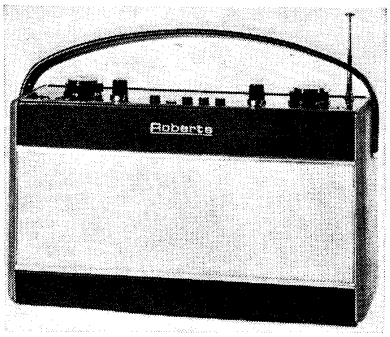
E R T SERVICE CHART 1713



Roberts 707 five-waveband transistor portable, 12¾×7¼×4⅜in. case, has 7×4in. elliptical moving coil speaker, with 1.5W output

ROBERTS R707

PORTABLE RADIO

Additional copies of this chart 1s. 6d. including postage. Payment with order please to E R T, Dorset House, Stamford Street, London, SE1.

QUALITY portable radio with modular VHF tuner and IF amplifier. Tunes VHF and long, medium and shortwave bands and has switched automatic frequency control. Unusual features are the use of large capacity lantern type batteries and the dual, ganged, volume control potentiometers.

Batteries. Two long-life lantern batteries. 6V Ever Ready Type 996.

Consumption. Quiescent current 24mA AM, 28mA FM.

Transistors. TR1 AF preamplifier BC148; TR2 AF preamplifier BC148; TR3 AF amplifier BC149; TR4 driver BC158; TR5 driver OC71/T7; TR6 output AC187; TR7 output AC188.

Wavebands. LW 1111-2000m (270-150kc/s); MW 185-571m (1620-525kc/s); SW 41-51.5m (5.85-7.3mc/s); VHF 87.5-104.5mc/s.

IFs. 470kc/s AM, 10.7mc/s FM.

Aerials. 8½×⅜in. ferrite rod for MW and LW; 10-section telescopic rod for SW and VHF, extending to about 40in.

Outlets. JK1 3.5mm miniature jack socket for tape recording (from detector via 68ohms); JK2 3.5mm miniature jack socket for external earpiece (300-1000ohm impedance).

Output. 1.5W approximately.

Speaker. 7×4in. elliptical, 4ohm impedance.

Dimensions. 12¾×7¼×4⅜in.

Weight. 8½lb approximately.

Manufacturer. Roberts' Radio Co Ltd.

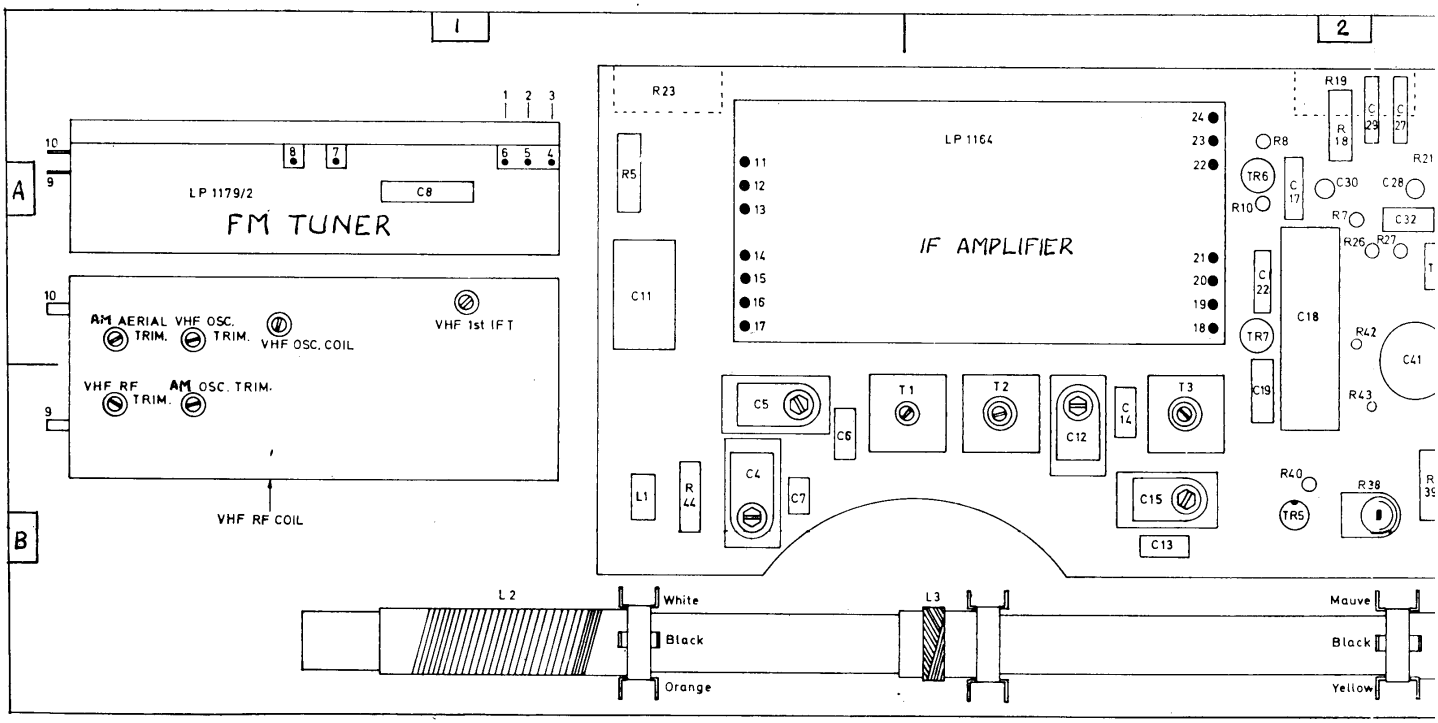
Service department. Roberts' Radio Co Ltd, Molesey Avenue, West Molesey, Surrey. Tel: 01-979 7474.

