

PROJECT NAME

ANTIPODE

BASED ON

Roland AF-60 Bee Gee

EFFECT TYPE

Fuzz/Distortion

BUILD DIFFICULTY

■■■■■ Easy

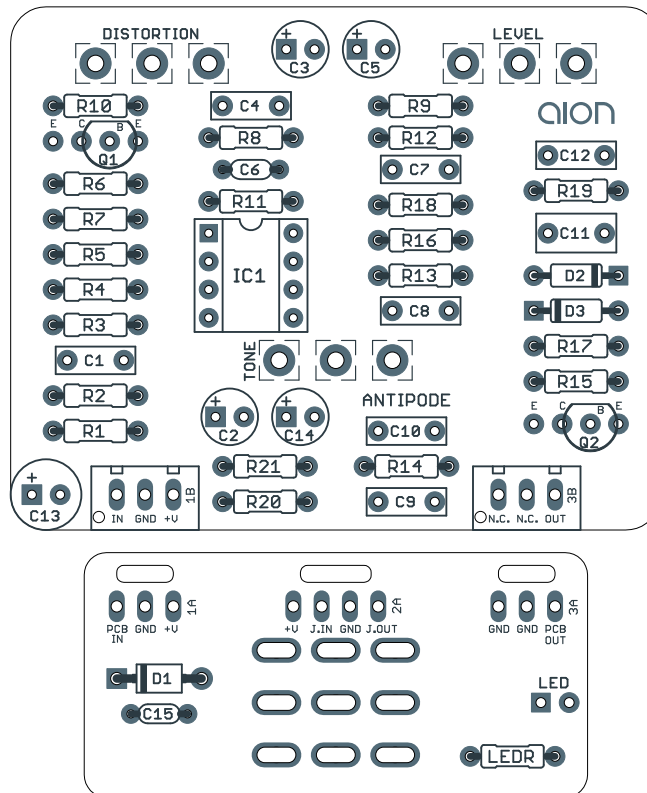
DOCUMENT VERSION

1.0.0 (2019-11-28)



PROJECT SUMMARY

While the circuit is best known as the “Jet” stage from the Roland AP-7 Jet Phaser, the standalone pedal version is much more flexible with a wider tonal palette to play with.



Actual size is 2.3" x 1.86" (main board) and 1.78" x 0.86" (bypass board).

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INTRODUCTION

The Antipode Vintage Fuzz is an adaptation of the Roland AF-60 Bee Gee, a fuzz/distortion from 1975 that is best known as the standalone version of the “jet mode” of the legendary AP-7 Jet Phaser.

It features a combination of transistor gain, op-amp gain and diode-based hard clipping to get its character. The tone control is the classic Big Muff “balance” style, centered around 1.3Khz with a very slight mid-boost in the middle position.

The Jet Phaser’s adaptation is largely the same but with fewer controls. The output volume control is retained for the fuzz stage, but the tone control is simplified into a two-position switch with only “full bass” and “full treble” settings. The potentiometer on the AF-60 is much more usable.

The Antipode project has one modification, which is the addition of a gain control to allow the distortion level to be dialed back. In the original, the op-amp gain was fixed at 220, but with this control it can now get as low as 2, getting down into overdrive territory instead of full-on fuzz. With the gain control at maximum, the circuit is 100% identical to a vintage AF-60.

USAGE

The Antipode has the following controls:

- **Distortion** is a gain control. When set to maximum, it’s equivalent to the stock AF-60.
- **Tone** pans between a bass boost on one side and treble boost on the other, with a very slight mid-hump in the center position.
- **Volume** is the master output volume control.

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.

