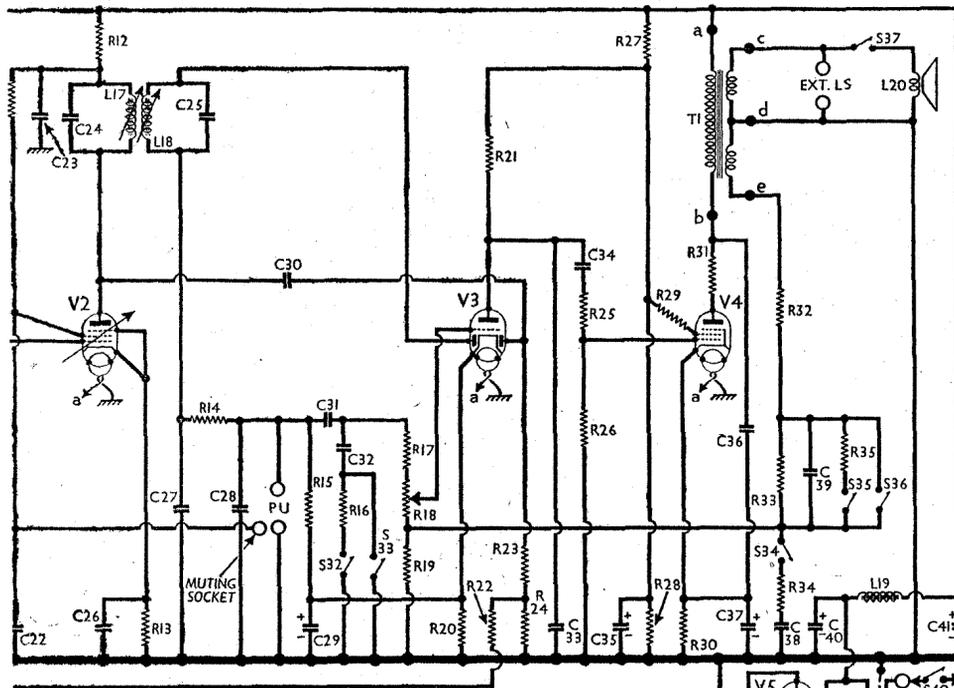
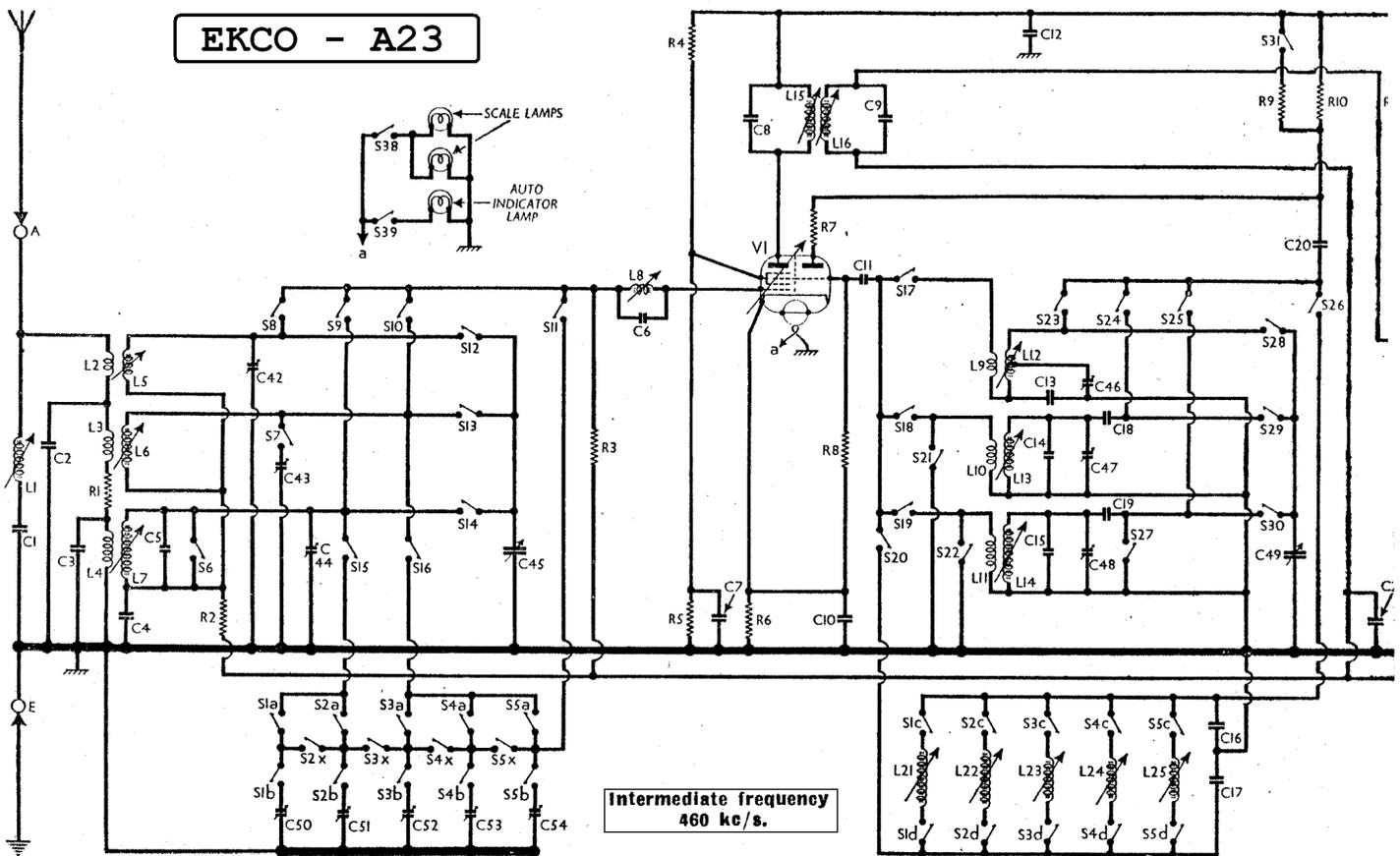
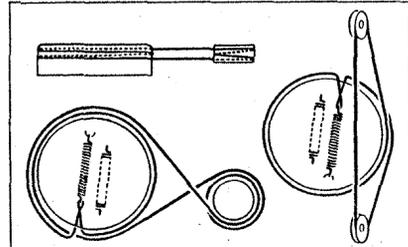
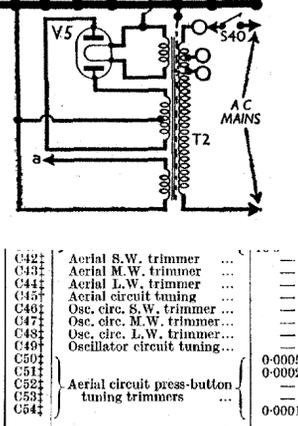


