G.E.C. - BC4444

Valve		Anode V	Anode mA	Screen V	Screen mA
V1	X18 ...	95 Oscillator 70	0·55 3·0	30	0.13
V2	W17 ...	95	1·9	65	0·6
V3	ZD17 ...	27	0·052	*	0·012
V4	N18 ...	92	5·7	95	1·3

* Very low reading owing to high circuit resistance.

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	M.W. frame aerial	0·5	—
L2	L.W. frame aerial	3·0	—
L3	Oscillator tuning	2·6	F4
L4	Oscillator coils	5·0	G4
L5	Oscillator reaction	2·2	F4
L6	Oscillator coils	2·0	G4
L7	1st I.F. trans Pri. ...	10·0	B2
L8	1st I.F. trans Sec. ...	10·0	B2
L9	2nd I.F. trans. Pri. ...	10·0	B2
L10	2nd I.F. trans. Sec. ...	10·0	B2
L11	Speech coil ...	2·6	B1
T1	O.P. trans. a ... b ...	800·0 —	E3
S1-S4 S5(B)-S13(B)	Waveband switches	—	G3
	Power switches ...	—	G3

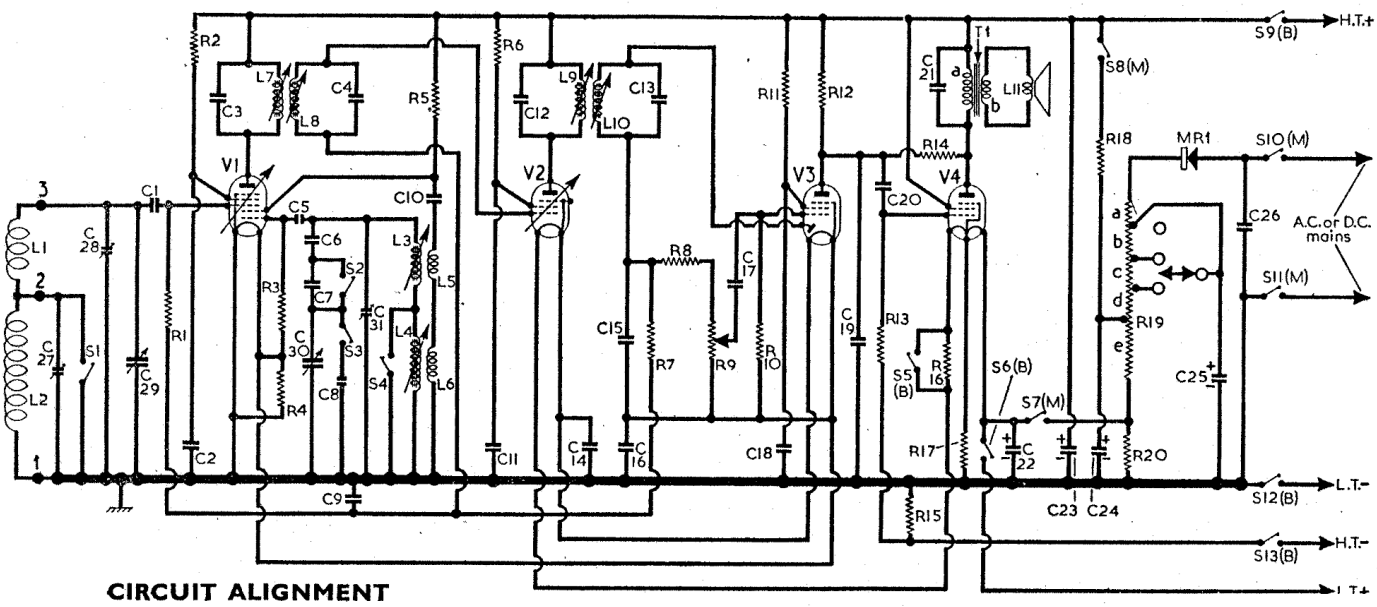
Intermediate frequency 470 kc/s.

RESISTORS		Values	Locations
R1	V1 C.G.	1MΩ	F4
R2	V1 S.G. feed ...	470kΩ	F4
R3	V1 osc. C.G. ...	100kΩ	F4
R4	V1 fil. shunt ...	220Ω	E3
R5	Osc. anode feed ...	8·2kΩ	F3
R6	V2 S.G. feed ...	47kΩ	F3
R7	A.G.C. decoupling	1MΩ	F4
R8	I.F. stopper ...	68kΩ	E4
R9	Volume control ...	1MΩ	D3
R10	V3 C.G.	6·8MΩ	D3
R11	V3 S.G. feed ...	6·8MΩ	E3
R12	V3 anode load ...	1MΩ	D4
R13	V4 C.G.	2·2MΩ	D4
R14	Neg. feed-back ...	10MΩ	D4
R15	V4 G.B. resistors ...	180Ω	D3
R16	V4 G.B. resistors ...	33Ω	E4
R17	Filament shunt ...	1·5kΩ	D4
R18	H.T. smoothing ...	1·5kΩ	F3
R19	Fil. H.T. pot.	*4,435Ω	B1
R20	divider ...	2·7kΩ	G4

* Tapped at 285Ω + 560Ω + 500Ω + 870Ω + 2,220Ω from MR1.

