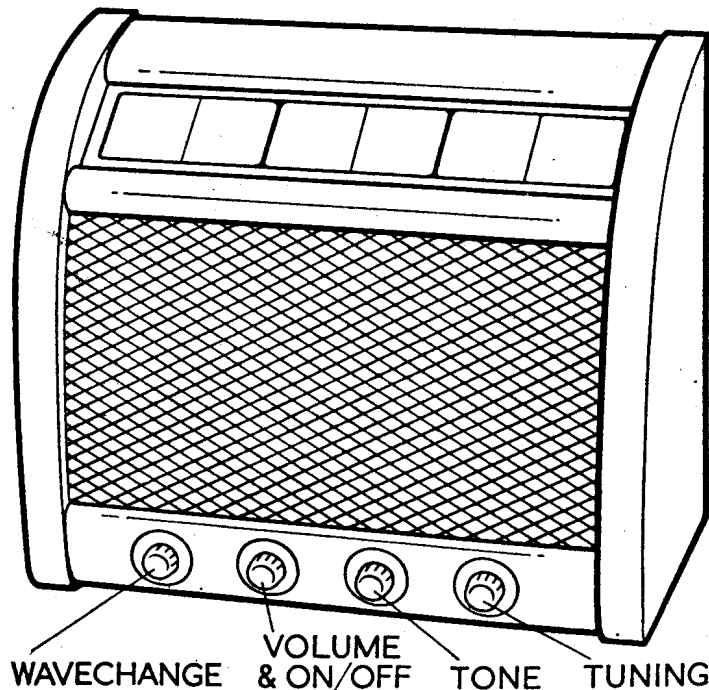


G.E.C. RADIO

www.radio-workshop.co.uk
MADE IN ENGLAND

SERVICE BULLETIN BC5639 AND BC5639L



SPECIFICATION

GENERAL

Five valve A.C. mains superheterodyne table model receiver. Long, medium and short wave-bands. Internal aerial. Gramophone pick-up terminals.

POWER SUPPLIES

BC5639 190/250 volts, 40/100 c/s.
BC5639L 110/130 and 210/230 volts, 40/100 c/s.

POWER CONSUMPTION

70 watts.

WAVE-BANDS

LONG, 300—150 kc/s., 1000—2000 metres.
MEDIUM, 1.6—0.522 Mc/s., 187.5—575 metres.
SHORT, 22.2—6.0 Mc/s., 13.5—50 metres.

INTERMEDIATE FREQUENCY

470 kc/s.

OSRAM VALVES

V1	Frequency changer	...	X61M
V2	I.F. amplifier	...	W61 or KTW61
V3	Signal detector	}	...
	A.G.C. rectifier		
	A.F. amplifier		
V4	Output tetrode	...	KT61
V5	H.T. rectifier	...	U50

