issue 1
February 1978

CHANGES

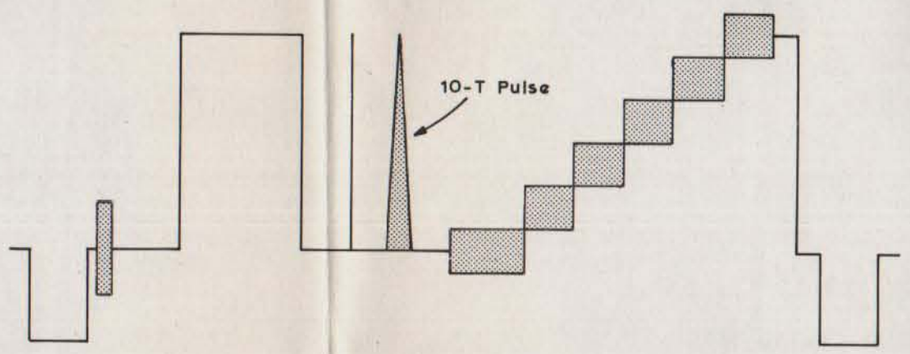
INTRODUCTION

INTRODUCTION

The UN20/520 forms part of an Automatic Monitor MN2/513. It accepts a gated 10-T pulse which forms part of the vertical interual test signal on lines 19 and 332. It produces a d.c. output which varies with the chrominance-luminance delay of the 10-T pulse, but is unaffected by other forms of distortion of the 10-T pulse.

The output of the UN20/520 is 5.0 ± 0.02 volts for a normal 10-T input pulse.

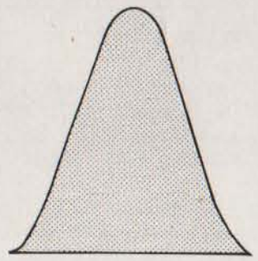
The output varies by 1.0 ± 0.02 volts for each 100 ns of chrominance-luminance delay over a range of ± 250 ns.



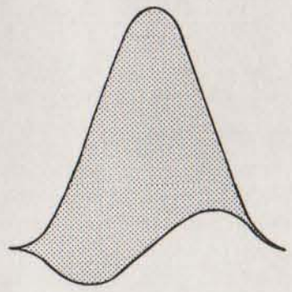
LINES 19 AND 332

CONTENTS

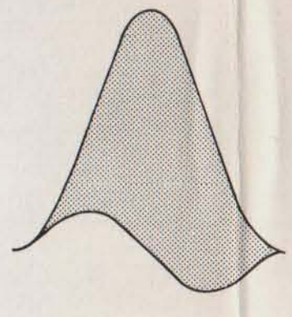
RECOGNITION OF DISTORTION IN 10-T PULSES



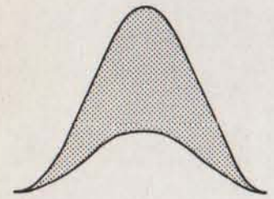
NO DISTORTION
In this 10-T pulse the chrominance and the luminance components are equal in amplitude and coincident in time. This gives a flat bottom to the pulse.



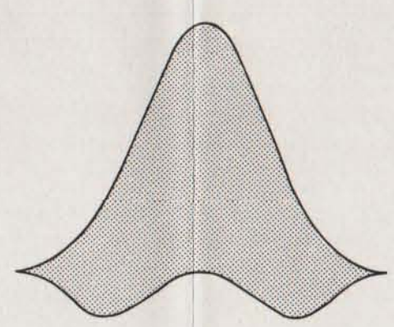
NEGATIVE C-L DELAY
In this 10-T pulse the chrominance component leads the luminance component by 200 ns. This gives the bulge to the leading portion of the bottom of the pulse.
There is also a slight drop in pulse height.



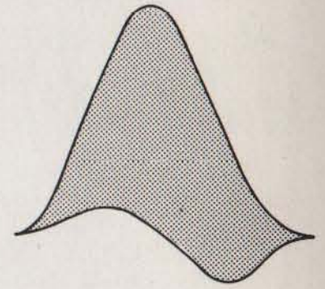
POSITIVE C–L DELAY
In this 10-T pulse the chrominance component lags the luminance component by 200 ns. This gives the bulge to the trailing edge of the bottom of the pulse.
There is also a drop in pulse height.



