

PROJECT NAME

# WARPFIELD

BASED ON

Pearl/Vorg Warp Sound

EFFECT TYPE

Resonant filter overdrive

BUILD DIFFICULTY

■■■■■ Easy

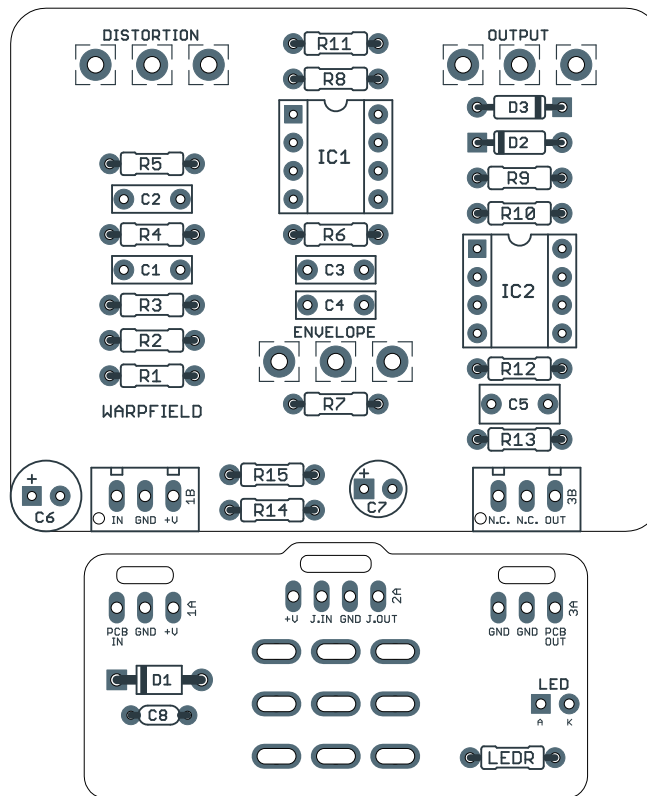
DOCUMENT VERSION

1.0.0 (2024-07-04)



## PROJECT SUMMARY

A rare effect from the 1970s combining a distortion circuit with an adjustable-frequency resonant low-pass filter. Most notably used by Kevin Shields of My Bloody Valentine.



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

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## INTRODUCTION

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The Warfield Resonant Drive is an adaptation the incredibly rare Pearl Warp Sound, also sold under the Vorg brand name.

The Warp Sound was a generally unnoticed pedal when it came out in the mid-1970s. A few decades later, though, Kevin Shields of My Bloody Valentine was seen with one on his pedalboard that he had marked “Sometimes” (the eighth track on their classic album Loveless), and the MBV association has since caused them to sell for upwards of \$500—if you can find one.

At its heart, the Warp Sound is a static resonant low-pass filter with adjustable frequency, sort of like a cocked wah. This is combined with a fuzzy, rough-around-the-edges distortion to create some really interesting textures. It’s not going to be your main drive pedal, but it’s a great tool to have in your arsenal.

The original Warp Sound only had two knobs on the outside, with the distortion trimmer set internally. The Warfield puts the distortion control as an external knob. Many people like to leave the distortion all the way up, but you can be the judge.

The Warfield is a direct adaptation of the Warp Sound. Other than the relocation of the Distortion control, the only other change was to make it true bypass (the original was buffered). You’ll notice a vestigial resistor and capacitor coming off of IC1. These were part of the buffer circuit, but since the signal does pass through them in effect mode forming a very slight filter, they were left in.

## USAGE

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The Warfield has three controls:

