

Marconiphone 4167 & Ultra 6167

1956

(Schedule A & B)

Battery operated portable radio receiver

Introduction

These two BRC battery operated portable radio receivers are styled in high impact moulded cases with leathergrain effect. The 4167 is in charcoal grey and the 6167 in black. Both models are electrically identical and incorporate eight transistors and three diodes. Waveband selection is by press-buttons and the bands covered are: l.w. 148-267kHz (2,025-1,120m), m.w. 530-1,620kHz (565-185m) – reception via an internal ferrite rod aerial assembly, and s.w. 5.9-18MHz (51-17m) reception via telescopic rod aerial. A fourth pressbutton operates the tone control. The amplifier output of 600mW is handled by a 5in diameter 10Ω loudspeaker. A normally closed jack is fitted for the connection of an earphone which, when connected, mutes the internal loudspeaker. A second (co-axial) socket is fitted for use with an external aerial. Power is supplied by a PP9 or equivalent 9V battery.

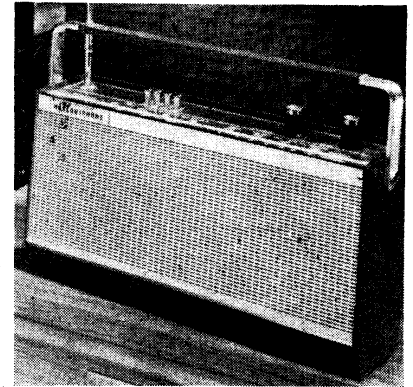
Circuit alignment

Equipment required. – An a.m. signal generator covering the range 200kHz to 6MHz; either an audio output meter – impedance 10Ω, or an Avo model 8; one each 0.1μF and 15-20pF capacitors, and an r.f. coupling coil. Rotate volume control to maximum and connect the output meter in place of the loudspeaker. Alternatively connect the Avometer, set to the 10V a.c. range, in parallel with the loudspeaker. In order to avoid alignment error due to a.g.c. action, maintain the audio output at approximately 50mW by suitably attenuating the input signal as the receiver sensitivity increases. Alignment markers are provided by notches in the scale backing plate but as these are not annotated they should be identified by comparison with tuning scale.

1. – Switch receiver to m.w. and rotate tuning gang to maximum capacitance. Feed in a 475kHz a.m. signal via a 0.1μF capacitor between tag 3 (junction C3/L1) and frame of tuning gang. Adjust L16/17, L14/15 and L7/8 in that order for maximum output. Repeat in same order until no further improvement can be obtained.
2. – With tuning gang fully closed, check and if necessary, adjust cursor to coincide with zero marker notch at left-hand end of calibration strip or dot on left-hand end of tuning scale. M.w. must be aligned first.
3. – Switch receiver to m.w. and tune to pad marker – centre of 500m. Feed in a 600kHz a.m. signal via an r.f. coupling coil loosely coupled to ferrite rod aerial and adjust L13 and the position of L1 on ferrite rod for maximum output.
4. – Tune receiver to trim marker – centre of 200m, and feed in a 1,500kHz a.m. signal. Adjust C19 and C3 for maximum output.
5. – Switch receiver to l.w., tune to l.w. marker – centre of 1,400m – and feed in a 220kHz a.m. signal. Adjust C16 and position of L2 on ferrite rod for maximum output.
6. – Switch receiver to s.w. and tune to m.w. pad marker. Disconnect telescopic aerial lead and feed in a 6.7MHz a.m. signal via a 15-20pF capacitor to C1. Adjust L10 and L5 for maximum output.
7. – Tune receiver to s.w. trim marker – centre of 00 in 1200, feed in a 15.8MHz a.m. signal and adjust C13 and C4 for maximum output. Repeat operations 3 to 7 as necessary to obtain maximum output.

General notes

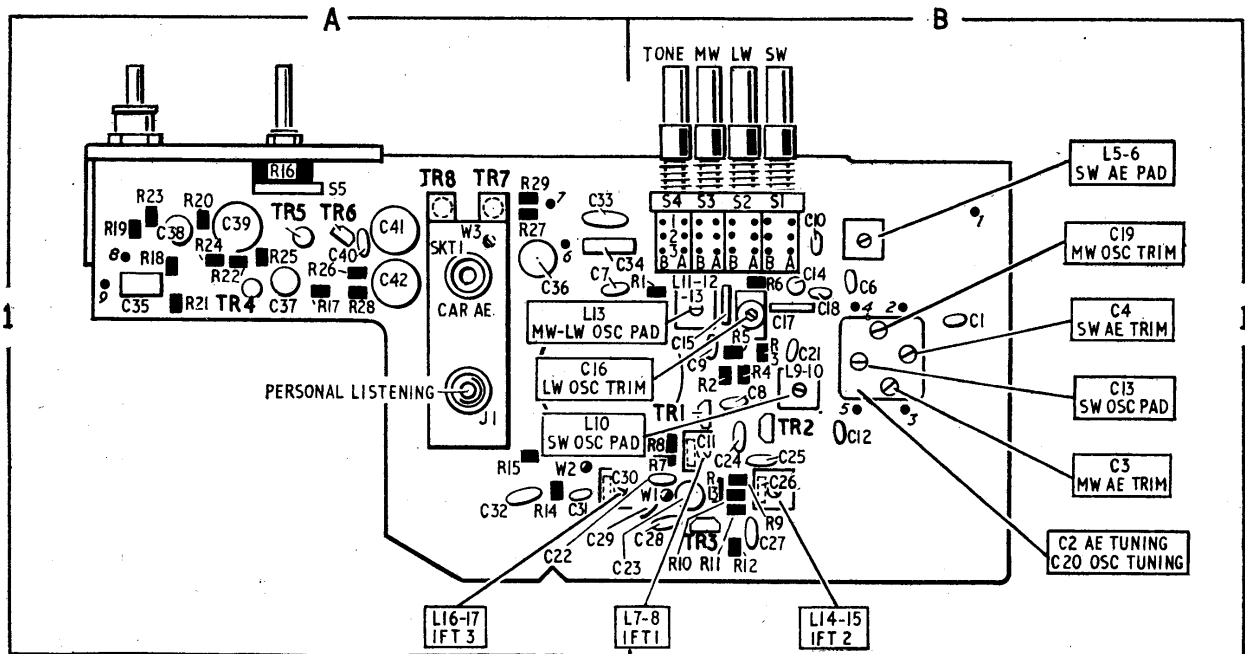
Access for service. – Remove and disconnect battery. Unscrew and remove coin-slotted studs securing carrying handle. Note position of spacers and washers. From top centre of the wrap-round case back, unscrew and remove the 4BA countersunk screw, also the three countersunk screws from the chassis



