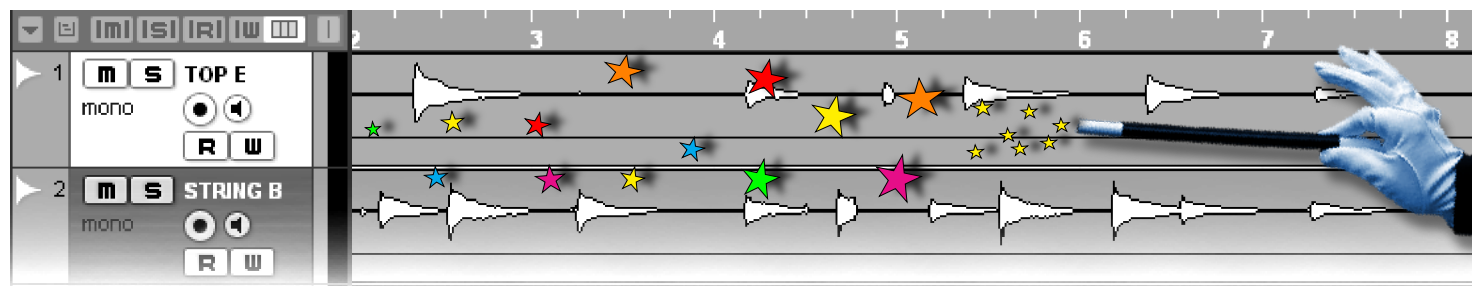


# V-GUITAR SEPARATE STRINGS MAKEOVER

## Transforming an average guitar performance

Review: Bill Baxendale. [www.separate-strings.co.uk](http://www.separate-strings.co.uk)



### Introduction

The benefits of recording separate strings have long been known to music producers and elite guitar players. 1995 saw the arrival of Roland's first widely available hexaphonic pickup and v-guitar synth - **GK2A** and **VG8**. In 1998 **RMC Pickups** introduced the first commercially available **Fanout Box**, which allowed users to record and re-amp separate strings. The combination in use with a hard-disk recorder or a DAW audio sequencer, opened up a new world of creative possibilities. For the first time it was possible to edit separate strings, insert external effects, and finally re-amp or return separate strings to a VG8. Today, we are spoilt for choice with v-synths, including the incredible **Boss GP-10**, which offers USB separate strings re-amping. Computer hardware and processing power is almost limitless, and even a modest home PC is capable of running 48+ tracks of studio quality audio. Without question, In recording and production, there is no longer an excuse for not sounding like a professional guitar player!

That said, let's move onto the 'Separate Strings Makeover' guide.

### BEGIN

#### *Separate string 'insert effects' on input channels or audio channels?*

Generally it is much better and non-destructive to use 'insert effects' on audio channels, as this allows maximum audio creativity once separate strings are recorded. Having said that, in a large production with many tracks and effects running, an average computers resources may not be able to use upwards of 24 insert-effects (dedicated to separate strings) on six guitar string track channels + production. A half-way house might be to use Hi-Pass Filters on separate string input channels, and tweak the more troublesome Auto-Tune, Noise-Gate and Limiter insert effects on audio channels. If you are confident enough your computers processing power is more than adequate, you can almost ignore this advice.

