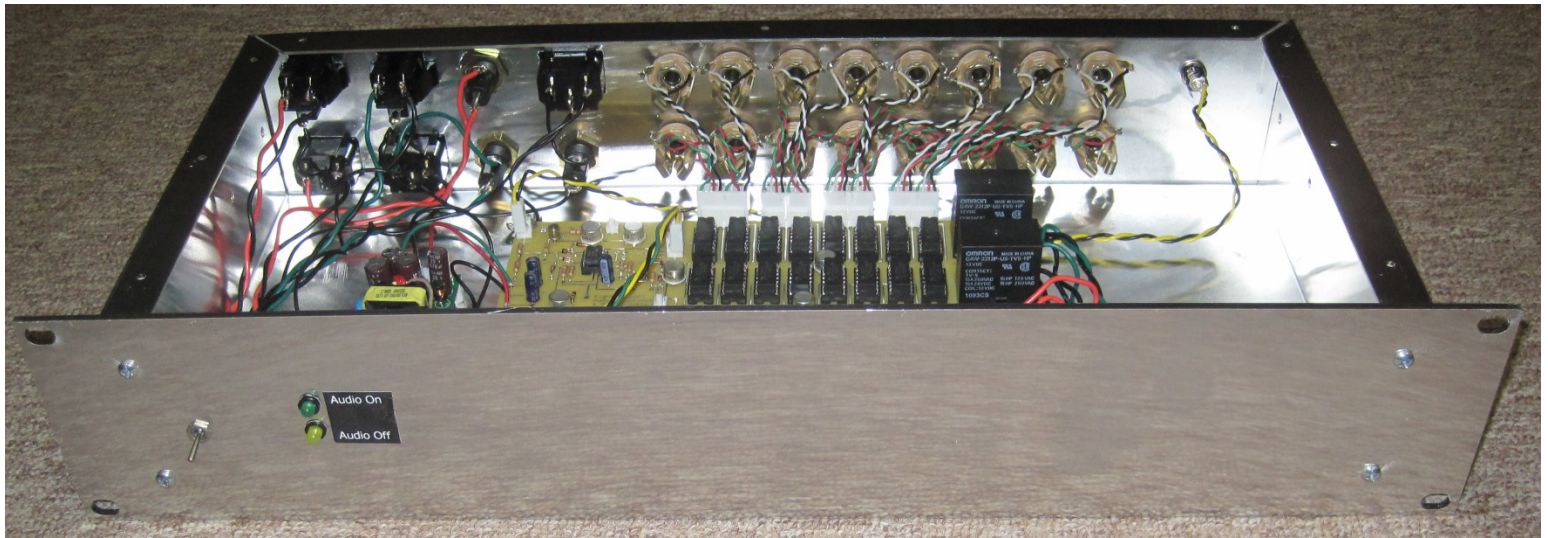


## 2.5 Audio Interlock Assembly

This is a custom designed rack mounted assembly which interlocks and controls the audio power amplifiers. It controls eight balanced audio channels based on a -12 volt enable signal which is sent from the organ console when the console voltages are properly active. The unit also provides two switched AC outlets for the power amplifiers, one of which is delayed by one second.

This interlock function is considered vital to safe operation of the digital organ system. The power amplifiers and speakers are very powerful and this is one layer of safety which aims to make sure spurious audio signals are not amplified during any turn-on, turn-off, or other unusual condition from the organ console and its electronics. As previously discussed, the Filter-Inverter assemblies are another layer of safety which ensure that the digital keys and stops are “key-up” whenever the organ control voltages are not normal.



An LM293 comparator is used to sense the -12v control voltage from the console. -12v is the threshold value where the interlock operates, but the nominal value sent from the console is the -13.5v Moller power supply voltage. The audio relays are dual reed assemblies Digi-Key HE109-ND. One set of relay contacts shorts each audio input if the control voltage is not correct. A second set of relay contacts open the series path to the output connector. This is done to absolutely, positively disable the audio signals when the organ control voltage is not within limits. The power relays are Digi-Key Z3693-ND. The unit is powered by its own internal  $\pm 15\text{v}$  dual power supply.

