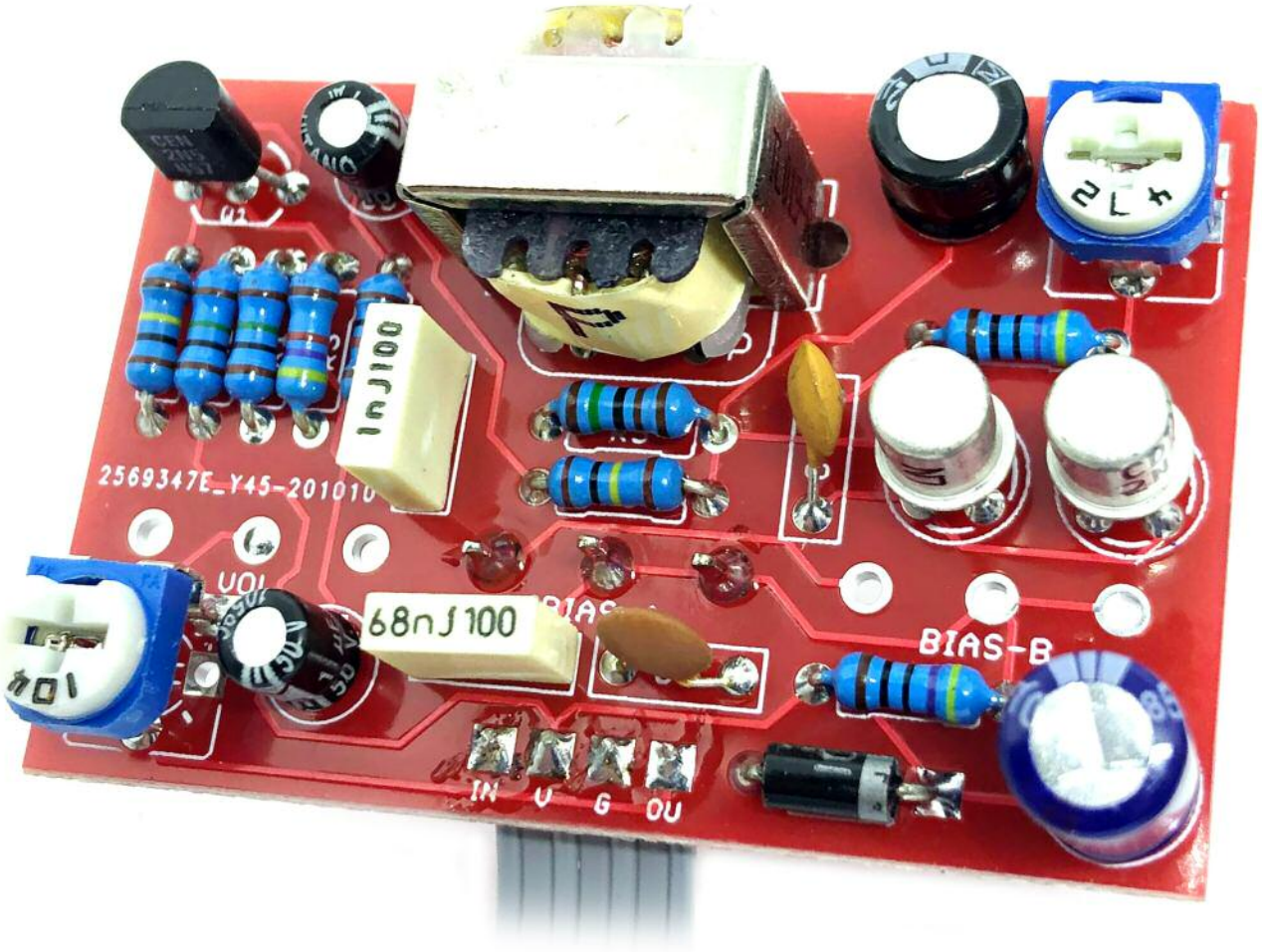


Exploder

Massive Fuzz-Face style Fuzz without the Fuzz-Face Fuss

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:

