

PROJECT NAME

XANTHUS

BASED ON

Xotic Super Clean & Super Sweet

BUILD DIFFICULTY

■■■■■ Easy

EFFECT TYPE

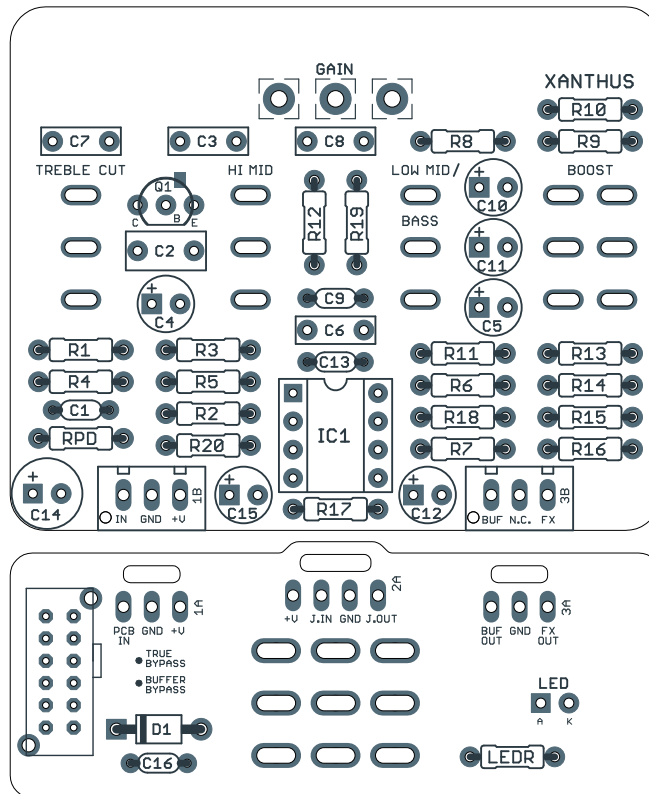
Buffer, boost & tone shaper

DOCUMENT VERSION

1.0.0 (2024-11-29)

PROJECT SUMMARY

A dual-purpose pedalboard tool that combines a Pete Cornish buffer with a highly tweakable boost.



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

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INTRODUCTION

The Xanthus Buffer/Boost is based on the Xotic Super Clean Buffer and Super Sweet Boost, two mini pedals that were first released in 2019 and [traced by Aion FX in 2024](#).

The Super Clean seems to have been the first of the two to be developed. It has a decent amount of boost on its own, but Xotic seems to have quickly realized that it was easier to market them as two separate tools by making a few tweaks and calling the second one a boost instead of a buffer. But under the hood, the only difference is a single resistor and the value of the Gain pot.

The Xanthus is a hybrid of the two pedals, adapting them into a single circuit that can cover both modes. We added a toggle switch to go between the two versions of the pedal, adding gain and changing the EQ slightly in Boost mode.

This project also converts the internal DIP switches to external toggles so they are conveniently available from the top. As with the original, the Xanthus also has an internal slide switch to select between buffered bypass and true bypass.

USAGE

The Xanthus has one knob and four toggle switches:

- **Gain** controls the volume or boost level.
- **Treble Cut** engages a passive treble cut above 3.3kHz between the buffer and the gain stage. Enabled in the “up” position.
- **Hi Mid** (toggle switch) increases the overall gain and shifts the frequency range of the Lo Mid and Bass settings, resulting in a boost to the high mids. Enabled in the “up” position.
- **Low Mid / Bass** (toggle switch) selects between three modes. The center position is standard flat mode with a 100nF capacitor engaged. The “up” position adds another capacitor in parallel that increases the low mids. The “down” position bypasses both capacitors entirely, extending the frequency range to full bass.
- **Boost** (toggle switch) selects between the two models. The “down” position is Super Clean Buffer mode while the “up” position is Super Sweet Boost mode.

