

EDGE LORD

FX TYPE: Envelope Filter

Based on the Ibanez® SB-7™

Enclosure Size: 1590BB

"Softie" compatibility: none

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Overview

The **Edgelord** is a clone of the Ibanez SB-7 Bass Synthesizer. This circuit has largely been overlooked by the DIY community and it's a shame because it is very fun to play with on bass and guitar. It's not really a synthesizer, though. More accurate to call it an envelope filter with optional distortion. But, certainly it's different enough than other filter projects out there to command your attention.

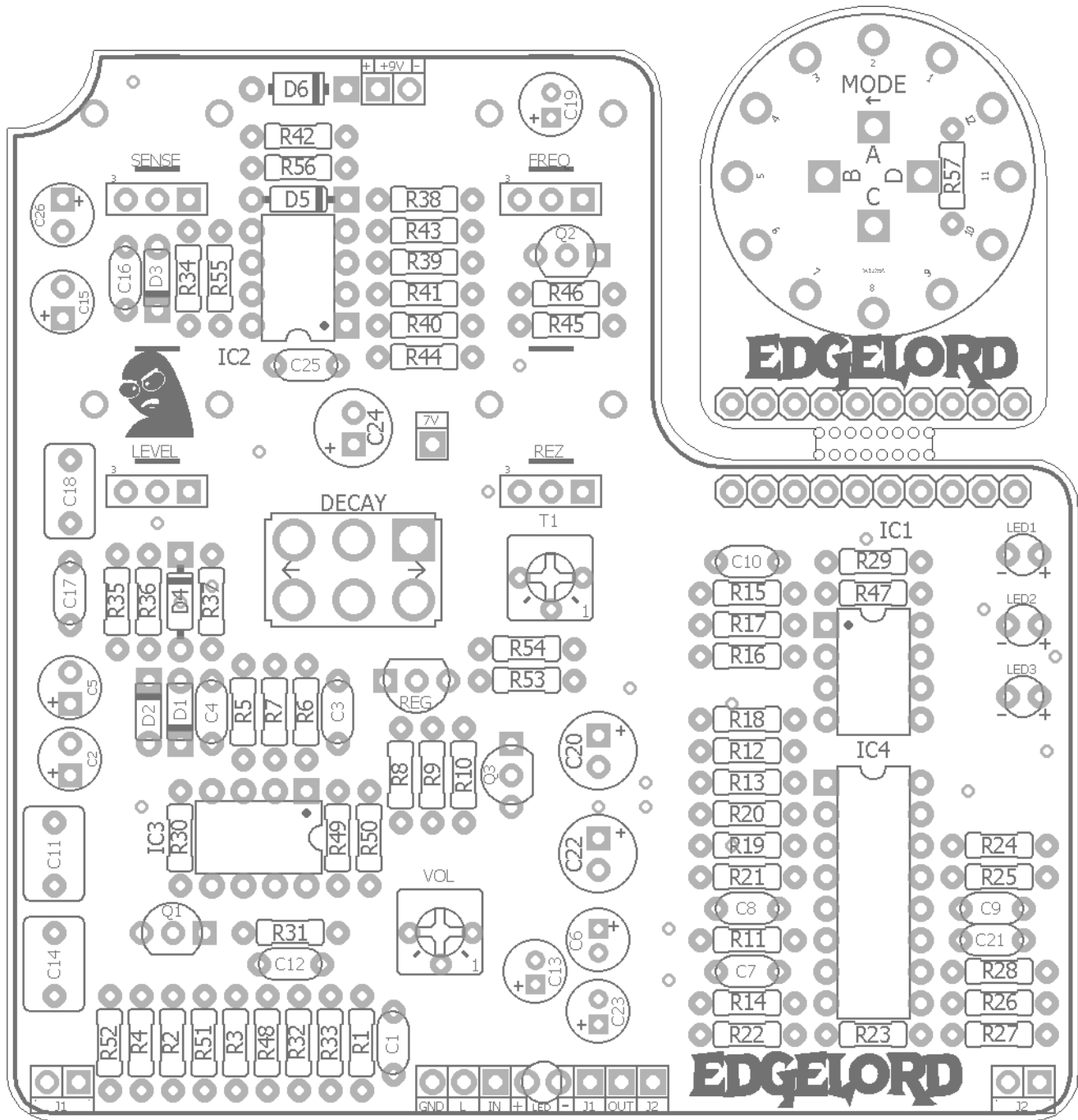
Changes from the stock circuit: true bypass instead of FET bypass, toggle and rotary switches in place of slide switches, output gain trimmer, and optional LEDs that light up according to which "synth" mode you are in.

