EKCO BAW71

Four - valve, three - waveband battery-operated table model superhet in moulded cabinet. For operation from 2v. accumulator. Made by E. K. Cole, Ltd., Aston Clinton, Bucks.

Circuit.—A simple transformer, L7 and L1, forms the S.W. input to V1, the frequency-changer. On M. and L.W. the input is band-pass. L5 and L6 are the M. and L.W. grid coils respectively, and L2, L3 the corresponding aerial coils. L3 is inductively coupled to the aerial by L1. L2 is capacitively coupled from a tapping via C14 and a switch. L1 is shorted out on S.W.

An image rejector trimmer, T9, is between the aerial side of C14 and L5. C21 is between the top of L3 and the bottom of L6 via a switch.

L2 is trimmed by T5 on the gang condenser aerial section and L3 by a separate trimmer, T8. L5 is trimmed by T4 across the gang grid section and L6 by T7.

A.V.C. is applied to V1 via the grid coils on all three bands, being decoupled by C15 and supplied via R4.

V1 screen is supplied by R1 and decoupled by C16. The oscillator is tuned grid with separate anode reaction coils on each band. The transformers are S.W.: L11 (primary), L8 (secondary); M.W., L12, L9; L.W., L13, L10.

The oscillator anode is decoupled by C17 and the voltage reduced first by R16 and then (for M. and L.W.) by R15. C36 is across R15, C35 provides extra decoupling, and a switch shorts out C36, R15, L12 and L13 on S.W.

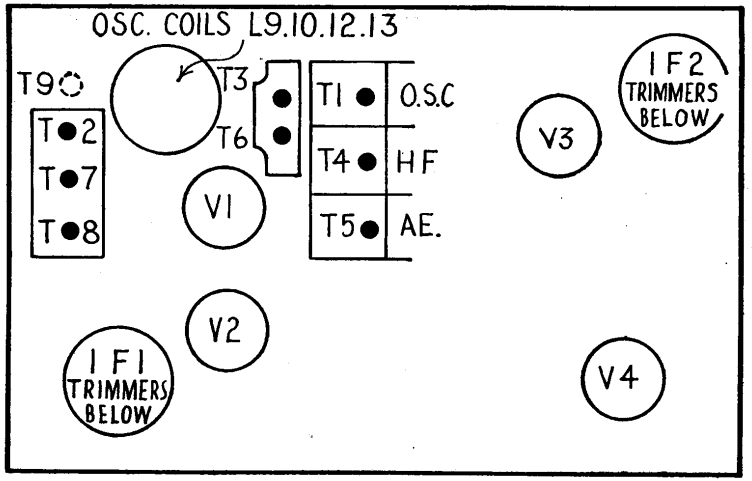
The oscillator grid has R17 for an harmonic reducer and R2 for the leak down to L.T.+. The grid condenser C20 leads to the grid coils via a switch The S.W. trimmer is on the gang. Padding is fixed on each band.

A conventional I.F. transformer, with primary connected to full H.T., leads to V2, the I.F. amplifier. The screen of this is fed by R3 and decoupled by C22. A.V.C. is applied via the transformer secondary, being supplied by R14 and decoupled by C37.

The A.V.C. diode of V3 is energised from V2 anode via C23, the control being developed across R5 and R13, which is returned for delay bias to the junction of R10 and R11, which are between L.T.— and H.T.—. V2 is controlled from the junction of R5 and R13.

The I.F. transformer in the anode of V2 is fed from an H.T. dropper R9. The screens of V1 and V2 and the anode of V3 are also fed via R9.

The signal demodulation diode circuit of V3 is orthodox. R6 with C24 and C25 forms an I.F. filter. R7 is the load, being returned to L.T.+. C26 passes the L.F. to VR1, the volume control, which obtains bias for the triode section by returning to the R10, R11 junction.



Top-of-chassis layout diagram of the Ekco BAW71, showing how the trimmers, valves, and some of the coils are located. The image rejector, T.9, is adjustable from the front of the set.

CIRCUIT DIAGRAM

E. K. Cole, Ltd., do not permit us to publish the circuit diagram of this receiver. However, the circuit description above will enable the engineers to follow the stage-by-stage design, while the tables give the purpose and value of every component. Absence of a circuit should cause no difficulty with the great majority of repairs.

C38 is a tone condenser between VR1 slider and L.T.—.

R8 in V3 anode and C28 pass the signal to the primary of the intervalve transformer. This has a centre-tapped secondary feeding the two sections of V4, a Q.P.P. output valve.

This has a push-pull output transformer with a tone control (C33 and VR2 in series) between the anodes as well as a fixed tone condenser, C30. C29 and C32 go from each anode to chassis.

C39 is between the V4 grids, R12 is a stabiliser in the common grid return to H.T.—, and C31 is an electrolytic across the bias potentiometer R10, R11 (the latter being on the chassis side).

Notes.—A 135 v. H.T. battery is required and may be a Drydex H1131, Pertrix 494, Hellesen A230, Ever-Ready 53 or Siemens 1314. The 2 v. cell should be an Exide DMG or GKG5. H.T. consumption should be 10 ma and L.T., .75 amp.

An extension speaker should be of 3 ohms impedance.

GANGING

I.F. Circuits.—Inject 126·5 kcs. to V1 grid and adjust I.F. trimmers for maximum, reducing the input as the coils come into line.

