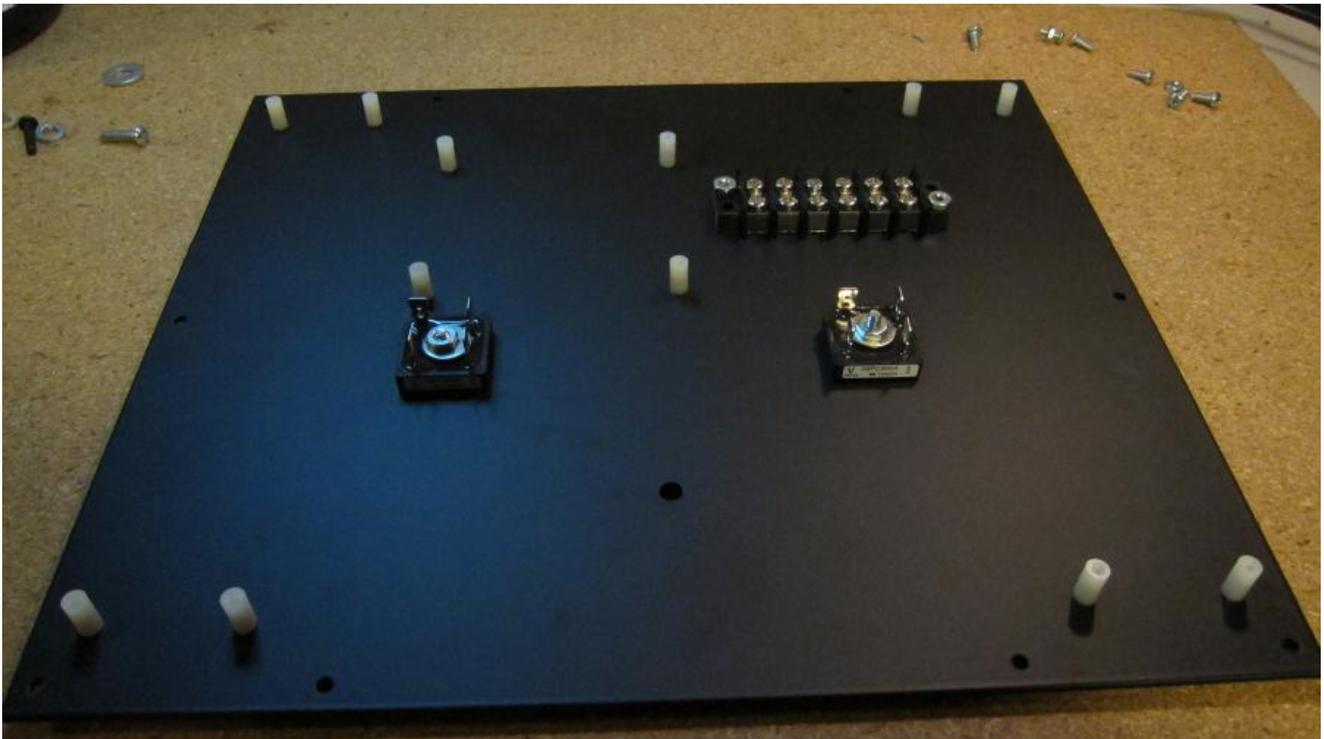


Assembly Begins

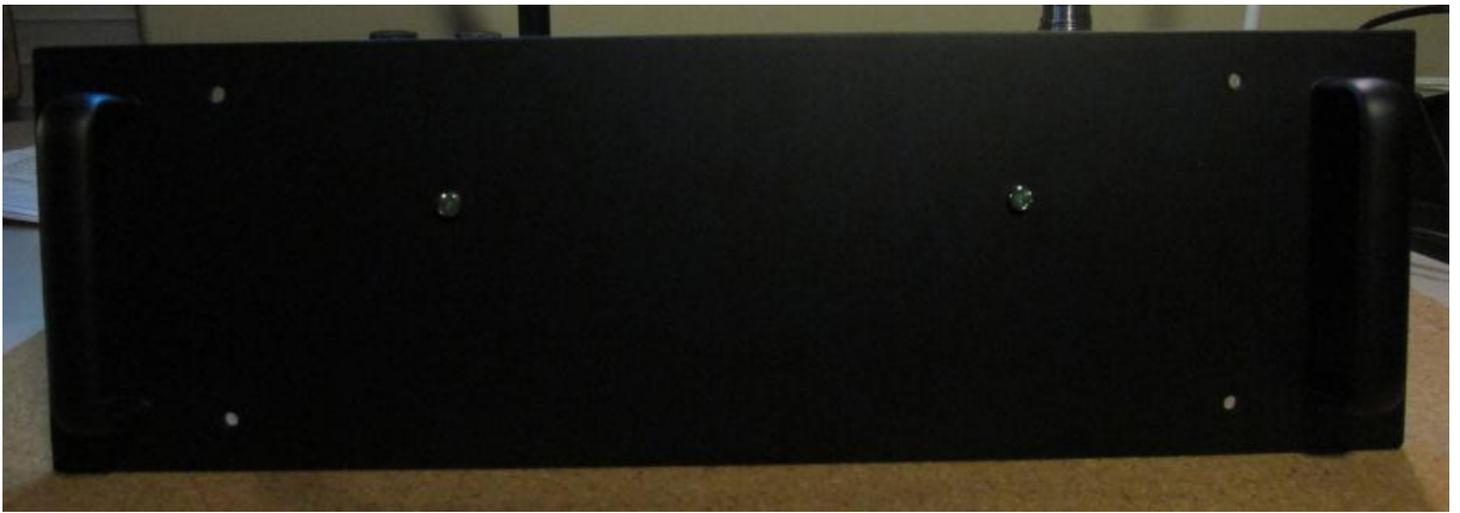
This is the bottom panel with the nylon offsets for the powers supply board (four in the center) and for the two long amplifier boards (four on each side).



Next, we installed the bridge rectifiers and a terminal strip, as shown, below. The rectifiers have an aluminum base to conduct heat to the case, and the base does not communicate with any of the rectifier leads. While we did not use thermal paste on the first F5 for rectifiers, and everything appeared to work fine, many recommend using it on the rectifiers since they can get quite warm, and we expected even higher temps with this F5 turbo, given higher current draw. Thus, thermal grease (Silver Arctic) was used on the bases of the rectifiers.



Below is the front panel with the green LEDs installed. Each LED will be powered by one of the two amp boards.



Finally, below is the back panel without the fan installed. The fan is bulky and we'll put it in at the end. The openings for the fuse and power receptacle/switch required no treatment, but we had to drill out, a bit, the holes for speaker and input terminals after powder coating. There is no evidence of the welding repair around the power switch.

