ROGERS-MAJESTIC

14/8 SERIES

Five-valve, plus tuning indicator and two rectifiers, three waveband superhet with alternative T.R.F. circuit. Available in table, console, radiogram, and auto-radiogram forms, suitable for 200-250 v., 50 cycle mains. Made by R. M. Electric, Ltd., Oaklands Road, London, N.W.2.

Circuit.—This set incorporates patented T.R.F. "Duplitune" and contra-phase circuits. The first valve is an R.F. pentode fed from the aerial through transformer circuits on each waveband and feeding V2, the frequency changer, through three similar coupled circuits. The oscillator section has a straightforward arrangement, but can be cut out of action by S5 in the anode circuit.

Coupled with S5 are S6, S7 and S4. When S5 cuts out the oscillator, S6 transfers the anode connection of V2 from I.F.1 to the bottom of an H.F. choke. In the superhet position S7 earths this choke circuit through C34.

In the "Duplitune" position the radio-frequency signals from V2 are developed across the H.F. choke and fed via C49 to a diode of V4. L.F. voltages are developed and fed through an H.F. filter choke to the top of the normal diode load. V3 is not used.

In the superhet position V3 acts as a conventional I.F. amplifier. V4 is a double-diode-triode, one diode used for the T.R.F. section and the other for the superhet.

A.V.C. is tapped from the top of the diode load (R11, R12), R10 and C37 being an H.F. filter. V5, the tuning indicator, is energised from the R11–R12 junction.

V6 is an output pentode with the Bradbury contraphase feed back circuit, C41, C42 and R25, connected back to the grid. Bias is obtained from R26–R27.

An unusual feature is the use of two half-wave rectifiers in a full-wave circuit.

Another distinctive feature is the incorporation of small L.T. cells for biasing the V4 triode section and for giving the H.F. valves a minimum bias. The first unit is in series with R23, the grid leak, and the second is in series with R13.

The cartridge shape condensers in parallel with the L.W. and S.W. oscillator trimmers are temperature compensating types of 6.5 mmfds.

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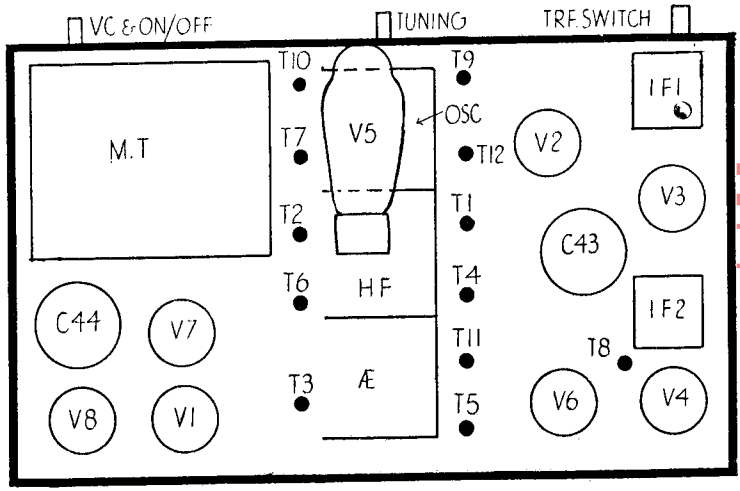
VALVE READINGS

V.	*Type.*	*Electrode.*	*Volts.*	*Ma.*
1	6K7M	Anode	230	9
		Screen	90	2
2	6J8M	Anode	226	1.8
		Screen	142	4.3
		Osc. anode	112	5.5
3	6K7M	Anode	230	9
		Screen	90	2
4	75M	Anode	160	.14
5	6 x 6	Anode	230	—
6	41M	Anode	223	25
		Screen	230	5
7 & 8	2 x 3	Anode	380 A.C.	—
		Cathode	245 D.C.	—

