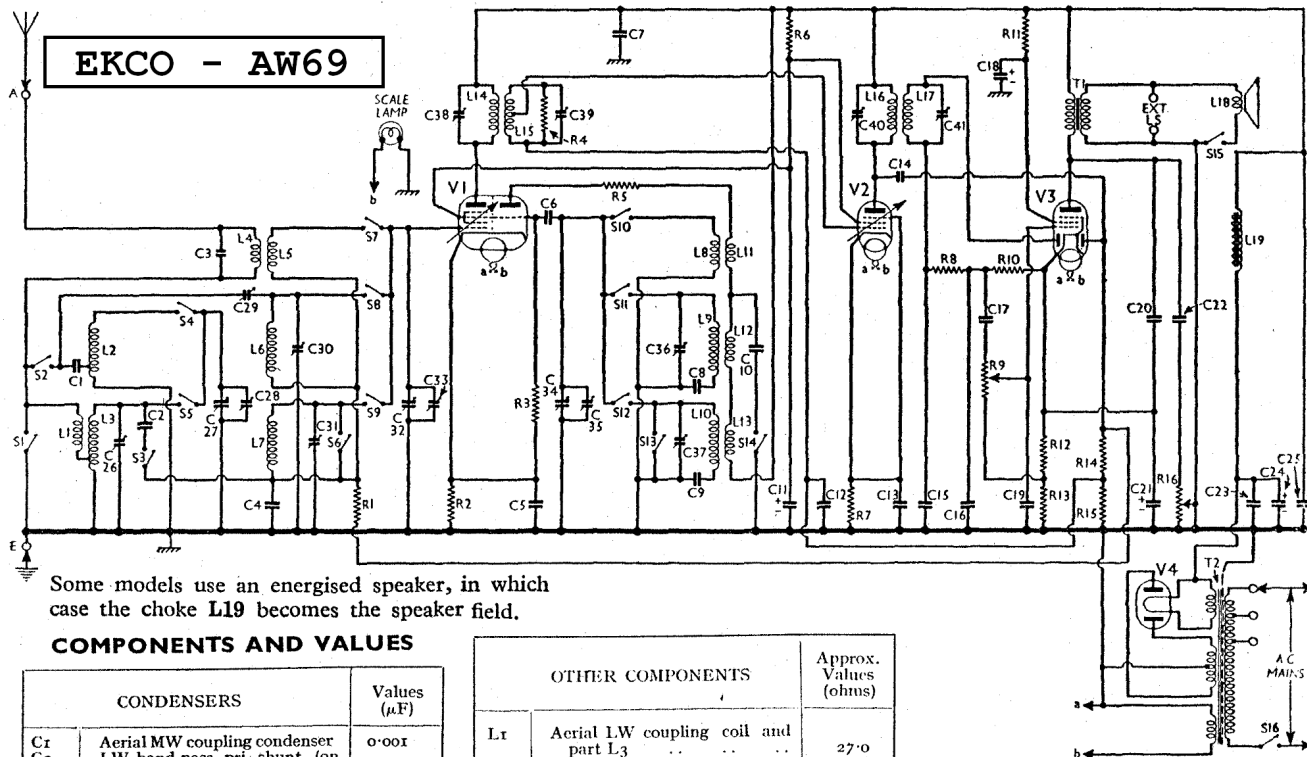# EKCO - AW69

Some models use an energised speaker, in which case the choke **L19** becomes the speaker field.

COMPONENTS AND VALUES

CONDENSERS		Values (μF)
C1	Aerial MW coupling condenser	0·001
C2	LW band-pass pri. shunt (on SW and MW only)	0·002
C3	Aerial circuit SW shunt	Very low
C4	V1 hex. CG decoupling	0·1
C5	V1 cathode by-pass	0·1
C6	V1 osc. CG condenser	0·0001
C7	H.T. circuit RF by-pass	0·1
C8	Osc. circuit MW tracker	0·002
C9	Osc. circuit LW tracker	0·0008
C10	V1 osc. anode SW RF by-pass	0·002
C11*	V1, V2 SG's decoupling	2·0
C12	V2 CG decoupling	0·01
C13	V2 cathode by-pass	0·1
C14	Coupling to V3 AVC diode	0·000015
C15	} IF by-pass condensers {	0·0002
C16		0·0002
C17	AF coupling to V3 pentode	0·01
C18*	V3 SG decoupling	1·0
C19	IF by-pass	0·0002
C20	Fixed tone corrector	0·0025
C21*	V3 cathode by-pass	25·0
C22	Part of variable tone control	0·04§
C23	Rectifier RF by-pass	0·0025
C24*	} HT smoothing {	8·0
C25*		8·0
C26‡	Band-pass pri. LW trimmer	—
C27†	Band-pass primary tuning	—
C28‡	Band-pass pri. MW trimmer	—
C29‡	Image suppressor	—
C30‡	Band-pass sec. MW trimmer	—
C31‡	Band-pass sec. LW trimmer	—
C32†	Band-pass sec. and SW aerial tuning	—
C33‡	Aerial circuit SW trimmer	—
C34†	Oscillator circuit tuning	—
C35‡	Osc. circuit SW trimmer	—
C36‡	Osc. circuit MW trimmer	—
C37‡	Osc. circuit LW trimmer	—
C38‡	1st IF trans. pri. tuning	—
C39‡	1st IF trans. sec. tuning	—
C40‡	2nd IF trans. pri. tuning	—
C41‡	2nd IF trans. sec. tuning	—

* Electrolytic.   † Variable.   ‡ Pre-set.
§ Two 0·02 μF in parallel.

