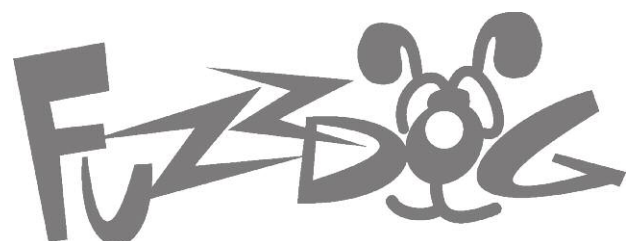


Recurring Nightmare

Mad modulated fuzz delay



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:

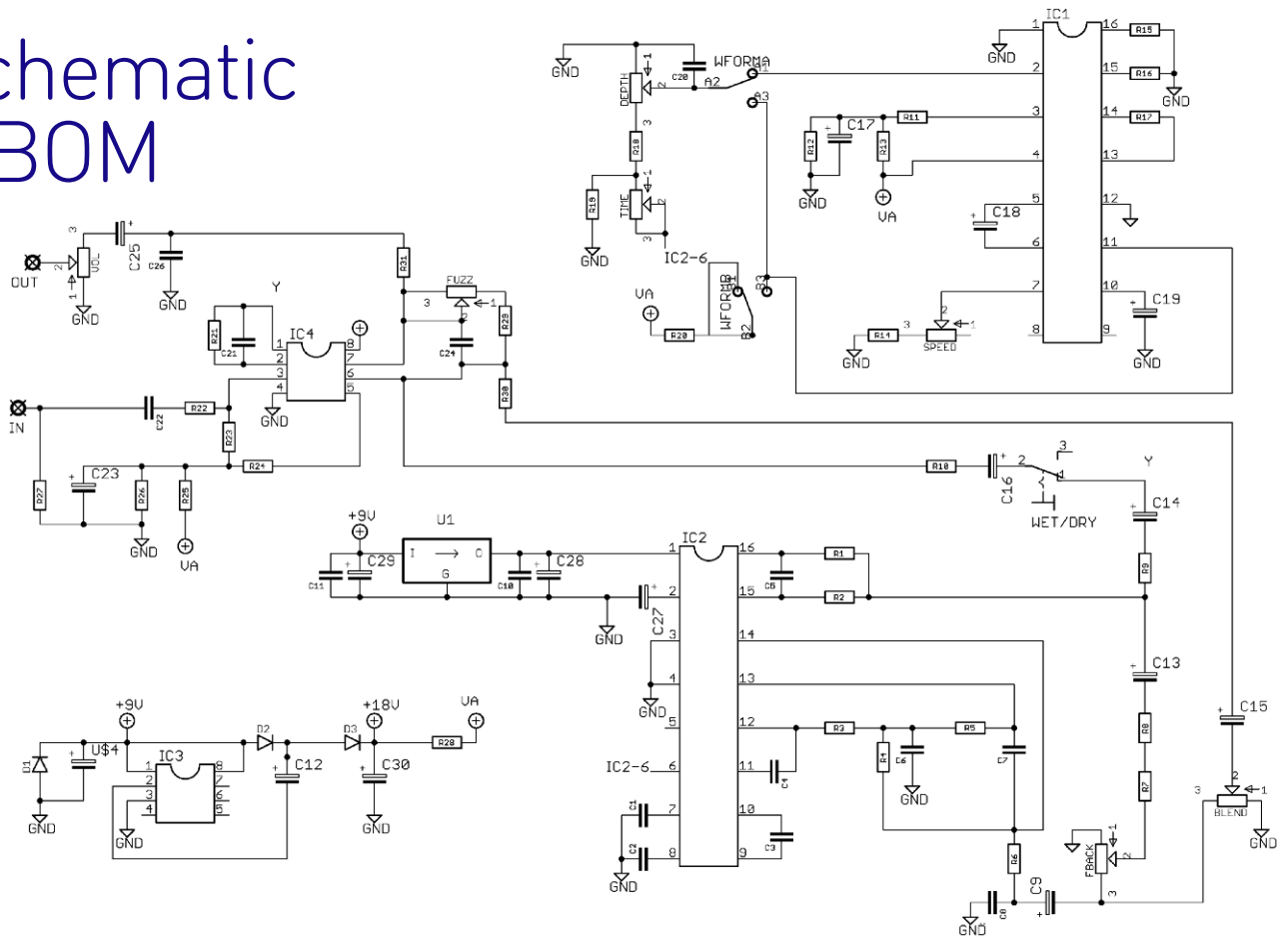
- Resistors should be 0.25W. You can use those with higher ratings but check the physical size of them.
- Electrolytics caps should be at least 25V for 9V circuits, 35V for 18V circuits. Again, check physical size if using higher ratings.

