GENERAL COVERAGE* WITH

CRYSTAL FILTER

SLOT FILTER

SELECTIVITY

THE HAMMARLUND

DUAL-CONVERSION

*trical bandspread on all
ands within frequency range.

HQ-145

UNPARALLELED value! Compare the HQ-145 with receivers of other design and manufacture—and nowhere will you find a general-coverage receiver offering the performance or built-in quality of the HQ-145.

The HQ-145 is the right receiver for the amateur desiring general-coverage, or the short-wave listener who insists on commercial-quality performance. The HQ-145 offers a new standard of performance in tuning techniques through the combination of an adjustable 60 db slot filter and the exclusive Hammarlund crystal filter. By manipulation of these two filters, the operator may make up endless combinations of peaking and nulling in order to attain solid contact with the weakest signals in the most crowded bands.

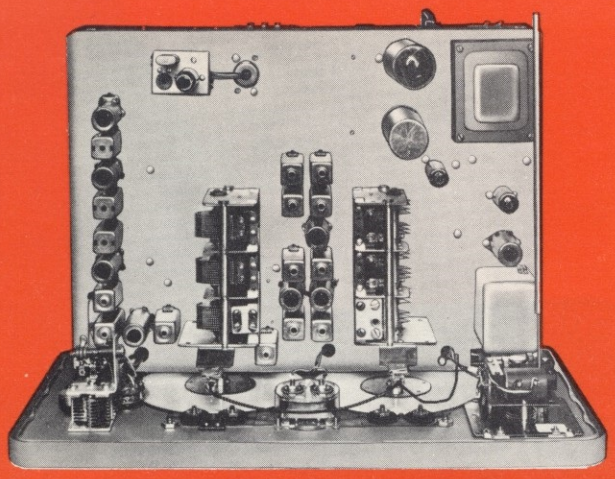
The HQ-145 is an 11-tube superheterodyne featuring dual conversion of the IF on one band for improved image rejection. An automatic noise limiter minimizes static bursts with negligible effect on modulation.

Like all Hammarlund communications receivers, the HQ-145 offers a degree of sensitivity far beyond ordinary communications receivers. This high degree of sensitivity makes possible DX-ing signals from distances usually considered impossible. In side-by-side tests with other receivers costing up to three times the price of a Hammarlund receiver, the Hammarlunds have come through with loud and clear signals, while the others produced only unintelligent QRM.

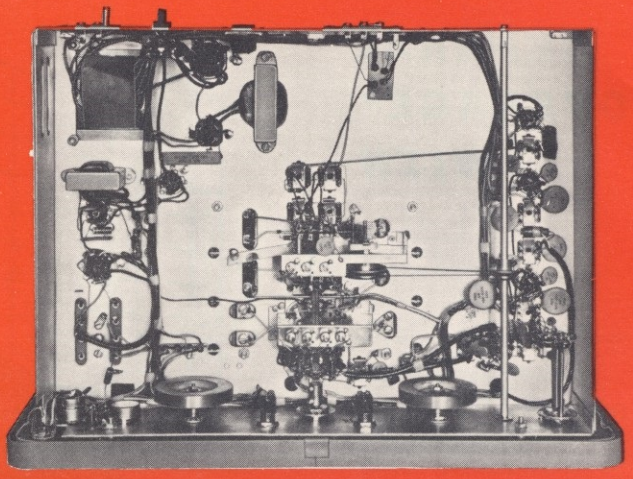
All in all, the HQ-145, is the answer for the amateur who desires a fine quality general coverage receiver at modest cost, or the short-wave listener who desires a better-than-average receiver for globe-trotting from his easy chair.

This is the receiver to look at first and last. Check an HQ-145, then look at all competition anywhere near the same price, then compare. If still in doubt, take another look at the HQ-145, it's so full of features you may have missed some of them at first look. In any event, you too will agree with the experts—the HQ-145 is really it!

