

PROJECT NAME
SOMNUS



BASED ON
Sobbat Drive Breaker DB-01

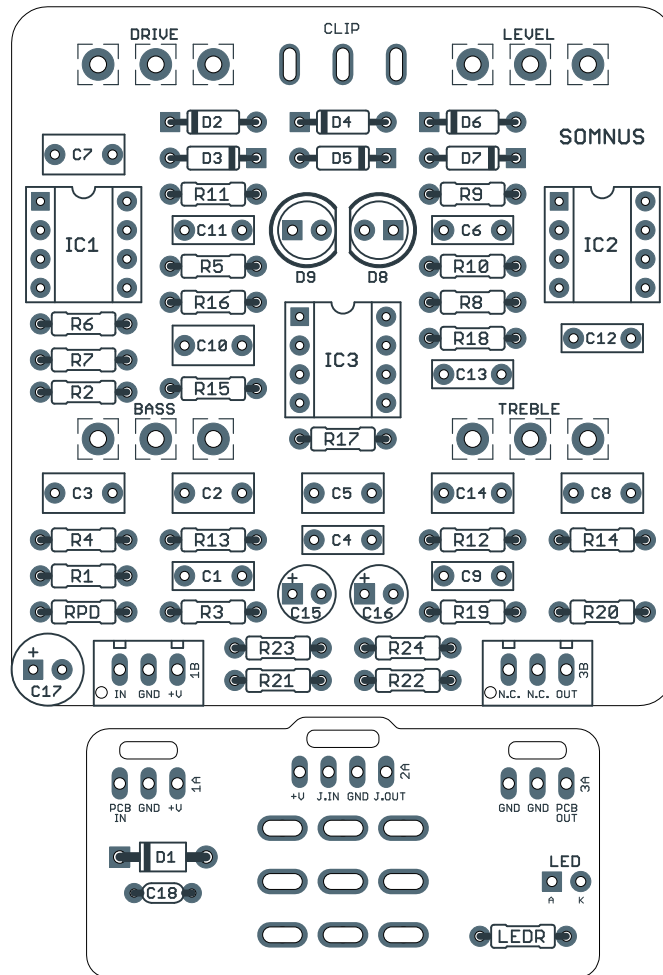
BUILD DIFFICULTY
■■■■□ Intermediate

EFFECT TYPE
Distortion / overdrive

DOCUMENT VERSION
1.0.0 (2023-03-24)

PROJECT SUMMARY

A medium-gain distortion & overdrive with a two-band Baxandall tone stack, most notably used by The Edge during the *All That You Can't Leave Behind* recording sessions.



Actual size is 2.3" x 2.42" (main board) and 1.78" x 0.86" (bypass board).

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INTRODUCTION

The Somnus Amp Distortion is an adaptation of the Sobbat DB-01 Drive Breaker, a somewhat obscure pedal from Japan that was originally released in 1995.

It's perhaps best known for its association with The Edge, who first started using it during the recording of *All That You Can't Leave Behind* where it featured most prominently on the song "New York". According to his guitar tech Dallas Schoo, he also used it on the outro solo for "Until the End of the World" during the Elevation and Vertigo tours, and it has been spotted in the live rig as of the 360 tour.

Sobbat has released three followup versions of the Drive Breaker called the DB-2, DB-3 and DB-4. None of these have been traced to our knowledge, but they don't seem to be drastically different from the original, which is still by far the most famous and is still produced along with its successors.

The Somnus is based on the first version, and is a direct adaptation except for the addition of a clipping diode switch. The original unit uses one diode in each direction for clipping, but we've added options for two diodes or LEDs.

USAGE

The Somnus has the following controls:

- **Drive** controls the amount of gain in the op-amp stage that goes into the clipping diodes.
- **Treble** forms half of the Baxandall tone control and allows adjustment of the treble frequencies.
- **Bass** forms the other half and allows adjustment of the bass frequencies.
- **Volume** controls the overall output of the effect.
- **Clipping** (toggle switch) selects between stock clipping, 2x diodes, or LED clipping.

