



Jen Fuzz

Skanky 60s fuzz tones



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:

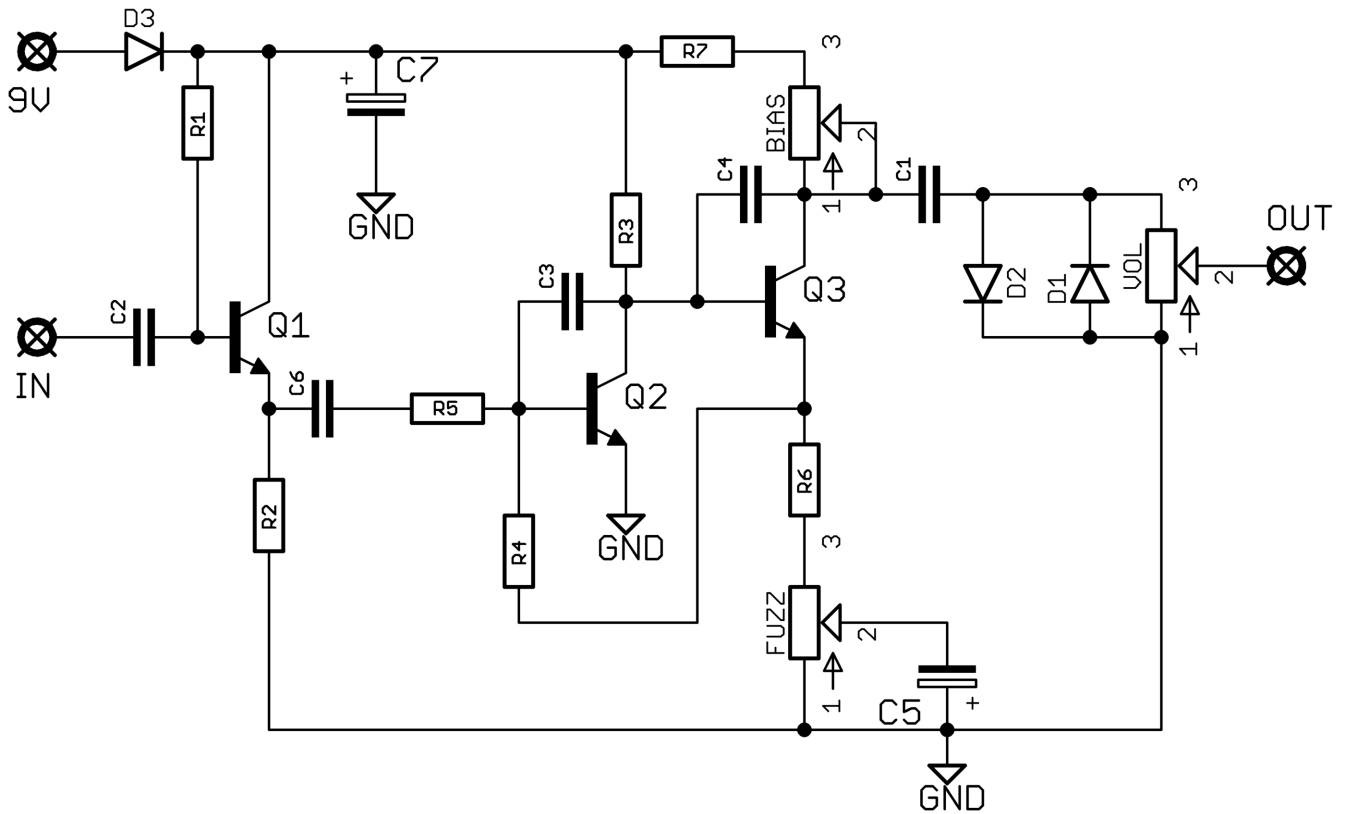
- Resistors should be 0.25W. You can use those with higher ratings but check the physical size of them.
- Electrolytics caps should be at least 25V for 9V circuits, 35V for 18V circuits. Again, check physical size if using higher ratings.