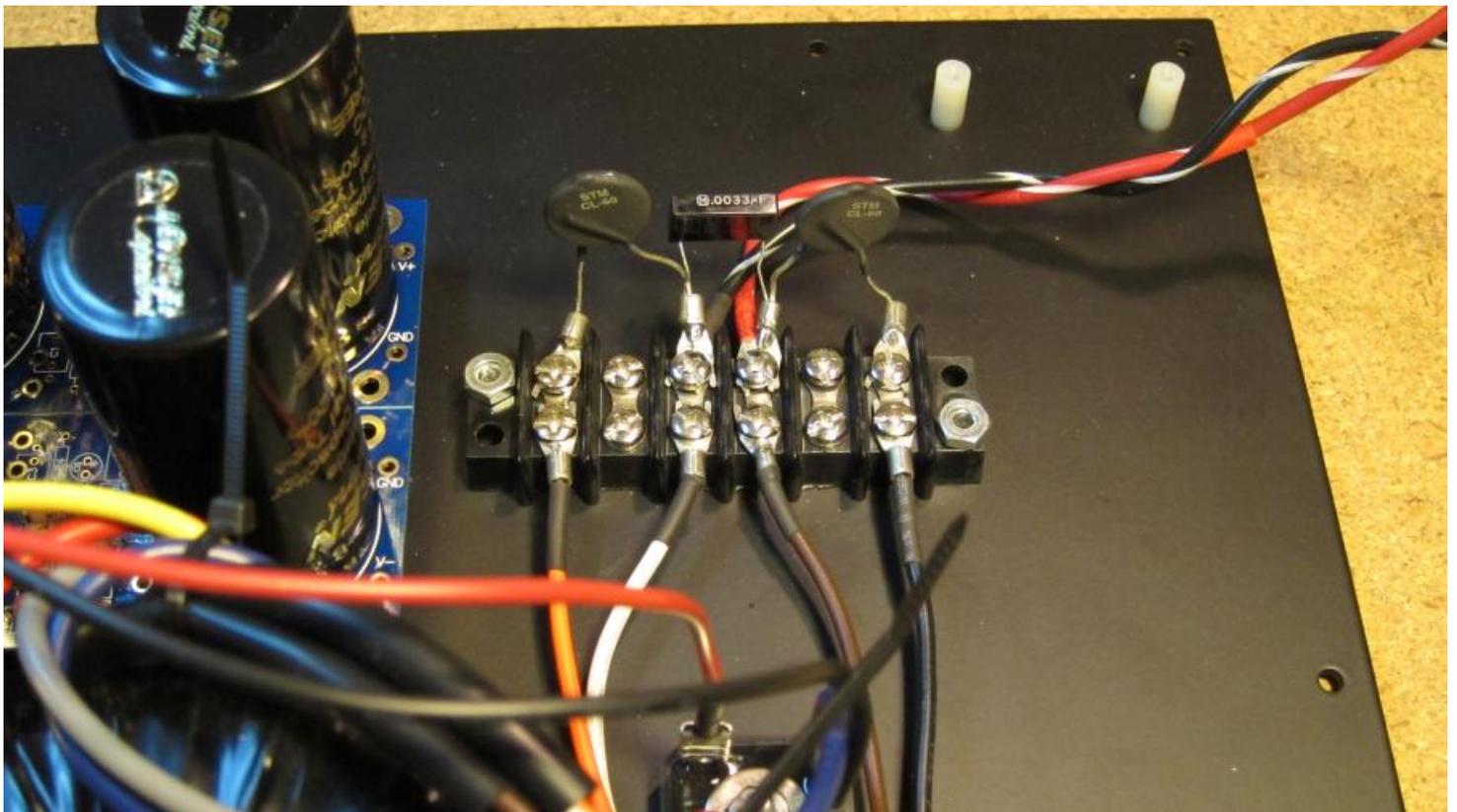