RESISTANCES		Values (ohms)
R1	V1 hex. CG decoupling	1,000,000
R2	V1 hex. fixed GB	160
R3	V1 osc. CG resistance	25,000
R4	1st IF trans. sec. damping	1,000,000
R5	V1 osc. anode circuit stabiliser	200
R6	V1, V2 SG's HT feed	5,000
R7	V2 fixed GB	300
R8	I.F. stopper	100,000
R9	Manual volume control	850,000
R10	V3 signal diode load	500,000
R11	V3 SG HT feed	1,000
R12	} V3 GB and AVC delay {	120
R13	} resistances {	300
R14	} V3 AVC diode load re- {	500,000
R15	} sistances {	500,000
R16	Variable tone control	20,000

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial LW coupling coil and part L3	27·0
L2	Band-pass pri. MW coil	2·6
L3	Band-pass pri. LW coil	26·0
L4	Aerial SW coupling coil	0·4
L5	Aerial SW tuning coil	0·05
L6	Band-pass sec. MW coil	2·6
L7	Band-pass sec. LW coil	26·0
L8	Osc. circuit SW tuning coil	0·05
L9	Osc. circuit MW tuning coil	8·25
L10	Osc. circuit LW tuning coil	17·5
L11	Oscillator SW reaction coil	0·35
L12	Oscillator MW reaction coil	1·5
L13	Oscillator LW reaction coil	2·75
L14	} 1st IF trans. { Pri.	70·0
L15	{ Sec., total	75·0
L16	} 2nd IF trans. { Pri.	70·0
L17	{ Sec.	75·0
L18	Speaker speech coil	4·0
L19	HT smoothing choke	700·0*
T1	Output trans. { Pri.	330·0
	{ Sec.	0·3
T2	Mains trans. { Pri., total	35·0
	{ Heater sec.	0·1
	{ Rect. heat. sec.	0·15
	{ HT sec., total	450·0†
S1-S14	Waveband switches	—
S15	Internal speaker switch	—
S16	Mains switch, ganged R9	—

* May be speaker field coil (1,250 O).
† 550 O in models with energised speaker.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 225 V, using the 220-230 V tapping on the mains transformer. The receiver was tuned to the lowest wavelength on the medium band and the volume control was at maximum, but there was no signal input.

Voltages were measured on the 400 V scale of a model 7 Universal Avometer, chassis being negative.

If, as in our case, **V2** should become unstable when its screen current is being measured, it can be stabilised by connecting a non-inductive condenser of about 0·1 μF from grid (top cap) to chassis.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 TX41	{ 259 Oscillator 257	3·7 ator 6·7	207	6·6
V2 VP41	259	8·2	207	3·4
V3 DO42	248	34·0	254	4·2
V4 R41	340†			

† Each anode, AC. 285V in models with PM speaker.

GENERAL NOTES

Switches.—**S1-S14** are the waveband switches, in a double-sided rotary unit beneath the chassis. The sides are marked 1 and 2 in the under-chassis view, and diagrams of them are given in detail on page iv.

The table (p. iv) gives the switch positions for the three control settings, starting from fully anti-clockwise. A dash indicates open, and **C** closed.

S15 is the internal speaker switch of the screw type, operated by a small knob at the rear of the chassis. When this is unscrewed, the internal speaker speech coil circuit is broken.

S16 is the QMB mains switch, ganged with the volume control, **R9**.

Coils.—**L1, L2, L3, L6, L7** are in a single unscreened unit beneath the chassis, while **L4, L5** and **L8, L11** are on two moulded tubular formers, also beneath the chassis. **L4** and **L11** are interwound with **L5** and **L8** respectively.

L9, L10, L12, L13 and the IF transformers **L14, L15** and **L16, L17** are in three units on the chassis deck. The first has a metallic screening can, but the covers over the IF units provide no screening, and merely prevent mechanical damage and ingress of dust.

External Speaker.—Two sockets are provided at the rear of the chassis for a low impedance (3-4 O) external speaker. **S15** cuts out the internal speaker if desired.

Scale Lamp.—This is an MES type, rated at 6·2 V, 0·3 A.

CIRCUIT ALIGNMENT

IF Stages.—Turn gang to maximum, volume control to maximum, and switch set to LW. Connect signal generator to grid (top cap) of **V1** and chassis, and feed in a 126·5 KC/S signal. Adjust **C38, C39, C40, C41** for maximum output. Repeat these adjustments.

RF and Oscillator Stages.—With gang fully closed, set pointer to datum line (horizontal) on scale. Connect signal generator to **A** and **E** sockets.

LW.—Switch set to LW and tune to 1,300 m on scale. Feed in a 1,300 m (230 KC/S) signal, and adjust **C37,** then **C31** and **C26,** for maximum output.

MW.—Switch set to MW. Adjust **C29** to minimum capacity. Tune to 200 m on scale, feed in a 200 m (1,500 KC/S) signal, and adjust **C36** for maximum output. Tune to 250 m on scale, feed in a 250 m (1,200 KC/S) signal, and adjust **C28** and **C30** for maximum output. Now feed in a fairly strong 850 KC/S (352 m) signal, and tune in its image (at about 500 m). Adjust **C29** for *minimum* output.

SW.—Switch set to SW, and set pointer to 20 MC/S mark on scale, feed in a 20 MC/S (15 m) signal, and adjust **C35** for maximum output. Now tune to 15 MC/S on scale, feed in a 15 MC/S (20 m) signal, and adjust **C33** for maximum output.

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