

Casio DH100/200 Dual Oscillator mod

By Kerry Bradley and Graham Meredith 10th September 2007

Photos and documentation by Graham Meredith

This mod is a follow-on mod from Kerry Bradley's excellent Octave Drop Mod. Kerry mentioned the possibility of doing this extra mod, so I spent some time fiddling with it and confirmed that it works.

This simple mod enables you to have the low octave from the Octave Drop Mod AND the original horn octave sound TOGETHER, playing at the same time. It sounds like a baritone sax and an alto sax playing together, 1 octave apart. You can blend in more or less of the original horn octave sound to suit your taste, using a volume control.

These mods certainly add a whole new sound dimension to playing the DH100/200. They make it sound almost like my SH101! I'm really impressed how much of a real analog synth this thing actually is. Also, you can get it to sound almost squelchy bendy TB303-ish with the octave drop if you play random notes fast and drop in the portamento for a fraction of a second here and there!

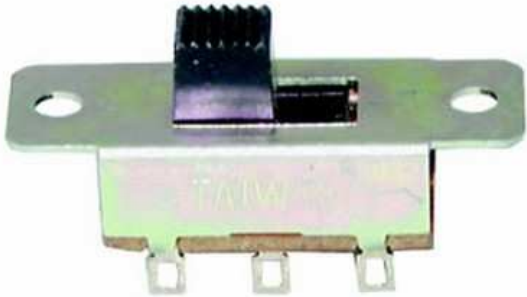
Prerequisite work:

You need to build the **Octave Drop Mod** circuit first, and have it installed and operating successfully in the horn:

<http://home.earthlink.net/~kerrybradley/id2.html>

Parts required

1x DPDT slide switch



I like the slide switch simply because it matches the other switches on the DH100. It means cutting a rectangle slot in the casing, though (hard).
Alternatively, you can use this DPDT toggle switch, which just requires drilling a hole to mount it (easy):



1x 1k Linear Dual Taper Potentiometer

<http://www.futurlec.com/Potentiometers/POT1KDUAL.shtml>



Some rainbow cable



Equipment

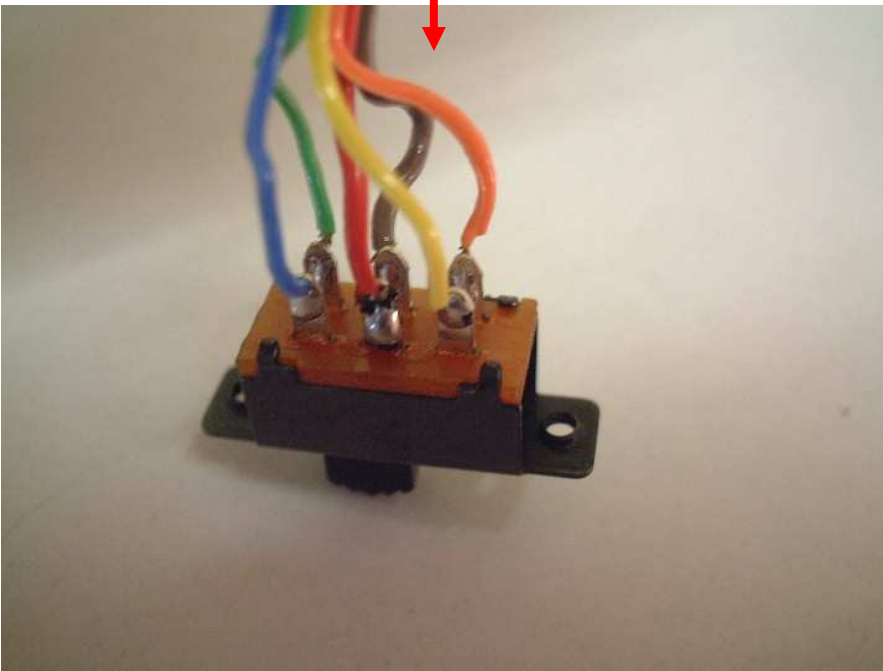
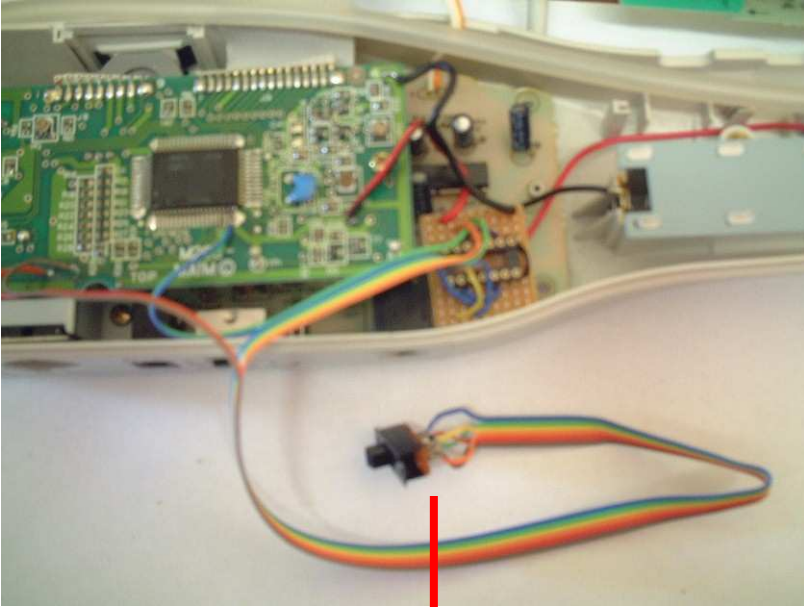
Soldering iron, 15W or less, with a very fine tip
Solder

