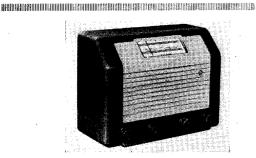
"TRADER" SERVICE SHEET

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HREE wavebands are covered in the Ekco A44, the S.W. range being 16-51m. Provision is made for the connection of a gramophone pick-up and an external speaker. Three-position tone control is associated with the negative feedback circuit. Release date and original price: October, 1947; £17 17s plus purchase tax.

CIRCUIT DESCRIPTION

Aerial input is via coupling coils L2 (S.W.), L3. (M.W.) and L4 (L.W.) to single-tuned circuits L5, C37 (S.W.), L6, C37 (M.W.) and L7, C37 (L.W.). I.F. filtering by L1, C1 across aerial circuit.

First valve (V1, Mullard metallized ECH35) is a triode-hexode operating as frequency changer with internal coupling. Triode oscillator anode coils L11 (S.W.), L12 (M.W.) and L13 (L.W.) are tuned by C41, (W.W.) and C13, C40 (L.W.) and Series tracking by C12 (S.W.), C44 (M.W.) and C15 (L.W.). Inductive reaction coupling to C.G. by coils L8 (S.W.), L9 (M.W.) and L10 (L.W.), with additional capacitative coupling on S.W. due to the common impedance of tracker C12. Second valve (V2, Mullard metallized EF39) is a variable-mu R.F. pentode operating as I.F. amplifier with tuned transformer couplings.

Intermediate frequency 460 Kc/s.

3-BAND SUPERHET

Diode second detector is part of double diode pentode output valve (V3, Mullard metallized EBL31). Audio frequency component in rectified output is developed across load resistor R12 and passed via A.F. coupling capacitor C26, manual volume control R13, and tone control network resistors R14, R16 to C.G. of pentode section. I.F. filtering in diode anode circuit by C23, R10, C24.

Three-position tone control in pentode circuit via switches \$10-\$12, by R14, R15, R16 and C27, C28 in conjunction with the voltage negative feed-back resistors R17, R18.

Second diode of V3, fed from V2 anode via C25, provides D.C. potential which is used for A.V.C. purposes. Delay voltage, together with G.B. for pentode section, is obtained from the drop along R19, R20 in V3 cathode lead to chassis.

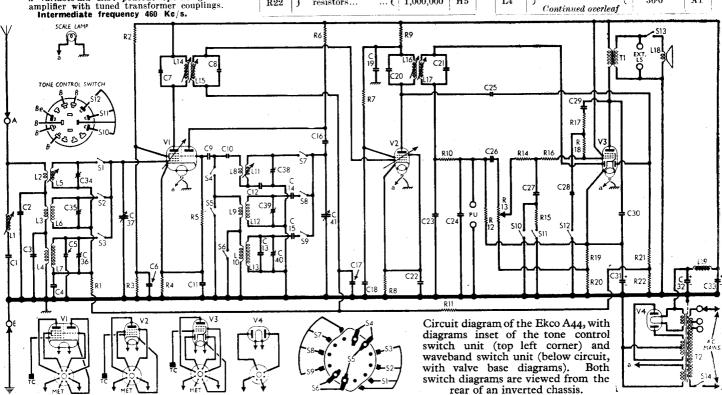
COMPONENTS AND VALUES

RESISTORS		Values (ohms)	Loca- tion
R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14 R15 R16 R17 R18 R19 R20 R21	V1 hex. C.G. decoup. V1 S.G. H.T. poten- tial divider V1 fixed G.B. V1 osc. C.G. Osc. H.T. feed V2 S.G. feed V2 fixed G.B. V2 H.T. decoup. L.F. stopper A.V.C. decoupling Signal dlode load Volume control Tone control re- sistors V3 G.B., and A.V.C. delay resistors V3 G.B., and A.V.C. delay resistors A.V.C. diede load	100,000 33,000 33,000 33,000 47,000 68,000 220 47,000 1,000,000 68,000 68,000 68,000 68,000 10,000,000 150 220 470,000	J4 15 15 15 15 15 16 H6 H6 H6 G3 F4 F4 E5 H5
R22	f resistors t	1,000,000	H5

