

## TEST SAWTOOTH AND LIFT GENERATOR GE4/532

### Introduction

The GE4/532 generates composite or non-composite sawtooth or variable-amplitude lift waveforms which are required for the alignment of monochrome or colour channels. It also accepts and feeds out externally generated test waveforms. An input of mixed blanking is required and also of mixed syncs if the output signal is to be composite.

The output signal is selected by means of mechanically interlocked push buttons mounted on the front panel.

The unit includes a stabilised 12-volt power source and also provides an unstabilised 18-volt supply for operating relays in associated equipment.

It is built on a CH1/12A chassis with index pegs 30 and 42.

### General Specification

#### Inputs

Mixed Blanking Pulses	2 V p-p
Mixed Sync Pulses (if composite output required)	2 V p-p
External Test Signal	
Composite	1 V p-p
Non-composite	0.7 V p-p

#### Outputs

Sawtooth non-composite	1.4 V p-p
composite	2 V p-p
Lift non-composite	0 V to 1.4 V p-p
composite	0.6 V to 2 V p-p

#### Input Impedances

Blanking	3.3 kilohms
Syncs	2.2 kilohms
External Test Signal	2 kilohms

*Output Impedance* Less than 1 ohm

*Minimum Load Impedance* 50 ohms

*Line Standard* 525/625 lines

*Sawtooth Linearity* Better than 1%

*Operating Temperature Range* 10°C—50°C

*Power Requirements* 25mA, 230V  $\pm$ 20%, 50Hz

*Weight* 2 lb

### Circuit Description

The circuit diagram is given in Fig. 1 and this shows the position with the LIFT push button depressed. SA1, SA2 and SA3 are in their unoperated positions due to the action of the mechanical interlock. The input mixed blanking pulses, after amplification by TR1, are passed via R5 to TR5 in the collector of which they are mixed with sync pulses if a composite output is required. The sync pulses, which are negative going, extend negatively from the bottom of the lift pulses, which then becomes the blanking level of a normal television waveform. As the control R5 is varied from its minimum position, the amplitude of the pulse above the blanking level, i.e., the lift, is increased.

From the collector of TR5, the signal passes to the output terminal via TR9/TR10, common emitter amplifiers with feedback through R37, the compound stage having unity gain and a very low output impedance.

The sawtooth waveform is generated by TR3 in conjunction with TR2. When SA1 and SA2 are operated the blanking pulses from TR1 are passed to TR2 which conducts during the pulse periods, discharging C6. During the line periods between pulses C6 charges linearly via TR3 to a level set by R12. The sawtooth signal across C6 is passed by the buffer amplifier TR4 and SA2 to TR5 and thence to the output as before, composite or non-composite as required.

### Maintenance

Routine maintenance is not required, but the adjustment of the various controls should be checked as follows.

1. Apply an external sawtooth signal to PLA 8, switch to *Ext* and adjust R31 to give unity gain between input and output. The indicating oscilloscope, connected to PLA 10, must be terminated with 75 ohms at the oscilloscope terminals.
2. Apply mixed blanking to PLA 12 and mixed

