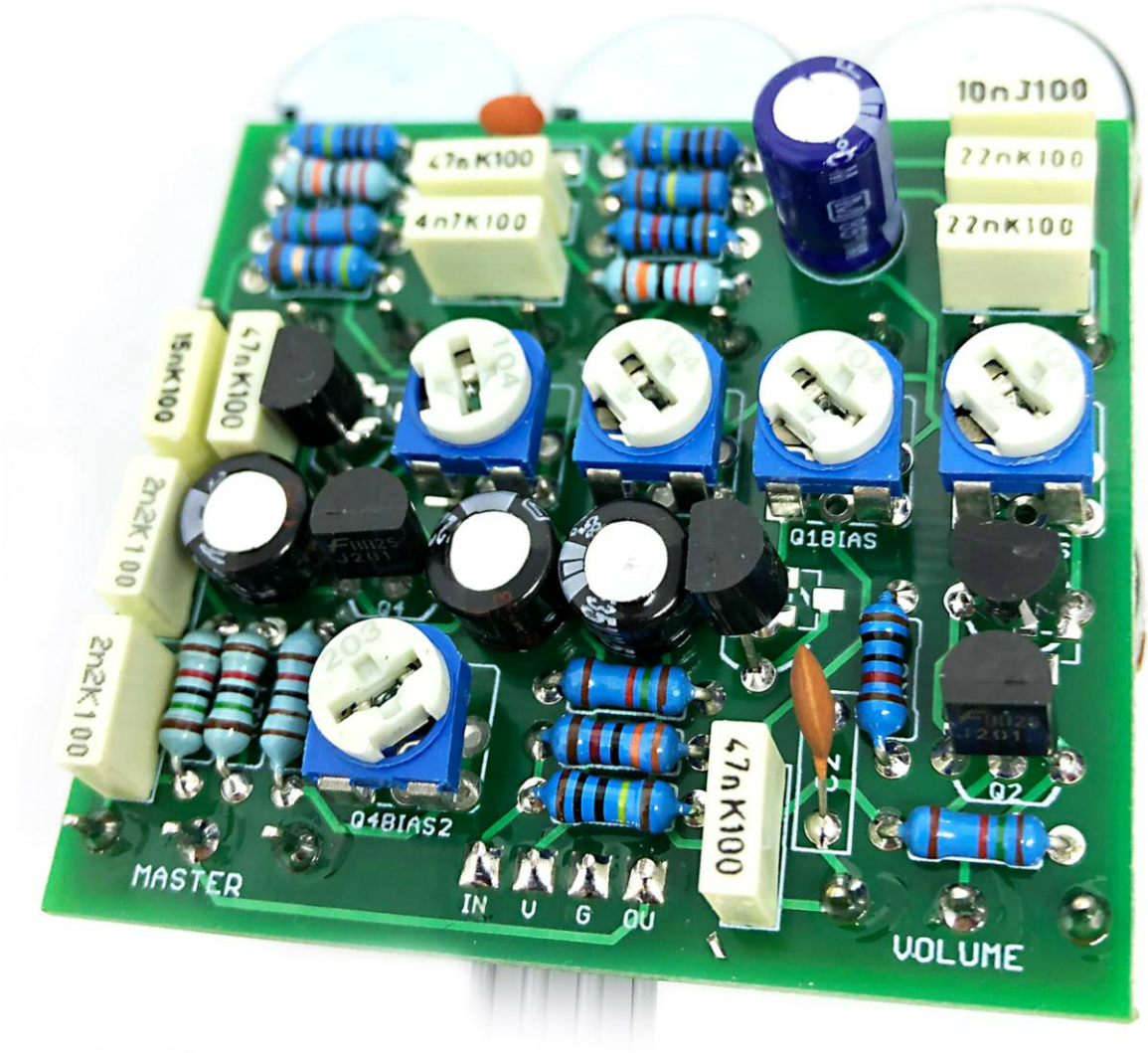


English Channel (vert)