	CAPACITORS	Values	Loca-
	•	(μF)	tion
C1	I.F. Filter tuning	0.00015	J5
C2	Aerial M.W. shunt	0.00047	14
C3	Aerial L.W. shunt	0.00082	A1
C4	V1 hex. C.G. decoup.	0.1	J4
C5	L.W. fixed trim	0.000082	14
Č6	V1 S.G. decoup	0.1	Ĵŝ.
C7	1st I.F. transformer	0.000068	A2
Č8	tuning	0.000068	A2
Č9	VI osc. C.G. capaci-	0.0002	[5
čio	{ tors }	0.00005	15
čii	V1 cath. by-pass	0.1	J4
C12	S.W. tracker	0.0047	H4
Č13	L.W. fixed trim	0.00022	H4
C14	M.W. tracker	0.00054	H4
Č15	L.W. tracker	0.0004	H4
C16	Osc. anode coup	0.0001	14
C17	V2 C.G. decoup	0.1	15
C18	V2 S.G. decoup	0.1	H6
C19	V2 H.T. decoup	0.1	16
C20) 2nd I.F. transfor-	0.00015	B2
C21	mer tuning \	0.00015	B2
C22	V2 cath. by-pass	0.1	16
C23	}I.F. by-passes {	0.0001	H6
C24	1)	0.0001	H6
C25	A.V.C. coupling	0.000015	H5
C26	A.F. coupling	0.01	E3
C27	Tone control capaci-	0.0025	G4
C28	tors	0.0000 11	F3
C29	1)	0.0025	F4
C30	Tone corrector	0.0025	G6
C31*	V3 cath. by pass	25.0	E4
C32*	H.T. smoothing cap-	8.0	D1
C33*	Aerial S.W. trim	16.0	D1
C34‡			14
C35‡	Aerial M.W. trim		A1 A1
C36‡	Aerial L.W. trim		B1
C37†	Aerial tuning		13
C38‡	Osc. S. W. trim		H5
C39‡	Osc. M.W. trim Osc. L. W. trim	_	H5
C40‡	Oscillator tuning'		Bi
C41†	Oscillator tuning		Dt
l	•	t	

* Electrolytic. † Variable. ‡ Pre-set.

		Approx	
го	THER COMPONENTS	Values (ohms)	Loca- tion
L1 L2 L3 L4	I.F. filter coil Aerial coupling coils Continued overleaf	53·0 0·2 12·0 36·0	J5 J4 A1 A1



EKCO

Supplement to The Wireless & Electrical Trader, January 10, 1948

O,	THER COMPONENTS (continued)	Approx. Values (ohms)	Loca- tion
L5 L6 L7 L8 L9	Aerial tuning coils	Very low 4.0 28.0 0.2 1.0 1.5	J4 A1 A1 15 H5 G5
L10 L11 L12 L13 L14	Osc. tuning coils \\ Ist I.F. trans. \{ \begin{aligned} \Pri. \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	Very low 3.0 5.5 17.0	H5 H5 G5 A2 A2
L15 L16 L17 L18 L19	2nd I.F. trans. Pri. Sec. Speech coil H.T. choke	9.0 9.0 2.5 580.0	B2 B2 F4
T1 T2	Output trans { Pri. Sec. Sec. Pri., total Heat sec., Rect. heat sec.	$380.0 \\ 0.25 \\ 40.0 \\ 0.2 \\ 0.1$	B1 B1 D2 D2 D2
\$1-\$9 \$10- \$12 \$13 \$14	Waveband switches Tone control switches Int. speaker switch Mains sw, g'd R13	580·0 — — —	D2 H4 F3 H6 E3

GENERAL NOTES

Switches.—S1-S9 are the waveband switches, ganged in a single rotary unit beneath the chassis, as indicated in our under-chassis view. The unit is shown in detail in the diagram inset beneath the circuit diagram overleaf as seen from the rear of an inverted chassis. The table below gives the switch positions for the three control settings, starting from the fully anti-clockwise position of the control knob. A dash indicates open, and C, closed.

Switch	s.w.	M.W.	L.W.
81	С		
82		: C	_
S3			C
84		С	C
85	C		
86	_	C	
57	C		_
		C	
S8 S9			С

S10-S12 are the tone control switches, ganged in a 3-position unit beneath the chassis. In the fully anti-clockwise position of the control, S10 closes, giving deepest tone; in the next position, S10 opens and S11 closes; in the fully-clockwise position, S11 opens and S12 closes, modifying the feed-back characteristic. The diagram is inset with the circuit overleaf.

