SECTION 7

SPLIT SCREEN UNIT PA18/507

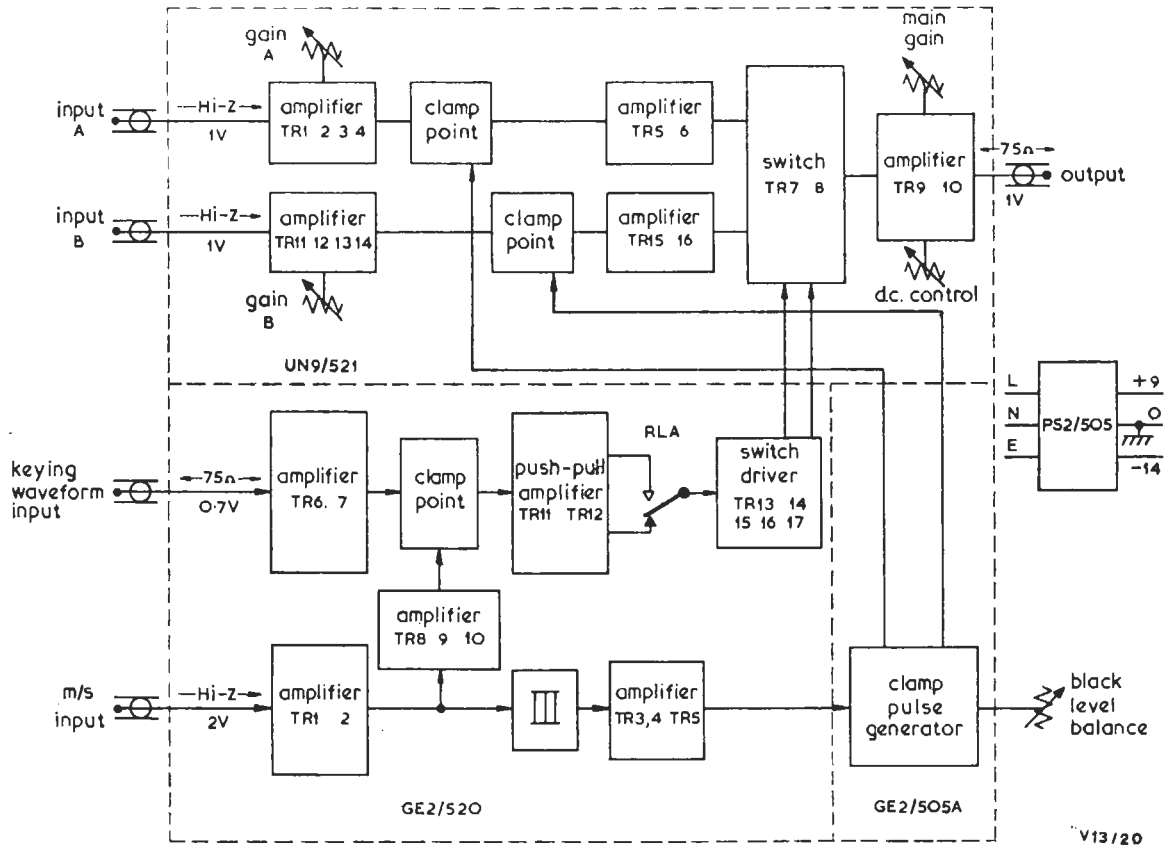

Fig. 7.1 Block Diagram of the PA18/507

Introduction

The output of the PA18/507 is switched electronically between two video inputs according to the instantaneous value of a rectangular keying waveform input. The PA18/507 also accepts an input of mixed sync pulses which is used in clamping the other waveforms.

The PA18/507 comprises the following units mounted, from left to right, in a panel PN3/23:

Unit	*Instruction*
Switch Pulse Generator GE2/520	V.10
Clamp Pulse Generator GE2/505A	V.10
Video Switch Unit UN9/521	V.14
Power Supplies PS2/505	G.2

General Description

A block diagram of the PA18/507 is shown in Fig. 7.1. Mixed sync pulses are used in the GE2/520 to clamp the keying waveform. The sync pulses are also delayed and fed to the GE2/505A to produce clamp pulses that occur in the back porch periods of the video signals.

The video inputs are amplified, clamped and fed to a switch circuit. Provision is made to balance the clamping level of the two video signals to avoid a change in black level between the two parts of the output video signal.

Test Schedule

Apparatus required

Feeds of mixed sync pulses
mixed blanking pulses
pulse-and-bar test signal
Oscilloscope
Two extender boards
Three 75-ohm terminations

Test Procedure

1. Terminate inputs A and B in 75 ohms and replug the GE2/520 using the extender board. Feed attenuated mixed-blanking pulses (0·7 volts p-p) to the *Key* input and mixed-sync pulses (2 volts p-p) to the *M/S* input.
2. Monitor the terminated output of the Switch Unit using the oscilloscope. Adjust capacitor C16 and resistor R34 on the GE2/520 to give minimum switching transients.
3. Replace the GE2/520 without the extender board.
   Replug the UN9/521 using the extender board.
4. Monitor the junction of capacitor C6 and resistor R14 on the UN9/521 using the oscilloscope with a high-impedance probe.
   Adjust resistors RV4 and RV6 on the GE2/505A to minimise clamp-pulse transients.
5. Monitor the junction of capacitor C16 and resistor R53 on the UN9/521.
   Adjust resistors RV1 and RV5 on the GE2/505A to minimise clamp-pulse transients in the display.
6. Replace the UN9/521 without the extender board.
   Replug the GE2/505A using the extender board.
7. Monitor the output of the PA18/507 using the oscilloscope.
   Adjust resistors RV2 and RV3 to give less than 2 mV change in black level.
8. Replace the GE2/505A without the extender board.
   Replug the UN9/521 using the extender board.
9. Adjust resistor R34 to give less than 20 mV d.c. at the output.
10. Feed a pulse-and-bar test signal to video input A.
    Check with the oscilloscope that the input level is 1·0 volt p-p.
11. Adjust resistor R8 to give a level of 2·5 volts p-p at the emitter of transistor TR6.
12. Adjust resistor R31 to give a 1-volt p-p signal at the output of the PA18/507.
13. Operate relay RLA in the GE2/520.
    Adjust capacitor C20 to give less than 0·5 mV of the apparently differentiated 1-T pulse at the output. The bar should be indiscernible.
14. Transfer the pulse-and-bar test signal to video input B and re-terminate input A.
    Adjust resistor R47 to give a level of 2·5 volts p-p at the emitter of transistor TR16.
15. Release relay RLA in the GE2/520.
    Adjust capacitor C19 to give less than 0·5 mV of the apparently differentiated 1-T pulse at the output. The bar should be indiscernible.
16. Adjust inductor L4 to give the best compromise between the frequency response for the two input chains. The 1-T pulse-to-bar ratio should be 100 $\pm$0·5 per cent, the 2-T pulse-to-bar ratio should be unity and the slope of the bar should be less than 0·5 per cent.

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