

The Hammarlund HQ100A Receiver

After more than five decades, it remains a classic!

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My grandfather gave me a new Hammarlund HQ100A receiver just after I got my Novice license in 1963. We purchased it at the Harrison Electronics store at 225 Greenwich Street in New York City. Although he was not a ham, my grandfather owned a radio and television sales and service business, so he was familiar with electronic equipment. I used this receiver for many years on 80, 40, and 15 meter CW and, with an Ameco 2 meter Nuvistor converter, on 2 meter AM and CW.

Hammarlund History

The Hammarlund Company was founded in 1910 by Oscar Hammarlund, an innovative electrical engineer who was originally from Sweden. The Elgin Watch Company brought him to the United States for his engineering expertise; however, after working for both Elgin and Western Electric, he founded his own company. When we purchased the HQ100A, Hammarlund was one of the oldest and most respected companies in the electronic manufacturing business. In the 1950s, the company was sold to Telechrome, who later sold it to the Giannini Scientific Company. It was sold again in the late 1960s to the Electronic Assistance Corporation (EAC), who owned it until the early 1970s when they closed the company and sold off the remaining equipment to The Cardwell Condenser Corporation.

Originally the company specialized in producing electrical components. Oscar Hammarlund was the inventor of the split variable condenser (capacitor) that was used in almost all broadcast and communications receivers for decades. From its inception, the Hammarlund logo was a variable capacitor.

The Hammarlund Company produced thousands of communications receivers for the government, commercial, Citizens



Band, and Amateur Radio markets. The first Hammarlund communications receiver was the Comet Pro, which debuted around 1931. The SP200 and SP400 models were introduced after that and the high performance Super-Pro SP-600 debuted in 1947. The receiver line continued with the amateur and shortwave band vacuum tube receivers numbered HQ100 through 180 and the solid state model HQ 215. As the model numbers increased, so did the price and performance of the receivers. While Hammarlund specialized in receivers, it also manufactured a few models of amateur transmitters and linear amplifiers. The best known are the HX-50, AM/CW/SSB, 100 W transmitter that debuted in 1967, and the 1500 W HXL-1 linear amplifier that was launched in 1964.

The Distinctive HQ100A

My HQ100AC (the “C” meant that it had a clock) was introduced in 1962. It was the least expensive communications receiver in the Hammarlund line. The HQ100C was the successor to the HQ100, which was introduced in 1957. Both were general coverage receivers that tuned from .54 to 30MHz. The major difference between the two receivers was that the 100A had a true

BFO (Beat Frequency Oscillator) circuit for receiving CW and SSB. The HQ100 simply drove its Q-multiplier into regeneration for its BFO.

Like all Hammarlund receivers, the HQ100A is handsome and ruggedly built. The under-chassis components are hand-wired and neatly arranged. It is slightly wider than it is tall, and housed in an attractive cabinet. An extruded overhanging ridge surrounds the front of the cabinet and a bold “HAMMARLUND” is prominently displayed on the front. This look was common to all latter-day Hammarlund receivers.

The gunmetal gray front panel has 13 controls that are symmetrically arranged and logically grouped. The black, fluted controls have bright white labels. The smaller controls are still nicely sized, with white marker stripes on the knob and on the circular area surrounding the controls, making it easy to remember where they should be set. The two toggle switches, for AVC or MAN[ual], and for LIM[iter] ON or OFF, have a pronounced *snap* when thrown.