CAPACITORS		Values	Locations
C1	V1 C.G.	200pF	A2
C2	V1 S.G. decoupling	0·04μF	G4
C3	1st I.F. trans tuning ...	120pF	B2
C4	1st I.F. trans tuning ...	120pF	B2
C5	V1 osc. C.G. ...	47pF	F4
C6	M.W. osc. tracker	680pF	G3
C7	L.W. osc. tracker	320pF	F3
C8	L.W. osc. trim. ...	56pF	G3
C9	A.G.C. decoupling	0·04μF	F4
C10	Osc. anode coupling	0·005μF	F4
C11	V2 S.G. decoupling	0·04μF	E3
C12	2nd I.F. trans. ... tuning ...	120pF	B2
C13	2nd I.F. trans. ... tuning ...	120pF	B2
C14	V2 fil. by-pass ...	0·1μF	E4
C15	I.F. by-pass ...	100pF	E4.
C16	V3 fil. by-pass ...	0·04μF	E3
C17	A.F. coupling ...	0·04μF	D3
C18	V3 S.G. decoupling	0·04μF	D3
C19	I.F. by-pass ...	500pF	D3
C20	A.F. coupling ...	0·005μF	D4
C21	Tone correction ...	0·002μF	E4
C22*	Filament smoothing	250μF	B2
C23*	H.T. smoothing ...	32μF	B2
C24*	H.T. smoothing ...	16μF	B2
C25*	H.T. smoothing ...	32μF	B2
C26	Mains R.F. by-pass	0·01μF	F4
C27‡	L.W. aerial trim.	—	A2
C28‡	M.W. aerial trim.	—	A2
C29†	Aerial tuning ...	—	A1
C30†	Oscillator tuning	—	A2
C31‡	M.W. osc. trim. ...	—	A2

* Electrolytic. † Variable. ‡ Pre-set



CIRCUIT ALIGNMENT

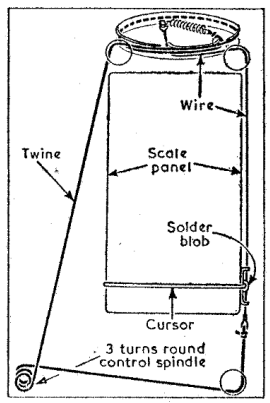
Remove chassis from carrying case as described under "Dismantling," and place it, standing on its voltage adjustment end, on the bench. Reconnect the frame aerial leads.

I.F. Stages.—Switch receiver to L.W. and tune to high wavelength end of band. Connect signal generator output, via an 0.1μF capacitor in each lead, to control grid (pin 6) of **V1** and chassis. Feed in a 470 kc/s (638.3 m) signal and adjust the cores of **L10** (location reference B2), **L9** (E4), **L8** (B2) and **L7** (F4) for maximum output. Repeat these adjustments.

R.F. and Oscillator Stages.—Disconnect signal generator leads from receiver and lay them near the frame aerials in lid of carrying case. Check that with the gang at maximum capacitance the cursor coincides with the horizontal line at the high wavelength end of the L.W. tuning scale.

M.W.—Switch receiver to M.W., tune to calibration dot at 500 m, feed in a 500 m (600 kc/s) signal and adjust the core of **L3** (A2) for maximum output. Tune receiver to 214 m calibration dot, feed in a 214.3 m (1,400 kc/s) signal, and adjust **C31** (A2) and **C28** (A2) for maximum output. Repeat these adjustments.

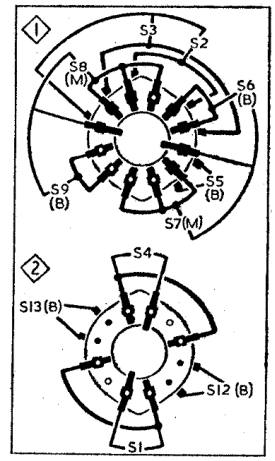
L.W.—Switch receiver to L.W., tune to 1,300 m calibration dot, feed in a 1,304 m (230 kc/s) signal and adjust first the core of **L4** (A2) and then trimmer **C27** (A2) for maximum output. Repeat these adjustments. If any subsequent adjustments are made on M.W., then these must be followed by L.W. realignment.



Sketch showing the tuning drive system as seen from the front of the scale, after removing the large plastic escutcheon, with the gang at minimum. The cord is part wire and part twine.

Drive Cord Replacement.—Two separate cords are used in the gang drive, one made of fine stranded steel wire, and the other of high quality flax twine, thoroughly waxed. They should be made up in advance and fitted as a complete cord, as shown in the accompanying sketch, where the system is drawn as seen from the front, after removing the plastic escutcheon (3 4BA nuts, with washers) with the gang at minimum capacitance.

The wire is made up by making a loop at each end, soldering the joins before cutting, so that the overall length is 8¾in. The twine is tied at one end to one of the wire loops, and at the other end to the tension spring, so that the overall length of the twine is 22½in. The wire passes through slots in the cursor carriage, and after adjusting its position approximately as described under "Circuit Alignment," the solder blob should be touched with an iron to fix it.



Switch unit diagrams

Switch	Battery L.W.	Battery M.W.	Off	Mains M.W.	Mains L.W.
S1 ...	—	C	—	C	—
S2 ...	—	C	—	C	—
S3 ...	C	—	—	—	C
S4 ...	—	C	—	C	—
S5 (B)	C	C	—	—	—
S6 (B)	C	C	—	—	—
S7 (M)	—	—	C	C	C
S8 (M)	—	—	C	C	C
S9 (B)	C	C	—	—	—
S10 (M)	—	—	—	C	C
S11 (M)	—	—	—	C	C
S12 (B)	C	C	—	—	—
S13 (B)	C	C	—	—	—