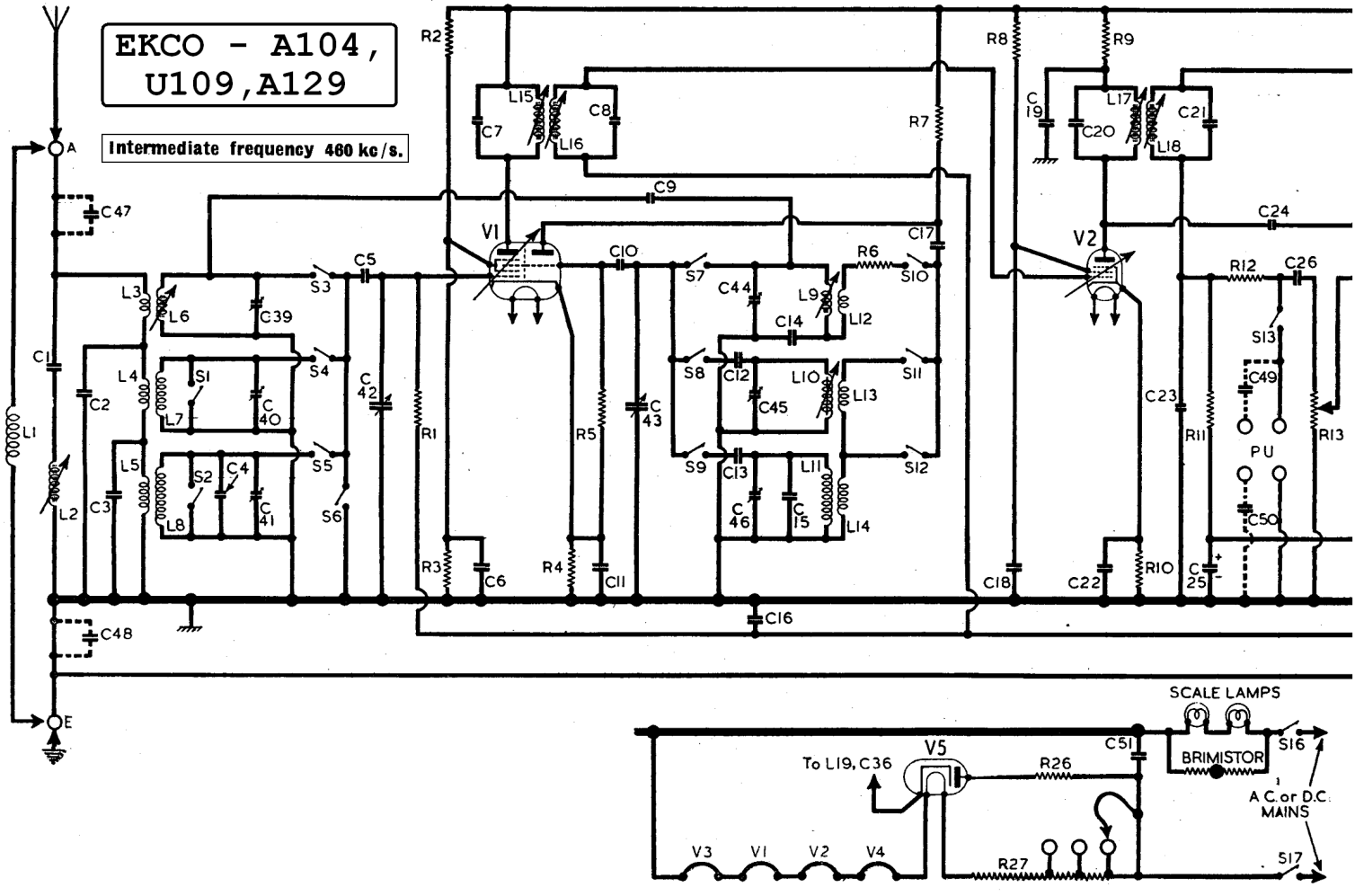
EKCO - A104, U109, A129

Intermediate frequency 460 kc/s.



