"TRADER" SERVICE SHEET

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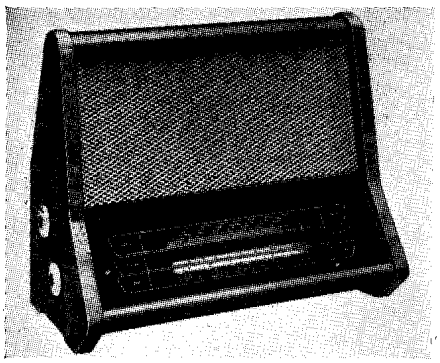
ALBA 3841



AN optional internal aerial is provided on the Alba 3841, a 3-band A.C. superhet using five Mullard valves. Provision is made for the connection of a gramophone pick-up and a low impedance external speaker.

The waveband ranges are 16-53 m, 190-570 m and 900-2,000 m, a fourth position being provided on the waveband switch control for gramophone operation.

Release date and original price: May 1953, £16 13*s* 10*d*. *Purchase tax extra.*

CIRCUIT DESCRIPTION

Aerial input via coupling coils **L1** (S.W.), **L2** (M.W.) and **L3** (L.W.) to single-tuned circuits **L4, C33** (S.W.), **L5, C33** (M.W.) and **L6, C33** (L.W.) which precede triode hexode valve **(V1, Mullard ECH42)** operating as frequency changer. Provision is made for the connection of an internal "capacity" aerial, which consists of several turns of wire looped on the inside of the cabinet back cover.

Oscillator grid coils **L7, L8** and **L9** are tuned by **C34**. Parallel trimming by **C35** (S.W.), **C36** (M.W.) and **C10, C37**

(Continued col. 1 overleaf)

