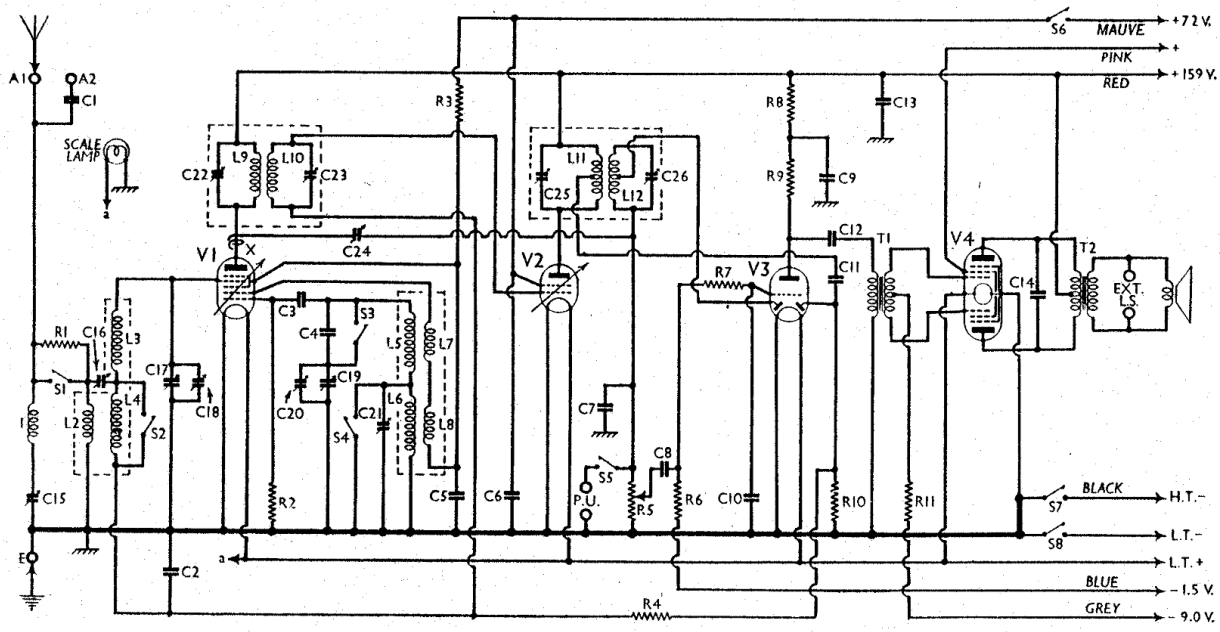
MARCONIPHONE - 234 & 257



Circuit diagram of the Marconiphone 234 battery superhet. The earlier Model 257 has a similar circuit. X is a small coupling, providing I.F. reaction, controlled by C24. The H.T. voltage of the pink lead depends on the letter marked on the bulb of V4. (See General Notes.)

COMPONENTS AND VALUES

	RESISTANCES	Values (ohms)
R1	Aerial series resistance ..	75,000
R2	V1 osc. C.G. resistance ..	50,000
R3	V1 S.G. and osc. anode H.T. feed	23,000
R4	V1, V2 A.V.C. line decoupling	500,000
R5	Manual volume control ..	500,000
R6	V3 triode C.G. resistance ..	1,000,000
R7	V3 triode C.G. I.F. stopper ..	23,000
R8	V3 triode anode decoupling ..	7,500
R9	V3 triode anode load	50,000
R10	V3 A.V.C. diode load	500,000
R11	V4 C.G.'s circuits stabiliser ..	230,000

	OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial I.F. filter coil	47·0
L2	Aerial coupling coil	11·5
L3, L4	Aerial tuning coils ..	3·2, 18·6
L5, L6	Oscillator tuning coils	1·5, 3·5
L7, L8	Oscillator anode coils, total ..	5·5
L9	1st I.F. trans. Pri. ..	4·0
L10	1st I.F. trans. Sec. ..	4·0
L11	2nd I.F. trans. Pri. ..	4·0
L12	2nd I.F. trans. Sec. ..	4·0
L13	Speaker speech coil	4·0
T1	Intervalve trans. Pri. ..	425·0
	Intervalve trans. Sec. total..	7,500·0
T2	Speaker input trans. Pri. total	800·0
	Speaker input trans. Sec.	0·8
S1	Local-distant switch	—
S2-S4	Waveband switches	—
S5	Gram. pick-up switch ..	—
S6	Radio muting switch (gram.)	—
S7	H.T. circuit switch	—
S8	L.T. circuit switch	—
X	Small coupling (I.F. reaction)	—

	CONDENSERS	Values (μF)
C1	Aerial series condenser ..	0·0005
C2	V1, V2 A.V.C. line decoupling	0·1
C3	V1 osc. C.G. condenser ..	0·00023
C4	Osc. L.W. tracker	0·0005
C5	V1 S.G. and osc. anode decoupling	0·1
C6	V2 S.G. by-pass	0·1
C7	I.F. by-pass	0·00023
C8	L.F. coupling to V3 triode ..	0·1
C9	V3 triode anode decoupling ..	2·0
C10	V3 triode C.G. I.F. by-pass ..	0·0001
C11	Coupling to V3 A.V.C. diode..	0·00023
C12	L.F. coupling to T1	0·1
C13	H.T. supply by-pass	0·1
C14	Tone corrector	0·001
C15‡	I.F. filter tuning	—
C16‡	Image suppressor	—
C17†	Aerial circuit tuning	—
C18‡	Aerial circuit trimmer ..	—
C19†	Oscillator tuning	—
C20‡	Oscillator trimmer	—
C21‡	Oscillator L.W. trimmer ..	—
C22‡	1st I.F. trans. pri. tuning ..	—
C23‡	1st I.F. trans. sec. tuning ..	—
C24‡	Pre-set I.F. reaction control ..	—
C25‡	2nd I.F. trans. pri. tuning ..	—
C26‡	2nd I.F. trans. sec. tuning ..	—

† Variable. ‡ Pre-set.

CIRCUIT ALIGNMENT

Circuit alignment follows normal practice. The I.F. transformers are first aligned at 117.5 KC/S, feeding the signal generator output between the top cap of **V1** and chassis, and adjusting the trimmers **C23, C24, C25** and **C26** in turn for maximum output.

A signal of about 220 m. is now fed into the aerial and earth sockets, the scale pointer set to the same wavelength, and **C21** is adjusted.

If there are two peaks, the correct one is the second reached when unscrewing **C21** from maximum capacity. **C19** and **C17** are then adjusted for maximum output.

The set is then switched to the L.W. band, a signal of about 1400 m. is injected, and tuned in. **C22** is then adjusted for maximum output, rocking the gang slightly if necessary to obtain the optimum setting.

VALVE ANALYSIS

Valve voltages and currents given in the table (Col. 2) are those measured in our receiver when it was operating from a new battery reading 175 V. The volume control was at maximum, as was the

S7, S8 are the battery switches. **S2-S8** are ganged together in a single unit mounted in a gap in the deck of the chassis. The table below gives the switch positions for the various control settings.

Switch	Off	M.W.	L.W.	Gram.
S2	C	C	O	C
S3	C	C	O	C
S4	C	C	O	C
S5	O	O	O	C
S6	O	C	C	O
S7	O	C	C	C
S8	O	C	C	C

Coils.—**L1** is beneath the chassis. **L2-L4** and **L5-L8** are in two screened units on the chassis deck. The I.F. transformers **L9, L10** and **L11, L12,** are in two further screened units.

Scale Lamp.—This is an Osram M.E.S. type rated at 2.0 V, 0.1 A.