



Circuit diagram of the G.E.C. AC37 receiver. Note the arrangement for biasing V1 from the grid circuit of V2.

VALVE ANALYSIS

Valve voltages and currents given in the table (p. III) are those measured in our receiver when it was operating on mains 230 V, using the 230-250 V tapping on the mains transformer. 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 VMS 4B | 240 | 4.3 | 75 | 0.6 |
| V2 VMS4 | 130 | 3.7 | 45 | 1.4 |
| V3 N41 | 220 | 33.0 | 210 | 8.1 |
| V4 U12 | 270† | — | — | — |

† Each anode A.C.

GENERAL NOTES

Switches.—S1-S4 are the wavechange and Droitwich rejector switches, in a single rotary unit beneath the chassis. The positions of the individual switches are indicated in our under-chassis view. The table below gives the switch positions for the three control settings, starting from fully anti-clockwise. The L.W.2 position switches in the Droitwich rejector. O indicates open, and C closed.

| Switch | M.W. | L.W.1 | L.W.2 |
|--------|------|-------|-------|
| S1 | C | C | O |
| S2 | C | O | O |
| S3 | C | O | O |
| S4 | C | O | O |

S5 is the Q.M.B. mains switch, ganged with the gain control, R3.

CIRCUIT ALIGNMENT

First see that pointer indicates 550 m. with gang fully meshed. Now tune to 214 m. on scale, turn gain control to maximum and reaction to minimum, and inject a 214 m. (1,400 KC/S) signal via a dummy aerial into A and E sockets. Adjust C18 and C20 for maximum output.

Droitwich Rejector.—Switch set to L.W.2 position, inject a 200 KC/S (1,500 m.) signal, tune it in, then adjust C16 for minimum output.

Pre-set Reaction.—Connect a normal aerial and earth, and turn reaction control to minimum. Adjust C22 until receiver just oscillates near the bottom of the M.W. band. Reduce capacity of C22 by half a turn, checking for instability over both wavebands.

Finally, seal all trimmers with cellulose cement.

Coils.—L1 and L5, L7 are unscreened units beneath the chassis. L2, L4 and L6, L8, L9 are in two screened units on the chassis deck. The screens are not removable, but the coil assemblies can be withdrawn from beneath the chassis after the wiring has been disconnected, by undoing the screws of the brackets holding the units in position.

Scale Lamps.—These are two Osram M.E.S. types, rated at 3.5 V, 0.3 A. They are connected in series across the heater winding of T2, the common connection between them being earthed.

COMPONENTS AND VALUES

| CONDENSERS | | Values (μF) |
|------------|-------------------------------|-------------|
| C1 | V1 C.G. decoupling condenser | 0.1 |
| C2 | V1 cathode by-pass | 0.25 |
| C3 | S.G. decoupling condenser | 0.1 |
| C4 | V1 anode to V2 grid coupling | 0.000011 |
| C5 | H.T. blocking condenser | 0.05 |
| C6* | V2 anode decoupling | 3.0 |
| C7 | V2 C.G. condenser | 0.00005 |
| C8 | A.F. coupling to V3 | 0.02 |
| C9 | V2 cathode by-pass | 0.5 |
| C10 | V2 S.G. decoupling condenser | 0.5 |
| C11 | V3 C.G. R.F. by-pass | 0.0003 |
| C12* | V3 cathode by-pass | 35.0 |
| C13 | V3 anode tone corrector | 0.01 |
| C14* | H.T. smoothing condensers | 7.0 |
| C15* | | 7.0 |
| C16† | Droitwich rejector tuning | — |
| C17† | Aerial circuit tuning | — |
| C18† | Aerial circuit trimmer | — |
| C19† | V2 grid circuit tuning | — |
| C20† | V2 grid circuit trimmer | — |
| C21† | Differential reaction control | — |
| C22† | Pre-set reaction control | — |

* Electrolytic. † Variable. ‡ Pre-set.

| RESISTANCES | | Values (ohms) |
|-------------|-----------------------------|---------------|
| R1 | V1 S.G. potential divider | 38,000 |
| R2 | V1 gain control | 22,000 |
| R3 | V1 fixed G.B. resistances | 7,000 |
| R4 | V1 C.G. decoupling | 220 |
| R5 | V1 anode M.W. R.F. choke | 6,600 |
| R6 | V1 anode L.W. R.F. choke | 220,000 |
| R7 | V2 grid leak | 2,000,000 |
| R8 | V2 anode decoupling | 1,000,000 |
| R9 | V2 anode load resistance | 3,300 |
| R10 | V2 G.B. resistance | 22,000 |
| R11 | V2 S.G. potentiometer | 99 |
| R12 | V3 C.G. resistance | 77,000 |
| R13 | V3 C.G. R.F. stopper | 33,000 |
| R14 | V3 anode circuit stabiliser | 220,000 |
| R15 | V3 G.B. resistance | 55,000 |
| R16 | V3 anode circuit stabiliser | 99 |
| R17 | V3 G.B. resistance | 99 |

| OTHER COMPONENTS | | Approx. Values (ohms) |
|------------------|--|-----------------------|
| L1 | Droitwich rejector coil (total) | 26.0 |
| L2 | Aerial coupling coil | 5.5 |
| L3 | Aerial M.W. tuning coil | 2.8 |
| L4 | Aerial L.W. tuning coil | 18.2 |
| L5 | V1 anode M.W. R.F. choke | 40.0 |
| L6 | M.W. R.F. tuning coil | 2.7 |
| L7 | V1 anode L.W. R.F. choke | 135.0 |
| L8 | L.W. R.F. tuning coil | 21.0 |
| L9 | Reaction coil | 0.3 |
| L10 | Speaker speech coil | 1.9 |
| L11 | H.T. smoothing choke | 650.0 |
| T1 | Speaker input trans. { Pri... Sec... } | 400.0 0.8 |
| T2 | Mains trans. { Pri. (total) Heater sec. Rect. heat. sec. H.T. sec. (total) } | 40.0 0.08 0.12 480.0 |
| S1-S4 | Waveband switches | — |
| S5 | Mains switch, ganged R3 | — |