

PROJECT NAME

ATOM

BASED ON

ETI Fuzztone

EFFECT TYPE

Fuzz / Overdrive

BUILD DIFFICULTY

■□□□□ Beginner

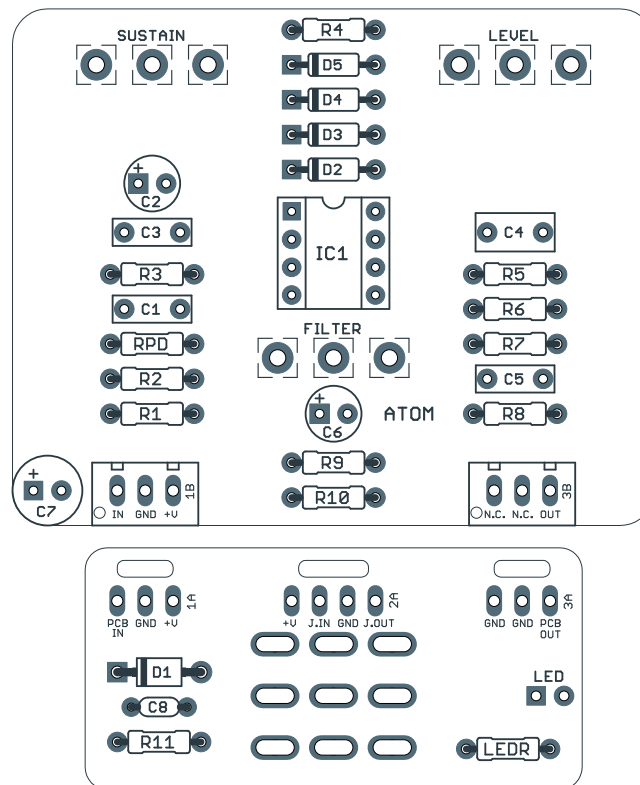
DOCUMENT VERSION

1.0.1 (2021-11-09)



PROJECT SUMMARY

A simple yet effective drive circuit originally designed by Dan Coggins of Lovetone and Dinosaural as a DIY project for Electronics Today Magazine.



Actual size is 2.3" x 1.86" (main board) and 1.78" x 0.87" (bypass board).

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INTRODUCTION

The Atom Fuzz Drive is based on the Fuzztone, a DIY project from a British magazine called Electronics Today International (ETI) in their May 1993 issue. It was designed by Dan Coggins, who would go on to co-found Lovetone only a couple years later, and eventually Dinosaural. The PCB for the circuit was included along with the magazine. It was never available as a commercial product.

Despite its name, the Fuzztone has more in common with an overdrive than a fuzz, using diodes in the feedback loop of an op-amp to generate clipping, similar to a Tube Screamer. (Although it should be noted that the 1978 op-amp version of the EHX Big Muff does the same thing.) The tone control is a “balance” type, again similar to the Big Muff, so perhaps the fuzz vs. overdrive categorization is not so clear-cut.

The Fuzztone also bears a very strong resemblance to the Yamaha OD-10MII, a fairly obscure overdrive pedal from 1987. They sound nothing alike due to component selection, but the structure of the schematic is very close. There is no indication that Dan was aware of the OD-MII or that it informed his design of the Fuzztone, but credit where credit is due, and Yamaha’s pedal was definitely released first.

The Atom is a direct adaptation of the Fuzztone based on the schematic from the article in ETI.

USAGE

The Atom has the following controls:

- **Sustain** controls the amount of gain in the overdriven op-amp stage.
- **Filter** controls the amount of treble, increasing the highs as it’s turned up.
- **Level** is the overall output level.

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.

