SOBELL — Model 615

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.

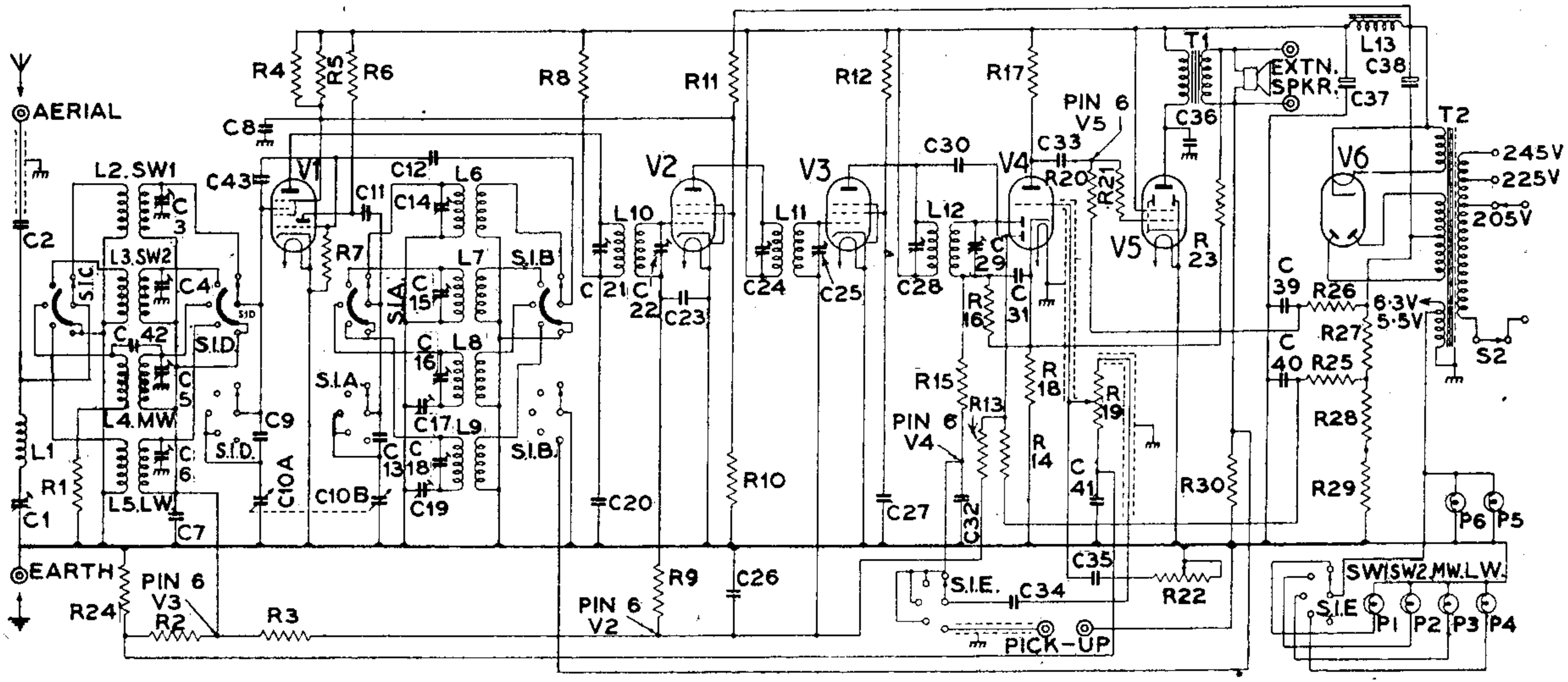
Alignment Procedure : Inject 465-kc/s. signal to grid of V1 via a 0·1-μF. isolating capacitor. Switch to M.W. and adjust C29, C28, C25 and C24 for maximum output. Inject 460-kc/s. signal as above and adjust C21 (primary I.F.T.1), inject 470-kc/s. signal as above and adjust C22 (secondary I.F.T.1). Repeat 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.

Circuits	*Tune Receiver to*	*Signal Applied*	*Adjust for Maximum Output*
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.

(*continued on page* 560.)