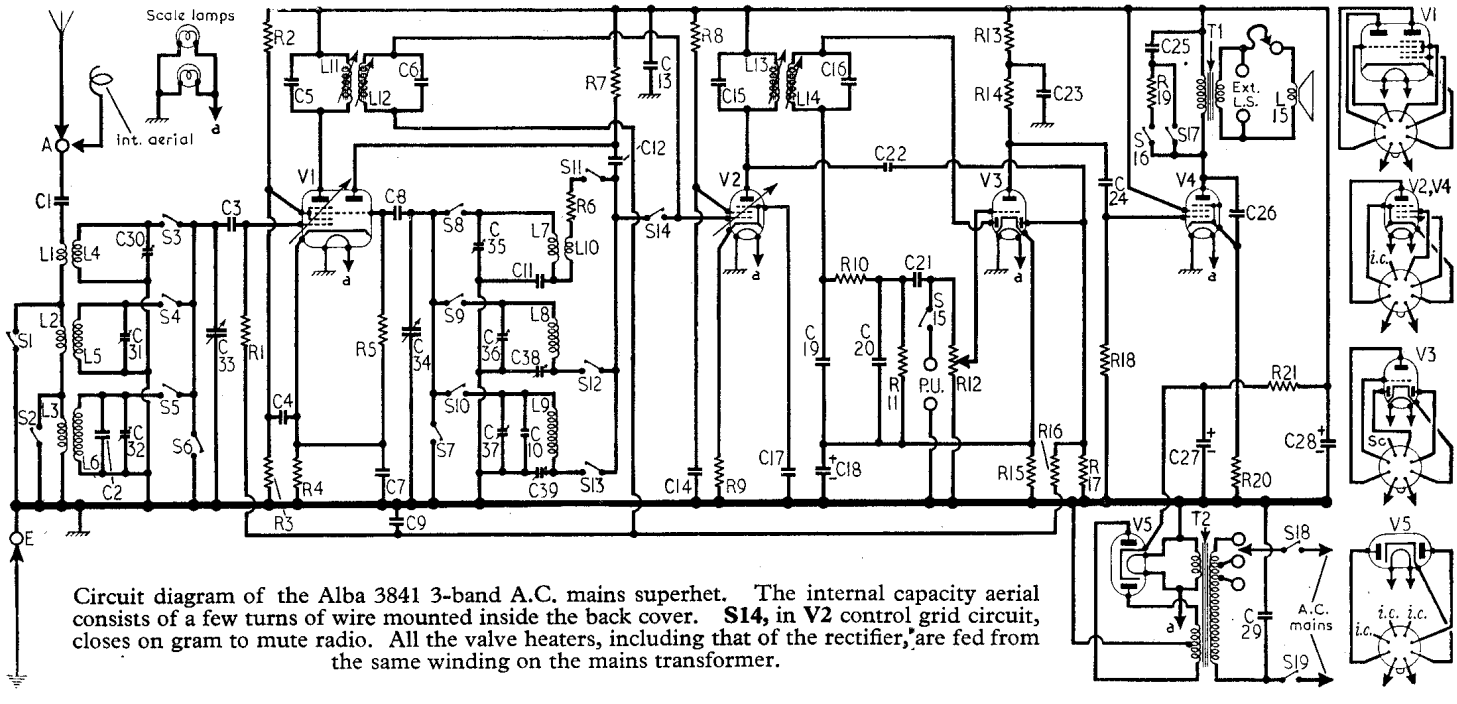
COMPONENTS AND VALUES

	CAPACITORS	Values	Locations
C1	Aerial series ...	200pF	H4
C2	L.W. aerial trim ...	100pF	G4
C3	V1 C.G.	100pF	H3
C4	V1 S.G. decoupling	0·1μF	G4
C5	1st I.F. trans. tuning	100pF	B2
C6		100pF	B2
C7	V1 cath. by-pass...	0·1μF	G4
C8	V1 osc. C.G. ...	100pF	H3
C9	A.G.C. decoupling	0·05μF	G3
C10	L.W. osc. trim. ...	47pF	H4
C11	S.W. osc. tracker...	5,343pF	G3
C12	Osc. reaction coup.	100pF	H3
C13	H.T. by-pass ...	0·25μF	G3
C14	V2 S.G. decoup. ...	0·1μF	G4
C15	2nd I.F. trans. tuning	100pF	C2
C16		100pF	C2
C17	V2 cath. by-pass...	0·1μF	G4
C18*	V3 cath. by-pass...	25μF	F3
C19	I.F. by-passes ...	100pF	G3
C20		100pF	G3
C21	A.F. coupling ...	0·005μF	G4
C22	A.G.C. coupling ...	12pF	F4
C23	H.T. decoupling ...	0·1μF	F4
C24	A.F. coupling ...	0·005μF	F4
C25	Part tone control...	0·05μF	E3
C26	Tone corrector ...	0·005μF	F4
C27*	H.T. smoothing ...	32μF	D2
C28*		32μF	D2
C29	Mains R.F. filter...	0·01μF	E4
C30‡	S.W. aerial trim ...	65pF	A2
C31‡	M.W. aerial trim...	65pF	A2
C32‡	L.W. aerial trim....	65pF	A2
C33†	Aerial tuning ...	528pF§	A2
C34†	Oscillator tuning...	528pF§	A2
C35‡	S.W. osc. trim. ...	65pF	A1
C36‡	M.W. osc. trim. ...	65pF	A1
C37‡	L.W. osc. trim. ...	65pF	A1
C38‡	M.W. osc. tracker...	500pF	B1
C39‡	L.W. osc. tracker...	200pF	B1

* Electrolytic. † Variable. ‡ Pre-set.
§ "Swing" value, min. to max.