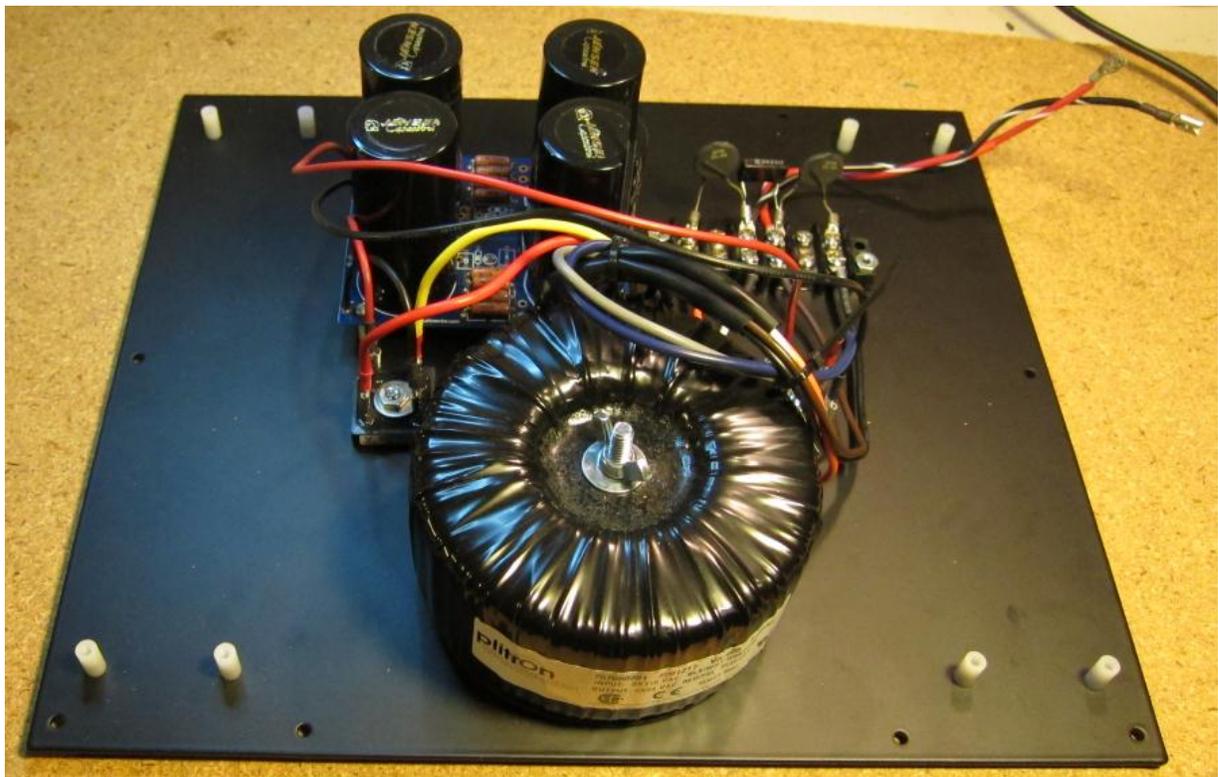


