PROJECT NAME

BUSINESS CARD DRIVE

aion DIY GUITAR EFFECTS

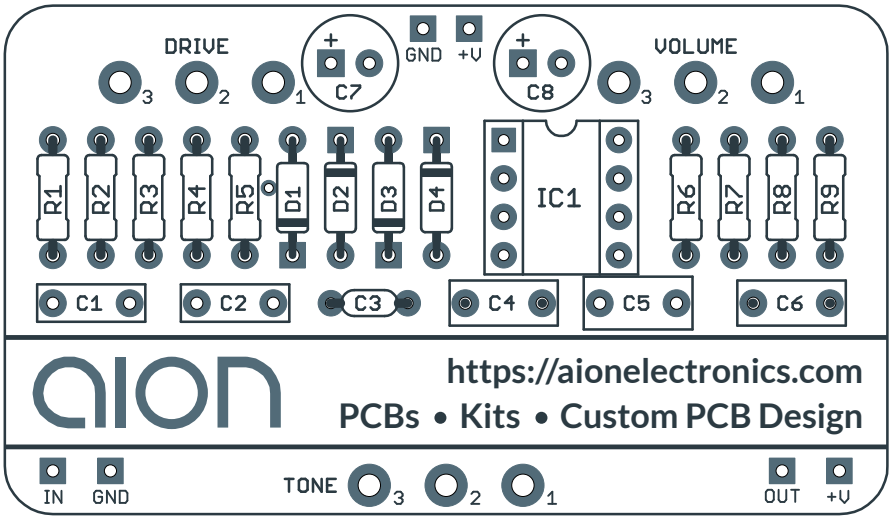
BASED ON
Lovepedal Eternity

BUILD DIFFICULTY
Intermediate

EFFECT TYPE
Overdrive

DOCUMENT VERSION
1.0.0 (2019-04-11)

PROJECT SUMMARY
A low-parts-count overdrive based on a stripped-down Tube Screamer, this circuit is the template for many high-dollar boutique drive pedals.



Actual size is 2.3" x 1.3".

OVERVIEW

The Business Card Drive is a fully-functional overdrive effect disguised as a business card. It's designed to fit the same enclosure style as the new 125B projects, although since it doesn't come with a bypass PCB, the bypass footswitch and LED must be wired manually.

A full-sized project based on the Lovepedal Eternity will be released soon.

USAGE

- **Tone** controls the treble response of the effect. The center point (12:00) is flat. When turned to the left, it cuts treble, and when turned to the right, it boosts treble.
- **Drive** controls the amount of gain in the op-amp feedback diode clipping stage.
- **Volume** controls the overall output of the effect.

PARTS LIST

This parts list is also available in a spreadsheet format which can be imported directly into Mouser for easy parts ordering. Mouser doesn't carry all the parts (most notably potentiometers) so the second tab lists all the non-Mouser parts as well as sources for each.

View parts list spreadsheet →

PART	VALUE	TYPE	NOTES
R1	2M2	Metal film resistor, 1/4W	
R2	1M	Metal film resistor, 1/4W	
R3	3k3	Metal film resistor, 1/4W	
R4	20k	Metal film resistor, 1/4W	
R5	1k	Metal film resistor, 1/4W	
R6	10k	Metal film resistor, 1/4W	
R7	10k	Metal film resistor, 1/4W	
R8	1k	Metal film resistor, 1/4W	
R9	330R	Metal film resistor, 1/4W	
C1	47n	Film capacitor, 7.2 x 2.5mm	
C2	100n	Film capacitor, 7.2 x 2.5mm	
C3	47pF	MLCC capacitor, NP0/C0G	
C4	150n	Film capacitor, 7.2 x 2.5mm	
C5	1uF	Film capacitor, 7.2 x 3.5mm	
C6	220n	Film capacitor, 7.2 x 2.5mm	
C7	47uF	Electrolytic capacitor, 5mm	
C8	100uF	Electrolytic capacitor, 6.3mm	
D1	1N914	Fast-switching diode, DO-35	
D2	1N914	Fast-switching diode, DO-35	
D3	1N914	Fast-switching diode, DO-35	
D4	1N914	Fast-switching diode, DO-35	
LEDR	4k7	Metal film resistor, 1/4W	LED current-limiting resistor. Adjust value to change LED brightness.
IC1	JRC4558D	Operational amplifier, DIP8	
IC1-S	DIP-8 socket	IC socket, DIP-8	
DRIVE	500kB	16mm right-angle PCB mount pot	
TONE	5kB	16mm right-angle PCB mount pot	
VOL.	500kB	16mm right-angle PCB mount pot	