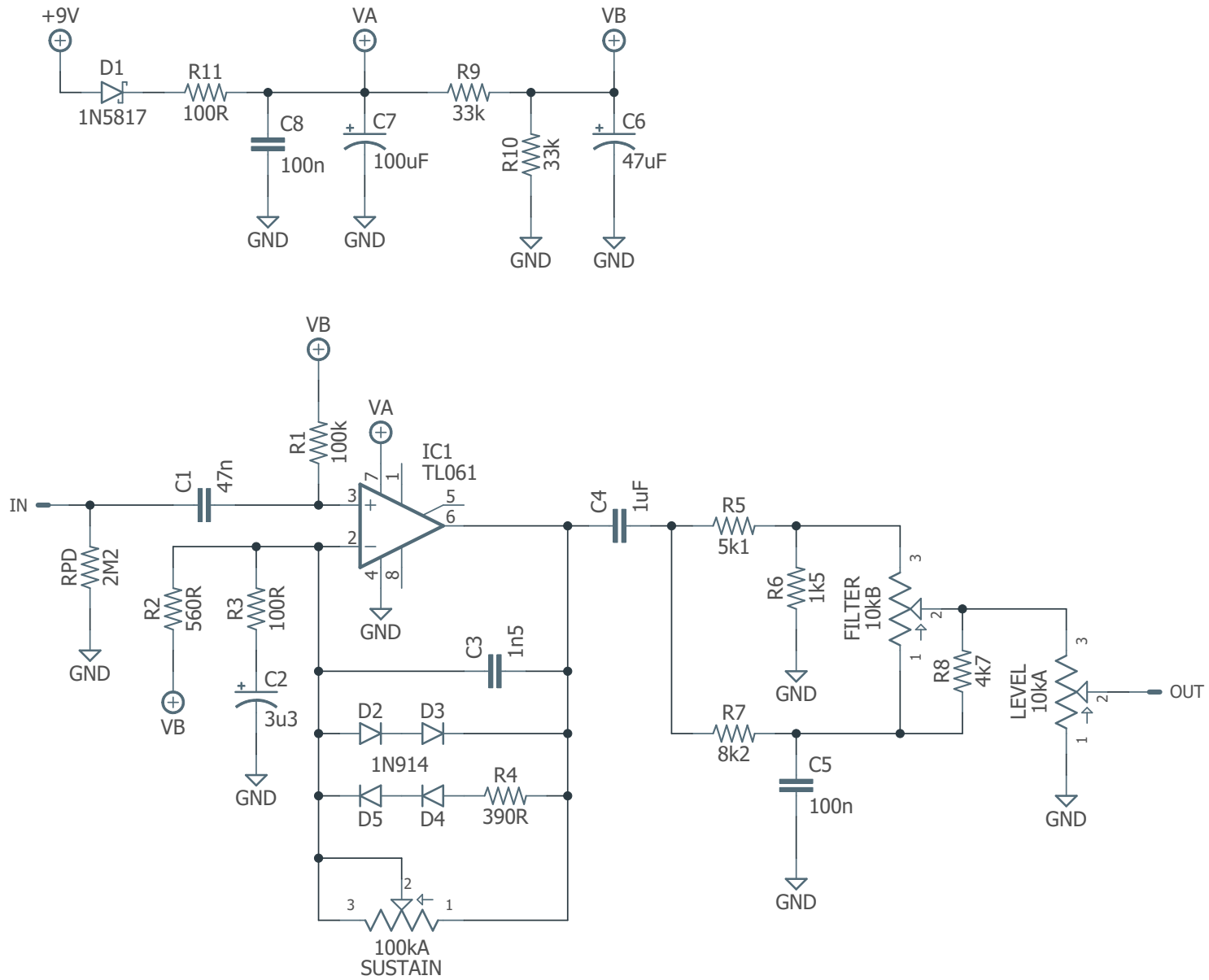
[View parts list spreadsheet](#) →

PART	VALUE	TYPE	NOTES
R1	100k	Metal film resistor, 1/4W	
R2	560R	Metal film resistor, 1/4W	
R3	100R	Metal film resistor, 1/4W	
R4	390R	Metal film resistor, 1/4W	
R5	5k1	Metal film resistor, 1/4W	
R6	1k5	Metal film resistor, 1/4W	
R7	8k2	Metal film resistor, 1/4W	
R8	4k7	Metal film resistor, 1/4W	
R9	33k	Metal film resistor, 1/4W	
R10	33k	Metal film resistor, 1/4W	
R11	100R	Metal film resistor, 1/4W	
RPD	2M2	Metal film resistor, 1/4W	
LEDR	4k7	Metal film resistor, 1/4W	
C1	47n	Film capacitor, 7.2 x 2.5mm	
C2	3.3uF	Electrolytic capacitor, 4mm	
C3	1n5	Film capacitor, 7.2 x 2.5mm	
C4	1uF	Film capacitor, 7.2 x 3.5mm	
C5	100n	Film capacitor, 7.2 x 2.5mm	
C6	47uF	Electrolytic capacitor, 5mm	Reference voltage filter capacitor.
C7	100uF	Electrolytic capacitor, 6.3mm	Supply voltage filter capacitor.
C8	100n	MLCC capacitor, X7R	Supply voltage filter capacitor.
LEDR	4k7	Metal film resistor, 1/4W	
D1	1N5817	Schottky diode, DO-41	
D2	1N914	Fast-switching diode, DO-35	
D3	1N914	Fast-switching diode, DO-35	
D4	1N914	Fast-switching diode, DO-35	
D5	1N914	Fast-switching diode, DO-35	
IC1	TL061	Operational amplifier, DIP8	
IC1-S	DIP-8 socket	IC socket, DIP-8	

PARTS LIST, CONT.

