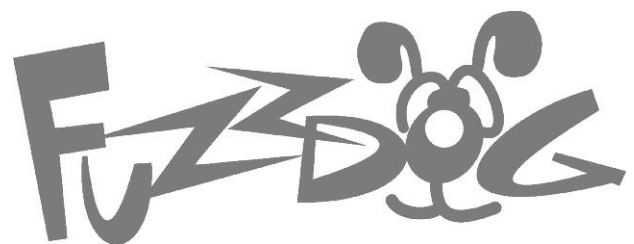
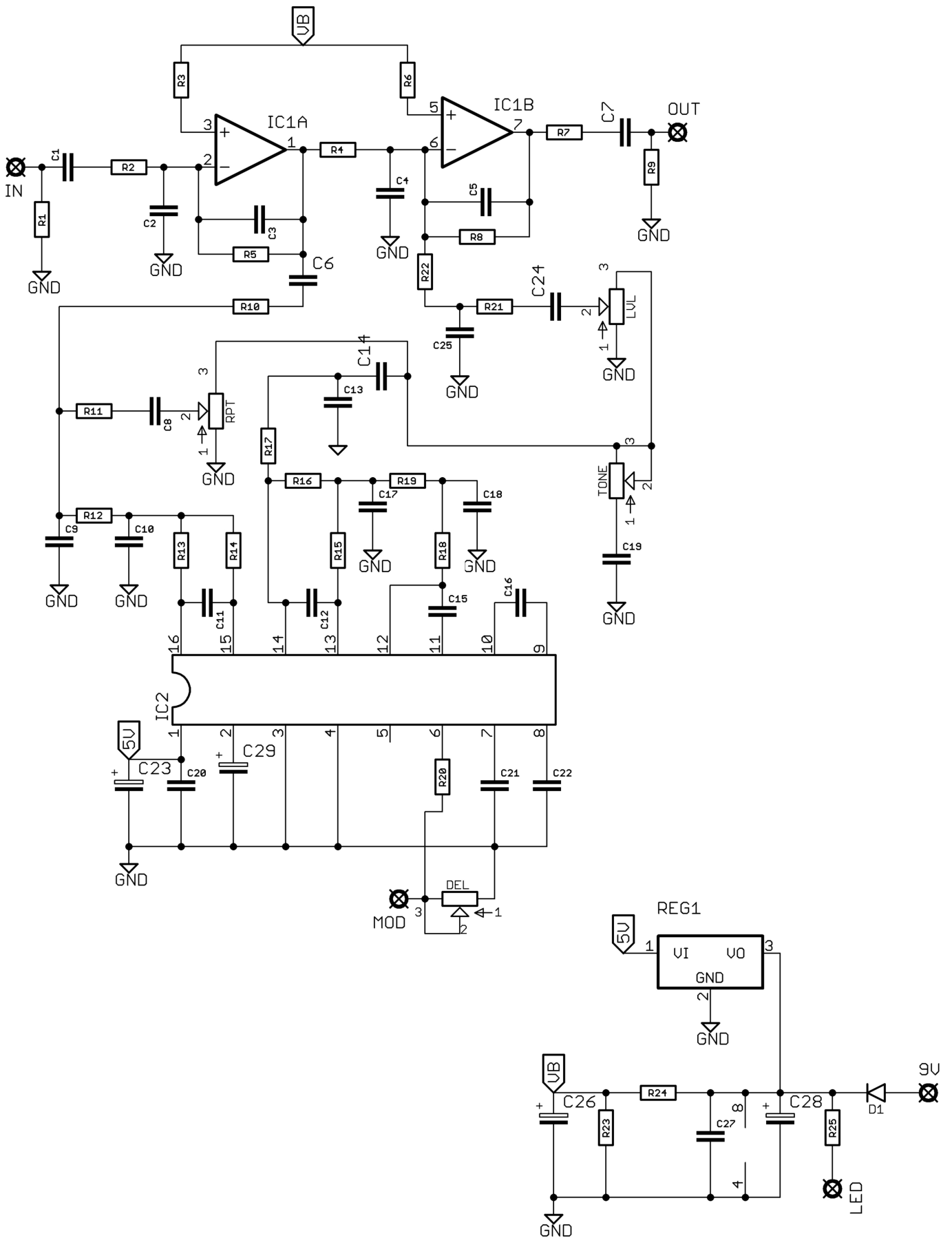