ATTENUATED CHROMINANCE
In this 10-T pulse the chrominance component is attenuated by 6dB.
This reduced both the top and bottom of the pulse by equal amounts.



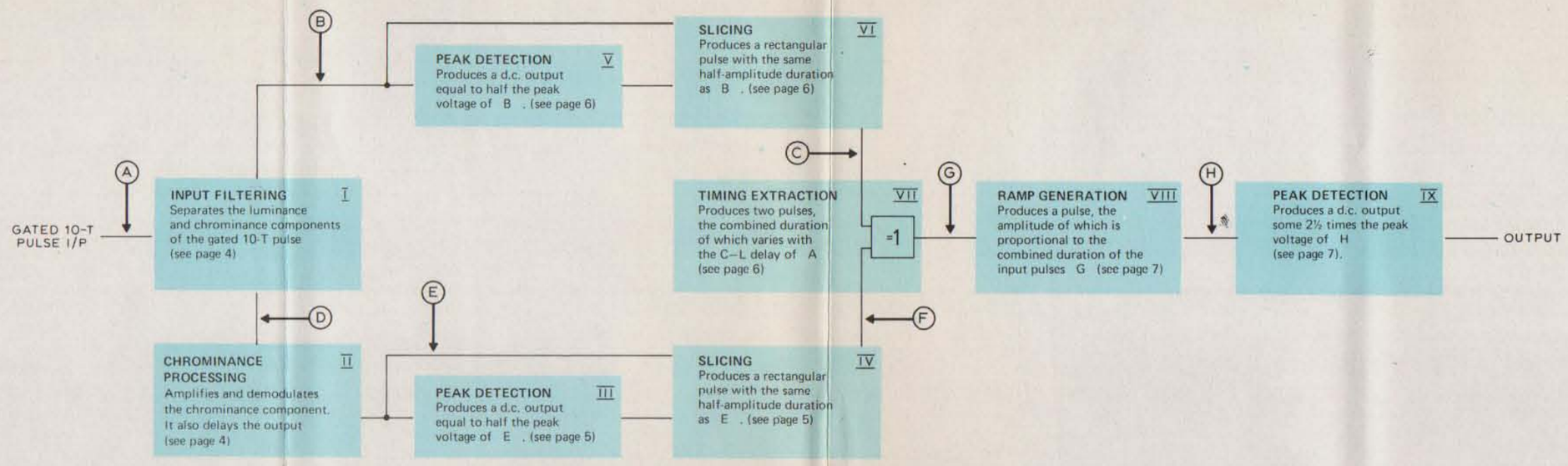
BAND-LIMITED CHROMINANCE
In this 10-T pulse the chrominance component is broadened to 15-T by band-limiting.