PART	VALUE	TYPE	NOTES
SUST.	100kA	16mm right-angle PCB mount pot	
FILT.	10kB	16mm right-angle PCB mount pot	
LEVEL	10kA	16mm right-angle PCB mount pot	
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.
FSW	3PDT	Stomp switch, 3PDT	
ENC	125B	Enclosure, die-cast aluminum	Can also use a Hammond 1590N1.

SCHEMATIC



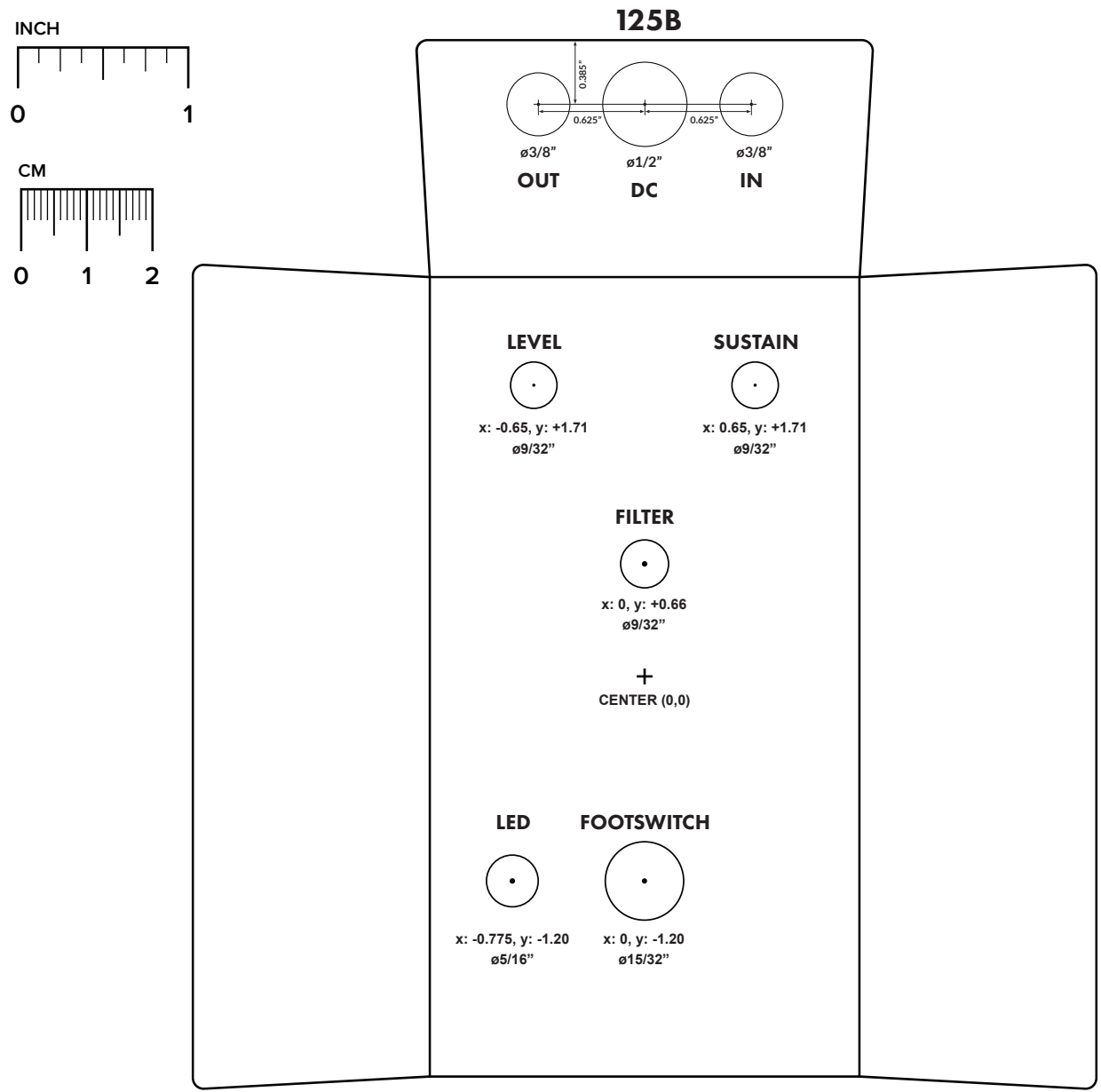
DRILL TEMPLATE

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.

