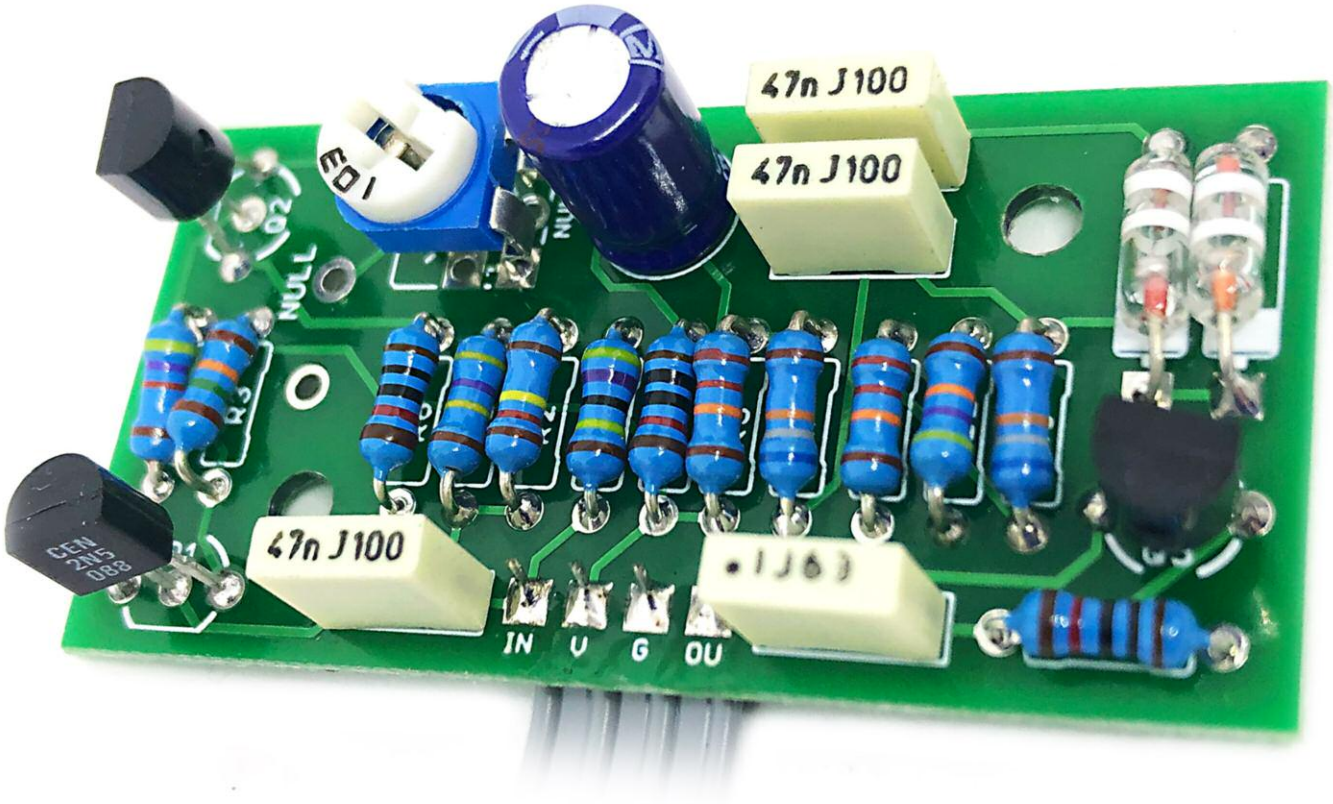


Green Ringer V2

Dan Armstrong's Octave upperer

Important notes

If you're using any of our footswitch daughterboards, DOWNLOAD THE DAUGHTERBOARD DOCUMENT

- Download and read the appropriate build document for the daughterboard as well as this one BEFORE you start.
- DO NOT solder the supplied Current Limiting Resistor (CLR) to the main circuit board even if there is a place for it. This should be soldered to the footswitch daughterboard.

POWER SUPPLY

Unless otherwise stated in this document this circuit is designed to be powered with 9V DC.