# Analog-Like Echo

Sweet repeats with an analog warmth



# Schematic

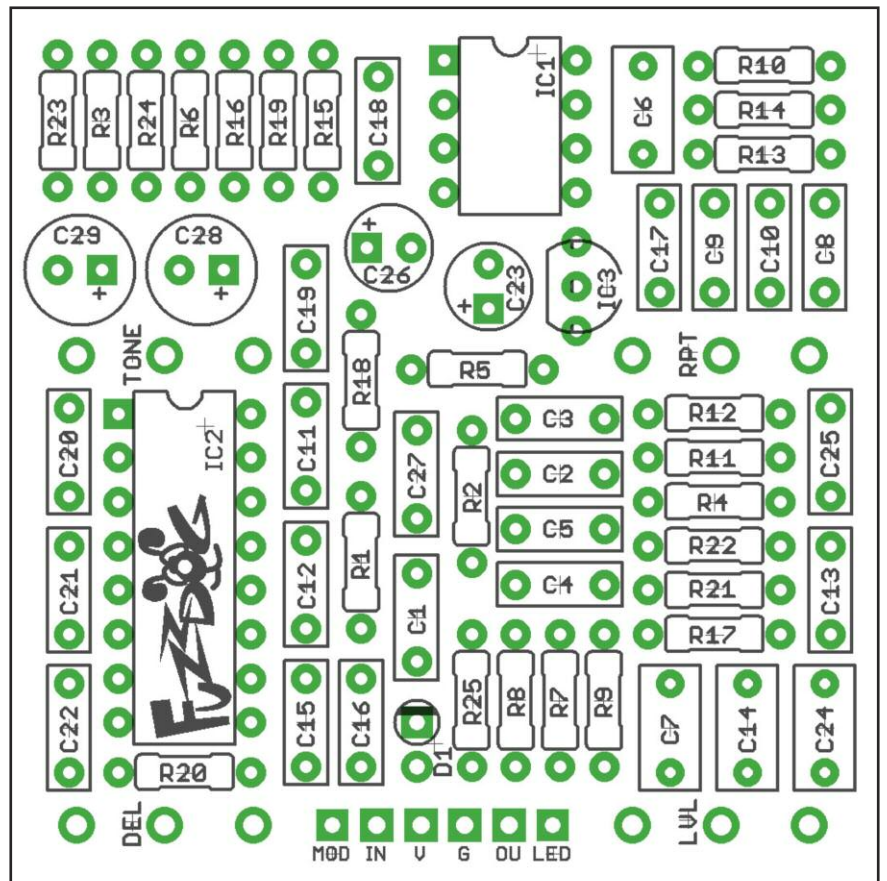


# BOM

R1	1M	C1	100n	D1	1N4001
R2	510K	C2	47p		
R3	220K	C3	4.7p	IC1	TL072
R4	22K	C4	1n	IC2	PT2399
R5	1M	C5	100p	IC3	78L05
R6	1K	C6	1u		
R7	470R	C7	1u	DEL	50KB
R8	12K	C8	100n	LVL	50KB
R9	100K	C9	10n	RPT	25KB
R10	12K	C10	10n	TONE	10KA
R11	20K	C11	680p		
R12	12K	C12	1n		
R13	12K	C13	10n		
R14	47K	C14	1u		
R15	12K	C15	68n		
R16	22K	C16	150n		
R17	2K7	C17	10n		
R18	12K	C18	10n		
R19	12K	C19	68n		
R20	2K2	C20	100n		
R21	10K	C21	100n		
R22	10K	C22	100n		
R23	100K	C23	10u elec		
R24	100K	C24	1u		
R25	2K2 (CLR)	C25	100p		
		C26	10u elec		
		C27	100n		
		C28	100u elec		
		C29	47u elec		

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.

Be very careful when soldering the LED, diode and voltage regulator (IC3). 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). You should use sockets for IC1 and IC2, or be ultra careful when soldering.



PCB Layout ©2016 Pedal Parts Ltd.

The cathode (striped end) of the diode goes into the square pad. The anode (long leg) of electrolytic capacitors go into the square pads. C28-29 can be bent over the adjacent resistors to save on height, giving more clearance when mounting in the enclosure.

