

N.E.W. – C.T.G. Build guide

The N.E.W. CTG is a toolbox full of classic bass dirt circuits (boost, distortion, and fuzz) in parallel, each with their own separate controls. It uses a MAX1044 charge pump as a voltage inverter to create -9 VDC from a +9 VDC input, allowing the IC's to be run bipolar, minimizing the need for coupling capacitors.

Note regarding biasing: The numbering scheme of the transistors, bias pots, and test points don't perfectly match. Q2 is biased using Bias 2 and tested at VD1. Q4 is biased using Bias 3 and tested at VD2. Q1 is biased using Bias 1 and tested directly on the legs of the MOSFET. Adjust so that the source is +3 VDC and drain is -3 VDC.

This guide is intended for people who have some experience building pedals. Component sourcing, component identification, assembly techniques, wiring stomp switches, etc. is not covered. The GCI Brutalist Jr. assembly guide has helpful information for less experienced builders. That guide can be found here: <http://www.kurtballou.com/brutalistjr/>

Don't forget to connect the ground pad of the PCB to the ground lug of the input, output, and DC power jacks!

Due to the scope of this project, technical support is not available. However, consider joining the GCI DIY PCB Builders group on Facebook to get advice from and share your work with other builders. We require that all group members agree to the rules before being accepted into the group.

<https://www.facebook.com/groups/2454786551255317/>

Component values for the PCB as well as some alternate values are listed below. This is a BOM for the PCB only. Resistors and diodes are 6.3mm leg spacing, film and ceramic capacitors are 5.08mm leg spacing, and electrolytic capacitors are 2.54mm leg spacing. I/O jacks, DC jack, switches, enclosure, and knobs are not listed. The schematic and a drill template for a 125BB (1590BBM) sized enclosure are also attached.

Part	Value	Device	Package	Description
R1	1M	6MM.3	R0207/3	6mm Resistors
R2	1M	6MM.3	R0207/3	6mm Resistors
R3	10k	6MM.3	R0207/3	6mm Resistors
R4	10k	6MM.3	R0207/3	6mm Resistors
R5	10k	6MM.3	R0207/3	6mm Resistors
R6	1M	6MM.3	R0207/3	6mm Resistors
R7	10k	6MM.3	R0207/3	6mm Resistors
R8	10k	6MM.3	R0207/3	6mm Resistors
R9	62k	6MM.3	R0207/3	6mm Resistors
R10	100k	6MM.3	R0207/3	6mm Resistors
R11	4.7k	6MM.3	R0207/3	6mm Resistors
R12	10k	6MM.3	R0207/3	6mm Resistors
R13	470k	6MM.3	R0207/3	6mm Resistors
R14	1k	6MM.3	R0207/3	6mm Resistors
R15	10k	6MM.3	R0207/3	6mm Resistors
R16	22R	6MM.3	R0207/3	6mm Resistors
R17	1M	6MM.3	R0207/3	6mm Resistors
R18	100k	6MM.3	R0207/3	6mm Resistors
R19	100k	6MM.3	R0207/3	6mm Resistors
R20	27k	6MM.3	R0207/3	6mm Resistors
R21	100k	6MM.3	R0207/3	6mm Resistors
R22	1M	6MM.3	R0207/3	6mm Resistors
R23	47k	6MM.3	R0207/3	6mm Resistors
R24	100k	6MM.3	R0207/3	6mm Resistors
R25	10k	6MM.3	R0207/3	6mm Resistors
R26	100k	6MM.3	R0207/3	6mm Resistors
R27	1k	6MM.3	R0207/3	6mm Resistors
R28	100k	6MM.3	R0207/3	6mm Resistors
R29	1k	6MM.3	R0207/3	6mm Resistors
R30	4.7k	6MM.3	R0207/3	6mm Resistors
R31	2.2k	6MM.3	R0207/3	6mm Resistors
R32	100k	6MM.3	R0207/3	6mm Resistors
R33	10k	6MM.3	R0207/3	6mm Resistors
R34	1M	6MM.3	R0207/3	6mm Resistors
R35	10k	6MM.3	R0207/3	6mm Resistors
R36	6.8k	6MM.3	R0207/3	6mm Resistors
R37	2.2k	6MM.3	R0207/3	6mm Resistors
R38	100k	6MM.3	R0207/3	6mm Resistors
R39	6.8k	6MM.3	R0207/3	6mm Resistors
R40	10k	6MM.3	R0207/3	6mm Resistors
R41	10k	6MM.3	R0207/3	6mm Resistors
R42	100k	6MM.3	R0207/3	6mm Resistors
R43	100k	6MM.3	R0207/3	6mm Resistors
R44	100R	6MM.3	R0207/3	6mm Resistors