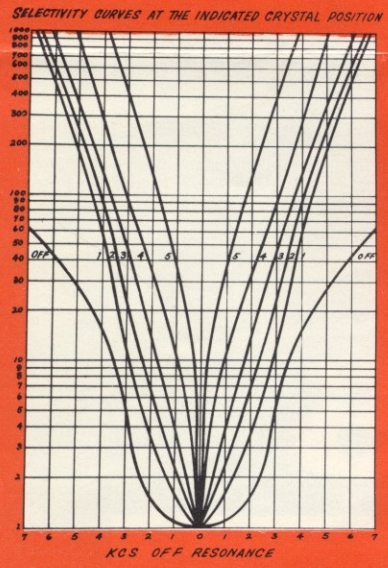
HAMMARLUND



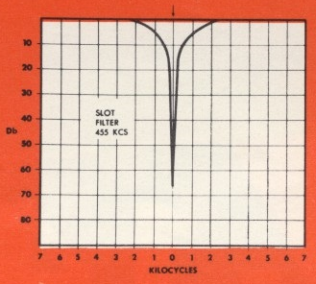
TOP VIEW



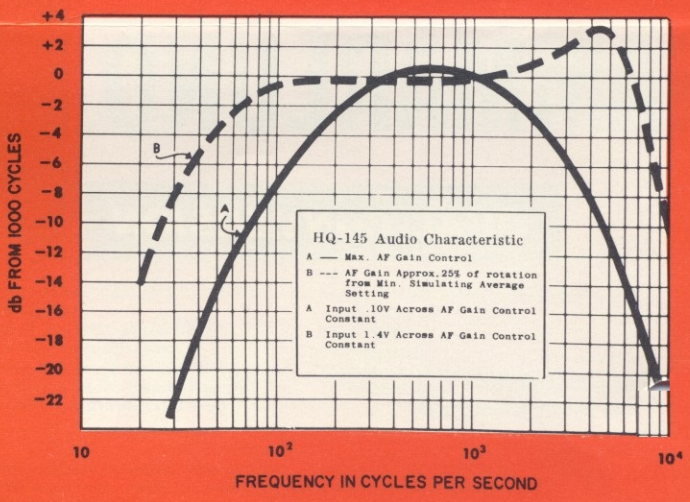
BOTTOM VIEW



HQ-145 SELECTIVITY CURVES



SLOT FILTER



AUTO-RESPONSE CURVE

FEATURES

- ★ 11-tube superheterodyne with improved automatic noise limiter.
- ★ Dual conversion on 10.0-30.0 MCS band for superlative image rejection (including 20, 15, and 10 meter amateur bands).
- ★ Frequency range, 540 KCS to 30 MCS in four bands.
- ★ Directly calibrated electrical bandspread on 80, 40, 20, 15 and 10 meter amateur bands.
- ★ Crystal filter with six-position switch for additional selectivity.
- ★ Adjustable slot filter with up to 60 db attenuation for elimination of adjacent channel interference.
- ★ Voltage-regulated and temperature-compensated high-frequency oscillator for a high degree of stability.
- ★ S-meter for tuning indication and signal strength readings.
- ★ Antenna trimmer optimum match to antenna system.
- ★ Adjustable high-stability, temperature-compensated BFO for SSB and CW reception.
- ★ Unusually high sensitivity provides 10:1 signal-to-noise ratio with a 1.75 microvolt average AM signal, or CW signal of approximately 0.5 microvolts.
- ★ Four continuous coverage bands and five amateur bands are covered with two multi-section tuning gangs.
- ★ Special 20 meter amateur band position for optimum electrical dial spread.
- ★ Modern exterior design with control location "humanized" for ease in operation.

ELECTRICAL DESCRIPTION

The HQ-145 is a general-coverage communications receiver. It is entirely self-contained with a regulated power supply for operation on 105-125 volts, 50-60 cps, 80 watts. Complete filtering of the power supply eliminates AC hum from the receiver. Heat dissipation is achieved through the use of a perforated metal cabinet with stand-off legs.

Location and configuration of knobs has been carefully planned to best suit the average user. Calibrations and markings are in high-legibility white for easy read-out.

The HQ-145 has a frequency range of 540 KCS to 30 MCS through the use of a 4-band selector switch. The receiver may be operated on either a single wire flat-top, doublet or folded-dipole antenna.

An 11-tube superheterodyne receiver, the HQ-145 uses a separate mixer (6BE6) and oscillator (6C4) for a high degree of stability in the front-end. High gain, with low-noise in the front end, results in excellent signal-to-noise ratio throughout the receiver. Static bursts, automobile ignition and other impulse-type noise is minimized by use of one section of the 6AL5, which is a completely self-adjusting noise limiter with no appreciable effect on the modulation. The other half of the 6AL5 is employed as a second detector and AVC system.

