

SECTION 14

VIDEO SWITCHING PANEL PA18M/514

Introduction

This panel forms a nine-input solid-state switch. It provides a video signal which is used for colour-burst stabilisation in the stabilising amplifier¹ of a video mixer².

The inputs to the panel are:

Up to eight colour video signals	} used to generate a colour-synchronising signal
a PAL square-wave signal	
a subcarrier signal	
mixed synchronising pulses	
burst gate pulses	} trigger pulses
trigger pulses	

The output of the panel is a colour video signal which can either be one of the eight video input signals or the internally-generated colour-synchronising signal. The output signal is selected by means of trigger pulses derived from the mixer control circuits².

The panel consists of the following plug-in sub-units (described in the Instructions indicated) mounted on a PN3/23 chassis:

- 3 Three-channel Switch Units UN9/510 (V.14)
- 1 Video Amplifier AM1/551 (V.7)
- 1 Colour Black-level Generator GE6/504 (V.10)
- 1 Video Distribution Amplifier AM1/511 (V.7)
- 1 Television Equaliser EQ5/510 (V.5)

Power supplies for the UN9/510 switch units are derived from the AM1/551 amplifier. The AM4/551 and GE6/504 units have integral power supplies.

General Specification

Inputs

Composite Video (8 inputs)	1 volt p-p
PAL Square Wave Subcarrier (4.433 MHz)	2 volts p-p
Mixed Syncs	1 volt p-p
Burst-gate	2 volts p-p

Input Impedance 75 ohms

Output composite video, 1 V p-p

Output Impedance 75 ohms

Trigger Inputs +12 volts

Mains Input 200-250 volts, 50 Hz

General Description

A block diagram showing the interconnections between the sub-units is given in Fig. 14.1.

The switching operations are carried out by three UN9/510 switch units each of which contains three identical switching circuits; the inputs to the first eight switching circuits are fed with composite colour video signals (feeds of the video inputs to the mixer) and the ninth input is fed with a reference colour-synchronising signal generated in the GE6/504 unit. The three switch units have a common output bus-bar and this is connected to the input of an AM1/551 video amplifier. The output of this amplifier is fed, via an EQ5/510 equaliser, to an AM4/511 distribution amplifier and the output of the distribution amplifier feeds the associated stabilising amplifier.

The switches are operated by positive-going trigger pulses derived from the control circuits of the mixer; each switch unit has three trigger *On* inputs, one for each switch circuit. The trigger pulse that is used to turn a given switch on is also applied, via the common *switch-latch* line, to the *Off* inputs of all the other switch circuits, so switching off any previously on switch. If an incoming trigger pulse is of low amplitude it may turn the required switch on but fail to turn the previously selected switch off. If this happens a pulse is applied, via the common *diode-catch* line, to a trigger-generating circuit in the AM1/551 amplifier. The resulting trigger pulse is fed back along the *switch-latch* line and is of sufficient amplitude to turn off the unwanted switch.

Maintenance

Failure of one or more switches can usually be localised to a unit by checking the monitor points or by interchanging units. When the fault has been traced the units should be returned to their original positions; if this is not done the units must be realigned (see under UN9/510).

If the fault is a switching one the following points

Instruction V.13
PA, Part 18, Section 14

should be noted.

