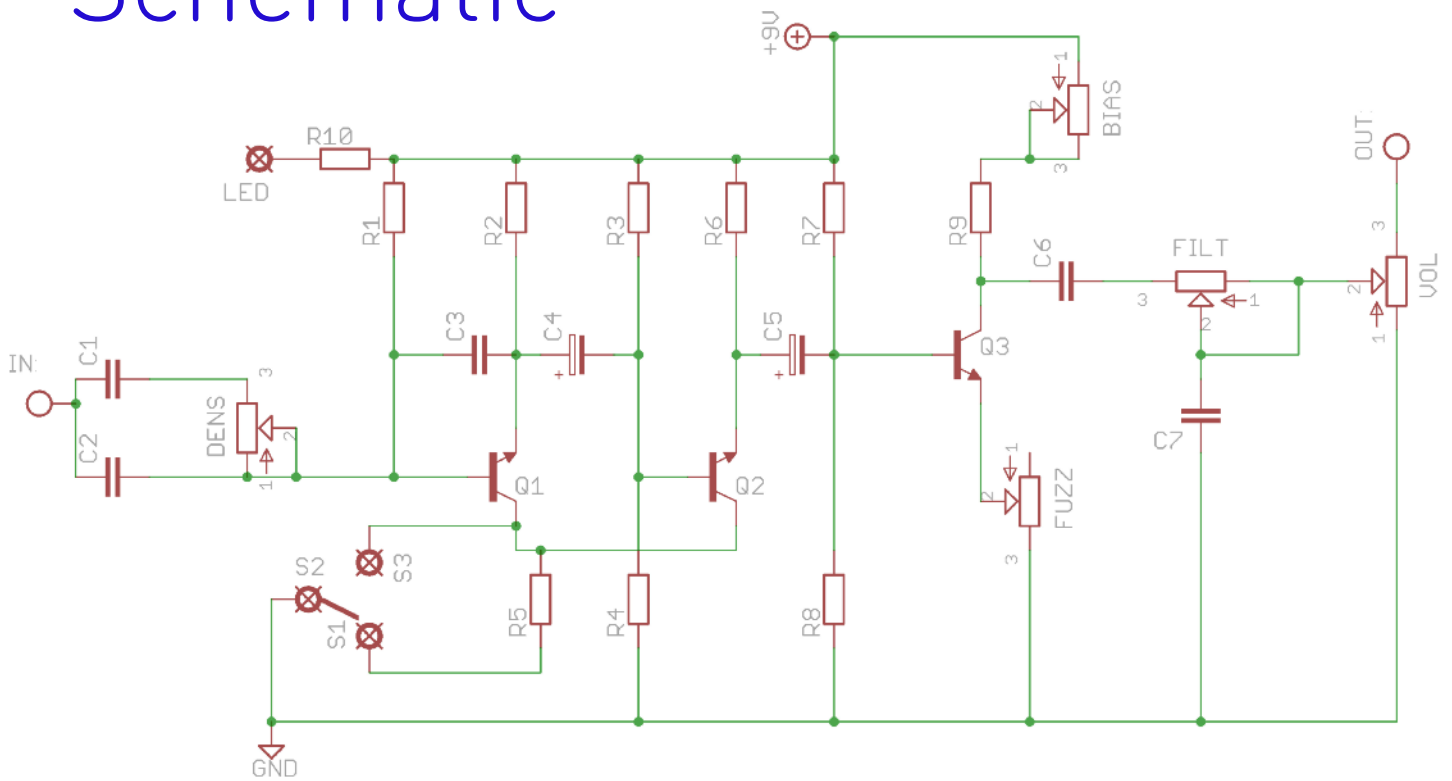


Bionic GuzzFun

5 knobs of sonic mayhem
and an oscillation switch too

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Schematic

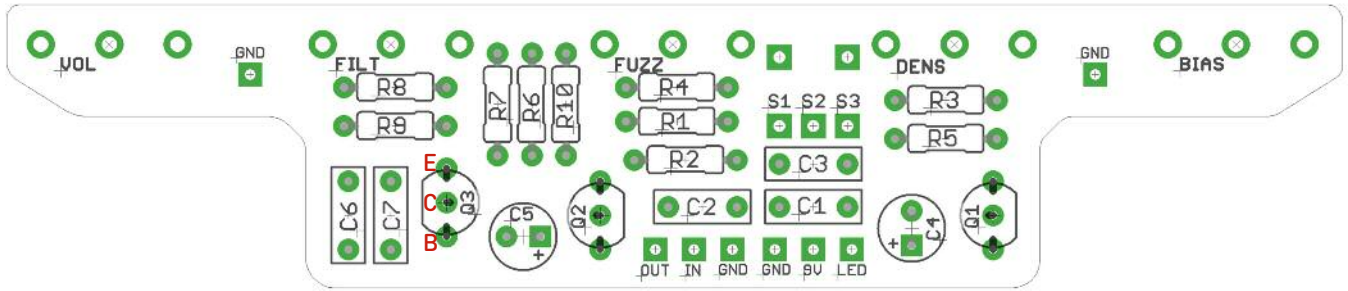


BOM

R1	910K	C1	100n		
R2	180K	C2	10n	Q1,2*	2N5089
R3	910K	C3	470p	Q3*	2N5306
R4	910K	C4	4.7u		
R5	10K	C5	4.7u	DENS	100KB
R6	180K	C6	100n	FUZZ	10KB
R7	4M7	C7	330n	FILT	10KB
R8	910K			BIAS	50KB
R9	750R	S1-3	SPDT	VOL	100KA

*The stock transistors give highly variable, very gated results, which may not be to everyone's taste. That's all part of the charm of this box. However, if you want to make it a bit more 'normal' you can try subbing some other stuff in there. 2N5088 work well in Q1-2, and other medium gain NPN cans may offer good results. A lower gain darlington for Q3 will tame things a bit. MPSA13 worked well in reducing the gating, but the legs will need twisting. See later in the doc for details.