RunOffGroove's Vox AC30 Top Boost in a box

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:

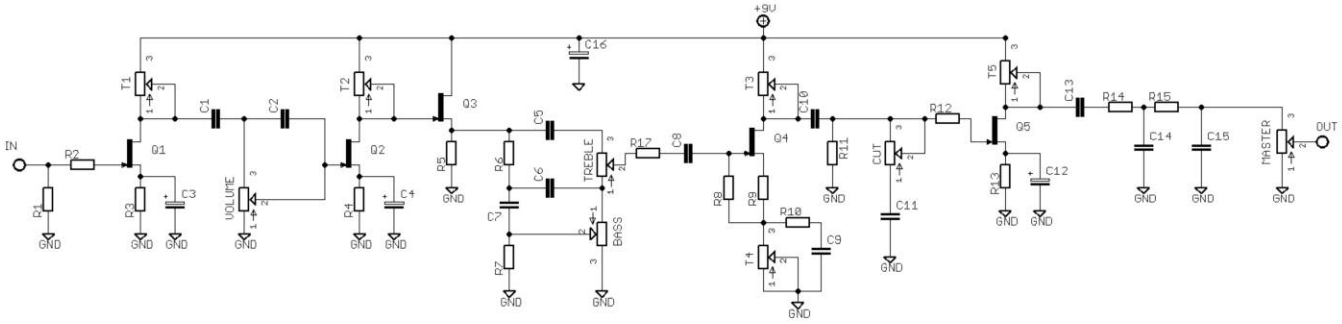
- Resistors should be 0.25W. You can use those with higher ratings but check the physical size of them.
- Electrolytics caps should be at least 25V for 9V circuits, 35V for 18V circuits. Again, check physical size if using higher ratings.

