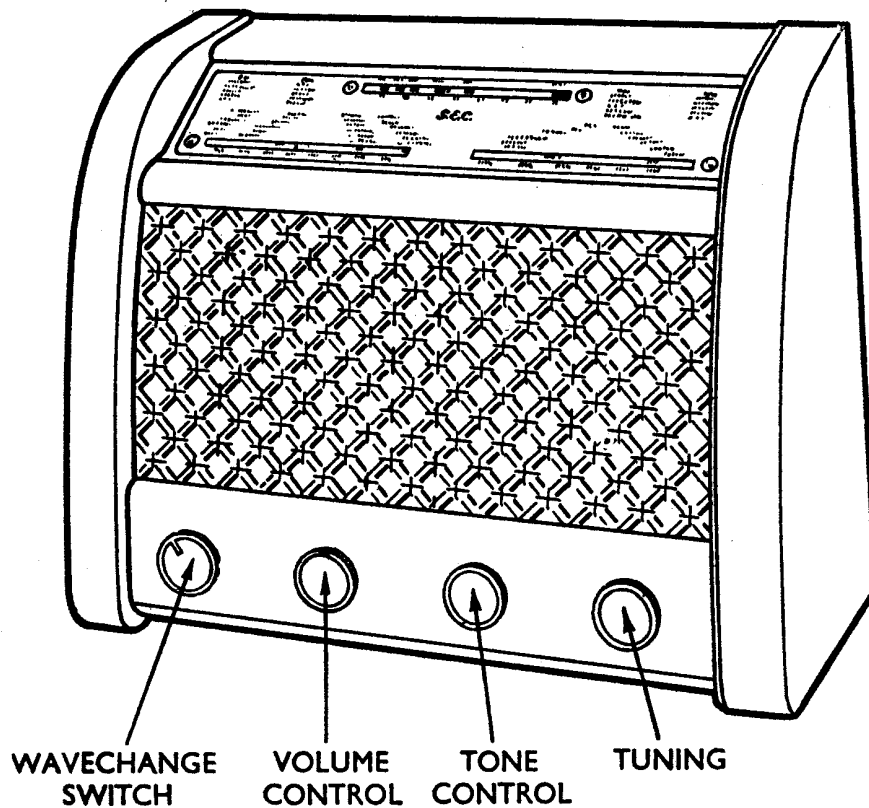


BC 5445

TRANSPORTABLE RADIO RECEIVER

HOME MODEL



WAVECHANGE
SWITCH

VOLUME
CONTROL

STONE
CONTROL

TUNING

SPECIFICATION

Five valves, A.C. mains, superheterodyne transportable receiver with high impedance pickup terminals and plastic cabinet.

POWER SUPPLIES

200/230/250 volts, 40/100 c/s.

POWER CONSUMPTION

45 watts approximately.

WAVEBANDS

SHORT	13—50 metres	23.1—6.0 Mc/s.
MEDIUM	187—572 metres	1.61—0.52 Mc/s.
LONG	1100—1900 metres	273—158 kc/s.

INTERMEDIATE FREQUENCY

470 kc/s.

OSRAM VALVES

V1	— Frequency changer	— X79
V2	— I.F. amplifier	— W77
V3	{ Signal detector A.G.C. rectifier A.F. amplifier }	— DH77
V4	— Output pentode	— N78
V5	— H.T. rectifier	— U78

OSRAM DIAL LAMPS

2—6.5V 0.3A, m.e.s., type OS75.

LOUDSPEAKER

6½ in. diameter, permanent magnet.
Speech coil impedance, 3 ohms at 400 c/s.
Ext. loudspeaker terminals (2—4 ohms).

WEIGHT

15 lb.

DIMENSIONS

Height : 12½ in. ; Width : 15½ in. ; Depth 9 in.

CIRCUIT ALIGNMENT NOTES

Before alignment allow 5 minutes to elapse for the valves to reach their normal operating temperature, check that the tuning pointer is straight and vertical and that the centre of the cut-out of the pointer carriage lines up with the " 90 " mark on the runner when the tuning capacitor is at maximum. *The centre of the cut-out should be used in all subsequent adjustments until the receiver is in the cabinet.*

