*Supplement to Wireless & Electrical Trader, 22 December 1956*



"TRADER" SERVICE SHEET

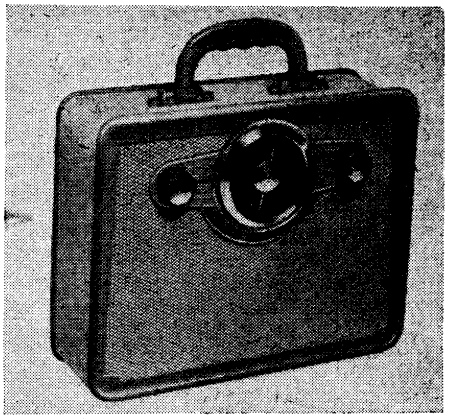
1281

# REGENTONE B1

## 2-band All-dry Battery Portable

EMPLOYING a ferrite rod internal aerial and four Mullard valves, the Regentone B1 is a 2-band all-dry battery portable. The waveband ranges are 187-570 m and 1,150-1,875 m.

*Release date and original price: June 1956, £9 17s 1d. Purchase tax and batteries extra.*



Appearance of the Regentone B1.

### CIRCUIT DESCRIPTION

Tuned internal aerial circuits **L1, C3** (M.W.) and **L1, L2, C3** (L.W.) precede heptode valve **V1** which operates as frequency changer with electron coupling.

Oscillator grid coil **L5** is tuned by **C10** for both M.W. and L.W. operation. Parallel trimming by **C11, C12** (M.W.) and **C13, C14** (L.W.); series tracking by **C9, C15** (M.W. and L.W.). Reaction coupling by **L6** and across the common impedance of **C15.**

**V2** is a variable-mu R.F. pentode operating as intermediate frequency amplifier with tuned transformer couplings **L3, L4** and **L7, L8.**

**Intermediate frequency 470 kc/s.**

Signal detector is formed by diode section of diode pentode valve **V3.** Audio frequency component in its rectified output is developed across volume control **R6,** and is passed via **C20** to **V3** pentode section, which operates as A.F. amplifier. I.F. filtering by **C19, C23.**

D.C. potential developed across **R6** is fed back as bias to **V1** and **V2** giving automatic gain control.

Resistance-capacitance coupling by **R9, C24** and **R10** between **V3** and pentode output valve **V4.** Tone correction by **C26.** Grid bias for **V4** is developed across **R11** in the H.T. negative lead to chassis.

### GENERAL NOTES

**Switches.—S1-S6** are the waveband/battery switches ganged in a single rotary unit on the chassis deck. This unit is indicated in the plan illustration of the chassis, and is shown in detail in the diagram in column 2, where it is drawn as viewed from the rear of an upright chassis.

Starting with the waveband/battery control knob set fully anti-clockwise, the control positions are: Off; L.W.; M.W.

