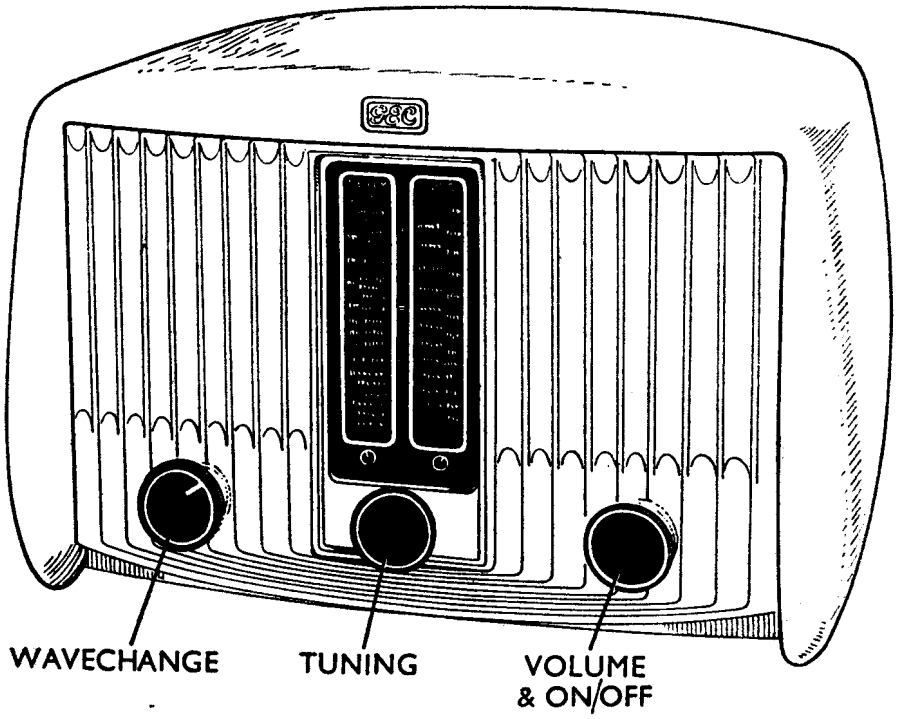
No. 133

G.E.C. RADIO

MADE IN ENGLAND

SERVICE BULLETIN

BC5243 and BC5244



SPECIFICATION

GENERAL — Five valve A.C. mains superheterodyne table model receiver. Long and medium wave-bands. Internal aerial.

POWER SUPPLIES — 190/250 volts, 40/100 c/s.

POWER CONSUMPTION — BC5243, 70 watts.
BC5244, 50 watts.

WAVEBANDS — LONG, 300-150 kc/s, 1000-2000 metres.
MEDIUM, 1·6—0·522 Mc/s. 187·5—575 metres.

INTERMEDIATE FREQUENCY — 470 kc/s.