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



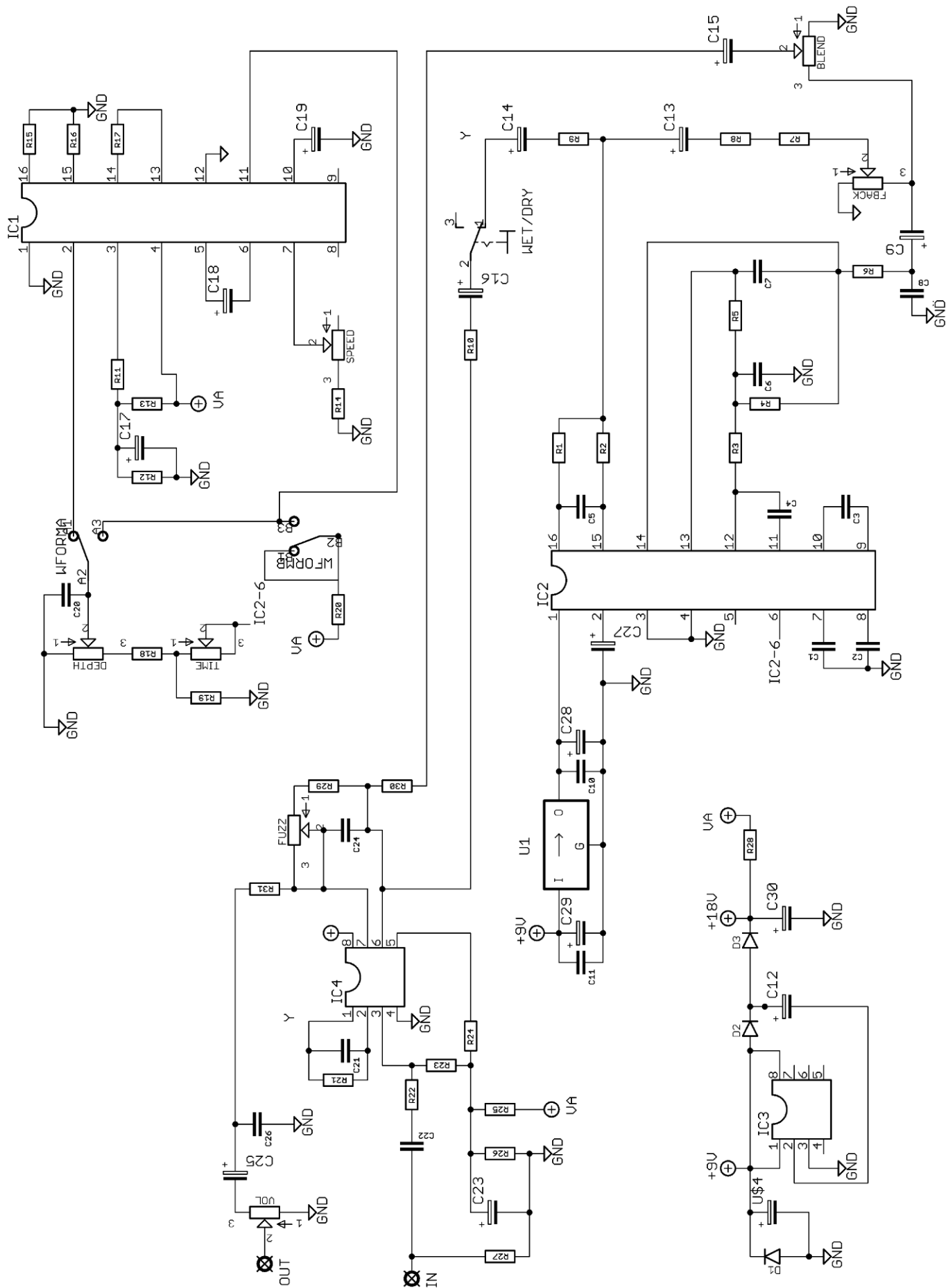
R1	10K	C1	100n	IC1	XR2206P**
R2	10K	C2	100n	IC2	PT2399
R3	10K	C3	82n	IC3	7660S***
R4	15K	C4	47n	IC1	MC33172P‡
R5	10K	C5	2n2	D1	14001
R6	1K	C6	33n	D2-3	14001
R7	10K	C7	2n2	U1	78L05
R8	3K3	C8	10n	BLEND	100KB
R9	10K	C9	1u elec	DEPTH	100KC
R10	10K	C10	100n	FBACK	100KC
R11	82K	C11	10n	FUZZ	1MA
R12	6K8	C12	10u elec	SPEED	1MA
R13	6K8	C13	1u elec	TIME	100KA
R14	3K6	C14	1u elec	VOL	100KA
R15	13K	C15	1u elec	WET/DRY	SPDT ON-ON
R16	13K	C16	1u elec	WFORM	DPDT ON-ON
R17	220R	C17	10u elec		
R18	2K7	C18	10u elec		
R19	680R	C19	1u elec		
R20	10K	C20	680n		
R21	10K	C21	470p		
R22	1K	C22	100n		
R23	470K	C23	1u elec		
R24	470K	C24	220p		
R25	10K	C25	1u elec		
R26	10K	C26	10n		
R27	1M	C27	100u elec		
R28	100R	C28	100u elec		
R29	8K2	C29	100u elec		
R30	10K	C30	100u elec		
R31	390R	US4*	100u elec		