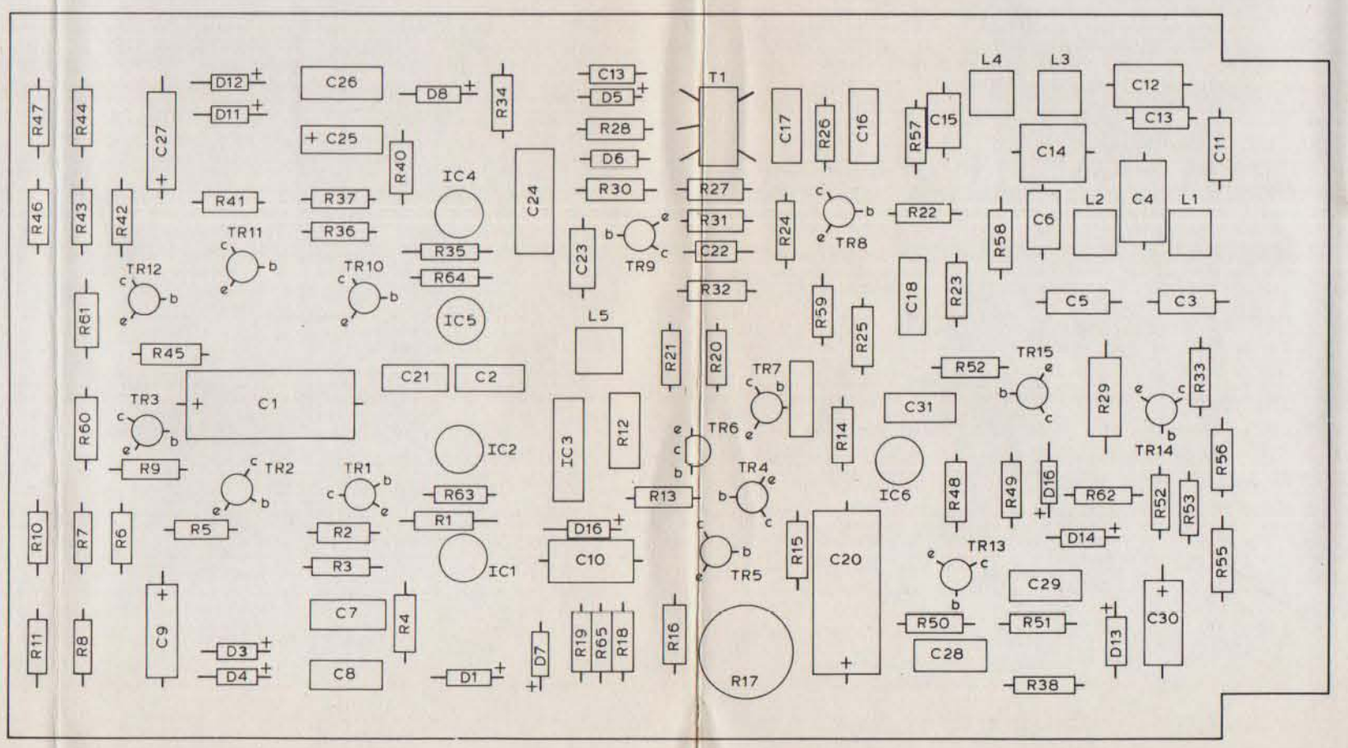


MIXED DISTORTIONS
In this 10-T pulse the distortion comprises a mixture of the previous three examples.

