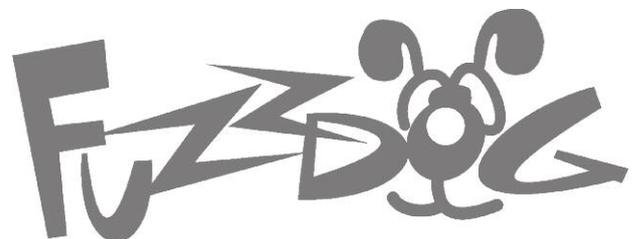


Ruckus

Riotus high gain distortion



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.

COMPONENT SPECS

Unless otherwise stated in this document:

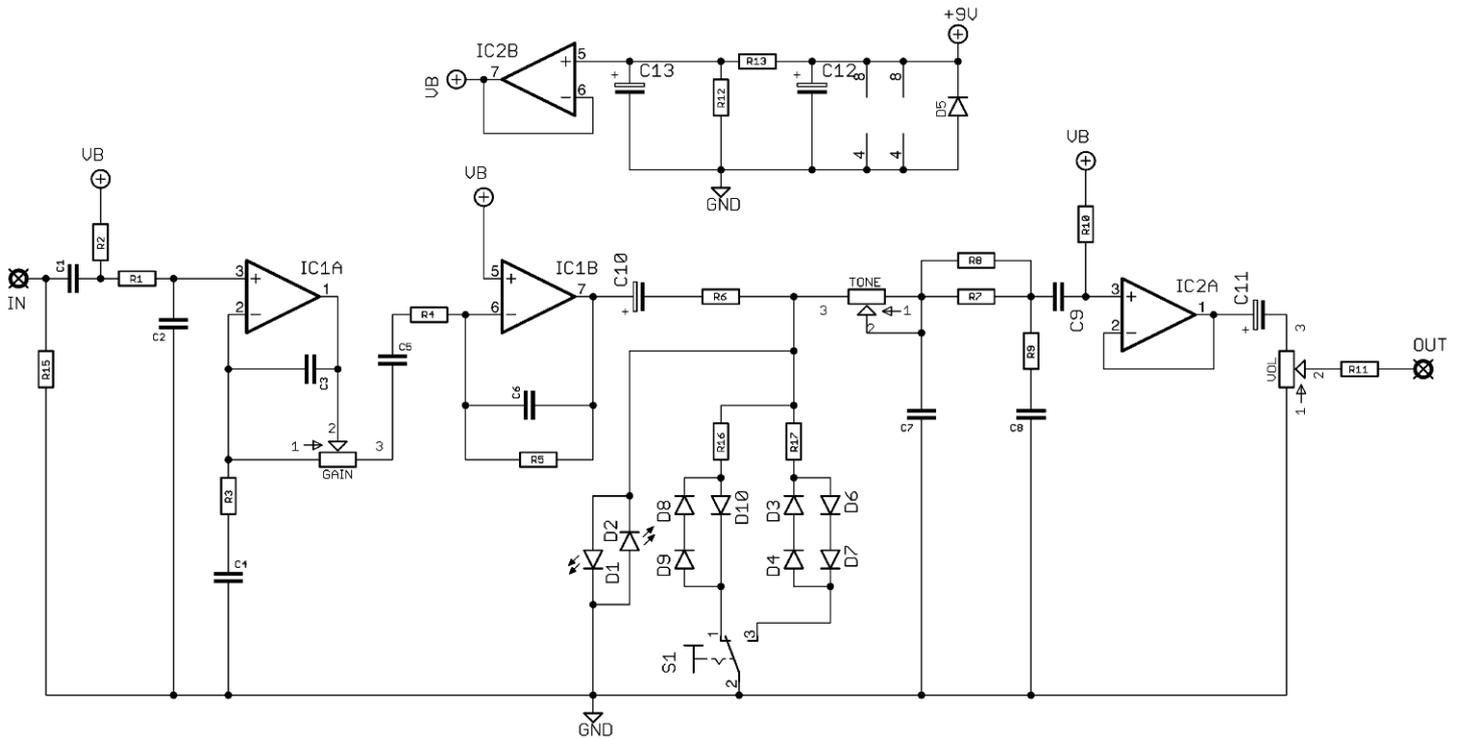
- Resistors should be 0.25W. You can use those with higher ratings but check the physical size of them.
- Electrolytics caps should be at least 25V for 9V circuits, 35V for 18V circuits. Again, check physical size if using higher ratings.