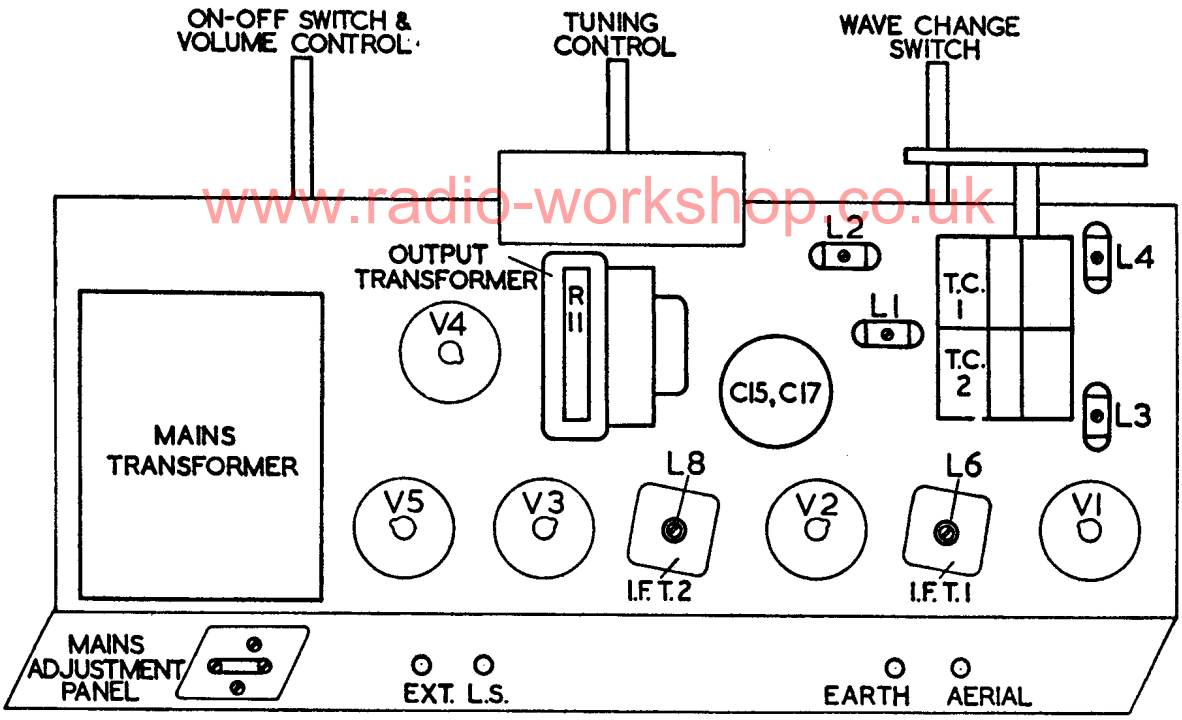
OSRAM VALVES

		BC5243	BC5441 (later models) BC5244
V1	Frequency changer ...	X61M or X78	X79
V2	I.F. amplifier	W61 or KTW61	W77
V3	Signal detector ... A.G.C. rectifier ... A.F. amplifier	DH63	DH77
V4	Output tetrode ...	KT61	N78
V5	H.T. rectifier	U50	U78

LOUDSPEAKER — 5 inch diameter cone, permanent magnet.
Speech coil impedance 3 ohms at 400 c/s.
Extension loudspeaker terminals.

WEIGHT — 14 lb.

DIMENSIONS — 10⅛ in. × 15½ in. × 8 in.



UPPER VIEW OF CHASSIS

TUNED CIRCUIT ALIGNMENT

	Alignment Frequency	Scale Setting	Adjust	Notes	Average Sensitivity (Microvolts) BC5243	BC5244
Intermediate Frequency	470 kc/s	90	L8, L7	Switch to L.W. Input to V2 grid		
			L6, L5	Input to V1 grid Re-adjust L7 and L8	30	30
MEDIUM 187·5—575 metres	600 kc/s	70	L3, L1			
	1·4 Mc/s	10·5	T2, T1			
	600 kc/s	70	L3, L1	Check	25	15
	1·4 Mc/s	10·5	T2 T1	Check	35	20
LONG 1000—2000 metres	230 kc/s	32·5	L4, L2		50	30

ALIGNMENT NOTES

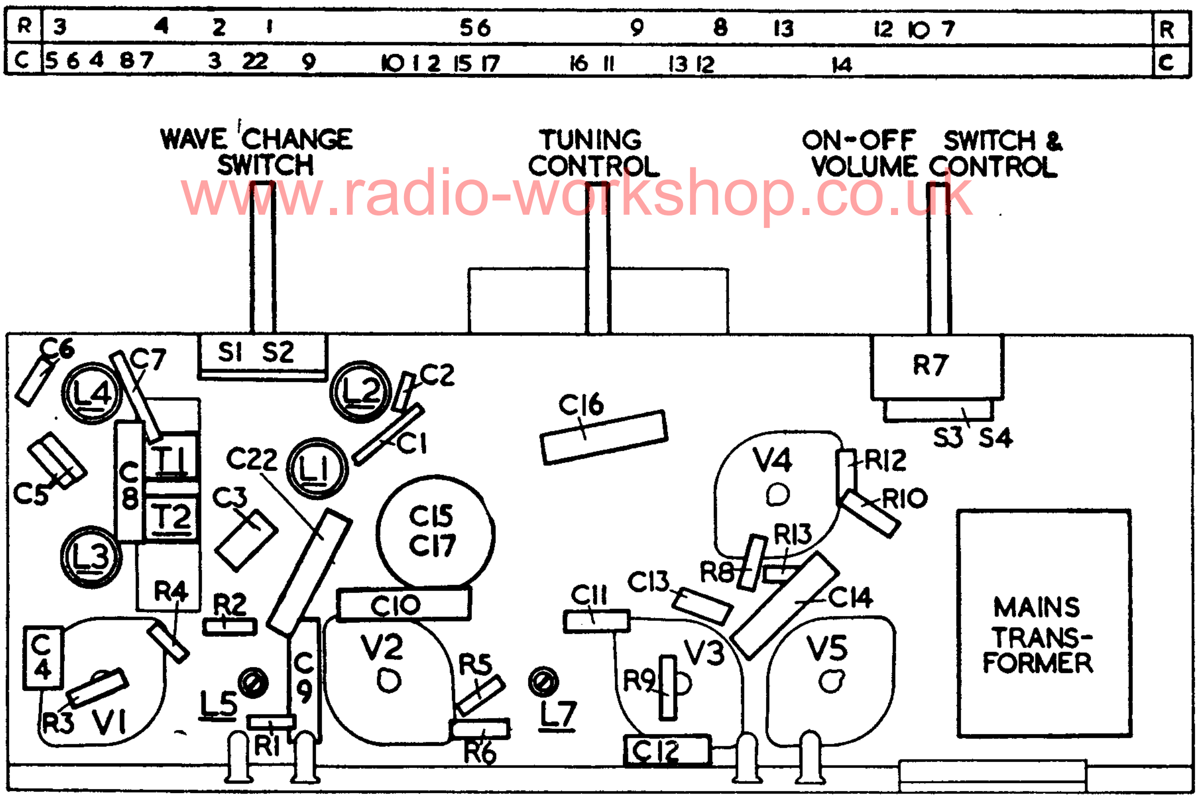
Disconnect internal aerial.

