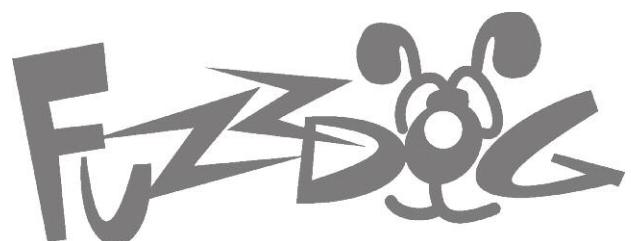


Cherub Chorus

Wobbly fun based on
Rick Holt's Little Angel



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.

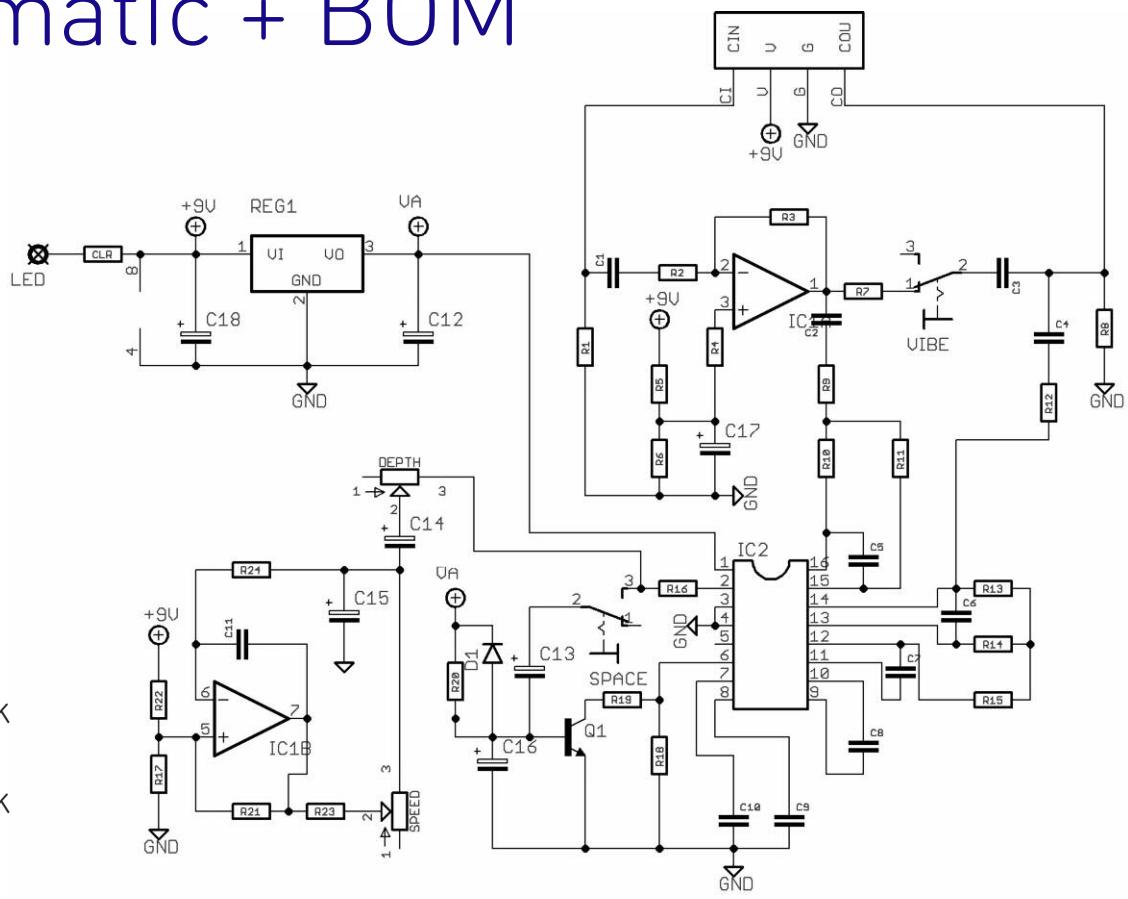
LAYOUT CONVENTIONS

Unless otherwise stated in this document, the following are used:

- **Electrolytic capacitors:**
Long leg (anode) to square pad.
- **Diodes:**
Striped leg (cathode) to square pad.
- **ICs:**
Square pad indicates pin 1.