Wiring the Power Supply

After the transformer, PS board, rectifiers, and terminal strip were mounted, wiring began.

In the photo below, over on the back right, the striped wires going off to the side are line voltage in from the fuse/switch in the back panel. The striped wires will carry power to a terminal strip, where connections are made to the primary side of the toroidal transformer, and where the CL-60s and .0033 uF capacitor can be connected into the circuit.

But first, the holes in the bottom panel for the terminal strip bolts were scraped, including the surface immediately beneath the bolt heads to be sure that the bolts would be conductive to the case. This was important because we will be using one of the bolts and nuts through the terminal strip for wiring the case ground later.



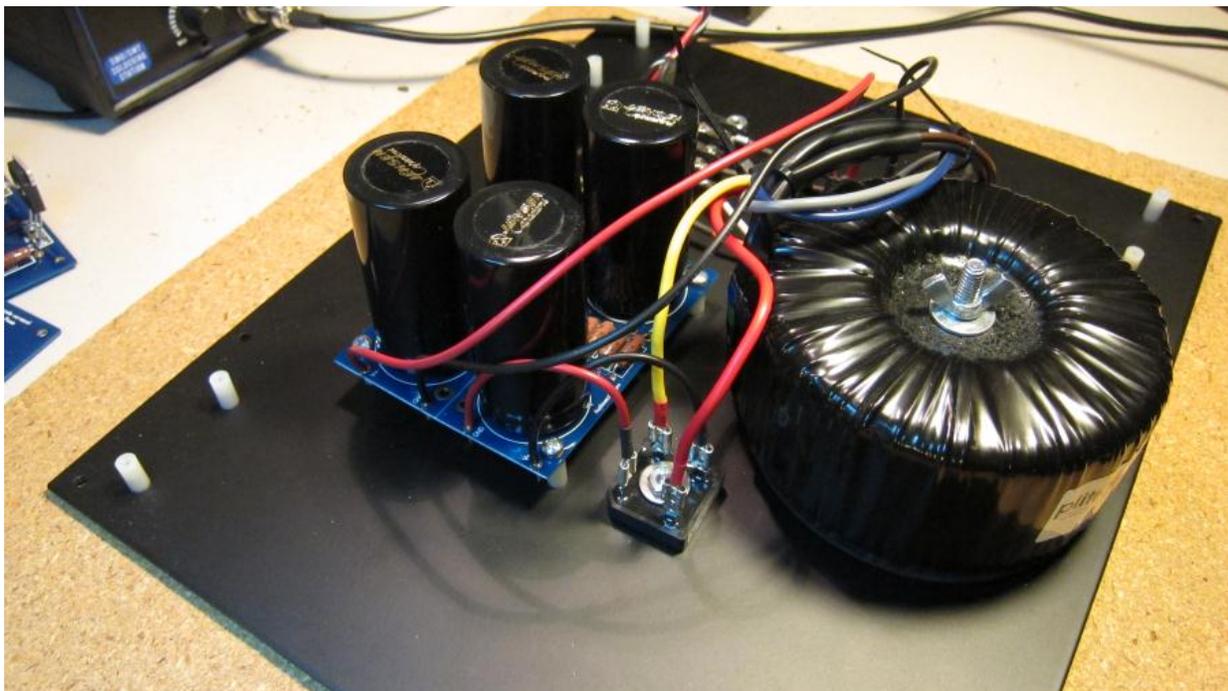
The above terminal wiring scheme was described in nice detail by 6L6 for an F5 build in a thread that we had found extremely helpful for our initial F5 construction:

