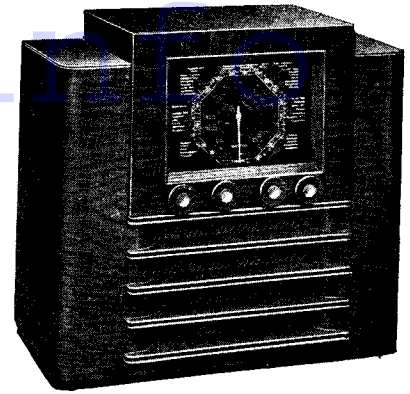


# SPARTON 548T A.C. THREE BAND



The Sparton model 548T is produced by Electrical Commodities Ltd. The chassis dealt with here is used throughout the 548 and 648 ranges.

**CIRCUIT.**—The aerial input circuit incorporates an I.F. rejector. The signal is coupled to the grid of V1, a 6A8G frequency changer, by a set of H.F. transformer aerial coils.

The output, converted to the I.F., passes via an I.F. transformer to the amplifier V2, a 6K7G. V3, a 6Q7G valve, is fed by a further I.F. transformer. The secondary of this is connected both to the demodulating diode load resistance, consisting of the volume control, and also the A.V.C. load resistance.

The coupling arrangements to the grid of the triode section of V3 include a manual volume control. Bias for this valve is obtained from a bias potentiometer instead of the usual cathode resistor.

V3 is resistance capacity coupled to V4, a 6F6G output valve. Bias for this is also obtained from the potentiometer. A compensator condenser is connected between the anode and chassis, and a variable resistance and condenser between anode and chassis provide tone control.

Mains equipment consists of a mains transformer, a full-wave 5Y3G rectifying valve V5, electrolytic smoothing condensers, and a smoothing choke consisting of the speaker field coil. A suppressor condenser is connected between the

primary of the mains transformer and chassis.

**Chassis Removal.**—Remove the back of the cabinet (sliding clips) and the four control knobs (grub screws) from the front. Remove the four chassis fixing bolts and washers from the under-side of the shelf in the cabinet.

If the speaker leads are unsoldered, for the reverse process the red is connected to the top two tags, the yellow to the bottom tag and the green to the tag above.

**Special Notes.**—A pair of sockets at the rear of the chassis enable a pick-up to be connected. A Q.M.B. switch above these sockets cuts off the radio input.

An adjacent pair of sockets are for connecting an external speaker. A high-impedance moving-coil type should be used.

There are four dial lights located in screw-in holders clamped to the sides of the wavelength dial assembly. The bulbs fit into metal shielding cylinders that prevent a direct glare on the dial. They are rated at 6.3 volts, .25 or .3 amp., and have M.E.S. bases.

In our particular chassis R3 was found to have a value of 150 ohms. The pentode compensator condenser was omitted, but

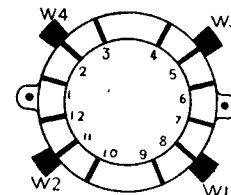
## WINDINGS

Winding.	Ohms.	Winding.	Ohms.
L1 primary ..	34.2	I.F.T.1 (P) ..	12.4
L1 secondary ..	52.3	I.F.T.1 (S) ..	12.2
L2 primary ..	34.5	I.F.T.2 (P) ..	14.5
L2 secondary ..	4.3	I.F.T.2 (S) ..	6.5
L3 primary ..	.5	Mains trans.,	
L3 secondary ..	.2	primary ..	14
L4 ..	2.6	H.T. secondary ..	386
L7 ..	16.5	Speech coil ..	1.4
L5 and L8 ..	6.5	Speaker trans.	
L6 and L9 ..	.4	primary ..	1,150
		Field coil ..	1,200

