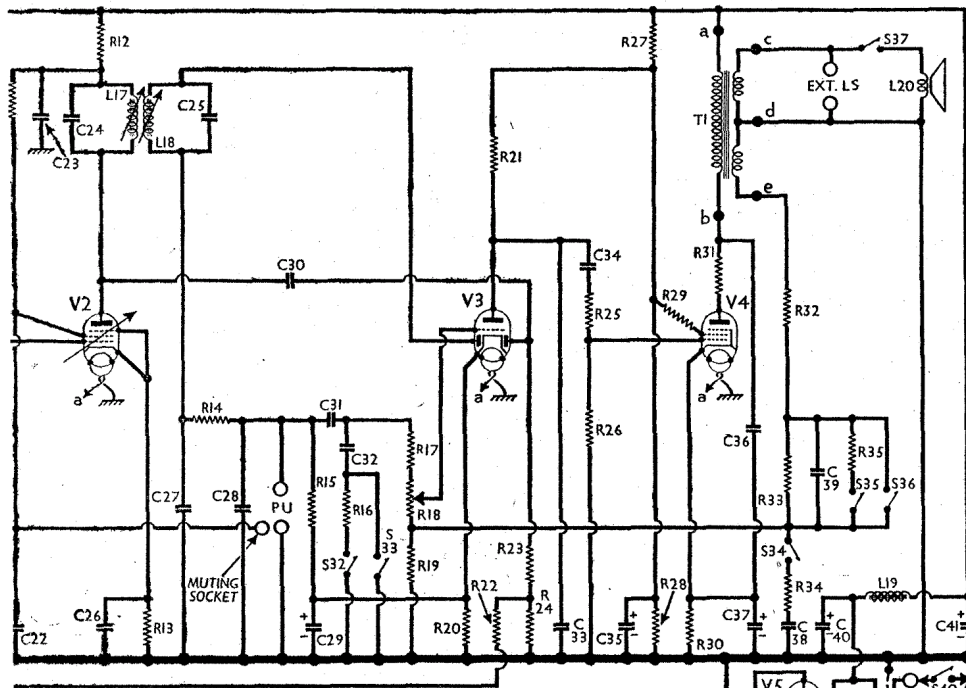
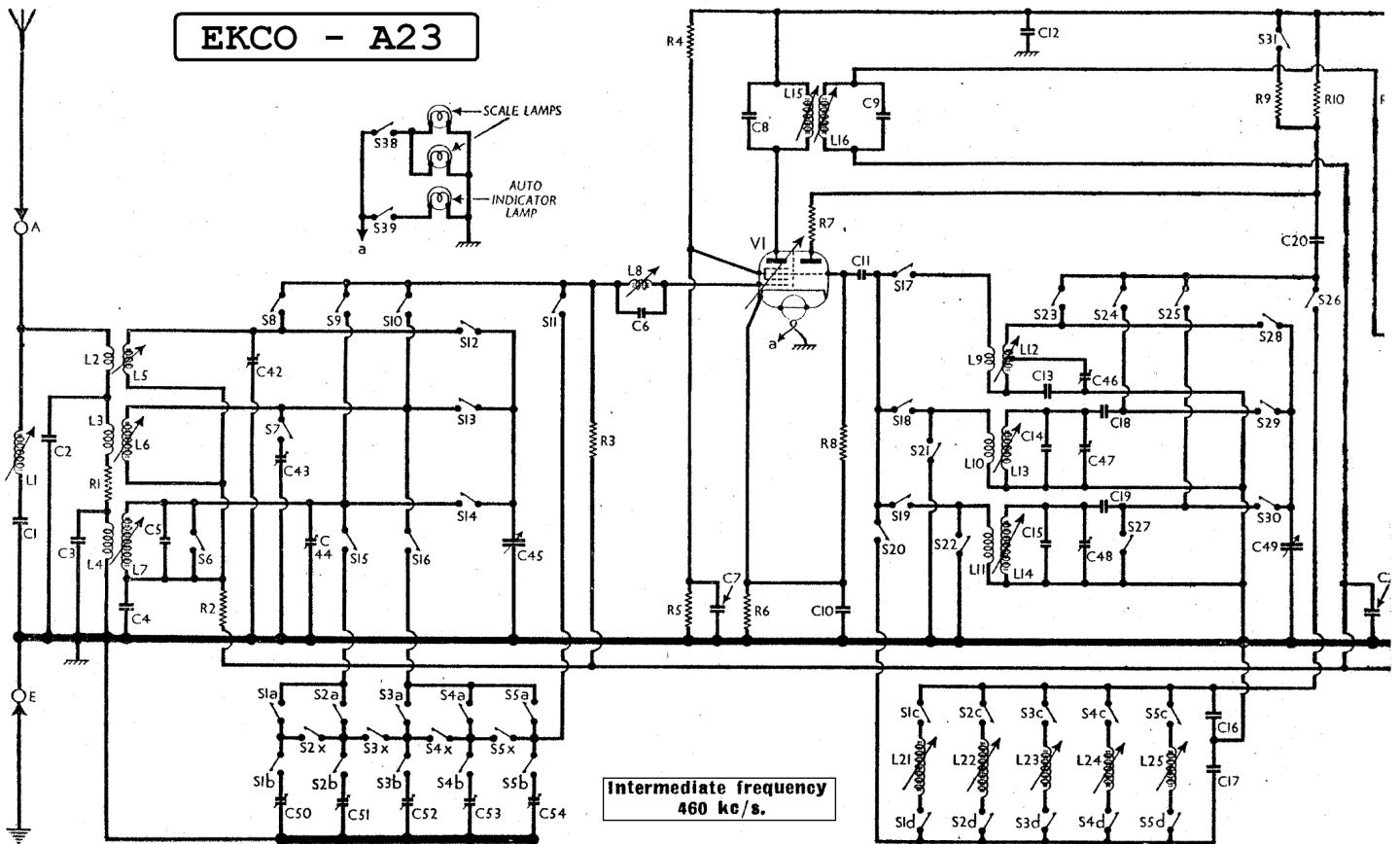


