

PROJECT NAME

CALYPSO

BASED ON

Catalinbread® SCOD

BUILD DIFFICULTY

■■■■■ Easy

EFFECT TYPE

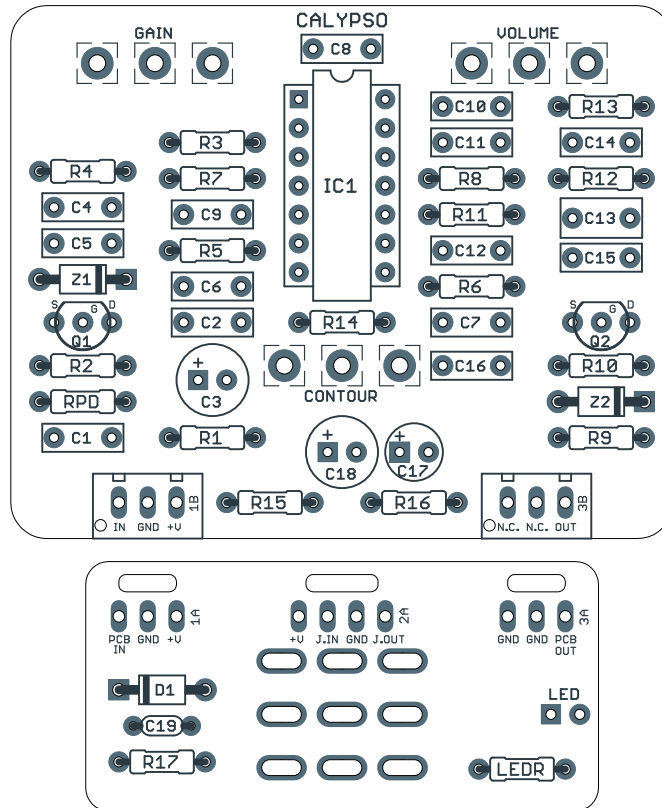
Overdrive

DOCUMENT VERSION

1.0.0 (2021-11-12)

PROJECT SUMMARY

An overdrive using cascaded CMOS inverters in an amp-like topology, with a result that lands somewhere between Marshall and Orange in tone.



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

TABLE OF CONTENTS

1	Project Overview	7	Enclosure Layout
2	Introduction & Usage	8	Wiring Diagram
3-4	Parts List	9	Licensing
5	Schematic	9	Document Revisions
6	Drill Template		

INTRODUCTION

The Calypso CMOS Drive is based on the Catalinbread Supercharged Overdrive, a hex-inverter drive circuit first released in 2004 and traced by Aion FX in 2021.

Catalinbread was known for tweaking circuits along the way, especially in the early years, with no allegiance to a particular schematic. The SCOD appeared in a few different editions, starting life as a horizontal layout similar to ZVEX pedals before moving to the more traditional vertical format. So while it had been traced once in the past, we thought it'd be worthwhile to get a definitive trace of the most recent version before it was discontinued, both to verify the original trace and to get a record of circuit changes that may have been made along the way.

The SCOD is unique in its use of the CD4007 CMOS chip, compared to other similar circuits such as the Way Huge Red Llama or EHX Hot Tubes that use the CD4049 and CD4069. The 4007 provides direct access to the complementary MOSFET pairs on the chip, which in theory makes it more flexible. However, in this application the three MOSFET pairs are wired as inverters, meaning they should perform basically the same as the 4049/4069.

Despite this, the SCOD is still a very unique circuit that stands apart from the others, with an amp-inspired global feedback that serves as the tone control. It's voiced similarly to Marshall "Plexi" or Orange amps, and fills a space not otherwise occupied by the rest of Catalinbread's amp-drive lineup.

The Calypso is a direct adaptation of the SCOD with no mods or changes other than increasing the amount of power filtering.

