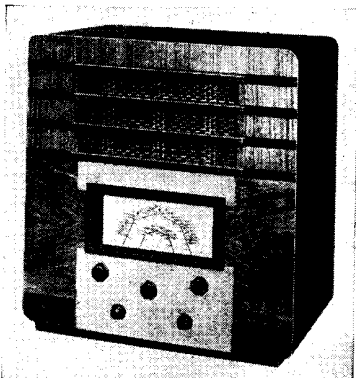


# MARCONIPHONE MODEL 209 FIVE-VALVE SUPERHET

**CIRCUIT.**—This receiver is an A.C. mains model covering the usual medium and long wavelengths. The signal from the aerial is fed through



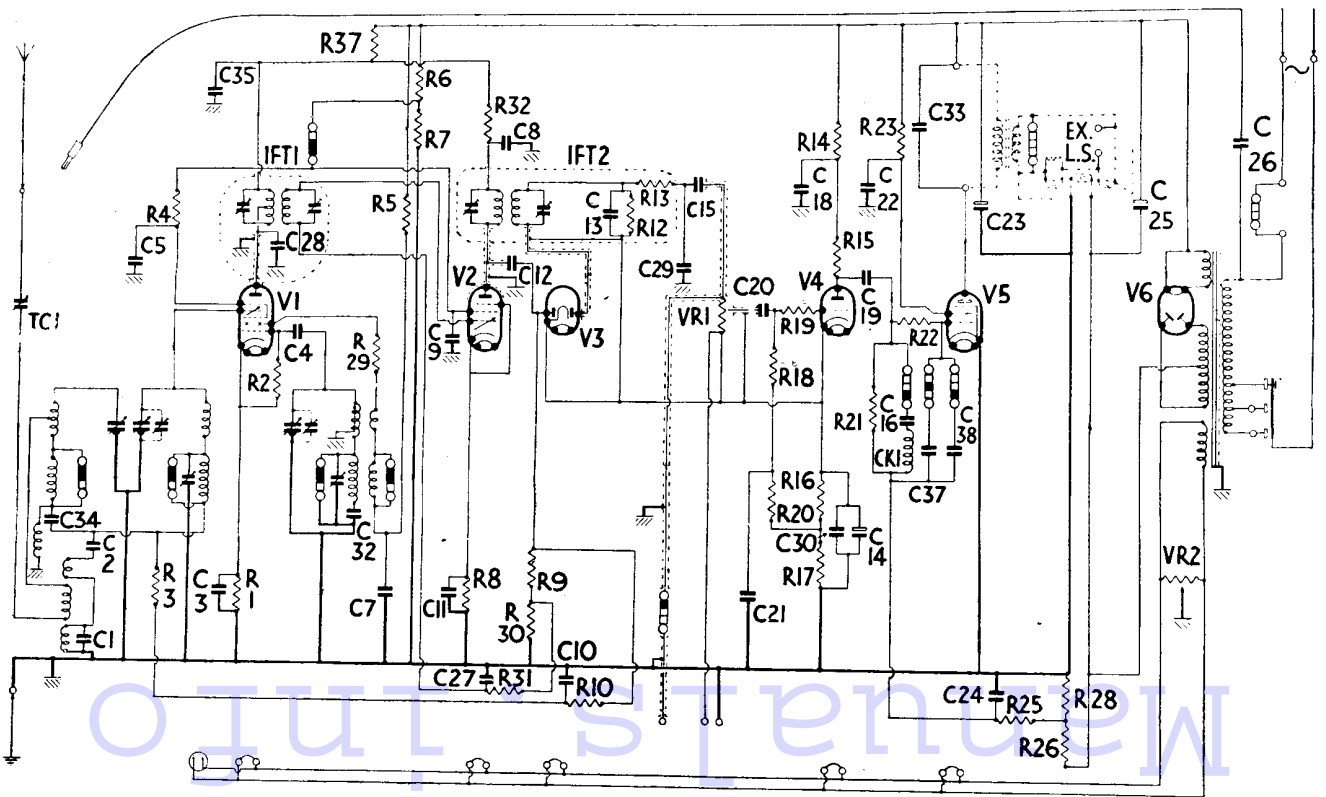
The model 209 by the Marconiphone Co., Ltd., is a five-valve plus rectifier A.C. mains superhet, designed along orthodox and efficient lines.