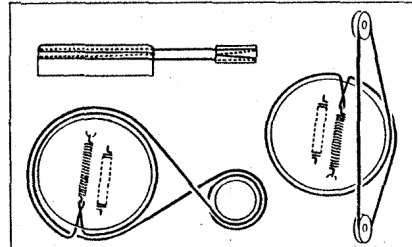
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OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial I.F. filter coil ...	7.9
L2	Aerial S.W. coupling coil ...	0.14
L3	Aerial M.W. coupling coil ...	0.6
L4	Aerial L.W. coupling coil ...	31.0
L5	Aerial S.W. tuning coil ...	0.04
L6	Aerial M.W. tuning coil ...	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. ...	8.1
L17	2nd I.F. trans. { Pri. ...	14.0
L18	Sec. ...	14.0
L19	I.F.T. smoothing choke ...	550.0
L20	Speaker speech coil ...	2.0
L21	...	3.6
L22	...	3.6
L23	Oscillator circuit press-button tuning coils ...	3.8
L24	...	3.3
L25	...	1.7
T1	Output trans. { Pri. ...	350.0
	Spkr. sec. ...	0.4
	F.B. sec. ...	40.0
T2	Main trans. { Pri. total ...	44.0
	Heater sec. ...	0.1
	Rect. heat. sec. ...	0.15
	H.T. sec. total ...	500.0
S1a, b, to S5a, b, x	Aerial circuit press-button switches ...	—
S1c, d to S5c, d	Oscillator circuit press-button switches ...	—
S6 e, d	Waveband switches ...	—
S6-S31	Tone control switches ...	—
S32-S36	Int. speaker switch ...	—
S37	Scale lamp switches ...	—
S38, S39	Main switch, gauged R18 ...	—
S40	...	—

RESISTORS		Values (ohms)
R1	Aerial damping ...	330
R2	V1 hex. C.G. decoupling ...	100,000
R3	V1 hex. C.G. resistor ...	4,700,000
R4	V1 S.G. H.T. potential divider ...	33,000
R5	V1 fixed G.B. resistor ...	33,000
R6	V1 fixed G.B. resistor ...	270
R7	V1 osc. anode stabiliser ...	15
R8	V1 osc. C.G. resistor ...	47,000
R9	V1 osc. C.G. resistor ...	47,000
R10	V1 osc. anode H.T. feed resistors ...	47,000
R11	V2 S.G. H.P. feed ...	100,000
R12	V2 H.T. decoupling ...	2,200
R13	V2 fixed G.B. resistor ...	330
R14	L.F. stopper ...	47,000
R15	V3 signal diode load ...	220,000
R16	Tone control resistor ...	68,000
R17	V3 stopper ...	220,000
R18	Manual volume control ...	1,000,000
R19	Feedback coupling resistor ...	680
R20	V3 fixed G.B. resistor ...	1,000
R21	V3 triode anode load ...	47,000
R22	V3 A.V.C. line decoupling ...	1,500,000
R23	V3 A.V.C. diode load resistors ...	220,000
R24	V3 A.V.C. diode load resistors ...	1,500,000
R25	L.F. stopper ...	47,000
R26	V4 C.G. resistor ...	220,000
R27	H.T. feed potential divider ...	10,000
R28	H.T. feed potential divider ...	68,000
R29	V4 S.G. stopper ...	100
R30	V4 G.B. resistor ...	150
R31	V4 anode stopper ...	100
R32	Part feed-back potential divider ...	15,000
R33	Part feed-back potential divider ...	47,000
R34	Tone control resistors ...	330
R35	Tone control resistors ...	47,000