The optional alternatives supplied with the kit are MPSA06, which have the same pinout as 2N5089, and BC517 which is different to the 2N5306 - see over.



Snap the little metal tags off the pots to mount them flush in the box.

You MUST use some kind of heat sink on the legs of the transistors when soldering. They aren't keen on heat. Any more than 3-4 seconds of iron and they're toast.

Pots mount on the same side as the components.

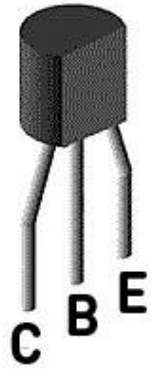
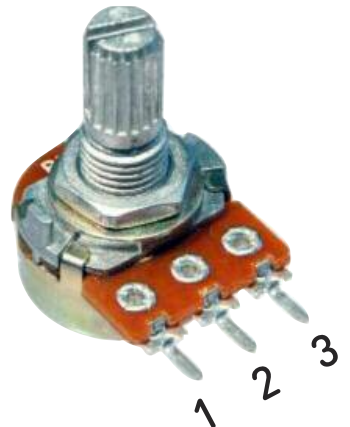
Give some thought to placement before soldering in your offboard wires. Extra pads have been added to make it a doddle. Your 9V and one GND should be on the same side as the components, as your DC socket is on that side.

The others should all be on the back side of the board, which will place them very close to the footswitch.

The two separate GND connections near VOL and BIAS are for your jack sockets.

Non-standard pinout for Q3 is shown above.

