-Red (422)	#3 Drop Target Grn-Red-Red (522) SW.20	#3 Top Rollover Blk-Brn-Brn (011) SW.21	Not Used SW.22	Left Return Rollover Red-Brn-Brn (211) SW.23	Not Used SW.24	Not Used SW.25	Not Used SW.26	Center Coin Chute Grn-Red-Red (522) SW.27
<b>STROBE 3</b> A1J5-5 / A1J6-4 Yel-Orn-Orn (433)	#4 Drop Target Grn-Orn-Orn (533) SW.30	#4 Top Rollover Blk-Red-Red (022) SW.31	#4 Target Extra Ball Brn-Orn-Orn (133) SW.32	Center Return Rollover Red-Yel-Yel (244) SW.33	Not Used SW.34	Not Used SW.35	Not Used SW.36	Right Coin Chute Grn-Orn-Orn (533) SW.37
<b>STROBE 4</b> A1J5-6 / A1J6-5 Yel-Yel-Yel (444)	#5 Drop Target Grn-Yel-Yel (544) SW.40	#5 Top Rollover Blk-Orn-Orn (033) SW.41	Not Used SW.42	Right Return Rollover Slt-Slt-Slt (888) SW.43	Not Used SW.44	Not Used SW.45	Not Used SW.46	Replay Button Grn-Yel-Yel (544) SW.47
<b>STROBE 5</b> A1J5-7 / A1J6-6 Yel-Grn-Grn (455)	#6 Drop Target Grn-Grn-Grn (555) SW.50	#6 Target #6 Top Rollover Blk-Yel-Yel (044) SW.51	Not Used SW.52	Right Outside Rollover Yel-Slt-Slt (488) SW.53	Not Used SW.54	Not Used SW.55	Not Used SW.56	Tilt Grn-Grn-Grn (555) Brn-Pur-Pur (177) SW.57
<b>STROBE 6</b> A1J6-7 Yel-Blu-Blu (466)	#7 Drop Target Grn-Blu-Blu (566) SW.60	#7 Top Rollover Blk-Grn-Grn (055) SW.61	Not Used SW.62	Not Used SW.63	Not Used SW.64	Not Used SW.65	Not Used SW.66	Outhole Brn-Blu-Blu (166) SW.67
<b>STROBE 7</b> A1J5-9 / A1J6-8 Yel-Pur-Pur (477)	Pop Bumper (2) Brn-Pur-Pur (177) SW.70	Right Side Rollover Blk-Blu-Blu (066) SW.71	10 Points Switches (5) Red-Orn-Orn (233) SW.72	Hole Red-Grn-Grn (255) SW.73	Not Used SW.74	Not Used SW.75	Not Used SW.76	Not Used SW.77

