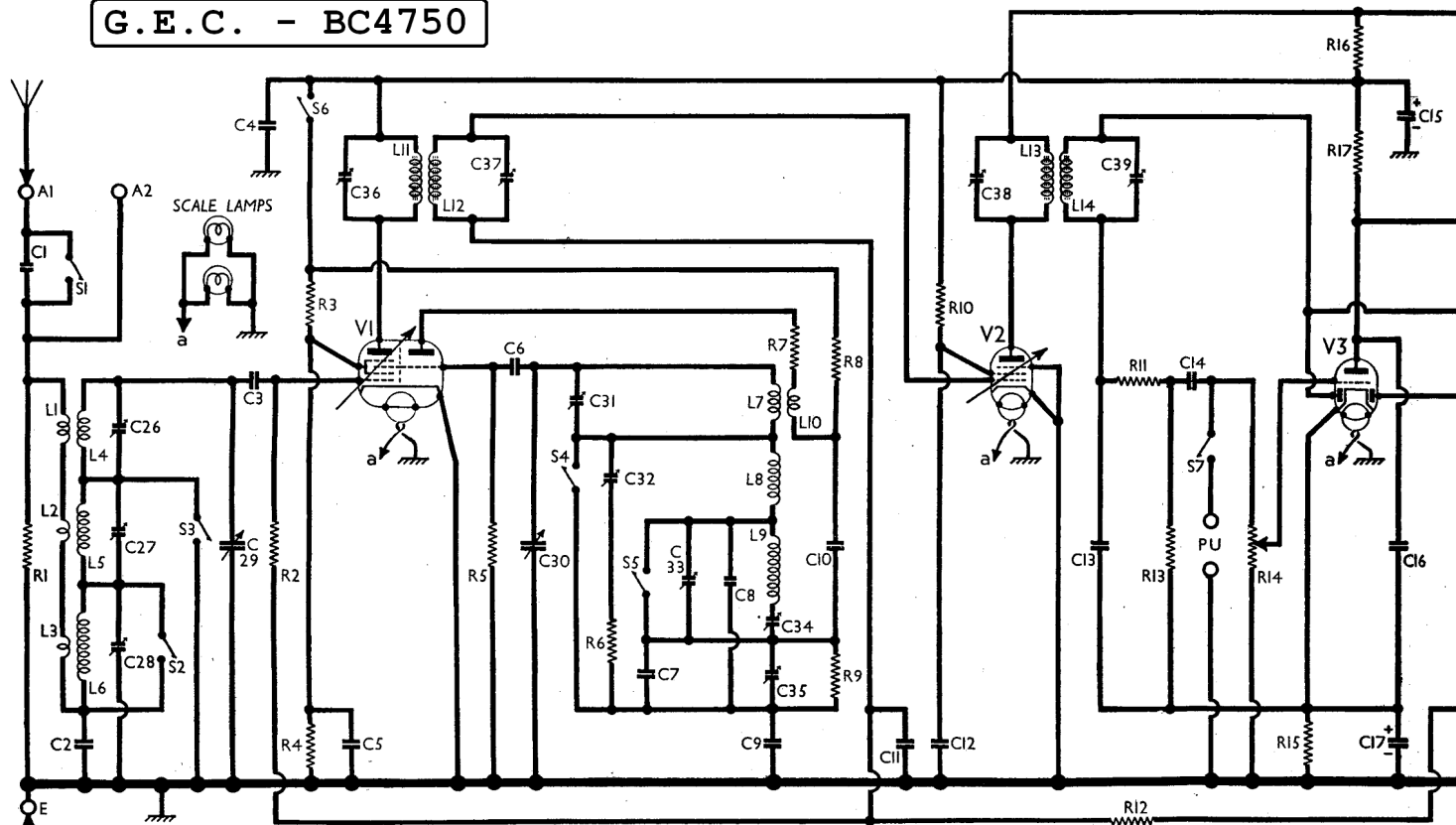
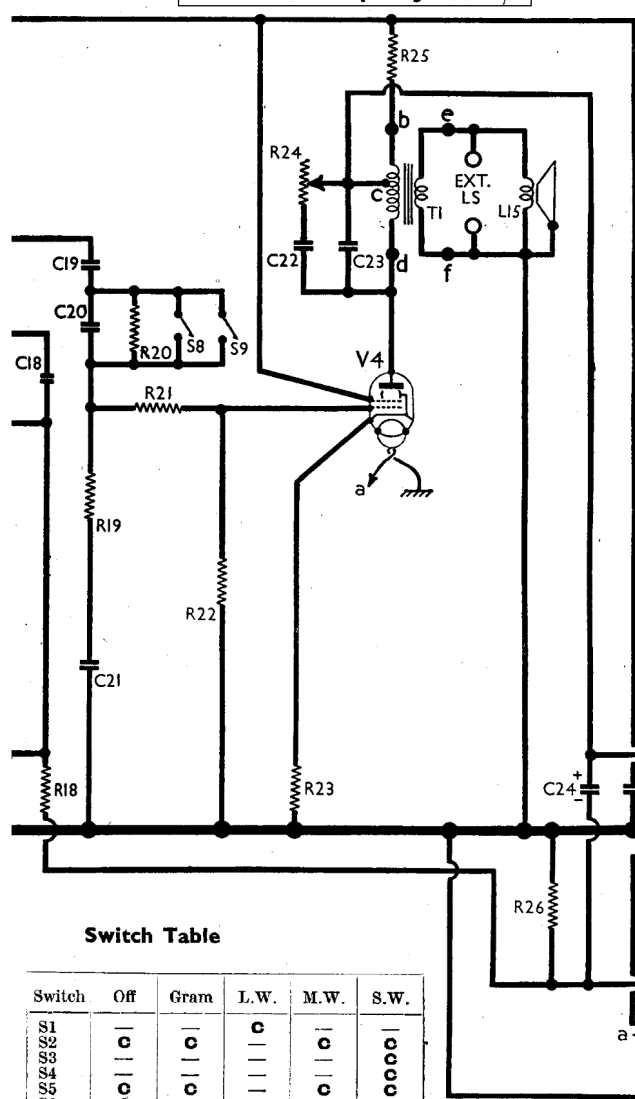