	RESISTORS	Values	Locations
R1	V1 C.G.	1MΩ	G4
R2	V1 S.G. pot.	22kΩ	G3
R3	divider ...	33kΩ	G3
R4	V1 G.B.	220Ω	G4
R5	V1 osc. C.G. ...	47kΩ	G3
R6	S.W. osc. stabilizer	100Ω	H3
R7	Osc. anode feed ...	27kΩ	G3
R8	V2 S.G. feed ...	90kΩ	G4
R9	V2 G.B.	330Ω	G4
R10	I.F. stopper ...	47kΩ	G4
R11	Signal diode load ...	560kΩ	F4
R12	Volume control ...	250kΩ	D2
R13	V3 H.T. decoupling	47kΩ	F4
R14	V3 anode load ...	47kΩ	F4
R15	V3 G.B.	2·2kΩ	F4
R16	A.G.C. decoupling	1MΩ	F4
R17	A.G.C. diode load	1MΩ	F4
R18	V4 C.G.	820kΩ	F4
R19	Part tone control	10kΩ	E3
R20	V4 G.B.	200Ω	F4
R21	H.T. smoothing ...	560Ω	E4

	OTHER COMPONENTS	Approx. Values (ohms)	Locations
L1	aerial coupling coils	—	H4
L2		—	H4
L3		—	H4
L4		—	H4
L5	Aerial tuning coils	3·0	H4
L6		9·5	H4
L7	Oscillator tuning coils	—	H3
L8		2·0	H3
L9		4·5	H3
L10	Osc. reaction coil	—	H3
L11	1st I.F. trans Pri.	11·0	B2
L12	1st I.F. trans Sec.	11·0	B2
L13	2nd I.F. trans. Pri.	11·0	C2
L14	2nd I.F. trans. Sec.	11.0	C2
L15	Speech coil ...	2·5	—
T1	O.P. trans. Pri.	420·0	—
	O.P. trans. Sec.	—	
T2	Mains trans. Pri., total	40·0	
	Mains trans. H.T. sec., total	520·0	D2
	Mains trans. Htr. sec.	—	
S1-S15	Waveband switches	—	H3
S16, S17	Tone control switches	—	E3
S18, S19	Mains sw., g'd R12	—	D2



Circuit diagram of the Alba 3841 3-band A.C. mains superhet. The internal capacity aerial consists of a few turns of wire mounted inside the back cover. **S14,** in **V2** control grid circuit, closes on gram to mute radio. All the valve heaters, including that of the rectifier, are fed from the same winding on the mains transformer.

Circuit Description—*continued*

(L.W.); series tracking by **C11** (S.W.), **C38** (M.W.) and **C39** (L.W.). Reaction coupling from oscillator anode across the common impedance of the trackers, with additional coupling on S.W. by **L10.**

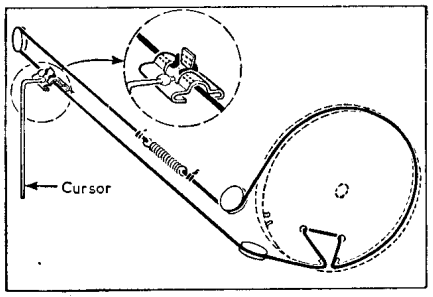
Second valve **(V2, Mullard EF41)** is a variable-mu R.F. pentode, operating as intermediate frequency amplifier with tuned transformer couplings **C5, L11, L12, C6** and **C15, L13, L14, C16.**

Intermediate Frequency 470 kc/s.

Diode signal detector is part of double diode triode valve **(V3, Mullard EBC41).** A.F. component in rectified output is developed across diode load **R11** and passed via **C21** and volume control **R12** to grid of triode section, which operates as A.F. amplifier. I.F. filtering by **C19, R10** and **C20.**

Second diode of **V3** is fed from **V2** anode via **C22** and the resulting potential developed across load resistor **R17** is fed back as bias to **V1** and **V2** giving automatic gain control.

Resistance capacitance coupling by **R14, C24** and **R18** between **V3** and pentode output valve **(V4 Mullard EL41).** Fixed tone correction by **C26** and by the negative feed-back voltage developed across **R20,** which has no by-pass capacitor. Three-position tone control in anode circuit by switches **S16, S17** and **C25, R19.**



Three-quarter front view of the tuning drive system. The sketch inset shows how the cord is fastened.