- **Distortion** controls the amount of gain going into the op-amp clipping stage.
- **Envelope** adjusts the frequency of the resonant low-pass filter.
- **Output** controls the overall volume 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	10k	Metal film resistor, 1/4W	
R2	220k	Metal film resistor, 1/4W	
R3	220k	Metal film resistor, 1/4W	
R4	47k	Metal film resistor, 1/4W	
R5	10k	Metal film resistor, 1/4W	
R6	330k	Metal film resistor, 1/4W	
R7	270R	Metal film resistor, 1/4W	
R8	10k	Metal film resistor, 1/4W	
R9	100k	Metal film resistor, 1/4W	
R10	10k	Metal film resistor, 1/4W	
R11	220k	Metal film resistor, 1/4W	
R12	47k	Metal film resistor, 1/4W	
R13	100R	Metal film resistor, 1/4W	
R14	10k	Metal film resistor, 1/4W	
R15	10k	Metal film resistor, 1/4W	
RPD	2M2	Metal film resistor, 1/4W	Input pulldown resistor. Can be as low as 1M.
LED R	10k	Metal film resistor, 1/4W	LED current-limiting resistor. Adjust value to change LED brightness.
C1	47n	Film capacitor, 7.2 x 2.5mm	
C2	47n	Film capacitor, 7.2 x 2.5mm	
C3	22n	Film capacitor, 7.2 x 2.5mm	
C4	22n	Film capacitor, 7.2 x 2.5mm	
C5	1uF	Film capacitor, 7.2 x 3.5mm	
C6	100uF	Electrolytic capacitor, 6.3mm	Power supply filter capacitor.
C7	47uF	Electrolytic capacitor, 5mm	Reference voltage filter capacitor.
C8	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	

## PARTS LIST, CONT.

PART	VALUE	TYPE	NOTES
IC1	LM1458	Operational amplifier, dual, DIP8	
IC1-S	DIP-8 socket	IC socket, DIP-8	
IC2	LM1458	Operational amplifier, dual, DIP8	
IC2-S	DIP-8 socket	IC socket, DIP-8	
DIST.	100k $\Omega$	16mm right-angle PCB mount pot	Linear taper.
ENV.	10k $\Omega$	16mm right-angle PCB mount pot	Linear taper.
OUTPUT	50k $\Omega$	16mm right-angle PCB mount pot	Audio (log) taper.
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.

