

STEP KEY ENTRY 1 KEY CODE

1	LBL A	31	25	11
	CF 3	35	61	03
	X > 0		31	81
	X = 0		31	51
5	RTN		35	22
	1		01	
	0		00	
	1		01	
10	X		71	
	ST I		35	33
	LBL 6	31	25	06
	RC I		35	34
	PAUSE		35	72
15	STO (i)		33	24
	F? 3	35	71	03
	DSZ		31	33
	GTO 6		22	06
	GSB fa	32	22	11
20	RCL (i)		34	24
	STO E		33	15
	RCL 1		34	01
	STO 0		33	00
	F? 1	35	71	01
25	GTO E		22	15
	CL X		44	
	RTN		35	22
	LBL B	31	25	12
	X = 0		31	51
30	1		01	
	GTO 0		22	00
	LBL D	31	25	14
	X = 0		31	51
	1		01	
35	CHS		42	
	LBL 0	31	25	00
	INT		31	83
	F? 1	35	71	01
	-X-		31	84
40	SPACE		35	84
	10*		32	53
	GSB fa	32	22	11
	RV		35	53
	LBL B	31	25	08
45	STO X (i)		33	71
	DSZ		31	33
	GTO 8		22	08
	STO X 0	33	71	00
49	RCL E		34	15
50	X		71	
51	STO E		33	15
	CL X		44	
	RTN		35	22
	LBL E	31	25	15
55	GSB fa	32	22	11
	LBL 7	31	25	07
	RCL (i)		34	24
	GSB fa	32	22	15
	DSZ		31	33
60	GTO 7		22	07
	CL X		44	
	SPACE		35	84
	SPACE		35	84
	RTN		35	22
65	LBL fa	32	25	15
	7		07	
	X		71	
	EEX		43	
	1		01	
70	0		00	
	ENTER+		41	
	9		09	
	+		61	
	+		61	
75	-X-		31	84
	RTN		35	22
	LBL fa	32	25	13
	F? 1	35	71	01
	GTO 0		22	00
80	SF 1	35	51	01
	9		09	
	7		07	
	RTN		35	22
	LBL 0	31	25	00
85	CF 1	35	61	01
	6		06	
	7		07	
	RTN		35	22
	LBL C	31	25	13
90	CF 3	35	61	03
	GSB fa	32	22	11
	CF 0	35	61	00
	LBL 5	31	25	05
	RCL 0		34	00
95	RCL (i)		34	24
	STO 0		33	00
	+		61	
	DSZ		31	33
	GTO 0		22	00
100	RCL E		34	15

STEP KEY ENTRY 2 KEY CODE

101	X > Y		35	52
	SF 0	35	51	00
	LBL 0	31	25	00
	RCL (i)		34	24
105	F? 0	35	71	00
	RV		35	53
	+		61	
	X = 0		31	51
	GTO 2		22	02
110	ENTER+		41	
	ENTER+		41	
	ENTER+		41	
	EEX		43	
	1		01	
115	+		61	
	INT		31	83
	+		61	
	X > Y		35	52
	EEX		43	
120	9		09	
	+		61	
	FRAC		32	83
	EEX		43	
	1		01	
125	0		00	
	X		71	
	+		61	
	RCL 0		34	00
	-		51	
130	0		00	
	X > Y		35	52
	RA		35	54
	LBL 9	31	25	09
	RV		35	53
135	EEX		43	
	1		01	
	STO ÷ 0	33	81	00
	+		61	
	ENTER+		41	
140	FRAC		32	83
	.		83	
	4		04	
	X > Y		32	81
	GTO 0		22	00
145	SF 2	35	51	02
	GTO 1		22	01
	LBL 0	31	25	00
	CL X		44	
149	RCL 0		34	00
150	FRAC		32	83
151	+		61	
	.		83	
	3		03	
	X > Y		32	81
155	SF 2	35	51	02
	LBL 1	31	25	01
	RV		35	53
	RV		35	53
	INT		31	83
160	LST X		35	82
	EEX		43	
	1		01	
	X		71	
	FRAC		32	83
165	1		01	
	F? 2	35	71	02
	CL X		44	
	+		61	
	EEX		43	
170	1		01	
	÷		81	
	+		61	
	RA		35	54
	1		01	
	+		61	
175	+		61	
	X > Y		35	52
	1		01	
	X > Y		32	71
	GTO 9		22	09
180	RV		35	53
	X > Y		35	52
	10*		32	53
	STO X 0	33	71	00
	X		71	
185	RCL 0		34	00
	X > Y		35	52
	X > Y		32	61
	SF 3	35	51	03
	LBL 2	31	25	02
190	ISZ		31	34
	STO (i)		33	24
	F? 1	35	71	01
	GSB fa	32	22	15
	DSZ		31	33
195	GTO 5		22	05
	F? 3	35	71	03
	F? 3	35	71	03
	RTN		35	22
	SPACE		35	84
200	SPACE		35	84

1. LIFE, 10xN; 1 ≤ N ≤ 23

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Features: (or why there is a fifth Life program)

- Adjustable field size (10x1 to 10x23), with vertical wrap-around (ie the top and bottom lines are next to each other)
- FAST - Speed depends on field size and complexity, but can be increased by keeping simple patterns to the right
- Optimized for both the 97 and 67
- Stops on "still life" outputs for the 97.
- Shift-field-right and left keys
- and many others.....

LIFE

67/97

Load Data Shift Left GO Shift Right Dump Data

STEP	INSTRUCTIONS	INPUT DATA/UNITS	KEYS	OUTPUT DATA/UNITS
1	Read card, both sides			
2	Choose machine mode		FC	67 or 97
3	Enter field size	N	A	"k"
4	Enter line k as 1s and 0s.	Line k	R/S	next "k"
5	Repeat step 4 until all N lines are in.....			
5a	For the 67			0
5b	For the 97 - will print first generation - live cells as 8s, dead cells as 1s.			
6	To shift field M places left or right....	M	B	0
		M	D	0
7	To compute next generation.....		C	
7a	For the 67 - One generation will be computed, then program will halt. Press E for output.			
7b	For 97 - Program will print each line as it develops, halting only when stopped or two successive generations are the same.			

STEP KEY ENTRY KEY CODE

201	GSB fa	32	22	11
	RCL 1		34	01
	STO 0		33	00
	RCL (i)		34	24
205	STO E		33	15
	CF 0	35	61	00
	F? 1	35	71	01
	GTO C		22	13
	CL X		44	
210	RTN		35	22
	LBL fa	32	25	11
	RC I		35	34
	FRAC		32	83
	1		01	
215	0		00	
	1		01	
	X		71	
	ST I		35	33
219	RTN		35	22
220	R/S		84	
	R/S		84	
	R/S		84	
224	R/S		84	

Registers

LAST LINE USED	1	2	3	4
5	USED	6	7	8
				9

0	1	2	3	4
5	USED	6	7	8
				9

Labels

A INPUT DATA	B SHIFT LEFT	C GO	D SHIFT RIGHT	E OUTPUT DATA
0	1	2	3	4
5	6	7	8	9

Flag Set Status

0	1	2	3
OFF	OFF	OFF	OFF

FIX; DSP 0

V4 N10

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