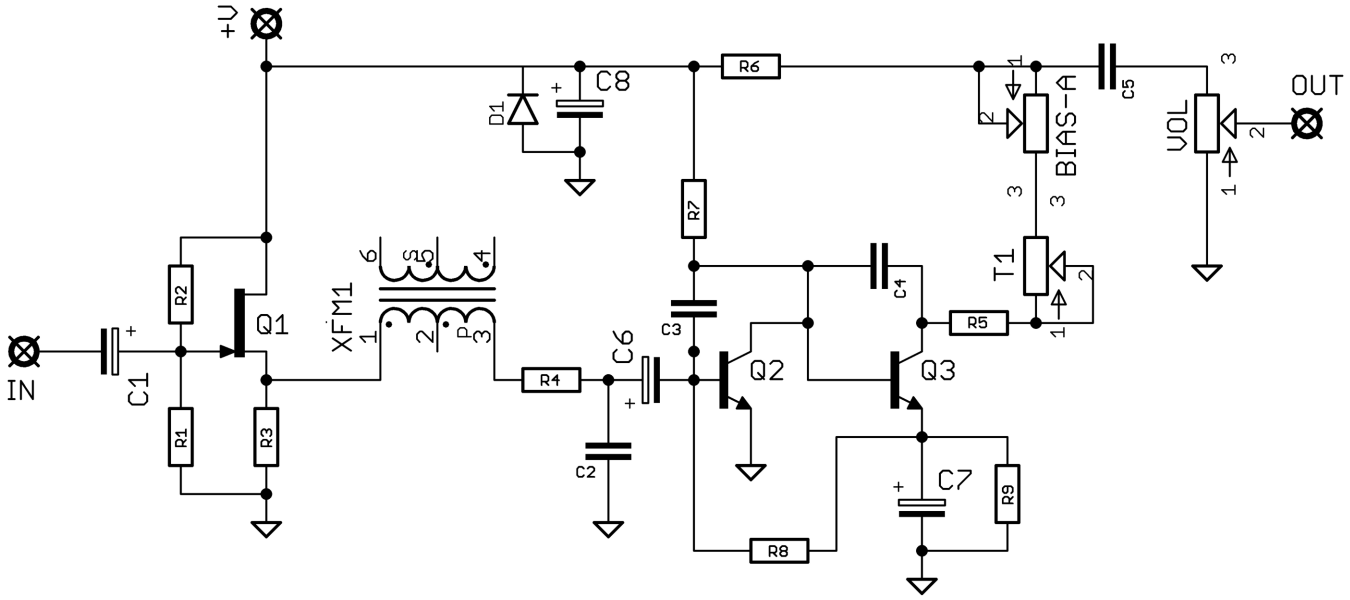
- Resistors should be 0.25W. You can use those with higher ratings but check the physical size of them.
- Electrolytics caps should be at least 25V for 9V circuits, 35V for 18V circuits. Again, check physical size if using higher ratings.

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	1u elec	D1	1N4001
R2	1M	C2	1n		
R3	4K7	C3	47p	Q1	2N5457*
R4	1K	C4	100p	Q2-3	2N2222**
R5	470R	C5	68n		
R6	470R	C6	1u elec	XFM1	42TL019
R7	100K	C7	22u elec		
R8	100K	C8	100u elec	T1	4K7-10K trim
R9	1K5			T2	100K trim***
				BIAS A/B	10KB‡
				VOL	100KA***