COMPONENT SPECS

Unless otherwise stated in this document:

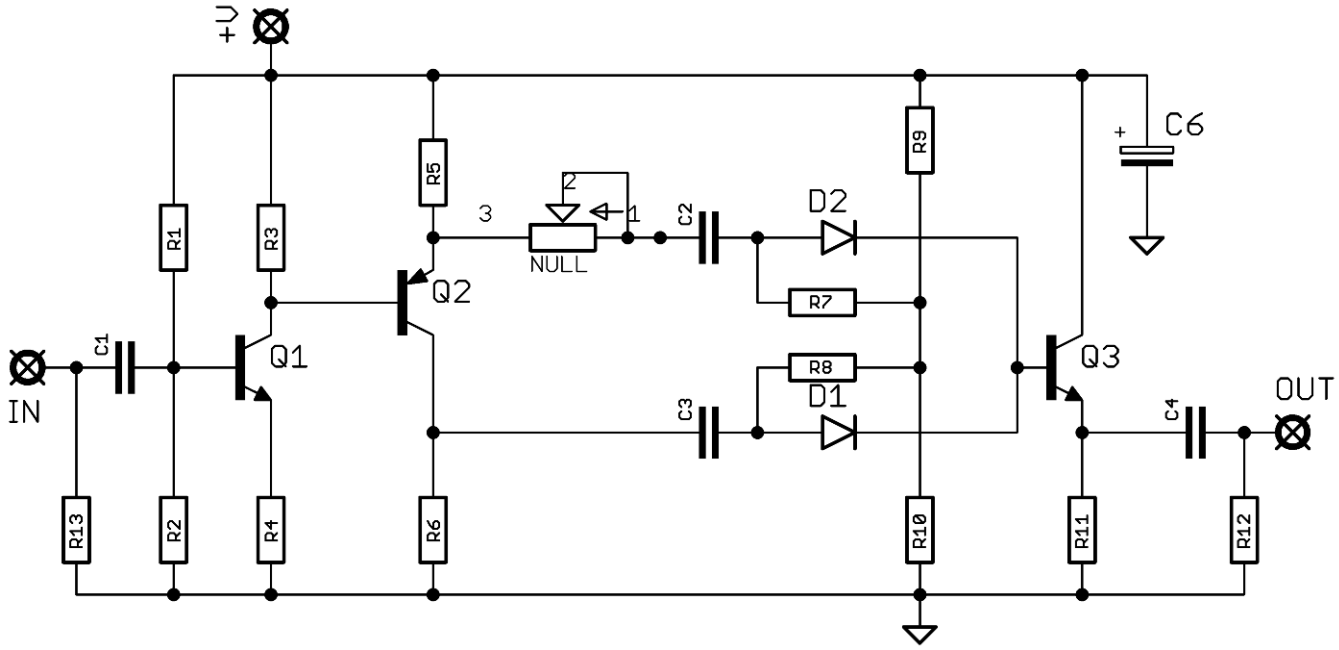
- Resistors should be 0.25W. You can use those with higher ratings but check the physical size of them.
- Electrolytics caps should be at least 25V for 9V circuits, 35V for 18V circuits. Again, check physical size if using higher ratings.

LAYOUT CONVENTIONS

Unless otherwise stated in this document, the following are used:

- **Electrolytic capacitors:**
  Long leg (anode) to square pad.
- **Diodes/LEDs:**
  Striped leg (cathode) to square pad. Short leg to square pad for LEDs.
- **ICs:**
  Square pad indicates pin 1.

Schematic + BOM



R1	470K
R2	120K
R3	15K
R4	4K7
R5	10K
R6	10K
R7	68K
R8	68K
R9	22K
R10	22K
R11	10K
R12	47K
R13	4M7

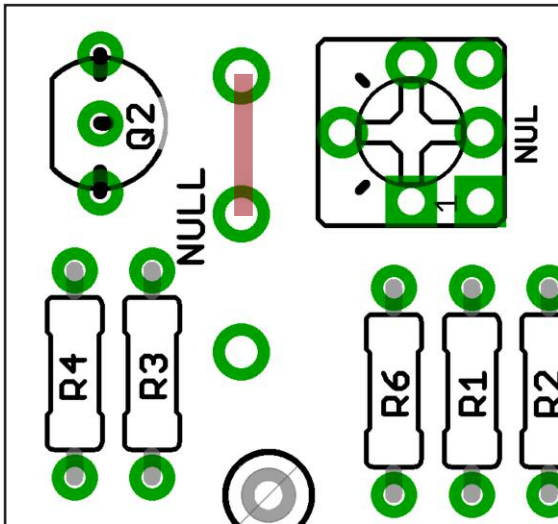
C1	47n
C2	47n
C3	47n
C4	100n
C6	100u elec
Q1	2N5088
Q2	2N3906
Q3	2N5088
D1-2	1N4148*
NULL	20K/25KB OR TRIMMER