GENERAL NOTES

Switches.—S1-S15 are the waveband and radio/gram switches ganged in a single rotary unit beneath the chassis. The unit is indicated in our underside drawing of the chassis, where it is mounted on the right-hand side chassis member. It is shown in detail in the diagram in column 2, where it is drawn as seen from the opposite end of an inverted chassis. The table below it gives the switch positions for the four control settings, starting from the fully anti-clockwise setting of the control knob. A dash indicates open and **C** closed.

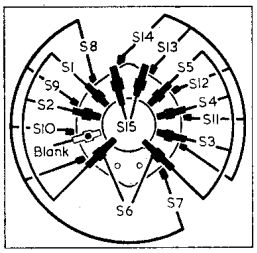
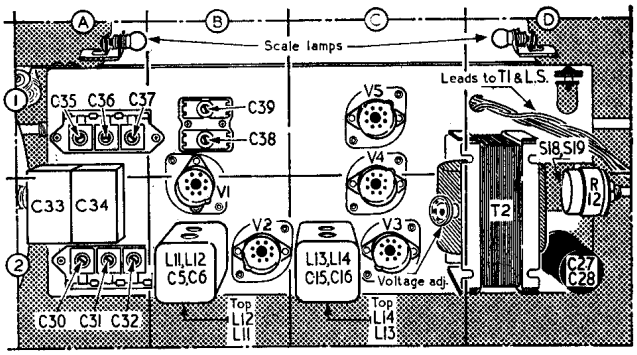


Diagram of the waveband switch unit (above) and plan view of the chassis (right).



Switches	S.W.	M.W.	L.W.	Gram.
S1	C	—	—	—
S2	—	C	—	—
S3	C	—	—	—
S4	—	C	—	—
S5	—	—	C	—
S6	—	—	—	C
S7	—	—	—	C
S8	C	—	—	—
S9	—	C	—	—
S10	—	—	C	—
S11	C	—	—	—
S12	—	C	—	—
S13	—	—	C	—
S14	—	—	—	C
S15	—	—	—	C

S16, S17 are the tone control switches in a 3-position unit on a side-member of the chassis. The unit is shown in detail in the under chassis drawing (location reference E3).

In the fully anti-clockwise position of the control **S17** closes for deep tone, in the central position, **S16** closes for medium tone, and in the fully clockwise position both switches are open.

Scale Lamps.—These are 6.5 V, 0.3 A lamps with small clear bulbs and M.E.S. bases.

External Speaker.—Two sockets are provided at the rear of the chassis for the connection of a low-impedance (about 3 Ω) external speaker. These are the outer sockets of the vertical row of three. The centre socket is provided for the internal speaker plug, withdrawal of the plug muting the speaker.

Drive Cord Replacement.—The gang drive is direct via an epicyclic reduction device, but a cord is used for the cursor drive. The course followed by the drive cord is shown in the sketch in col. 1, about four feet of high-grade flax fishing line, plaited and waxed, being required for a new cord.

The first operation is to thread the drive cord through the two holes in the face of the drive drum, near the gap in its rim. Then tie the tension spring to one end, and run the cord as shown, tying the other end of the cord at the free end of the spring. The cord can be drawn through the drum holes as required to bring the spring to the required position.

CIRCUIT ALIGNMENT

I.F. Stages.—The following adjustments can be made without removing the chassis from its cabinet. Connect output of signal generator, via an 0.1 μF capacitor in the "live" lead, to control grid (pin 6) of **V1** and chassis. Switch receiver to M.W. and turn gang to maximum. Feed in a 470 kc/s (638.3m) signal and adjust the cores of **L14** (location reference C2), **L13** (C2), **L12** (B2) and **L11** (B2) for maximum output. Repeat these adjustments.