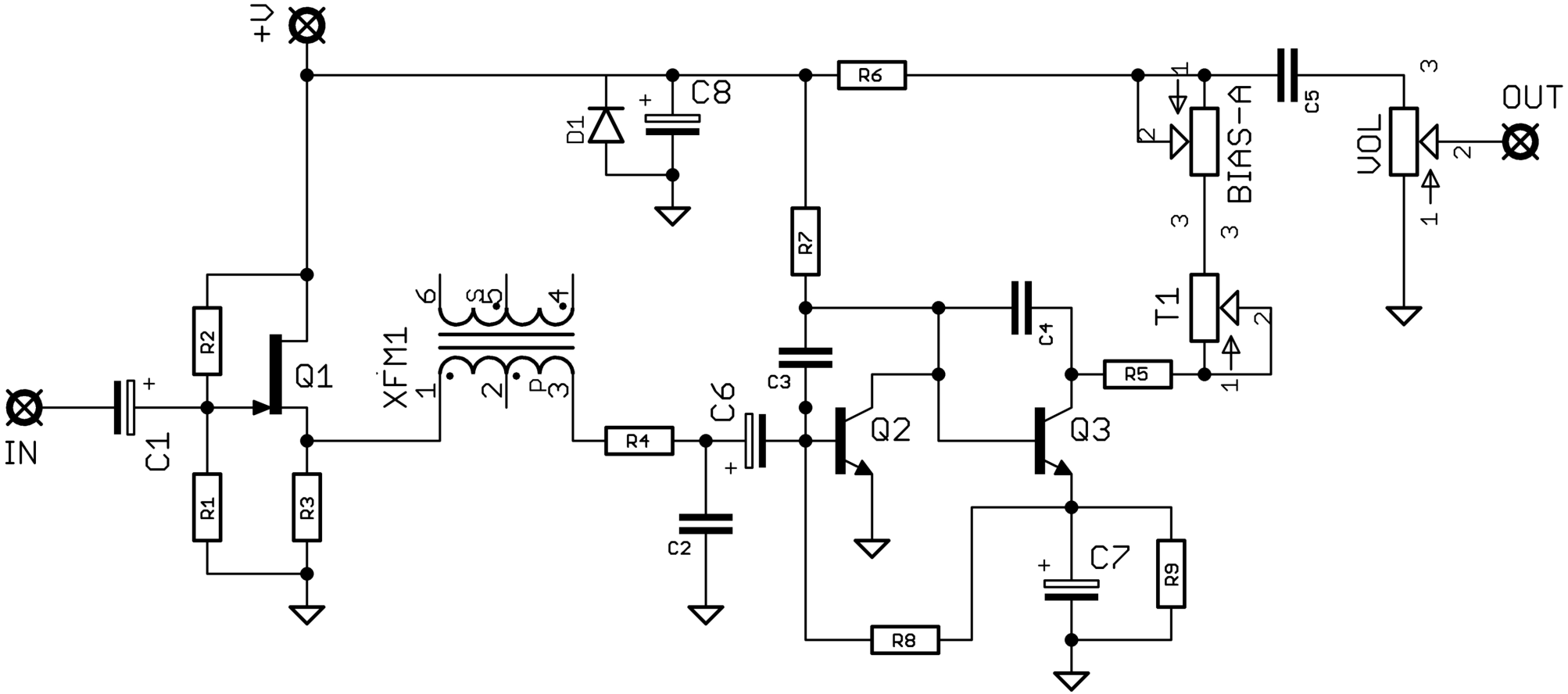
*Original uses PF5102. It makes no difference at all to the sound. Pads are provided for through-hole or SMT FETs. The SMT version of 2N5457 is MMBF5457.

