

VIDEO SWITCH UN9/577

Introduction

The UN9/577 accepts video, an insertion signal, mixed syncs and a switching waveform and produces a video output with the insertion signal switched in for the duration of a positive-going pulse at the switching waveform input.

The unit is constructed on a CH1/43 chassis with index pegs in positions 1, 3 and 11.

General Specification*Inputs*

Input Impedance	10 kilohms
Video	1 volt p-p
Insertion Signal	1 volt p-p
Switching Waveform	1 volt p-p positive-going
Mixed Syncs	2 volts p-p negative-going

Output

Output Impedance	75 ohms
Output Signal	1 volt p-p into 75-ohm load
Linearity	Better than 1 per cent
Differential Gain	Better than 1 per cent
Differential Phase	Better than 0.5°
Crosstalk	Better than 50 dB

Power Supply	+12 volts, 140 mA -6 volts, 140 mA
Temperature Range	+2 to +40°C
Weight	0.3 kg

Circuit Description

Fig. 2 is a functional circuit diagram of the unit.

An electronic change-over switch, IC1, uses an integrated circuit type MC1596. A simplified diagram of this circuit is shown in Fig. 2.

Alignment Procedure

1. Connect the UN9/577 by an extender board to the parent equipment (e.g. PA1/560).
2. Connect a source of video and insertion signal to the parent equipment and monitor the output of the UN9/577.
3. Check that the video gain is unity (set by R7).
4. Check that the insertion-signal gain is unity (set by R52).
5. Check that the switching action between the video and the inserted signal is clean (set by R78).

6. Check that the insertion-signal black level corresponds to video black level (set by R41). Step 7 is necessary only in applications which require identical path lengths between the video and the inserted signals. The initial measurements require a modified extender board and equipment to measure differential phase. Details of the modified extender board are given later.

7(i) Connect the UN9/577 to the parent equipment by means of the modified extender board. This ensures that a common signal is applied to the video and insertion signal inputs in parallel.

7(ii) Apply a staircase (with subcarrier) test signal to the paralleled inputs.

7(iii) Measure the differential phase at the output of the UN9/577 on the chosen line.

7(iv) Select a line in which the output signal is derived from the video input signal path.

7(v) Measure the differential phase again, this time on a line containing the inserted signal.

Any difference between the measurements made in step 7(iv) and 7(v) is a measure of the phase difference between the video and the inserted signal paths.

7(vi) If necessary adjust C4 and C28 to the minimum capacitance settings that give a phase difference of five degrees or less between the two paths.

Modified Extender Board

This is a standard extender board in which the connections between pins 6 and 10 on the input connector are removed and modified as follows:

From pin 10 on the plug connector a 75-ohm coaxial cable is connected to the centre of a strap between pins 6 and 10 on the socket. The screen of the cable is connected to zero volts.

