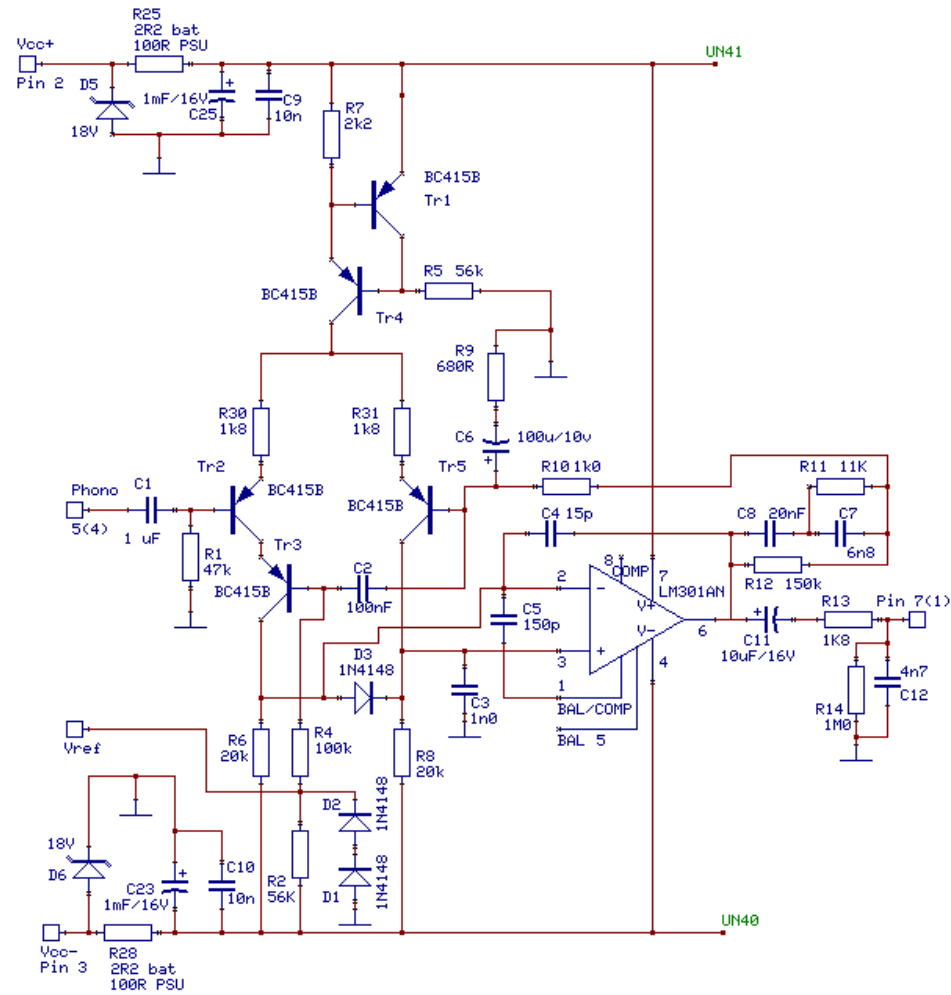
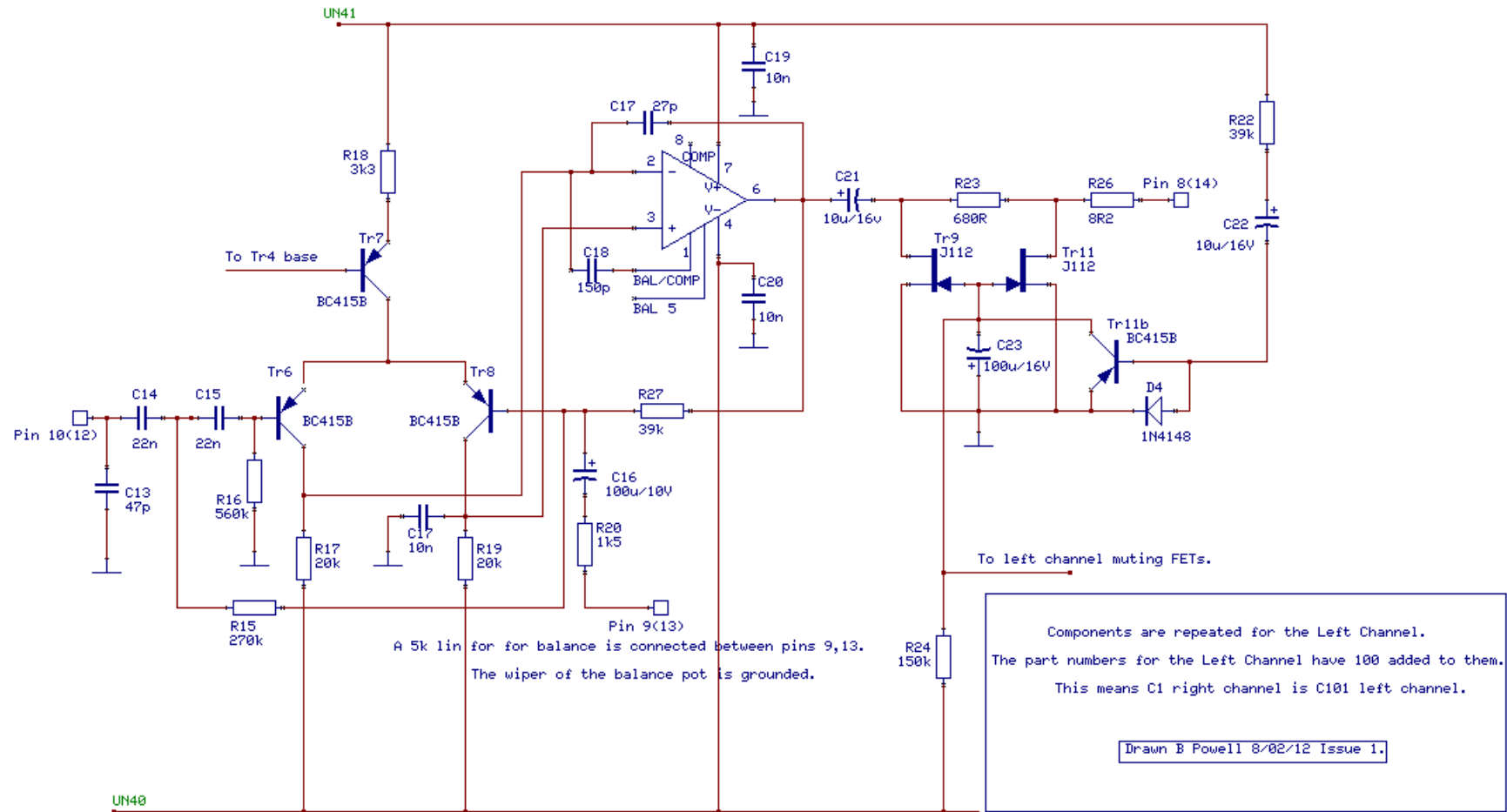