# G.E.C. - BC4750



Intermediate frequency 456 kc/s.



Switch Table

Switch	Off	Gram	L.W.	M.W.	S.W.
S1	—	—	—	—	—
S2	—	—	—	—	—
S3	—	—	—	—	—
S4	—	—	—	—	—
S5	—	—	—	—	—
S6	—	—	—	—	—
S7	—	—	—	—	—
S8	—	—	—	—	—
S9	—	—	—	—	—
S10	—	—	—	—	—

Capacitors	Values (μF)	Locations
C1	Aerial series ...	0-000022 K6
C2	Aerial coupling ...	0-003 F3
C3	V1 hex. C.G. ...	0-0001 B1
C4	H.T. R.F. by-pass ...	0-05 J6
C5	V1 S.G. decoupling ...	0-05 H5
C6	V1 osc. C.G. ...	0-0001 H5
C7	Osc. M.W. tracker ...	0-0001 H4
C8	Osc. L.W. trim. ...	0-000039 H4
C9	Osc. S.W. tracker ...	0-00395 J4
C10	Osc. anode coup. ...	0-005 H5
C11	A.G.C. decoupling ...	0-05 J6
C12	V2 S.G. decoupling ...	0-05 H6
C13	I.F. by-pass ...	0-0003 G6
C14	A.F. coupling ...	0-02 G6
C15*	H.T. feed decoupling ...	4-0 B1
C16	I.F. by-pass ...	0-0005 F5
C17*	V3 cath. by-pass ...	25-0 F6
C18	A.G.C. coupling ...	0-000022 G5
C19	A.F. coupling ...	0-02 F5
C20	Bass cut ...	0-0002 F5
C21	Bass boost ...	0-0015 G5
C22	Part tone control ...	0-05 C1
C23	Tone corrector ...	0-005 C1
C24*	H.T. smoothing ...	16-0 A2
C25*	H.T. smoothing ...	20-0 B1
C26†	Aerial S.W. trim. ...	0-00003 J3
C27†	Aerial M.W. trim. ...	0-00003 J4
C28†	Aerial L.W. trim. ...	0-00008 J4
C29†	Aerial tuning ...	0-0005 K4
C30†	Oscillator tuning ...	0-0005 K5
C31†	Osc. S.W. trim. ...	0-00003 F3
C32†	Osc. M.W. trim. ...	0-00003 F4
C33†	Osc. L.W. trim. ...	0-00008 F4
C34†	Osc. L.W. tracker ...	0-000425 G5
C35†	Osc. M.W. tracker ...	0-000425 H5
C36†	1st I.F. transformer ...	0-00013 J5
C37†	tuning ...	0-00013 J6
C38†	2nd I.F. transformer ...	0-000425 G8
C39†	tuning ...	0-000425 G5

\* Electrolytic. † Variable. ‡ Pre-set.