Schematic + BOM

R1	1m	C1	100n		
R2	470k	C2	100n		
R3	1m	C3	100n		
R4	330k	C4	100n		
R5	10k	C5	3n3	D1	1N4148
R6	10k	C6	10n		
R7	10k	C7	100n	IC1	5532
R8	100k	C8	100n	IC2	PT2399
R9	10k	C9	100n		
R10	10k	C10	100n	Q1	2N3904
R11	10k	C11	10n		
R12	10k	C12	47u	REG1	78L05
R13	10k	C13	10u*		
R14	47k	C14	10u	DEPTH	100KC**
R15	2k2	C15	10u	SPEED	100KC
R16	100r	C16	47u	VIBE	SPDT
R17	68k	C17	47u	SPACE	SPDT
R18	220k	C18	100u		
CLR	2K2				



*C13 only required if using the Space Warble mod switch, otherwise leave empty.

**Original is 500KC but 100KC is better. Most adjustment is still at the end of the turn, so 50KC might be even better for you if you don't mind not being able to go to zero depth.

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 diode and transistors. 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).

The striped leg (cathode) of the diode goes into the square pad.

The long leg (anode) of the electrolytic capacitors go into the square pads.

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

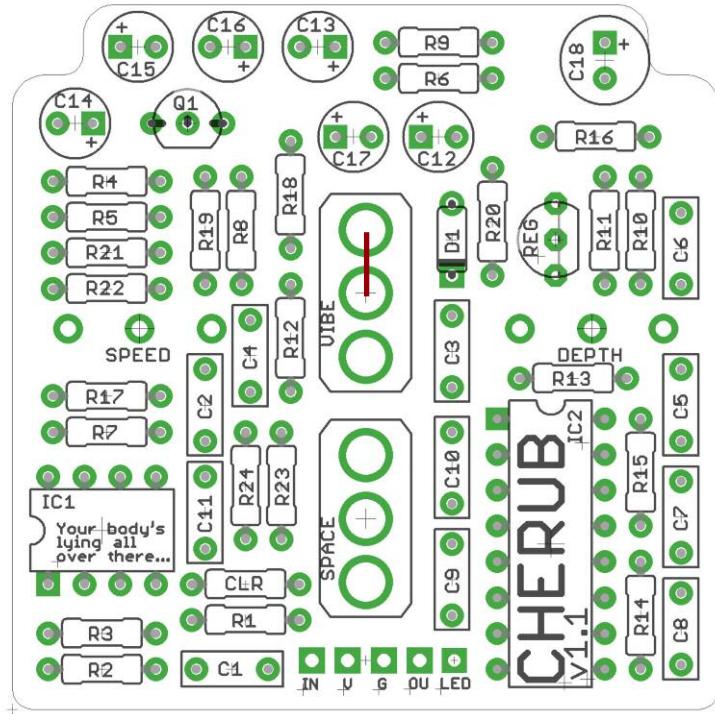
Pots mount on the back side of the board. You can use vertical-mount pots or just wire up 'normal' ones. Ensure you get them all at the same height, and if there are no plastic covers on them make sure you have plenty of clearance between the pot body and the solder side of the PCB, otherwise you'll short out components. Best way to do this is get some thick cardboard and put it between the pots and the board when soldering. Remove it once they're in place.

To get them all the same height its best to solder a single pin of each so you have all three pots in place. See if they all line up ok. If not, simply melt the connection of any that aren't right and adjust. Much easier than trying to do it if all three pints are soldered. Once they're aligned, solder the other two pins of each pot.

Favourite technique at FDHQ is to put the pots into the holes on the top side of the enclosure to get everything lined up nicely while soldering.