*(Continued col. 1 overleaf)*

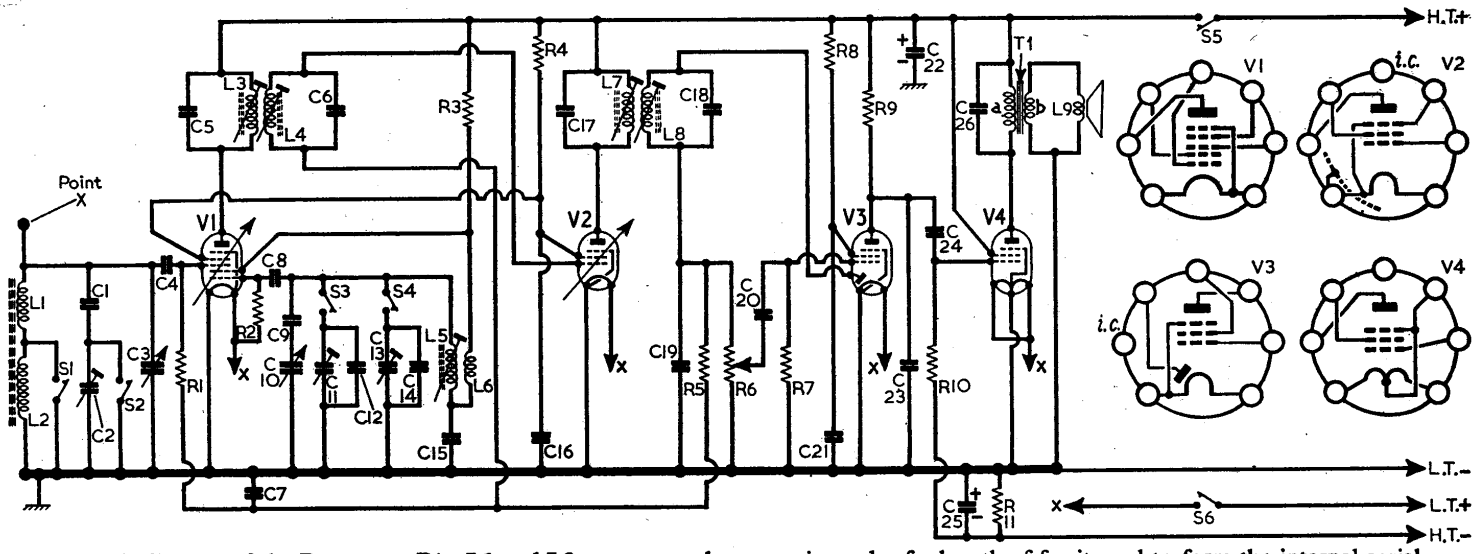
### COMPONENTS AND VALUES

| | CAPACITORS | Values | Locations |
|---|---|---|---|
| C1 | L.W. aerial trimmer | 275pF | A1 |
| C2 | M.W. aerial trimmer | 30pF | A1 |
| C3 | Aerial tuning ... | — | B1 |
| C4 | V1 C.G. ... ... | 220pF | E2 |
| C5 | 1st I.F.T. tuning | 100pF | A1 |
| C6 | 1st I.F.T. tuning | 100pF | A1 |
| C7 | A.G.C. decoupling | 0·1μF | F2 |
| C8 | V1 osc. C.G. ... | 220pF | F2 |
| C9 | Osc. tracker ... | 665pF | A1 |
| C10 | Oscillator tuning... | — | B1 |
| C11 | M.W. osc. trimmers | 30pF | A1 |
| C12 | M.W. osc. trimmers | 15pF | A1 |
| C13 | L.W. osc. trimmers | 30pF | A1 |
| C14[1] | L.W. osc. trimmers | 640pF | A1 |
| C15 | Osc. tracker ... | 4,700pF | A1 |
| C16 | S.G. decoupling ... | 0·1μF | E2 |
| C17 | 2nd I.F.T. tuning | 100pF | C1 |
| C18 | 2nd I.F.T. tuning | 100pF | C1 |
| C19 | I.F. by-pass ... | 100pF | D2 |
| C20 | A.F. coupling ... | 0·01μF | D2 |
| C21 | V3 S.G. decoupling | 0·01μF | D2 |
| C22 | H.T. battery by-pass ... ..... | 8μF | E2 |
| C23 | I.F. by-pass ... | 100pF | D2 |
| C24 | A.F. coupling ... | 0·01μF | D2 |
| C25 | V4 G.B. by-pass ... | 50μF | C1 |
| C26 | Tone corrector ... | 0·001μF | D2 |

