http://www.madbeanpedals.com PRESENTS

TILT

FX TYPE: OVERDRIVE

The **Tilt** is a simple, yet versatile overdrive design with distortion capabilities. The basic premise of the circuit is taken from Culturejam's "OwlBear" overdrive, which uses a single Big Muff gain stage wrapped between and input and output stage. The **Tilt** utilizes this idea, albeit with a different "wrapper". The input stage will look familiar to anyone who has built the "Slambox"; it's a mosfet based boost with a static gain control via a fixed resistor. This is followed by a gain control into the Muff stage. Here, 2n7000 transistors are used for clipping in place of the more common 1n914. Following that is a "James" type bass and treble control and then a lower gain output stage. Finally a single switch takes the circuit into overload (saturation) for more distortion/fuzz-like tones.

Overall, the **Tilt** offers a wide array of gain with varying pick dynamics. At lower gain settings, pick attack is accentuated. At high gain settings, the pick attack decreases and takes on a more violin-like quality for fast/intensive lead work.

Controls

DRIVE: Sets the total gain in normal and saturation modes.
BASS/TREBLE: A passive "James" network that allows cut or boost of both bass and treble frequencies.
VOL: Sets the output volume.
SAT: The saturation control shorts the source resistor on the input gain transistor to ground for maximum gain and saturation of the subsequent circuit.

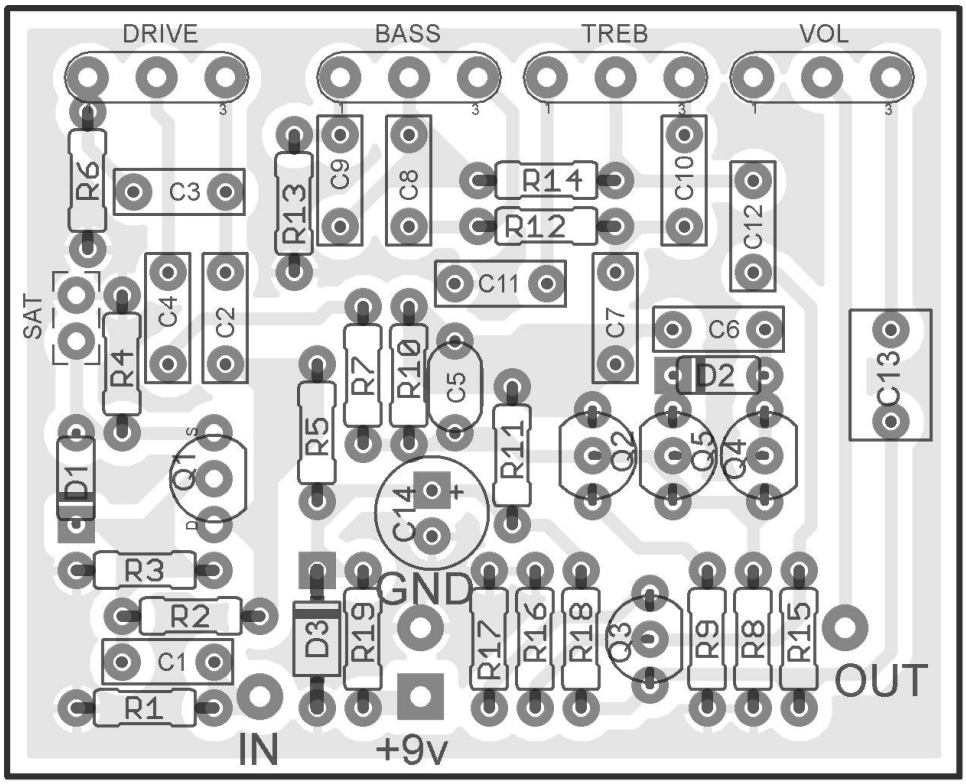
Notes

- Increase **R4** to make the "normal" stage have less gain. Any value between 1k - 2k will work.

- You can shift the overall bass or treble amount of the circuit most easily by changing **C5** and/or **C7** before the tone controls. Increasing **C5** will decrease the total treble and increasing **C7** will increase the total bass. The vales shown in the schematic offered the best balance between single coils and P-90s in both neck and bridge positions in my own testing. Socketing these two components before committing the circuit to an enclosure is recommended.