If you aren't using the **VIBE MOD SWITCH** connect the pads shown above in red.

No need to do anything if you aren't doing the **SPACE WARBLE MOD** - just don't add the switch or C13.



PCB Layout ©2015 Pedal Parts Ltd.



Test the board!

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

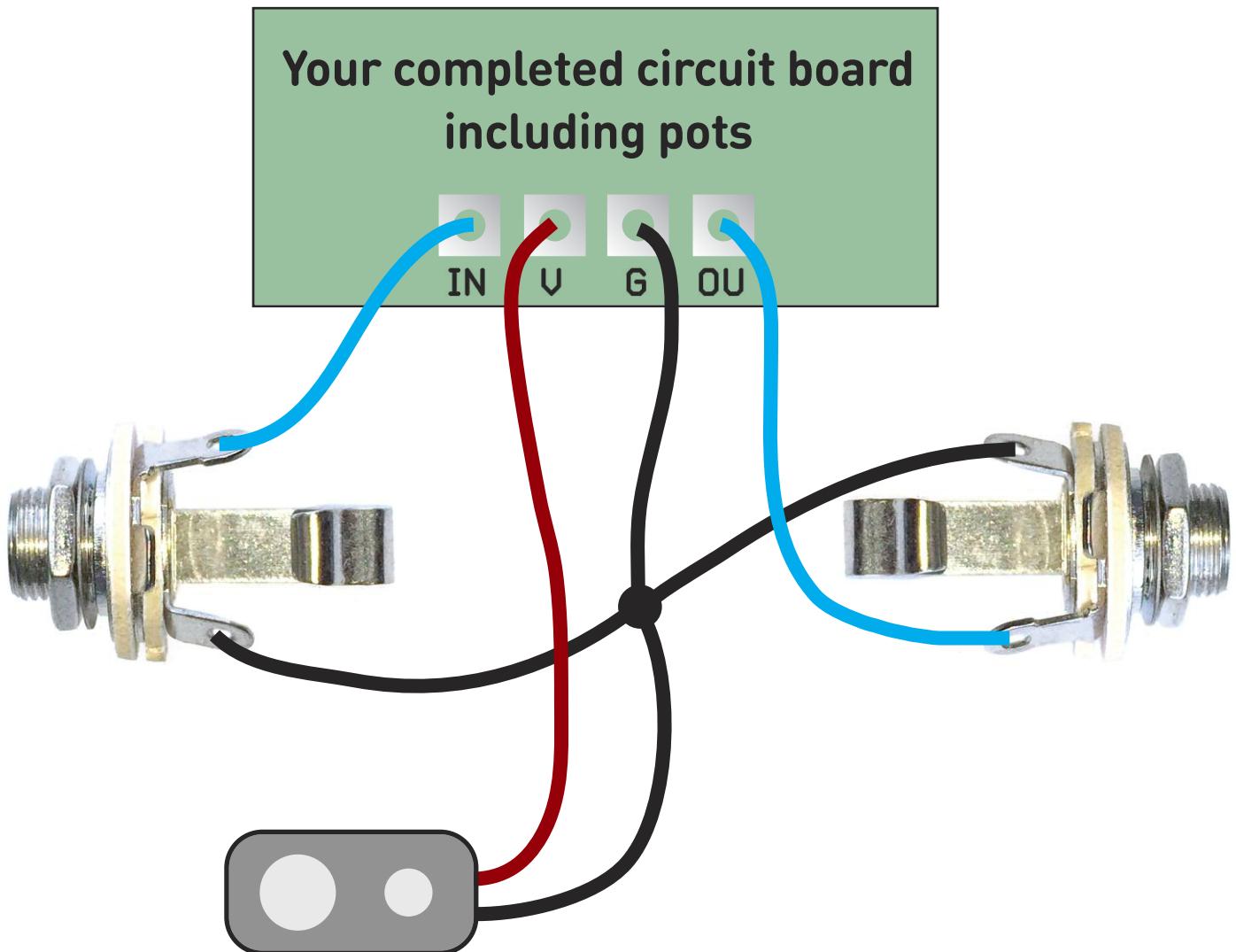
UNDER NO CIRCUMSTANCES will troubleshooting help be offered if you have skipped this stage. No exceptions.