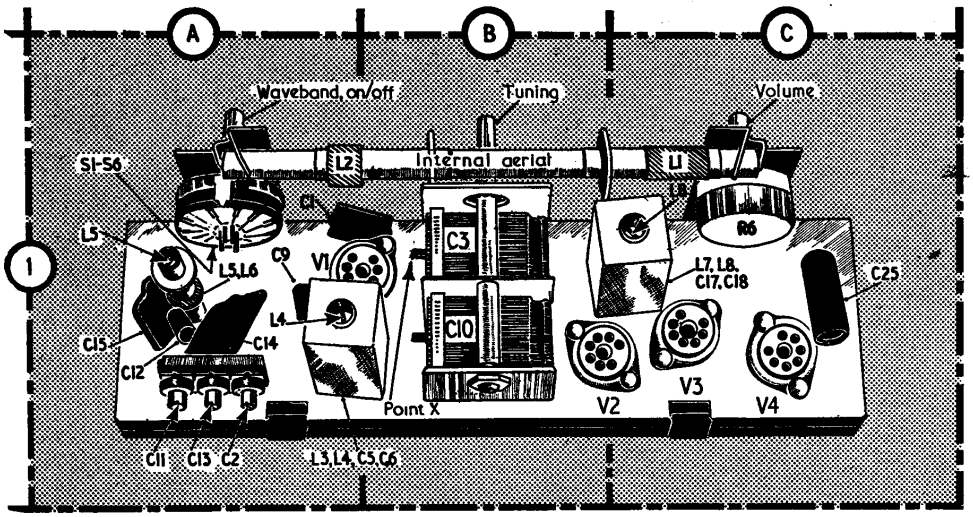
[1] May be 665pF

| | RESISTORS | Values | Locations |
|---|---|---|---|
| R1 | V1 C.G. ... ... | 1·5MΩ | E2 |
| R2 | V1 osc. C.G. ... | 27kΩ | E2 |
| R3 | V1 osc. anode load | 33kΩ | F2 |
| R4 | S.G. H.T. feed ... | 33kΩ | E2 |
| R5 | A.G.C. decoupling | 1·5MΩ | E2 |
| R6 | Volume control ... | 1MΩ | C1 |
| R7 | V3 C.G. ... ... | 10MΩ | D2 |
| R8 | V3 S.G. H.T. feed | 2·2MΩ | D2 |
| R9 | V3 anode load ... | 1·5MΩ | D2 |
| R10 | V4 C.G. ... ... | 2·2MΩ | D2 |
| R11 | V4 G.B. ... ... | 560Ω | D2 |

| | OTHER COMPONENTS | Approx Values (ohms) | Locations |
|---|---|---|---|
| L1 | Internal aerial coils | 1·0 | C1 |
| L2 | Internal aerial coils | 3·5 | A1 |
| L3 | 1st I.F.T. Pri. ... | 10·5 | A1 |
| L4 | 1st I.F.T. Sec. ... | 10·5 | A1 |
| L5 | Osc. tuning coil ... | 3·0 | A1 |
| L6 | Osc. reaction coil... | 2·5 | A1 |
| L7 | 2nd I.F.T. Pri. ... | 10·5 | C1 |
| L8 | 2nd I.F.T. Sec. ... | 10·5 | C1 |
| L9 | Speech coil ... | 3·0 | — |
| T1 | O.P. trans. a ... | 680·0 | — |
| | O.P. trans. b ... | — | |
| S1-S6 | Waveband/battery sw. ... ... | — | A1 |




Circuit diagram of the Regentone B1. L1 and L2 are mounted at opposite ends of a length of ferrite rod to form the internal aerial.




Plan illustration of chassis. R.F. and oscillator adjustments are shown in A1.

### General Notes—*continued*

Switches **S1, S3, S5** and **S6** close for M.W. operation, and switches **S2, S4, S5** and **S6** close for L.W. operation. All the switches open in the off position of the control.

**Batteries.**—Those recommended by the manufacturers are : H.T., Vidor L5512 or Ever Ready B126, rated at 90 V; L.T., Vidor L5040 or Ever Ready AD35, rated at 1.5 V.

**Internal Aerial.**—This is formed by the M.W. and L.W. aerial tuning coils **L1, L2** which are mounted at opposite ends of a length of ferrite rod. The chassis should never be lifted up by means of the ferrite rod aerial, as the rod may fracture if pressure is put on it.

**Carrying Case.**—The decorative metalwork on the carrying case is coated with a protective lacquer to ensure that it remains bright without polishing. As most metal cleaning agents would attack this protective coating, it is recommended that it is cleaned merely by dusting with a soft cloth.

## CIRCUIT ALIGNMENT

1.—Switch receiver to M.W. and turn gang to maximum. Connect output of signal generator between chassis and control grid (pin 6) of **V2.**

2.—Feed in a 470 kc/s signal and adjust **L8** (C1) and **L7** (D2) for maximum output. Transfer signal generator live lead to point X (B1). Feeding in a 470 kc/s signal, adjust the cores of **L4** (A1) and **L3** (F2) for maximum output. Do not re-adjust the cores of **L7, L8.**

3.—Connect a 1 pF capacitor as dummy aerial between the signal generator live lead and point X. Check that with gang at maximum capacitance, the cursor coincides with the high wavelength ends of the tuning scales.

4.—Tune receiver to the 521.7 m calibration mark on the outer edge of the tuning scale, feed in a 575 kc/s signal and adjust the core of **L5** (A1) for maximum output, choosing the second peak in from the adjusting end.

5.—At the same frequency, adjust the inductance of **L1** (C1) for maximum output by sliding the coil along its ferrite rod.

6.—Tune receiver to 200 m calibration mark on scale, feed in a 1,500 kc/s signal and adjust **C11** (A1) and **C2** (A1) for maximum output.

