

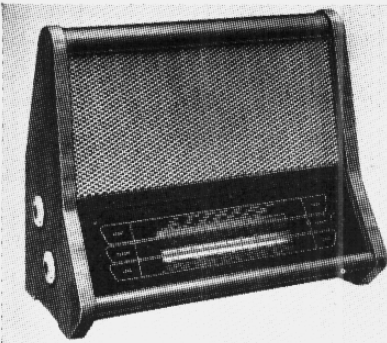
"TRADER" SERVICE SHEET  
**1111**

# ALBA 3841

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)



**A**N 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 13s 10d. 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

### 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         | ing ...                    | 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. decoupling ...     | 0.1μF   | G4        |
| C15        | 2nd I.F. trans. tuning ... | 100pF   | C2        |
| C16        | ing ...                    | 100pF   | C2        |
| C17        | V2 cath. by-pass ...       | 0.1μF   | G4        |
| C18*       | V3 cath. by-pass ...       | 25μF    | F3        |
| C19        | V3 ...                     | 100pF   | G3        |
| C20        | I.F. by-passes ...         | 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*       | H.T. smoothing ...         | 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        |

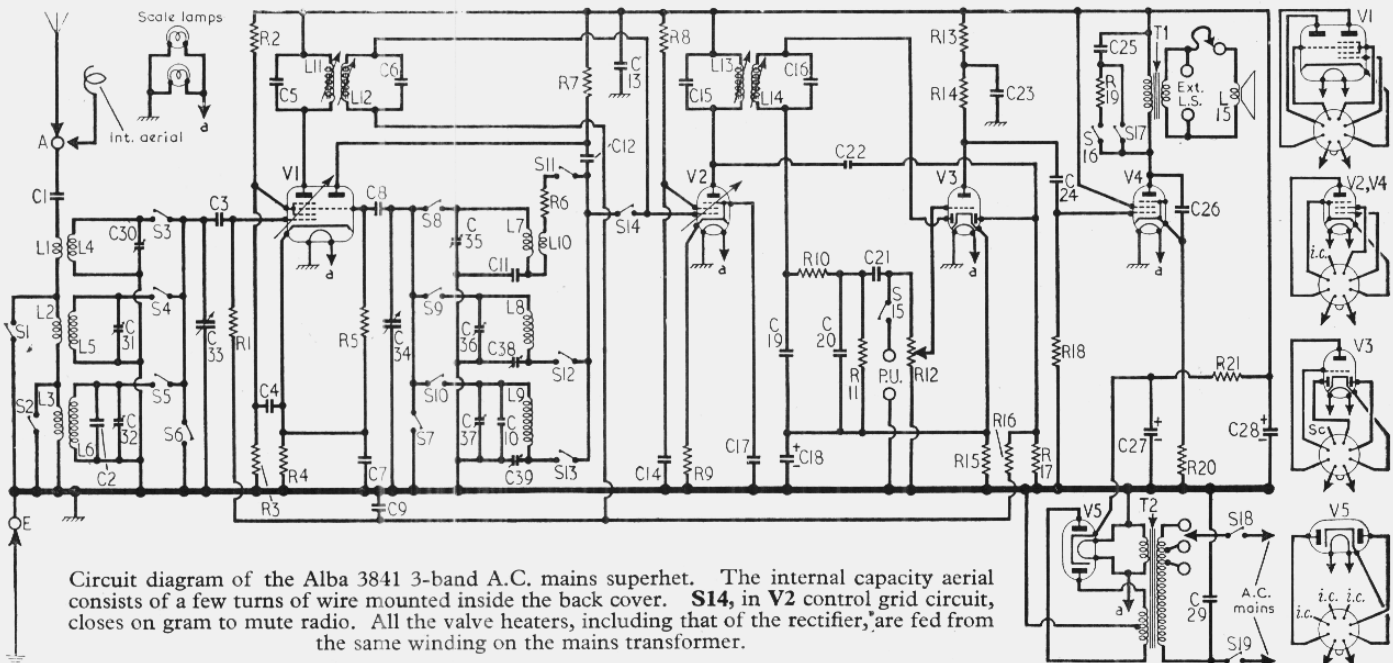
\* Electrolytic. † Variable. ‡ Pre-set. § "Swing" value, min. to max.

