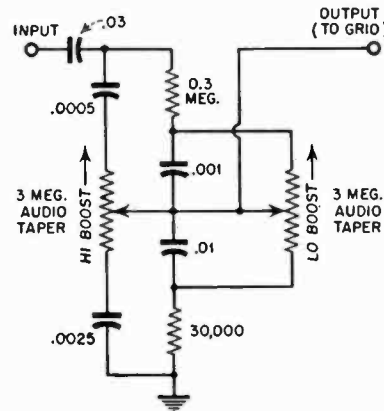


Low-Loss Tone Control

A simple tone control for both low- and high-frequencies which has a total loss of only 20 db.

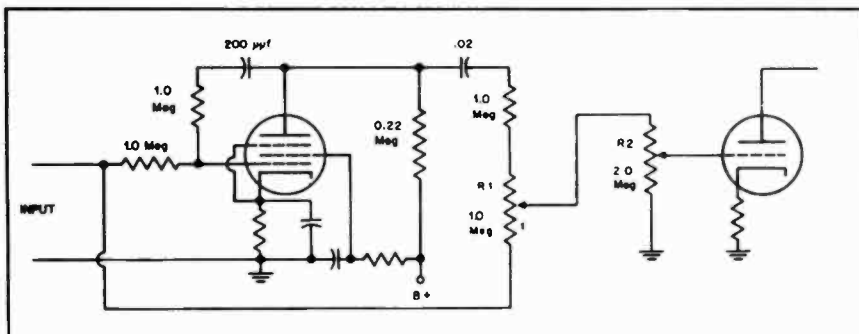
For some years the writer has been using the tone control system described in the preceding article, but with a modification which may be of interest because of a reduced loss. Both high- and low-frequency control circuits can be combined into one network with a mid-frequency loss of only 20 db, instead of the total loss of 40 db when the networks are used separately as described in the article. As a result, only one triode amplifier is needed to compensate for the loss introduced by the tone control.



The network is shown at left and the values shown give substantially the same response curves as shown in the article. The input should be connected to a source impedance not higher than about 20,000 ohms, to prevent loss at high frequencies when in the high boost position, and the output should work directly into a grid, as pointed out in the editorial note.

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Feedback Equalizer



A single-tube amplifier circuit claimed to furnish sufficient equalization for magnetic phonograph pickups together with an appreciable amount of amplification is described by J. Ellis in *Wireless World* for September, 1947. The circuit, shown at left employs a single pentode with feedback to provide the desired frequency response.

Variation of the setting of $R1$ changes the transition frequency by selecting desired proportions of the original signal and of the amplified signal with the boost on the low frequencies. If no volume control is required at $R2$, the arm of $R1$ may be connected directly to the grid of the following stage, provided there is a d-c path to ground through the input device.

DUAL CONTROL SYSTEM

(Continued from previous page)

a measured response characteristic, for various settings of the controls, as shown in Fig. 5. It will be seen, of course, that the resistor from the grid to ground of the first triode may be replaced with a volume control.

It must be understood that this system should only be used to supplement proper equalization of the various program sources, and in no way obviates the need for proper compensation in the phonograph for turnover and pre-emphasis, for normal de-emphasis on FM, or for an adequately compensated volume control.

Ed. Note: The circuits of Figs. 2 and 3 must work directly into a grid to be effective in the amount shown in the curves of Fig. 5.

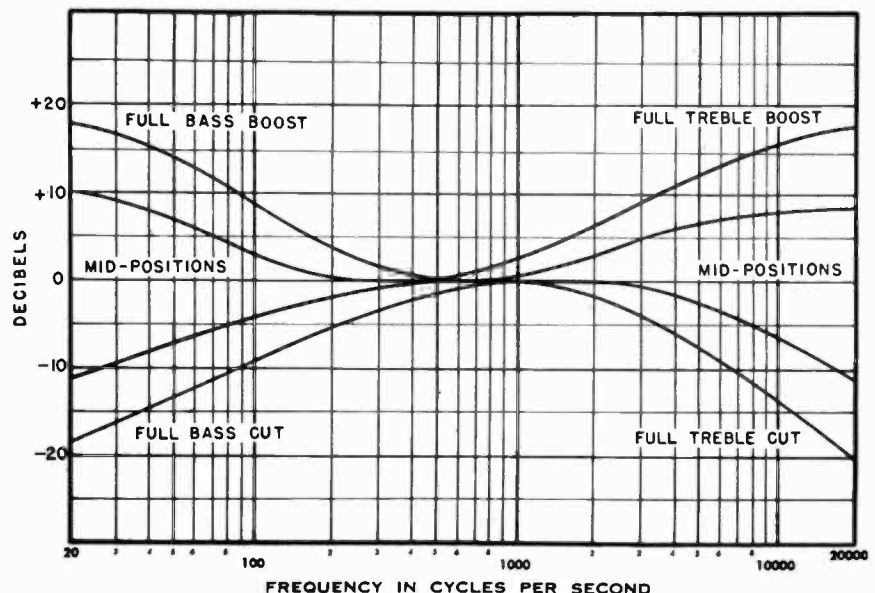


Fig. 5. Characteristics of dual tone control.