2N5306 come in both ECB and EBC pinouts, so you'll need to check yours. If you're subbing a different can then you'll need to check the pinout and twist the legs to fit. BC517 have this pinout >>>>

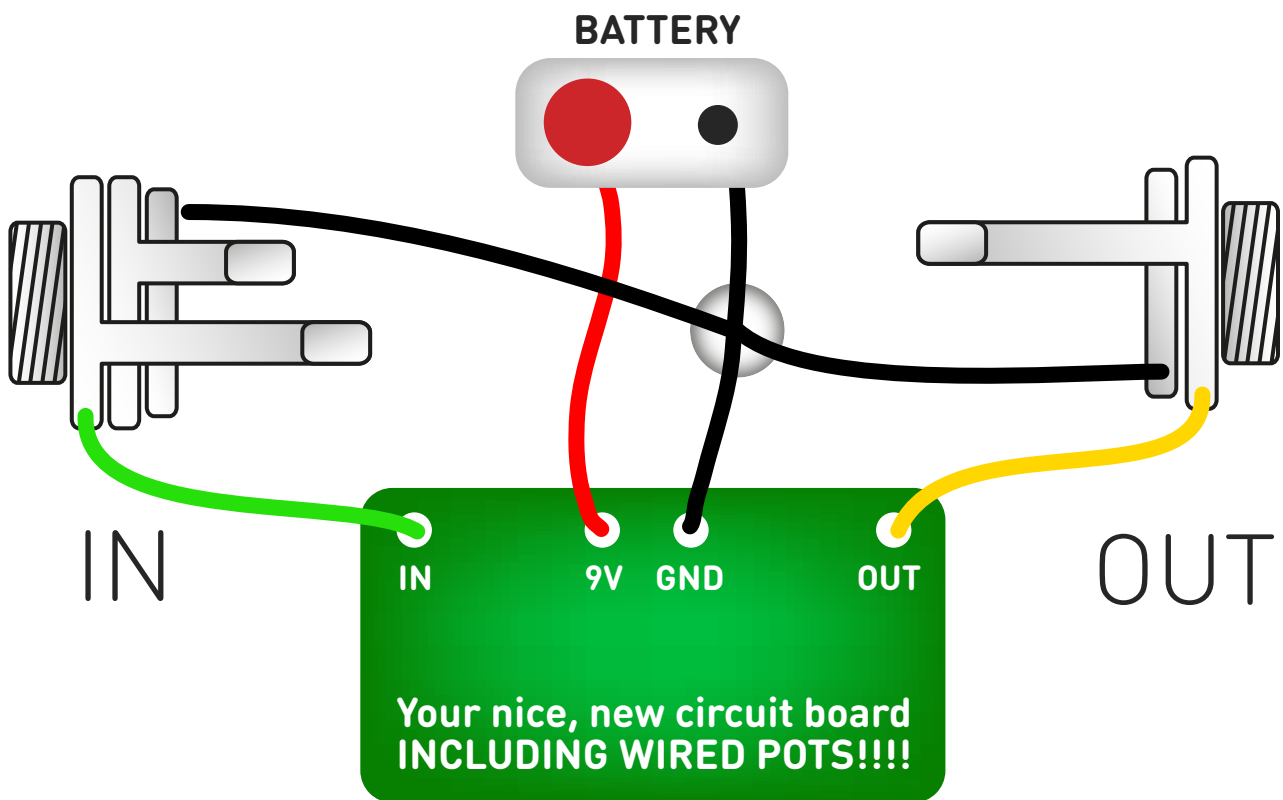


Oscillation Switch - you can wire this offboard with any SPDT ON-ON toggle switch. You can use a DPDT if you want to also wire in a LED to show whether it is engaged or not. You can even wire it as a separate footswitch (see the Wiring section). Ignore the two holes above S1-3 - they're for the dinky board-mount switch which is an option.

MOD!

If you want to get super-freaky you can replace R5 with a pot to control how much oscillation you'll get when engaged. Just connect pins 1 and 2 of a pot to the resistor pads. 10KB will work, but you may find smaller values and different tapers give a better useable sweep. Experiment.

Test the board!

