

Wrecktifier

High Gain Distortion

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A few notes to start with...

This build is not for the beginner. Please do not attempt unless you know what you're doing. The high parts count will make troubleshooting very difficult.

The circuit has been designed so you can easily add your own post-boost, as the original boost section hasn't won many hearts. Boner is recommended if you want to add some oomph without changing the tone too much.

Post boost is not stand-alone - it will only be engaged when the distortion is engaged.

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.

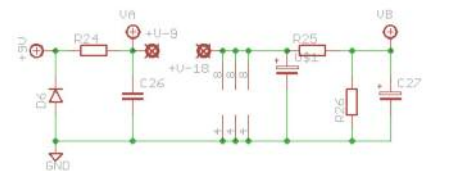
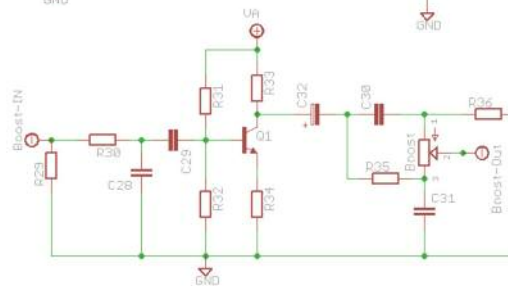
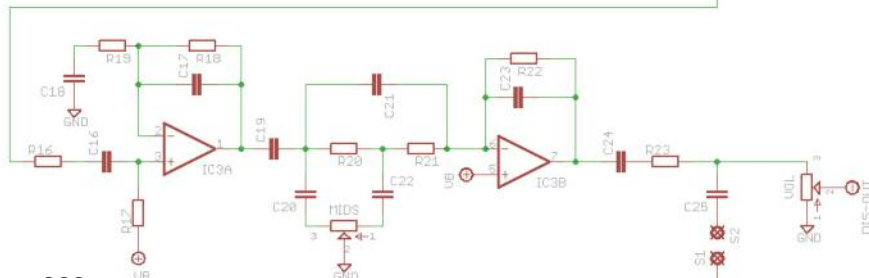
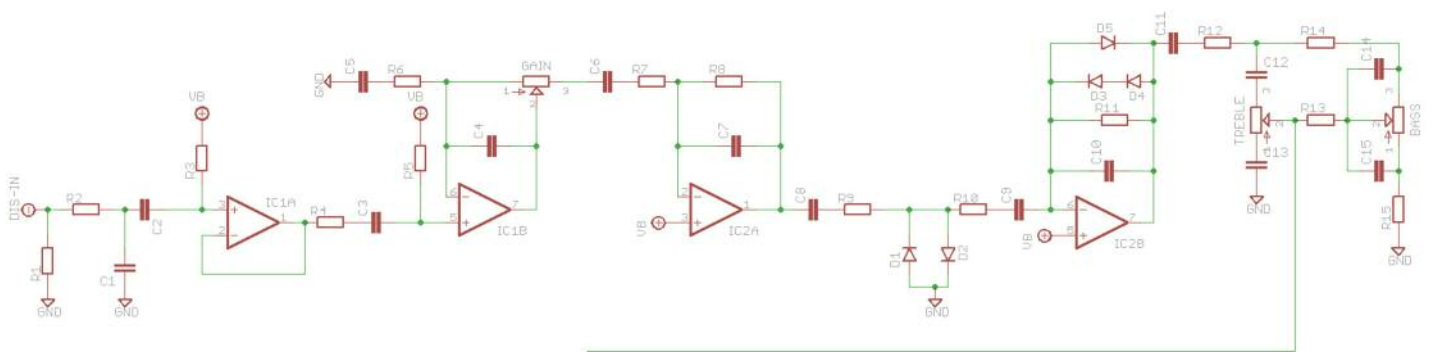
Board is designed so you can easily run the Distortion part of the circuit at 18V by adding a charge pump. The Boost section will still run at 9V.

Don't forget to put the power supply jumper across pads VA and VB if running everything at 9V.

Finally, ensure you put the negative legs (short) of the LEDs into the square pads. The circuit won't work unless you do. I know - oops!