CAPACITORS		Values	Locations
C1	I.F. filter tune ...	100pF	A2
C2	M.W. aerial shunt	220pF	A2
C3	L.W. aerial shunt...	680pF	A2
C4	L.W. aerial fixed trim.	56pF	B2
C5	V1 hex. C.G. ...	300pF	G4
C6	V1 S.G. decoup. ...	0·1μF	G4
C7	1st I.F. trans. tune	56pF	A2
C8	1st I.F. trans. tune	56pF	A2
C9	S.W. neutralising...	1pF	G3
C10	V1 osc. C.G. ...	47pF	G4
C11	V1 cath. by-pass ...	0·1μF	F4
C12	Osc. M.W. tracker	630pF	H4
C13	Osc. L.W. tracker	420pF	H4
C14	Osc. S.W. tracker...	4,700pF	H3
C15	Osc. L.W. fixed trim.	240pF	H4
C16	A.G.C. decoup. ...	0·1μF	H5
C17	Osc. anode coupling	0·001μF	G3
C18	V2 S.G. decoupling	0·1μF	G5
C19	V2 anode decoup.	0·1μF	G5
C20	2nd I.F. trans.tune	100pF	B2
C21	2nd I.F. trans.tune	100pF	B2
C22	V2 cath. by-pass ...	0·1μF	G5
C23	I.F by-pass ...	50pF	G5
C24	A.G.C. coupling ...	15pF	F5
C25*	V3 cath. by-pass ...	25μF	E5
C26	A.F. coupling ...	0·005μF	F5
C27	A.F. coupling ...	0·01μF	E5
C28	Tone control and negative feedback capacitors ...	0·0016μF	E5
C29		82pF	E4
C30		0·005μF	E5
C31		82pF	E5
C32		820pF	E5
C33		0·0025μF	E4
C34		0·005μF	E5
C35*	V4 S.G. de-coup. ...	2μF	E5
C36*	H.T. smoothing ...	32μF	C1
C37*	H.T. smoothing ...	32μF	C1
C38	R.F. by-pass ...	0·0025μF	F4
C39‡	Aerial S.W. trim. ...	40pF	A2
C40‡	Aerial M.W. trim.	40pF	A2
C41‡	Aerial L.W. trim....	40pF	A2
C42†	Aerial tuning ...	580pF	A1
C43†	Oscillator tuning ...	580pF	A1
C44‡	Osc. S.W. trim. ...	40pF	G3
C45‡	Osc. M.W. trim. ...	40pF	H4
C46‡	Osc. L.W. trim. ...	40pF	H4
C47	Aerial isolator ...	0·0025μF	H5
C48	Earth isolator ...	0·1μF	H5
C49	P.U. isolators ...	0·01μF	G5
C50	P.U. isolators ...	0·05μF	G5
C51	Mains R.F. by-pass	0·1μF	E3

* Electrolytic. † Variable. ‡ Pre-set.

	RESISTORS	Values	Locations
R1	V1 hex. C.G. ...	470kΩ	F4
R2	V1 S.G. H.T. pot.	27kΩ	G4
R3	divider ...	33kΩ	G4
R4	V1 fixed G.B. ...	330Ω	G4
R5	V1 osc. C.G. ...	47kΩ	G4
R6	S.W. osc. damping	47Ω	H3
R7	Osc. anode load ...	33kΩ	G4
R8	V2 S.G. H.T. feed...	68kΩ	G5
R9	V2 anode de-coup.	2.2kΩ	G5
R10	V2 fixed G.B. ...	330Ω	G5
R11	Signal diode load	680kΩ	F5
R12	I.F. stopper ...	100kΩ	G5
R13	Volume control ...	1MΩ	E3
R14	V3 triode G.B. ...	4.7kΩ	F5
R15	A.G.C. de-coupling	1MΩ	F5
R16	A.G.C. diode load	1MΩ	F5
R17	V3 anode load ...	100kΩ	F5
R18	V4 C.G. resistor ...	680kΩ	F4
R19		47kΩ	F5
R20	Tone control and	500kΩ	D3
R21	negative feed-	470kΩ	E5
R22	back resistors ...	470kΩ	E5
R23		15kΩ	E5
R24	V4 G.B.	120Ω	F5
R25	V4 S.G. H.T. feed	12kΩ	F5
R26	Surge limiter ...	130Ω	E5
R27	Heater ballast ...	1,230Ω†	C2