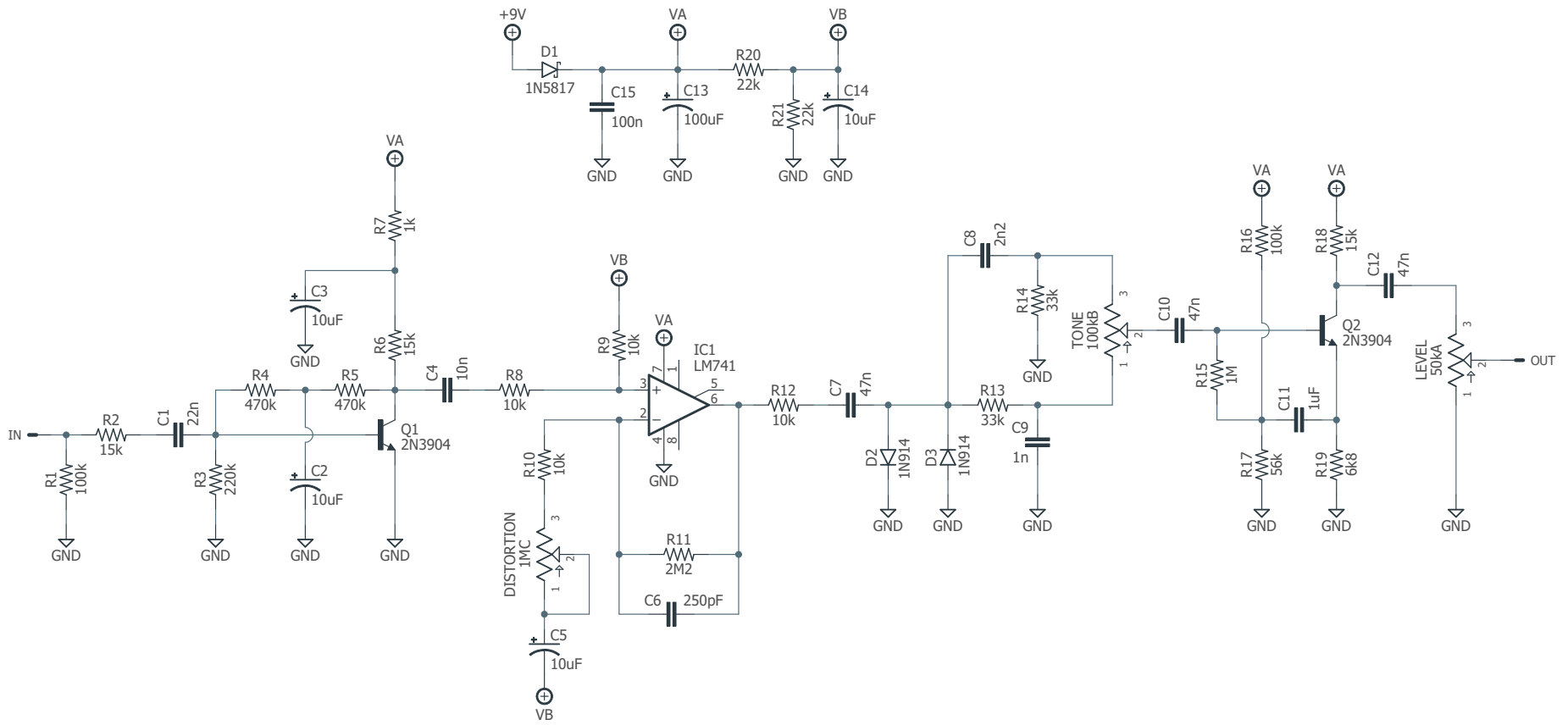
[View parts list spreadsheet](#) →

PART	VALUE	TYPE	NOTES
R1	100k	Metal film resistor, 1/4W	
R2	15k	Metal film resistor, 1/4W	
R3	220k	Metal film resistor, 1/4W	
R4	470k	Metal film resistor, 1/4W	
R5	470k	Metal film resistor, 1/4W	
R6	15k	Metal film resistor, 1/4W	
R7	1k	Metal film resistor, 1/4W	
R8	10k	Metal film resistor, 1/4W	
R9	10k	Metal film resistor, 1/4W	
R10	10k	Metal film resistor, 1/4W	
R11	2M2	Metal film resistor, 1/4W	
R12	10k	Metal film resistor, 1/4W	
R13	33k	Metal film resistor, 1/4W	
R14	33k	Metal film resistor, 1/4W	
R15	1M	Metal film resistor, 1/4W	
R16	100k	Metal film resistor, 1/4W	
R17	56k	Metal film resistor, 1/4W	
R18	15k	Metal film resistor, 1/4W	
R19	6k8	Metal film resistor, 1/4W	
R20	22k	Metal film resistor, 1/4W	
R21	22k	Metal film resistor, 1/4W	
LED R	4k7	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	10uF	Electrolytic capacitor, 5mm	
C3	10uF	Electrolytic capacitor, 5mm	
C4	10n	Film capacitor, 7.2 x 2.5mm	
C5	10uF	Electrolytic capacitor, 5mm	
C6	270pF	MLCC capacitor, NP0/COG	Original is 250pF, but 220pf is the nearest readily-available value.
C7	47n	Film capacitor, 7.2 x 2.5mm	
C8	2n2	Film capacitor, 7.2 x 2.5mm	

PARTS LIST, CONT.