Schematic



BOM

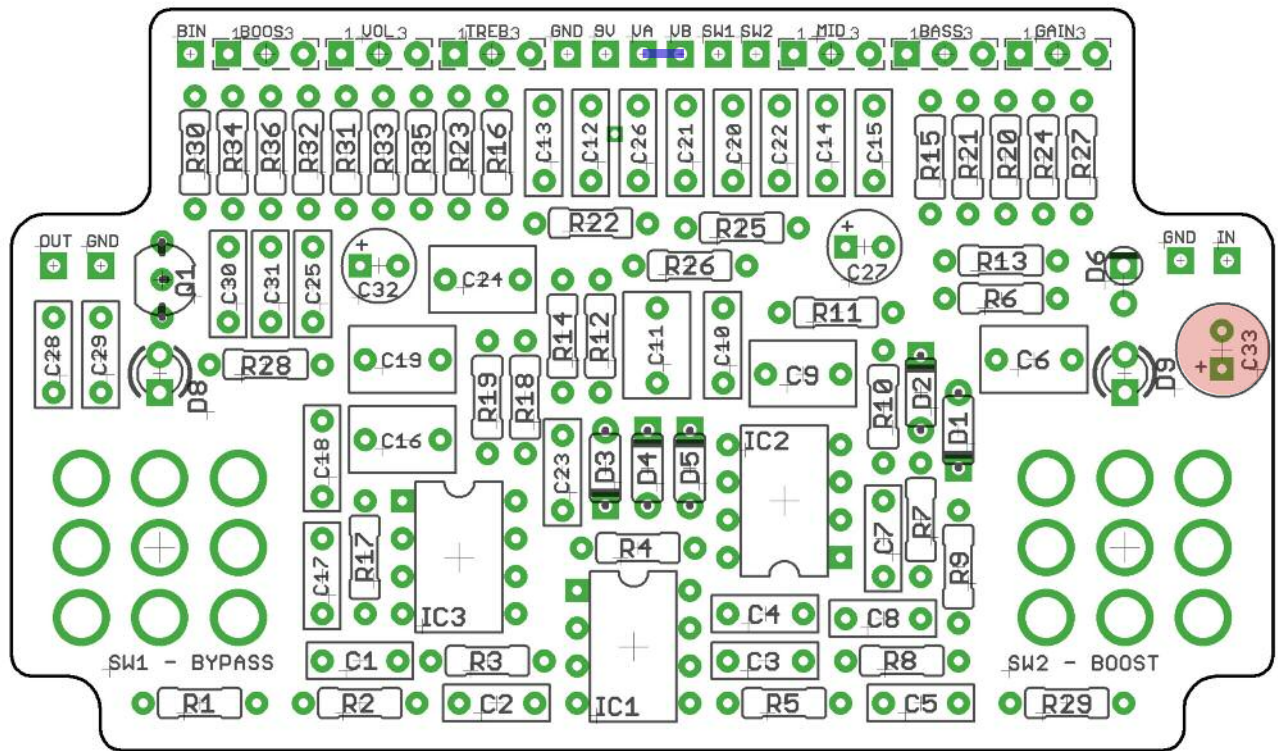
R1	1M	C1	220p
R2	1K	C2	220n
R3	470K	C3	33n
R4	10K	C4	560p
R5	470K	C5	220n
R6	1K	C6	1u
R7	10K	C7	220p
R8	470K	C8	220n
R9	1K	C9	1u
R10	47K	C10	220p
R11	100K	C11	1u
R12	1K	C12	4n7
R13	4K7	C13	47n
R14	10K	C14	47n
R15	1K	C15	100n
R16	470K	C16	1u
R17	470K	C17	470p
R18	47K	C18	47n
R19	47K	C19	1u
R20	33K	C20	100n
R21	33K	C21	1n
R22	680K	C22	47n
R23	10K	C23	330p
R24	47R	C24	1u
R25	10K	C25	4n7
R26	10K	C26	10n
R27	2K2 (CLR)	C27	10u elec
R28	2K2 (CLR)	C28	100p
R29	1M	C29	1u
R30	100R	C30	10n
R31	1M	C31	10n
R32	100K	C32	2u2 elec
R33	47K	C33*	100u elec
R34	1K		
R35	47K		
R36	10K		

*C33 is mislabelled as C27 on the PCB. It's the big one under the IN pad on the right hand side - see next page.

