

General Description : Six-valve (including rectifier), four waveband superheterodyne receiver with two I.F. stages. Released 1945. Revised chassis layout from Serial No. 3000 onwards.

Power Supply : A.C. mains, 200-250 volts.

Wavebands : S.W. Band 1, 11.2-25.2 m.; Band 2, 24.8-53 m.; M.W. 194-578 m.; L.W. 880-2100 m.

Intermediate Frequency : 465 kc/s.

Valves : (V1) 6K8G; (V2) 6K7G; (V3) 6K7G; (V4) 6Q7G; (V5) 6V6G; (V6) 5Z4G.

Dial Lamps : 6.2 volts, 0.3 amp. M.E.S. fitting. Some early models are fitted with 6.5-volt, 0.3-amp. lamps with no tap on mains transformer.

Notes : R11 is usually omitted, and the lead taken to main H.T. line. In early models an additional 100-ohm resistor is wired in parallel to R30. Different degrees of negative feedback are used on radio and gramophone. All trimmers (and the majority of the components) beneath the chassis are accessible through the service hatch in the base of the cabinet. The external loudspeaker socket has an impedance of approximately 2.6 ohms at 400 c/s. The input impedance of the P.U. socket is of the order of one megohm.

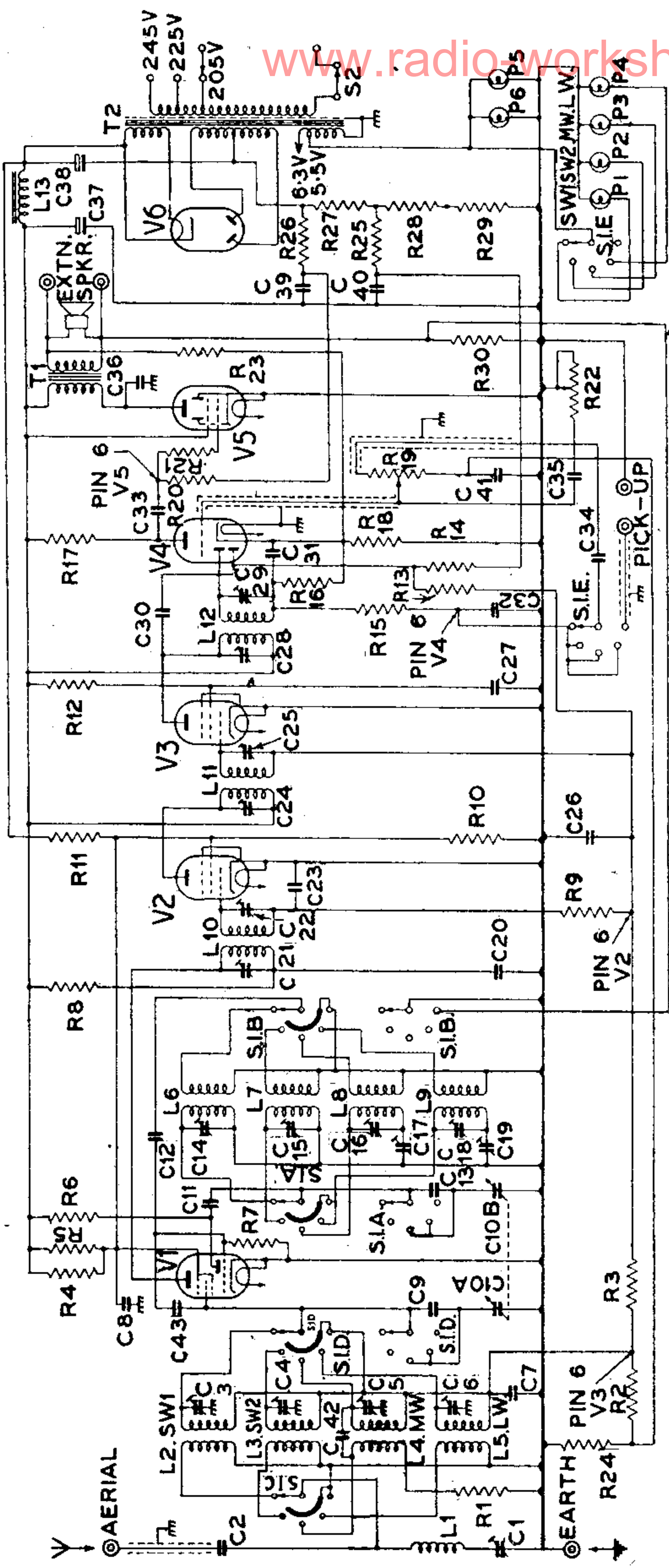
Wiring : Receiver wiring is colour-coded as follows: *H.T.* +, red; *earth*, black; *screens*, purple; *bias*, white; *grids*, green; *A.V.C.*, yellow; *heaters*, brown; *feedback*, grey; *H.T. secondaries*, yellow and black.

