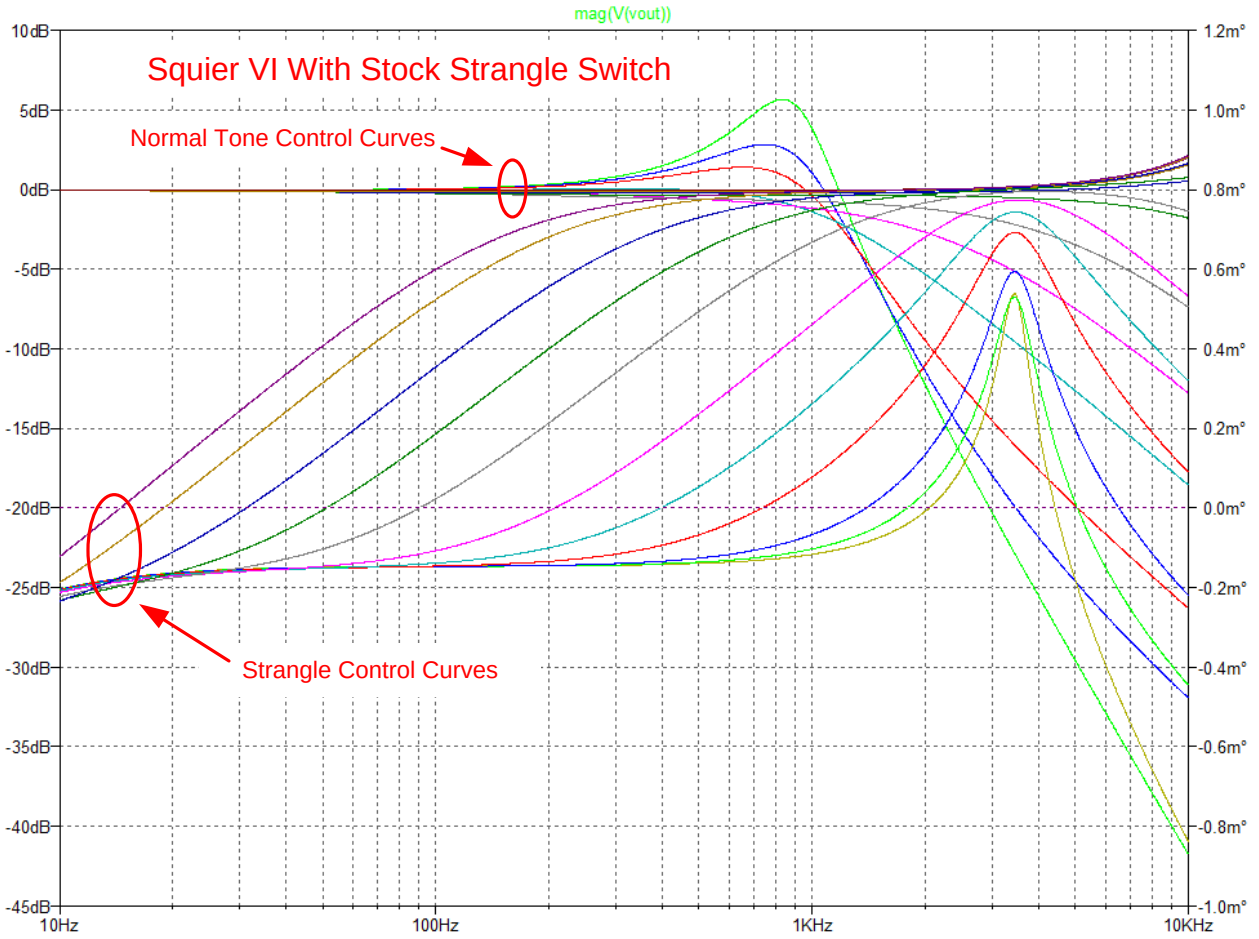
Taming The Squier VI Tone Control

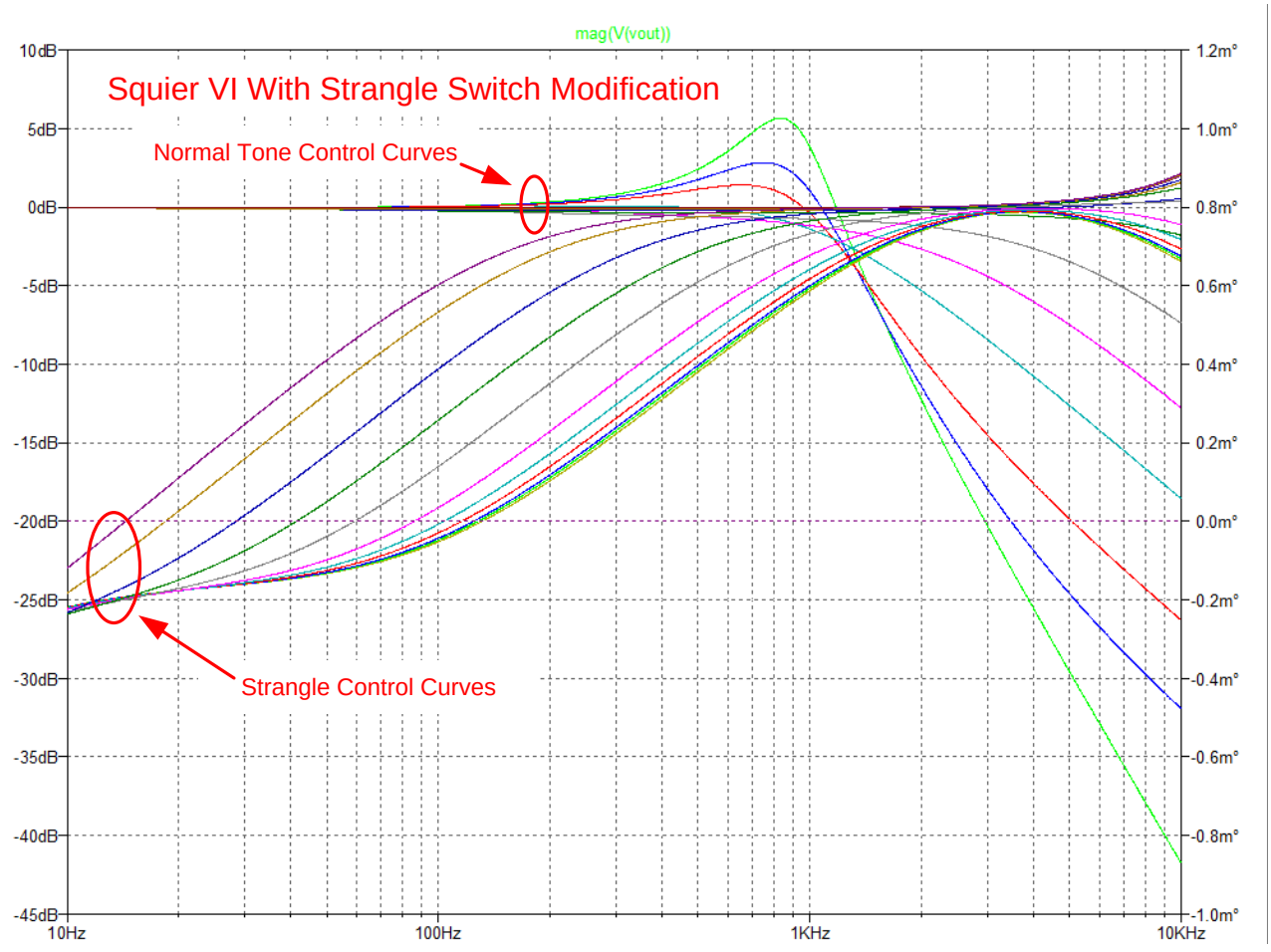
By Ken Hutchinson

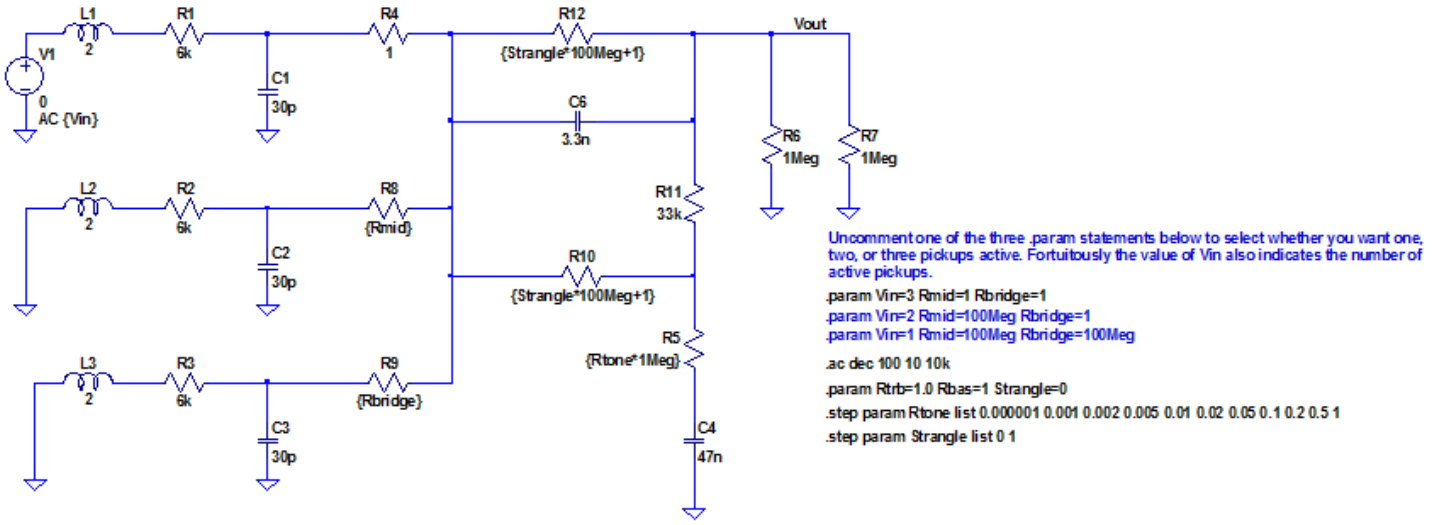
Shortly before my Squier VI arrived at the local music store where I ordered it I saw a post on an internet forum complaining that with the strangle switch engaged the sound would go away (almost) with the tone control turned all the way down. Is this supposed to be normal the poster asked? I could not compare his results with mine since I had no VI to test yet but the wiring diagram is available so I put it into the LTSpice circuit simulator that Linear Technology Corporation so graciously makes freely available and it was obvious that the complaint was well founded. With the strangle cap engaged and the tone control turned well down you get a band pass filter that becomes very narrow at “0” on the tone control and it has several dB of insertion loss attenuating the little bit of bandwidth left. You can see this in the graph on the top of the next page. And my VI actually arrived a day or two later so I was able to confirm the circuit simulator’s results with personal experience. That seemed silly, especially when I tried moving the tone circuit to the pickup side of the strangle cap and observed that the tone control would now work as it normally did. What was Fender thinking? I mean, come on, how simple would it be to do that for us at the factory and eliminate this problem??