Before alignment, check that upper edge of pointer carriage coincides with " 90 " on scale, when tuning capacitor is at maximum.

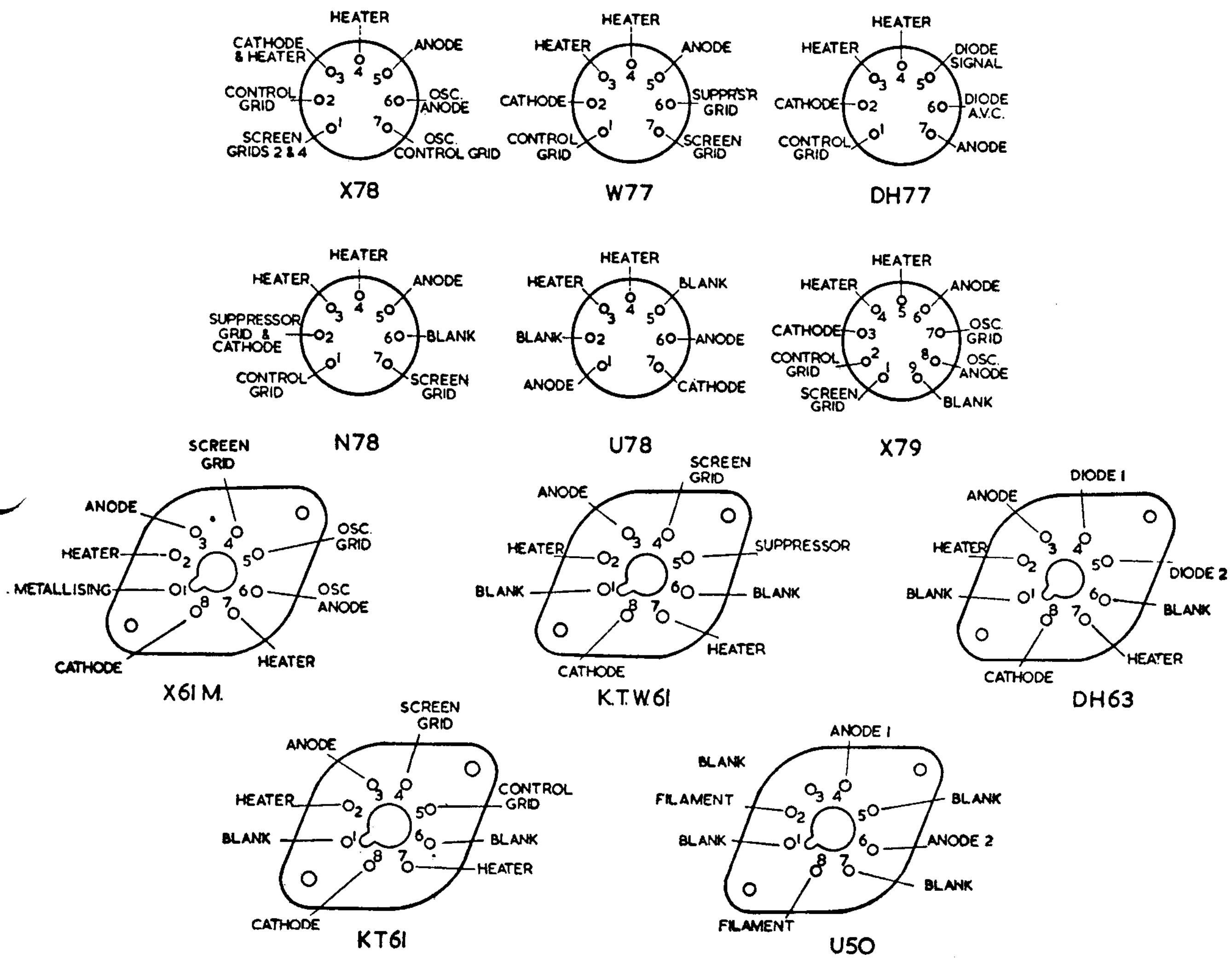
In cabinet, pointer should coincide with calibration dots at 1300m, 500m and 214·3m when receiver is tuned to 230 kc/s, 600 kc/s and 1·4 Mc/s respectively. Top edge of pointer carriage should coincide with graduation readings on scale, as shown in tables, for these points.

For I.F. alignment, signal generator should be connected via a 0·1 μF capacitor and the receiver switched to L.W. For R.F. alignment, via an all-wave dummy aerial.