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 | 1M | C1 | 10n‡ | D1-2 | BAT46* |
| R2 | 10K | C2 | 10n‡ | D3 | 1N5817 |
| R3 | 33K | C3 | Empty | Q1-3 | Low gain NPN BJT** |
| R4 | 150K | C4 | 1n2 | BIAS | 22K trimmer |
| R5 | 4K7 | C5 | 22u elec | FUZZ | 1KB |
| R6 | 220R | C6 | 15n | VOL | 50KA*** |
| R7 | 1K | C7 | 100u elec | | |

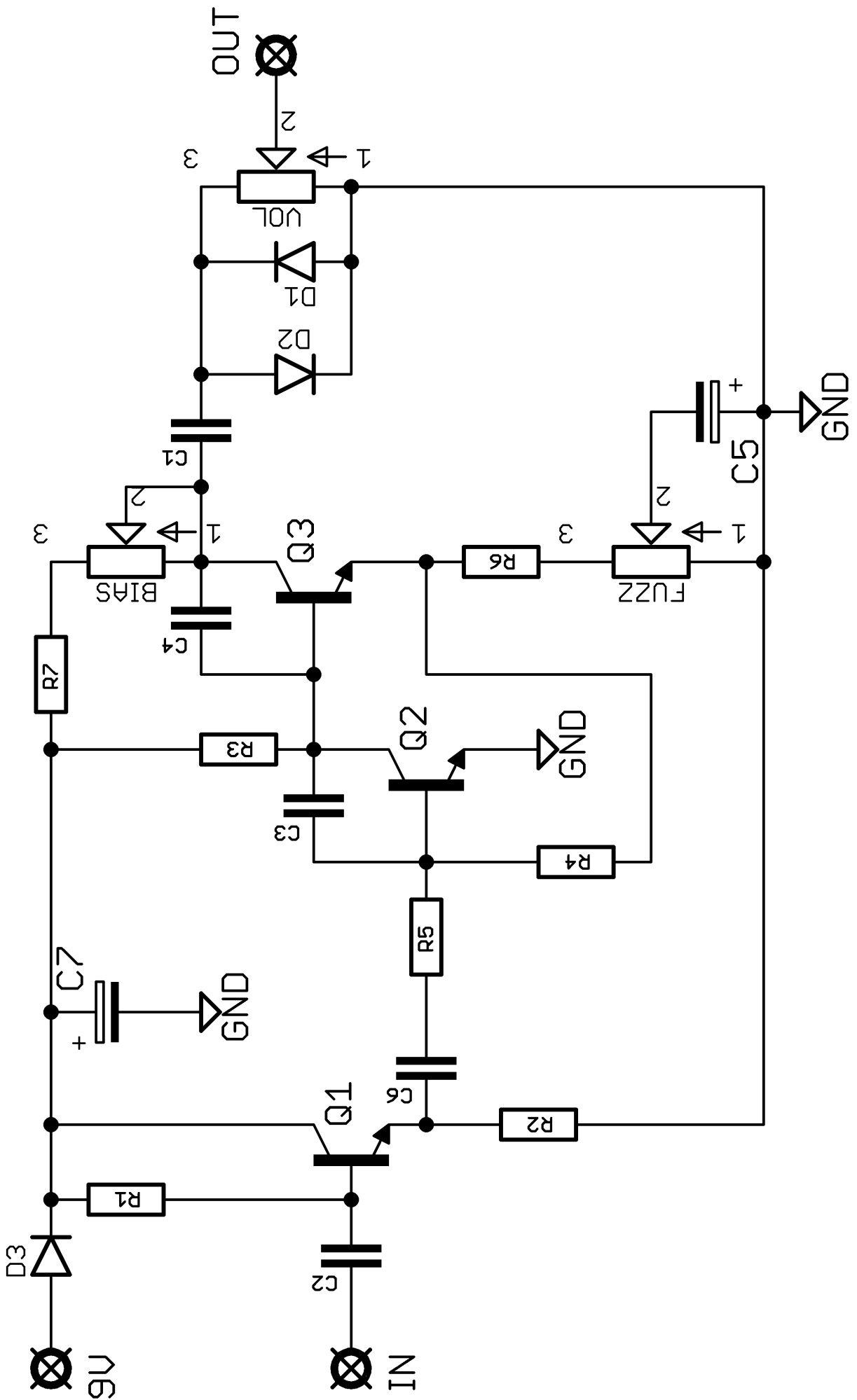
*Original diodes are SA815 (shout to Reeves Electro for confirming that).
Try what you like here - they'll make a big difference to the feel of the fuzz.

