

# Antonius Step Brother Oscillator calibration and notes

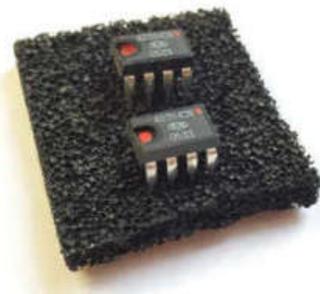
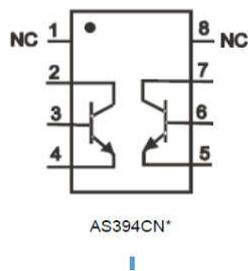
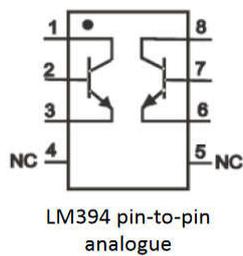
NOTE CONCERNING THE AS394 :

AS394 is a clone dual matched transistor made by Alpha. It works good as replacement of original LM394 but need to mark some details before use it.

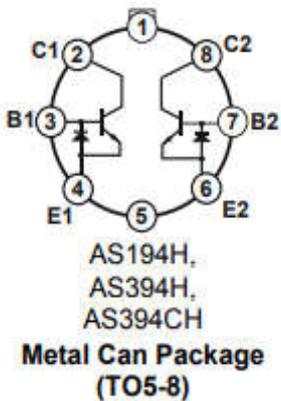
About the DIL-8 version:

AS394 : Famous LM394 matched transistors analogue made in Latvia. transistor configuration is the same, but pins are shifted up but futhermore there are ambiguous red spot on the IC.

When using these for the Antonius Step Brother Oscillator which is designed for standard LM394 pinout, you need to cut pins 1 and 8 off, and shift the IC up in the socket- pinout below explains it all - The notch in the case is at the top of the chip.



About the TO5-8 metal can version:



Pinout is compatible with the original LM394 but you should cut the unused pins 1 and 5



## CALIBRATION

For setting and trimming of the Antonus Step Brother Oscillator, you need a good Oscilloscope, a digital tuner and/or a good frequency counter.

## WAVESHAPE CONVERTER SETTING

1. Before powering up, set the oscillator frequency potentiometer to 0 full left, PW potentiometer to center, range position in high mode.
2. Connect the SAWTOOTH output to the oscilloscope (2V per square). Power-up the circuit. You should observe a sawtooth signal. Adjust the R394 Ramp Gain trimmer in order to obtain 10 volt peak to peak level bipolar. Adjust R405 Ramp Offset Trimmer to center the Ramp in 0v. The sawtooth should ramp down from +5V to -5V.
3. Connect the Sine output to the oscilloscope (2V per square). Adjust the R375 trimmer to balance the width of each half cycle equally. Adjust R406 Sine shape trimmer to refine the sinewave shape round. The Sine should be around 10v peak to peak bipolar and centered in 0v, from +5V to -5V.
4. Connect the Pulse output and measure that it work, Square at the center and in both ends the waveform should disappear. Pulse waveform is around +10v unipolar.

## V/OCT TRACKING

1. Connect the calibrated quantized output A from Step Brother (You must have your Sequencer part full calibrated to continue with this) to CV input of the Oscillator. Put Step Brother Sequencer in Stop, and set on Step 1. Set the Step 1 slider to 0, so it should be 0v at the quantized output. Set the Oscillator frequency potentiometer to 0. Put the switch range in high mode. Connect the tuner / freq.counter to the Square output. Adjust the Oscillator Potentiometer such that the tuner displays A3 (220 Hz)
2. Set the step 1 slider at middle for 1V, check the pitch/freq, ideally we want it to be A4 or 440Hz. If the pitch is what we expected go to point 4. Otherwise, if the pitch is lower or higher than expected : adjust the R376 CV adjust trimmer (V/OCT) in order to have 440hz frequency.
3. Set the Step 1 slider to 0V, the pitch is either lower or higher than A3/220Hz . Adjust the R395 Initial Frequency Trimmer such that the tuner displays A3/220 Hz. Repeat points 2 and 3 until there is a perfect one octave shift when switching the CV from 0V to 1V. When you have a perfect octave go to point 4.
4. Repeat the same procedures but with the following CVs 0V and 2V using the Step 1 slider on top position in order to read A3/220Hz for 0V and A5/880Hz for 2V

## TUNING

1. Disconnect the CV source from the V/OCT input.
2. Turn the Oscillator tune potentiometer to 0 . Check that Oscillator range is in high mode.
3. Adjust R395 Initial Frequency Trimmer in order to read a frequency of 20 Hz