

BAR SINISTER GENERATOR GE4/537

Introduction

The GE4/537 is a test generator producing a black diagonal bar used in setting up write and read gates in the line-store and field-store converters.

The unit requires inputs of mixed syncs, mixed blanking, line and field trigger; it is built on a CH1/12A chassis with index pegs 21 and 33. It has its own stabilised power supply.

General Specification

Input

Mixed Syncs	2 volts ± 3 dB p-p
Mixed Blanking	2 volts ± 3 dB p-p
Line Trigger	2 volts ± 3 dB p-p
Field Trigger	2 volts ± 3 dB p-p

Input Impedance (all inputs) 75 ohms

Output 1 volt composite across 75 ohms

Mains Input 240 volts, 50 Hz.

General Description

The unit develops line and field sawtooth waveforms from line and field trigger pulses. These waveforms are combined and used to trigger two Schmitt Trigger circuits which have different reference potentials. Because of the different reference potentials the Schmitts change state at different points with respect to the input waveform and hence at different times.

The triggering potential is the sum at every instant of the line and field waveforms and so the triggering points of the two Schmitts occur at progressively earlier positions in consecutive lines; hence the diagonal slope of the bar downward and right to left.

The reference potentials of the Schmitts are adjusted during manufacturing tests so that triggering does not occur for 20 lines at the top and bottom of the picture.

Circuit Description

The circuit diagram is given in Fig. 1. Transistors TR4/5/6 and TR10/11/12 respectively, produce field

and line negative-going sawtooth waveforms swinging between 0V and -9V. These waveforms are combined at the bases of TR13 and TR15. TR13/14 and TR15/16 are line and field Schmitt triggers with reference potentials such that TR15/16 operates first to form the top edge of the diagonal bar, followed by TR13/14 to form the bottom edge. TR13 and TR15 are normally held conducting by the standing potential on their bases. This potential is driven negatively by the combined sawtooth waveform and the change of state occurs as the reference potential is passed, first by TR15/16 then by TR13/14. Thus a positive going pulse, occurring progressively earlier in consecutive lines, is produced across R38. This is fed to the video output amplifier.

The video amplifier is fed also with mixed syncs and mixed blanking both positive-going and these, with the pulse input, are inverted by TR7 and fed to the output by TR8.

The diodes D6, D7 and D8 provide isolation between the pulse, sync and blanking circuits and D9 establishes a small bias to offset that across the other diodes. Diodes D10 and D11 slice the sync pulses from TR9; the amplitude is set by R25. R14 adjusts the video amplitude by setting the point at which D6 and D7 conduct.

Maintenance

Routine maintenance is not required, but the sync and video amplitudes should be checked occasionally. The following points can also be noted.

1. The negative going line and field sawtooth waveforms at the emitters of TR5 and TR12 should be linear and should swing between 0V and -9V.
2. There should be no corner cutting at the -9V points; R12 and R33 control this.
3. There should be 20 ± 2 complete white lines above and below the bar. The AOT resistors R42 and R50 set this by adjusting the reference potentials on the Schmitt Triggers.
4. The top and bottom edges of the bar must be parallel; the combined value of R43 and R44 set this.

Reference

1. Designs Department Specification No.7.160(68)

AIB 4/71

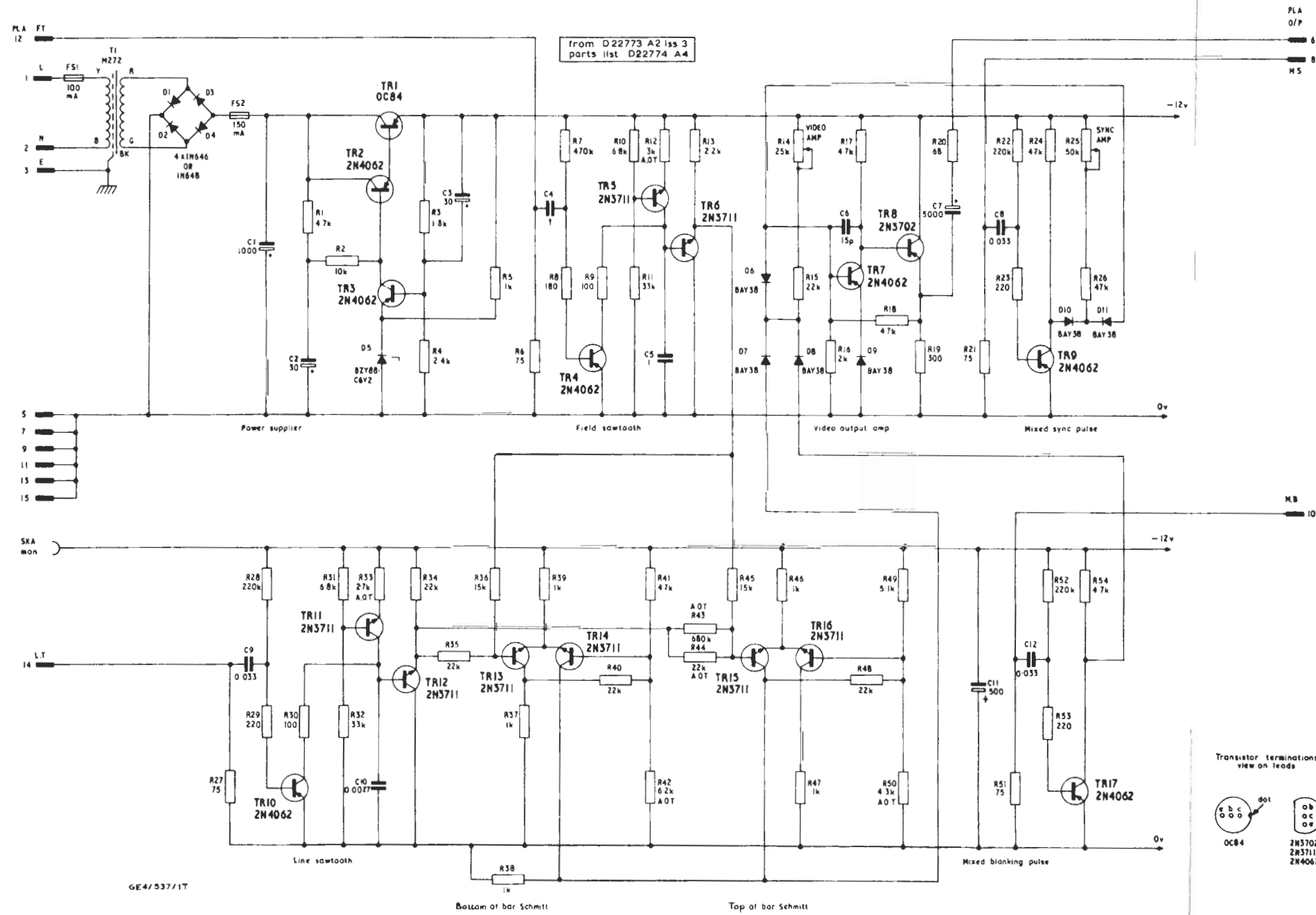


Fig.1. Circuit of the Bar Sinister Generator GE4/537