R.F. and Oscillator Stages.—The following adjustments should be made with the chassis in the cabinet, as no calibration marks are provided on the chassis itself and the tuning scale is fixed to the cabinet. Our plan view of the chassis shows all the R.F. and oscillator adjustments which are easily accessible upon removing the cabinet back cover. Check that with the gang at maximum capacitance the cursor coincides with the high wavelength ends of the tuning scales. Transfer signal generator leads, via a suitable dummy aerial, to **A** and **E** sockets.

S.W.—Switch receiver to S.W., tune to 16.67m, feed in a 16.67m (18 Mc/s) signal and adjust **C35** (A1) and **C30** (A2) for maximum output. Tune receiver to 50m, feed in a 50m (6 Mc/s) signal and check calibration. Adjustments can be made if necessary by withdrawing the chassis from the cabinet and adjusting the spacing of the turns in the connecting lead to **L7,** labelled "S.W. Tracking adj.," in our under chassis view (location reference H3). Repeat these adjustments until calibration is correct at both ends of band.

M.W.—Switch receiver to M.W., tune to 200m, feed in a 200m (1,500 kc/s) signal and adjust **C36** (A1) and **C31** (A2) for maximum output. Tune receiver to 500m, feed in a 500m (600 kc/s) signal and adjust **C38** (B1) for maximum output while rocking the gang for optimum results. Repeat these adjustments.

L.W.—Switch receiver to L.W., tune to 800m, feed in an 800m (375 kc/s) signal and adjust **C37** (A1) and **C32** (A2) for maximum output. Tune to 1,949m, feed in a 1,949m (154 kc/s) signal and adjust **C39** (B1) for maximum output, while rocking the gang for optimum results.

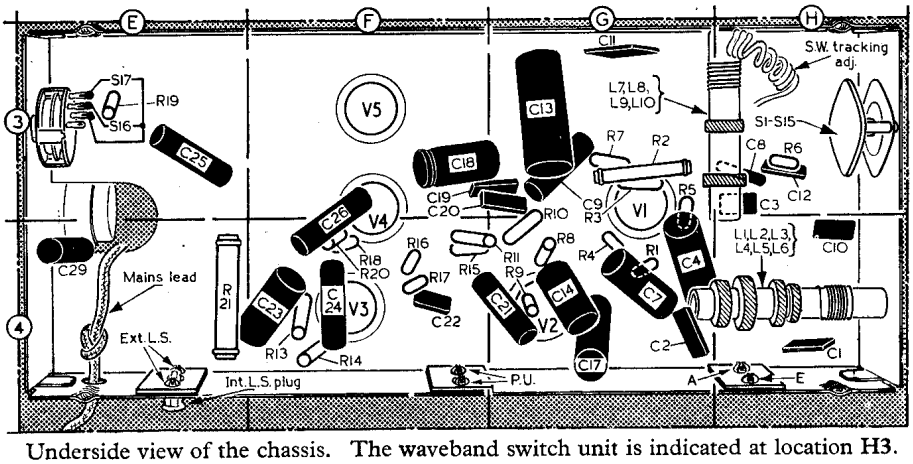
VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver and were taken with it operating from 240 V A.C. mains, the voltage adjustment being set to the 230 V tapping. The receiver was switched to M.W. and the gang turned to maximum, but there was no signal input.

Voltages were measured with an Avo Electronic TestMeter and as this instrument has a high internal resistance, allowance should be made for the current drawn by other types of meter. Chassis was the negative connection.

Valve	Anode V	Anode mA	Screen V	Screen mA	Cath. V
V1 ECH42	260 / Oscillator / 120	2·6 / — / 5·0	95	3·8	2·0
V2 EF41	260	5·2	95	1·8	2·3
V3 EBC41	180	0·85	—	—	1·8
V4 EL41	240	31·0	260	4·4	7·2
V5 EZ40	250*	—	—	—	290·0†

* Each anode, A.C. † Cathode current 53mA.



Underside view of the chassis. The waveband switch unit is indicated at location H3.

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