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	10k	Metal film resistor, 1/4W	
R2	1M	Metal film resistor, 1/4W	
R3	100k	Metal film resistor, 1/4W	
R4	100k	Metal film resistor, 1/4W	
R5	220k	Metal film resistor, 1/4W	
R6	47k	Metal film resistor, 1/4W	
R7	22k	Metal film resistor, 1/4W	
R8	10k	Metal film resistor, 1/4W	
R9	22k	Metal film resistor, 1/4W	
R10	2k2	Metal film resistor, 1/4W	
R11	1k	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	47k	Metal film resistor, 1/4W	
R16	1k	Metal film resistor, 1/4W	
R17	47k	Metal film resistor, 1/4W	
R18	1k	Metal film resistor, 1/4W	
R19	100k	Metal film resistor, 1/4W	
R20	470R	Metal film resistor, 1/4W	
R21	8k2	Metal film resistor, 1/4W	Power supply filter resistor.
R22	10k	Metal film resistor, 1/4W	Power supply filter resistor.
R23	8k2	Metal film resistor, 1/4W	Power supply filter resistor.
R24	10k	Metal film resistor, 1/4W	Power supply filter resistor.
RPD	2M2	Metal film resistor, 1/4W	Input pull-down resistor. Can be as low as 1M.
LEDR	10k	Metal film resistor, 1/4W	LED current-limiting resistor. Adjust value to change LED brightness.
C1	22n	Film capacitor, 7.2 x 2.5mm	
C2	1uF	Film capacitor, 7.2 x 3.5mm	
C3	1uF	Film capacitor, 7.2 x 3.5mm	
C4	6n8	Film capacitor, 7.2 x 2.5mm	
C5	1uF	Film capacitor, 7.2 x 3.5mm	
C6	68n	Film capacitor, 7.2 x 2.5mm	

PARTS LIST, CONT.

PART	VALUE	TYPE	NOTES
C7	1uF	Film capacitor, 7.2 x 2.5mm	
C8	1uF	MLCC capacitor, NP0/COG	
C9	22n	MLCC capacitor, NP0/COG	
C10	1uF	Film capacitor, 7.2 x 3.5mm	
C11	33n	Film capacitor, 7.2 x 2.5mm	
C12	100n	Film capacitor, 7.2 x 2.5mm	
C13	1n	Film capacitor, 7.2 x 2.5mm	
C14	1uF	MLCC capacitor, NP0/COG	
C15	47uF	Film capacitor, 7.2 x 3.5mm	Reference voltage filter capacitor.
C16	47uF	Film capacitor, 7.2 x 2.5mm	Reference voltage filter capacitor.
C17	100uF	Film capacitor, 7.2 x 2.5mm	Power supply filter capacitor.
C18	100n	Film capacitor, 7.2 x 2.5mm	Power supply filter capacitor.
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	
D6	1N914	Fast-switching diode, DO-35	
D7	1N914	Fast-switching diode, DO-35	
D8	5mm LED	LED, 5mm, red diffused	
D9	5mm LED	LED, 5mm, red diffused	
IC1	JRC4558D	Operational amplifier, DIP8	
IC1-S	DIP-8 socket	IC socket, DIP-8	
IC2	TL072	Operational amplifier, dual, DIP8	IC2 and IC3 are a single TL074 (quad) in the original.
IC2-S	DIP-8 socket	IC socket, DIP-8	
IC3	TL072	Operational amplifier, dual, DIP8	IC2 and IC3 are a single TL074 (quad) in the original.
IC3-S	DIP-8 socket	IC socket, DIP-8	
DRIVE	1MB	16mm right-angle PCB mount pot	
BASS	10kA	16mm right-angle PCB mount pot	
TREBLE	10kA	16mm right-angle PCB mount pot	
LEVEL	10kA	16mm right-angle PCB mount pot	
CLIP	SPDT on-off-on	16mm right-angle PCB mount pot	

PARTS LIST, CONT.

PART	VALUE	TYPE	NOTES
LED	5mm	LED, 5mm, red diffused	
IN	1/4" mono	1/4" phone jack, closed frame	Switchcraft 111X 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.