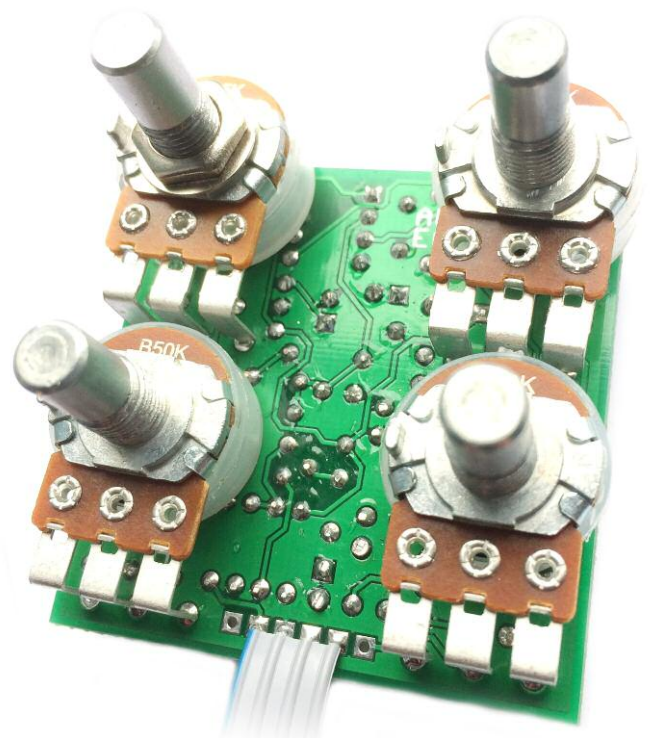
Snap the small metal tag off the pots so they can be mounted flush in the enclosure.

If you're using a footswitch daughterboard don't bother soldering R25. You'll use that on the daughterboard instead.

Pots mount on the back side of the board. You can use vertical-mount pots or just wire up 'normal' ones. It's a good idea to place the pots in their holes in the enclosure when you're soldering them in place on the PCB. That way you know they're going to line up ok. Best way to do it is to solder a single pin of each pot in place, then do a visual check to see that they're sitting at the same height. If not, melt the joints and readjust any that are off.

