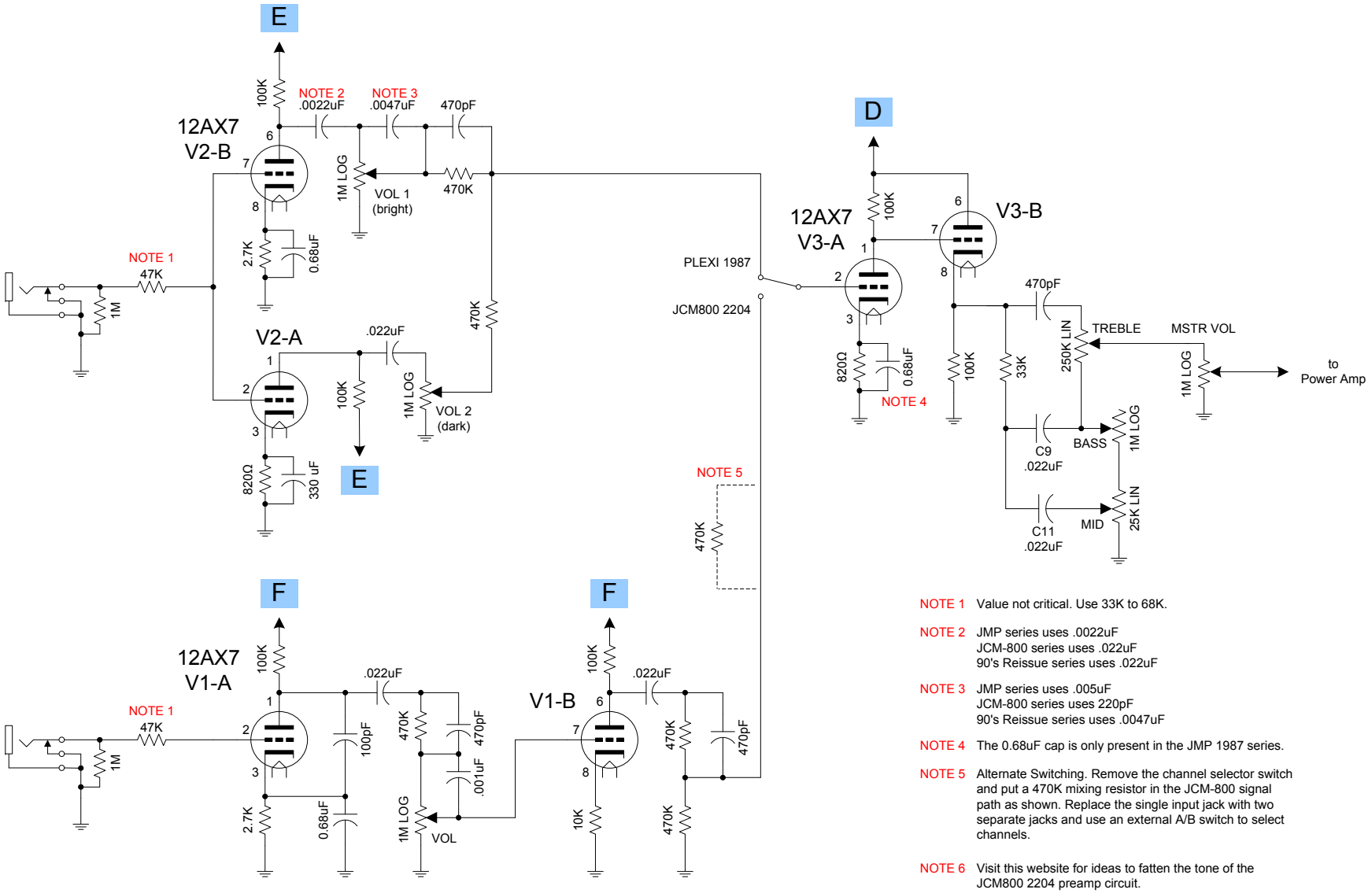
Marshall Dual Preamps
JMP Series 1987 and JCM-800 2204

Drawn by Steve Luckey



NOTE 1 Value not critical. Use 33K to 68K.

