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Colin Hinson

In the village of Blunham, Bedfordshire.

Chapter 2

CIRCUIT DESCRIPTION OF POWER UNIT TYPE 234A

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Circuit description

1. The circuit diagram of the power unit Type 234A is given in fig.1 and it will be seen that it is basically a conventional full-wave rectifier circuit with a capacitor-input smoothing filter. The 230V, 50c/s input is applied to the primary of the mains transformer T1 via the mains on-off switch S2, fuses FS1 and FS2, and the tapping switch S1. The secondary of T1 has three windings; the centre-tapped h.t. winding feeds the anodes of the full-wave rectifier V1. The other two windings provide, respectively, 5V at 2A for the heater of V1, and 6.5V at 4.3A for the heaters of the valves in the receiver. The latter winding is connected to poles 7 and 8 on the output socket SK1, whilst connected directly across the winding are the resistor R1 and the indicator lamp LP1. The output of 6.5V is intended to

give 6.3V at the receiver, after making allowance for the voltage drop along the line connecting power unit and receiver.

2. The h.t. winding of T1 is provided with a tapping switch S4. In the R.1132A position shown in fig.1, only part of the secondary turns are used, hence, the input voltage to the rectifier is reduced. When S4 is set to the R.1392A position, the input voltage to the rectifier is increased, owing to the increased number of turns in the secondary winding, consequently the h.t. output from V1 is correspondingly increased. The h.t. negative line from the centre-tap of this winding is not earthed and is connected to the smoothing network and to pole 9 on SK1 via the fuse FS3.

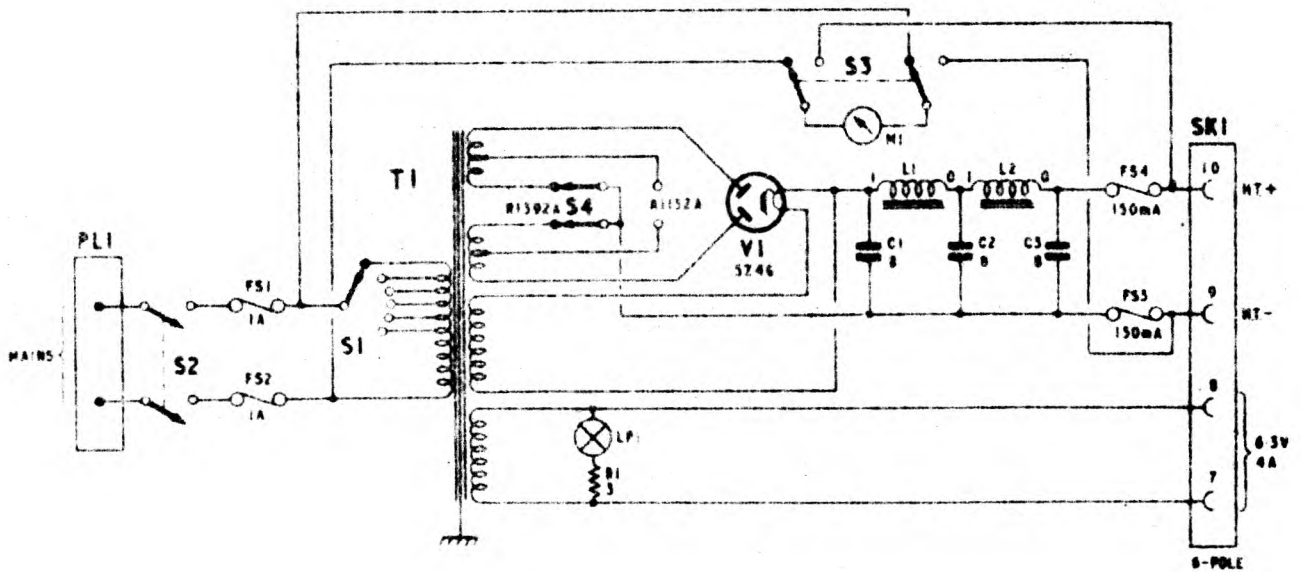


Fig. 1. Power unit Type 231A : circuit

3. The h.t. positive line from the cathode of V1 is connected to the choke L1 of the smoothing network. This network is a two-section filter comprising L1, L2 and the capacitors C1, C2 and C3 and its efficiency is such that the ripple is of the order 0.01%. The output from the filter is connected to pole 10 on SK1 via the h.t. fuse FS4.

