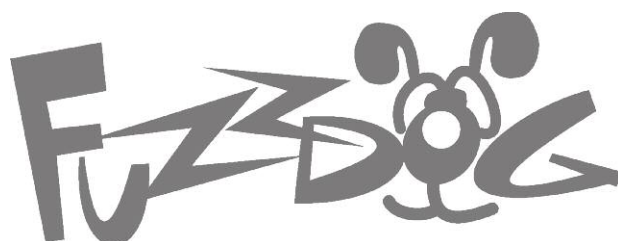


Glam

Madbean's Magical PT2399-based chorus



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:

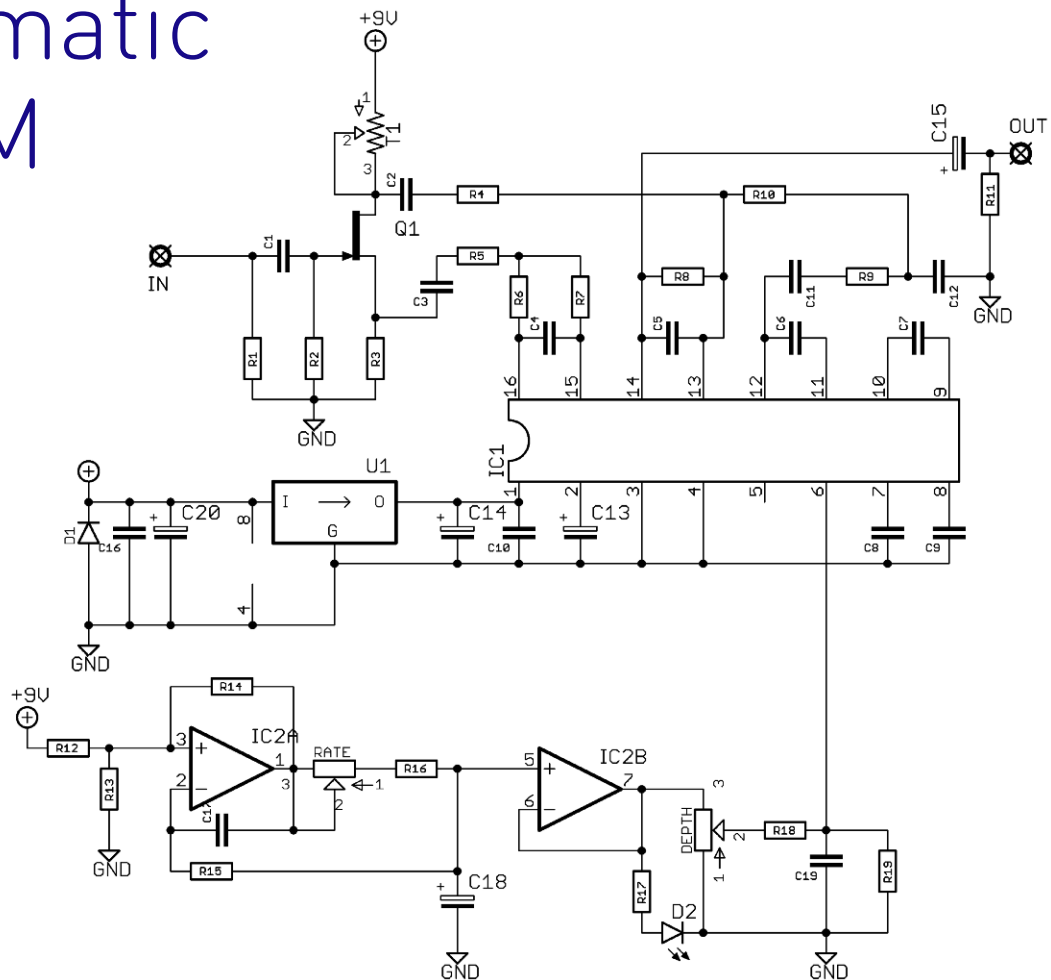
- Resistors should be 0.25W. You can use those with higher ratings but check the physical size of them.
- Electrolytics caps should be at least 25V for 9V circuits, 35V for 18V circuits. Again, check physical size if using higher ratings.

