

## NewBrain Components By Colin Appleby

### NEWBRAIN COMPONENTS (Rev 4)

- Main Motherboard NB12117/A/7
- Keyboard Display AD Model NB12125/B/3
- Keyboard A Model NB12127/A1
- Memory Board NB12118/B/8
- Memory Board NB12114/A/1
- Power Supply NB11000/1
- Battery Unit NB12126/3

## NewBrain Components By Colin Appleby

### NEWBRAIN COMPONENTS (Rev 4)

#### Main Motherboard NB12117/A/7

Location	Component	Description
1	1N4733A Typical	5.1V Zener Diode 1 watt
2	820 ohms	Resistor
3	150 K ohms	Resistor
4	47 K ohms	Resistor
5	680 pF	Capacitor
6	22 uF 35V Elect	Capacitor Electrolytic
7	47 uF 16V Elect	Capacitor Electrolytic
8	2N5193	PNP Transistor (BD438, BD186, BD786)
9	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
10	4K7 ohms	Resistor

11	560 ohms	Resistor	
12	680 pF	Capacitor	
13	4K7 ohms	Resistor	
14	41K2 ohms	Resistor	
15	39K ohms	Resistor	
16	4K7 ohms	Resistor	
17	ZTX650	Transistor NPN Bipolar	
18	0.1uF 50V	Capacitor Ceramic Monolithic Type 104	
19	0.1uF 50V	Capacitor Ceramic Monolithic Type 104	
20	ZTX107	Transistor Low current NPN Bipolar	
21	ZN404	Precision Reference 2.45V	EC
22	2N5193	PNP Transistor (BD438, BD186, BD786)	
23	0.1uF 50V	Capacitor Ceramic Monolithic Type 104	
24	1N4001	Diode Rectifier 1 Amp	
25	1.2K ohms	Resistor	
26	0.1uF 50V	Capacitor Ceramic Monolithic Type 104	
27	4K7 ohms	Resistor	
28	100 ohms	Resistor	
29	0.1uF 50V	Capacitor Ceramic Monolithic Type 104	
30	4K7 ohms	Resistor	

31	IN4001	Diode Rectifier 1 Amp
32	56 ohms	Resistor
33	47 uF 16V Elect	Capacitor Electrolytic
34	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
35	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
36	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
37	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
38	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
39	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
40		
41	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
42	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
43	47 ohms	Resistor
44	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
45	47 ohms	Resistor
46	1K2 ohms	Resistor
47		
48	16MHz	16MHz Crystal SEI
49	BC546	Transistor NPN
50	100pF	Capacitor

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51	27pF	Capacitor
52	47K ohms	Resistor
53	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
54	4K7 ohms X8 Multi	Resistor Multi Type
55	100pF	Capacitor
56	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
57	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
58	1K ohms	Resistor
59	4K7 ohms X8 Multi	Resistor Multi Type
60	1K ohms	Resistor
61	22K ohms Multi	Resistor Multi Type
62	120 ohms	Resistor
63	22 ohms	Resistor
64	33pF	Capacitor
65	220 ohms	Resistor
66	2N3906	Transistor PNP General Purpose
67	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
68	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
69	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
70	0.1uF 50V	Capacitor Ceramic Monolithic Type 104

71	150 ohms	Resistor
72	220pF	Capacitor
73	470pF	Capacitor
74	2K ohms Variable	Resistor
75	2K ohms Variable	Resistor
76	22K ohms	Resistor
77	10 ohms	Resistor
78	22K ohms	Resistor
79	10 ohms	Resistor
80		Link
81	3.3 ohms	Resistor
82	0.47uF	Capacitor
83	47 ohms	Resistor
84	3.3 ohms	Resistor
85	0.47uF	Capacitor
86	47 ohms	Resistor
87	10nF	Capacitor
88	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
89	10nF	Capacitor
90	0.33uF	Capacitor

