

In the early 1980's, I bought a used **Fender Bassman** amp from a male nurse I knew while I was working at French Hospital in San Luis Obispo. At the time, I was attending Cal Poly and working at the hospital in Data Entry to help defray college expenses. And, I played my bass guitar in Church functions. The guy who sold it told me that it had been modified. At the time, I didn't much care, as long as it worked. And it did.

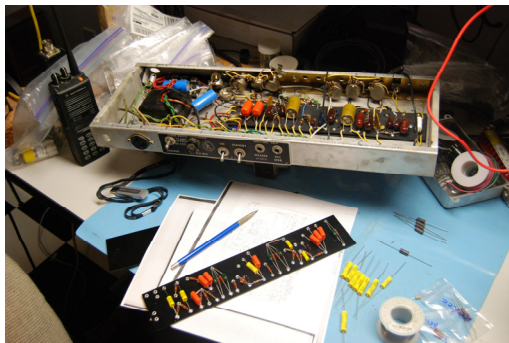
Fast forward to 2007. The amp had been sitting in my closet for a number of years and virtually unused. I knew the tubes had problems and I had no idea what kind of shape it was in. A customer of mine mentioned that he knew of a place that sold kits and instructions for rebuilding these amps. Since my son was an aspiring guitarist and was starting to get interested in having an amp, it made sense to rebuild the Bassman, modify it for guitar use, and put the classic amp back in service. The more Nathaniel researched what other guitar players were saying, the more he realized he liked the idea.

So, Nathaniel's Christmas present for 2007 was a couple of kits from Torres Engineering and my time to rebuild the amp. I want to thank Dan Torres and his staff for fine products and their patience on the phone. Early in the process, I had many questions about what I was reading in Dan's Book, which resulted in a few calls.

Nonetheless, my electronics and assembly skills made the job easier. I read where others have struggled at such projects due to lack of test equipment or other factors. Sometimes I wonder if all that provided me a foundation for success or foolishness. The fact that I'm still alive to write this means I at least fixed more things than I broke.

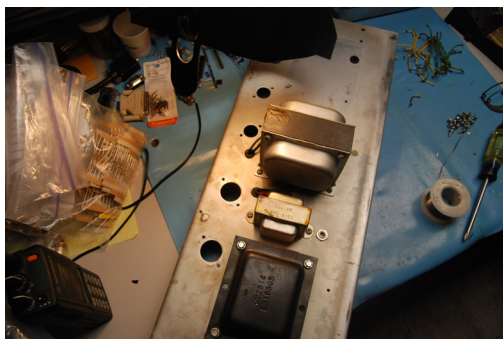
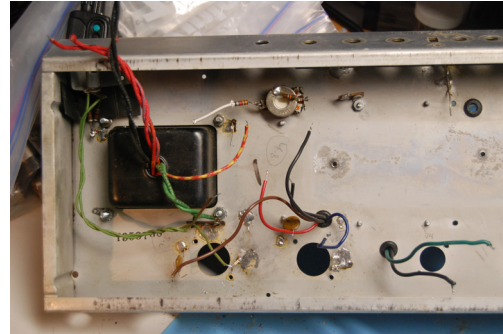
Because of work and other issues attached to life in general, the effort took me ten months. Not only did I want to do a good job, but I was very careful due to the high voltages present in this amp. Still, there was a bit of awe in this process.....according to the transformer code, I learned this amp was manufactured in 1968. I had no idea that it was this vintage and it made it all the more unique.

I started the project by obtaining the parts and original amp schematic. I did a great deal of research on the Web to learn what others had done to these amps. I also redrew the schematic in sections so I could get familiar with its functionality and be able to document the changes I made in the course of the project.



Before doing anything to the amp, I started assembling the new component board. This provided a sanity check against the original assembly and helped point-out the modifications made by the previous owner. While I was thinking about modifications to the amp, my first goal was to get the amp rebuilt and running again in very close to stock condition. From that point, I'd make the modifications to a known working amp.

Once that process was finished, I stripped the amp down to the bare chassis. This allowed me to clean the chassis of years of oxidation and other gunk that comes from use.