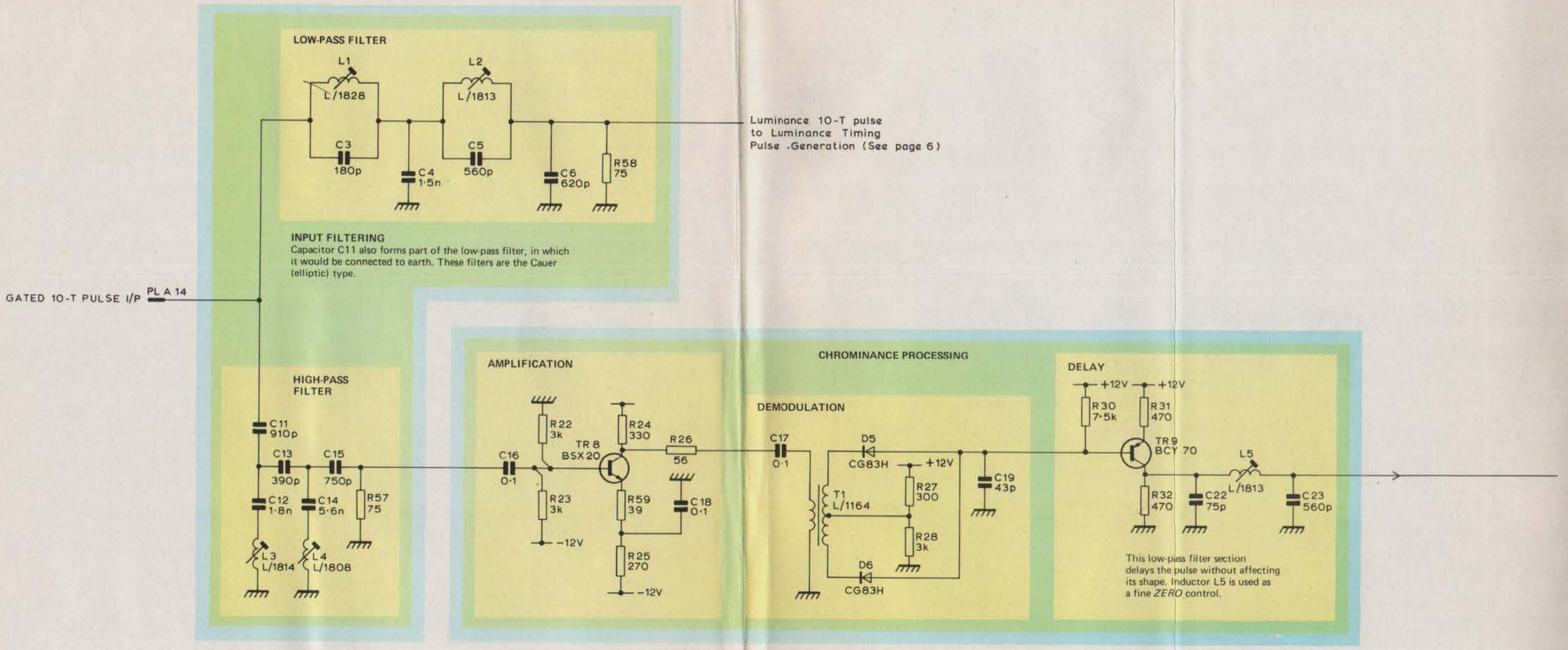
BLOCK DIAGRAM

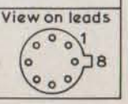
CHANGES





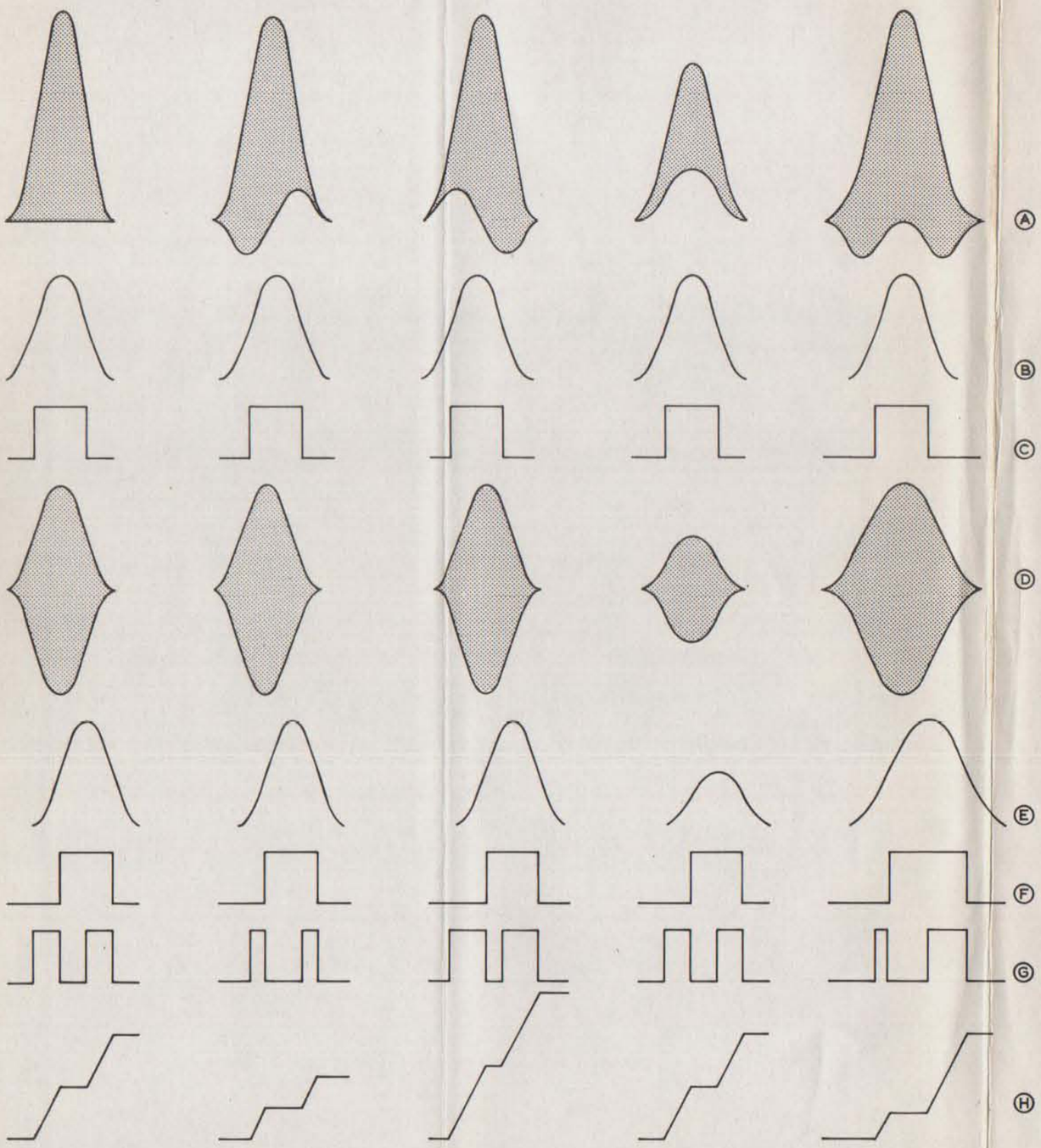
I : Input Filtering
II : Chrominance Processing
III : Peak Detection
IV : Slicing
V : Peak Detection
VI : Slicing
VII : Timing Extraction
VIII : Ramp Generation
IX : Peak Detection
X : Decoupling



