

PROJECT NAME

AZIMUTH

BASED ON

Hermida / Lovepedal Zendrive

BUILD DIFFICULTY

■□□□□ Beginner

EFFECT TYPE

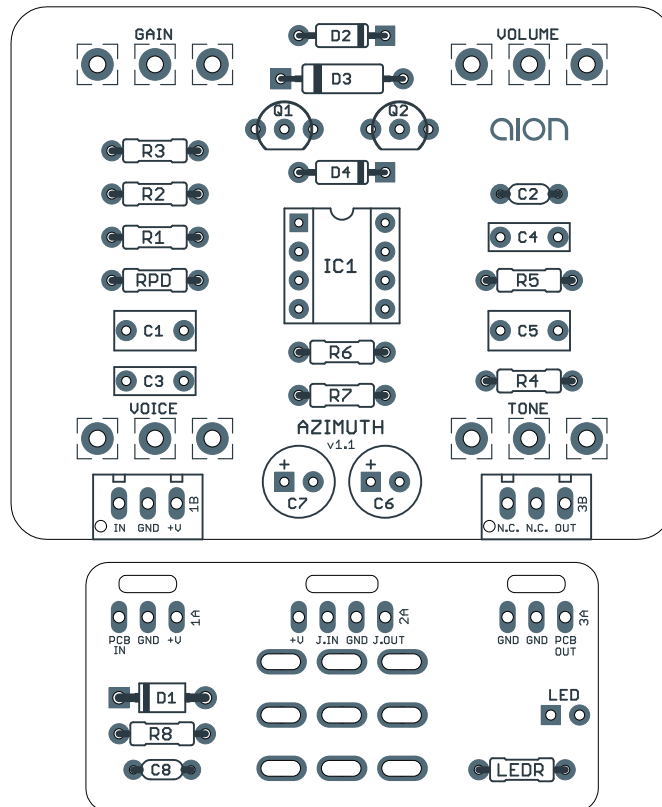
Overdrive

DOCUMENT VERSION

1.1.0 (2020-01-07)

PROJECT SUMMARY

The first overdrive that attempted to replicate the tone of the legendary Dumble amplifiers. A favorite of blues guitarists, and with its low parts count, a great project for beginners.



Actual size is 2.3" x 1.86" (main board) and 2.3" x 0.86" (bypass board).

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INTRODUCTION

The Azimuth Dynamic Overdrive is a recreation of the Hermida Zendrive, first released in 2004 and taken over by Lovepedal in 2013. The circuit has changed very little since its inception, with the only major change being the op-amp which happened after Lovepedal took over.

The Zendrive can be seen as a stripped-down Tube Screamer. It starts with a standard Tube Screamer-style clipping section, followed by a variable R-C treble cut and a buffer. The bass is adjustable via the “Voice” control, which varies the corner frequency of the filter coming off the op-amp. This also has the side-effect that the available gain increases as the Voice control is turned up.

Despite the legendary stature of the Zendrive, the circuit has among the lowest parts count of any Aion FX project and is a very good starting point for new builders.

USAGE

The Zendrive has the following controls:

- **Drive** controls the amount of gain in the op-amp feedback diode clipping stage.
- **Tone** controls the treble response of the effect. It’s a simple passive filter that only cuts.
- **Voice** controls the amount of bass while also changing the gain structure. As you turn it up, the available gain range also increases.
- **Volume** controls the overall output.

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—notably potentiometers—so the second tab lists all the non-Mouser parts as well as sources for each.

