

Boxing up the BugBrand Workshop Crusher

Kits available from www.THONK.co.uk

In this document I will outline how I have gone about putting the WorkshopCrusher project into a stomp-box enclosure. You are best off using a fresh kit, rather than trying to back-step from a fully built one as it is hard to desolder the Sockets/Pots/Switch.



Extra parts you will need:

- Enclosure - I used a Camden-Boss RTM5004 120x65x40mm from Rapid Electronics (part no. 30-1120) - I think that some similar sized Hammond boxes may work, but haven't checked - you need to be able to fit the PCB inside the base.
- DC Power socket - preferably plastic (isolated) [eg Rapid 20-0980]
- 2 x 1/4" Jack Socket - I use Re'an NYS234 as standard
- Pots - 10kB and 1MegB - I use 16mm Alpha + knobs Re'an 19mm
- LED - eg. 5 mm + optional lense holder [Rapid 55-0970 + 55-0975] + 4k7 resistor
- DPDT latching Stomp switch eg. Rapid 78-0744
- 4 x M3 nylon 6mm standoffs + M3 nuts and bolts + 4 rubber feet
- coloured wire [I use Rapid 7/0.2 multi-strand] & heat-shrink tubing
- drill & bits + the usual soldering tools

I printed a label for the box top using Quick-Laser-Labels from Rapid (37-1780). You can either go with this template or do your own design/layout. Note - I always have inputs on the left, outputs on the right - the reverse of 'guitar' approaches, so you may need to edit the image.. The label image [WorkshopCrushLabel.jpg] should measure 60x114mm.

First prepare the box by drilling the holes for the hardware (note - careful when drilling metal - the bit can catch and spin!):

- 13mm hole for DC input on the back, middle
- 2 x 10mm hole for 1/4" Jacks - one each side, about 2.5cm from the end and slightly nearer the top of the case (to give PCB clearance)
- 2 x 7.5mm holes for the pots
- 1 x 6.5mm hole for the LED lense
- 1 x 12.5mm hole for the Stomp Switch

On the base, use the Crusher PCB to mark where to drill the mounting holes (3.5mm x 4) - I mounted it off-centre to give space for the sockets. You may want to mount the nylon standoffs now, but don't fix on the board yet!



Build the PCB as normal, but leave off:

- Power & Audio sockets
- Pots
- Bypass Switch

Wiring up the components - I strongly suggest using a variety of colours as it is far easier to keep track of things than if everything is the same colour! Initially you should attach quite long pieces of wire - we will trim this down later when connecting to the PCB. I also suggest fitting some heat-shrink tubing over each connection, for added strength & security.

Pots - break off the anti-rotation tabs with pliers.

