

HEAD AMPLIFIER AM1/533

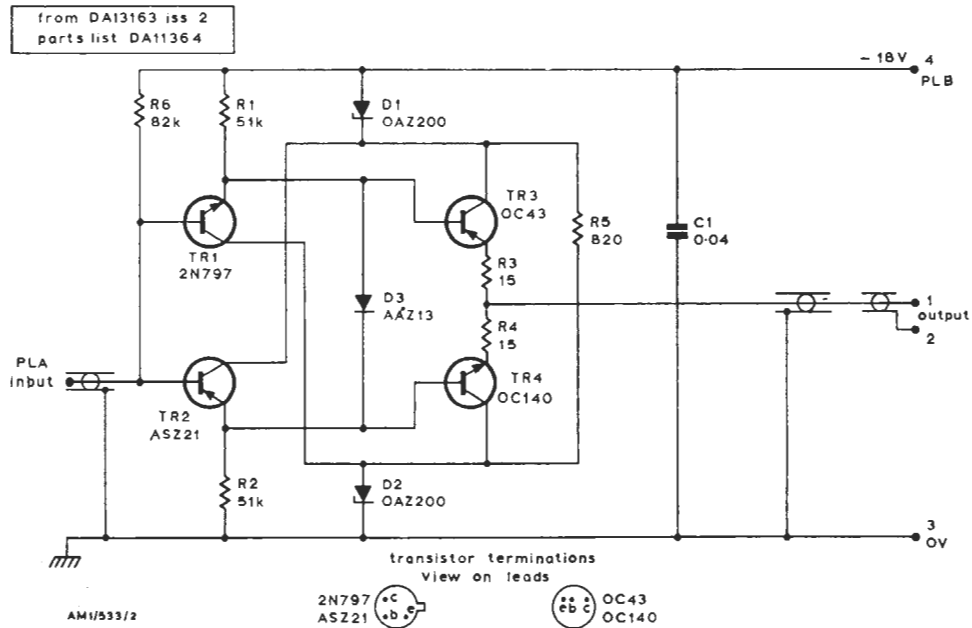


Fig. 1 Circuit of the AM1/533: Serial Nos. 101—107

Introduction

This amplifier accepts a signal¹, within a frequency range in excess of 0—6 MHz, from a high-impedance source and delivers an output at low impedance (less than 25 ohms) with 0-dB voltage gain.

The amplifier is built on a printed-wiring board accommodated in a 1½-inch diameter copper cylinder 6 inches long. The input connection is via an F, and E, male co-axial connector at one end of the cylinder, and the power-supply and output connections are via a flying-lead at the opposite end, terminating in a Painton four-pin male connector. An additional earthing lead is provided. When free of external connections, the input and output connectors carry standing potentials of approximately -9 volts; any imposed change of potential at the input connector, within the approximate ranges mentioned below, is reproduced at the output connector within ±20 mV.

Two versions of the amplifier exist, using different sets of transistors and distinguished by the serial numbers 101—107 and 108 upward.

General Specification

	Serial Nos. 101—107	Serial Nos. 108 upward
Supply Potential	-18 V	-18 V
Current Consumption (approx.)	80 mA	4 mA
Input Impedance (minimum)	80 kilohms	500 kilohms
Output Impedance (maximum)	25 ohms	25 ohms
Voltage Gain (dB)	0	0
Maximum Input-signal Amplitude (approx.)	5 V	16 V

Circuit Description

Circuit diagrams of the two versions of the amplifier are given in Figs. 1 and 2; each consists