RESISTANCES		
R.	Purpose.	Ohms.
1	V1 bias cathode	500
2	V1 osc. grid leak	50,000
3	A.V.C. decoupling	100,000
4	V1 and V2 screen decoupling	15,000
5	V1 osc. anode decoupling	50,000
6	V1 osc. anode pot.	23,000
7	V1 osc. anode pot.	35,000
8	V2 cathode bias	500
9	Part A.V.C. pot.	.23 meg.
10	A.V.C. decoupling	.5 meg.
12	Demodulator load	.23 meg.
13	Series coupling	50,000
14	Anode decoupling	35,000
15	Part V4 anode ptr.	35,000
16	Part V4 cathode bias ptr.	750
17	Part V4 cathode bias ptr.	1,500
18	V4 grid leak	500,000
19	V4 grid stopper	.15 meg.
20	V4 grid decoupling	150,000
21	V5 grid leak	.1 meg.
22	V5 grid stopper	5,000
23	V5 screen decoupling	5,000
25	V5 bias decoupling	.35 meg.
26	V5 bias potentiometer	.5 meg.
28	V5 bias potentiometer	50,000
29	V1 osc. anode decoupling	5,000
30	Part A.V.C. ptr.	.5 meg.
31	A.V.C. decoupling	.75 meg.
32	V2 anode decoupling	10,000
37	V1 anode decoupling	3,500

CONDENSERS		
C.	Purpose.	Mfd.
1	Trap circuit shunt	.023
2	Trap circuit series	.023
3	V1 bias decoupling	.1
4	V1 oscillator grid	.0001
5	V1 screen decoupling	.1
7	V1 osc. H.T. decoupling	1
8	V2 H.T. decoupling	.1
9	V2 screen decoupling	.1
10	A.V.C. decoupling	.1
11	V2 cathode bias decoupling	.1
12	Diode coupling	.0001
13	H.F. shunt	.0001
14	Bias decoupling (B)	25
15	L.F. feed	.1
16	Part of tone control	.0023
18	V4 anode decoupling	1.0
19	Coupling to V5	.1
20	Coupling to V4	.1
21	H.F. by-pass	.1
22	V5 screen decoupling	1.0
23	H.T. smoothing	4.0
24	V5 bias decoupling	.1
25	H.T. smoothing	8.0
26	Mains aerial	.00035
27	V2 A.V.C. decoupling	.1
28	V1 anode shunt	.0001
29	H.F. shunt	.00023
30	Bias decoupling	.1
32	L.W. padding	.0023
33	Pentode correction	.001
34	Trap circuit	.01
35	H.T. decoupling for V1	.01
36	Pentode correction	.1
37	Tone control	.0015
38	Tone control	.005

a band-pass filter to V1, a frequency changer. It is then passed to V2, an H.F. pentode, via an I.F. transformer tuned to 125 kc. A second I.F. transformer couples V2 to the second detector, V3, a double diode, one diode of which is used to supply

(Continued on next page.)



A frequency changer, an I.F. amplifier, a double diode, a triode L.F. amplifier and an output pentode form the basis of the circuit of the Marconiphone 209.

# MARCONIPHONE MODEL 209 FIVE-VALVE SUPERHET (Continued)

A.V.C. bias to the preceding valves in the orthodox manner.

The output of V3 then passes through a volume control, VR1, to the L.F. valve, V4, a triode, which is resistance capacity coupled to the output pentode, V5.

Mains equipment consists of transformer, full-wave rectifier, electrolytic condensers, and the speaker field.

**Special Notes.**—The dial lights are rated at 6.2 volts, .3 amp. To remove them, remove the knurled-headed bolt by the side of the lamps and the carrier will lift out.

The external speaker is connected on the low-resistance side of the output transformer and should have a speech coil impedance of about 5 ohms.

**Removing Chassis.**—Remove the five knobs from the front of the cabinet. The mains on-off and the tone-control knobs are spring fitted and pull off. The other three are fixed by grub screws.

Remove four bolts from underneath the cabinet and release the speaker cable from its cleats, and the chassis will slide out freely.

