Technical Resource
***StroboSoft* tips for tap tuning**
The Art of Tap Tuning 2nd edition
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The Art of Tap Tuning, 2nd edition was published in March of 2022. *Chapter 7 – Preparation for tuning* includes a brief overview of StroboSoft®, a software application strobetuner from Peterson Electro-Musical Products.

The book also includes a link to a 55-minute video to be streamed to any device at any time. The video includes a segment devoted to using StroboSoft (Fig. 1) and provides a demonstration of how to find the resonant frequency of an instrument's part by tap tuning.

This document is provided as a handy guide for using StroboSoft when tap tuning. I recommend reading it all the way through before beginning.

StroboSoft is loaded with features that you should explore when you have time. This document only addresses the features relative to the process of tap tuning.

1. Enter tap tuning display screen by clicking the TAP TUNE button (Fig.2 A). Next, turn on the tap tune function by clicking TAP TUNING ENABLE button (Fig.2 B). The button will turn orange and the VU meter will light up.

2. The orange VU band (Fig.2 C) indicates the intensity of the tapped signal; the left side is low amplitude (intensity) and to the right is high amplitude. The thin orange line - peak/hold indicator - (Fig.2 D) indicates the amplitude of the last signal or noise. When tapping, tap hard enough to bring the orange bar into and through the white threshold bar (Fig.2 E). (**Note:** As you go beyond the white threshold bar (Fig.2 E) a red line (Fig.2 F) will appear to the right of the white threshold bar to indicate the intensity of the last successful tap.)

3) In *The Art of Tap Tuning* you learned that a compressor can be used to sustain the signal and have it appear for a longer period of time in the window of <u>mechanical</u> strobetuners. Rather than using a compressor to expand the signal, StroboSoft utilizes a very clever averaging function (Fig.2 G). Setting the number here determines how many taps StroboSoft listens to before it averages the frequencies and then provide one response. So, in the case of the

Fig. 1 - StroboSoft default display screen: **A**) on-off button; **B**) strobe window (when image moves up, the note is sharp; when image moves down, the note is flat); **C**) the note window (shows whether natural or sharped note as well as the octave – here showing 4th octave C#; **D**) the preset for concert pitch (here showing 440Hz); **E**) how many cents sharp or flat the note is; **F**) the on-off button to turn on the tap tuning mode.
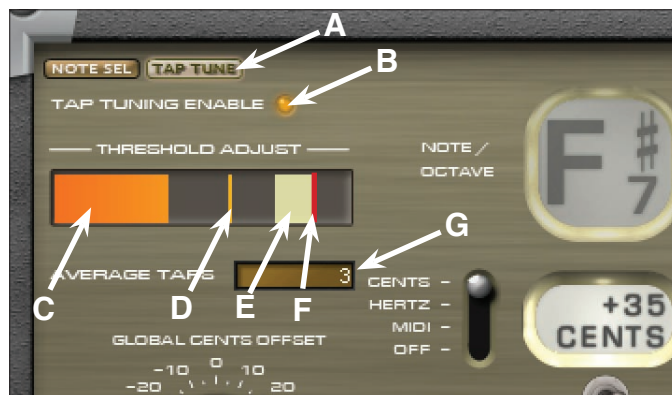

Fig. 2 - StroboSoft TAP TUNE display screen: **A**) tap tune screen display on-off button; **B**) tap tune enable button; **C**) VU meter; **D**) peak/hold indicator (the amplitude of the last signal or noise); **E**) threshold bar (for the orange bar to enter and pass through); **F**) red line (if it appears) indicates that threshold has been exceeded and measurement successfully taken; **G**) set the average number of taps (now showing 3 average taps).

setting shown in Fig.2 G, where the AVERAGE TAPS is set to 3, StroboSoft will listen to three taps, average the frequencies it hears, and provide you with the resultant data. (I recommend a setting of no less than 3 and no more than 5.)

4. From here, the process is rather simple. Using a soft-faced hammer, tap lightly on the part you are tuning and watch that the orange bar (Fig.3 A) moves <u>through</u> the white threshold bar (Fig.3 B). If the orange bar does not pass completely though the white threshold bar, the system will not record the tap.

NOTE: Slide the white threshold bar left or right to set the basic threshold range based on your ambient noise, type of mic, recording environment, etc.

5. After noise or tap, a thin orange line will appear (Fig.3 C) to indicate the strength of the last tap. This is reference point only and is disregarded for tap tuning.

6. After each successful tap where the orange bar (Fig.3 A) passes through the white bar (Fig.3 B) a red line will appear (Fig.2 F) to show the intensity of the successful tap.

7. When the number of AVERAGE TAPS has been reached, the strobe wheel (Fig.3 E) will stop turning, and the pitch window (Fig.3 D) and the strobe window (Fig.3 E) will turn grey. This seemingly stopped gray-window condition indicates that StroboSoft has averaged the taps, determined the pitch and its sharpness or flatness, as well as the octave of the part being tap tuned. The number of cents sharp or flat ($+$ or $-$) will appear in the cents window (Fig.3 F).
Note: There are 100 cents to a semi-tone.

Considerations:
• Ambient noise can affect the quality of the tapped tone. Ensure that air conditioning, refrigerators, fan motors, etc. are turned off.

• Use a cardioid microphone that is mounted on a soft pad or a mount.

• Maintain a distance of no less than 2´ to 3´ from the microphone to prevent loading the microphone.

• Tap in the same place with the same effort each time you tap.

• Tap only as hard as necessary to move the orange bar into and beyond the white threshold bar in the VU meter (Fig.3 B).

Fig. 3 - StroboSoft TAP TUNE display screen: **A**) orange amplitude bar in VU meter; **B**) white threshold bar; **C**) peak/hold line indicates the amplitude of the last signal detected by unit; **D**) the pitch, sharpness or flatness, and octave of the note; **E**) the tuning wheel; **F**) the cents window indicating number of cents sharp or flat of the note.

• Use a felt-covered hammer. **NOTE**: heavy or hard-faced hammers will produce unwanted overtones.

• Keep good notes of your tuning process – use the Tuning Record provided in Appendix A.

• As you have learned from *The Art of Tap Tuning, 2nd Edition* it is ideal to set the concert pitch (Fig.1 D) to A431Hz which is a quarter-tone off of concert pitch A440Hz.

Fig. 4 - Some of StroboSoft's other functions: **A**) this button accesses the current default screen; **B**) this button accesses the screen for special instrument tunings; **C**) this button accesses the screen for the oscilloscope, spectrum analyzer, pitch graph, noise filter, and more.

For more information about hardware and software tuners from
Peterson Electro-Musical Products
please visit: www.petersonemp.com