DISMANTLING

Chassis. Remove two screws securing chassis and one screw securing telescopic aerial from underside of case. Complete chassis can then be taken from top of case, to extent of speaker and battery leads.

Speaker. To remove speaker, unscrew four 4BA nuts holding speaker to case front.

Battery compartment. To remove battery compartment, take two woodscrews from each end of compartment.



SERVICE NOTES

If fault develops in IF amplifier or FM tuner, carefully remove complete unit and return to manufacturers.

All setting up and adjustments should be carried out with 12V measured across C42.

Output balance and bias. Connect voltmeter between junction of R42 and R43 and negative supply. Turn volume to minimum and adjust R32 to give reading of 5.7V. Connect milliammeter in black flex link LK under printed circuit board and adjust R38 to give output stage quiescent current of 4mA at 20° C.

Allow one minute and recheck this figure. Observe sine-wave output on 'scope across speaker, adjust R32 for symmetry of waveform at onset of clipping.

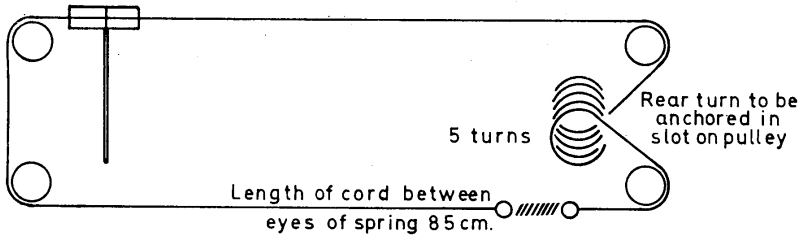
ALIGNMENT

Equipment required. Output meter or AC voltmeter; aerial coupling coil; signal generator covering 150kc/s–8mc/s AM and 89–103mc/s FM; trimming tools.

IF adjustment. IF transformers have been accurately aligned by the manufacturers and no attempt should be made to realign them.

RF adjustments. Turn tuning control fully anticlockwise and check that pointer coincides with high wavelength end of scale. Connect output meter in place of, or AC voltmeter across, speaker. Keep output as low as possible to prevent AGC action masking alignment peaks.

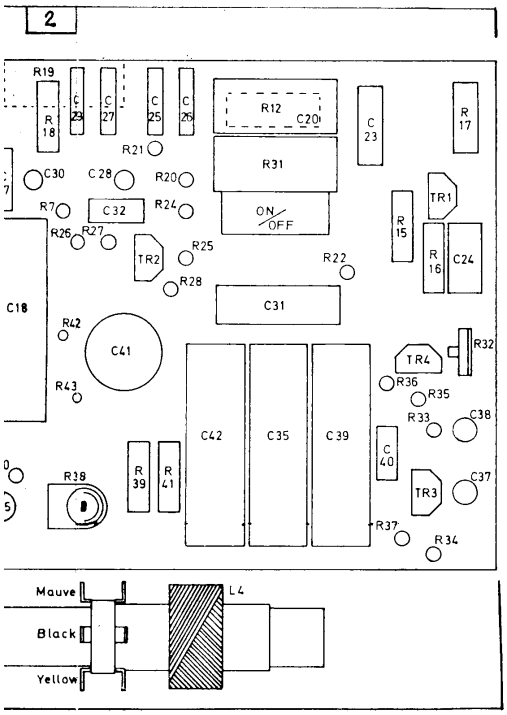
Feed all signals via aerial coupling loop and make all adjustments to obtain maximum output. Select MW band and set tuning pointer to 200m calibration mark. Tune signal generator to 1500kc/s and adjust AM oscillator and AM aerial trimmers.



