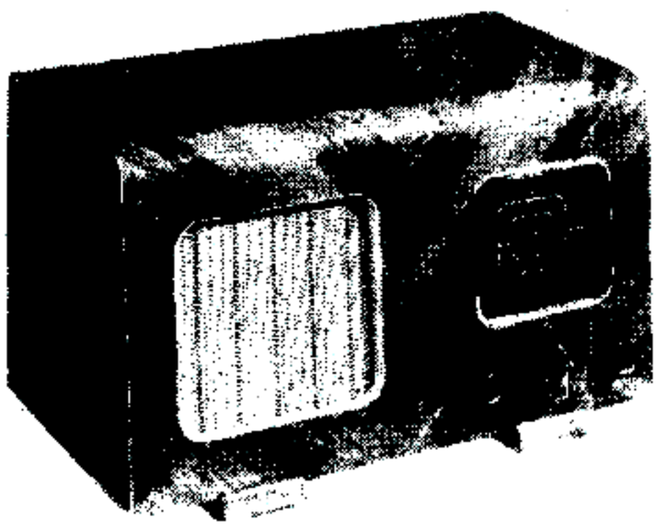
Supplement to Wireless & Electrical Trader, June 20, 1953

"TRADER" SERVICE SHEET

1098

EVER READY Model T

Covering also Model K



Appearance of Ever Ready Model T.

AN economical table receiver with a frame aerial and a self-contained single-unit all-dry battery, the Ever Ready "T" is a 4 valve 2-band superhet covering 194-550 m and 920-2,000 m. Small differences that occur in early versions employing alternative valves are explained under "Associated Models" overleaf. There also are explained the differences between this receiver and a portable model, type "K".

Release date and original price: Model T, July 1950; code TA2A, £11 11s; codes TB2A, TC2A, £10 12s 6d. Model K, July 1949, £10 10s 11d, subsequently reduced to £9 13s.

Battery and purchase tax extra.

CIRCUIT DESCRIPTION

Tuned frame aerial input by L3, C19 (M.W.) and L3, loading coil L2, C19 (L.W.) which precede heptode valve (V1, Ever Ready DK92) operating as frequency changer with electron coupling. Provision is made for the connection of an external aerial and earth via frame aerial coupling coil L1.

Oscillator grid coils L4 (M.W.) and L5 (L.W.) are tuned by C20. Parallel trimming by C21 (M.W.) and C22 (L.W.); series tracking by C6, C24 (M.W.) and C7, C23 (L.W.). Reaction coupling from anode by L6 (M.W.) and L7 (L.W.). Oscillator stabilization by R3.

Second valve **(V2, Ever Ready DF91)** is a variable-mu R.F. pentode operating as intermediate frequency amplifier with tuned transformer couplings **C2, L8, L9, C3** and **C9, L10, L11, C10.**

Intermediate frequency 470 kc/s.

Diode signal detector is part of diode pentode valve (V3, Ever Ready DAF91). Audio frequency component in rectified output is developed across volume control R6, which acts as diode load, and passed via C12 to control grid of pentode section, which operates as A.F. amplifier.

D.C. potential developed across R6 is fed back as bias via decoupling circuit R5, C4 to V1 and V2, giving automatic gain control. I.F. filtering by C11 in diode circuit.

Resistance-capacitance coupling by R8, C14, and R10 between V3 pentode anode and pentode output valve **(V4, Ever Ready DL94). Tone correction in anode circuit by C15. Grid bias for V4 is obtained from the voltage drop across R12 in the H.T. negative lead to chassis. C16** shunts the H.T. circuit to prevent instability if the internal resistance of the H.T. battery increases. **The two halves of V4 filament are connected in parallel to operate from the 1.5 V L.T. supply.**