LOUDSPEAKER

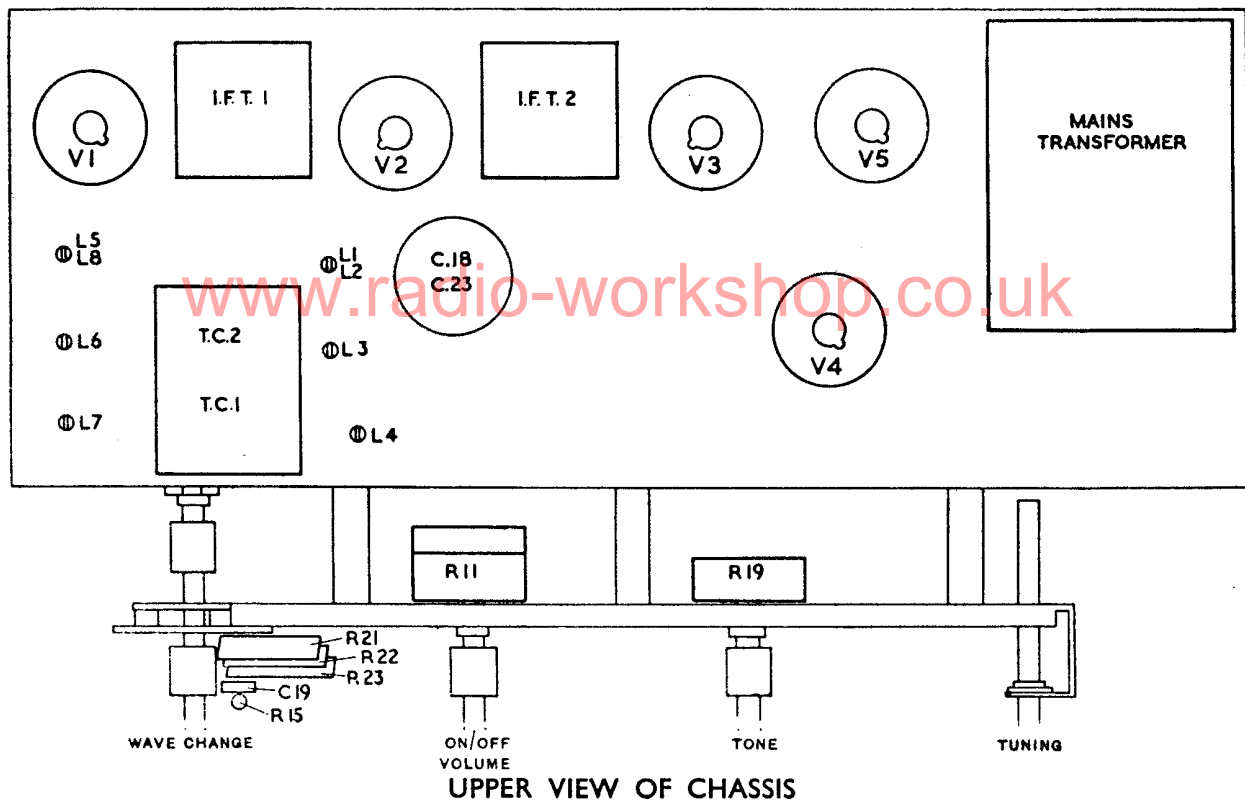
6½ inch diameter cone, permanent magnet.
Speech coil impedance—3 ohms at 400 c/s.
Extension loudspeaker terminals.

WEIGHT

22 lb.

DIMENSIONS

15½ in. × 17¾ in. × 9½ in.



TUNED CIRCUIT ALIGNMENT					
	Alignment Frequency	Scale Setting	Adjust	Notes	Average Sensitivity (Microvolts)
Intermediate Frequency	470 kc/s.	90	T8 or L12 T7 or L11	Switch to L.W. Input to V2 grid	
			T6 or L10 T5 or L9	Input to V1 grid Re-adjust T8 (L12) and T7 (L11)	55
SHORT 13.5—50 metres	6 Mc/s.	3.5	L5, L2		
	18 Mc/s.	80.0	T3, T1	Use lower capacitance peak of T3	
	6 Mc/s.	3.5	L5, L2	Check	20
	18 Mc/s.	80.0	T3, T1	Check. Rock gang whilst adjusting	9
MEDIUM 187.5—575 metres	600 kc/s.	19.0	L6, L3		
	1.4 Mc/s.	80.0	T4, T2		
	600 kc/s.	19.0	L6, L3	Check	45
	1.4 Mc/s.	80.0	T4, T2	Check	7.5
LONG 1000—2000 metres	230 kc/s.	52.5	L7, L4		105

ALIGNMENT NOTES

Disconnect internal aerial.

