

SECTION 4

POWER SUPPLIER PS1/4

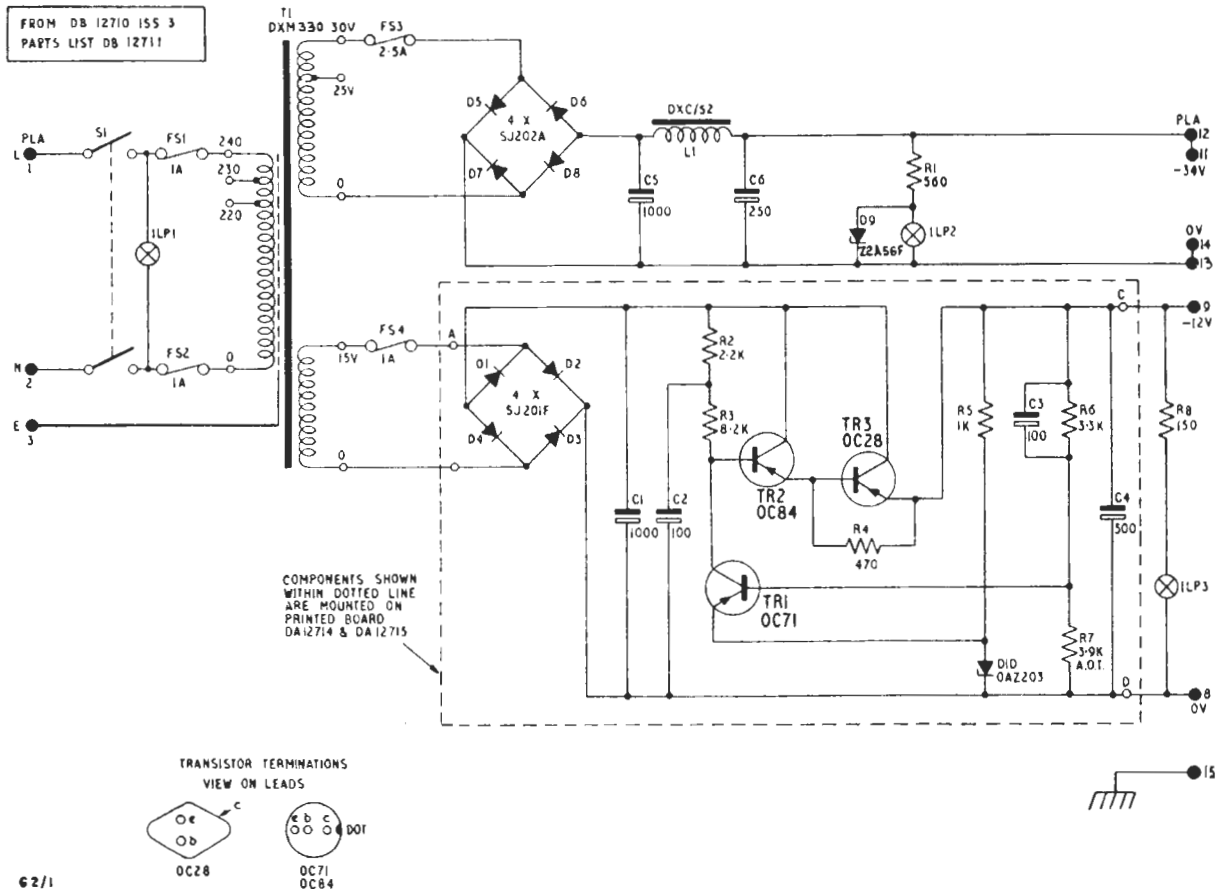


Fig. 4.1 Circuit of the PS1/4

Introduction

The PS1/4 is a transistor unit constructed on a CH1/12B chassis. It was designed mainly for use with f.m. translators and drive equipment. The supplier has two d.c. outputs:

- (a) 12 volts, 350 mA (stabilised)
- (b) 34 volts, 1 amp.

The second output feeds a constant load and does not have a high degree of regulation. The ripple is reduced to a reasonable level by means of an LC filter.

The mains input and both d.c. outputs are protected by fuses and the presence of each output is indicated by a lamp. Index peg positions are 8 and 27.

Circuit Description

The circuit of the PS1/4 is given in Fig. 4.1. The 34-volt unstabilised section employs a simple bridge rectifier circuit with a filter C5, C6 and L1. The 12-volt section consists of a bridge rectifier and a conventional stabilising circuit.

Instruction G.2
Part 1, Section 4

Test Procedure

Apparatus Required

Voltmeter to measure 50 volts d.c.

Ammeter to measure 1.2 amps d.c.

Amplifier Detector ATM/1

Resistor: 39 ohms, 4 watt

Variable resistor: 25-35 ohms, 1 amp

Capacitor: 2 μ F, 150 volts.

12-volt Section

Output voltage and regulation

1. Measure the output voltage at zero load current.
2. Load the output with the 39-ohm resistor.
3. Measure the output voltage with the 300-mA load; this should be 12 volts \pm 0.5 volts and the reading should not differ from that made with zero current by more than 0.25 volts.

Ripple

4. Measure the ripple voltage using the ATM/1 via the 2- μ F capacitor. The ripple should be less than -45 dB with respect to 0.775 volts.

34-volt Section

5. Check that the mains voltage and transformer tapping are correct.
6. Measure the open-circuit output voltage; this should be 44 volts \pm 2 volts.

7. Connect the variable resistor and the ammeter in series across the output.
8. Adjust the load current to 1 amp and check that the output voltage has fallen to 34 volts \pm 2 volts.
9. Measure the ripple using the ATM/1 and the 2- μ F capacitor; this should be less than -18 dB.

Useful Circuit Measurements

<i>Measurement</i>	<i>Load current</i>	
	<i>Zero</i>	<i>500 mA</i>
Rectified d.c. across C1	21.5 volts	17 volts
TR1 emitter-collector voltage	4.8 volts	5 volts
TR2 and TR3 emitter-collector voltages	10.2 volts	5.2 volts

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