<http://www.diyaudio.com/forums/pass-labs/188691-illustrated-guide-building-f5.html>
<http://www.diyaudio.com/forums/pass-labs/182723-how-build-f5-24.html#post2492769>

Take a look at the generic PS schematic shown early in this document. Our transformer has two primaries and two secondaries. The primaries, connecting at the terminal strip, are protected by two CL-60s (black discs). These are NTC thermistors that display ~ 10 ohms when cold (no current flowing), and drop to less than 1 ohm as they warm up when current flows through them. The initial 10 ohms prevents a large current surge when first powering up the amp. Each is rated for 5 amps RMS at steady state current. With 5 amp tolerance to a CL-60 on each of the two primary windings, there shouldn't be any problem with overloading them. In the photo, above, one primary side has black and white wires, the other primary side has brown and orange wires. Let's follow power in through the red striped wire that will be coming from the back panel. The red striped wire directly connects to the brown wire (one input to a primary winding) and also through a CL-60 to the black wire (the input to the other primary winding). On the brown primary side, the circuit returns from the transformer in the orange wire which connects through a CL-60 to the black striped power wire. On the black wire side of the primary, the circuit returns from the transformer on the white wire which goes directly to the black striped power wire. The 0.0033 μ F capacitor sits between both power wires (between the black striped and red striped wires).