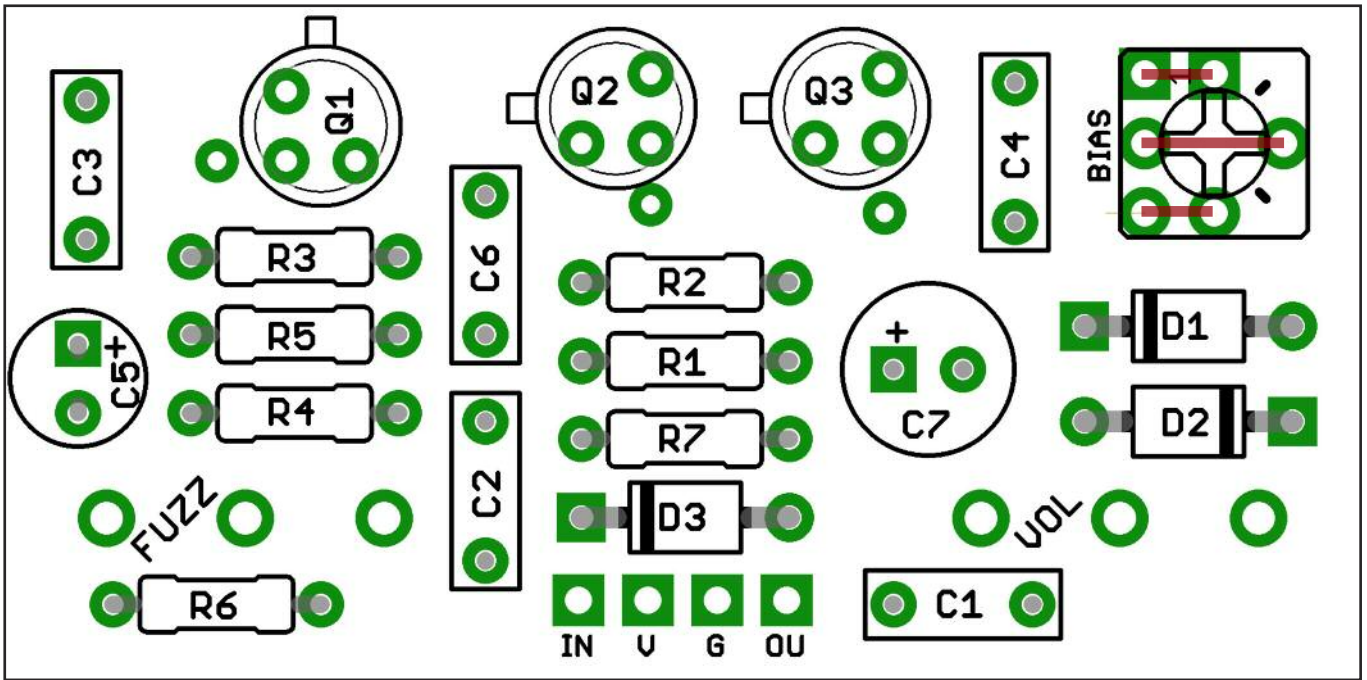
**Aim for 200-250 for Q1, 300-350 for Q2-3. Originals used BC238B and BC239C.
We've designed the PCB to take both TO-18 and TO-92 packages. See page 6 for orientation information.

**100KA works much better - honestly.

‡If you want to beef up the sound, swap C1 and C2 for larger values, such as 47n.

We added C3 to give you the option of adding a filter cap on Q2. If you experience any oscillation from the circuit try a small value (47p-470p) here. It's unlikely.





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).

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.

There are extra pads on trimmers to allow different package formats to be used. Pads are connected via PCB traces as shown above, so just fit your trimmer into whichever holes it fits naturally into. As long as you have one pin each in the top, middle and bottom sections. No jumpers are required.