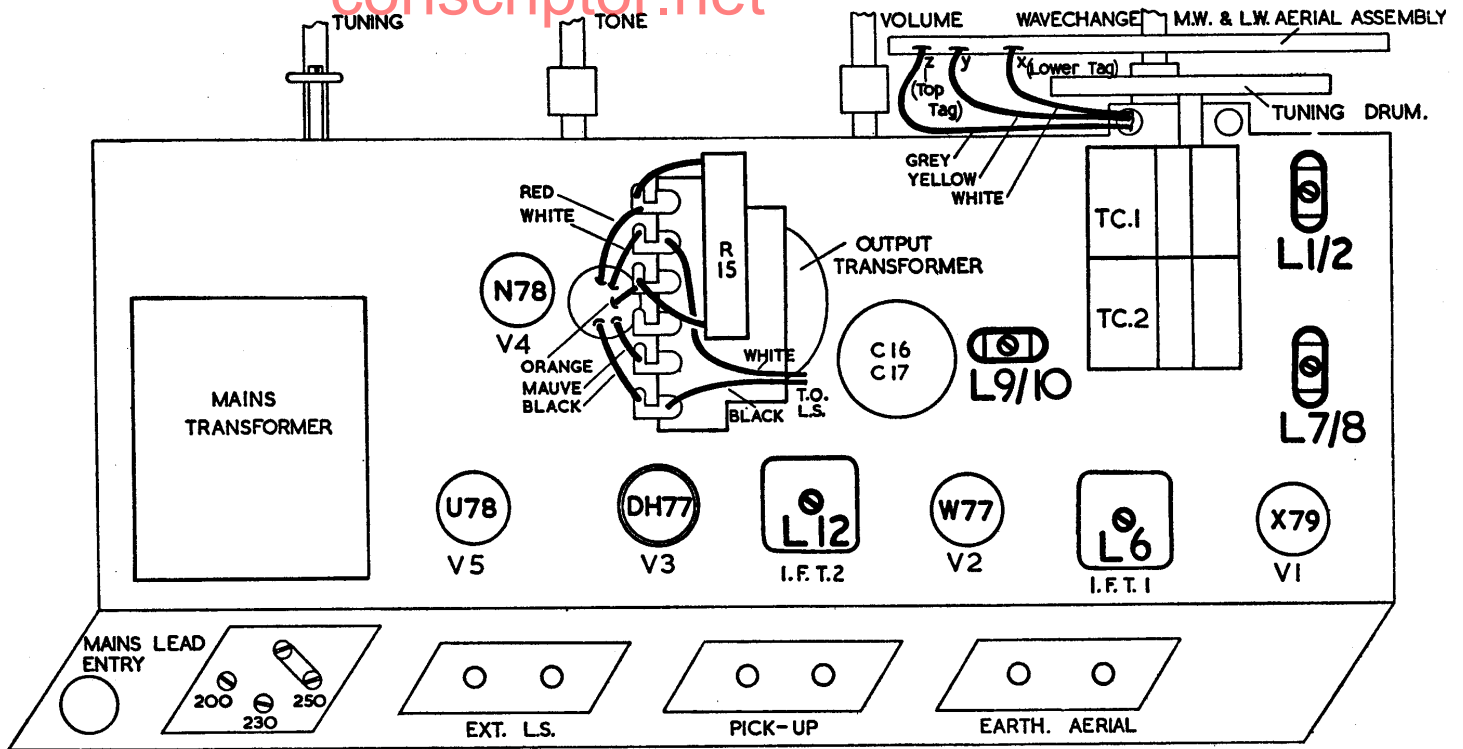
For I.F. alignment the signal generator should be connected via a 0.1 μ F capacitor, the receiver switched to long waves and the tuning capacitor tuned to maximum capacitance. An all wave dummy aerial coupling should be used for R.F. alignment. Before R.F. alignment the frame aerials must be connected and fixed in the final physical position.

Sensitivity figures indicate the required signal strength in microvolts, modulated with 400 c/s at 30%, to produce 50 mW output (0.387 volts r.m.s. measured across the output transformer secondary, loaded with a 3 ohm impedance. This is equivalent to 16.5 volts r.m.s. measured between the valve anode and tap connections on the output transformer primary). Sensitivity variations up to +100% and -50% may be tolerated.

TUNED CIRCUIT ALIGNMENT

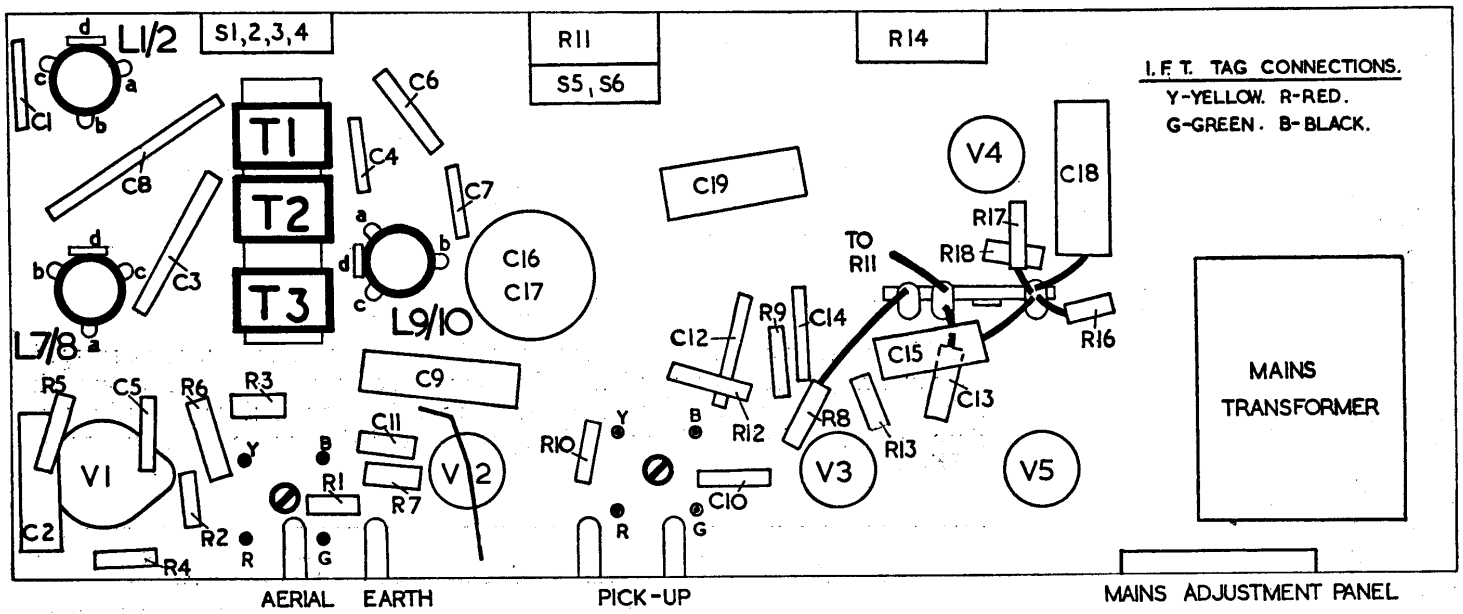
(the frame aerials must be connected and fixed in the final physical position)