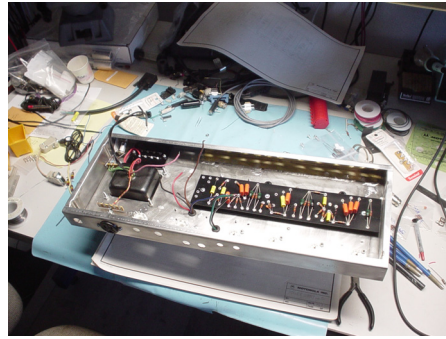


In these photos, you can see some of the stamped markings on the chassis. I was never able to figure out what they meant, but I made sure I captured them photographically, in case the cleaning of the chassis removed them.

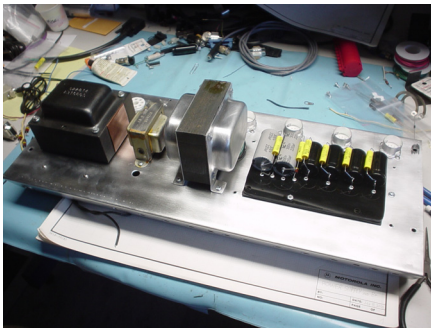


Once all the parts were removed, I put a round wire brush on my cordless drill and brushed the chassis clean. I removed as much of the old solder as I could. I also resoldered the copper grounding plate. That effort required a small propane torch in order to get the parts hot enough to take solder and allow the solder to flow. It still did not turn-out as smooth as I would like, but the electrical connection is far better.

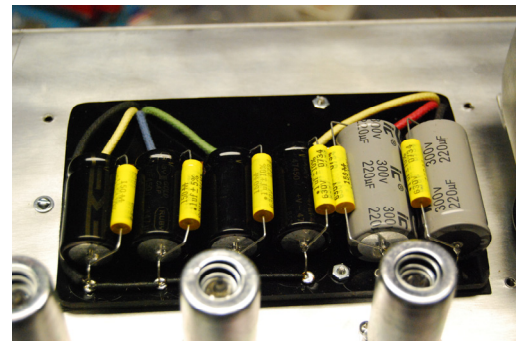
I started by mounting new tube sockets and the transformers. By themselves, they were nice to behold. Then I mounted the component board.



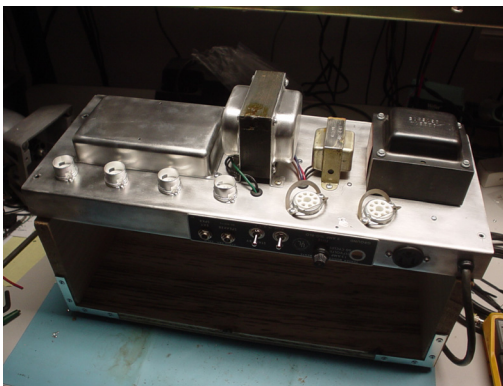
I built a new power supply filter board from black plexiglass and some eyelets I bought from Torre's. The filter caps are all new and slightly higher in value. I also added .1 uF caps across the big filters to increase responsiveness.



The power supply was the first section for rebuilding. I needed a working power supply before anything else in the amp would work. All the wire was replaced with new and slightly larger gauge DCC wire. This is make things a little tough trying to get the wires through the holes on the main filter board to the underside of the chassis, but it was not impossible.

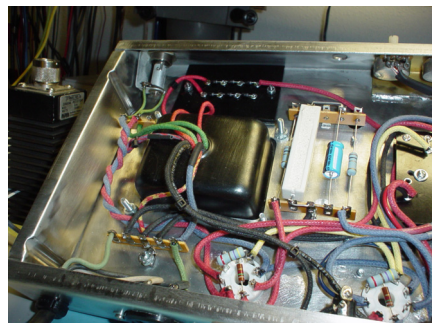


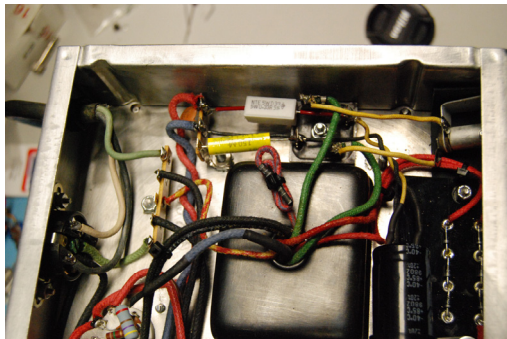
With the mounting of the major components, the chassis got hard to handle and keep in a workable position. I finally saw where someone else had made a "service stand", so I made one. This made it much easier to work on the top and bottom of the amp.



Early on, I made the decision to cathode-bias the power amp, so I mounted those components during power supply assembly. You can see them on the right side of the power supply transformer.