LAYOUT CONVENTIONS

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

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

Schematic + BOM

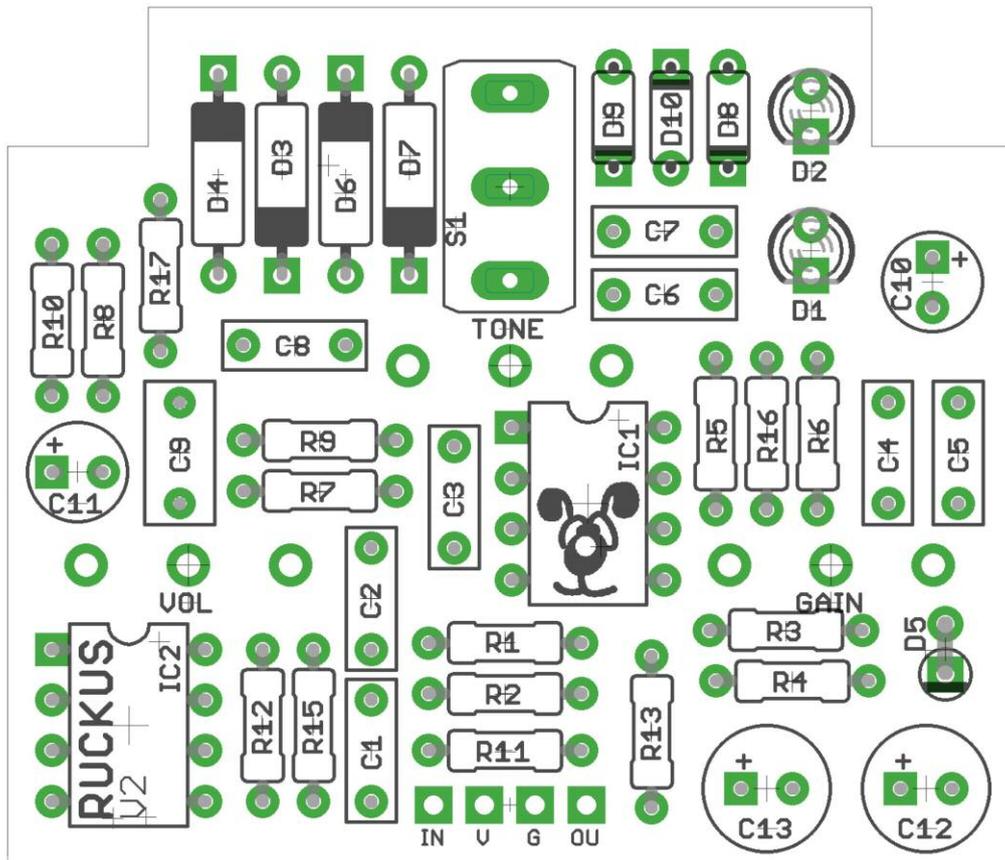


R1	1K	C1	22n	IC1	4580*
R2	470K	C2	33p	IC2	4580*
R3	1K	C3	100p	D1-2	3mm red led**
R4	10K	C4	220n	D8-9	Pair 1N4148
R5	1M	C5	100n	D10	3mm blue led
R6	470R	C6	100p	D3,4	1N34A
R7	47K†	C7	22n	D6,7	1N34A
R8	15K†	C8	22n	D5	1N4001
R9	8K2	C9	1u		
R10	100K	C10	2u2 electrolytic		
R11	100R	C11	10u electrolytic	GAIN	100KB
R12	20K	C12	47u electrolytic	TONE	10KC
R13	20K	C13	47u electrolytic	VOL	10KA
R15	2M2				
R16	220R			SW1	SPDT ON-ON**
R17	470R				

† R7 and R8 are placed in parallel to make near-as-damn-it 11K3. If you have an 11K3 resistor, place that in R7 and leave R8 empty.

*other op-amps can be used. LM833 is popular.

**For this revision of the PCB we've utilised MadBean's clipping section, which has a pair of red LEDs in the circuit all the time, with the other two sets of diodes in parallel in turn using an ON-OFF-ON switch. Now we've tried it, we don't like it. See later in this doc for more info on clipping.



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. Check the separate daughterboard document for details.

Be very careful when soldering the diodes and transistors. 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). Same goes for the IC if you aren't using a socket.

If you're using large germanium diodes be very careful when bending the legs. You should grab the leg with some small needle-nosed pliers right up against the body and bend the leg against them with your fingers. This prevents the delicate glass case from breaking.