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

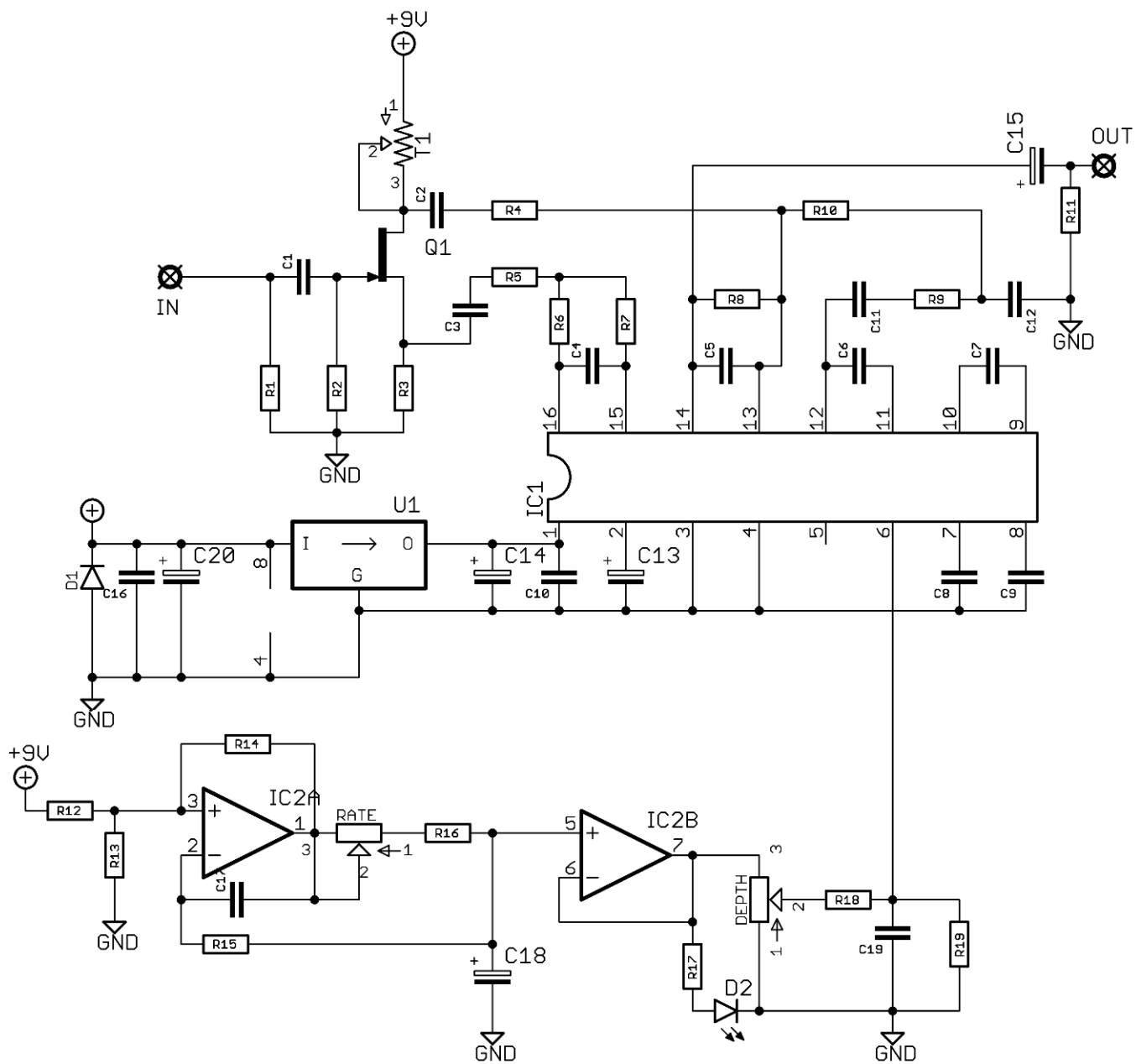


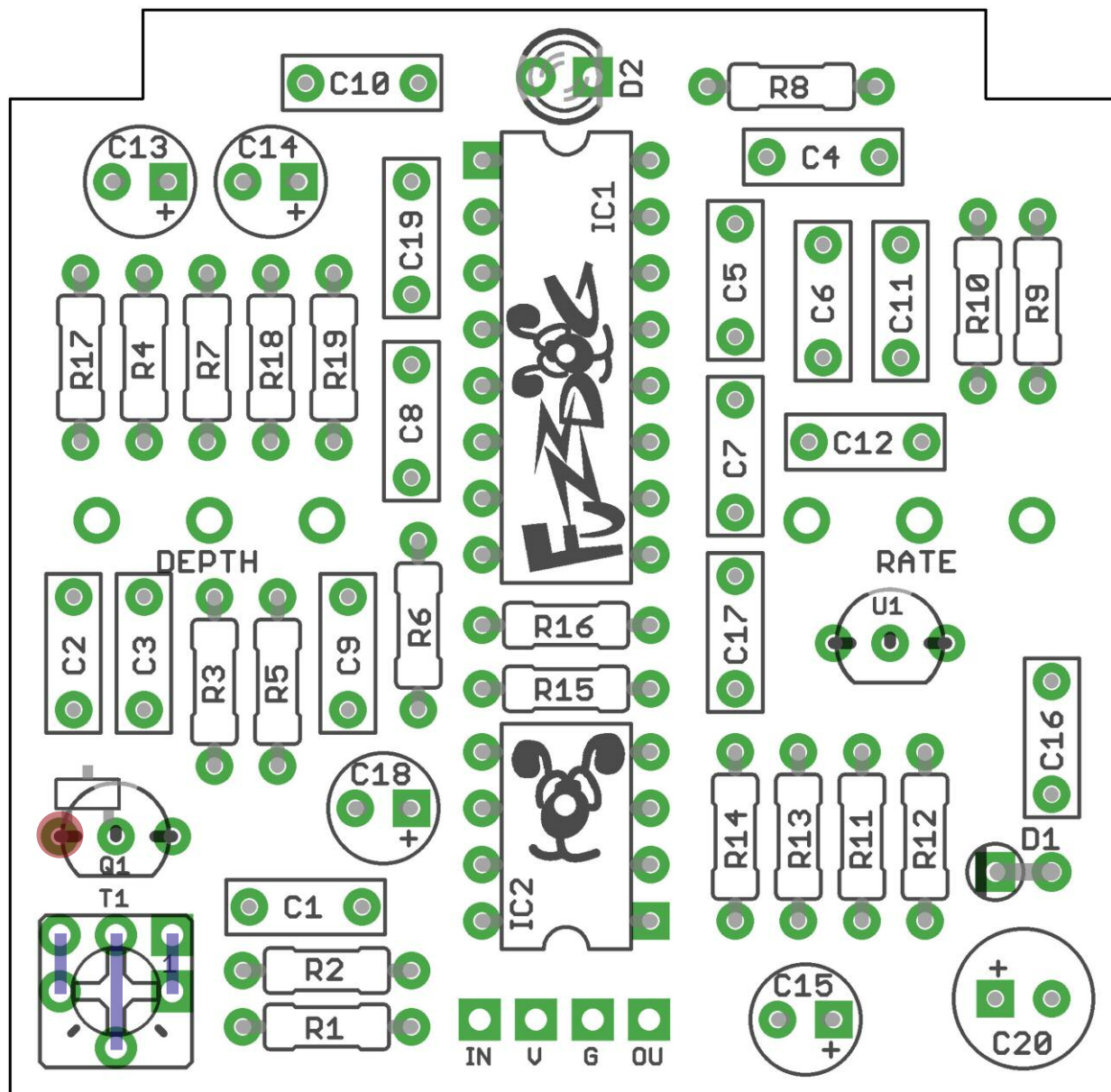
R1 1M
 R2 4M7
 R3 10K
 R4 20K
 R5 10K
 R6 10K
 R7 20K
 R8 10K
 R9 4K7
 R10 12K
 R11 10K
 R12 100K
 R13 100K
 R14 220K
 R15 220K
 R16 15K
 R17 1K*
 R18 20K
 R19 2K