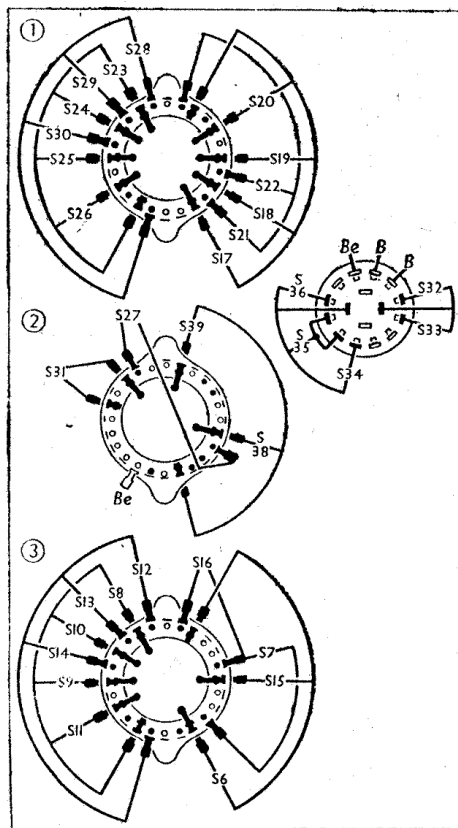
CAPACITORS		Values (µF)
C1	Aerial I.F. filter tuning ...	0.00015
C2	Aerial M.W. shunt ...	0.00047
C3	Aerial L.W. shunt ...	0.00082
C4	V1 hex. C.G. decoupling ...	0.0
C5	Aerial L.W. fixed trimmer ...	0.000015
C6	T.S. channel tuning capacitor ...	0.00002
C7	V1 S.G. decoupling ...	0.1
C8	1st I.F. transformer fixed tuning capacitors ...	0.00015
C9	V1 cathode by-pass ...	0.1
C10	V1 osc. C.G. capacitor ...	0.000047
C11	H.T. circuit I.F. by-pass ...	0.0047
C12	Osc. circ. S.W. tracker ...	0.000015
C13	Osc. M.W. fixed trimmer ...	0.000082
C14	Osc. L.W. fixed trimmer ...	0.000015
C15	Osc. circuit auto-tuning capacitors ...	0.00033
C16	Osc. circ. M.W. tracker ...	0.00052
C17	Osc. circ. L.W. tracker ...	0.00024
C18	V1 osc. anode coupling ...	0.0001
C19	V2 C.G. decoupling ...	0.05
C20	V2 S.G. decoupling ...	0.1
C21	V2 H.T. feed decoupling ...	0.1
C22	2nd I.F. transformer fixed tuning capacitors ...	0.0001
C23	V2 cathode by-pass ...	0.00022
C24	V2 cathode by-pass ...	0.1
C25	L.F. by-pass capacitors ...	0.0001
C26	V3 cathode by-pass ...	0.0001
C27	V3 A.V.C. diode coupling ...	0.0001
C28	A.F. coupling to V3 C.G. ...	0.02
C29	Tone control capacitor ...	0.002
C30	L.F. by-pass capacitor ...	0.003
C31	A.F. coupling to V4 C.G. ...	0.05
C32	H.T. feed decoupling ...	4.0
C33	Fixed tone corrector ...	0.0025
C34	V4 cathode by-pass ...	25.0
C35	Tone control capacitors ...	0.1
C36	Tone control capacitors ...	0.25
C37	H.T. smoothing capacitors ...	8.0
C38	H.T. smoothing capacitors ...	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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* 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 0.1 μ F 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 0.1 μ F 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

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
V2 EF39	107	3-5	72	1-4
V3 EBC33	237	4-2	—	—
V4 EL33	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).

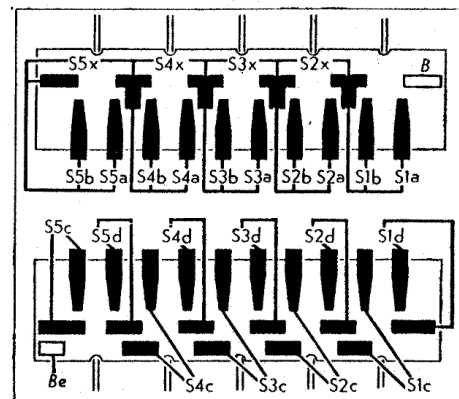
All trimmers involved in the following adjustments are grouped on the outer side of the coil assembly which forms one end of the chassis, facing the speaker chamber. These adjustments are identified in the sketch (col. 5), which shows this end of the chassis as seen while in the cabinet, from the rear, 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 75 Ω 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 unbolted 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 24 $\frac{1}{2}$ ins., and the length of its tension spring $\frac{1}{2}$ in. when contracted; the length of the pointer drive wire is given as 23 $\frac{1}{2}$ ins. and its spring as $\frac{1}{2}$ in. 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.

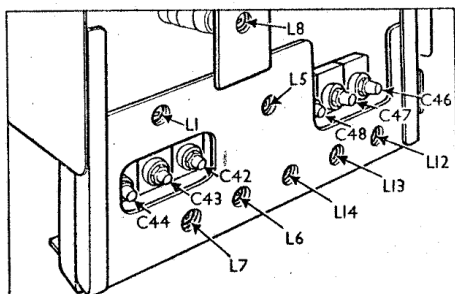
To obtain access to the front of the drum, remove the glass scale panel (four phosphor-bronze clamps with rubber liners held by four set-screws); turn the gang to maximum, and remove the four set-screws holding the black sprayed scale backing plate behind the glass, lowering it about an inch so that 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.



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

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