Alignment Procedure : Inject 465-kc/s. signal to grid of V1 via a 0.1- μ F. isolating capacitor. Switch to M.W. and adjust C29, C28, C25 and C24 for maximum output. Inject 460-kc/s. signal as above and adjust C21 (primary I.F.T.1), inject 470-kc/s. signal as above and adjust C22 (secondary I.F.T.1). Repeat above adjustments using smallest possible signal. Inject 465-kc/s. signal to AE and E sockets via dummy aerial and adjust C1 for minimum output (receiver tuned to 550 m.).

R.F. : Check that pointer comes opposite base line on scale when gang is fully meshed. The trimming calibration marks referred to below are visible only when the chassis is removed from its cabinet. Apply signals to aerial and earth sockets via dummy aerial.

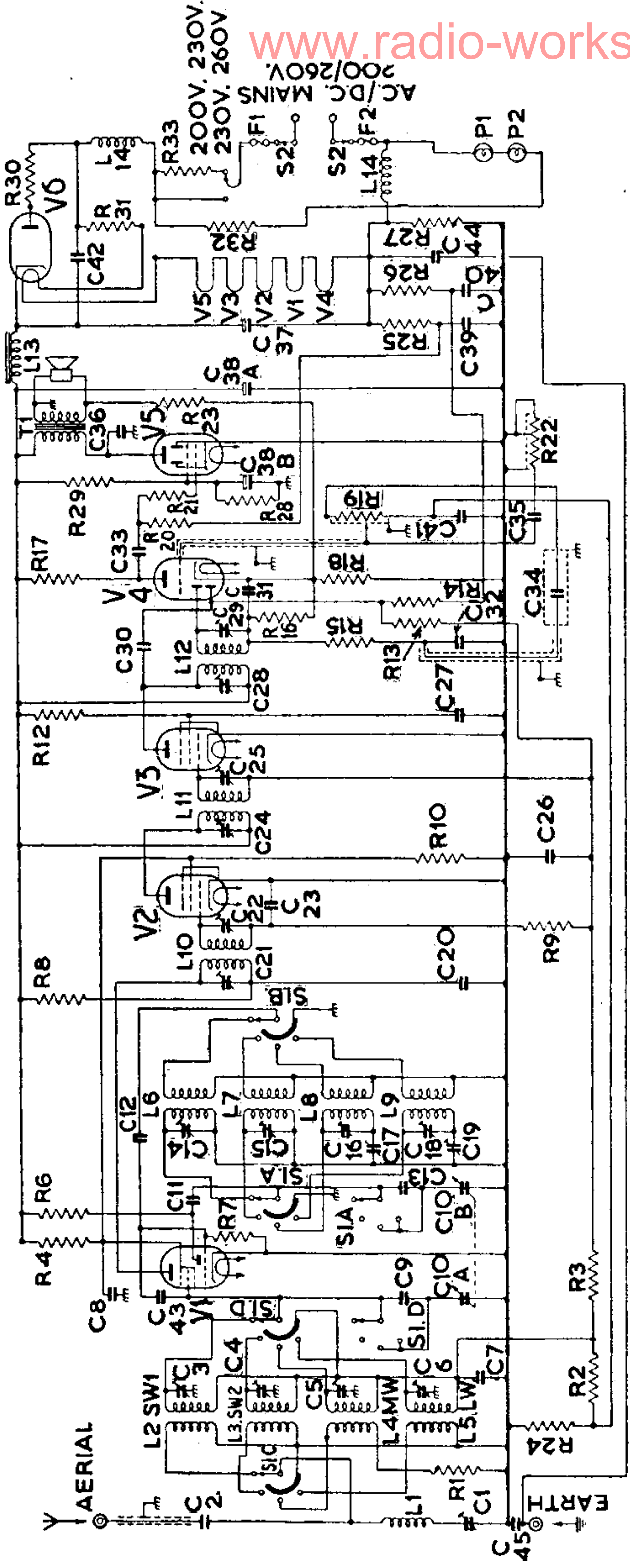
<i>Circuits</i>	<i>Tune Receiver to</i>	<i>Signal Applied</i>	<i>Adjust for Maximum Output</i>
L.W. (1)	1000 m. (TL)	300 kc/s.	C18, then C6
(2)	1716 m. (PL)	175 kc/s.	C19
(3)	Re-check (1)	—	—
M.W. (1)	214 m. (TM)	1400 kc/s.	C16, then C5
(2)	500 m. (PM)	600 kc/s.	C17
(3)	Re-check (1)	—	—
S.W.2	27.3 m. (TS2)	11 Mc/s.	C15,* then C4
S.W.1	13 m. (TS1)	23 Mc/s.	C14,* then C3

