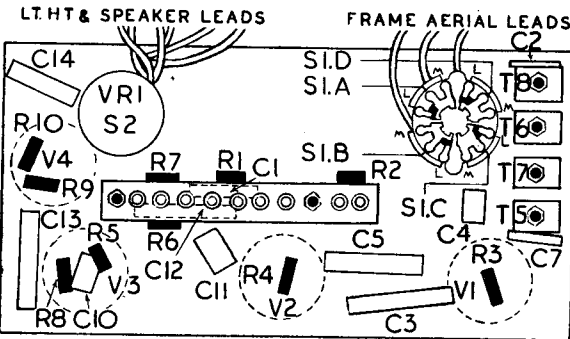
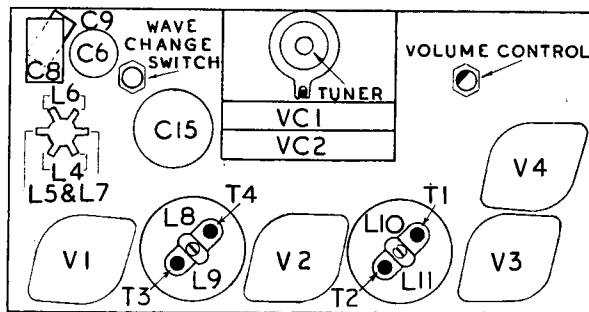


BUSH BP70

Contd.

MW Band.—Check calibration to see that the indicator coincides with the end of the MW band scale when the ganged condenser is at maximum capacity.

Tune receiver to 300 m and inject a signal of this wavelength into the control grid of V1 via a suitable dummy aerial. Adjust T5 and T6 for maximum output. Check calibration at 500 m.



Top of chassis layout shows valves and coil cans in logical sequence with variable condenser and other controls mounted vertically.

Under the chassis, switch units and trimmers are particularly accessible, and the whole design results in a simple layout.

LW Band.—Tune receiver to 1,400 m and on a signal of this wavelength adjust T7 and T8 for maximum output. Check calibration at 1,800 m.

VALVE READINGS

V	Type	Electrode	Volts	Ma.
1	DK1	Anode	95	.5
	Met	Osc anode	95	1.4
	All Mullard	Screen	45	1
DF1	Met	Anode	95	1.9
	Met	Screen	95	.4
	DAC1	Anode	35	.07
3	Met	—	—	—
	DL2	Anode	90	4
	—	Screen	95	.8
Bias across R10			10	—

Readings taken with a 1,000 o.p.v. meter with HT battery 105 volts on load, set on MW, no signal input and volume control at maximum.

Reproduction was Blurred

A MARCONIPHONE 262 receiver was received for repair with the complaint that reception was "blurred" when the volume was anything above a whisper. The output stage was suspected, as the symptoms were similar when feeding in an AF signal into the PU terminals. All the valves were tested and found to be OK.

On testing the voltages at various points, the junction of L17 and C16 (*Service Engineer*, August, 1942) was found to be 75v positive to chassis, thus making the grid of V4 positive to earth, and on switching off the set and applying a voltage across C10, it showed a short-circuit.

Isolating C10 in the condenser block and substituting a 2 mfd condenser externally cured the fault.—S. CARTER.

Making Oscillator Function

A FRAME aerial in a Philips portable receiver was badly corroded due to the LT battery seeping. The coil was rewound under emergency conditions with the wrong gauge of wire (but the only available).

When the set was tested it would not oscillate properly on the upper portion of the MW band, but was otherwise perfect in every way. The resistor in the grid circuit of the oscillator grid was increased and this effected a cure.—F.D.-L.

Speaker was Gagged

A SMALL American set of unknown make failed, due to a short in the second electrolytic. On replacing this everything checked correctly, but there was not the slightest trace of signal or even hum.

Magnetic flux was found to be present and the speech coil was not a dead short. On shunting an external permanent-magnet speaker, full strength signals were present. It was then deduced by the three-finger law that, current and magnetic field being present, movement was being prevented mechanically. Normal off-centre could not account for this.

Close inspection then showed that although the cone, which was flexible, moved easily, the speech coil itself was *completely solid* in the gap, due to wax melted out of the pot coil by the original fault. A soldering iron was left at the back of the pot for an hour or so, when all the wax ran out, back into pot coil, and normal results were obtained.—J. BIRFIELD.