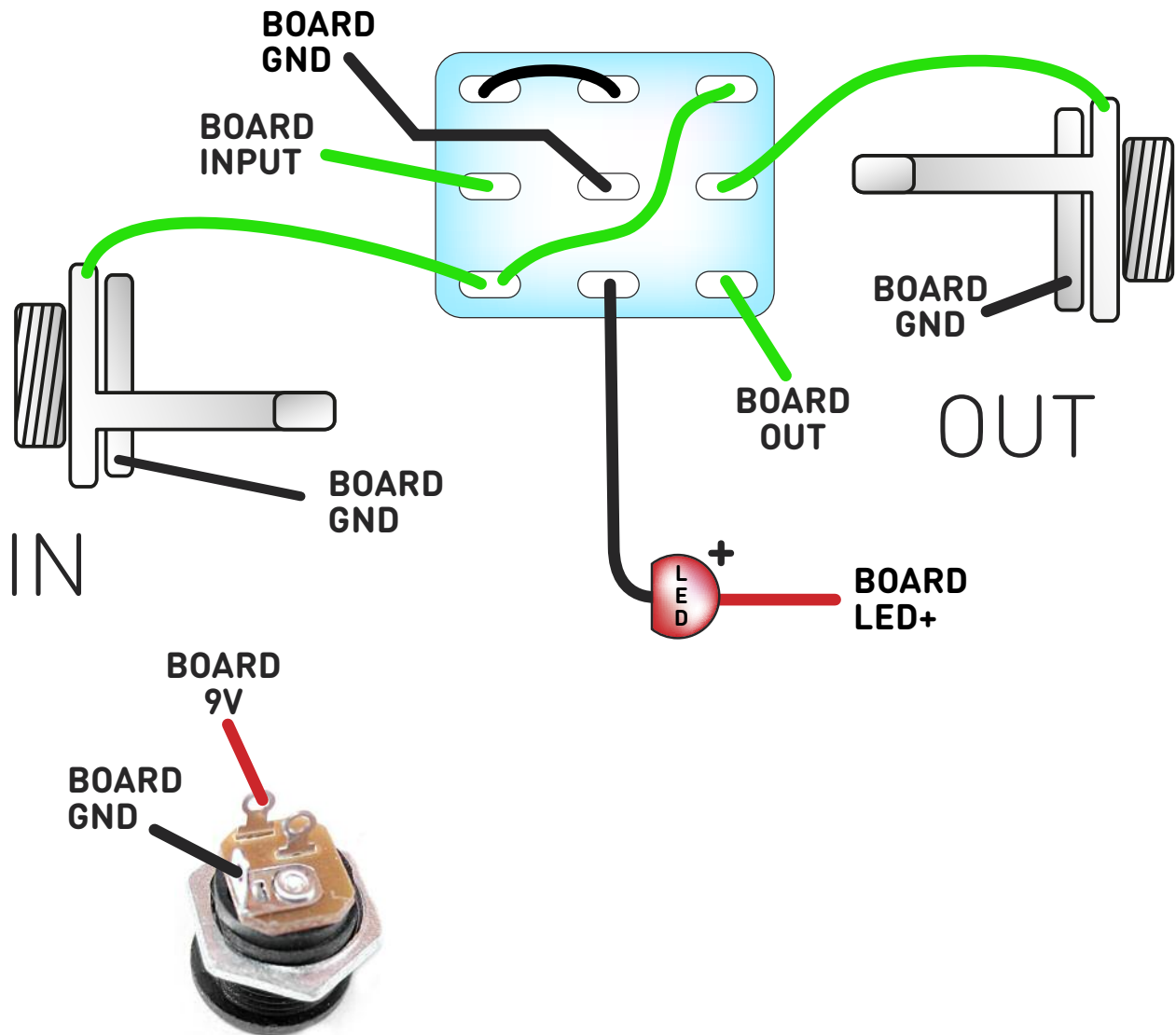


Once you've finished the circuit it makes sense to test it before starting on the switch and LED wiring. It'll cut down troubleshooting time in the long run. If the circuit works at this stage, but it doesn't once you wire up the switch - guess what? You've probably made a mistake with the switch.

