# ROBERTS - MR

**Intermediate frequency 470kc/s.**

| Valve | Anode V | Anode mA | Screen V | Screen mA | Cath. V |
|---|---|---|---|---|---|
| V1 ECH81 | 157 (Osc) | 1·3 (ator) | 63 | 2·9 | 1·5 |
| | 61 | 2·6 | | | |
| V2 EBF80 | 157 | 3·0 | 63 | 1·1 | 1·8 |
| V3 ECL80 : | | | | | |
| (a) | 50 | 0·7 | — | — | 5·6 |
| (b) | 150 | 12·8 | 157 | 2·5 | 5·6 |
| V4 EZ80 | 195* | — | — | — | 210·0 |

*Each anode, A.C.

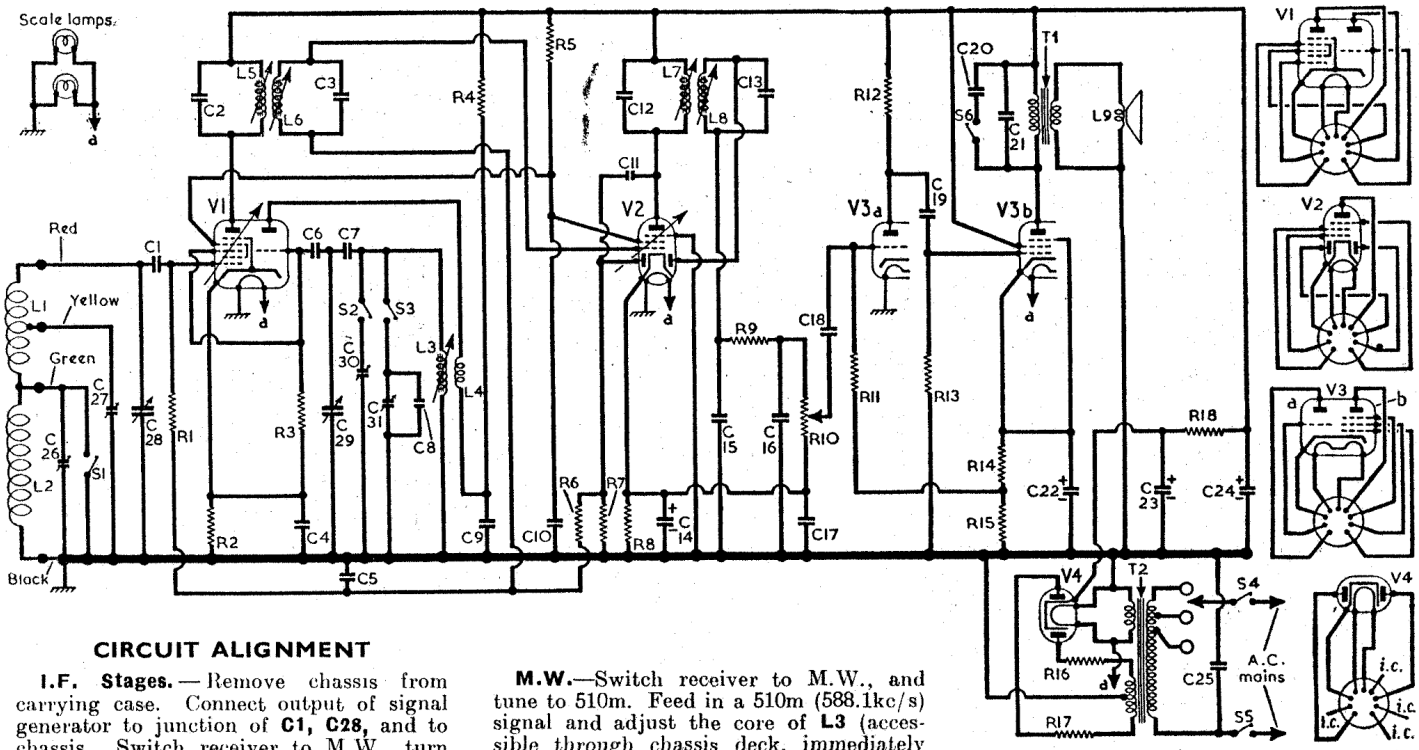
| OTHER COMPONENTS | | Approx. Values (ohms) | Locations |
|---|---|---|---|
| L1 | M.W. frame, total | 5·0 | — |
| L2 | L.W. frame aerial | 29·0 | — |
| L3 | Osc. tuning coil ... | 5·4 | D3 |
| L4 | *Osc. reaction coil* | 1·5 | D3 |
| L5 | 1st I.F. trans. Pri. | 9·7 | B2 |
| L6 | 1st I.F. trans. Sec. | 9·7 | B2 |
| L7 | 2nd I.F. trans. Pri. | 9·7 | A1 |
| L8 | 2nd I.F. trans. Sec. | 9·7 | A1 |
| L9 | Speech coil ... | 3·5 | — |
| T1 | O.P. trans. Pri. | 460·0 | A2 |
| | O.P. trans. Sec. | 0·4 | |
| T2 | Mains trans. Pri, total | 113·0 | |
| | Mains trans. H.T. sec., total | 700·0 | C2 |
| | Mains trans. Htr. sec. | 0·2 | |
| S1-S5 | W'band and on/off switches ... | — | D3 |
| S6 | *Noise suppressor sw.* | — | — |

