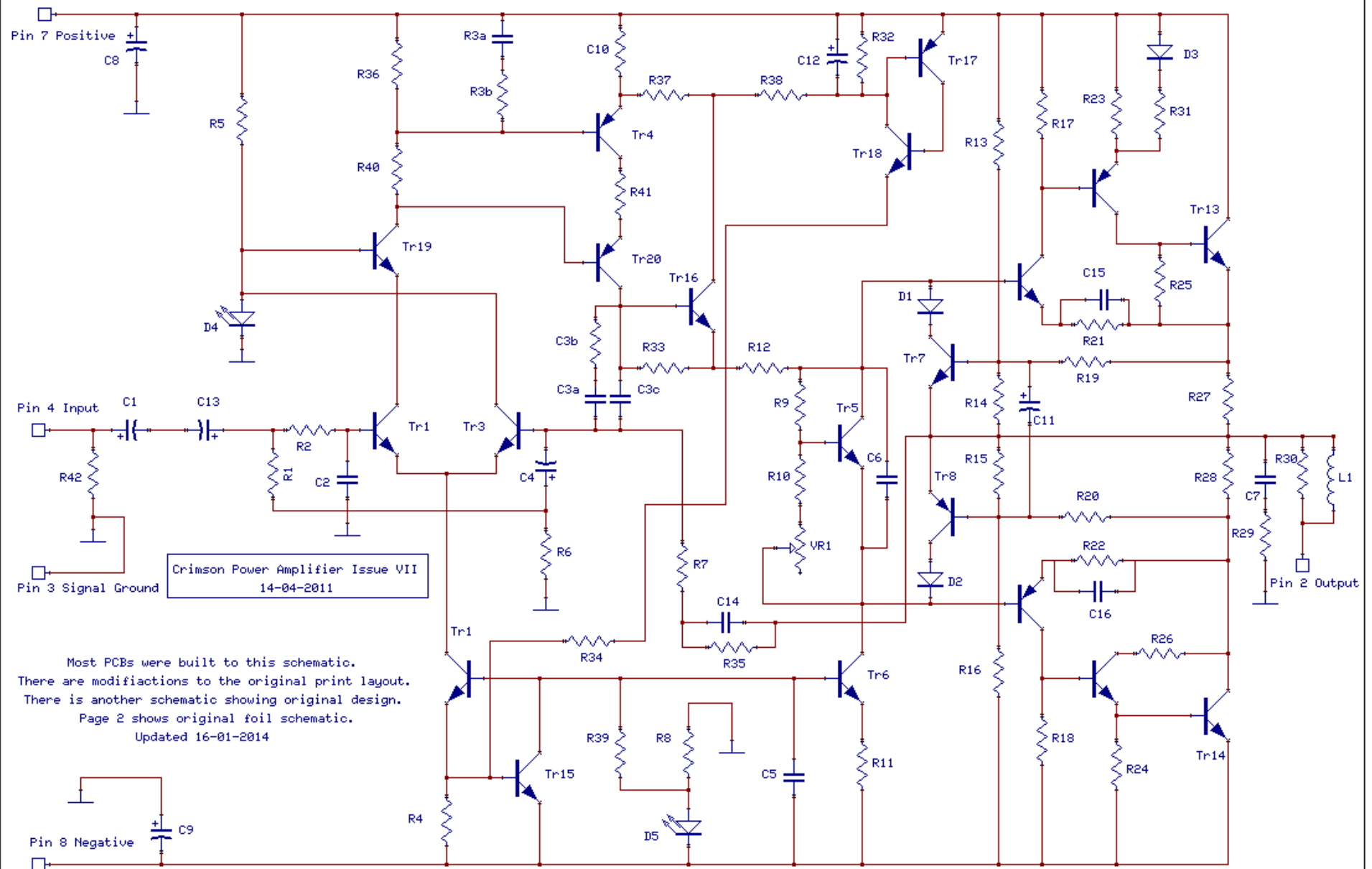


# VII PCB production version 1982-1999



## **Crimson Power Amplifier PCBs Type VII**

These PCBs were in production from 1982 to 1998 and many thousands were produced. Many of the very early PCBs are still working well but this information may help those with faulty PCBs.

Most parts are uncritical with the exception of the driver transistors. The output stage will oscillate unless high speed low capacitance types are used for Tr11 and Tr12.

The PCBs can only be tested if removed from the amplifier and connected to a current limited PSU together with a signal generator and dummy load. Before desoldering the PCBs short out both the reservoir capacitors.

Most faults can be found by testing the transistor junctions in circuit with a multimeter set to the "diode" or "silicon junction" range. Any suspect devices can be desoldered and further tested. Replace any burnt resistors and check for any that have gone open circuit particularly R29 or R30 (R30 needs one end desoldering to test it). The wirewound resistors are 0R22. Take care when replacing output devices, to maintain isolation from the L bracket. Test this isolation before refitting the PCB.

Test the PCB into 8 and 4 Ohms. Clamp the L bracket to suitable heatsink. Look for any fuzzy parts of the waveform which indicate instability. Use a distortion measuring set if possible. Set the board quiescent current using VR1 to a total in the positive rail of 20 mA.

These PCBs are not easy to repair and may be unstable with parts differing slightly from the originals. Should you wish to have them professionally repaired contact Brian Powell at :- [bepowell@ntlworld.com](mailto:bepowell@ntlworld.com)

### Updates

These PCBs can be updated:-

- Rebias VAS to increase +ve excursion and reduce distortion close to full power
- Increase overload margin of input stage during hard clip
- Add defined time delay to overload shutdown mechanism
- Replace LED voltage ref with precision low Z part
- Optimise input stage values for CMRR
- Adjust bias chain (reduce range) to make VR1 setting more fine
- Fit new compensation values for stability
- Fit better current limit for VAS/Buffer
- Fit higher power R30

These mods need some SMD parts and traces cutting plus some new holes and can only be done on return to myself as above.

B Powell 28/03/14  
Filename VIIrepair.docx