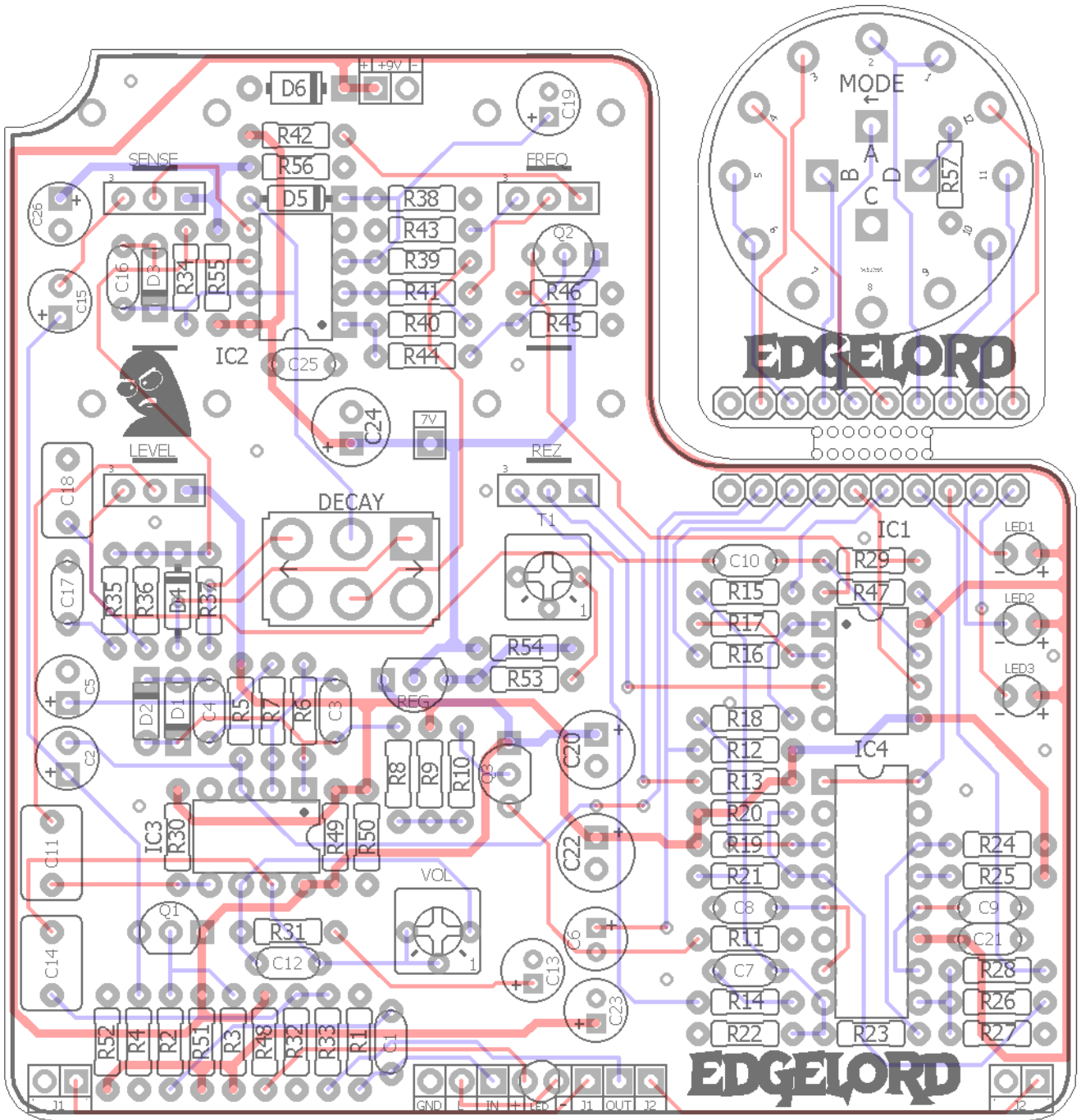
Controls

- **FREQ** - Sets the frequency sweep of the envelope.
- **SENSE** - Adjusts the sensitivity of the envelope detector.
- **REZ** - Adjusts the resonant peak of the envelope frequency.
- **LEVEL** - Sets the output volume of the effect.
- **DECAY** - This switch toggles between short and long envelope decay times.
- **MODE** - This rotary selects three modes for the effect: Autowah, Synth1 and Synth2. Autowah is clean envelope. Synth1 and Synth2 add different amounts of distortion to the envelope for a pseudo synthesizer effect.
- **T1** - This trimmer sets the output voltage of the LM317TZ regulator. It should be adjusted for 7v (see Notes).
- **VOL** - This trimmer sets the output gain (see Notes).

Terms of Use: You are free to use purchased **Edgelord** circuit boards for both DIY and small commercial operations. You may not offer **Edgelord** PCBs for resale or as part of a "kit" in a commercial fashion. Peer to peer re-sale is fine, though.

Technical assistance for your build(s) is available via the [madbeanpedals forum](#). Please go there rather than emailing me for assistance on [builds](#). This is because (1) I'm