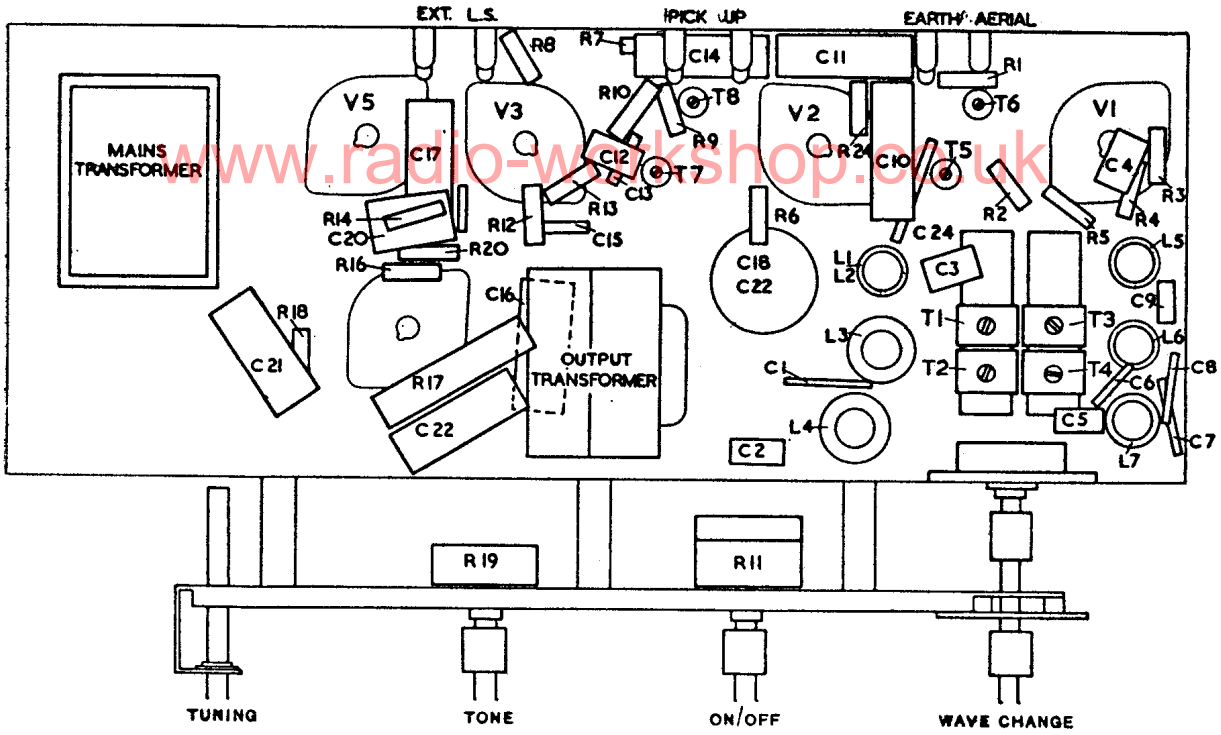
Before alignment, check that "O" on scale coincides with line on front of reflector assembly when tuning capacitor is at maximum.

In cabinet, pointer should coincide with calibration dots at 1300m, 500m, 214.3m, 50m, and 16.7m, when receiver is tuned to 230 kc/s, 600 kc/s, 1.4 Mc/s, 6 Mc/s, and 18 Mc/s, respectively. Line on front of reflector assembly should coincide with graduation readings on scale, as shown in tables, for these points.

