

WAVEFORM SUPPRESSION UNIT UN1/556

Introduction

The UN1/556 accepts a composite or non-composite video signal together with feeds of mixed-sync and mixed-blanking pulses; it provides a composite or non-composite video output signal in which the perimeter of the picture is blanked so that (for 625-line working) the output picture area is about seven per-cent smaller than that of the input signal. Provision is made for the use of externally-generated blanking signals if these are required.

The unit is used in the automatic gain control systems of telecine machines^{1,2} to provide a signal which is not affected by movement of the telecine shift, amplitude or film racking controls and which therefore does not route misleading information to the A.G.C. detector.

The unit consists of the following units mounted on a CH1/12A chassis which has index peg positions 12 and 29:

Blanking Mixer MX1/504

Switch Unit UN9/526

Pre-field Pulse Generator GE2/530

Post-field Pulse Generator GE2/531

Line Blanking Generator GE2/532

The MX1/504 and the UN9/526 are attached to the CH1/12A chassis by screws; the three blanking generators are constructed on printed-wiring cards which plug into sockets on the MX1/504 unit.

A block diagram which shows the signal paths between the component units of the UN1/556 is given in Fig. 1.

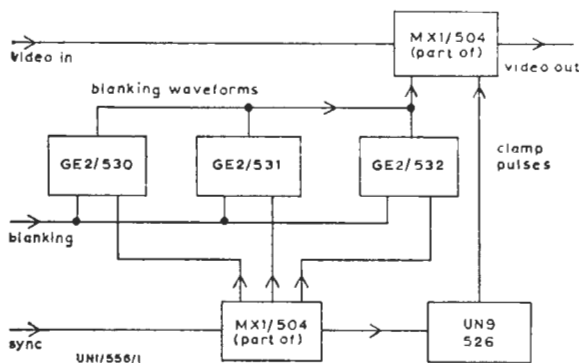


Fig. 1 Block Diagram showing Signal Paths In the UN1/556

General Specification

Inputs

| | |
|----------------------|--------------------------------------|
| Video | 0.7 V p-p composite or non-composite |
| Mixed Syncs | 2 V p-p |
| Mixed Blanking | 2 V p-p |
| External Blanking | 4 V p-p positive-going |
| Inputs (if required) | |

Input Impedances

| | |
|--------------|-----------|
| Video | 3 kilohms |
| Other Inputs | high |

Output

0.7 V p-p composite or non-composite video signal

Output Impedance

40 ohms in series with 50 μ F

Bandwidth

-3 dB at 6 MHz

Power Requirements

24 V at 100 mA,
12 V at 25 mA

Line Standards

405, 525, and 625 with-out switching

Alignment

The unit is inherently stable and alignment should be necessary only at infrequent intervals or following repairs. It is assumed that alignment will be carried out while the unit is mounted in its normal operating position; if the unit is aligned on the bench a 15-way in-line Painton socket, wired as detailed in D.D. Specification 7.50(65), will be needed.

Apparatus Required:

- Dual-trace oscilloscope with d.c. measuring facility
- GE4/506B Sawtooth and Lift Generator
- 75-ohm impedance variable video attenuator

Procedure

- Mount the unit on a chassis extender.
- Switch on the associated power supplies and check that the unit is receiving feeds of mixed-sync and mixed blanking pulses.

