

# T-BAGGER

**FX TYPE: DISTORTION**

*Based on the Fulltone® RTO™*

*PCB artwork ©2011 madbeanpedals*

*Release date: 01.30.11 – REVISED 2.27.11*

The **T-Bagger** is a modified version of the Fulltone® RTO™. The RTO is a very basic and versatile distortion/overdrive similar to the Tube Reamer and Ibanez® Tube Screamer™. It does not have the traditional TS input buffer, but does retain its output buffer. This was most likely done to allow more interactive response with the guitar's volume control on the front end of the circuit.

The stock RTO features standard back to back silicon diode clipping. The **T-Bagger** has been modified so that you can build the unit stock, or do a modified clipping section similar to the Zen Drive™. This modification involves replacing the two silicon diodes with a germanium diode and two mosfets (wired as diodes) in the feedback loop of the gain stage.

One additional mod is informally included: **Bass Contour**. This mod allows you to change the frequency range at which the clipping section functions. It is the same type of control used on the Timmy™ pedal; fully counter-clockwise results in full bass, and as the control is turned up, the bass is reduced. See the illustration below to include this mod in your build.

## The controls are as follows

**DRIVE:** This control varies the distortion produced by the effect.

**TONE:** This control reduces treble by turning it counter-clockwise.

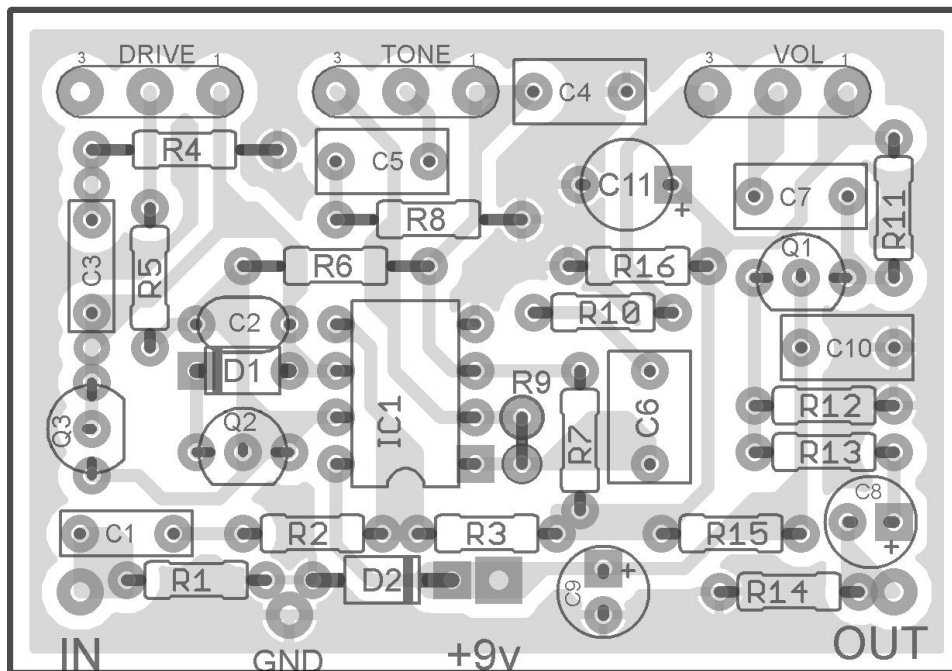
**VOL:** The output level.

## SmallBear Parts Guide – [www.smallbearelec.com](http://www.smallbearelec.com)

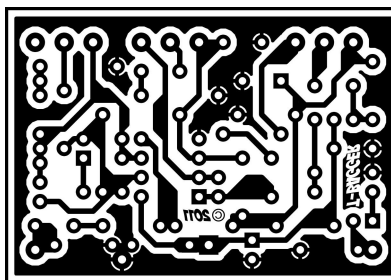
- Panasonic ECQ-B / V film caps or Topmay box caps
- 1/4W carbon or metal film resistors
- 16v electrolytic radial caps
- Ceramic or Silver Mica caps (for pF values)
- 16mm Alpha Pots