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## Driverboard

transistor	connector	code	description	wire code	wire color	transistor type
Q01	A3J3-A	L0	Game Over Relay (Q)	288	Red-Slt-Slt	MPS-U45
Q Relay			Match	011	Blk-Brn-Brn	Q relay n.c.
Q Relay			Ball in Play	033	Blk-Orn-Orn	Q relay n.o.
Q02	A3J3-B	L1	Tilt Relay (T)	277	Red-Pur-Pur	MPS-U45
T Relay			Tilt	022	Brn-Red-Red	T relay n.o.
Q03	A3J5-2	L2	Coin Lockout	877	Slt-Pur-Pur	MPS-U45
Q04	A3J2-1 / A3J3-C	L3	Same Player Shoot Again	588	Grn-Slt-Slt	MPS-U45
Q05	A3J2-2	L4	Player 1	500	Grn-Blk-Blk	MPS-A13
Q06	A3J2-3	L5	Player 2	511	Grn-Brn-Brn	MPS-A13
Q07	A3J2-5	L6	Player 3	522	Grn-Red-Red	MPS-A13
Q08	A3J2-4	L7	Player 4	533	Grn-Orn-Orn	MPS-A13
Q09	A3J2-10	L8	Not Used	544	Grn-Yel-Yel	MPS-A13
Q10	A3J2-9	L9	Not Used	555	Grn-Grn-Grn	MPS-A13
Q11	A3J2-7	L10	High Game To Date	577	Grn-Pur-Pur	MPS-A13
Q12	A3J2-8	L11	Game Over	566	Grn-Blu-Blu	MPS-A13
Q13	A3J3-25	L12	Trip Drop Target #2	100	Brn-Blk-Blk	MPS-U45
Q14	A3J3-24	L13	Trip Drop Target #4	111	Brn-Brn-Brn	MPS-U45
Q15	A3J3-22	L14	Trip Drop Target #6	122	Brn-Red-Red	MPS-U45
Q16	A3J3-23	L15	Trip Drop Target #1	133	Brn-Orn-Orn	MPS-U45
Q17	A3J3-13	L16	Trip Drop Target #3	144	Brn-Yel-Yel	MPS-U45
Q18	A3J3-14	L17	Trip Drop Target #5	155	Brn-Grn-Grn	MPS-U45
Q19	A3J3-16	L18	Trip Drop Target #7	166	Brn-Blu-Blu	MPS-U45
Q20	A3J3-15	L19	Top Row Descending lamps <sup>1</sup>	177	Brn-Pur-Pur	MPS-U45
Q21	A3J3-21	L20	2nd Row Descending lamps <sup>1</sup>	300	Orn-Blk-Blk	MPS-U45
Q22	A3J3-20	L21	Third Row Descending lamps <sup>1</sup>	311	Orn-Brn-Brn	MPS-U45
Q23	A3J3-18	L22	Bottom Row Descending lamps <sup>1</sup>	322	Orn-Red-Red	MPS-U45
Q24	A3J3-19	L23	Not Used	333	Orn-Orn-Orn	MPS-U45
Q25	A3J3-9	L24	Special	344	Orn-Yel-Yel	MPS-U45
Q26	A3J3-10	L25	Extra Ball	355	Orn-Grn-Grn	MPS-U45
Q27	A3J3-12	L26	Scores Bonus	366	Orn-Blu-Blu	MPS-U45
Q28	A3J3-11	L27	Bonus 20,000	377	Orn-Pur-Pur	MPS-U45
Q29	A3J3-Y	L28	Bonus 1000	500	Grn-Blk-Blk	MPS-U45
Q30	A3J3-X	L29	Bonus 2000	511	Grn-Brn-Brn	MPS-U45
Q31	A3J3-V	L30	Bonus 3000	522	Grn-Red-Red	MPS-U45
Q32	A3J3-W	L31	Bonus 4000	533	Grn-Orn-Orn	MPS-U45
Q33	A3J3-5	L32	Bonus 5000	544	Grn-Yel-Yel	MPS-A13
Q34	A3J3-6	L33	Bonus 6000	555	Grn-Grn-Grn	MPS-A13
Q35	A3J3-K	L34	Bonus 7000	566	Grn-Blu-Blu	MPS-A13
Q36	A3J3-7	L35	Bonus 8000	577	Grn-Pur-Pur	MPS-A13
Q37	A3J4-1	L36	Bonus 9000	700	Pur-Blk-Blk	MPS-A13
Q38	A3J4-2	L37	Bonus 10,000	711	Pur-Brn-Brn	MPS-A13
Q39	A3J4-4	L38	Left Return Rollover	722	Pur-Red-Red	MPS-A13
Q40	A3J4-3	L39	Left Side Rollover	733	Pur-Orn-Orn	MPS-A13
Q41	A3J3-4	L40	Right Return Rollover	744	Grn-Yel-Yel	MPS-A13
Q42	A3J3-3	L41	Green Multiplier	755	Grn-Grn-Grn	MPS-A13
Q43	A3J3-T	L42	Green Multiplier	766	Grn-Blu-Blu	MPS-A13
Q44	A3J3-2	L43	Green Multiplier	777	Grn-Pur-Pur	MPS-A13
Q45	A3J3-D	L44	Green Multiplier	800	Slt-Blk-Blk	MPS-U45
Q46	A3J3-F	L45	Green Multiplier	811	Slt-Brn-Brn	MPS-U45
Q47	A3J3-P	L46	Green Multiplier	822	Slt-Red-Red	MPS-U45
Q48	A3J3-M	L47	Green Multiplier	833	Slt-Orn-Orn	MPS-U45
Q49	A3J3-E	L48	Left Outside Rollover	844	Slt-Yel-Yel	MPS-U45
Q50	A3J3-H	L49	Center Return Rollover	855	Slt-Grn-Grn	MPS-U45
Q51	A3J3-R	L50	Right Side Rollover	866	Slt-Blu-Blu	MPS-U45
Q52	A3J3-N	L51	Right Outside Rollover	877	Slt-Pur-Pur	MPS-U45
Q53	A3J5-8	Solenoid 8	Knocker	888	Slt-Slt-Slt	2N6043
Q54	A3J6-3	Solenoid 3	Coin Counter 1	655	Blu-Grn-Grn	MPS-U45
Q55	A3J6-2	Solenoid 4	Coin Counter 2	644	Blu-Yel-Yel	MPS-U45
Q56	A3J6-1	Solenoid 7	Coin Counter 3	633	Blu-Orn-Orn	MPS-U45
Q57-Q58	A3J4-13	Solenoid 2	Drop Target Bank Reset	200	Red-Blk-Blk	MPS-U45 - 2N3055
Q59	A3J4-8	Solenoid 9	Outhole	244	Red-Yel-Yel	2N6043
Q60	A3J4-7	Solenoid 1	Hole Kicker	266	Red-Blu-Blu	2N6043
Q61-Q62	A3J4-6	Solenoid 5	Drop Target Bank Reset	211	Red-Brn-Brn	MPS-U45 - 2N3055
Q63-Q64	A3J4-12	Solenoid 6	Not Used	233	Red-Orn-Orn	MPS-U45 - 2N3055