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MARCONIPHONE 283 COLUMBIA 1005

Three-valve, two-waveband TRF battery receiver. Pickup sockets are provided and terminals for a high impedance extra loudspeaker. A two-position tone adjustment is provided. Marketed by the Marconiphone and Columbia Companies, Ltd., Hayes, Middlesex.

COUPLING coils L1 (MW), L4 (LW) transfer the signals to the primary windings L2, L5 of a coupling transformer in which L3, L6 are the secondaries. Primary and secondary windings are tuned and signals are fed to the grid of the screened grid HF amplifier V1.

A sensitivity control VR1 comprises a variable resistance in the filament circuit of V1 which has negative bias applied to the grid.

An HF transformer in the anode circuit of V1 employs untuned primary windings L7 (MW)

L10 (LW) with tuned secondaries L9 and L12. Reaction windings L8 and L11 are coupled to the transformer and fed from the anode of the detector valve V2 by means of the HF choke L13 and reaction condenser (volume control) VC4.

Signals from the secondary windings are fed via the grid condenser C2 to the grid of the triode V2, which operates as a leaky grid condenser, R2 being the grid leak.

Pickup sockets are provided between the grid of V2 and the negative bias 1.5 volt lead so that V2 operates as an LF amplifier on gram. The receiver should be tuned to a silent point to prevent interference from radio programmes when reproducing gramophone records.

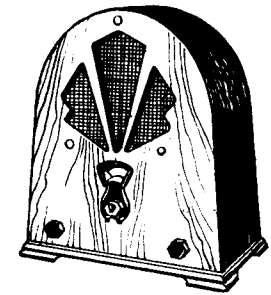
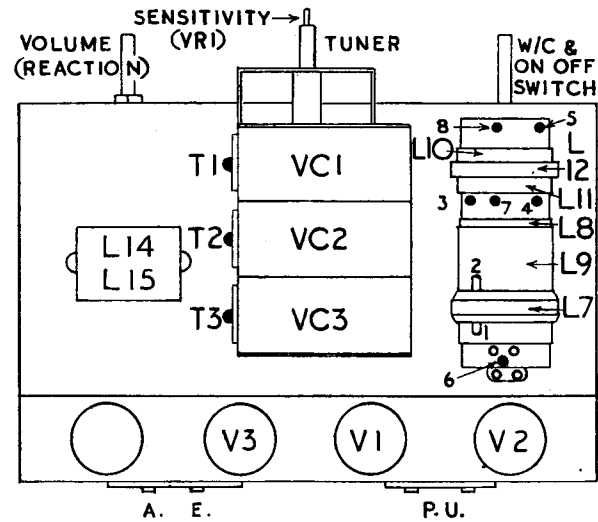
Anode HF filtering is effected by C3 and a certain amount of LF correction by C4. LF signals are resistance capacity coupled by R1 and C5 to the intervalve transformer L14, L15. Bias of about three volts negative is applied via the windings to the grid of the pentode output valve V3.

The anode circuit of V3 is broken and taken to terminals to which the matching transformer L16, L17 on the loudspeaker assembly is connected.

VALVE READINGS

V	Type	Electrode	Volts	Ma
1	S21 (Met)	Anode	112	.9
		Screen	60	.5
2	HL2 (Met)	Anode	60	.9
3	PT2	Anode	105	5
		Screen	114	1.2

If the LT leads are connected the wrong way round, HT battery consumption will be increased by approximately 100 per cent., due to reduction of grid bias.



Above, the cabinet of the old but popular Marconi 283 is still familiar. Released in 1933, it is a three-valve type for battery operation and using a moving-coil speaker. Left, the top-deck layout showing gang, coils and valves.

Tone correction is effected by C7 across the primary winding and the secondary is connected to the speech coil L18 of the permanent magnet loudspeaker. A high impedance loudspeaker may be connected across the terminals on the chassis to which the internal speaker is connected. Tone

Continued overleaf.

RESISTANCES

R	Ohms	R	Ohms
1	50,000	VR1	40
2	2 meg		

CONDENSERS

C	Mfd
1	.1
2	.0002
3	.0005
4	.001
5	.1
6	.005
7	.002

WINDINGS

L	Ohms
1	2
2	2.5
3	2.5
4	10
5	14
6	13.5
7	6.5
8 & 11	4.5
9	2.5
10	9
11 & 8	4.5
12	14
13	95
14	350
15	3,000
16	900
17	1
18	4.5

A "straight" receiver, the 283 has bandpass input and tuned grid inter-valvecoupling. Reaction is obtained from the triode detector, and LF coupling is by auto-transformer.