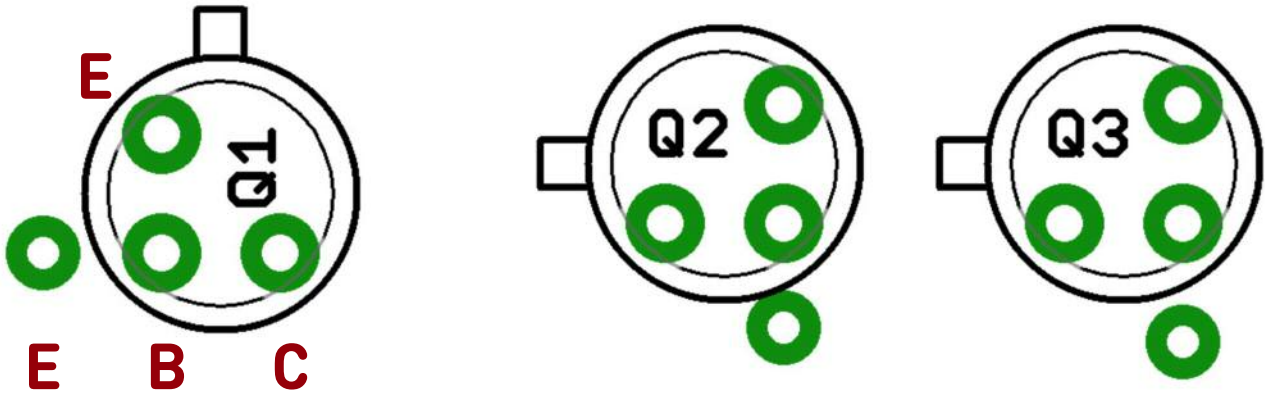
There's no set voltage to aim for to bias this up. Adjust it until it sounds good to you.



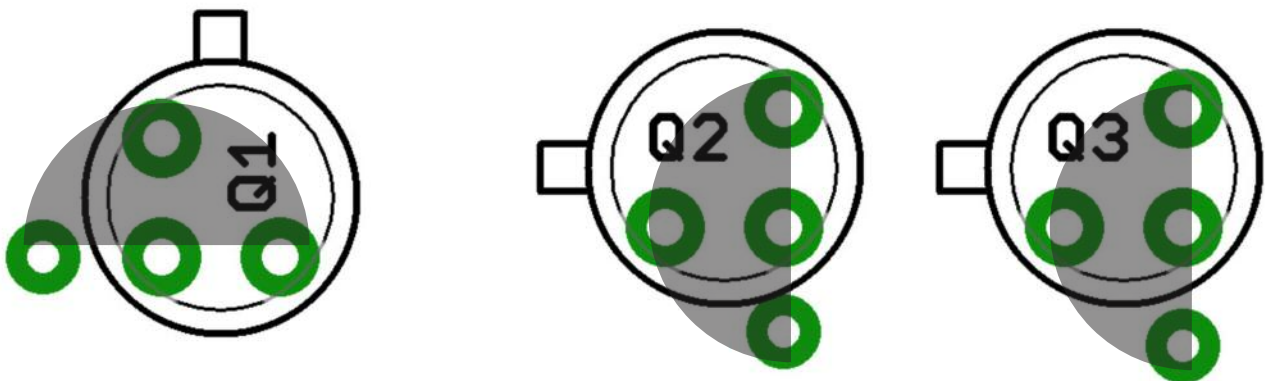
Transistor orientation

You can use transistors with any combination of pinouts.

