

SD-9 Sonic Distortion

I mean, what can you say...?



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:

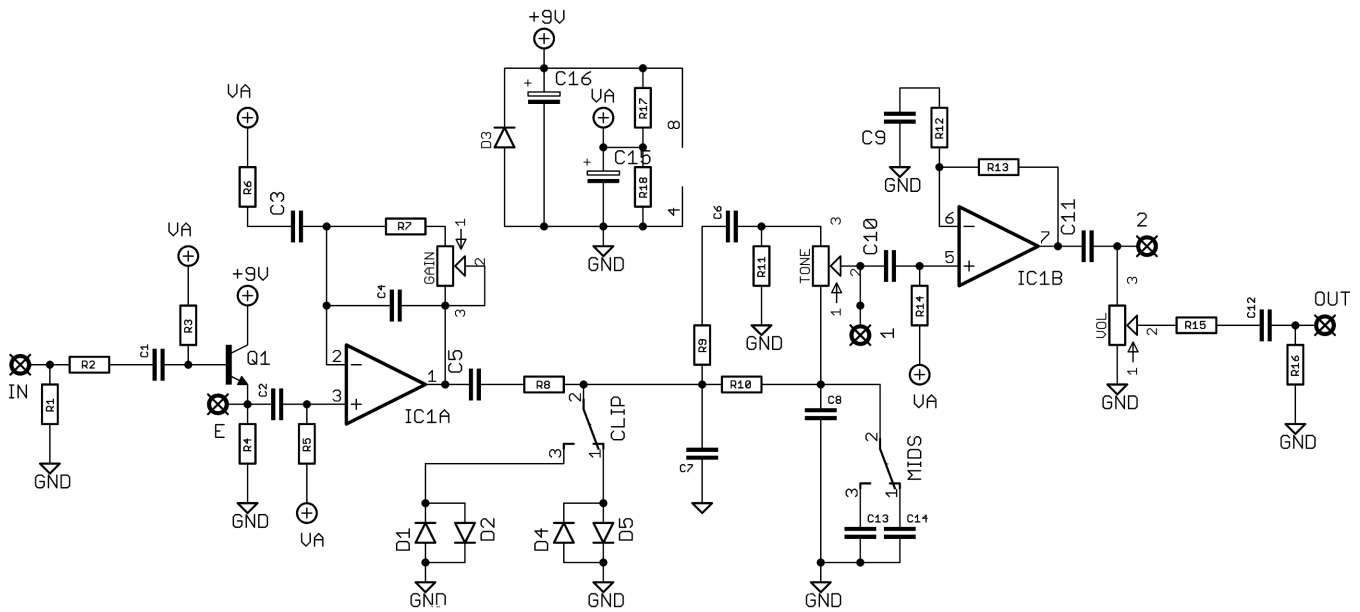
- Resistors should be 0.25W. You can use those with higher ratings but check the physical size of them.
- Electrolytics caps should be at least 25V for 9V circuits, 35V for 18V circuits. Again, check physical size if using higher ratings.

