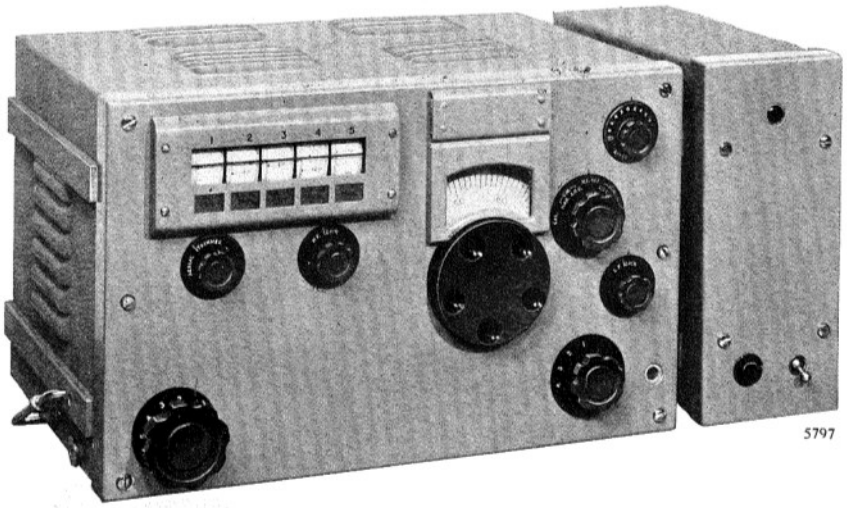
MF/HF Miniature Receiver
Type HR 110



THE TYPE HR 110 receiver has been built as a small compact unit and designed to give a very high standard of performance on CW or telephony. In spite of the reduced panel area careful layout of the controls ensures easy and comfortable operation.

The receiver is built on two shallow chassis of similar size, one carrying the RF and frequency changer stages, and the other the IF and AF stages. The two chassis are hinged together at one end and may be opened like a book, so permitting access to all components.

The power supply unit is separate and may be either clipped into the side of the receiver or interconnected by plug and cable.

FEATURES

Special double superheterodyne circuit employed on high frequency bands.

Choice of four IF bandwiths, using filters.

Reduction of thermal drift to a minimum as a result of careful mechanical design and by the use of thermally-compensated circuit elements.

Provision for crystal-controlled spot-frequency operation.

Desensitising arrangements permit operation in conjunction with local transmitter.

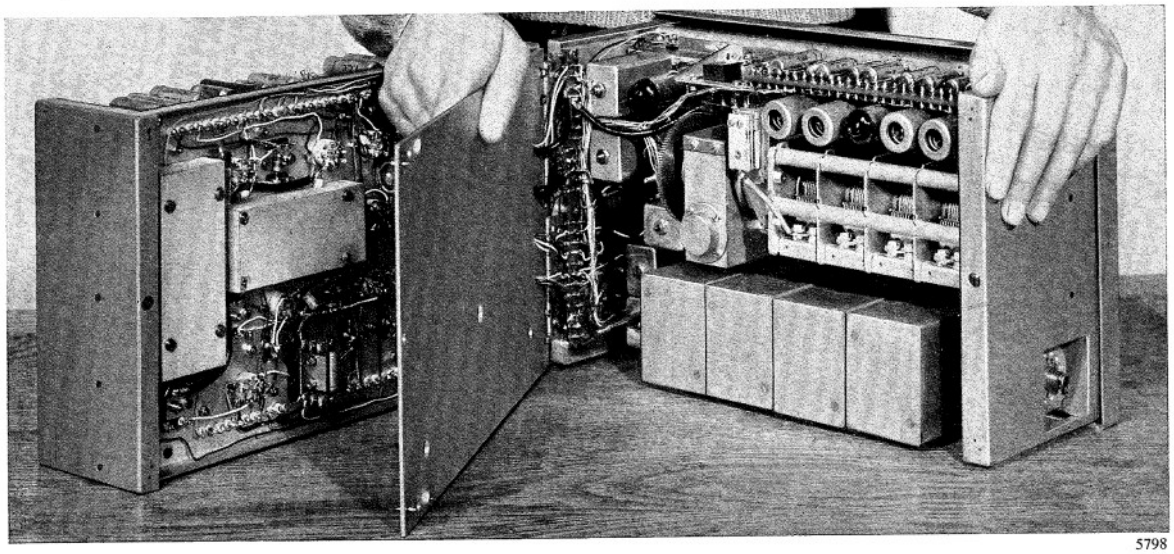
Frequency calibration checking by means of built-in crystal oscillator.

Accessibility: all adjustments and servicing may be effected without removing control knobs.

CIRCUIT

There are two signal frequency amplifiers followed by a heptode frequency changer. A separate oscillator is employed which uses thermally-compensated components, and, in the interests of stability, is not miniaturised.

Two IF amplifier arrangements are used, depending on the waveband in use. On the three HF bands the first IF is at 3·1 Mc/s and is fed



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The receiver opened up showing how the book-like construction renders all components readily accessible.

direct to a second frequency changer whose output, at 465 kc/s, is passed through two stages of amplification to the detector. On the lower frequencies the IF output from the first frequency changer is at 465 kc/s, and the second frequency changer becomes a straight IF amplifier. The bandwidth is varied by means of crystal filters and variable coupling coils in the IF stage.

The IF stages are followed by a diode detector and noise limiter, which feed an AF stage coupled to an output pentode. A beat frequency oscillator with stabilised HT supply is used for CW reception. AGC is supplied by a diode valve preceded by a pentode amplifier. A crystal oscillator gives signals at 500 kc/s intervals to assist in calibration.

DATA SUMMARY

Frequency range: 0·5–30 Mc/s in five bands.

Input impedance: 80 Ω unbalanced (400 Ω on MF).

Sensitivity: From 1–2μV for 10 db signal-to-noise ratio over entire range (40% modulation at 400 c/s).

IF bandwidth: 500, 1,500, 4,500 or 8,000 c/s at 6 db attenuation.

Image protection: Greater than 55 db at all frequencies.

AGC: Less than 5 db change in output for change in input from +15 db to +75 db relative to 1 μV.

AF response: Within ±3 db from 150 c/s to 10,000 c/s relative to level at 1,000 c/s.

AF output:
100 mW into 3 Ω for external loudspeakers.
10 mW into 600 Ω line.
1–2 mW into 120 or 400 Ω phone.

Power supplies: 100, 210, 230 or 250 V, 50 c/s AC mains.

Power consumption: 70 W.

Dimensions:

	Height	Width	Depth	Weight
Receiver	8 in. (20·3 cm)	13¼ in. (33·6 cm)	8½ in. (21·6 cm)	33 lb (14·9 kg)
Supply Unit	8 in. (20·3 cm)	3¼ in. (8·3 cm)	8½ in. (21·6 cm)	12 lb (5·4 kg)

Marconi

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