note <sup>1</sup>: lamps are switched via a 2N5875 transistor under the playfield and a contact on the drop target bank.

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## Fuse List

designation	Wire in	Value	Wire out	description	location
F1	Blk-Slt-Slt (088)	12 Amp	Blk-Pur-Pur (077)	6.3VAC Lightbox Illumination	Bottom Board
F2		10 Amp	Blk-Blu-Blu (066)	6.3VAC Playboard Illumination	Bottom Board
F3	Orn-Blk-Blk (300)	8 Amp Slo-Blo	Orn-Brn-Brn (311)	8VAC Controlled Lamps	Bottom Board
F4	Orn-Red-Red (322)	¼ Amp Slo-Blo	Orn-Orn-Orn (333)	12VAC Sound Board	Bottom Board
F5	Red-Brn-Brn (211)	5 Amp Slo-Blo	Red-Orn-Orn (233)	10VAC Power Supply	Bottom Board
F6	Red-Blu-Blu (266)	8 Amp Slo-Blo	Red-Pur-Pur (277)	25VAC Solenoids	Bottom Board
F7	Brn-Slt-Slt (188)	¼ Amp Slo-Blo	Brn-Blk-Blk (100)	60VAC Score Displays	Bottom Board
F8	--	5 Amp Slo-Blo	Grn-Slt-Slt (588)	115VAC Primary Fuse	Bottom Board
		2½ Amp Slo-Blo		230VAC Primary Fuse	Bottom Board
F9	Red-Red-Red (222)	1 Amp Slo-Blo	Brn-Slt-Slt (188)	Outhole	Playfield
				Hole Kicker	
F10	Red-Red-Red (222)	2 Amp Slo-Blo	Red-Blu-Blu (266)	Drop Target Bank Reset	Playfield
				Drop Target Bank Reset	
F11	Orn-Slt-Slt (388)	2 Amp Slo-Blo	Blu-Pur-Pur (677)	Top Pop Bumper	Playfield
F12		2 Amp Slo-Blo	Yel-Pur-Pur (477)	Bottom Pop Bumper	Playfield