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

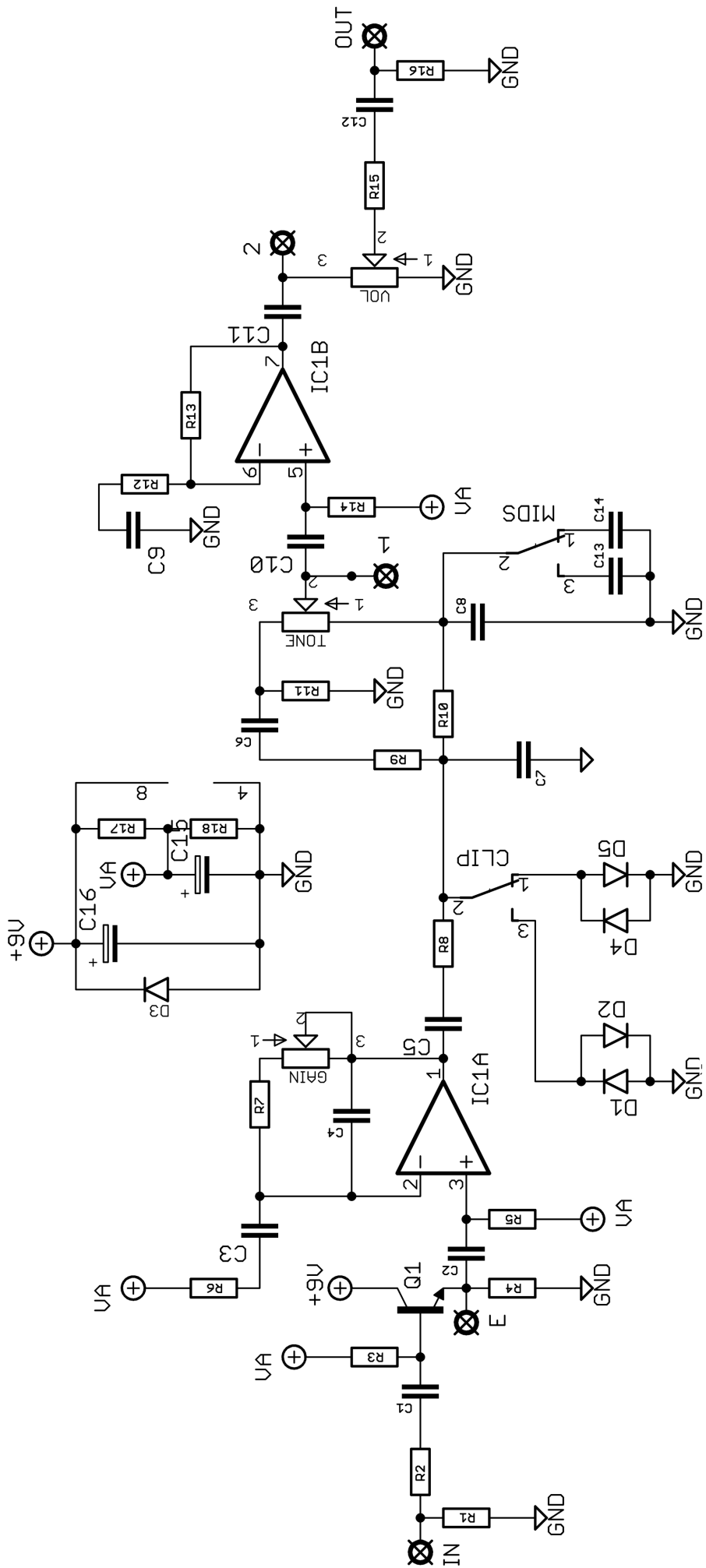


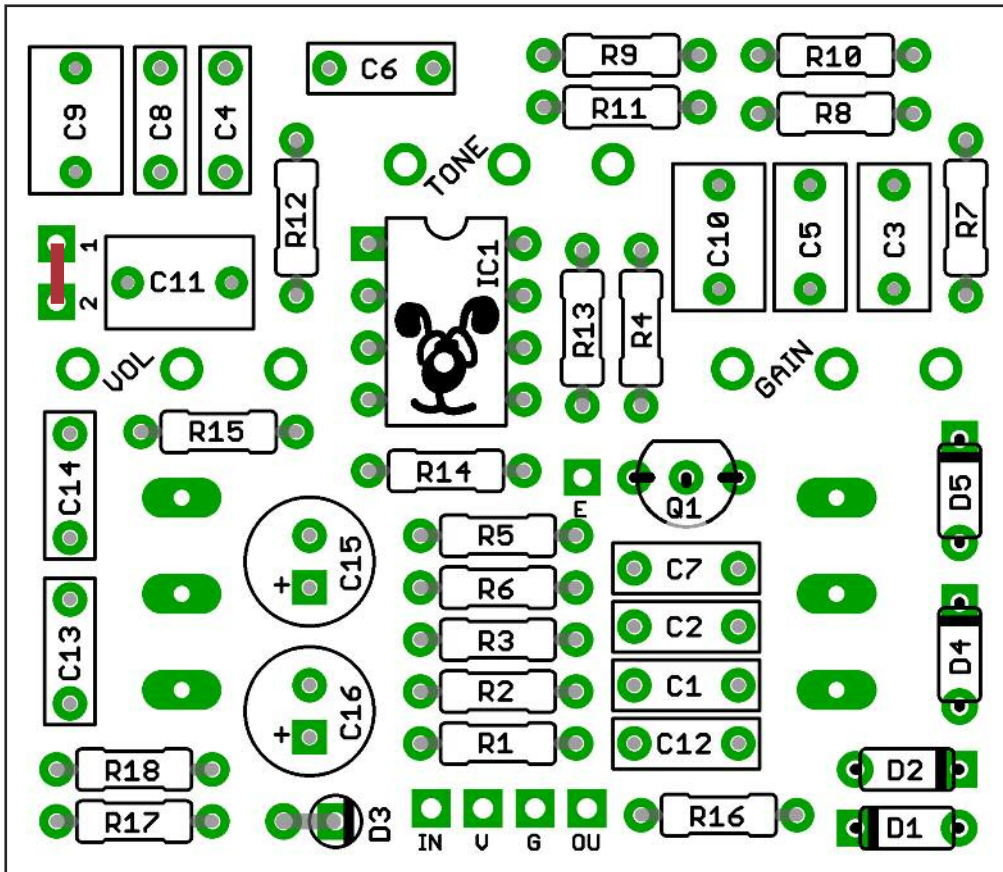
R1	2M2	C1	47n	D1-2	1N4148
R2	1K	C2	47n	D3	1N4001
R3	510K	C3	220n	D4-5	Your choice
R4	10K	C4	220p	IC1	4558
R5	100K	C5	470n	Q1	2N3904/2N5088**
R6	470R	C6	27n	GAIN	250KB
R7	33K	C7	10n	TONE	25KB
R8	2K2	C8	100n*	VOL	100KB
R9	2K2	C9	1u	CLIP	SPDT - see notes
R10	6K8	C10	680n	MIDS	SPDT* on-off-on
R11	6K8	C11	680n		
R12	10K	C12	100n		
R13	22K	C13	33n*		
R14	100K	C14	68n*		
R15	10K	C15	100u elec		
R16	2M2	C16	100u elec		
R17	10K				
R18	10K				

*If you want to keep it stock with no Mids switch leave C8 at 100n and omit C13-14. If you're adding the switch along with C13-14, change C8 to 33n. The three positions of the ON-OFF-ON switch will give you 33n (centre), 66n and 101n. Thanks to AionFX for that mod.

**Original uses 2SC1815 which has a different pinout (ECB) so there's an extra pad on the PCB if you want to use that. There's really no need though.

There's no need for any jumpers if you're leaving out either of the switches. Just leave them out. That's it. Honest.





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 LED. 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). The same goes for the IC if you aren't using a socket.

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.

Clipping

If you want alternative clipping options you can add whatever you like in D4-5. Red LEDs work well. Use a SPDT ON-ON switch to select between the two sets of diodes. If you want a third option - diode lift - use an ON-OFF-ON switch instead. Warning - the centre position will be LOUD.

Quiet please! No gain recovery stage

If you want to stay with the stock circuit - i.e. omit the gain recovery stage which utilises the spare op-amp (thank you General Guitar Gadgets) - it's easy enough but will result in a much quieter output.

Connect pads 1-2 together as shown above in red. Leave out C9-11 and R12-14.

Really - leave it in. You won't regret it.



Test the board!