C1 10n
 C2 22n
 C3 220n
 C4 2n2
 C5 100p
 C6 100n
 C7 100n
 C8 100n
 C9 100n
 C10 100n
 C11 220n
 C12 10n
 C13 10u elec
 C14 10u elec
 C15 4u7 elec
 C16 100n
 C17 10n
 C18 10u elec
 C19 10n
 C20 47u elec

D1 1N4001
 D2 LED*
 IC1 PT2399
 IC2 TL062
 Q1 2N5457
 U1 78L05
 DEPTH 10KB
 RATE 100KC
 T1 47-50K TRIM

*For Optional rate indicator LED.
 This needs a small hack if you
 want to include it. See page 6.





PCB layout ©2020 Pedal Parts Ltd.

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 2N5457 and 78L05. 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.

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.

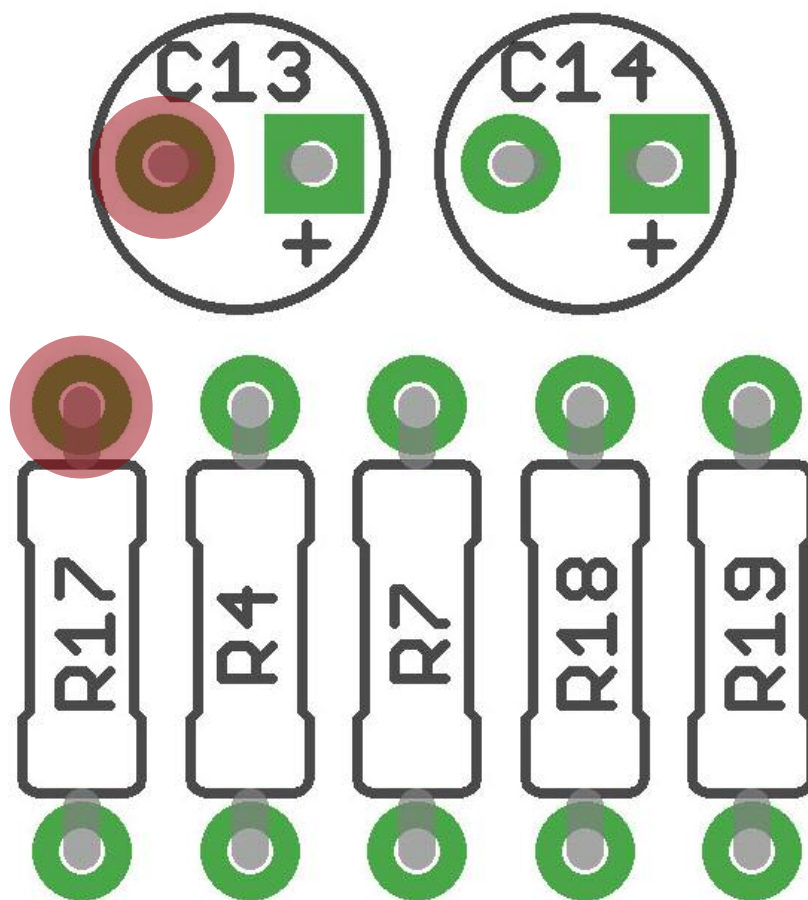
There are extra pads on trimmers to allow different package formats to be used. Pads are connected via PCB traces as shown in blue above, so just fit your trimmer into whichever holes it fits naturally into. As long as you have one pin each in the left, centre and right sections. No jumpers are required.

