



## COSSOR - 437 B

### COMPONENTS AND VALUES

| RESISTANCES |                               | Values (ohms) |
|-------------|-------------------------------|---------------|
| R1          | V1 C.G. decoupling            | 2,000,000     |
| R2          | V1 S.G. H.T. feed             | 30,000        |
| R3          | V1 gain control               | 50,000        |
| R4          | V1 anode H.T. feed            | 10,000        |
| R5          | V2 G.B. potentiometer         | 100,000       |
| R6          | for pick-up                   | 500,000       |
| R7          | V2 C.G. circuit stabiliser    | 200           |
| R8          | V2 S.G. H.T. feed             | 500,000       |
| R9          | Reaction circuit stabiliser   | 200           |
| R10         | V2 grid leak                  | 2,000,000     |
| R11         | V2 anode decoupling           | 25,000        |
| R12         | V2 anode load                 | 100,000       |
| R13         | V3 C.G. H.F. stopper          | 500,000       |
| R14         | Parts of fixed tone corrector | 4,000         |
| R15         | circuit                       | 4,000         |

| CONDENSERS |                               | Values (μF) |
|------------|-------------------------------|-------------|
| C1         | Series aerial condenser       | 0.0005      |
| C2         | M.W. aerial coupling          | 0.000015    |
| C3         | V1 C.G. decoupling            | 0.1         |
| C4         | V1 S.G. decoupling            | 0.1         |
| C5         | V1 anode decoupling           | 0.1         |
| C6         | V2 S.G. decoupling            | 0.1         |
| C7         | V2 C.G. condenser             | 0.0001      |
| C8         | V2 anode decoupling           | 0.25        |
| C9         | A.F. coupling to T1           | 0.1         |
| C10        | V2 anode R.F. by-pass         | 0.0001      |
| C11        | Parts of fixed tone corrector | 0.02        |
| C12        | circuit                       | 0.02        |
| C13        | H.T. reservoir condenser      | 2.0         |
| C14†       | Aerial circuit tuning         | —           |
| C15†       | Aerial circuit fine tuning    | —           |
| C16†       | V1 anode circuit tuning       | —           |
| C17†       | V1 anode circuit trimmer      | —           |
| C18†       | Reaction control              | 0.0005      |

† Variable. † Pre-set.

| OTHER COMPONENTS |                              | Approx. Values (ohms) |
|------------------|------------------------------|-----------------------|
| L1               | Aerial L.W. coupling coil    | 10.0                  |
| L2               | Aerial circuit tuning coils  | 2.4                   |
| L3               |                              | 14.0                  |
| L4               | R.F. transformer primary     | 1.5                   |
| L5               |                              | 13.0                  |
| L6               | R.F. transformer secondary   | 1.4                   |
| L7               |                              | 14.0                  |
| L8               | Reaction coils               | 0.9                   |
| L9               |                              | 6.0                   |
| L10              | Speaker speech coil          | 2.0                   |
| T1               | Intervalve auto-trans. total | 2,500.0               |
| T2               | Driver trans. Pri.           | 1,000.0               |
| T3               | Speaker input Sec., total    | 430.0                 |
|                  | Pri., total                  | 750.0                 |
|                  | Sec.                         | 0.15                  |
| S1-S5            | Waveband switches            | —                     |
| S6               | Gram. pick-up switch         | —                     |
| S7               | G.B. circuit switch          | —                     |
| S8               | L.T. circuit switch          | —                     |
| F1               | Fuse bulb                    | —                     |

The 436 B is very similar, the slight differences being mentioned under "General Notes."

### VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating with an H.T. battery reading 120 V on load. The receiver was tuned to the lowest wavelength on the medium band and the volume control was at maximum, but the reaction control was at minimum. There was no signal input.

Voltages were measured on the 1,200 V scale of an Avometer, chassis being negative.

| Valve     | Anode Voltage (V) | Anode Current (mA) | Screen Voltage (V) | Screen Current (mA) |
|-----------|-------------------|--------------------|--------------------|---------------------|
| V1 210VPT | 95                | 1.7                | 40                 | 0.5                 |
| V2 210SPT | 30                | 0.6                | 20                 | 0.2                 |
| V3 215P   | 118               | 2.6                | —                  | —                   |
| V4 220B   | 120†              | 1.4†               | —                  | —                   |

† Each anode.

### GENERAL NOTES

**Switches.**—S1-S6 are the waveband and gramophone switches, and S7 and S8 the battery circuit switches, in a single

| Switch | M.W. | L.W. | Gram. |
|--------|------|------|-------|
| S1     | C    | O    | C     |
| S2     | C    | O    | C     |
| S3     | C    | O    | O     |
| S4     | C    | O    | C     |
| S5     | C    | O    | C     |
| S6     | C    | O    | O     |
| S7*    | C    | C    | C     |
| S8*    | C    | C    | C     |

\* Opens in "off" position.

unit beneath the chassis, stretching across it from front to back. The rotor is easily removed for contact cleaning, if necessary. The individual switches are clearly marked in our under-chassis view, and the table (Col. 1), gives the switch positions for the M.W., L.W. and Gram. settings, turning the knob clockwise from the "off" position. O indicates open, and C closed.

**Coils.**—L1-L3 and L4-L9 are in two screened units on the chassis deck. The coils are iron-dust cored. Note that the L1-L3 unit also contains C2.

**Fuse F1.**—This is an Osram M.E.S. type bulb, rated at 3.5 V, 0.15 A. It is screwed into a holder at the rear of the chassis.

**External Speaker.**—Two sockets are provided at the rear of the chassis for a high impedance (12,000 Ω) external speaker.

**Condenser C15.**—This is an air dielectric trimmer, with a knob concentric with the main tuning knob, and is situated in the gang condenser between C14 and C16.

**Trimmer C17.**—This is mounted on the side of the gang condenser, as indicated in our plan chassis view.

**Batteries.**—The recommended types are: L.T., 2V, 70AH accumulator, such as the Cossor type E370; H.T., Cossor 120 V dry battery, type 2120, or other similar double capacity unit; G.B., Cossor 9 V G.B. battery, type 933.

**Battery Leads and Voltages.**—Blue lead, black spade tag, L.T. negative; blue lead, red spade tag, L.T. positive 2V; black lead, black plug, H.T. negative; orange lead, black plug marked "S.G.S.," H.T. positive 1, 60 V; green lead, black plug marked "Power," H.T. positive 2, 120 V; red lead, black plug, G.B. positive; blue lead, black plug, G.B. negative 1, -9 V.

**Chassis Divergencies.**—In the makers' diagram R11 is 50,000 Ω; R12, 50,000 Ω; and R13, 100,000 Ω.

**Model 436 B modifications.**—The chief differences in model 436 B are that V3 is a 220 PA valve, instead of a 215 P; R14 and R15 are omitted, and C11, C12 are 0.01 μF; and two extra condensers, each 0.0001 μF, are connected one across each half of the secondary of T2. C8 is 0.1 μF.

### CIRCUIT ALIGNMENT

The only alignment possible in this receiver is to feed in a low wavelength signal on the M.W. band, say 220 m., tune to 220 m. on the scale, using the trimmer knob (C15) as well as the main knob. Then adjust C17 for maximum output with fairly critical reaction.