PICTURE AND FIELD UNIT UN17/503

Introduction

The UN17/503 is used in Drive Units GE1/520,A to perform two separate functions.

(a) to divide the frequency of a signal from twice-line frequency to field frequency.
(b) to generate picture-frequency pulses from a mixed-sync input.

The UN17/503 is constructed on a CH1/26A chassis with index peg positions 12 and 17.

Circuit Description

The circuit of the UN17/503 is given in Fig. 1 on page 3.

The divide-by-625 circuit comprises a chain of ten Bistable Units UN9/528 followed by a complementary emitter follower output stage.

A block diagram of the picture-pulse generator circuit is shown in Fig. 2. The input mixed-sync pulses are fed via a complementary emitter follower, TR4 and TR5, to a monostable multivibrator containing transistors TR6 and TR7. This multivibrator, which triggers on the leading edges of line-sync pulses, has an output pulse duration of 45 μs to prevent double-triggering during the field-signal period. The sync-pulses are also fed to a field-sync separator circuit formed by R34, L1 and C19. The input and output waveforms of this circuit are shown in Fig. 3. Diode D6 is biased so that only the positive-going pulses at the start of the second and subsequent broad pulses cause the diode to conduct. The first of these pulses triggers a monostable multivibrator, containing transistors TR13 and TR14, which has an output pulse duration of 4 ms.

The line and field pulses derived by these circuits are differentiated to reduce their duration to 20 μs and 2 μs respectively. The differentiated pulses are fed to a diode AND gate which produces an output on even fields only. These picture-frequency pulses trigger an 12-μs monostable multivibrator. Fig. 4 shows some of the waveforms in the picture-pulse generator circuit.

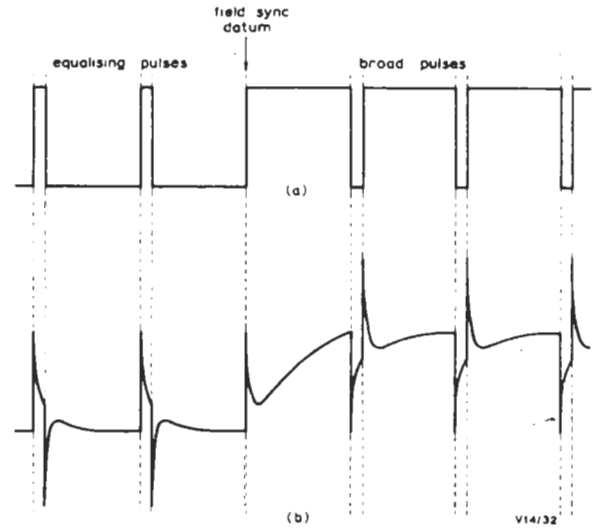

Fig. 3. Waveforms in the Field-sync Separator Circuit

Test Procedure

The UN17/503 is tested as part of a Drive Unit GE1/520 or GE1/520A.