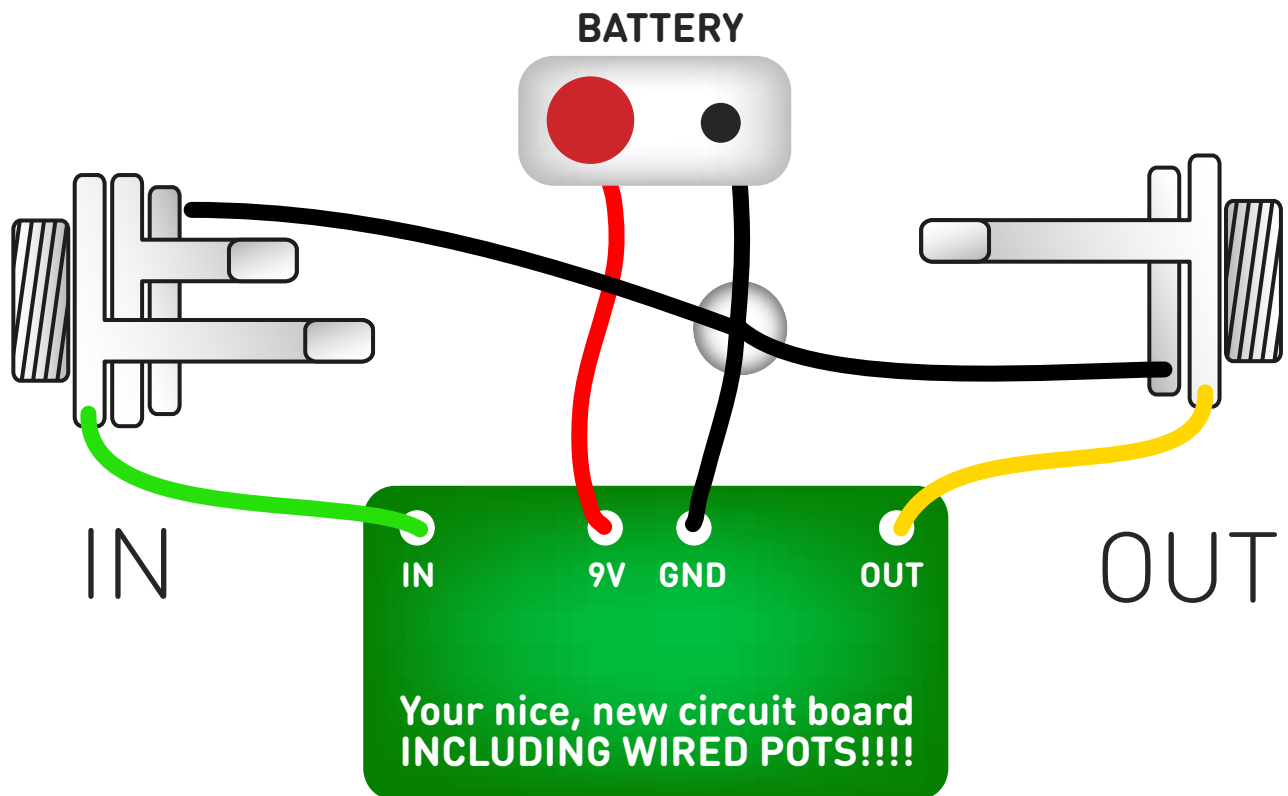
## MODULATION

There's an extra pad on the board marked MOD. This allows you to connect an external oscillator circuit. Try your favourite LFO here. This is untested, and no guarantees can be given as to whether it'll be awesome or not.





# Test the board!



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

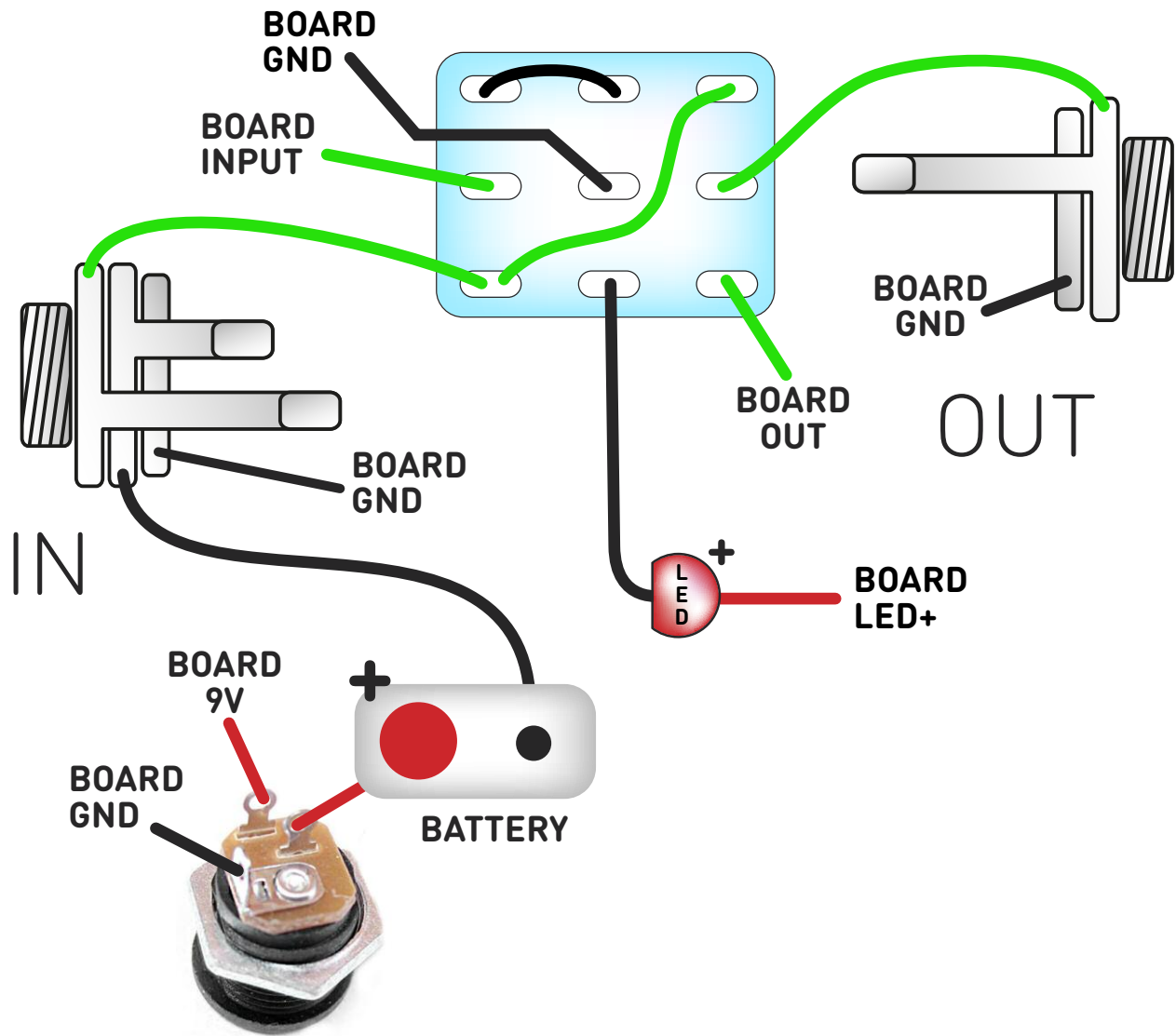
Once you've finished the circuit it makes sense to test it before starting on the switch and LED wiring. It'll cut down troubleshooting time in the long run. If the circuit works at this stage, but it doesn't once you wire up the switch - guess what? You've probably made a mistake with the switch.