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	1k	Metal film resistor, 1/4W	
R2	150k	Metal film resistor, 1/4W	
R3	150k	Metal film resistor, 1/4W	
R4	220k	Metal film resistor, 1/4W	
R5	47k	Metal film resistor, 1/4W	
R6	10k	Metal film resistor, 1/4W	
R7	1M	Metal film resistor, 1/4W	
R8	1k	Metal film resistor, 1/4W	
R9	62k	Metal film resistor, 1/4W	
R10	4k7	Metal film resistor, 1/4W	
R11	10k	Metal film resistor, 1/4W	
R12	10k	Metal film resistor, 1/4W	
R13	100R	Metal film resistor, 1/4W	
R14	47k	Metal film resistor, 1/4W	
R15	100R	Metal film resistor, 1/4W	
R16	47k	Metal film resistor, 1/4W	
R17	100k	Metal film resistor, 1/4W	
R18	22k	Metal film resistor, 1/4W	
R19	22k	Metal film resistor, 1/4W	
R20	100R	Metal film resistor, 1/4W	
RPD	1M	Metal film resistor, 1/4W	
LEDR	10k	Metal film resistor, 1/4W	
C1	100pF	MLCC capacitor, NP0/C0G	
C2	1uF	Film capacitor, 7.2 x 3.5mm	
C3	1n	Film capacitor, 7.2 x 2.5mm	
C4	10uF bipolar	Electrolytic capacitor, 5mm	Can also use polarized (polarity marked on PCB).
C5	10uF bipolar	Electrolytic capacitor, 5mm	Can also use polarized (polarity marked on PCB).
C6	4n7	Film capacitor, 7.2 x 2.5mm	
C7	100n	Film capacitor, 7.2 x 2.5mm	
C8	68n	Film capacitor, 7.2 x 2.5mm	
C9	150pF	MLCC capacitor, NP0/C0G	

PARTS LIST, CONT.

PART	VALUE	TYPE	NOTES
C10	10uF bipolar	Electrolytic capacitor, 5mm	Can also use polarized (polarity marked on PCB).
C11	10uF bipolar	Electrolytic capacitor, 5mm	Can also use polarized (polarity marked on PCB).
C12	47uF	Electrolytic capacitor, 5mm	Reference voltage filter capacitor.
C13	100n	MLCC capacitor, X7R	Power supply filter capacitor.
C14	100uF	Electrolytic capacitor, 6.3mm	Power supply filter capacitor.
C15	47uF	Electrolytic capacitor, 5mm	Power supply filter capacitor.
C16	100n	MLCC capacitor, X7R	Power supply filter capacitor.
D1	1N5817	Schottky diode, DO-41	
Q1	BC549C	BJT transistor, NPN, TO-92	Can substitute 2N5089 (rotate 180 degrees)
IC1	JRC4558D	Operational amplifier, DIP8	
IC1-S	DIP-8 socket	IC socket, DIP-8	
TB-BUF	4PDT slide	Slide switch, 4PDT	E-Switch EG4208
GAIN	250k Ω	16mm right-angle PCB mount pot	
TREBLE CUT	SPDT	Toggle switch, SPDT on-on	
HI MID	SPDT	Toggle switch, SPDT on-on	
LOW MID/BASS	SPDT center off	Toggle switch, SPDT on-off-on	
BOOST	DPDT	Toggle switch, DPDT on-on	
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.
LED	5mm	LED, 5mm, red diffused	
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 type will not fit.
FSW	3PDT	Stomp switch, 3PDT	
ENC	125B	Enclosure, die-cast aluminum	Can also use a Hammond 1590N1.

BUILD NOTES

10uF electrolytic capacitors

In the original Super Clean and Super Sweet, the four 10uF capacitors are bipolar. There are claims that bipolar caps are better for audio signal coupling, but no hard science, so a high-quality polarized electrolytic should work just as well. The positive polarity markings on the PCB and schematic are only used for polarized caps and can be ignored if bipolar caps are used.

Transistor selection

The Super Clean & Super Sweet use the BC849C for Q1. This is the SMD version of the [BC549C](#), which is the same type used in Cornish pedals.

