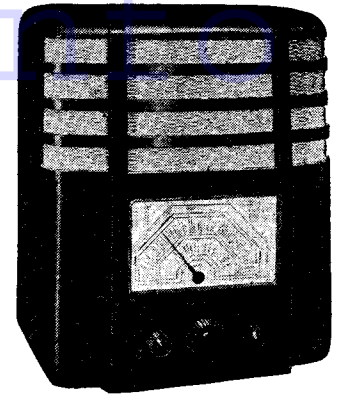


# EKCO AW69 THREE-BAND FOUR



Three valves plus a rectifier are employed in the 8½ gn. AW69 by E. K. Cole, Ltd.

**CIRCUIT.**—The aerial coupling to the grid of V1, a triode hexode frequency changer, is an H.F. transformer on the short waves. On the medium and long bands the input is via a band-pass filter.

The output of V1 passes to an I.F. transformer tuned to 126.5 kc. The secondary is shunted by R3 and is also tapped, the tapping being connected to the grid of V2, an H.F. pentode operating as the I.F. amplifier.

Another transformer couples V2 to the demodulating diode of V3, a double diode output pentode. The other connection to the secondary of the I.F. transformer is taken via an H.F. stopper resistance, R6, to the demodulating diode load, R7, and thence via an L.F. coupling condenser, C26, to the manual volume control, VR1.

The slider of the volume control is taken to the demodulating diode section of V3 and also to chassis via a .0002 fixed condenser operating as a high note compensator. The other diode of V4, fed by C37 from the anode of V2, is connected to

R10 and R11, the A.V.C. diode load, the mid-point of the two resistances being fed to the grid of V2. The diode side of R10 is led via R12 to the frequency changer, this valve being A.V.C. controlled on all wavebands.

A pentode compensator condenser, C29, is connected between the anode of V3 and cathode and C38 and VR2, connected in series between the anode and chassis, provide tone control.

Mains equipment consists of a mains transformer, a full wave rectifying valve, V4, electrolytic smoothing condensers C31 and C32 and smoothing choke, L18 (speaker field coil).

**Chassis Removal.**—Remove the five bolts securing the back of the cabinet, the shelf between chassis and speaker and the three grub screw fixed control knobs. The tone control knob is removed by detaching the grub screw from the extension rod inside the cabinet.

## CONDENSERS

C.	Purpose.	Mfds.
14	MW aerial coupling ..	.001
15	V1 A.V.C. decoupling ..	.1
16	V1 cathode bias shunt ..	.1
17	Oscillator grid ..	.0001
18	LW oscillator fixed padder ..	.0008
19	MW oscillator fixed padder ..	.002
21	V2 A.V.C. decoupling ..	.01
22	V1 and V2 screen decoupling ..	2
23	V2 cathode bias shunt ..	.1
24	HF bypass ..	.0002
25	HF bypass ..	.0002
26	LF coupling ..	.01
27	Tone compensator ..	.0002
28	V3 cathode bias shunt ..	.25
29	Pentode compensator ..	.0025
31	HT smoothing ..	8
32	HT smoothing ..	8
33	Rectifier HF bypass ..	.0025
34	V3 screen decoupling ..	.1
35	LW aerial fixed trimmer ..	.002
36	HT line HF bypass ..	.1
37	A.V.C. diode coupling ..	15 mmfd.
38	Tone control ..	.04
39	Osc. anode SW by-pass ..	.002

