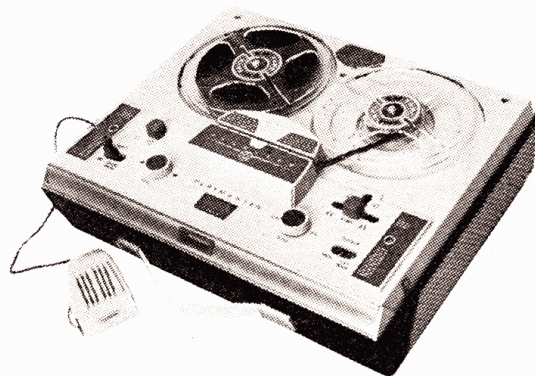
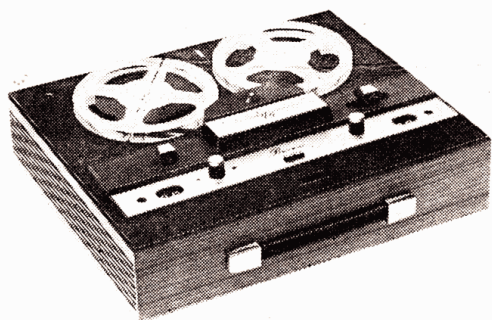


FIDELITY RADIO

Service Card

PLAYMASTER and BRAEMAR

TAPE RECORDERS



circuit

THESE tape recorders are electrically almost identical, the few minor differences being shown overleaf.

Recording: In the recording position, microphone input signals are fed into the 'Mic' socket and passed via S1A and C3 to the grid of V1A. Radio or gram signals are fed into the 'Radio/Gram' socket and the network R1, C1, R2, C2.

The amplified signals are passed via C5 to the second triode amplifier V1B. VR1 functions as the recording level control. The V1B output is fed via C8, S1B and S2A to the record/playback head to modulate the appropriate track, to the recording level indicator V2 via R12 and C11, and to the 'Mon' socket via R11 to provide monitor facilities during recording or to feed an external amplifier on playback.

V3 operates as an anode-tuned erase and bias oscillator, the frequency being determined by L1/C21. Recording bias current is fed to the record/playback head via C13 and erase current is fed to the erase head via C22, R19 and S2B.

Playback: On playback, the output from the record/playback head is passed via S2A and S1A to V1A, which operates as a preamplifier. The V1A output is fed to the second triode V1B for further amplification, VR1 acting as

the volume control. V3 now operates as the audio output valve, being fed via C8, S1D and R16.

The oscillator circuit is rendered inoperative by the action of S1C and S1D, and the recording level indicator V2 no longer operates, the h.t. supply being broken by S1C.

Negative feedback is applied from the anode of V3 to the cathode of the triode amplifier V1B via C20, VR2 and C14. Manual tone control is provided by VR2. A socket is provided across the secondary of the output transformer for feeding an external speaker, the connection of which disconnects the internal speaker.

H.T. is derived from a half-wave rectifier circuit, with smoothing by C18, R18, C17 and additional decoupling for the first two stages by R9, C4. The valve heaters are fed from a centre-tapped secondary on the mains transformer, the centre tap being taken to earth.

dismantling

Removal of the top moulding (by releasing the five Phillips screws securing it to the casing) will give access to the upper section of the mechanism and limited access to the printed circuit board. For most servicing requirements, however, it will be necessary to effect a complete dismantling procedure, as follows.

(1) Prise off the chrome end caps of the carrying handle by inserting a screwdriver or similar tool between the cap and the casing, and levering gently away. A piece of thin metal placed between screwdriver and casing will prevent damaging the casing. Then remove the two countersunk screws thus exposed.

(2) Pull off the two control knobs. Five Phillips screws secure the top moulding to the casing; remove these.

(3) Turn the tape recorder upside down and remove the four Phillips screws in the base. Also remove the two Phillips screws from the back of the casing (Playmaster only). The case can now be lifted off the complete assembly.

Note: Further dismantling should seldom be necessary, but the U-channel over the circuit board can be removed by taking out its two Phillips securing screws and the printed circuit board itself can be taken out to the extent of its connecting leads by removing the four fixing screws.

