COLUMBIA 1006, MARCONIPHONE 273

Five valve, two waveband battery superhet with QPP output. Provision is made for connection of a high impedance pickup and low impedance extra loudspeaker. Marketed by the Columbia and Marconiphone Companies, Hayes, Middlesex.

SIGNALS are fed via C1 to the coupling coil L1 and thence to the tuning coils L3 (MW) and L4 (LW) which are tuned by VC1 section of the ganged condenser.

A medium wave image suppressor circuit comprises L2 and T8 and signals are fed direct to the grid of the variable-mu HF valve V1. To prevent overloading on powerful transmissions a local-distant switch S1 is provided which connects a damping resistance R1 across the aerial circuit.

Tuned anode coupling is provided by L5 and L6 tuned by VC2 and signals are passed by C5 to the grid of the screened grid mixer valve V2. The oscillator circuit comprises L11, L12, tuned by VC3 with feed back to the filament of the valve via coils L7, L8.

The IF signal is transferred by L9, L10 to the grid of V3 and the second IF transformer L13, L14 transfers the signal to the signal diode of the double-diode triode V4.

R6 is the signal load resistance and filtering is effected by L15, and C11, C10. LF signals are coupled by C14 to the volume control VR1 and thence to the grid of the triode section of V4.

The AVC diode of V4 is fed from the anode of V3 via C15. R10 is the load resistance and control is applied to the grid circuits of V1 and V3 via decoupling components R11, C16, R2 and C2.

The pickup input is into the grid circuit of V4 via a series limiting resistance R7 to prevent overloading when high output pickups are used.

LF signals from V4 are resistance capacity coupled by R8 and C17 to the primary, L16, of the inter-valve transformer. The centre tap secondary, L17, feeds the two grids of the double QPP valve V5, whose anodes are coupled by the tap output transformer primary L18 to the transformer secondary L19 and moving coil loudspeaker whose speech coil is L20.

Extra low impedance speakers may be connected to terminals 1 and 2 on the output transformer terminal panel.

The supply circuits are quite normal but it should be noted that the negative bias applied to V5 is also applied to the grid circuit of V1 when the wave-change switch is turned to Gram. This desensitises V1 stage and, with the breaking of the anode circuit by contacts A and B of the switch, prevents radio reception during record reproduction.

GANGING

IF CIRCUITS.—Switch receiver to MW and adjust tuning condenser to minimum. Inject a 125kc signal into the IF circuits by loosely coupling the service oscillator to the wiring near the trimmer T3.

Trim T3 for maximum output. More than one peak will be obtained when adjusting the trimmers and in all cases the peak nearest the maximum capacity of the trimmer is the one which must be chosen.

Adjust T1, T4 and T2 in that order for maximum output.

MW BAND.—Tune receiver to 220m and inject a signal of this wavelength into the aerial and earth sockets. Adjust T5 and T6 for maximum output.

LW BAND.—Switch receiver to LW and tune it to 1,400m.

Inject a signal of this wavelength and adjust T7 for maximum output.

IMAGE SUPPRESSION.—Tune in unwanted image and adjust T8 for *minimum* output.

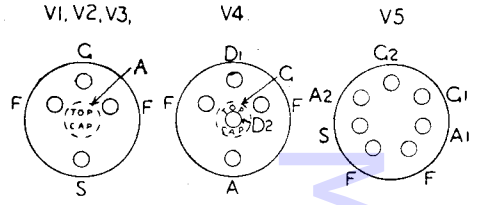
RESISTORS

R		Ohms	R		Ohms
1	.. ..	100	8	.. ..	50,000
2	.. ..	1 meg	9	.. ..	7,500
3	.. ..	15,000	10	.. ..	500,000
4	.. ..	1,000	11	.. ..	500,000
5	.. ..	1 meg	12	.. ..	230,000
6	.. ..	500,000	VR1	.. ..	250,000
7	.. ..	230,000			

VALVE READINGS

V	Type	Electrode	Volts	mA
1	VS24	Anode	100 ..	2.8
	Met	Screen	60 ..	*
2	S23	Anode	100 ..	1
		Screen	33 ..	*
3	VS2	Anode	100 ..	3.4
	Met	Screen	60 ..	*
4	HD21	Anode	65 ..	.5
5	QP21	Anode (each) ..	160 ..	.8
		Screen .. 132—162†	..	.4

Pilot Lamp 2 volt ; .06 amp M.E.S.
* Total Screen Feed *via* H.T. + 1 = 3 mA
† Depends on code letter on valve.
Readings taken with no signal input.



WINDINGS

L	Ohms	L	Ohms
1	10.5	11	3.7
2	5.5	12	6.75
3	6	13	70
4	27	14	90
5	4.2	15	300
6	13.7	16	465
7 ..	1.3	17 ..	3,900 + 3,900
8	1.3	18 ..	400 + 400
9	70	19	1
10	90	20	4

CONDENSERS

C	Mfd.	C	Mfd.
1	.0005	10	.0001
2	.02	11	.0001
3	.2	12	.2
4	.2	13	.003
5	.0001	14	.01
6	.4	15	.0002
7	.0001	16	.1
8	.00015	17	.1
9	.0017	18	.002