Appearance of the Marconiphone 4167.

at the bottom of the case. The case back can now be separated from the chassis and case front, giving access to the component side of panel.

For access to foil side of panel and drive cord assembly, unscrew and remove screw securing telescopic aerial, unsolder lead and remove telescopic aerial. Pull off tuning and volume knobs, then unscrew and remove – two screws from lower edge of panel; three 4BA screws, two from top left-hand side of panel and tuning drive assembly, and one from top right-hand side of panel. The panel and tuning drive assembly can now be removed from case.

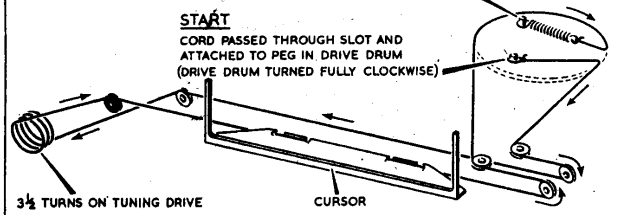


PLEASE CUT HERE

1956 Marconiphone 4167: Ultra 6167.

Resistors				Capacitors				Inductors*				Semiconductors					
R1	100Ω	B1	R21	680Ω	A1	C12	5pF	B1	C33	0.05μF	A1	L11	—	B1	TR1	BF194	B1
R2	2.7kΩ	B1	R22	33kΩ	A1	C13	5pF	B1	C34	0.22μF	A1	L12	—	B1	TR2	BF194	B1
R3	1.5kΩ	B1	R23	68kΩ	A1	C14	2,000pF	B1	C35	0.22μF	A1	L13	2.5Ω	B1	TR3	BF194	B1
R4	2.2kΩ	B1	R24	39kΩ	A1	C15	230pF	B1	C36	150μF	A1	L14	6.5Ω	B1	TR4	MPS6522	A1
R5	1.5kΩ	B1	R25	10Ω	A1	C16	25pF	B1	C37	8μF	A1	L15	—	B1	TR5	U3540	A1
R6	68kΩ	B1	R26	1.5kΩ	A1	C17	290pF	B1	C38	8μF	A1	L16	5Ω	A1	TR6	2N3702	A1
R7	5.6kΩ	B1	R27	680Ω	A1	C18	9pF	B1	C39†	300μF	A1	L17	—	A1	TR7	AC142	A1
R8	220kΩ	B1	R28	680Ω	A1	C19	5pF	B1	C40	2,000pF	A1	LS	10Ω	—	TR8	AC141	A1
R9	1kΩ	B1	R29	330Ω	A1	C20	266pF	B1	C41‡	300μF	A1	W1	7Ω	B1	W2	OA90	B1
R10	5.6kΩ	B1	C1	15pF	B1	C21	0.01μF	B1	C42	300μF	A1	W3	—	B1	D3	OA90	A1
R11	12kΩ	B1	C2	266pF	B1	C22	0.02μF	B1	L1	—	—	—	—	—	—	—	—
R12	1kΩ	B1	C3	5pF	B1	C23	8μF	B1	L2	10Ω	—	—	—	—	—	—	—
R13	18kΩ	B1	C4	5pF	B1	C24	0.02μF	B1	L3	—	—	—	—	—	—	—	—
R14	5.6kΩ	A1	C5	60pF	—	C25	0.02μF	B1	L4	—	—	—	—	—	—	—	—
R15†	22kΩ	A1	C6	2,000pF	B1	C26	180pF	B1	L5	—	B1	—	—	—	—	—	—
R16	4.7kΩ	A1	C7	5,000pF	A1	C27	0.02μF	B1	L6	—	B1	—	—	—	—	—	—
R17	100kΩ	A1	C8	100pF	B1	C28	0.02μF	B1	L7	—	B1	—	—	—	—	—	—
R18	22kΩ	A1	C9	0.01μF	B1	C29	100pF	B1	L8	—	B1	—	—	—	—	—	—
R19	330Ω	A1	C10	5,000pF	B1	C30	180pF	A1	L9	—	B1	—	—	—	—	—	—
R20	5.6kΩ	A1	C11	180pF	B1	C31	0.01μF	A1	L10	1Ω	B1	—	—	—	—	—	—
						C32††	5,000pF	A1	L10	—	B1	—	—	—	—	—	—

Use approximately 40in of nylon braided cord. Actual length between knots 35½in.



* Approximate d.c. voltage in ohms.
† In schedule A models R15 is 5.6kΩ.
†† In schedule A models C32 is 0.01μF.
‡ In some models C35 is 8μF, and C39 and C41 are 150μF.