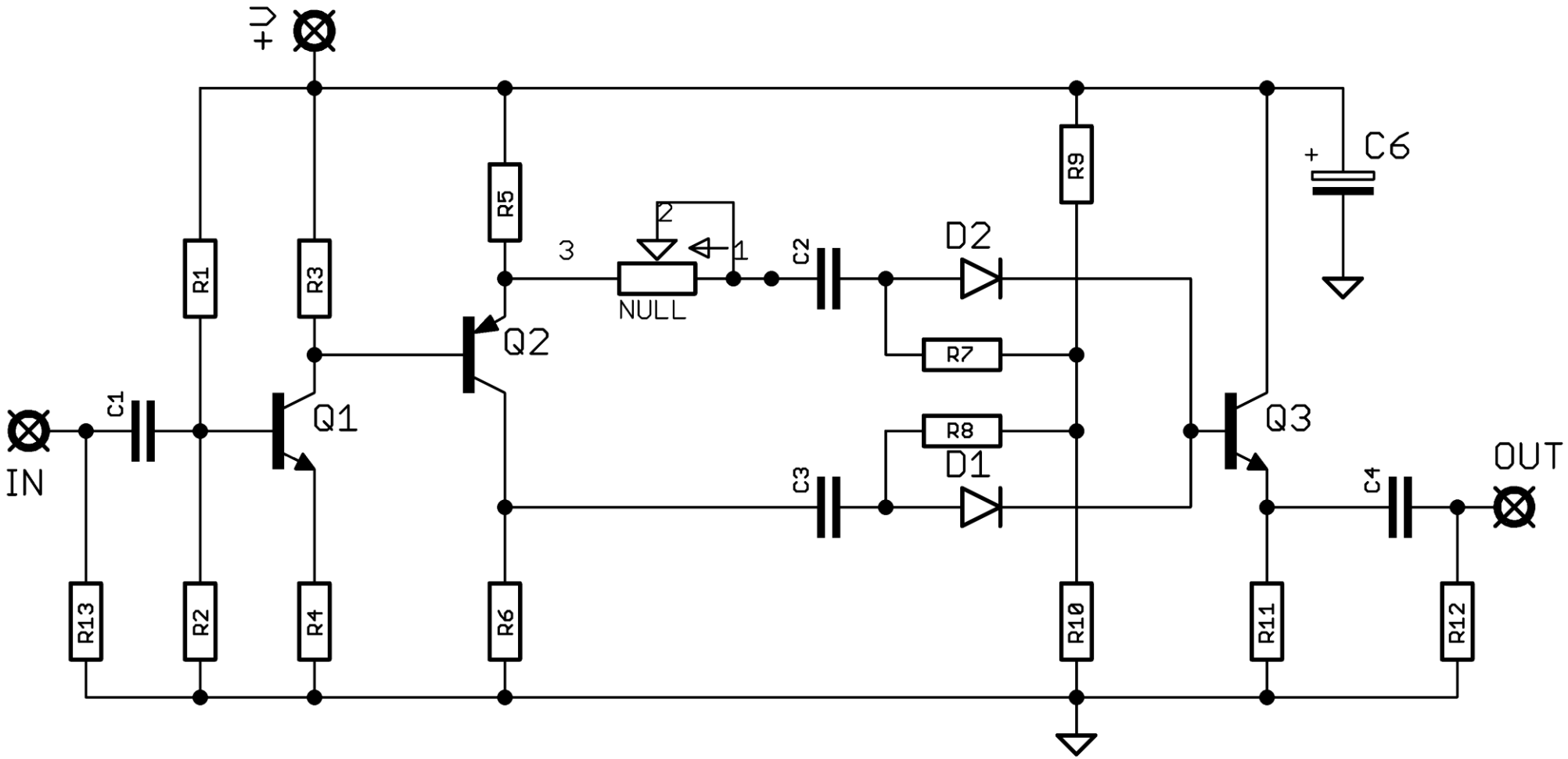
*You can swap these out for a pair of germanium diodes for a different flavour. The forward voltages should be very closely matched.