Adjust the trimmer T1 to give you 6V on the Drain of Q1, marked in red above.

RATE INDICATOR LED

As it is, it doesn't really flash enough to make it worthwhile. You can put a resistor in parallel with the LED and this will make it work much better, but you *may* experience ticking on the signal. Try it and see. It's easy enough to snip it back out. Tack a 4K7 resistor between the legs of the LED.

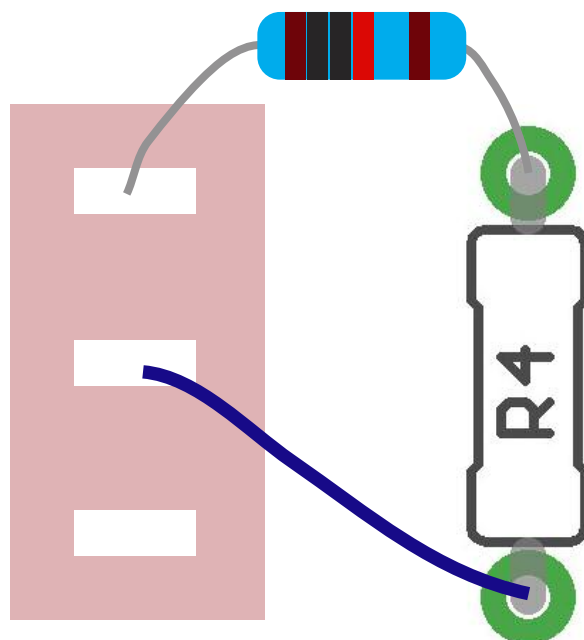
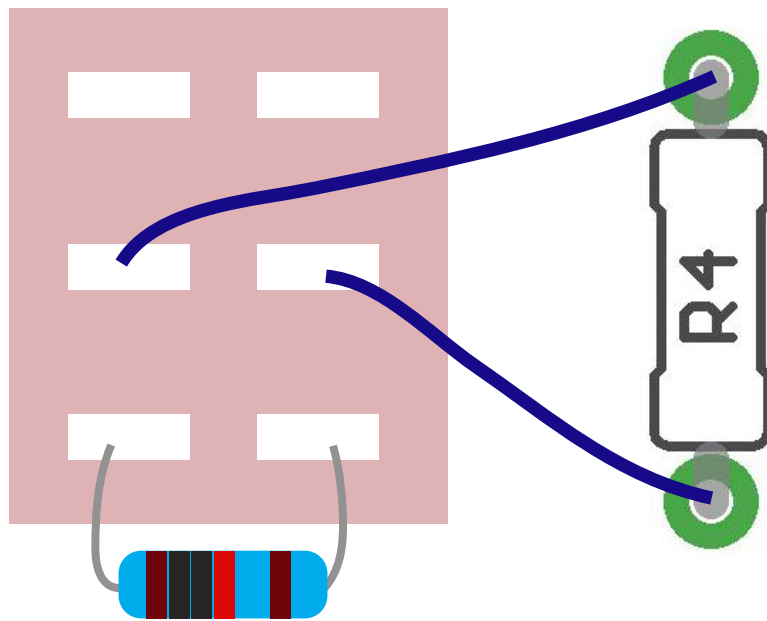
If you'd rather avoid extra heat on the LED, you can tack it between these points instead.



VIBE MOD

Killing the clean signal will give you a vibe effect rather than chorus.
To do this simply remove R4.

You can add this on a switch if you like. The neatest way is on a DPDT switch, but you can do it with a SPST or SPDT if you're happy to have the resistor hanging.



Test the board!

