

COLOUR CALIBRATOR UN2/503, UN2/503A AND UN2/504

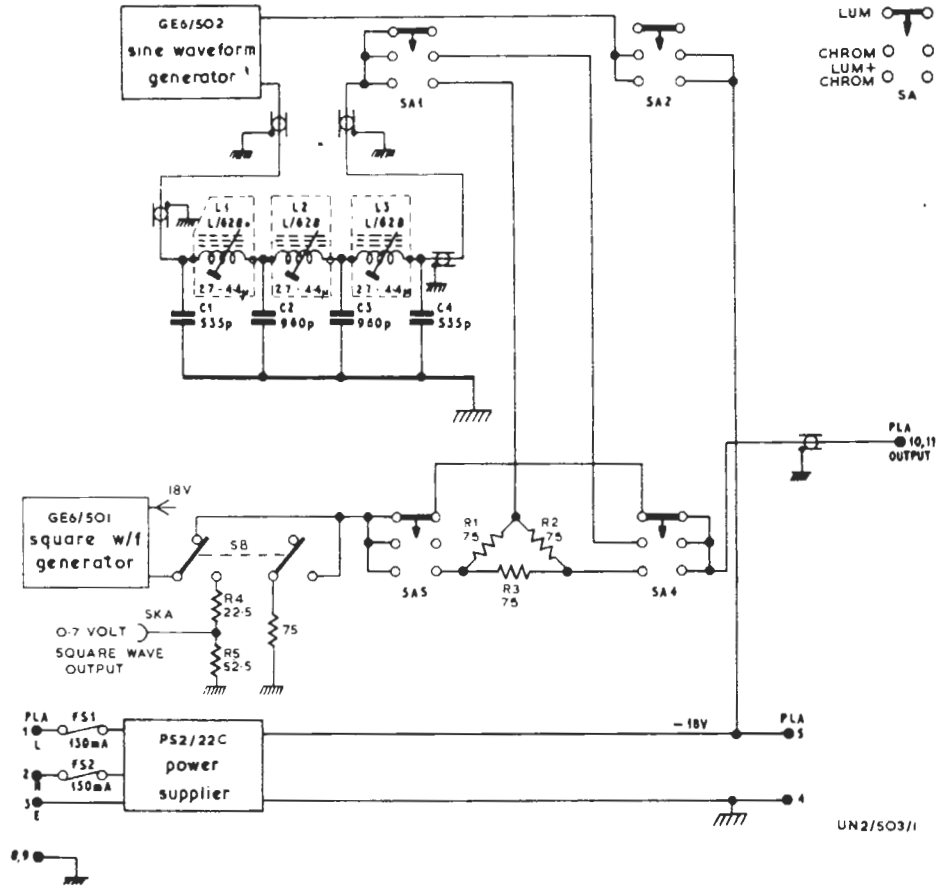


Fig. 1 Circuit of the UN2/503A

Introduction

These units are calibration waveform generators and are primarily intended for the luminance/chrominance calibration of oscilloscopes. The UN2/503A is a later version of the UN2/503, which it supersedes, and it can also be used to calibrate colour bar generators. The waveforms generated are:

- (a) a 1-volt p-p square wave at a frequency of about 11 kHz.
- (b) a 1-volt p-p sine wave at colour sub-carrier frequency.
- (c) a composite waveform with a p-p amplitude of 1 volt consisting of equal amplitudes of (a) and (b).

- (d) a 0.7 volt (when unterminated) square wave at a frequency of 11 kHz (UN2/503A units only).

The required output is selected by means of two switches mounted on the front panel of the unit; one switch selects outputs (a), (b) or (c) and the other switch selects output (d). The output impedance for conditions (a), (b) and (c) is 75 ohms.

The sub-carrier frequency may be either 4.43 MHz or 3.58 MHz and is selected by means of a strap within the unit. If the sub-carrier frequency is changed the calibration of the unit must be checked, preferably by Equipment Department.

