

MARCONIPHONE

895

H.M.V. 1406

Five-valve, two-waveband, super-het portable receiver for battery operation, using two-volt valves. Made by the Marconiphone Co., Ltd., and the Gramophone Co., Ltd., Hayes, Middlesex.

Circuit.—The frame aerial forms the medium-wave tuning-coil and is loaded by iron-cored L2 for long waves.

V1 is the frequency-changer and the oscillator section is tuned grid with reaction feed-back for the anode via L3 on M.W. and via C8 on L.W.

Iron-cored I.F. transformers link up V2, the I.F. amplifier, and V3, the double-diode triode.

The volume control, VR1, is also the signal diode load, C12 isolates the triode grid for the steady "carrier" voltage and R6 is an I.F. filter.

R10 and R11 form the A.V.C. diode load, delay bias being obtained from a bias network via R13.

V4 and V5 are output tetrodes in push-pull. They are energised through a parallel-fed push-pull input transformer, and drive the loudspeaker through a push-pull output transformer with tone condenser across the anode loads.

R14, 15 and 16 being between the filaments (chassis) and H.T. negative provide negative points for bias purposes.

The H.T. consumption can be reduced by an economy switch which connects R8 into the H.T. lead to V1 and V2.

Batteries.—These should be an Exide PC3 L.T. accumulator and a 108-v.

Marconiphone battery, No. B496. The H.T. consumption is 9 ma. normally, or 6 ma. in the economy position, and the H.T. .8 amp.

Extension Speaker.—This should have an impedance of 5 ohms.

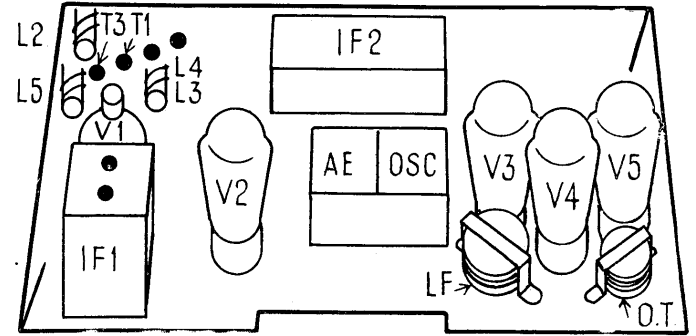
GANGING

Having removed the chassis from the cabinet and the back of the cabinet with frame, reassemble the chassis, batteries and frame in exactly their correct relative positions. The H.T. voltage should not be less than 100 v. on load.

Keep the oscillator input low and reduce it as the circuits come into line so that the A.V.C. does not operate.

I.F. Circuits.—Remove small metal screen just above connections to I.F.2. Switch to M.W. minimum capacity, and turn economy switch to maximum.

Inject 465 kc. to V1 grid via .1 mfd. and adjust the I.F. trimmers for maximum. A damping circuit consisting of .1 mfd. in series with 35,000 ohms can be connected across the opposite winding of each transformer as each trimmer is adjusted.



This set is a compact model and the chassis a little unusual. Two trimmers and the adjustable coil cores are located as shown. Two others are on the aerial frame.

M.W. Band.—Inject simply by leaving oscillator lead near the frame aerial or by connecting to aerial socket through not more than 5 mmfd. See that pointer registers on mark with gang at maximum.

Tune to 200 m., inject 1,500 kc. and adjust T1. Tune to 225 m., inject 1,333 kc. and adjust T2.

Tune to 520 m., inject 576.9 kc. and pad with core of L4, rocking gang slightly.

Repeat these operations. **L.W. Band.**—Tune to 900 m., inject 333.3 kc., and adjust T3. Tune to 1,350 m., inject 222.2 kc., and adjust T4.

Tune to 1,900 m., inject 157.9 kc., and adjust cores of L2 and L5.

Repeat these operations. Replace set in cabinet and check adjustment of T2 and T4. These are on the frame, T4 being below the F.

RESISTANCES

R	Ohms.	R	Ohms.
1	23,000	10	2.3 meg.
2	.1 meg.	11	.35 meg.
3	23,000	12	.23 meg.
5	2.3 meg.	13	2.3 meg.
6	.1 meg.	14	150
7	2.3 meg.	15	300
8	10,000	16	450
9	.1 meg.	VR1	.5 meg.