Procedure:

Remove the batteries from the horn and unscrew all the fastening screws holding the horn body together (there is one in the battery compartment also). Pull the two body halves apart and rest them on a table.

Remember that this mod is done to the **Octave Drop mod circuit**, so you need to have that circuit built and installed and working.

Locate the **switch** used in the **Octave Drop mod circuit** for switching the low octave on and off, and pull it out of the horn, so you can access it, with its wires still attached:

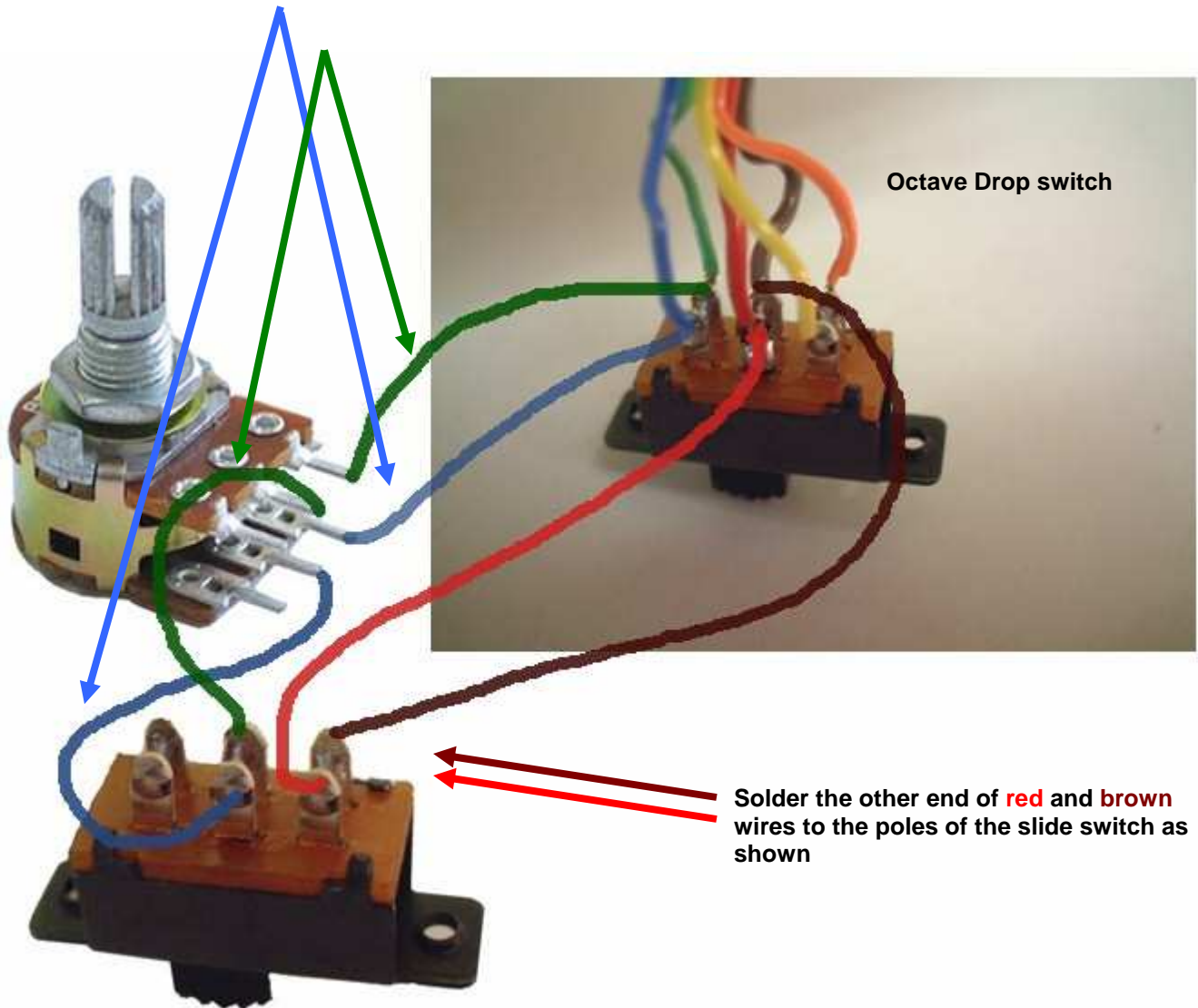


Cut a 4" length of rainbow cable, and strip out the wires coloured **blue**, **green**, **red** and **brown**.

Solder one end of these coloured wires to the octave drop switch terminals, which already have the same coloured wires soldered to them.

Solder the other end of **blue** and **green** wires to the Dual 1k potentiometer as shown.

Cut another 4" length of **blue** and **green** wires and solder them from the pot to the slide switch as shown.



That's it! Your Dual Oscillator mod is finished!

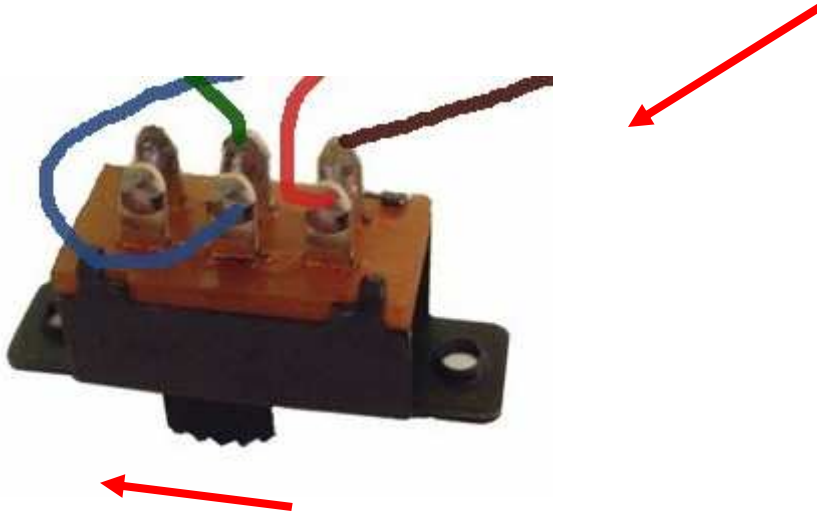
Testing the Dual Oscillator mod.

Loosely put the 2 halves of the horn back together, and leave both the Octave drop switch and the Dual oscillator switch hanging out the side somewhere.

When you know it works, you can then cut a neat slot in the side of the horn for it to fit in permanently.

Set the **Octave drop switch** to the **ON** position.

Turn the Dual Oscillator potentiometer to about a half-way position.
Set the Dual Oscillator switch to the position shown below (OFF position):



Set the BREATH switch to OFF, so you can play the horn without blowing into it. Connect an AC adapter to power the horn (batteries are a bit difficult to keep in place when the horn is not assembled, but you can use them if you have no adapter).

Switch the horn on, and play the keys.

You should get the low octave sound from the octave drop switch being on – switch the octave drop switch to the other position and back to confirm it is working.

Now switch the dual oscillator switch to the other position. Play the keys. You should get the octave drop sound AND the higher octave sound at the same time.

Turn the potentiometer each way fully while playing the keys. You should hear the Octave drop sound when fully turned one way, and the higher octave sound when fully turned the other way. Play the keys and adjust the potentiometer until both sounds are balanced to your liking.

Select the other DH100 sounds. You should hear both octaves at once with these sounds also.

Congratulations! You've done it!

Mount the switches in a convenient location in the horn casing, and also mount the octave balance potentiometer. You can saw off some of the shaft if it sticks out of the case too far, and have a low profile knob that doesn't stick out much, or you can mount it INSIDE the horn, not going through the case at all, if you are only going to set the balance and not use it all the time.