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

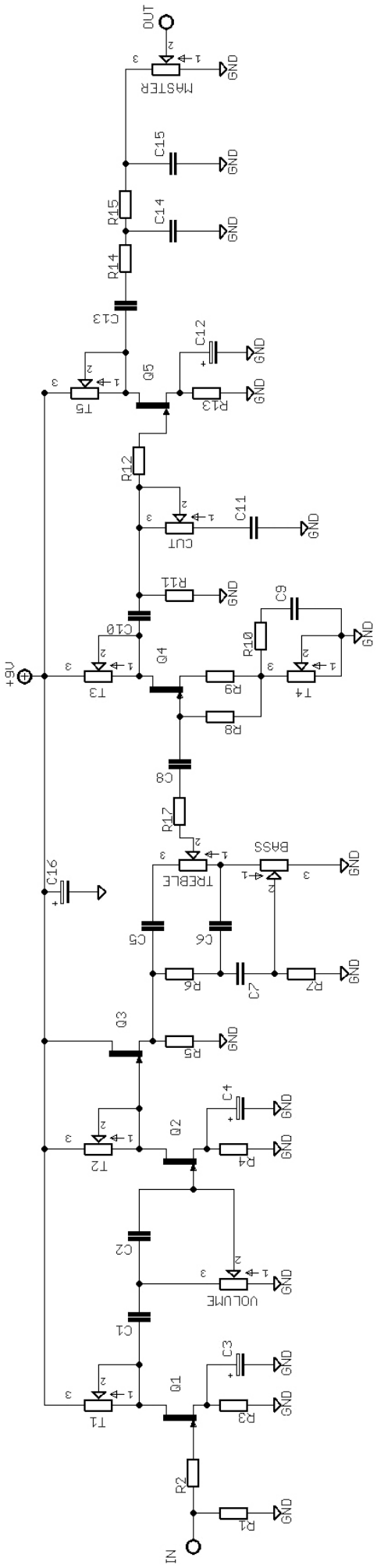


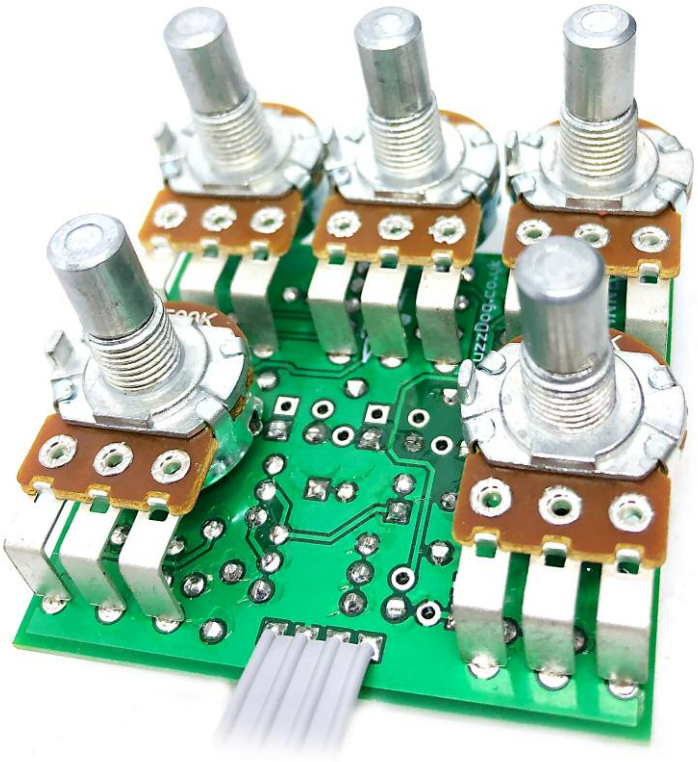
R1	1M	C1	470p (47n)	T1	100K TRIM
R2	33K	C2	100p	T2	100K TRIM
R3	1K5	C3	22u elec	T3	100K TRIM
R4	1K5	C4	22u elec	T4	22k TRIM
R5	10K	C5	47p	T5	100K TRIM
R6	100K	C6	22n		
R7	10K	C7	22n	Q1-5	J201*
R8	1M	C8	47n		
R9	1K2	C9	10n	VOLUME	500KA
R10	1M	C10	47n	MASTER	100KA
R11	220K	C11	4n7	TREBLE	1MA
R12	1K5	C12	22u elec	BASS	1MA
R13	47R	C13	15n	CUT	250KA
R14	15K	C14	2n2		
R15	15K	C15	2n2		
R17	220K	C16	100u elec		