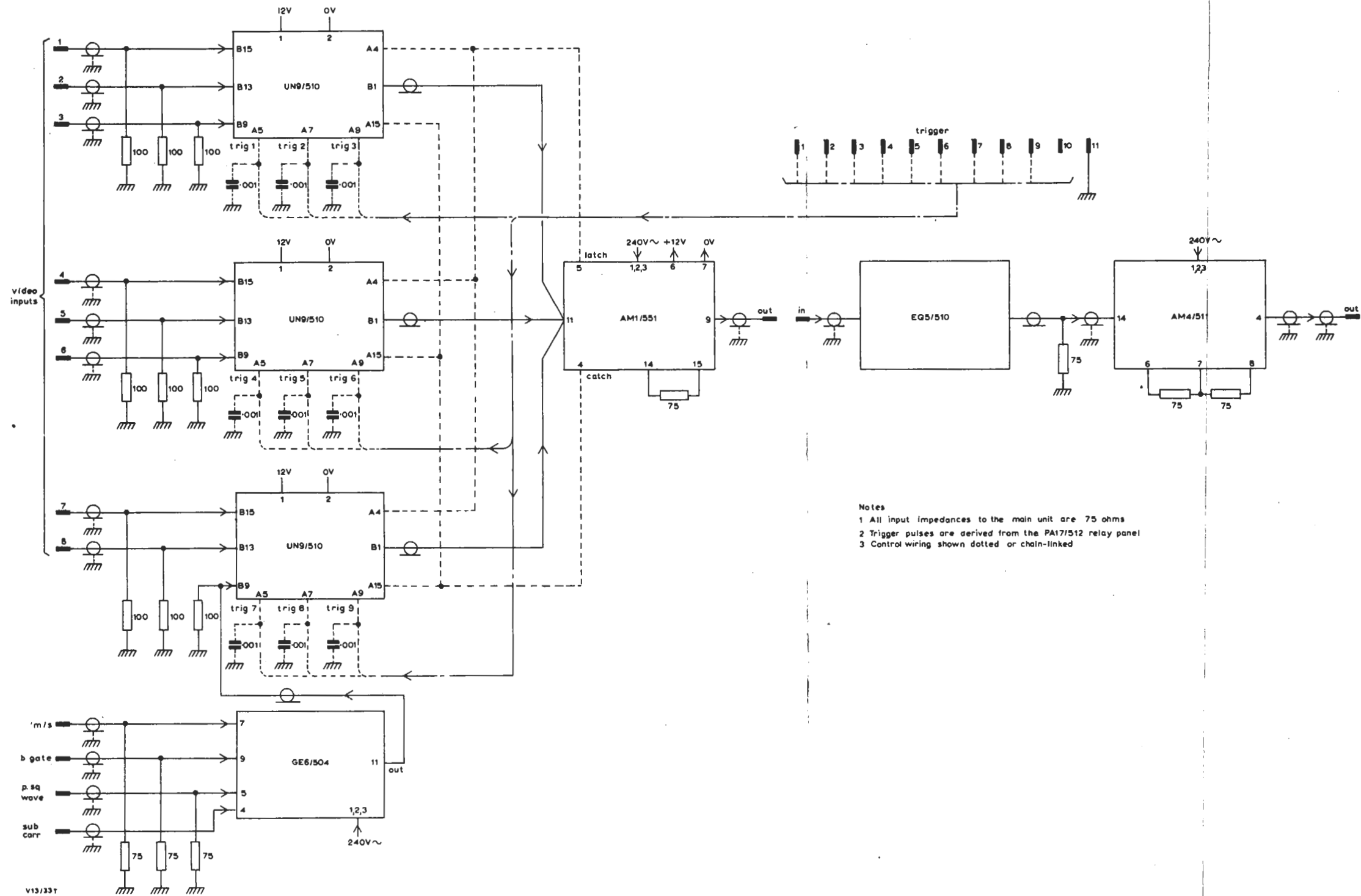
- (a) The system is d.c. controlled and low amplitude pulses may fail to operate the switches. Switching is initiated by the positive peak of a pulse and this should be 11.5 volts \pm 1.0 volt.
- (b) Owing to the presence of series diodes in the pulse routing circuits the fall times of trigger pulses may be very long.
- (c) Between pulses the voltages on the switching

lines may have any value between +3 volts and -14 volts.

References to Typical Associated Equipment

- 1. Sync Pulse Stabilising Amplifier AM18/513A, Instruction V.7.
- 2. Studio Video Mixing Equipment EP5/503, Instruction V.15.

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Notes
 1 All input impedances to the main unit are 75 ohms
 2 Trigger pulses are derived from the PA17/512 relay panel
 3 Control wiring shown dotted or chain-linked

Fig. 14.1 Block Diagram of the PA18M/514