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## Solenoids

	Solenoid description	Solenoid Type	Power Wire	Fuse	Transfer Wire	Coil Wire Color	Connector	Driver Tr.	Transistor Type	Coil Type
L0	Game Over Relay	controlled	Red-Red-Red (222)			Red-Slt-Slt (288)	A3J3-A	Q1	MPS-U45	A-16890
L1	Tilt Relay	controlled	Red-Red-Red (222)			Red-Pur-Pur (277)	A3J3-B	Q2	MPS-U45	A-16890
L2	Lockout	controlled	Red-Red-Red (222)			Slt-Pur-Pur (877)	A3J5-2	Q3	MPS-U45	A-16890
L12	Trip Drop Target #2	controlled	Blk-Slt-Slt (088)			Brn-Blk-Blk (100)	A3J3-25	Q13	MPS-U45	A-18642
L13	Trip Drop Target #4	controlled	Blk-Slt-Slt (088)			Brn-Brn-Brn (111)	A3J3-24	Q14	MPS-U45	A-18642
L14	Trip Drop Target #6	controlled	Blk-Slt-Slt (088)			Brn-Red-Red (122)	A3J3-22	Q15	MPS-U45	A-18642
L15	Trip Drop Target #1	controlled	Blk-Slt-Slt (088)			Brn-Orn-Orn (133)	A3J3-23	Q16	MPS-U45	A-18642
L16	Trip Drop Target #3	controlled	Blk-Slt-Slt (088)			Brn-Yel-Yel (144)	A3J3-13	Q17	MPS-U45	A-18642
L17	Trip Drop Target #5	controlled	Blk-Slt-Slt (088)			Brn-Grn-Grn (155)	A3J3-14	Q18	MPS-U45	A-18642
L18	Trip Drop Target #7	controlled	Blk-Slt-Slt (088)			Brn-Blu-Blu (166)	A3J3-16	Q19	MPS-U45	A-18642
Sol. 1	Hole Kicker	controlled	Red-Red-Red (222)	F9	Brn-Slt-Slt (188)	Red-Blu-Blu (266)	A3J4-7	Q60	2N6043	A-1496
Sol. 2	Drop Target Bank Reset	controlled	Red-Red-Red (222)	F10	Red-Blu-Blu (266)	Red-Blk-Blk (200)	A3J4-13	Q57 + Q58	MPS-U45 + 2N3055	A-18102
Sol. 3	Coin Counter #1	controlled	Red-Red-Red (222)			Blu-Grn-Grn (655)	A3J6-3	Q54	MPS-U45	
Sol. 4	Coin Counter #2	controlled	Red-Red-Red (222)			Blu-Yel-Yel (644)	A3J6-2	Q55	MPS-U45	
Sol. 5	Drop Target Bank Reset	controlled	Red-Red-Red (222)	F10	Red-Blu-Blu (266)	Red-Brn-Brn (211)	A3J4-6	Q61 + Q62	MPS-U45 + 2N3055	A-18102
Sol. 6	Not Used	controlled	Red-Red-Red (222)			Red-Orn-Orn (233)	A3J4-12	Q63 + Q64	MPS-U45 + 2N3055	
Sol. 7	Coin Counter #3	controlled	Red-Red-Red (222)			Blu-Orn-Orn (633)	A3J6-1	Q56	MPS-U45	
Sol. 8	Knocker	controlled	Red-Red-Red (222)			Slt-Slt-Slt (888)	A3J5-8	Q53	2N6043	A-5195
Sol. 9	Outhole	controlled	Red-Red-Red (222)	F9	Brn-Slt-Slt (188)	Red-Yel-Yel (244)	A3J4-8	Q59	2N6043	A-16570
	Top Pop Bumper	Pop Bumper Board	Orn-Slt-Slt (388)	F11	Blu-Pur-Pur (677)	Brn-Slt-Slt (188)	1A8J1-1	board 1 - Q1	2N6057	A-1496
	Bottom Pop Bumper	Pop Bumper Board	Orn-Slt-Slt (388)	F12	Yel-Pur-Pur (477)	Yel-Slt-Slt (488)	2A8J1-1	board 2 - Q1	2N6057	A-1496
	Left Kicking Rubber	directly	Orn-Slt-Slt (388)					switch		A-1496
	Right Kicking Rubber	directly	Orn-Slt-Slt (388)					switch		A-1496
	Lower Left Flipper	directly	Orn-Slt-Slt (388)	to button,	Blk-Grn-Grn (055)	to coil	A7J5-9	button		A-20095
	Upper Left Flipper	directly	Orn-Slt-Slt (388)	to button,	Blk-Grn-Grn (055)	to coil	A7J5-9	button		A-20095
	Lower Right Flipper	directly	Orn-Slt-Slt (388)	to button,	Blk-Yel-Yel (044)	to coil	A7J5-10	button		A-20095
	Upper Right Flipper	directly	Orn-Slt-Slt (388)	to button,	Blk-Yel-Yel (044)	to coil	A7J5-10	button		A-20095

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