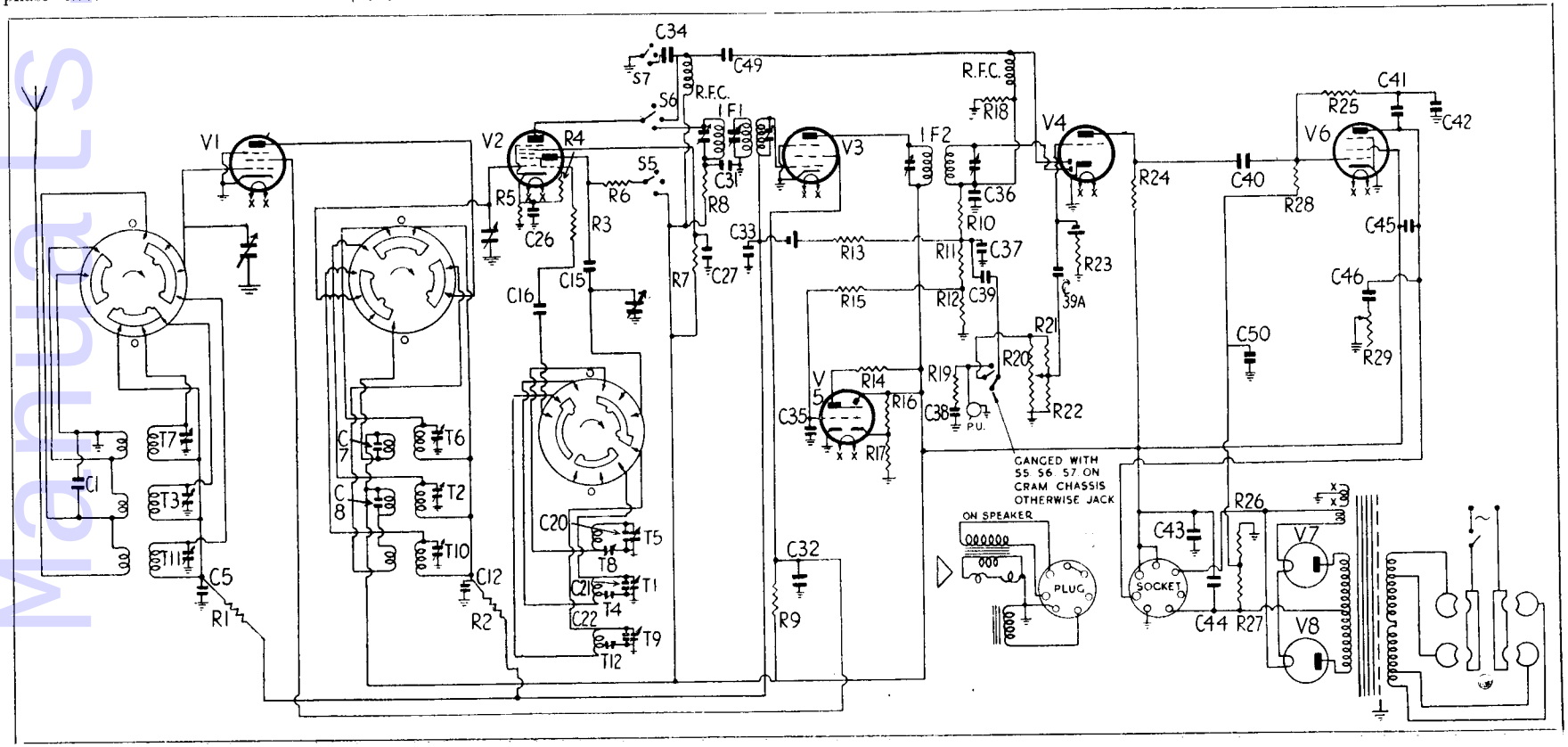
Pilot lamps, 6.3 v., .3 amp.

CONDENSERS

C.	*Mfds.*	*C.*	*Mfds.*
1 ..	.0001	16 ..	.0002
5 ..	.03	26 ..	.03
7 ..	.0005	27 ..	.1
8 ..	.0005	31 ..	.1
12 ..	.03	32 ..	.1
15 ..	.0002	33 ..	.03



Two practical points to note with the 14/8 chassis is that two mains adjustments have to be made and withdrawal of the speaker plug disconnects the electrolytics.



CONDENSERS
Continued

C.	*Mfds.*
34 ..	.005
35 ..	.03
36 ..	.0002
37 ..	.0002
38 ..	.005
39 ..	.03
40 ..	.005
41 ..	.0001
42 ..	.00005
43 ..	16
44 ..	25
45 ..	.005
46 ..	.05
49 ..	.0002
50 ..	.05

RESISTANCES

R.	*Ohms.*
1 ..	100,000
2 ..	500,000
3 ..	60
4 ..	50,000
5 ..	300
6 ..	20,000
7 ..	20,000
8 ..	1,000
9 ..	25,000
10 ..	50,000
11 ..	200,000
12 ..	300,000
13 ..	500,000
14 ..	1 meg.
15 ..	1 meg.
16 ..	20,000
17 ..	15,000
18 ..	1 meg.
19 ..	25,000
20 ..	10 meg.
21 ..	2 meg.
22 ..	1 meg.
23 ..	1 meg.
24 ..	.5 meg.
25 ..	1 meg.
26 ..	.1 meg.
27 ..	.5 meg.
28 ..	1 meg.
29 ..	50,000
Field	2 000

ALBA 510, 610, 710, 810.