PART	VALUE	TYPE	NOTES
C9	1n	Film capacitor, 7.2 x 2.5mm	
C10	47n	Film capacitor, 7.2 x 2.5mm	
C11	1uF	Film capacitor, 7.2 x 3.5mm	
C12	47n	Film capacitor, 7.2 x 2.5mm	
C13	100uF	Electrolytic capacitor, 6.3mm	Power supply filter capacitor.
C14	47uF	Electrolytic capacitor, 5mm	Reference voltage filter capacitor.
C15	100n	MLCC capacitor, X7R	Power supply filter capacitor.
D1	1N5817	Schottky diode, DO-41	
D2	1N914	Fast-switching diode, DO-35	
D3	1N914	Fast-switching diode, DO-35	
Q1	2N3904	BJT transistor, NPN, TO-92	Substitute. Original uses 2SC1000GR.
Q2	2N3904	BJT transistor, NPN, TO-92	Substitute. Original uses 2SC1000GR.
IC1	LM741	Operational amplifier, DIP8	Original uses TA7504, but LM741 is an equivalent.
IC1-S	DIP-8 socket	IC socket, DIP-8	
DIST.	1MC	16mm right-angle PCB mount pot	
TONE	100kB	16mm right-angle PCB mount pot	
LEVEL	50kA	16mm right-angle PCB mount pot	
LED	5mm	LED, 5mm, red diffused	
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