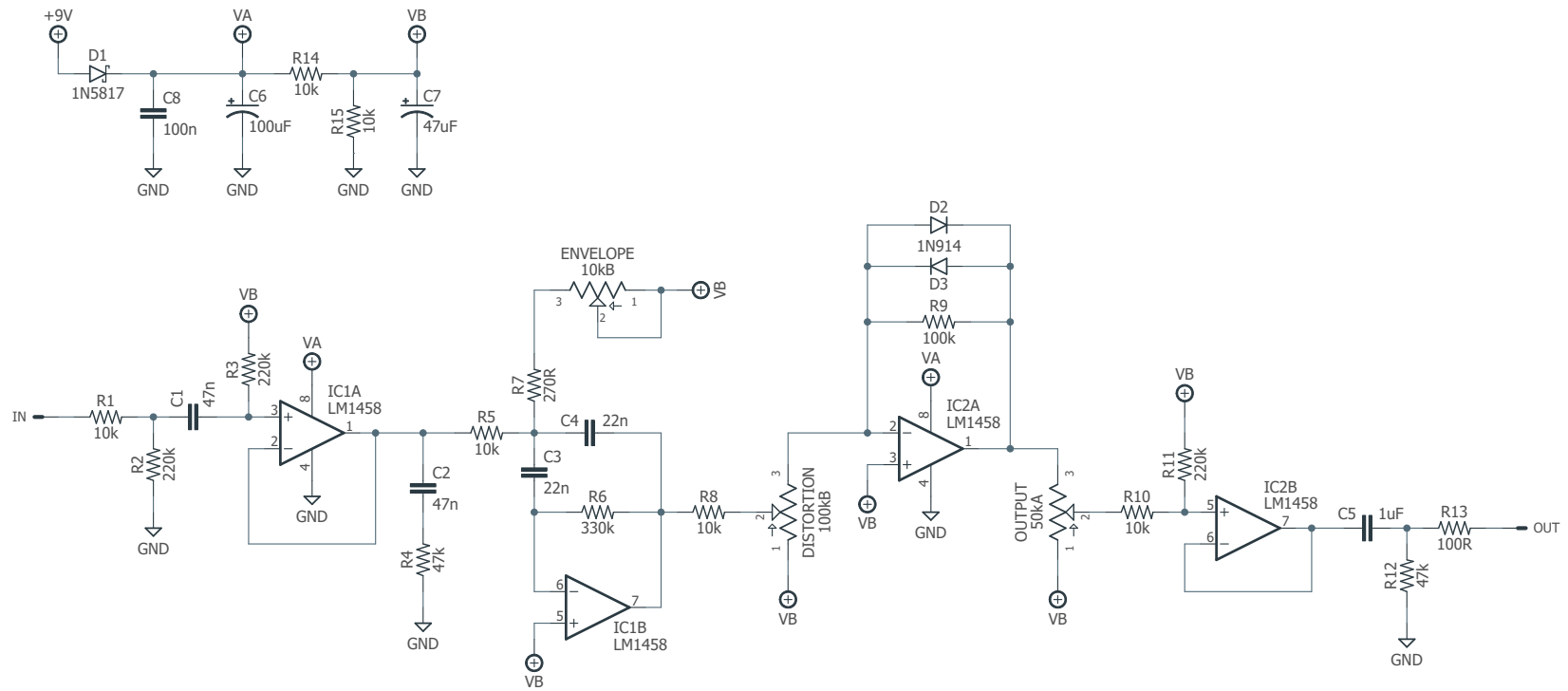
## BUILD NOTES

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### IC selection

The original Warp Sound used the NEC C251 op-amp. This is a direct cross-reference for the LM1458, and in fact NEC listed both ICs on the same datasheet as alternate names for the same part, so don't worry about hunting down an original C251.

# SCHEMATIC



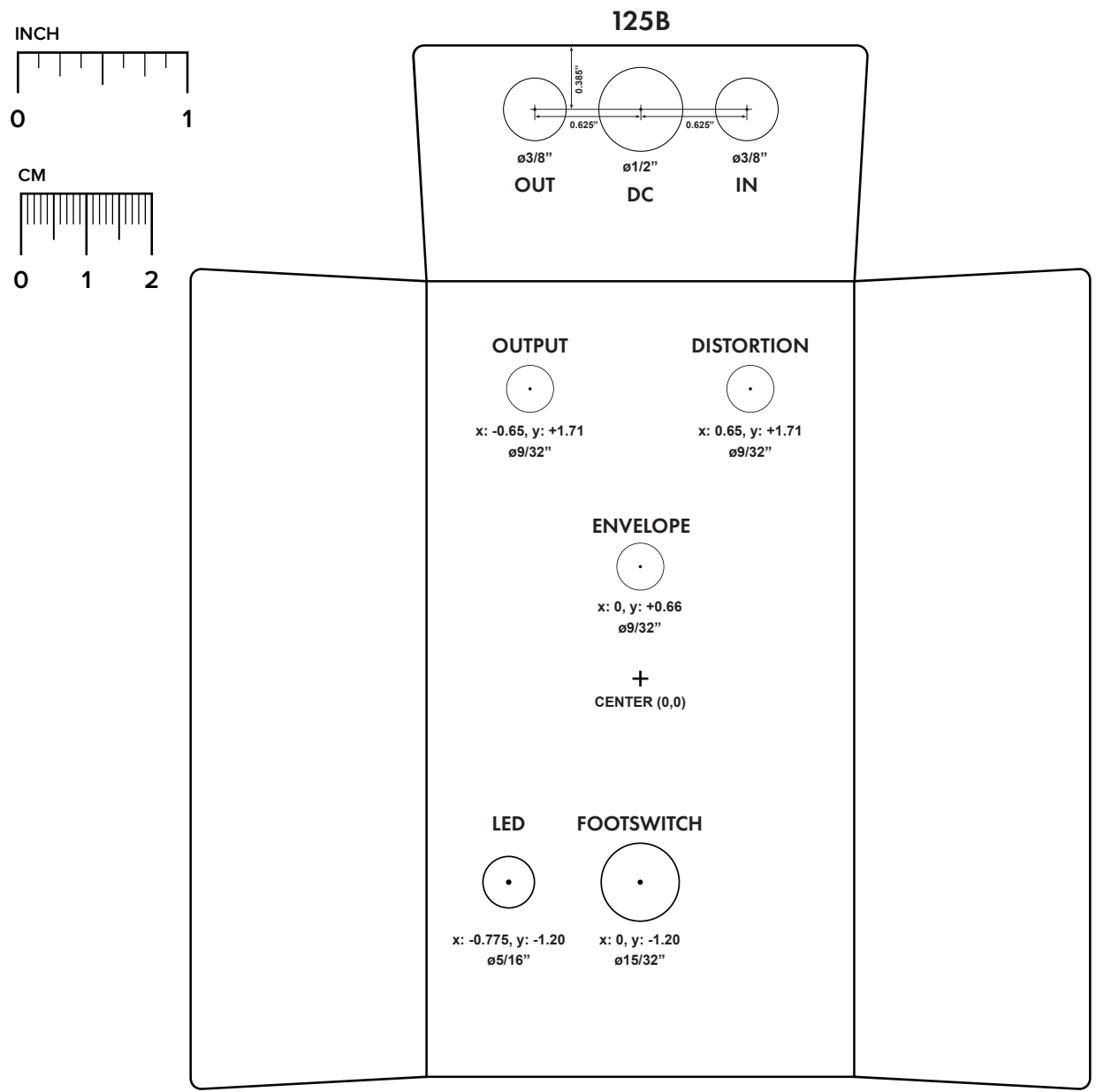
# DRILL TEMPLATE

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.