Positive (anode) legs of the electrolytic caps go to the square pads.

Negative (cathode) legs of the diode goes to the square pad.

Snap the small metal tag off the pots so they can be mounted flush in the box.

You should solder all other board-mounted components before you solder the pots. Once they're in place you'll have no access to much of the board. Make sure your pots all line up nicely. The best way to do that is to solder a single pin of each pot in place then melt and adjust if necessary before soldering in the other two pins. If your pots don't have protective plastic jackets ensure you leave a decent gap between the pot body and the PCB otherwise you risk shorting out the circuit.



Clipping

The original pedal has a three-way clipping selection switch. MadBean's 'Uproar' used parallel clipping diodes with an ON-OFF-ON switch. This had a pair of red LEDs always in the circuit, and switched between those alone, then in parallel with the 1N4148/blue LED or the 4 x 1N34A.

In practice there's not a massively noticeable difference in the three modes.

We recommend sticking with a two-way ON-ON switch and only using the switchable diode sets, i.e. leave out D1-2.

There's nothing stopping you using the rest of the diode spots for your own combinations of clipping diodes - simply jumper any unused pads. For instance, if you want to use the 1N4148/blue LED set, but would also like to use red LEDs, just place those LEDs in the spots for D4 and D6, and jumper the spots for D3 and D7 to complete the circuit.

You can also leave out R16 and R17, replacing them with jumpers. These were included to balance out the red LEDs being always in the circuit. Without the LEDs they aren't necessary.

Test the board!

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

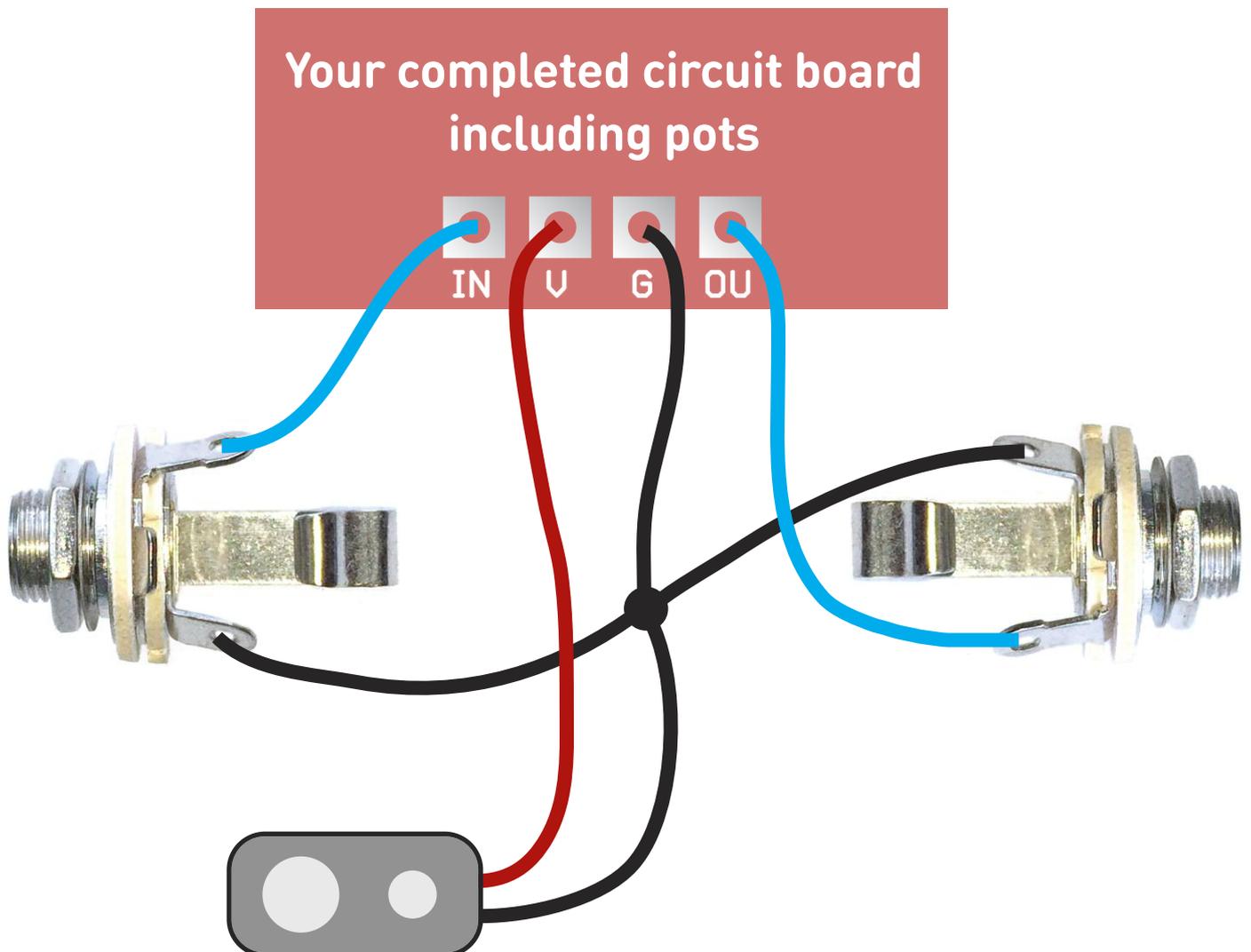
UNDER NO CIRCUMSTANCES will troubleshooting help be offered if you have skipped this stage. No exceptions.

