

## GOD CITY INSTRUMENTS – Lynch V1.0 Build guide

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The God City Instruments (GCI) Lynch is an active 3-band, sweepable mid, EQ circuit with which can be built as a stand-alone pedal, or used as a mod to add EQ control to another circuit. A volume trim control is also available on the front panel to compensate for any loss or boost in volume caused by equalization. Interesting results can be found using it before an overdrive, distortion or fuzz, but traditionally an EQ such as this would be placed after a dirt pedal.

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/>

For your convenience, complete parts kits including everything you need except the PCB can be purchased through Small Bear Electronics. Be wary that they may need to make substitutions for work-alike components which may or may not influence the tone of the pedal. Be aware that transistors may have been substituted for work-alikes with different pinouts.

<http://smallbear-electronics.mybigcommerce.com/kit-lynch-pcb-not-included/>

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!

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 125B (1590N1) sized enclosure are also attached.

Part	Value	Description	Substitute	Substitution Notes
C1	1u	Film cap		
C2	22n	Film cap	10n-0.1u	Input cap. Forms HPF with R3.
C3	1u	Film cap		
C4	100u	Electrolytic cap	47u-220u	Power filter capacitor
C5	100u	Electrolytic cap	47u-220u	Power filter capacitor
C6	0.1u	Film cap		
C7	470p	MLCC	220p-1n	Bigger darkens the circuit overall.
C8	0.1u	Film cap		
C9	47n	Film cap	22n-100n	Affects low frequency boost or cut. Should match C10.
C10	47n	Film cap	22n-100n	Affects low frequency boost or cut. Should match C9.
C11	4.7n	Film cap		
C12	68n	Film cap		
C13	470p	MLCC		
C14	22n	Film cap	10n-47	Affects hi frequency boost or cut.
LED	L1	LED		
D1	1n5818	Schottky diode	1n5817, 1n4001, bat 41, etc	Any suitable protection diode for 9v.
IC1	TL072	Dual Op Amp	AD712, LM833, OPA2134	Any pin compatible dual op amp.
IC2	TL072	Dual Op Amp	AD712, LM833, OPA2135	Any pin compatible dual op amp.
IC3	TL072	Dual Op Amp	AD712, LM833, OPA2136	Any pin compatible dual op amp.
CLR	4.7k	1/4 watt resistor	1k-10k	Current limiting resistor for LED.
R1	10K	1/4 watt resistor		
R2	2.2M	1/4 watt resistor	1M	Pull down resistor
R3	2.2M	1/4 watt resistor	1M	Bias reference for IC1A. Forms HPF with C2.
R4	1k	1/4 watt resistor		
R5	100k	1/4 watt resistor		
R6	10k	1/4 watt resistor	1k-100k	Affects range of trim control. Smaller will be louder, but more clipped.
R7	22k	1/4 watt resistor	27k-47k	Affects balance of differential summing amp. R7-9, and R19 must match.
R8	22k	1/4 watt resistor		Affects balance of differential summing amp. R7-9, and R19 must match.
R9	22k	1/4 watt resistor		Affects balance of differential summing amp. R7-9, and R19 must match.
R10	10K	1/4 watt resistor		
R11	10K	1/4 watt resistor		
R12	10K	1/4 watt resistor		
R13	10k	1/4 watt resistor		
R14	10K	1/4 watt resistor		
R15	2.2K	1/4 watt resistor	1k-10k	Affects range of frequency pot
R16	2.2K	1/4 watt resistor	1k-10k	Affects range of frequency pot
R17	10k	1/4 watt resistor		
R18	10k	1/4 watt resistor		
R19	22k	1/4 watt resistor		Affects balance of differential summing amp. R7-9, and R19 must match.
R20	3.3k	1/4 watt resistor		
R21	3.3k	1/4 watt resistor		
FREQ	C50k	16mm dual pot	B50k, C100k	Frequency range or taper not ideal unless C50k is used
MID	B10k	16mm potentiometer		
LOW	B100k	16mm potentiometer		
HI	B100k	16mm potentiometer		
TRIM	A100k	16mm potentiometer		
S	PAD	Send to PCB		
L+	PAD	LED+		
L-	PAD	LED-		
R	PAD	Return from PCB		
V	PAD	9v input		
G	PAD	Ground		