### RECOMMENDED INSERT AND AUDIO PROCESSING COLOUR GUIDE

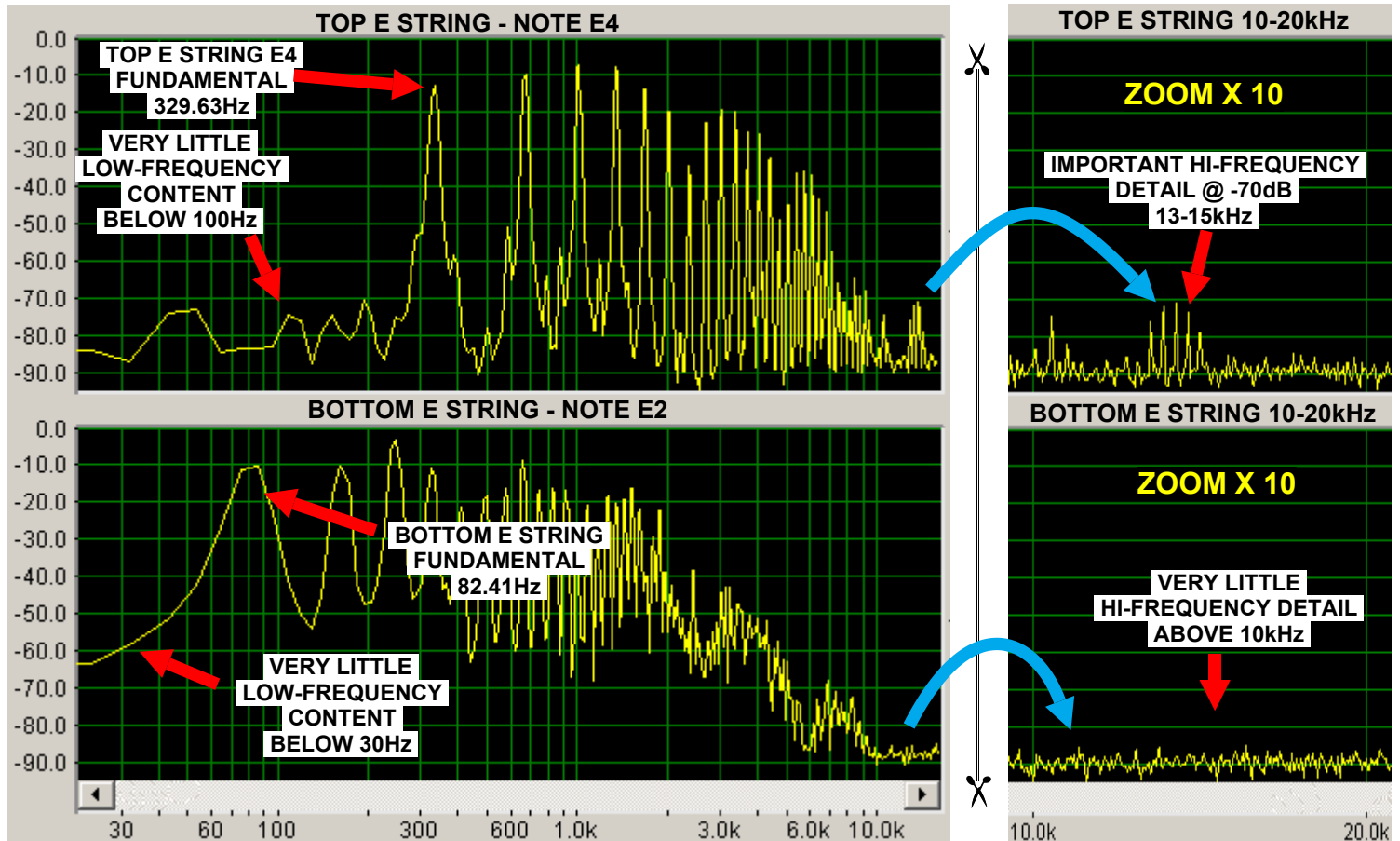
<b>INPUT CHANNEL INSERT</b>  Recording effect inserts to audio tracks.  <b>DESTRUCTIVE &amp; CANNOT BE UNDONE</b>	<b>PROCESS AUDIO</b>  Processing track audio before audio channel inserts.  <b>DESTRUCTIVE &amp; CANNOT BE UNDONE</b>	<b>AUDIO CHANNEL</b>  Effect inserts requiring careful tweaking.  <b>NON-DESTRUCTIVE &amp; CAN BE UNDONE</b>
<b>HI-PASS FILTER LIMITER *</b>	<b>DC-OFFSET NORMALIZE NOISE-GATE *</b>	<b>NOISE-GATE * LIMITER AUTO-TUNE &amp; MANY MORE...</b>

# 1. HI-PASS SEPARATE STRING FILTERING

TYPE: **INPUT CHANNEL. DESTRUCTIVE & CANNOT BE UNDONE**

Using a Hi-Pass filter insert on separate string input channels, will add precious dB's to your overall dynamic-range. You will also be reducing irrelevant frequency content, which is generally accumulative and later processed by a v-synth. The suggested Hi-Pass settings of **60Hz - Top 'E'** and **30Hz - Bottom 'E'** was painstakingly researched, with many hours of 'ear squinting' and careful spectrum analysis. As a separate string hex pickups unwanted frequency content of each string is known, there is little point inserting a Hi-Pass filter to an audio channel. A much better choice, is to insert the filter on a separate string input channel. On a cautious note, Low-Pass filtering is not recommended, as a guitars high frequency content extends to 20kHz. See spectrum analysis diagram below.