**Other dual op-amps can be used.

Q1	2N5088/2N5089
IC1-3	4580**
D1-5	1N4148 / 1N914
D6	1N4001
GAIN	100KA
BASS	100KC
MIDS	100KA
TREBLE	50KA
VOL	100KA
BOOST	100KA
SW1-2	3PDT FOOTSW.
SW3	SPST TOGGLE

Part numbers shown in BLUE are for the boost. Ignore these if using a separate boost circuit.



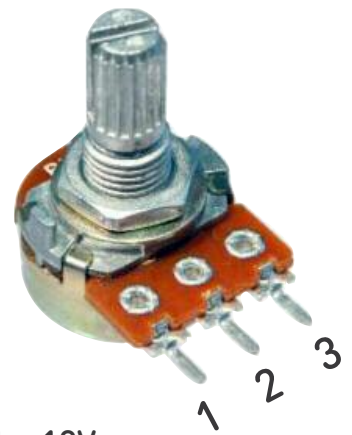
C33 shown above is mislabelled C27 on the PCB.

BOOST POT - reverse wires to pads 1 and 3. Sorry.

CHARGE PUMP?

The board has been designed so you can add a charge pump to power the Distortion side of the circuit at 18V if you really want to. Personally I don't see the benefit. If using standard 9V power for the Distortion side, place a jumper across VA and VB shown above.

If you are using a charge pump, leave out the jumper and connect the 18V supply wire to the VB pad.



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

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

ALL the components mount on the top side of the board.

It's a good idea to run the pot wires from the back of the PCB (opposite side to the components) in order to ensure plenty of clearance for the jack sockets when assembling.

LEDs - leave these out until you're boxing it all up - see later.

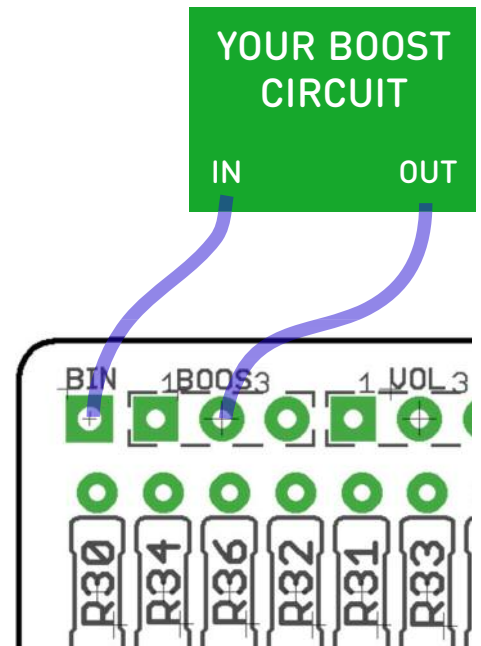
EXTERNAL BOOST >>>

Leave out the parts shown in BLUE on the BOM if you're making a version with another boost circuit.

Connect the IN of your boost to the BIN pad.

Connect the output of your boost to where pin 2 of the BOOST pot would have been.

Connect your BOOST circuit's power leads to the DC socket along with the Wrecktifier's.

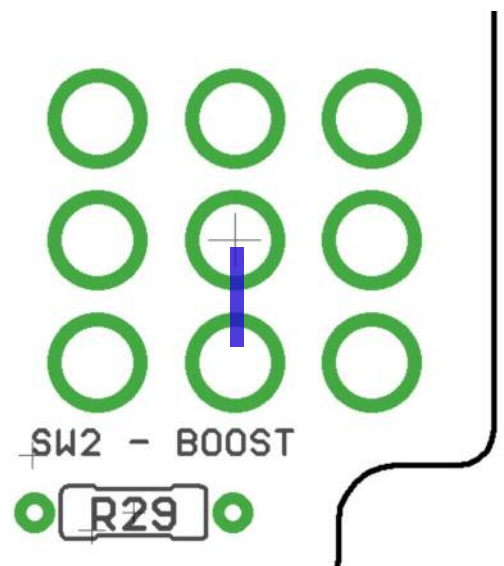


NO BOOST? >>>

Leave out the parts shown in BLUE on the BOM if you're making a version with no boost circuit.