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 - DC only version



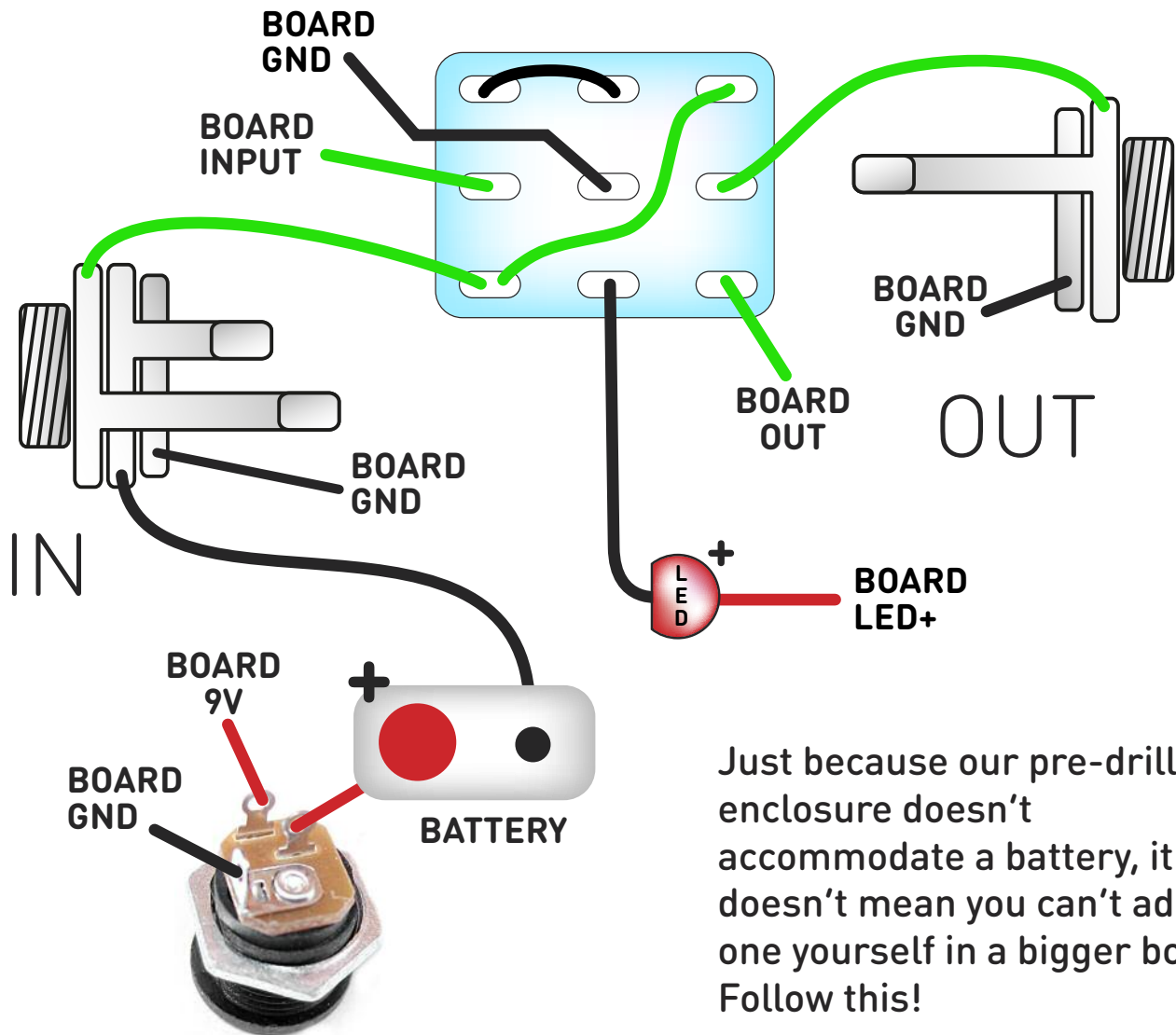
There are GND connections for both jacks at either end of the board.

All the GND pads are connected to each other in the traces on the PCB, and all of them are connected to both sides of the board.

For your convenience there is a GND pad for every required connection.

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.