PARTS LIST, CONT.

PART	VALUE	TYPE	NOTES
IN	1/4" stereo	1/4" phone jack, closed frame	Switchcraft 112BX or equivalent.
OUT	1/4" mono	1/4" phone jack, closed frame	Switchcraft 111X or equivalent.
DC	2.1mm	DC jack, 2.1mm panel mount	Mouser 163-4302-E or equivalent.
BATT	Battery snap	9V battery snap	Optional. Use the soft plastic type—the hard-shell type will not fit.
FSW	3PDT	Stomp switch, 3PDT	
ENC	125B	Enclosure, die-cast aluminum	Can also use a Hammond 1590N1.

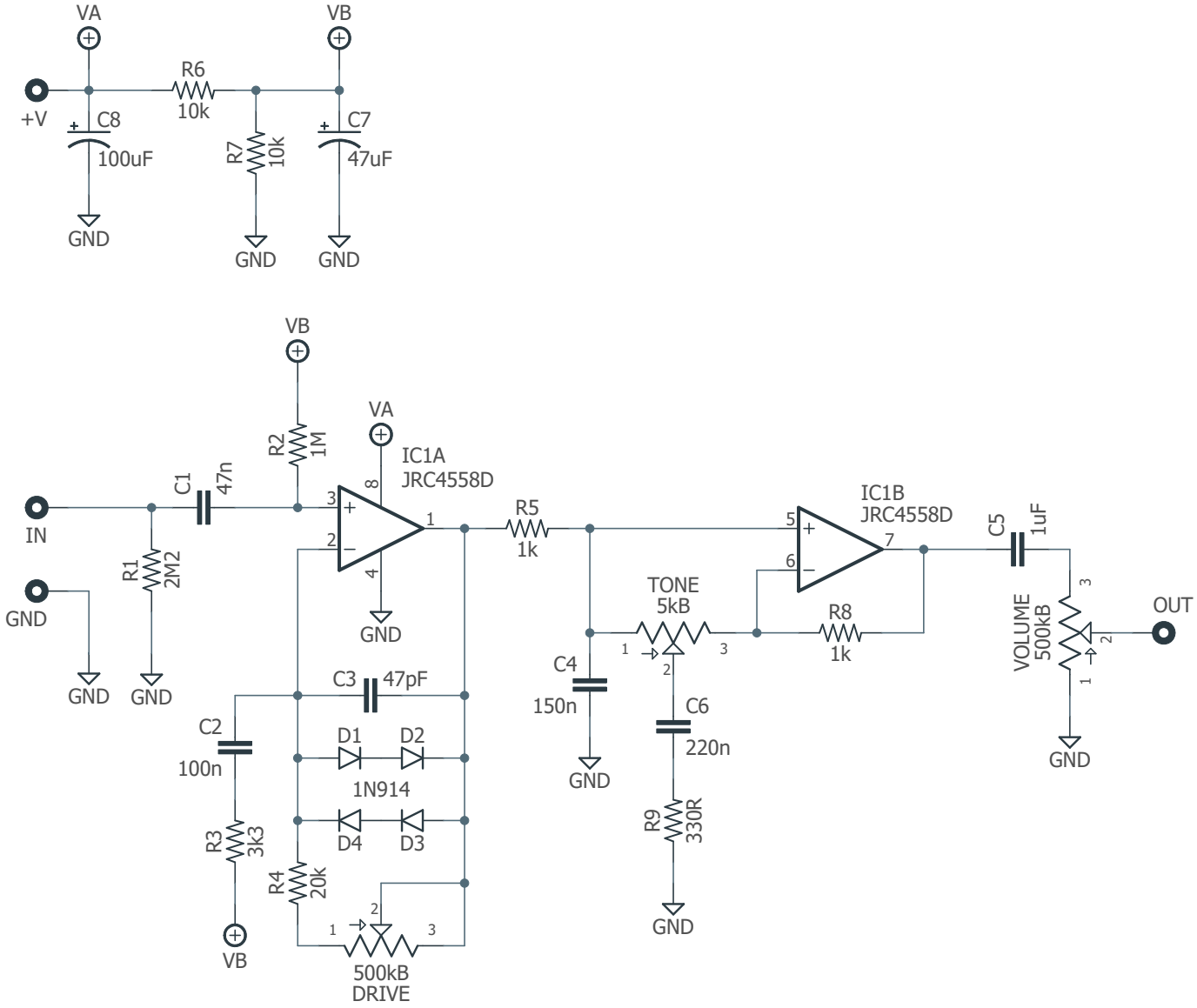
BUILD NOTES

Son of Screamer variation

The parts list is for the Lovepedal Eternity, but the schematic is also identical to Jack Orman/AMZ's legendary "Son of Screamer" if you swap out a few parts. Here are the values to change if you want to build a Son of Screamer.

- R2: 470k
- R3: 4.7k
- R4: 47k
- R9: 220R
- C2: 47n
- C4: 220n
- D2: jumper
- D4: jumper
- Tone: 20kW
- Volume: 10kB

SCHEMATIC


VA
VB
+V
R6
10k
C8
100uF
R7
10k
C7
47uF
GND
GND
GND
VB
VA
IC1A
JRC4558D
R2
1M
C1
47n
IN
R1
2M2
GND
GND
GND
R5
1k
IC1B
JRC4558D
C5
1uF
TONE
5kB
R8
1k
OUT
VOLUME
500kB
C4
150n
C6
220n
GND
GND
GND
C3
47pF
C2
100n
D1
D2
1N914
D4
D3
R3
3k3
R4
20k
R9
330R
VB
500kB
DRIVE

