SECTION 54

OUTPUT AMPLIFIER AM1/554

Introduction

The AM1/554 accepts inputs of chrominance, luminance and mixed-sync waveforms and combines these to form a colour video signal. The AM1/554 also contains a 12-volt power supply circuit and part of a relay switching system.

The AM1/544 is constructed on a CH1/12A chassis with index peg positions 9 and 36.

General Description

A block diagram of the AM1/554 is shown in Fig. 54.1. The three input signals are fed via individual input amplifiers to a common output amplifier. The luminance component can be switched off by means of a relay which is controlled either by a switch on the front panel or remotely.

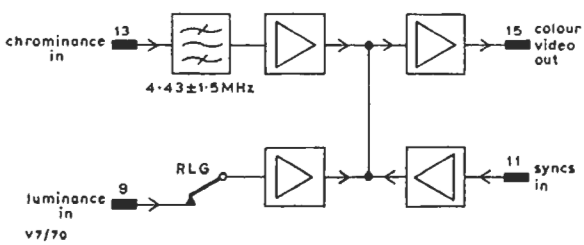

Fig. 54.1 Block Diagram of the AM1/554

Circuit Description

The circuit diagram of the AM1/554 is shown in Fig. 54.2 on page 54.3. The luminance and sync-pulse input amplifiers are emitter followers TR9 and TR10.

The output amplifier comprises a long-tail pair amplifier (transistors TR5 and TR6) followed by a complementary negative-feedback amplifier (transistors TR7 and TR8). Overall negative feedback is taken from the output of the amplifier to the base of transistor TR6. The d.c. feedback is set by the values of resistors R26 and R27 and the amount of signal voltage feedback is set by the value of resistor R24.

The chrominance input amplifier is similar to the output amplifier with the addition of band-pass limiting circuits. The twin tuned-circuit input filter gives a two-humped amplitude-frequency response. The tuned circuit in the collector of transistor TR2 is in the overall feedback path of the chrominance amplifier which effectively damps the frequency response of this circuit. The frequency response of the whole amplifier is thus kept substantially level over the chrominance band.

The power supply circuit is conventional except in its use of a common emitter output transistor TR14. This arrangement is more efficient and stable than the more usual emitter follower output stage. It also avoids the necessity for insulating the case of the transistor and so improves the thermal conductivity between the transistor and its heatsink. In the event of an overload, transistor TR14 is cut off.

Resistor R47 and zener diode D6 are necessary to pass a current which switches on the regulating circuit which would otherwise remain in an off condition.

MJR 10/67

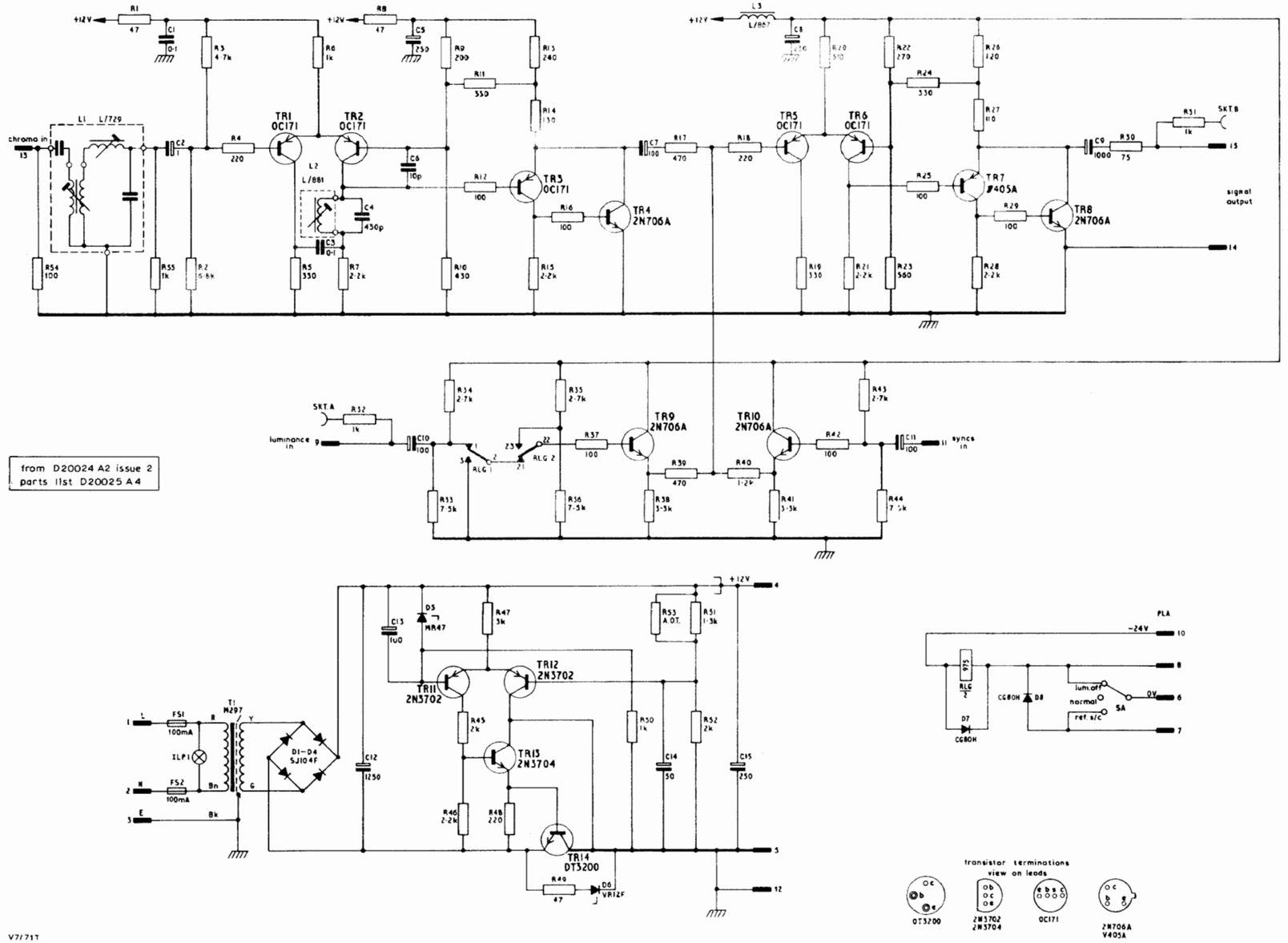

Fig. 54.2 Circuit of the AM1/554