COMPONENTS AND VALUES

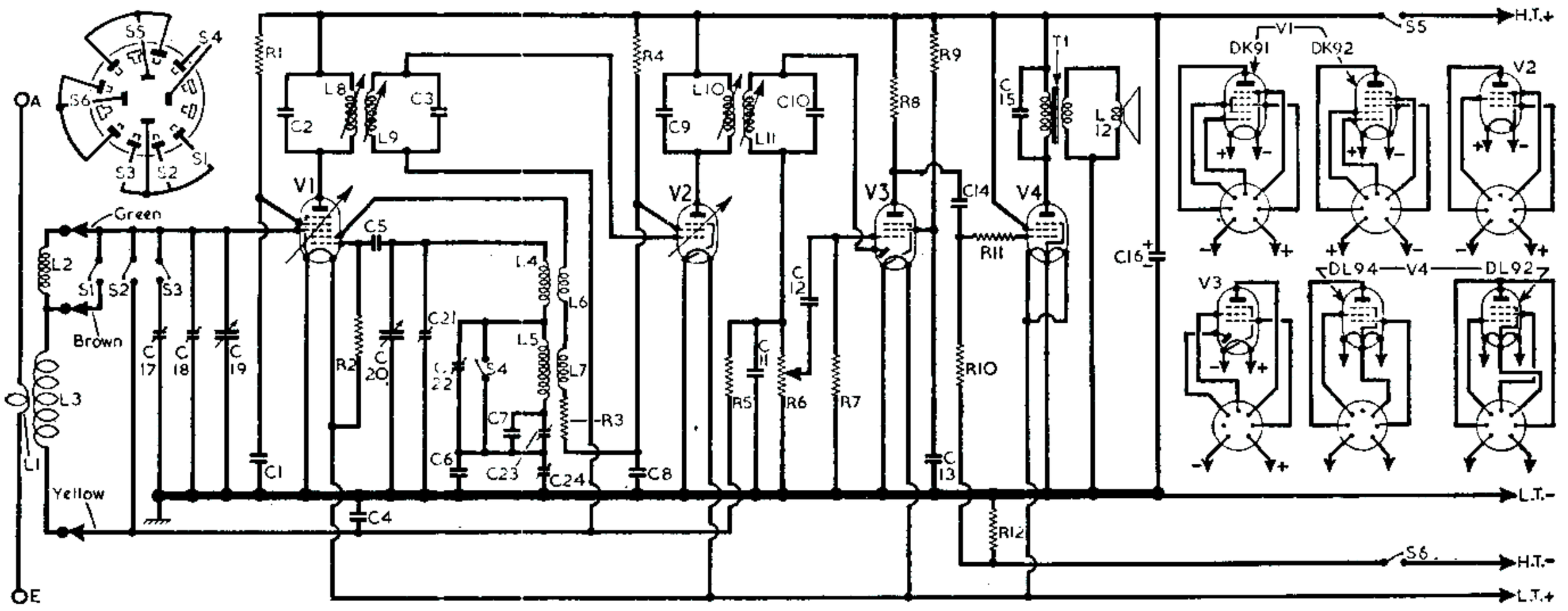
	RESISTORS	Values	Locations
R1	V1 S.G. feed ...	68kΩ	F4
R2	V1 osc. C.G. ...	100kΩ	F3
R3	Osc. stabilizer ...	2·2kΩ	E4
R4	H.T. feed	*15kΩ	E4
R5	A.G.C. decoupling	2·2MΩ	E3
R6	Volume control ...	500kΩ	E3
R7	V3 C.G.	10MΩ	D3
R8	V3 anode load ...	1MΩ	D3
R9	V3 S.G. feed ...	4·7MΩ	D4
R10	V4 C.G.	4·7MΩ	D3
R11	V4 C.G. stopper ...	2·2MΩ	D3
R12	V4 G.B.	470Ω	D4

* Two 30 kΩ resistors in parallel.