Three valve, plus rectifier, three waveband superhet in table (810), console (610), table radiogram (510), and console radiogram (710) forms. The 510 and 710 have push-buttons for switching and wave-changing. All in A.C and A.C./D.C. models; this sheet covers A.C. models only. Made by A. J. Balcombe, Ltd., 52-58, Tabernacle Street, London, E.C.2.

Circuit.—Coupled circuits, with iron cores on M. and L.W., link the aerial to V1, a triode-hexode frequency-changer. The oscillator section is tuned-grid with separate anode-coupling coils on each band. Iron-core I.F. transformers, with trimmer condensers, lead to V2, a “sliding screen” pentode, and to V3, a combined double-diode output pentode.

A pick-up is connected through a small L.F. transformer, with switched secondary, to V2. The amplified signal is then developed across R17 and fed, via a further switch and C12, to the top of the volume control.

The radio signal is demodulated in the usual way. The A.V.C. circuit is orthodox, except that it is energised from the I.F. secondary.

Wavebands: 16.5–51, 200–560, 800–2,000 metres.

Models 510 and 710 have push-buttons for switching and wave-changing, but the chassis is otherwise the same as in the 810 and 610.

GANGING

I.F. Circuits.—Adjust I.F. trimmers for maximum at 470 kc.

M.W. Band.—At 250 metres, adjust T2 and T1. Pad at 500 metres with T3. Repeat operations.

L.W. Band.—At 1,300 metres, adjust T5 and T4. Pad with T6 at 1,900. Repeat operations.

S.W. Band.—At 19 metres, adjust T8 and T7. Padding is fixed.

VALVE VOLTAGES

V.	Type.	Electrode.	Volts.	Ma.
1	ECH2 ..	Anode	265	.3
		Screen	90	.5
		Osc. anode	105	7
2	EF9 ..	Anode	230	4.8
		Screen	105	2
3	EBL1 ..	Anode	250	40
	(*All Mullard*)	Screen	265	6

Pilot lamps, 4.5 v., .2 amp.

CONDENSERS

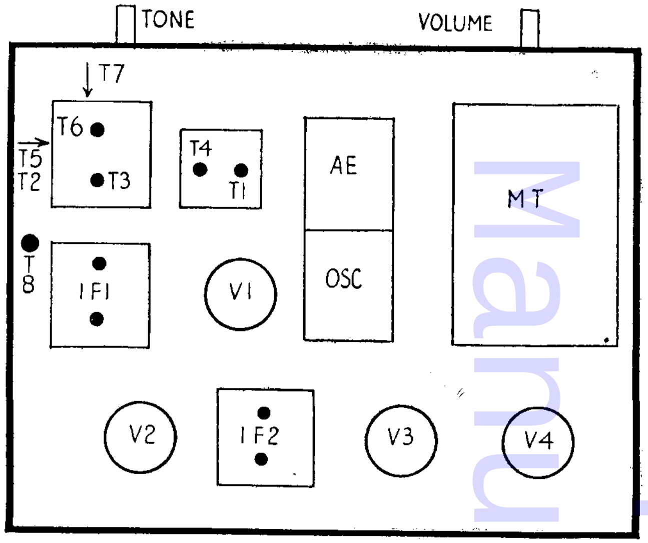
C.	Mfds.	C.	Mfds.
1	200 mmfds.	11	.1
2	.05	12	.005
3	5 mmfds.	13	100 mmfds.
4	.1	14	100 ,,
5	.1	15	50
6	100 mmfds.	16	.005
7	.0025	17	25
8	.1	18	16+16+8
9	.05	19	.001
10	.1	20	.1