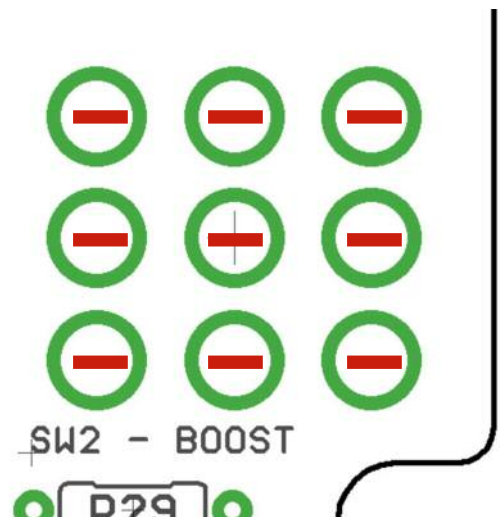
Connect the pads shown where the footswitch would have been.

Obviously you don't want to put a LED in for that section either.



FOOTSWITCHES >>>

Make sure you orientate them with the tags horizontally as shown. Its a good idea to put the them in place in the enclosure and loosely tighten them, then place the PCB on top to get the position right before soldering.

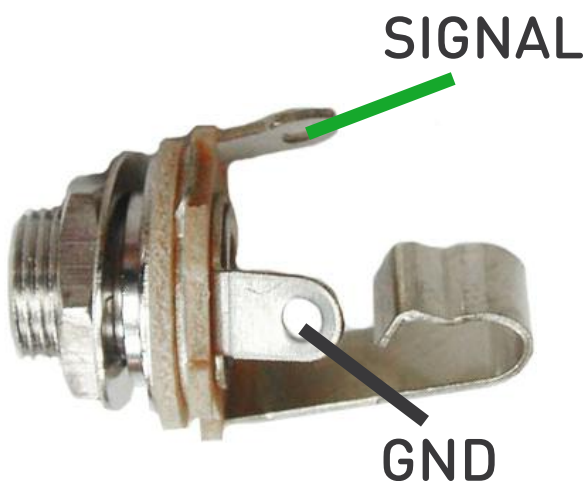


WIRING FOR TESTING

Connect everything up but the LEDs. That includes the footswitches.

Ensure your power supply is 9V Tip Negative, or connect up a battery for now. If connecting a battery, solder long lengths of wire to the +V and GND pads on the PCB, then attach the battery to the other end of these. This saves desoldering stuff from the board, which is a pain.

JACK SOCKETS

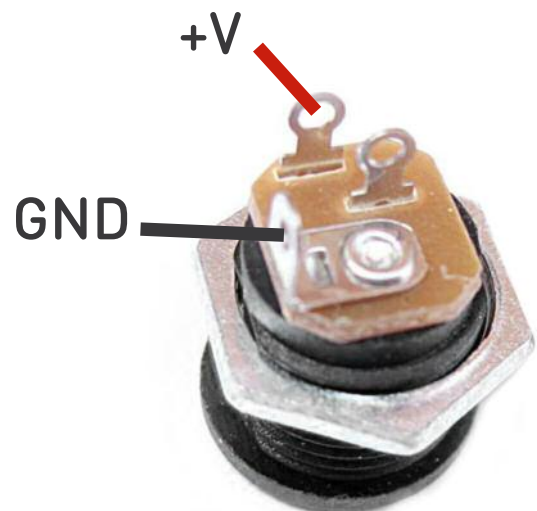


SIGNAL is JACK IN and JACK OUT on the PCB. Each socket has its own GND connection conveniently placed.

