

VIDEO EQUALISER EQ5/516

Introduction

The EQ5/516 is a video equaliser/amplifier designed primarily for use in u.h.f. television rebroadcast and monitoring receivers.¹ It consists of a delay corrector, a Bode Equaliser² and a 6-dB video amplifier, each built on a separate printed board and mounted in a CH1/12A chassis with index pegs 9 and 38.

General Specification (complete unit)

<i>Input Level</i>	170 mV p-p
<i>Output Level</i>	138 mV p-p
<i>Input and Output Impedances</i>	75 ohms

Bode Equaliser

Response at 5 MHz with respect to low frequencies.

Switch position 1	0 dB
2	+1.1 dB
3	+1.5 dB
4	+1.9 dB
5	+2.3 dB
6	+2.7 dB

<i>Power supplies</i>	+12 V \pm 0.25 V -10 V \pm 0.25 V 0.22 watts
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<i>Weight</i>	15 oz
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General Specification (amplifier alone)

<i>Input Level</i>	69 mV p-p
<i>Output Level</i>	138 mV p-p
<i>Gain</i>	6 dB \pm 0.1 dB
<i>Input Impedance</i>	75 ohms nominal
<i>Output Impedance</i>	75 ohms nominal
<i>Overload Point (sine wave input)</i>	not less than 400 mV p-p
<i>2T Pulse to Bar Ratio (T=0.1 μs)</i>	100%
<i>1T Pulse to Bar Ratio</i>	100% \pm 1%
<i>Picture Signal Distortion Factor</i>	less than 0.5%
<i>Differential Gain Distortion</i>	less than 0.2%
<i>Differential Phase Distortion</i>	less than 0.2°

Circuit Description

The circuit is given in Fig. 1.

Delay Corrector

This consists of L1/C1 and L2/C2 and provides correction for mid-frequency delay distortion occurring in associated equipment.¹ The corrector is an all-pass network tuned to 37.5 MHz and with a characteristic impedance of 75 ohms.

Bode Equaliser²

This is variable over a small range to accommodate small differences in the overall characteristic of associated apparatus.¹ The amplitude/frequency response is given in Table 1.

TABLE 1

<i>f</i> MHz	<i>dB loss at each switch position</i>					
	1	2	3	4	5	6
0.1	7.95	7.95	7.95	7.95	7.95	7.95
1	7.95	7.9	7.9	7.9	7.85	7.8
3	7.95	7.2	6.9	6.7	6.4	6.2
10	7.95	6.5	6.0	5.55	5.1	4.6

Amplifier

Two common emitter stages are followed by an emitter follower feeding an output filter which isolates the amplifier from the out-of-band impedances reflected from the input filter on the following unit.⁴ Negative feedback is applied via R33 and R35 with C8 shaping the feedback characteristic at the higher frequencies. The amplifier has an impedance of 75 ohms set by R27.

Maintenance

Routine maintenance is not required and the adjustment of the networks must not be disturbed.

The following checks may be made if the performance of the unit becomes suspect.

1. Measure with a model 8 Avometer the d.c. resistance between pins 10 and 15; it should be greater than 2.5 kilohms (Avo positive lead on pin 10).
2. Measured with a model 8 Avometer, and with the output of the unit (i.e., terminal 11), unterminated, the potential of the emitter of TR3 should be 0 V +50mV -0 mV. This is set by the A.O.T. resistor R37.
3. The gain of the amplifier may be checked using the change-over method. At 20 kHz it should be 6 dB \pm 0.1 dB and is adjusted by varying R29.

References

1. U.H.F. Rebroadcast Receiver RC5M/501
2. Bode Equaliser; Television Engineering Vol. 4
3. Designs Department Specification No. 6.118(67)
4. Video Amplifier AM1/555

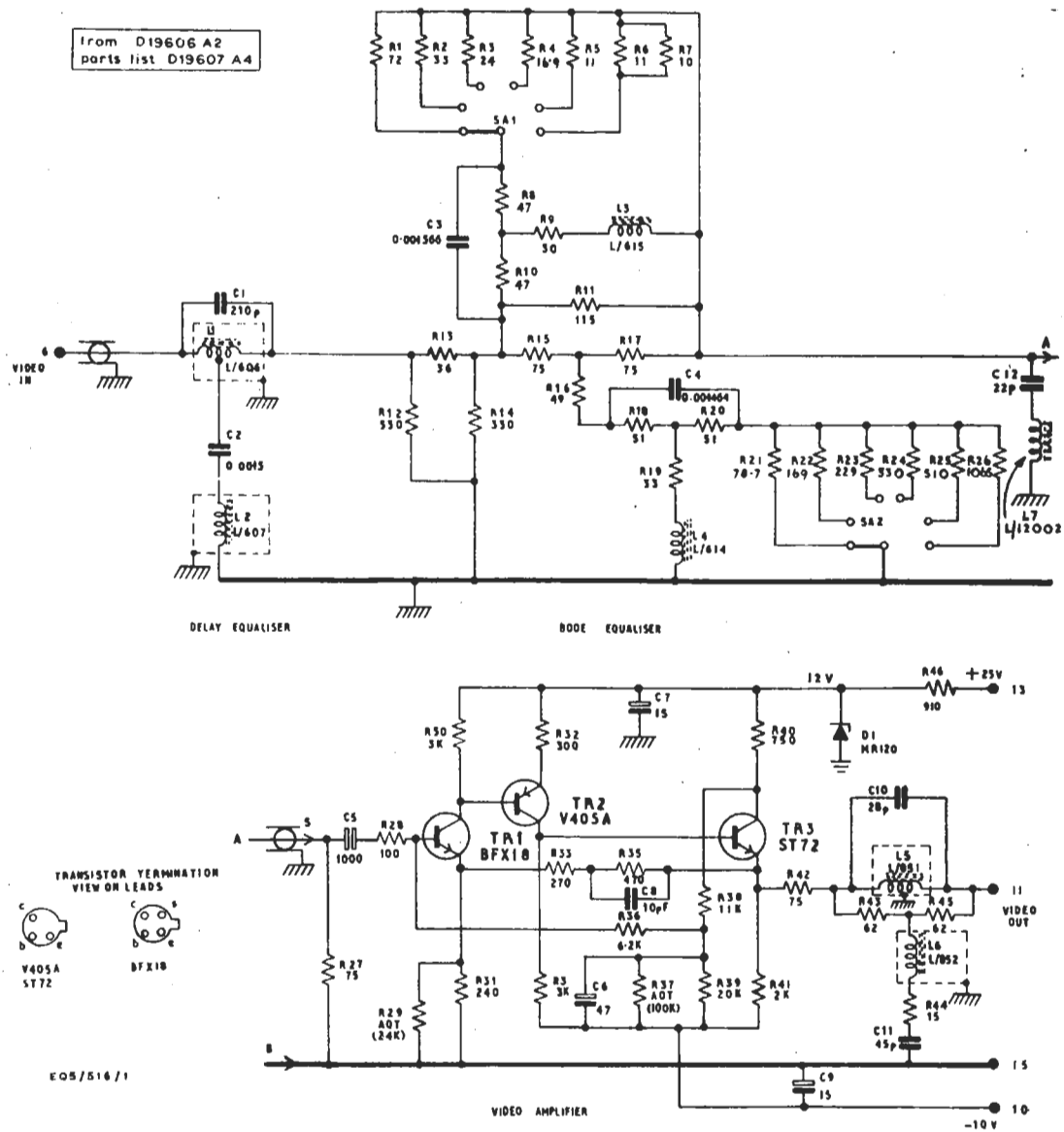


Fig. 1 Circuit of the EQ5/516