	CAPACITORS	Values	Locations
C1	V1 S.G. decoupling	0·1μF	E3
C2	1st I.F. trans.	100pF	B2
C3	tuning	100pF	B2
C4	A.G.C. decoupling	0·05μF	F4
C5	V1 osc. C.G. ...	100pF	F4
C6	M.W. osc. tracker...	450pF	G4
C7	L.W. osc. tracker...	100pF	G4
C8	S.G. and osc. decoup.	0·1μF	E4
C9	2nd I.F. trans.	100pF	C2
C10	tuning	100pF	C2
C11	I.F. by-pass ...	100pF	E3
C12	A.F. coupling ...	0·001μF	D3
C13	V3 S.G. decoupling	0·1μF	D4
C14	A.F. coupling ...	0·001μF	D4
C15	Tone corrector ...	0·001μF	D3
C16*	H.T. reservoir ...	8μF	F3
C17‡	L.W. aerial trimmer	120pF	A1
C18‡	M.W. aerial trimmer	60pF	A1
C19†	Aerial tuning ...	§523pF	A1
C20†	Oscillator tuning ...	§523pF	A2
C21‡	M.W. osc. trimmer	60pF	A1
C22‡	L.W. osc. trimmer	120pF	A2
C23‡	L.W. osc. tracker...	200pF	A2
C24‡	M.W. osc. tracker...	200pF	A2

* Electrolytic. † Variable. ‡ Pre-set.
§ "Swing" value, min. to max.

	OTHER COMPONENTS	Approx. Values (ohms)	Locations
L1	Frame aerial coup.	—	—
L2	L.W. loading coil...	8·0	—
L3	Frame aerial ...	1·5	—
L4	Oscillator tuning coils	2·0	F3
L5		4·0	F4
L6	Oscillator reaction coils	3·0	F3
L7		8·0	F4
L8	1st I.F. trans. Pri.	8·5	B2
L9	1st I.F. trans. Sec.	8·5	B2
L10	2nd I.F. trans. Pri.	8·5	C2
L11	2nd I.F. trans. Sec.	8·5	C2
L12	Speech coil ...	2·5	—
T1	O.P. trans. Pri. ...	480·0	B1
	O.P. trans. Sec. ...	0·5	
S1-S6	Waveband, batt. sw.	—	F3



Circuit diagram of Ever Ready all-dry table receiver Model T. Provision is made for the connection of an external aerial and earth via frame aerial coupling loop **L1.** The waveband switch unit diagram is inset in the top left-hand corner.

