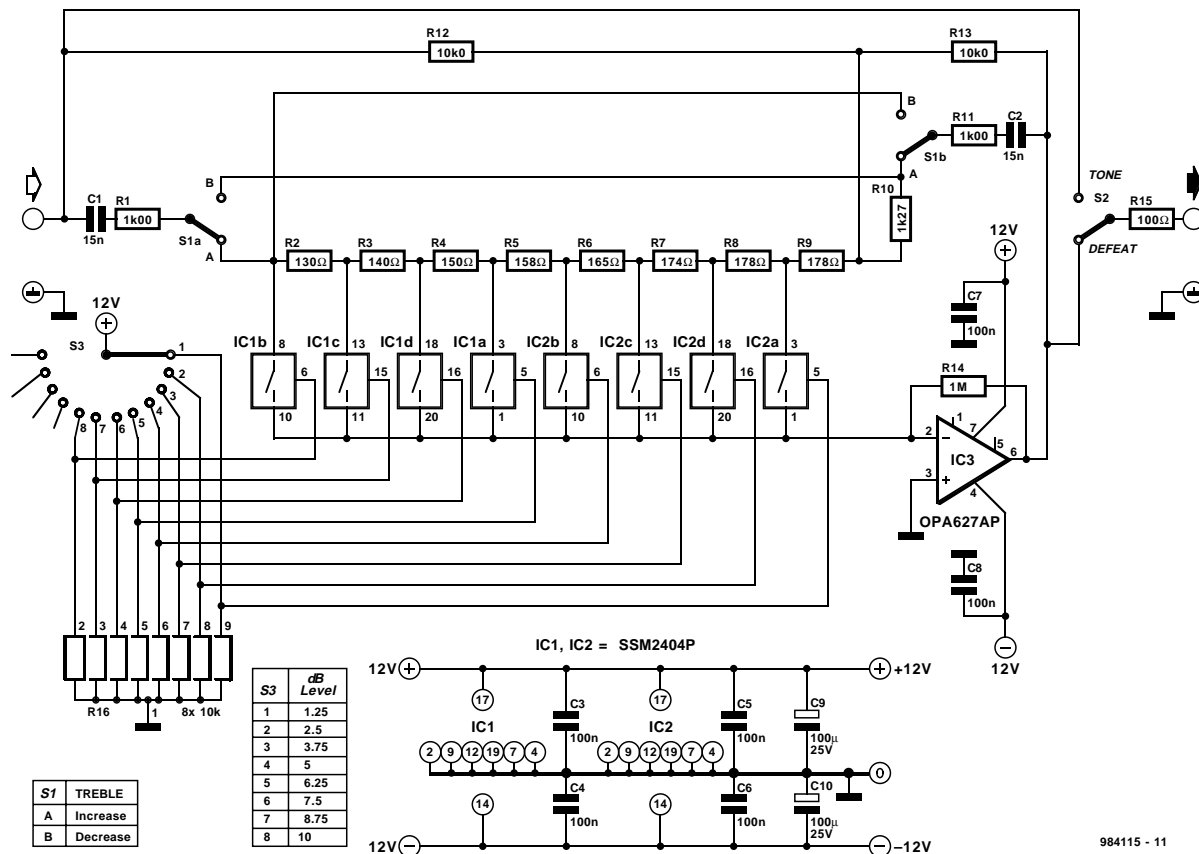


treble tone control

*Design: T. Giesberts*

The treble control works in a similar manner as the bass control elsewhere in this issue, but contains several modifications, of course. One of these is the series network C_1 - C_2 - R_1 - R_{11} .

The d.c. operating point of IC₃ is set with resistors R_{12} and R_{13} . To ensure that these resistors do not (adversely) affect the control characteristics, they are coupled to the junction of R_9 and R_{10} . In this way they only affect the low-frequency noise and the load of the op amp. Their value of 10 kΩ is a reasonable compromise.

The functions of switches S_1 - S_3 are identical to those of

their counterparts in the bass tone control; their influence is seen clearly in the characteristics. Good symmetry between the left-hand and right-hand channels is obtained by the use of 1% versions of R_1 - R_{13} and C_1 , C_2 .

The value of resistors R_2 - R_{10} is purposely different from that of their counterparts in the bass tone control. In the present circuit, the control range starts above 20 kHz. To make sure that a control range of 10 dB is available at 20 kHz, the nominal amplification is $\times 3.5$ (11 dB).

The control circuit draws a current of about ± 10 mA.

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