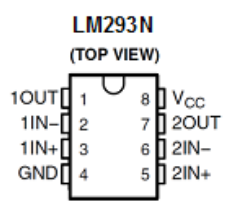
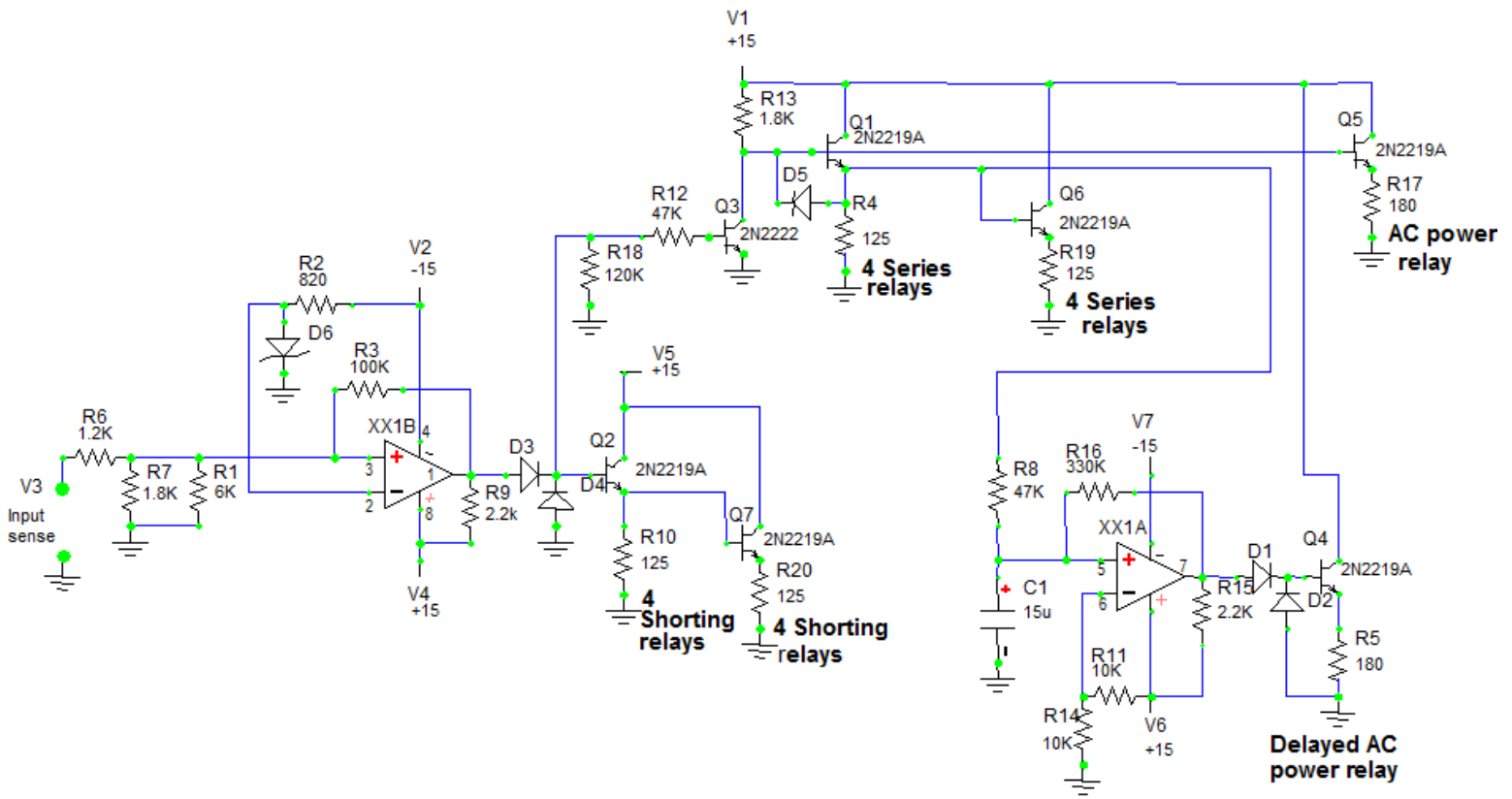