not always available to respond via email in a timely and continuous manner, and (2) posting technical problems and solutions in the forum creates a record from which other members may benefit.





Resistors		Resistors		Caps		Diodes	
R1	1M	R30	510k	C1	22n	D1	1n914
R2	1k	R31	4k7	C2	1uF	D2	1n914
R3	510k	R32	100k	C3	68pF	D3	1n914
R4	10k	R33	470R	C4	100n	D4	1n914
R5	510k	R34	20k	C5	1uF	D5	1n914
R6	100k	R35	1k	C6	1uF	D6	1N4001
R7	1k	R36	2k2	C7	82n	LED1-3	3mm
R8	56k	R37	27k	C8	820pF	ICs	
R9	6k8	R38	330k	C9	820pF	IC1	4558
R10	1k	R39	150k	C10	56n	IC2	4558
R11	10k	R40	22k	C11	1uF	IC3	4558
R12	510k	R41	68k	C12	470pF	IC4	LM13700
R13	5k6	R42	5k6	C13	10uF	Transistors	
R14	47k	R43	39k	C14	1uF	Q1	2N5088
R15	7k5	R44	18k	C15	2u2	Q2	2N5088
R16	10k	R45	47k	C16	68pF	Q3	2N5088
R17	10k	R46	6k8	C17	220n	Regulator	
R18	10k	R47	12k	C18	470n	REG	LM317LZ
R19	1k	R48	4k7	C19	10uF	Switches	
R20	1k	R49	10k	C20	100uF	MODE	4P3T
R21	20k	R50	10k	C21	100n	DECAY	DPDT
R22	4k7	R51	9k1	C22	100uF	Trimmers	
R23	20k	R52	22k	C23	10uF	T1	500R
R24	1k	R53	1k	C24	100uF	VOL	10k
R25	1k	R54	270R	C25	100n	Pots	
R26	20k	R55	10k	C26	47uF	FREQ	10kA
R27	4k7	R56	10k			REZ	10kC
R28	10k	R57	4k7			LEVEL	100kB
R29	13k					SENSE	100kB

