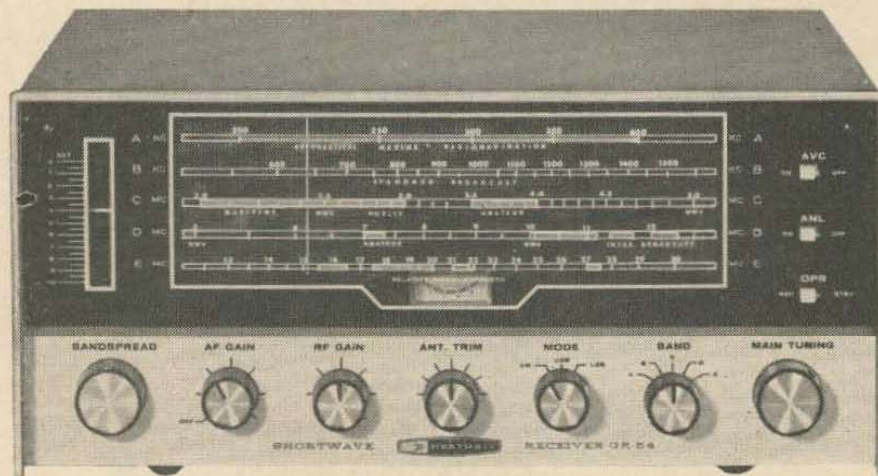


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Testing the Heath GR 54

Here's an inexpensive general coverage receiver for the ham or SWL.

"Get a \$150 SWL Receiver for \$84.95," the ad read.

"Well, they'll have to show me," I thought as I sent off a check for the receiver. An ad can and often does say anything, but knowing Heath's reputation I figured I'd get more than \$85 worth anyway. After building the receiver, I've found that they're right.

The GR-54 covers 2 to 30 MHz in three bands, plus 180 to 420 kHz and the broadcast band. It contains a power transformer with a full-wave, silicon diode power supply. A tuned rf amplifier stage is used, with two *if* amplifier stages. A diode detector is used for AM detection and a separate product detector for SSB. Two diodes provide the ANL. One stage of audio amplification feeds the output stage. A built-in speaker is provided with an output connection of 8 ohms for external speaker if desired.

A number of multipurpose tubes are used, keeping the count down to six tubes. In addition, six diodes are used, plus the power supply silicon diodes. An "S" meter is used to indicate relative strength of signals. The *if* frequency is 1682 kHz.

Most unique in a receiver (not to mention one under 100 dollars), is the use of two crystals, one at 1680.1 kHz and the other at 1682.4 kHz, providing a half-lattice crystal filter! This crystal filter is placed in the secondary winding of the mixer to first *if* transformer, providing a narrow bandpass through the *if* amplifiers. By using these crystals, selectivity is 3.0 kHz at 6 dB and 7.5 kHz at 20 dB! This is quite remarkable for a low priced receiver.

Sensitivity is very good. Best sensitivity (on SSB), was on the 2.5 to 5 MHz band and was .4 μ V average, with lowest sensitivity of 4 μ V on the highest band. The relatively low sensitivity on the highest band is rather typical and expected.

I wondered how they could maintain such a high average sensitivity in a kit, with the receiver being built by quite a range of electronic talent. When I built the receiver, this became self-evident. The kit uses five separate, heavy printed circuit boards! As a matter of fact, no wiring is done on the steel chassis, except for inter-board wiring and the power supply.