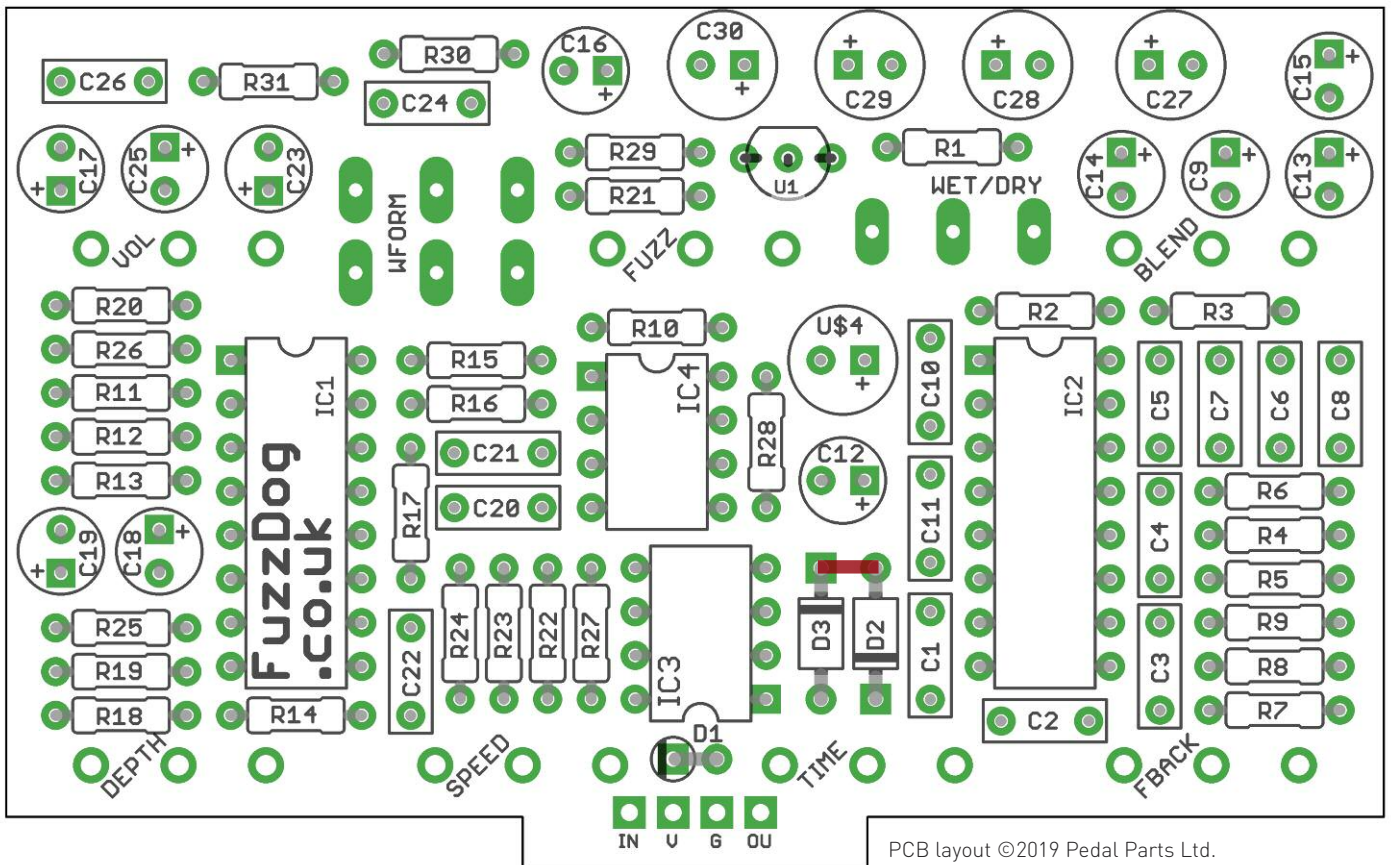
*We missed the label for C31 - it's labelled as US4.