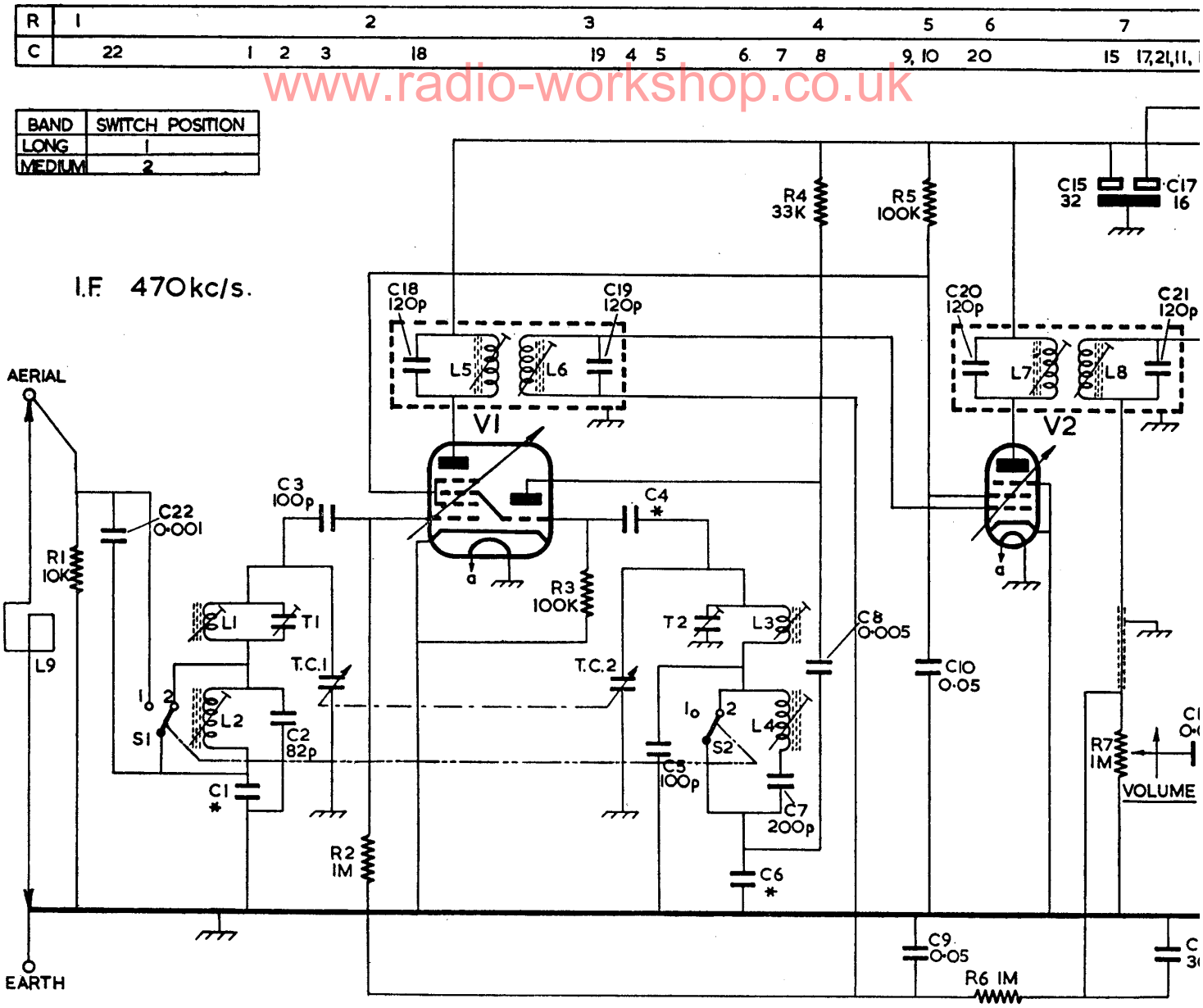
Sensitivity figures indicate the required signal strength in microvolts under the given alignment conditions, to produce 50mW output. (13·5 volts r.m.s. measured between anode and tap connections of output transformer primary). Sensitivity variations up to +100% and —50% may be tolerated.



UNDER VIEW OF CHASSIS



VALVE BASE CONNECTIONS SHOWING ALTERNATIVE VALVE TYPES



POTENTIAL AND CURRENT VALUES

BC5243					BC5442 and BC5243 with B7G valves				
Valve No.	Osram Type	Anode	Screen	Osc. Anode	Valve No.	Osram Type	Anode	Screen	Osc. Anode
V1	X61M or X78	209V 0·4mA	26V 1mA	96V 3·2mA	V1	X79	214V 0·8mA	43V 1·4mA	108V 3·2mA
V2	W61 or KTW61	209V 3·1mA	26V 0·9mA	—	V2	W77	214V 1·1mA	43V 0·3mA	—
V3	DH63	95V 1·1mA	— —	— —	V3	DH77	100V 1·2mA		— —
V4	KT61	287V 30mA	210V 5·4mA		V4	N78	283V 25.5mA	214V 3·9mA	
V5	U50	267V r.m.s. to Chassis		Cathode 310V 46mA	V5	U78	250V r.m.s. to Chassis	—	Cathode 295V 37·5mA

CIRCUIT NOTES

Most BC5243 receivers have octal-based valves.