Value	QTY	Type	Rating	Value	QTY	Type	Rating
270R	1	Metal / Carbon Film	1/4W	1uF	3	Electrolytic	16v min.
470R	1	Metal / Carbon Film	1/4W	2u2	1	Electrolytic	16v min.
1k	9	Metal / Carbon Film	1/4W	10uF	3	Electrolytic	16v min.
2k2	1	Metal / Carbon Film	1/4W	47uF	1	Electrolytic	16v min.
4k7	5	Metal / Carbon Film	1/4W	100uF	3	Electrolytic	16v min.
5k6	2	Metal / Carbon Film	1/4W	1n914	5		
6k8	2	Metal / Carbon Film	1/4W	1N4001	1		
7k5	1	Metal / Carbon Film	1/4W	LED	3	*optional, any color	3mm
9k1	1	Metal / Carbon Film	1/4W	4558	3		
10k	10	Metal / Carbon Film	1/4W	LM13700	1		
12k	1	Metal / Carbon Film	1/4W	2N5088	1		
13k	1	Metal / Carbon Film	1/4W	LM317LZ	1	TO-92	
18k	1	Metal / Carbon Film	1/4W	4P3T	1	Pin Mount	
20k	4	Metal / Carbon Film	1/4W	DPDT	1	On/On, Solder Lug	
22k	2	Metal / Carbon Film	1/4W	500R	1	Bourns 3362p	
27k	1	Metal / Carbon Film	1/4W	10k	1	Bourns 3362p	
39k	1	Metal / Carbon Film	1/4W	10kA	1	PCB Right Angle, Metal Shaft	9mm
47k	2	Metal / Carbon Film	1/4W	10kC	1	PCB Right Angle, Metal Shaft	9mm
56k	1	Metal / Carbon Film	1/4W	100kB	2	PCB Right Angle, Metal Shaft	9mm
68k	1	Metal / Carbon Film	1/4W				
100k	2	Metal / Carbon Film	1/4W				
150k	1	Metal / Carbon Film	1/4W				
330k	1	Metal / Carbon Film	1/4W				
510k	4	Metal / Carbon Film	1/4W				
1M	1	Metal / Carbon Film	1/4W				
68pF	2	Ceramic/MLCC	16v min.				
470pF	1	Ceramic/MLCC	16v min.				
820pF	2	Ceramic/MLCC	16v min.				
22n	1	Film	16v min.				
56n	1	Film	16v min.				
82n	1	Film	16v min.				
100n	3	Film	16v min.				
220n	1	Film	16v min.				
470n	1	Film	16v min.				
1uF	2	Film	16v min.				

LM13700:

<https://www.mouser.com/ProductDetail/926-LM13700N-NOPB/>

LM13600 (sub):

<http://smallbear-electronics.mybigcommerce.com/ic-njm13600d/>

LM317LZ:

<https://www.mouser.com/ProductDetail/511-LM317LZ/>

LM317 (220 style sub):

<http://smallbear-electronics.mybigcommerce.com/ic-lm317t/>

4P3T:

<http://smallbear-electronics.mybigcommerce.com/26mm-enclosed-4p2-3t/>

DPDT (On/On):

<http://smallbear-electronics.mybigcommerce.com/dpdt-on-on-solder-term/>

Bourns 3362p (500R, 10k):

<https://www.mouser.com/ProductDetail/652-3362P-1-501LF/>

<https://www.taydaelectronics.com/potentiometer-variable-resistors/cermet-potentiometers/3362p/500-ohm-trimmer-potentiometer-cermet-1-turn-3362p.html>

<https://www.mouser.com/ProductDetail/652-3362P-1-103LF/>

<https://www.taydaelectronics.com/potentiometer-variable-resistors/cermet-potentiometers/3362p/10k-ohm-trimmer-potentiometer-cermet-1-turn-3362p.html>