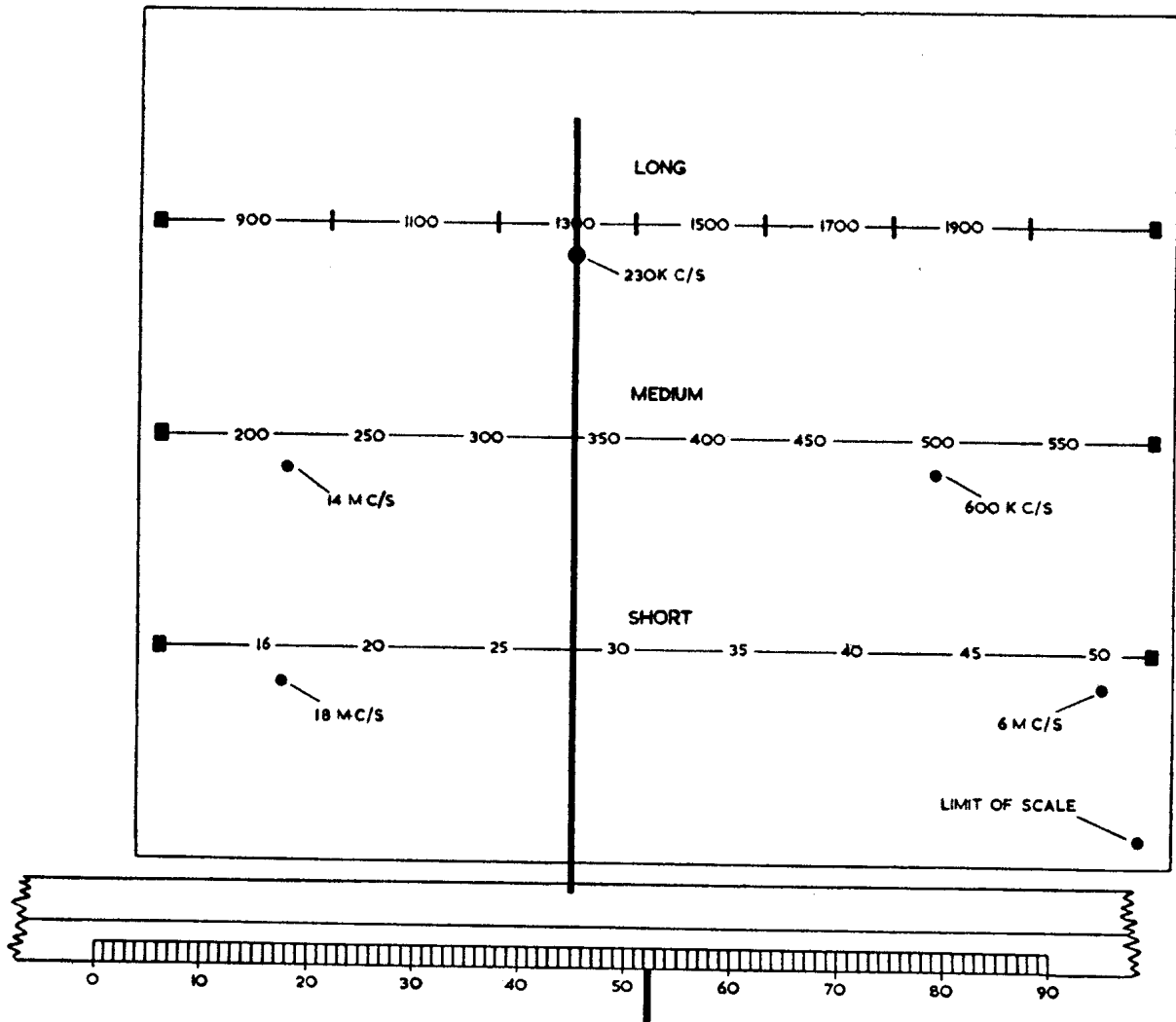
For I.F. alignment, signal generator should be connected via an 0.1 μ F capacitor and the receiver switched to L.W. For R.F. alignment, via an all-wave dummy aerial.

Sensitivity figures indicate the required signal strength in microvolts under the given alignment conditions, to produce 50 mW output (19.5 volts r.m.s. measured between anode and tap connections of output transformer primary). Sensitivity variations up to +100% and -50% may be tolerated

R		14	16	20	12	13	10	7	9	6	24	1	2	5	4	3			
R	18			17	19	8				11									
C		21	20	22		16	15	12	13	14	18	22	11	10	24	4			
C										2	1			3	5	6	7	9	8