Ref	Type	Base
TR8,10	BSX 20	
TR9,12	BCY 70	
TR11	BC 107	
IC4,5	LIC 710	

INPUT FILTERING AND CHROMINANCE PROCESSING

CHANGES



TYPICAL WAVEFORMS

The adjacent waveforms illustrate those found at selected points in the circuit, A – H , under various conditions of input.

1. Normal 10-T pulse input
2. 10-T pulse input with negative chrominance-luminance delay
3. 10-T pulse input with positive chrominance-luminance delay
4. 10-T pulse input with attenuated chrominance component
5. 10-T pulse input with band-limited chrominance component. These waveforms also illustrate the circuit's independence of errors in the slicing levels

These waveforms are to be found at the following points (see page 2)

A: Lower end of C11
B: Upper end of R58
C: IC 3 pin 2
D: Lower end of R57
E: Lower end of R34
F: IC 3 pin 1
G: IC 3 pin 8
H: Lower end of R21

ALIGNMENT

Routine alignment requires only the checking of Sensitivity and Zero adjustment.

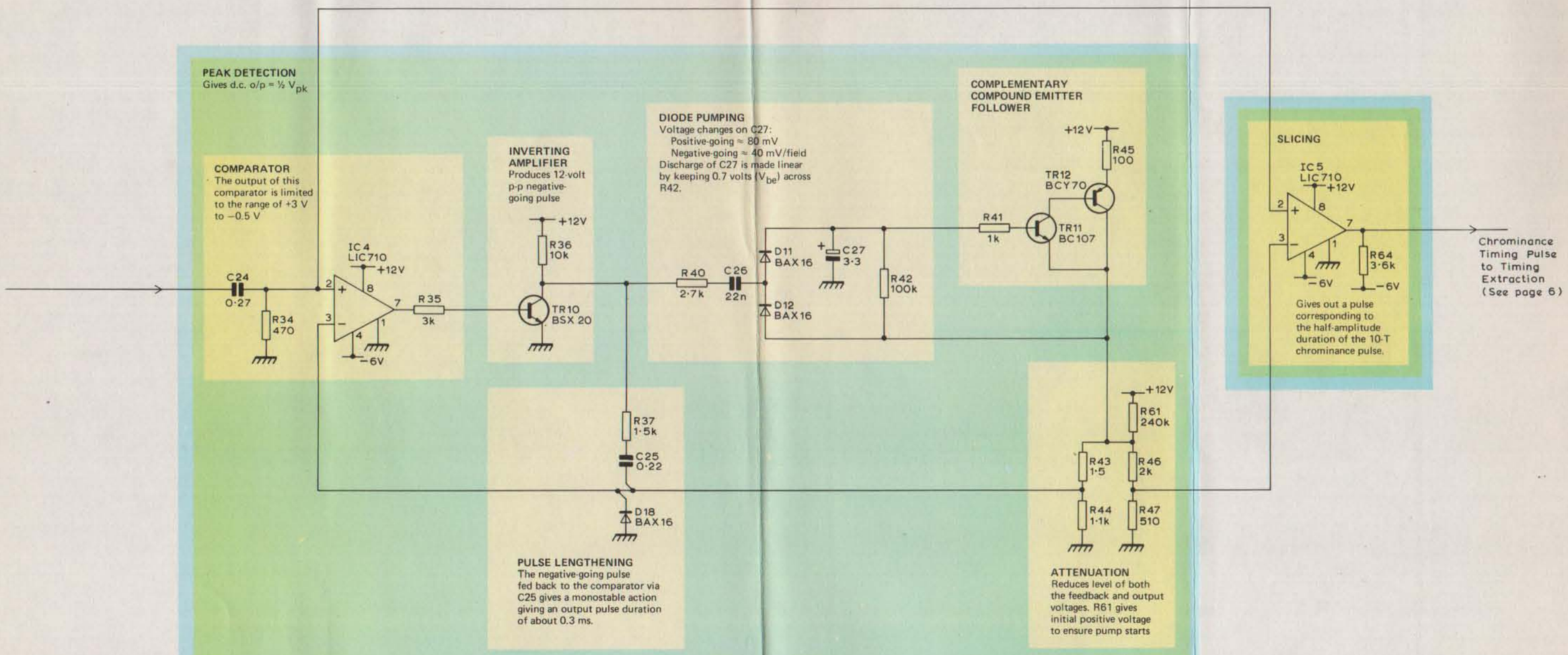
Sensitivity: Measure the output for both a normal 10-T input pulse and one with a chrominance-luminance delay of 100 ns. The change in output should be 1.0 ± 0.02 volts. Adjust R17, with a normal input, changing the output by about twice the required change in sensitivity