Wire it up - with battery



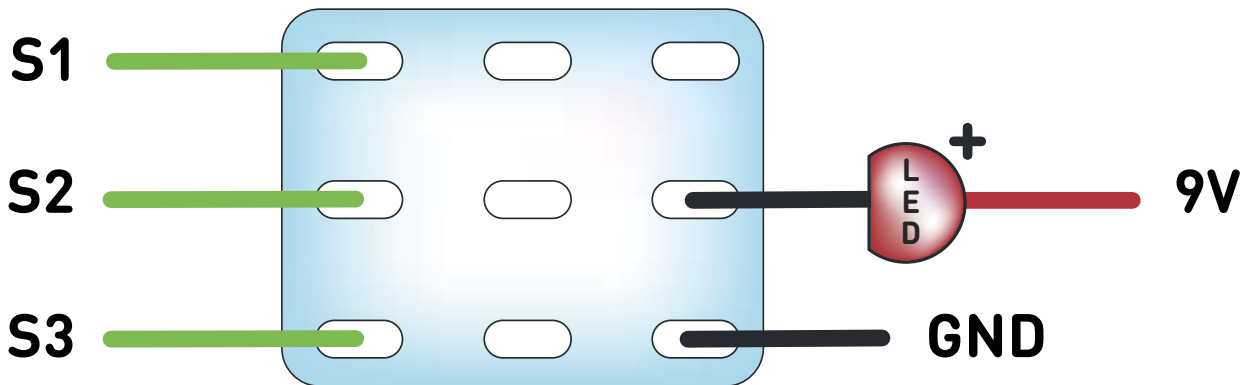
There are GND connections for both jacks at either end of the board.

All the GND pads are connected to each other in the traces on the PCB, and all of them are connected to both sides of the board.

For your convenience there is a GND pad for every required connection.

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.

