



SSB HF Receiver Type HR 61

TYPE HR 61 is a versatile communications receiver designed for operation on any one of four spot frequencies in the range 2–20 Mc/s. It is also specially suitable for operation in duplex systems, in conjunction with the Type HSR 21 Transmitter/Receiver. Special internally fitted aerial filters are available for use on duplex systems when required.

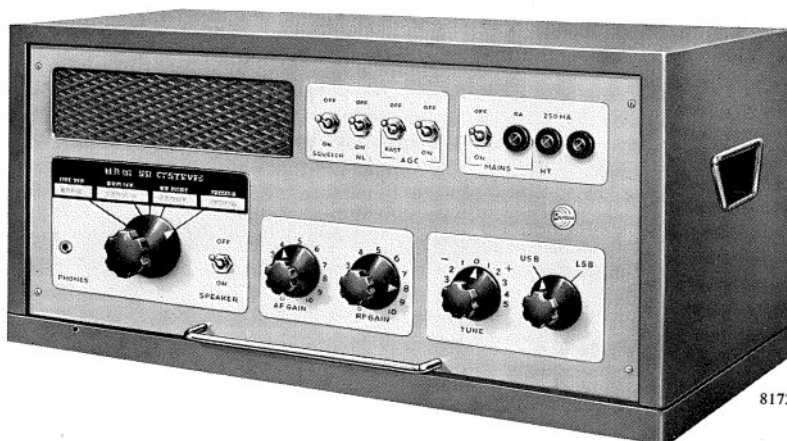
The advantages arising from single-sideband operation are much-improved intelligibility during reception of signals subject to selective fading, and reduction in interference from other transmissions due to a narrower and more sharply defined receiver passband. Further, the system provides a performance equivalent to that of a conventional amplitude-modulated (AM) equipment of much greater power and complexity obtained simply and at low cost.

Features

- Crystal control gives high order of frequency stability.
- Selection of either upper or lower sideband, by front-panel switching.
- Greatly improved performance over conventional double-sideband receivers.
- Provision for external control of receiver muting.
- Four channels, any one switch-selected for instant operation.
- Fine tuning control for optimum reception.
- Alternative AGC time constants by switch selection. On/off switching of AGC also included.
- Telegraphy services can also be received.
- Robust and compact construction for ease of portability.
- Generously rated components for maximum reliability.

CONSTRUCTION

The equipment may be housed in a compact cabinet or in a standard 19 in. (48 cm) rack. All operational controls are carried on the front panel and all components are readily accessible for servicing and maintenance purposes. The four switched crystals used in the RF oscillator for channel selection are mounted in two thermostatically controlled ovens in order to achieve full frequency



8172

stability. The equipment is mains operated, has self-contained power supplies and is rated for use over a wide range of climatic conditions.

CIRCUIT

The receiver is a conventional SSB double-superheterodyne using crystal oscillators. From the aerial, the signal is taken *via* a signal-frequency amplifier to the first mixer stage, then to the second mixer, with no intervening IF amplifier stage.

The original upper or lower sideband RF signal, now converted to a lower sideband IF signal of 100 kc/s less the modulating frequency, passes through a crystal filter and is amplified by a two-stage IF amplifier. The IF signal is then mixed with a 100 kc/s output from the second oscillator crystal. The difference frequency, representing the required AF signal, is produced and passed *via* the AF amplifier to the loudspeaker and phone jack on the front panel. An additional 600 Ω line output is also available.

The power supply circuits are conventional, and supply full HT, LT and bias for the receiver.

Data Summary

Frequency range: 2–20 Mc/s; choice of four crystal-controlled spot frequencies.

Services:

Telephony, SSB suppressed carrier, or SSB with full carrier.

Telegraphy: CW, on/off telegraphy, or SSB keyed tone DSB and MCW signals can also be received by suitably tuning the local oscillator circuits.

Signal-to-noise ratio: 12 dB minimum for 1 μ V sideband signal.

Frequency response: Less than 6 dB variation for input signals from 350 to 3000 c/s.

Selectivity: Attenuation at 750 c/s outside passband of 350–3000 c/s is greater than 60 dB.

AF output: 1 W max. into built-in loudspeaker.

Power supply: 100–125 V or 200–250 V, 50 or 60 c/s, single-phase AC.

Power consumption: 100 W.

Dimensions:

Height 11 in. (27.9 cm)
Width 1 ft 8 $\frac{1}{2}$ in. (52.7 cm)
Depth 1 ft 5 $\frac{1}{2}$ in. (44.5 cm)
Weight 60 lb (27 kg)

Marconi

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