Some BC5243 and all BC5244 receivers have miniature B7G valves.

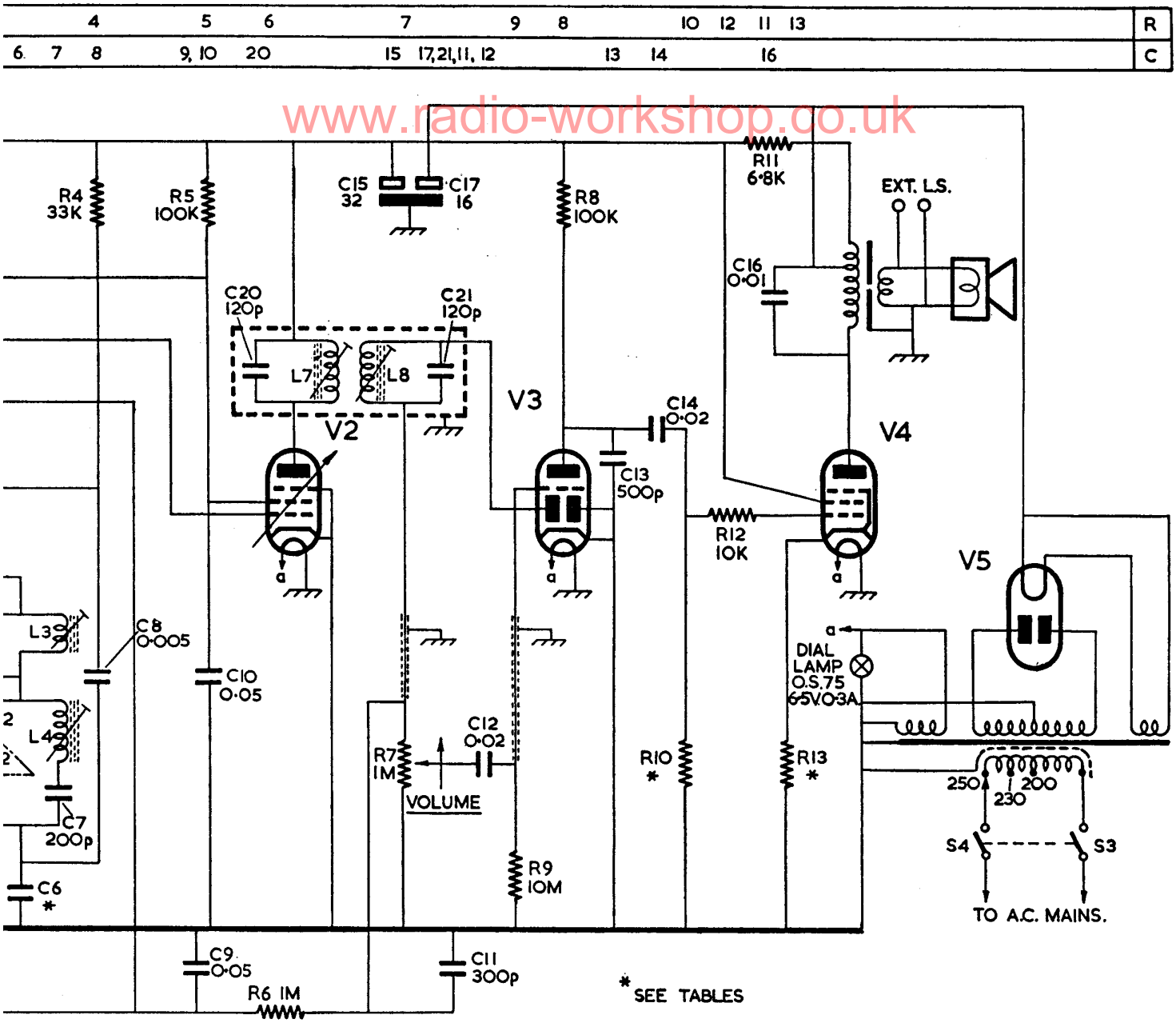
Switches S3 and S4 are incorporated in volume control assembly R7.

The internal aerial L9 can be disconnected at the aerial and earth sockets by means of plugs, and an external aerial used as an alternative.

All fixed resistors are ½W except R11 which is 2W.

Capacitors C2, C5, C6 and C7 are 2% tolerance, C1, C18, C19, C20, C21 are 5%, all other fixed capacitors are 20%.

Potentials are measured on the 750V range of a 1000 ohms per volt G.E.C. "Selectest" meter. Receiver tuned to 1 Mc/s, no signal input.