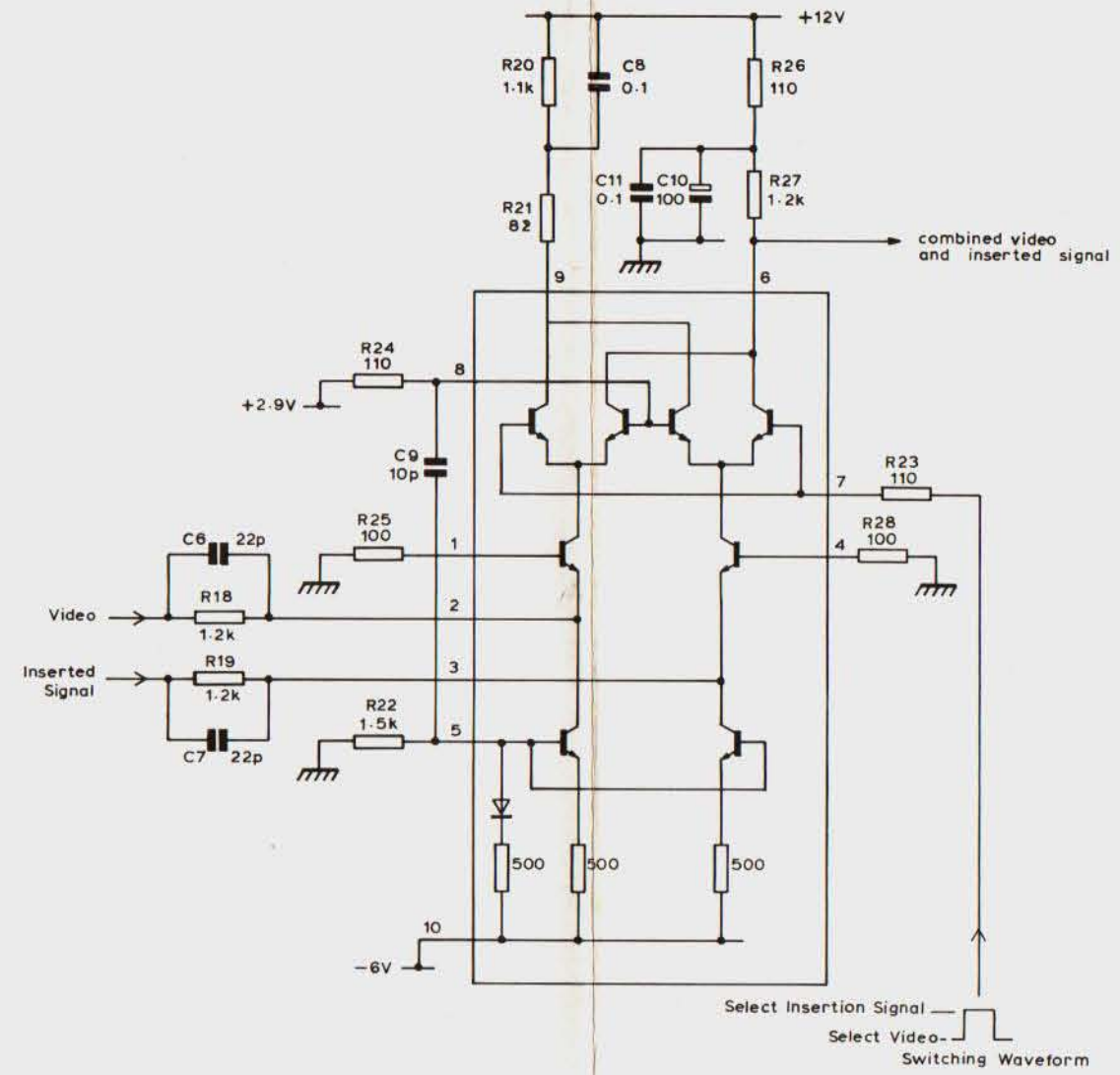


Fig. 1 UN9/577 Electronic Change-over Switch IC1

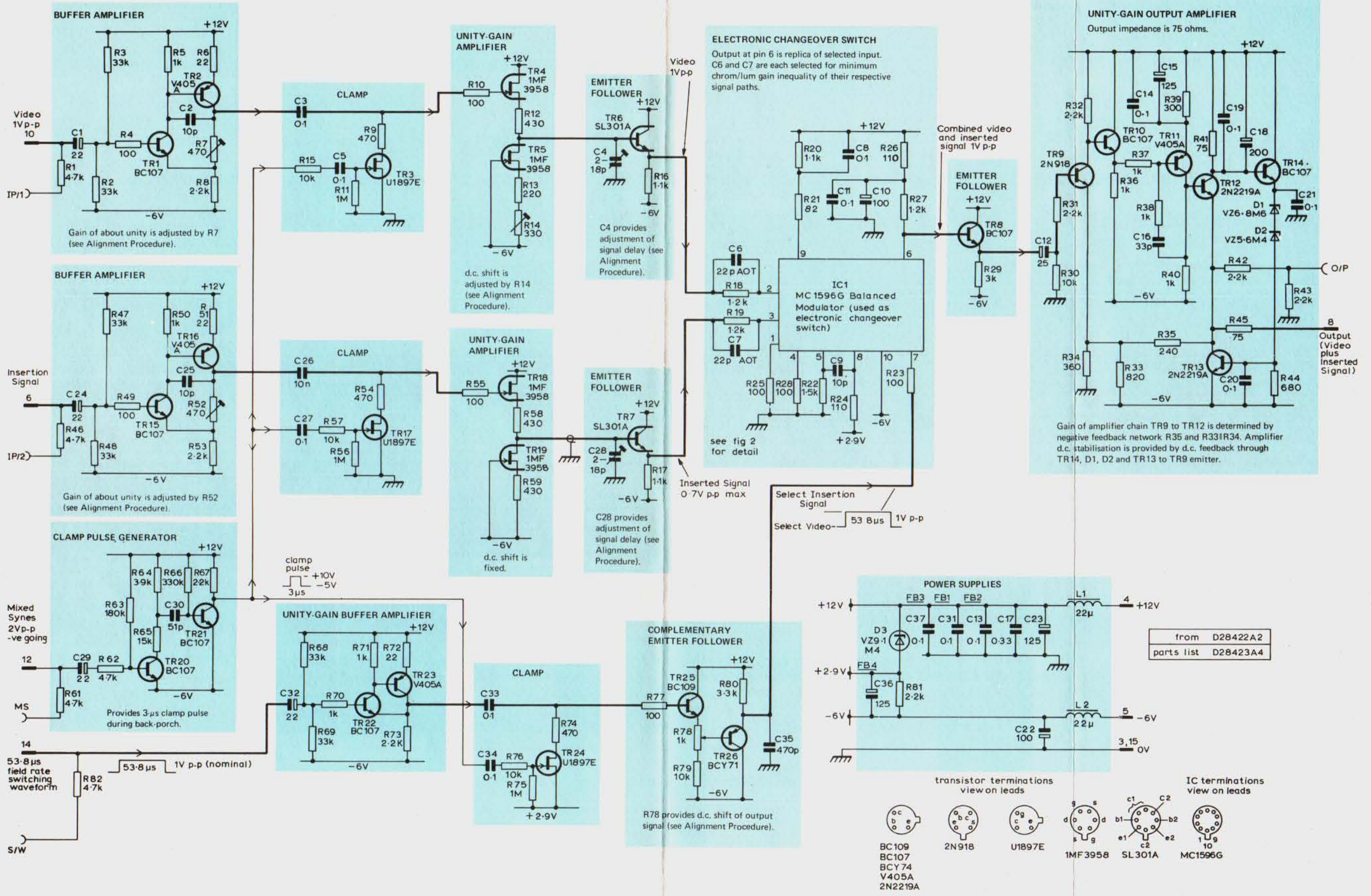


Fig. 2 UN9/577 Circuit Diagram