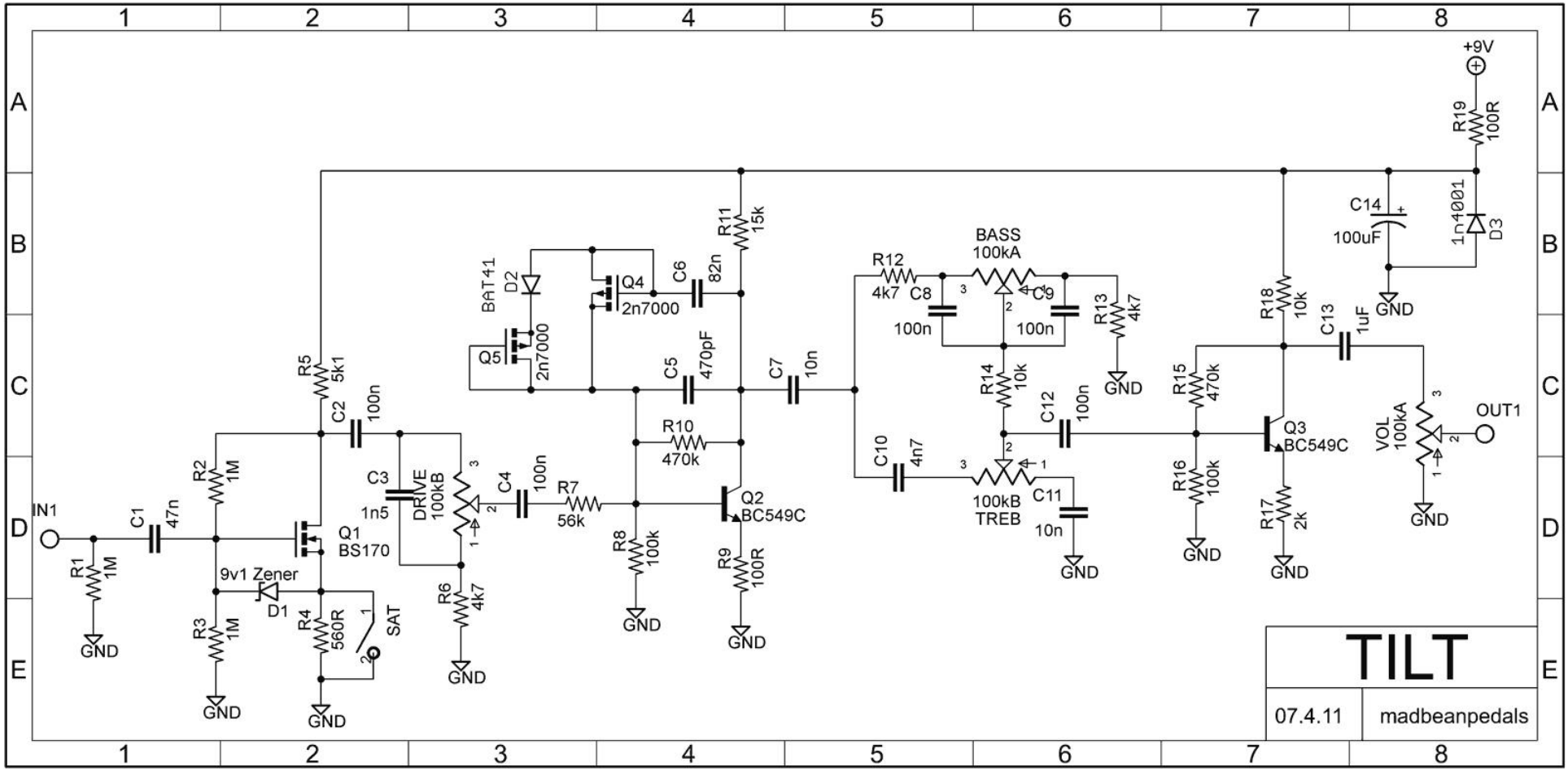
- You can sub any high gain transistor you like for **Q3**, but keep in mind that the pin-out of the BC549 is 180° opposite than a 2n5088, for example.

Layout Diagram



Bill of Materials

Resistors		Caps		Diodes	
R1	1M	C1	47n	D1	9v1 Zener
R2	1M	C2	100n	D2	BAT41
R3	1M	C3	1n5	D3	1n4001
R4	560R	C4	100n	**Transistors**	
R5	5k1	C5	470pF	Q1	BS170
R6	4k7	C6	82n	Q2, Q3	BC549C
R7	56k	C7	10n	Q4, Q5	2n7000
R8	100k	C8	100n	**Switch**	
R9	100R	C9	100n	SAT	SPST
R10	470k	C10	4n7	**Pots**	
R11	15k	C11	10n	DRIVE	100kB
R12	4k7	C12	100n	BASS	100kA
R13	4k7	C13	1uF	TREB	100kB
R14	10k	C14	100uF	VOL	100kA
R15	470k				
R16	100k				
R17	2k				
R18	10k				
R19	100R				


