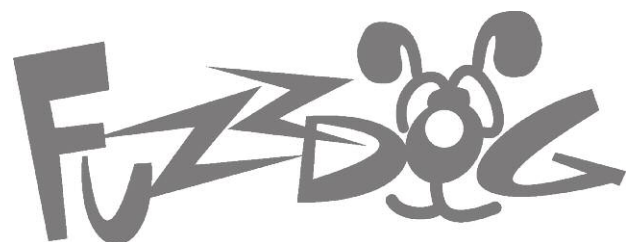
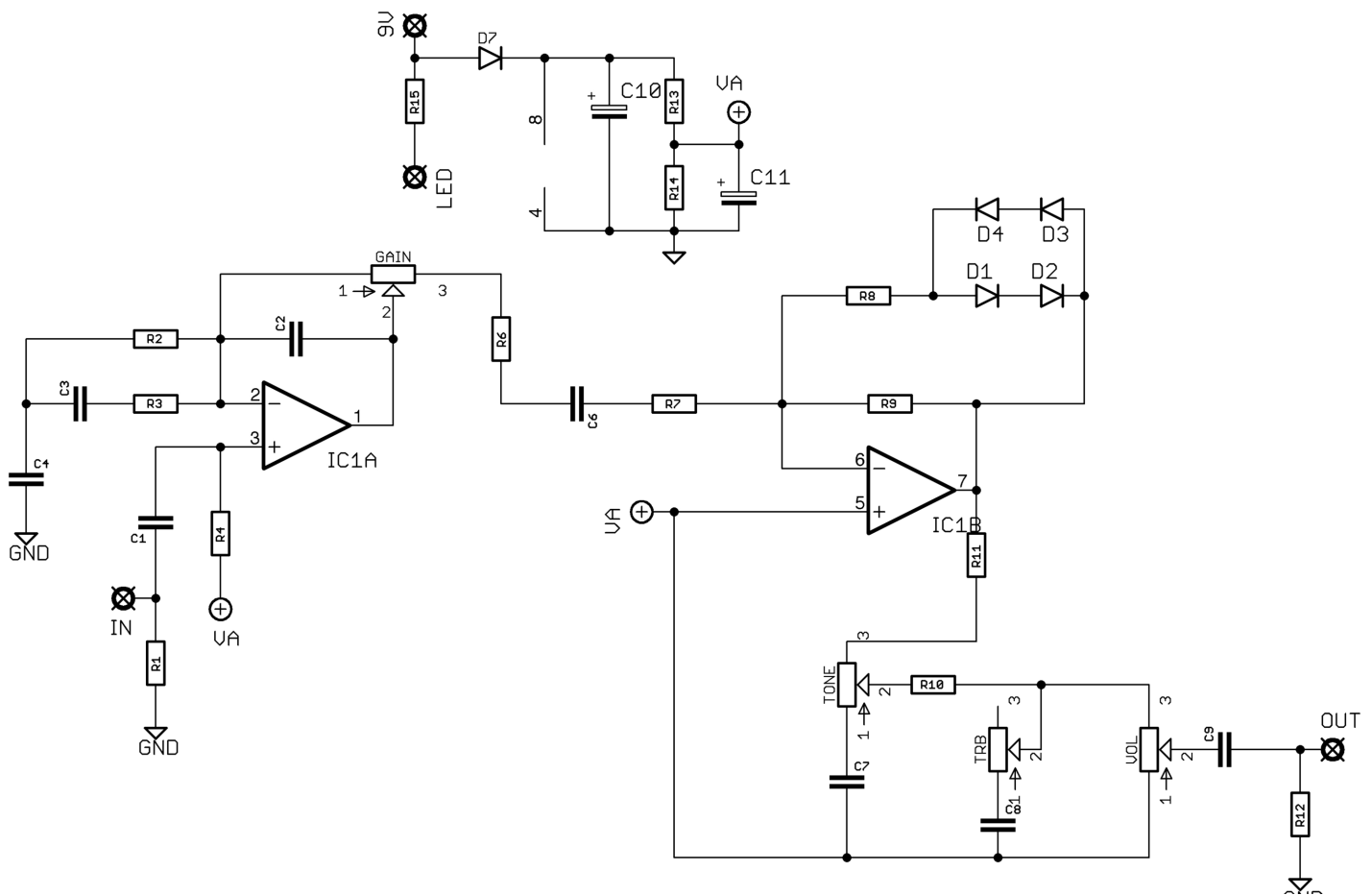