## CIRCUIT ALIGNMENT NOTES

**I.F. Circuits.**—Connect a modulated oscillator tuned to 125 kc. between the grid of V2 and earth and output meter across external speaker terminals. Adjust TC6 and TC7 for maximum reading.

Transfer oscillator to the grid of V1 and adjust TC4 for maximum reading at 127 kc., and TC3 for maximum at 123 kc.

Check up the preceding and make a final check by sweeping the oscillator between 123, 125 and 127 kc.

The output should be greatest at 125 kc. Should this not be so, readjust TC6 and TC7.

**Medium-wave Band.**—Connect modulated oscillator across aerial and earth terminals of receiver and tune both to 220 metres. Adjust VC3, VC2 and the series aerial condenser TC1 for maximum reading.

Tune oscillator and set to 525 metres and adjust the trimmer on top of the oscillator coil for maximum reading.

**Long-wave Band.**—Tune oscillator and receiver to 1,000 metres and adjust TC5 and TC2 for maximum reading on output meter.

## VALVE READINGS

No signal. Volume control maximum, tone brilliant.

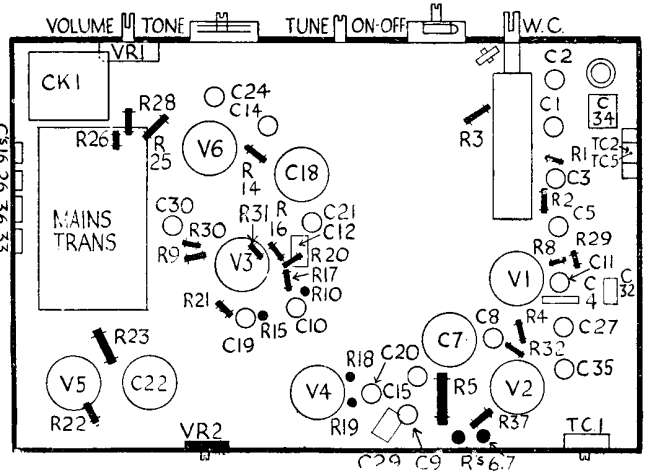
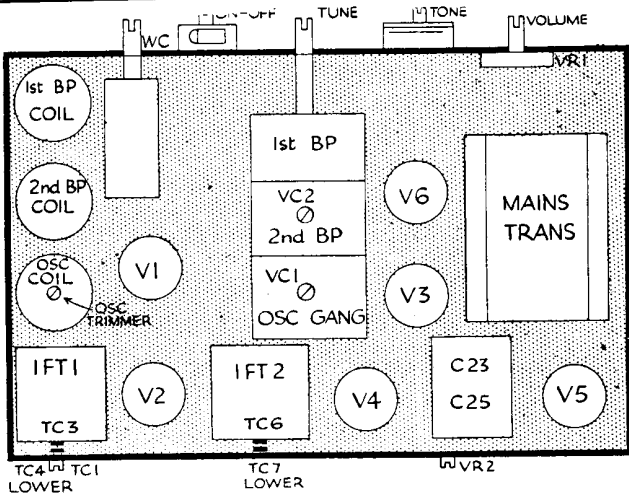
V.	Type.	Electrode.	Volts.	Ma.
1	MX40 (7) Met.	anode ..	210	2.0
		screen ..	60	2.0
		osc. anode ..	90	2.5
2	VMP4G (7) Met.	anode ..	152	3.5
		screen ..	80	2.8
3	D41 (5) Met.	diode ..	—	—
		screen ..	—	—
4	MH4 (5) Met.	anode ..	96	2.0
		screen ..	—	—
5	MPT4 (5) Met.	anode ..	220	30.0
		screen ..	208	5.0
6	U12 (4)	filament ..	242	—
		(All Marconi)		

## QUICK TESTS

Volages between the terminal strip on the speaker and the chassis should be:—

- Red lead (7), smoothed H.T., 240 volts.
- Yellow and read lead (8), V5 anode, 220 volts.
- Black lead (3), earth to chassis.
- Yellow (black tracer) (6), negative bias, 150 volts.

When measuring negative bias volts the chassis is positive in respect to terminal 3.



There are a number of refinements in the 209 which ensure efficient functioning. These layouts, showing the top of the chassis (left) and the underside enable the components to be recognised.

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