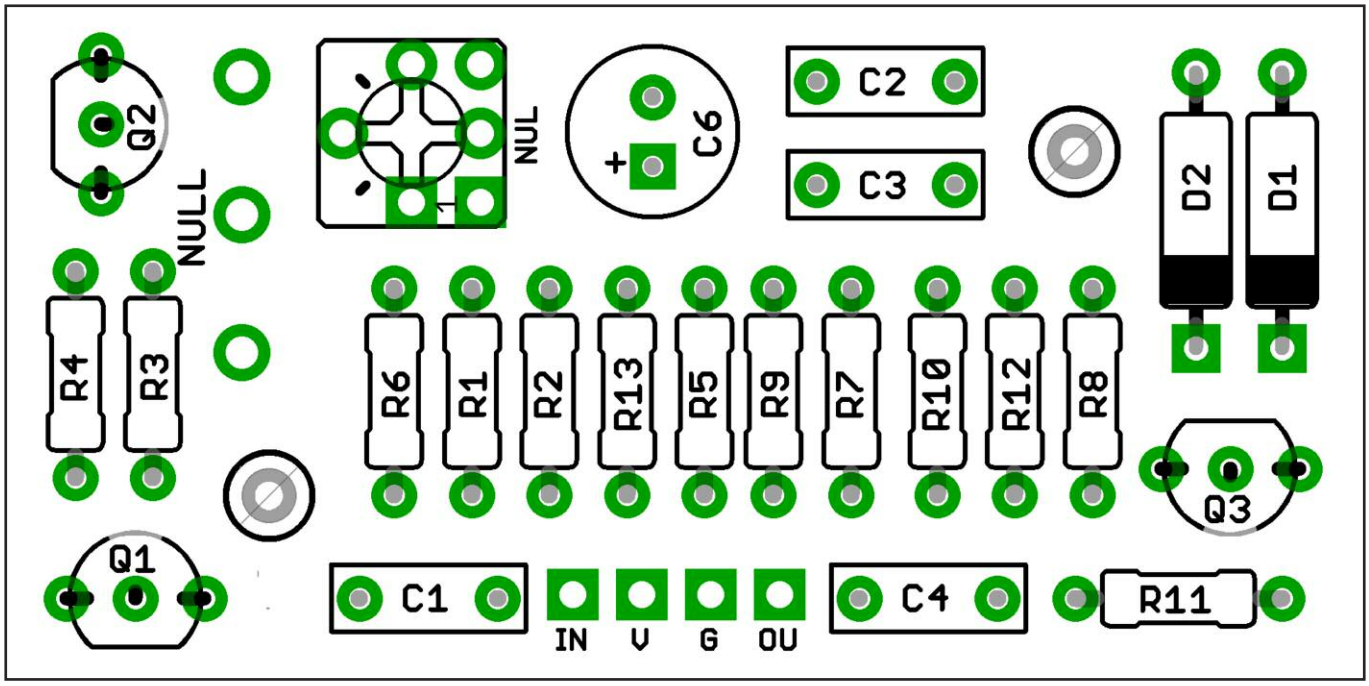
We currently supply Russian D9K, which have the stripes indicating the anode rather than cathode, so you'll need to reverse them on the PCB as shown on the cover image.

The 'NULL' trimmer/pot aren't in the original circuit. They are an optional mod by JD Sleep which allow you to reduce the fundamental in the signal, which in turn will accentuate the octave. For more info have a read through this:
diystompboxes.com/smfforum/index.php?topic=1440.0

If you don't want to add either a trim or pot (don't add both!) you should place a jumper as shown in red for the stock circuit. >>>>>>




+U
R1
R3
R5
R9
C6
+
2
3
1
NULL
C2
D2
Q2
R7
C1
Q1
R8
Q3
IN
D1
C3
C4
OUT
R13
R2
R4
R6
R10
R11
R12



The power and signal pads on the PCB conform to the FuzzDog Direct Connection format, so can be paired with the appropriate daughterboard for quick and easy offboard wiring.

Be very careful when soldering the transistors and diodes. They're very sensitive to heat. You should use some kind of heat sink (crocodile clip or reverse action tweezers) on each leg as you solder them. Keep exposure to heat to a minimum (under 2 seconds).