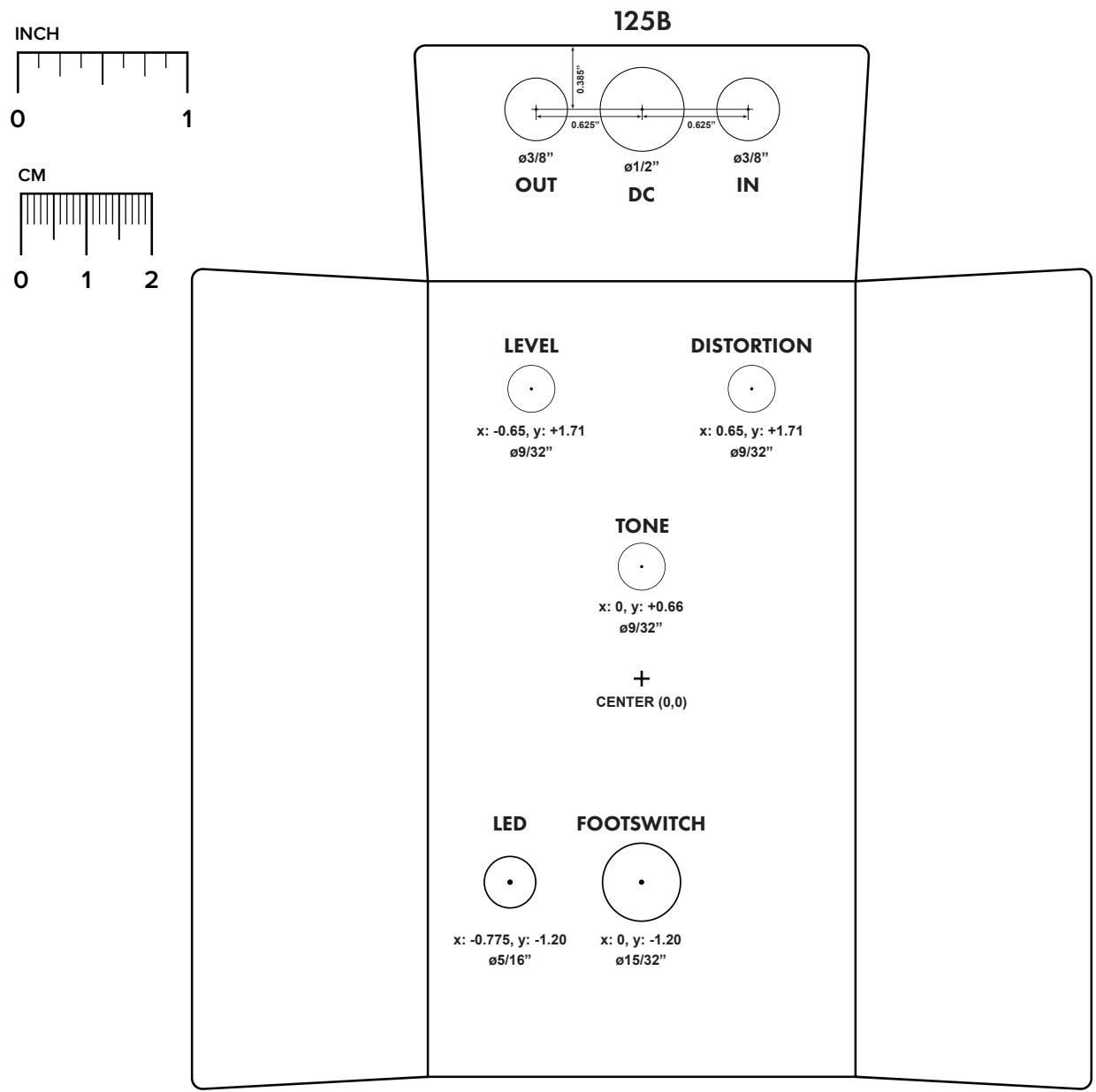
DRILL TEMPLATE

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.

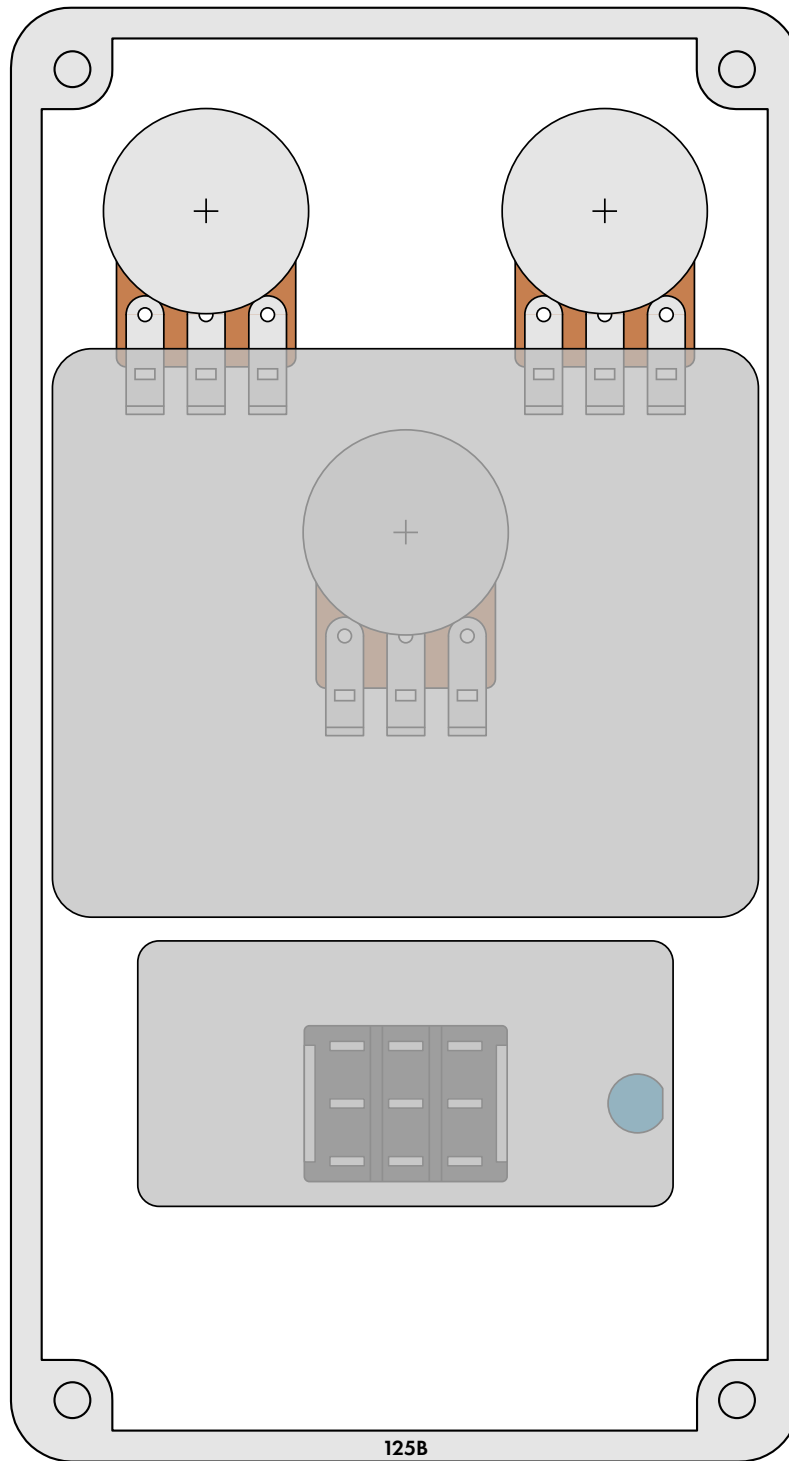
Top jack layout assumes the use of closed-frame jacks like the [Switchcraft 111X](#). If you'd rather use open-frame jacks, please refer to the Open-Frame Jack Drill Template for the top side.