USAGE

The Calypso has three controls:

- **Drive** controls the gain of the first MOSFET amplifier stage of the first CMOS inverter stage.
- **Contour** is "global feedback"-style tone control that cuts highs and emphasizes mids for a range of amp-like tones.
- **Volume** sets 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—notably potentiometers—so the second tab lists all the non-Mouser parts as well as sources for each.

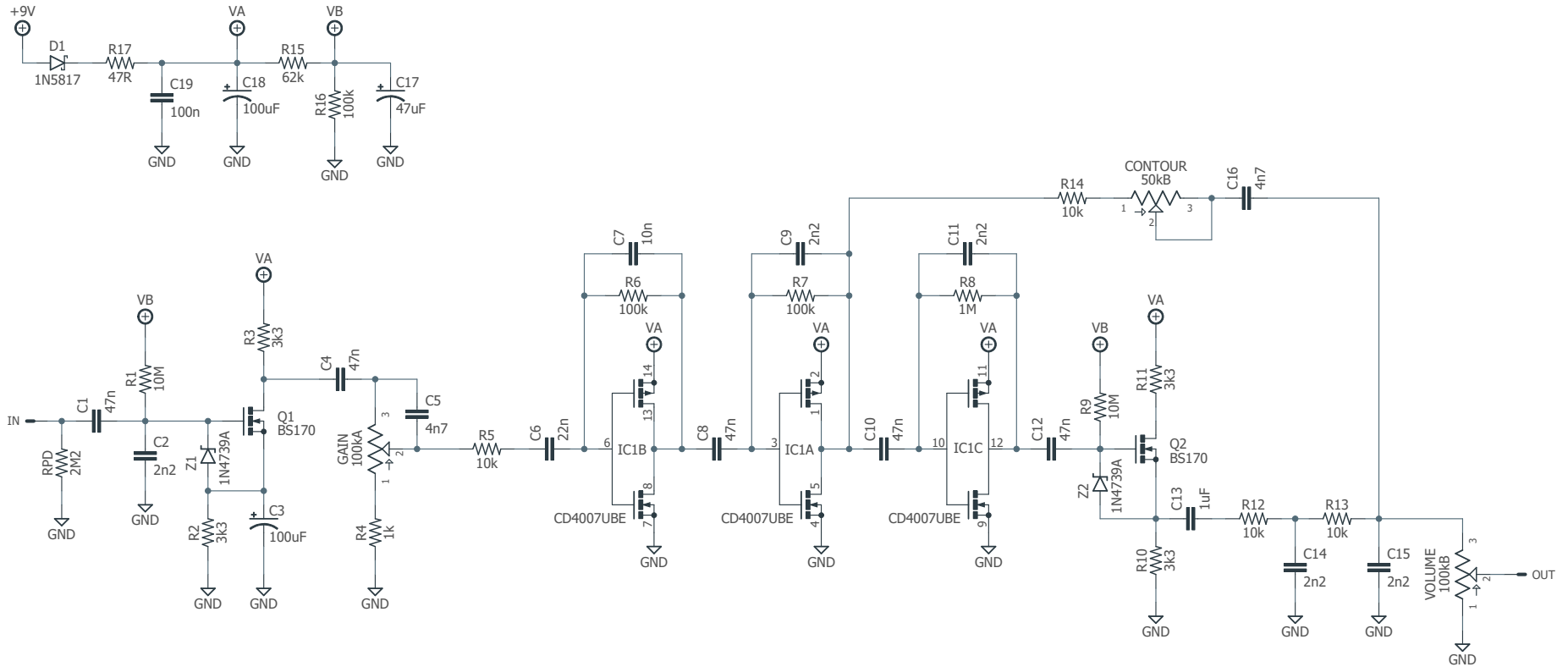
[View parts list spreadsheet](#) →

PART	VALUE	TYPE	NOTES
R1	10M	Metal film resistor, 1/4W	
R2	3k3	Metal film resistor, 1/4W	
R3	3k3	Metal film resistor, 1/4W	
R4	1k	Metal film resistor, 1/4W	
R5	10k	Metal film resistor, 1/4W	
R6	100k	Metal film resistor, 1/4W	
R7	100k	Metal film resistor, 1/4W	
R8	1M	Metal film resistor, 1/4W	
R9	10M	Metal film resistor, 1/4W	
R10	3k3	Metal film resistor, 1/4W	
R11	3k3	Metal film resistor, 1/4W	
R12	10k	Metal film resistor, 1/4W	
R13	10k	Metal film resistor, 1/4W	
R14	10k	Metal film resistor, 1/4W	
R15	62k	Metal film resistor, 1/4W	
R16	100k	Metal film resistor, 1/4W	
R17	47R	Metal film resistor, 1/4W	
RPD	2M2	Metal film resistor, 1/4W	
LEDR	4k7	Metal film resistor, 1/4W	LED current-limiting resistor. Adjust value to change LED brightness.
C1	47n	Film capacitor, 7.2 x 2.5mm	22n in some units.
C2	2n2	Film capacitor, 7.2 x 2.5mm	1n in some units.
C3	100uF	Electrolytic capacitor, 6.3mm	
