CAPTION EFFECTS MIXER MX1/506

Introduction

This unit accepts two composite video signals[1] and two d.c. control signals[2]; it provides a composite video output signal[3].

The unit is constructed on a CH1/12A chassis with index-peg positions 17 and 27. Input and output monitor sockets are mounted on the front panel. Power at −12 volts is required[1].

Circuit Description

The circuit diagram is shown in Fig. 1 on page 3. The two video input signals (*Letters* and *Background*) are applied to a mixer stage via identical circuits only one of which is described below.

The signal appearing at the *Input 1* (*Letters*) input is applied via a complementary-pair amplifier, comprising transistors TR1 and TR2, to the junction of diodes D1 and D2. The signal applied to these diodes divides between transistors TR4 and TR5; these two transistors, together with resistors R11 to R15 and capacitor C3, form a fader circuit which is controlled by the potential applied via the *Letter Control* line to TR3.

The state of TR4 is determined by that of TR3; when TR3 is cut off TR4 is cut off also and the signal appearing at the junction of the diodes is applied, via TR5 and R14, to the following stage. When the negative potential applied to the base of TR3 is reduced, transistors TR3 and TR4 begin to conduct and signal commences to flow through TR4. The signal appearing at the collector of TR4 is short-circuited to earth by the action of capacitor C3. When TR4 bottoms, virtually all the signal flows through TR4 and none through TR5; thus the signal passing through the fader circuit is determined by the conduction of TR4.

The operating point of TR5 is set by the emitter current of TR6; preset resistor R19 functions as a blanking-level control.

The output of the fader circuit is applied, via emitter-follower TR7, to TR8 which together with TR9 forms a mixing stage with a common collector load. Separate gain controls for the two components of the mixed signal are provided in the emitter circuits of the two transistors. The *Letter* signal applied to TR8 is added to the *Background* signal applied to TR9 and the resulting signal is fed, via emitter-coupled amplifier stage TR10-TR11, to the output emitter-follower TR12. Negative feedback is applied over the last two stages.

References to Typical Associated Equipment

1. Caption Effects Unit UN4/503.
2. Caption Synthesiser Switch Unit UN9/543.
3. Colour Caption Synthesiser EP1/506.

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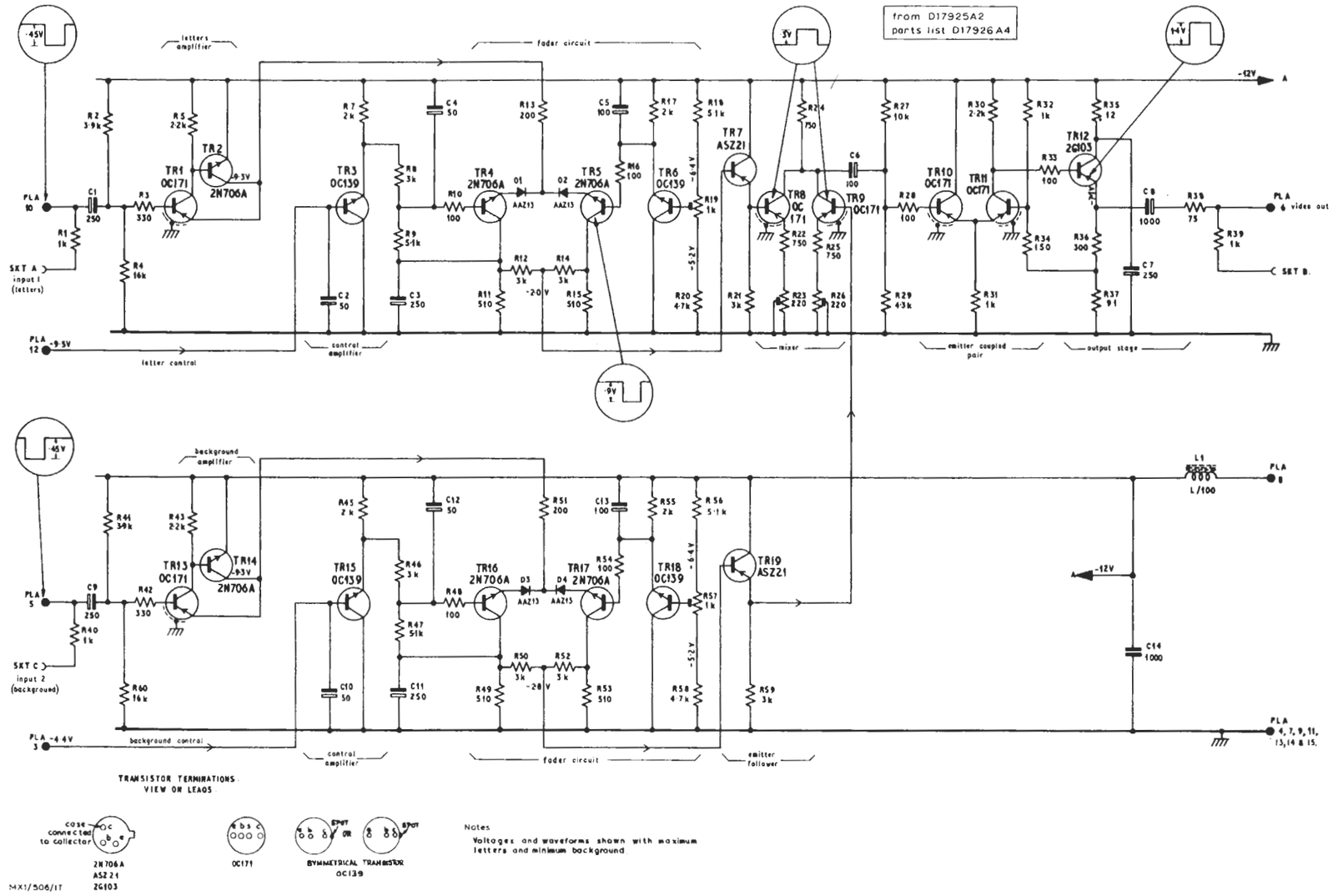

Fig. 1 Circuit of the MX1/506