R45	100k	6MM.3	R0207/3	6mm Resistors
R46	10k	6MM.3	R0207/3	6mm Resistors
R47	10k	6MM.3	R0207/3	6mm Resistors
D1	1n914	DO35.3	DO35-3	DO-35 Package
D2	1n914	DO35.2	DO35-2	DO-35 Package
D3	1n914	DO35.2	DO35-2	DO-35 Package
D5	1n914	DO35.2	DO35-2	DO-35 Package
D6	1n914	DO35.2	DO35-2	DO-35 Package
C1	47n	072X0252	072X025	1000pF - 0.47uF
C2	100u	501	050_020_1	0.22 - 100uF
C3	47n	072X0252	072X025	1000pF - 0.47uF
C4	47n	072X0252	072X025	1000pF - 0.47uF
C5	10n	072X0252	072X025	1000pF - 0.47uF
C6	10p	072X0252	072X025	1000pF - 0.47uF
C7	250p	072X0252	072X025	1000pF - 0.47uF
C8	47n	072X0252	072X025	1000pF - 0.47uF
C9	2.2n	072X0252	072X025	1000pF - 0.47uF
C10	47n	072X0252	072X025	1000pF - 0.47uF
C11	68n	072X0252	072X025	1000pF - 0.47uF
C12	2.2n	072X0252	072X025	1000pF - 0.47uF
C13	10n	072X0252	072X025	1000pF - 0.47uF
C14	10p	072X0252	072X025	1000pF - 0.47uF
C15	1u	072X0352	072X035	0.15 - 1.0uF;
C16	1n	072X0252	072X025	1000pF - 0.47uF
C17	1u	072X0352	072X035	0.15 - 1.0uF;
C18	100p	072X0252	072X025	1000pF - 0.47uF
C19	10n	072X0252	072X025	1000pF - 0.47uF
C20	470n	072X0352	072X035	0.15 - 1.0uF;
C21	100n	072X0252	072X025	1000pF - 0.47uF
C22	470n	072X0352	072X035	0.15 - 1.0uF;
C23	10n	072X0252	072X025	1000pF - 0.47uF
C24	22n	072X0252	072X025	1000pF - 0.47uF
C25	1u	072X0352	072X035	0.15 - 1.0uF;
C26	100n	072X0252	072X025	1000pF - 0.47uF
C27	1u	072X0352	072X035	0.15 - 1.0uF;
C28	100u	5mm	050_020_1	0.22 - 100uF
C29	10u	5mm	050_020_1	0.22 - 100uF
C30	100u	5mm	050_020_1	0.22 - 100uF
C31	3.3n	072X0252	072X025	1000pF - 0.47uF
VOL1	100kA	POT16MM	16MM	Potentiometers
VOL2	100kA	POT16MM	16MM	Potentiometers
BIAS1	100kB	POTTRIM	B25P	Potentiometers
BIAS2	100kB	POTTRIM	B25P	Potentiometers
BIAS3	100kB	POTTRIM	B25P	Potentiometers
TONE1	100kA	POT16MM	16MM	Potentiometers

TONE2	25k Ω	POT16MM	16MM	Potentiometers
DIST1	500k Ω	POT16MM	16MM	Potentiometers
DIST2	100k Ω	POT16MM	16MM	Potentiometers
CTONE	1MA	POT16MM	16MM	Potentiometers
CVOL	1MA	POT16MM	16MM	Potentiometers
IC1	TL072P	TL072P	DIL08	OP AMP
IC2	TL072P	TL072P	DIL08	OP AMP
IC3	TL072P	TL072P	DIL08	OP AMP
IC4	MAX1044	MAX1044	DIL08	switching voltage converter
Q1	BS170	BS170	SOT54ES	N-CHANNEL MOS FET
Q2	J201	J201	TO92-	N-channel JFET
Q3	2N3904	2N3904	TO92-	NPN Transistor
Q4	J201	J201	TO92-	N-channel JFET
V	9V input	PAD	SQUARE	PAD
G	ground	PAD	SQUARE	PAD
I	in	PAD	SQUARE	PAD
L+	LED +	PAD	SQUARE	PAD
L-	LED -	PAD	SQUARE	PAD
O	out	PAD	SQUARE	PAD
VD1	Bias 2 point	PAD	SQUARE	PAD
VD2	Bias 3 point	PAD	SQUARE	PAD



