

SECTION 15

LINE BAR GENERATOR GE2/515

Introduction

The GE2/515 accepts a line-frequency sawtooth waveform and a d.c. line-control input: it produces a line bar keying waveform. It also contains part of a diode matrix (see PA1/512, Instruction V.13).

The GE2/515 is constructed on a CH1/12A chassis with index peg positions 5 and 21.

Circuit Description

The circuit of the GE2/515 is given in Fig. 15.1. The input line-frequency sawtooth waveform is fed to a Schmitt trigger circuit^{1,2} which produces a rectangular waveform output. This waveform is fed to an emitter follower TR3. The current from transistor TR4 limits the positive-going excursion of the waveform at the emitter of transistor TR3,

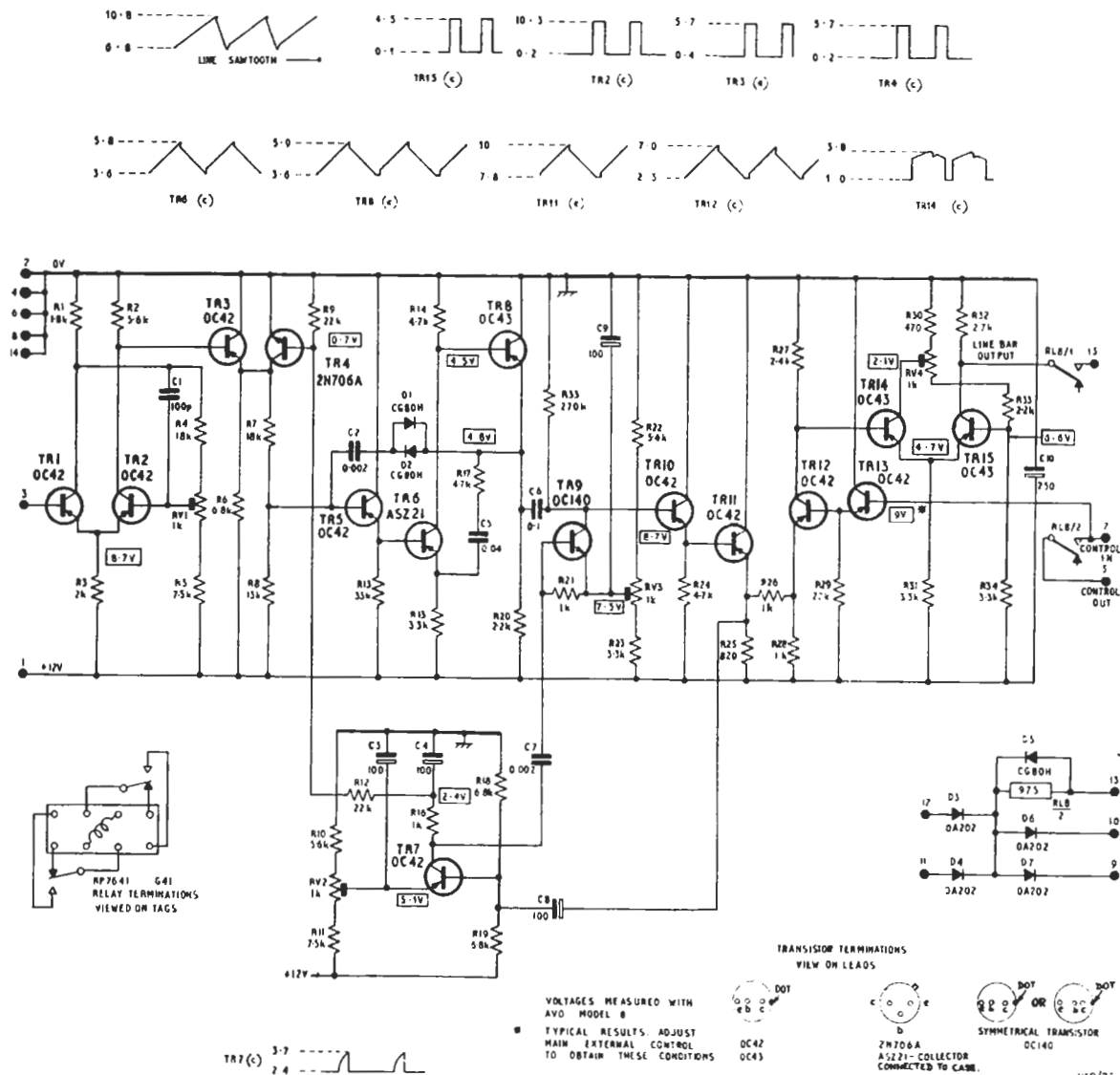


Fig. 15.1 Circuit of the GE2/515

Instruction V.10
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thus controlling its amplitude. This rectangular waveform is integrated in a circuit, similar to that described for the GE1/511, whose output is a triangular waveform. Diodes D1 and D2 introduce a square-wave component of fixed amplitude into the triangular waveform.

Positive-going pulses at the base of transistor TR9 clamp the triangular waveform at the base of transistor TR10 on the negative-going peaks. Transistors TR10 and TR11 are emitter followers.

The output of transistor TR11 is a.c.-coupled to the base of transistor TR7. The amplitude of this waveform is sufficient to overcome the emitter bias only during the negative peaks of the waveform. The resulting positive-going pulses at the collector of transistor TR7 are fed as clamp pulses to the base of transistor TR9. Capacitor C4 and resistors R9 and R12 integrate these pulses to provide the bias for transistor TR4. This amplitude stabilisation circuit prevents a change in

amplitude of the triangular waveform owing to a change in line frequency with a change in line standards.

Transistors TR12 and TR13 are used to introduce the d.c. line-control input of the GE2/515 into the triangular waveform. The mixed waveform is squared by a Schmitt trigger circuit which includes transistors TR14 and TR15.

The output of the GE2/515 is switched to pin 15 by means of a relay contact RL8-1.

Test Procedure

The GE2/515 is tested as part of its parent unit.

Bibliography

1. Towers, T. D.; *Pumps and Schmitts*: Wireless World, Aug. 1964.
2. Newell, A. F., and Tourtel, P. A.; *Transistor Blacklash Circuits*: Mullard Technical Communications, Vol. 6, No. 51.

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