9mm pots (10kA, 10kC, 100kB):

<http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-9mm-right-angle-pc-mount/>

Thinline DC Jack:

<http://smallbear-electronics.mybigcommerce.com/dc-power-jack-all-plastic-unswitched-2-1-mm/>

Enclosed Mono:

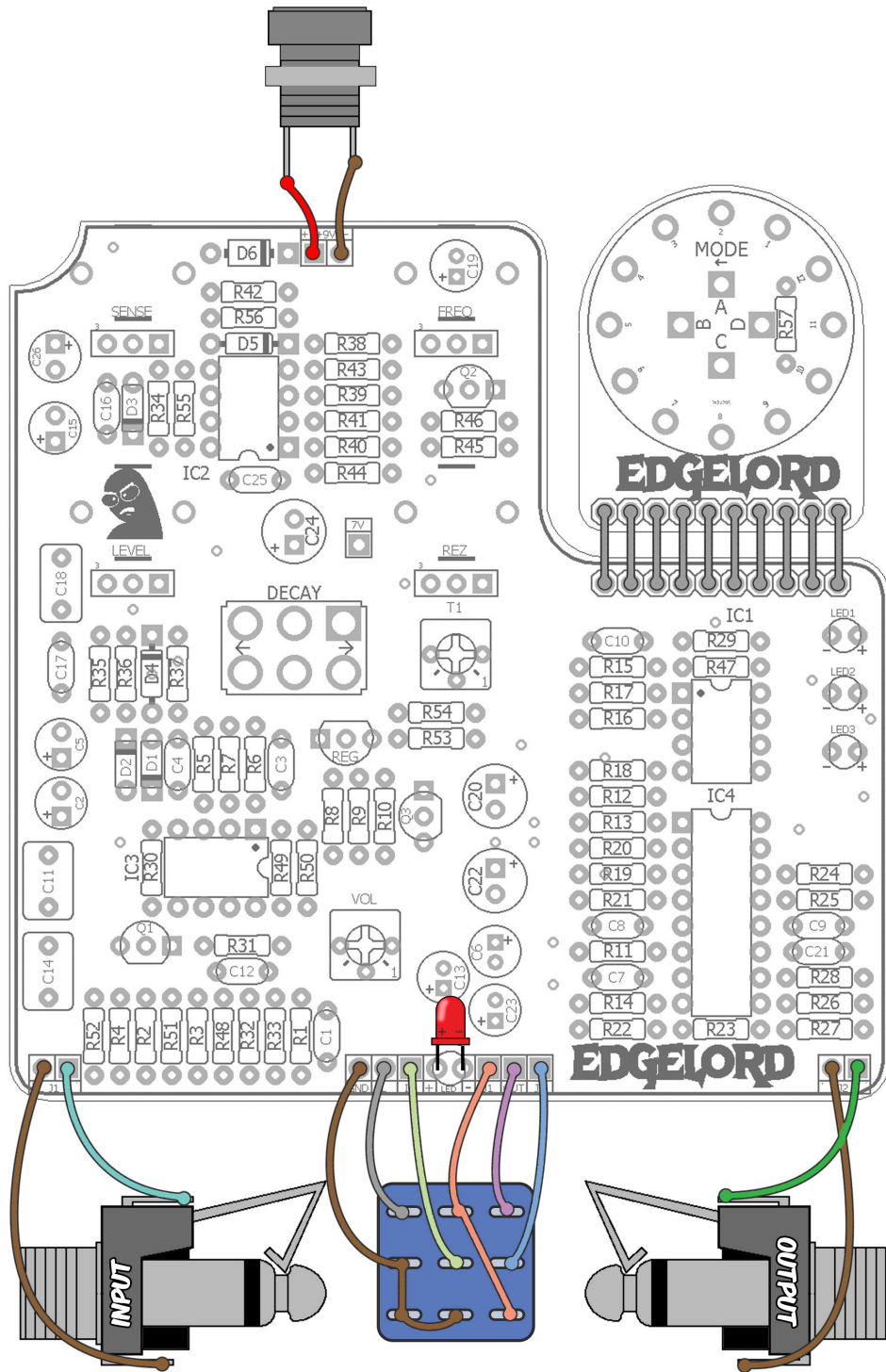
<http://smallbear-electronics.mybigcommerce.com/1-4-in-mono-enclosed-jack/>