# Ball Breaker v2

Mk I Blues Breaker clone  
with some boutique-ability



# Schematic + BOM - Original



R1	1M5
R2	4K7
R3	3K3
R4	1M
R5	Jumper
R6	4K7
R7	4K7
R8	6K8
R9	220K*
R10	6K8
R11	1K
R12	1M5
R13	47K
R14	47K
R15	2K2 (CLR)

C1	10n
C2	47p
C3	10n
C4	10n
C6	100n
C7	10n**
C8	10n**
C9	100n
C10	100u elec
C11	100u elec
C12	Empty

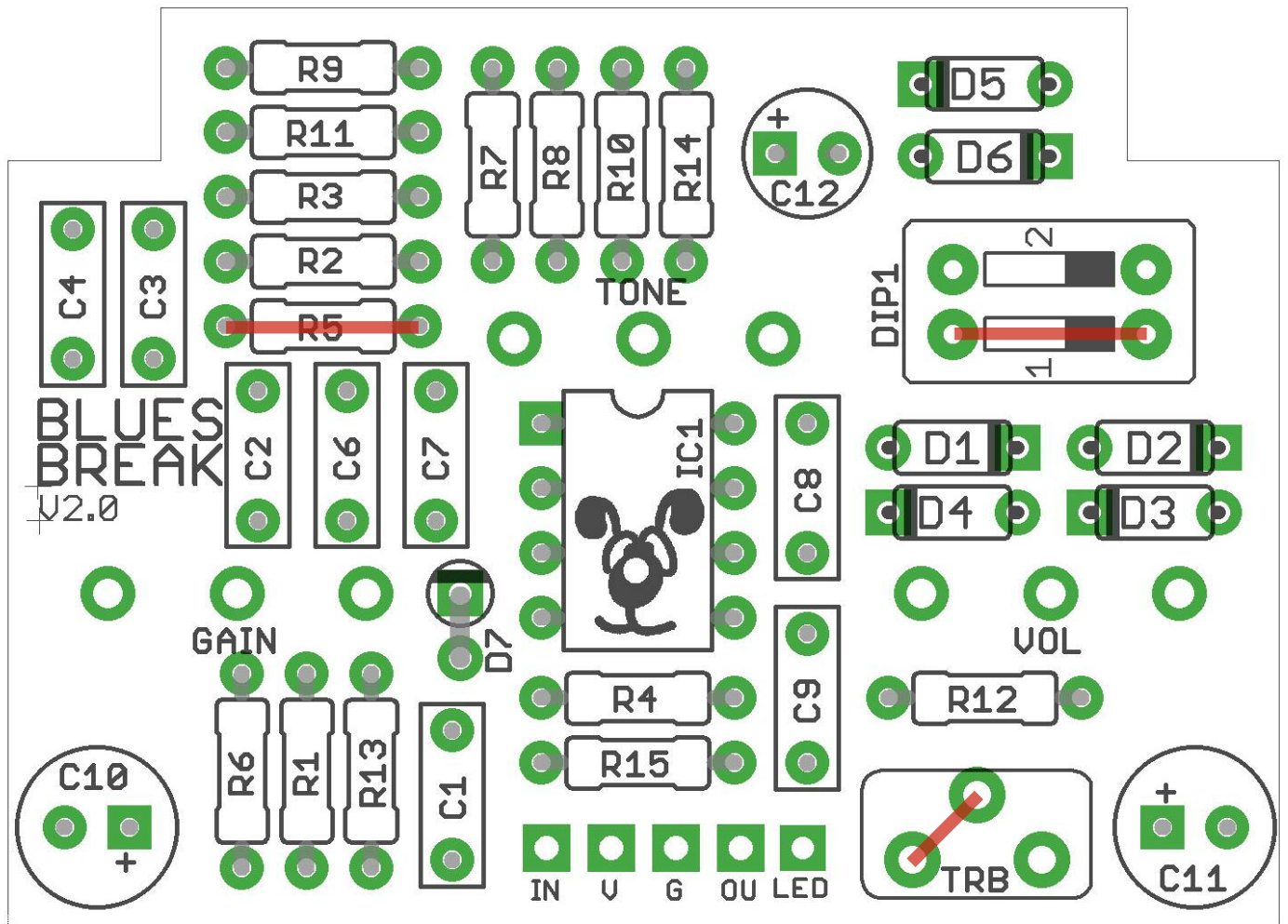
There is no C5!