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.

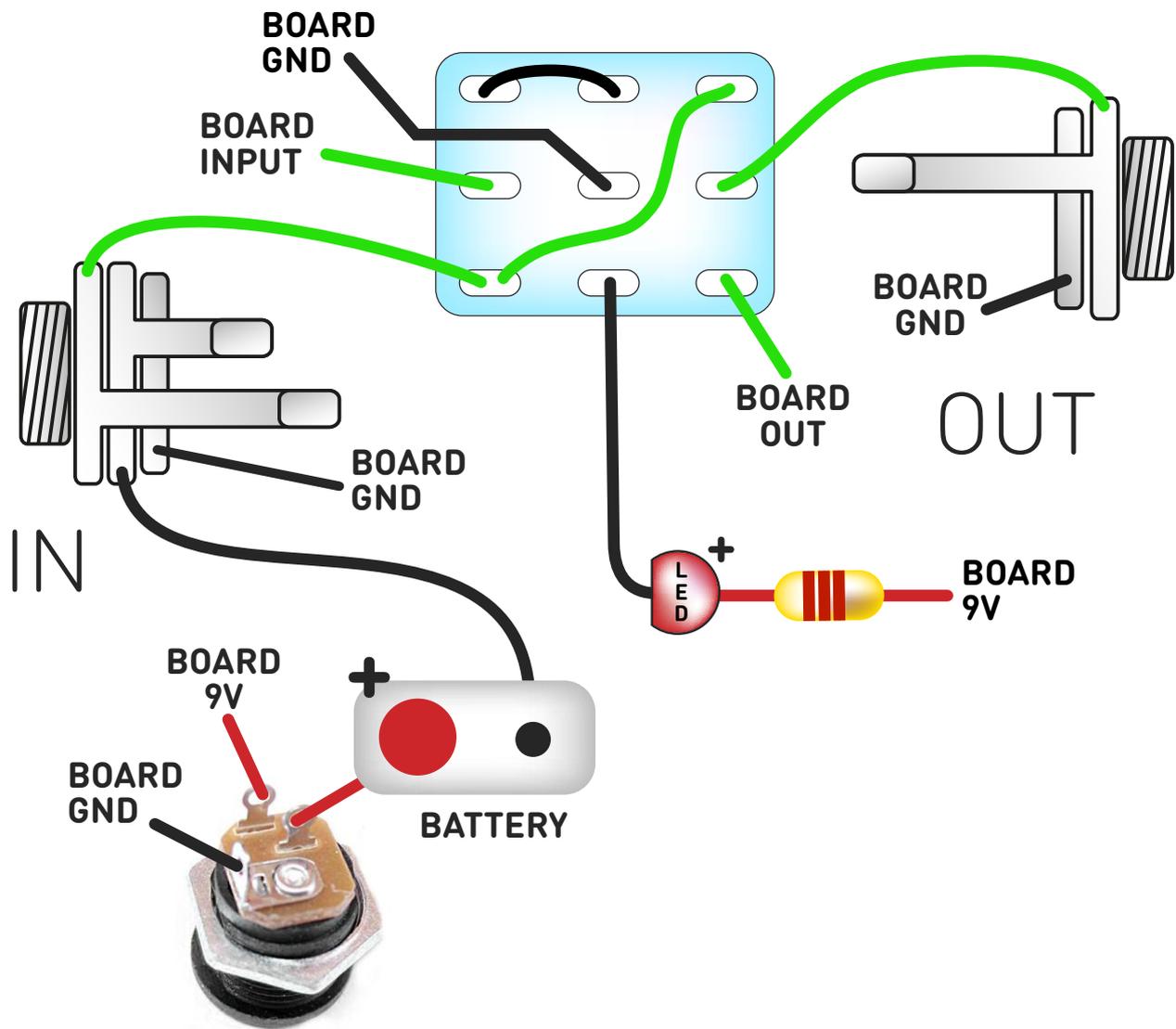
Solder some nice, long lengths of wire to the board connections for 9V, GND, IN and OUT. Connect IN and OUT to the jacks as shown. Connect all the GNDs together (twist them up and add a small amount of solder to tack it). Connect the battery + lead to the 9V wire, same method. Plug in. Go!