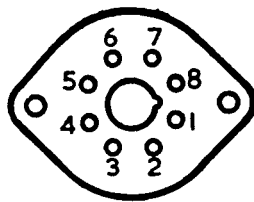
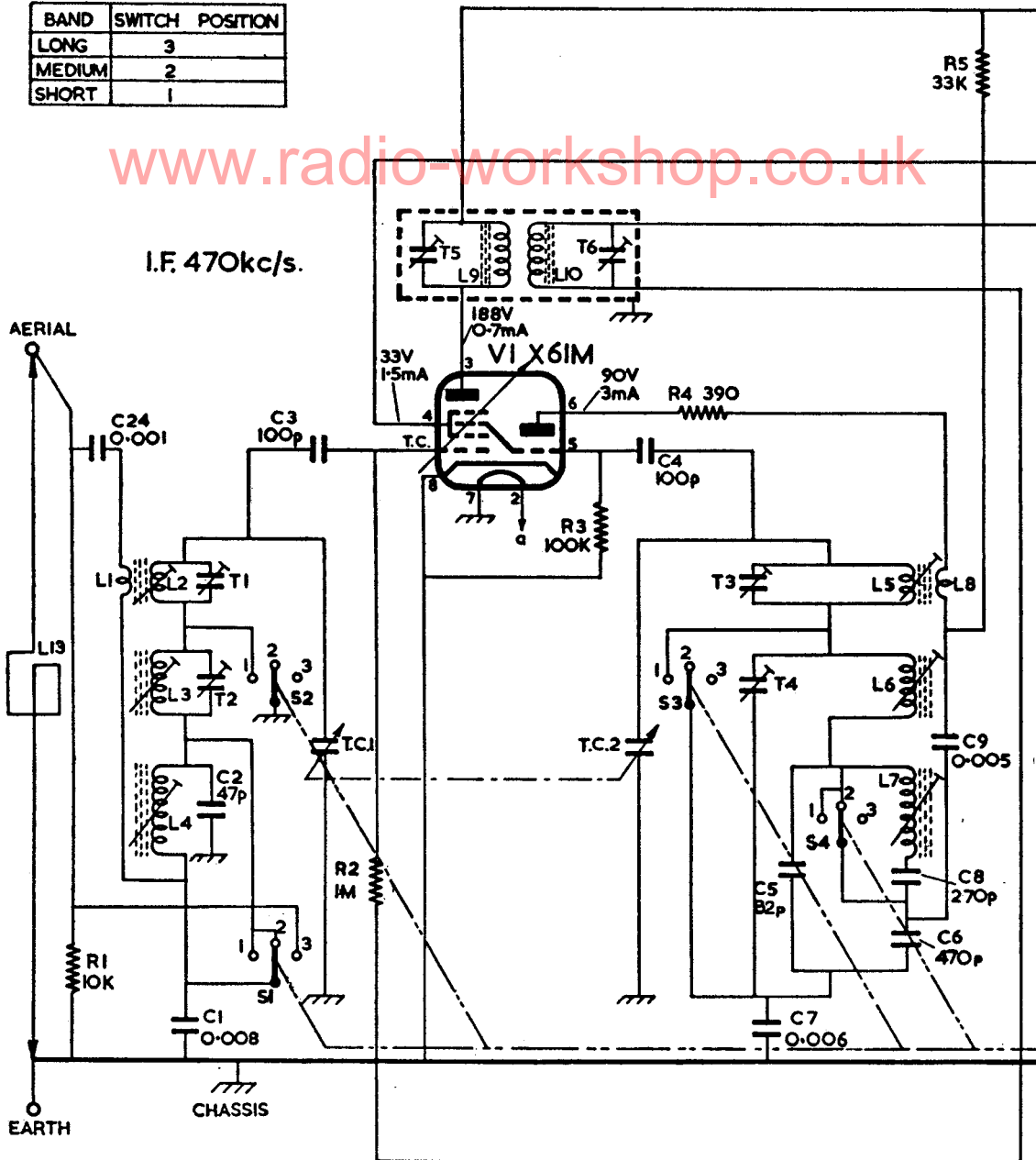
UNDER VIEW OF CHASSIS



RELATIONSHIP BETWEEN REGISTER AND SCALE
(Pointer is attached to scale)

