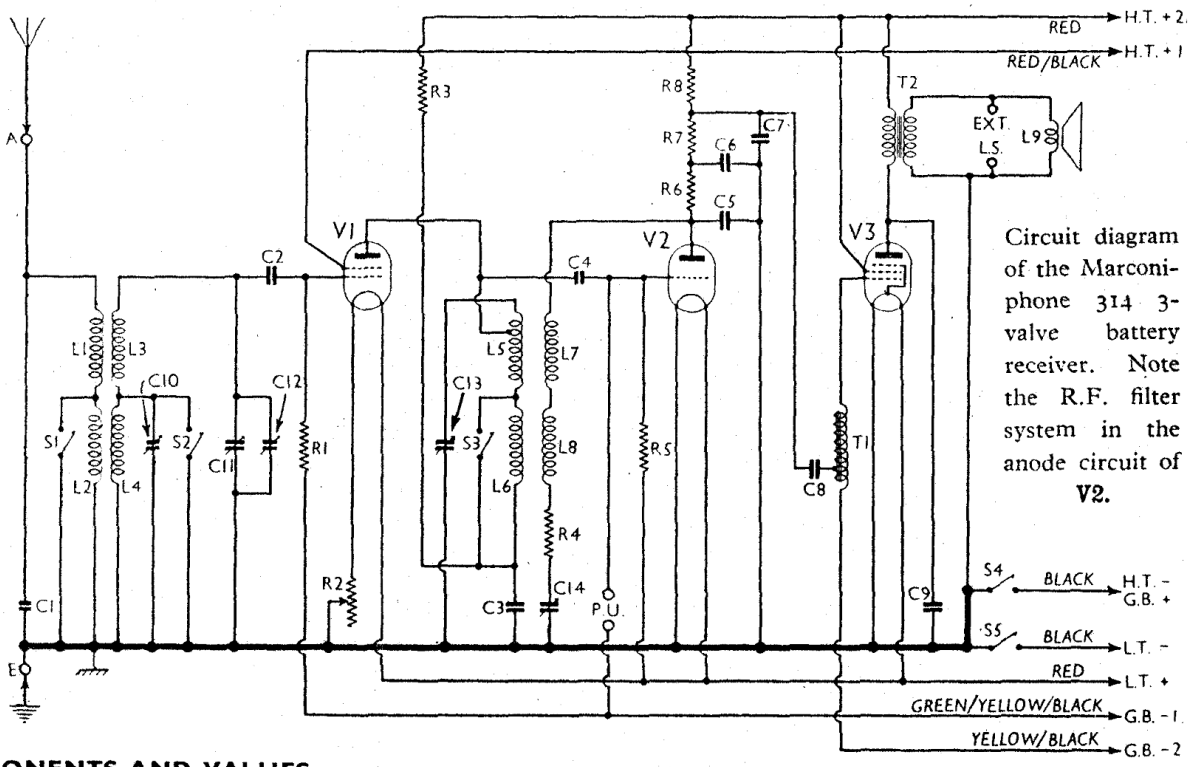
MARCONIPHONE - 314



Circuit diagram of the Marconiphone 314 3-valve battery receiver. Note the R.F. filter system in the anode circuit of **V2.**

COMPONENTS AND VALUES

	RESISTANCES	Values (ohms)
R1	V1 C.G. resistance	1,000,000
R2	V1 gain control	50
R3	V1 anode decoupling	23,000
R4	Reaction circuit stabiliser	100
R5	V2 grid leak	2,300,000
R6	V2 anode R.F. filter resistances	10,000
R7		10,000
R8	V2 anode load	50,000

	CONDENSERS	Values (μF)
C1	Aerial-earth shunt	0·000023
C2	V1 C.G. condenser	0·0005
C3	V1 anode decoupling	0·1
C4	V1 to V2 R.F. coupling	0·00005
C5	V2 anode R.F. filter condensers	0·00023
C6		0·0005
C7		0·0005
C8	V2 to V3 A.F. coupling	0·1
C9	Tone corrector	0·001
C10‡	Aerial circuit trimmer (L.W.)	—
C11†	Aerial tuning condenser	—
C12‡	Aerial circuit main trimmer	—
C13†	Anode circuit tuning	—
C14†	Reaction control	0·00065

† Variable. ‡ Pre-set.

	OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial coupling coils	20·0
L2		120·0
L3	Aerial tuning coils	3·5
L4		18·5
L5	V1 anode tuning coils	3·5
L6		15·5
L7	Reaction coils	2·0
L8		5·0
L9	Speaker speech coil	4·0
T1	Intervalve auto-trans, total	3,080·0
T2	Output transformer Pri.	800·0
	Sec.	0·7
S1-S3	Waveband switches	—
S4	H.T. and G.B. circuit switch	—
S5	L.T. circuit switch	—

VALVE ANALYSIS

Valve voltages and currents given in the table are those measured in our receiver when it was operating from a new H.T. battery reading 128 V overall, on load. The receiver was tuned to the lowest wavelength on the medium band and the gain control was at maximum, but the reaction control was at minimum. There was no signal input.

Voltages were measured on the 1,200 V scale of an Avometer, chassis being negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 S23	85	1·1	60	0·4
V2 HL2	55	0·8	—	—
V3 PT2‡	115	4·0	120	0·7

‡ The valve in our receiver was marked with an "X."

GENERAL NOTES

Switches.—**S1-S3** are the waveband switches ganged in a single unit with the battery switches, **S4, S5,** and mounted beneath the chassis. Each switch is formed by two of the leaf-spring contacts, one of these being common to three switches.

The table below gives the switch positions for the various control settings, turning clockwise from the "off" position, O indicating open and C closed.

Switch	Off	L.W.	M.W.
S1	O	O	C
S2	O	O	C
S3	O	O	C
S4	O	C	C
S5	O	C	C

Coils.—**L1-L4** and **L5-L8** are in two horizontally-mounted unscreened units, the former below and the latter above the chassis. The large single-layer coils **L3** and **L5** respectively.

Resistance R2.—This is a variable resistance connected in the filament circuit of **V1** and operating as a gain

External Speaker.—At the back of the chassis there are two terminals, connected across the secondary of the output transformer **T2,** to which can be attached a low impedance (about 4O) external speaker.

Batteries.—L.T., Exide 2 V, 45 AH glass-cased cell, type DFG. H.T. and G.B., Marconiphone 114 V H.T. plus 6 V G.B., type B498.

CIRCUIT ALIGNMENT

If a signal generator is available connect it to the **A** and **E** sockets and connect an aerial and earth to the respective sockets. Switch the set to the M.W. band, turn the gain control to maximum and adjust the reaction control to a point just short of oscillation. Set the signal generator to 195 m., tune the receiver to the signal and, while rocking the gang, adjust **C12** for maximum output as shown on an output meter, or an 0-3 V A.C. voltmeter connected across the **Ext. L.S.** terminals.

Now set the generator to 900 m., switch the receiver to L.W., adjust reaction as before, and adjust **C10** for maximum output, while rocking the gang.

The scale calibration should be ignored during alignment, the pointer being adjusted afterwards for the best compromise.

If no signal generator is available, the receiver can be aligned on broadcast signals, preferably during daylight, and the output judged aurally. Tune in a weak station which does not fade, at approximately 210 m., and adjust **C12** for maximum output, with the gain control at maximum and reaction at a point just short of oscillation.

Next tune the receiver to a weak station on approximately 1,000 m., adjust the reaction control to a point just short of oscillation and adjust **C10** for maximum output.

A strong signal will overload the receiver and cause a fall in volume and should not be used for alignment.