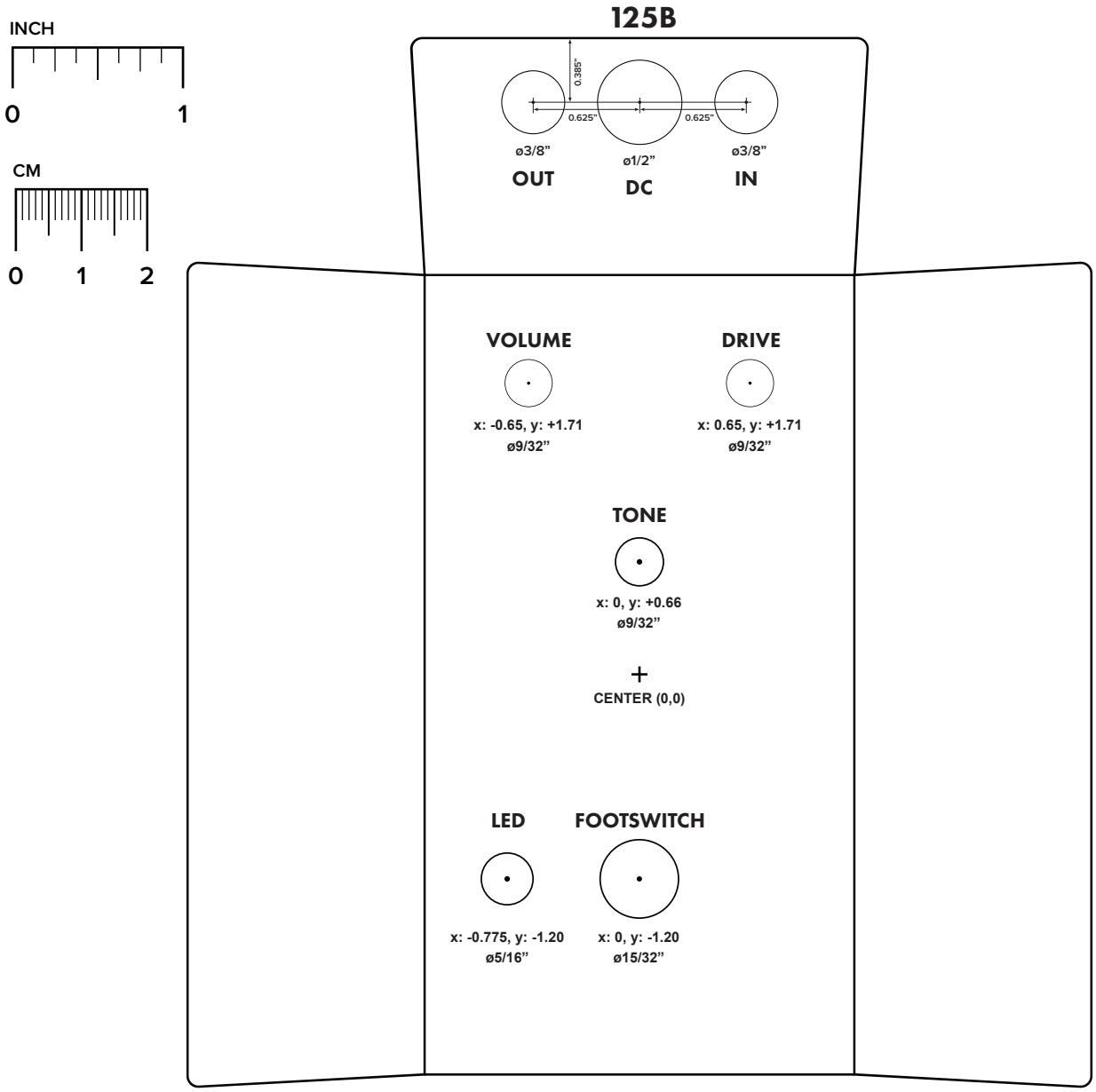
DRILL TEMPLATE

Cut out this drill template, fold the edges and tape it to the enclosure. Before drilling, it's recommended to first use a center punch for each of the holes to help guide the drill bit.

Ensure that this template is printed at 100% or "Actual Size". You can double-check this by measuring the scale on the printed page.