R	1	2	3	4	5
C	24	1 2	3	4	7 5 6 8 9

BAND	SWITCH POSITION
LONG	3
MEDIUM	2
SHORT	1

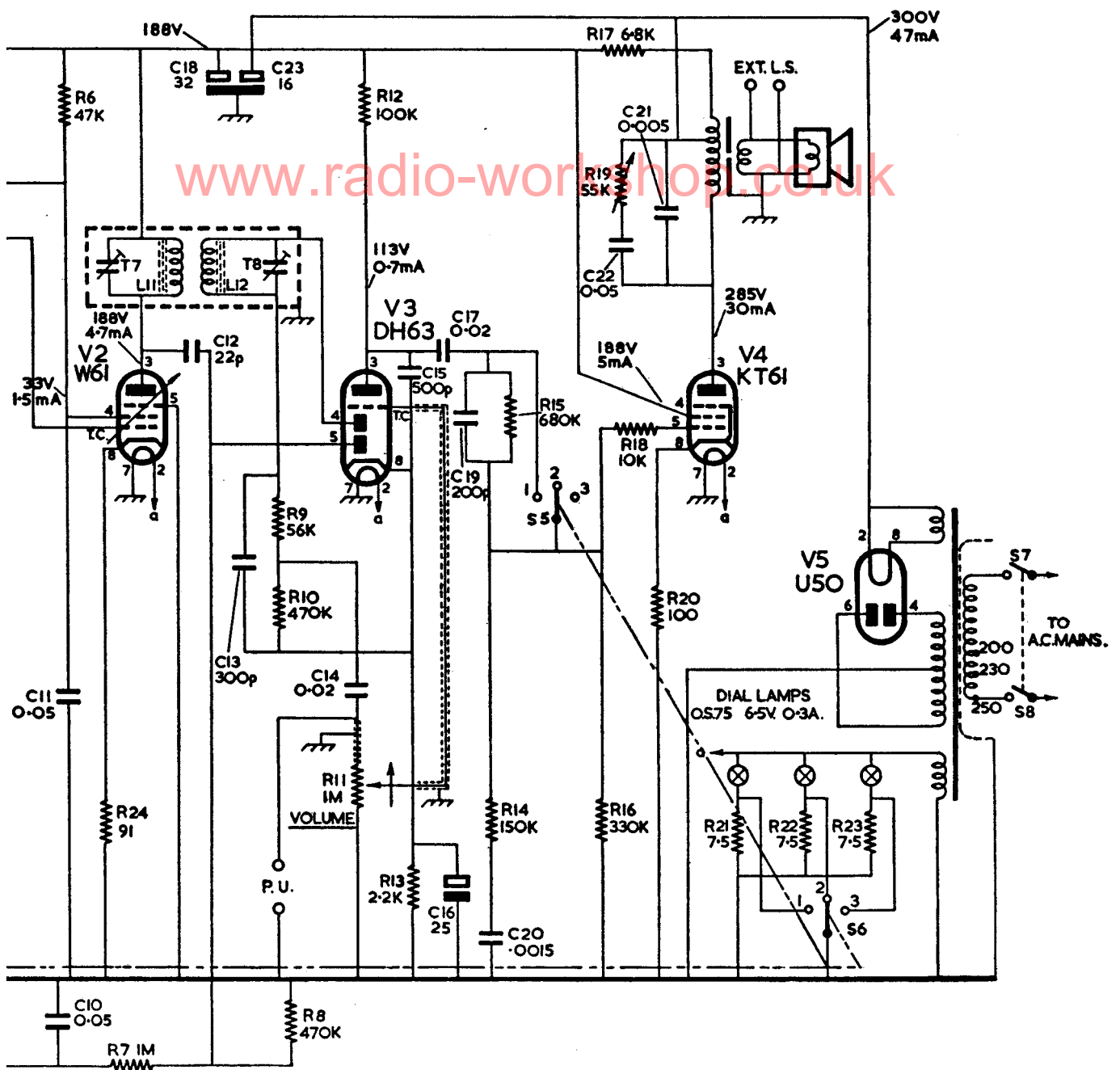


VALVE BASE CONNECTIONS

PIN No.	1	2	3	4	5	6	7	8	Top Cap.
X61M	M	H	A	Gs	Go	Ao	H	C	Gc
W61 or KTW61	—	H	A	Gs	Ge	—	H	C	Gc
DH63	—	H	A	DI	D2	—	H	C	Gc
KT61	—	H	A	Gs	Gc	—	H	C	—
U50	—	F	—	A1	—	A2	—	F	—

H—Heater : F—Filament : C—Cathode : Gc—Control grid : Gs—Screen grid : Ge—Suppressor : Go—Oscillator grid : Ao—Oscillator Anode : A—Anode : DI, D2—Diode anodes : M—Metallising.

6	24	7	9,10,8	11	12	13	14	15	16,17,19,18,20	21	22	23	R
10,11	12	18,13,23	14	15	16,17,19,20	22	21						C



CIRCUIT NOTES

Switches S7 and S8 are incorporated in the volume control R11.

The internal aerial L13 can be disconnected at the aerial and earth sockets, by means of plugs, and an external aerial used as an alternative.

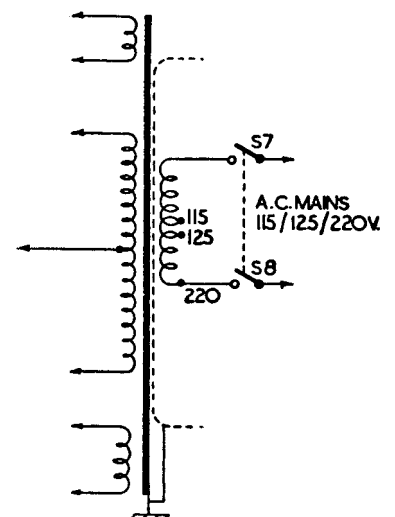
All fixed resistors are $\frac{1}{2}$ W except R17, 2W and R21, R22, R23, 1W.