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 it works, crack 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 - with battery

(if using a daughterboard please refer to the relevant document)

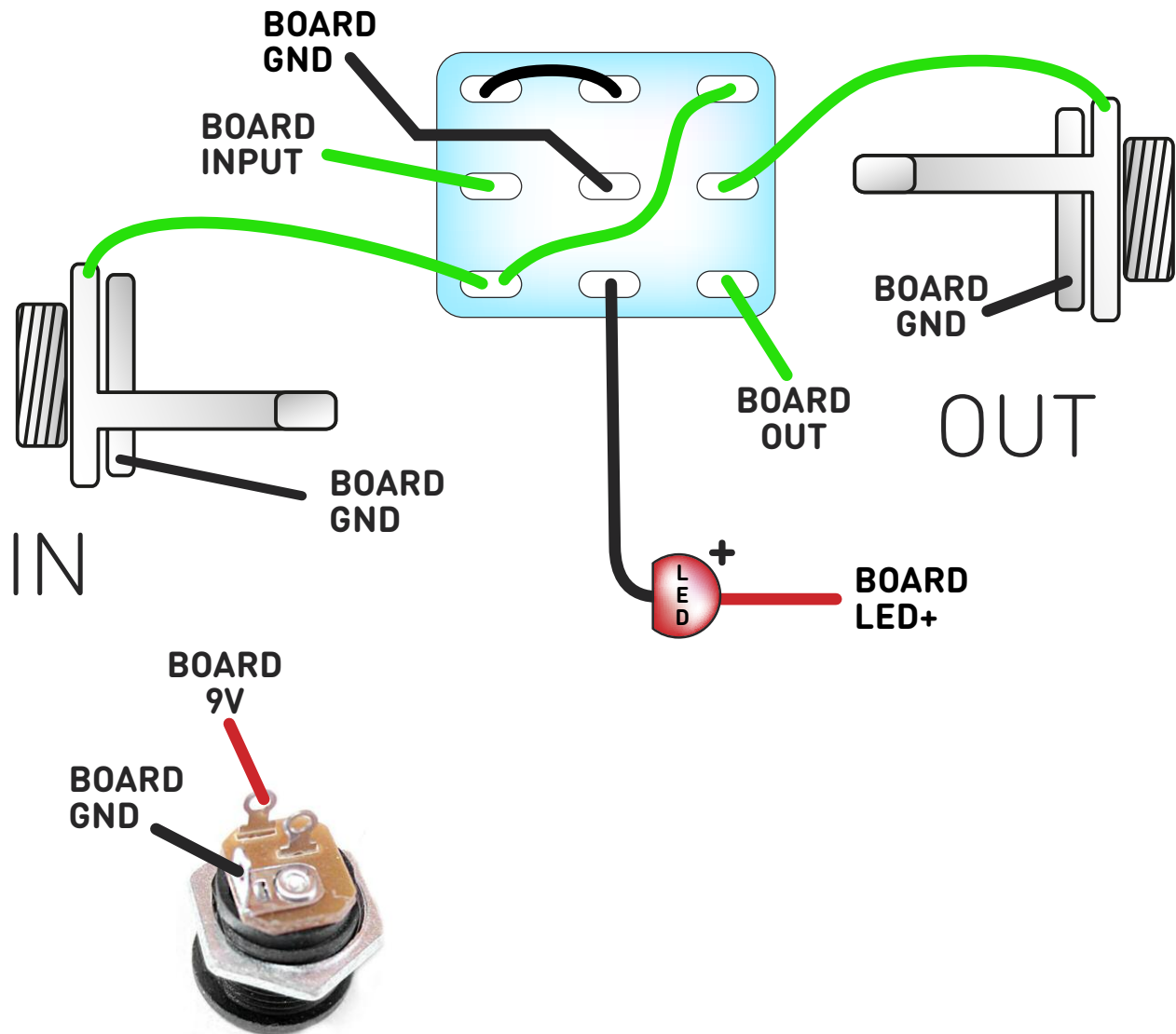


This circuit is standard, Negative GND. Your power supply should be Tip Negative / Sleeve Positive. That's the same as your standard pedals (Boss etc), and you can safely daisy-chain your supply to this pedal.