Range	Alignment frequency	Centre of carriage cut-out	Adjust	Notes	Average sensitivity μ V
Intermediate Frequency	470 kc/s	90	L12, L11	Switch to L.W. Tuning capacitor at maximum. Input to V1	
			L6, L5		
			L12, L11	Check	
			L6, L5	Check	50
SHORT 13-50 metres	6.0 Mc/s (50 metres)	86	L7 L2	Tune in signal. Adjust for max. response	40
MEDIUM 187-572 metres	600 kc/s (500 metres)	73.5	L9	Tune in signal	
	1.5 Mc/s (200 metres)	21.5	T3, T1	Adjust trimmers for max. response	
	600 kc/s	73.5	L9	Check	19
	1.5 Mc/s	21.5	T3, T1	Check	11
LONG 1100-1900 metres	230 kc/s (1304 metres)	between 38 & 42	Main tuning capacitor T2	Tune in signal. Adjust for max. response.	25



UPPER VIEW OF CHASSIS

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



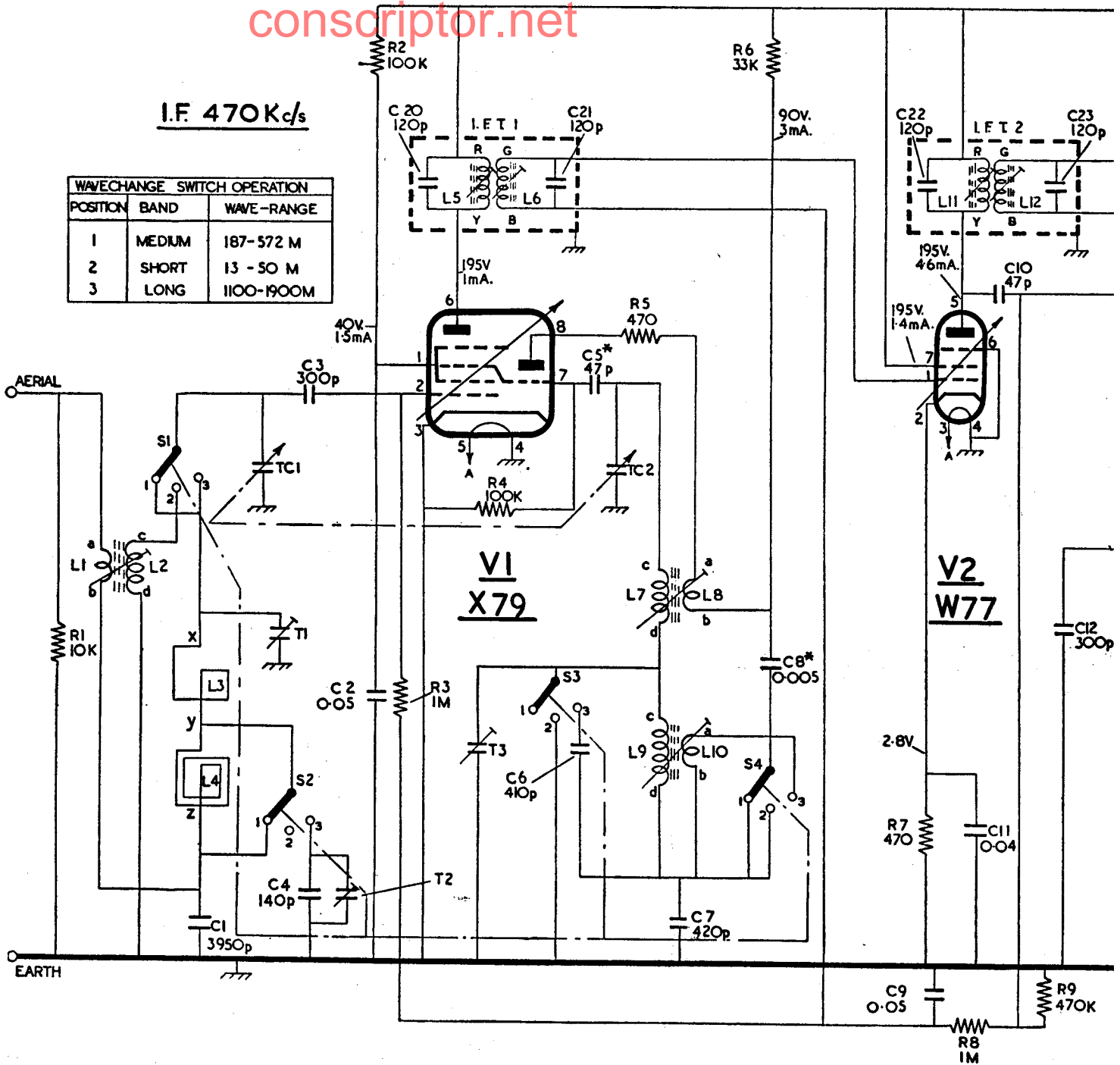
UNDER VIEW OF CHASSIS

R	1	2	3	4	5	6	7	9					
C		3	4	2	20	21	6.5	7	8	22	9	11	23, 12

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I.F. 470Kc/s

WAVECHANGE SWITCH OPERATION		
POSITION	BAND	WAVE-RANGE
1	MEDIUM	187-572 M
2	SHORT	13 - 50 M
3	LONG	1100-1900M



CIRCUIT NO1

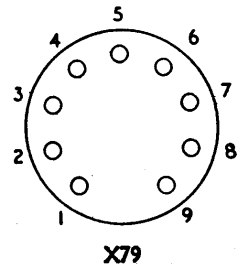
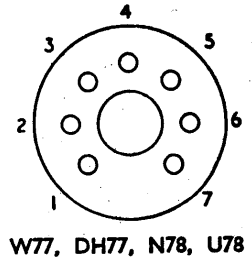
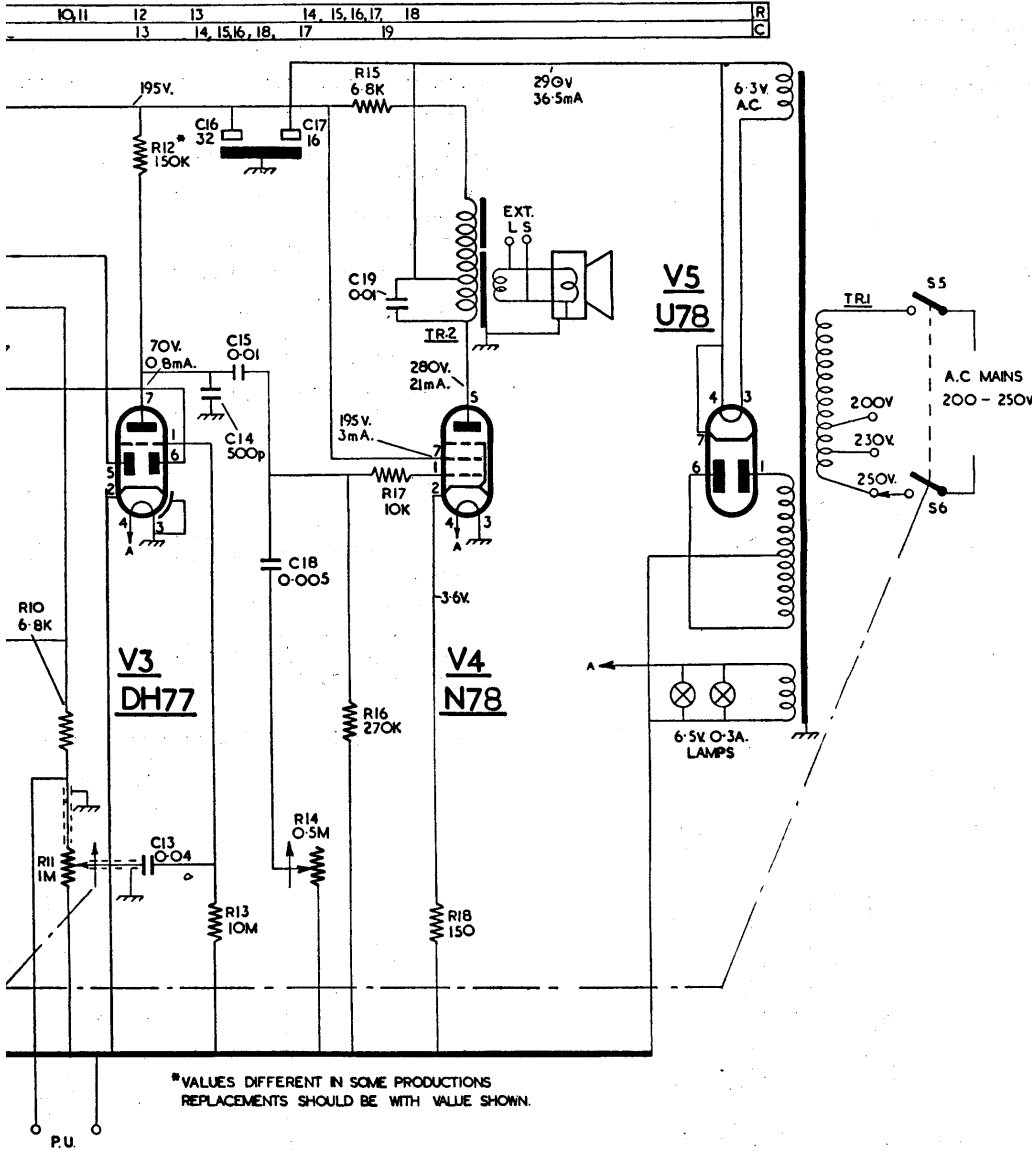
Tuned frame aerials are incorporated for medium wave and long wave reception but provision is made for the connection of an external aerial and earth for distant reception and for operation on short waves.