Plug in. Go!

If it works, crack on and get it in the box. If not, troubleshoot. Check you have everything in the right place and reflow any poor joints.

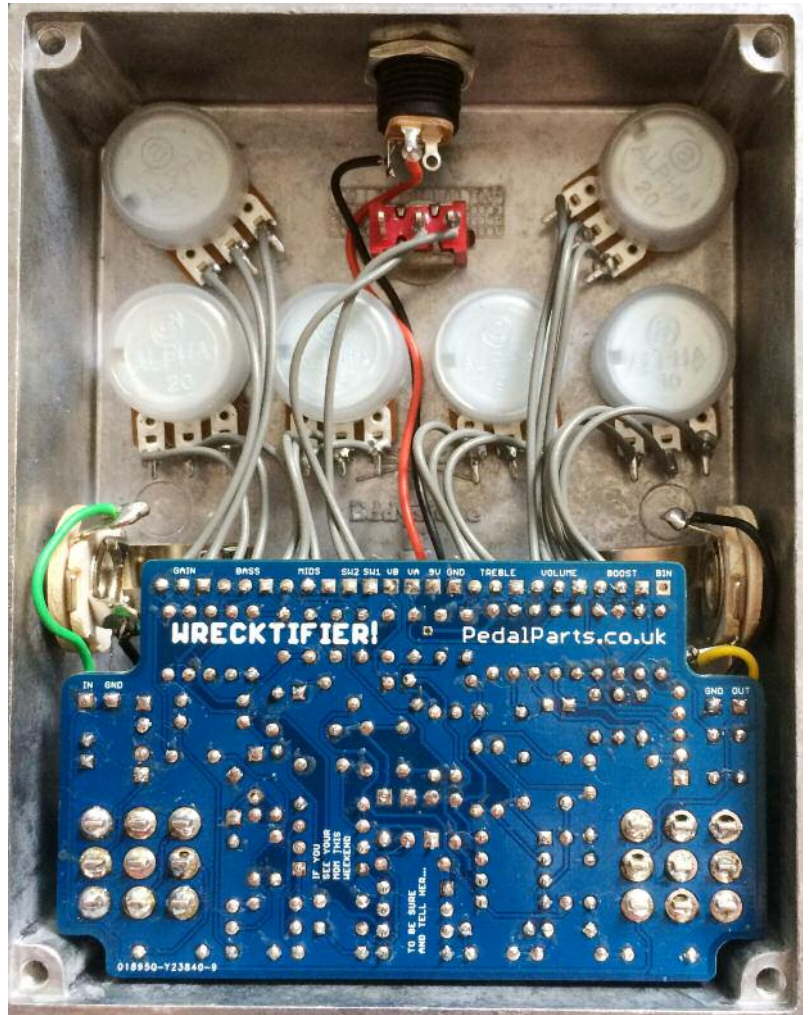
DC SOCKET



Ignore the third tag - you only need that if wiring up for battery.

BOXING UP

Here's how it'll look when boxed up. Turn your top two pots inwards 90° (they aren't all the way in the pic as I didn't make the wires long enough - doh!). The pot wires are better soldered onto the other side of the board from that shown - keeps them further away from the jack sockets.