## SEPARATE STRING SPECTRUM ANALYSIS

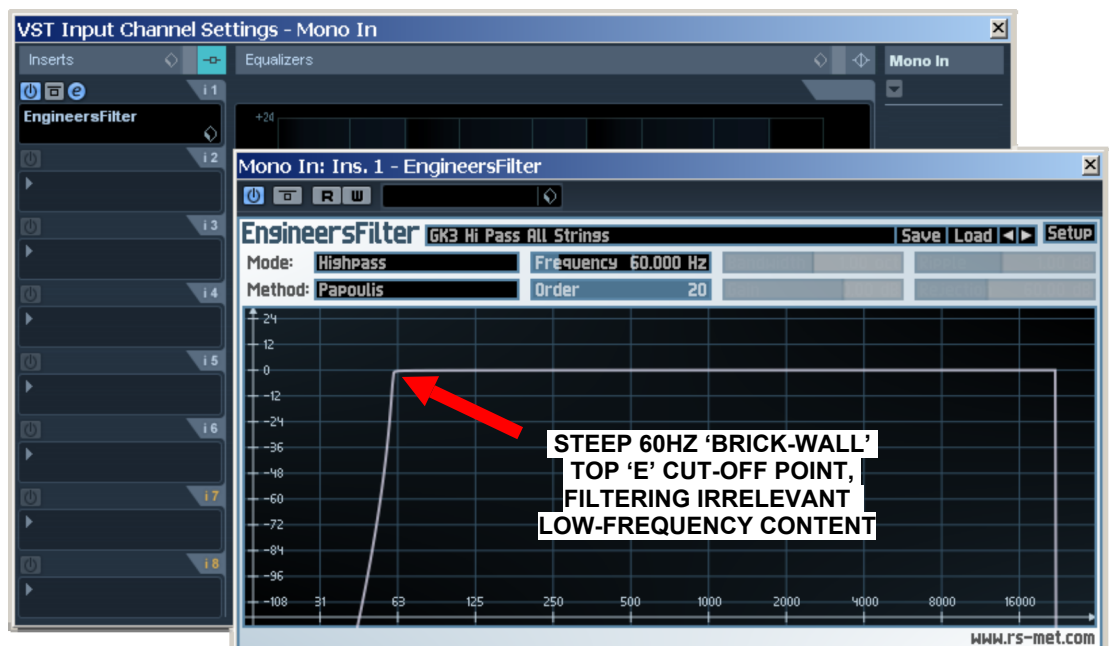


### HI-PASS FILTER INPUT CHANNEL EngineersFilter VST

Do not waste your time experimenting with internal audio sequencer Hi-Pass filters, or a VST plugins that do not offer a 'brick wall' steep cut-off point. Instead, I strongly recommended you use the impressive **EngineersFilter** by [www.rsmet.com/freebies.html](http://www.rsmet.com/freebies.html)

#### SETTINGS:

**EngineersFilter only.**  
Mode: Highpass  
Method: Papoulis  
Frequency settings:  
Top E 60Hz - B - 50Hz.  
G - 45Hz. D - 40Hz.  
A - 35Hz. Bottom E - 30Hz



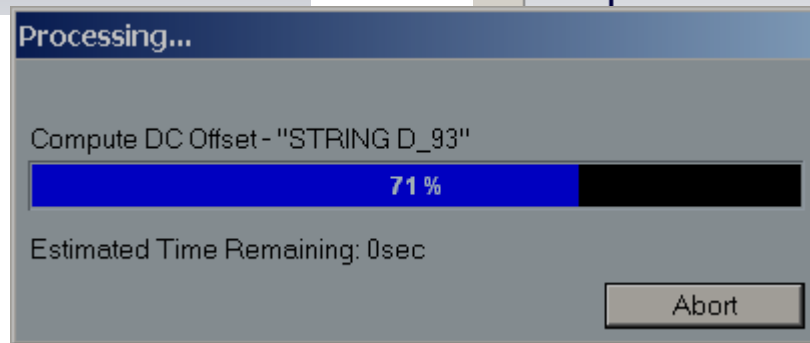
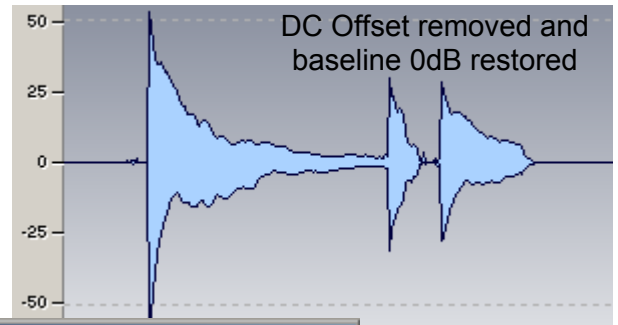
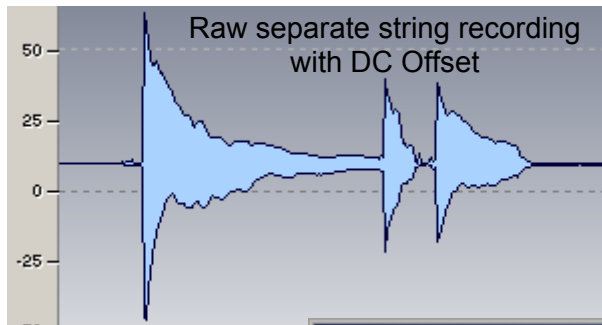
**Mac users** with no access to Engineers Filter, I suggest you find an equivalent plugin, or simply set your Hi-Pass filters to 20Hz. An A/B plugin ON/OFF listening test, will allow you to select the correct H-Pass cut-off frequency for each string. Critical headphones monitoring recommended.