**Beware fakes. They simply won't work. See later.

***Ensure you get a charge pump with the 'S' suffix or you'll get a whining noise from the circuit.

‡These op-amps are very hard to source in through-hole format, though SMT versions are readily available. We've tried a few different substitutions and LM358 gives the best results.





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.

If you aren't using sockets for the ICs (why not?) be extra careful and take your time soldering them. They're very easily to fry with heat.

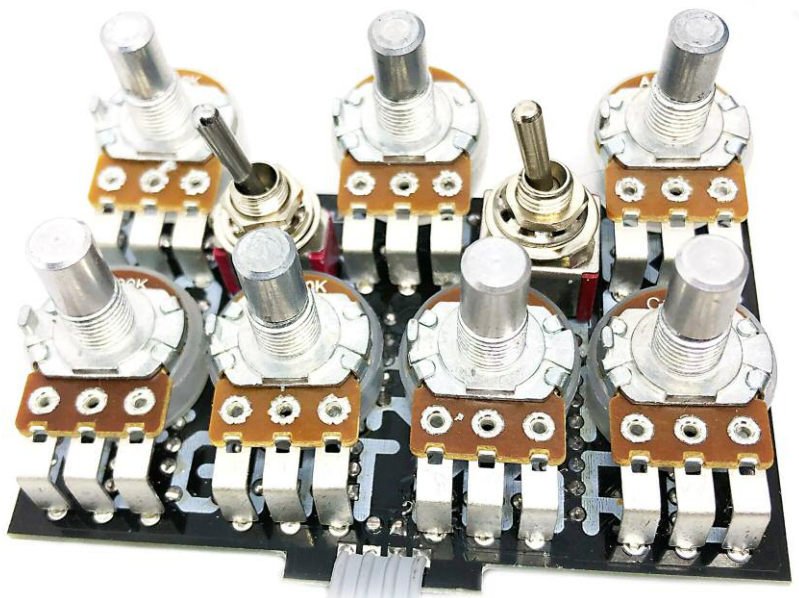
You should solder all other board-mounted components before you solder the pots. Once they're in place you'll have no access to much of the board. Make sure your pots all line up nicely.

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. Same for the toggle switch. 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.

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

9V or 18V supply?

The circuit works best at 18V, so we've included an on-board charge pump so you can achieve this with a 9V supply. If you'd rather use a dedicated 18V supply you can leave out all the charge pump parts (marked in green on the BOM) and add a jumper as shown in red above. U1 will still drop the voltage going to the PT2399 to the required 5V.



Testing

You can test the Distortion and Boost sections individually, as if they're separate boards. Do the test wiring as shown below for each section.

