

## GOD CITY INSTRUMENTS – Socialist Jr. V1.0 Build guide

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The God City Instruments (GCI) Socialist Jr. is a highly modified interpretation of the original Brutalist Jr. DIY distortion PCB. A number of revisions and additions have been made to incorporate common mods and to improve performance. The resulting circuit is a highly versatile, high gain distortion pedal with some clever EQ controls and a wide range of saturation.

Please note, all switches used in this PCB are PCB-pin style and not solder-lug. “Mid” shift is a on/on DPDT, “dark” switch (named “bright” in the first batch of PCB’s) is an on/on SPDT, and “clip” is a on/off/on SPDT. If a on/on SPDT is used for clip, the middle position won’t work and D1 and D2 don’t need to be populated.

A note regarding the “clip” switch – if a on/off/on is used, D1 and D2 will be in the connected regardless of which position the switch is in. However, since the clipping threshold of a 1n4148 and 1n34a is roughly 1/3 that of an LED, the LED’s will be largely out of the circuit in position 3 and only the red LED will be in the circuit in position 1. So, the clipping modes are; 1.) LED/Ge, 2.) LED, 3.) asymmetrical silicon. For a wider difference in gain between the clipping modes, try omitting D1 and bridging D4 and D5 with a single 1n4148.

This pedal is an easy build, but 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/>

A complete parts kit is not available at this time, but check this Google sheet for ordering information from many parts used in this PCB. It lists one possible brand and supplier for all parts commonly used by GCI, but many other brands and suppliers will work just as well.

[docs.google.com/spreadsheets/d/1gRTF1VFbeBc9FX1ohjrtKPWfhw\\_TVHnxki03l3m7lcU/edit?pli=1#gid=27209130](https://docs.google.com/spreadsheets/d/1gRTF1VFbeBc9FX1ohjrtKPWfhw_TVHnxki03l3m7lcU/edit?pli=1#gid=27209130)

Available separately is the GCI 3PDT utility PCB for PCB pin 3PDT footswitches. This PCB makes footswitch wiring quick and easy. Not compatible with solder lug style switches.

Don’t forget to connect the ground pad of the PCB to the ground lug of the input, output, and DC power jacks! And the long leg of the status LED should go through the square pad.

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, switch, enclosure, and knobs are not listed. The schematic and a drill template for a 125BB (1590BBM) sized enclosure are also attached.

Part	Value	Description	Substitute	Substitution Notes
C1	0.22u	film cap	0.1-1u	Forms HPF with R13. Bigger = more bass/mud.
C2	0.1u	MLCC		
C3	2.2n	film cap	1n-4.7n	Forms input LPF with R1. Bigger = mud, smaller = possible RF.
C4	22n	film cap		
C5	100u	electrolytic cap	47u-220u	Power filter cap
C6	100u	electrolytic cap	47u-220u	Power filter cap
C7	0.22u	film cap	0.1u-0.47u	Forms HPF with R16. Bigger = more bass/mud.
C8	330p	MLCC		Smoothes high frequencies related to clipping of second stage.
C9	10n	film cap		
C10	22n	film cap		
C11	270p	MLCC		
C12	0.22u	film cap		
C13	1n	film cap	470p-2.2n	Switchable system LPF
C14	270p	film cap	100p-470p	System LPF
C15	22n	film cap	10n-47n	Forms HPF with R15 and Response. Bigger = more mud.
C16	0.1u	film cap		
C17	1u	film cap		
C18	1u	film cap		
C19	270p	MLCC	100p-1n	Smoothes high frequencies related to clipping of first stage.
C20	100p	MLCC		
C21	220p	MLCC		
D1	Red	3mm LED		
D2	Yellow	3mm LED		
D3	1n4148	Si diode		
D4	1n4148	Si diode		
D5	1n4148	Si diode		
D6	1n34a	Ge diode		
D7	1n5818	Scottky diode	1n5817, 1n4001	Any suitable polarity protection diode
LED	L1	LED		
IC1	MC1458	dual op amp	TL072, TLC2272, LM833	Pin compatible dual op amp
IC2	TL072	dual op amp	TLC2272, NE5532, OPA2132	Pin compatible dual op amp
CLR	4.7k	1/4 watt resistor		
R1	10k	1/4 watt resistor		
R2	2.2M	1/4 watt resistor		
R3	10k	1/4 watt resistor		
R4	10k	1/4 watt resistor		
R5	1M	1/4 watt resistor		
R6	1M	1/4 watt resistor		
R7	10k	1/4 watt resistor		
R8	10k	1/4 watt resistor		
R9	12k	1/4 watt resistor		
R10	22k	1/4 watt resistor		
R11	68k	1/4 watt resistor	47k-120k	Affects mid frequency. Lower value = lower frequency.
R12	100k	1/4 watt resistor	4.7k-33k	Affects output volume. Smaller = more volume. May cause clipping
R13	6.8k	1/4 watt resistor	4.7k-10k	Affects gain and bass in 2nd stage. Smaller = brighter and gainier.
R14	12k	1/4 watt resistor		
R15	1.2k	1/4 watt resistor		
R16	12k	1/4 watt resistor		
R17	10k	1/4 watt resistor		
R18	4.7k	1/4 watt resistor		
R19	100k	1/4 watt resistor	12k-220k	Affects output volume. Bigger = more volume. May cause clipping
R20	12k	1/4 watt resistor		
R21	10R	1/4 watt resistor (carbon)		
CLIP	SPDT.PINS	on/off/on		3 position switch!
MID	DPDT.PINS	on/on		2 position switch!
DARK	SPDT.PINS	on/on		3 position switch!

DISTORTION	B100k	DUALGANG 16mm pot		
RESPONSE	B25k	16mm pot		
LOUDNESS	B1M	16mm pot		
LEVEL	A100k	16mm pot		
S	PAD	send to PCB		
L+	PAD	LED+		
L-	PAD	LED-		
R	PAD	return from PCB		
V	PAD	9V input		
G	PAD	ground		

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