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

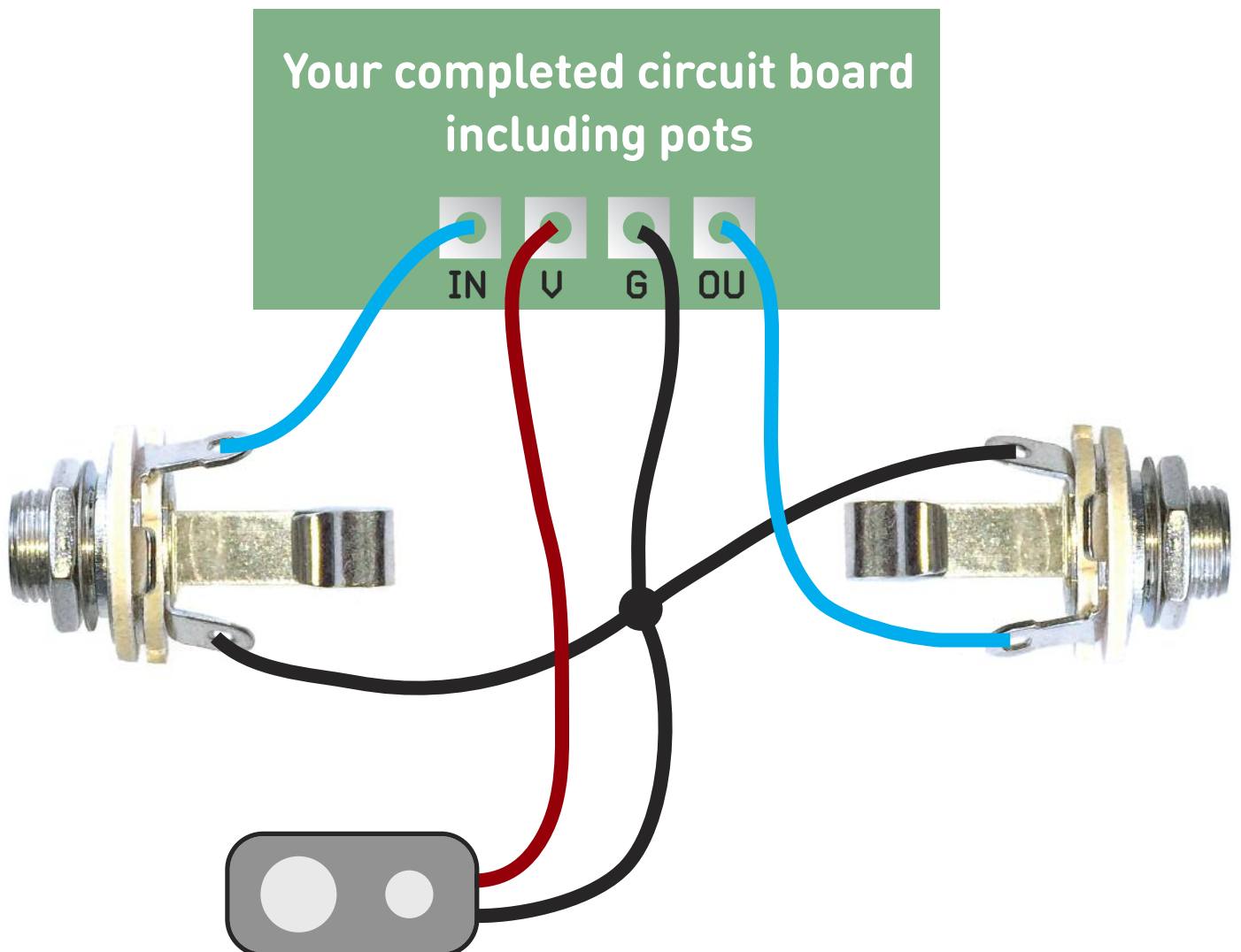
UNDER NO CIRCUMSTANCES will troubleshooting help be offered if you have skipped this stage. No exceptions.