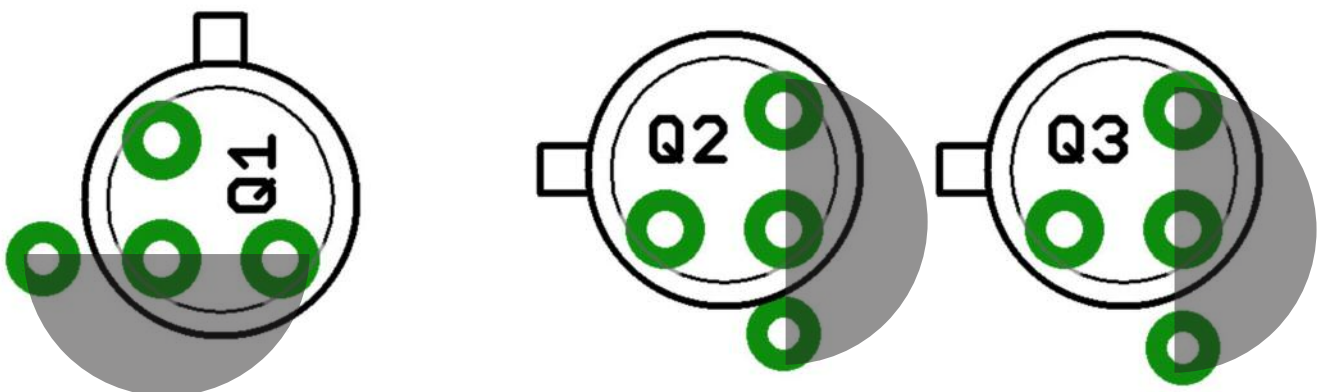
TO-18 transistors should follow the screen print, with the emitter tab as shown.



Standard EBC transistors, such as 2N3904, 2N5088



CBE transistors, such as BC238B, BC239C



Test the board!

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

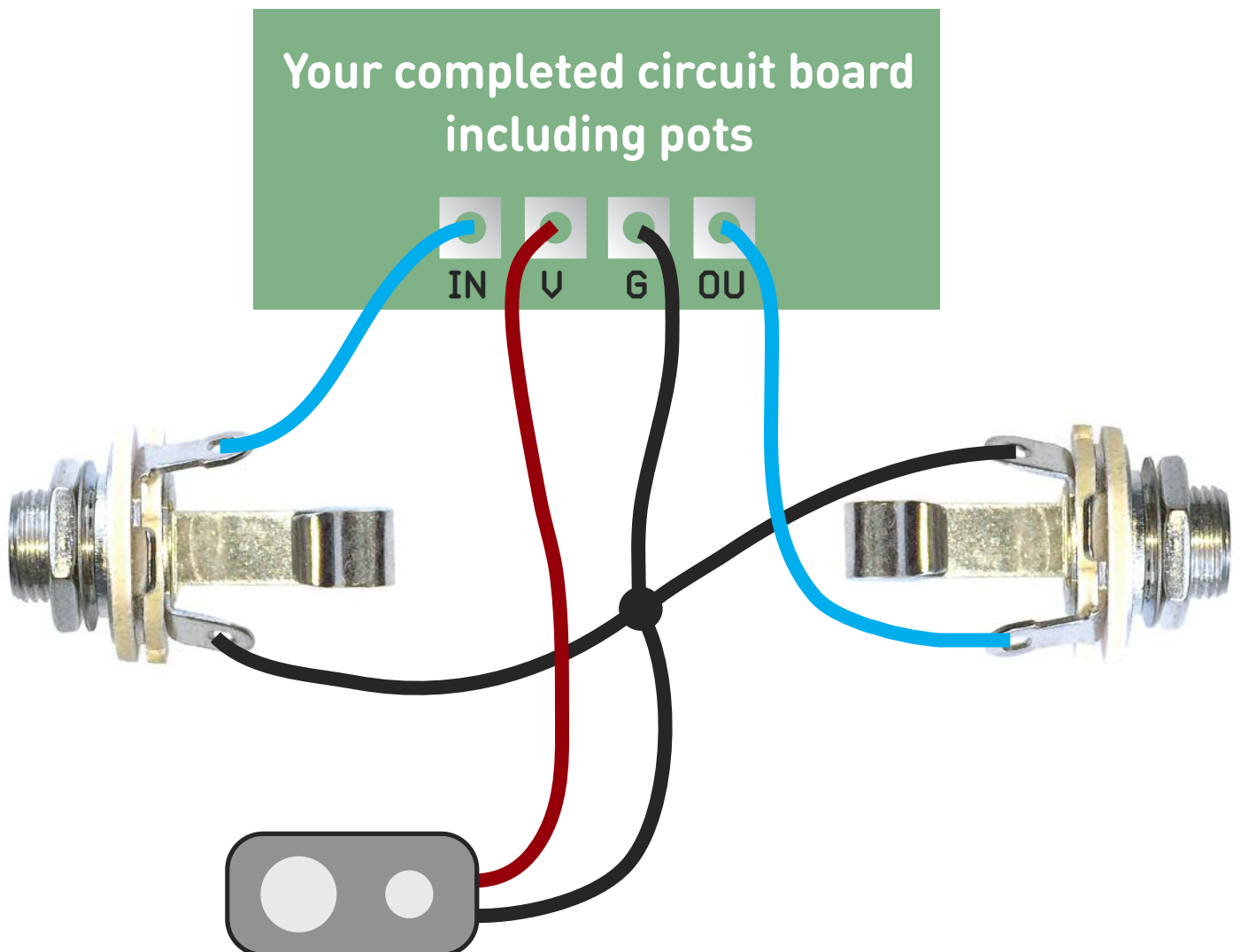
UNDER NO CIRCUMSTANCES will troubleshooting help be offered if you have skipped this stage. No exceptions.