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OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial I.F. filter coil ...	7-9
L2	Aerial S.W. coupling coil ...	0-14
L3	Aerial M.W. coupling coil ...	0-6
L4	Aerial L.W. coupling coil ...	31-0
L5	Aerial S.W. tuning coil ...	0-04
L6	Aerial M.W. tuning coil ...	4-5
L7	Aerial L.W. tuning coil ...	23-0
L8	T.S. channel coil ...	0-03
L9	Osc. S.W. reaction coil ...	0-18
L10	Osc. M.W. reaction coil ...	1-0
L11	Osc. L.W. reaction coil ...	4-4
L12	Osc. S.W. tuning coil ...	0-05
L13	Osc. M.W. tuning coil ...	2-4
L14	Osc. L.W. tuning coil ...	4-5
L15	1st I.F. trans. { Pri. ...	8-1
L16	{ Sec. ...	14-0
L17	2nd I.F. trans. { Pri. ...	6-2
L18	{ Sec. ...	550-0
L19	H.T. smoothing choke ...	2-0
L20	Speaker speech coil ...	3-0
L21	{ Pri. ...	3-8
L22	{ Sec. ...	3-3
L23	Oscillator circuit press-button tuning coils ...	1-7
L24	{ Pri. ...	0-4
L25	{ Sec. ...	40-0
T1	Output trans. { Spkr. sec. ...	44-0
	{ Pri. total ...	0-1
T2	Mains trans. { Rect. heat. sec. ...	0-15
	{ H.T. sec., total ...	500-0
S1a, b, 1a, 1b, 2a, 2b, 3a, 3b, 4a, 4b, 5a, 5b, x	Aerial circuit press-button switches ...	—
S1c, d, 1c, 1d, 2c, 2d, 3c, 3d, 4c, 4d, 5c, 5d	Oscillator circuit press-button switches ...	—
S6, c, d, S6, S31	Waveband switches ...	—
S32, S36	Tone control switches ...	—
S37	Int. speaker switch ...	—
S38, S39	Scale lamp switches ...	—
S40	Mains switch, gauged R18	—