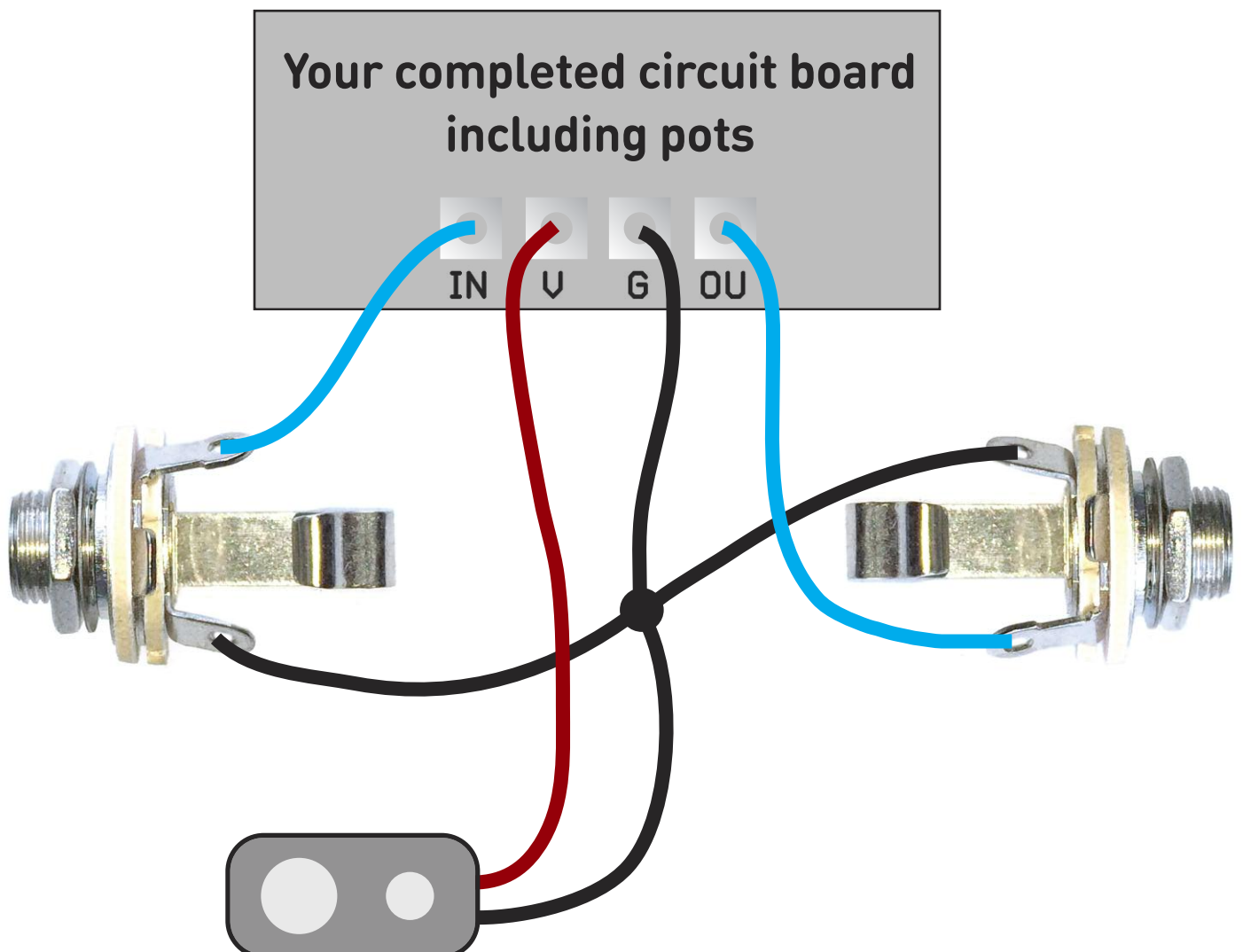
UNDER NO CIRCUMSTANCES will troubleshooting help be offered if you have skipped this stage. No exceptions.

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!