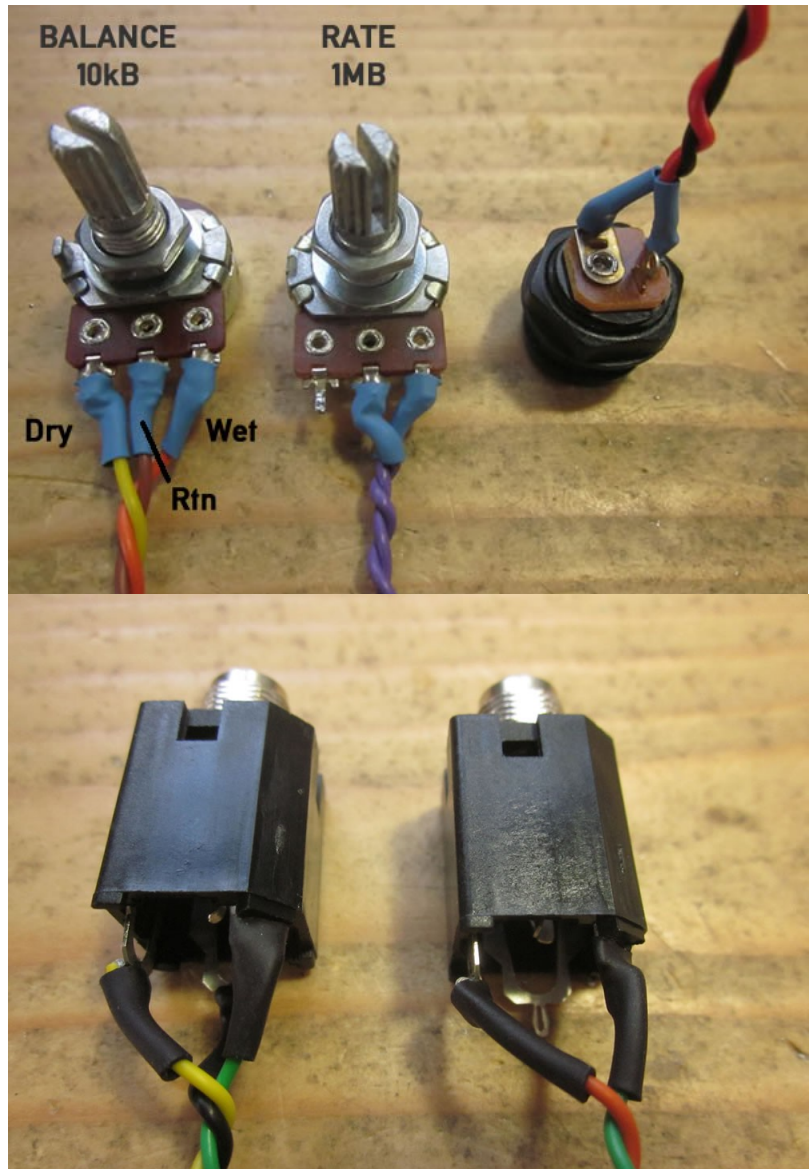
The 10kB Balance pot takes the Dry and Wet signals on the outer lugs and has the return on the centre pin.

The 1MegB Rate pot is wired as a variable resistor, so the outer lug shown is left unconnected. I use 2 wires of the same colour from the lugs as it doesn't matter which way around these wires are connected.

For the DC power socket I have wired it centre negative (black wire).

For the 1/4" Jacks, I use Yellow for input, Orange for output and Green for Ground.

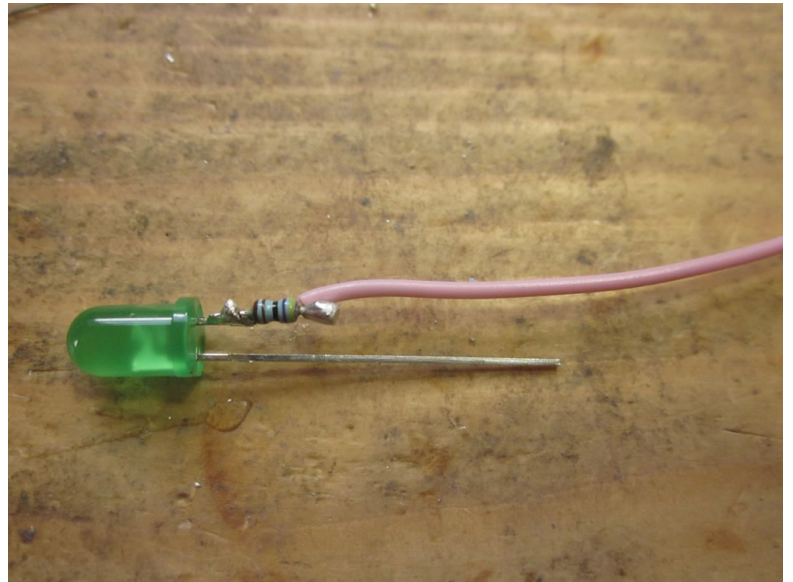
[You can see an extra black wire on the input socket - which I later removed - I had thought to implement the standard input power switching but then decided against it as the box won't tend to be used with batteries]



For the LED, identify the long leg (opposite the flat side of LED), trim the leg and solder on a 4k7 resistor, then attach a wire (pink).