91		
92	47K ohms	Resistor
93	1N4148	Diode for Switching and General purpose
94	47uF Elec	Capacitor Electrolytic
95	47uF Elec	Capacitor Electrolytic
96	1N4148	Diode for Switching and General purpose
97	33 ohms	Resistor
98	39K ohms	Resistor
99	39K ohms	Resistor
100	ZTX107	Transistor Low current NPN Ic=2mA Bipolar
101	10M ohms	Resistor
102	1K ohms	Resistor
103	680pF	Capacitor
104	47uF Elect	Capacitor Electrolytic
105	43 ohms	Resistor
106	1K ohms	Resistor
107	IN914	Diode High Speed, High Conductance
108	15K ohms	Resistor
109	IN914	Diode High Speed, High Conductance
110	ZTX212	Transistor Low Sat PNP

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111	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
112	1K ohms	Resistor
113	4K7 ohms	Resistor
114	15K ohms	Resistor
115	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
116	68 ohms	Resistor
117	47uH +/- 10%	Inductor
118	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
119	47uF Elect	Capacitor Electrolytic
120	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
121	270 ohms	Resistor
122	75 ohms	Resistor
123	470 ohms	Resistor
124	150pF	Capacitor
125	10uF 25V Elect	Capacitor Electrolytic. Change to Tantalum
126	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
127	10uF 25V Elect	Capacitor Electrolytic. Change to Tantalum
128	220K ohms	Resistor
129	560K ohms	Resistor
130	0.1uF 50V	Capacitor Ceramic Monolithic Type 104

131	100 ohms	Resistor	
132	680pF	Capacitor	
133	470pF	Capacitor	
134	4K7 ohms X8 Multi	Resistor Multi Type	
401	CA358E	Amplifier same as LM358 Type	
402	SN74LS153N	Dual 4-to-1 multiplexer	
403	SN74LS153N	Dual 4-to-1 multiplexer	
404	SN74LS153N	Dual 4-to-1 multiplexer	
405	SN74LS153N	Dual 4-to-1 multiplexer	
406	8250	UART Serial 9600 Bits/Second	40
407	Not populated		
408	D23128C	PROM	28
409	Z80 CPU	Microprocessor Z80	
410	MC1489P	Quad RS232 Line Receiver	
411	MC1488P	Quad RS232 Line Driver	
412	SN74LS257AN	Quad 2 - input Multiplexer Tri-State	
413	SN74LS174N	Hex D flip-flop with clear	
414	CA358E	Amplifier	
415	HAMLIN HE751A5409	DIL Relay	
416	HAMLIN HE751A5409	DIL Relay	



417	MM74C14N	Hex Schmitt Trigger (MC14584BCP)
418	DM7400N	Quad 2 Input NAND
419	COP420	COP Microcontroller
420	74LS374N	Octal D-Type Flip-Flop 3 State
421	74LS245N	Octal Bus Transceiver NonInv
422	74LS161AN	4-Bit binary counter
423	74LS161AN	4-Bit binary counter
424	74LS161AN	4-Bit binary counter
425	SN74LS74AN	Dual D-type flip-flop w/preset and clear
426	SN74LS86H	Quad 2 - input XOR gate
427	SN74LS174N	Hex D flip-flop with clear
428	SN74LS257AN	Quad 2 - input Multiplexer Tri-State
429	DM74LS139N	Dual 1-of-4 Dcdr Demultiplexer
430	SN74LS138N	1-of-8 Dcdr Demultiplexer
431	SN74LS32N	Quad 2 - input pos. OR gate
432	DM74LS04N	Hex inverter
433	SN74LS32M	Quad 2 - input pos. OR gate
434	DM74LS86N	Quad 2 - input XOR gate
435	SN74LS06N	Hex inverter buffer/driver
436	SN74LS166AN	8-bit par. Load shift register

