

General Description: A three-waveband A.M./F.M. portable radio receiver operating on mains or battery supplies. A socket is provided for the connection of an earphone.

Mains Supply: 240 volts, 50Hz.

Batteries: 6 volts (4×HP7).

Fuse: 500mA.

Wavebands: L.W. 150-270kHz; M.W. 510-1620kHz; F.M. 87-109MHz.

Loudspeaker: 8 ohms impedance.

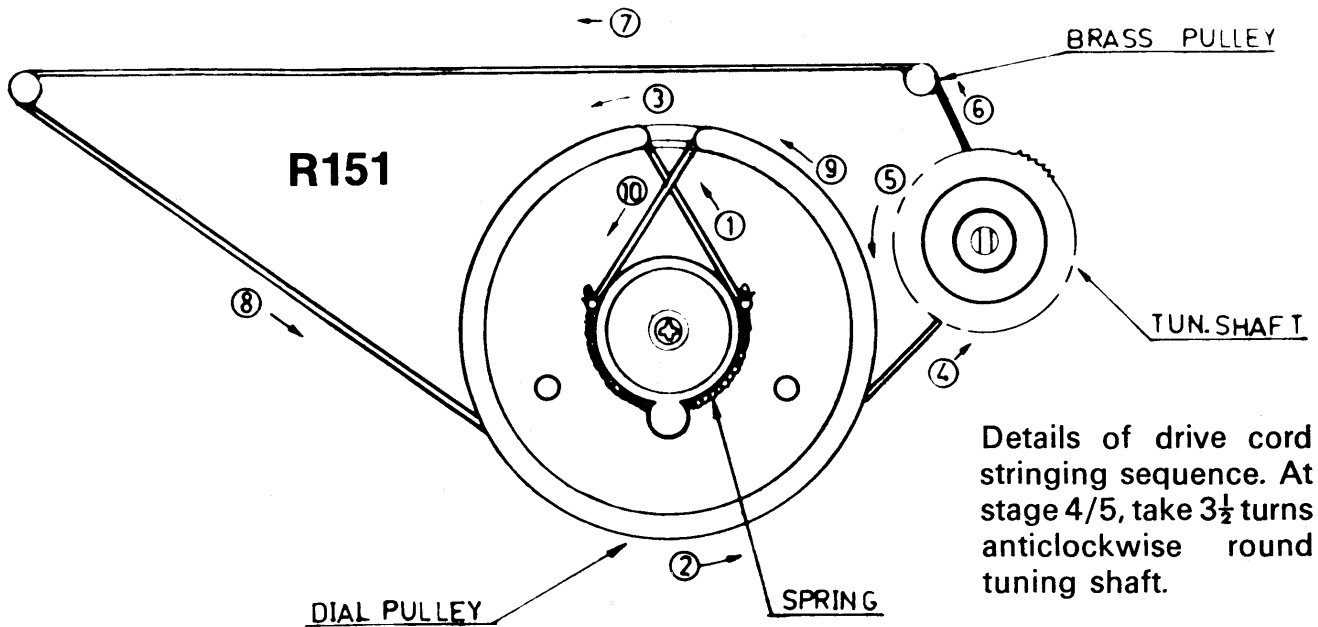
Dismantling

Remove the two screws from the bottom of the cabinet. The two sections of the cabinet may then be separated. Pull off the clip on the telescopic aerial and this will allow the two sections to be laid side by side (limited to the extent of the interconnecting leads) for servicing. The handle will be free from its runners.