* Care must be taken to adjust trimmer to the higher frequency peak of the two obtainable, *i.e.*, trimmer most unscrewed.



CIRCUIT DIAGRAM—SOBELLE MODEL 615

- Capacitors.**
- | | |
|----------|---------------|
| C1 | 80 pF. |
| C2 | 400 pF. |
| C3-C6 | 80 pF. |
| C7 | 0.05 |
| C8 | 0.1 |
| C9 | 400 pF. (2%) |
| C10 | 443 pF. |
| C11 | 100 pF. |
| C12 | 50 pF. |
| C13 | 400 pF. (2%) |
| C14-C16 | 80 pF. |
| C17 | 400 pF. |
| C18 | 150 pF. |
| C19 | 250 pF. |
| C20 | 0.01 |
| C21, C22 | 250 pF. |
| C23 | 0.01 |
| C24, C25 | 250 pF. |
| C26, C27 | 0.01 |
| C28, C29 | 250 pF. |
| C30, C31 | 100 pF. |
| C33, C34 | 0.05 |
| C35 | 0.001 |
| C36 | 0.002 |
| C37 | 16 (350 v.) |
| C38 | 8 (450 v.) |
| C39-C41 | 0.1 |
| C42, C43 | Twisted wires |
- Resistors.**
- | | |
|-----|---------------|
| R1 | 1k |
| R2 | 1.2M |
| R3 | 390k (1/2 W.) |
| R4 | 33k (1 W.) |
| R5 | 27k (1 W.) |
| R6 | 33k (1/2 W.) |
| R7 | 33k |
| R8 | 3.3k |
| R9 | 390k |
| R10 | 15k (1 W.) |
| R11 | 1.2 M. |
| R12 | 120k (1/2 W.) |
| R13 | 390k |
| R14 | 1.2M |
| R15 | 120k |
| R16 | 220k |
| R17 | 220k |
| R18 | 10 |
| R19 | 1M (Pot.) |
| R20 | 220k |
| R21 | 3.3k |
| R22 | 1M (Pot.) |
| R23 | 33 |
| R24 | 390k |
| R25 | 330k |
| R26 | 330k |
| R27 | 68 (1/2 W.) |
| R28 | 100 (1/2 W.) |
| R29 | 15 |
| R30 | 100 |
- Trimmer Lay-out.**
- | | | | | |
|-----|-----|---|-----|----|
| C19 | C18 | S | C14 | C3 |
| C17 | C16 | W | C4 | C3 |
| C5 | C6 | I | T | C3 |
| | | T | C | |
| | | C | H | |