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.



Now's the time
to refer to the
daughterboard
document for
your chosen
bypass method.

Enjoy your pedal!

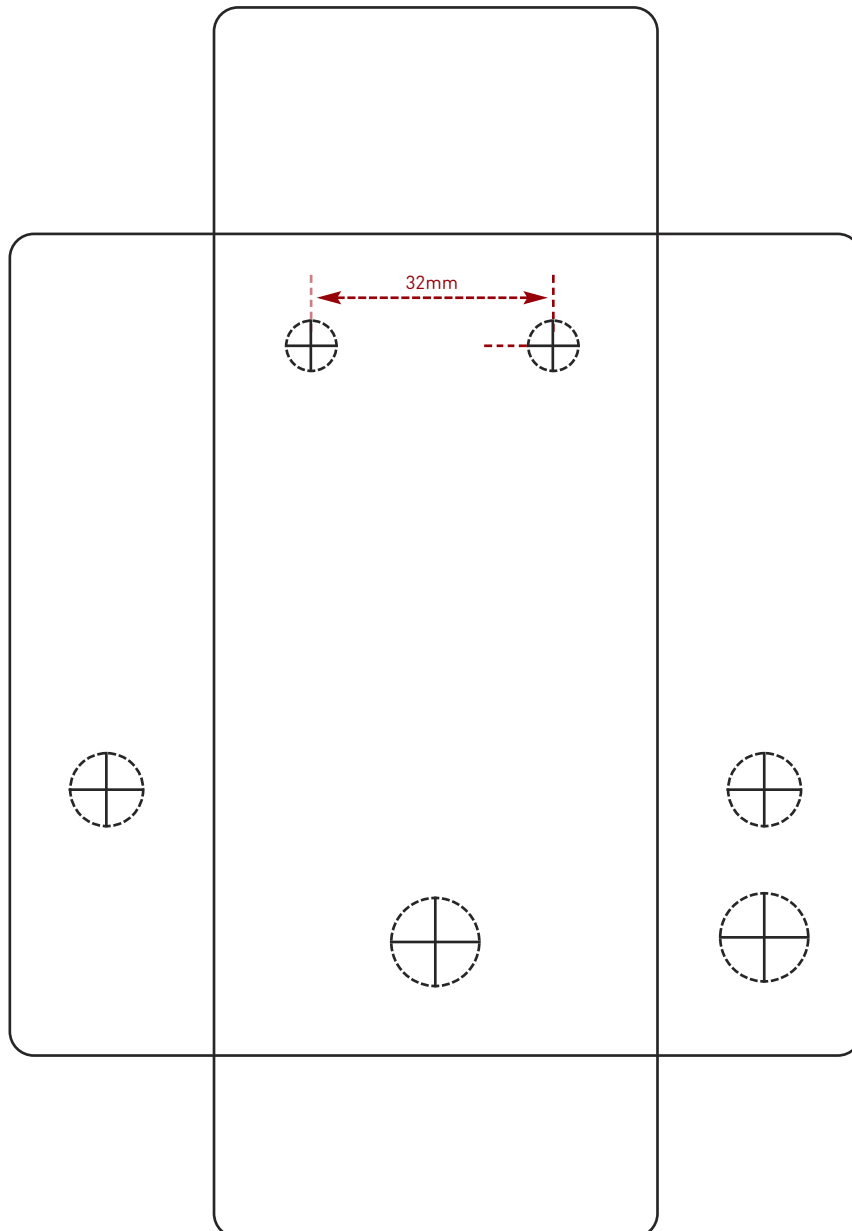
Drilling template without battery

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.

