BeanScream X Type: OVERDRIVE Build Level: Beginner Based On: Ibanez® Tube Screamer™

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Overview

The BeanScream (based on the Tube Screamer[™]) is the successor to the GreanBean project which was offered on madbeanpedals from 2013-2023. This version adds a couple tweaks to offer options beyond the core TS tone, but still retains all the classic settings of the stock circuit.

Controls

- VOL: Total Output.
- TONE: CCW is a treble cut, and CW is treble boost.
- **DRIVE:** Gain amount.
- **SUBS:** This control blends in extra bottom end at the clipping stage. It also increases the overdrive amount.
- CLIP: Selects between silicon (stock), mosfet or LED clipping.

Further Study:

https://www.electrosmash.com/tube-screamer-analysis

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B.O.M.

Resistors		Caps		Diodes	
R1	1M	C1	22n	D1, D2	LED
R2	1k	C2	1uF	D3, D4	1n914
R3	510k	C3	51pF	D5	BAT46
R4	10k	C4	47n	D6	1n4001
R5	10k	C5	220n	Tran	sistors
R6	4k7	C6	220n	Q1	Si, JFET
R7	51k	C7	220n	Q2	Si
R8	1k	C8	1uF	Q3	2N7000
R9	10k	C9	100n	Q4	2N7000
R10	220R	C10	1uF	IC	
R11	1k	C11	100uF	IC1	4558
R12	1k	C12	100n	Switch	
R13	510k	C13	10uF	CLIP	On/On/On
R14	10k			Pots	
R15	100R			SUBS	50kC
R16	10k			TONE	20kW
R18	47R			VOL	100kA
R19	10k			DRIVE	1MA
R20	10k				

Shopping List

Value	QTY	Туре	Rating
47R	1	Carbon / Metal Film	1/4W
100R	1	Carbon / Metal Film	1/4W
220R	1	Carbon / Metal Film	1/4W
1k	4	Carbon / Metal Film	1/4W
4k7	1	Carbon / Metal Film	1/4W
10k	7	Carbon / Metal Film	1/4W
51k	1	Carbon / Metal Film	1/4W
510k	2	Carbon / Metal Film	1/4W
1M	1	Carbon / Metal Film	1/4W
51pF	1	Ceramic / MLCC / Mica	25v Min.
22n	1	Film	25v Min.
47n	1	Film	25v Min.
100n	2	Film	25v Min.
220n	3	Film	25v Min.
1uF	3	Film	25v Min.
10uF	1	Electrolytic	25v Min.
100uF	1	Electrolytic	25v Min.
LED	2	diffused, Red or Yellow	5mm
1n914	2		
BAT46	1		
1n4001	1		
2N7000	2		
Si	2	2n3904, 2n5088, etc	
4558	1		
DPDT	1	On/On/On, Type 2	
50kC	1	PCB Right Angle	16mm
20kW	1	PCB Right Angle	16mm
100kA	1	PCB Right Angle	16mm
1MA	1	PCB Right Angle	16mm

Additional Hardware

(1) 1590B enclosure
(2) Lumberg 1/4" Compact mono jacks

(1) Slim 2.1mm DC jack
(1) Standard 3PDT footswitch
(1) 5mm LED

Build Notes

Changes to the stock circuit:

- Added option for either a JFET or BJT input buffer.
- Increased Drive pot from 500kA to 1MA.
- Added Subs control.
- Diode clipping options. The use of the On/On/On switch allows the clipping options to be arranged in order of increasing volume, as well.
- Changed Vol pot from 100kB to 100kA (to allow more range when LED clipping is used).
- Replaced signal path electrolytic caps with film.
- If you want something a little different, try using a J201 or 2n5457 for Q1 instead of the typical BJT. The difference is subtle, but to my ears it adds just a touch of smoothness to the tone which I like. NOTE: R3 @ 510k is on the low side for JFET gate bias but it seems to work fine here. If you want to go all out, use 1M there with the FET option.





Use a 2n3904 or 2n5088 for Q1A for the stock build. Alternatively, use J201 or 2n5457 at Q1B for a JFET buffer. You can also use the JFET SMD counterparts.

 The LED clipping option will be very loud so expect to adjust the Vol control when using it. The LEDs most likely won't light up much, if at all, but will be doing some clipping. I like them for low Drive settings with some Subs added in.

Circuit Voltages

IC1	4558	Q1	2n5457
1	4.61	D	9.25
2	4.70	S	5.99
3	4.61	G	4.68
4	0.00	Q2	2n3904
5	4.61	С	9.25
6	4.61	В	3.57
7	4.61	Е	3.06
8	9.25		

9.44vDC One Spot supply Current Draw: ~5mA



Build Pic 0 90 Q CLIP 30 10-3-DRIVE eans ean 0.7 t 20 -101 0 0 R \bigcirc 2 ŝ Ĉ 1 . 1 612 1 1 ā 1 1 1 1 2 -2 TONE SUBS 70 12) ALC: madbeanpedals 0 di. 0 0 IN SHOLED GHO ATHOUT

Schematic