C4	47n	Film capacitor, 7.2 x 2.5mm	
C5	4n7	Film capacitor, 7.2 x 2.5mm	
C6	22n	Film capacitor, 7.2 x 2.5mm	
C7	10n	Film capacitor, 7.2 x 2.5mm	
C8	47n	Film capacitor, 7.2 x 2.5mm	
C9	2n2	Film capacitor, 7.2 x 2.5mm	
C10	47n	Film capacitor, 7.2 x 2.5mm	
C11	2n2	Film capacitor, 7.2 x 2.5mm	May be 22n in some units (unconfirmed).
C12	47n	Film capacitor, 7.2 x 2.5mm	
C13	1uF	Film capacitor, 7.2 x 3.5mm	47n in some units.

PARTS LIST, CONT.

PART	VALUE	TYPE	NOTES
C14	2n2	Film capacitor, 7.2 x 2.5mm	
C15	2n2	Film capacitor, 7.2 x 2.5mm	
C16	4n7	Electrolytic capacitor, 4mm	
C17	47uF	Film capacitor, 7.2 x 2.5mm	Reference voltage filter capacitor.
C18	100uF	Electrolytic capacitor, 4mm	Power supply filter capacitor.
C19	100n	Electrolytic capacitor, 5mm	Power supply filter capacitor.
D1	1N5817	Schottky diode, DO-41	
Z1	1N4739A	Zener diode, 9V, DO-41	
Z2	1N4739A	Zener diode, 9V, DO-41	
Q1	BS170	MOSFET, N-channel, TO-92	Can also use 2N7000 (rotate 180 degrees)
Q2	BS170	MOSFET, N-channel, TO-92	Can also use 2N7000 (rotate 180 degrees)
IC1	CD4007UBE	CMOS hex inverters, DIP14	
IC1-S	DIP-14 socket	IC socket, DIP-14	
GAIN	100kA	16mm right-angle PCB mount pot	
CONTOUR	50kB	16mm right-angle PCB mount pot	
VOLUME	100kB	16mm right-angle PCB mount pot	
LED	5mm	LED, 5mm, red diffused	
IN	1/4" stereo	1/4" phone jack, closed frame	Switchcraft 111BX 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