See note overleaf about placing jumper wires

D1-4	1N4148
D5-6	Empty
D7	1N4001
IC1	TL072
TONE	20KB
GAIN	100KB
VOL	100KA

\*Replace with 330K for slightly more gain

\*\*Replace with 22n for a better tone control with more bottom end.



**As the board has spaces for boutique mods, it is necessary to add three jumpers to make the stock circuit. Place wires as shown in red above.**

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, and diodes. 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). Use a socket for the IC, or be ultra mega careful.

The cathode (striped end) of the diodes go into the square pad. The anode (long leg) of electrolytic capacitors go into the square pad. C10-11 can be bent over to save on height, giving more clearance when mounting in the enclosure.

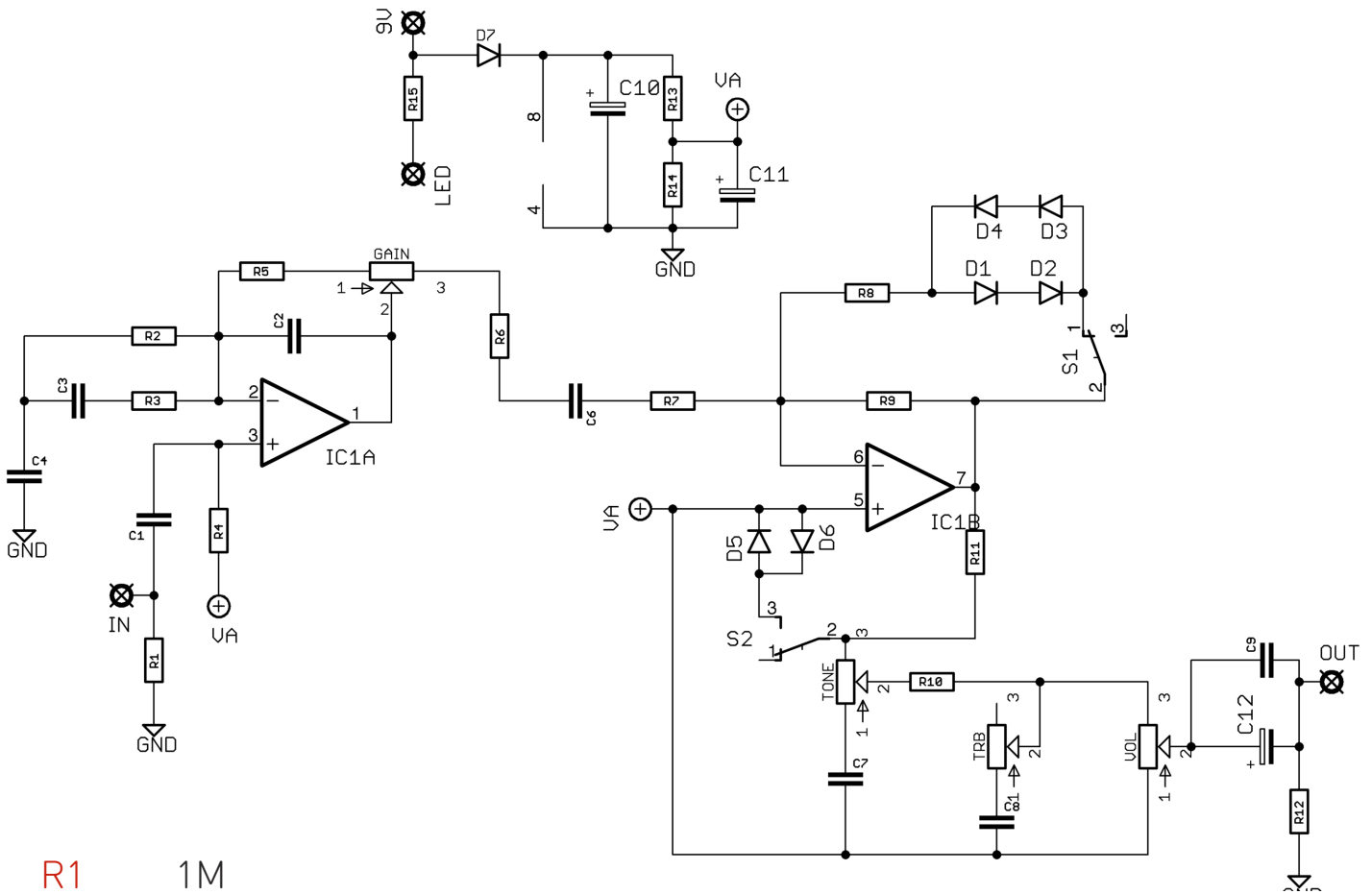
Snap the small metal tag off the pots so they can be mounted flush in the enclosure.