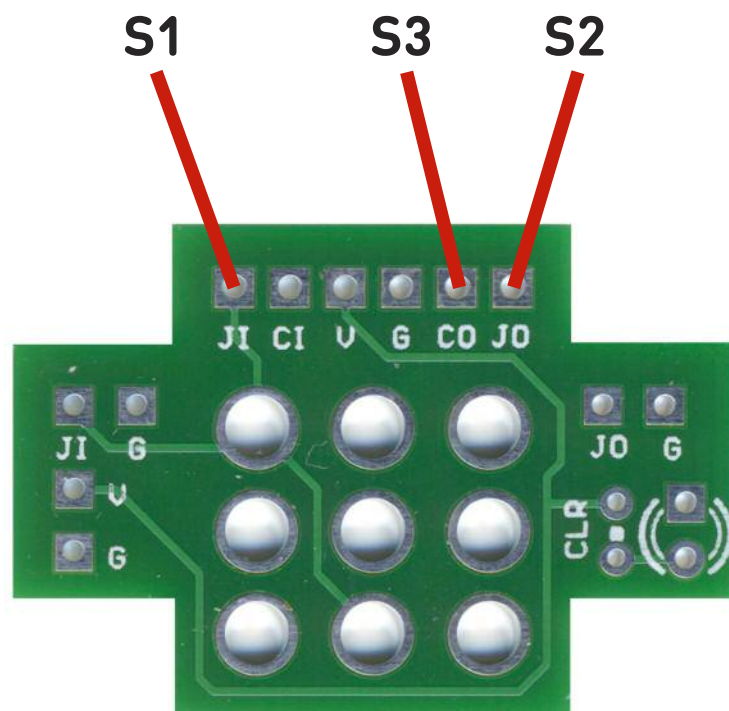
Oscillation Switch



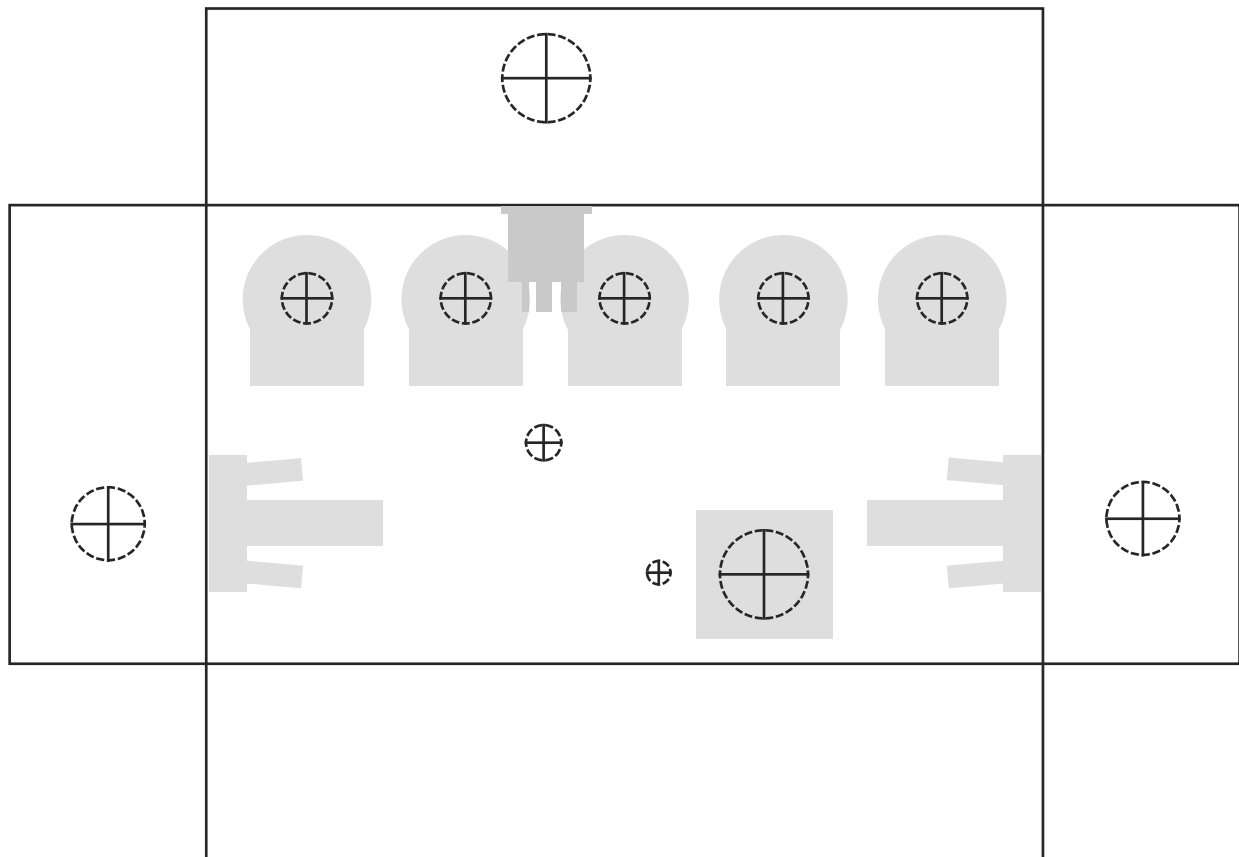
Maybe you want the oscillation mode on a footswitch...? Wire it as above and your extra LED will light up when oscillation is engaged.

If you're using DPDT (footswitch or toggle switch) just pretend that middle row isn't there.

You can use a footswitch daughterboard if you want to neatly mount the LED for the oscillation. Connect the wires as below, but then flip the PCB so the labels face down onto the footswitch so the LED pads are on the correct side of the switch. You'll also have to connect V to 9V and G to ground to power the LED. Don't forget the Current Limiting Resistor.



Drill template - 1590B



Please check positioning before drilling - those holes are your responsibility and these templates are just a guide.

The best way to mark holes for the pots is to lay the PCB on the box before you start soldering anything and mark at the centre pad of each.

The DC socket needs to be quite close to the edge of the box so it comfortably clears the pots.