If you're using germanium diodes in D07 cases be very careful when bending the legs. The glass casing is very brittle where the leg enters it. You should grip the leg with some fine needle-nosed pliers pushed right against the glass body, then bend the leg with your fingers. The pliers will take the strain away from the body.

The board has been designed to mount securely on the NULL pot if using one.

If not you can use self adhesive pcb mounts.

Test the board!

Check the relevant daughterboard document for more info before you undertake this stage.

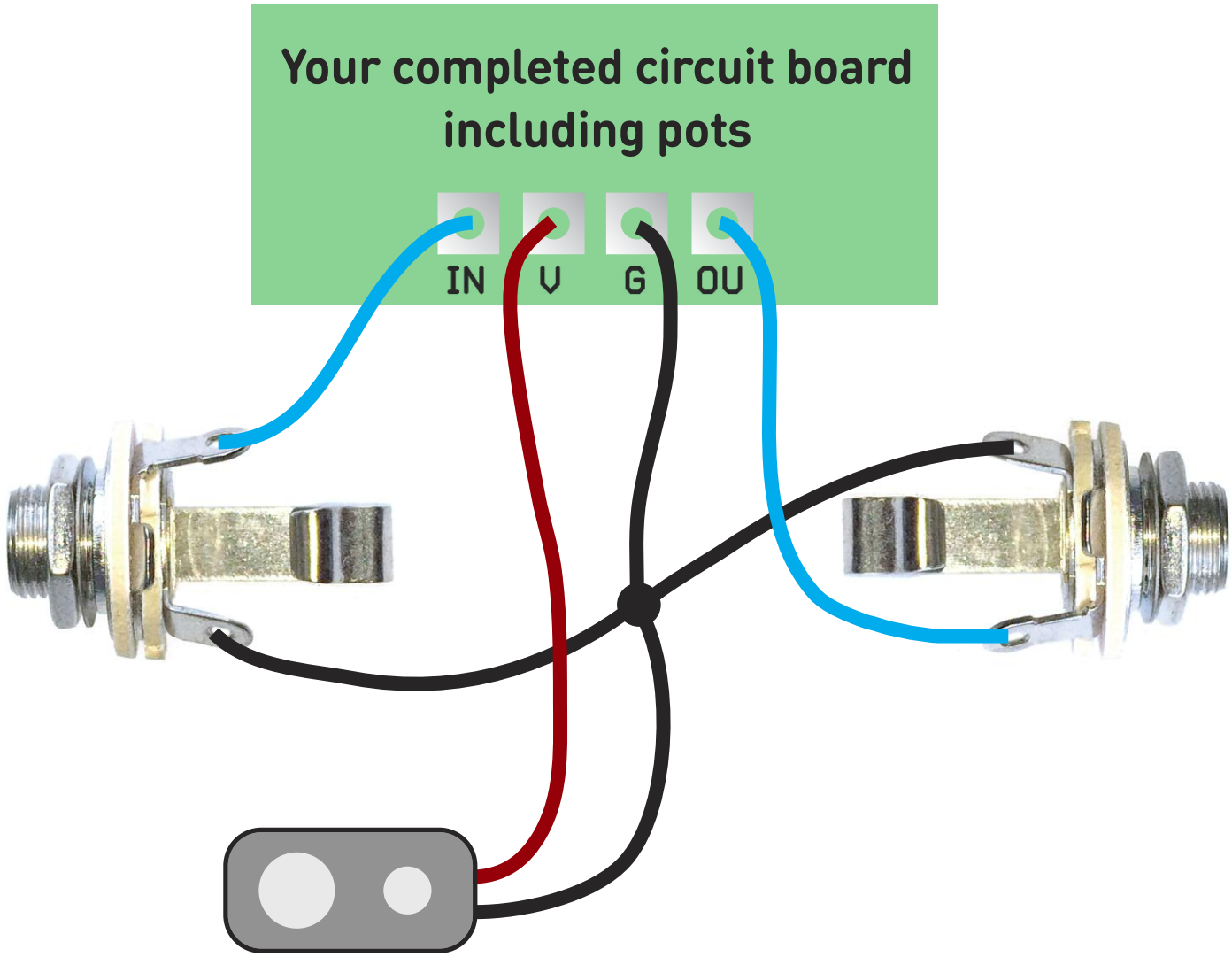
UNDER NO CIRCUMSTANCES will troubleshooting help be offered if you have skipped this stage. No exceptions.