BUILD NOTES

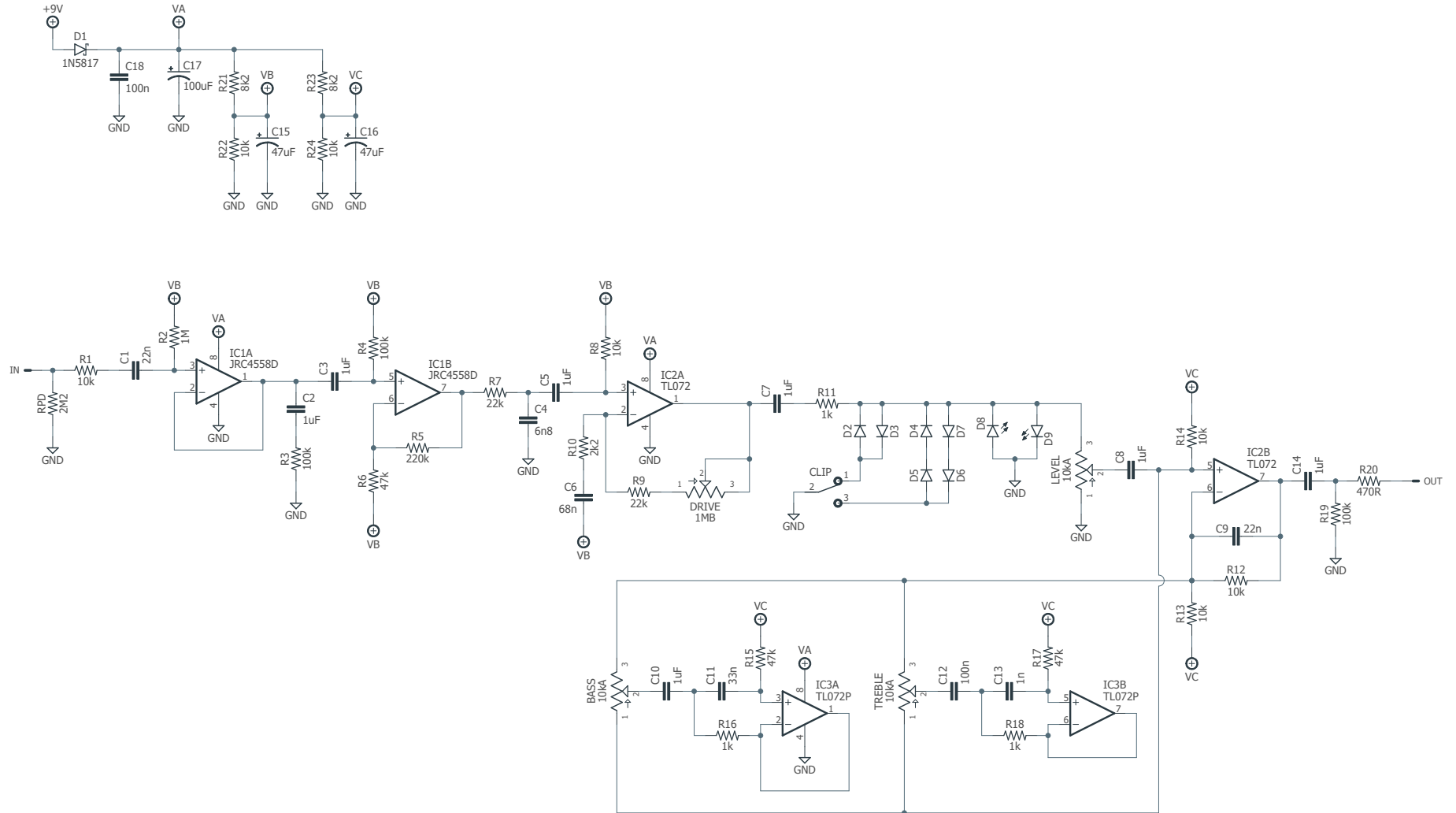
C9 capacitor

There have been two community traces of the Drive Breaker and the schematics differ slightly. Most notably, one of them shows 68n for C9 while the other shows 22n. This will make a substantial difference to the tone, so it's worth digging in to see if we can determine the real value.