437	SN74LS08N	Quad 2 - input AND gate
438	SN74LS08N	Quad 2 - input AND gate
439	DM74LS08N	Quad 2 - input AND gate
440	SN74LS02N	Quad 2 - input NOR gate
441	DM74LS00N	Quad 2 Input NAND
442	SN74LS138N	1-of-8 Dcdr Demultiplexer
443	DM74LS11N	Triple 3 - input AND gate
444	DM74LS157N	Quad 2-to-1 data selector/mux
445	SN74LS112AN	Dual J-K negative edge - Triggered Flip-Flop
446	SN74LS08N	Quad 2 - input AND gate
447	SN74LS393N	Dual 4BIT Binary Up Counter
448	DM74LS10N	Triple 3 - input NAND gate
449	DM74LS157N	Quad 2-to-1 data selector/mux
450	DM74LS04N	Hex inverter
451	DM74LS279N	Quad Set/Reset Latch
452	MC14584BCP	Hex Schmitt Trigger
453	EPROM 8248R7	NewBrain Character Set
454	SN74LS166AN	8-bit par. Load shift register
455	DM74LS27N	Triple 3 - input pos. NOR gate
456	SN74LS32N	Quad 2 - input pos. OR gate

457	DM74LS10N	Triple 3 - input NAND gate
458	SN74LS90N	Decade counter
459	SN74LS32N	Quad 2 - input pos. OR gate
460	SN74LS112AN	Dual J-K negative edge - Triggered Flip-Flop
461	SN74LS95BN	Shift Register Single Parallel I/O
462	SN74LS32N	Quad 2 - input pos. OR gate
463	SN74LS32N	Quad 2 - input pos. OR gate
464	DM74LS27N	Triple 3 - input pos. NOR gate
465	DM74LS11N	Triple 3 - input AND gate
466	DM74LS21N	Dual 4 - input AND gate
467	DM74LS04N	Hex inverter
468	SN74LS393N	Dual 4BIT Binary Up Counter
469	DM74LS10N	Triple 3 - input NAND gate
470	DM74LS00N	Quad 2 Input NAND
471	DM74LS11N	Triple 3 - input AND gate

**Keyboard Display AD Model NB12125/B/3**

1	8x22K ohms	Resistor Multi
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2	47uF 16V Elect	Capacitor Electrolytic
3	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
4	100uF 6.3V Elect	Capacitor Electrolytic
5	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
6	47uF 16V Elect	Capacitor Electrolytic
7	10 ohms	Resistor
8	3K9 ohms	Resistor
9	10uF 50V Elect	Capacitor Electrolytic
10	10uF 50V Elect	Capacitor Electrolytic
11	KV-12A94V-0	Small circuit board
12	47uH +/- 10%	Inductor
13	4x270K ohms	Resistor Multi
14	1N4148	Diode for Switching
15	1N4148	Diode for Switching
16	1N4148	Diode for Switching
17	1N4148	Diode for Switching
18	1N4148	Diode for Switching
19	1N4148	Diode for Switching
20	1N4148	Diode for Switching
21	1N4148	Diode for Switching

22	7x100K ohms	Resistor Multi
23	16-SY-03	16 Character VF Display
24	4x22K ohms	Resistor Multi
25	7x100K ohms	Resistor Multi
	ZN404	Precision Reference 2.45 V
		RF Modulator
		NewBrain Keys Total 62
401	DS8654N	8-Output Display Driver for VF
402	CD4015BCN	Dual 4-Bit Static Register (MM5615BN)
403	CD4076	4-Bit D-Type Registers (MM74C173)
404	MM74C14N	Hex Schmitt Trigger Inverter
405	CD4024BCN	7-Bit Binary Ripple Carry Counter (MM5624BN)
406	DS8881N	Vacuum Fluorescent Display Driver
407	DS8654N	8-Output Display Driver for VF
408	CD4015BCN	Dual 4-Bit Static Register (MM5615BN)