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.

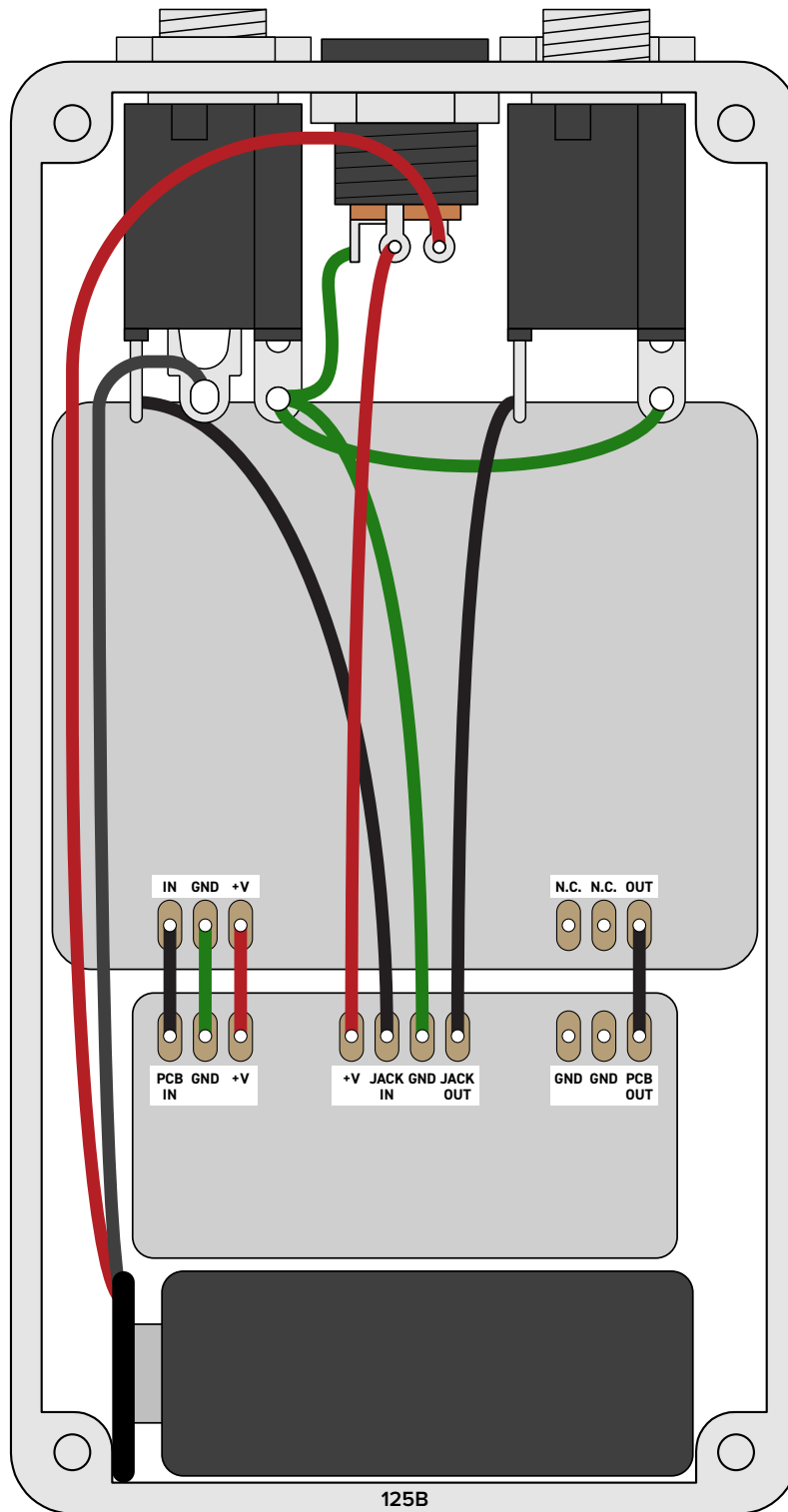


ENCLOSURE LAYOUT

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

1.0.0 (2019-11-28)

Initial release.