CIRCUIT NOTES

Most BC5243 receivers have octal-based valves.

Some BC5243 and all BC5244 receivers have miniature B7G valves.

Switches S3 and S4 are incorporated in volume control assembly R7.

The internal aerial L9 can be disconnected at the aerial and earth sockets by means of plugs, and an external aerial used as an alternative.

All fixed resistors are ½W except R11 which is 2W.

Capacitors C2, C5, C6 and C7 are 2% tolerance, C1, C18, C19, C20, C21 are 5%, all other fixed capacitors are 20%.

Potentials are measured on the 750V range of a 1000 ohms per volt G.E.C. "Selectest" meter. Receiver tuned to 1 Mc/s, no signal input.

COMPONENT VARIATIONS

BC5243				BC5442 and BC5243 with B7G valves			
Valves		Components		Valves		Components	
V1	X61M or X78	C1	·008 μF	V1	X79	C1	·008μF. BC5243
		C4	100pF			C1	3950pF. BC5244
V2	W61	C6	375pF	V2	W77	C4	47pF
V3	DH63					C6	375pF. BC5243
V4	KT61 or KTW61			V3	DH77	C6	350pF. BC5244
		R10	330kΩ	V4	N78	R10	220kΩ
V5	U50	R13	100Ω	V5	U78	R13	150Ω

COIL AND TRANSFORMER DATA

Circuit Reference	Component	Resistance in Ohms	Inductance	Part Number for ordering
	Mains transformer BC5243			R.802339
	Primary 0—200V	27		
	„ 0—230V	31		
	„ 0—250V	34		
	H.T. secondary	310		
	Mains transformer BC5244 ... and BC5243 with B7G valves.			R.806754
	Primary 0—200V	29·5		
	„ 0—230V	33·5		
	„ 0—250V	36·5		
	H.T. secondary	555		
L1	M.W. aerial coil	2·4	163.2 μH	RP.117762
L3	M.W. oscillator coil	3·0	78·8 μH	RP.117763
L2	L.W. aerial coil	17·0	1864 μH	RP.117680
L4	L.W. oscillator coil	7·0	447 μH	RP.117761
L9	Aerial pickup loop	0·2	5 turns	
L5 & 6	1st I.F. transformer (Octal valve models)			RK.203686
	Primary	8·0		
	Secondary	8·0		
L5 & 6	1st I.F. transformer ... ... (B7G valve models)			RK.203685
	Primary	8·0		
	Secondary	8·0		
L7 & 8	2nd I.F. transformer			RK.203685
	Primary	8·0		
	Secondary	8·0		
	Output transformer			RK.203629
	Primary (total)	460·0		
	Secondary	0·68		
	Loudspeaker	2·8		RK.203704