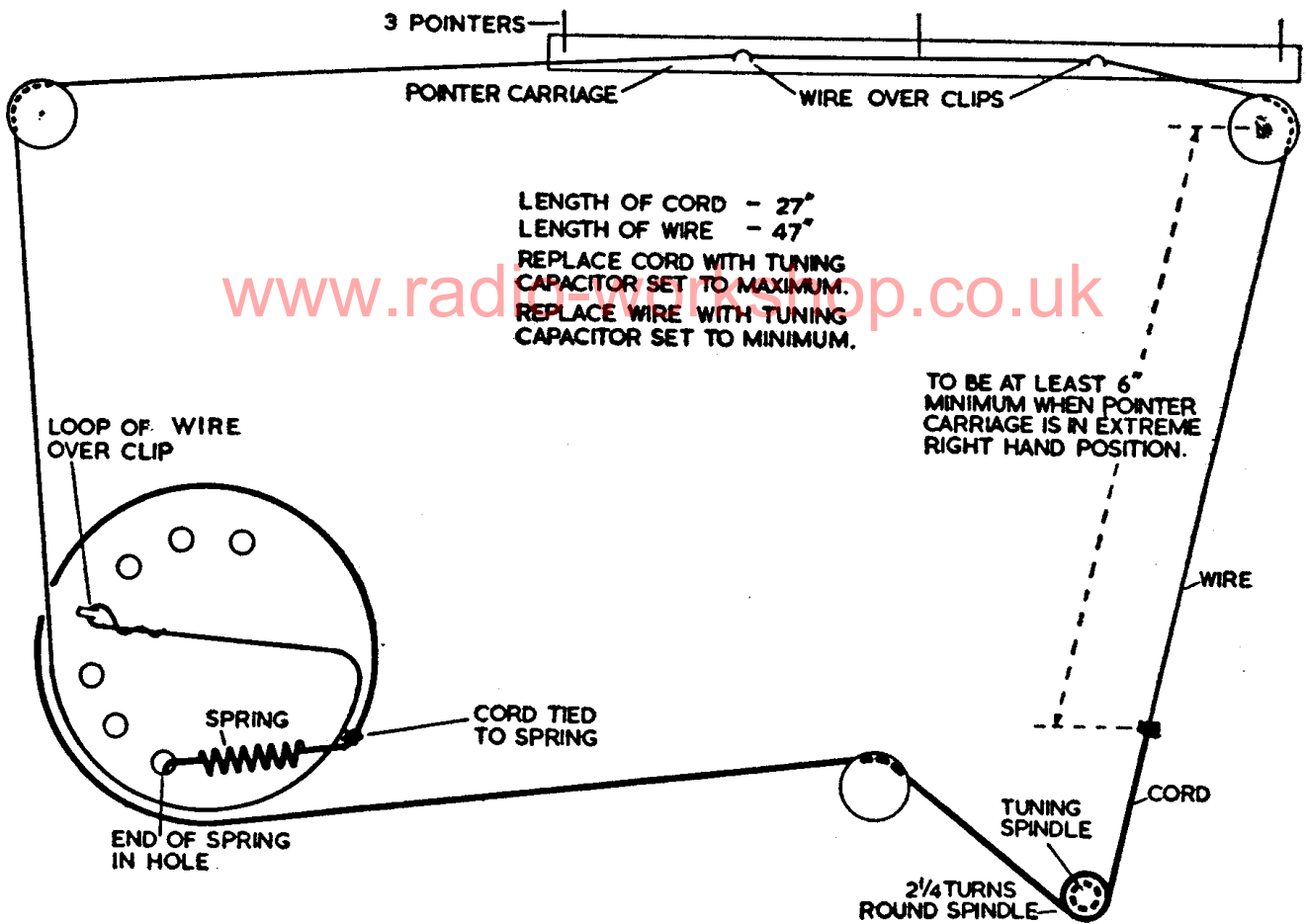
Capacitors C1 and C7 are 5% tolerances, C2, C5, C6 and C8 are 2%. All other fixed capacitors are 20% tolerance.