3. Remove the three plug-in blanking generators.
4. Apply the *White Level* output from a GE4/506B Sawtooth and Lift Generator to the unit via the variable attenuator, set for 0 dB attenuation. Monitor the signals present at the *Mon In* and *Mon Out* sockets and adjust RV1 on the MX1/504 until the video input and output signals have the same amplitude.
5. Set the oscilloscope to measure d.c. Monitor the signal at the emitter of TR4 and vary the amplitude of the video input signal by means of the attenuator. Check that the UN9/526 unit is clamping the signal at the base of TR3. The blanking-level d.c. potential should remain constant.
6. Connect the oscilloscope to Test Lug TL1 and check that a field-frequency pulse of about 5 volts p-p is present, as shown in Fig. 2(d). If it is not, check that the waveform at C13 is as shown in Fig. 2(b).
7. Connect the two inputs of the oscilloscope to the *Mon In* and *Mon Out* points and display the same field on the upper and lower traces in a similar manner to that shown in Fig. 2. Trigger the oscilloscope from TL1. Remove the mixed-blanking input to the unit.
8. Plug the GE2/531 Post-field Blanking Generator into the centre one of the three sockets provided on the MX1/504. Check that the video output signal is blanked for six lines after the normal field-blanking period, see Fig. 2(f). If it is not, adjust RV1 on the GE2/531 until it is.
9. Plug the GE2/530 Pre-field Blanking Generator into the socket nearest to the front panel. Check that the video output signal is blanked for five lines before the normal field-blanking period, see Fig. 2(f). If it is not, adjust RV1 on the GE2/530 until it is.
10. Reconnect the mixed-blanking feed to the unit. Plug the GE2/532 Line Blanking Generator into the socket nearest to the rear of the unit. Set the oscilloscope to run at line-frequency and observe the signals present at the *Gate Pulse* monitor socket and at the input to the unit (trigger the oscilloscope with mixed-blanking trigger). Check that the gate pulse waveform is positive-going and more than 0.5 volts in amplitude, see Fig. 2(h). The leading edge of the waveform should be coincident with the

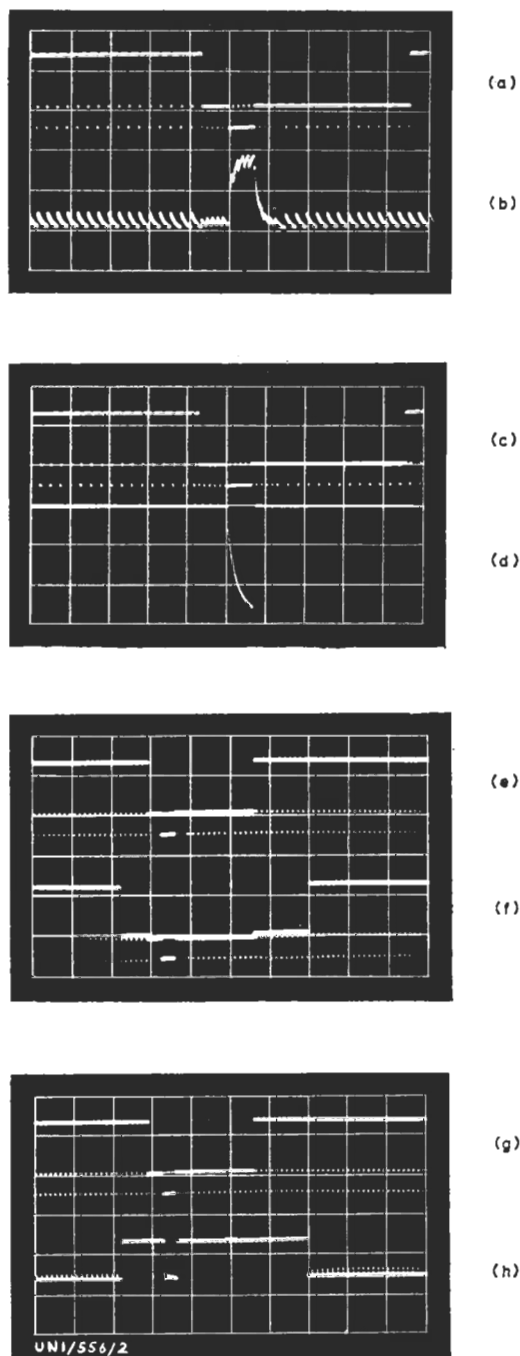


Fig. 2 Waveforms in the UN1/556

- (a), (c), (e), (g) Input
- (b) at C13 (5 V/cm)
- (d) at TL1 (2 V/cm)
- (f) at *MON OUT* socket (0.5 V/cm)
- (h) at *GATE PULSE MON* socket (0.5 V/cm)

leading edge of line blanking, the trailing edge should occur $2 \mu\text{s}$ after the trailing edge of line blanking. The trailing edge of the waveform can be adjusted, if required, by means of RV1 on the GE2/532 unit.

References to Typical Associated Equipment

1. 16-mm. Vidicon Telecine Equipment EP6/501 (See Designs Dept. Technical Memorandum No. 7.133)
2. 16-mm. Colour Telecine Equipment EP6/505

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