STEP 2: REMOVING DC OFFSET >>>

## 2. DC-OFFSET REMOVAL.

TYPE: **PROCESS AUDIO. DESTRUCTIVE & CANNOT BE UNDONE**

Depending on the input and output circuit design with your DAW interface, there is a high possibility of inadequate DC Offset content removal. Audio DC Offset reduces dynamic-range and increases the threat of hard digital clipping with harmonic distortion.



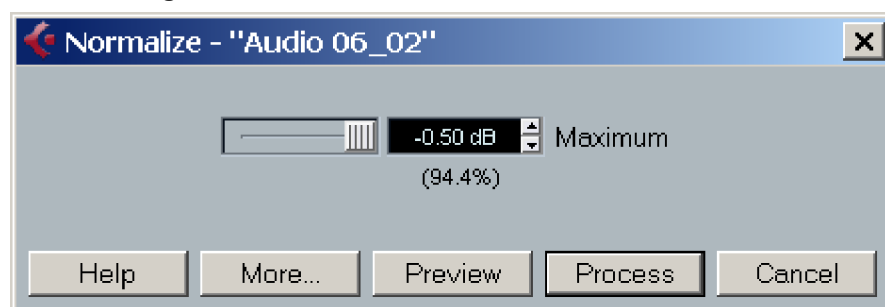
## 3. NORMALIZE.

TYPE: **PROCESS AUDIO. DESTRUCTIVE & CANNOT BE UNDONE**



It is almost impossible to record a separate string with an input level of 0dB. It is generally best to aim for a -3dB target area, and later 'normalize' the recording. 'Normalizing' allows each string to be at optimum audio level without distortion and clipping.

Normalizing to -0.5dB creates a maximized distortion-free safe area



STEP 4: SEPARATE STRING NOISE-GATING >>>>

### 3. NOISE-GATING.

TYPE: **AUDIO CHANNEL INSERT. TYPE: NON-DESTRUCTIVE & CAN BE UNDONE**

TYPE: **INPUT CHANNEL. DESTRUCTIVE & CANNOT BE UNDONE \***

Inserting a Noise-Gate on a separate string audio channel will lower a v-synths input noise-floor, and in some instances increase separate string separation.

A Noise-Gate 'Threshold' setting of -35dB provides a safe starting point, and with careful experimentation settings of -30dB may be possible. The 'Attack' setting should be kept short, while a 'Release' setting of 150ms provides a gentle decay effect.

Listening carefully to individual notes decaying, while adjusting the 'Threshold' will ensure optimum Noise-Gating results.



### 4. LIMITER.

TYPE: **AUDIO CHANNEL INSERT. TYPE: NON-DESTRUCTIVE & CAN BE UNDONE**

TYPE: **INPUT CHANNEL. DESTRUCTIVE & CANNOT BE UNDONE \***

Strictly speaking, inserting a Limiter on a separate string track is a matter of personal choice. By nature, an electric guitar steel strings dynamic-range varies greatly, and sharp random peaks can mislead a user's judgement with Input/Audio channel levels. A modest 3-6dB of 'Soft-Knee' Limiting will trim off peaks, and generally 'condition' the separate string tracks before re-amping. Again, listening to individual notes and adjusting the input level (gain-reduction) will give the best results. Do not go over 6dB, as this will destroy a guitars natural dynamics.