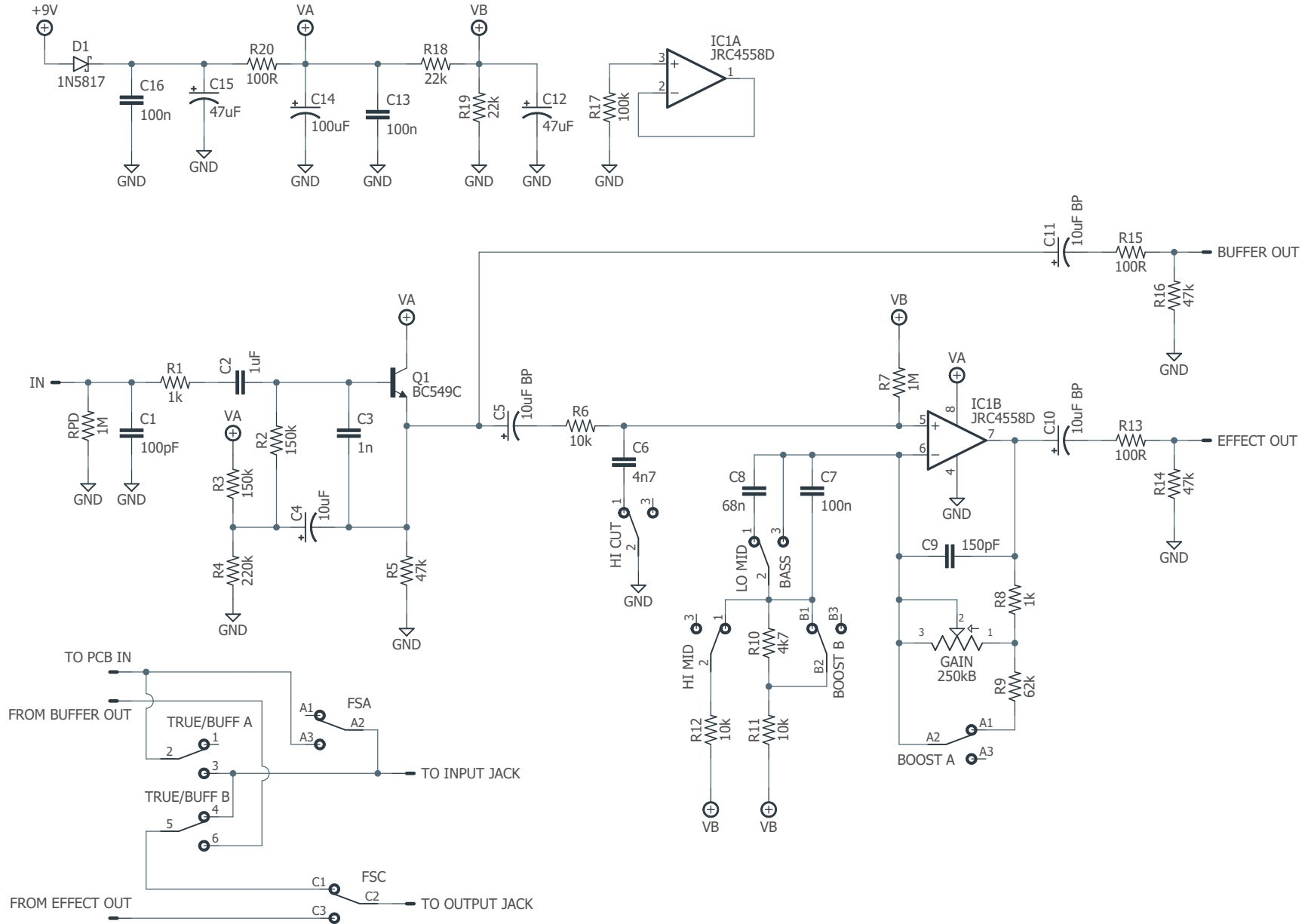
Any high-gain low-noise NPN transistor should work more or less the same here, though note that most of them such as the [2N5089](#) will need to be rotated 180 degrees from the PCB silkscreen.

IC selection

Like most Xotic circuits, the IC is sanded down in these two and it's not known exactly what type they used. However, based on our other traces, most Xotic circuits use the [JRC4558D](#) and at least one uses the [LM833](#).