We've never opened up one to verify, but we elected to go with 22n for two reasons: first, the schematic that shows 68n has a couple of other minor yet obvious errors, so it seemed more likely that the 68n value was another mistake; second, there have been community reports from DIYers who built the 22n version and said that it sounded just like the original to them.

If anyone has an original unit and could confirm the value of C9 in our schematic (the feedback capacitor of the output stage) then we will update the documentation accordingly.

SCHEMATIC



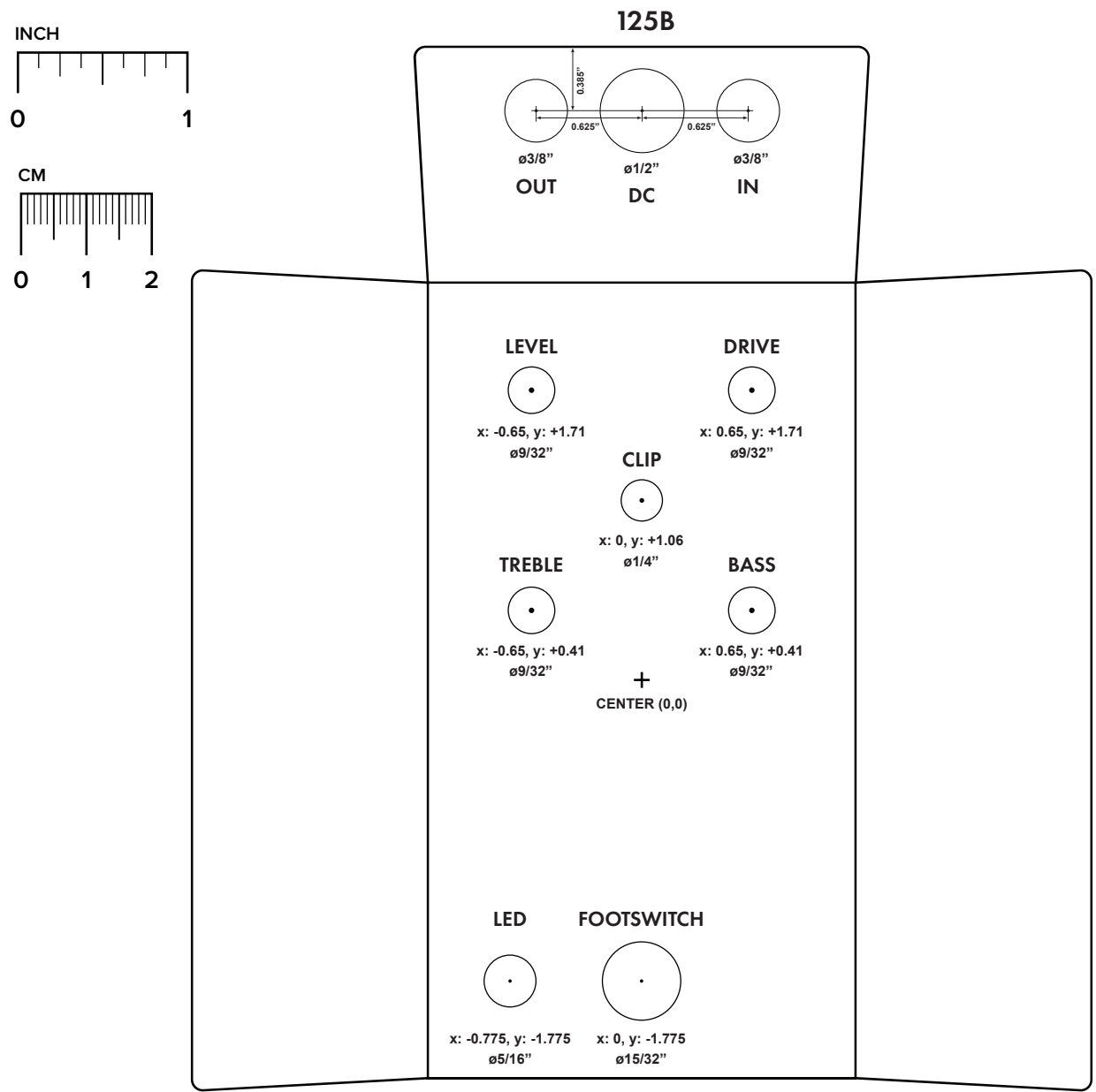
DRILL TEMPLATE

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.

