POWER SUPPLIER PS2/49

Introduction

The stabilised power supplier PS2/49 provides an output of −24·5 volts at a maximum current of 750 mA. Like the PS2/9, which it closely resembles, it is intended for use with transistor audio-frequency amplifiers. The working input voltage range is 190—260 volts at 50 Hz.

The unit is built on a CH1/18E chassis for mounting on a PN3/23 panel. It has index pegs in positions 4 and 7. Although the PS2/49 may be used in place of the PS2/9, it is not a direct replacement, since the 15-way in-line plug on the rear of the unit is displaced by a single chassis width with respect to that on the PS2/9. Where the facility of immediate interchangeability is required, it may be provided by fitting an additional 15-way socket to the PN3/23 panel, and wiring the appropriate tags in parallel with those on the existing socket.

Circuit Description

A circuit diagram of the PS2/49 is given in Fig. 1. The main circuit details and the method of operation are as described for PS2/9. There are, however, three main points of difference between the units, as follows:

(a) The negative side of the rectifier output, and the corresponding point of the stabiliser input, are taken separately to tags 11 and 12 respectively, in order to provide convenient access to the stabiliser section if a different source of power, e.g., a battery, is required. The sockets 11 and 12 on the mounting panel must therefore be connected together for normal use of the power supply.

(b) Overload protection is provided by a magnetic circuit-breaker which is normally adjusted to trip when the output exceeds 950 mA, and which can be reset manually by means of a button on the front panel.

(c) An additional transistor TR4 is connected in parallel with the existing series regulator TR3 to provide for the additional power dissipation.

Test Specification

1. With a load of about 370 mA, the output voltage should be 24·5 volts. (This is set during initial tests by adjustment of R9, an Erie Type 109 resistor (±2 per cent). Input 225 V r.m.s.
2. The output should not change by more than 0·5 volt as the load is varied from 0 to 750 mA.
3. With a load of 370 mA, the output voltage should not vary by more than 0·5 volt as the input volts are varied from 190 volts to 255 volts.
4. With an input mains voltage of 225 volts and with a load current of 750 mA, the ripple volt-

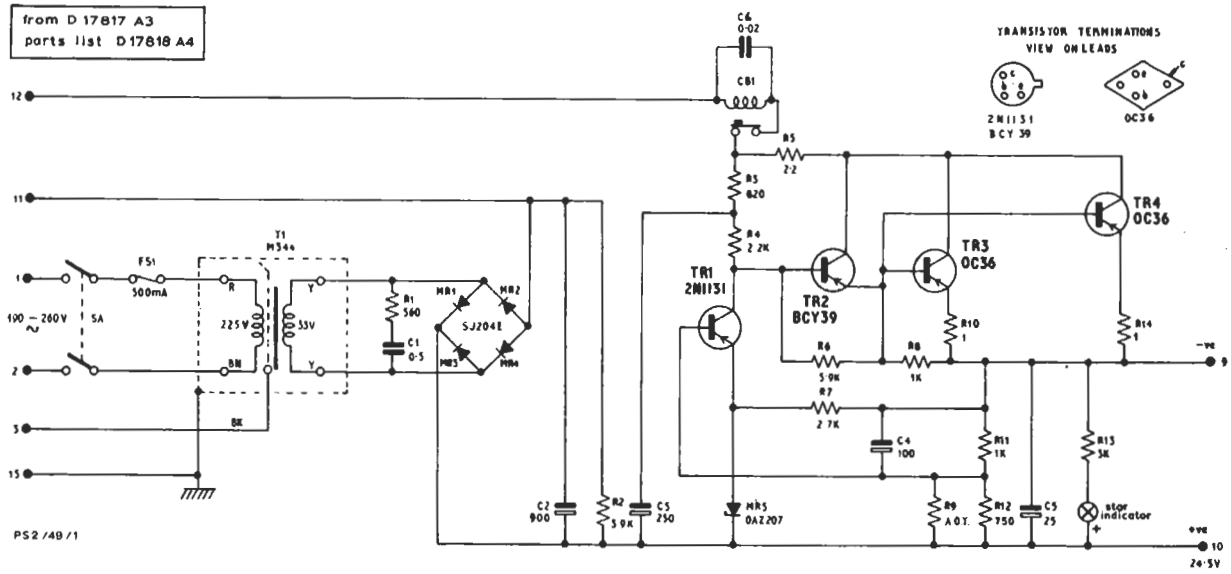

Fig. 1 Power Supplier PS2/49: Circuit

age across the output should not be greater than −70 dB as measured on an amplifier-detector connected in series with a 2-μF capacitor across the output.

5. The following voltage measurements should be obtained with zero output current.

Across C2, about 44·5 volts.
Across R3, about 5·6 volts.

As a check that the output transistors are sharing the load equally, the voltages across R10 and R14 can be measured. With a load current of 370 mA, these voltages should both be about 0·19 volt, and should be equal within 10 per cent.

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