## Notes

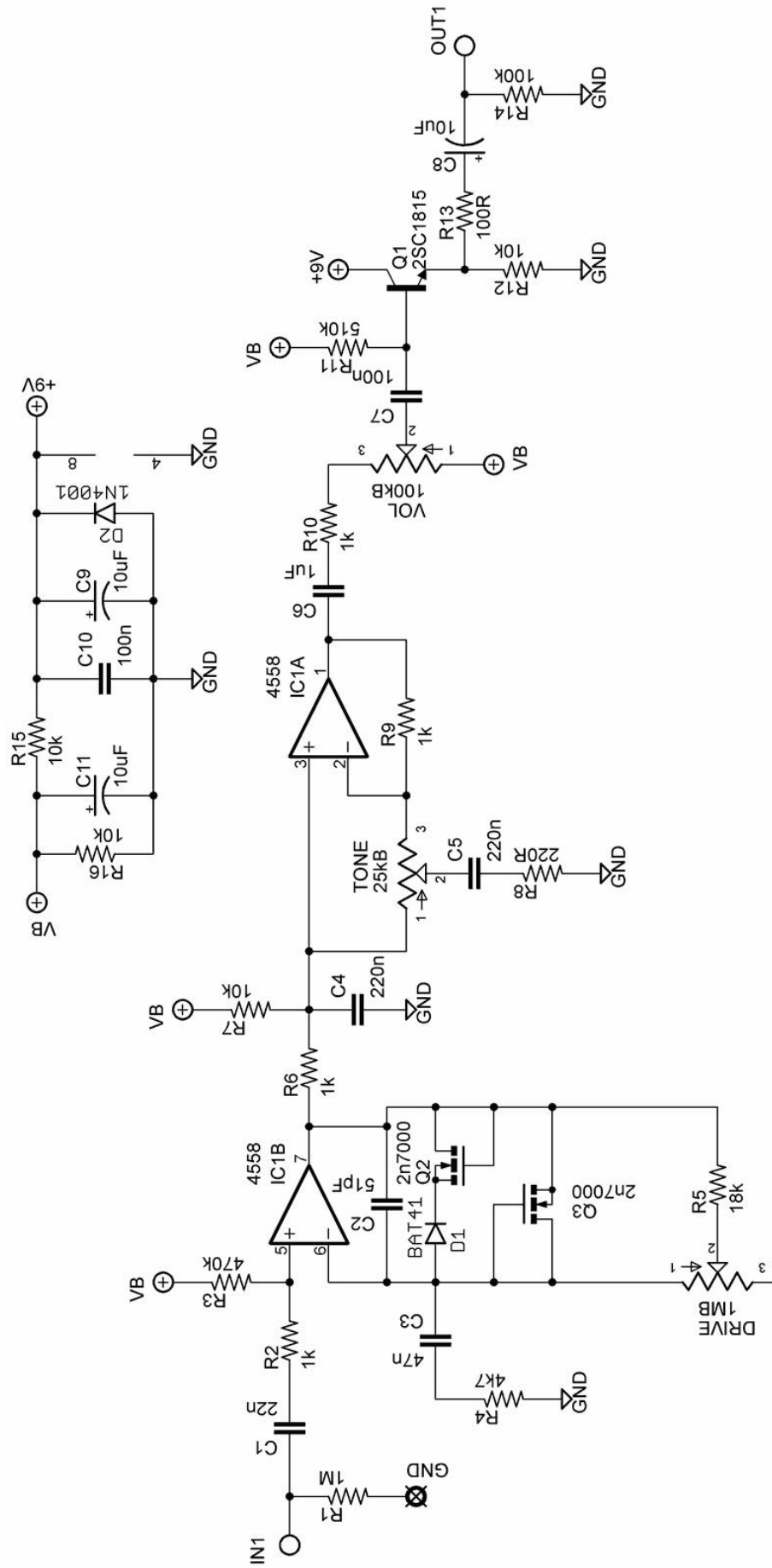
- The 2SC1815 transistor has a pinout of E-C-B. If you wish to sub this with a more traditional transistor like the 2N5089 (E-B-C), you will need to bend the C and B legs of it around to work with this layout. Other transistors with the E-C-B pinout include the 2SC945 and 2SC1828.
- Suggested op-amps: LF353n, JRC4558, TCL2272



