SECTION 4

NON-LINEAR AMPLIFIER AM19/504

Introduction

The AM19/504 accepts a non-composite positive-going video signal of 0·7 volt p-p amplitude and a feed of mixed syncs. It produces a video output of the same level, which can be either of the same polarity or inverted, but which is distorted according to a pre-determined non-linear characteristic. The output signal can contain also a white-level pulse timed to occur during the line-sync period.

This added signal is present only if an extra connection is made within the AM19/504 and it provides a suitable clamping point for use in associated apparatus when the AM19/504 is producing inverted signals.

The equipment consists of the three plug-in units of an AM19/503, a video amplifier AM5/507 and a power supplier PS2/13M (see Instruction G.2) mounted in a PN3/23 chassis. An additional Unit 3 (AM19/503) may be incorporated so that alternative non-linear transfer characteristics are available. Selection of the appropriate Unit-3 circuit is made by remote operation of a relay contained in Unit 2.

The possible choice of two non-linear characteristics is intended, for instance, to provide non-linear correction for film-scanning equipment using either positive or negative film. Alternatively, both non-linear characteristics can be used to modify positive signals. A contact link in Unit 3 is included or omitted depending on which signal polarity is required for that particular module.

General Specification

Signal Levels	
Non-comp. video in	0·7 volt p-p
Mixed syncs in	2 volt p-p ± 3 dB
Non-comp. video out	0·7 volt p-p ± 0·1 volt (with optional white-level pulse)
Impedances	
Input video	75 ohms
Input mixed syncs	2 kilohm
Output video	75 ohms
Mains Power Input	250 ± 5 volts, 50/60 Hz.
Operating Temperature	20 °C to 45 °C.

Circuit Description

Fig. 4.1 is a block diagram of an AM19/504 non-linear amplifier showing the manner in which the various component units are connected together. The circuit of each of the units comprising an

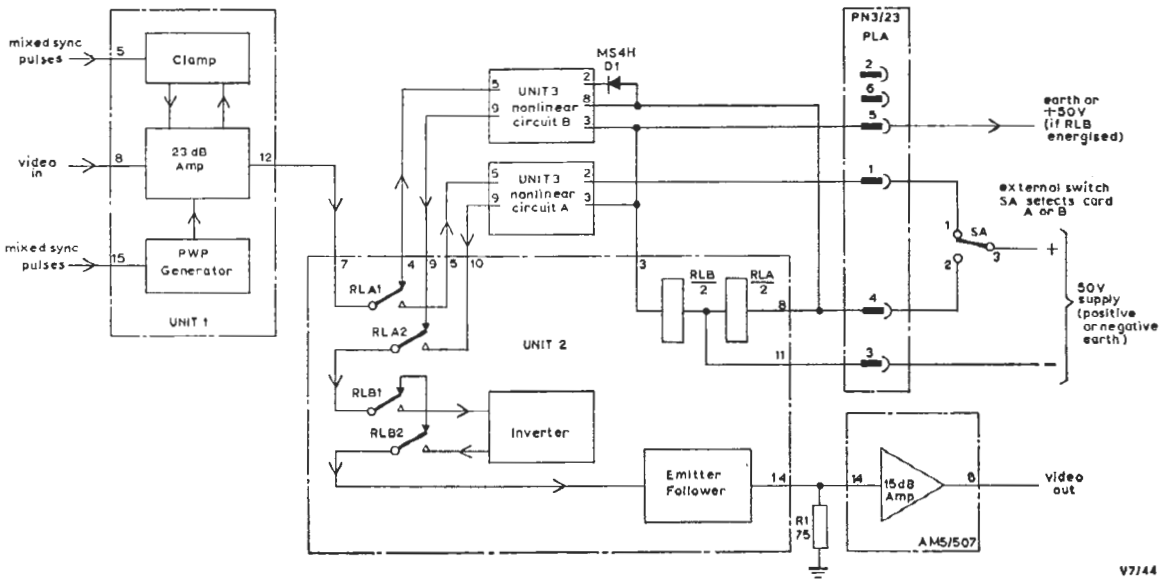

Fig. 4.1 Block Diagram of the AM19/504

AM19/503 is described elsewhere in this Instruction.

A switch, marked SA in Fig. 4.1, can be incorporated in an external circuit, and is used to select the +50 volt connection to relays RLA and RLB. If contacts 2 and 3 of either of the Unit-3 modules (termed non-linear circuit A and non-linear circuit B in Fig. 4.1) are connected together, RLB is operated when SA is switched to the required position, and the polarity of the output signal is then reversed. Thus, SA in position 1 (Fig. 4.1) will produce signal inversion if contacts 2 and 3 of non-linear circuit A are joined; position 2 of SA results in inversion if 2 and 3 of non-linear circuit B are joined. Switch SA set to position 2 also energises RLB (irrespective of whether the module contacts are joined or not) so that the signal is fed to non-linear circuit B instead of circuit A.

An output of 50 volts is available from the chassis socket contact 5 if either of the Unit-3 modules have the plug contacts 2 and 3 joined together. This supply can be used to operate relays in an external circuit if this is required when the signal is inverted.

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