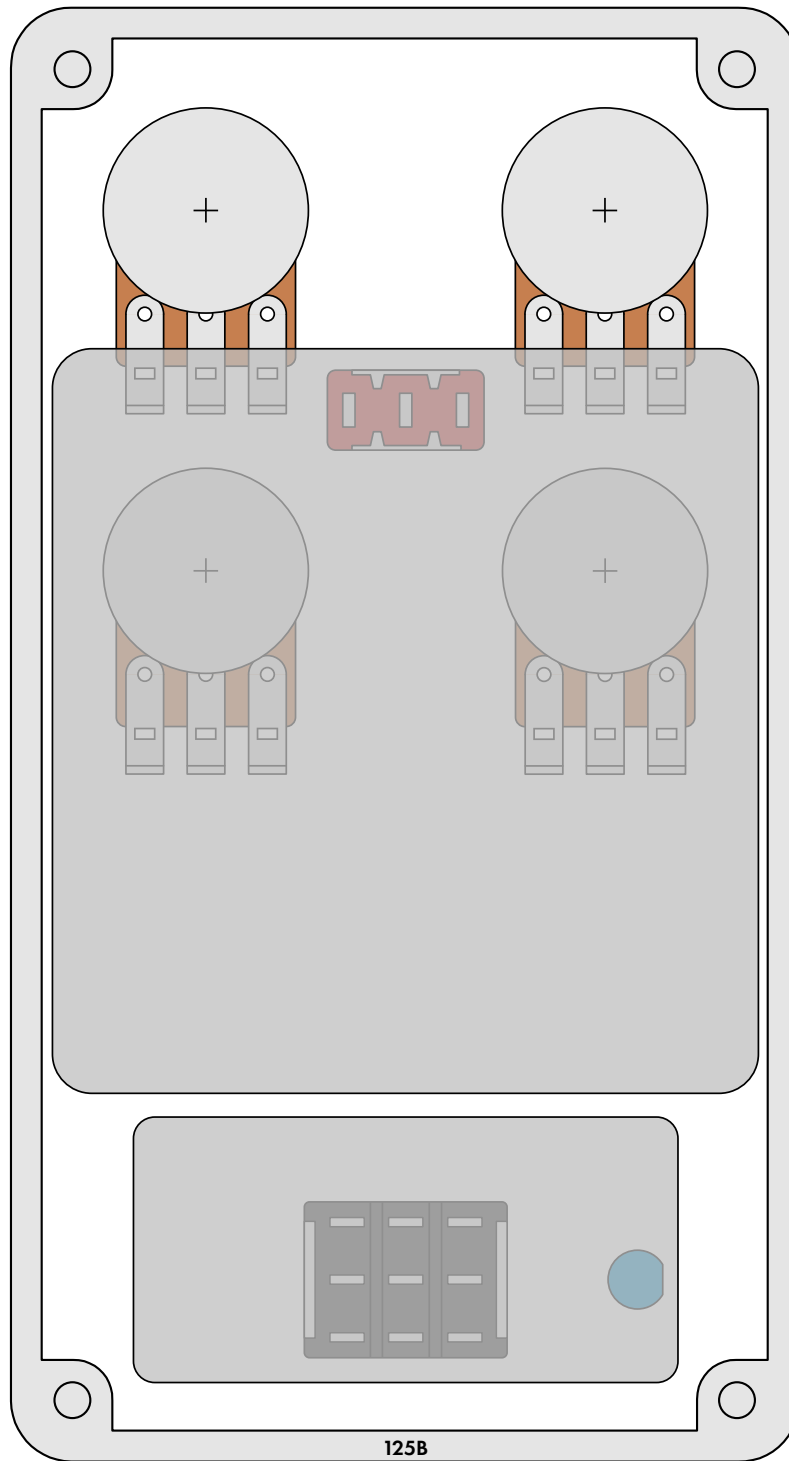
Top jack layout assumes the use of closed-frame jacks like the [Switchcraft 111X](#). If you'd rather use open-frame jacks, please refer to the [Open-Frame Jack Drill Template](#) for the top side.