<http://smallbear-electronics.mybigcommerce.com/1-4-in-mono-enclosed-switchcraft-111x/>

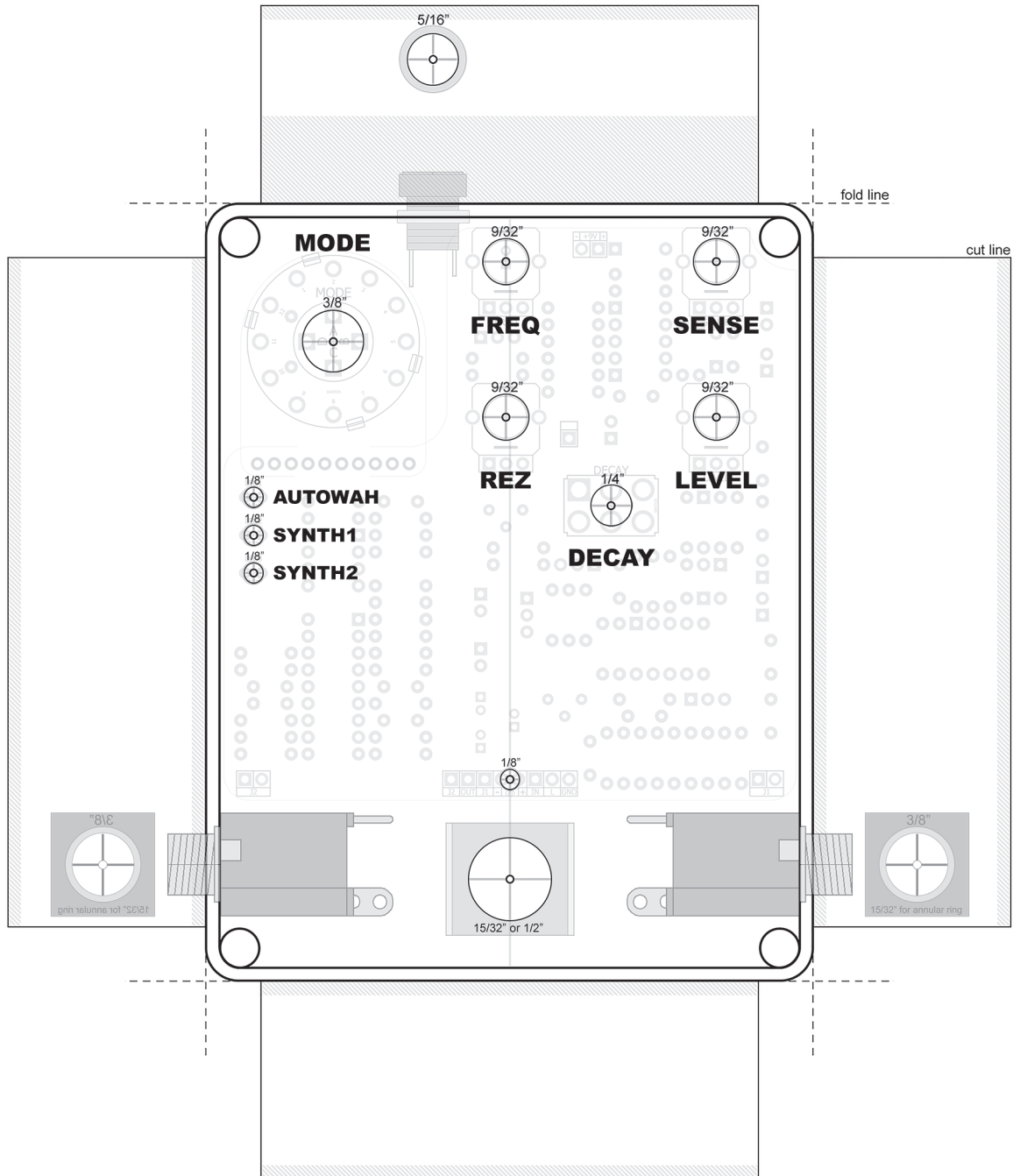
Lumberg Mono:

