

BAR GENERATOR GE6/505

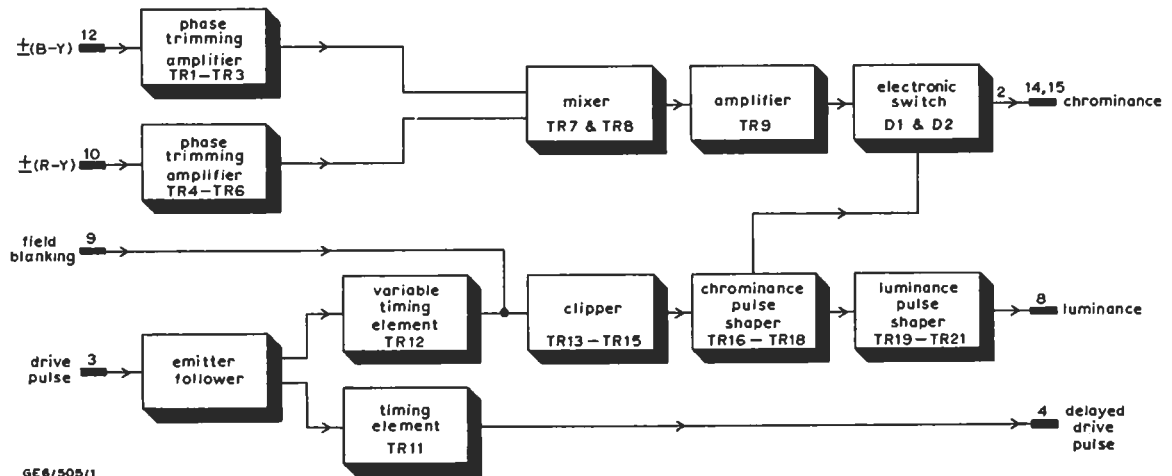


Fig. 1 Block Diagram of the GE6/505

Introduction

The GE6/505 accepts two inputs of colour subcarrier in approximate phase quadrature, drive pulses and field blanking pulses: it produces the luminance and chrominance components of a colour bar together with a delayed drive pulse.

The GE6/505 is constructed on a CH1/43 chassis (1/2-A sized) with index-peg positions 3, 13 and 14.

General Description

A block diagram of the GE6/505 is given in Fig. 1. Two subcarrier signals in approximate phase quadrature, either $+(B-Y)$ or $-(B-Y)$ and either $+(R-Y)$ or $-(R-Y)$, are fed to two phase-trimming circuits which are adjusted to bring the signals into exact phase quadrature. The proportions of these two signals can be adjusted to provide a subcarrier signal at any required phase and amplitude. This signal is amplified and switched by an internally-generated pulse to provide the chrominance-component output of a colour bar.

The input drive pulses are fed via an emitter follower to two timing elements whose output pulses are derived from the trailing edges of the drive pulses. The output of one element is delayed drive pulses. The output of the other element is

field-blanked, clipped and fed to two sequentially-connected pulse-shaping amplifiers. The output of the first shaping amplifier is used to switch the subcarrier signal and the output of the second is the luminance-component output of a colour bar.

Circuit Description

The circuit diagram of the GE6/505 is given in Fig. 2 on page 3. The subcarrier phase-trimming amplifier comprises an emitter follower which feeds a phase-splitting transistor stage. A capacitor and a resistor connected in series between the collector and the emitter of this transistor produce an adjustable phase shift*. The output from the junction of the capacitor and resistor is taken via an emitter follower.

The subcarrier mixer comprises two common-emitter transistors TR7 and TR8 which share a collector load. The gains of the two transistors are adjusted by varying the proportions of the emitter resistors which are decoupled. An emitter follower TR9 feeds the subcarrier signal to a balanced diode switch.

The input drive pulses are fed via an emitter follower TR10 to two timing elements. The drive

*See Designs Department Technical Memorandum No. 8.182(65).

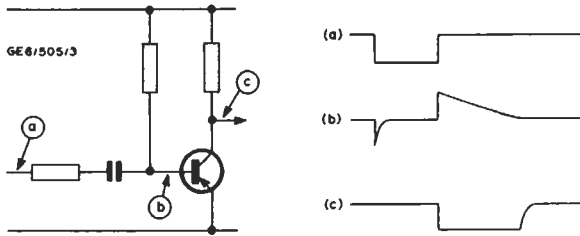


Fig. 3 Delayed-pulse Generator

pulses are differentiated as shown in Fig. 3 and the leading-edge pulses discharge rapidly through the transistor. The trailing-edge pulses cut off the transistor to produce delayed pulses at the collector.

The output of one timing element is clipped by a long-tailed pair amplifier (transistors TR13 and TR14) which feeds a similar amplifier via a common-emitter transistor TR15. The emitters of the second amplifier are fed from a constant-current source transistor TR18. A feedback capacitor C18 increases the rise-times of the output pulses of this amplifier and consequently controls the rise-times of the colour bar chrominance-component output.

The luminance component pulse-shaper comprises a common-emitter stage TR19 which feeds a Schmitt trigger circuit (transistors TR20

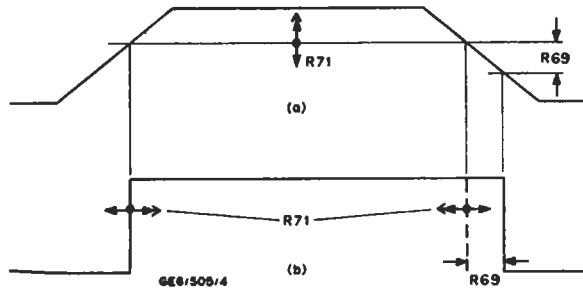


Fig. 4 Effect of the Luminance-pulse Timing Controls

and TR21). Resistor R71 controls the switching level of the circuit and hence the timing of the leading edge of the luminance-component output pulse: it also controls the duration of the pulse. Resistor R69 controls the gain of the feedback loop and hence the amount of backlash which governs the timing of the trailing edge of the pulse. The effect of these controls is shown in Fig. 4. Resistor R68 controls the amplitude of the output pulse.

Test Procedure

The GE6/505 is tested as part of its parent unit.

MJR 10/67