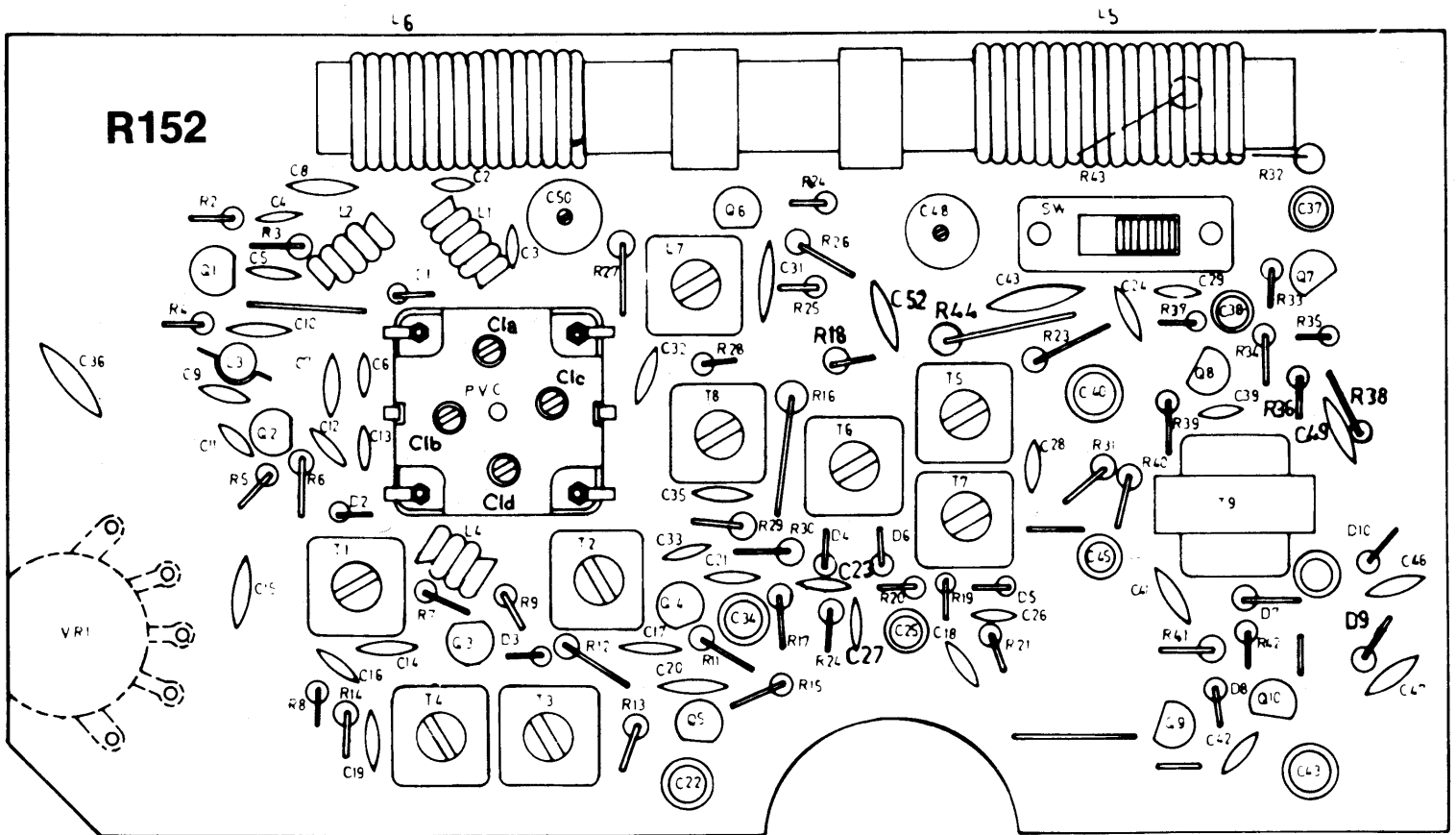
The p.c.b. scale assembly and fuse panel may be removed complete by taking out the following five screws from the p.c.b.—(1) top left-hand corner, (2) between the Volume and Tuning control knobs, (3) bottom left-hand of panel, (4) bottom right-hand corner, also serving to secure cable tag, (5) adjacent to D10.