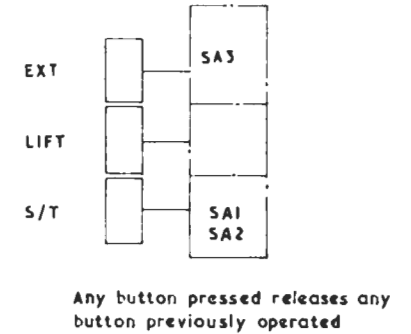
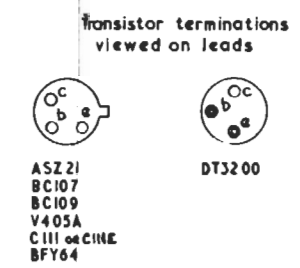
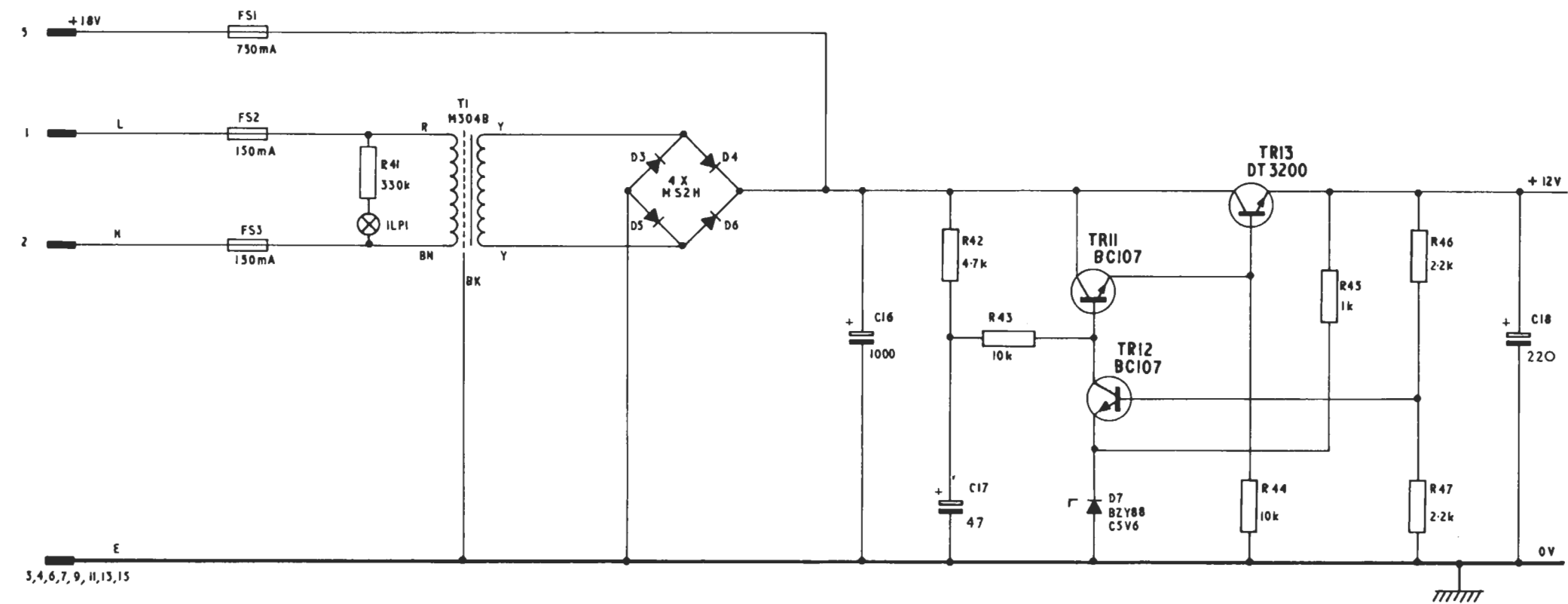
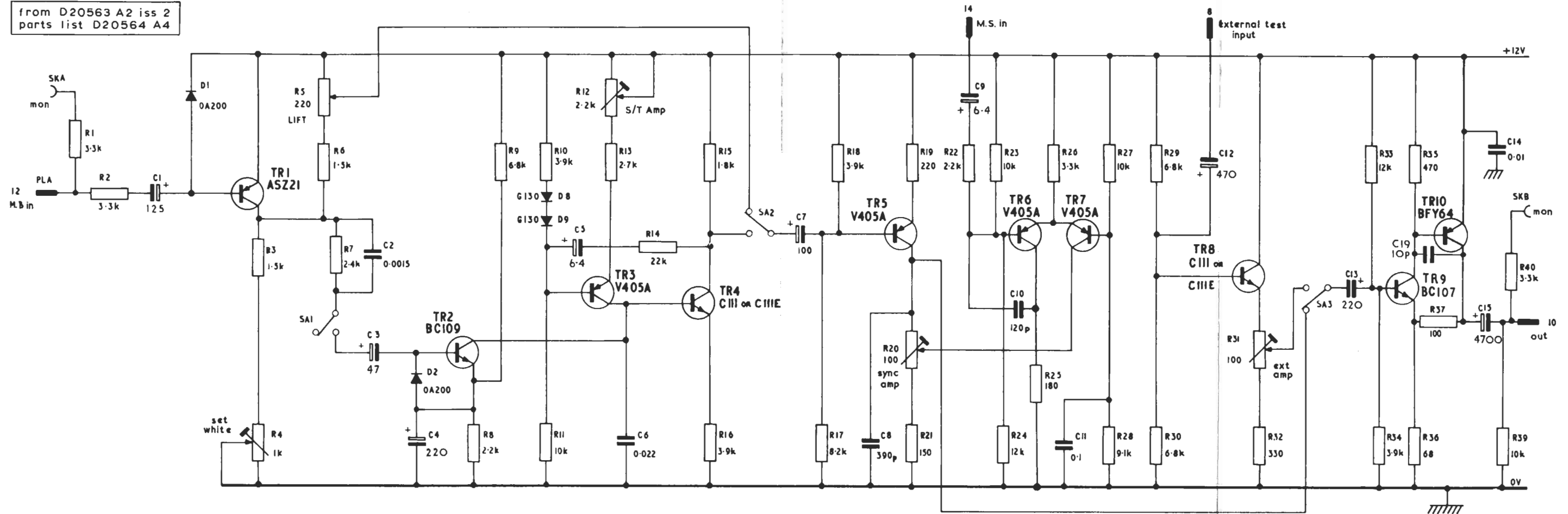
- syncs to PLA 14. Set lift control R5 to minimum and switch to *Lift*. Adjust R20 to give 0.3 V sync pulses as measured at the output.
3. Set the lift control R5 to maximum and adjust R4 to give exactly 0.7 V p-p between black and white.
  4. Switch to *S/T* and adjust R12 to give 0.7 p-p above black level. The sawtooth should be linear and without any discontinuities.
  5. Reduce the blanking and sync inputs by 6 dB; the performance of the unit should be unchanged.

**References**

1. Three-channel Video Processing Amplifier AM1/560.
2. Designs Department Specification No.8.274(67)

AIB 2/70

from D20563 A2 iss 2  
parts list D20564 A4



5, 4, 6, 7, 9, 11, 13, 15

GE4/532/1T

Fig.1. Circuit of Sawtooth and Lift Generator GE4/532