As alternatives to capacitance tuned I.F. transformers, inductance tuned types may be found. T5, T6, T7 and T8 then become fixed capacitors to $120 \text{ pF} \pm 5\%$.

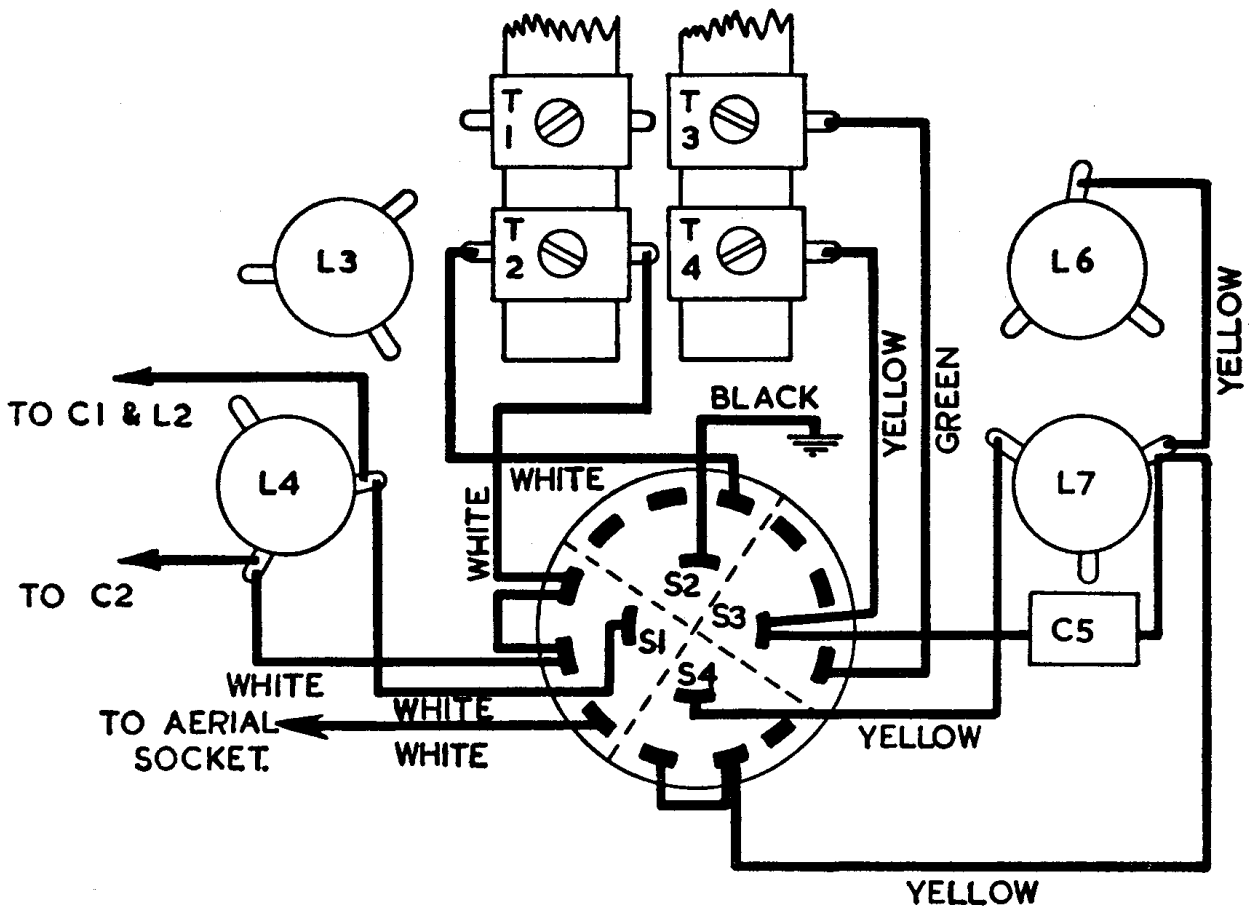
Potentials are measured on the 750V range of a 1000 ohms per volt G.E.C. "Selectest" meter. Receiver tuned to 1 Mc/s, no signal input.

BC5639L Transformer Connections





DRIVE CORD DIAGRAM



WAVECHANGE SWITCH CONNECTIONS

Switch viewed from rear

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

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