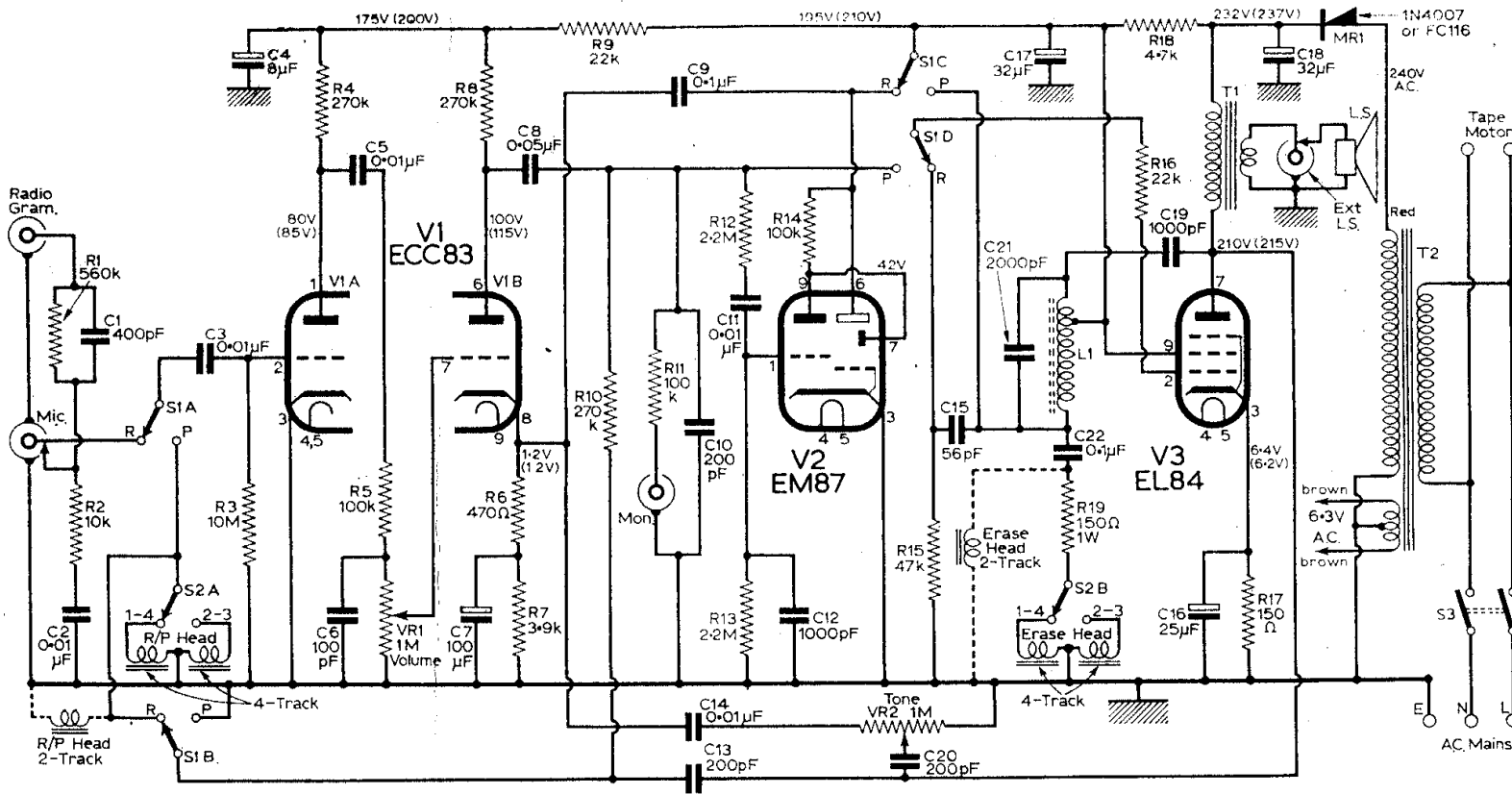
Reassembly: To reassemble, reverse the above procedure, taking care that the top cover fits into the case all round. The handle caps should be latched on and pressed home.

summary

Valves	One ECC83, EL84, EM87
Mains Rectifier	FC116 or 1N4007
Amplifier Output	3 watts
Frequency Response	60-8,000 Hz
Oscillator Frequency	50 kHz
Signal/Noise Ratio	50dB down
Wow and Flutter	0.25% total, r.m.s.
Erase Damping	70dB down at 1 kHz
Tape Speed	3 $\frac{3}{4}$ inches/sec.
Maximum Spool Dia.	5 $\frac{3}{4}$ inches
External Speaker	3-5 Ω
Monitor Output	400mV at 2k Ω (minimum)
Mains Input	200-250V 50 Hz a.c. (Consumption, 60 watts)

BRAEMAR AND PLAYMASTER

The circuit diagram on the left is that of 4-track models. Where the circuit of the two-track model deviates from this, the appropriate wiring is shown in dotted line, the differences being connected with the record/replay and erase head circuits, S2A and B, R19 being deleted. The voltages shown are those obtained using a type FC116 rectifier. When a type 1N4007 rectifier is used, voltages may be slightly higher overall.



R/P Head bias voltage...55V (4-track), 65V (2-track). Erase head voltage...17V (4-track), 35V (2-track).
All other voltages measured with AVO model B. Voltages in brackets are for 'Play' position

The layout diagram below shows the printed-circuit board as viewed from the foil side, the components being shown as seen through the board. On some earlier versions of the Playmaster the printed circuit may be slightly different but is electrically the same.

