

HQ-120

Amateur
AND
Professional

COMMUNICATIONS RECEIVER

by

HAMMARLUND

THE NEW "HQ-120" is designed to meet the most critical demands of both the amateur and professional operator. Hammarlund engineers have gone far beyond ordinary practice in this new communications receiver. This ultra-modern 12-tube superheterodyne covers a continuous range of from 31 to .54 mc. (9.7 to 555 meters) in 6 steps, thus taking in all important communication, amateur and broadcast bands. The "HQ-120" is not to be confused with modified broadcast receivers, to which have been added the short wave bands, beat oscillator, etc., in order that they may be called "communications receivers". It took two years to develop the "HQ-120". It is a special receiver with especially designed parts throughout. Every wave range in this receiver is individual. That is, each range has its own individual coil and tuning condensers. These individual tuning circuits for each band, with their proper circuit values, strike a new high in performance throughout the entire range of the receiver. For example, the same degree of efficiency is maintained in the 10 meter band as in the 80 meter band.

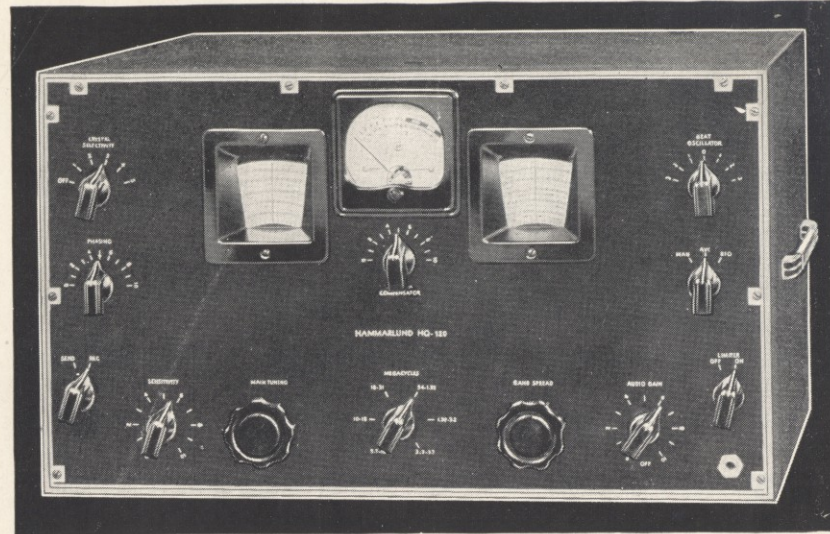
With the type construction employed in the "HQ-120", the inclusion of the broadcast band in no way jeopardizes the efficiency of the receiver at higher frequencies. Although this requires special tuning condenser design, it is the only satisfactory solution. The band-spread condenser is a 9-section affair, while the main tuning condenser has 6 sections.

Special tuning condenser construction, together with a precision dial, results in 310 degrees band-spread for each amateur band. This wide degree of band-spread, together with direct calibration (in mc) in the amateur bands, is especially desirable in view of the new government regulations as regards monitoring.

Every feature essential to perfect short wave reception whether for amateur or commercial use, has been incorporated in this new receiver. Never before have so many new and outstanding features been incorporated in a single receiver at such a remarkably low price.

PERFORMANCE

The stability, sensitivity, and selectivity of the new "HQ-120" are exceptional. The voltage regulated power supply, provides constant voltage to the high frequency oscillator. This, together with the special oscillator circuit, provided a degree of stability high enough to warrant calibrating the band-spread dial in megacycles for each amateur band from 80 to 10 meters inclusive. This dial has an additional 0-200 scale for calibration at other frequencies. The general coverage dial is also calibrated in megacycles. The high gain R. F. stage with its antenna compensating control, providing maximum image rejection, and best signal-to-noise ratio, combined with three stages of permeability tuned I. F. amplification, result in extreme sensitivity. By special circuit arrangement, the gain of the entire receiver is held relatively constant in all amateur bands providing accurate "S" meter reading. In other words, the "S" meter reads accurately regardless of the frequency to which the receiver is tuned. When tuning in the 10 meter band, for example, it does not require a stronger signal to indicate "S-9" on the meter than it does when tuning in the 80 meter band. This has been a common ailment with receivers and a barrier to true meter readings. Another feature directly concerning the "S" meter and accurate signal reporting, is the uniform output of the crystal filter.