Figure 2.5-1 Schematic of the Audio Interlock Assembly

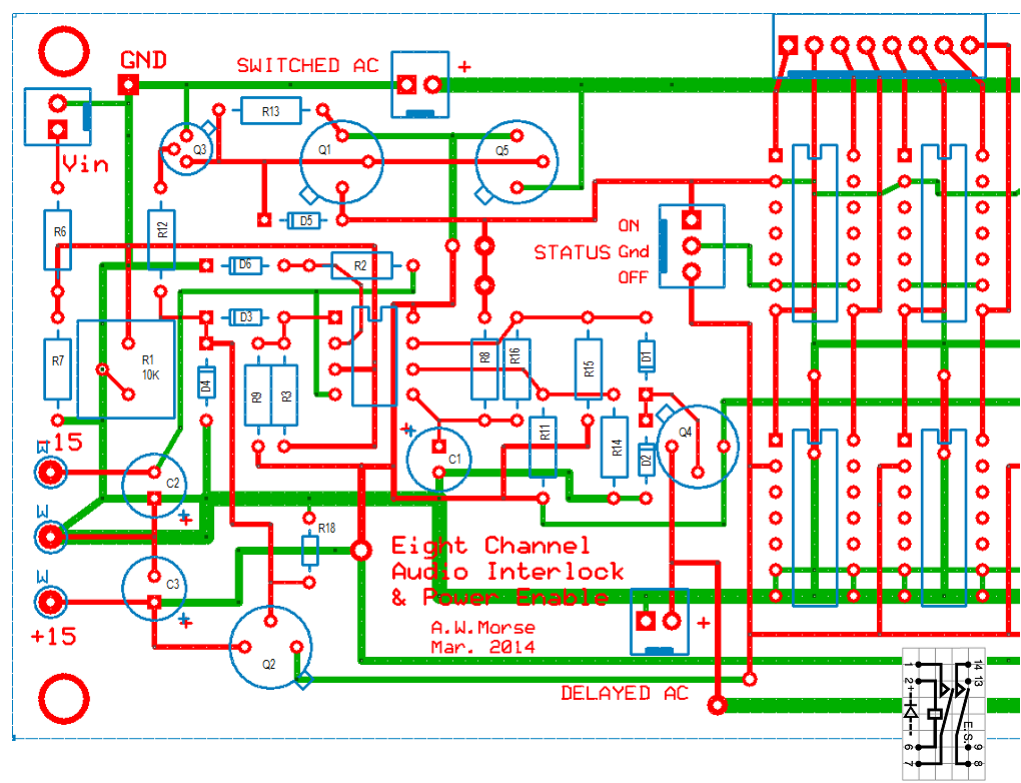


Figure 2.5-2 Component Identification