PULSE GENERATOR GE2/546

Introduction

The GE2/546 accepts a direct coupled video input signal with positive-going picture and provides 3 outputs: a 30-volt line-frequency pulse, two sets of sampling pulses for use with an associated synchronous detector, a d.c. output proportional to the peak value of the input video signal and to the superimposed d.c. component.

The GE2/546 uses a printed wiring card mounted in a CH1/12A chassis with index pegs 4 and 40.

General Specification

Input Level	280 mV p-p
Input d.c. Level (bottom of syncs)	−340 mV
Output 1	
Signal level	−30 V
Pulse duration	5μs
Pulse delay from leading edge of syncs	40μs
Output 2	6 V pulses 2μs and 1·6μs wide
Power supplies	+20 V, 16 mA −10 V, 5 mA −30 V, 30 mA
Weight	1·2 lb.

Circuit Description

The circuit diagram is given in Fig. 1 on page 3. The input signal is directly coupled to the high-impedance input of a Darlington pair formed by TR1 and TR2. From the emitter of TR2, the video signal goes to a sync-pulse separator and to a d.c. amplifier.

Sync separation is performed partly by D1 and partly by TR5 with TR6 amplifying the separated pulses. TR7 provides a low-impedance output of positive-going sync pulses for driving the generators which produce the 30-V 5μs pulses and the sampling pulses.

The 30 V pulse[1,2] is generated by a monostable circuit formed by TR13 and TR14. This is triggered by a pulse from another monostable circuit TR10/TR11, which is itself triggered by the separated line-sync pulse after differentiation by C7. TR10/TR11 introduces a delay of about 40μs, depending on the setting of R26, between the leading edge of the sync pulses and the negative-going 30 V pulse from TR14 collector.

TR12 inhibits the action of TR13/TR14 during the field-sync pulses. Diode D3 prevents the triggering pulse from appearing at the output. D4 isolates the collector of TR14 from the standing negative potential on the input of the following unit.

The two sets of sampling pulses[1] are formed by the interaction of the direct and reflected sync pulses in the short-circuited delay line DL1. The outputs are taken from the emitters of TR8 and TR9.

TR15 and TR16, along with TR17, form a long-tailed pair d.c. amplifier, stabilised against temperature variations. The signal from the emitter of TR2 is amplified and then rectified by D15; C17 is charged to the peak value of the signal on the collector of TR15. The potential on C17 is used in an associated circuit to provide an indication of signal strength[1,3].

Colour coded test points are provided on the front panel for the pulse outputs, including the separated sync pulses.

Maintenance

Routine maintenance is not required but the delay and duration of the 30 V pulses can be checked occasionally and R26 and R33 adjusted as necessary. This test should be done in conjunction with associated equipment.

References

1. U.H.F. Transmitter Demodulator DM1M/501
2. I.F. Amplifier AM1/545
3. Power Supplier PS2/45
4. Designs Department Specification No. 6.122(67)

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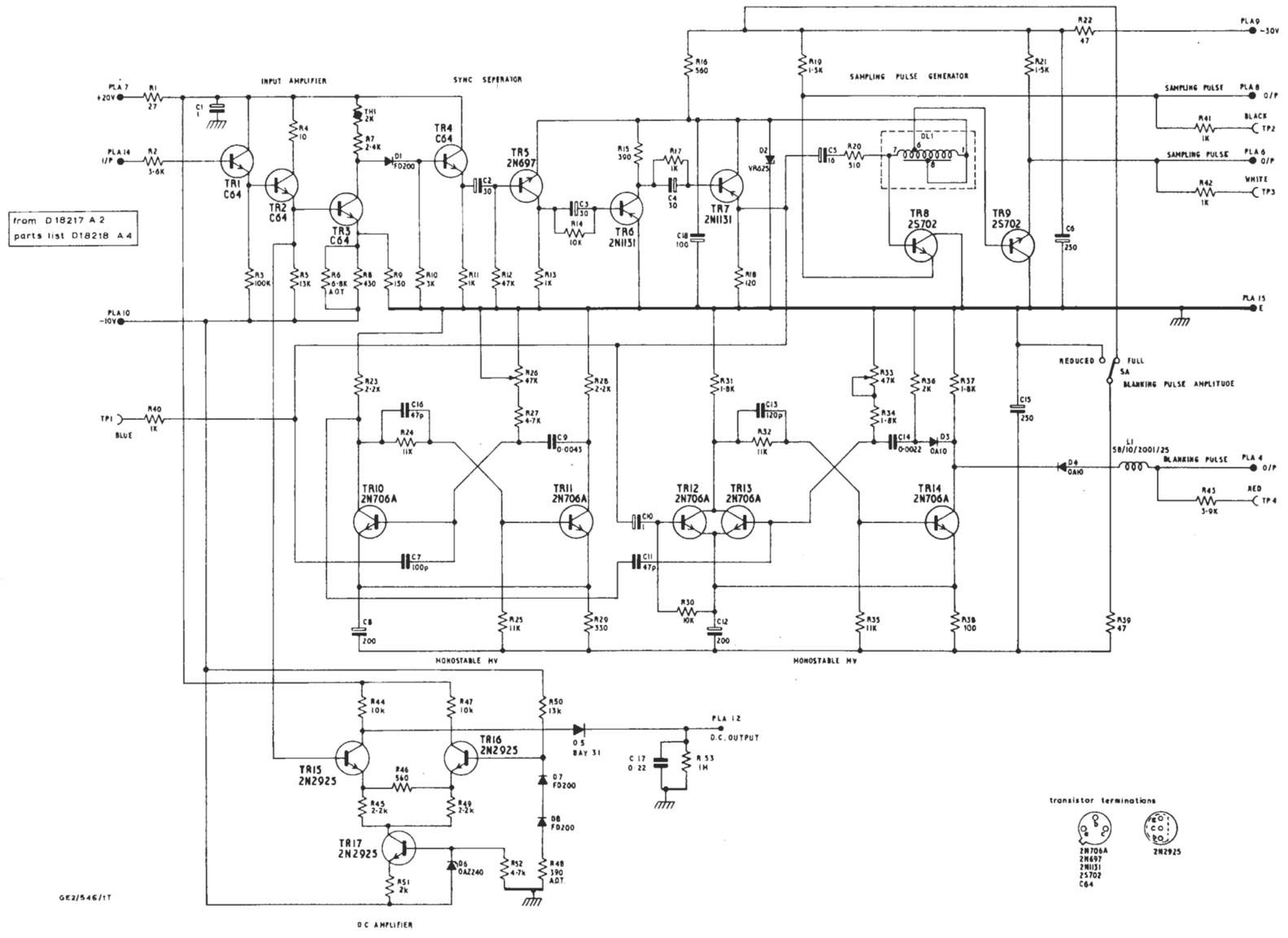

Fig.1 Circuit of the Pulse Generator GE2/546