We recommend starting with the JRC4558D since it matches the approximate current draw of the pedal based on their user manual and is therefore the most likely candidate. From there, you can experiment with any standard dual type, including the [TL072](#), [NE5532](#), or [JRC4580](#).

SCHEMATIC



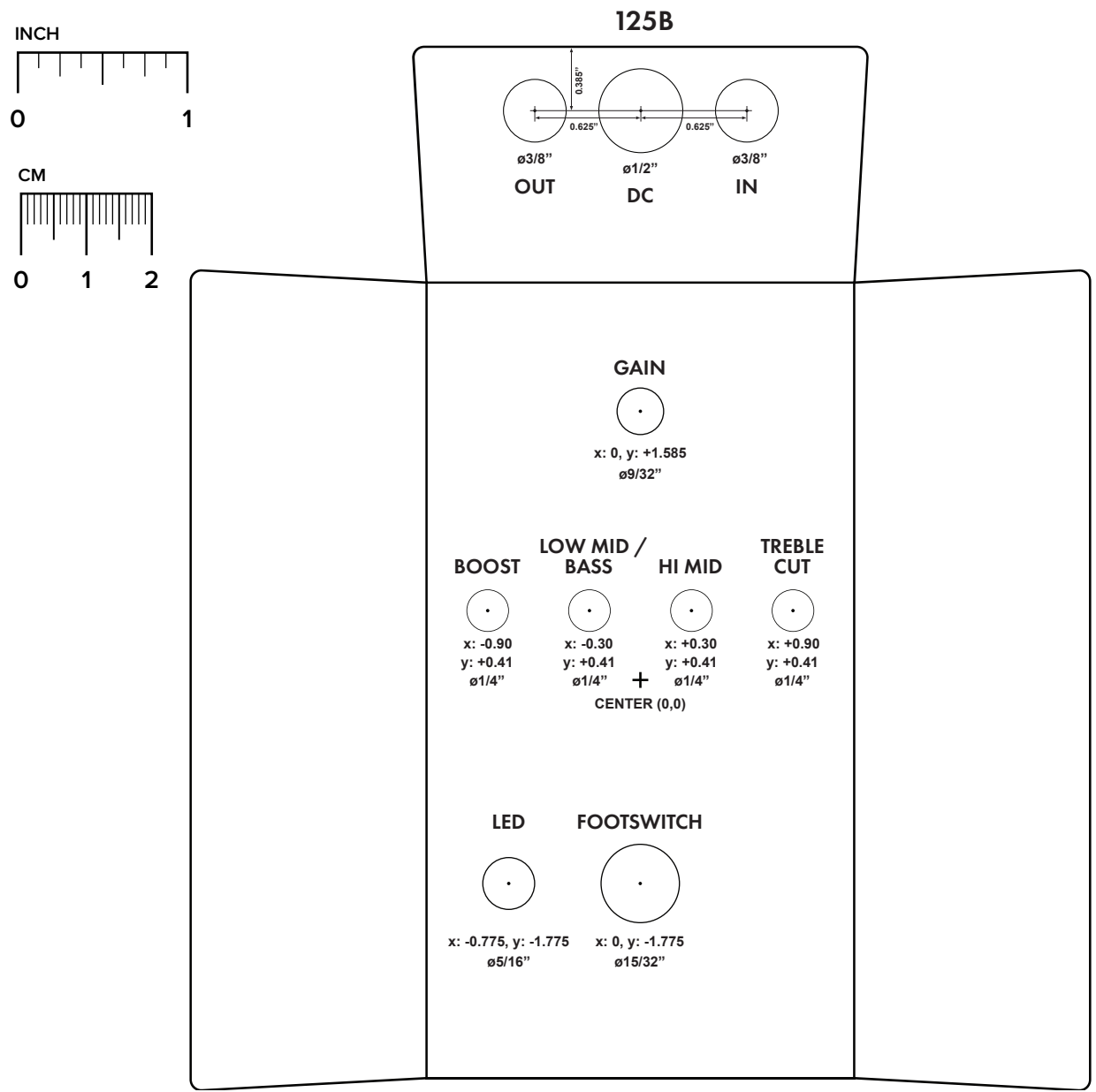
DRILL TEMPLATE

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.