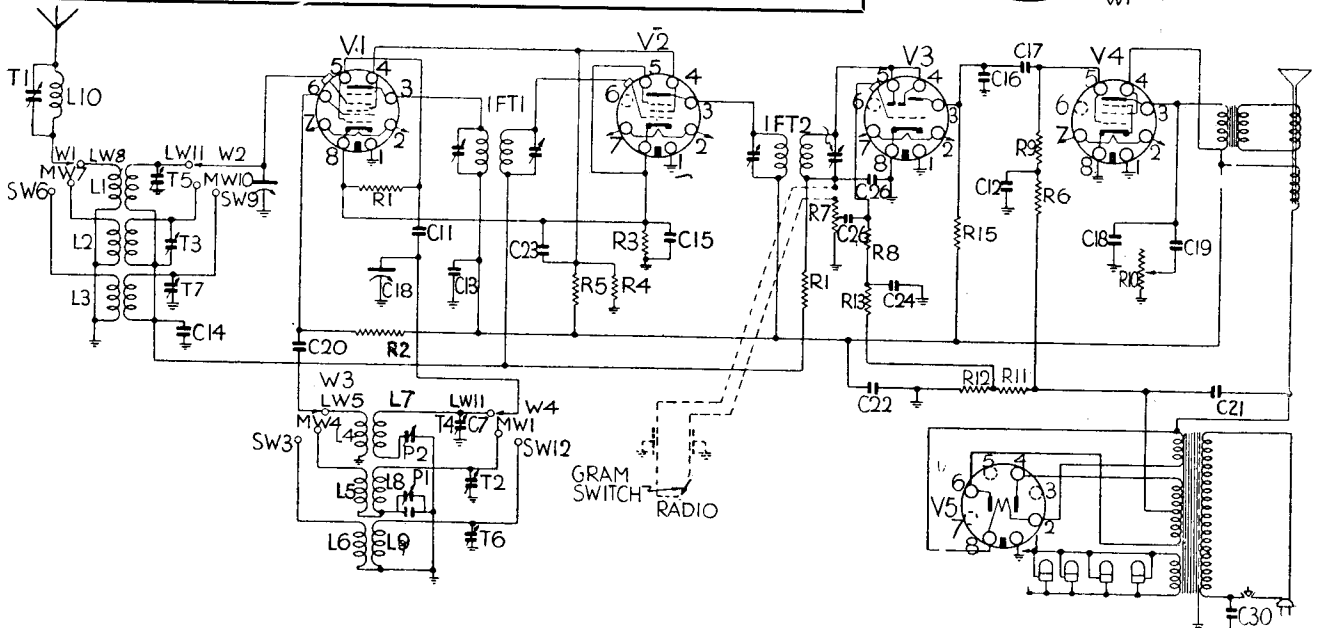
## VALVE READINGS

Voltages between sockets and chassis. No signal. Volume maximum. 230 volts A.C. mains.

V	Valve.	Pin Numbers. See Circuit Diagram.								
		1.	2.	3.	4.	5.	6.	7.	8.	Grid.
1	6A8G ..	0	0	235	90	10	12	5.4	3	0
2	6K7G ..	0	0	235	90	3	—	5.4	3	0
3	6Q7G ..	0	0	100	.1	.1	.1	5.4	0	1
4	6F6G ..	0	0	210	235	1	2	5.4	0	—
5	5Y3G ..	0	320	—	340 A.C.	—	340 A.C.	—	320	—



The one switch bank of the 548. See circuit for identifying numbers.



Octal base valves are employed, and to simplify tests the pins are numbered in the circuit diagram to correspond with the table of voltages given above. Five valves are used in an orthodox arrangement.

For more information remember

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we understand that it is included in later models.

### Circuit Alignment Notes

**I.F. Circuits.**—Connect an output meter across the primary of the speaker transformer. Switch the receiver to the M.W. band and the tone control to the high position.

Turn the gang to minimum capacity and the volume control to maximum. Set the switch at the rear of the chassis to the radio position. Connect a modulated oscillator between the top grid cap of V1 and chassis via a small condenser.

Tune the oscillator to 345 kc., and adjust first the trimmers of I.F.T.2 and then I.F.T.1 for maximum response. Reduce the input from the service oscillator as the circuits come into line.

**I.F. Wavetrap.**—Tune the service oscillator to 345 kc. and adjust T1 for minimum response, with the vanes of the gang fully meshed.

**Signal Circuits.**—Leave the output meter connected as before, but connect the service oscillator to the aerial and earth, preferably through a dummy aerial or fixed condenser. Only feed sufficient input from the oscillator to obtain definite peaks in the output meter so as to render the A.V.C. inoperative.

**Medium Waves.**—Tune the set and oscillator to 200 metres (1,500 kc.) and adjust first T2 and then T3 for maximum.

Tune the set and oscillator to 500 metres

(600 kc.) and adjust P1 for maximum, simultaneously rocking the gang to ensure optimum results.

Repeat the above operations until no further improvement is noticed.

**Long Waves.**—Tune the set and oscillator to 1,000 metres (300 kc.) and adjust T4 (with T5 screwed tight) and then T5 for maximum response.

Tune the set and oscillator to 2,000 metres (150 kc.) and adjust P2 for maximum, simultaneously rocking the gang.

Repeat both operations until no further improvement is noticed.

**Short Waves.**—Tune the set and oscillator to 20 metres (15 mc.) and adjust first T6 and then T7 for maximum, simultaneously rocking the gang slightly.

The short wave padding is fixed, but check the calibration throughout the range covered.

### Replacement Condensers

TWO exact service replacement condensers for the Sparton 548 are available from A. H. Hunt, Ltd., Garratt Lane, Wandsworth, London, S.W.18. These are: For C21, unit list number 3056, price 7s. 6d.; for C22, unit 3856, price 10s.

Details of replacement condensers for some hundreds of receivers are listed in alphabetical order under makers' names in the latest booklet issued by A. H. Hunt, Ltd.

## Sparton 548T on Test

**MODEL 548.**—Standard model for operation on A.C. mains, 95-260 volts, 50-100 cycles. Price 12 gns.

**DESCRIPTION.**—Three band, five valve, including rectifier, table superhet.

**FEATURES.**—Full-vision scale coloured for wavebands. Controls for wave selection, combined tone and master switch, volume and tuning. Separate pick-up to radio switch. Sockets for pick-up and extra speaker.