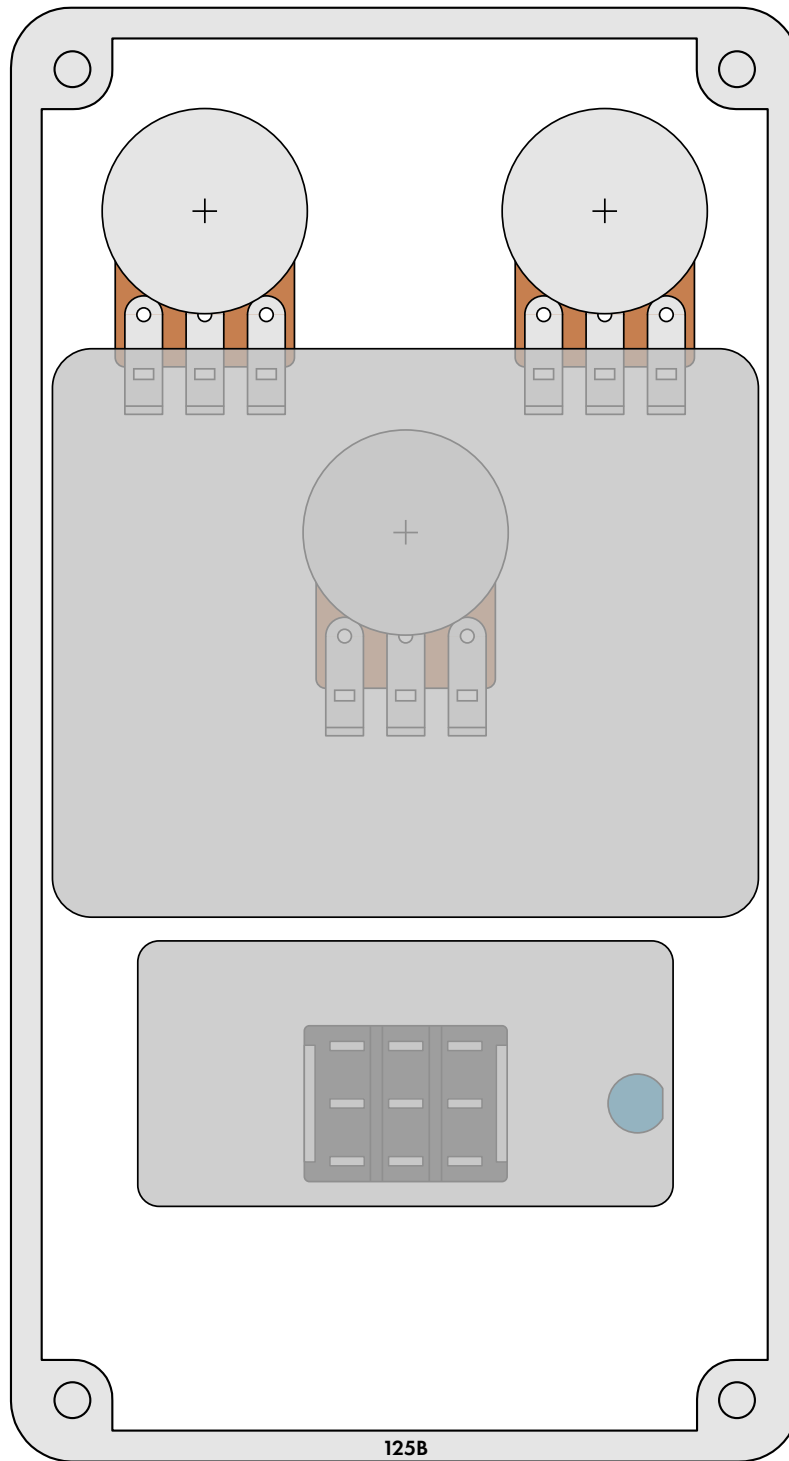
Top jack layout assumes the use of closed-frame jacks like the [Switchcraft 111X](#). If you'd rather use open-frame jacks, please refer to the [Open-Frame Jack Drill Template](#) for the top side.