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

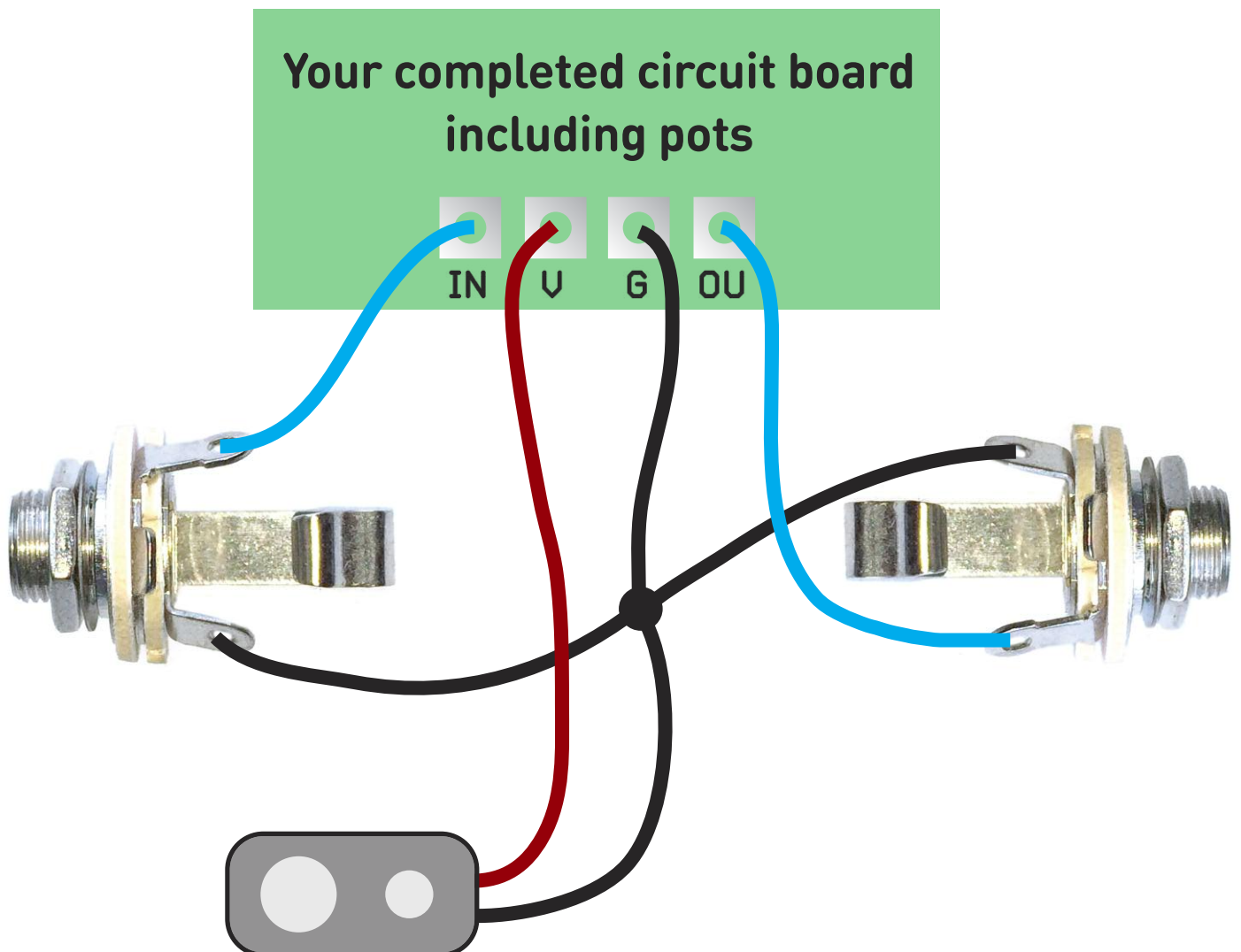
UNDER NO CIRCUMSTANCES will troubleshooting help be offered if you have skipped this stage. No exceptions.