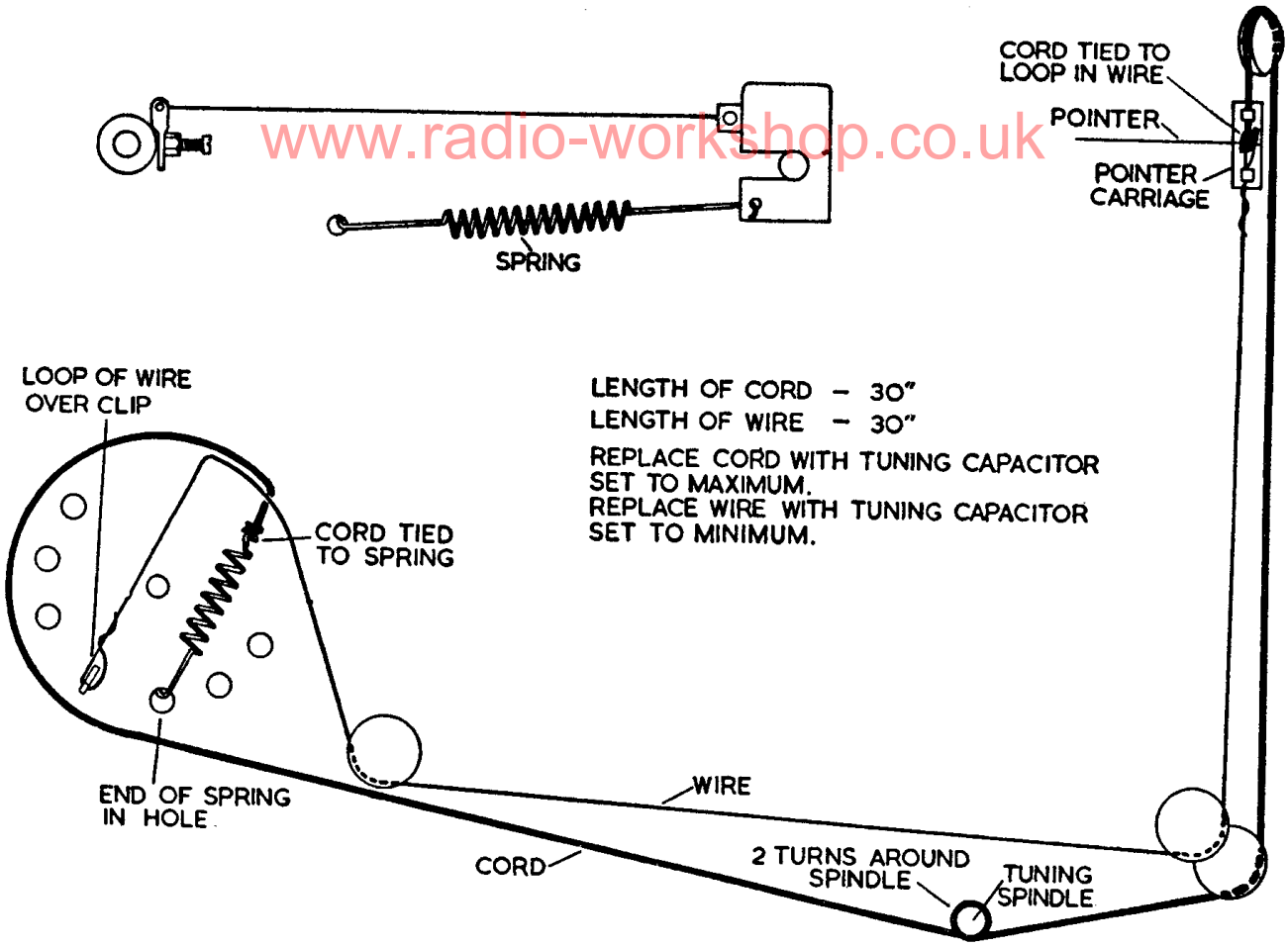
REPLACEMENT PART NUMBERS

Cabinet (BC5243)	R.806029
Cabinet (BC5244)	R.806717
Tuning capacitor	RK.203185
Volume control	RK.203605
Range switch	RK.202907
Spring, drive	RP.110921
Spindle, drive	RP.117760
Pulley, drive	RP.111654
Range indicator (BC5243 only)	RP.117764
Pointer (BC5243)	RP.117769
Pointer (BC5244)	RP.119676
Carriage	RP.110854
Extension spindle ...	RP.117776
Trimmer unit	RP.117756
Lampholder	RK.200461
Iron dust cores	RK.202529
Register (BC5243) ...	RK.203619
Register (BC5244) ...	R.807148