<http://smallbear-electronics.mybigcommerce.com/lumberg-1-4-compact-shrouded-mono-jack/>

- Be sure to break apart the two PCBs before you start to populate. You can trim the edges of each with a wire cutter, if you like.
- The rotary switch should be soldered directly to the smaller PCB. Be sure you solder R57 first before you solder the rotary switch to the breakout board.
- The two PCBs are designed so you can use either straight pin headers or wires to connect them. Straight pin headers will save time, however if you go this route you need to make sure both PCBs are co-planar. IOW, make sure the rotary switch PCB is parallel with the main PCB so you do not have to apply pressure or bend the pins when the entire thing is mounted in an enclosure.
- I used these pins and simply cut them to the number needed (10): <https://www.taydaelectronics.com/connectors-sockets/pin-headers/40-pin-2-00-mm-single-row-pin-header-strip.html>
- You can just opt for wires to connect the boards if you don't want to mess with the headers.
- Use your multimeter to adjust the T1 trimmer. Place the negative lead to ground and positive lead to the "7V" pad next to C24. Adjust T1 until you read 7vDC.
- For the VOL trimmer, set the LEVEL pot to around 60-70% up and adjust the trimmer until you have unity gain. This part was a mod I added to ensure all the bass dudes would be able to get the output they desired depending on whether they use active or passive pickups.
- If you use the 3mm LEDs (LED1-3) they will light up depending on where the MODE switch is set. You can omit them if you like - it won't alter the effect in any way.
- The LM317LZ is the recommended regulator due to the smaller size and low current demand. But, you can use the 220-style LM317 (this is what I used in my build). It will require you to bend the tab on the regulator to 90 deg. FYI: both regulators have the same pinout.