**LOADING.**—73 watts.

**Sensitivity and Selectivity.**

**SHORT WAVES** (16-52 metres).—Good gain and selectivity. Handling easy and no noticeable drift.

**MEDIUM WAVES** (190-550 metres).—Excellent gain and selectivity. Local station spread confined to adjacent channels only. Gain fairly well maintained. Good background.

**LONG WAVES** (1,000-2,300 metres).—Excellent selectivity and good gain. All main stations easily received. Deutschlandsender received with trace of side splash.

**Acoustic Output.**

Ample volume for ordinary room. Tone full and slightly mellow. Balance on orchestral music pleasing and only slight colouration on speech.

### Measuring Capacity

CAPACITIES of condensers can be measured sufficiently accurately for practical purposes by applying an A.C. voltage and measuring (on an A.C. meter) the current passed. The capacity is then given by  $C = 160 I / fE$ , where C is capacity, I is current, f is cycles per second and E is volts.

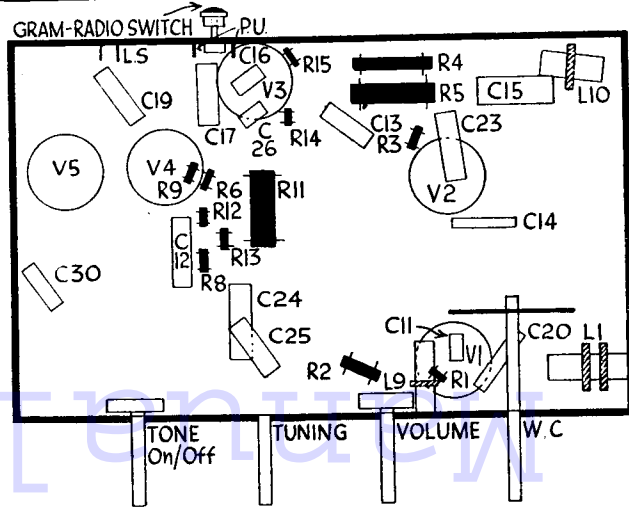
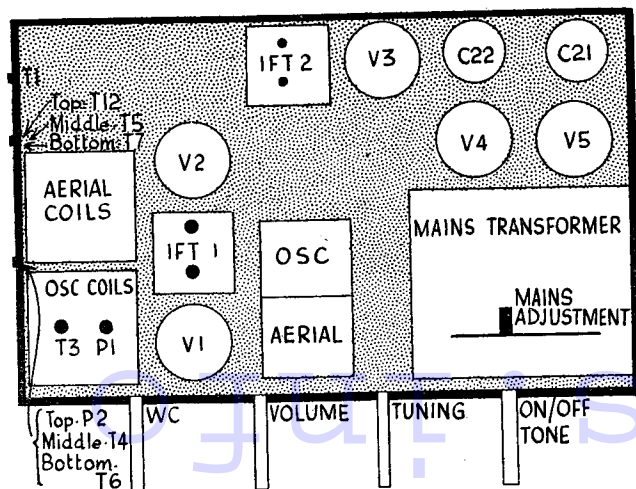
Electrolytic condensers should not be tested on capacity meters, or by the above method, unless a polarising voltage is applied. That is, a battery of voltage exceeding the peak A.C. voltage must be joined in series with the A.C. voltage.

### RESISTANCES

R.	Purpose.	Ohms.
1	Osc. grid leak	56,000
2	Osc. anode load	22,000
3	V1 and V2 cathode bias	160
4	V1 and V2 anode potr. (part)	27,000
5	V1 and V2 anode potr. (part)	15,000
6	V4 grid decoupling	270,000
7	Volume control and demod. diode load.	500,000
8	V3 grid resistance	560,000
9	V4 grid resistance	270,000
10	Tone control	1 meg.
11	Bias potr. (part)	220
12	Bias potr. (part)	27
13	V3 grid decoupling	1 meg.
14	V1 and V2 A.V.C. feeds	1 meg.
15	V3 anode load	270,000

### CONDENSERS

C.	Purpose.	Mfds.
11	Osc. grid	.00005
12	V4 grid decoupling	.1
13	V1 anode decoupling	.1
14	V1 A.V.C. decoupling	.05
15	V2 cathode bias shunt	.5
16	H.F. by-pass	.00025
17	L.F. coupling	.05
18	Pentode compensator	.006
19	Tone control	.03
20	Osc. anode coupling	.001
21	H.T. smoothing	16.
22	H.T. smoothing	30.
23	V1 and V2 screen decoupling	.1
24	V3 grid decoupling	.1
25	L.F. coupling	.05
26	H.F. by-pass	.00025
30	Mains suppressor	.006



Logical design is seen in the top of chassis diagram (left) of the Sparton 548. The underside (right) is particularly simple for a four-valve plus rectifier all-wave superhet.