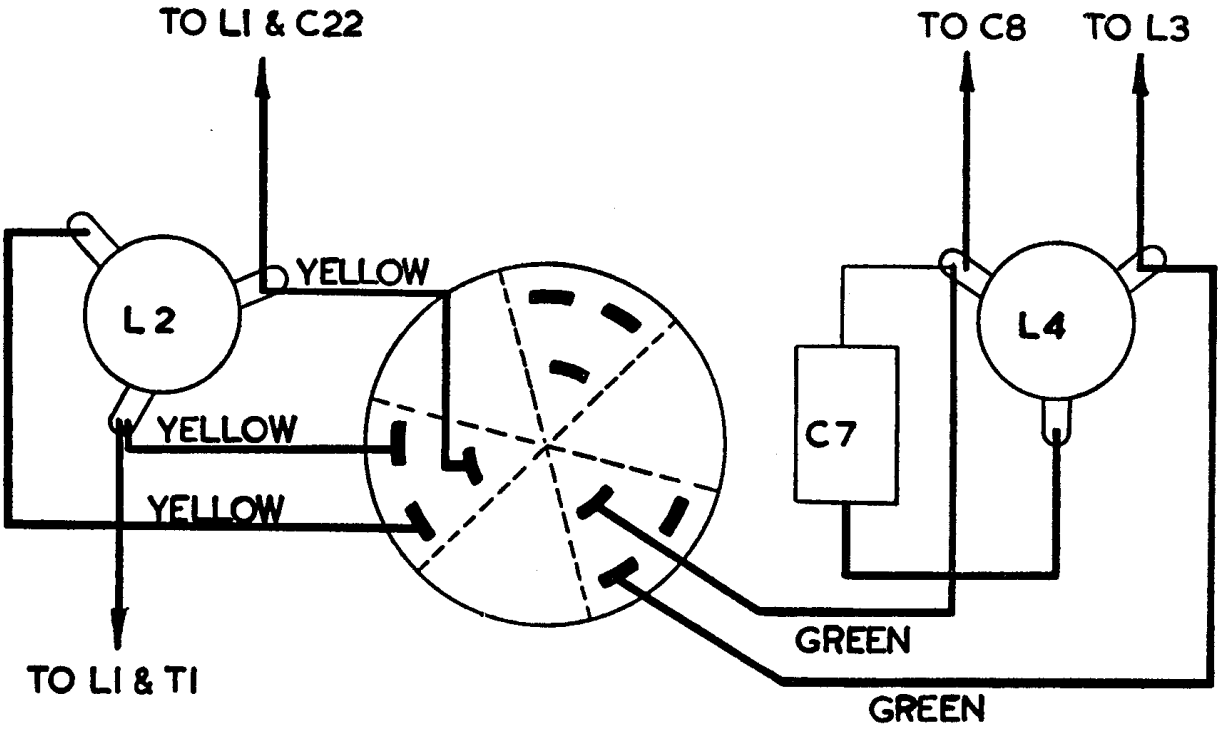
CAPACITORS

C1—BC5243 ·008 μF ± 5%	RK.203606
C1—BC5244 3950pF ± 4%	RK.203007
C6—BC5243 375pF ± 2%	RK.203782
C6—BC5244 350pF ± 2%	RK.194006
C2 82pF ± 2%	RK.203775
C5 100pF ± 2%	RK.203783
C7 200pF ± 2%	RK.203784
C18, C19, C20, C21, 120 pF ± 5%	Part of I.F. transformers

WAVE-CHANGE INDICATOR (BC5243 only)

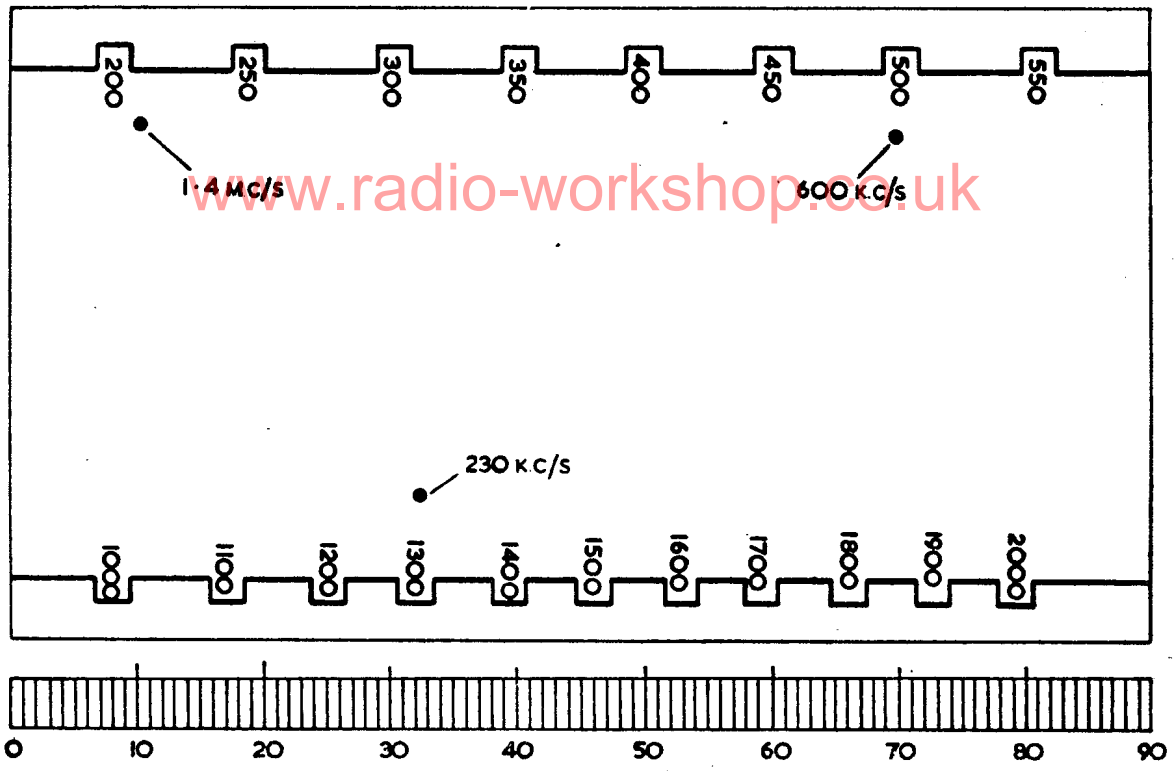


DRIVE CORD DIAGRAM



WAVECHANGE SWITCH CONNECTIONS

Switch viewed from rear



RELATIONSHIP BETWEEN REGISTER AND SCALE

WIRING COLOUR CODE

A colour code is employed for wiring to distinguish between circuit functions. The chart gives details of wire covering colours and the circuits in which they are used.

Colour	Use
ORANGE	Unsmoothed H.T. positive
RED	Smoothed H.T. positive
BLUE	Screen grids and mains
GREEN	Grids and oscillator coils
WHITE	Aerial and loudspeaker voice coils
BROWN	Heaters and dial lamps
BLACK	Points at chassis potential
YELLOW	General purposes
	Sleeving is yellow throughout

THE GENERAL ELECTRIC CO., LTD.,
Head Office: Magnet House, Kingsway, London, W.C.2

BC. 1580 51/10 **PRICE, 1/-** *Printed in England*