

POWER SUPPLIER PS1/33

Introductions

The PS1/33 is a standby battery-power supplier designed to be used in conjunction with two mains-operated suppliers¹. Normally the mains suppliers feed the load² and provide a trickle-charge current for the batteries. If the mains supply fails the associated battery automatically maintains the supply by powering the stabilising circuits in the mains-operated supplier. The unit provides six separately fused outlets, three at six volts negative and three at 12 volts positive with respect to earth.

The PS1/33 is built on a CH1/18E chassis with index pegs in positions 49 and 50.

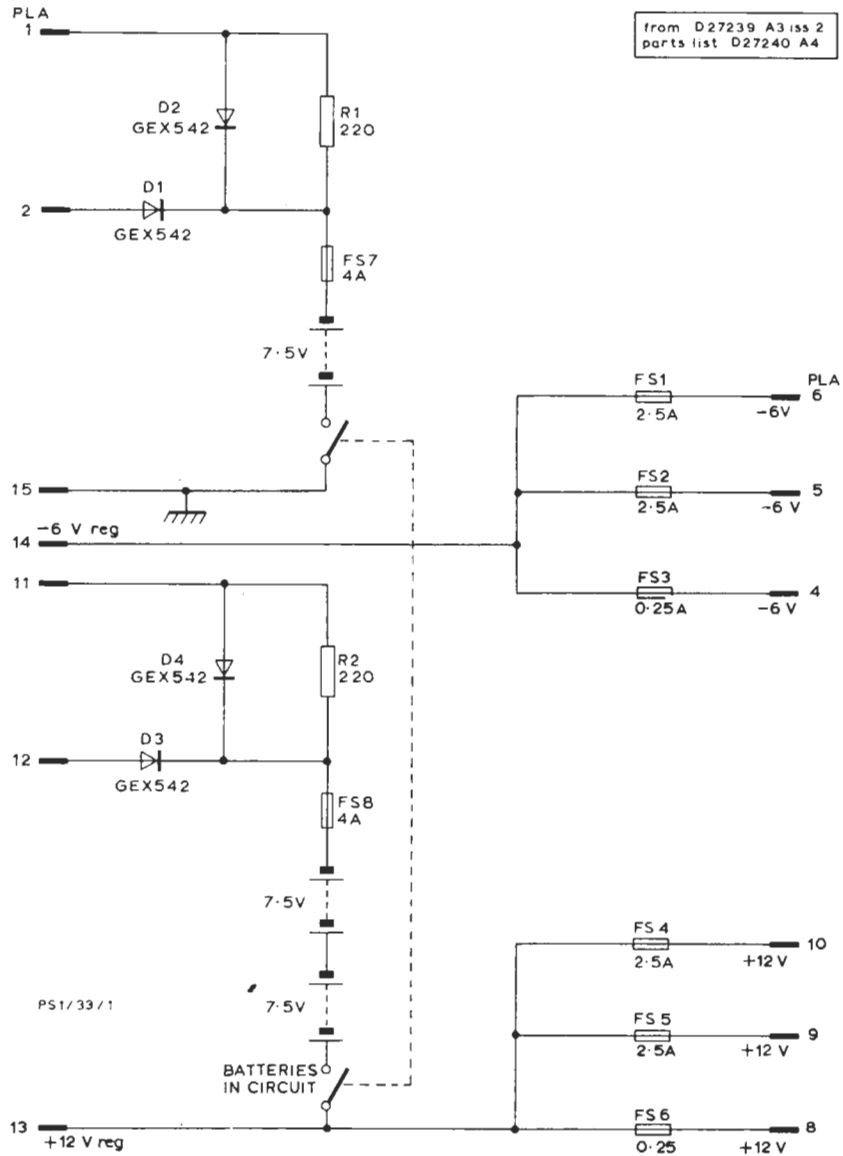


Fig. 1. Circuit of the PS1/33

General Specification

Outputs, with respect to earth	three at +12 volts d.c. three at -6 volts d.c.
Capacity of Batteries	3 ampere-hours (10-hour rate)
Minimum Voltage, battery full discharged 10-hour rate	1.10 volts per cell
Maximum Charging Current	300 mA for 14 hours
Charging Voltage	1.35 to 1.50 volts
Charging Temperature Range	-20 to +45 degrees C

Circuit Description (Fig. 1)

The supplier contains three rechargeable batteries. Each battery comprises six sealed nickel-cadmium cells. Normally unregulated d.c. supplies from the associated mains-operated suppliers are applied to pins PLA 1 and 2 and PLA 11 and 12; also +12 and -6 volt regulated supplies are applied to pins PLA13 and PLA14 respectively. Resistors R1 and R2 each allow a trickle-charge current of about 40 mA to flow. If the batteries are completely discharged a period of 110 hours is required to recharge them at the trickle-charge rate.

If either unregulated input is at a higher potential than the battery supply, diodes D1 and D2 or diodes D3 and D4 are reverse biased. If the potential of an unregulated input falls below the battery potential the battery voltage is applied to the stabilising circuits in the affected power supplier.

There are three separately fused outputs at +12 volts and three at -6 volts. A battery isolator switch, labelled *Batteries in Circuit*, is fitted to the front panel of the unit.

Test Procedure**Apparatus Required**

Power Suppliers PS2/105A and PS2/105B

Avometer

Rheostat, nominally 18 ohms at 27 watts rating

Tests

1. Check that the voltage at pins PLA1 and PLA2 is at least 7.5 volts d.c. with respect to earth.
2. Check that the voltage at pins PLA11 and PLA12 is at least 15 volts d.c. with respect to pin PLA13.
3. Make the following connections between the PS1/33 and the PS2/105A and PS2/105B suppliers.

PS1/33	PS2/105A	PS2/105B
PLA1	PLA7	-
PLA2	PLA2	-
PLA11	-	PLA7
PLA12	-	PLA8
PLA13	-	PLA4
PLA14	PLA5	

4. Switch on the mains supply to the PS2/105 suppliers.
5. Check that the trickle-charging current, flowing through fuses FS7 and FS8, is between 30 and 50 mA depending upon the state of charge of the batteries.
6. Check that the voltage between pins PLA6 and PLA10 of the PS1/33 is 18 volts ± 0.5 per cent.
7. Switch off the mains supply.
8. Check that the voltage measured in Step 6 is within the specified tolerance.
9. Use the rheostat to apply a load of 1.5 amperes between pins PLA6 and PLA10 of the PS1/33.
10. Check that the voltage measured in Step 6 has not dropped by more than one volt.

References to Typical Associated Equipment

1. Power Supplier PS2/105A and PS2/105B.
2. Automatic Fault Reporter PA2M/7A.

LPB7/72