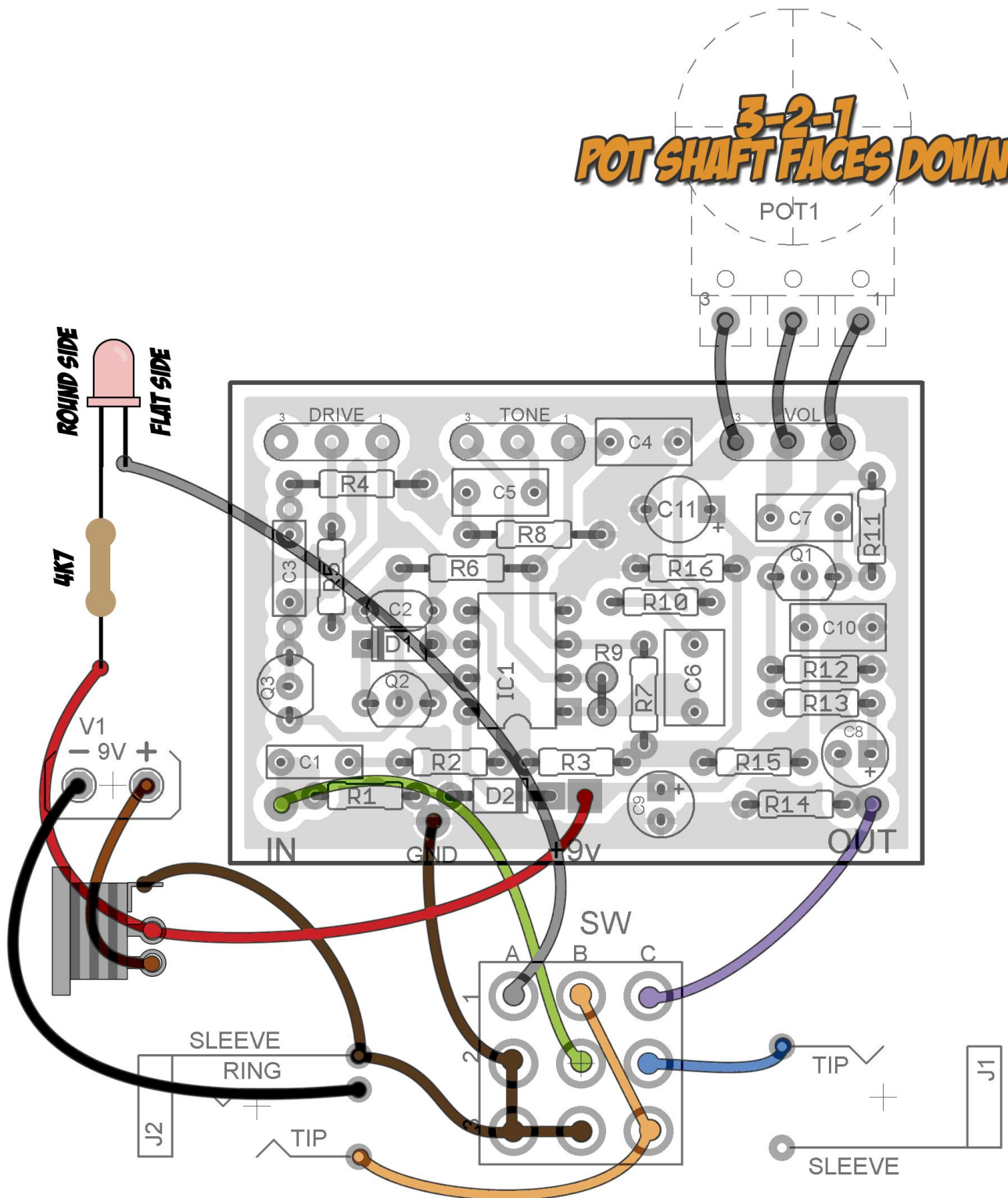
**2.07" W x 1.44" H (including borders)**