### RESISTORS

|     | Values                   | Locations |
|-----|--------------------------|-----------|
| R1  | V1 C.G. ...              | 1MΩ       |
| R2  | V1 S.G. pot. ...         | 22kΩ      |
| R3  | divider ...              | 33kΩ      |
| R4  | V1 G.B. ...              | 220Ω      |
| R5  | V1 osc. C.G. ...         | 47kΩ      |
| R6  | S.W. osc. stabilizer ... | 100kΩ     |
| R7  | Osc. anode feed ...      | 27kΩ      |
| R8  | V2 S.G. feed ...         | 90kΩ      |
| R9  | V2 G.B. ...              | 330Ω      |
| R10 | I.F. stopper ...         | 47kΩ      |
| R11 | Signal diode load ...    | 560kΩ     |
| R12 | Volume control ...       | 250kΩ     |
| R13 | V3 H.T. decoupling ...   | 47kΩ      |
| R14 | V3 anode load ...        | 47kΩ      |
| R15 | V3 G.B. ...              | 2.2kΩ     |
| R16 | A.G.C. decoupling ...    | 1MΩ       |
| R17 | A.G.C. diode load ...    | 1MΩ       |
| R18 | V4 C.G. ...              | 820kΩ     |
| R19 | Part tone control ...    | 10kΩ      |
| R20 | V4 G.B. ...              | 200Ω      |
| R21 | H.T. smoothing ...       | 560Ω      |

### OTHER COMPONENTS

|        | Approx. Values (ohms)               | Locations |
|--------|-------------------------------------|-----------|
| L1     | aerial coupling ...                 | H4        |
| L2     | aerial coupling ...                 | H4        |
| L3     | aerial coupling ...                 | H4        |
| L4     | aerial tuning coils ...             | H4        |
| L5     | aerial tuning coils ...             | 3-0       |
| L6     | aerial tuning coils ...             | 9-5       |
| L7     | Oscillator tuning coils ...         | H3        |
| L8     | Oscillator tuning coils ...         | 2-0       |
| L9     | Oscillator tuning coils ...         | 4-5       |
| L10    | Osc. reaction coil ...              | H3        |
| L11    | 1st I.F. trans. { Pri. ...          | 11-0      |
| L12    | 1st I.F. trans. { Sec. ...          | 11-0      |
| L13    | 2nd I.F. trans. { Pri. ...          | 11-0      |
| L14    | 2nd I.F. trans. { Sec. ...          | 11-0      |
| 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     |
|        | Mains trans. { Htr. sec. ...        | —         |
| S1-S15 | Waveband switches ...               | H3        |
| S16    | Tone control switches ...           | E3        |
| S17    | Tone control switches ...           | E3        |
| S18    | Tone control switches ...           | E3        |
| 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**.

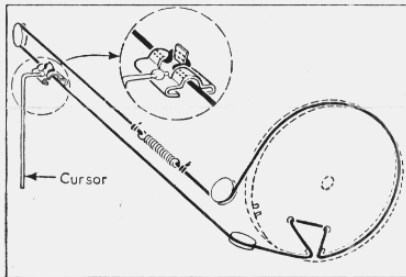


Diagram of the waveband switch unit (above) and plan view of the chassis (right).

| 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     |

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.

**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 3Ω) 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 1,940m, feed in a 1,940m (154 kc/s) signal and adjust **C39** (B1) for maximum output, while rocking the gang for optimum results.

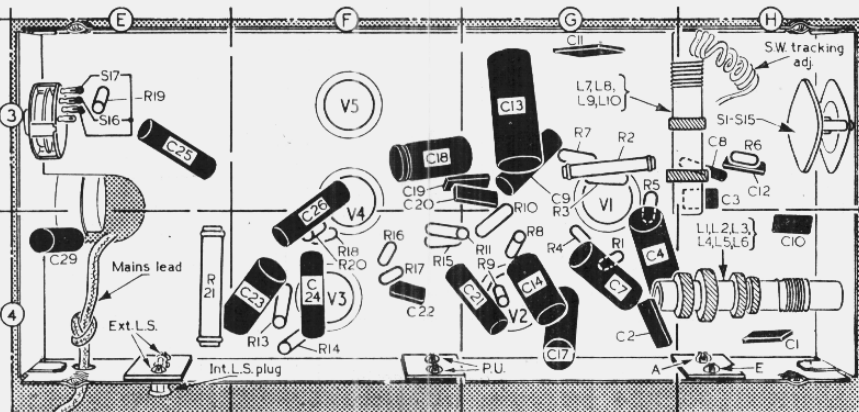
**VALVE ANALYSIS**

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      |      | Screen |     | Cath.  |
|----------|------------|------|--------|-----|--------|
|          | V          | mA   | V      | mA  |        |
| V1 ECH42 | 260        | 2.6  | 95     | 3.8 | 2.0    |
|          | Oscillator |      |        |     |        |
| V2 EF41  | 120        | 5.0  | 95     | 1.8 | 2.3    |
|          | 260        | 5.2  |        |     |        |
| 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.