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!

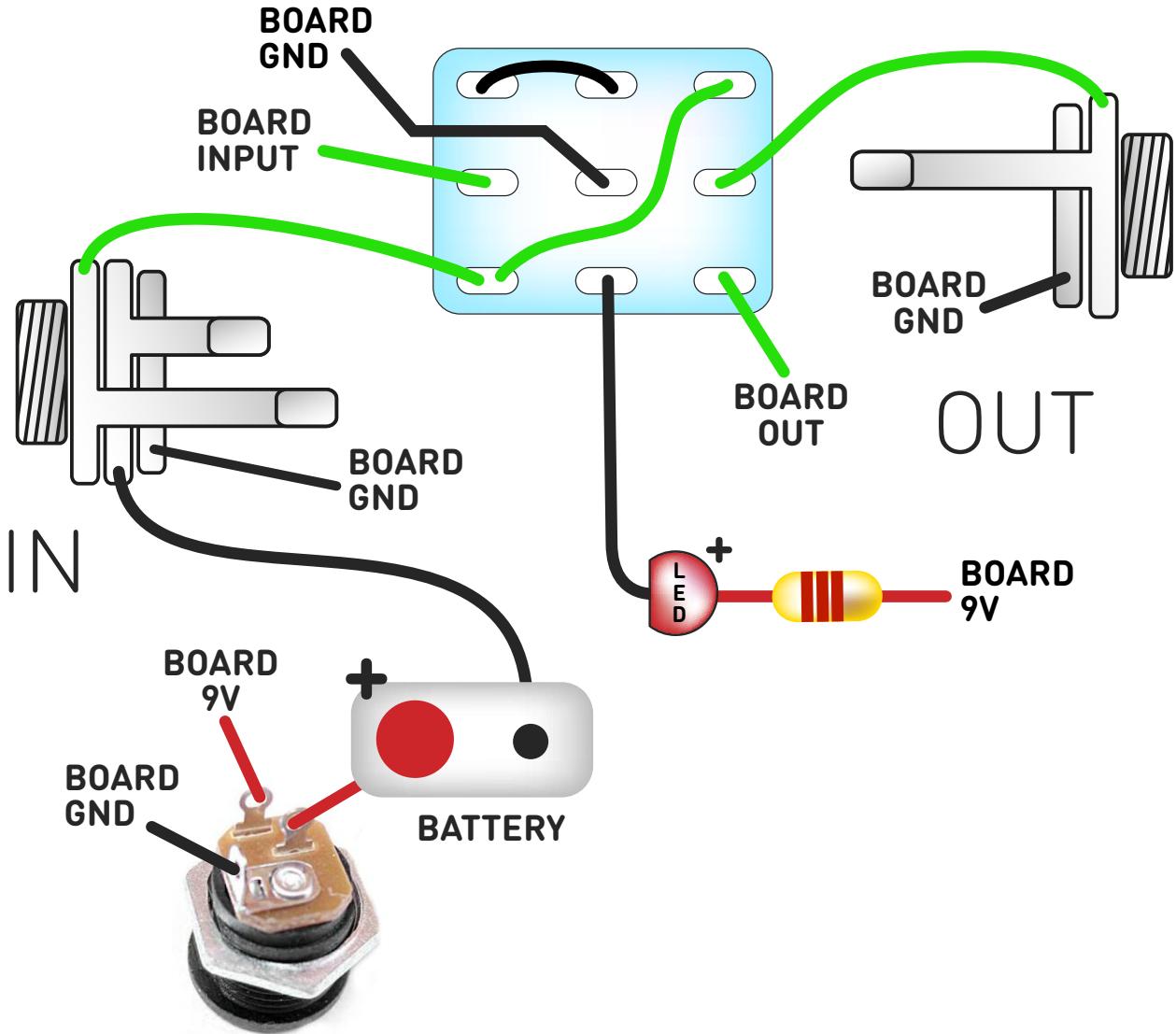
If you're using a ribbon cable you can tack the wires to the ends of that. It's a lot easier to take them off there than it is to desolder wires from the PCB pads.