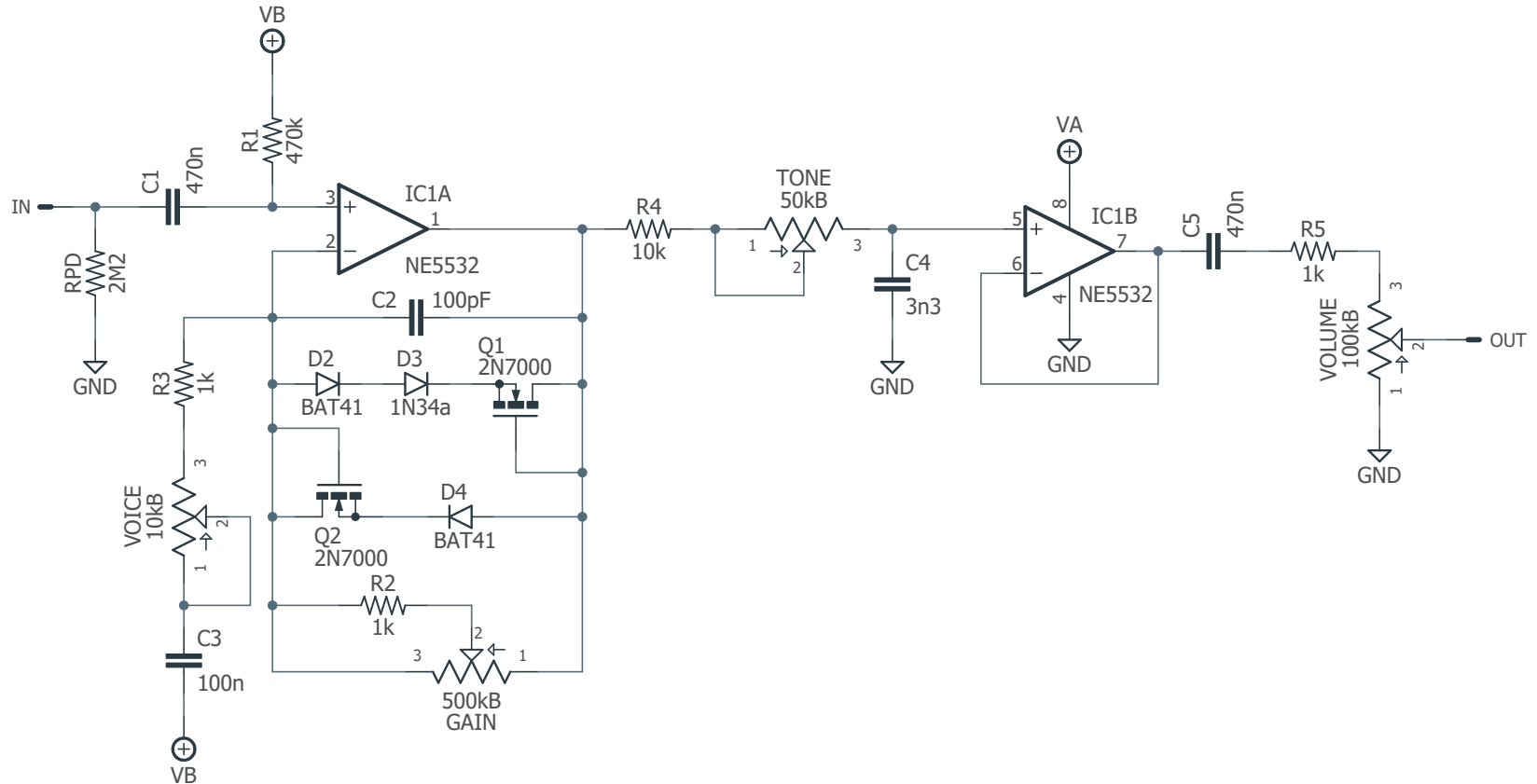
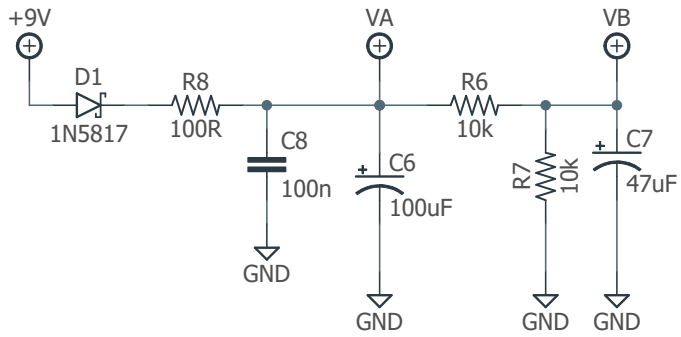
[View parts list spreadsheet](#) →