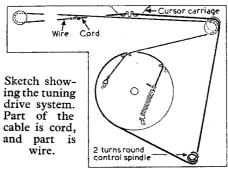
Scale Lamp.—This is an Osram M.E.S. type, rated at 6.5 V, 0.3 A. It has a small clear bulb, and is mounted at the centre of the chassis deck, giving a flood-lit effect to the scale.

Plan view of the chassis. L5 core adjustment is in square AI on the deck, but is covered here by the label "C3

External Speaker.—
Two sockets and a switch are provided at the rear of the chassis for the connection of a low impedance (about 3 \(\Omega)\) external speaker. The switch (\$13) permits the internal speaker to be muted.

Drive Cord Replacement.—The drive cord consists of 33 ins. of wire and 31 ins. of cord, joined

brive Cord Replacement.—In a drive cord coin sists of 33 ins. of wire and 31 ins. of cord, joined at the point indicated in the sketch below, where the whole system is clearly shown as seen from the front of the set when the gang is at maximum. The requisite materials may be obtained from the manufacturers.



VALVE ANALYSIS

Valve voltages and currents given in the table below are those quoted by the manufacturers. The meter resistance was 1.000 Ω per V.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	
V1 ECH35	$\left\{egin{array}{l} 263 \\ ext{Oscil} \\ 127 \end{array} ight.$	$\left\{egin{array}{c} 1.65 \ lator \ 3.25 \end{array} ight\}$	80	2.6
V2 EF39	241	7.6	102	2.25
V3 EBL31	250	36.5	263	4.0
V4 AZ31	287†			
	†Each a	node, A.C) <u>. </u>	<u> </u>

CIRCUIT ALIGNMENT

These operations should be carried out with the chassis in the cabinet, holes being provided in the bottom to give access to under-chassis adjustments.

T2

in the bottom to give access to under-chassis adjustments.

I.F. Stages.—Switch set to M.W., turn gang and volume control to maximum, connect signal generator (via an 0.1 μ F capacitor) to control grid (top cap) of V1 and the E socket, feed in a 460 Ke/s (652.1 m) signal, and adjust the cores of L17, L16, L15 and L14 (location references B2, A2) in that order for maximum output.

output.

1.F. Filter.—Transfer "live" signal generator lead (via an 0.0002µF capacitor) to A socket, feed in a 460 Kc/s signal, and adjust the core of L1 (J5) for minimum output.

R.F. and Oscillator Stages.—With the gang at

R.F. and Oscillator Stages.—With the gang at maximum capacitance the cursor should coincide with the vertical lines at the high wavelength ends of the three scales. It may be adjusted in position by sliding the carriage along the drive cord.

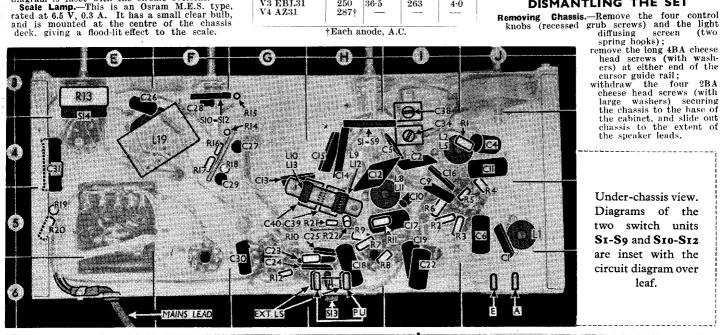
S.W.—Switch set to S.W., tune to 20 m on scale, feed in a 20 m (15 Mc/s) signal, and adjust C38 (I3) and C34 (I4) for maximum output. Tune to 50 m on scale, feed in a 50 m (6 Mc/s) signal and adjust the cores of L11 (B2) and L5 (A1) for maximum output. Repeat these adjustments.

adjustments.

M.W.—Switch set to M.W., tune to 200 m on scale, feed in a 200 m (1,500 Kc/s) signal, and adjust G39 (B2) for maximum output. Tune to 231 m on scale, feed in a 231 m (1,300 Kc/s) signal, and adjust G35 (A1) for maximum output.

L.W.—Switch set to L.W., tune to 1,200 m on scale, feed in a 1,200 m (250 Kc/s) signal, and adjust C40 (B2) and C36 (A1) for maximum output.

DISMANTLING THE SET



Under-chassis view. Diagrams of the two switch units SI-S9 and SIO-SI2 are inset with the circuit diagram over leaf

Printed in England by The Cornwall Press Ltd., Paris Garden, London, S.E.1