† Tapped at 930Ω + 150Ω + 150Ω from V5 heater

	OTHER COMPONENTS	Approx. Values (ohms)	Locations
L1	Optional frame aerial	18·0	—
L2	I.F. filter tune ...	15·0	A2
L3	Aerial coupling	—	A2
L4	coils	18·0	A2
L5		41·0	A2
L6	Aerial tuning coils	—	A2
L7		4·0	A2
L8		28·0	A2
L9	Osc. tuning coils	—	G3
L10		2·7	H4
L11		6·0	H4
L12	Osc. reaction coils	—	G3
L13		1·7	H4
L14		1·0	H4
L15	1st I.F. trans. Pri.	33·0	A2
L16	1st I.F. trans. Sec.	33·0	A2
L17	2nd I.F. trans. Pri.	15·0	B2
L18	2nd I.F. trans. Sec.	15·0	B2
L19	Smoothing choke	350·0	C2
L20	Speech coil ...	3·0	—
T1	Output trans. Pri. ...	350·0	E4
	Output trans. Sec. ...	0·5	E4
T2	Mains trans. Pri. (total)	40·0	B2
	Mains trans. Sec. 1-3	0·3	
	Mains trans. Sec. 4-5	28·0	
	Mains trans. Sec. 5-6	72·0	
S1-S13	W/band switches...	—	H3
S14	Int. spk'r. sw. ...	—	F5
S15	A104 mains sw. g'd R13	—	E3
S16, S17	U109 mains sw's. g'd R13 ...	—	E3

CIRCUIT ALIGNMENT

I.F. Stages.—Switch set to M.W. and turn the gang and volume control to maximum. Connect signal generator leads via a 0.1 μF capacitor to control grid (pin 6) of **V1** and chassis (via a second 0.1 μF capacitor in the A.C./D.C. version), feed in 460 kc/s (652.1 m) signal, and adjust **L18, L17, L16** and **L15** (location references B2, G5, A2, H5) in that order for maximum output, reducing the input as the circuits come into line.

Transfer signal generator leads, via a suitable dummy aerial, to **A** and **E** sockets. Feed in a 460 kc/s signal and adjust the core of **L2** (A2) for minimum output.

R.F. and Oscillator Stages.—Transfer signal generator leads to **A** and **E** sockets, via a suitable dummy aerial. With the gang at maximum, the pointer should coincide with the calibration marks at the right-hand ends of the S.W. and L.W. scales. If it doesn't, it should be adjusted by sliding the cursor carriage along th drive cord.

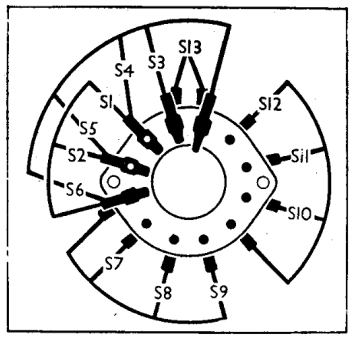


Diagram of the waveband switch unit (above). Below is the associated switch table.

Switch	S.W.	M.W.	L.W.	Gram.
S1	C	—	—	—
S2	C	C	—	—
S3	C	—	—	—
S4	—	C	—	—
S5	—	—	C	—
S6	—	—	—	C
S7	C	—	—	—
S8	—	C	—	—
S9	—	—	C	—
S10	C	—	—	—
S11	—	C	—	—
S12	—	—	C	—
S13	—	—	—	C

With the exception of the S.W. band, alignment can be carried out with the chassis in its cabinet, and it is helpful to do it that way in order to use the scale readings which are mounted on the cabinet. For S.W. alignment, tune to 20 m on scale, remove the chassis from the cabinet, and mark the cursor position on the scale backing plate; then replace the chassis, check the calibration again at maximum gang position, tune to 46.16 m on scale, remove the chassis, and mark the position of the cursor again. The S.W. alignment can then be executed with the chassis out of the cabinet.