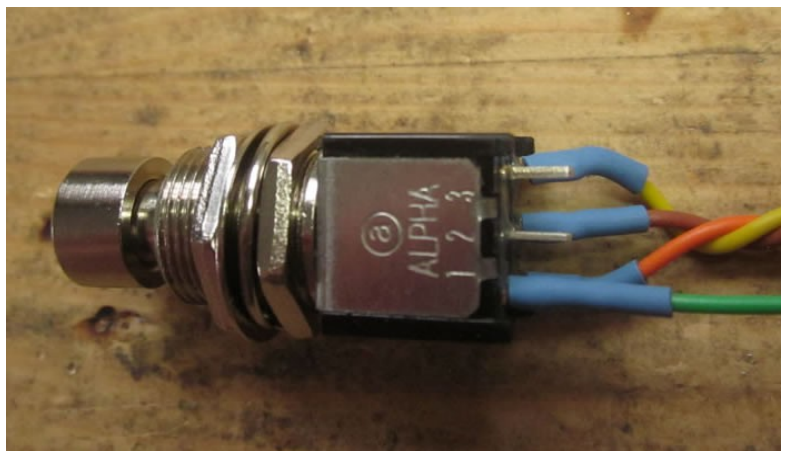
Note I used a 5mm resistor - 7.5mm is the more standard - nothing fancy here, just what I had to hand..

Cover the resistor and wire join with heat-shrink.

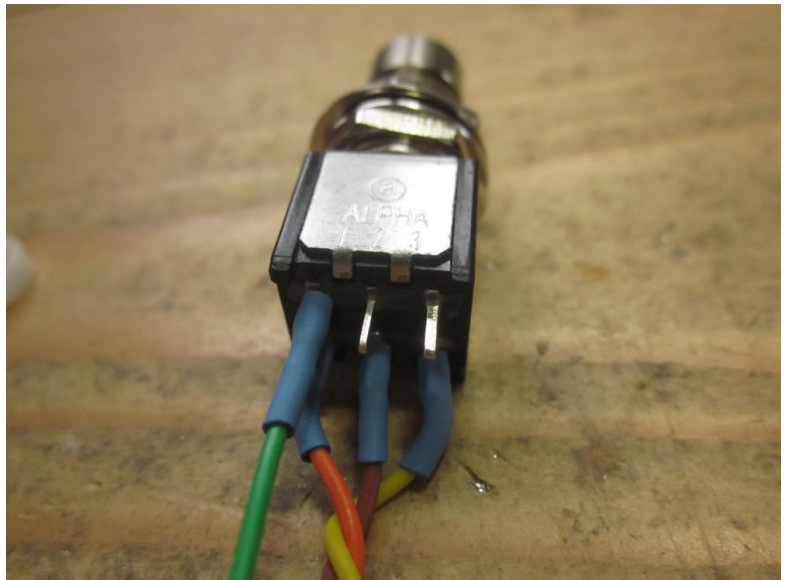


The original Bypass Switch in the kit is just a SPDT switch, but we use a DPDT stomp switch so we can also switch the LED on at the same time.

On the one side, connect three wires: Yellow - Brown - Orange - ie. The same arrangement as for the Balance pot - though, the switching is just a control for the CMOS switch, not the actual Dry/Wet signals.



On the other side, just connect a green wire to the lowest pin (across from the orange / wet pin) - this will connect the LED to ground when the switch is made to Active.