CIRCUIT DIAGRAM—SOBELLS MODEL 615U

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|--------------------|-----|-----------------|
| Capacitors. | C1 | 80 pF. |
| | C2 | 400 pF. |
| | C3 | 80 pF. |
| | C4 | 80 pF. |
| | C5 | 80 pF. |
| | C6 | 80 pF. |
| | C7 | 0.05 |
| | C8 | 0.1 |
| | C9 | 400 pF. (2%) |
| | C10 | 443 pF. Gang |
| | C11 | 100 pF. |
| | C12 | 50 pF. |
| | C13 | 400 pF. (2%) |
| | C14 | 80 pF. |
| | C15 | 80 pF. |
| | C16 | 80 pF. |
| | C17 | 400 pF. |
| | C18 | 150 pF. |
| | C19 | 250 pF. |
| | C20 | 0.01 |
| | C21 | 250 pF. |
| | C22 | 250 pF. |
| | C23 | 0.01 |
| | C24 | 250 pF. |
| | C25 | 250 pF. |
| | C26 | 0.01 |
| | C27 | 0.01 |
| | C28 | 250 pF. |
| | C29 | 250 pF. |
| | C30 | 100 pF. |
| | C31 | 100 pF. |
| | C32 | 50 pF. |
| | C33 | 0.05 |
| | C34 | 0.05 |
| | C35 | 0.001 |
| | C36 | 0.002 |
| | C37 | 16 (350 v.) |
| | C38 | 16 + 8 (250 v.) |
| | C39 | 0.1 |
| | C40 | 0.1 |
| | C41 | 0.1 |
| | C42 | 0.005 (1000 v.) |
| | C43 | 2.5 pF. |
| | C44 | wire-wound |
| | C45 | 0.05 |
-
- | | | |
|-------------------|-----|-------------|
| Resistors. | R1 | 1k |
| | R2 | 1.2M |
| | R3 | 390k (½ W.) |
| | R4 | 10k (2 W.) |
| | R5 | — |
| | R6 | 33k (½ W.) |
| | R7 | 33k |
| | R8 | 3.3k |
| | R9 | 390k |
| | R10 | 33k (1 W.) |
| | R11 | — |
| | R12 | 120k (½ W.) |
| | R13 | 390k |
| | R14 | 1.2M |
| | R15 | 120k (½ W.) |
| | R16 | 220k |
| | R17 | 220k |
| | R18 | 10 |
| | R19 | 1M (Pot.) |
| | R20 | 220k |
| | R21 | 3.3k |
| | R22 | 1M |
| | R23 | 100 |
| | R24 | 100k |
| | R25 | 330k |
| | R26 | 330k |
| | R27 | 120 (1 W.) |
| | R28 | 22k (½ W.) |
| | R29 | 10k (1 W.) |
| | R30 | 68 (2 W.) |
| | R31 | 635 (14 W.) |
| | R32 | 710 (65 W.) |
| | R33 | 50 (18 W.) |

General Description : Six-valve (including rectifier), three-waveband receiver for operation from A.C./D.C. supply mains. Basically similar to Model 615. Released 1946.

Power Supply : A.C./D.C. mains, 200–260 volts.

Wavebands : S.W.1, 11.2–25.2 m. (26.8–11.9 Mc/s.); S.W.2, 24.8–53 m. (12.1–5.76 Mc/s.); M.W., 194–578 m. (1557–518 kc/s.); L.W., 880–2100 m. (343–141 kc/s.).

Intermediate Frequency : 465 kc/s.

Valves : (V1) 12K8GT; (V2) 12K7GT; (V3) 12K7GT; (V4) 12Q7GT; (V5) 35L6GT; (V6) 35Z4GT.

Pilot Lamps : Two 6.5 volts, 0.3 amp., M.E.S. fitting. A separate pilot-lamp supply network is incorporated to eliminate surge.

Notes : Later models are fitted with external loudspeaker sockets requiring following modifications: R18 removed and cathode of V4 connected to chassis; R23 removed. These resistors become R18 1.5k, R23 150k, and are connected in series across the primary of T1. Top end of R17 is removed from H.T. line and connected to the junction of R18/R23.

Grid bias is obtained by a resistor, R27, in the negative H.T. line instead of by individual cathode resistors. R18 and R23 provide negative feedback.

Alignment Procedure : See Model 615, but note that chassis may be “live”.

Voltage Checks : Measured on 1200-volt D.C. range of Avo Model 40 (166 ohms/volt) with A.C. mains supply of 230 volts, 50 c/s. Receiver adjusted to 200–230-volt tap.

V1*	Anode (pin 3)	190 v.	Osc. anode (pin 6)	45 v.	Screen (pin 4)	65 v.
V2	Anode (pin 3)	200 v.	Screen (pin 4)	65 v.	—	—
V3	Anode (pin 3)	200 v.	Screen (pin 4)	65 v.	—	—
V4	Anode (pin 3)	185 v.	—	—	—	—
V5	Anode (pin 3)	185 v.	Screen (pin 4)	120 v.	—	—

Across L13 27 v. (120-v. D.C. range).

Across R27 9 v. (120-v. D.C. range).

* Valve in non-oscillatory condition.

SOBELL—MODEL 615 (continued from page 558).

Check Voltages : Measured on 1200-volt D.C. range of Avo Model 40 (166 ohms/volt). Input 230 volts, transformer tap at 225 volts.

V1*	Anode (pin 3)	240 v.	Osc. anode (pin 6)	65 v.	Screen (pin 4)	80 v.
V2	Anode (pin 3)	254 v.	Screen (pin 4)	80 v.	—	—
V3	Anode (pin 3)	254 v.	Screen (pin 4)	80 v.	—	—
V4	Anode (pin 3)	65 v.	—	—	—	—
V5	Anode (pin 3)	245 v.	Screen (pin 4)	254 v.	—	—

* Valve in non-oscillatory condition.