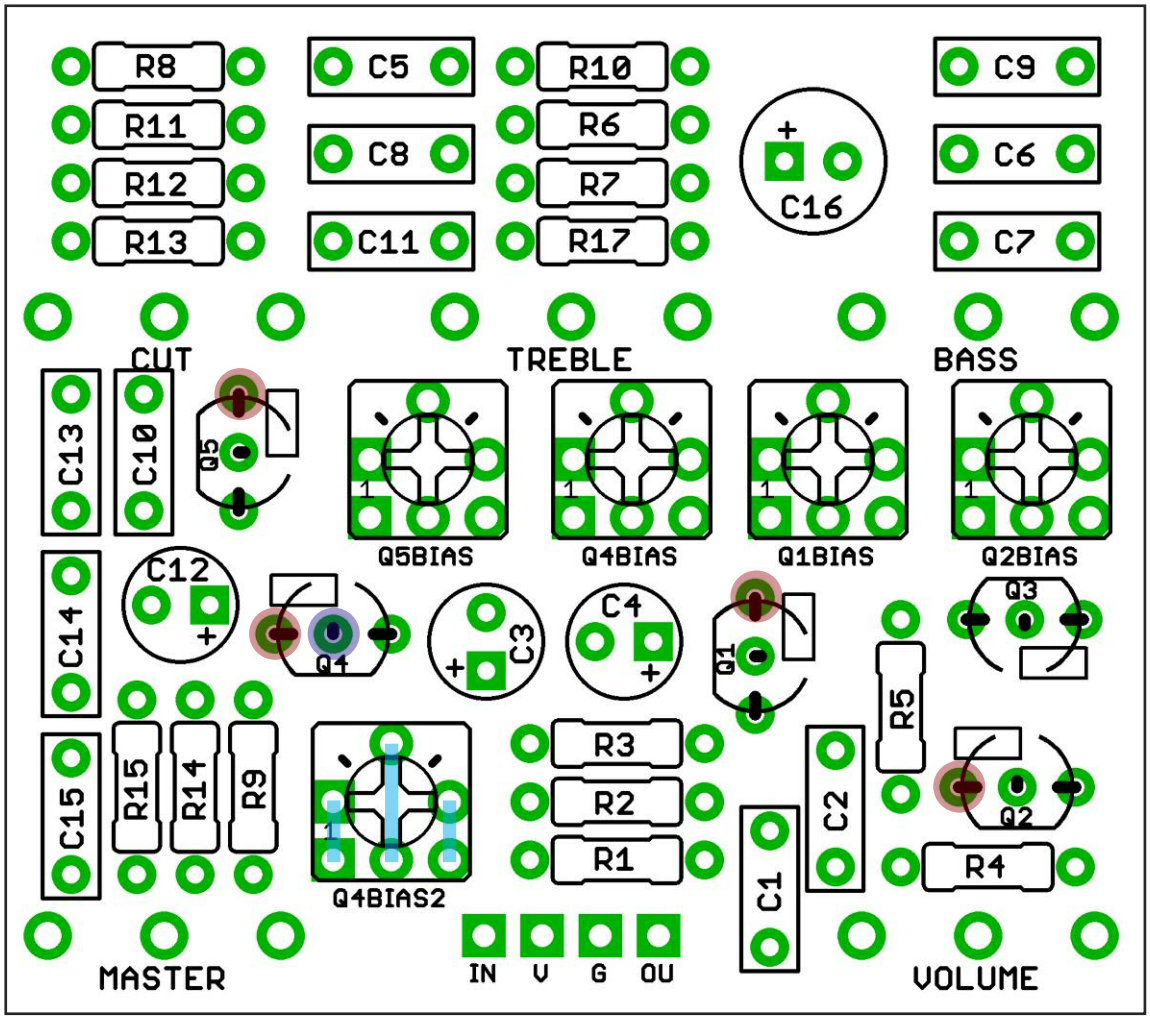
There is no R16. Don't you worry about a thing.

Stock circuit replicates the Brilliant input on the AC30.
To go for Normal input, change C1 to 47n.

*You can use through-hole J201, or the SMT version which is MMBFJ201


OUT
MASTER
GND
C15
R15
C14
R14
C13
C12
Q5
T5
R13
R12
C11
CUT
R11
C9
C10
R10
Q4
T3
T4
R9
R8
+9V
C8
R17
BASS
TREBLE
C16
C5
C6
R6
C7
R7
Q3
R5
C4
Q2
T2
R4
C2
VOLUME
C1
C3
Q1
T1
R3
R2
R1
IN





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 J201. 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.

BIASING

The J201 need to be biased correctly for the circuit to work. To do this set your multimeter to a DC voltage range that is big enough to show a reading of 9V. Place the negative lead onto any ground point, such as the G pad or pin 1 of the Master pot. Place the other lead onto the Drain pin of each J201 in turn - indicated by the red pads above. Adjust the appropriate trimmer until you get a reading of approximately 4.5V. Note: there's no adjustment on Q3.

You also have a second trimmer for Q4 (Q4BIAS2). This adjusts the voltage as the Source of Q4, marked with a blue dot above. Same procedure as above, but adjust until you get around 1.6V.

There are extra pads on trimmers to allow different package formats to be used. Pads are connected via PCB traces as shown above on Q4BIAS2, so just fit your trimmer into whichever holes it fits naturally into. As long as you have one pin each in the left, centre and right sections. No jumpers are required.