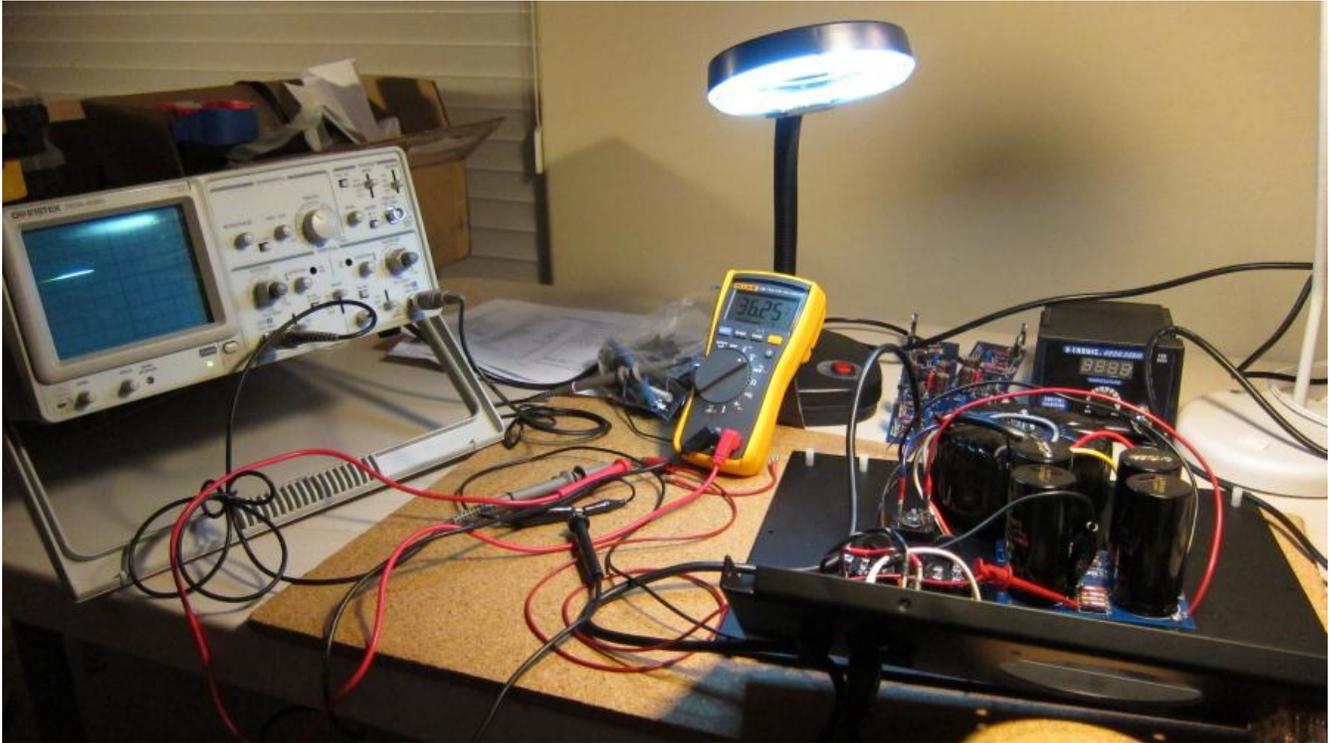


In the photo above, the secondaries from the transformers go to two bridge rectifiers, with one clearly shown.

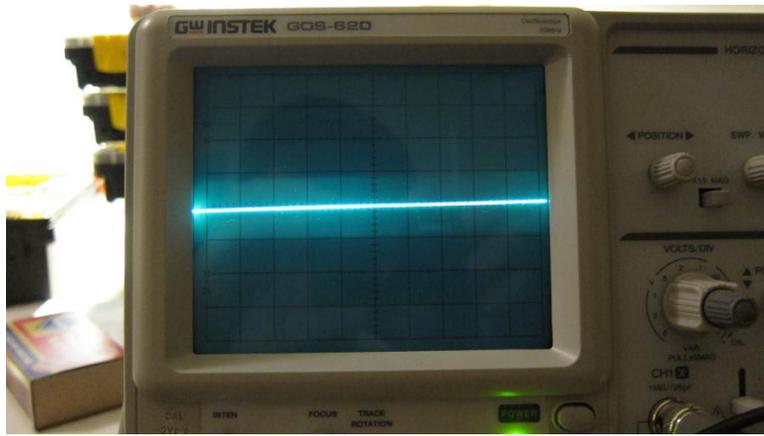


On this side of the amp, above, you can see the second rectifier. Rectified DC travels to the power supply board, as shown. The DC out of the board (before a load is applied) should be about +36VDC at one end, and -36VDC at the other end with the common ground in the middle (when the amp is up and running, in reality, rails will be closer to 34 VDC + and -).

Next was to check PS voltages. The red and black striped wires from the terminal were connected to the power/switch unit in the back panel (and the case to ground) and measurements were taken. As is obvious, voltages were measured with the volt meter and waveforms from the PS board were checked with the oscilloscope.



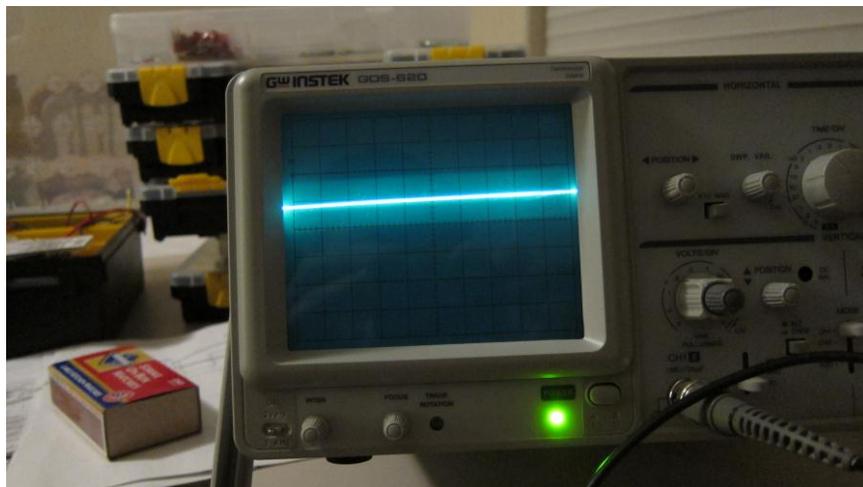
-36.11 VDC out. Good so far. Now to check on the scope to be sure it is nice and smooth. The scope was recentered for the photo, below. Relief. Smooth DC. Yes we need to adjust the horizontal slope a bit.



Now to the other side of the board. +36.27 VDC looks good.



And, again, a very smooth wave-form:



Continued I part 8.