M.W.—With the receiver switched to M.W., tune to 230.8 m on scale, feed in a 230.8 m (1,300 kc/s) signal, and adjust **C45,** then **C40,** (A2) for maximum output. Tune to 375 m on scale, feed in a 375 m (800 kc/s) signal, and adjust the brass core screw of **L10** (H5) for maximum output. Check calibration at 600 m (500 kc/s) and repeat the procedure if necessary.

L.W.—Switch set to L.W., tune to 1,200 m on scale, feed in a 1,200 m (250 kc/s) signal, and adjust **C46,** then **C41,** (A2) for maximum output. Check the calibration at 2,000 m (150 kc/s), and repeat the procedure as necessary.

S.W.—Switch set to S.W., tune to 46.16 m mark on the scale backing plate, feed in a 46.16 m (6.5 Mc/s) signal, and adjust the cores of **L9** and **L6** (G3, A2) for maximum output. Tune to the other mark, feed in a 20 m (15 Mc/s) signal, and adjust **C44,** then **C39** (G3, A2) for maximum output. On some A.C./D.C. models **C44** will not be fitted.

DRIVE CORD REPLACEMENT

The tuning drive cord consists partly of twine (good quality plaited and waxed flax fishing line) and partly of stranded steel flexible cable, and it is advisable to make it up before trying to fit it.

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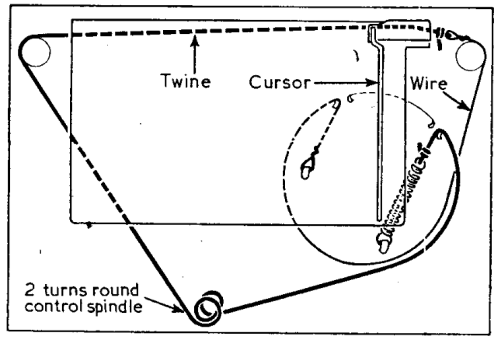
The wire is prepared by making a loop of about $\frac{1}{8}$in diameter at each end, with



Sketch of the tuning drive system, as seen from the front with the gang at maximum.

an overall length of 14 inches. The ends should be soldered before cutting, and soldered again after the loops are made.

The twine should be tied by non-slip knots to a wire loop at one end and to the tension spring at the other, but before tying on the tension spring the twine should be threaded through the appropriate hole in the drum groove, with the spring inside the drum. The overall length of the twine in our samples when knotted was 26 inches, although the makers quote 28 inches in their manual.

The cord should be fitted as shown in our sketch above, where it is shown as it appears when the gang is at maximum capacitance. It can be fitted without removing the scale backing plate if the twine is run first, with the gang at maximum and the tension spring slipped off its hook. To thread the wire end into the drum and hook it on to its anchor, the gang is swung to minimum; it is then returned to maximum again to hook the spring to its anchor and take up the tension. A short length of sleeving is slipped over the spring before it is hooked up.

Finally, the twine is dropped into the wedge clamp at the back of the cursor carriage, which should be so positioned that the right-hand of the carrier is exactly level with the right-hand end of the guide rail on which it runs, when the gang is at maximum capacitance, as shown in our sketch.

Valve	Anode V	Anode mA	Screen V	Screen mA	Cath. V
A.C. Model					
V1 UCH42	208	1·7	85	2·4	2·6
	Oscillator 93	3·3			
V2 UF41	193	5·2	97	1·6	2·2
V3 UBC41	121	0·4	—	—	2·2
V4 UL41	187	49·5	106	7·0	4·6
V5 UY41	235†	—	—	—	234·0
A.C./D.C. Model					
V1 UCH42	175	1·1	67·5	1·6	1·8
	Oscillator 75	3·0			
V2 UF41	165	4·4	80	1·3	1·8
V3 UBC41	102	0·35	—	—	1·6
V4 UL41	162	43·5	105	6·5	5·0
V5 UY41	202†	—	—	—	197·0

†A.C.