Set tuning pointer to 536m calibration mark and inject 560kc/s signal. Adjust in turn T3 core and L2 for maximum output. Repeat adjustments at 1500kc/s and 560kc/s to optimise results, finishing with 1500kc/s adjustment.

Select LW band and position tuning pointer to 200m calibration mark. Inject 265kc/s signal and adjust in turn C15 and C4. Set tuning pointer to 536m, inject 157kc/s signal and adjust L4 for maximum output. Repeat adjustments at 265 and 157kc/s for optimum results, finishing with 265kc/s adjustment.

▶ *continued overleaf*



ALIGNMENT NOTES *continued* ▶

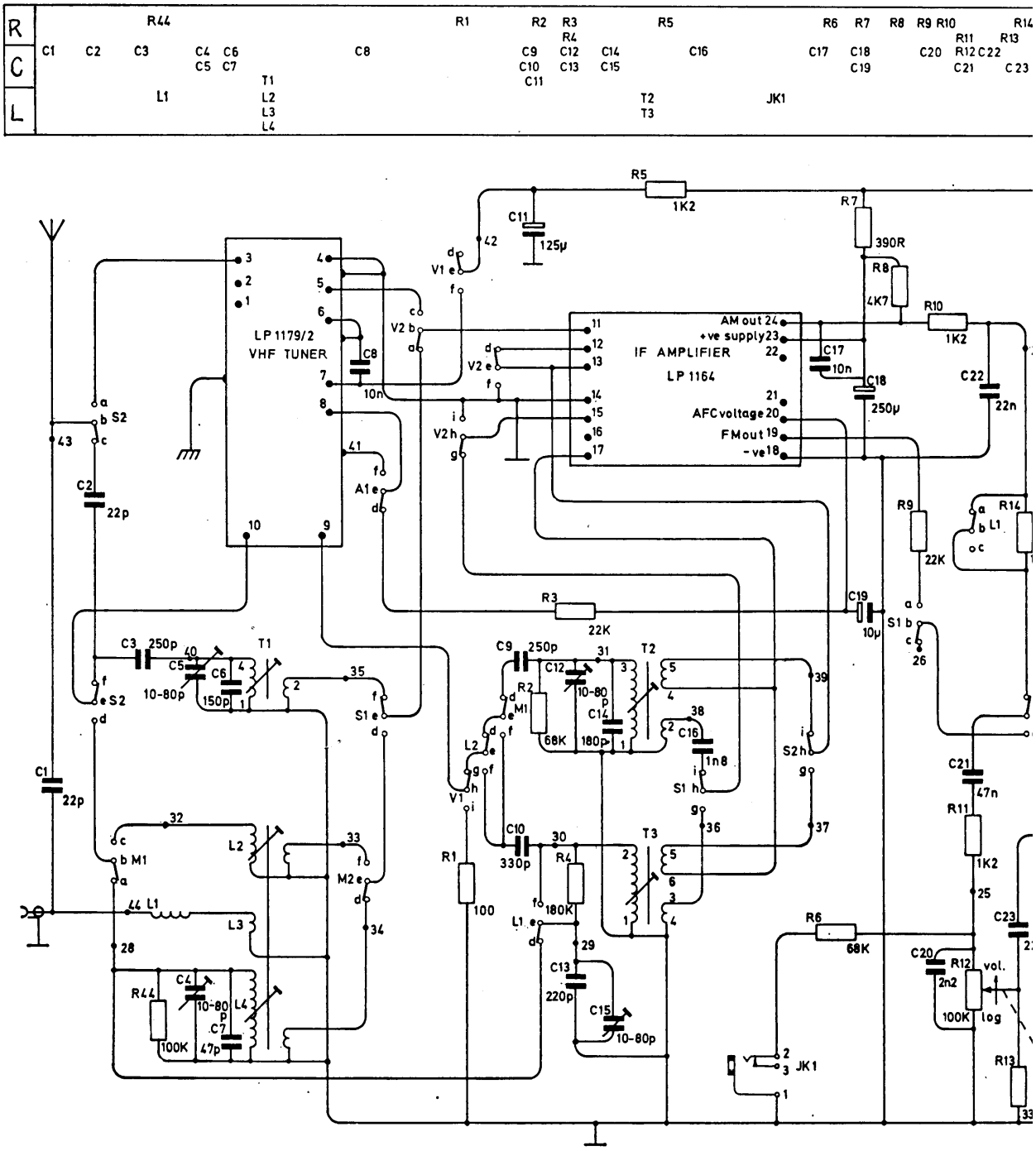
Select SW band and set tuning pointer to 200m calibration mark. Inject 7.21mc/s signal and adjust C12 and C5.