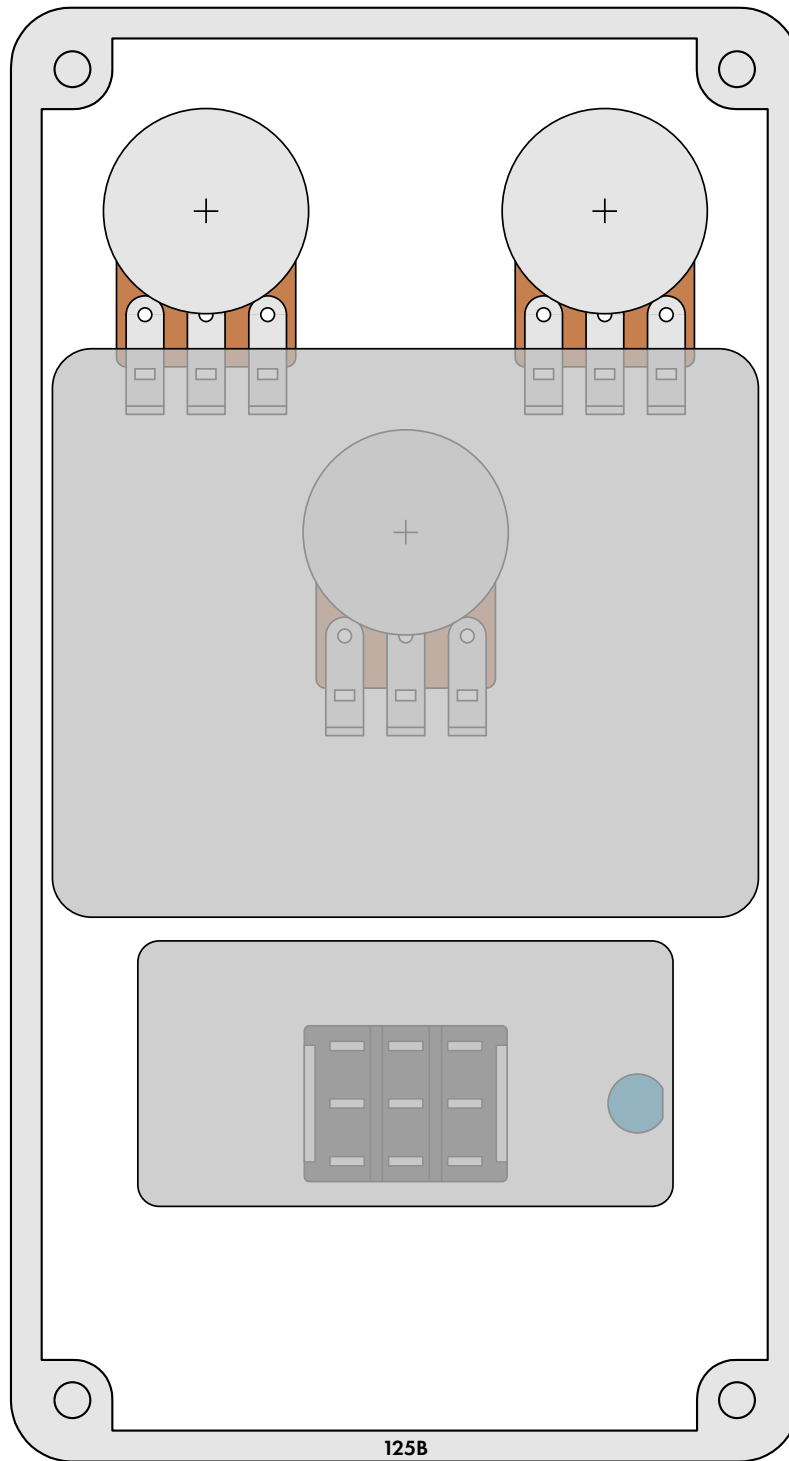
**LED hole drill size** assumes the use of a [5mm LED bezel](#), available from several parts suppliers. Adjust size accordingly if using something different, such as a 3mm bezel, a plastic bezel, or just a plain LED.