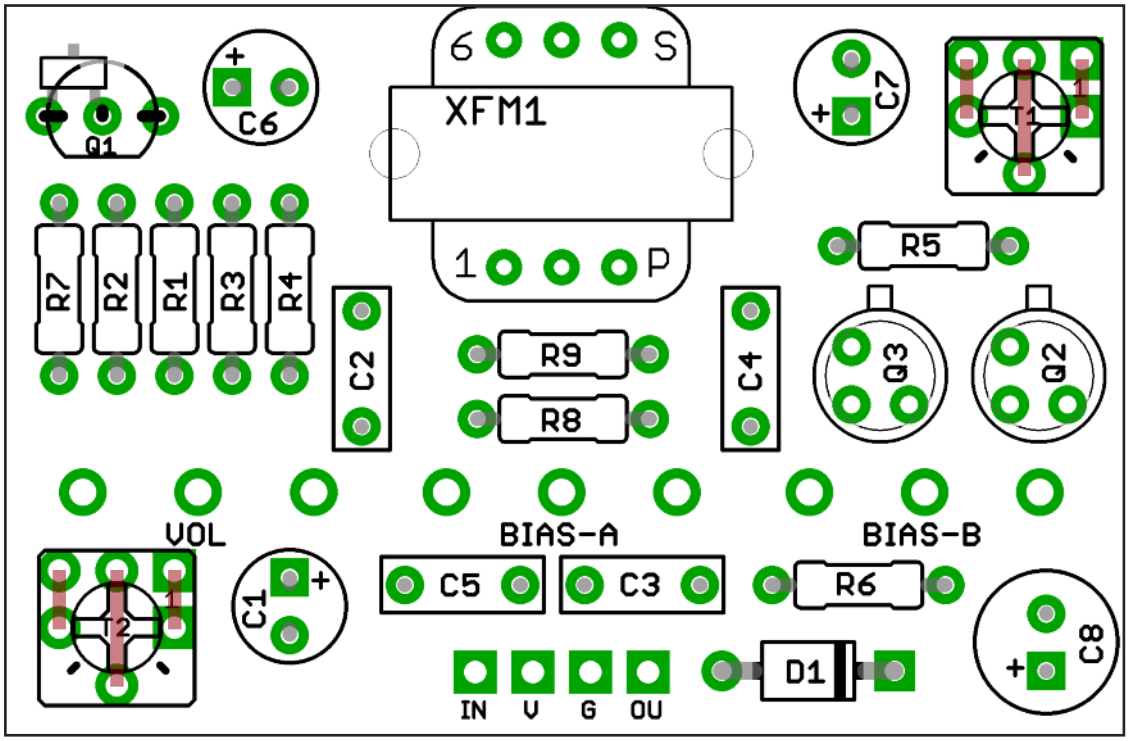
**Original uses 2N497. Try any low gain BJT transistors in here.
Pinout on the PCB is E B C with emitter indicated by the tab.

***Use a trimmer OR the volume pot. Not both.

‡There are two sets of pads for the BIAS pot. Use one or the other, not both.
BIAS-A is ideal if you're making a single knob version.
BIAS-B positions the pot side by side with the optional VOL pot.

Other transformers may work but we've only tried it with this one.
Note: the 42TL series has a much smaller footprint than 42TM, so don't mix them up.


+V
C8
D1
R6
C5
OUT
VOL
BIAS-A
T1
R7
C4
R5
C3
R2
Q1
XFM1
6
5
4
S
1
2
P
3
IN
C1
R4
C6
Q2
Q3
R1
R3
C2
C7
R9
R8



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 transistors, 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). Same goes for the ICs if you aren't using sockets.

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

There are extra pads for the trimmers to accommodate different types. The pads are linked within the structure of the PCB as shown in red above. When placing your trimmer(s) you just need to ensure that one leg goes into each column.

CONTROL COMBINATIONS

For a single knob version:

Pot in BIAS-A, volume set by T2
VOL and BIAS-B empty

For a master volume, two knob version:

Pots in BIAS-B and VOL
BIAS-A and T2 empty

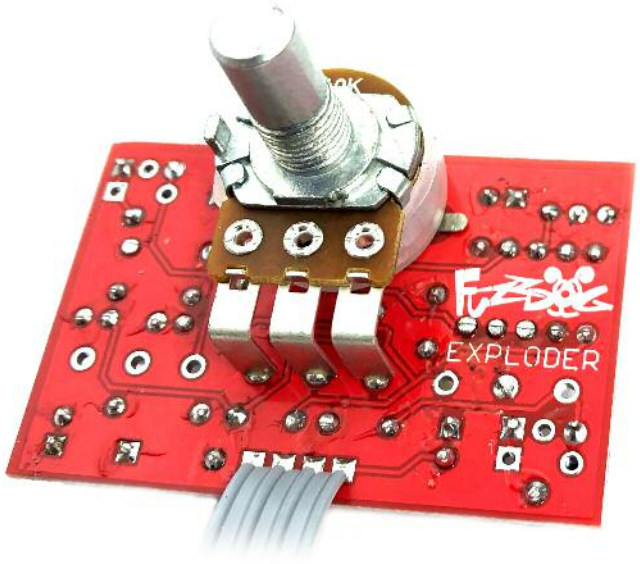
No jumpers required on any configuration.