CONDENSERS

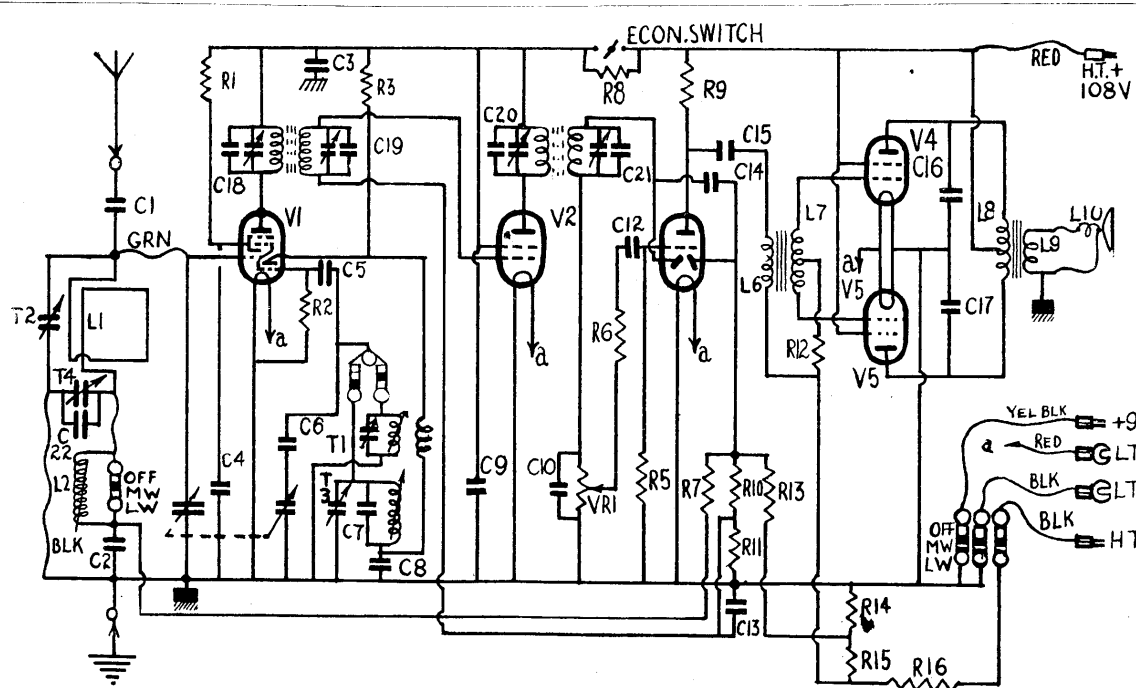
C	Mfd.	C	Mfd.
1	15 mmfds.	10	.0001
2	.1	12	.05
3	.8	13	.1
4	.1	14	75 mmfds.
5	75 mmfds.	15	.05
6	.0005	16	.001
7	75 mmfds.	17	.001
8	.0004	18-21	150 mmfds.
9	.1	22	5 mmfds.

Testing Mains Cord

RESISTOR cords can often be repaired by joining and soldering the broken ends, which are found without stripping the whole insulation by means of an ohmmeter, or other current source, and very sharp test prods which will penetrate through the insulation to the element wire.

Where the cord is badly destroyed it may be possible to replace it by a suitable resistor or even a barretter formed by putting an ordinary electric lamp (or lamps) in series with the set leads. It is easy to find when the correct set voltage is obtained by testing at the set input with an A.C. voltmeter and using small wattage bulbs at first.

Tapped mains resistors can be re-wound with suitable resistor wire, and very small resistance values can be made by winding D.C.C. wire of suitable resistance on a rather large former where it has to dissipate heat.



This is a portable two-waveband set, the medium-wave aerial grid coil forming the frame winding. Auto bias, push-pull output and iron-core coils are other features.

VALVE READINGS

V	Type	Electrode	Volts	Ma.
1	N24	Anode	100	.8
		Screen	60	1.7
		Osc. anode	67	1.4
2	Z21	Bias	1.5	—
		Anode	100	1.9
		Screen	100	.8
3	HD24	Bias	.17	—
		Anode	57	.4
		Anode	98	.8
4	KT2	Screen	100	.12
		Bias	4.5	—
		Anode	98	.8
5	KT2	Screen	100	.12
		Bias	4.5	—
		Anode	98	.8

Total current at H.T. + 9 ma.

WINDINGS

L	Ohms.	L	Ohms.
6	200	9	.12
7	2,750 + 2,750	10	.3
8	225 + 225		