CrOwBX Calibration for Four-Voice rev.2.0 – Carrier Board

Tools needed: digital voltmeter, trimpot adjustment tool (or small flat blade screwdriver). Oscilloscope recommended but not necessary.

Front panel considerations:

Typically, the host board is mounted to a front panel such as the 6U x 5U version shown on the cs80.com/crowbx site. This particular panel can be ordered by downloading and installing Front Panel Designer from the Front Panel Express site at http://www.frontpanelexpress.com and downloading the .fpd file from http://www.cs80.com/crowbx/crowbx_4v_fpd.zip. Unzip the file, start Front Panel Designer, load the .fpd file for the panel and select "order current front panel" from the ORDER menu tab. Expect the total cost to be somewhere around $175 shipped.

If a front panel like the one Crow did is used, the (calibrated) host board is mounted to it using six 5/16" #6-32 screws, six #6 split-ring lockwashers and six 1/2" #6 threaded pillars. The screws go through a lockwasher and then each panel hole from front, with a pillar on the back. Mounting of the host board is a bit tricky as there are also the 18 switches to deal with. Note there are no screws anchoring the host board to the panel-mounted pillars just yet. That is next.

Carrier board mounting:

Attach the carrier board to the calibrated host board/panel. Use six 1/4" nylon standoffs (#6 hole), six 1/2" #6-32 screws and six #6 split-ring lockwashers. The seating of the Molex connectors is a bit stiff, but using an even, firm pressure they will engage easily enough. Once the connectors are mated the nylon standoffs and lockwashers+screws can be mounted: a screw goes through a lockwasher, then the carrier board, a nylon standoff between the carrier and host boards (pliers help here to hold a standoff in position) finally securing into the free end of each threaded 1/2" pillar.

Portamento calibration:

Apply +/-19VDC power to the carrier board power header. While voltage checks are usually done during board assembly, check for +/-15VDC on say an opamp pin 8 to common (+15) and pin 4 to common (-15). Set the front panel portamento to maximum. Connect a 1v/oct and gate source such as a MIDI to CV unit or CV keyboard to any channel's 1V/OCT and GATE either by jacks if already wired or otherwise to the carrier board header. Play two notes one octave apart: there will be no tone, but the portamento voltage glide response can be observed on the Molex header pin marked C1_KEYCV of the connected channel (example: if gate/cv connected to voice 1 use C1_KEYCV of slot 1) measured to common. While alternating between the two octave notes, adjust trimmer R143 on the host board (it is accessible from the lower edge of the panel) until the time taken to change from the voltage at the lower note to the voltage at the higher note is between 1 to 2 seconds.

Distortion trim:

With the VOLUME panel control set to max and the MUTE switch OFF (the switch position that connects host board JP1 to common), measure the voltage on the carrier board where R55 and C32 connect, to common. Adjust trimmer R52 to obtain a value as close to zero as possible. Likewise, measure the voltage where R32 and C21 connect, to common. Adjust trimmer R29 to obtain a value as close to zero as possible.