S.W. Band.—See that pointer registers with end of scale, with gang at maximum.

Inject 18 metres, tune to this point and adjust T1. Inject 20 m., tune to this point and adjust T2.

M.W. Band.—Tune to 200 m., inject 1,500 kcs. and adjust T3. Tune to 250 m., inject 1,200 kcs. and adjust T4 and T5.

L.W. Band.—Tune to 1,300 m. Inject 230 kcs. and adjust T6. Then adjust T7 and T8.

Padding is fixed on all bands, but check calibration at the high wavelength ends, readjusting trimming and compromising if necessary.

Image Rejection.—Tune receiver to 747 kcs., inject 1,000 kcs. and adjust T9 for minimum.

VALVE READINGS

V	Type	Electrode	Volts.	Ma.
1	TH2	Anode	126	.54
		Screen	58	.35
		Osc. anode (M.L.W.)	35	.71
		Osc. anode (S.W.)	61	1.32
2	VP2B	Anode	106	1.15
		Screen	44	.45
3	TDD2A	Anode	81	.58
4	QP22B	Anodes	125	2.45
		Screen	126	.82

Bias volts across R11, 1.0v.
Bias volts across R10, R11, 10v.

WINDINGS

L	Purpose	Mfds.
14	M.W. aerial coupling	.001
15	V1 A.V.C. decoupling	.1
16	V1 screen decoupling	.1
17	V1 osc. anode decoupling	.1
18	L.W. padding	800 mmfds.
19	M.W. padding	2,100 mmfds.
20	V1 osc. grid feed	50 mmfds.
21	L.W. top bandpass coupling	.00012
22	V2 screen decoupling	.1
23	A.V.C. diode feed	15 cms.
24	Signal diode I.F. filter	.0001
25	Signal diode I.F. filter	.0001
26	L.F. coupling to V.C.	.01
27	V3 anode decoupling	4
28	V3–V4 L.F. coupling	.1
29	V4 anode shunt	.003
30	Between V4 anodes	.003
31	Bias potmeter decoupling	50
32	V4 anode shunt	.003
33	V4 anode tone control	.02
34	V3 anode shunt (I.F. by-pass)	.0003
35	V1 osc. anode decoupling	.1
36	Across R15	.001
37	V2 A.V.C. decoupling	.01
38	V3 grid-chasis tone shunt	.0002
39	Between V4 grids	50 mmfds.

RESISTANCES

R	Purpose	Ohms.
1	V1 screen feed	200,000
2	V1 osc. grid leak	100,000
3	V2 screen feed	150,000
4	V1 A.V.C. feed	1 meg.
5	A.V.C. diode load (part)	470,000
6	Signal diode I.F. stopper	68,000
7	Signal diode load	470,000
8	V3 anode load	47,000
9	V1, V2, V3 H.T. dropper	6,800
10	Bias potmeter (part)	820
11	Bias potmeter (part)	100
12	V4 bias decouple	100,000
13	A.V.C. diode load (part)	270,000
14	V2 A.V.C. feed	1 meg.
15	V1 osc. anode volt dropper	82,000
16	V1 osc. anode volt dropper	47,000
17	V1 osc. grid stopper	39

WINDINGS

L.	Purpose	Ohms.
1	L.W. aerial coil	24
2	M.W. aerial	2.5
3	L.W. aerial secondary	27
4	V1 S.W. grid coil	V. low
5	V1 M.W. grid	2.5
6	V1 L.W. grid	27
7	Aerial S.W. coil	V. low
8	Osc. S.W. grid	V. low
9	Osc. M.W. grid	4.5
10	Osc. L.W. grid	17
11	Osc. S.W. anode	V. low
12 & 13	Osc. M. and L.W. anode	5
14—17	I.F. windings	70
18	L.F. trans. primary	420
19	L.F. trans. secondary (1)	1,600
20	L.F. trans. secondary (2)	1,300
21	Output trans. primary (1).	740
22	Output trans. primary (2).	680
23	Output trans. secondary	V. low

Wireless Service Manual

THE *Wireless Service Manual*, by W. T. Cocking, A.M.I.E.E., has reached its sixth edition. The book has been enlarged—it just tops 300 pages—and in addition to many revisions it has a new chapter on automatic frequency control.

The book is essentially practical, and assumes that the reader has quite a fair knowledge of the underlying principles of how a set and its component parts operate. The learner should certainly precede, or at least supplement, study of the book with that of another on elementary theory.

Mr. Cocking begins by describing testing equipment, how it should be used and how its indications should be interpreted. Valve testing is dealt with next, and then follow chapters giving symptoms and causes of all the common faults, such as hum, instability, distortion and noise.

Ganging and the causes of whistles are dealt with at some length, and the sections on A.V.C. and A.F.C. are well done. The chapter on television receivers has been retained together with one on the use of cathode-ray test gear. Short-wave sets, speakers and e xtension speakers have individual chapters.

At the end are appendices giving technical reference material, including colour codes and a comprehensive list of British, American and Continental valves and bases. Constructional details of simple test units are reprinted from *Wireless World*.

Published by Iliffe & Sons, Ltd., at 6s., the volume is available from Odhams Press Technical Book Dept., 92, Long Acre, London, W.C.2, at 6s. 6d. ost free.