TRIMMER SETTINGS

Once you're all soldered up and ready to go you need to set your trimmers. If you're using an external volume pot ignore T2.

To set the bias control, position your bias pot at 12 o'clock. With a multimeter set to DC voltage attached to ground and the collector of Q3, adjust T2 until you get a reading of around half your supply voltage, so 4.5V for a 9V supply. A little either way is fine. That will give you perfect bias at 12 o'clock, and a good range in both directions.

If you're not using an external pot for volume, set your bias pot to where you think you'll likely use it and adjust T2 until you get your prefered output volume. This will drop or increase when adjusting the bias pot.



Test the board!

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

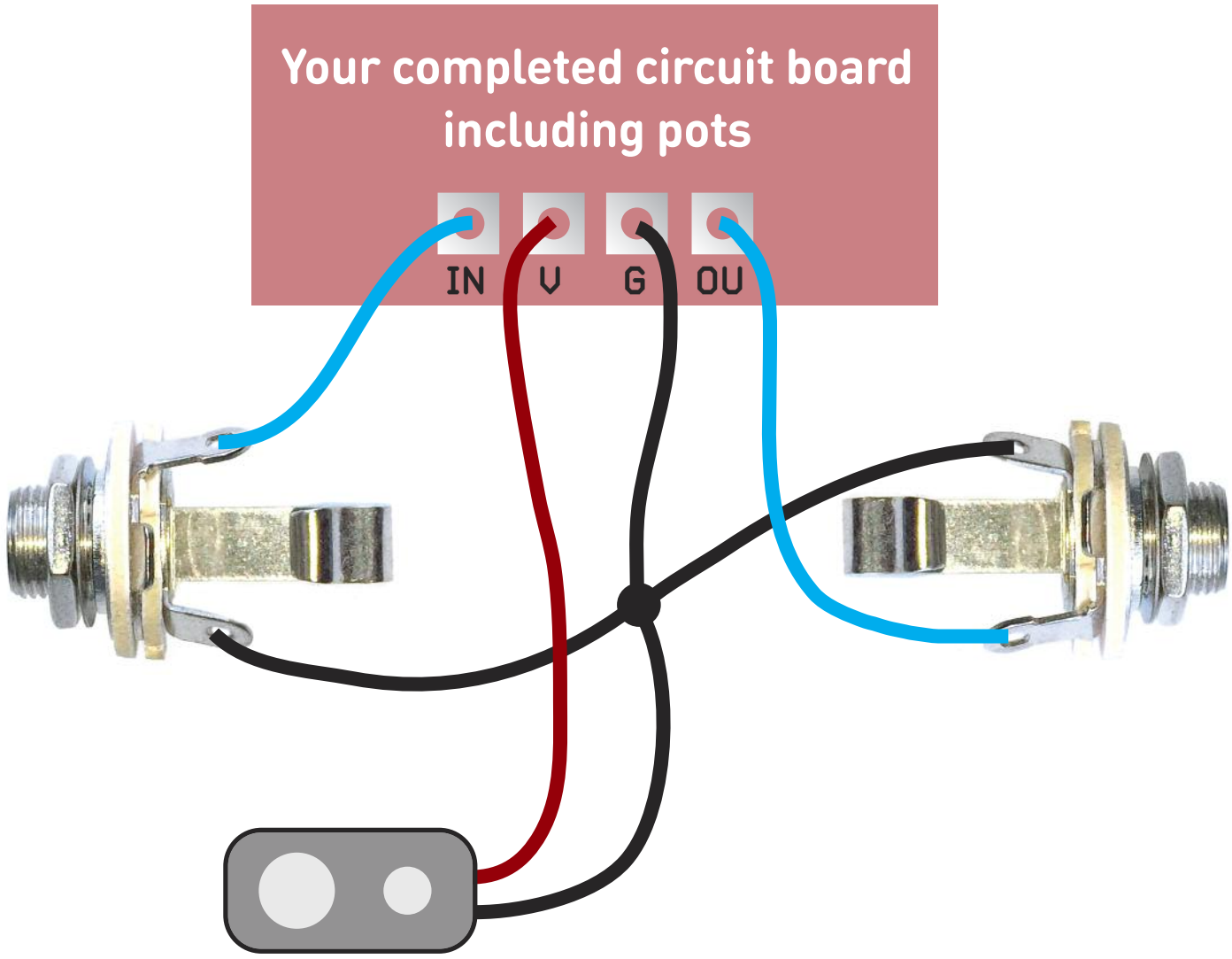
UNDER NO CIRCUMSTANCES will troubleshooting help be offered if you have skipped this stage. No exceptions.

