SECTION 8

LINE EQUALISERS EQ5 SERIES, AND ASSOCIATED APPARATUS

8.1 EQUALISERS EQ5/503 AND EQ5/503A

Introduction

Equaliser EQ5/503 is a fixed equaliser for the attenuation correction of cables or networks having similar characteristics (i.e., loss increasing smoothly and approximately proportional to the square root of the frequency) over the video-frequency band.

It is a constant resistance bridged-T equaliser and its element values are normally obtained from the settings of a variable equaliser EQ5/501 as described in Designs Department Technical Memorandum No. 6.19 (58) entitled *A Method of Equalising Cables for Video Transmission.*

General Description

The components of the equaliser are mounted on a printed wiring card having overall dimensions $6\frac{9}{16}$ in. by $3\frac{1}{4}$ in.

Input and output connections are made by means of a socket into which the printed wiring card is plugged, or by turret lugs if the equaliser is mounted on pillars.

Provision is made for up to five sections of equalisation, four of the non-resonant type and one which can be made resonant or non-resonant as required. Basic loss can be made 1 dB, 2 dB, 3 dB, 4 dB, 5 dB, 8 dB, 11 dB, 14 dB, 17 dB or 20 dB. There is also provision on the board for a π attenuator when required.

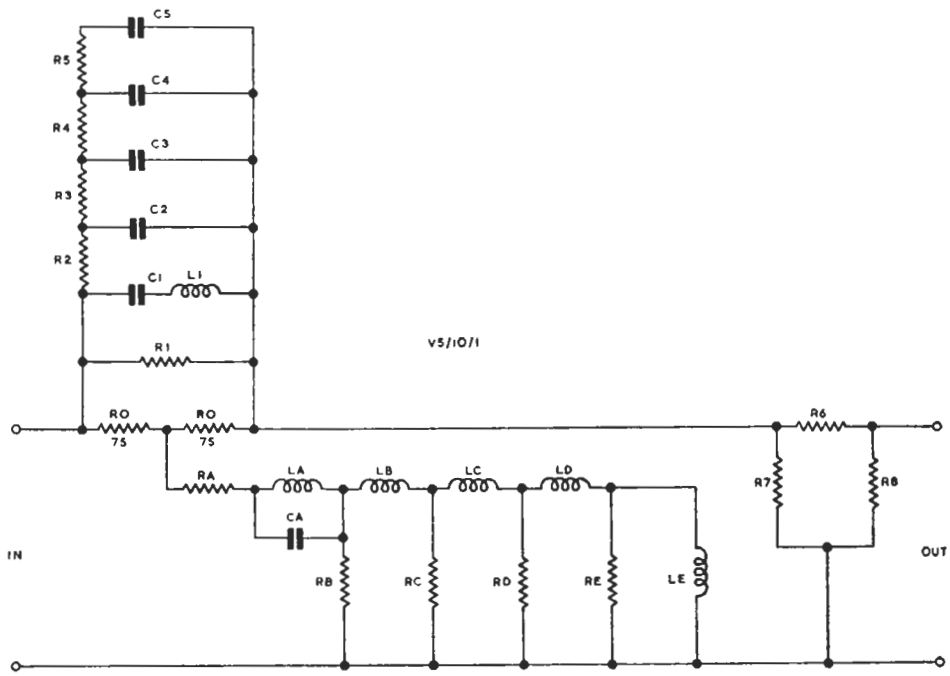

Fig. 8.1. Equaliser EQ5/503: Circuit Diagram

It is extensively used for the equalisation of tie lines in television studio centres, and because of its small size can usually be mounted inside associated apparatus.

Equaliser EQ5/503A comprises an EQ5/503 in a die-cast box designed to mount on the rear of a PN3/2 panel.

The overall dimensions of the EQ5/503A are $7\frac{3}{8}$ in. by $4\frac{5}{8}$ in. by $2\frac{1}{4}$ in., input and output connections being made by means of turret lugs.

Circuit Description

The circuit of the equaliser is shown in Fig. 8.1. It is of the constant-resistance bridged-T form described in Section 5. The configuration adopted ensures that all coils required can be wound on 6-mm Neosid formers and all capacitors can be T.C.C. Type SM3N or smaller. High-stability carbon resistors are normally used, but high values of basic loss may involve low values of resistor which are outside the available range of this type, in which case wire-wound resistors are used.

The values of the components are obtained from the settings of a variable equaliser EQ5/501 which give the equalisation required in each particular case as mentioned in the Introduction above.

For short lengths of cable all the sections available are not required, and appropriate straps are soldered in their place on the printed wiring card.

The component references shown in Fig. 8.1 are marked on the card to facilitate identification.

Each equaliser is normally arranged to have an input impedance of 75 ohms ± 2 per cent and to give an amplitude/frequency response for the equalised cable which is flat to 3 Mc/s within $\pm 0{\cdot}1$ dB.

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