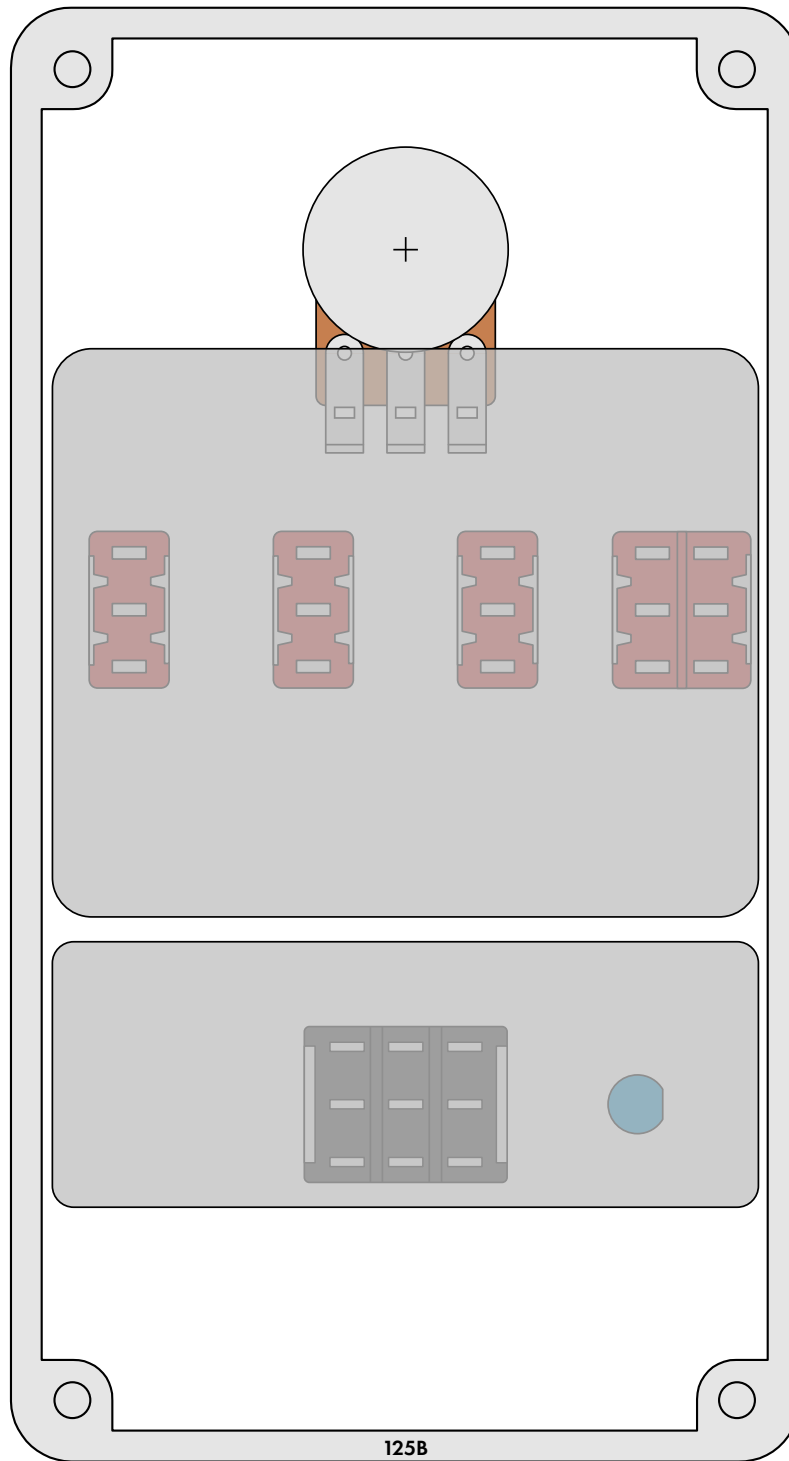
Top jack layout assumes the use of closed-frame jacks like the [Switchcraft 111X](#). If you'd rather use open-frame jacks, please refer to the [Open-Frame Jack Drill Template](#) for the top side.