TILT
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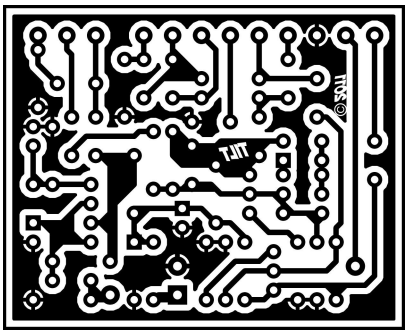
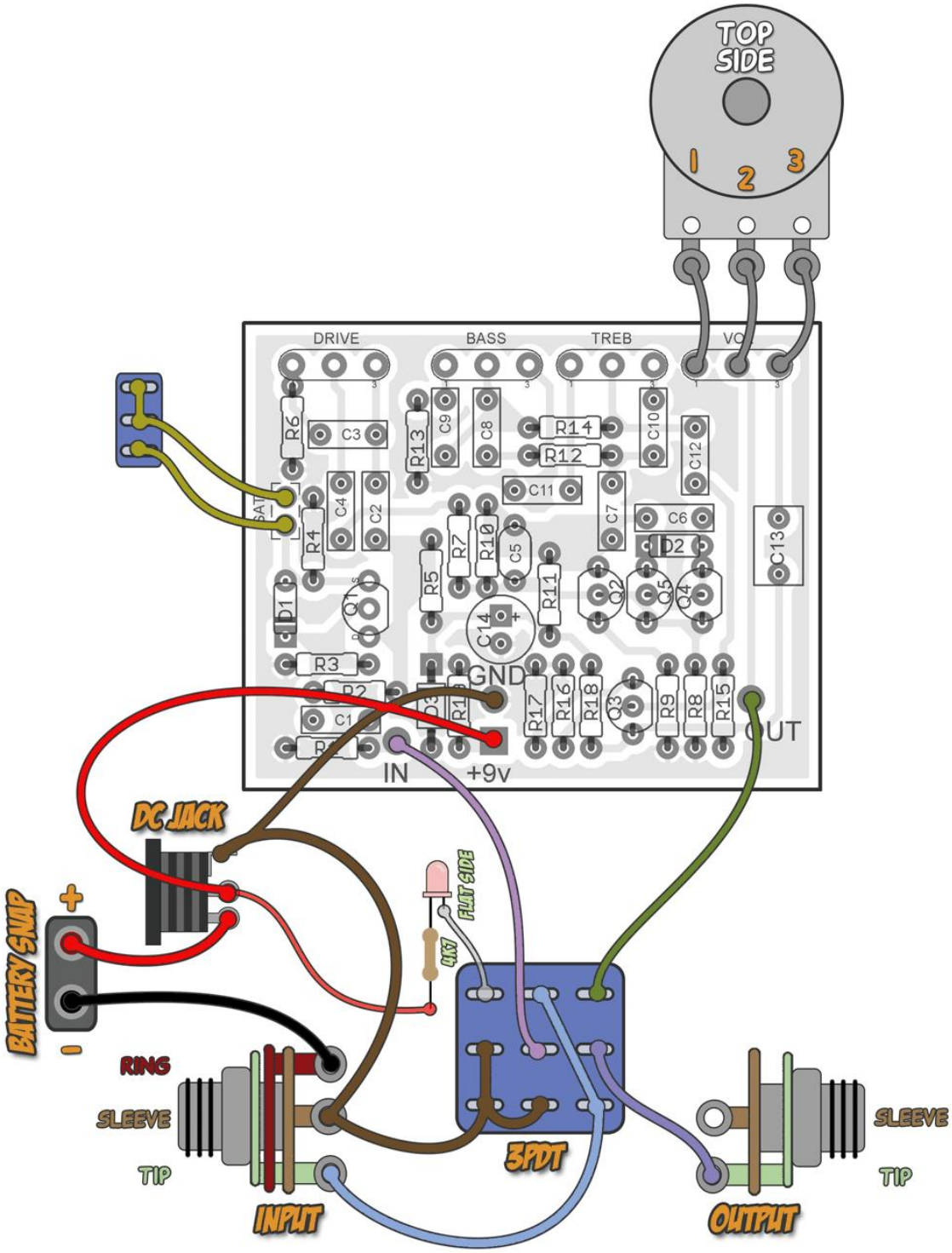
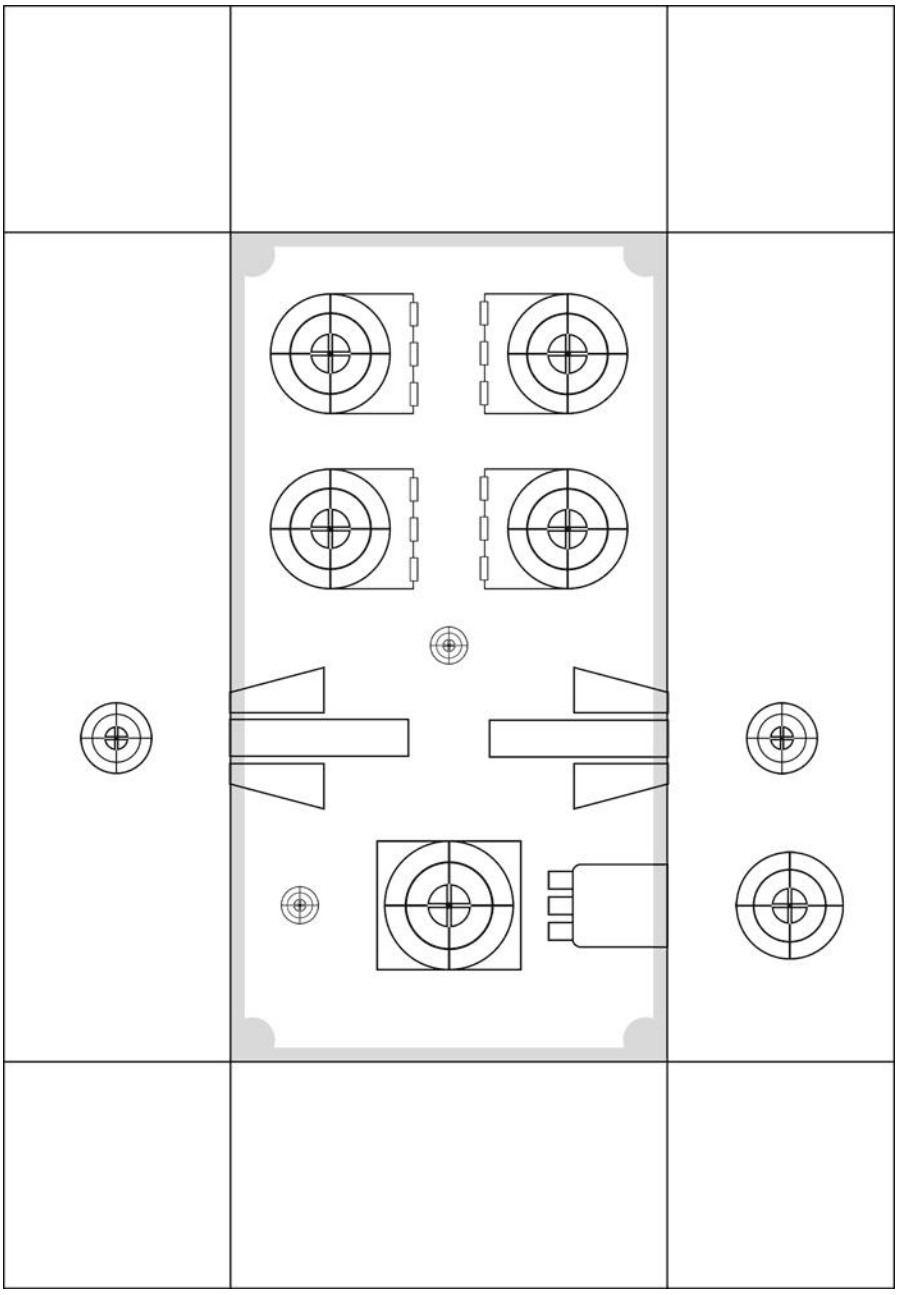
IN1
OUT1
+9V
GND
Q1 BS170
Q2 BC549C
Q3 BC549C
Q4 2n7000
Q5 2n7000
D1 9v1 Zener
D2 BAT41
D3 1n4001
SAT
DRIVE 100kB
BASS 100kA
TREB 100kB
VOL 100kA
R1 1M
R2 1M
R3 1M
R4 560R
R5 5k1
R6 4k7
R7 56k
R8 100k
R9 100R
R10 470k
R11 15k
R12 4k7
R13 4k7
R14 10k
R15 470k
R16 100k
R17 2k
R18 10k
R19 100R
C1 47n
C2 100n
C3 1n5
C4 100n
C5 470pF
C6 82n
C7 10n
C8 100n
C9 100n
C10 4n7
C11 10n
C12 100n
C13 1uF
C14 100uF