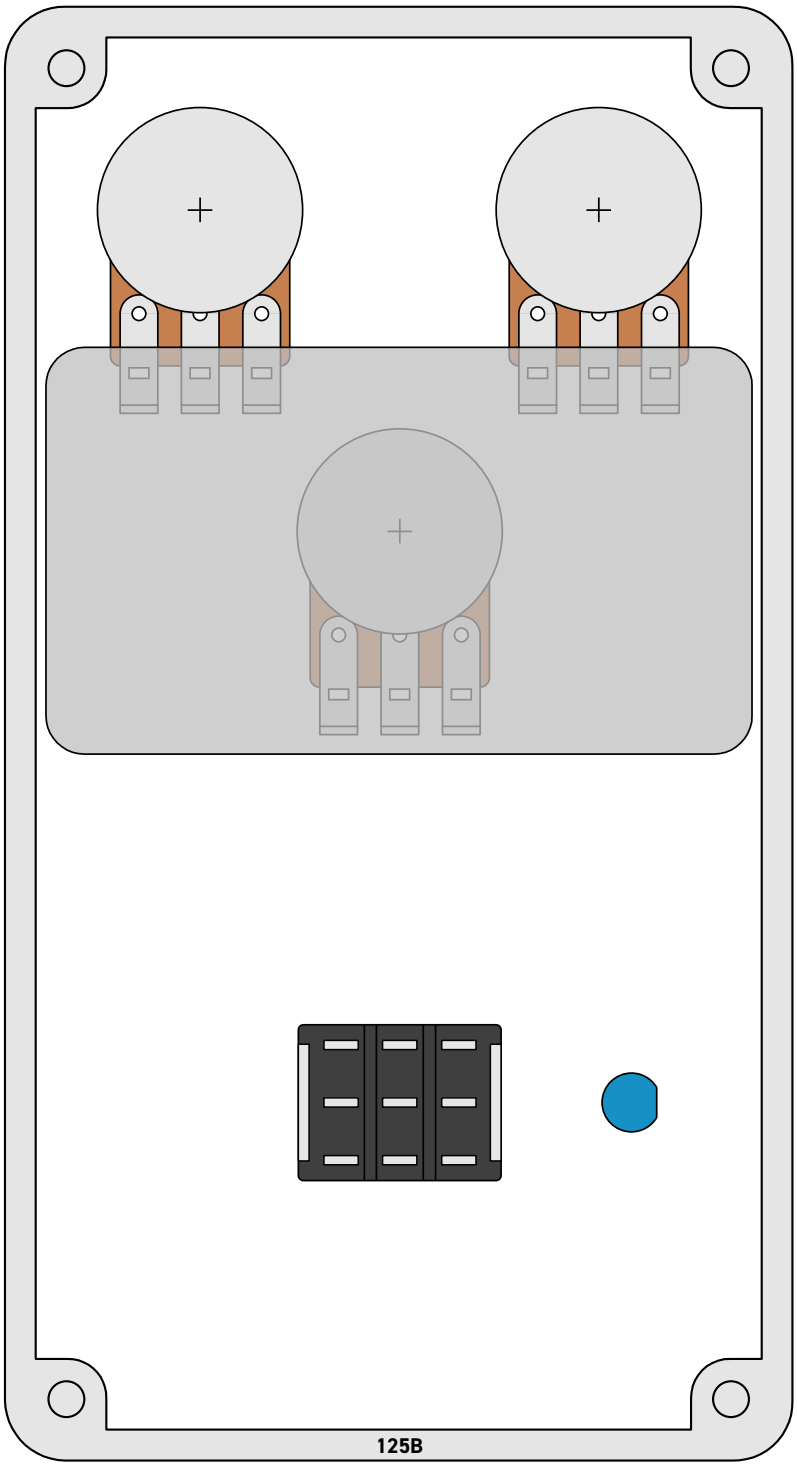
Top jack layout assumes the use of closed-frame jacks like the Switchcraft 111X. If you'd rather use open-frame jacks, please refer to the Open-Frame Jack Drill Template for the top side.

LED hole drill size assumes the use of a 5mm LED bezel, available from several parts suppliers. Adjust size accordingly if using something different, such as a 3mm bezel, a plastic bezel, or just a plain LED.