If you're using a footswitch daughterboard don't bother soldering R15. 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.



# Schematic + BOM - King Breaker

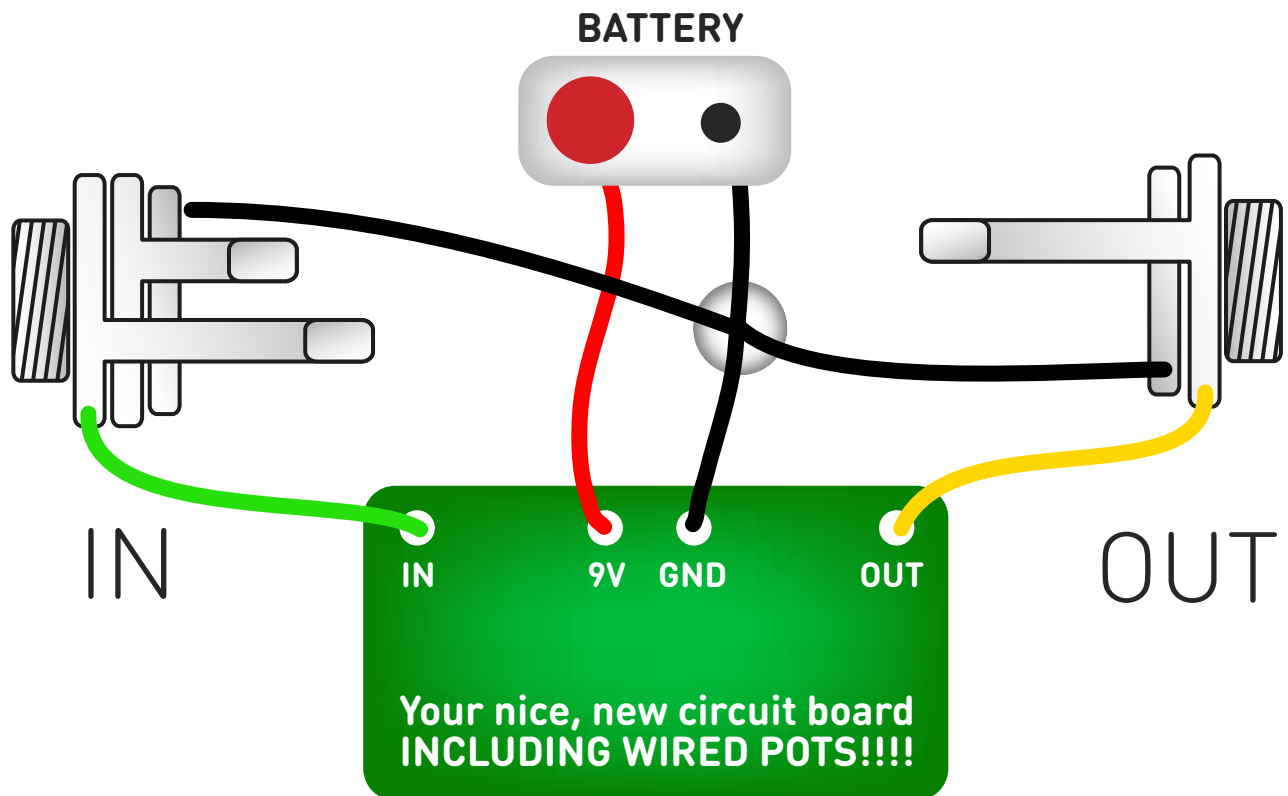


R1	1M	C1	10n	There is no C5!	
R2	27K	C2	100p		
R3	33K	C3	10n		
R4	1M	C4	10n	D1-4	MA856
R5	10K	C6	100n	D5-6	1S1588
R6	10K	C7	10n	D7	1N4001
R7	Jumper	C8	10n	IC1	JRC4580D
R8	6K8	C9	1u	TONE	20KB
R9	220K	C10	100u elec	GAIN	100KB
R10	6K8	C11	100u elec	VOL	100KA
R11	1K	C12	1u elec	TREB	50KB Trimmer
R12	1M	DIP1	2-Way DIP		
R13	47K		SPST		
R14	47K				
R15	2K2 (CLR)				