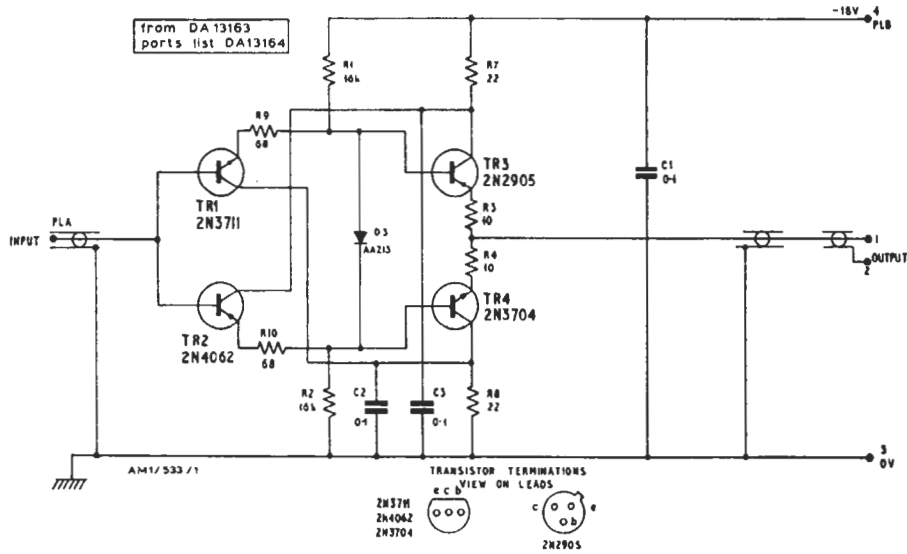


Fig. 2. Circuit of the AM1/533: Serial Nos. 108 and up

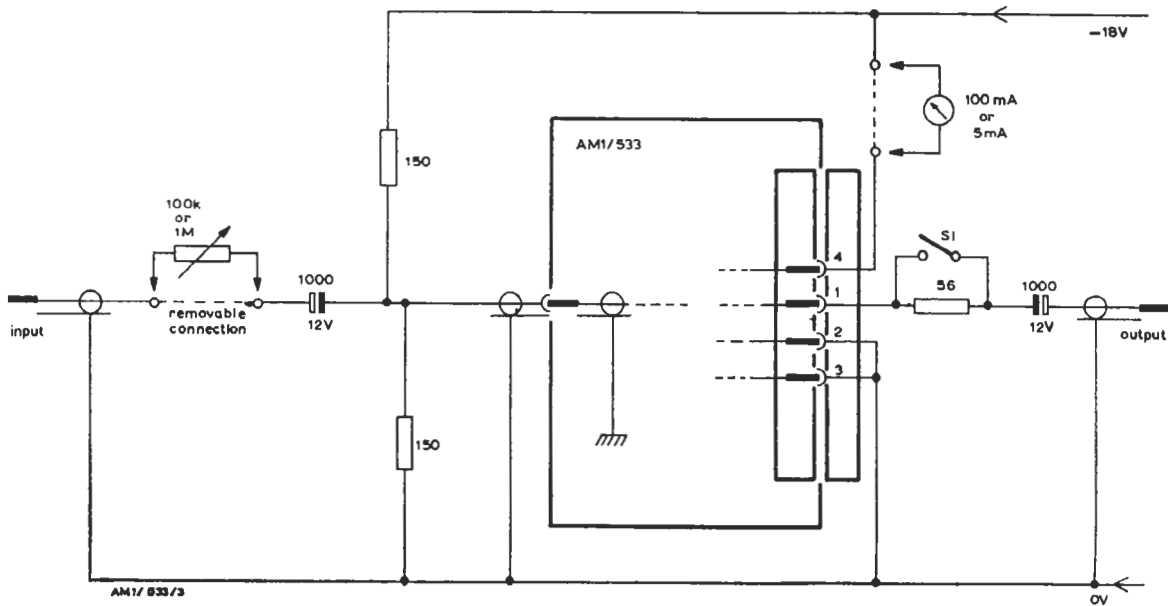


Fig. 3 Test Circuit for the AM1/533

of a four-transistor complementary symmetrical emitter-follower stage. The maximum range of input-potential variation is between approximately -12 and -7.5 volts for the earlier version of the amplifier, and -17 and -1 volts for the later version.

Maintenance

Apparatus required

405-line pulse-and-bar generator
 Oscilloscope
 Non-linearity Test Signal Generator GE4/505
 Non-linearity Measurement Filter FL1/509A
 Non-linearity Measurement Processing Amplifier AM1/505
 Test circuit as shown in Fig. 3
 Source of 405-line video signal (e.g., sawtooth test signal)
 Source of d.c. at -18 V

Test Procedure

1. Connect the amplifier into the test circuit and apply the 18-volt supply. Check the current consumption of the amplifier.
2. Connect the pulse-and-bar generator to the input connector of the test circuit and load the output connector with 75 ohms. Check that S1 is open and measure the 2T pulse-and-bar

response at the output of the circuit in the normal manner. (N.B.: the output-signal amplitude is 6 dB below the input-signal amplitude, i.e., 0.5 V p-p.) The k -rating should be less than 1 per cent.

3. Connect the non-linearity-measurement equipment to the test circuit. Check that S1 is open, and measure the non-linearity of the circuit in the normal manner. With a 1-volt input, distortion should be less than 2 per cent.
4. Apply the video signal to the input of the circuit. Close S1 and measure the decrease of output-signal amplitude when a 75-ohm load is connected to the output of the circuit. This decrease should be less than 25%, indicating an amplifier-output-impedance of less than 25 ohms.
5. Insert a variable resistor into the input lead of the test circuit, and adjust this resistor to reduce the output-signal amplitude by 6 dB. The value of resistance so determined indicates the input impedance of the amplifier.

References

1. Line-store Standards Converter CO6/501A
2. Designs Department Technical Memorandum No. 7.91(65)
3. Designs Department Specification No. 7.18(64)

DEH 10/68