## RESISTANCES

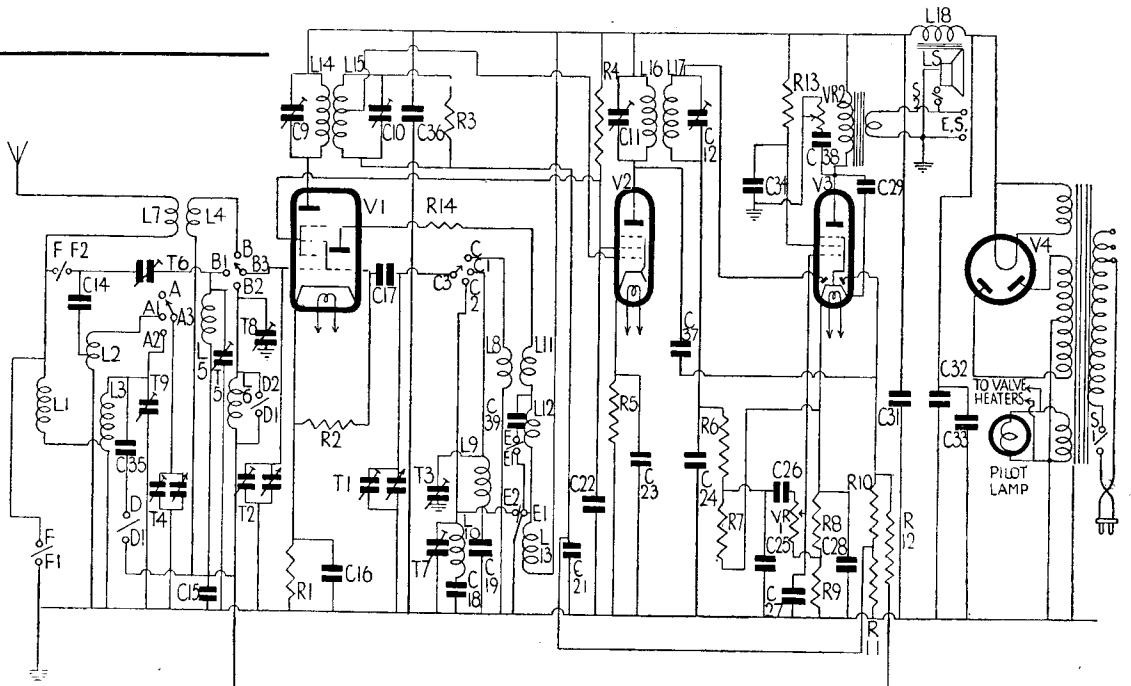
R.	Purpose.	Ohms.
1	V1 cathode bias ..	160
2	Oscillator grid leak ..	25,000
3	IFT1 sec. shunt ..	1 meg.
4	V1 and V2 screen decoupling ..	5,000
5	V2 cathode bias ..	300
6	HF stopper ..	100,000
7	Demodulating diode load ..	500,000
8	V3 cathode bias (part) ..	120
9	V3 cathode bias (part) ..	300
10	A.V.C. diode load (part) ..	500,000
11	A.V.C. diode load (part) ..	500,000
12	V1 A.V.C. decoupling ..	1 meg.
13	V3 screen decoupling ..	1,000
14	Regeneration modifier ..	850,000
VR1	Volume control ..	20,000
VR2	Tone control ..	500

## VALVE READINGS

No signal. Volume maximum. M.W. min. cap. 200 volt A.C. mains.

V.	Type.	Electrode.	Volts.	M.a.
1	All Etko. TX41(7)	.. anode ..	260	3.7
		.. screen ..	200	8
		.. osc. anode ..	255	8.1
2	VP41 (7)	.. anode ..	260	8
		.. screen ..	200	2.6
3	DO42 (7)	.. anode ..	242	32
		.. screen ..	253	4.8
4	R41 (4)	.. heater ..	350	—

The circuit of the AW69. Band-pass input is used to the frequency changer. V2 is fed from a tapping on IFT1 and in turn feeds a combined double diode output pentode.



Uncleat the speaker leads from the speaker baffle board. Remove the four chassis securing bolts from the base. The two bolts, together with bakelite and lock washers must be removed from the brackets on the dial assembly.

The chassis can then be removed to the extent of the speaker cable.

The speaker, secured by four bolts, may be removed or the leads unsoldered. From left to right, looking from the back, the red and white lead is connected to the first tag, the yellow to the middle tag and the red to the remaining tag. The black lead is connected to the right-hand speech coil tag on the frame.

**Special Notes.**—A pair of sockets at the rear of the chassis are for connecting an extension speaker of the low impedance permanent magnet type, no transformer being needed. A milled knob near these

sockets enables the internal speaker to be cut out of circuit.

The adjustment device on the top of the mains transformer takes the form of an insulating panel with three sockets marked with voltage values. A milled headed adjusting member is screwed into the appropriate socket.

The single dial light is mounted in a screw-in holder clipped to the top of the dial. The bulb is rated at 6.2 volts .3 amp.

C38 consists of two .02 mfd condensers connected in parallel. R13 is located inside IFT1. In our particular chassis a 500 ohms regeneration modifier resistance was found to be connected between the oscillator anode of V1 and the reaction windings.

## Alignment Notes

Connect an output meter across the primary of the speaker transformer. Switch set to L.W., turn gang to maximum, volume to maximum, and tune to "high." Connect a service oscillator between the top grid cap of V1 and chassis.

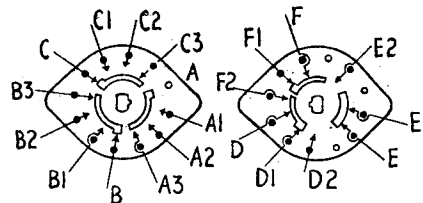
Tune service oscillator to 126.5 kc. and adjust first the trimmers of IFT2 and then IFT1 for maximum, reducing the input from the oscillator as the circuits come into line to keep the AVC inoperative.