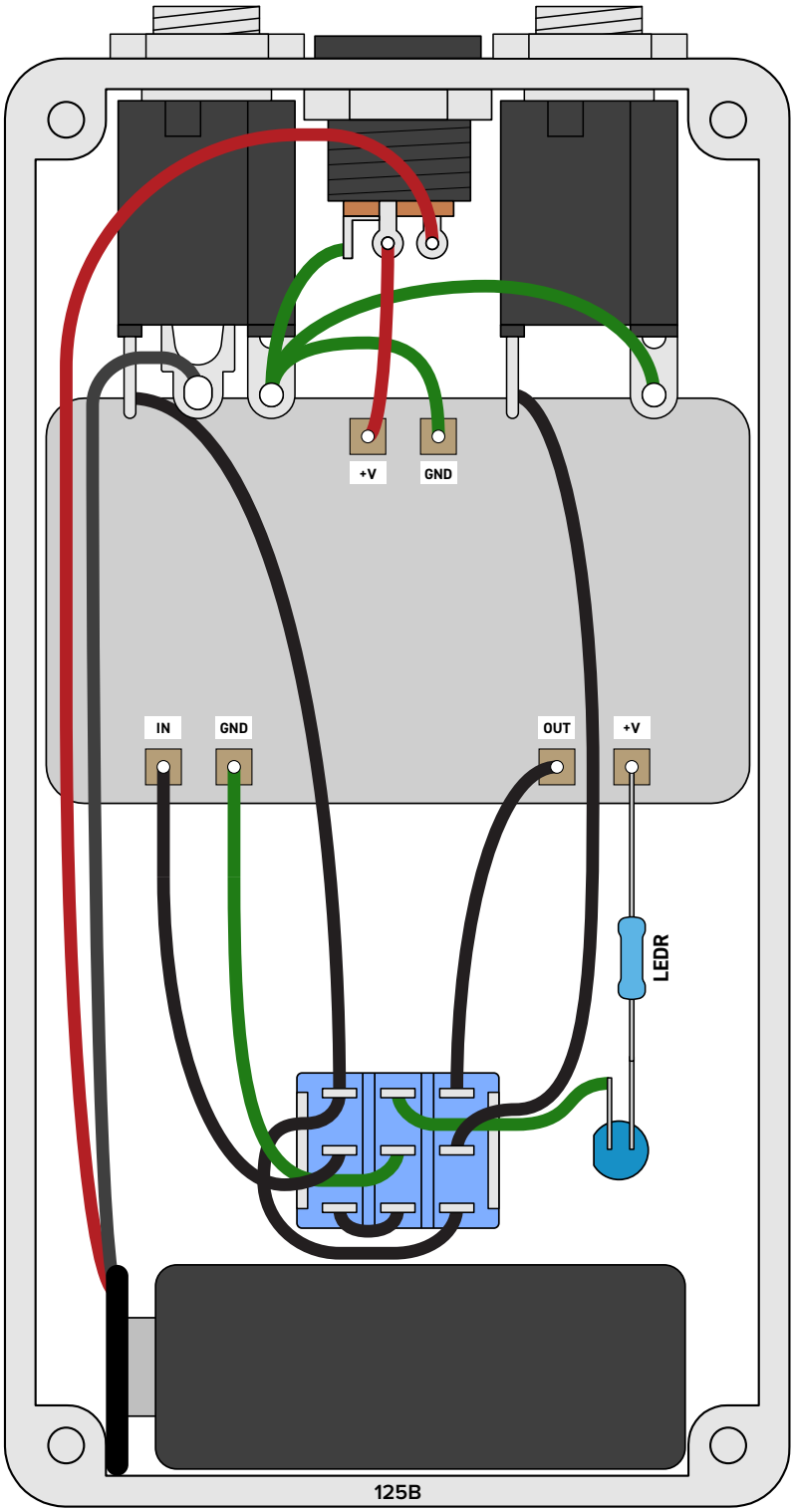


ENCLOSURE LAYOUT

Enclosure is shown without jacks. See next page for jack layout and wiring.



WIRING DIAGRAM



Shown with optional 9V battery. If battery is omitted, both jacks can be mono rather than one being stereo. Leave the far-right lug of the DC jack unconnected.

LICENSE & USAGE

No direct support is offered for these projects beyond the provided documentation. It's assumed that you have at least some experience building pedals before starting one of these. Replacements and refunds cannot be offered unless it can be shown that the circuit or documentation are in error.

All of these circuits have been tested in good faith in their base configurations. However, not all the modifications or variations have necessarily been tested. These are offered only as suggestions based on the experience and opinions of others.

Projects may be used for commercial endeavors in any quantity unless specifically noted. No attribution is necessary, though a link back is always greatly appreciated. The only usage restrictions are that **(1) you cannot resell the PCB as part of a kit without prior arrangement**, and **(2) you cannot "goop" the circuit, scratch off the screenprint, or otherwise obfuscate the circuit to disguise its source**. (In other words: you don't have to go out of your way to advertise the fact that you use these PCBs, but please don't go out of your way to hide it. The guitar effects industry needs more transparency, not less!)

DOCUMENT REVISIONS

1.0.0 (2019-04-11)
Initial release.