The tag connections for any tuning coil or I.F. transformer may be identified by the corresponding letters in the circuit and the under chassis diagrams.

Mains switches S5 and S6 are incorporated in the volume control R11.

All fixed resistors are 1/2 watt, except R15 which is 2 watts.

Close tolerance capacitors are listed on page 9; the remaining fixed capacitors have standard wide tolerance.



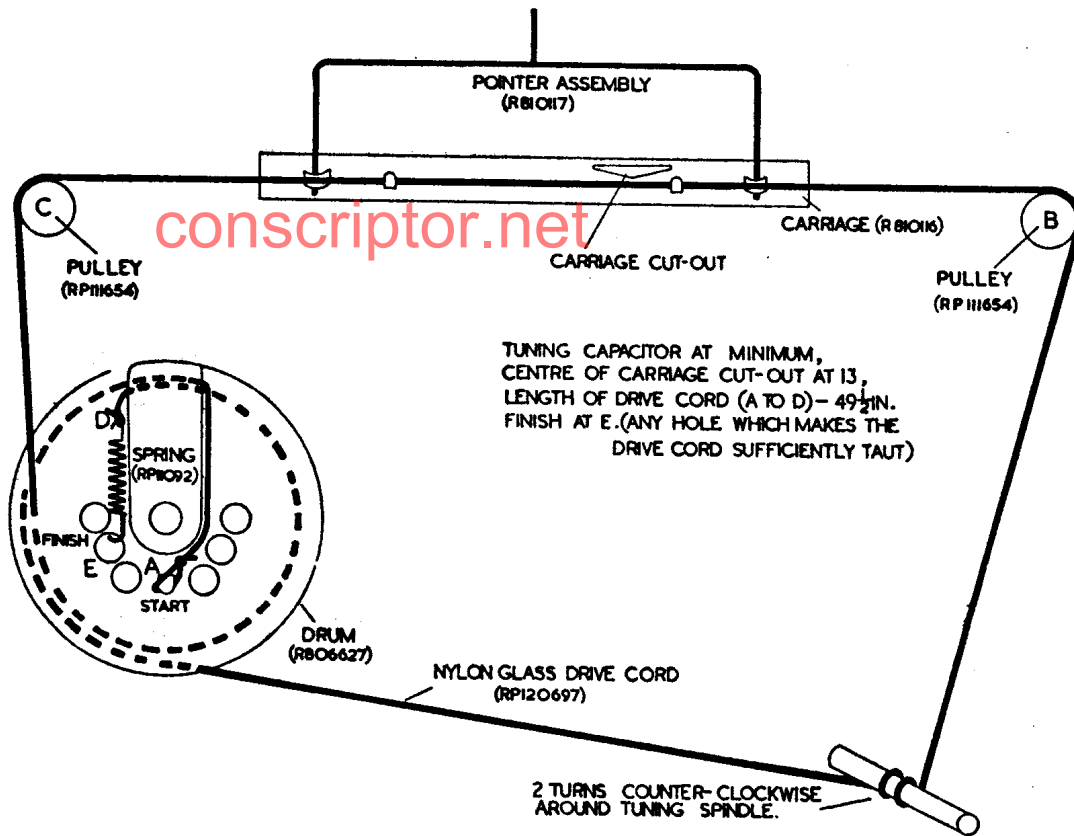
UNDER VIEW OF VALVE BASES

NOTES

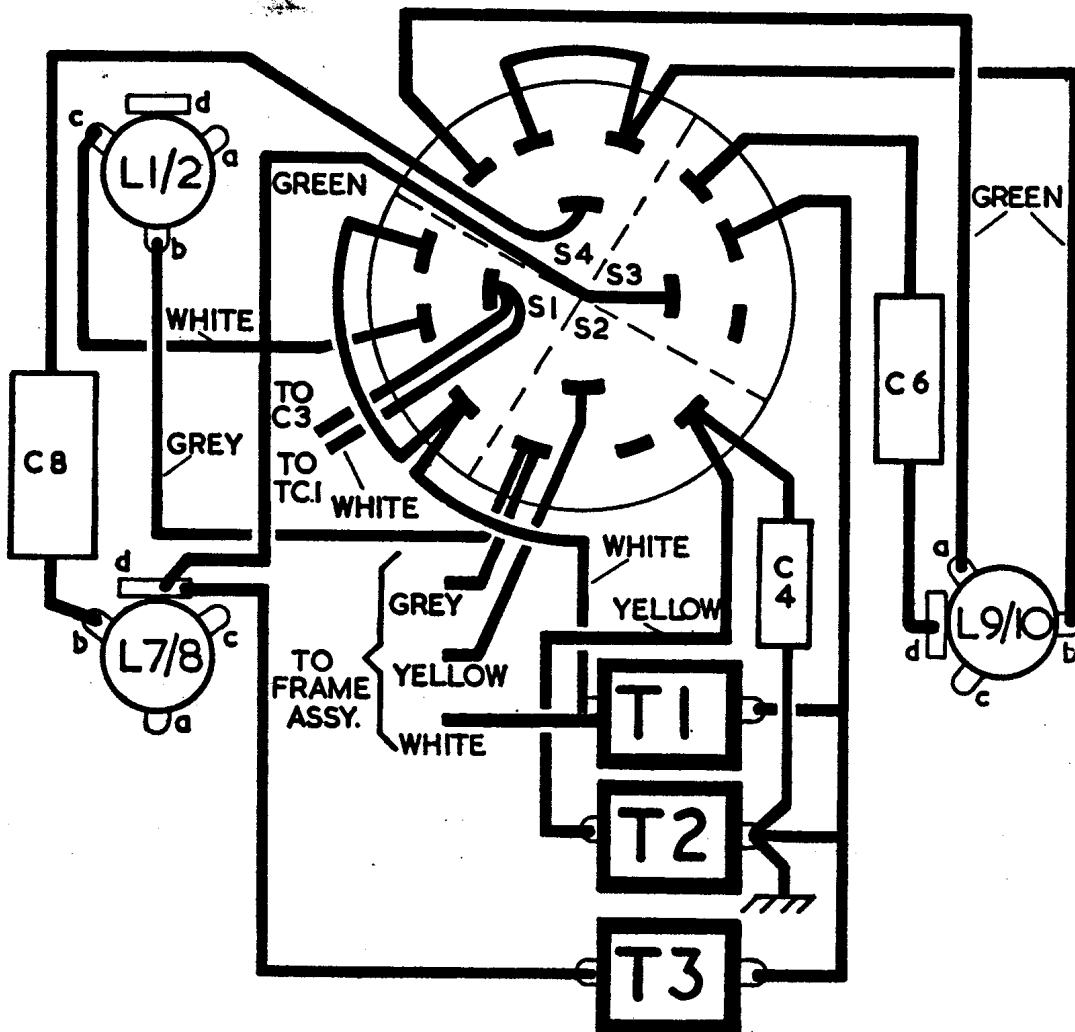
All current and potential values are average. Cathode potentials are measured on the 15V range and all other potentials on the 750V range of a 1000 ohms per volt G.E.C. "Selectest" meter, type M4111, with the receiver tuned to 1.5 Mc/s, no signal input and 230V 50 c/s mains input.

DIAL LAMPS.—Two OSRAM 6.5V 0.3A m.e.s. round lamps, type OS75 are fitted. *Other types should not be used as they may give unduly short life or fail to provide sufficient illumination.*

Note.—*The receiver is designed to use OSRAM valves and dial lamps. Replacements should always be made with the appropriate types, other types should not be substituted.*