**Keyboard A Model NB12127/A1**

1	100K ohms	Resistor
2	4K7 ohms	Resistor
3	100K ohms	Resistor

4	4K7 ohms	Resistor
5	100K ohms	Resistor
6	4K7 ohms	Resistor
7	100K ohms	Resistor
8	1N4148	Diode for Switching
9	1N4148	Diode for Switching
10	1N4148	Diode for Switching
11	1N4148	Diode for Switching
12	1N4148	Diode for Switching
13	1N4148	Diode for Switching
14	1N4148	Diode for Switching
15		
16	47uF 16V Elect	Capacitor Electrolytic
17	3K9 ohms	Resistor
18	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
19	10uF 50V	Capacitor Electrolytic
20	10 ohms	Resistor
401	CD4051	Single 8-Channel Analog Multiplexer/Demultiplexer
402	CD4024BCN	7-Bit Binary Ripple Carry Counter (MM5624BN)
403	CD4051	Single 8-Channel Analog Multiplexer/Demultiplexer

<b>404</b>	<b>CD4024BCN</b>	<b>7-Bit Binary Ripple Carry Counter</b>
		<b>RF Modulator Size 40mmx27mmx15mm</b>
		<b>NewBrain Keys Total 62</b>
<b>Memory Board NB12118/B/8</b>		
<b>401</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>402</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>403</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>404</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>405</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>406</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>407</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>408</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>409</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>410</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>411</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>412</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>413</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>414</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>

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416	MM5290N-2 (2117)	16Kx1 Dynamic RAM 150nS Memory Chip
417	SN74LS00N	Quad 2 Input NAND
418	SN74LS00N	Quad 2 Input NAND
419	SN74LS08N	Quad 2 - Input AND
420	SN74LS04N	Hex Inverter
421	SN74LS112AN	Dual J-K negative edge - Triggered Flip-Flop
422	SN74LS74N	Dual D-type flip-flop w/preset and clr
423	SN74LS10N	Triple 3 - Input NAND
424	SN74LS32N	Quad 2 - Input Pos. OR gate

**Memory Board NB12114/A/1**

IC1	MM5290N-2 (2117)	16Kx1 Dynamic RAM 150nS Memory Chip
IC2	MM5290N-2 (2117)	16Kx1 Dynamic RAM 150nS Memory Chip
IC3	MM5290N-2 (2117)	16Kx1 Dynamic RAM 150nS Memory Chip
IC4	MM5290N-2 (2117)	16Kx1 Dynamic RAM 150nS Memory Chip
IC5	MM5290N-2 (2117)	16Kx1 Dynamic RAM 150nS Memory Chip
IC6	MM5290N-2 (2117)	16Kx1 Dynamic RAM 150nS Memory Chip
IC7	MM5290N-2 (2117)	16Kx1 Dynamic RAM 150nS Memory Chip
IC8	MM5290N-2 (2117)	16Kx1 Dynamic RAM 150nS Memory Chip
IC9	MM5290N-2 (2117)	16Kx1 Dynamic RAM 150nS Memory Chip



<b>IC10</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>IC11</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>IC12</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>IC13</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>IC14</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>IC15</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>IC16</b>	<b>MM5290N-2 (2117)</b>	<b>16Kx1 Dynamic RAM 150nS Memory Chip</b>
<b>IC17</b>	<b>DM74LS00N</b>	<b>Quad 2 Input NAND</b>
<b>IC18</b>	<b>DM74LS00N</b>	<b>Quad 2 Input NAND</b>
<b>IC19</b>	<b>DM74LS112N</b>	<b>Dual J-K negative edge - Triggered Flip-Flop</b>
<b>IC20</b>	<b>DM74LS112N</b>	<b>Dual J-K negative edge - Triggered Flip-Flop</b>
<b>IC21</b>	<b>DM74LS08N</b>	<b>Quad 2 - Input AND Gate</b>
<b>IC22</b>	<b>DM74LS04N</b>	<b>Hex Inverter</b>
<b>IC23</b>	<b>DM74LS04N</b>	<b>Hex Inverter</b>
<b>Power Supply</b>	<b>NB11000/1</b>	<b>DC Output 7.5V at 1.2 A, 13.5V at 0.3A and 14.3V at 0.05A</b>
	<b>Rita PZB4003/3</b>	<b>Netfilter 2x0.047uF - 0.1uF MP 250V</b>
	<b>Transformer B40/C700</b>	<b>Primary 240V Secondary +/- 8.6V at 1.2 A and +/- 16V at Bridge Rectifier</b>
	<b>TIP31A</b>	<b>Power Transistor NPN General Purpose 3 Amp</b>