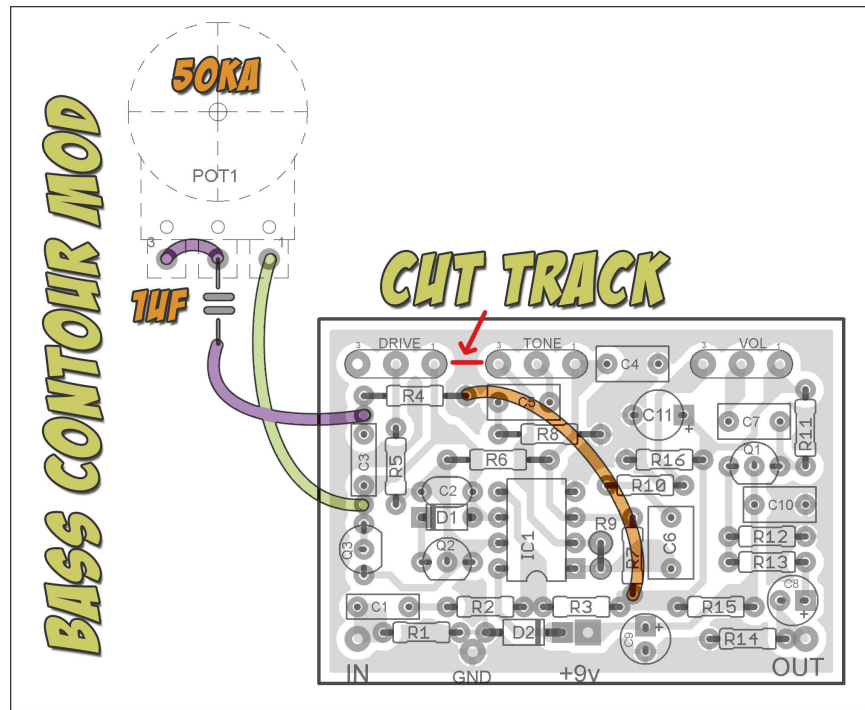


Resistors		Caps		Diodes	
R1	1M	C1	22n	D1	BAT41
R2	1k	C2	51pF	D2	1N4001
R3	470k	C3	47n	<b>Transistors</b>	
R4	4k7	C4	220n	Q1	2SC1815
R5	18k	C5	220n	Q2, Q3	2n7000
R6	1k	C6	1uF	<b>IC</b>	
R7	10k	C7	100n	IC1	Dual Op-Amp
R8	220R	C8	10uF	<b>Pots</b>	
R9	1k	C9	10uF	DRIVE	1MB
R10	1k	C10	100n	TONE	25kB
R11	510k	C11	10uF	VOL	100kB
R12	10k				
R13	100R				
R14	100k				
R15	10k				
R16	10k				