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.

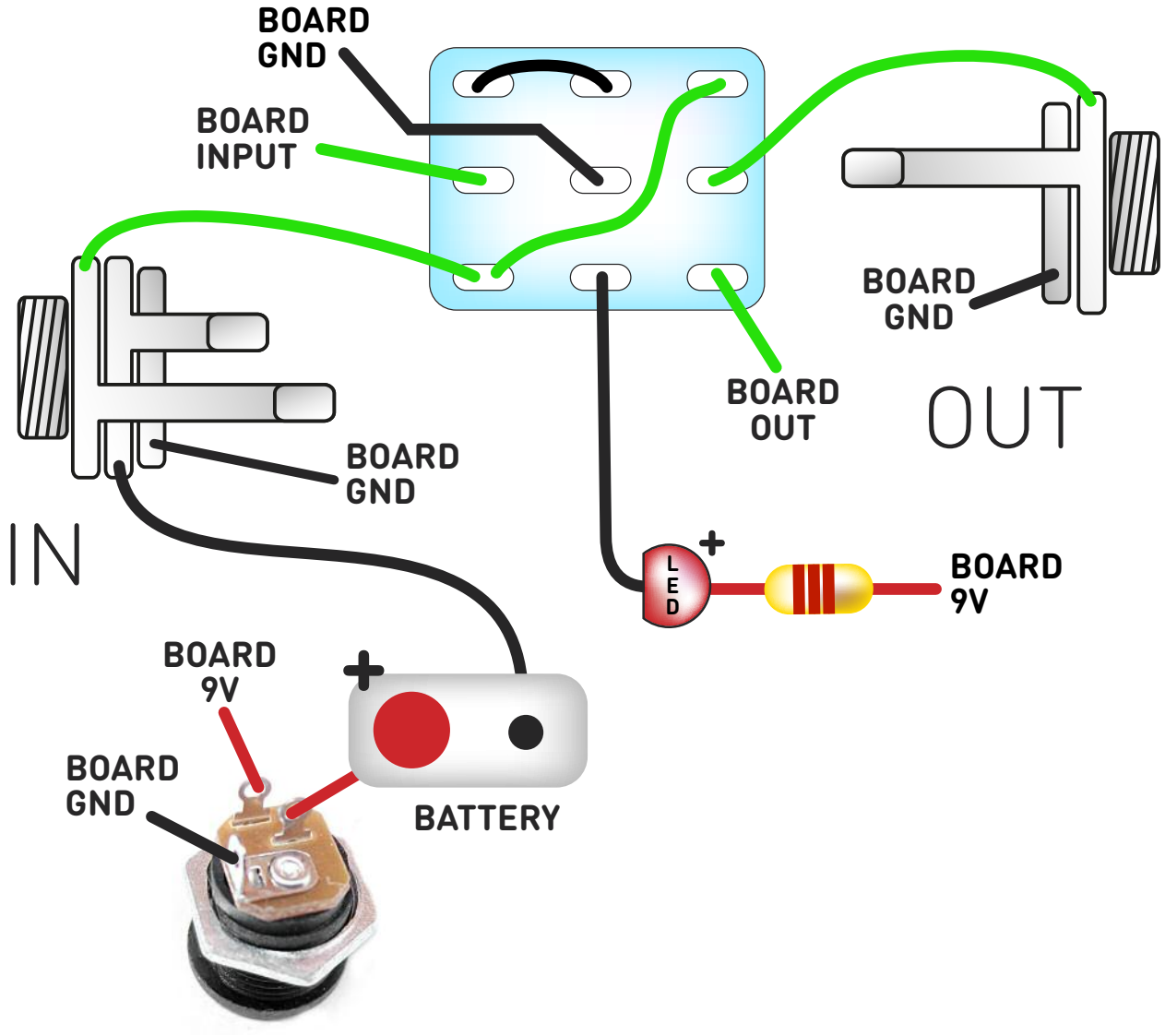
Solder some nice, long lengths of wire to the board connections for 9V, GND, IN and OUT. Connect IN and OUT to the jacks as shown. Connect all the GNDs together (twist them up and add a small amount of solder to tack it). Connect the battery + lead to the 9V wire, same method. Plug in. Go!

