The Blue Guitar

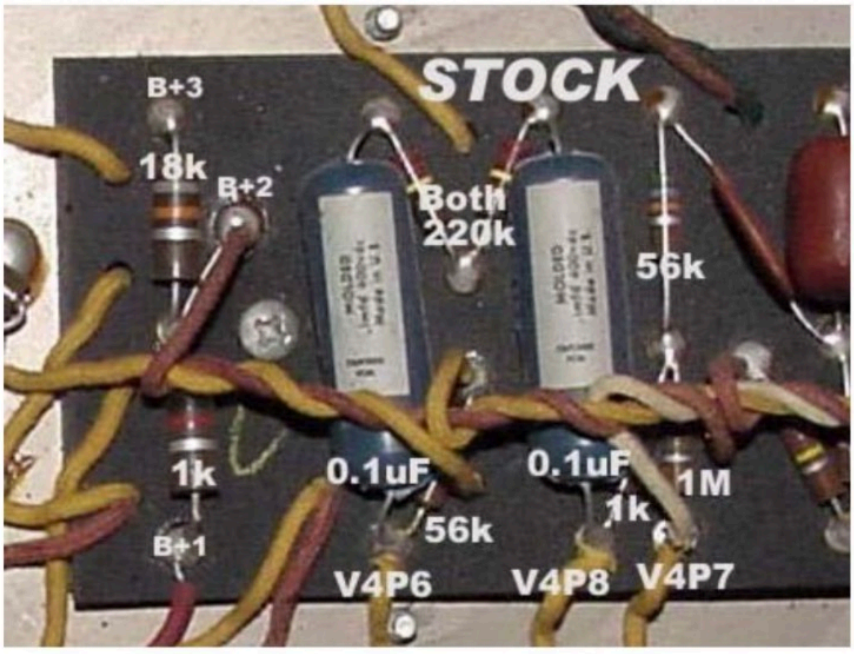
The John S. /Paul C. /Rick E. mods to my Princeton Reverb

Introduction:

The John Stokes mod to the power supply of a Princeton Reverb was documented on the Mike Tolomeo site many years ago; it evolved from a series of posts on the usenet. If you examine the schematic for the AA1164 PR you will find the phase inverter (AKA PI) plate resistor connected to the 4th node of the power supply which I will call B+4. It supplies roughly 240vdc to the 56k plate resistor, with maybe 200vdc getting to the tube. The John Stokes mod involves moving the PI plate supply to the 3rd node of the power supply (which I will call B+3) thus increasing the voltage going to the PI, which will increase the power output of the amp.

The Paul C. mod involves changing the bias of the cathodyne PI from cathode to fixed bias. Paul found that it reduces the assymetrical nature of distortion from an amp that uses a cathodyne phase inverter. The net result of this mod is a more powerful sound from the amp and an apparent increase in the bass response.

The Rick E. mod is a brand new addition to the two older mods posted on Mike Tolomeo's website; he had mentioned some of the mods he has been doing with Princeton Reverb amps for several decades and one of them involved replacing the first 18k resistor in the power supply with a 4k7 resistor, which will raise the voltage to the PI even more. (He has many other mods that he would do to a PR like putting in a choke and replacing the 10" speaker with a 12" speaker.)



The picture to the left shows the phase inverter for my 1964 Princeton Reverb, with all of the basic components labeled. The picture to

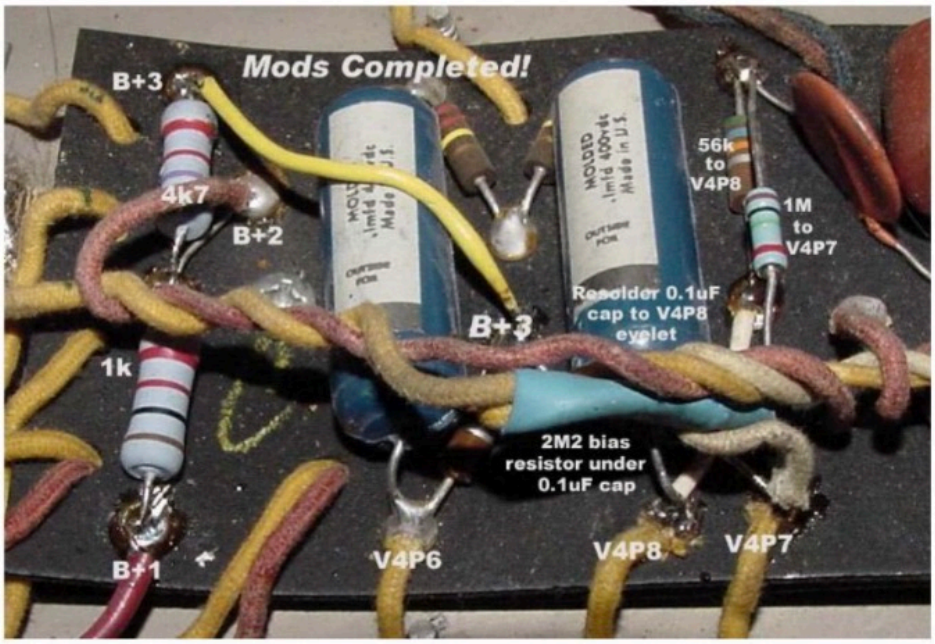
the right shows an early stage of the mods, with the power supply resistors already replaced, and the Stokes mod done. The yellow cloth wire from the B+4 terminal on the can cap has been removed from the eyelet going to the 56k PI plate resistor and soldered to the yellow wire from that eyelet which passes the B+4 voltage on to the preamp. I ran a short length of yellow teflon wire from the B+3 terminal to the eyelet going to the the 56k PI plate resistor.

