

INVERTER AMPLIFIER AM5/510

Introduction

The Inverter Amplifier AM5/510 is used to provide two inverted output signals with the same amplitude as the input signal (see Vidicon Telecine Channel EP6/501) Monitoring sockets are provided for both input and output.

The AM5/510 and a Power Supplier PS2/22E are constructed on a CH1/12A chassis with index peg positions 11 and 15.

General Specification

Gain	0 dB ± 0.1 dB
Output level	1 volt p-p
Number of outputs	2
Output impedance	75 ohms
Input overload level	3.5 volts p-p

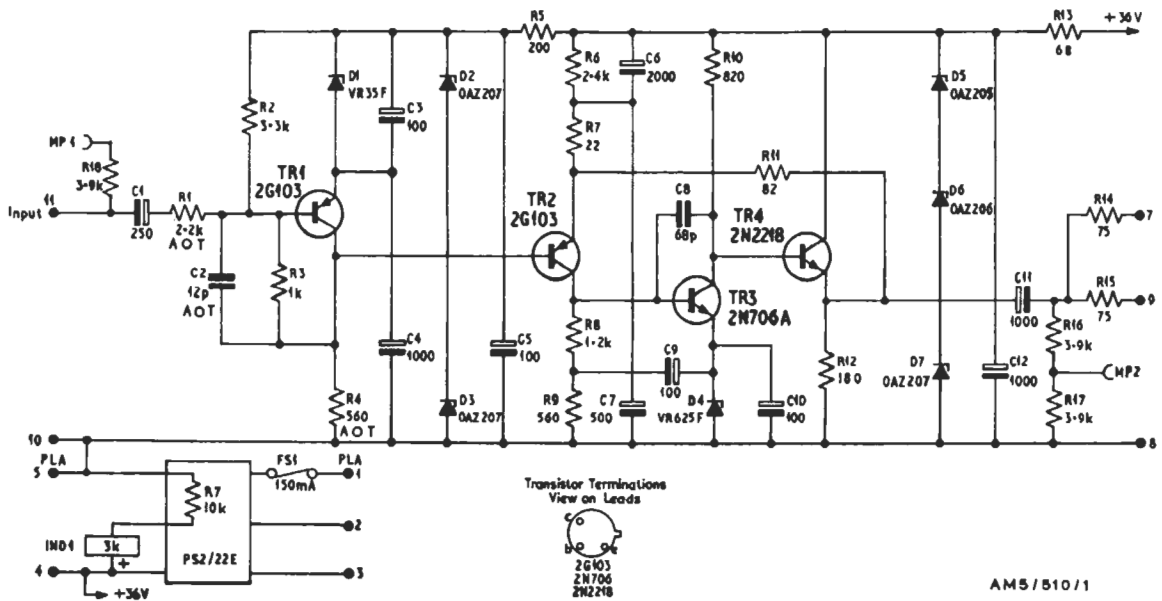


Fig. 1. Circuit of the Inverter Amplifier AM5/510

Circuit Description

The circuit of the AM5/510 is given in Fig. 1. The first stage is an inverting amplifier*, in which the input impedance is substantially that of the resistor R1 and the stage gain is determined by the ratio R3/R1.

The remaining stages form a d.c.-coupled amplifier with negative feedback. This provides a very low output impedance at the emitter of transistor TR4. Resistors R14 and R15 are chosen to give the unit the required output impedance of 75 ohms.

*see Towers, T. D. *The Pulse Circuit Family*; Wireless World, Jan., 1964.

Non-linearity	less than 0.5 per cent
Amplitude-frequency response	±0.25 dB from 10 kHz to 5 MHz
Differential gain	0.5 per cent
Differential phase	less than 0.75 degrees at 4.43 MHz
50-Hz square-wave response	less than 1.75 per cent sag
Pulse and Bar response (625 lines)	distortion not visible

Hum and noise at less than 0.5 mV p-p output

Operating temperature 10—40 degrees C

Response to mains negligible bump

Weight 2 lb

Test Schedule

Apparatus Required

Avometer Model 8
Tektronix oscilloscope type 515
Video oscillator or sweep generator
Video attenuator switched in 0.1-dB steps
Video double-pole changeover box

Test Procedure

1. Adjust variable resistor RV1 on the PS2/22E to make the supply 36 volts. Check that the voltage across capacitor C5 is 19 volts.
2. Measure the voltages at the transistor terminals using the Avometer. The values should be similar to those given in Table 1.

TABLE 1

<i>Transistor</i>	<i>Emitter</i>	<i>Base</i>	<i>Collector</i>
TR1	15.4	15.7	13.5
TR2	15	13.5	7
TR3	6.3	7	15
TR4	14.5	15	26

3. Feed a 1-volt composite video signal to the terminated input of the unit and check that the output signal across a 75-ohm load is inverted and that the gain is within the range ± 0.1 dB.
4. Measure the amplitude frequency response using the changeover box technique. The response should be level within ± 0.25 dB from 10 kHz to 5 MHz.
5. Feed a 50-Hz square-wave signal into the unit. The sag on the output waveform should be less than 1.75 per cent.

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