

The Blue Guitar

Pro Maniac Revisited

Introduction

I had run into a dead-end on my Pro Maniac project from 1998 in trying to get the "Tweed/High Gain" mode switch to work properly without any switching noises, so I moved on to other projects. After using a similar preamp in my Hot Rod Tweed amp mod for a SF Bassman head, I decided to return to my Pro Maniac and apply some of the improvements developed with the HRT. Incidentally, one limitation of the Hot Rod Tweed amp mod is that you do lose the BF sounds of the stock Bassman head; if I could get the OD channel of my Pro Maniac to work like my HRT I would have the "best of both worlds".

For starters, I pulled out the dreaded "Tweed/High Gain" switch to simplify the design (this switch would bypass the added gain stage in the OD channel). In addition to some minor tonal tweaks I also added in the Gain Switch immediately before V3A that I found to be so crucial in the Hot Rod Tweed design. Although just a simple voltage divider circuit, the Gain Switch supplies 3 different ranges of signal level that go to the dc-coupled pair for 3 overlapping ranges of overdrive and distortion. With a 470k resistor to ground, the gain is very high and when the OD gain pot is set to 10 there is plenty of crunchy distortion. With a 235k resistance to ground, there is less gain and distortion which is more suitable for blues guitar leads. And with a 150k resistance to ground the gain is fairly low and there is a wider range of cleaner sounds.

Other changes include a "Bright" switch for the OD channel which switches between two capacitances to ground immediately after the treble pot wiper. I also removed the voltage divider consisting of two 100k resistors which cut the signal level in half before it entered the Pre-PI master volume control. In conjunction with that change I also padded down the signal from the Normal channel by replacing the 1M resistor to ground right before the relay with a 470k resistor (I may try even lower values here).

The Details

In tracing the audio signal through the OD channel preamp, the first change was in the cathode circuit for the initial gain stage. I replaced the traditional 2.7k Marshall cathode resistor (R_k) with a 2.2k resistor. I also replaced the 0.68uF cathode resistor bypass cap (C_k) with a 1.0uF poly cap. The revised combination seems to work better at practically all gain levels. As on the earlier schematics a center-off SPDT switch is used here to select between a C_k value of 22uF, 0uF and 1.0uF ("Full/Clean/Warm").

The circuit remains unchanged until we pass through the 0.022uF coupling cap after the second gain stage. I had added in two capacitors to ground when I was trying to get the "Tweed/High Gain" switch to work properly last year. By having a 820pF cap

ahead of the RC contour network and a 100pF cap after it, I evidently created a bandpass filter which trimmed off both the highs and the lows for a very midrangy sound. So I removed both of these caps and then revised the OD Gain switch as mentioned above. (The earlier Pro Maniac designs offered a choice between a 470k resistance to ground and a 150k resistance to ground; it is the added choice between those two values [235k] that provides the best range for blues guitar leads.) The OD Gain switch is connected to the Contour network switch with a single wire so it is very easy to add in. The Contour switch (unchanged from the older Pro Maniac designs) offers 3 choices for the RC network between V2B and V3A. Marshalls have traditionally used a 470pF cap in parallel with a 470k resistor as an RC network between two stages. A tip over at AMPAGE suggested trying a 560pF cap instead of the 470pF cap, and I have found that to be a very good combination. So the Contour switch offers 3 values for the cap that parallels the 470k resistor: 560pF, 390pF and 0pF. (You could replace the 390pF cap with a 470pF cap for a more traditional option.)

There is an optional boost switch for V3A that adds in a 1.0uF to 2.2uF cathode resistor bypass cap (Ck) to the first half of the dc-coupled pair. There is plenty of gain in this amp circuit already so this switch is strictly optional. One part marked as optional on the earlier schematics is the 2.2uF/250+volt poly cap between the cathode of V3B and the tone stack. This cap seems to smooth out the tone stack a bit and it removes dc voltage before it gets to the tone caps. On my amp, I soldered one end of the cap to the #8 tube pin for V3 and the other end to the tone stack on the eyelet board.

The tone stack is unchanged from the earlier schematics, using a 330pF mica cap for treble, two 0.022uF Type 418P Orange Drop caps for bass and mid, and a 56k slope resistor. The center-off DPDT mini-toggle switch ("Tone Stack switch") offers 2 additional values for both the treble cap and the slope resistor. In one position a 390pF mica cap is run parallel to the treble cap for an effective capacitance of 720pF and a 330k resistor is added in parallel to the slope resistor for an effective resistance of ~47k. This position provides a subtle boost and tonal shift in the tone stack for a fuller, less trebly sound. The other position adds in a 680pF mica cap for an effective treble capacitance of 101pF and adds in an 82k resistor for an effective slope resistance of 33k. This position recreates the tone stack in the Pignose G40V, which is similar to many of the Marshall amps.

The G40V has a 0.001uF cap to ground right after the wiper of the treble pot. In the earlier versions of the Pro Maniac I had used a 500pF mica cap here but I decided to add a switch to select between a 250pF cap here (for a brighter tone) and a 500pF cap. This OD channel "Bright" switch is strictly optional and I use the bright position mainly for raw and raunchy blues and rock sounds. If you are looking for smoother OD tones you could rewire this switch to select between 500pF and 750pF (or even 1000pF).

Other changes from the earlier Pro Maniac schematics include a few tweaks to the Normal channel. I decided that with an 82k slope resistor I wasn't getting the brighter BF

sounds that I can't get with my Hot Rod Tweed, so I reverted to the stock value of 100k here. I also padded down the output of the Normal channel right before it goes to the channel switching relay by replacing the 1M resistor to ground with a 470k resistor. I may experiment with even lower resistors here to balance the output of the Normal channel with the low gain settings of the OD channel.

Final Notes:

With the changes outlined in this article my Pro Maniac sounds even better than before, getting the raw blues sounds from my Hot Rod Tweed amp mod along with the more traditional BF sounds. (In a future article I will explain the channel switching circuit used in this amp.)

Good luck!

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<http://www.techaccessinc.com/blueguitar/>

Pro Maniac and related files:

Original article on the Pro Maniac:

http://www.techaccessinc.com/blueguitar/proman_1.pdf

Basic design (early Summer 1998):

http://www.techaccessinc.com/blueguitar/pro_man1.pdf

Advanced design (late Summer 1998):

http://www.techaccessinc.com/blueguitar/pro_man2.pdf

Revised design (late Summer 1999):

http://www.techaccessinc.com/blueguitar/pro_man9.pdf

Pignose G40V schematic:

http://www.techaccessinc.com/blueguitar/g40_full.gif

Hot Rod Tweed schematic

http://www.techaccessinc.com/blueguitar/hrt_bm_s.pdf