RESISTANCES

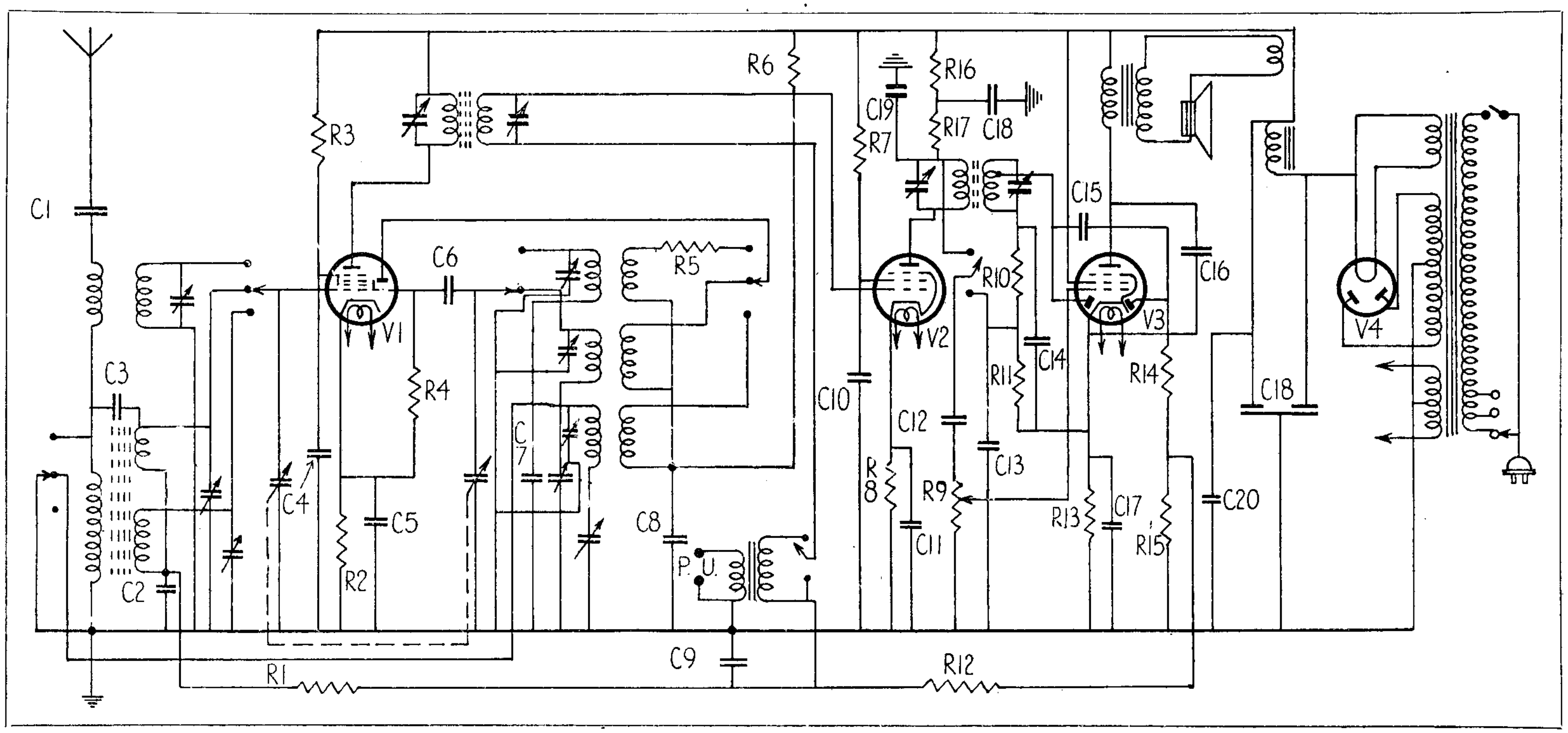
R.	Ohms.	R.	Ohms.
1	.25 meg.	10	50,000
2	100	11	.5 meg.
3	25,000	12	.25 meg.
4	50,000	13	150
5	200	14	.5 meg.
6	25,000	15	.5 meg.
7	.9 meg.	16	1,000
8	300	17	5,000
9	.5 meg.		

WINDINGS

L.	Ohms.	L.	Ohms.
1	40	12	4
2	1.5	13	4
3	15	14	300
6	30	15, 16	125
7	50	19	12
8	3	20, 21	1
9	9	22	700
10	15	23	400
11	V. low		



Speaker leads are red and blue for the field and red and white for speech. Red is common to both and black is earth.



Line Cord Connections

MANY service men do not appear to be familiar with the connecting of line cords in A.C./D.C. midgets.

One wire goes to the mains switch on the set; another, the resistance wire, to the heaters or pilot bulbs, and the third depends upon the circuit. If a ballast lamp is used, the purpose of the third wire will be to short out the line cord when using the set on 100 volts. Thus you would leave this wire disconnected when on 200–250 volts.

If a ballast lamp is not used, you connect the second wire with the third wire. At the set end, the third wire would be connected to the rectifier anodes. To use this set on 200–240 volts, an extra line cord is required.

—Alfred Rose, London, N.16.

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Note that two screws have to be adjusted on the mains transformer.

GANGING

I.F. Circuits.—Adjust at 456 kc.

M.W. Band.—Trim with T1, T2 and T3 at 1,300 kc. Pad with T4 while rocking gang. Repeat trimming adjustments.

L.W. Band.—Trim with T5, T6 and T7 at 350 kc. and pad with T8 at 172 kc., rocking gang slightly. Re-trim.

S.W. Band.—Trim with T9, T10 and T11 at 17.8 mc. and pad at 6 mc. with T12, rocking gang. Re-trim.

Note.—The trimming adjustments must be such that the dial readings are accurate.