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

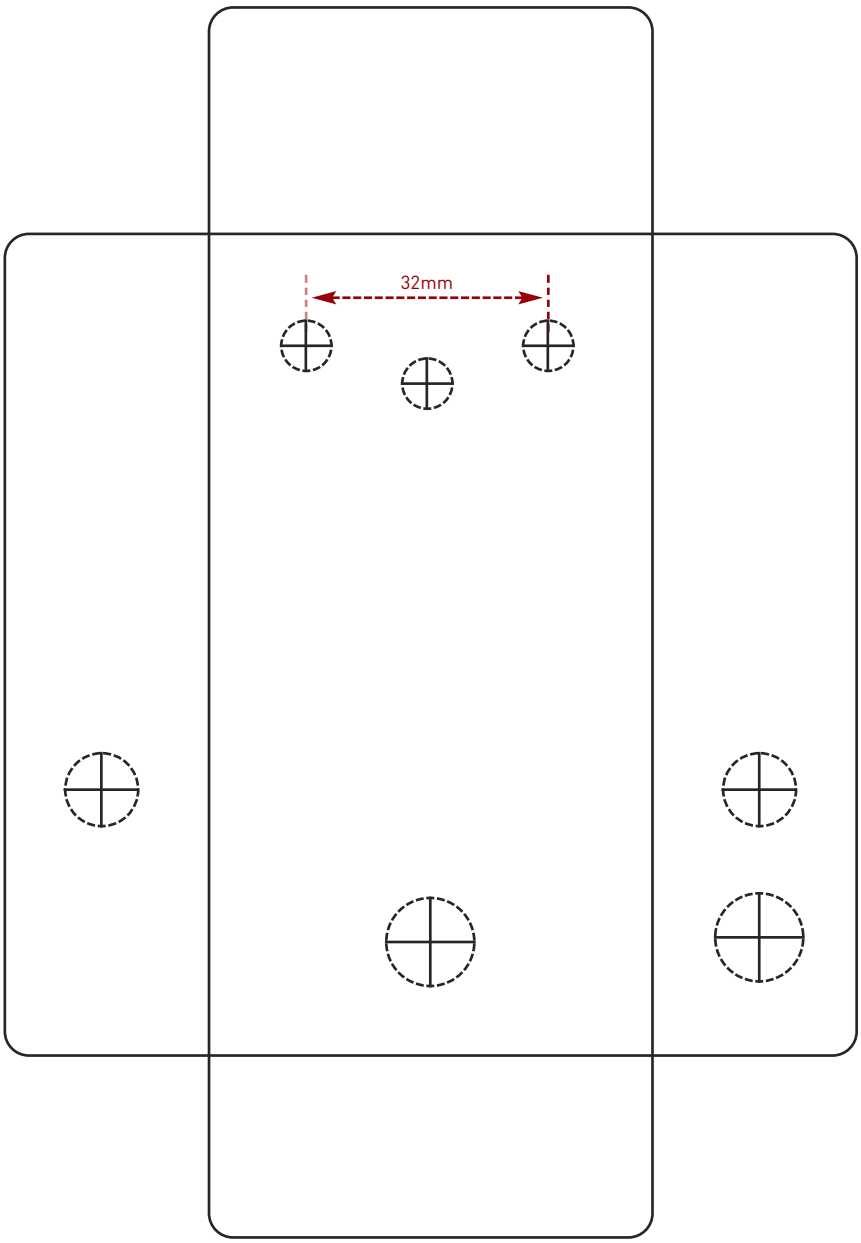
Hammond 1590B

60 x 111 x 31mm

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