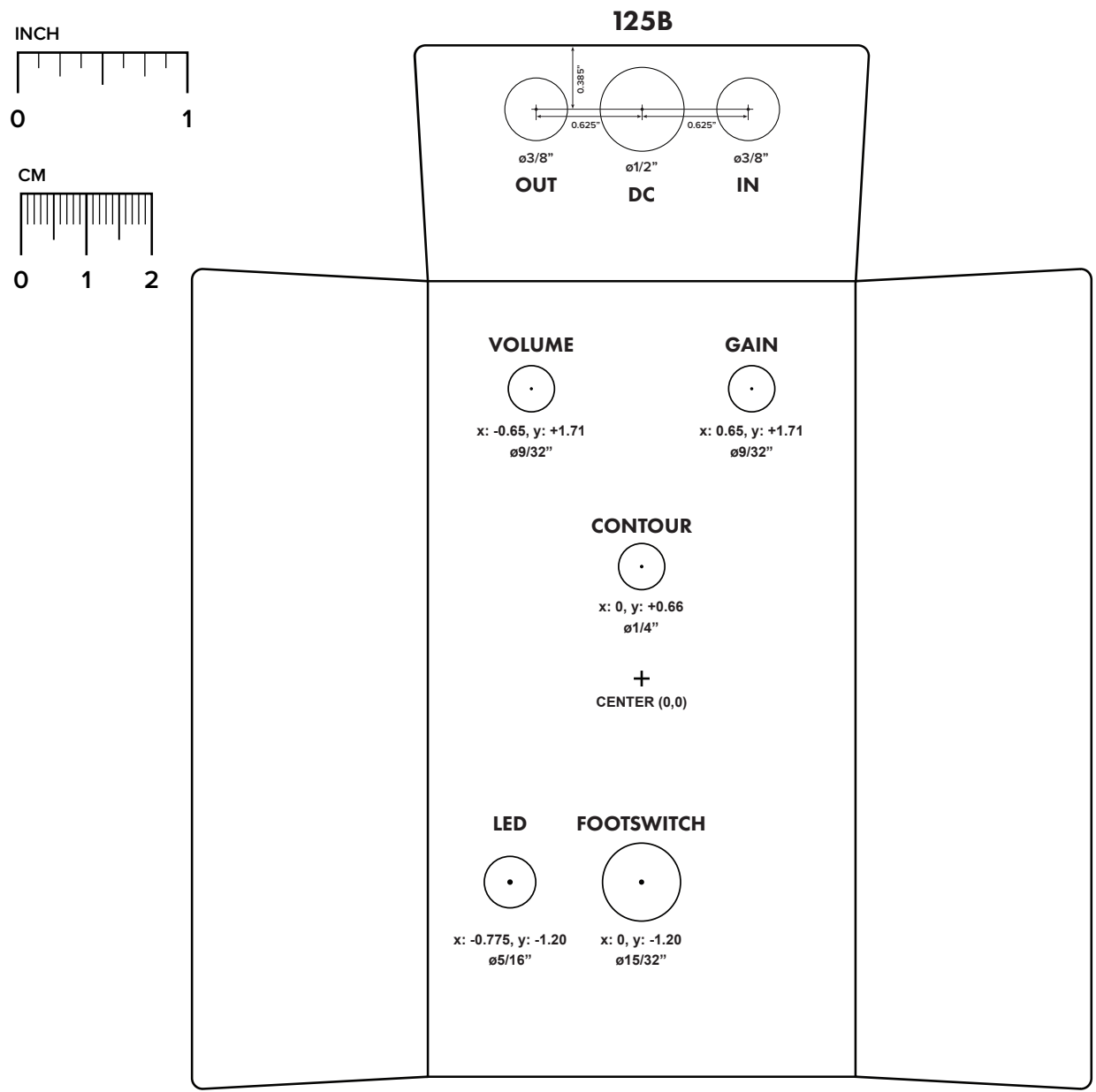
DRILL TEMPLATE

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.