## 5. AUTO-TUNE.

TYPE: **AUDIO CHANNEL INSERT. TYPE: NON-DESTRUCTIVE & CAN BE UNDONE**

Staying in tune is key to successfully recording a guitar performance. A chord can be completely ruined if two strings are flat and sharp by 6-Cent.

Generally, +/- 4-Cent value is acceptable, although dissonance starts to creep in with +/- 6 to 8-Cent. It is easy to be neglectful by not tuning up regularly, and later feel regret identifying flat and sharp notes.

If you have managed to let through a few 'off' notes, all is not lost by using an audio sequencers 'Finetune' adjust. If there are many flat and sharp notes, you may benefit from a 'global' use of an Auto-Tune audio channel insert plugin.

Individual note 'Finetuning' works but has audible side-effects and takes patience!

**TIP:** Keep your tuner on the desktop at all times. Staying in tune will save you from excessive note retuning. Free AP Tuner [www.ap tuner.com](http://www.ap tuner.com)

### GSNAPS VST AUTO-TUNE PLUGIN (*The poor man's Auto-Tune guitar*)

An excellent free plugin from <http://www.gvst.co.uk/downloads.htm>

Requires experimentation to achieve a desired result.

GVST GSnap

Copyright Graham Yeadon

## STEP 6: SEPARATE STRINGS TRACK EDITING

No point in insulting anyone's intelligence here, as today's audio sequencers are filled with audio track editing tools, guaranteed to improve any guitar performance. Imaging your favourite guitarist's separate string solo optimised with 'copy, paste, move and align etc. The result would be a considerable improvement over its mono counterpart. Moderate separate string editing normally takes a few hours, and can even be used to rescue a poor guitar performance.



**Select, Split, Copy, Paste, Move, Align, Volume, Erase, Finetune, Transpose, Mute, Reverse, Fade, Invert, Effects processing... anything else?**

The screenshot displays a DAW interface with six tracks for guitar strings: STRING TOP E (pink), STRING B (green), STRING G (yellow), STRING D (purple), STRING A (blue), and STRING BOT E (orange). Each track shows a waveform and a piano-roll style editing area. A 'PASTED NOTE' label is visible in the String B and String A tracks. A tuner window titled 'AP Tuner 3' is overlaid on the String A track, showing a note of G3 and a deviation of +10.2 cents. A text box at the bottom right of the tuner window reads: 'Tuner always on top, sniffing out bum notes...'. The interface includes a top transport bar with navigation and playback controls, and a left sidebar with track-specific controls.

## STEP 7: SEPARATE STRINGS RE-GUITAR & RE-AMPING >>>>



## STEP 7: SEPARATE STRINGS RE-GUITAR & RE-AMPING

Armed with your separate string recordings routed to your v-synth, you can begin hands-free v-synth re-guitar and re-amping. Without the tedious 'play a bit...adjust a bit' nag, it is possible to review hundreds of patch permutations in a short time. As where before with 'play a bit...adjust a bit', you might only reach 50 or so adjustments, and then settle on a poorly researched tone. Guitar tones, effects, amps and cabinet choice is personal, and therefore no further separate strings makeover guidance is needed.

Happy twiddling!  
Bill Bax



# LINKS & RESOURCES

**EngineersFilter.** Probably the best Hi-Pass 'brick-wall' VST filter available.  
<http://www.rs-met.com/freebies.html>

**AP Guitar Tuner.** An accurate free guitar tuner for your desktop.  
[http://www.aptuner.com/aptuner\\_index.html](http://www.aptuner.com/aptuner_index.html)

**James Taylor's tuning lesson.** A general guide on the pitfalls of tuning a guitar.  
<https://youtu.be/V2xnXArjPts>



Bonus Lesson: TUNING - Official James Taylor Guitar Lessons

**GSnaps Auto-Tune.** An impressive free VST Auto-Tune plugin.  
<http://www.gvst.co.uk/downloads.htm>

**Roland GR-55 Floorboard Editor.** Software author: gumtownbassman. Also known as 'gumtown' at the v-guitar forum. The shareware editor is a must for any GR-55 owner! All donations to gumtownbassman help with further v-guitar editing software and regular updates.  
<https://sourceforge.net/projects/grfloorboard/>



**V-Guitar Forum.** The No1 place for all things V-Guitar.  
<https://www.vguitarforums.com>



[www.separate-strings.co.uk](http://www.separate-strings.co.uk)

That's me - Bill Bax

