EMI CAMERA OVERLAY MATRIX AM23/507

Introduction

The AM23/507 accepts gamma-corrected red, green and blue colour video signals and provides a (B – Y) keying waveform which is used for colour-separation-overlay purposes[1],[2].

The unit is constructed on a printed-wiring card and mounted on the Monitor Board of an EMI Camera Control Unit.

General Specification

Inputs	gamma-corrected red, green and blue signals at 0·35 V p-p, derived from the R′, C′ and B′ inputs to the CCU monitor board.
Input Impedance	more than 100 kilohms
Output	(B – Y) at 1·3 V p-p
Output Impedance	75 ohms (±2%)
Power Requirements	+18 V at 40 mA, −18 V at 40 mA (derived from the CCU monitor board)
Operating Temperature Range	0°C to 45°C ambient

Circuit Description

A circuit diagram of the AM23/507 is given in Fig. 1. The three input signals are applied via separate emitter-follower stages to an integrated circuit (labelled TR4) which functions as a long-tailed-pair mixer. The blue signal is applied to the inverting input of TR4, the red and green signals being applied to the non-inverting input. Thus the signal developed at the output of TR4 (pin 8) is the difference between the inverted blue signal and the sum of the red and green signals; i.e. an inverted (B – Y) signal. By definition

$$(B - Y) = 0{\cdot}297R - 0{\cdot}589G + 0{\cdot}886B$$

and so the three input signals are suitably weighted before being applied to TR4 by means of resistors R7, R8 and R9.

The output of TR4 is inverted and amplified by transistors TR5 and the resultant (B – Y) signal fed to the output of the unit via emitter-follower TR6. Negative feedback is applied to TR4 from the emitter of TR6 via R17 and C3.

References to Typical Associated Equipment

1. Video Switch and Delay Unit UN1/640
2. Split Screen Effects Unit UN4/501A

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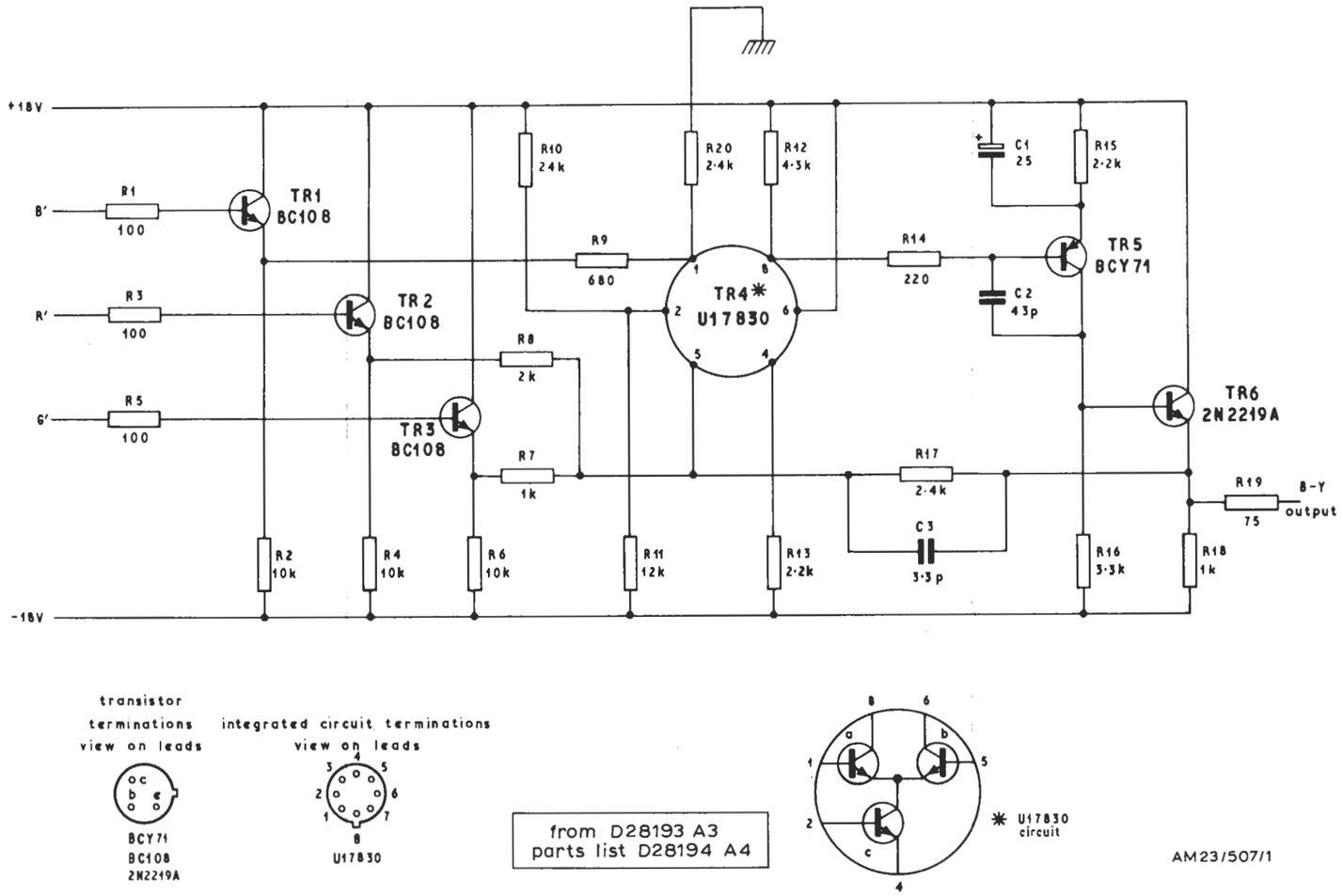

Fig.1 AM23/507: Circuit Diagram