Components List

Resistors	R25	10k Ω	C3	30pF	C27	2nF	C51	110pF	
R1	5k Ω	R26	2.2k Ω	C4	15pF	C28	5nF	C52	10nF
R2	3.9k Ω	R27	470 Ω	C5	1nF	C29	2nF	Transistors	
R3	330k Ω	R28	10k Ω	C6	22pF	C30	20nF	Q1	ED1502B
R4	3.9k Ω	R29	27k Ω	C7	1pF	C31	10nF	Q2	ED1502B
R5	220k Ω	R30	3.9k Ω	C8	20nF	C32	150pF	Q3	ED1502C
R6	100 Ω	R31	33 Ω	C9	20pF	C33	1pF	Q4	ED1502C
R7	220k Ω	R32	2.2k Ω	C10	500pF	C34	10 μ F	Q5	ED1502C
R8	1k Ω	R33	270k Ω	C11	1nF	C35	20nF	Q6	ED1502B
R9	220 Ω	R34	5.6k Ω	C12	3pF	C36	100nF	Q7	ED1602C
R11	330 Ω	R35	5 Ω	C13	25pF	C37	470nF	Q8	ED1602C
R12	100 Ω	R36	6.8k Ω	C14	10nF	C38	10pF	Q9	ED1802K
R13	22 Ω	R37	22k Ω	C15	20nF	C39	500pF	Q10	ED1802K
R14	330k Ω	R38	27k Ω	C16	20nF	C40	470 μ F	Diodes	
R15	470 Ω	R39	5 Ω	C17	20nF	C41	10nF	D1	1N4148
R16	470 Ω	R40	150 Ω	C18	20nF	C42	10nF	D2	1N4148
R17	5.6k Ω	R41	680 Ω	C19	20nF	C43	220 μ F	D3	1N60
R18	1k Ω	R42	680 Ω	C20	20nF	C44	470nF	D4	1N4148
R19	1k Ω	R43	220 Ω	C21	3pF	C45	1000 μ F	D5	1N60
R20	1k Ω	R44	1.5k Ω	C22	100 μ F	C46	10nF	D6	1N60
R2	13.3k Ω	Capacitors		C23	20nF	C47	10nF	D7	1N4148
R22	3.3k Ω	C1	tuning	C24	20nF	C48	0-20pF	D8	1N4148
R23	1k Ω	C2	25pF	C25	10 μ F	C49	1nF		
R24	6.8k Ω			C26	2nF	C50	0-20pF		