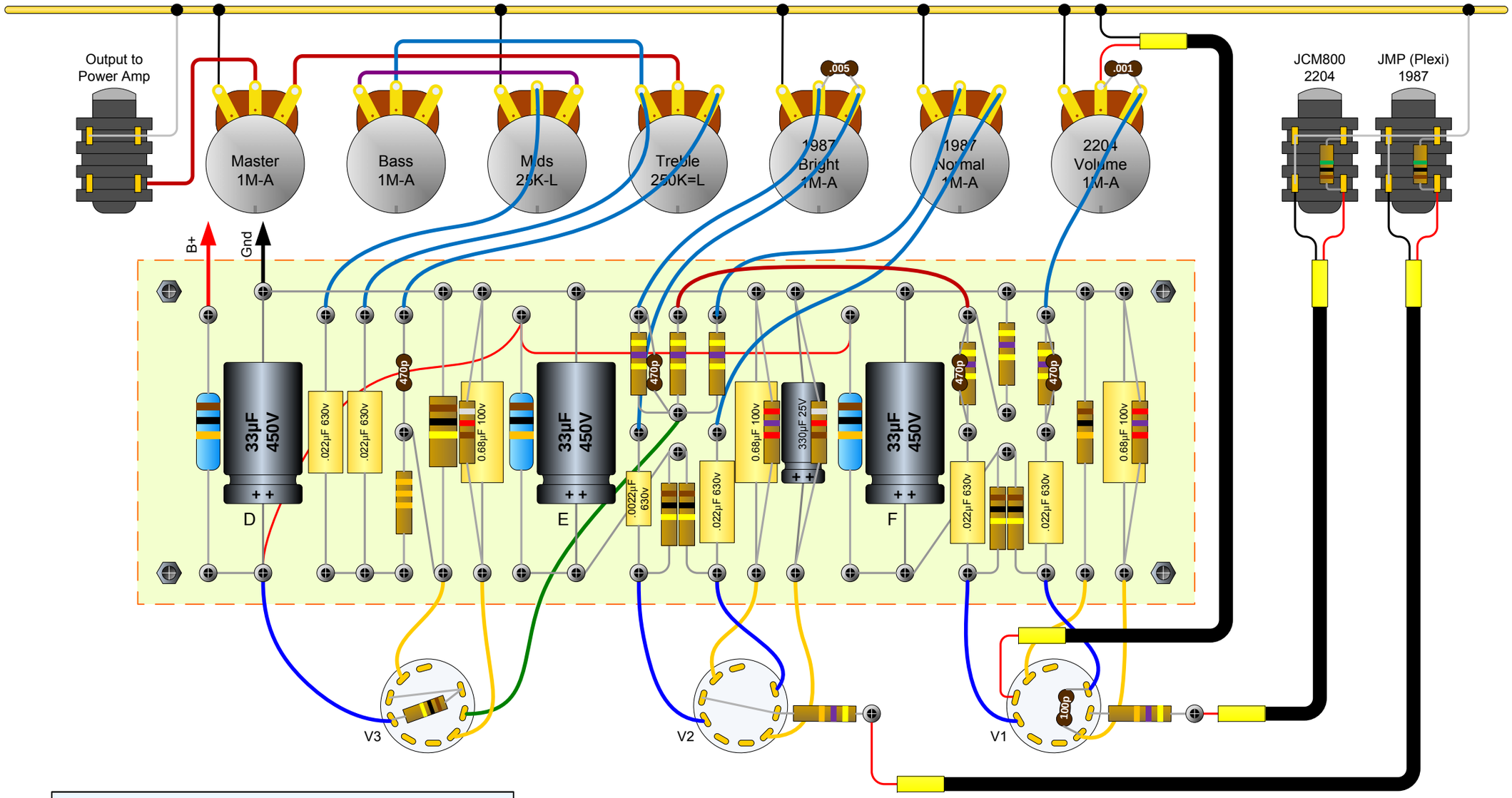
NOTE 2 JMP series uses .0022uF
JCM-800 series uses .022uF
90's Reissue series uses .022uF

NOTE 3 JMP series uses .005uF
JCM-800 series uses 220pF
90's Reissue series uses .0047uF

NOTE 4 The 0.68uF cap is only present in the JMP 1987 series.