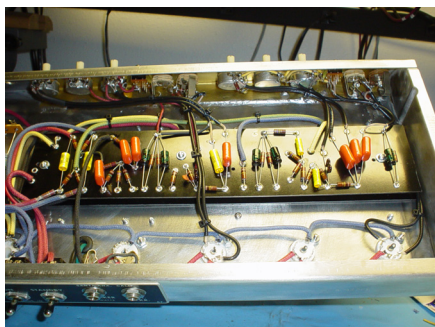
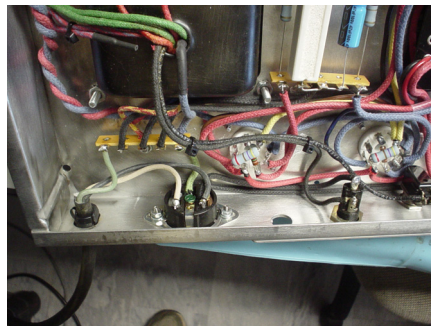
Because of that, the original bias supply was not needed. So I built a new rectifier board to hold just the diodes and mounted it in place of the original, warped board.





I also decided to use DC for the filament voltage. A potted full-wave bridge rectifier was bolted to the chassis, as seen above the power transformer, as well as a .1 uF cap for noise reduction and a .33 ohm/5W resistor for dropping the voltage under 6 Vdc . The filter cap is to the right of the transformer, between it and the rectifier board.

Between this and a previous Fender amp that I've owned, I've been bit more than once because of improper grounding issues, but wasn't smart enough at the time to know what to do about it. Now I do. The ground switch was removed and the hole plugged. The new three-conductor power cable's ground was connected to the chassis. A new three-conductor accessory plug was added, seen in the foreground.



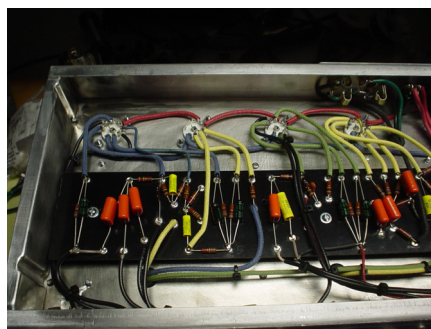
With the power supplies completed and tested, work could start on wiring. The filament wiring was first and a .1 uF cap was added to each filament to further reduce any possibility of transient noise on the filament supply.

I wired the 6L6's to the main board, then added the pots and jacks.

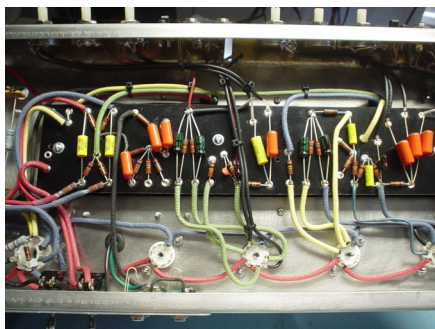
In retrospect, I'm not entirely happy with the length and routing of some of the wires.

On the other hand, it is neater than the original.

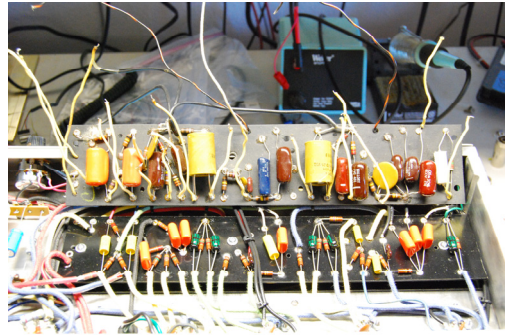
As someone wrote, these things were originally assembled by musicians, not technicians.



I did used several different colors of wire to segregate sections and make servicing easier.



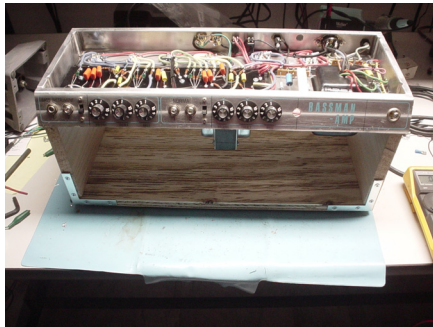
Here's a before-and-after look, comparing the old and new main boards and components.



I started getting more frequent visits from Nathaniel when he noticed the knobs and plates were back on.