| RESISTORS | | Values | Locations |
|---|---|---|---|
| R1 | V1 C.G. ... ... | 220kΩ | E3 |
| R2 | V1 G.B. ... ... | 220Ω | E3 |
| R3 | V1 osc. C.G. ... | 47kΩ | D3 |
| R4 | Osc. anode feed ... | 33kΩ | D4 |
| R5 | S.G. H.T. feed ... | 22kΩ | D4 |
| R6 | A.G.C. decoup. ... | 1MΩ | E4 |
| R7 | A.G.C. diode load | 1MΩ | F4 |
| R8 | V2 G.B. ... ... | 470Ω | E4 |
| R9 | I.F. filter ... | 100kΩ | G3 |
| R10 | Volume control ... | 1MΩ | F3 |
| R11 | V3a C.G. ... ... | 2·2MΩ | G3 |
| R12 | V3a anode load ... | 220kΩ | G3 |
| R13 | V3b C.G. ... ... | 560kΩ | G3 |
| R14 | V3 G.B. ... ... | 180Ω | G3 |
| R15 | V3 G.B. ... ... | 180Ω | G3 |
| R16 | V4 surge limiters | 120Ω | E4 |
| R17 | V4 surge limiters | 120Ω | E4 |
| R18* | H.T. smoothing ... | 1,950Ω | F4 |

* Two 3·9kΩ resistors in parallel.

| CAPACITORS | | Values | Locations |
|---|---|---|---|
| C1 | V1 C.G. ... ... | 100pF | D3 |
| C2 | 1st I.F. trans. tuning ... ... | 100pF | B2 |
| C3 | 1st I.F. trans. tuning ... ... | 100pF | B2 |
| C4 | V1 cath. by-pass... | 0·1μF | D4 |
| C5 | A.G.C. decoupling | 0·1μF | E3 |
| C6 | V1 osc. C.G. ... | 100pF | E3 |
| C7 | Osc. tracker ... | 620pF | D3 |
| C8 | L.W. osc. trimmer | 547pF | E3 |
| C9 | Osc. anode decoup. | 0·1μF | D3 |
| C10 | S.G. decoupling ... | 0·1μF | D4 |
| C11 | A.G.C. coupling ... | 50pF | F4 |
| C12 | 2nd I.F. trans. tuning ... ... | 100pF | A1 |
| C13 | 2nd I.F. trans. tuning ... ... | 100pF | A1 |
| C14* | V2 cath. by-pass... | 20μF | E3 |
| C15 | I.F. by-passes ... | 100pF | G3 |
| C16 | I.F. by-passes ... | 100pF | G3 |
| C17 | V2 cath. by-pass ... | 0·1μF | E3 |
| C18 | A.F. couplings ... | 0·005μF | G3 |
| C19 | A.F. couplings ... | 0·005μF | G3 |
| C20 | Noise suppressor ... | 0·01μF | A2 |
| C21 | Tone corrector ... | 0·002μF | A2 |
| C22* | V3 cath. by-pass ... | 250μF | B2 |
| C23* | H.T. smoothing ... | 32μF | F4 |
| C24* | H.T. smoothing ... | 32μF | F4 |
| C25 | Mains R.F. filter... | 0·005μF | D3 |
| C26‡ | L.W. aerial trim.. . | 40pF | B1 |
| C27‡ | M.W. aerial trim.... | 40pF | B1 |
| C28† | Aerial tuning ... | 528pF | B1 |
| C29† | Oscillator tuning ... | 528pF | B1 |
| C30‡ | M.W. osc. trim. ... | 40pF | C1 |
| C31‡ | L.W. osc. trim. ... | 40pF | C1 |

* Electrolytic. †Variable. ‡ Pre-set.




## CIRCUIT ALIGNMENT

**I.F. Stages.** — Remove chassis from carrying case. Connect output of signal generator to junction of **C1, C28,** and to chassis. Switch receiver to M.W., turn gang to minimum and volume control to maximum. Feed in a 470kc/s (638.3m) signal and adjust the cores of **L8** (location reference A1), **L7** (F3), **L6** (B2) and **L5** (E4) *for maximum output, reducing* the input as the circuits come into line to avoid A.G.C. action. Repeat these adjustments until no further improvement results.

**R.F. and Oscillator Stages.**—These adjustments may be carried out with the chassis in its carrying case. Check that with the gang at maximum capacitance the cursor coincides with the high wavelength ends of the tuning scales. Disconnect signal generator leads from the chassis and lay them close to the frame aerials in the receiver.

**M.W.**—Switch receiver to M.W., and tune to 510m. Feed in a 510m (588.1kc/s) signal and adjust the core of **L3** (accessible through chassis deck, immediately above **T2**) for maximum output. Feeding in the same frequency, adjust the inductance of the M.W. frame aerial **L1** for maximum output. This last operation may be performed by removing the white plastic band from the rear edge of the carrying case, and varying the spacing of the M.W. frame aerial turns thus revealed. Tune receiver to 210m, feed in a 210m (1,429kc/s) signal and adjust **C30** (C1) and **C27** (B1) for maximum output.

**L.W.**—Switch receiver to L.W., tune to the "Luxembourg" calibration mark on tuning scale, feed in a 1,288m (233kc/s) signal and adjust **C31** (C1) and **C26** (B1) for maximum output.

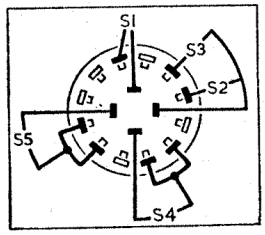



Diagram of the waveband/on/off switches. The switch positions are Off, M.W., L.W., from the anti-clockwise setting of the control knob.