SPECIAL FEATURES

CRYSTAL FILTER

The new crystal filter employed in the "HQ-120" is an outstanding Hammarlund development. Because of its full range selectivity, the crystal filter is now applicable to both phone and CW reception alike. There are six positions on the selectivity switch and these are controlled from the panel. A complete description of this filter appears in the Dec. 1938 QST.

NOISE LIMITER

The noise limiter is designed to overcome automobile ignition interference and similar disturbances; works with or without the AVC action of the receiver. There are no delicate threshold controls on the panel; merely an off-and-on switch. The circuit is so arranged that the limiter can be left permanently in use without altering the tone quality.

"S" METER

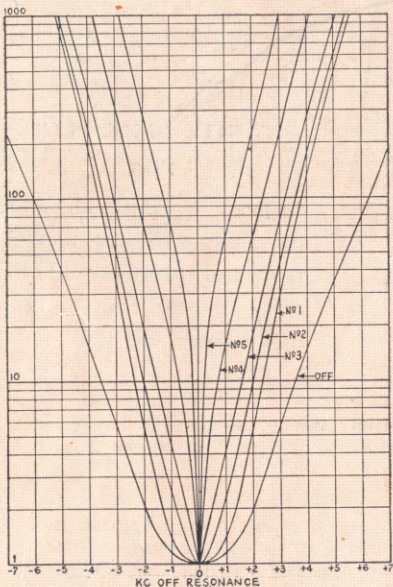
The "S" meter is calibrated in units up to "S-9" and up to 40 db above "S-9". It operates as a vacuum tube volt meter with regulated voltage supply. The accuracy of the meter reading is further aided by the uniform sensitivity maintained in the RF portion of the receiver.

CIRCUIT

The "HQ-120" is not an ordinary superheterodyne. Special consideration has been given to the R. F. and converter circuits to provide maximum image rejection and uniform gain throughout its range. The special antenna compensating control provides minimum noise level.

SELECTIVITY CURVES

The selectivity curves shown below are direct measurements taken on a standard production model receiver. The drawing indicates six positions of the selectivity switch. The "off" position cuts the crystal out of the circuit. Here, we have maximum band width of the receiver. Position No. 1 is the broadest range of the crystal filter. By referring to the chart we find that this curve is broad enough to permit excellent voice reception. Even musical programs can be received in this position. The advantage here is that the phasing control on the



filter can be adjusted to eliminate heterodynes. Position No. 2 on the switch is intended for phone reception and is especially effective in the crowded amateur phone bands. Here too all squeals and heterodyne can be eliminated with the phasing control without altering the quality of the signal, since there is no interlocking in the crystal filter. Positions, 3, 4, and 5 are intended for single signal code reception. No. 5 is the maximum selectivity of the crystal filter and is used in cases of extreme interference. No. 4 will generally suffice under average conditions. No. 3 can be used for broad single signal CW reception or for voice where quality is not important and interference is extremely heavy.



WRITE DEPT. "CL"

FOR

16-page booklet, including complete technical description and diagrams of the many outstanding features in the new "HQ-120".

HAMMARLUND MFG. CO., Inc.

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HQ-120 MODELS and PRICES

| <i>Code</i> | <i>Type</i> | <i>Tuning Range</i> | <i>Speaker</i> | <i>List Price</i> |
|-------------|-------------|---------------------|-------------------------|-------------------|
| HQ-120 | Standard | 31-.54 MC | 10 inch "PM" Dynamic | \$195.00 |
| HQ-120-X | Crystal | 31-.54 MC | 10 inch "PM" Dynamic | 215.00 |

The above prices include standard models which operate on 105 to 125 volts A.C., 50-60 cycles. Special models for operations on other line voltages are available on order. All prices subject to change without notice.