Crimson CPR1 Preamplifier Phono Stage



Under Development.  
 CPR1 Line Stage Including J-Fet Muting



## Updating the CPR1 PCB

The CPR1 (PCB code 35-15) is much improved with:-

- More accurate RIAA for vinyl disc
- Faster, cleaner op-amps
- Removal of high pass filter in line stage. The original  $-3\text{dB}$  at 20Hertz was quite bass light.

### Disc Stages

1. Change C8, to polystyrene or polypropylene type if not already. The green ones are usually mylar 5% or 10%. The value is 20nF, so use 1% tolerance or select.
2. Check C7 . The ideal value is 6n86. Use 1% 6N8 or select. Polypropylene or polystyrene preferred. Possibly add 680pF (SMD) in parallel.
3. R12 should be 146.8K, use 150k parallel 6M8 or 147K in E96 series.
4. R11 should be 11.84K use 11K8 in E96 or 12k parallel 820K
5. Change C11 to 4u7 16V tantalum or low Z electrolytic in reverse to PCB silk screen polarity which was a polarity error.
6. Change C6 to 33uF/10V tantalum or 100uF/10V low ESR type polarity as per PCB ident (feedback DC block)
7. Remove C3 and C5, old compensation.
8. Change C4 to 10pF (stability)
9. Change R30 and R31 to 330R (were 1K8) to reduce noise (LTP degen)
10. Remove IC1 and replace with TLE2141CP.

11. Remove diode D3 and replace it with a series RC of 330R, 100pF
12. Replace R7 (1k8) with 680R (tail current to 100uA).
13. Replace diff loads R6, R8 with 68K
14. Repeat with left channel components (100 added to name)

Now for the line stages.

7. Remove IC2, IC102 replace with TLE2141CP
8. Remove both C17 (adjacent Tr8) and C117 (adjacent R116) which are 10nF. The other capacitors marked C17 and C117 (by mistake) will be 27pF.
9. Change the 27pF C17,C117 to 10 pF.
10. Remove C18, C118
11. Remove C14, C114 replace with two 4u7& 16V tantalum with the negative terminal towards pin 10
12. Remove C15, C115 replace with 4u7/16V tantalum, negative terminal towards R16.
13. Remove Tr9, 109 and save as spare part muting FETs for Tr11,Tr111 (iss 1 only)
14. Change R26, R126 to 100R to help protect muting FETs
15. Change C16, C116 to 33uF tantalum or 100uF/10V low ESR type polarity as per PCB ident.
16. Remove R15, R115
17. Fit 2 x 18V ESD diode type P6KE18CA from each output pad to ground (drill extra 1mm hole in pad 11)
18. Remove Tr6,Tr8 (ditto LHC) and replace with J176 j-fets
19. Change R18,118 to 680R (tail current)
20. Change R17,R19 to 10k, LTP loads

Now for the PSU.

1. Replace C23,C25,C123,C125 with the same value or higher but preferably with low ESR types.

Retest. Particularly for HF stability, May show as distortion.

#### Pin Numbers Information CPR1

- Pin 1 disc out L
- Pin 2 Positive power supply
- Pin 3 Negative power supply
- Pin 4 Disc in L
- Pin 5 Disc in R
- Pin 6 Ground
- Pin 7 Disc out R
- Pin 8 Line out R
- Pin 9 Balance pot (5k) R
- Pin 10 Line in R (volume pot slider)
- Pin 11 Ground
- Pin 12 Line in L (volume pot slider)
- Pin 13 Balance pot L
- Pin 14 Line out L

The original PCB took about 6 mA (per rail) the modified PCB will take around 12 mA . The PCB require a PSU maximum of +/- 16V.

**Should you wish to exchange your CPR1 PCB for one professionally updated as above contact Brian Powell via [brianpowellaudio.co.uk](http://brianpowellaudio.co.uk) for pricing and for the mailing address.**

**Exchange PCBs are guaranteed for 2 years.**