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.

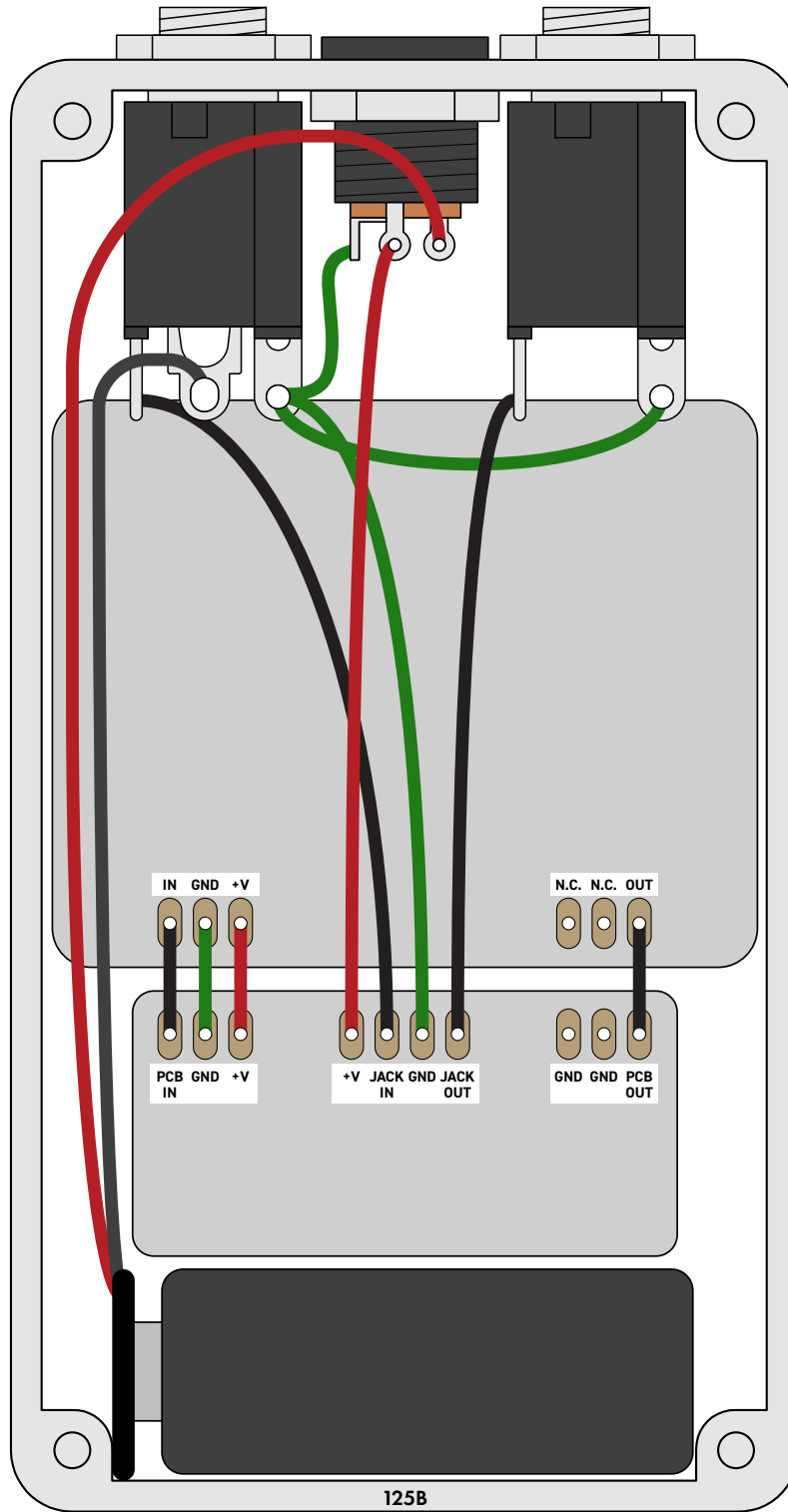


ENCLOSURE LAYOUT

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



WIRING DIAGRAM



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

1.0.1 (2021-11-09)

Corrected R4 value to 390R (was 560R) which had been incorrectly copied from the magazine article.

1.0.0 (2020-11-16)

Initial release.