You can replace DIP1 with external SPST toggles if you prefer. Row 1 switches D1-4, Row 2 switches D5-6.

You could also replace the TREB trimmer with an external pot if you prefer.

# Test the board!



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

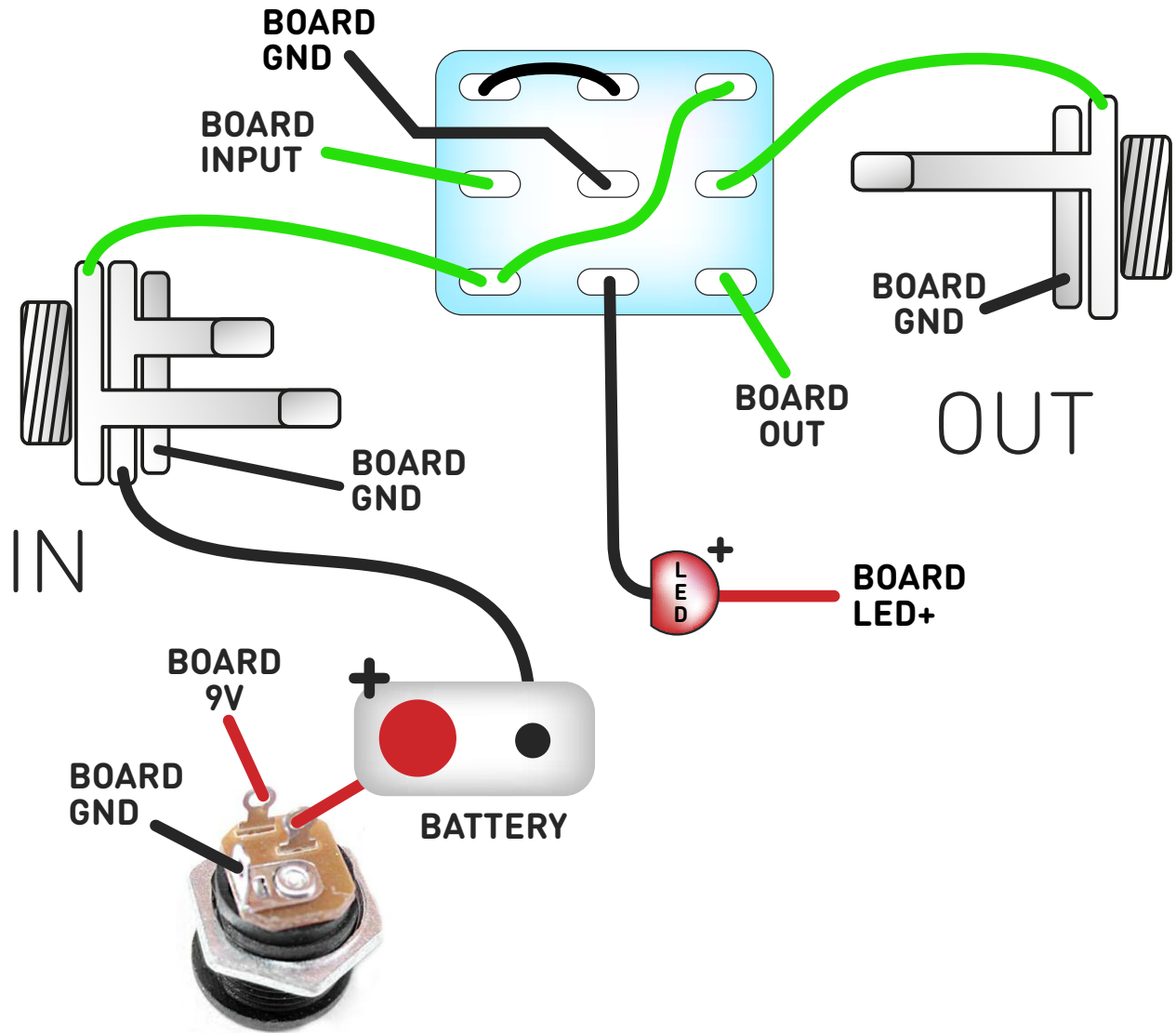
Once you've finished the circuit it makes sense to test it before starting on the switch and LED wiring. It'll cut down troubleshooting time in the long run. If the circuit works at this stage, but it doesn't once you wire up the switch - guess what? You've probably made a mistake with the switch.