Set tuning pointer to 536m, inject 5.94mc/s signal and adjust T2 and T1 cores in turn. Repeat adjustments at 7.21 and 5.94mc/s to optimise results, finishing with 7.21mc/s adjustment.

FM RF. Switch off AFC (button depressed). Select VHF band and set tuning pointer to 200m calibration mark. Inject 102.7mc/s signal and adjust VHF oscillator trimmer and VHF RF trimmer in turn for maximum output. Set tuning pointer to 536m calibration mark and inject 89mc/s signal. Adjust VHF oscillator coil and VHF RF coil slugs in turn to get maximum output. Repeat adjustments at 102.7mc/s and 89mc/s in turn to optimise results, finishing with 102.7 mc/s adjustment.

Module supplies.

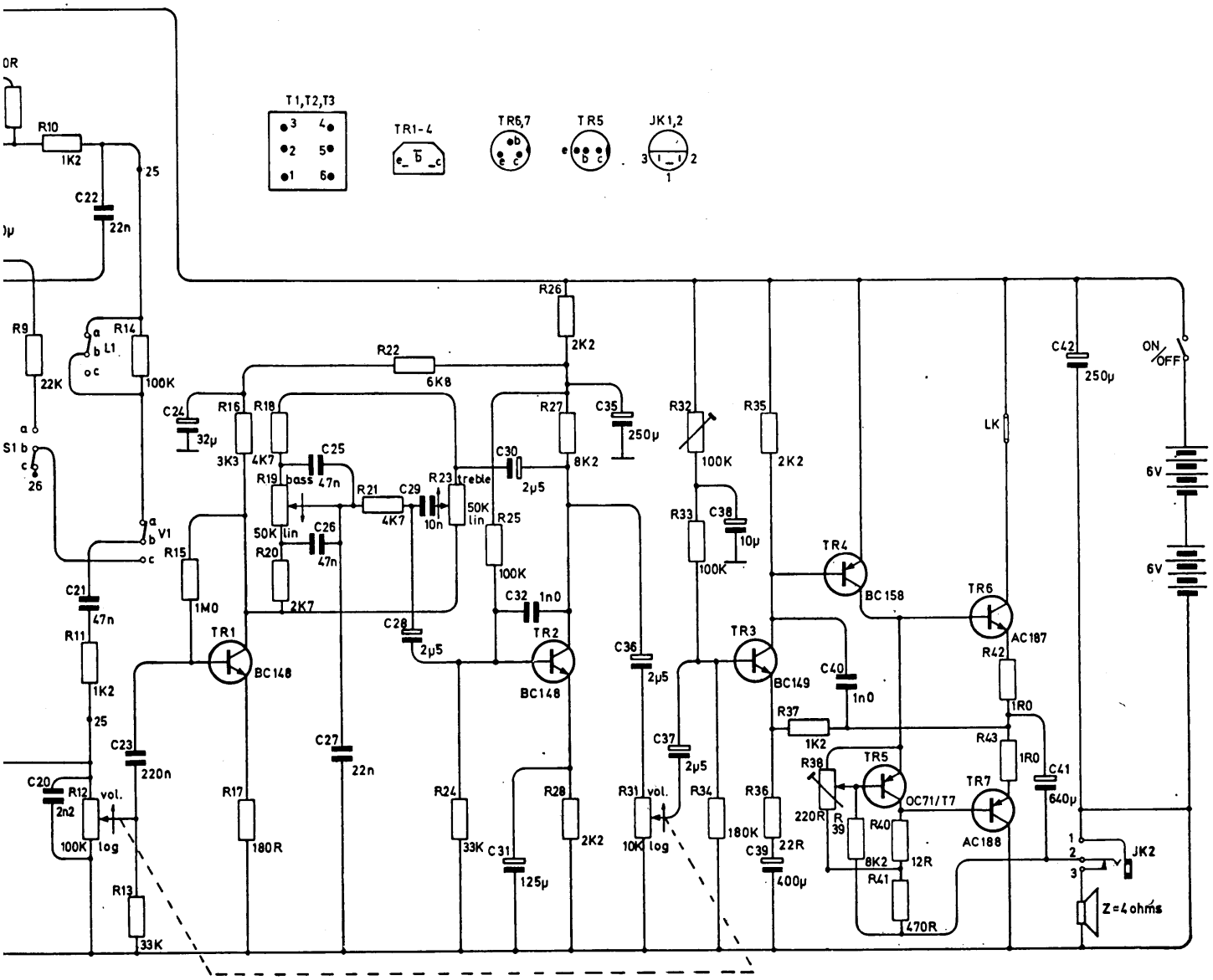
VHF tuner point 7	6.7V
IF amplifier point 23	9.2V