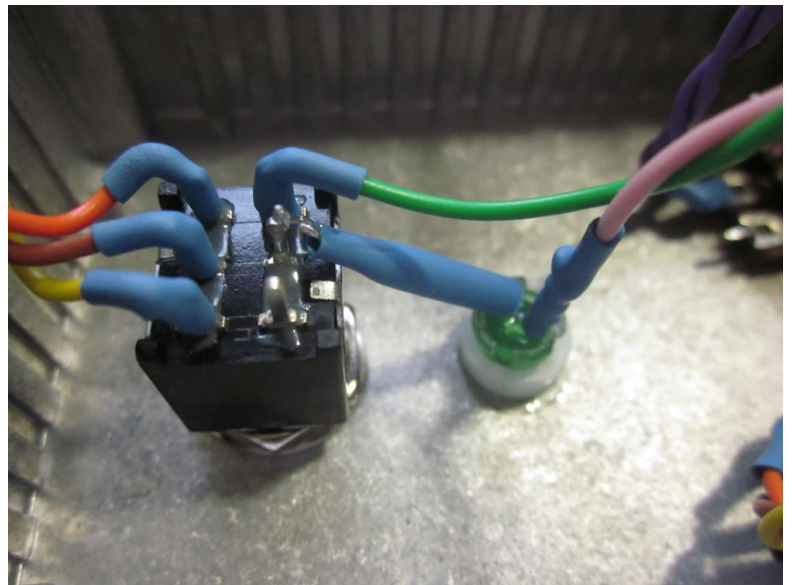
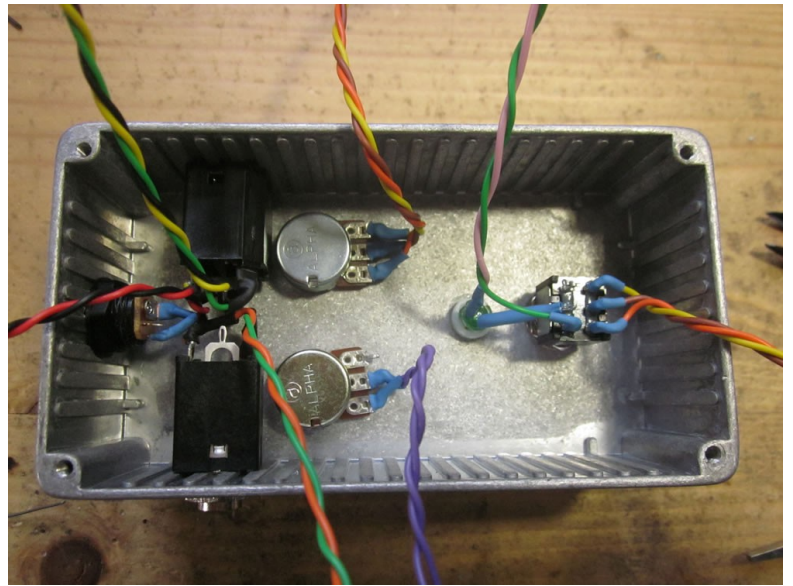
Now it is time to mount all the parts into the box - nothing overly complicated. The only particular detail is the LED.

If you're using the low-profile lense, you first insert that, then add the retaining ring, then insert the LED. (I actually tend to add some glue too to be sure).

The bare leg of the LED should point towards the Stomp Switch.

Bend the leg towards the middle lug of the Stomp switch and trim to an appropriate length. Then cut a piece of heat-shrink to a suitable length to cover most of the bare lead. Slip the heat-shrink over before soldering the leg onto the stomp switch.

I then twisted the green and pink wires together - keep the wiring neat!



Now the wiring to the PCB.. As mentioned, we made the wires quite long so we could trim them to suitable length later. What I did was position the PCB next to the up-turned box to work out the best length. Trim the wires, then strip the insulation from the end (5-10mm).

First do the Power - we'll go straight to the PWR2 header position (top of the board) which bypasses any input power switching. Wire the red lead to the V+ and the green to Gnd.

For the input/output sockets, follow the image - note how the PCB footprints are for TRS sockets with switching contacts, so just ignore the Ring connection and the switching-side connections. [there are also smaller In/Out header points if you prefer]

Next do the Pot connections. Make sure you get the correct Yellow/Brown/Orange order for the balance control! And for the Rate control you ignore the left-hand solder point. [ie. The pot lugs correspond with the PCB footprints]

For the LED, take the pink wire to the V+ point (by IC3) and the green wire down to the GND point (by Rate)

The Bypass switch wiring follows the same colour scheme order as for the Balance knob, so again be careful to get the order right!

Job done! Put in the ICs (as always, observing static discharge handling as detailed in the main Build Doc). Give it all a test before fitting the PCB on to the base plate with the M3 bolts, nuts and stand-offs, before putting the box together. Plop the knobs on and then HAVE FUN!