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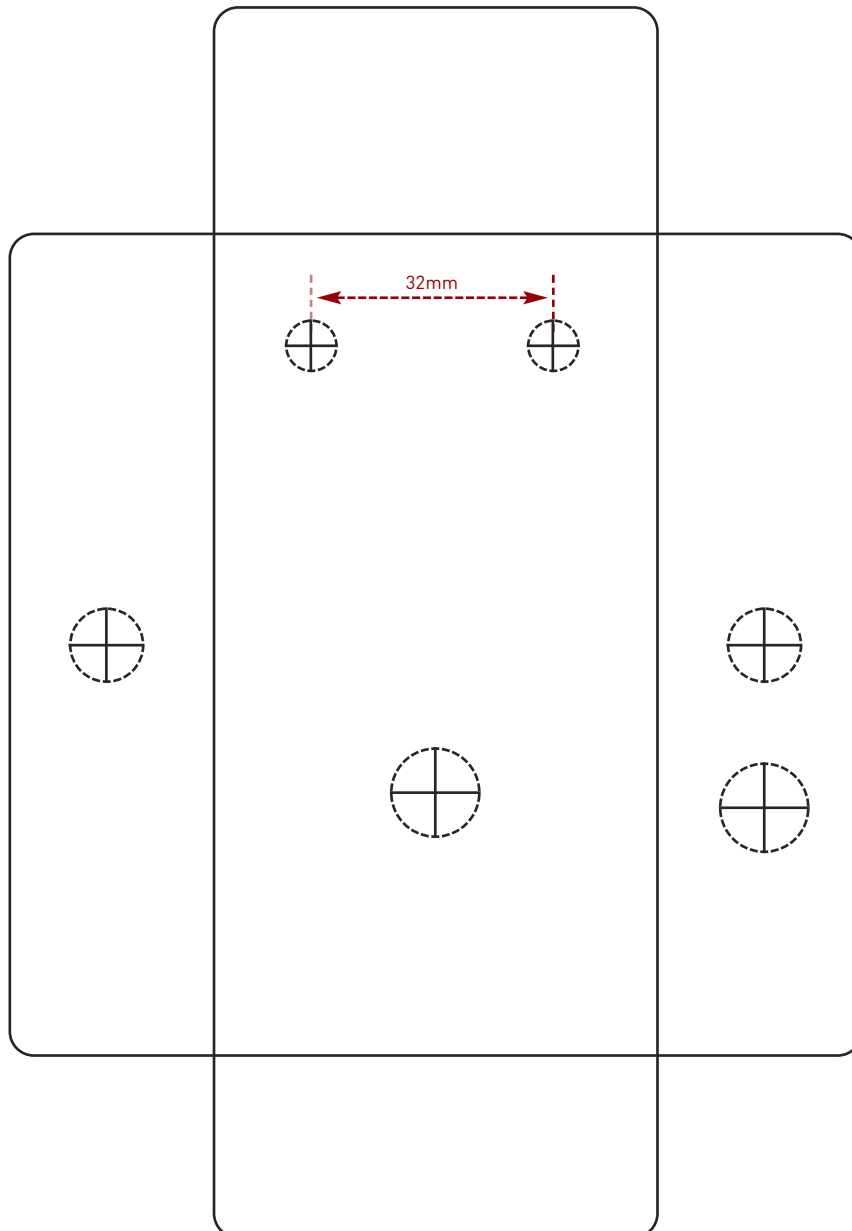
Drilling template with battery

Hammond 1590B - 60 x 111 x 31mm

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