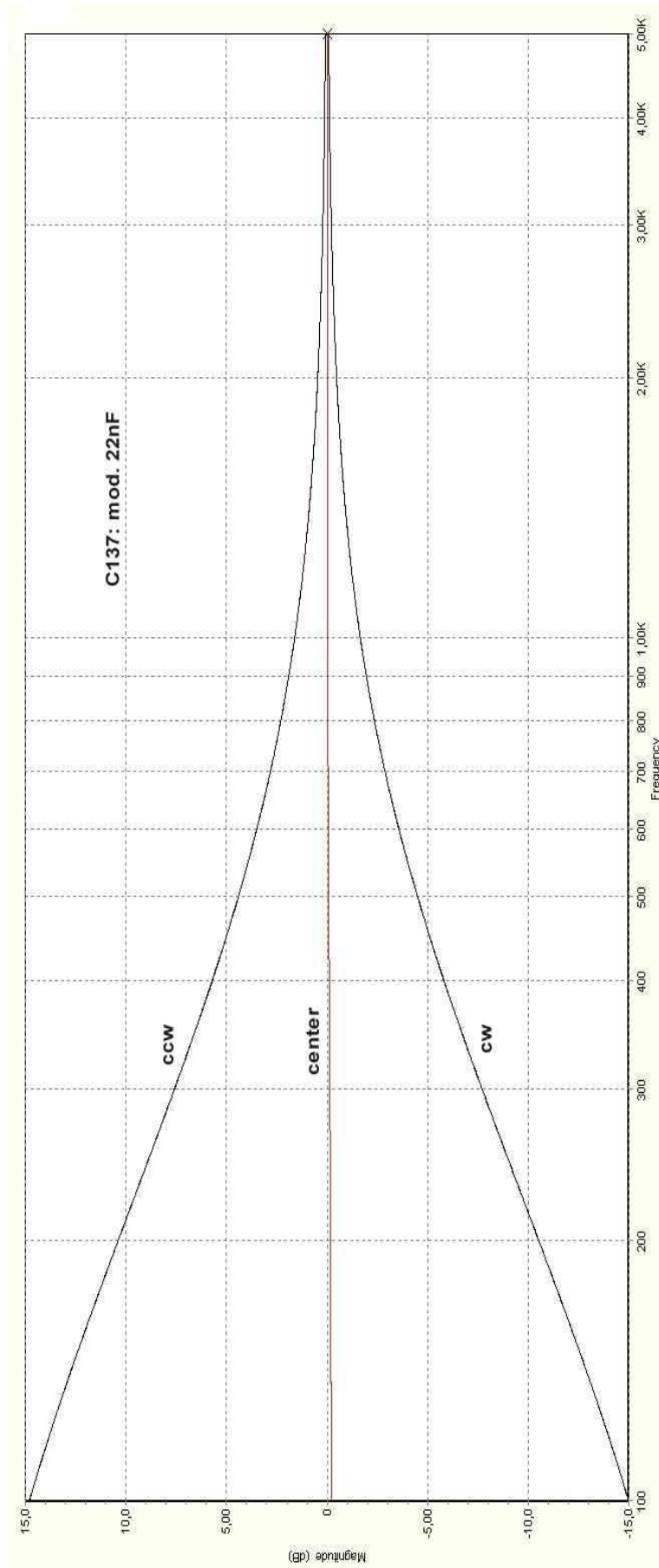


Picture 3 Simulation of Tone Control (original circuit)



Picture 4 Simulation of Tone Control (modified circuit)

Result:

The comparison of pictures 3 and 4 (same scaling) show the positive result: At 100Hz, the boost and cut is now +/-15dB instead of +/-10dB in the original circuit.

In the „center“ position of the tone pot, the frequency response is linear over the whole range (see note 2).

Note 1: A further reduction of C137 is possible; e.g. down to 15nF or 18nF, but this will affect not only the basses. In picture 4 the boost of 1kHz is app. +/-1,5dB, whereas in the original circuit (picture 3) the 1kHz-boost is only app. +/-0,5dB. That means, a further reduction of C137 leads not only to a boost of the basses but also to a boost of higher frequencies – there is no further win. A simple R-C-circuit can't be a very good tone control; it's always a compromise and not an equaliser.

My feeling is, that C137 = 22nF is a good choice.

Note 2: The small drop in the „center“ position (red curve) and the small unbalance at „cw“ and „ccw“ at low frequencies in pictures 3 and 4 are caused by the series capacitors C127 and C128.



Picture 5 Location of C137 (front end board removed)



Picture 6 C137, plug P106 removed

It is necessary to remove the front end board (4 screws and 2 screws at the back side) and bend it away (picture 5). Unplugging the front end board is not necessary, all cables are long enough.

Now, C137 can be replaced without removing the 2nd IF/Audio/power board (picture 6). Use a solder sucker to clean the pads and then solder the new C137.

**Use a grounded soldering tool !
Connect ground of R8 to the ground of the soldering tool**

- /1/ [Servicemanual Drake R8](#)
- /2/ www.5spice.com

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