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.

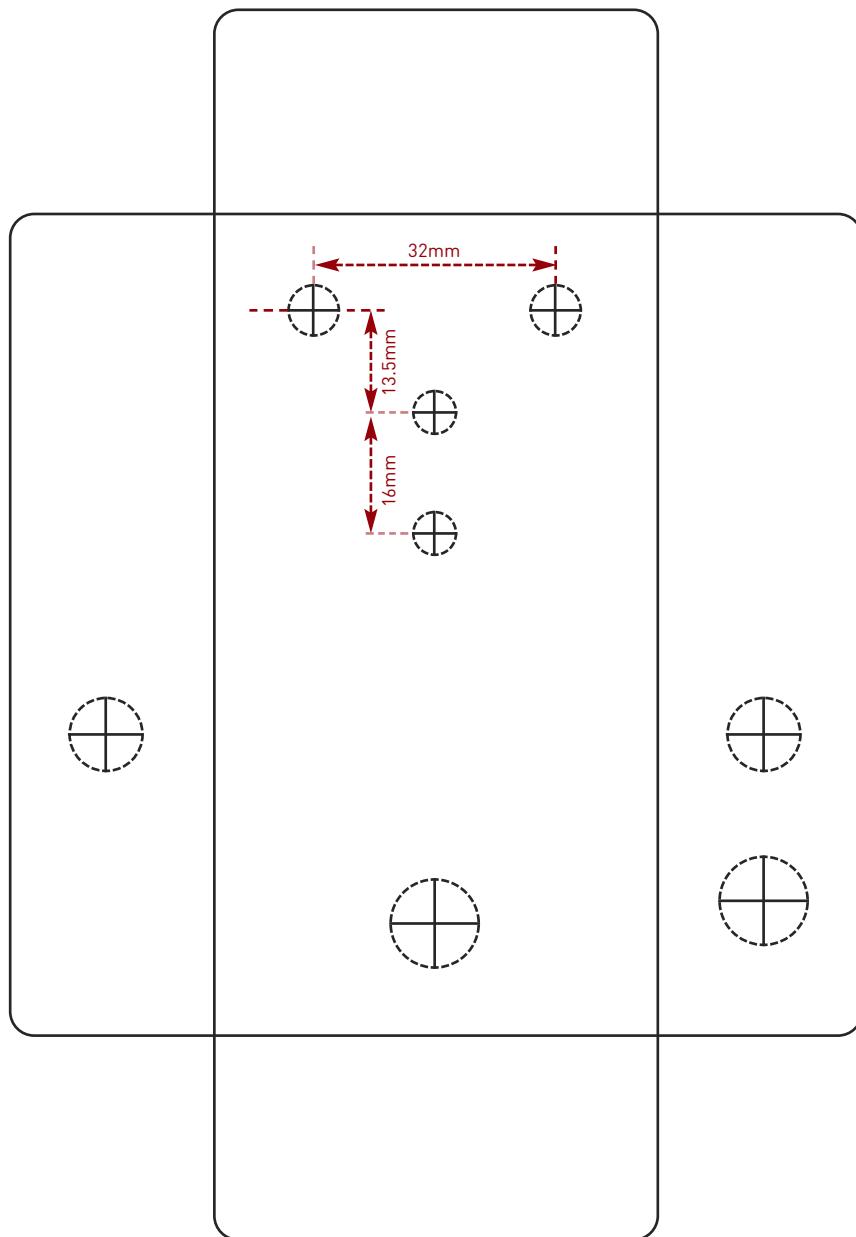
Drilling template

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 potholes 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.