7.—Repeat the adjustments in operations 4, 5 and 6.

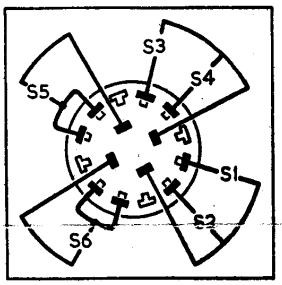



Diagram of the waveband/battery switch unit, as seen from rear of upright chassis.

8.—Switch the receiver to L.W. and tune it to the 1,333 m calibration mark on the outer edge of the tuning scale. Feed in a 225 kc/s signal and adjust **C13** (A1) for maximum output. Adjust the inductance of **L2** (A1) for maximum output at this frequency by sliding the coil along its ferrite rod.

## VALVE ANALYSIS

Valve voltages and currents in the table (next col.) are those derived from the manufacturers' information. They were measured with the receiver operating from a new set of batteries and tuned to the high wavelength end of M.W.

Voltages were measured with a Model 8 Avometer, chassis being the negative connection in every case.

| Valve | Anode | | Screen | |
|---|---|---|---|---|
| | V | mA | V | mA |
| V1 DK96 | 76 Oscillator 29 | 0·4 * | 62 | 0·11 |
| V2 DF96 | 76 | 1·0 | 62 | 0·4 |
| V3 DAF96 | 12 | 0·035 | 29 | 0·026 |
| V4 DL96 | 74 | 4·0 | 76 | 0·6 |

*No reading quoted.

## DISMANTLING

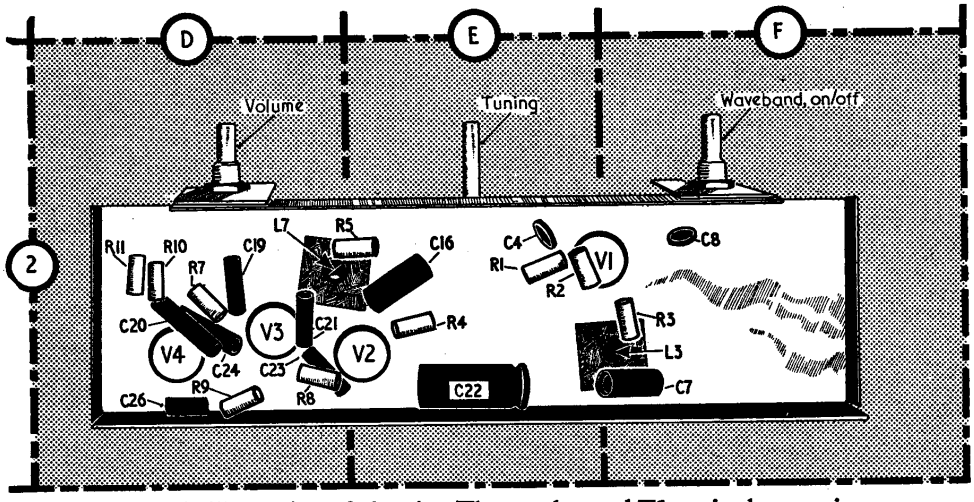
**Removing Chassis.**—Remove the three control knobs (pull off);
unsolder red and blue leads from tags on speaker transformer;
supporting the chassis with one hand, remove nuts from volume control and waveband control bushes (these nuts secure both the control escutcheon and the chassis to the cabinet);
remove control escutcheon and withdraw chassis.

*When replacing,* the speaker transformer leads should be reconnected as follows, viewing the receiver from the rear and counting the tags from left to right : Red lead to tag 2; Blue lead to tag 4.

## EKCO T283, T284
### Correction Note

In Service Sheet 1278/T115 on the Ekco T283 range, the value of R26 was given incorrectly as 1 kΩ. This resistor should in fact be 10 kΩ. Also, its decoupling capacitor **C33** should be returned to the junction of **C34, C35** instead of to chassis as shown. A section of the affected part of the diagram will be found on page 772 in the current issue of the *Trader* which can be cut out and pasted over **C33** and **C35.**

Further, **V9a** and **b** are transposed and **T1** winding **b** is centre-tapped to chassis, and it should also have been explained that a 60 pF capacitor is shunted across windings **b** and **c** on **T3** in all 17in models.




Underside illustration of chassis. The speaker and **T1** are in the carrying case.

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