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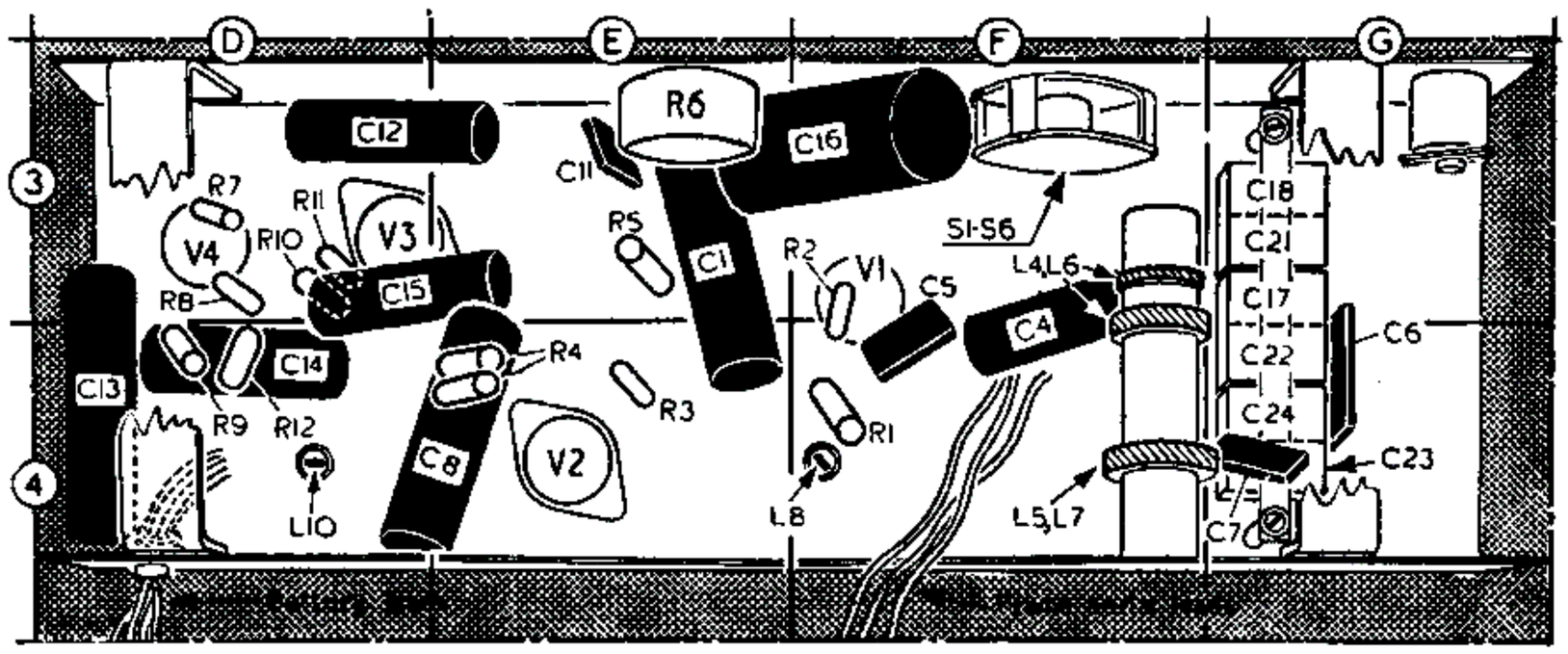
GENERAL NOTES

Switches.—**S1-S4** are the wavehand switches, and **S5**, **S6** are the battery switches, ganged in a single 3-position unit beneath the chassis. This is indicated in our underside view of the chassis and it is shown in detail inset in the circuit diagram overleaf, where it is drawn as seen from the rear of an inverted chassis.

The table below gives the switch positions for the three control settings, starting from the fully anti-clockwise position of the control knob. A dash indicates open, and **C**, closed.

Switches	L.W.	Off	M.W.
S1	—	—	C
S2	—	C	—
S3	C	—	—
S4	—	—	C
S5	C	—	C
S6	C	—	C



Under chassis view. The switch diagram is inset in the circuit overleaf.

Scale Lamps.—In the early version, code TA2A, two scale lamps were fitted. They were Ever Ready lamps, with M.E.S. bases and 12 mm bulbs, rated at 1.25 V, 0.25 A, and were switched on by means of a press-button only when tuning. They were energized from an independent 1.5 V U2 cell.

Battery.—The battery unit is an Ever Ready type B103 or B130 combined H.T. (90 V) and L.T. (1.5 V) unit, which is fitted with a standard English 4-pin type valve base socket. Anode and grid pins are H.T.+ and H.T.− respectively.

Drive Cord Replacement.—This is quite simple, the cord passing in the same direction round the drive drum and the control spindle, making about half a turn round the former and one and a half turns round the latter. Two feet of high-grade flax fishing line, plaited and waxed, is sufficient, with an ample margin for tying off.

ASSOCIATED MODELS

Model T. This *Service Sheet* was prepared from a late version of the model T, which conformed to code No. TC2A, and all the information here is presented just as it was in that version. There were, however, two earlier versions conforming to code Nos. TA2A and TB2A. These codes are factory numbers only, and are not marked on the receiver, and they represent successive changes necessitated by the introduction of improved valve types.

In the earliest model, TA2A, **V1** was a DK91, and **V4** was a DL92, and this involved certain differences in associated components. With the DK91, **R1** and **C1** were not required, so they were not present in that version; **R2** was returned to chassis instead of L.T. positive and **R4** was 10 kΩ. With the DL92 output valve, bias requirements necessitated a different value for **R12**, which was then 820 Ω.