Zero: With normal input and the correct Sensitivity, adjust L5 to give an output of 5.0 ± 0.02 volts d.c.

If necessary coarse adjustments can be carried out by changing the valve of R18.

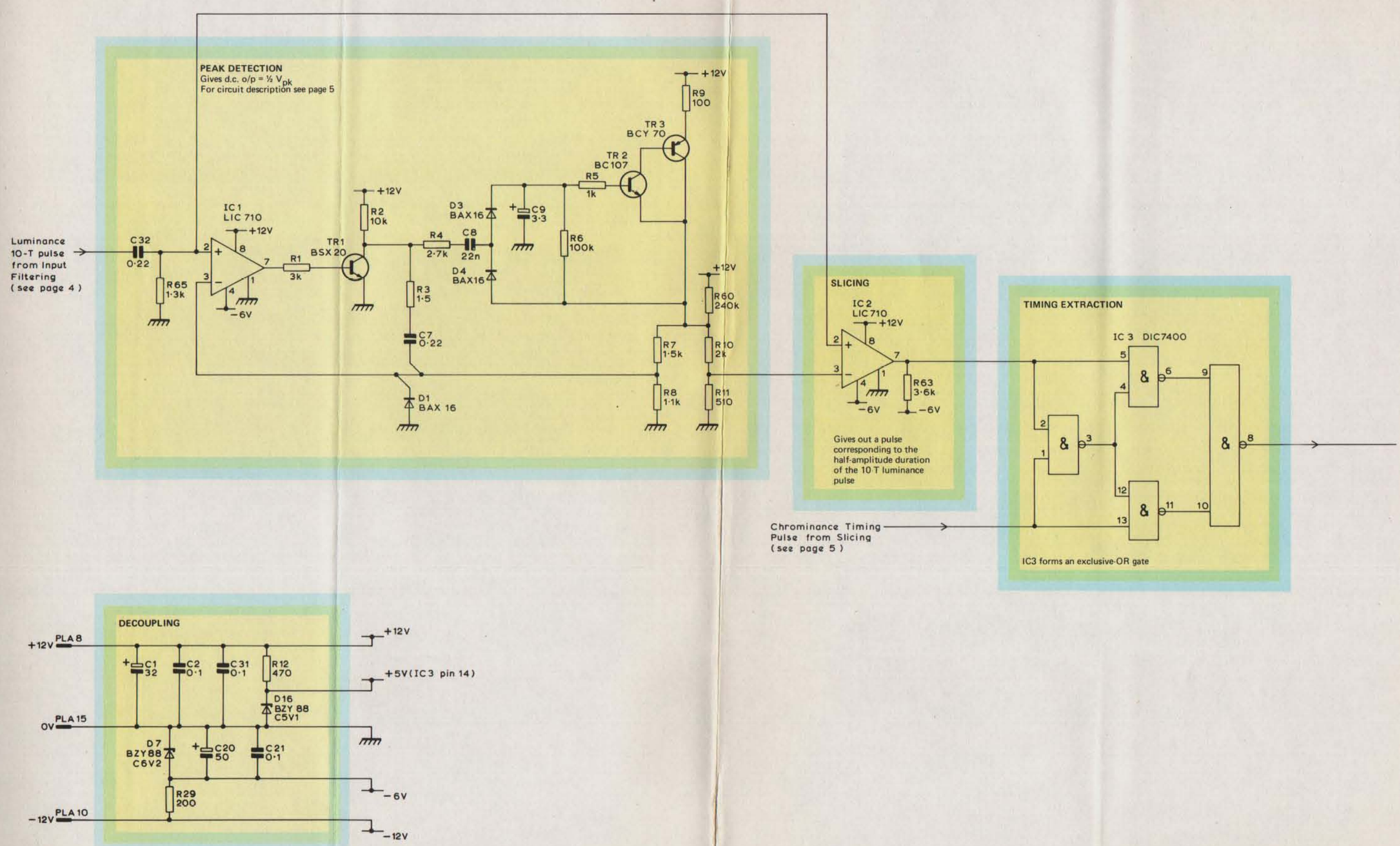
Alignment of the input filters should it prove necessary is given in Designs Department Specification No. 11.90(70).