Test the board!

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

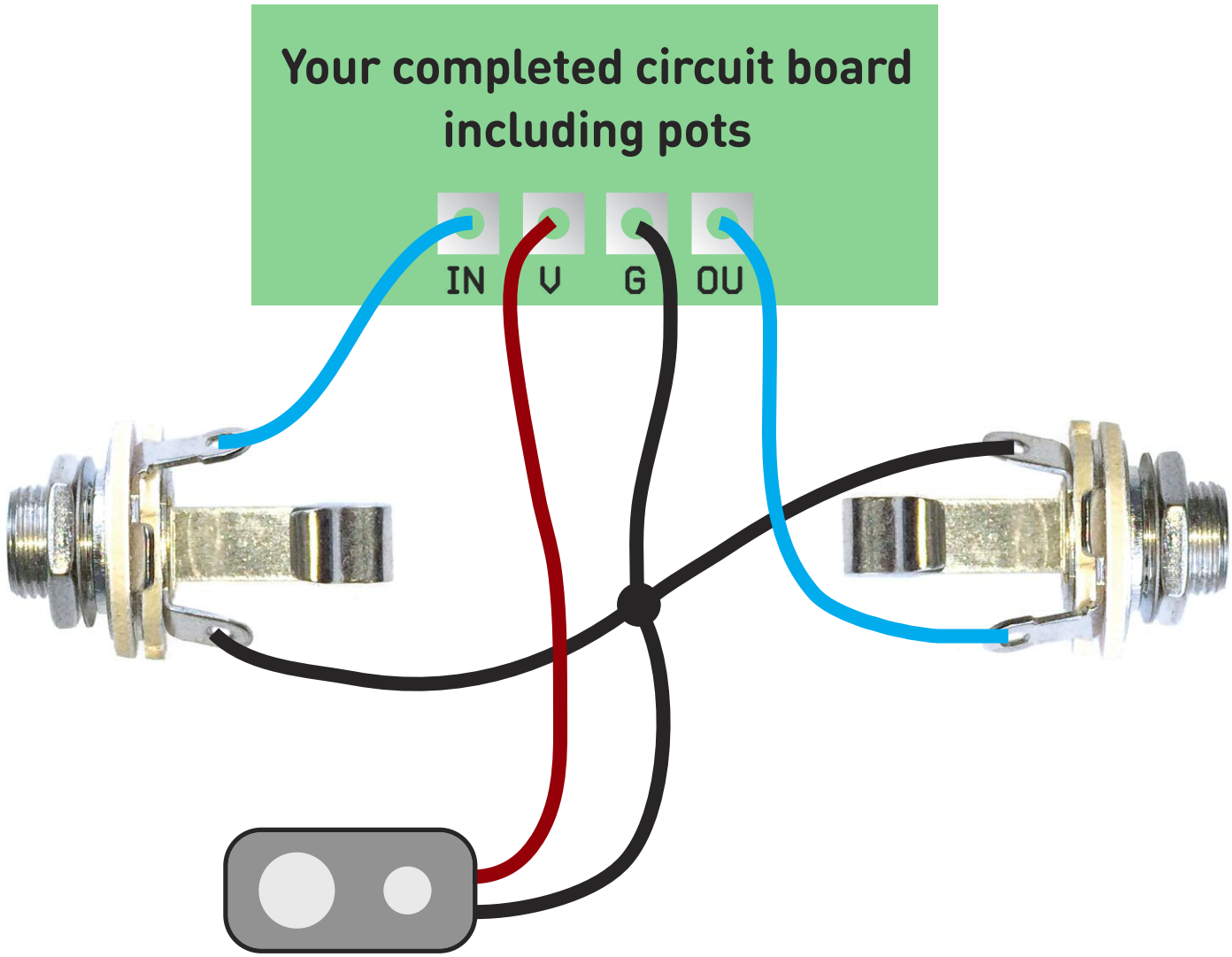
UNDER NO CIRCUMSTANCES will troubleshooting help be offered if you have skipped this stage. No exceptions.