Each unit consists of a CH1/12A chassis on which a mixing network, a low-pass filter and the following

sub-units are mounted.

Sine Waveform Generator GE6/502
 Square Waveform Generator GE6/501
 Power Supplier PS2/22C

A circuit diagram of the parent unit, which also shows the interconnections between the sub-units, is given in Fig. 1.

General Specification (UN2/503)

Output Level	1 volt p-p \pm 0.1 dB
Output Impedance	75 ohms
Operating Temperature	5°C to 45°C
Mains Input	240 volts; 50 Hz
Power Consumption	3 watts
Weight	1 lb.
Index Pins	3 and 36

Operation

When the mode switch on the front panel of the unit is set to *Lum* (luminance) the output of the unit can be used either to check the vertical calibration of oscilloscopes or, in conjunction with a calibrated attenuator, to measure the amplitude of chrominance signals. This signal can also be used for the absolute gain measurements for which a UN2/501 is normally used.

When the mode switch is set to *Chrom* (chrominance) the output of the unit can be used, in conjunction with a calibrated attenuator, to measure the amplitude of chrominance signals. However, it has been found in practice that this measurement can be more successfully carried out when the unit is set to *Lum*, as mentioned above.

When the mode switch is set to *Lum + Chrom* the output of the unit can be used to check the amplitude response of an oscilloscope at sub-carrier frequency relative to its response in the region of 11 kHz. If the oscilloscope is double-triggered the sub-carrier will appear to sit on itself. The traces obtained for conditions of correct and incorrect response at sub-carrier frequency are shown in Fig. 2.

To use the 503A unit for the calibration of a colour-bar generator, an oscilloscope with differential measuring facilities is required. The square-wave output of the 503A is applied to an untermin-

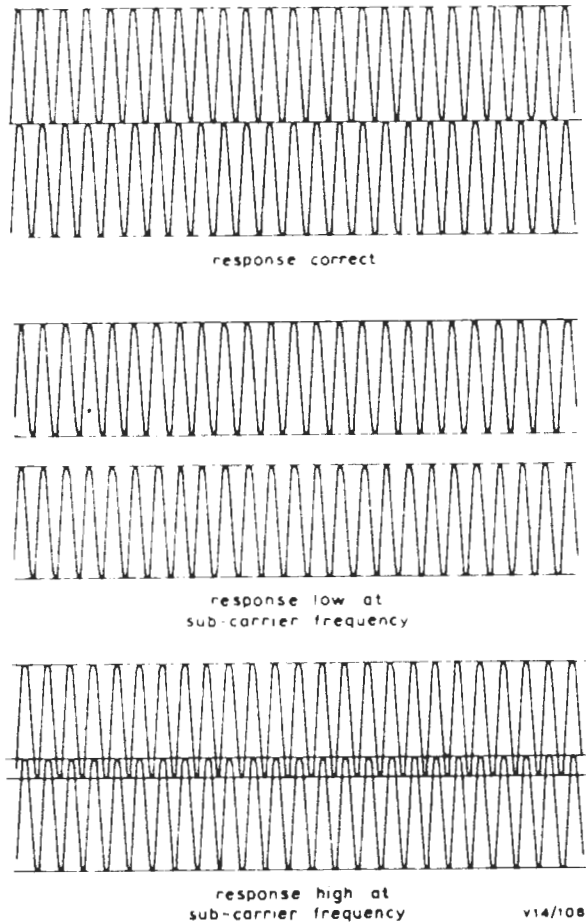


Fig. 2 Calibration of an Oscilloscope: Traces obtained for correct and incorrect responses

ated input of the difference amplifier and the monitor output of the colour-bar generator is applied to the other input, which is also unterminated. The colour-bar generator is then aligned in the normal way to give zero output on the oscilloscope.

COLOUR CALIBRATOR UN2M/504

The UN2M/504 is a portable version of the UN2/503. It is mounted in a CS2/13 carrying case and weighs about 2 lb.

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