Feb 22, 2023

East Beast / West Pest
User Tuning Guide

Similar to an acoustic instrument, an analog synth may require a small manual retuning from time to time. Modern electronic components and designs have dramatically improved stability however, so you should rarely need to adjust your synth.

If you experience a performance issue or simply wish to keep your instrument running at its very best, this guide will walk you through the process of retuning the oscillator.

Before you begin, you will need a few tools:
-A medium crosshead (Phillips) screwdriver (for removing panel screws)
-A very small crosshead (Phillips) screwdriver (such as those used for eyeglass repair). If you have a non-conductive (i.e. plastic) screwdriver available, that is ideal
-A tuner (higher precision is better, but any will do)
-An audio system (speakers, headphones, or DAW) to hear the oscillator

You will also need a way to power the synth module outside of the included black plastic case, so that you can access the tuning trimpots on the back of the module while it is turned on.

There are 2 options for this:

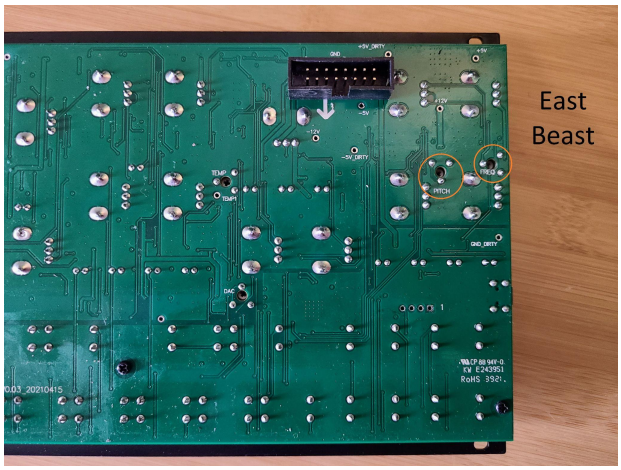
1) If you already have a standard Eurorack case, you can use it to power the module while tuning it. The synth can be connected to your case's power supply using a standard 16-to-16 pin Eurorack power cable

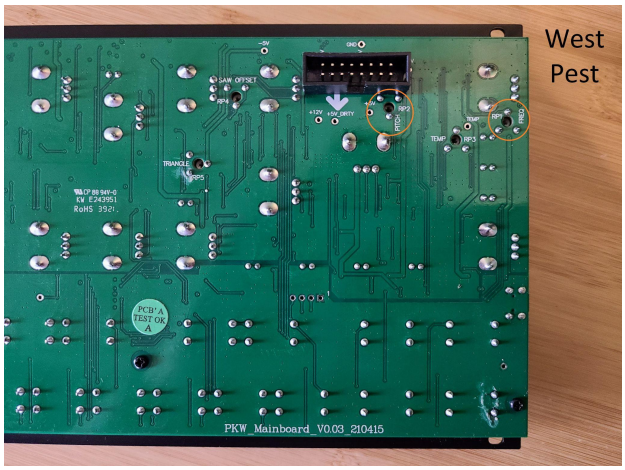
2) A 16 pin male-to-female extender cable can be used to connect the module to the power board inside the original case while still accessing the trimpots on the back

Removing the module from the case

1) Turn off the synth and unplug the power cable from the back of the case
2) Remove the 4 black Phillips head screws from the 4 corners of the front panel. Take care not to strip or cam out the heads.
3) Using the knobs near the top of the panel, pull the module straight out of the case. If it is difficult to remove, a thin, non-metallic tool (such as a plastic card or your fingernails) can be used to pry it free along the top edge.

Once the module is free, flip it over to locate these trimpots on the back for you model:





Tuning

1) Turn on power to the synth and allow it to warm up for at least 10-15 minutes
2) Connect your tuner to the Osc Out jack and select the Sine waveform. Set the Fine Tune knob to slightly right of center. Turn down FM, PW, and Glide knobs. Select the octave range and play the low C button on the built-in keyboard that corresponds to a C2 (~65.4 Hz).
3) Adjust the FREQ trimpot until the pitch of the note is a perfect C2 (or as close as you can get it). Slightly adjust the Fine knob if needed to get a perfect C2, but try to keep it set at slightly right of center.

4) Press the Oct+ button 4 times and then press the same C button as before to play a C6. Note the tuning offset at C6 (for example, it may read C6 +34 cents). Press the Oct- button 4 times and then press the C button again to go back down to C2.
5) At C2, adjust the PITCH trimpot to match the offset measured at C6 (in the above example, this would be C2 +34 cents). Then, adjust the FREQ trimpot again to bring the pitch back to a perfect C2 (*Note: If the PITCH trimpot does not have the necessary range to tune the oscillator, the TEMP trimpot may be slightly adjusted to bring the PITCH into a usable range*)
6) Go back up to C6 and note the new tuning offset. Go back down to C2, adjust the PITCH trimpot to match this offset, and adjust the FREQ trimpot to bring the note back to a C2
7) Repeat this process until C2 and C6 are perfectly in tune and your Fine knob is well tuned when set slightly right of center.

Once the oscillator is well tuned, reassemble it, turn it on, and allow it to warm up again. Double-check the tuning to make sure it has not changed.

Enjoy your newly tuned synth!