PART	VALUE	TYPE	NOTES
C1	470n	Film capacitor, 7.2 x 3.5mm	
C2	100pF	MLCC capacitor, NP0/C0G	
C3	100n	Film capacitor, 7.2 x 2.5mm	
C4	3n3	Film capacitor, 7.2 x 2.5mm	
C5	470n	Film capacitor, 7.2 x 3.5mm	
C6	100uF	Electrolytic capacitor, 6.3mm	
C7	47uF	Electrolytic capacitor, 5mm	
C8	100n	MLCC capacitor, X7R	
R1	470k	Metal film resistor, 1/4W	
R2	1k	Metal film resistor, 1/4W	
R3	1k	Metal film resistor, 1/4W	
R4	10k	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	100R	Metal film resistor, 1/4W	
RPD	2M2	Metal film resistor, 1/4W	
LEDR	4k7	Metal film resistor, 1/4W	
D1	1N5817	Schottky diode, DO-41	
D2	BAT41	Schottky diode, DO-35	
D3	BAT41	Schottky diode, DO-35	Some versions of the Zendrive use a 1N34A germanium diode here.
D4	BAT41	Schottky diode, DO-35	
Q1	2N7000	MOSFET, N-channel, TO-92	
Q2	2N7000	MOSFET, N-channel, TO-92	
IC1	NE5532P	Operational amplifier, DIP8	
LED	5mm	LED, 5mm	

PARTS LIST, CONT.

PART	VALUE	TYPE	NOTES
GAIN	500kB	Potentiometer, 16mm right-angle	LED current-limiting resistor. Adjust value to change LED brightness.
TONE	50kB	Potentiometer, 16mm right-angle	
VOICE	10kB	Potentiometer, 16mm right-angle	
VOL	100kB	Potentiometer, 16mm right-angle	
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.

SCHEMATIC



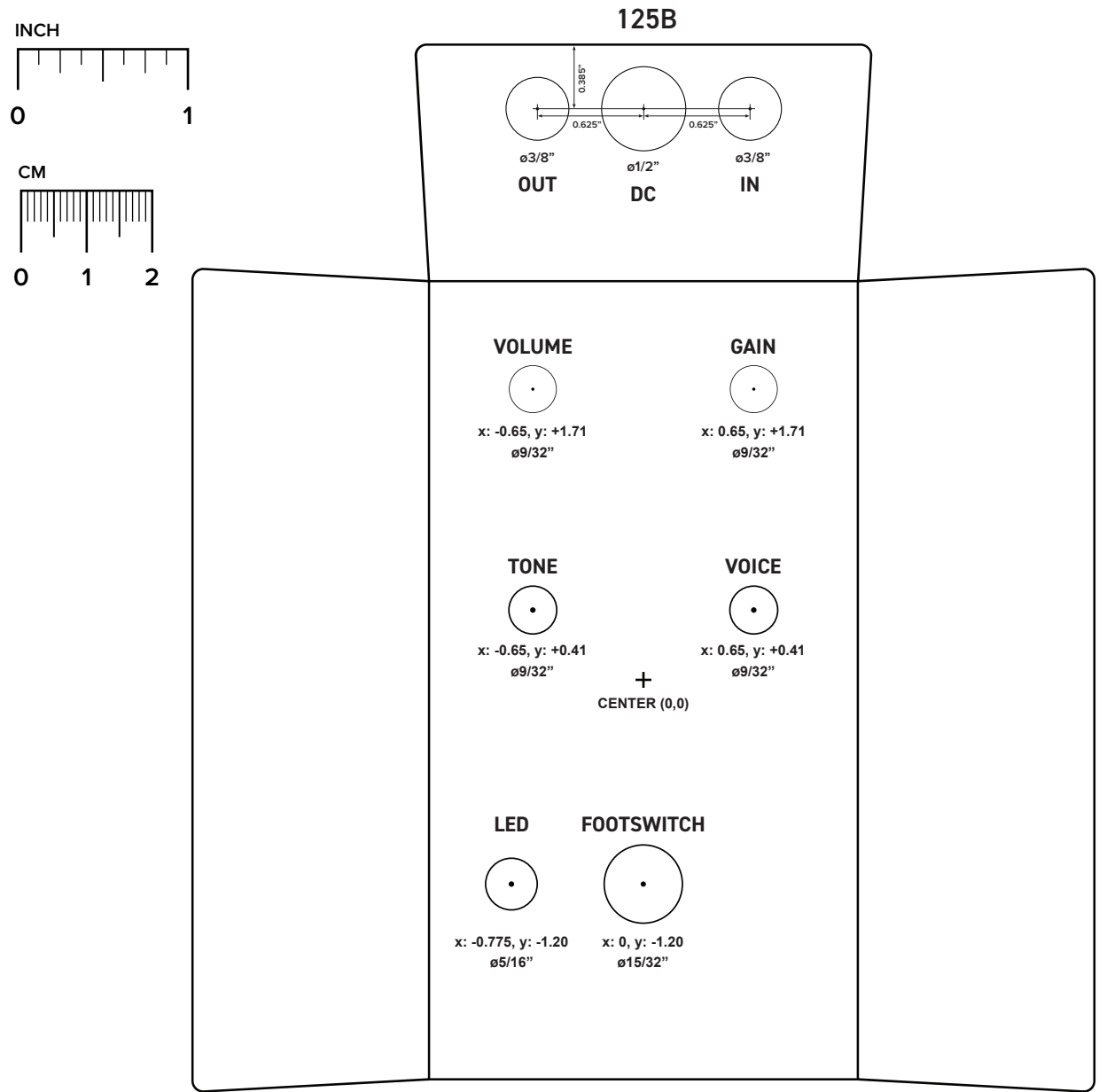
DRILL TEMPLATE

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.

