

GOD CITY INSTRUMENTS – Face V1.4 Build guide

The God City Instruments (GCI) Face is a high gain, mid-boosted silicon fuzz inspired by the GCI SBD. The SBD uses an active op amp stage as a mid boost whereas Face gets its mid boost from a Jfet-based band-pass filter with switchable center frequencies. Both pedals' fuzz sections are derived from the Vox Super Beatle Distortion, which is very similar to the classic Fuzz Face circuit.

Notes regarding transistor substitutions and values for R8, R10:

This circuit is very sensitive to transistor substitutions. PLEASE double check pinouts if not using BC338's in the BJT position. A common substitute, 2n4401 has the opposite pinout to a BC338 and needs to be installed backwards.

Using 100R for R8 and 33k for R10 worked well in the first prototype of this circuit, but transistor gains vary widely and these values often result in a fuzz with too much gain and not enough range, particularly when transistors substitutions are made. Safest bet is to swap these values and use 100R for R10 and 33k for R8. You may also find that 18k for each works well.

This pedal is easy to build, however 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-face-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! 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 125B (1590N1) sized enclosure are also attached.

Part	Value	Description	Substitute	Substitution notes
C1	47u	6.3mm electrolytic cap	100u	Power filter cap
C2	470p	ceramic cap	100p-1n	Affect amount of LPF in Jfet stage
C3	47n	film cap		
C4	1u	film cap		
C5	0.22u	film cap	0.33u	Lowers frequency of switch position 1
C6	0.22u	film cap	0.1u - 0.47u	Affects frequencies of all switch positions
C7	1u	film cap		
C8	1n	film cap		
C9	220p	ceramic cap	100p-1n	Affects amount of LPF in BJT stage
C10	22u	5mm electrolytic cap	2.2u - 47u	Affects gain and tone of BJT stage. Increase for more gain.
D1	1n5817	Schottky diode	1n5818, 1n4001, Bat41, etc	Any suitable protection diode for 9v supply
LED	L1	3mm LED		
L	100MH	Abrakon AISR-01-104J	Bournes, Murata	Inductors with DCR less than 100 ohms are best
Q1	PF5102	N-channel JFET	J201, MPF102, 2n5457, etc	Double check pinout
Q2	PF5102	N-channel JFET	J201, MPF102, 2n5457, etc	Double check pinout
Q3	BC338	NPN Transistor	2n5088, 2n4401, 2n2222a, etc	Medium to high gain BJT. Double check pinout.
Q4	BC338	NPN Transistor	2n5088, 2n4401, 2n2222a, etc	Medium to high gain BJT. Double check pinout.
Q1BIAS	25k	trim pot	50k	Transistor substitutions may require bigger trim pot
Q3BIAS	25k	trim pot	50k	Transistor substitutions may require bigger trim pot
CLR	4.7k	1/4 watt resistor	1k-10k	Current limiting resistor for LED
R1	3.3k	1/4 watt resistor		
R2	10k	1/4 watt resistor		
R3	10k	1/4 watt resistor	1k-47k	Sets maximum output volume
R4	1k	1/4 watt resistor	1k-33k	Influences bias voltage
R5	4.7k	1/4 watt resistor	10k-33k	Influences bias voltage
R6	10k	1/4 watt resistor	1k-47k	Forms a LPF with C8
R7	2.2M	1/4 watt resistor	1M	Pull down resistor
R8	100R	1/4 watt resistor	33k	Affects gain
R9	120k	1/4 watt resistor		
R10	33k	1/4 watt resistor	100R	Affects gain
R11	10k	1/4 watt resistor		
LEVEL	A50k	16mm pot		
MID	C10K	16mm pot		
FUZZ	C1K	16mm pot		
FREQ	SPDT on/off/on	switch	on/on, rotary, or bypass	Affects frequency of mid boost
S	PAD	send to PCB		
L+	PAD	LED +		
L-	PAD	LED -		
R	PAD	return from PCB		
V	PAD	9v input		
G	PAD	ground		
VD	PAD	Jfet bias	Set to 4.5v then tune by ear	
VC	PAD	BJT bias	Set to 3v then tune by ear	



