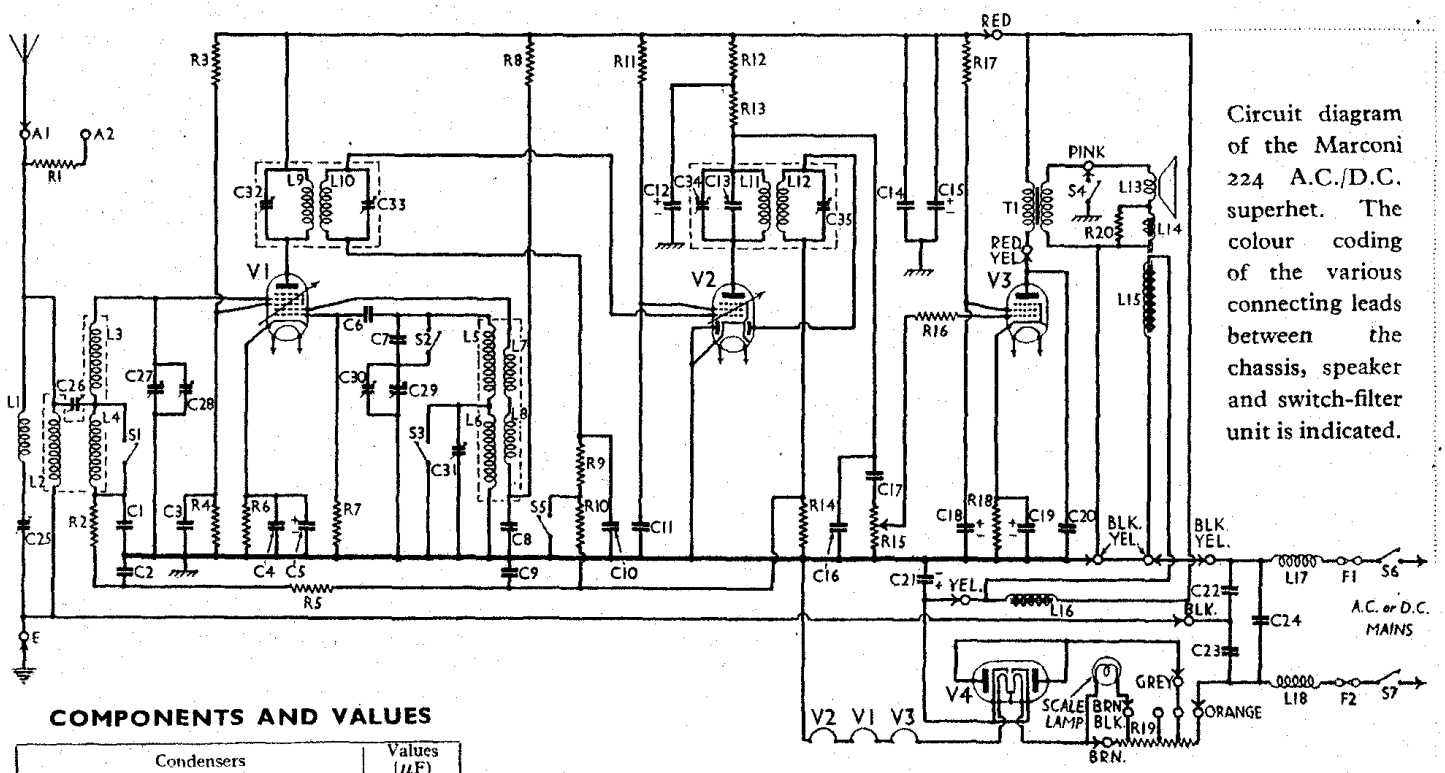
MARCONIPHONE - 224



Circuit diagram of the Marconi 224 A.C./D.C. superhet. The colour coding of the various connecting leads between the chassis, speaker and switch-filter unit is indicated.

COMPONENTS AND VALUES

	Condensers	Values (μF)
C1	V1 tet. cont. grid decoupling	0·1
C2	V1 A.V.C. line decoupling	0·01
C3	V1 S.G.'s by-pass	0·5
C4	V1 cathode by-passes	0·1
C5*	V1 cathode by-passes	50·0
C6	V1 osc. grid condenser	0·0001
C7	Osc. L.W. tracker	0·0005
C8	V1 osc. anode decoupling	0·1
C9	I.F. by-passes	0·002
C10	I.F. by-passes	0·0005
C11	V2 S.G. by-pass	0·5
C12*	V2 anode decoupling	4·0
C13	2nd I.F. trans. pri. tuning	0·0001
C14	H.T. smoothing	0·1
C15*	H.T. smoothing	12·0
C16	V2 anode I.F. by-pass	0·0005
C17	L.F. coupling to V3	0·1
C18*	V3 aux.grid by-pass	1·0
C19*	V3 cathode by-pass	50·0
C20	Tone compensator	0·002
C21*	H.T. smoothing	12·0
C22	Parts of mains disturbance filter unit	0·005
C23	Parts of mains disturbance filter unit	0·005
C24	Parts of mains disturbance filter unit	0·01
C25‡	Aerial I.F. filter tuning	—
C26‡	Image suppressor	—
C27	Aerial circuit tuning	—
C28‡	Aerial circuit trimmer	—
C29	Oscillator tuning	—
C30‡	Oscillator main trimmer	—
C31‡	Oscillator L.W. trimmer	—
C32‡	1st I.F. trans. pri. tuning	—
C33‡	1st I.F. trans. sec. tuning	—
C34‡	2nd I.F. trans. pri. tuning	—
C35‡	2nd I.F. trans. sec. tuning	—