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.

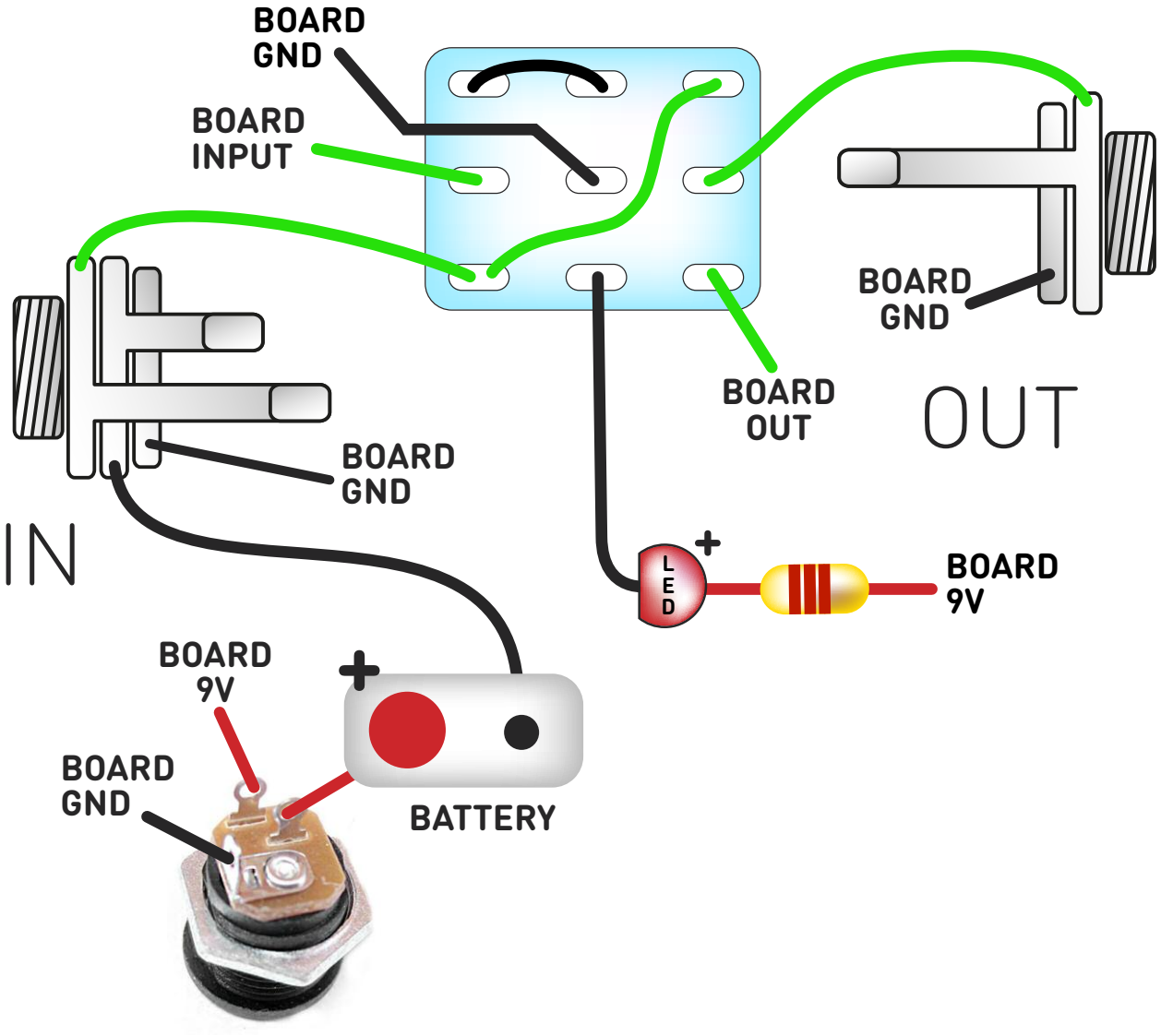
Solder some nice, long lengths of wire to the board connections for 9V, GND, IN and OUT. Connect IN and OUT to the jacks as shown. Connect all the GNDs together (twist them up and add a small amount of solder to tack it). Connect the battery + lead to the 9V wire, same method. Plug in. Go!