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.

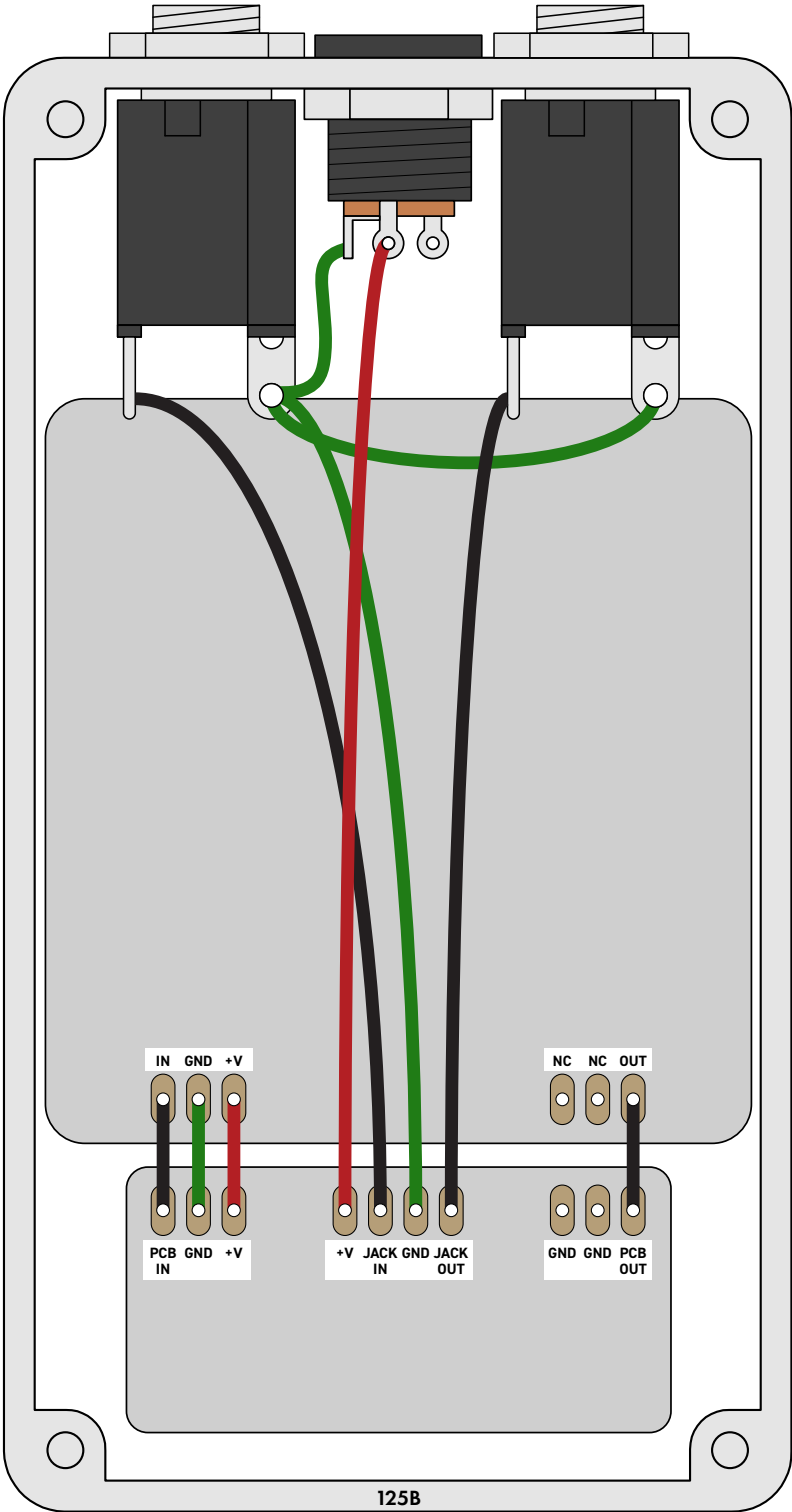


ENCLOSURE LAYOUT

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 (2023-03-24)

Initial release.