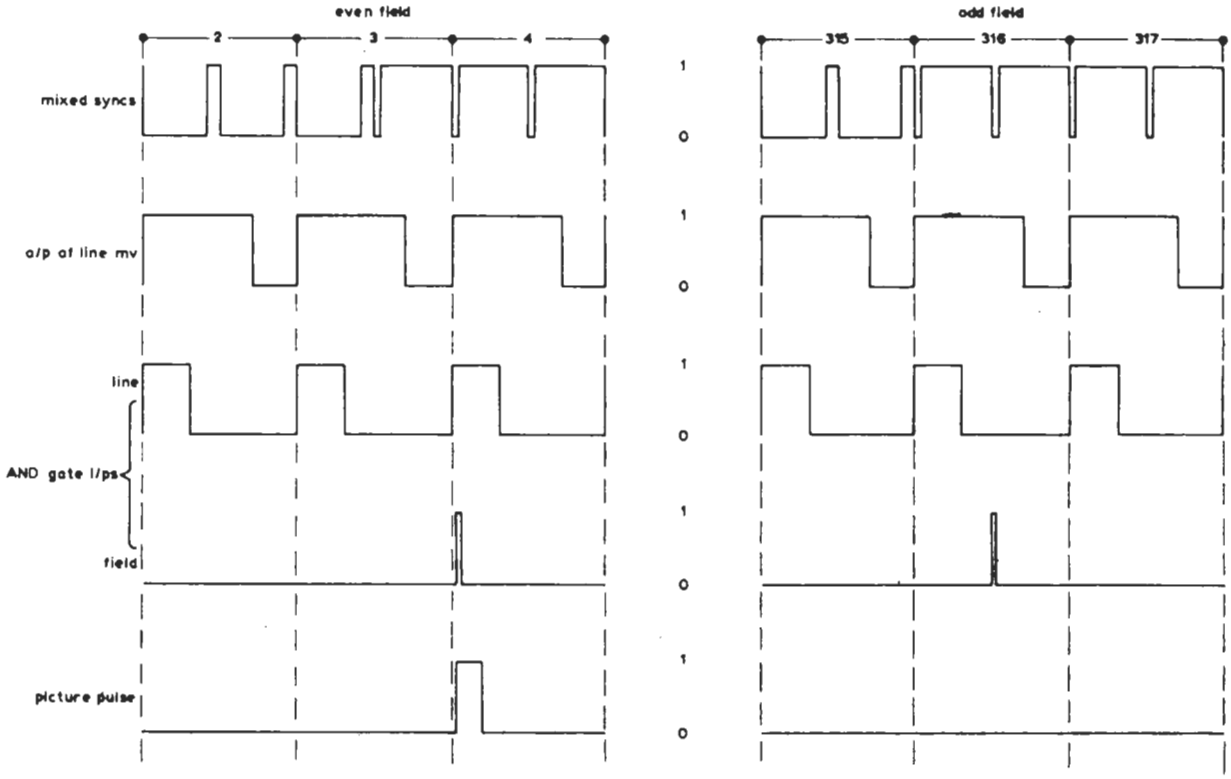

Fig. 4. Waveforms in the Picture-pulse Generator

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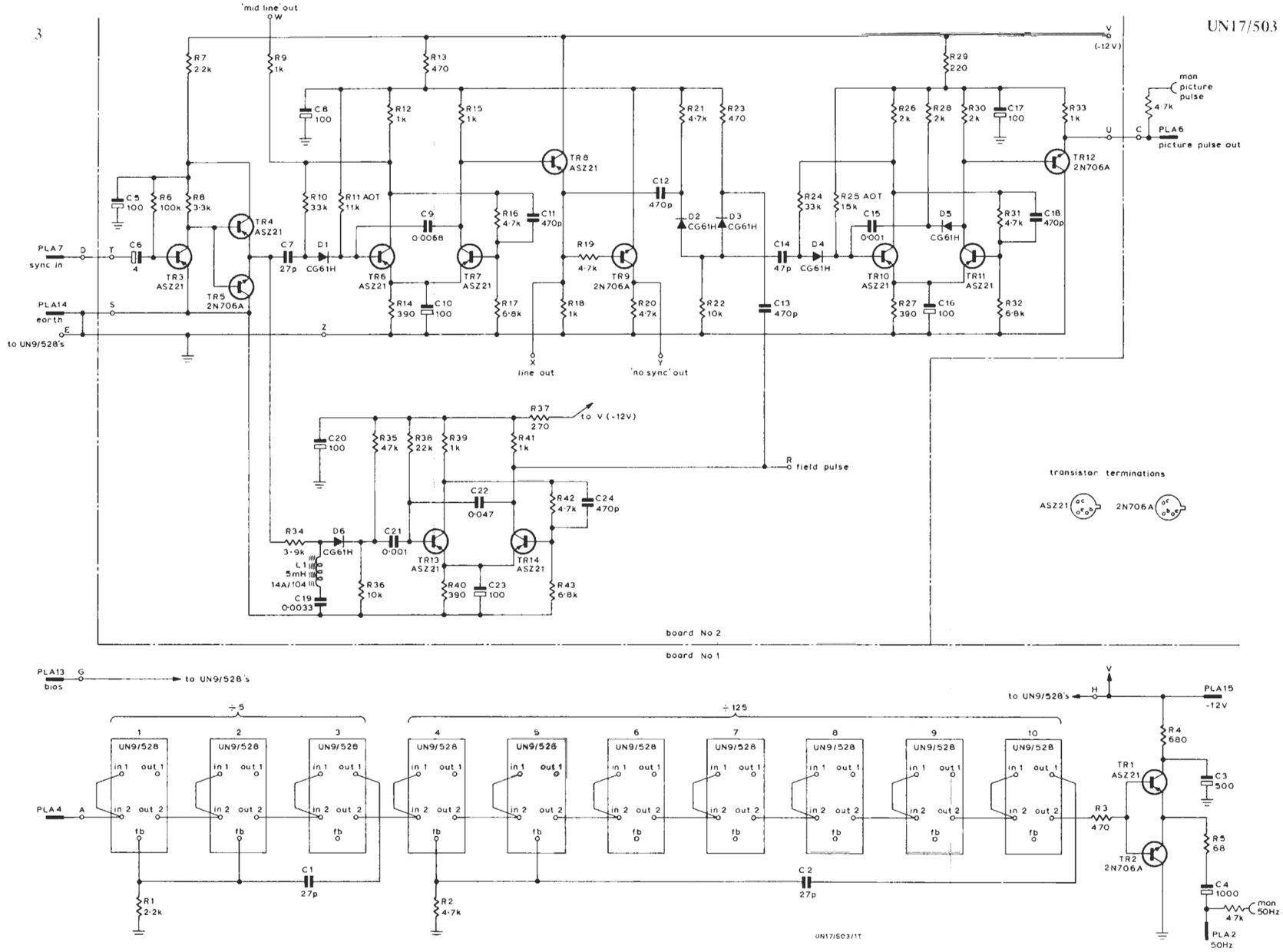

Fig. 1. Circuit of the UN17/503

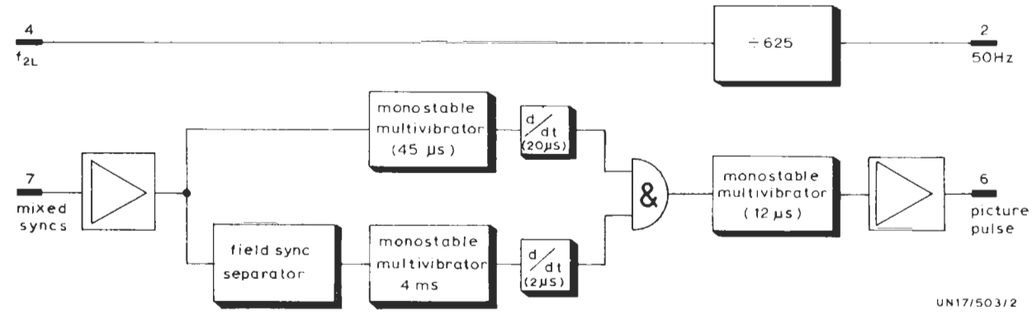

Fig. 2. Block Diagram of the UN17/503