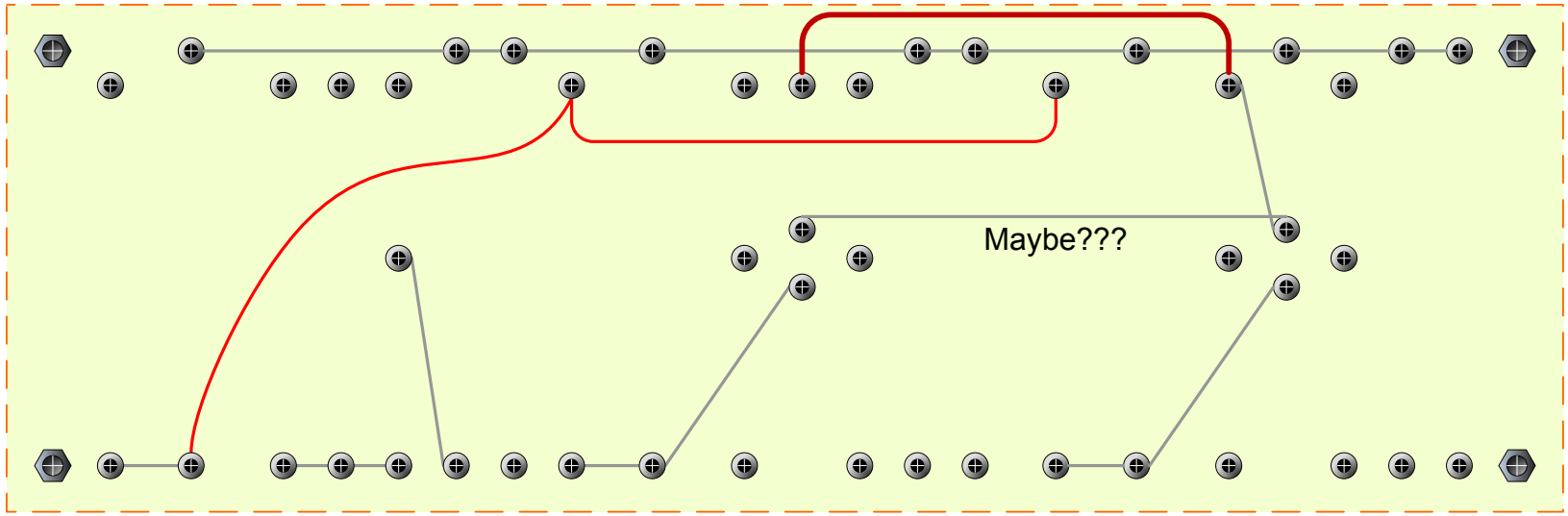
NOTE 5 Alternate Switching. Remove the channel selector switch and put a 470K mixing resistor in the JCM-800 signal path as shown. Replace the single input jack with two separate jacks and use an external A/B switch to select channels.