Recommended drill sizes:

Footswitch, DC 12mm

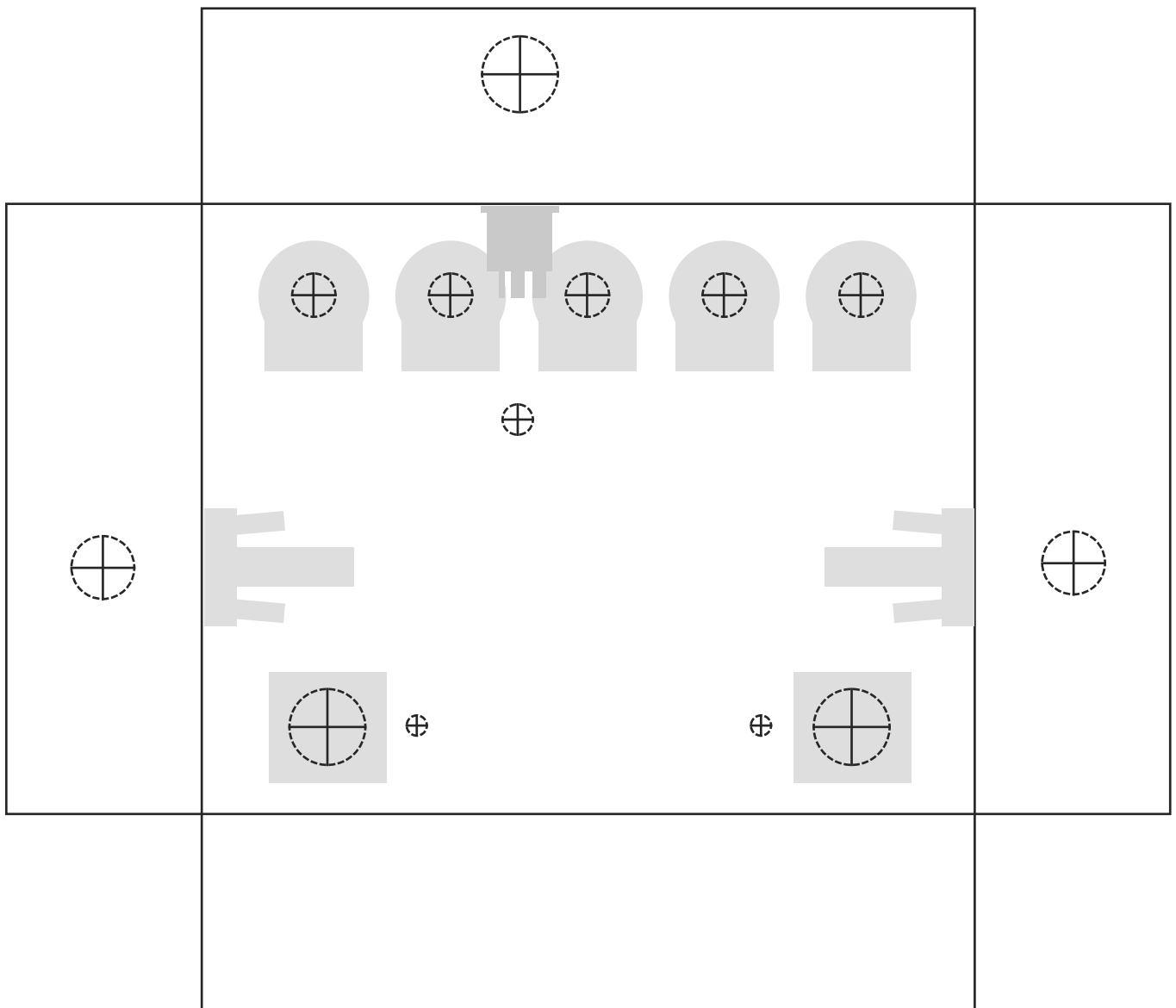
Jack sockets 9.5-10mm

Pots 7mm (8mm if you're using the board-mount toggle)

Mini-toggle 5mm

Vertical distance from centre of pots to centre of toggle switch is 19mm.

Drill template - 1590BB



See previous page for notes on sizes etc.

Drill EITHER the second footswitch OR the mini toggle switch, depending on which you're using for the oscillation mode.

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