Once you've finished the circuit it makes sense to test is before starting on the switch and LED wiring. It'll cut down troubleshooting time in the long run. If the circuit works at this stage, but it doesn't once you wire up the switch - guess what? You've probably made a mistake with the switch.

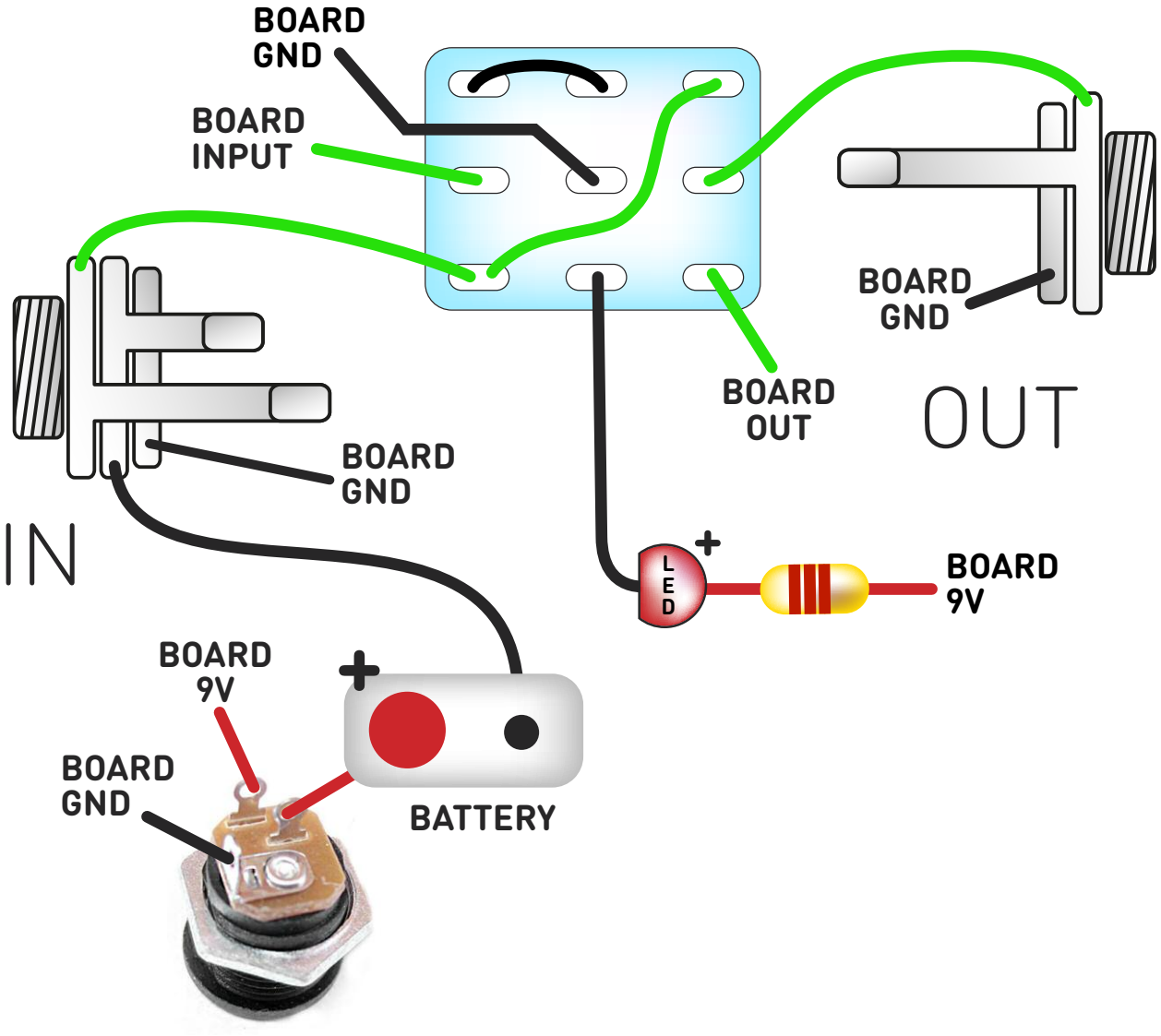
Solder some nice, long lengths of wire to the board connections for 9V, GND, IN and OUT. Connect IN and OUT to the jacks as shown. Connect all the GNDs together (twist them up and add a small amount of solder to tack it). Connect the battery + lead to the 9V wire, same method. Plug in. Go!