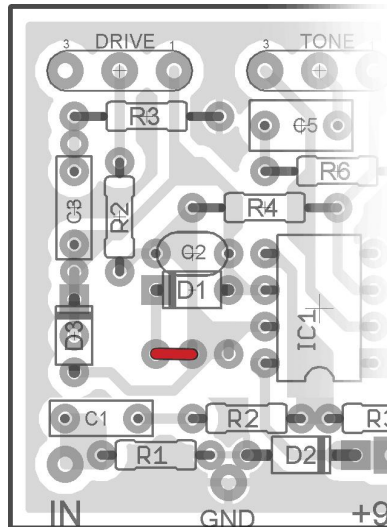


**3-2-1  
POT SHAFT FACES DOWN**



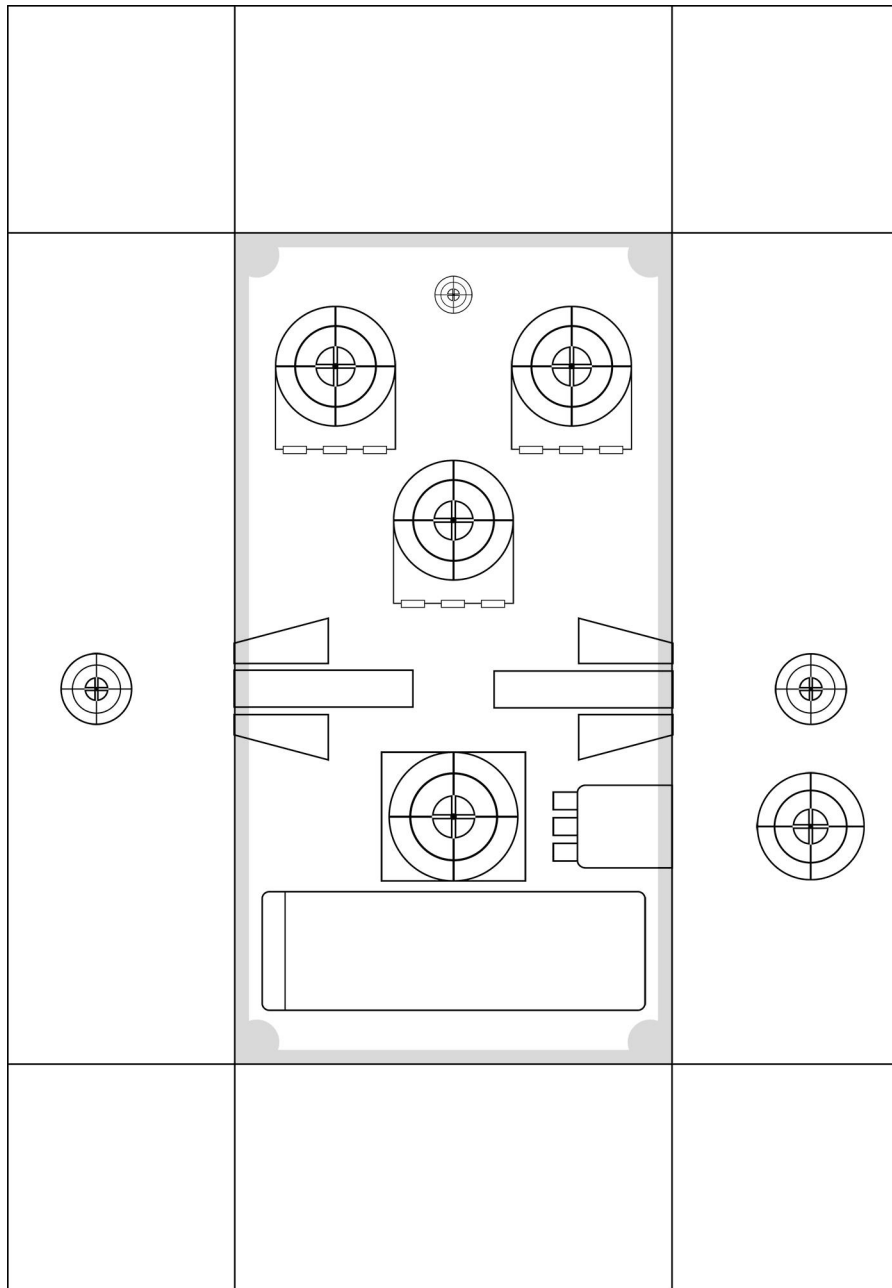


**Bass Contour Mod (revised 2.27):** Solder one lead of a 1uF film capacitor to lug 2 of a 50kA pot. You can fold that lead over to lug 3 and solder, but this is not totally necessary. Solder a wire to the other lead of the cap and wire it to the board as shown. Lug 1 of the pot will also need to be wired as shown. Using an Xacto knife, cut the ground plane at the red line from the illustration. This disconnects R4 from ground. Solder one end of a wire to the lead and solder the other end to the R3/R7 junction. This connects R4 to Vb, which is necessary to make this mod work correctly.



**Stock clipping:** Change D1 to 1n914. Add D3 (1N4005). Install the jumper as shown by the red wire.

**1590B Layout**  
**4.64" W x 6.69" H**



*This product is intended for DIY use only. Commercial use, including the sale of PCBs, kits or pedals utilizing this information, is strictly prohibited.*