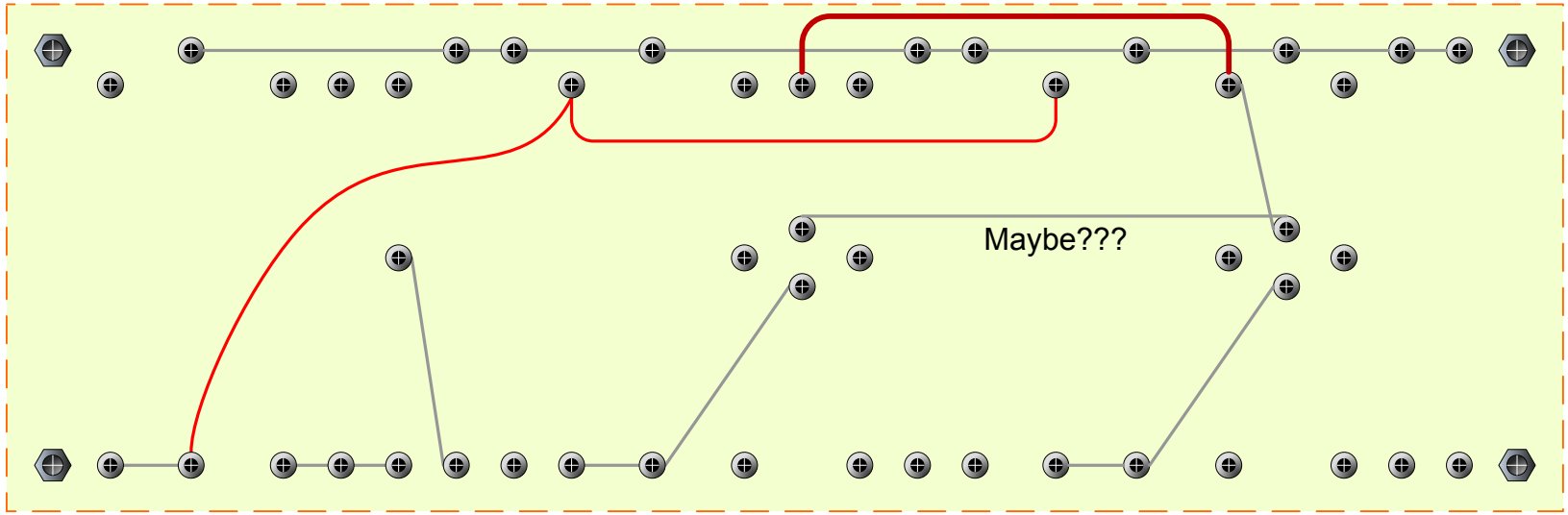
NOTE 6 Visit this website for ideas to fatten the tone of the JCM800 2204 preamp circuit.
http://www.tone-lizard.com/Ultimate_JCM800.htm



Marshall Dual Preamp Board Layout

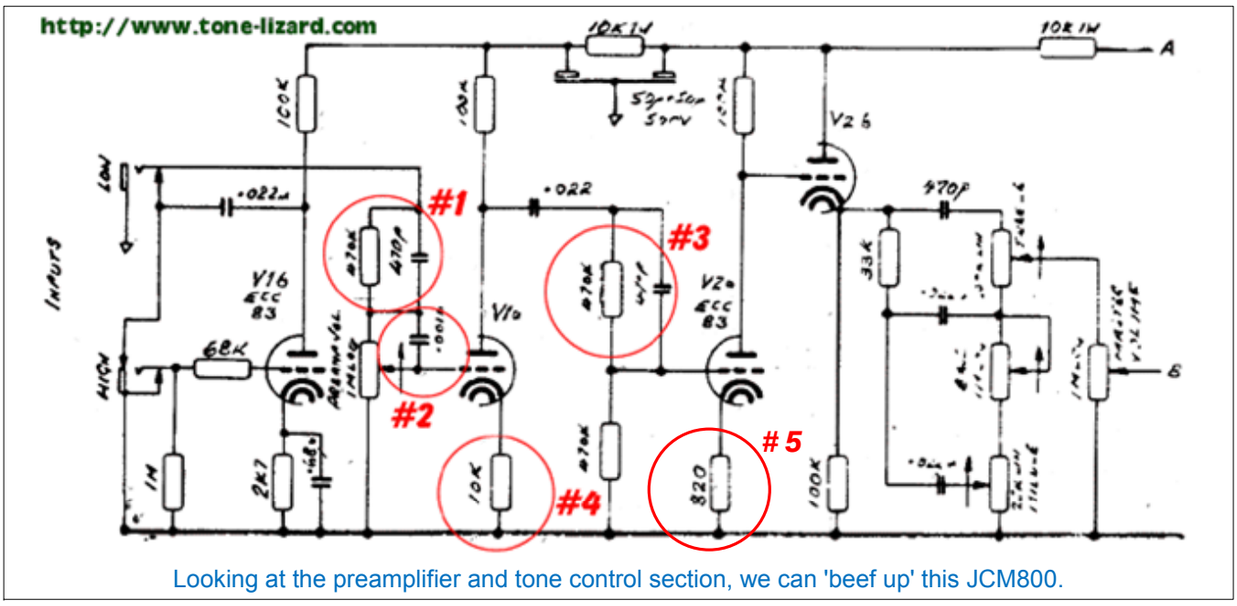
Board Dimensions:	8 7/16" x 2 3/4"
Designed by:	Steve Luckey
Date:	August 19, 2008