If you're using a ribbon cable you can tack the wires to the ends of that. It's a lot easier to take them off there than it is do desolder wires from the PCB pads.

If it works, carry on and do your switch wiring. If not... aw man. At least you know the problem is with the circuit. Find out why, get it working, THEN worry about the switch etc.



Wire it up (if using a daughterboard please refer to the relevant document)



Wiring shown above will disconnect the battery when you remove the jack plug from the input, and also when a DC plug is inserted.

The Board GND connections don't all have to directly attach to the board. You can run a couple of wires from the DC connector, one to the board, another to the IN jack, then daisy chain that over to the OUT jack.

It doesn't matter how they all connect, as long as they do.

This circuit is standard, Negative GND. Your power supply should be Tip Negative / Sleeve Positive. That's the same as your standard pedals (Boss etc), and you can safely daisy-chain your supply to this pedal.

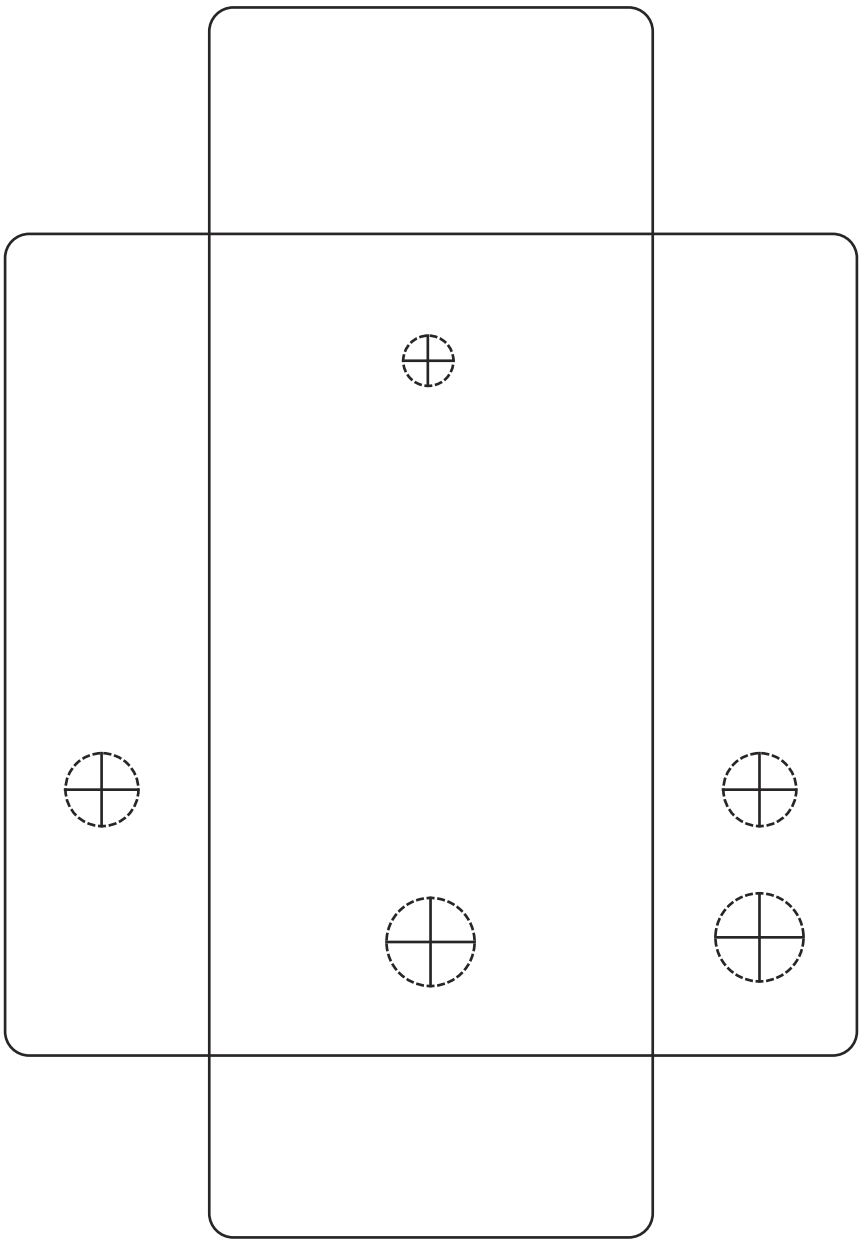
Drilling template without battery

Hammond 1590B - 60 x 111 x 31mm

It's a good idea to drill the pot and toggle switch holes 1mm bigger if you're board-mounting them.
Wiggle room = good!