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.

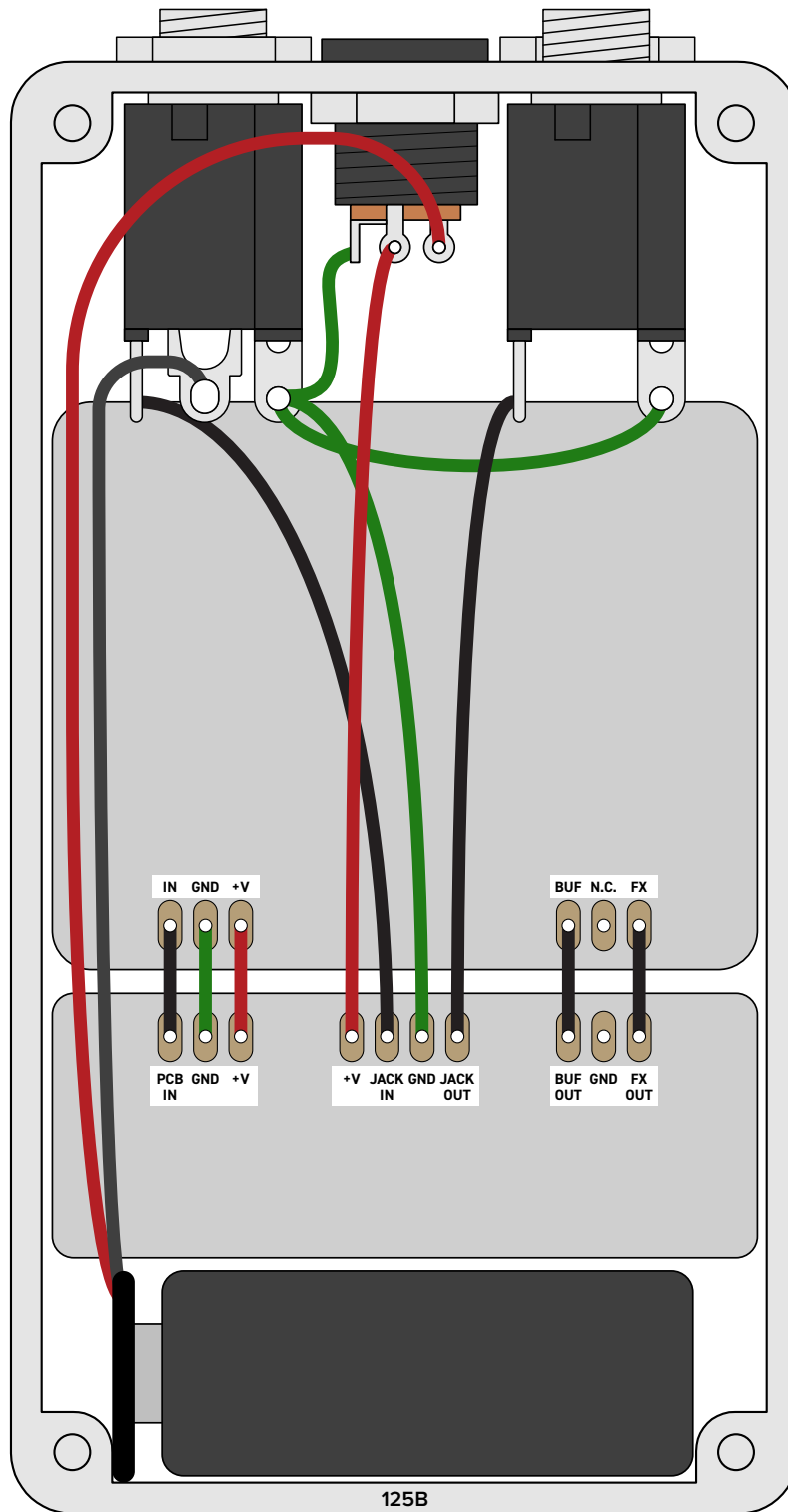


ENCLOSURE LAYOUT

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

1.0.0 (2024-11-29)

Initial release.