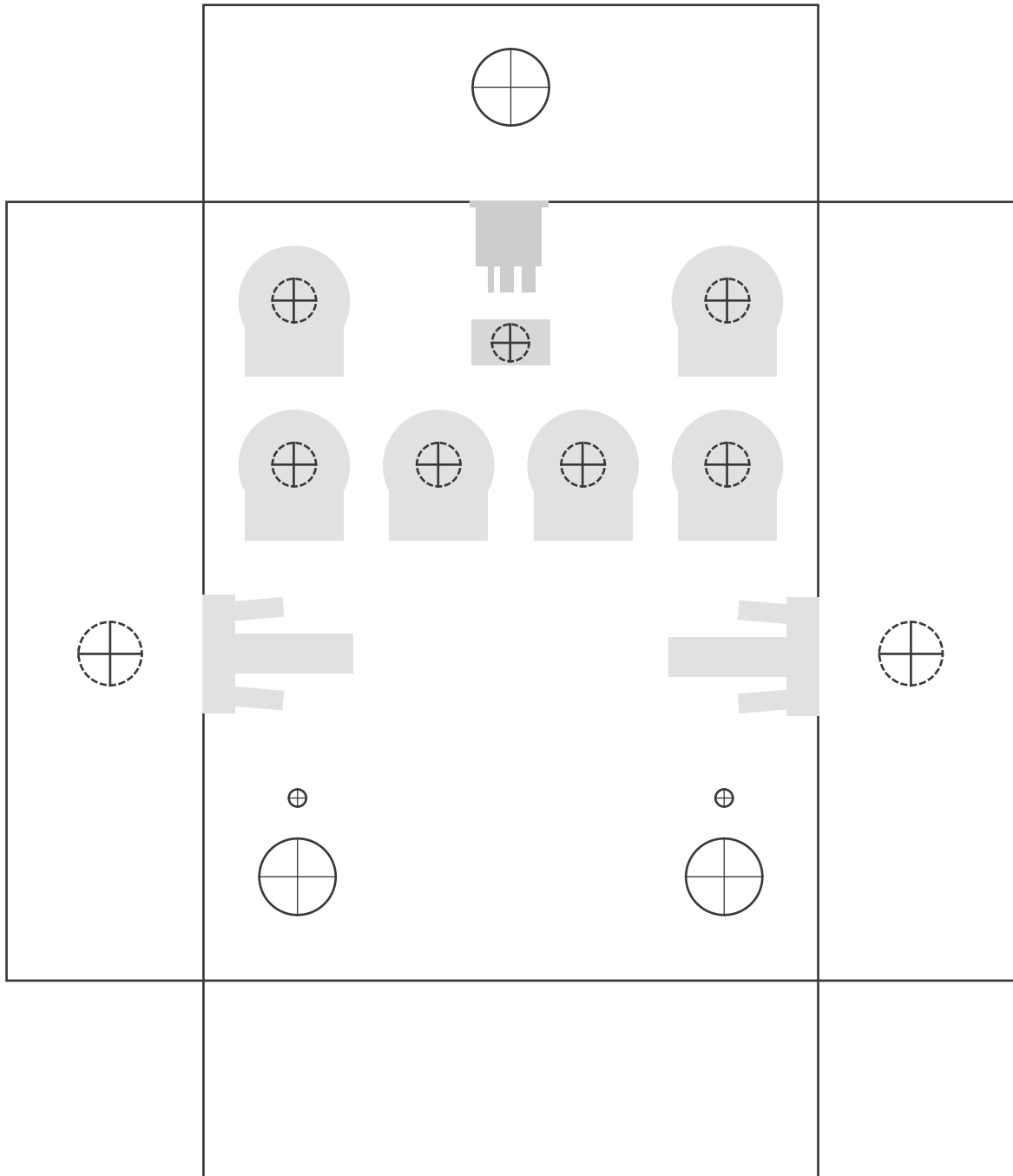
What about my LEDs?

Pre-drilled enclosures are supplied with 3mm holes for the LEDs, rather than larger ones that require a mounting bezel. Why? Because you can hold the LED securely in place with the PCB. When you come to box up your lovely new circuit, get the pots in place first. Then the jacks. Now, slide your LEDs all the way into the PCB (short leg to square pad) and bend the legs ever so slightly so they don't fall out. Alternatively put a little bluetac on there. Now locate your footswitches into place and tighten.

When everything is secure, let your LEDs slide down into the holes - use some needle-nosed pliers or skinny fingers to position them fully in the holes. I won't kid you, its a little fiddly but worth it for the neat finish you'll get. No bezel = happy pedal.

Once in place, solder.

Those little lights aren't going anywhere!



Please check positioning before drilling - those holes are your responsibility and these templates are just a guide. Pots are spaced 22mm.

Recommended drill sizes:

Footswitch, DC 12mm or 13mm with wiggle room

Jack sockets 9.5-10mm

Pots 7mm

Toggle 6mm

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