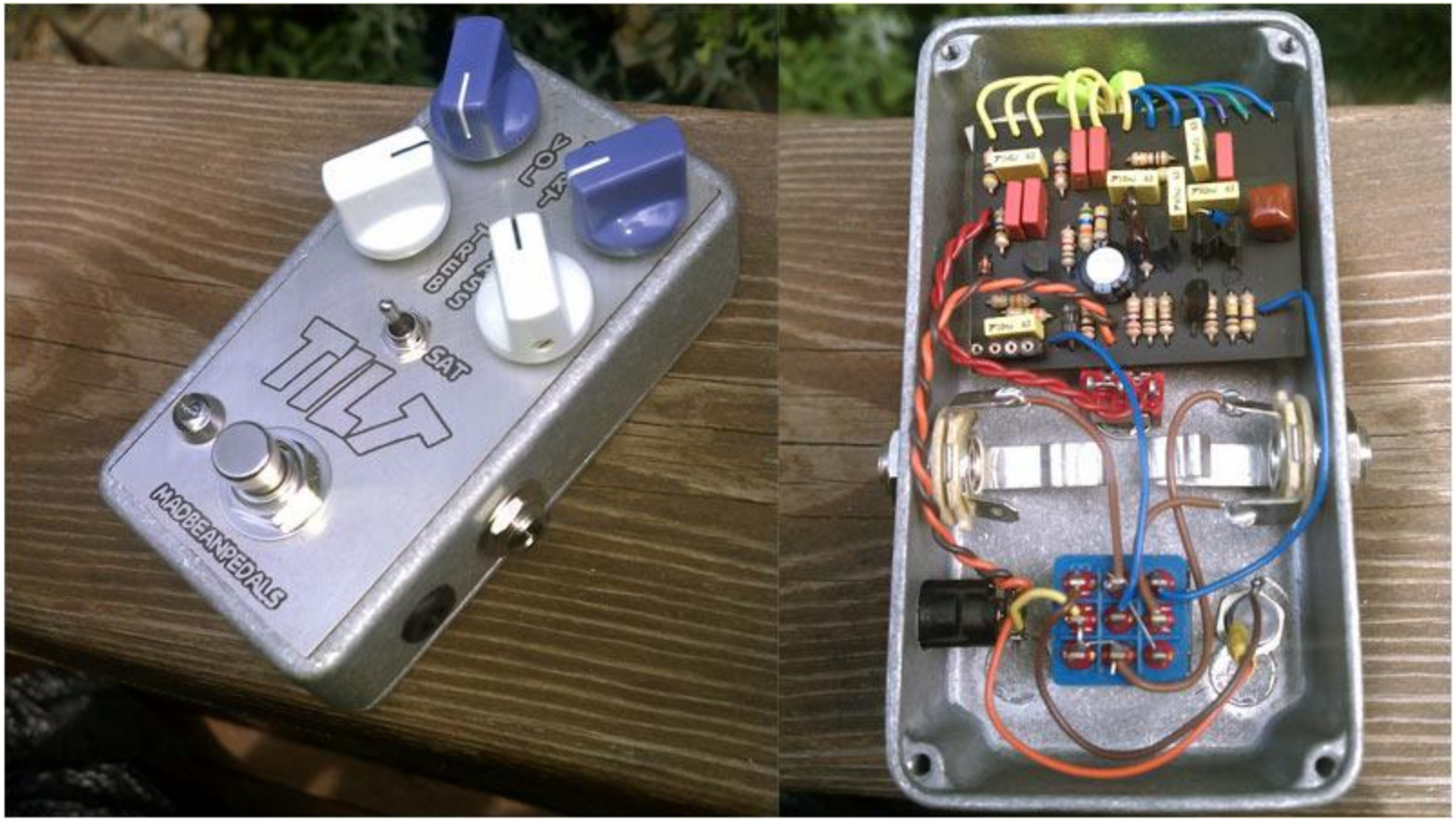
2.09”W x 1.69”H




TOP SIDE
1
2
3
DRIVE
BASS
TREB
VOL
GND
IN
+9v
OUT
DC JACK
BATTERY SNAP
+
-
FLAT SIDE
4K7
RING
SLEEVE
TIP
INPUT
3PDT
SLEEVE
TIP
OUTPUT

4.64” x 6.69”
1590B




SAT
TLT
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