# ENCLOSURE LAYOUT

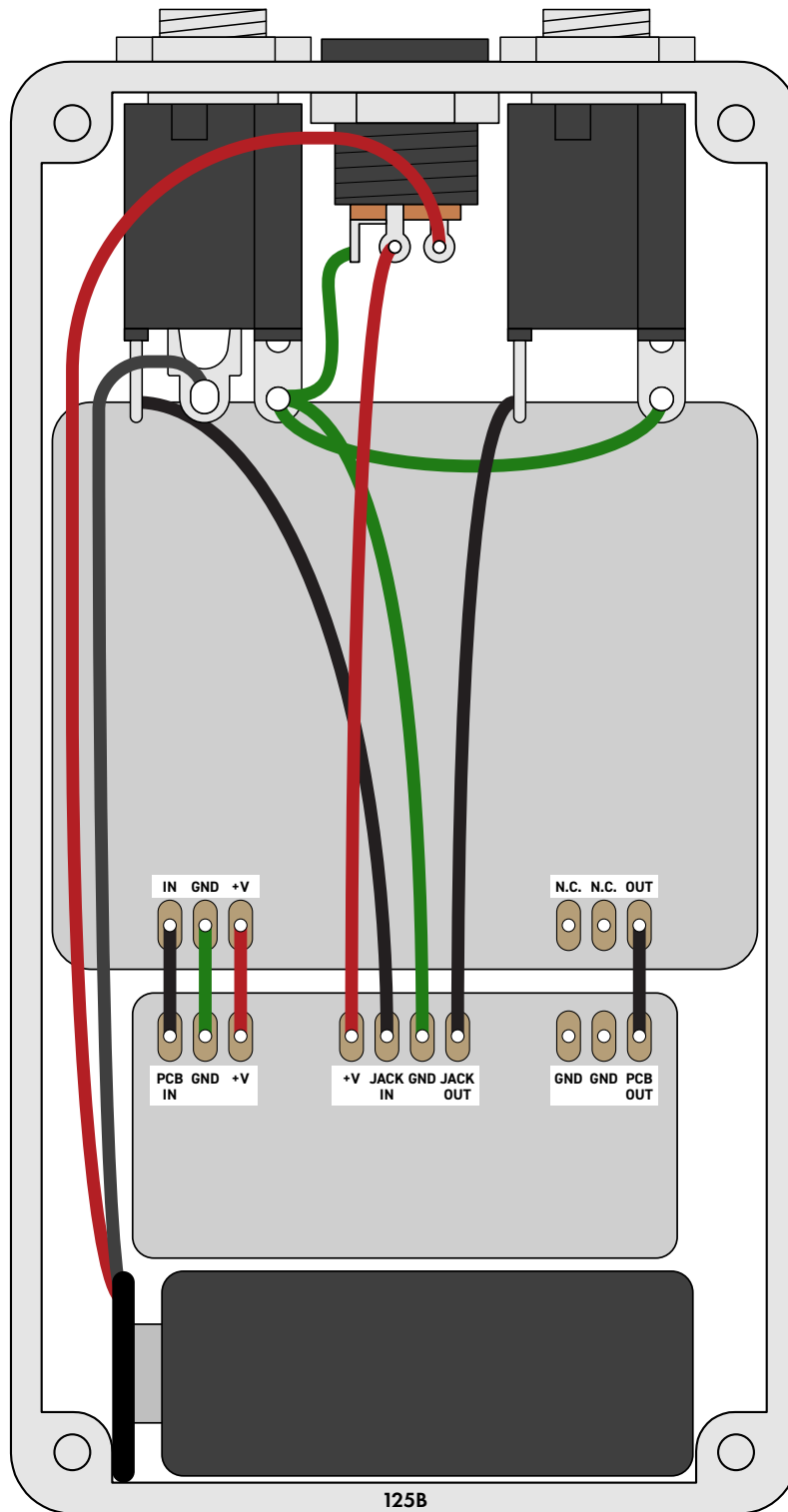
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Enclosure is shown without jacks. See next page for jack layout and wiring.





# 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

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**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

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### 1.0.0 (2024-07-04)

Initial release.