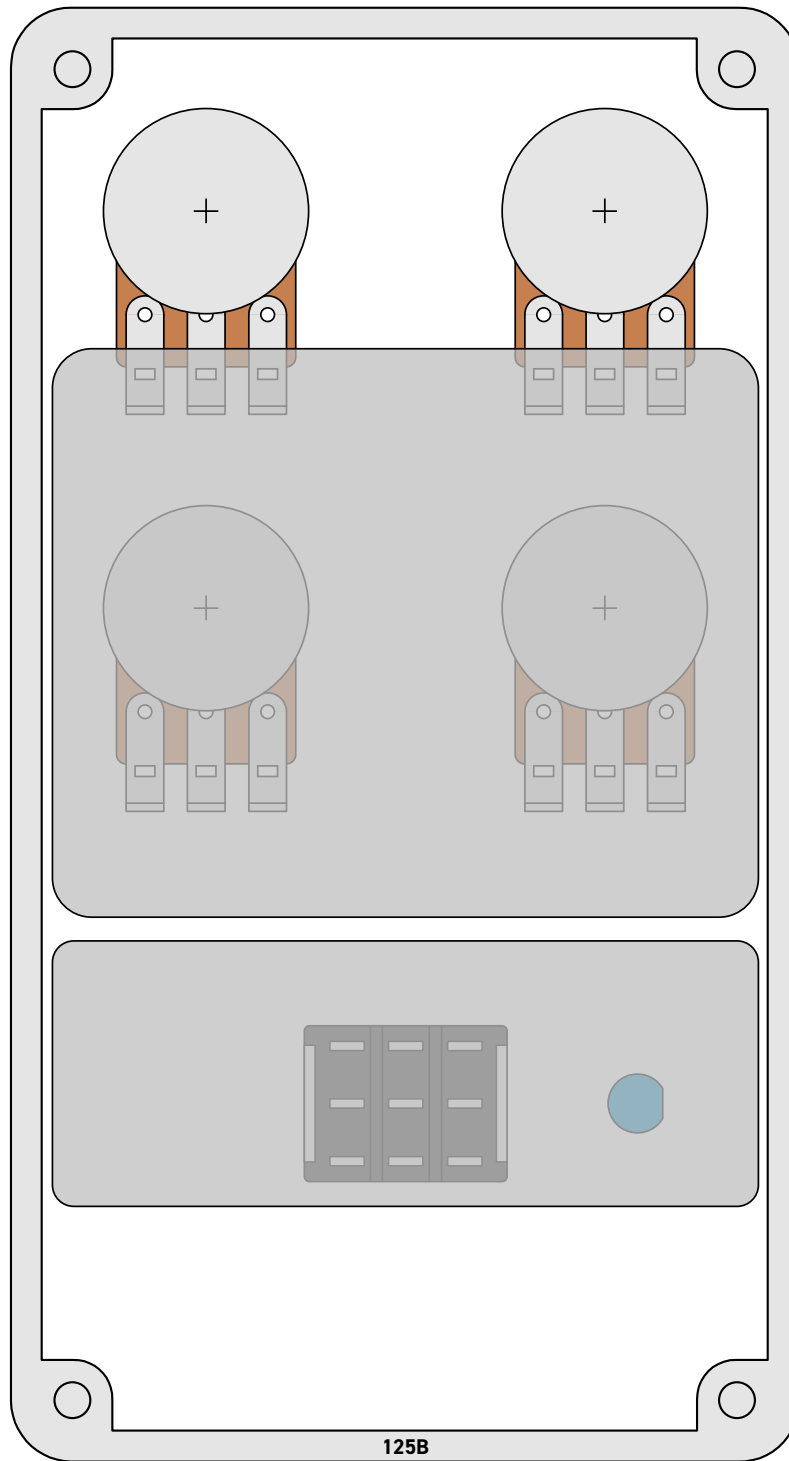
Top jack layout assumes the use of closed-frame jacks like the [Switchcraft 111X](#). If you'd rather use open-frame jacks, please refer to the Open-Frame Jack Drill Template for the top side.