4. Switch S3 is the meter selector switch previously mentioned in Chap.1, Part 1 of this publication. The meter M1 is a moving-iron type having a range of 0-300V and, in the position shown in the diagram, it is connected across the primary of the mains transformer. In the other position of the switch, the meter is connected across the h.t. output of the unit.

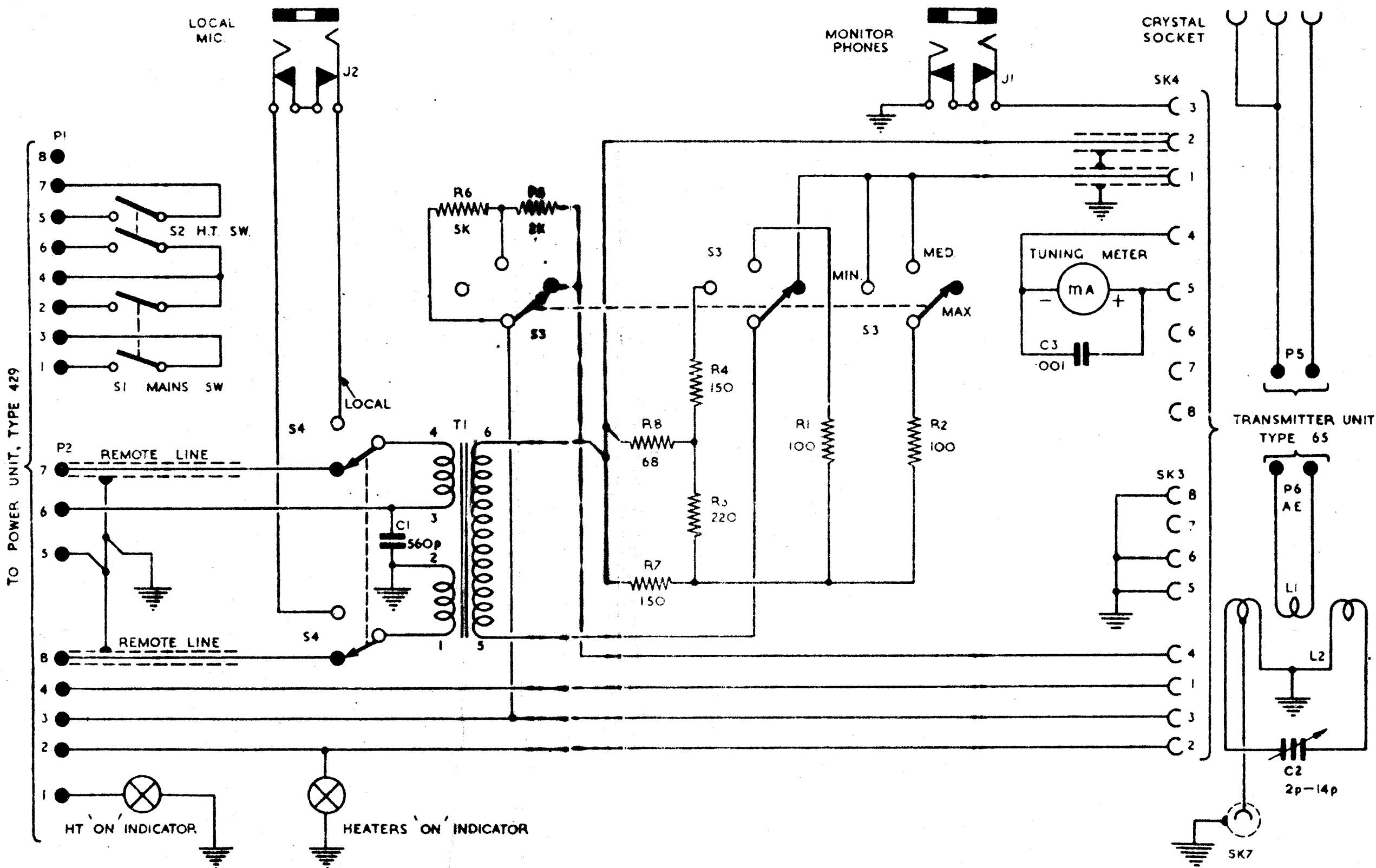


Fig. 1
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Main chassis; circuit

Fig. 1
Chap 3