RESISTORS		Values (ohms)	CAPACITORS		Values (μF)
R1	Aerial damping ...	330	C1	Aerial I.F. filter tuning ...	0-00015
R2	V1 hex. C.G. decoupling ...	100,000	C2	Aerial M.W. shunt ...	0-00047
R3	V1 hex. C.G. resistor ...	4,700,000	C3	Aerial L.W. shunt ...	0-00082
R4	V1 S.G. H.T. potential divider ...	33,000	C4	V1 hex. C.G. decoupling ...	0-0
R5	V1 fixed G.B. resistor ...	33,000	C5	Aerial L.W. fixed trimmer ...	0-000015
R6	V1 osc. anode stabiliser ...	270	C6	T.S. channel tuning capacitor ...	0-00002
R7	V1 osc. anode stabiliser ...	15	C7	V1 S.G. decoupling ...	0-1
R8	V1 osc. C.G. resistor ...	47,000	C8	1st I.F. transformer fixed tuning capacitors ...	0-00015
R9	V1 osc. anode H.T. feed resistors ...	47,000	C9	V1 cathode by-pass ...	0-1
R10	V2 S.G. H.P. feed ...	100,000	C10	V1 osc. C.G. capacitor ...	0-000047
R11	V2 H.T. decoupling ...	2,200	C11	H.T. circuit I.F. by-pass ...	0-1
R12	V2 fixed G.B. resistor ...	330	C12	Osc. circ. S.W. tracker ...	0-00047
R13	L.F. stopper ...	47,000	C13	Osc. M.W. fixed trimmer ...	0-000015
R14	V3 signal diode load ...	220,000	C14	Osc. L.W. fixed trimmer ...	0-000082
R15	Tone control resistor ...	65,000	C15	Osc. circuit auto-tuning capacitors ...	0-00033
R16	V3 stopper ...	220,000	C16	Osc. circ. M.W. tracker ...	0-00052
R17	Manual volume control ...	1,000,000	C17	Osc. circ. L.W. tracker ...	0-00024
R18	Feedback coupling resistor ...	650	C18	V1 osc. anode coupling ...	0-0001
R19	V3 fixed G.B. resistor ...	1,000	C19	V2 C.G. decoupling ...	0-05
R20	V3 triode anode load ...	47,000	C20	V2 S.G. decoupling ...	0-1
R21	A.V.C. line decoupling ...	1,500,000	C21	V2 H.T. feed decoupling ...	0-1
R22	V3 A.V.C. diode load resistors ...	220,000	C22	2nd I.F. transformer fixed tuning capacitors ...	0-0001
R23	I.F. stopper ...	1,600,000	C23	V2 cathode by-pass ...	0-00022
R24	V4 C.G. resistor ...	47,000	C24	V2 L.F. by-pass capacitors ...	0-0001
R25	{ Pri. ...	220,000	C25	V3 cathode by-pass ...	0-0001
R26	{ Sec. ...	10,000	C26	V3 A.V.C. diode coupling ...	0-0001
R27	H.T. feed potential divider ...	68,000	C27	A.F. coupling to V4 C.G. ...	0-02
R28	V4 S.G. stopper ...	100	C28	Tone control capacitor ...	0-002
R29	V4 G.B. resistor ...	150	C29	I.F. by-pass capacitor ...	0-0003
R30	V4 anode stopper ...	100	C30	A.F. coupling to V4 C.G. ...	0-05
R31	Part. feedback potential divider ...	15,000	C31	H.T. feed decoupling ...	4-0
R32	{ Pri. ...	47,000	C32	Fixed tone corrector ...	0-0025
R33	{ Sec. ...	330	C33	V4 cathode by-pass ...	25-0
R34	Tone control resistors ...	47,000	C34	Tone control capacitors ...	0-1
R35	{ Pri. ...	47,000	C35	H.T. smoothing capacitors ...	8-0
	{ Sec. ...	47,000	C36	{ Pri. ...	16-0
	{ H.T. ...	47,000	C37	{ Sec. ...	16-0