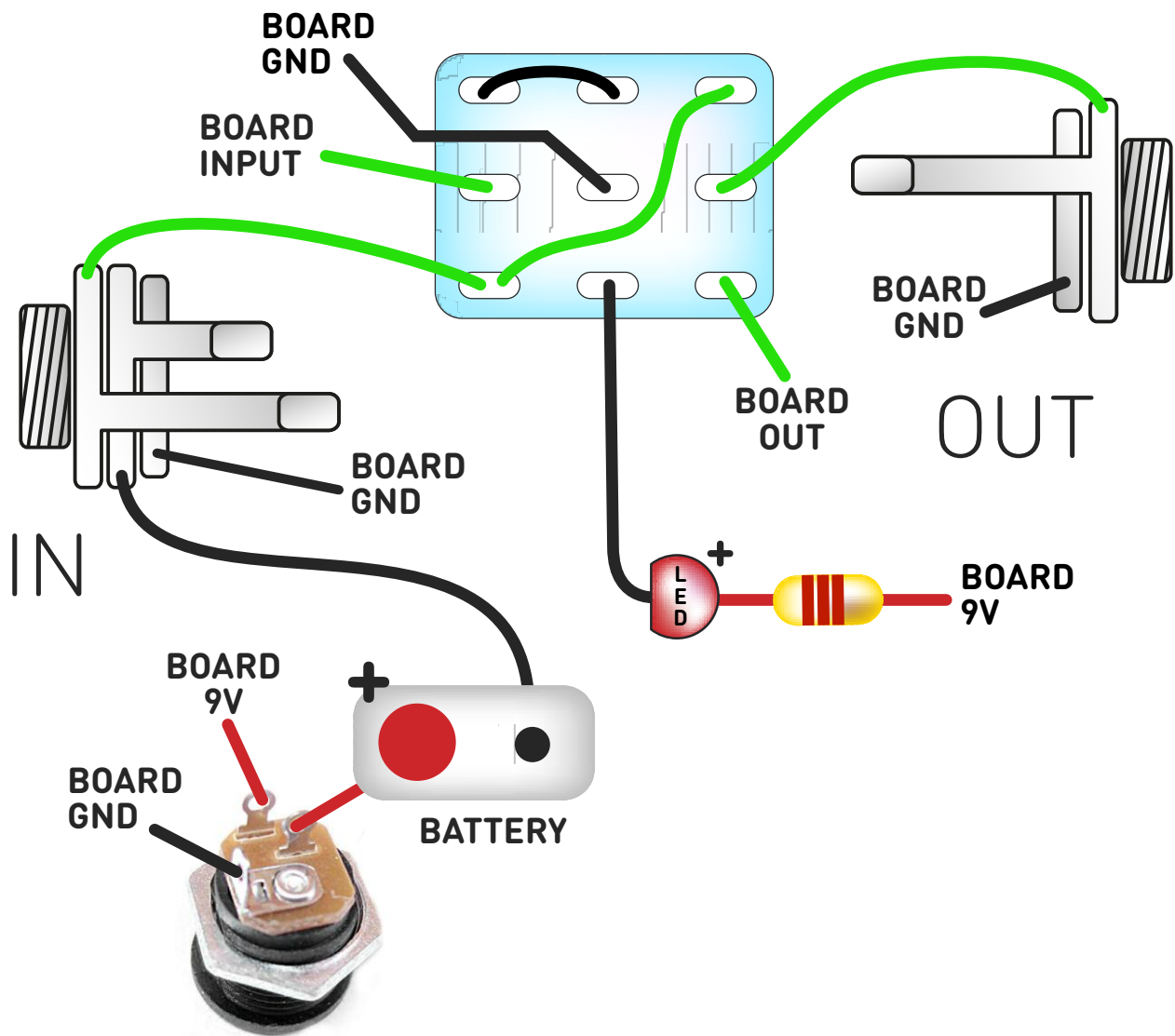
You'll have to connect the wire from pad 02 to either 01 or 03, or you'll get no signal from the Distortion section.

There's no need to connect power to the 0V and 0G pads - these are purely to supply power to an LED if you're adding the Octave footswitch.

If you have a circuit tester (we sell a few!) just use that as normal.



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 1590BB

It's a good idea to drill the pot and toggle switch holes 1mm bigger if you're board-mounting them.

Recommended drill sizes:

Pots	7mm
Jacks	10mm
Footswitch	12mm
DC Socket	8/12mm
Toggle switches	6mm