Once you've finished the circuit it makes sense to test it 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!

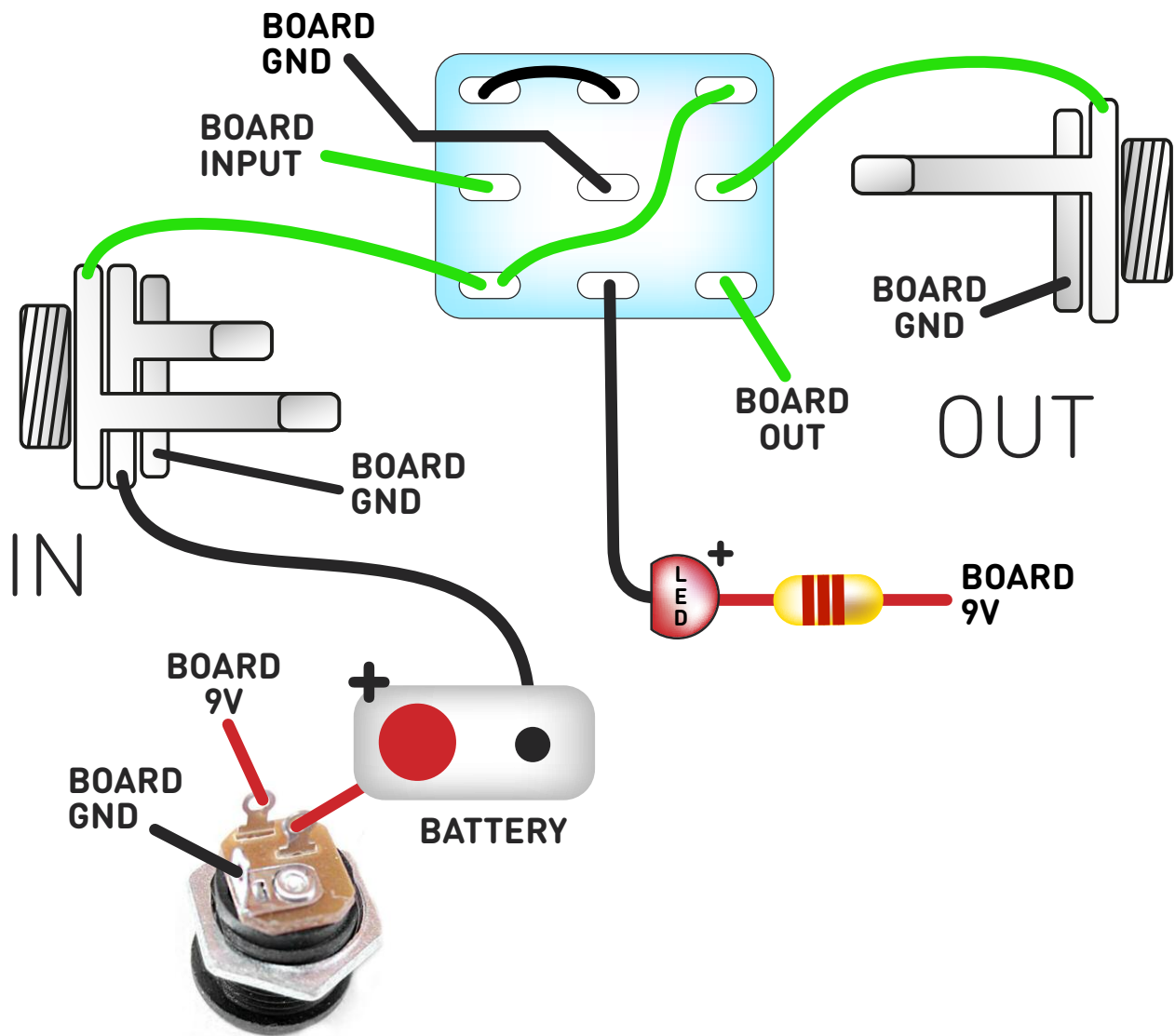
If you're using a ribbon cable you can tack the wires to the ends of that. It's a lot easier to take them off there than it is to desolder wires from the PCB pads.