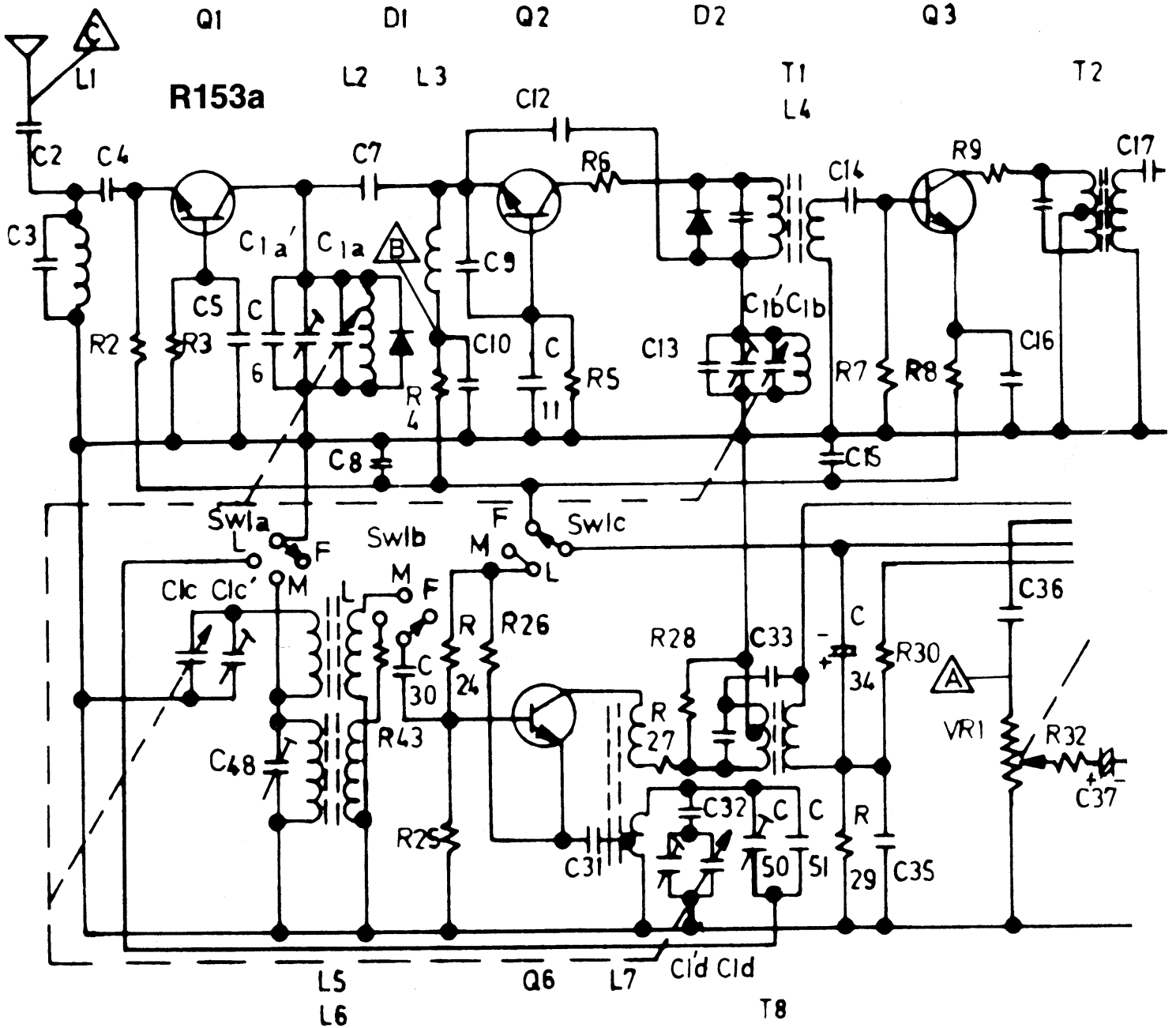
(R151) DRIVE CORD—MODEL 945



(R152) COMPONENT LAYOUT—MODEL 945

Transistor Voltages:

Transistor	Emitter	Base	Collector
Q1	ED1502B	1.2V	4.1V
Q2	ED1502B	1.75V	3.9V
Q3	ED1502C	0.75V	3.8V
Q4	ED1502C	0.29V	4.0V
Q5	ED1502C	0.3V	3.8V
Q6	ED1502B	0.85V	4.0V
Q7	ED1602C	4.2V	2.76V
Q8	ED1602C	4.2V	0.73V
Q9	ED1802K	3.0V	0
Q10	ED1802K	5.9V	3.0V

