



COMPONENTS AND VALUES

| RESISTANCES | | Values (ohms) |
|-------------|-----------------------------|---------------|
| R1 | V1 C.G. resistance | 500,000 |
| R2 | V2 C.G. resistance | 2,000,000 |
| R3 | V2 S.G. H.T. feed | 500,000 |
| R4 | V2 anode load resistance .. | 250,000 |
| R5 | V3 C.G. resistance | 500,000 |
| R6 | V3 C.G. R.F. stopper | 100,000 |

| CONDENSERS | | Values (μF) |
|------------|-------------------------------|-------------|
| C1 | V1 C.G. condenser | 0.0001 |
| C2 | V1 S.G. decoupling | 0.1 |
| C3* | H.T. reservoir condenser .. | 8.0 |
| C4 | V2 C.G. condenser | 0.0001 |
| C5 | V2 S.G. decoupling | 0.1 |
| C6 | V2 anode R.F. by-pass con- | 0.0002 |
| C7 | sers | 0.0002 |
| C8 | V2 to V3 A.F. coupling .. | 0.01 |
| C9 | Fixed tone corrector | 0.001 |
| C10† | Frame aerial L.W. trimmer .. | — |
| C11† | Frame aerial M.W. trimmer .. | — |
| C12† | Frame aerial tuning | — |
| C13† | Reaction control | 0.0005 |
| C14† | V1 anode circuit L.W. trimmer | — |
| C15† | V1 anode circuit tuning | — |
| C16† | V1 anode circuit M.W. trimmer | — |

* Electrolytic. † Variable. ‡ Pre-set.

| OTHER COMPONENTS | | Approx. Values (ohms) |
|------------------|---|-----------------------|
| L1 | Frame aerial windings | 3.0 |
| L2 | | 17.5 |
| L3 | Reaction coils | 5.25 |
| L4 | | 5.25 |
| L5 | V1 anode circuit M.W. tuning coil | 2.25 |
| L6 | V1 anode circuit L.W. tuning coil | 19.5 |
| L7 | V2 anode R.F. choke | 170.0 |
| L8 | Speaker speech coil | 2.5 |
| T1 | Speaker input trans. { Pri. 680.0 | |
| | { Sec. ... | 0.25 |
| S1, S2 | Waveband switches | — |
| S3 | L.T. circuit switch | — |
| S4 | Scale lamp switch | — |

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 108 V overall, on load. The receiver was tuned to the lowest wavelength on the medium band and the reaction control was at minimum, but there was no signal input as the frame connections were shorted.

Voltages were measured on the 400 V scale of a model 7 Universal Avometer, chassis being negative.

If, as in our case, V1 should become unstable when its anode current is being measured, it can be stabilised by connecting a non-inductive condenser of about 0.1 μF from that electrode (or grid, top cap) to chassis.

| Valve | Anode Voltage (V) | Anode Current (mA) | Screen Voltage (V) | Screen Current (mA) |
|-----------|-------------------|--------------------|--------------------|---------------------|
| V1 VP2B | 105 | 2.6 | 67 | 1.0 |
| V2 VP2B | 25 | 0.3 | 18 | 0.1 |
| V3 220HPT | 102 | 4.0 | 105 | 0.7 |

GENERAL NOTES

Switches.—S1, S2 are the waveband switches, in a simple form of rotary unit beneath the chassis, which also contains S3, the L.T. circuit switch. These switches are indicated in our under-chassis view. On M.W., S1 and S2 are closed, and on L.W. they are open. S3 is closed on M.W. and L.W., and open in the "off" position. S4 is the scale lamp switch, of the screw type, just below the tuning scale.

Coils.—L1 and L2 are the frame aerial windings. The chassis end of L2 is connected to the earthing lead which emerges with the two speaker wires. The junction of L1, L2 (black), and the top of L1 (red) are brought out by a cable, the ends of the leads being connected to the two tags marked "black" and "red" in our plan chassis view.

L3-L6 are in an unscreened unit beneath the chassis, the individual coils being indicated in our under-chassis view.

The choke L7 is also beneath the chassis.

Scale Lamp.—This is an M.E.S. type, rated at 2.6 V, 0.3 A. It can be switched on or off by S4.

Trimmers.—C10 and C11, the frame aerial trimmers, are inside the frame aerial unit, and are adjusted by screws beneath the name tab on the speaker baffle. The screw to the right (looking at the front of the set) adjusts C11. C14 is mounted on a lug beneath the chassis, while C16 is on the rear section of the gang condenser.

CIRCUIT ALIGNMENT

The signal generator must be coupled to the receiver by being connected to the ends of a 60-turn coil, which is stood on edge facing the frame aerial, and some distance from it.

Remove the knobs of the receiver and also the top cover of the chassis. Undo the bolts holding the chassis in the cabinet. Replace the knobs. See that pointer travels to last division on scale (580 m. on M.W.) when gang is fully meshed. If not, adjust it by loosening grub screw holding the drum, and rotating the drum.

Feed a 270 m. (1,100 KC/S) signal into the external coupling coil, switch set to M.W., tune to 270 m. on scale, and adjust reaction until set is just short of oscillation. Now adjust C16 for maximum output, reducing reaction if necessary to keep set stable. C11 (right hand screw under name tag on speaker baffle) should now be adjusted for maximum output, keeping reaction advanced to a point just short of oscillation. Check the calibration at various points on the scale.

Switch set to L.W., feed in a 1,300 m. (230 KC/S) signal, tune to 1,300 m. on scale, and adjust C14, then C10 (left hand screw under name tag on speaker baffle) for maximum output, keeping reaction advanced to a point just short of oscillation. Check calibration at various points on the scale.

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