Frequency drift of the HQ-145 is less than 0.01% of frequency after warm-up. Low-loss sockets, coil forms and bandswitch wafers, temperature-compensated capacitors, application of regulated power to the oscillator circuit and rugged mechanical assembly are combined to achieve this low-drift factor.

BANDSPREAD

Electrical bandspread tuning with direct calibration is provided on five amateur bands: 80; 40; 20; 15; and 10-meter. Two capacitor sections are employed in the bandspread operation for outstanding performance. Operation of the bandspread is simple: The operator sets the main dial at the high end of the desired band, then tunes the bandspread dial over the range desired. An arbitrary 0-100 logging scale is also provided in addition to the above bands.

RF SECTION

An antenna trimming capacitor permits optimum match to the particular antenna system employed with the receiver for maximum transfer of signal energy between antenna transmission line and front end. This adjustment is on the front panel. The RF amplifier provides outstanding preselection and a high degree of signal level for the IF system.

IF AMPLIFICATION

The HQ-145 provides three IF amplification stages on all bands. Dual conversion is employed from 10.0 MCS to 30.0 MCS. As a single conversion receiver, 10 tuned circuits are used at 455 KCS, and as a dual conversion receiver, the first IF stage is utilized as a 2nd converter for optimum image rejection. Iron core permeability-tuned transformers are incorporated to improve performance and retain accuracy of alignment.

Fading and signal strength variations are minimized by a fast, yet smooth Automatic Volume Control circuit which controls the gain of the RF stage and one of the IF stages.

SLOT FILTER

A slot filter is provided for attenuation of adjacent, unwanted signals. The slot is adjustable over a range of plus/minus 5 KCS from center frequency of the 455 KCS IF. The slot filter frequency control provides up to 60 db attenuation, obtainable by adjustment of a slot depth control. The 6 db width of the slot is approximately 1.5 KCS. Accurate frequency adjustment of the slot is obtained by means of an 8:1 vernier control.

CRYSTAL FILTER

An exclusive Hammarlund crystal filter is employed for additional control of the IF bandwidth. The 455 KCS crystal filter and phasing network is similar to that used in the finest commercial and military receivers. It is operated from the front panel by a six-position control permitting OFF and five increasingly selective bandwidths. The phasing control is a differential type variable capacitor which permits precise adjustment of the crystal selectivity characteristic for extremely high attenuation of the undesired frequency. Carrier amplitude of the desired signal remains essentially constant regardless of crystal filter settings.

S METER

An accurate S-meter is provided for both accuracy of tuning and relative signal strength read-out. The scale is calibrated to 40 db over S-9. Meter calibration is such that 50 microvolts reads S-9. Each S-unit indicates approximately a 6 db increase, equivalent to doubling the signal strength.

AUDIO

The HQ-145 features the well-known Hammarlund Auto-Response system that automatically adjusts the audio passband to best suit the signal. Audio output is 1.0 watt (undistorted) or 3.5 watts maximum. The first audio stage is a resistance coupled voltage amplifier using a section of the 12AX7, while the audio output uses a 6AQ5. As the audio gain is increased, a feedback loop narrows the audio bandwidth "crisping" the audio output, and vice versa. On strong signals, with the audio gain control turned approximately one-third up, the frequency response is in the area of 50 to 7500 CPS, resulting in qaality approaching high-fidelity standards.

HQ-145

FREQUENCY RANGE

540 KCS to 30.0 MCS continuous tuning in 4 bands.

Band 1	0.54 — 1.60 MCS	Band 3	4.0 — 10.0 MCS
Band 2	1.60 — 4.0 MCS	Band 4	10.0 — 30.0 MCS
Band 5	20 Meter Amateur Band		

CALIBRATED BANDSPREAD

3.5 — 4.0 MCS	
7.0 — 7.3 MCS	20.9 — 21.6 MCS
14.0 — 14.4 MCS	28.0 — 30.0 MCS

Dial Markings every 10 KCS on 80, 40, and 20 meter bands; every 20 KCS on 15 meter band; every 50 KCS on 10 meter band. Plus 0-100 logging scale.

IF FREQUENCY CONVERSIONS

Single conversion on bands 1, 2, and 3. Double conversion on bands 4 and 5 including all bandspread ranges covered in band 4.

INTERMEDIATE FREQUENCIES

455 KCS on all bands. 3035 KCS and 455 KCS on bands 4 and 5.

MAXIMUM AUDIO OUTPUT

1.0 Watt (Undistorted).

OUTPUT IMPEDANCE

3.2 ohms (E.I.A. Standard).