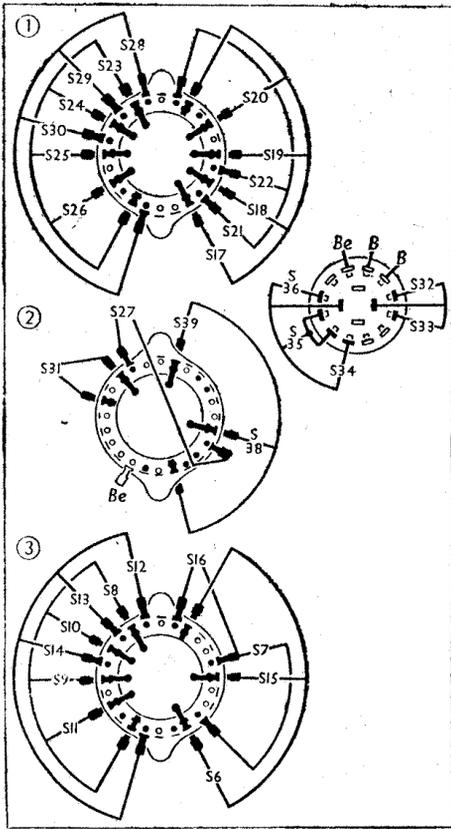


Diagrams of the two wire drive systems, as seen from the front. Left, gang drive (with plan view above it); right, pointer drive.

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C42†	Aerial S.W. trimmer ...	0-00055
C43†	Aerial M.W. trimmer ...	0-00027
C44†	Aerial L.W. trimmer ...	—
C45†	Aerial circuit tuning ...	—
C46†	Osc. circ. S.W. trimmer ...	—
C47†	Osc. circ. M.W. trimmer ...	—
C48†	Osc. circ. L.W. trimmer ...	—
C49†	Oscillator circuit tuning ...	—
C50†	Aerial circuit press-button tuning trimmers ...	0-00055
C51†	{ Pri. ...	0-00027
C52†	{ Sec. ...	—
C53†	{ Pri. ...	—
C54†	{ Sec. ...	0-00013

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



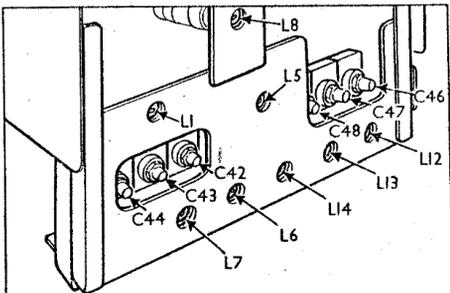
Diagrams of the three waveband (left) and the tone control (right) switch units, as seen from the rear of an inverted chassis. The associated table is on the right (next col.).

### CIRCUIT ALIGNMENT

**I.F. Stages.**—Switch set to M.W., turn gang and volume control to maximum, connect signal generator via a 0.1μF capacitor to control grid (top cap) of V1 and chassis, feed in a 460 kc/s (652.1 m) signal, and adjust the cores of L18, L17, L16 and L15 in that order for maximum output.

**I.F. Filter.**—Transfer signal generator leads to A and E sockets, discarding the 0.1μF capacitor, feed in a 460 kc/s signal, and adjust the core of L1 for minimum output.

**R.F. and Oscillator Stages.**—With the gang at maximum, the pointers should coincide with top calibration marks at the high wavelength ends of the scales. They may be adjusted by slackening the wire clamp (two set-screws) on the rear of the cursor carrier, and sliding the carrier up or down the drive wire. Access is



Sketch giving the positions of the various trimmers, as seen from the rear of the speaker chamber.

Switch	S.W.	M.W.	L.W.	Auto.
S6 ...	—	○	—	—
S7 ...	—	○	—	—
S8 ...	○	—	—	—
S9 ...	—	○	○	—
S10 ...	—	○	—	—
S11 ...	—	—	—	○
S12 ...	○	—	—	—
S13 ...	—	○	—	—
S14 ...	—	—	○	—
S15 ...	—	—	—	○
S16 ...	—	—	—	○
S17 ...	○	—	—	—
S18 ...	—	○	—	—
S19 ...	—	—	○	—
S20 ...	—	—	—	○
S21 ...	○	—	—	—
S22 ...	—	○	—	—
S23 ...	○	—	—	—
S24 ...	—	○	—	—
S25 ...	—	—	○	—
S26 ...	—	—	—	○
S27 ...	○	○	—	—
S28 ...	○	○	—	—
S29 ...	—	○	—	—
S30 ...	—	—	○	—
S31 ...	○	—	—	—

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 ECH35	250	2.3	87	3.2
	Oscillator			
V2 EF39	107	3.5	72	1.4
V3 EBC33	237	4.2	—	—
V4 6L33	100	1.9	—	—
V5 AZ31	240	24.0	173	2.6
	275†	—	—	—

† Each anode, A.C.