The Telechron clock/timer displays 24-hour time. The timer is used, according

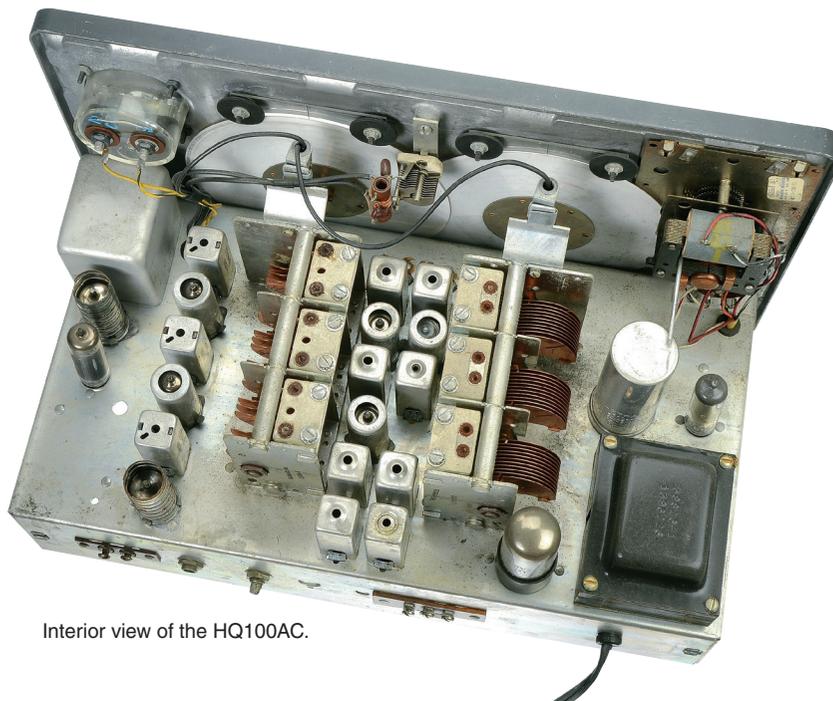
to the manual, to “turn on the receiver ahead of anticipated operating time” so that it would be stable and at “a predetermined operating temperature.” The radio drifted when cold, so a warm-up period helped frequency stability.

Under the hood, the HQ100AC is a single conversion, four-band, superheterodyne receiver that uses 10 vacuum tubes. The IF frequency is 455 kHz. It incorporates a noise limiter, an AVC (Automatic Volume Control) circuit that can be disabled, a Q-multiplier (a type of active band-pass filter), and a stable BFO. The power supply uses a 5Y3 rectifier and OB2 voltage regulator tubes for the B+. It has rear connections for an external antenna and a headphone jack.

Incoming signals are sent to a switched antenna coupling network and then to a variable capacitor that is adjustable on the front panel via the ANTENNA control to better match the receiver to its antenna. After this network, a 6BZ6 pentode acts as an RF amplifier ahead of the 6BE6 Pentagrid converter and the 6C4 local oscillator. There are two IF amplifier stages, both 6BA6 tubes. The twin diodes of the 6BV8 tube are the second detector and the series noise limiter. The triode part of the same tube is the BFO. Half of a 12AX7 dual triode tube acts as the first audio amplifier and the other half is the Q-multiplier. A 6AQ5 is the audio output tube. An unusual feature is the “Audio Response” circuit that “automatically narrows and widens the frequency range of the audio output depending upon the gain required.” There is no internal speaker. I have an original Hammarlund speaker and the audio sounds great, especially on broadcast AM.

The only selectivity control was the Q-multiplier. According to the manual, it “can provide a means of peaking any signal within the pass band of the IF amplifier.” The degree of peaking is controlled by the SELECTIVITY control. Hammarlund claimed that the band pass was adjustable from 100 Hz to 3 kHz. The FREQUENCY controls appears to act similarly to a modern-day IF shift control.

The HQ100A is tuned using two large, black, fluted tuning knobs: MAIN TUNING and BAND SPREAD. Small flywheels attached to each tuning knob give them just



Interior view of the HQ100AC.

the right amount of “feel.” A dial cord connected to each tuning knob turns both the tuning dials and the variable capacitors that use copper plates. Both the MAIN TUNING dial and the BAND SPREAD tuning dials are translucent, light gray plastic illuminated by small incandescent lamps making it easy to see them through the two arched viewing windows. The band spread tuning is used to obtain a more spread out tuning range on 80, 40, 15, and 10 meters. In addition, there is a special “20BS” setting for 20 meter band spread.

It required a certain amount of finesse to use the HQ100A on SSB. The AVC needed to be turned off; the Q-multiplier turned on; the BFO knob set to the proper

side of the USB/LSB offset; the AF gain was turned almost all the way up; and the RF gain was adjusted for maximum intelligibility. It is a bit more rigmarole than a modern transceiver, but once it is set up, the audio is very intelligible.

The Hammarlund Legacy

I see a lot of these older Hammarlund receivers for sale at hamfests. For many of us, these radios remind us of our youth and of our first years in Amateur Radio. They may not have all the features of modern-day equipment and they may not work quite as well, but learning how they functioned and how they operated gave us a lifelong interest in radio and communications.

Further Reading

If you'd like to keep reading about Hammarlund, here are some resources:

- Ham Radio Museum
www.radioing.com/museum/rx4.html
- The Hammarlund Historian
www.hammarlund.info/histpage.html
- The History of Hammarlund
www.retrocom.com/wtcollect/hammarlund.htm
- The Radio Museum
www.radiomuseum.org/r/hammarl_mf_hq_100a.html