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.

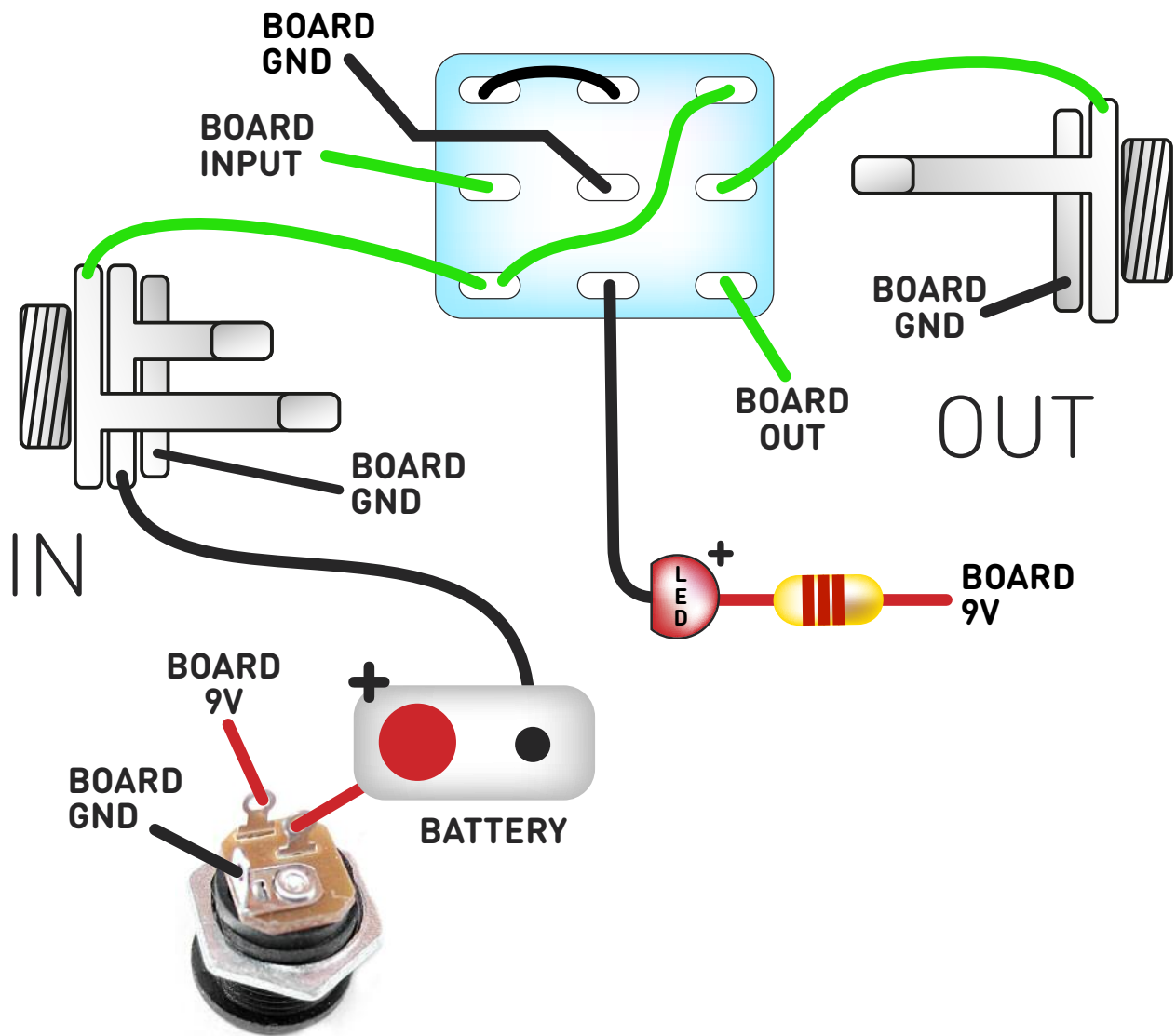
Solder some nice, long lengths of wire to the board connections for 9V, GND, IN and OUT. Connect IN and OUT to the jacks as shown. Connect all the GNDs together (twist them up and add a small amount of solder to tack it). Connect the battery + lead to the 9V wire, same method. Plug in. Go!