CIRCUIT DIAGRAM—SOBELL 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

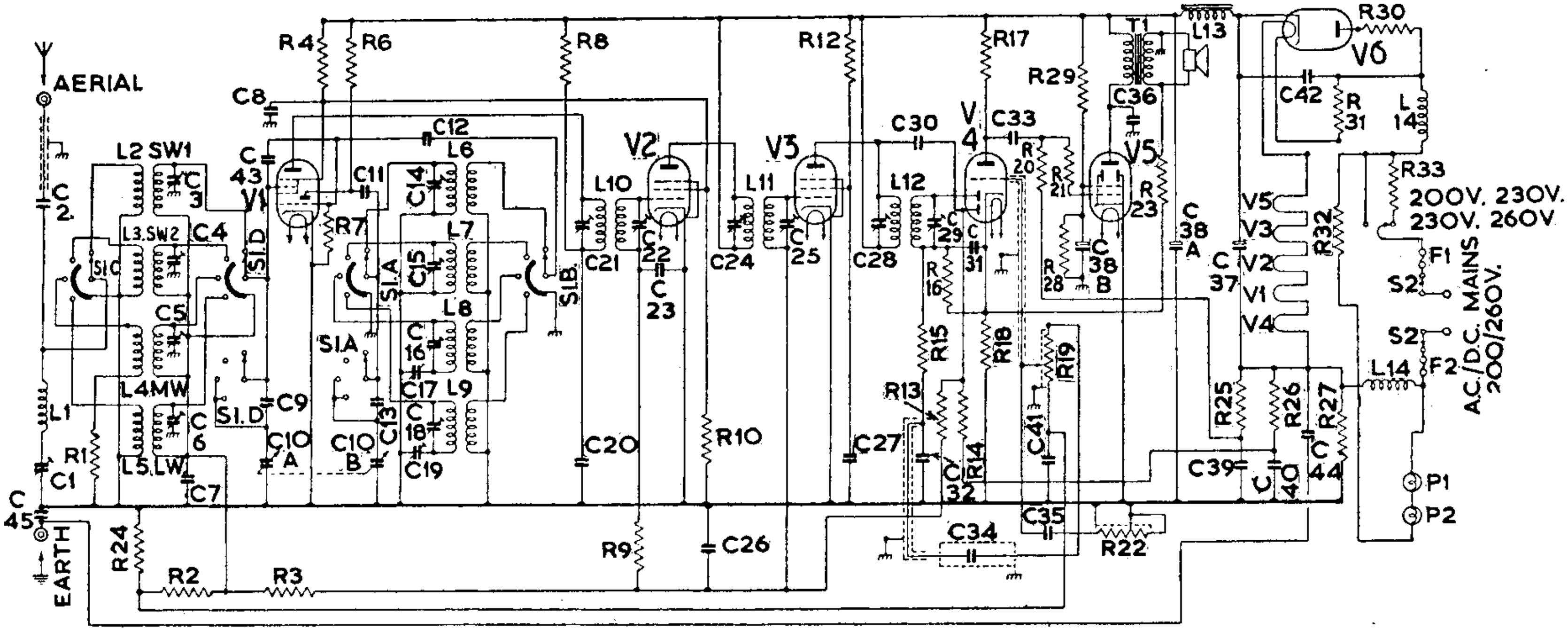
Resistors.

R1	1k
R2	1·2M
R3	390k (½ W.)
R4	33k (1 W.)
R5	27k (1 W.)
R6	33k (½ W.)
R7	33k
R8	3·3k
R9	390k
R10	15k (1 W.)
R11	1·2 M.
R12	120k (½ 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 (½ W.)
R28	100 (½ W.)
R29	15
R30	100

Trimmer Lay-out.

Front of Chassis

C19	C18	S		
C17	C16	W	C14	C15
C5	C6	I	C4	C3
		T		
		C		
		H		



CIRCUIT DIAGRAM—SOBELL MODEL 615U

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.
	wire-wound
C44	0·05
C45	0·01

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.)