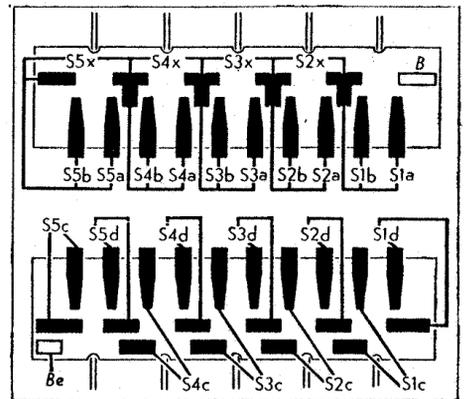
permitted to the carrier if the metal light excluder plate is removed (three set-screws). All trimmers involved in the following adjustments are grouped on the outer side of the coil assembly which forms one end of the chassis, facing the speaker chamber. These adjustments are identified in the sketch (col. 5), which shows this end of the chassis as seen while in the cabinet, from the rear, after removal of the guard strip.

**S.W.**—Switch set to S.W., tune to 20 m on scale, feed in a 20 m (15 Mc/s) signal, and adjust C46, then C42, for maximum output. If two positions are found for C46, use that involving the lesser trimmer capacitance. Tune to 50 m on scale, feed in a 50 m (6 Mc/s) signal, and adjust the cores of L12 and L5 for maximum output. Repeat these adjustments until no improvement can be obtained.

**T.S.**—Tune to 14.62 m on scale, feed in a 41.5 Mc/s (7.23m) signal, and adjust L8 for maximum output. A 75Ω dummy load should be shunted across the signal generator leads. If a suitable signal generator is not available, L8 may be adjusted on the transmitted television sound signal.

**M.W.**—Switch set to M.W., tune to 250 m on scale, feed in a 250 m (1,200 kc/s) signal, and adjust C47 and C43 for maximum output. Tune to 500 m on scale, feed in a 500 m (600 kc/s) signal, and adjust the cores of L13 and L6 for maximum output. Repeat these adjustments until no improvement can be obtained.

**L.W.**—Switch set to L.W., tune 1,000 m on scale, feed in a 1,000 m (300 kc/s) signal, and adjust C48 and C44 for maximum output. Tune to 1,800 m on scale, feed in an 1,800 m (166 kc/s) signal, and adjust the cores of L14 and L7 for maximum output. Repeat these adjustments until no improvement can be obtained.



Diagrams showing both sides of the press-button switch unit. Above, as seen in one under-chassis view; below, as seen when the unit is unbolting and turned over on its leads.

### Drive Wire Replacement

Two wire drives are used in this system: the gang drive, and the pointer drive. The sketches (col. 2) show the course taken by each drive. The length of the gang drive wire is quoted by the makers as 24½ins., and the length of its tension spring 1in. when contracted; the length of the pointer drive wire is given as 23½ins. and its spring as 1½in. contracted. Replacement wires can be obtained from the makers, part numbers B32417/2 and B32417/1 respectively.

To obtain access to the rear of the drum, remove the light excluding plate (three set-screws), first withdrawing the scale lamps.

To obtain access to the front of the drum, remove the glass scale panel (four phosphor-bronze clamps with rubber liners held by four set-screws); turn the gang to maximum, and remove the four set-screws holding the black sprayed scale backing plate behind the glass, lowering it about an inch so that the scale cursor-bar pointers pass through holes provided for them at the tops of the vertical slots.

With the gang at maximum, the drum should take up the position shown in the sketches. When fitting the wire, care should be taken not to kink it. When replacing the scale glass, the pointers should coincide with the last calibration marks at the high-wavelength ends of the scales. See that the glass rests squarely on the felt base provided; see that the felt spacers are in position on the backing plate, and that the rubber liners are in position where the clamps grip the edges of the glass.

### Press-button Setting

Numbering the press-buttons from left to right as seen from the front, the range of each is as follows: 1, 200-308 m; 2, 283-448 m; 3, 342-560 m; 4, 1,160-1,580 m; 5, 1,430-1,986 m.

To set any button, remove the press-button escutcheon (two set-screws) from front of cabinet, and switch set to auto. Press the appropriate button, and adjust the upper screw (oscillator coil core), then the lower (aerial) trimmer, preferably using the desired transmission as the signal.

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