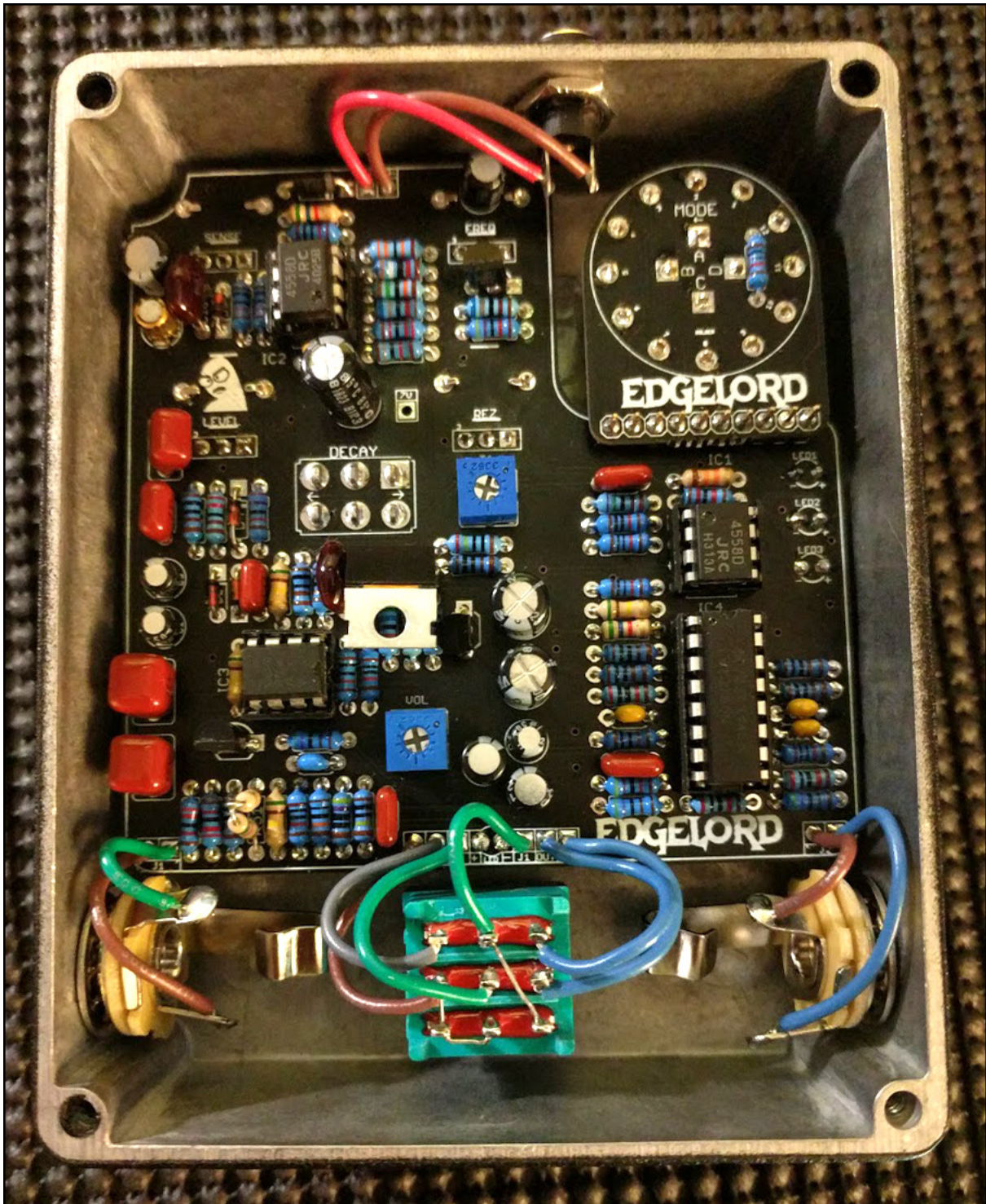
Note: Drill Guides are approximate and may require tweaking depending on the types of jacks, switches and pots you use.



- You can use any jack style except for the Marshall type (they may be a bit too wide).
- The LEDs for the mode switch are optional.
- **The drill location for the Mode rotary switch is for direct connection with pin headers. If you are using wires instead of pin headers, move the drill location up a few millimeters to allow space for the wires.**

IC1 4558		IC2 4558		IC3 4558		IC3 LM13700	
1	4.7	1	2.75	1	4.7	1	1.12
2	4.7	2	3.45	2	4.7	2	ignore
3	4.68	3	3.45	3	4.43	3	4.7
4	0	4	0	4	0	4	4.7
5	4.7	5	3.5	5	4.47	5	5.9
6	4.7	6	3.51	6	4.7	6	0
7	4.74	7	3.51	7	4.7	7	5.9
8	9.39	8	7	8	9.39	8	4.72
						9	4.66
						10	5.82
Q1		Q2		REG LM317			
C	9.39	C	7	I	9.39	11	9.4
B	6.08	B	~2	G	0	12	5.83
E	5.8	E	~1.4	O	7	13	4.69
						14	4.7
						15	ignore
						16	1.15

- 9.42vDC One Spot
- Current Draw: ~19mA



If you use the LM317 (220 style regulator) gently bend the tab to a right angle to allow for clearance on the bottom lid.