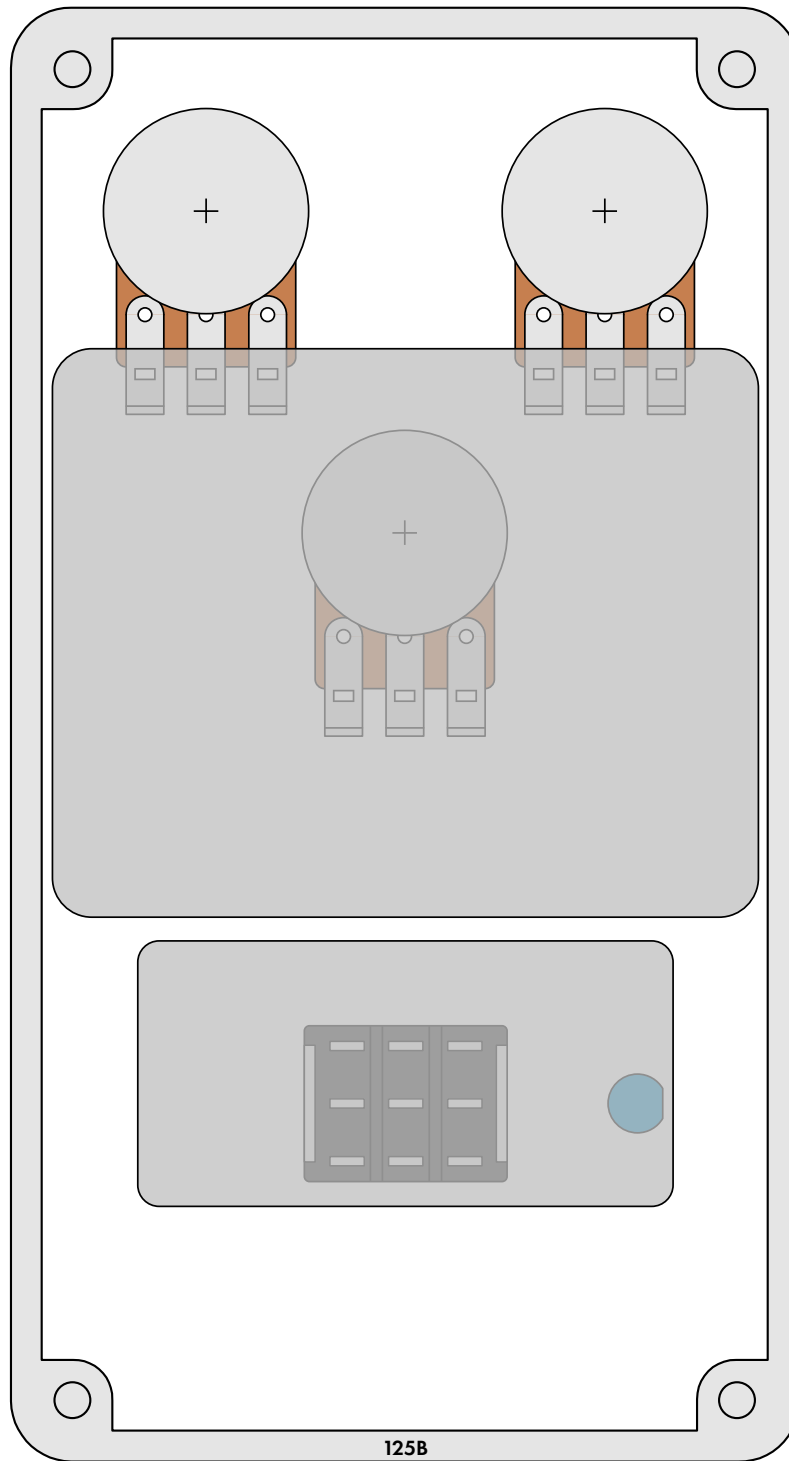
Top jack layout assumes the use of closed-frame jacks like the [Switchcraft 111X](#). If you'd rather use open-frame jacks, please refer to the Open-Frame Jack Drill Template for the top side.

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.