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)

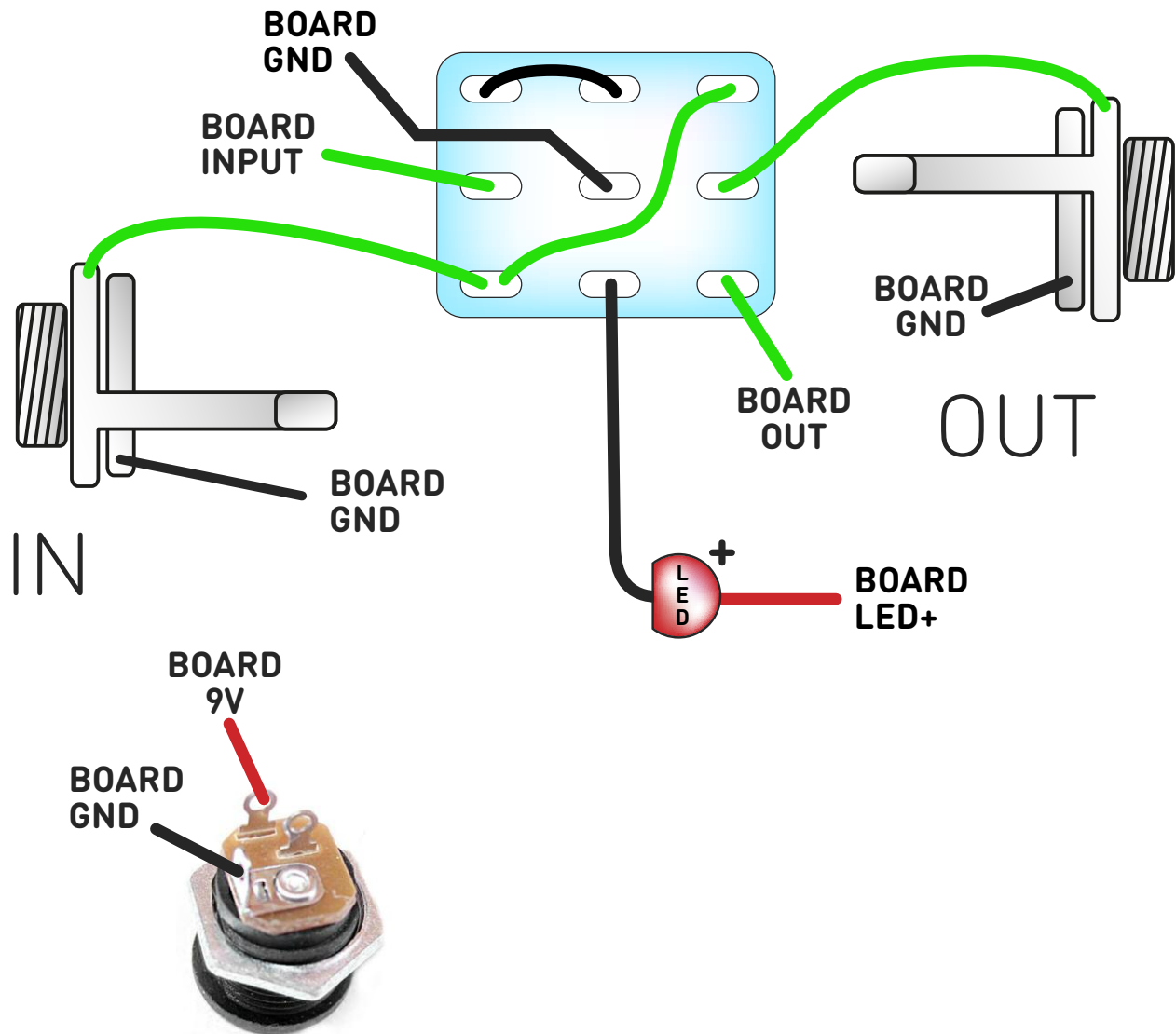


This circuit is standard, Negative GND. Your power supply should be Tip Negative / Sleeve Positive. That's the same as your standard pedals (Boss etc), and you can