* Electrolytic. ‡ Pre-set.

	Resistances	Values (ohms)
R1	Aerial series resistance	10,000
R2	V1 tet. cont. grid decoupling	100,000
R3	V1 S.G.'s pot. divider	35,000
R4	V1 S.G.'s pot. divider	50,000
R5	V1 A.V.C. line decoupling	350,000
R6	V1 fixed G.B. resistance	230
R7	V1 osc. grid resistance	50,000
R8	V1 osc. anode decoupling	100,000
R9	I.F. stoppers	100,000
R10	I.F. stoppers	23,000
R11	V2 S.G. H.T. feed	75,000
R12	V2 anode decoupling	5,000
R13	V2 anode load	35,000
R14	V2 diode load	500,000
R15	Manual volume control	200,000
R16	V3 grid I.F. stopper	50,000
R17	V3 aux. grid H.T. feed	10,000
R18	V3 auto. G.B. resistance	230
R19	Heaters ballast, total	640
R20	Hum neutralising coil shunt	1·25

	Other Components	Values (ohms)
L1	Aerial I.F. filter coil	50·0
L2	Aerial coupling coil	15·0
L3	Aerial tuning coils	4·0
L4	Aerial tuning coils	26·0
L5	Oscillator tuning coils	1·5
L6	Oscillator tuning coils	5·0
L7	Oscillator anode coils, total	6·5
L8	Oscillator anode coils, total	
L9	1st I.F. trans. Pri.	5·0
L10	1st I.F. trans. Sec.	5·0
L11	2nd I.F. trans. Pri.	3·5
L12	2nd I.F. trans. Sec.	5·0
L13	Speaker speech coil	1·8
L14	Hum neutralising coils	0·3
L15	Speaker field winding	5,000·0
L16	H.T. smoothing choke	475·0
T1	Speaker input trans. Pri.	725·0
T1	Speaker input trans. Sec.	0·2
S1-S3	Waveband switches	—
S4	Speaker muting switch	—
S5	Sensitivity switch	—
S6, S7	Mains switches	—
F1, F2	Mains circuit fuses, 0·75A	—

VALVE ANALYSIS

Below is a table of valve voltages and currents measured on our chassis when it was operating from 230 V A.C. mains. Measurements were made with no signal input and the volume and sensitivity controls in the "maximum" positions. Voltages were read on the 1,200 V scale of an Avometer, with chassis as negative.

Valve	Anode Volts	Anode Current (mA)	Screen Volts	Screen Current (mA)
V1 X30*	215	1·1	65	2·9
V2 WD30	75	3·2	60	2·0
V3 N30	200	22·0	155	6·1
V4 U30†	—	—	—	—

* Osc. anode (G2) 60V, 1·3 mA.

† 240 V, cathode to chassis.

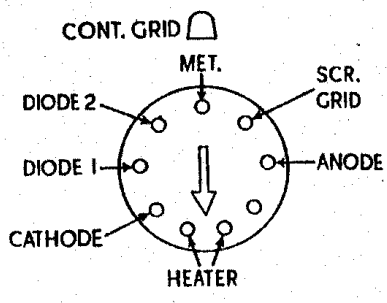
GENERAL NOTES

Switches.—**S1-S3** are the waveband switches, and **S4** the muting switch, all included in the main switch assembly, and indicated in our under-chassis view. The first three are all closed on the M.W. range, and open on the L.W. range. **S4** is open in both switch positions, but closes in between these positions.

S5 is the Q.M.B. sensitivity switch, operated by pulling or pushing the tuning control knob. The switch is closed in the least sensitive position.

S6 and **S7** are the Q.M.B. mains switches, ganged together and mounted on the filter and fuse unit.

Coils.—**L1** is unscreened, and is beneath the chassis. The remaining coils are in four screened units on the chassis deck, seen in our plan chassis view. Note that the first I.F. transformer unit contains, in addition to the coils and trimmers, the components **R9** and **C10**, while the second I.F. contains **R14** and **C13**. The trimmers are of the dual type, with a slotted screw operating the primary trimmer, and a hexagonal nut operating that of the secondary.



Connections of V2, a double diode H.F. pentode, looking at the underside of the base.