AVC ACTION

Operates on RF and IF stages. Provides fast, smooth action.

ADJUSTABLE SELECTIVITY

Six positions of selectivity; "0" for crystal filter disconnected (widest bandwidth); "1," "2," and "3" for phone reception; "4" and "5" for code reception.

SENSITIVITY

An average of 1.75 microvolts produces a 10:1 signal-to-noise ratio on AM. C.W. average .6 microvolts.

ANTENNA INPUT

Nominal impedance 100 ohms. Provides for use of single wire antenna or balanced transmission line.

ANTENNA COMPENSATOR

Permits compensation for loading effects of various type antennas or balanced transmission lines.

BEAT FREQUENCY OSCILLATOR

Variable from zero beat to plus/minus 2 KCS.

QUARTZ CRYSTALS

3 crystals, for 2nd oscillator (2580 KCS), intermediate frequency (455 KCS), and optional accessory crystal calibrator (100 KCS).

SLOT FILTER

Range plus/minus 5 KCS of center frequency. Attenuation over plus/minus 5 KCS range provides over 40 db rejection. Calibrations every 1 KCS. Maximum attenuation using slot depth control is 60 db. 8:1 vernier tuning ratio.

The policy of the Hammarlund Manufacturing Company, Inc. is one of continued improvement in design and manufacture wherever and whenever possible, to provide the highest attainable quality and performance. Hence, specifications, finishes, etc. are subject to change without notice and without assumption by Hammarlund of any obligation or responsibility to provide such features as may be changed, added or dropped from previous production runs of this equipment.

TUBE COMPLEMENT

6BZ6	RF Amplifier.	6AL5	Detector, Series Noise Limiter.
6BE6	1st Converter.	12AX7	First AF Amplifier and BFO.
6C4	HF Oscillator.	6AQ5	Audio Power Output.
6BE6	2nd Mixer—Crystal Osc. or IF Amplifier.	OB2	Voltage Regulator.
6BA6	1st IF Amplifier (455 KCS).	5U4GB	Rectifier.
6BA6	2nd IF Amplifier (455 KCS).	6BZ6	100 KCS Crystal Calibrator (Optional extra).

POWER SUPPLY

105-125 Volts, 50-60 CPS. Power consumption 80 watts.

"S" METER

Calibrated 1 to 9 in steps approximately 6 db. Also includes db scale above S-9 to +40 db.

NOISE LIMITER

New series type which provides better limiting action with minimum effect on modulation.

FRONT PANEL EQUIPMENT

Main Tuning.
Bandspread Tuning.
Sensitivity (RF Gain).
Audio Gain: Power ON/OFF Switch.
Crystal Selectivity: OFF-1-2-3-4-5 Positions.
Crystal Phasing Capacitor.
Antenna Compensator.
Tuning Range (Band Selector).
Function Switch: Send—Receive—CW—Calibrate. (100 KCS **(crystal calibrator is optional extra accessory.)**
Slot Frequency Adjust.
Slot Depth.
CW Tone (BFO Pitch).
Noise limiter: ON/OFF Switch.
AVC: ON/OFF Switch.
"S" Meter.
Phone Jack.
Dial Scale Reset (Bandspread Scale Only).

REAR PANEL EQUIPMENT

Terminals for speaker connections. Terminals for balanced or unbalanced antennas. Jack for external send-receive relay connections. "S" Meter zero adjustment.

DIMENSIONS

10½" H x 19" W x 13" D.
Wt. 35 lbs. Shipping Weight: 42 lbs.

OPTIONAL ACCESSORIES

SPEAKER

S-200 speaker matching HQ-145 electrically and mechanically. Extended range 6" x 9". 8 watt capacity. Housed in attractive metal cabinet.

TELECHRON CLOCK-TIMER

Combination clock and automatic timer. Aids in meeting pre-arranged schedules. Optional accessory. Space in front panel provided.

CRYSTAL CALIBRATOR

Plug-in Type Crystal Calibrator. Provides markers every 100 KCS. New design requires no soldering, no fuss, no muss. Plug-in electrical and mechanical connections. HQ-145 chassis prepared for installation.

EXPORT MODEL AVAILABLE. Model HQ-145E is available which is capable of operation on 105-125 volts a.c., 50-60 cps, and 210-250 volts a.c., 50-60 cps. (Telechron Clock-Timer not available on this model.)

Established 1910

HAMMARLUND

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