safely daisy-chain your supply to this pedal.

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.

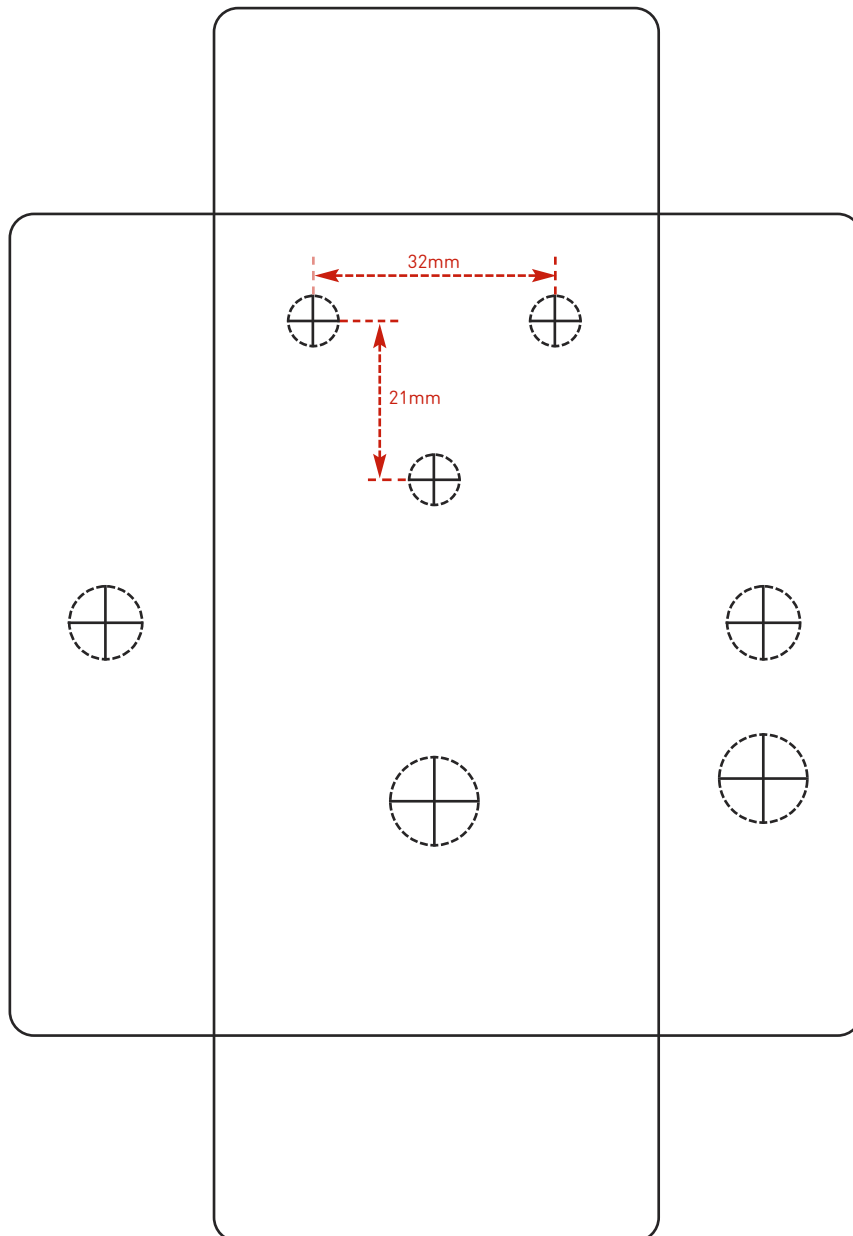
# Drilling template

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.

[PedalParts.co.uk](http://PedalParts.co.uk)