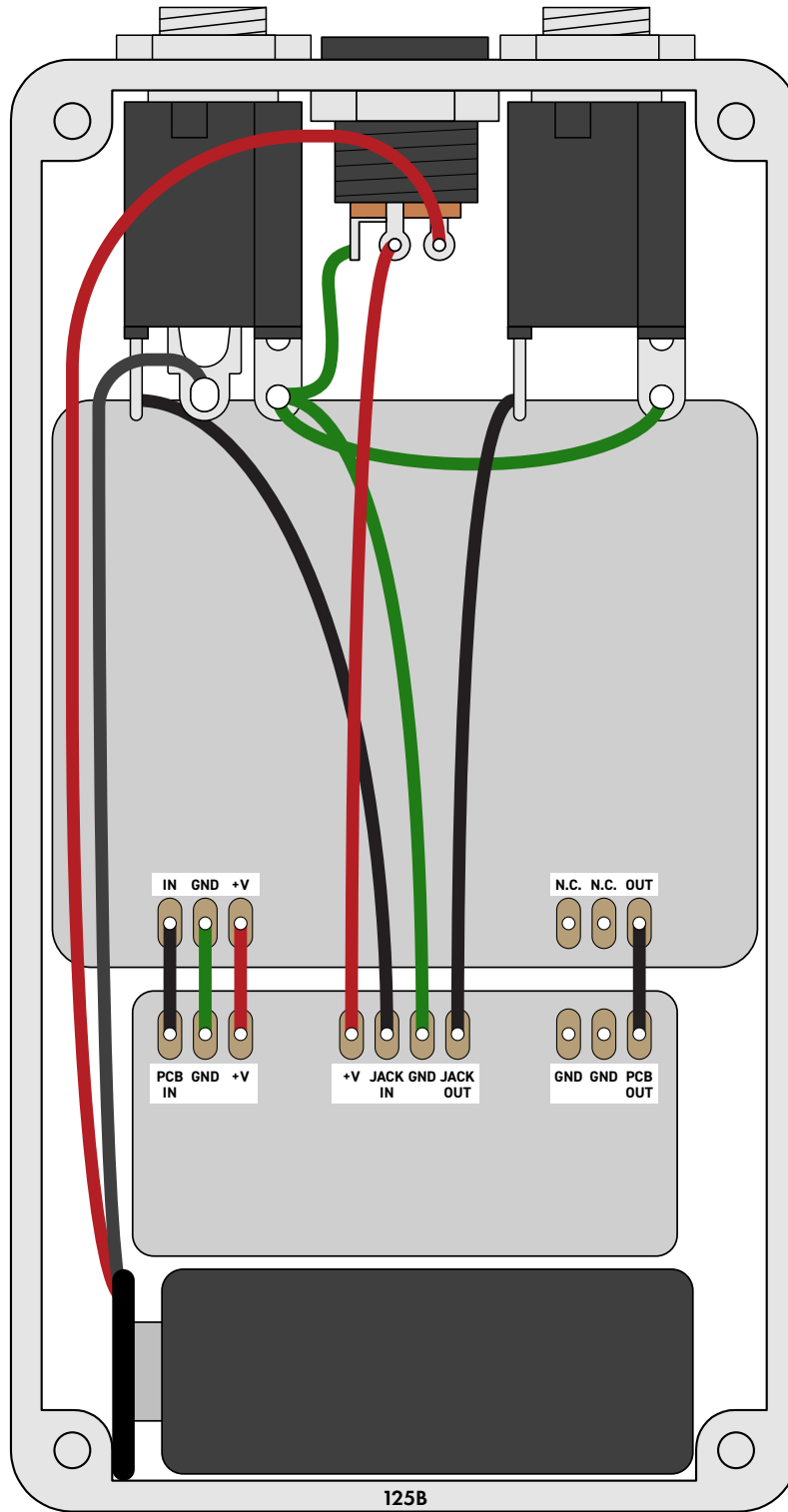


ENCLOSURE LAYOUT

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

1.0.0 (2021-11-12)

Initial release.