In this version, too, two scale lamps were fitted to the upper corners of the scale panel. They were energized from a U2 cell held in a cradle in the left-hand corner of the cabinet. The lamps lit only when a press-button mounted just above the tuning control knob was depressed.

The intermediate version TB2A had a DK92 and a DL92, but no scale lamps were fitted. Its chassis, therefore, was like our sample in all respects except for the adjustment of **V4** grid bias, so **R12** was 820 Ω.

In chassis later than ours, including model S.Q., an I.F. stopper of 47 kΩ was added in series between **L11** and **C11, R6**, a further 100 pF capacitor going between the lower end of **L11** and chassis. A 100 pF capacitor was added from **V3** pentode anode to chassis and **R11** was omitted.

Model K was a portable receiver, but except for a small mechanical re-arrangement, the chassis and circuit are identical with those in this *Service Sheet*. Like the T, however, it has had newer valves introduced as they became available, and the modifications described for model T apply equally to it. Originally the intermediate frequency was 452 kc/s, but it has since been changed to 470 kc/s.

In this receiver, the chassis is held in position by springs and pressure from the back cover. To remove the chassis, pull the chassis from beneath with the fingers while pressing the output transformer with the thumb. The chassis will then come away complete with escutcheon and control knobs. It might be necessary to ease the frame aerial slightly (both sides) to give it a start.

Model S.Q.—This receiver uses a chassis like the latest type T receiver, including all the modifications quoted above, and is fitted with a new range of valves with low-consumption filaments (25 mA). These are Ever Ready DK96, DF96, DAF96 and DL96, and their base connections are the same as DK92, DF91, DAF91 and DL94 respectively.

CIRCUIT ALIGNMENT

I.F. Stages.—Remove chassis from cabinet. Disconnect green lead from frame aerial tags and connect the output of the signal generator, via an 0.1 μF capacitor in the "live" lead, to green lead and to chassis. Switch receiver to L.W., feed in a 470 kc/s (638.3 m) signal and adjust the cores of **L11** (location reference C2), **L10** (D4), **L9** (B2) and **L8** (F4) 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.—Reconnect the green frame aerial lead. The following adjustments may be made with the chassis in or out of its cabinet, provided that the H.T. battery is placed in each case in its normal position relative to the frame aerial. Check that with the gang at maximum capacitance, the cursor coincides with the horizontal datum lines on the tuning scales. Transfer signal generator leads to **A** and **E** sockets on back cover, placing the cover about 12 inches from the frame aerial winding.

M.W.—Switch receiver to M.W., tune to unnumbered black calibration dot between 200 and 250 m marks, feed in a 214.3 m (1,400 kc/s) signal and adjust **C21** (A1) and **C18** (A1) for maximum output. Tune receiver to 500 m, feed in a 500 m (600 kc/s) signal and adjust **C24** (A2) for maximum output. Repeat these adjustments, rocking the gang while adjusting **C24** for optimum results.

L.W.—Switch receiver to L.W., tune to 1,700 m, feed in a 1,700 m (176.5 kc/s) signal and adjust **C23** (A2) for maximum output. Tune receiver to 1,000 m, feed in a 1,000 m (300 kc/s) signal and adjust **C22** (A2) and **C17** (A1) for maximum output. Repeat these adjustments, rocking the gang while adjusting **C23** for optimum results. Any further adjustments to M.W. should be followed by L.W. re-alignment.