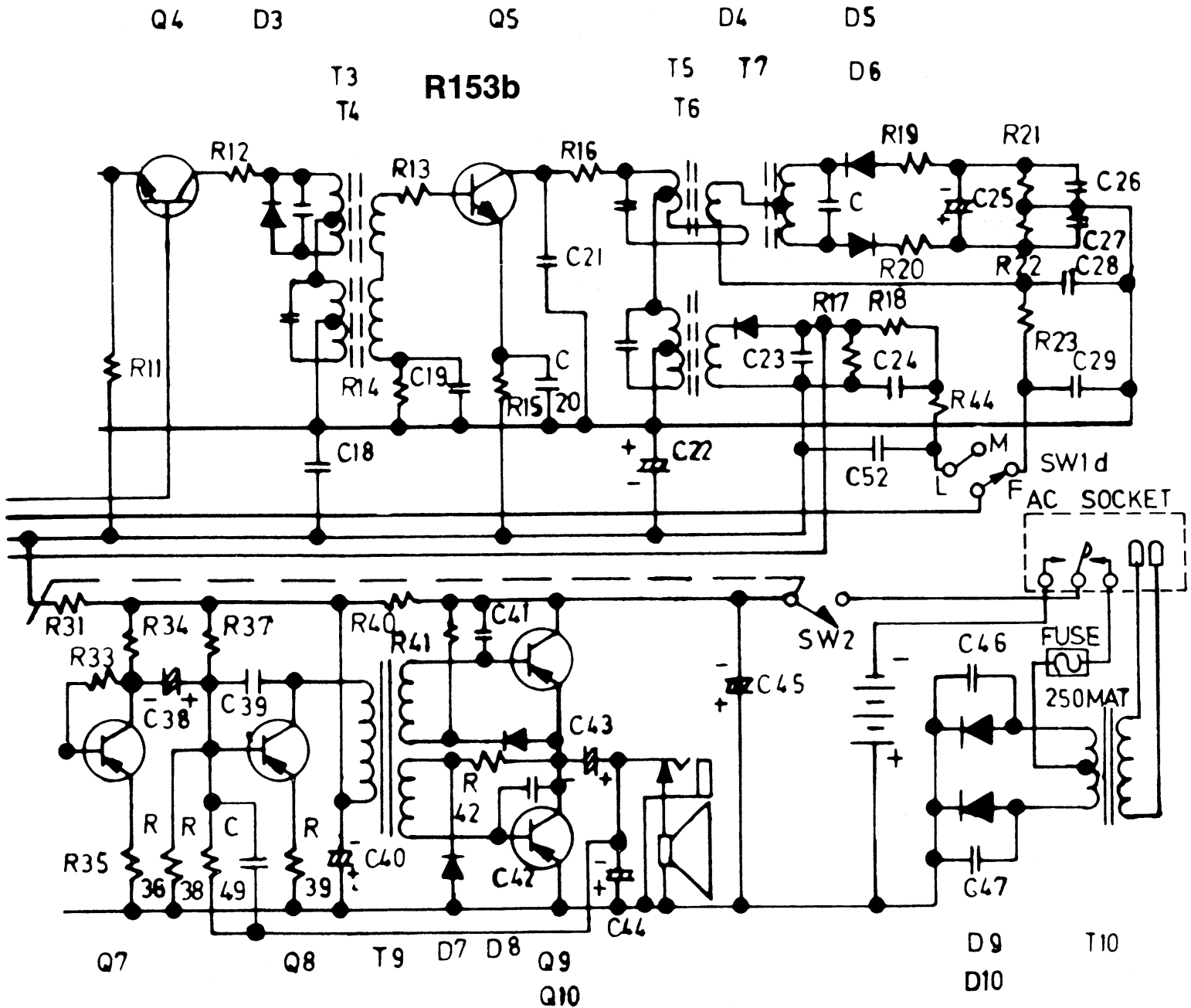


(R153a) CIRCUIT DIAGRAM—MODEL 945 (PART)

Alignment

A.M. Alignment: Connect output meter across the loudspeaker terminals. Connect A.M. signal generator to standard coupling loop placed near to, and coaxial with, the ferrite rod aerial.

Switch Receiver to M.W. and turn the Volume control to maximum. The output from the signal generator should be progressively reduced, as alignment proceeds, to the lowest level consistent with useable output readings on the meter.



(R153b) CIRCUIT DIAGRAM—MODEL 945 (CONTINUED)

Tune to extreme high frequency end of scale. Inject a signal of 470kHz, modulated to 30% A.M. at 400Hz, and adjust the cores of T8, T6 and T4 for maximum output. Repeat these steps for optimum results.

Retune receiver to extreme low frequency end of scale, inject a signal of 510kHz, then tune the core of L7 for maximum output. Retune receiver to extreme high frequency end of scale, inject a signal of 1620kHz, then adjust C1d for maximum output.

Repeat the L7/C1d steps.

Retune receiver to 600 mark, inject a signal of 600kHz, then adjust position of L5 on ferrite rod for maximum output. Retune receiver to 1400 mark, inject a signal of 1400kHz then adjust trimmer C1c for maximum output.

Repeat the L5/C1c steps.

Switch receiver to L.W. and tune to extreme high frequency end of scale. Inject a signal of 270kHz and adjust trimmer C50 for maximum output. Retune receiver to 260 mark, inject a signal of 260kHz, then adjust trimmer C48 for maximum output. Retune receiver to 170, inject a signal of 170kHz, then adjust position of L6 on ferrite rod for maximum output.

Repeat the C48 and L6 steps. Repeat the C50, C48 and L6 steps.

F.M. Alignment: Switch radio to F.M., tune to extreme high frequency end of scale and turn the Volume control to minimum. Connect F.M. sweep generator to test point B (junction R4/C10) and connect Oscilloscope to test point A (junction VR1/C36). Inject a signal of 10.7MHz, deviation 250kHz, and adjust the cores of T1, T2, T3, T5 and T7 to obtain maximum gain and symmetry of S curve centred on 10.7MHz.

Transfer F.M. generator to test point C (F.M. aerial). Retune receiver to extreme low frequency end of scale, inject a signal of 87MHz and adjust L4 (altering spacing of coil turns) for maximum output. Retune receiver to extreme high frequency end of scale, inject a signal of 109MHz, then adjust C1b for maximum output.

Repeat L4 and C1b steps until no further improvement can be obtained.

Tune Radio to 90 mark, inject a signal of 90MHz and adjust L2 (altering spacing of coil turns) for maximum output. Retune radio to 106, inject a signal of 106MHz, then adjust C1a for maximum output.

Repeat the L2/C1a and then the L4/C1b/L2/C1a steps until no further improvement can be obtained.