<b>TIP31A</b>	<b>Power Transistor NPN General Purpose 3 Amp</b>
<b>BC327</b>	<b>Transistor PNP</b>
<b>IN4002</b>	<b>Silicon Diode</b>
<b>IN4002</b>	<b>Silicon Diode</b>
<b>BZX61C13</b>	<b>Zener Diode</b>
<b>BZX85 8V2</b>	<b>Zener Diode</b>
<b>BZX85B15</b>	<b>Zener Diode</b>
<b>100uF 35V Elect</b>	<b>Electrolytic Capacitor</b>
<b>1000uF 35V Elect</b>	<b>Electrolytic Capacitor</b>
<b>4700uF 16V Elect</b>	<b>Electrolytic Capacitor</b>
<b>0.5uH</b>	<b>Inductor</b>
<b>0.5uH</b>	<b>Inductor</b>
<b>100 ohm</b>	<b>Resistor</b>
<b>680 ohm</b>	<b>Resistor</b>
<b>330 ohm</b>	<b>Resistor</b>
<b>220 ohm</b>	<b>Resistor</b>

**Battery Unit NB12126/3**

<b>1</b>	<b>AA Type NiCad</b>	<b>Ni Cadmium Battery for Group 1</b>
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2	AA Type NiCad	Ni Cadmium Battery for Group 1
3	AA Type NiCad	Ni Cadmium Battery for Group 1
4	AA Type NiCad	Ni Cadmium Battery for Group 1
5	AA Type NiCad	Ni Cadmium Battery for Group 1
6	AA Type NiCad	Ni Cadmium Battery for Group 2
7	AA Type NiCad	Ni Cadmium Battery for Group 2
8	AA Type NiCad	Ni Cadmium Battery for Group 2
9	AA Type NiCad	Ni Cadmium Battery for Group 2
10	AA Type NiCad	Ni Cadmium Battery for Group 2
11	AA Type NiCad	Ni Cadmium Battery for Group 3
12	AA Type NiCad	Ni Cadmium Battery for Group 3
13	AA Type NiCad	Ni Cadmium Battery for Group 3
14	AA Type NiCad	Ni Cadmium Battery for Group 3
15	AA Type NiCad	Ni Cadmium Battery for Group 3
16	AA Type NiCad	Ni Cadmium Battery for Group 4
17	AA Type NiCad	Ni Cadmium Battery for Group 4
18	AA Type NiCad	Ni Cadmium Battery for Group 4
19	AA Type NiCad	Ni Cadmium Battery for Group 4
20	AA Type NiCad	Ni Cadmium Battery for Group 4
21	470uF 10V Elect	Capacitor Electrolytic

22	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
23	LED Green	Light Emitting Diode
24	180 ohms	Resistor
25	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
26	150 ohms	Resistor
27	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
28	4uH	Inductor
29	10uF 16V Elect	Capacitor Electrolytic
30	4uH	Inductor
31		
32	10uF 16V Elect	Capacitor Electrolytic
33	10uF 16V Elect	Capacitor Electrolytic
34	5uH	Inductor
35	5uH	Inductor
36	1N4148	Diode
37	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
38	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
39	BZY61 13V	Diode Zenner
40	120 ohms	Resistor
41	0.1uF 50V	Capacitor Ceramic Monolithic Type 104