of the Audio Interlock Assembly



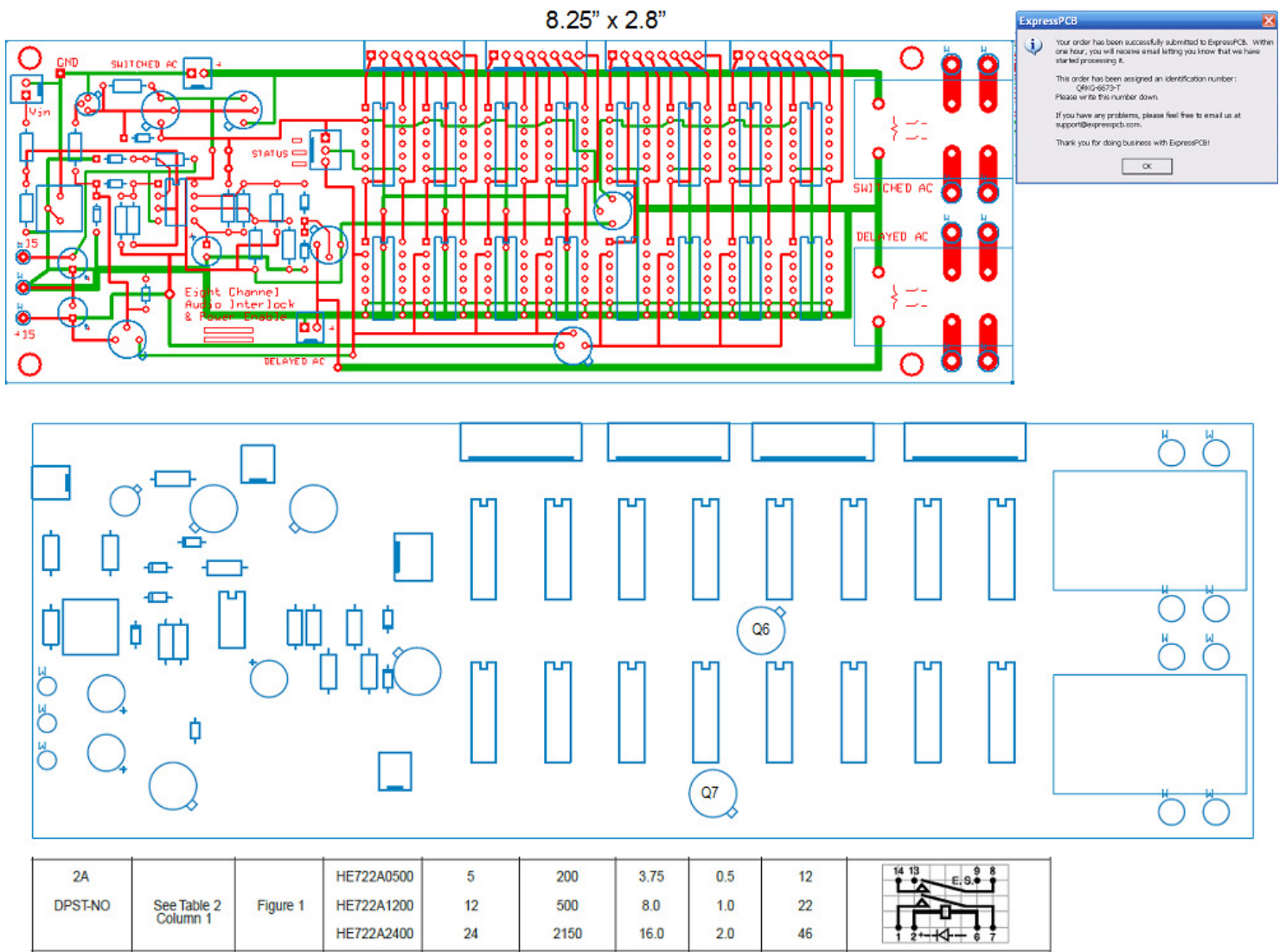


Figure 2.5-3 Layout of the Audio Interlock Assembly