Printed in Great Britain at The Baynard Press, Northampton Road, London EC1, and published
SE1, a member of the IPC Business Press Group and distributed by IPC Business Press (Sales & Distr

RESISTORS			R17	180	A2	R36	22	B2	C7	47pF	B1	C24	32mF	A2
R1	100	—	R18	4K7	A2	R37	1K2	B2	C8	10KpF	A1	C25	47KpF	A2
R2	68K	—	R19	50K Lin	A2	R38	220	B2	C9	250pF	—	C26	47KpF	A2
R3	22K	—	R20	2K7	A2	R39	8K2	B2	C10	330pF	—	C27	22KpF	A2
R4	180K	—	R21	4K7	A2	R40	12	B2	C11	125mF	A1	C28	2.5mF	A2
R5	1K2	A1	R22	6K8	A2	R41	470	B2	C12	6–60pF	B2	C29	10KpF	A2
R6	68K	—	R23	50K Lin	A1	R42	1	A2	C13	220pF	B2	C30	2.5mF	A2
R7	390	A2	R24	33K	A2	R43	1	B2	C14	180pF	B2	C31	125mF	A2
R8	4K7	A2	R25	100K	A2	R44	100K	B1	C15	10–80pF	B2	C32	1KpF	A2
R9	22K	—	R26	2K2	A2				C16	1KpF	—	C35	250mF	B2
R10	1K2	A2	R27	8K2	A2	**CAPACITORS**			C17	10KpF	A2	C36	2.5mF	—
R11	1K2	—	R28	2K2	A2	C1	22pF	—	C18	250mF	A2	C37	2.5mF	B2
R12	100K Log	A2	R31	10K Log	A2	C2	22pF	—	C19	10mF	B2	C38	10mF	B2
R13	33K	—	R32	100K	A/B2	C3	250pF	—	C20	2K2pF	A2	C39	400mF	B2
R14	100K	—	R33	100K	B2	C4	10–80pF	B1	C21	47KpF	—	C40	1KpF	B2
R15	1M	A2	R34	180K	B2	C5	10–80pF	B1	C22	22KpF	A2	C41	640mF	A/B2
R16	3K3	A2	R35	2K2	B2	C6	150pF	B1	C23	220KpF	A2	C42	250mF	B2

R8 R9 R10 R14 R15 R16 R18 R21 R22 R23 R25 R26 R31 R32 R34 R35 R37 R39 R40 R42
R11 R13 R17 R19 R24 R27 R33 R36 R38 R41 R43
C20 R12 C22 C24 C25 C28 C30 R28 C35 C37 C38 C39 C40 C41 C42
C21 C23 C26 C29 C31 C36
C27 C32
TR1 TR2 TR3 TR4 TR5 TR6 JK2
TR7



ıdon EC1, and published by IPC Electrical-Electronic Press Ltd, Dorset House, Stamford Street, London
siness Press (Sales & Distribution) Ltd, 40 BowlingGreen Lane, London EC1