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.

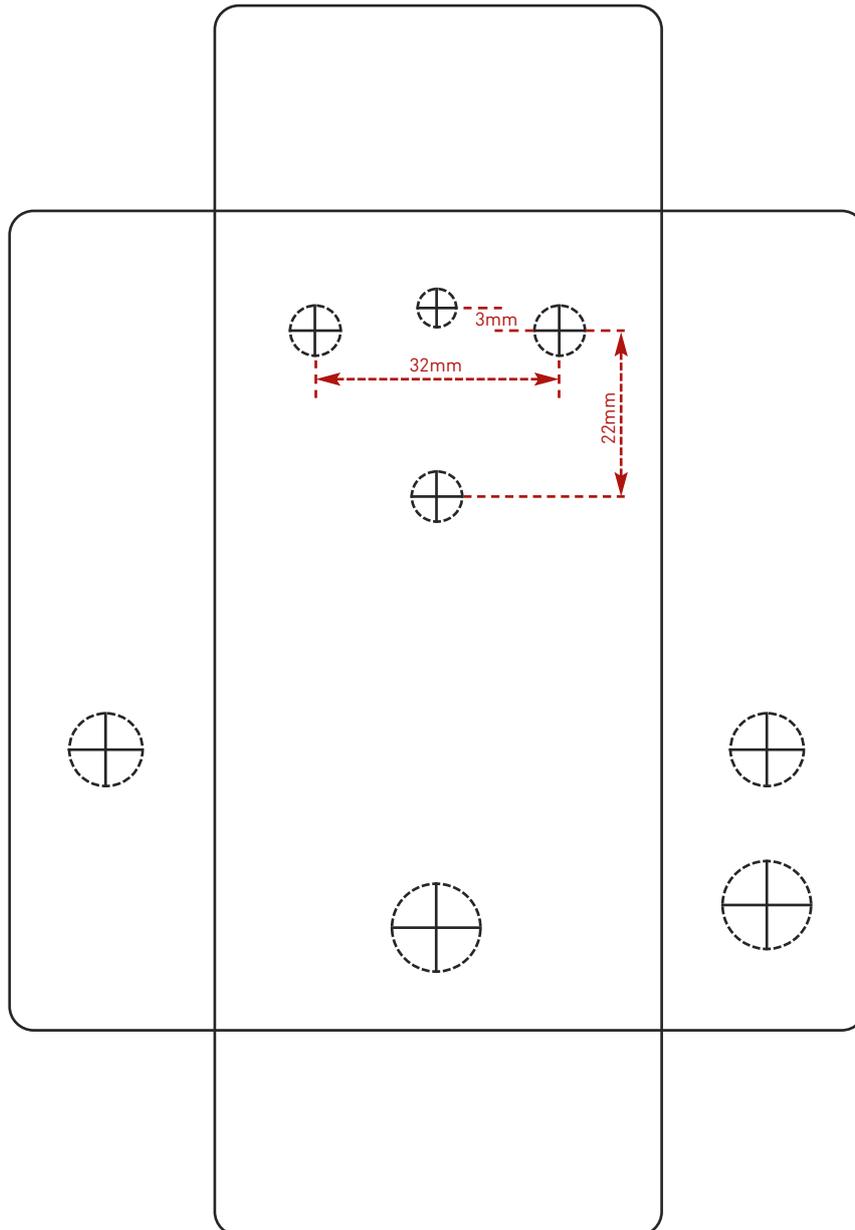
Drilling template

Hammond 1590B
60 x 111 x 31mm

Recommended drill sizes:

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

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



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