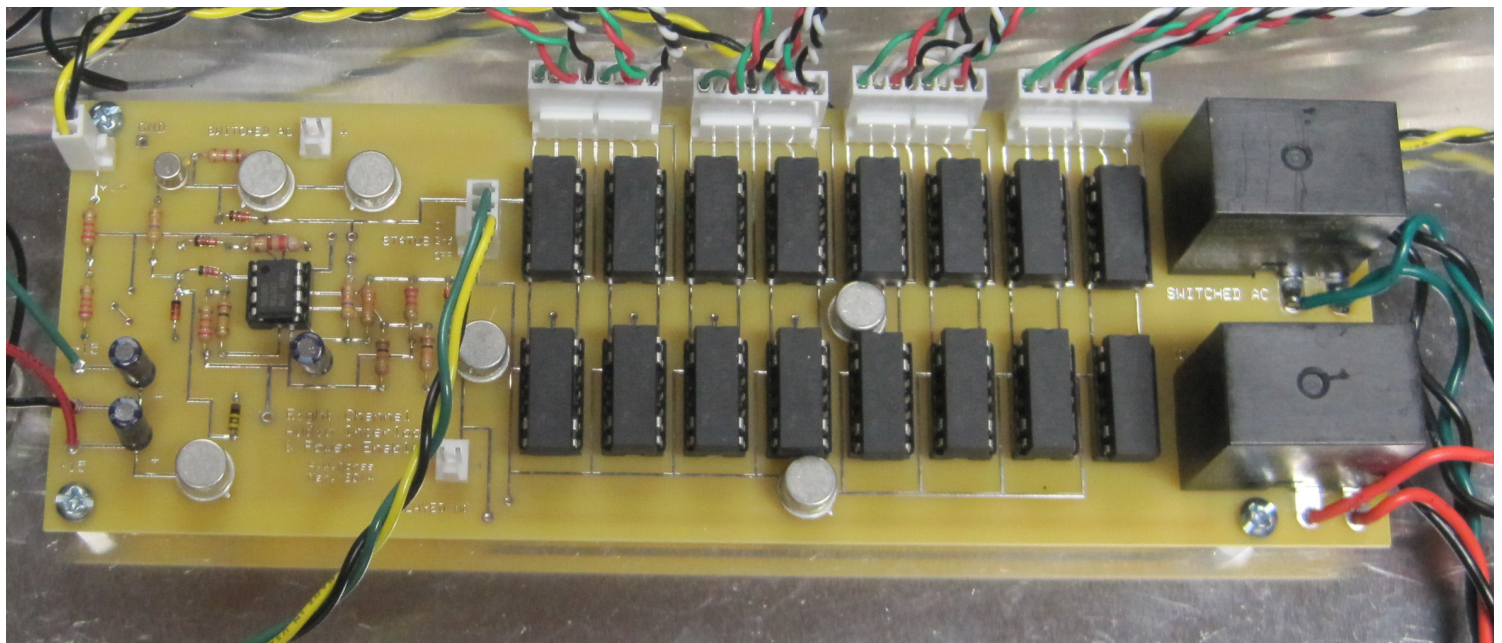


Figure 2.5-4 Circuit Board



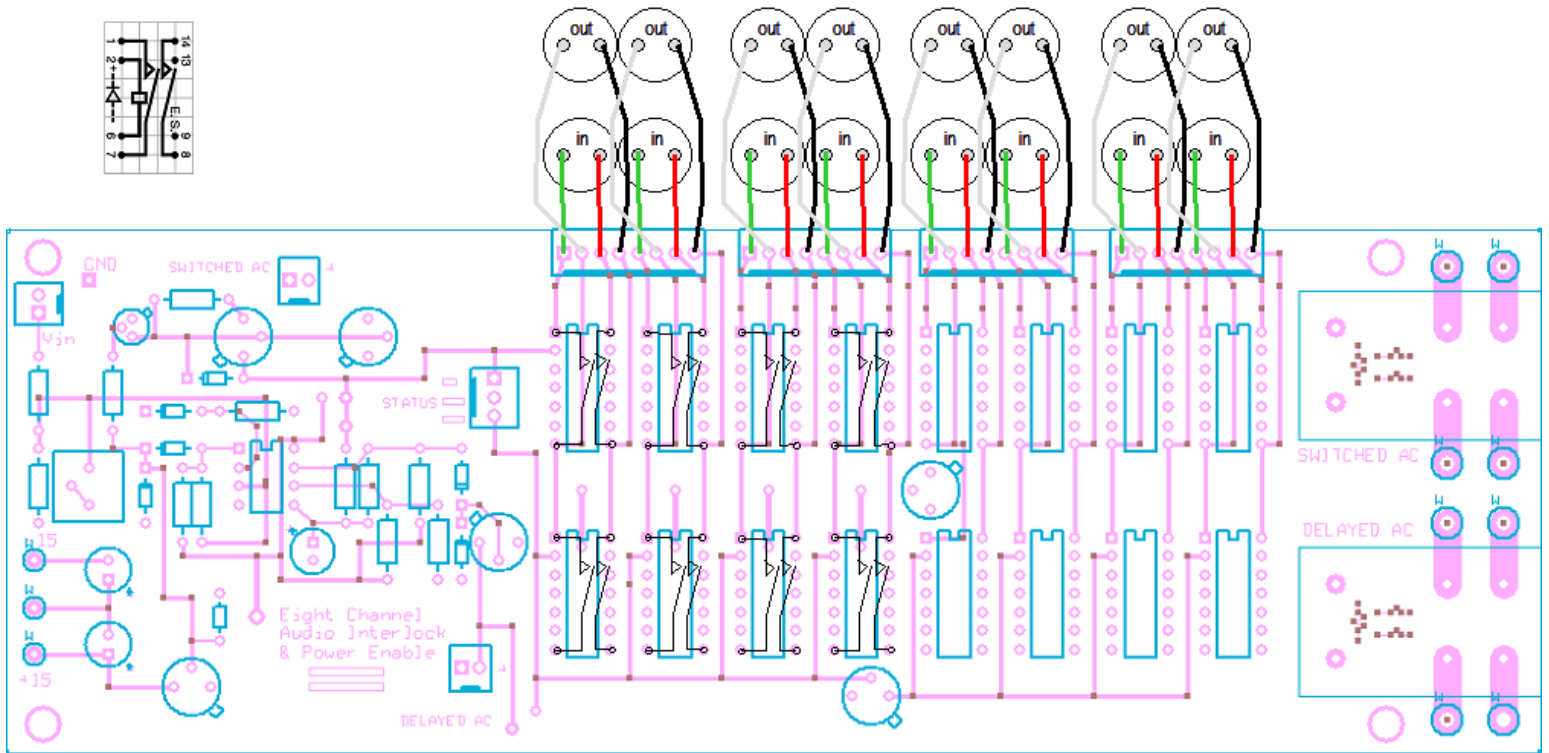