TUNING DRIVE



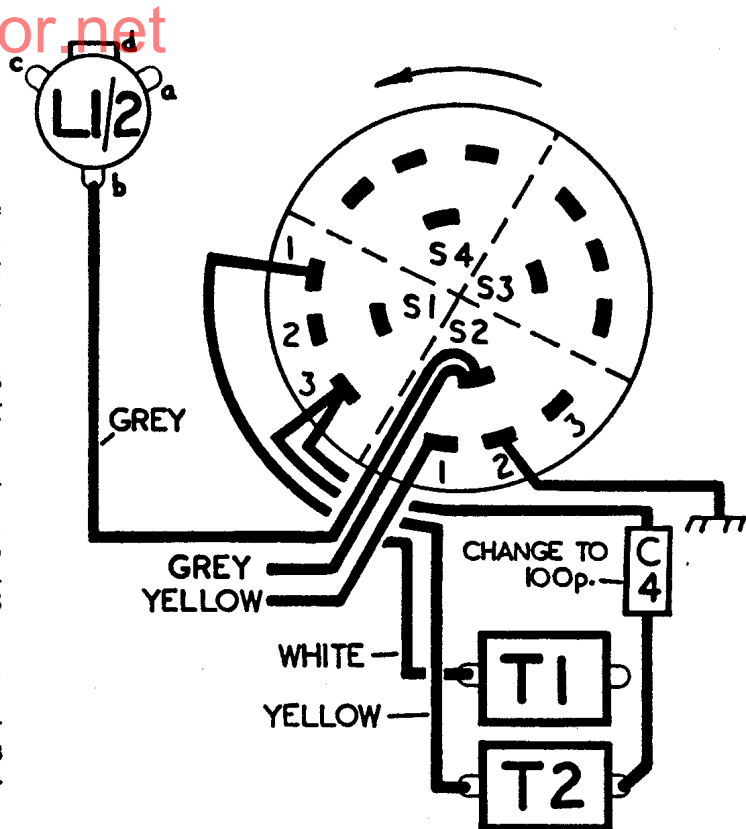
WAVECHANGE SWITCH

MODIFICATION

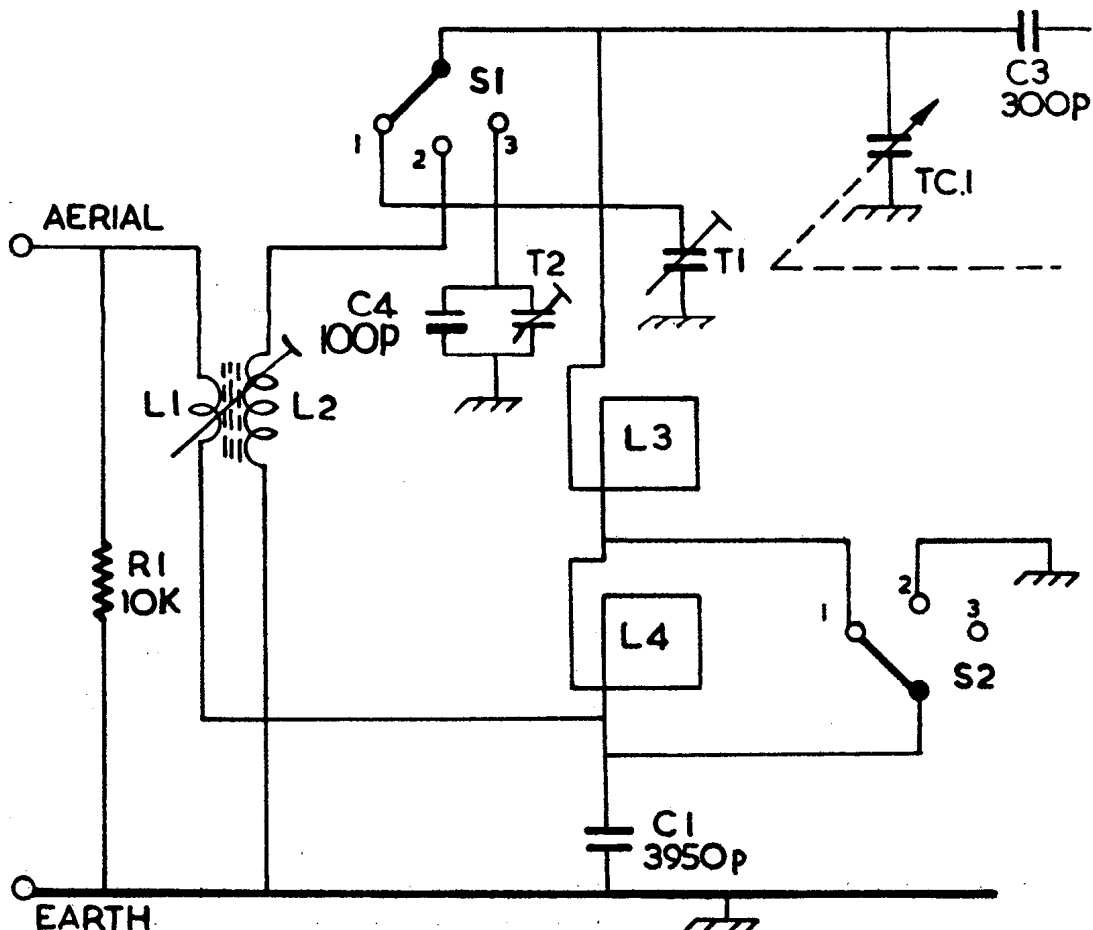
To improve second channel rejection.

Necessary only in areas where powerful medium wave band transmitters interfere with L.W. light programme reception.

1. (a) Disconnect T1 from tag 3 of S1.
 (b) Break link between tags 1 and 3 (S1).
 (c) Reconnect T1 to tag 1 (S1).
 (d) Disconnect the L3 white frame assembly lead from T1 and reconnect to S1 wiper tag (not shown in modified wavechange switch drawing).
2. (a) Interchange the connections to tag 1 and the wiper tag of S2.
 (b) Disconnect T2 and C4 from tag 3 of S2.
 (c) Replace C4 by 100pF \pm 2% (Part No. RK. 203783) and reconnect T2 and C4 to tag 3 of S1.
 (d) Connect tag 2 of S2 to chassis.
3. Retrim intermediate frequency amplifiers to 465 kc/s and realign R.F. and Oscillator circuits.