But something at nagged me over the next day as my thoughts occasionally returned to how silly this was. If you look at that graph on the top of the next page you will see that before you get to the point where you almost lose your signal entirely you get this nice variable cutoff high pass filter. If you avoid turning the tone knob all the way down that could be useful, no? Perhaps Fender wasn’t so silly after all! BTW, sorry that these graphs are so “busy”. I am trying to show both the normal tone control curves and the strangle switch low cut curves on the same graph.

However, good as that may be the very real chance remains that in the heat of battle, so to speak, you might overshoot the setting you wanted and lose your signal entirely at just the wrong moment. It might be nice to have a way to limit this effect to the point where it ceases to do more good than harm. So I played around with the circuit for a while and came up with a way to use one of the spare contacts on the strangle switch and a resistor you can add to the circuit to give you a low cut filter that can’t be accidentally over engaged. Basically you cut the wire that connects the tone pot to the volume pot and put a 33kΩ resistor in its place. Now you cannot turn the tone pot lower than 33kΩ and that solves the problem as you can see in the second plot on the next page. When the strangle switch is engaged. But you still may want to turn the tone pot to zero when you are using it as a normal tone pot, that is when the strangle switch is disengaged. You can do that by adding the red wire shown in the diagram on the second page following to connect the tone pot to the strangle switch contact right next to the strangle capacitor. Now when the switch is set to normal not only is the strangle capacitor shorted out, the resistor we just added is shorted out too. So in normal mode you have a normal tone control and in strangle mode you have a low cut tone control. As per usual with such modifications the values you choose for the strangle capacitor, tone capacitor, and the limiting resistor you add are up to you and you can feel free to experiment with the values. Naturally the color of the wire you add does not matter either, looks like I may be using a blue wire. The second page following also has the circuit schematic I used for those who might like to do their own simulations. And with luck there will be a third, perhaps fourth, page following with some pictures of how I did the modification.


mag(V(vout))
Squier VI With Stock Strangle Switch
Normal Tone Control Curves
Strangle Control Curves
10dB
5dB
0dB
-5dB
-10dB
-15dB
-20dB
-25dB
-30dB
-35dB
-40dB
-45dB
1.2m°
1.0m°
0.8m°
0.6m°
0.4m°
0.2m°
0.0m°
-0.2m°
-0.4m°
-0.6m°
-0.8m°
-1.0m°
10Hz
100Hz
1KHz
10KHz


mag(V(vout))
Squier VI With Strangle Switch Modification
Normal Tone Control Curves
Strangle Control Curves
10dB
5dB
0dB
-5dB
-10dB
-15dB
-20dB
-25dB
-30dB
-35dB
-40dB
-45dB
1.2m°
1.0m°
0.8m°
0.6m°
0.4m°
0.2m°
0.0m°
-0.2m°
-0.4m°
-0.6m°
-0.8m°
-1.0m°
10Hz
100Hz
1KHz
10KHz



Fender

'64 BASS VI WIRING

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