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

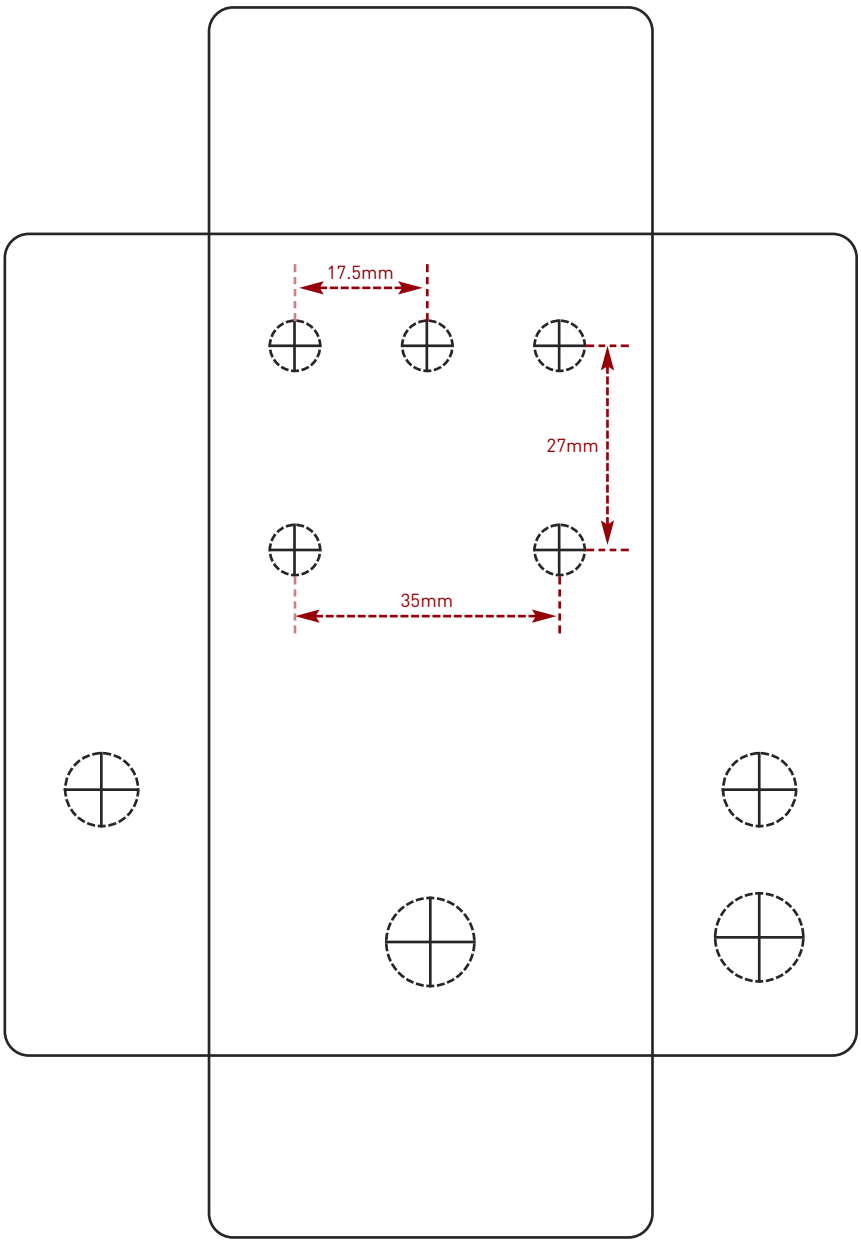
Hammond 1590B

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