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.

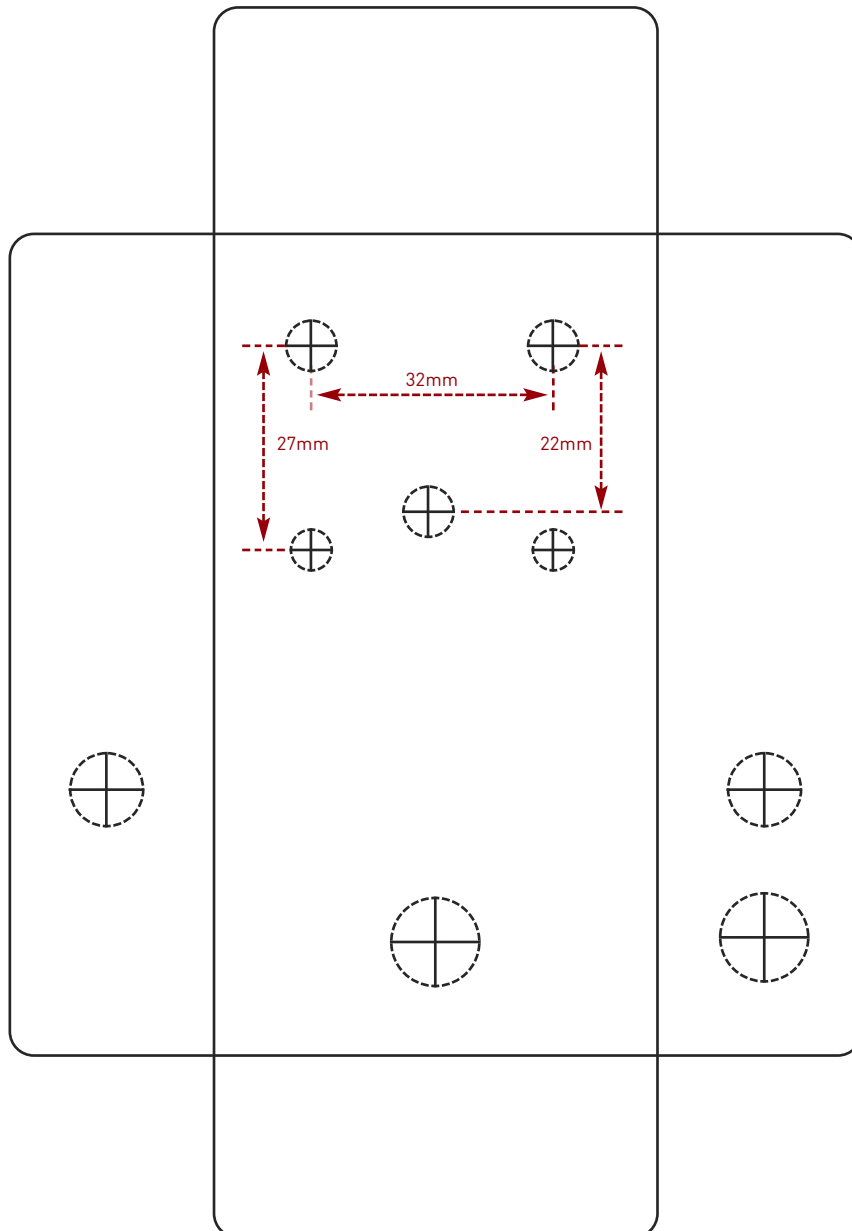
Drilling template

Hammond 1590B
60 x 111 x 31mm

Recommended drill sizes:

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

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