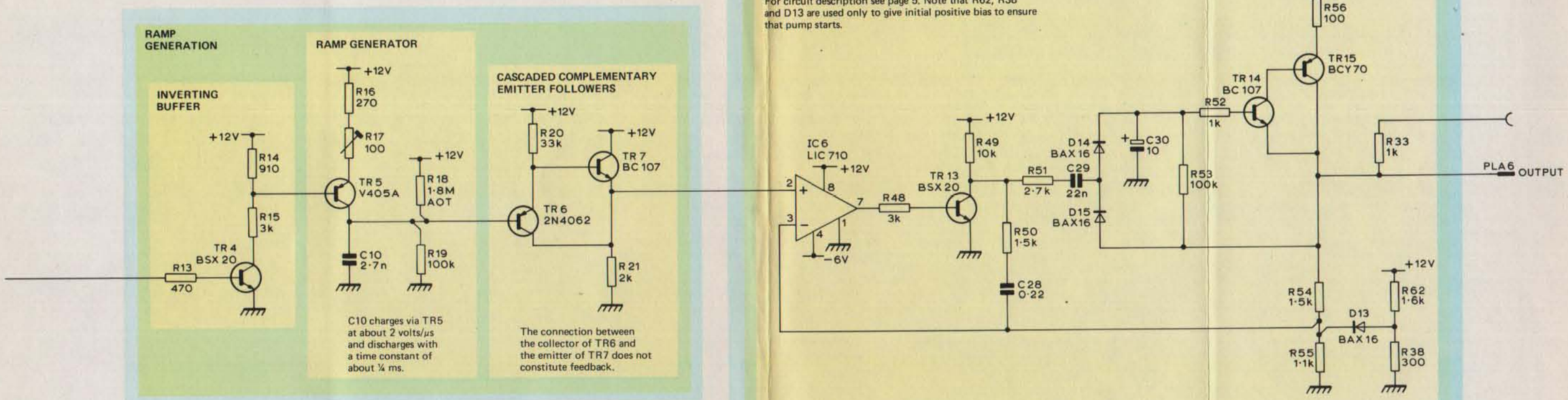
CHROMINANCE TIMING PULSE GENERATION

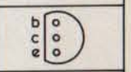
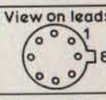


LUMINANCE TIMING PULSE GENERATION

CHANGES





Semiconductors		
Ref	Type	Base
TR 1, 4, 13 TR 2, 7, 14 TR 3, 15 TR 5	BSX 20 BC 107 BCY 70 V405A	
TR 6	2N4062	
IC 1 IC 2 IC 6	LIC 710	
IC 3	DIC 7400