

Fidelity Rad 11

1888

Transistored portable radio receiver

Introduction

Presented in a padded wooden case with carrying handle, Fidelity Rad II is a seven transistor portable radio receiver designed for reception of a.m. signals within the medium and long wavebands plus the addition of bandspread at the high frequency end of the medium waveband.

Reception is via either the internal ferrite rod aerial assembly or an external aerial, the type used for car radio being quite suitable. Total waveband coverage selected by means of press buttons is l.w. 1,200-2,000m; m.w. 187-555m and b.s. 188-211m. A measure of precision tuning being achieved by the use of an 11:1 ratio from tuning knob to tuning gang.

A power output of 500mW is handled by a 7 by 3½in 10Ω elliptical loudspeaker which is driven from an output stage employing complementary symmetry. The normally closed jack included in the coupling between the first a.f. amplifier and driver stages provides an effective mute to the output stage when either an earphone or tape recorder is connected via a miniature jack plug.

Operational power requirements are met with an Ever Ready PP9 or an equivalent type.

Transistor analysis

Transistor voltages quoted in the table in col. 3 were obtained from information supplied by the manufacturers. They were measured under quiescent conditions on a 20,000Ω/V meter and are all negative with respect to positive line.

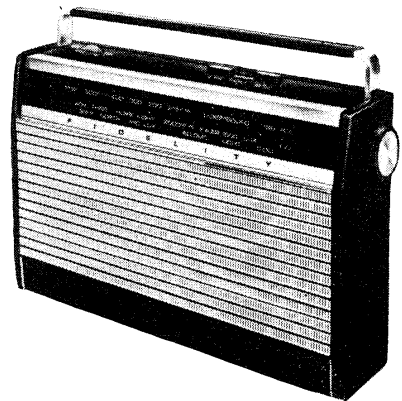
Circuit alignment

Equipment required.—An r.f. signal generator amplitude modulated 30 per cent at 400c/s; an (Continued overleaf col. 1)

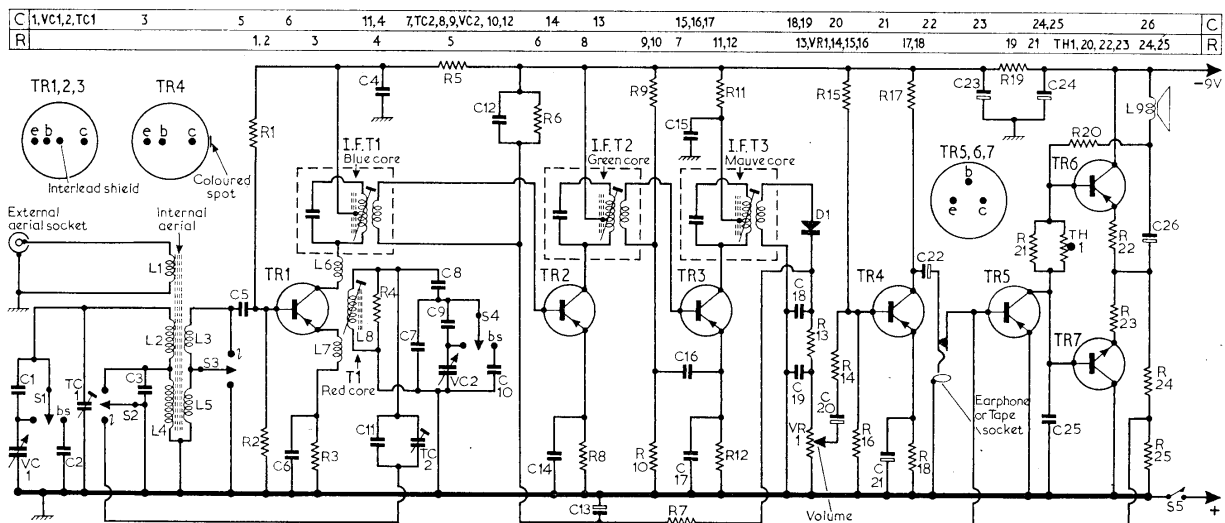
Resistors		Capacitors		Coils and transformers	
R1	33kΩ B1	C1	20pF A1	L1	— B1
R2	4.7kΩ A1	C2	6.8pF A1	L2	— B1
R3	1kΩ A1	C3	56pF B1	L3	— B1
R4	220kΩ B1	C4	0.1μF B1	L4	— B1
R5	390Ω B1	C5	0.01μF A1	L5	— C1
R6	56kΩ B1	C6	0.01μF A1	L6	— B1
R7	8.2kΩ B1	C7	6.8pF A1	L7	— B1
R8	680Ω B1	C8	330pF A1	L8	— B1
R9	22kΩ B1	C9	20pF A1	L9	10Ω C1
R10	4.7kΩ C1	C10	6.8pF A1	IFT1	— B1
R11	390Ω C1	C11	260pF B1	IFT2	— B1
R12	1kΩ C1	C12	0.1μF B1	IFT3	— C1
R13	2.2kΩ C1	C13*	10μF B1	T1	— B1
R14	2.2kΩ C1				
R15	56kΩ C1				
R16	10kΩ C1				
R17	4.7kΩ C1				
R18	1kΩ C1				
R19	1kΩ C1				
R20	560Ω C1				
R21	39Ω C1				
R22	2.2Ω C1				
R23	2.2Ω C1				
R24	15kΩ C1				
R25	820Ω C1				
VR1	5kΩ C1				
C14	0.01μF C1				
C15	0.1μF C1				
C16	0.01μF C1				
C17	0.01μF C1				
C18	0.02μF C1				
C19	0.02μF C1				
C20	6μF C1				
C21	20μF C1				
C22	2.5μF C1				
C23	125μF C1				
C24	125μF C1				
C25	0.1μF C1				
C26	320μF C1				
VC1	257pF A1				
VC2	257pF A1				
TC1	15pF B1				
TC2	50pF B1				