Maybe???


Maybe???

Tone Tweaks from the Tone Lizard

First up, here is very bad sample of the official Marshall schematic for the 2203/2204 preamplifier section. I have circled a few areas we will look at. The object here is to decide where you need the 'improvement', and to try a few of the remedies. Please try them 'one-at-a-time', and decide when to say 'when'. I may even make a few suggestions not noted in the schematic below. The bulk of any mod-merchant's work seem to be in the preamplifier section, whilst completely ignoring the phase inverter and power section. Well, I can't argue that point, so these ideas won't seem very different. However, we are not adding an extra tube, so any vintage value can easily be restored if the results are not what you expected.



Looking at the preamplifier and tone control section, we can 'beef up' this JCM800.

Let us start right at the input jacks. What you should note is the 'High' input is a single gain stage feeding the closed circuit jack labeled 'Low'. The 'Low' input is attenuated by a parallel combination of a 470K resistor and a 470pF capacitor.

Point #1 shows the capacitor/resistor pairing referred to as a 'treble peaking' circuit, and accounts for some of the thin tone at low volumes. You may just remove the cap to defeat the treble peaking, and keep the 470K without affecting the gain. Or, remove the pair, and use a 68K resistor in their place. This accomplishes two things; number one is the treble peaking is 'removed', so the full tone returns. Secondly, we get just a little extra 'garlic' to the preamplifier gain. Now, how much 'gain' is enough is very subjective, and problems of oscillations and instability can arise. Therefore, I recommend only doing a little boosting to the preamplifier.

Point #2 shows a brite cap on the Volume control. This is really not conducive for a fat tone at anything less than full volumes, and many guitar players complain about the situation. In a split-second, I always 'snip out' the .001uF capacitor across the Volume control. This is sometimes enough for certain guitar players!

Point #3 shows a second treble peaking circuit, and we have a few options. First is just to simply remove the 470pF capacitor. Decide if this is enough, or continue on thusly. If the tone isn't to your liking, you can always put it back. Or, if we want a little more 'push', we can lower the 470K resistor. Try 100K or 220K.

Point #4 shows a cathode resistor. This is a good place to easily boost the gain. The stock value is 10K, and I do not usually go lower than 4K7 for noise and stability reasons. I have seen many modified amplifiers where this has been changed to the 1K5/22uF seen in most Fender type amplifiers, but this can get to be too much. Remember, we don't want to radically alter the tone (do we?); we want a little more gain, and to 'fatten up' the overall response.

Point #5 shows another cathode resistor. You can bypass this resistor, with anything 0.68uF and higher. The JMP series 1987 (Plexi) uses a 0.68uF. This will boost the gain and also affects tone. You should know what the different capacitor values will do to the frequency response, so please make an informed decision. Remember; too much gain always results in a Marshall that is noisy, and squeals at high volume settings. Plus, this Marshall tends to be thin and bright-sounding at low volume settings, so the goal was to 'correct' this. The 'modest' extra gain thrown in is nice, but not always necessary. To repeat what I mentioned earlier (because I can't over emphasize this point); this amplifier will still 'clean up' by backing off the Volume control of the guitar, unless we go 'ape shit' by adding far too much gain in one single stage. Adding small amounts of gain in multiple stages is far superior.

The information on this page is credited to the Tone Lizard and can be found at www.tone-lizard.com. I have not tried any of these tweaks yet, but I do agree with all of them.

... Steve