Resistors	Values (ohms)	Locations
R1	Aerial shunt ...	10,000 K6
R2	V1 hex. C.G. ...	1,000,000 B2
R3	V1 S.G. H.T. potential divider ...	15,000 J5
R4	V1 osc. C.G. ...	22,000 H5
R5	Osc. M.W. stabilizer ...	100,000 H5
R6	Osc. stabilizer ...	68 F4
R7	Osc. anode load ...	470 H5
R8	Osc. M.W. stabilizer ...	22,000 H5
R9	V2 S.G. H.T. feed ...	10,000 H4
R10	I.F. stopper ...	56,000 G6
R11	A.G.C. decoupling ...	1,000,000 G6
R12	Sig. diode load ...	470,000 F6
R13	Volume control ...	1,000,000 C1
R14	V3 G.B. part A.G.C. delay ...	2,200 F6
R15	H.T. feed decoupling ...	4,700 J5
R16	V3 triode load ...	100,000 F5
R17	A.G.C. diode load ...	470,000 F5
R18	Parts of tone correction network ...	150,000 F5
R19	V4 C.G. stabilizer ...	680,000 F5
R20	V4 C.G. resistor ...	10,000 F5
R21	V4 G.B. resistor ...	330,000 G5
R22	Tone control ...	91 F4
R23	H.T. smoothing ...	55,000 C1
R24	V1, V2 fixed G.B. part A.G.C. delay ...	3,300 C1
R25		
R26		

Valve	Anode	Screen	Cath.
	V	mA	V
V1 X61M	145	2-2	67
V2 W61	73	3-1	2-6
V3 DH63	208	0-5	48
V4 KT61	262	32-0	1-8
V5 U50	265†	—	208

† Each anode, A.C. \$10V meter range.

Other Components	Approx. Values (ohms)	Locations
L1	Aerial S.W. coup. ...	0-36 H3
L2	M.W., L.W. image rejection ...	Very low H3
L3	Aerial tuning coils ...	Very low H3
L4	Oscillator tuning coils ...	Very low H3
L5	S.W. react. coil ...	2-8 H3
L6	1st I.F. trans. ...	19-5 H3
L7	2nd I.F. trans. ...	2-3 H4
L8	Speech coil ...	12-0 H4
L9	Output trans. ...	3-4 G4
L10	Pri., b-c ...	0-32 G4
L11	Pri., c-d ...	7-7 B4
L12	Sec. ...	0-70 B2
L13	Sec. ...	7-0 B2
L14	Sec. ...	4-0 C2
L15	Sec. ...	4-0 C2
T1	Mains trans. ...	430-0 C1
T2	Heat. sec. ...	0-6 D2
	Rect. heat sec. ...	0-16 D2
	H.T. sec. ...	0-14 D2
	total ...	310-0 D2
S1-S9	W/band and gram switches ...	— H4
S10	Mains switch ...	— F5

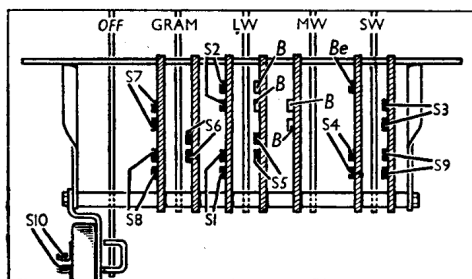


Diagram of the press-button wave-band switch unit, drawn as seen from the rear of an inverted chassis. When the "off" button is depressed, S10 in the attached unit opens.

### CIRCUIT ALIGNMENT

Access may be gained to the components involved in the following adjustments upon removal of the cabinet bottom cover.

**I.F. Stages.**—Switch set to L.W., turn gang and volume control to maximum, connect signal generator (via an  $0.1\mu\text{F}$

capacitor in the "live" lead) to control grid (top cap) of V2 and the E socket, feed in a 456 kc/s (657.8 m) signal, and adjust C39 (location reference G5) and C38 (G6) for maximum output.

Transfer "live" signal generator lead and series capacitor to control grid (top cap) of V1, feed in a 456 kc/s signal, and adjust C37 (J6) and C36 (J5) for maximum output. Do not readjust C39 or C38 without repeating the complete I.F. alignment procedure.

**R.F. and Oscillator Stages.**—With the gang at maximum capacitance the cursor should coincide with the dots at the high wavelength ends of M.W. and S.W. scales. It may be adjusted in position by rotating the drive drum on its spindle, after slackening the two grub screws. Transfer "live" signal generator lead to A2 socket, via a suitable dummy aerial.