Miscellaneous	
TH1	VA1040 C1
S1-S4	— A1
S5	— C1
D1	0A70 — C1

Transistor table				
Transistor	Emitter (V)	Base (V)	Collector (V)	
TR1	AF117	0.5	0.6	5.5
TR2	AF117	0.5	0.6	5.6
TR3	AF117	0.7	0.9	5.4
TR4	OC71	0.6	0.7	2.8
TR5	AC128	0	0.2	3.7
TR6	AC128	3.9	4.0	9.0
TR7	AC127	3.9	3.7	0



Three-quarter view of the Fidelity Rad II. Release date: June, 1967.



Circuit diagram of the Fidelity Rad II.

1888

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Continued from overleaf—

audio output meter of 10Ω impedance; an r.f. coupling loop and a calibrated scale template.

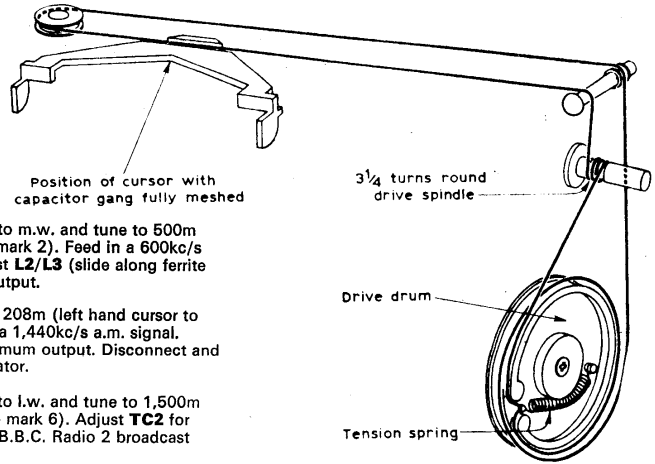
Prepare a template to the pattern illustrated at the foot of this page, then check that with the tuning gang at maximum capacitance the left hand cursor is coincident with mark 1.

All i.f. and r.f. measurements are made with a signal modulated 30 per cent at 400c/s. Connect the output meter via a blocking capacitor across the loudspeaker tags, and with volume control at maximum maintain an audio output of approximately 50mW, progressively attenuating the input signal as the sensitivity of the radio receiver increases.

1. — Switch receiver to m.w.; place a short circuit across **L8** (thus rendering the oscillator inoperative); connect signal generator output across tuning capacitor **VC1**; rotate tuning gang to maximum capacitance and feed in a 470kc/s a.m. signal. Adjust **IFT3**, **IFT2** and **IFT1** in that order for maximum output. Repeat this adjustment in the same order for optimum results then remove the short circuit from **L8** and disconnect signal generator.

2. — Connect r.f. coupling loop to signal generator and loosely couple loop to ferrite rod aerial assembly. Switch receiver to b.s. and tune to 208m (right hand cursor to mark 5). Feed in a 1,440kc/s a.m. signal and adjust **L8** (red core) for maximum output.

Right: Drive cord assembly shown at maximum capacitance.



3. — Switch receiver to m.w. and tune to 500m (left hand cursor to mark 2). Feed in a 600kc/s a.m. signal and adjust **L2/L3** (slide along ferrite rod) for maximum output.

4. — Tune receiver to 208m (left hand cursor to mark 3) and feed in a 1,440kc/s a.m. signal. Adjust **TC1** for maximum output. Disconnect and remove signal generator.