Figure 2.5-4 Wiring of the Balanced Audio Connectors

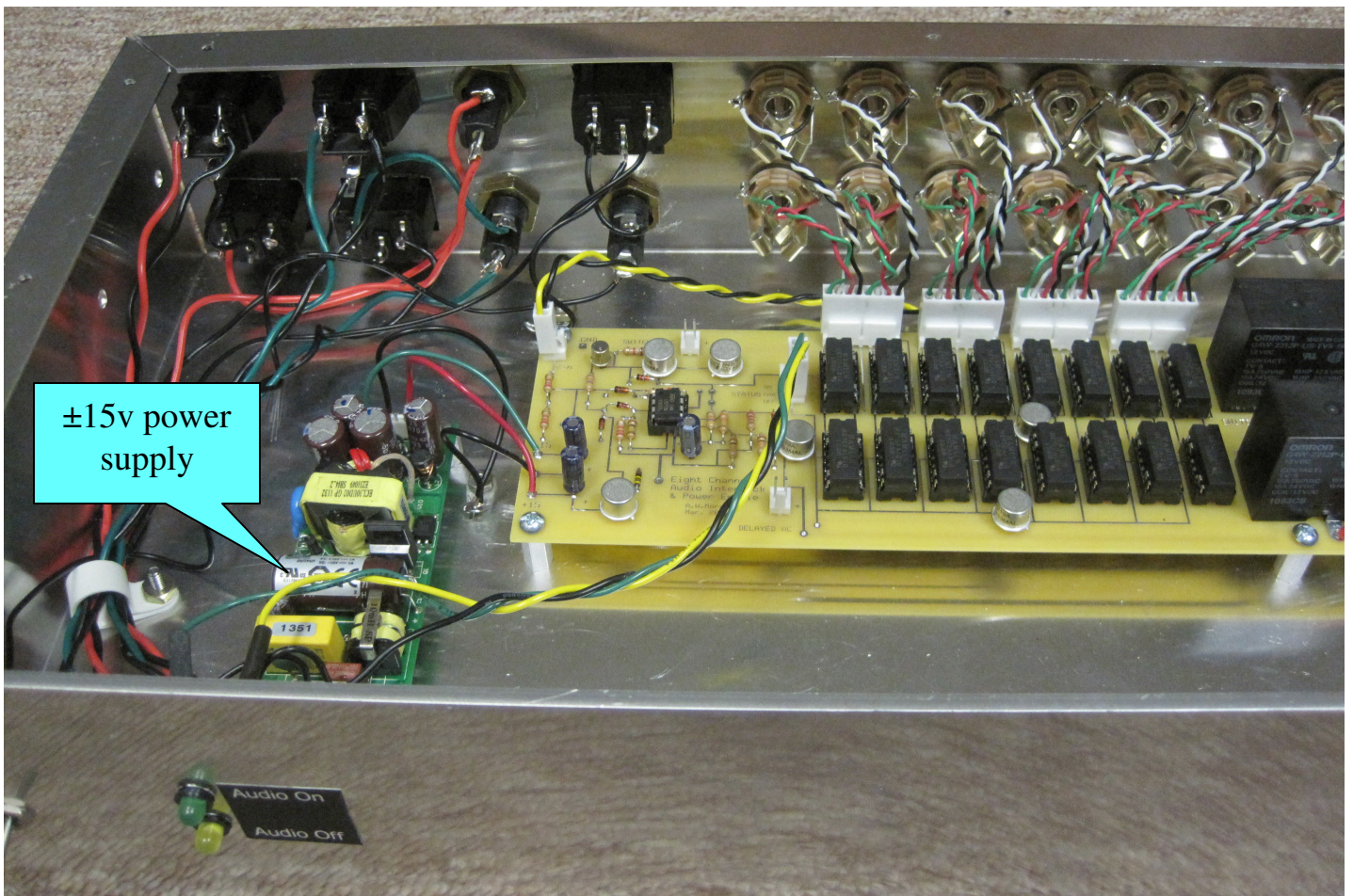


Figure 2.5-5 Internal Component wiring