The BOARD GND connections don't all have to connect to one point. They can be daisy-chained around the circuit, using larger connection points (such as jack socket lugs) for multiple connections. As long as they all connect together in some way.

# Wire it up - DC only version

(if using a daughterboard please refer to the relevant document)



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.

The BOARD GND connections don't all have to connect to one point. They can be daisy-chained around the circuit, using larger connection points (such as jack socket lugs) for multiple connections. As long as they all connect together in some way.

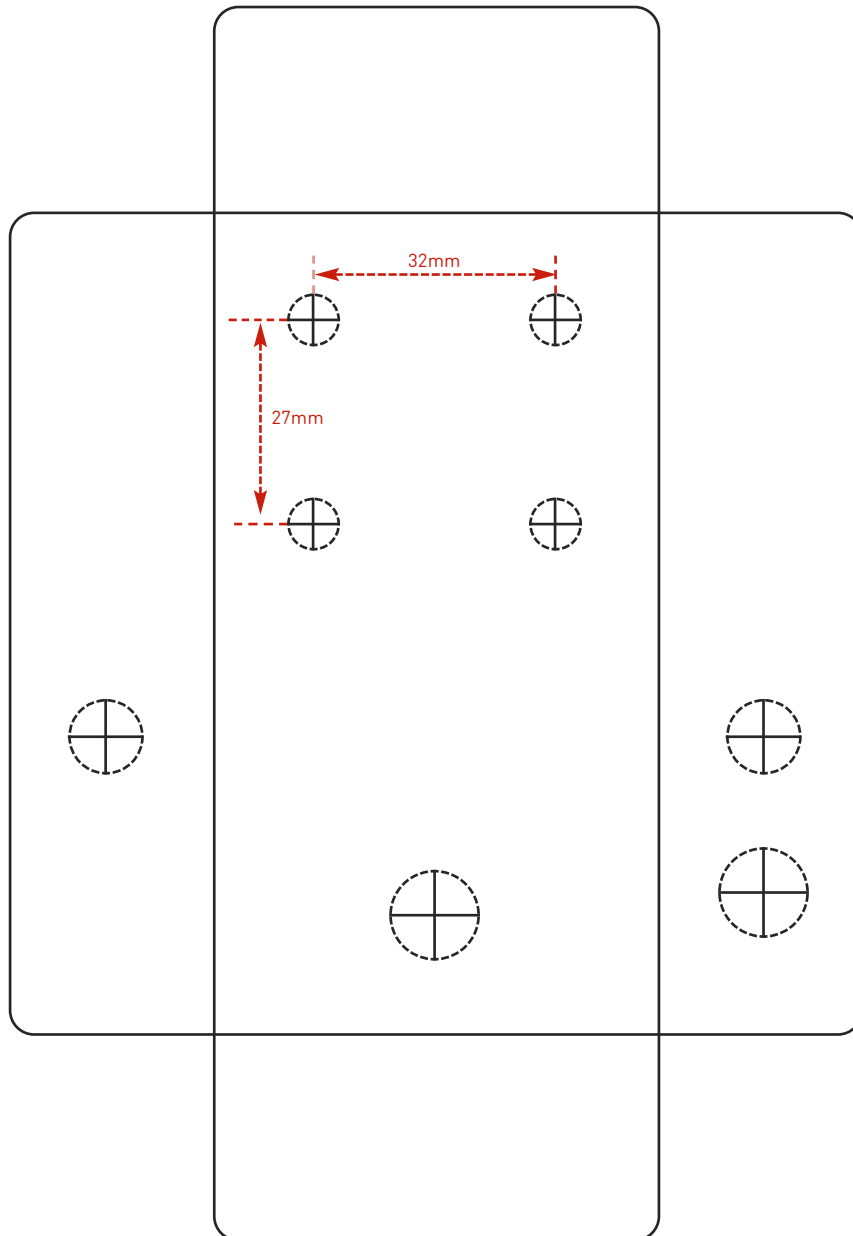
# Drilling template

Hammond 1590B  
60 x 111 x 31mm

Recommended drill sizes:

Pots	7mm
Jacks	10mm
Footswitch	12mm
DC Socket	12mm

It's a good idea to drill the pot 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.

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