T2 and C4 (changed to 100pF) are now connected via the wavechange switch S1 across L3+L4 in the L.W. position and the S2 wiring is rearranged as detailed in the accompanying switch and circuit diagrams.



REPLACEMENT PARTS—ORDER REFERENCE NUMBERS

Cabinet	...	...	...	...	R810086
Back assembly	...	...	...	...	R810136
Register	...	...	...	...	R810195
Reflector assembly	...	...	...	...	R810119
Frame aerial assembly	...	...	...	...	R810166
Knob (wavechange)	...	...	...	...	R806969
Knob(s)	...	...	...	...	R806775
Spire back fixing clip	...	...	...	...	RK204190
Self tapping back fixing screw	...	...	...	...	RK204191
Baffle	...	...	...	...	R807889
Fret	...	...	...	...	R809405
Plug (aerial/earth)	...	...	...	...	RK203680
Tuning capacitor (2 gang)	...	...	...	...	RK204304
Wavechange switch	...	...	...	...	RK202527
1M Volume potentiometer with d.p. switch (1 in. spindle, semi-log law)	...	...	...	...	R810140
500k Tone potentiometer (1 in. spindle, semi-log law)	...	...	...	...	R810141
Drum assembly	...	...	...	...	R806627
Spring (drum)	...	...	...	...	RP110921
Spindle (tuning)	...	...	...	...	RP123518
Extension spindle (2 in.)	...	...	...	...	RP118142
Terminal plate(s)	...	...	...	...	RP107765 or RP120582
Trimmer (3×2 plate 3-5—30 pF)	...	...	...	...	RP123780
Pulley (plastic)	...	...	...	...	RP111654
Bush (pulley)	...	...	...	...	RP112854
Pointer assembly	...	...	...	...	R810117
Carriage	...	...	...	...	R810116
Tag strip (3 way)	...	...	...	...	RP123681
Coil securing clip	...	...	...	...	RK202528
Iron dust core	...	...	...	...	RK202529
Mains lead	...	...	...	...	R803259
Mains adjustment panel	...	...	...	...	RP117758
Nylon glass drive cord	...	...	...	...	RP120697
Lampholder	...	...	...	...	RK200461
Valve holder (V1)	...	...	...	...	R810018
Valve holder (V3)	...	...	...	...	RK204215
Valve holder (V2, 4, 5)	...	...	...	...	RK204216
Valve screening can (V3)	...	...	...	...	RK204423
Screen (V2)	...	...	...	...	RP122903
16+32μF Elec. capacitor 350V wkg. (C16/17)	...	...	...	...	RP194246

Capacitors (mica)

	pF	D.C. wkg. volts	tol. ±%		
C4	140	350	P.S.M.	...	RP194164
C12	300	350	P.S.M.	...	RP194037 or RP194038
C6	410	350	P.S.M.	...	RP194250
C7	420	350	P.S.M.	...	RP194012
C14	500	350	P.S.M.	...	RP194018
C1	3950	350	P.S.M.	...	RK203007

COIL AND TRANSFORMER DATA				
Circuit Reference	Component	Resistance ohms	Inductance $\frac{3}{4}$ H (or turns)	Part Number for Ordering
TR2	Mains transformer			R810045
	Primary—0-200 volts	37.5		
	0-230 volts	43.0		
	0-250 volts	47.0		
	Secondary—Total H.T.	804		
	Rect. fil.	0.72		
	Heater	0.41		
TR1	Output transformer			RK203629
	Primary (whole winding)	460		
	Secondary	0.68		
	Loudspeaker	2.6		RK203630
L5/6	1st I.F. transformer (each winding)	8.0	700-1150	RK203685
L11/12	2nd I.F. transformer (each winding)	8.0	700-1150	RK203685
L1	Short—aerial primary	0.23	3 $\frac{3}{4}$ turns	RP117681
L2	Short—aerial secondary	0.05			0.94
L3	Medium—frame aerial	0.91	—	R810166
L4	Long—frame aerial	14.90	—	
L7	Short—oscillator secondary	0.04	0.88	RP117679
L8	Short—oscillator primary	0.28	4 $\frac{3}{4}$ turns	
L9	Medium & long—osc. secondary	3.1	—	
L10	Medium & long—osc. primary ...	1.2	—	R810145

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	Circuit
ORANGE	Unsmoothed H.T. positive and osc. coils
RED	Smoothed H.T. positive
BLUE	Screen grids and mains
GREEN	Grids and oscillator coils
WHITE	Aerial and loudspeaker speech coil
BROWN	Heaters and dial lamps
BLACK	Points at chassis potential
YELLOW	Anodes and general purposes
	All sleeving is yellow

DAMAGED FLANGES

If the flange on which the back panel fixing clip is fitted becomes damaged the panel may tend to come adrift. To secure, undercut the broken flange with a thin slitting file or junior hacksaw blade to a "V" form, place a small metal plate (Part No. RP120518) under the spire clip and slip it into the new groove.

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