At this point, many of the power-up tests were done and it was getting close to time to try it out.

The hole on the right was where a Master Volume pot had been added, Since Nathaneil was looking forward to tube overdrive, I plugged it with a new MPV, wired after the phase inverter.

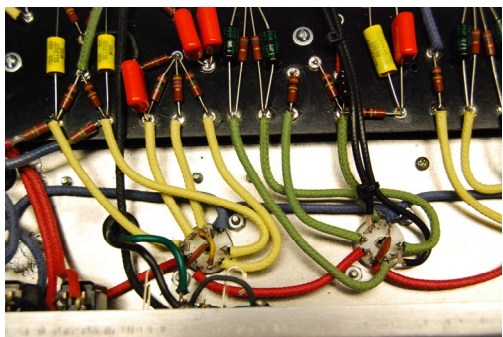


I bought a metal hole plug from Lowe's to plug the ground switch hole.

I did have to enlarge the AC accessory jack hole, as the replacement jack was slightly larger than the original.



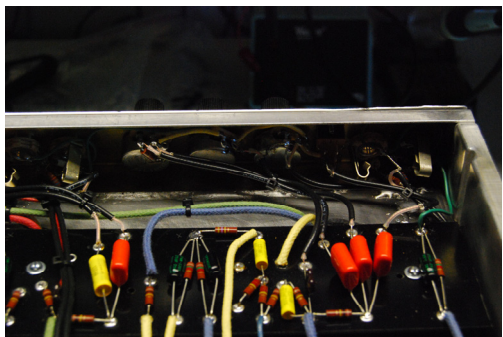
Here you can see the .01uF filter caps on the filament connections.



The sight of the inserted tubes was welcome. At this point, the filament supply was working well and the B+ supply was working under load.

It was time to hook-up Nathaniel's Axe and see what happens.

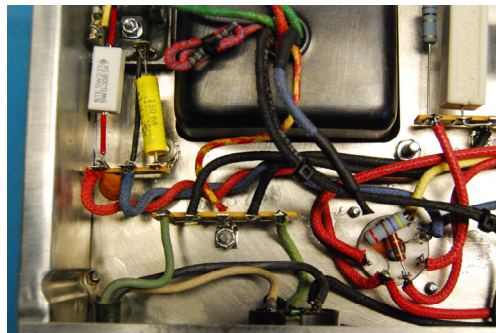




Here's a closeup of the filament supply and the AC grounding area.

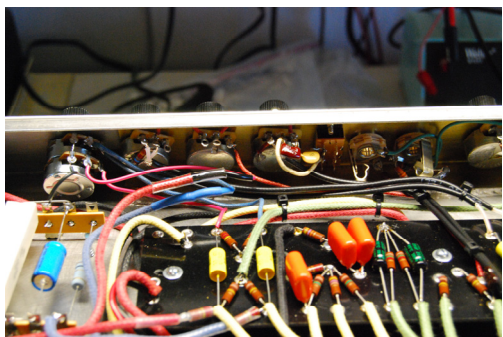
The first audio checks revealed more hum than I liked. Some research turned-up that I had done some of the grounding improperly from the power supply board. Since I had ran out of DCC wire, I had to use some poly-jacketed wire to add the necessary ground connections, seen on the right.

I also had more hum because the final preamp tube, a 12AT7, was replaced with a 12AX7, thus yielding a little more overall gain.



The master volume pot was added.

I ended-up leave the bass input circuit stock and modifying the normal input for guitar work. When the two channels are paralleled, Nathaniel can create all kinds of colors to his liking.



Since my new power cord was larger than the original, I modified the rear cover so that the power cord would not have to stay in a nasty 90-degree bend.

Thanks goes to my very handy wife that loosened to Tolex, cut the wood, and then re-glued to Tolex for a nice job.



Though #47 Bayonet lamps are cheap and easily available, I wanted to replace the pilot light with an LED. Ya....I know. It doesn't make much sense to replace a 50 cent bulb with a \$10 LED, but it is a direct Bayonet replacement and draws a tenth of the current the bulb uses from the filament supply.

For some reason, I ended-up with a 14V LED so it isn't as bright, but it is nice.



So, here's the finished product, complete with new knobs. You can see the pilot light is on.

As Nathaniel uses it, I'm sure there will be some tweaking, especially with the overall gain so a compromise can be struck between gain and not having to run the volume controls so low.