5. — Switch receiver to i.w. and tune to 1,500m (right hand cursor to mark 6). Adjust **TC2** for maximum output of B.B.C. Radio 2 broadcast signal.

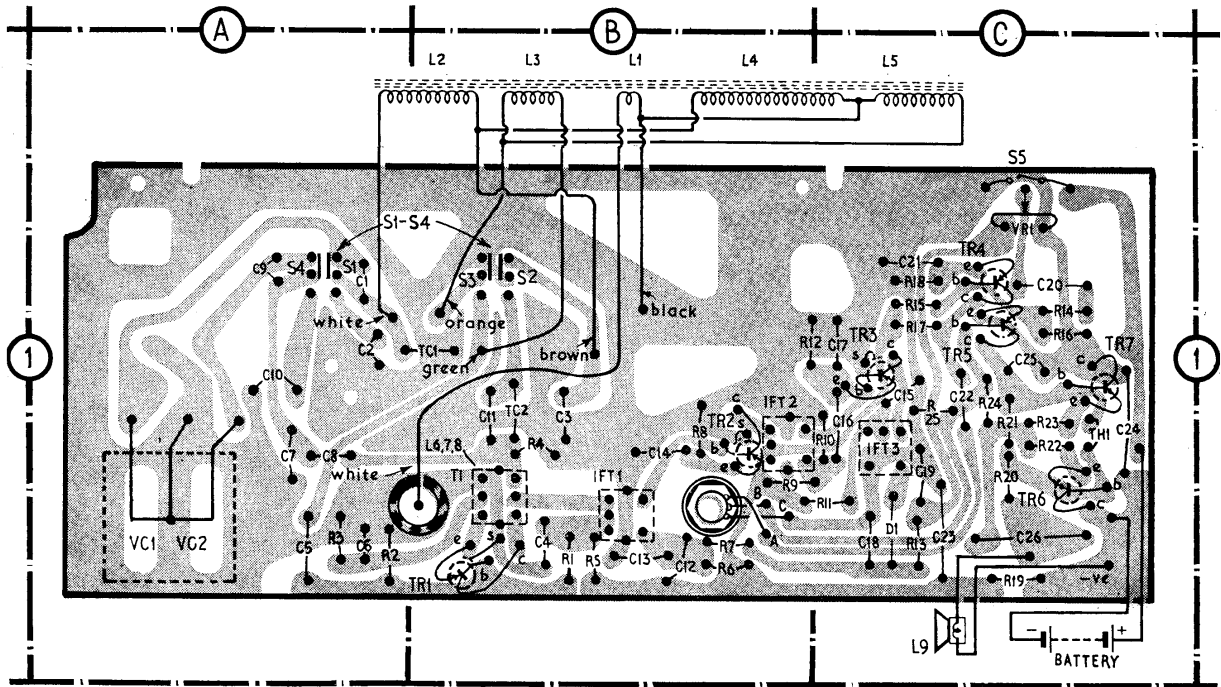
6. — Retune receiver so that the right hand cursor is coincident with mark 4. Adjust **L4/L5** (slide along ferrite rod) for maximum output of Allouis broadcast signal.

General notes

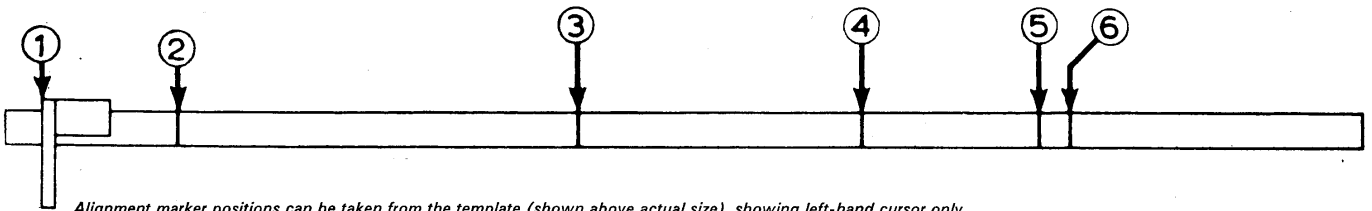
Dismantling. — To remove back cover of case, unscrew and remove the two screws, then pull the fabric tab. This gives access to the foil side of printed panel. In order to completely withdraw chassis from case, pull off tuning knob, unclip loudspeaker tags and unscrew and remove two long-headed hexagon nuts and their washers. The chassis may now be withdrawn from the case.

Manufacturer's service department

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Above: Illustration of the foil side of printed panel.



Alignment marker positions can be taken from the template (shown above actual size), showing left-hand cursor only.