SOBELL — Model 615U

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.	—	

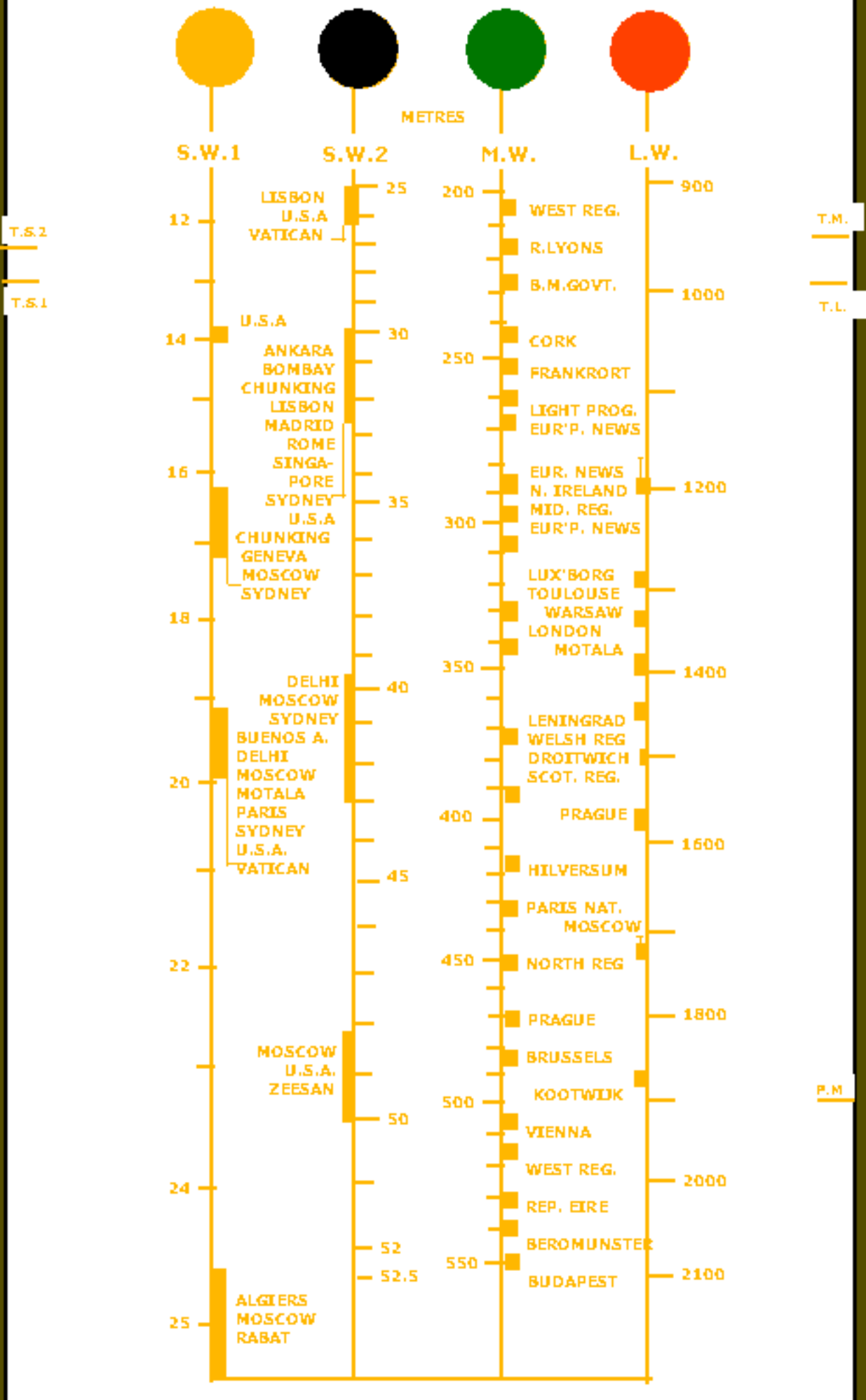
Across L13 27 v. (120-v. D.C. range).
Across R27 9 v. (120-v. D.C. range).
* Valve in non-oscillatory condition.

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.


METRES
S.W.1
S.W.2
M.W.
L.W.
T.S.2
T.S.1
T.M.
T.L.
P.M
12
14
16
18
20
22
24
25
25
30
35
40
45
50
52
52.5
200
250
300
350
400
450
500
550
900
1000
1200
1400
1600
1800
2000
2100
LISBON
U.S.A
VATICAN
U.S.A
ANKARA
BOMBAY
CHUNKING
LISBON
MADRID
ROME
SINGA-
PORE
SYDNEY
U.S.A
CHUNKING
GENEVA
MOSCOW
SYDNEY
DELHI
MOSCOW
SYDNEY
BUENOS A.
DELHI
MOSCOW
MOTALA
PARIS
SYDNEY
U.S.A.
VATICAN
MOSCOW
U.S.A.
ZEESAN
ALGIERS
MOSCOW
RABAT
WEST REG.
R.LYONS
B.M.GOVT.
CORK
FRANKRORT
LIGHT PROG.
EUR'P. NEWS
EUR. NEWS
N. IRELAND
MID. REG.
EUR'P. NEWS
LUX'BORG
TOULOUSE
WARSAW
LONDON
MOTALA
LENINGRAD
WELSH REG
DROITWICH
SCOT. REG.
PRAGUE
HILVERSUM
PARIS NAT.
MOSCOW
NORTH REG
PRAGUE
BRUSSELS
KOOTWIJK
VIENNA
WEST REG.
REP. EIRE
BEROMUNSTER
BUDAPEST