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

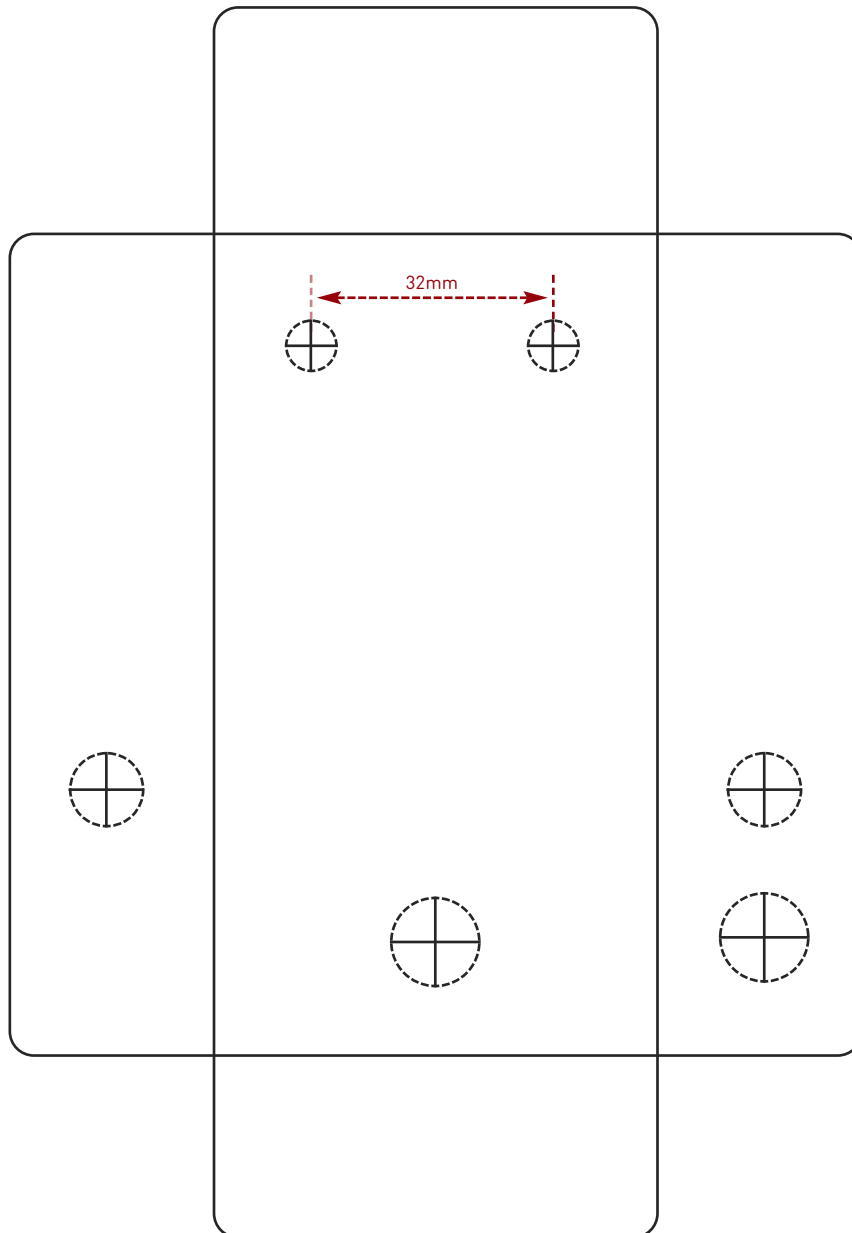
60 x 111 x 31mm

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.

FuzzDog.co.uk