The Rick E. mod has already been completed, with me replacing the first two power supply resistors with metal oxide resistors. The first resistor is the 1K resistive choke; the second resistor (18k) was replaced with a 4.7k resistor to lower the voltage drop between B+2 and B+3.

As for the Paul C. mod I have already removed the 1k resistor from the cathode of V4b and will replace it with a jumper going directly to the 56k resistor to ground. Those two resistors had connected to a 1M resistor at their junction, but I will be putting in a new 1M resistor directly from the V4b grid to ground, arching it up a bit so that it will not short against the eyelet. I have already unsoldered one end of the 0.1uF coupling cap connected to the cathode so that we can run a 2M2 bias resistor underneath it from the grid of V4b to B+3. I mention all of that because the layout of the 2M2 bias resistor and jumper is a bit

tricky.

The picture on the right shows the mods completed with the 0.1uF coupling cap reconnected to the cathode of V4b.



Not shown in this article are two other tasks I did when I had the amp apart: installing a three-pronged power cord and replacing the 4 section cap can. With the power cord you run the black wire (hot) to the brass colored terminal on the convenience socket and the white wire (neutral) to the silver colored terminal. I added a crimp terminal to the green ground wire and inserted it under one of the nuts holding down the power transformer. I did not remove the ground switch, but left it with the bat handle to the left to keep line voltage off the capacitor. Removing the cap can was an exercise in patience as it took me almost 2 hours to unsolder the 4 tabs, using two soldering irons together (I guess I need to get a high-powered soldering gun even though they can reputedly damage the magnets in your guitar pickups).

Enjoy!

Steve Ahola
March 19, 2005
(Revised 03/19/05)
steve_ahola@yahoo.com
http://www.blueguitar.org/

Links:

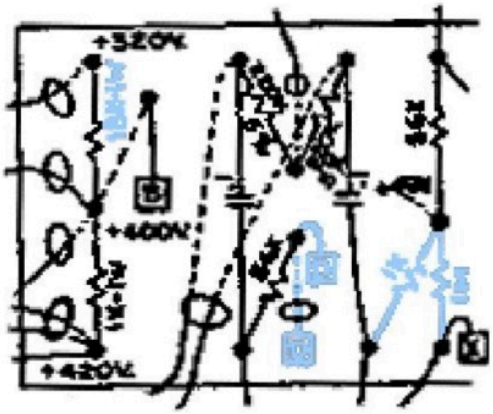
Mike Tolomeo's article on the John Stokes mod:

http://www.people.cornell.edu/pages/mt24/Amp/mm/PRtweak.html

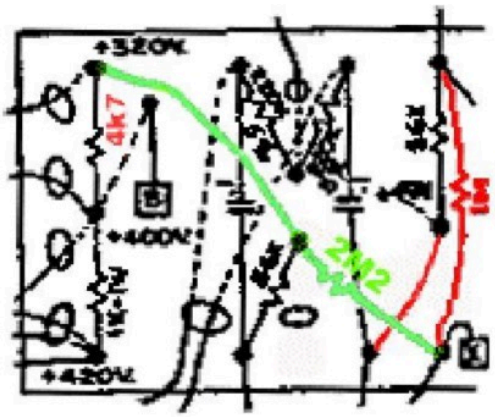
Mike Tolomeo's article on the Paul C. mod:

http://www.people.cornell.edu/pages/mt24/Amp/mm/paul_c_mod.html

Princeton Reverb AA1164 Mods



Stock Circuit



Modified Circuit