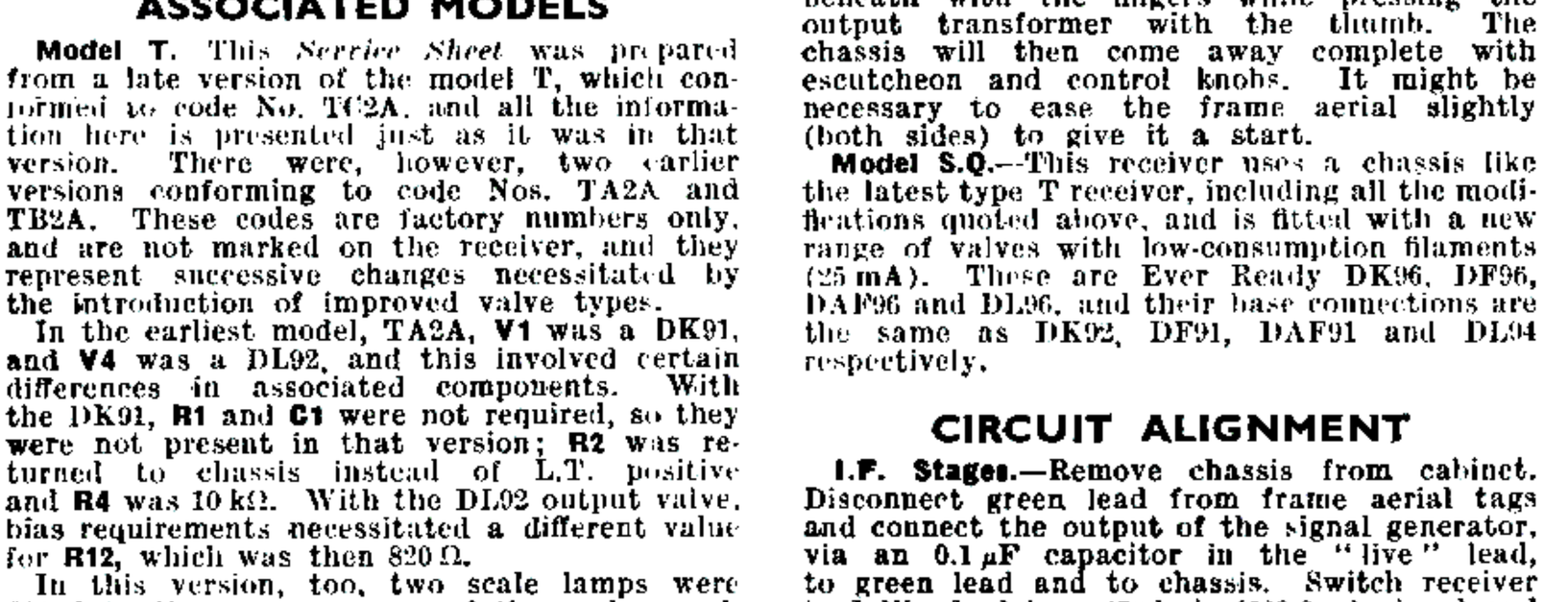
VALVE ANALYSIS

Valve voltages and currents given in the table below were measured on two receivers, an early and a late model. In each case the receiver was operating from a new battery and was tuned to a point on the high wavelength end of M.W. where there was no signal pick-up. The readings for the early model were derived from the manufacturers' information, but those for the late model were measured on our receiver.

Voltage readings for **V3** in the early model were measured on an electronic voltmeter, a Model 7 Avometer being used for the remaining valves. The voltage across **R12** was 10 V. Chassis was the negative connection in every case.

In the late model, all the readings were measured on an Avo Electronic TestMeter, and as this instrument has a high internal resistance allowance should be made for the current drawn by other types of meter. The voltage across **R12** was 6 V. Chassis was the negative connection in every case.

Valve	Anode		Screen	
	V	mA	V	mA
Early Model				
V1 DK91	80	0·5	40	1·5
V2 DF91	80	2·3	47	1·0
V3 DAF91	25	<90 μA	20	<20 μA
V4 DL92	78	5·5	80	1·6
Late Model				
V1 DK92	84	0·5	74	0·14
	Oscillator			
	41	1·6		
V2 DF91	84	2·1	50	0·7
V3 DAF91	13	60 μA	19	15 μA
V4 DL94	79	6·2	84	1·3



Plan view of chassis. The external aerial coupling winding **L1** is wound on the back cover, but the frame aerial **L3** and **L2** are in the cabinet.

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