**S.W.**—Switch set to S.W., tune to 16.7 m (spot on scale), feed in a 16.7 m (18 Mc/s) signal, and adjust C31 (F3) for maximum output, choosing the peak involving the lesser trimmer capacitance.

## G.E.C. - BC4750

Then adjust C26 (J3), while rocking the gang slightly, for maximum output. Repeat these operations until no improvement results.

**M.W.**—Switch set to M.W., tune to 214 m (spot on scale), feed in a 214 m (1,400 kc/s) signal, and adjust C32 (F4) and C27 (J4) for maximum output. Tune to 500 m on scale, feed in a 500 m (600 kc/s) signal, and adjust C35 (H5), while rocking the gang, for maximum output. Repeat these operations until no improvement results.

**L.W.**—Switch set to L.W., tune to 1,000 m on scale, feed in a 1,000 m (300 kc/s) signal, and adjust C33 (F4) and C28 (J4) for maximum output. Tune to 1,818 m (spot on scale), feed in an 1,818 m

### DRIVE WIRE REPLACEMENT

The tuning drive system consists of two separate wire drives: the gang drive and the cursor drive. Where the two are to be replaced, the gang drive should be fitted first. Suitable wire can be obtained from G.E.C. Radio Service Depot, 9, Greycoat Street, London, S.W.1.

The drawing (col. 5) includes a sketch of the complete system, as seen from the front, with code letters to identify the significant points; an inset at top right showing a plan view of the drive wheels and control spindle, the appropriate code letters being repeated to identify the disposition of the various turns of wire in the three channels; and an inset at bottom left showing the inside of the front (larger) drive wheel as seen from the front, and the method of terminating the cursor drive wire. Throughout the drawing the various items are shown in the positions they adopt when the gang is at maximum capacitance.

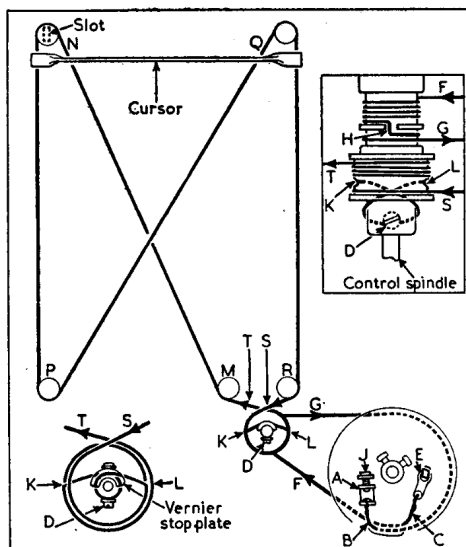
**Gang Drive.**—Turn the gang to maximum, the gang drum to the position shown in the sketch, with B and C at the bottom, and the control spindle so that screw D is at the bottom and the slow-motion stop plate is on top. If the cursor drive is in order, the cursor should be at the top of the scale.

Taking a suitable length of wire, solder to one end of it a 4BA solder tag, as shown at E, and to the other end the adjustment bracket A, so that the distance between the two soldered joints is 21 inches. Hook the tag to the anchor at E, and run the wire as shown in the sketch, making  $4\frac{1}{2}$  turns clockwise in the rear drive wheel channel between F and H,

crossing the gap at H, making one further turn in the next channel, and running off at G on the way back to the gang drum.

Pass into the drum again at the opening B, and fit the adjusting screw J to the bracket A, tightening it up as required.

**Cursor Drive.**—Take a 62-inch length of wire and solder the ends to keep them



Sketch showing the complete tuning drive system as seen from the front with the gang at maximum. Inset are shown details of the drive wheel sections as seen from above (top right) and inside the front (bottom left) from which the number of turns and course of the wire can be followed.

solid. Pass one end into the drive wheel through the hole K, make a small loop in it, wind it clockwise round the fixing boss inside and fix the loop to the screw D. Drop pulley N (at top left-hand corner of scale) to the bottom of its slot.

With the free wire, wind  $3\frac{1}{2}$  turns anti-clockwise in the large outer channel, winding towards the rear of the channel, running off at T to the pulley M. Then follow the course shown in the sketch, N, P, Q, R, passing run P, Q in front of run M, N.

Return to the drive wheel at S, make  $\frac{3}{4}$  turn anti-clockwise round the front of the channel to the hole L, pass inside the wheel, take the wire anti-clockwise round the boss and clamp it firmly under the head of screw D. Adjust pulley N in its slot to obtain the required tension.

Finally, solder the cursor to the vertical runs of wire N, P and Q, R so that it is exactly level with the two white dots at the high wavelength ends of the scales when the gang is at maximum capacitance.