**Signal Circuits.**—With gang at maximum check that the pointer is set to the horizontal datum line on the scale.

Connect the service oscillator to the A and E sockets, only feeding sufficient

## WINDINGS (D.C. Resistances)

Inductance.	Ohms.	Range	Measured between.
L1+L7	28.2	LW	Aerial socket and chassis.
L2	2.5	MW	A1 and chassis.
L3	23.7	LW	A2 and chassis.
L4	.1	SW	B and R12.
L5	2.5	MW	B1 and R 12.
L6	26	LW	B2 and R12.
L7	.85	SW	Aerial socket and chassis.
L8	below .1	SW	Across coil tags.
L9	8.1	MW	C1 and condenser C19.
L10	17.3	LW	C2 and condenser C18.
L11	.4	SW	Across coil tags.
L12+L13	4.3	Any	L12 end of C39 and HT line.
L14	69	—	Anode pin V1 and HT line.
L15(part)	40.6	—	Top grid V2 and mid point R10+R11.
L16	68.3	—	Tag 3 spkr. transf. and anode pin V2.
L17	78.2	—	R6+ condenser C24 and demod. diode V3.
L18	1300	—	Outside tags on speaker.
Output trans. prim.	320	—	2 and 3 spkr. transf.
Mains trans. prim.	28	—	Mains plug.
Total H.T. sec.	553	—	V4 anode pins.



The two sides of the wave change switch are shown here, lettered corresponding to the circuit. The side seen from the back of the chassis is on the left.

## Ekco AW69 on Test

**MODEL AW69.**—Standard model for A.C. operation, 200-250 volts, 40-100 cycles. Price, 8½ gns.

**DESCRIPTION.**—Three-valve, plus rectifier, three-band table model superhet.

**FEATURES.**—Full-vision scale calibrated in metres and station names and in megacycles on short wave. List of short wave stations with wavelengths on dial. Controls for combined volume and master switch, wavechanging, tuning and tone. Sockets for extension L.S.

**LOADING.**—62 watts.

**Sensitivity and Selectivity**  
**SHORT WAVES (15-52 metres).**—Excellent gain, very well maintained, and good selectivity. No noticeable drift.

**MEDIUM WAVES (200-550 metres).**—Good all-round performance with local stations spreading on adjacent channels only. Good background.

**LONG WAVES (900-2,000 metres).**—All main stations well received, slight interference on Deutschland-sender.

**Acoustic Output**  
 Ample volume for an ordinary room, with crispness and good attack. Good medium and low-note radiation.

input to obtain reliable peaks in the output meter.

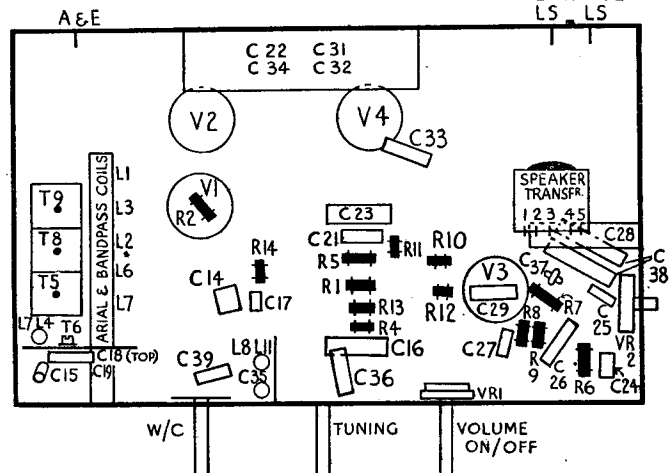
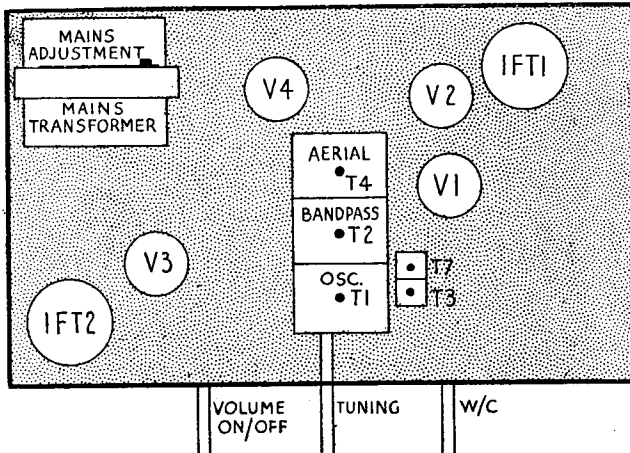
**Short Waves.**—Tune set and oscillator to 15 metres (20 mc.) and adjust T1 for maximum. Tune set and oscillator to 20 metres (15 mc.) and adjust T2 for maximum response.

**Medium Waves.**—Unscrew T6 to minimum capacity, tune set and oscillator to 200 metres (1,500 kc.) and adjust T3 for maximum.

Tune set and oscillator to 250 metres (1,200 kc.) and adjust T4 and T5 for maximum response.

Inject a fairly strong signal of 352 metres (850 kc.), tune in the image on receiver (about 500 metres) and adjust T6 for minimum response.

**Long Waves.**—Tune set and oscillator to 1,300 metres (230 kc.) and adjust T7, T8 and T9 in that order for maximum.



A neat arrangement of parts is found in the AW69 as these chassis diagrams show. Trimmers are accessibly placed both on top (left) and below (right.)

For more information remember  
[www.savoy-hill.co.uk](http://www.savoy-hill.co.uk)