42	18 ohms	Resistor
43	1N4148	Diode
44	Triple Inductor	Inductor
45	470uF 10V Elect	Capacitor Electrolytic
46	100uF Elect	Capacitor Electrolytic
47	ZTX650	Transistor
48	103486	Diode Zenner
49	1N4001	Diode
50	1N4001	Diode
51	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
52	10uF 16V Elect	Capacitor Electrolytic
53	100 ohms 1/2 Watt	Resistor
54	100 ohms 1/2 Watt	Resistor
55	1N4001	Diode
56	2N5792	Transistor NPN
57	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
58	103454	Diode Zenner
59	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
60	2N5193	Transistor PNP
61	2N5193	Transistor PNP

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<b>62</b>	<b>2N5193</b>	<b>Transistor PNP</b>
<b>63</b>	<b>1N4001</b>	<b>Diode</b>
<b>64</b>	<b>1N4001</b>	<b>Diode</b>
<b>65</b>	<b>1N4001</b>	<b>Diode</b>
<b>66</b>	<b>1N4001</b>	<b>Diode</b>
<b>67</b>	<b>330 ohms</b>	<b>Resistor</b>
<b>68</b>	<b>1K5 ohms</b>	<b>Resistor</b>
<b>69</b>	<b>330 ohms</b>	<b>Resistor</b>
<b>70</b>	<b>330 ohms</b>	<b>Resistor</b>
<b>71</b>	<b>1K5 ohms</b>	<b>Resistor</b>
<b>72</b>	<b>330 ohms</b>	<b>Resistor</b>
<b>73</b>	<b>330 ohms</b>	<b>Resistor</b>
<b>74</b>	<b>1K5 ohms</b>	<b>Resistor</b>
<b>75</b>	<b>330 ohms</b>	<b>Resistor</b>
<b>76</b>	<b>330 ohms</b>	<b>Resistor</b>
<b>77</b>	<b>1K5 ohms</b>	<b>Resistor</b>
<b>78</b>	<b>330 ohms</b>	<b>Resistor</b>
<b>79</b>	<b>1N4001</b>	<b>Diode</b>
<b>80</b>	<b>1N4001</b>	<b>Diode</b>
<b>81</b>	<b>1N4001</b>	<b>Diode</b>

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82	BZY88 10V	Diode Zenner
83	1K ohms Var	Resistor Variable
84	390 ohms	Resistor
85		Transistor PNP
86	47pF	Capacitor
87	1N4148	Diode
88	1N4148	Diode
89	ZTX107	Transistor NPN
90	ZTX107	Transistor NPN
91	0.1uF 50V	Capacitor Ceramic Monolithic Type 104
92	4K7 ohms	Resistor
93	15nF	Capacitor
94	10K ohms	Resistor
95	10K ohms	Resistor
96	2K2 ohms	Resistor
97	3K9 ohms	Resistor
98	6K3 ohms	Resistor
99	1uF	Capacitor
100	10K ohms	Resistor
101	4K7 ohms	Resistor

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<b>102</b>	<b>1nF</b>	<b>Capacitor</b>
<b>103</b>	<b>1K ohms</b>	<b>Resistor</b>
<b>104</b>	<b>1K ohms</b>	<b>Resistor</b>
<b>105</b>	<b>100K ohms Var</b>	<b>Resistor Variable for Set Pulse Width</b>
<b>106</b>	<b>1K ohms</b>	<b>Resistor</b>
<b>107</b>	<b>LED Discharge</b>	<b>Light Emitting Diode</b>
<b>108</b>	<b>150 ohms</b>	<b>Resistor for LED</b>
<b>109</b>	<b>LED Green</b>	<b>Light Emitting Diode</b>
<b>110</b>	<b>Battery Isolator</b>	<b>2-Way Switch</b>
<b>401</b>	<b>CA3046 (CA3086)</b>	<b>General Purpose NPN Transistor Array 5 Trans</b>