Recommended drill sizes:

Pots	7mm
Jacks	10mm
Footswitch	12mm
DC Socket	12mm
Toggle switches	6mm



This template is a rough guide only. You should ensure correct marking of your enclosure before drilling. You use this template at your own risk.
Pedal Parts Ltd can accept no responsibility for incorrect drilling of enclosures.

FuzzDog.co.uk

Drilling template with battery

Hammond 1590B - 60 x 111 x 31mm

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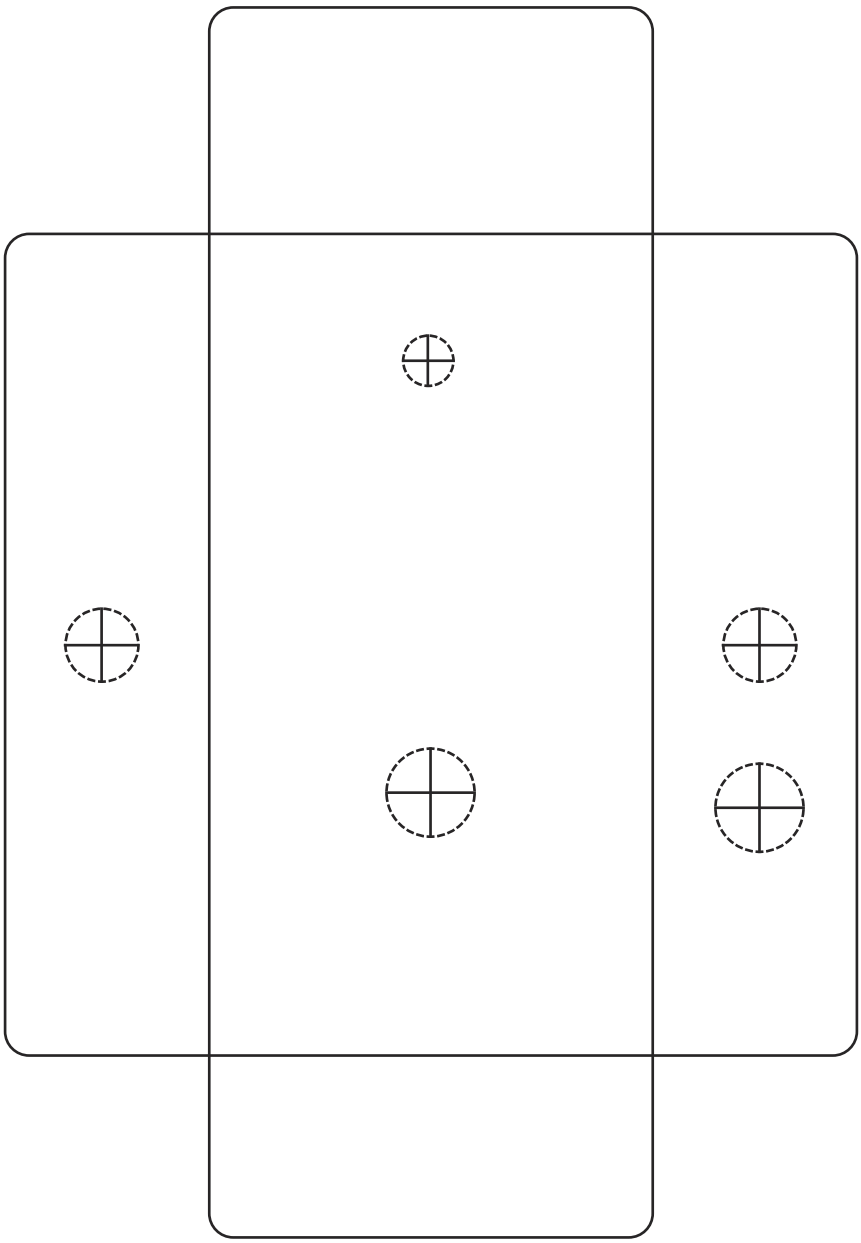

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