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.

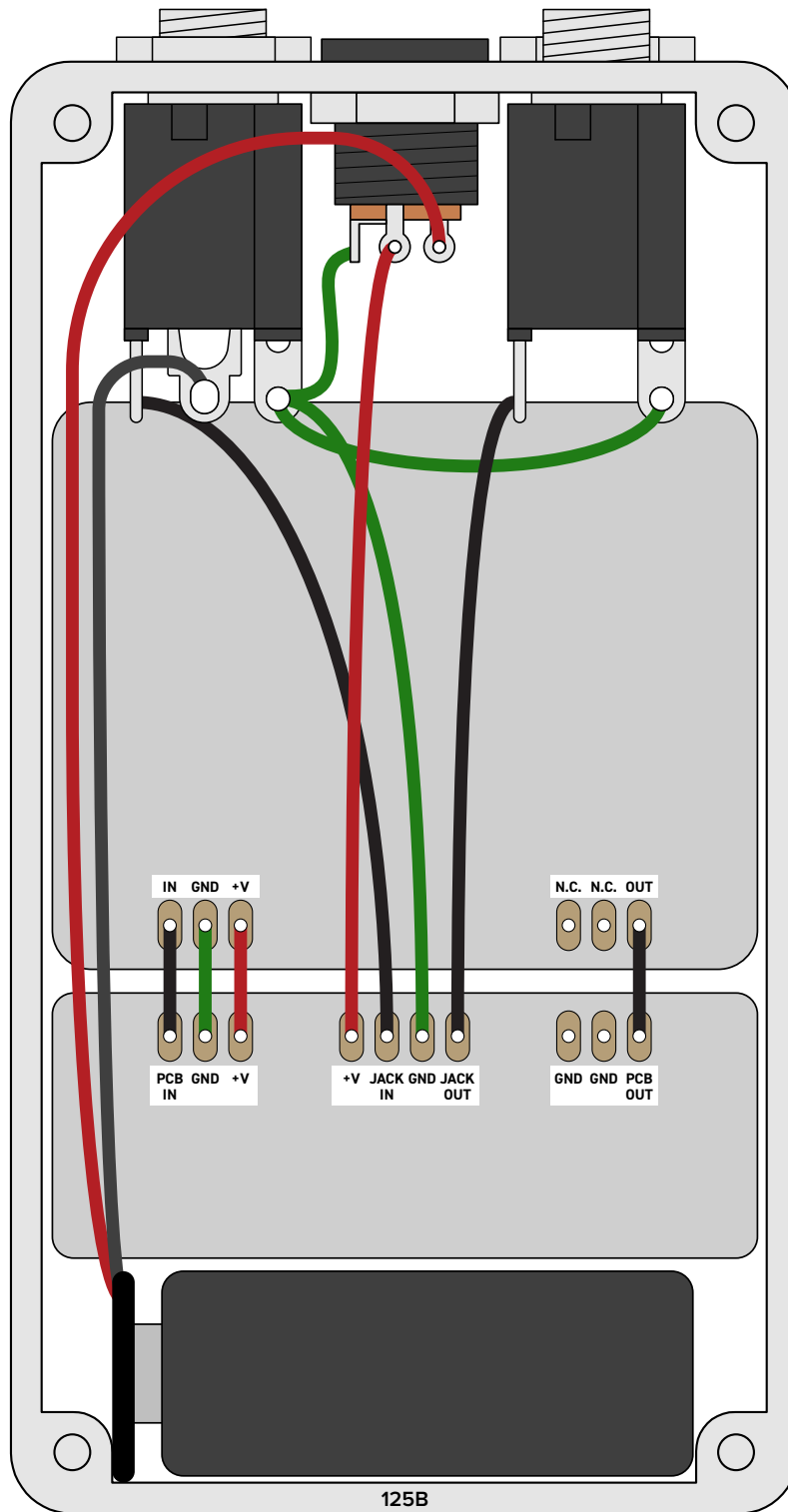


ENCLOSURE LAYOUT

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

1.1.0 (2020-01-07)

Added C8 and R8 (improved power filtering) for consistency with other boards.

1.0.1 (2018-08-14)

Minor formatting adjustments.

1.0.0 (2018-07-04)

Initial release.