

Convert your present receiver  
for the *Ultimate* in  
**SSB/CW** or **AM/MCW**  
reception in minutes

# HAMMARLUND



# HC-10 CONVERTER

Hammarlund's done it again—bringing you a converter that incorporates everything you need for the ultimate in SSB/CW or AM/MCW reception using your present receiver.

Basically the new HC-10 is a SUPER IF and audio-system with all the electrical and mechanical aids for the very finest in SSB/CW and AM/MCW reception. With the HC-10 you can enjoy reception equal to, even exceeding, that of the most expensive receiver available.

The HC-10 is compact, and entirely self-contained with its own power supply. There is no need for any special wiring—merely remove the last IF tube in your receiver, insert the special adapter, plug the IF tube into the adapter, and you're in business. Attach your loud-speaker to the converter and you'll achieve re-

ception the likes of which you've never heard before.

All frequency controls of the HC-10 are calibrated in KCS from the center of the passband. There's no confusion as to which part of the passband you're working. Seven selectivity positions permit you to slice out the exact portion of the passband desired from .5 KCS to 6 KCS. Beyond this degree of selectivity you have a notch filter for razor-sharp notching of co-channel interference. And at the flick of a switch you can jump from one sideband to the other or listen to both simultaneously, providing double the bandwidth selected.

The HC-10 is simple to operate. All controls are located in functional groups in the right places. Once you've tried it, you'll never understand how you operated without it!



# FEATURING



SSB  
CW AND

- Works with any receiver having an IF between 450 KCS and 500 KCS.
- Completely self-contained, requiring only input and speaker connection.
- Supplied with plug-in adapters for either miniature or octal tubes.
- Tuned IF amplifier with seven selectivity positions having mechanical filter type skirt selectivity.
- Vernier type passband tuning control  $\pm 3$  KCS for ease of SSB reception.
- Razor sharp slot filter adjustable  $\pm 5$  KCS over passband for better than 40 db attenuation of unwanted signal. Additional attenuation up to 20 db at any point by slot depth control.
- SSB/CW — AM/MCW switch.
- Fast attack time AVC with off-slow-medium-fast decay speeds. Selected from front panel.
- BFO control  $\pm 2$  KCS.
- Combination noise limiter and squelch.
- AVC may be used for external control.
- Controlled AC outlet at rear of cabinet.
- Linear product detector for CW and SSB reception.
- Does not affect normal operation of receiver. Switch may be used to transfer speaker.

All the latest electronic and mechanical aids have been incorporated in the HC-10 Converter for the best in performance and flexibility. Briefly, the signal is fed through a special transformer and slot filter to a (6BE6) mixer. A three-stage (six tuned circuits) IF amplifier is employed to feed a delayed AVC and noise limiter diode detector. Either AM or SSB can be received with a diode or linear detector. Both detectors feed the combination noise limiter and squelch. A two stage audio amplifier is used to provide ample audio signals to the speaker.

This description is a brief, "block diagram" look at the HC-10. The following is a detailed description of each circuit and its function.

## SLOT FILTER

The slot filter circuit consists of a bifilar T trap providing better than 40 db attenuation over the entire range of  $\pm 5$  KCS from the center IF input frequency. The center frequency is adjustable from 450 KCS to 500 KCS. Additional attenuation of up to 20 db more may be obtained by adjustment of the slot depth control at a particular frequency. The 6 db width of the slot is approximately 1.5 KCS. An 8:1 vernier is provided on the control for accurate adjustment.

## PASSBAND TUNING

A coarse and fine adjustment of the conversion oscillator is provided. The coarse adjustment is used to tune from 390 to 440 KCS to provide the proper mixer frequency for the 60 KC IF over the 450 KC—500 KC input range. The fine adjustment is located on the front panel of the HC-10 and has a range of  $\pm 3$  KCS. An 8:1 vernier is provided for



ease of adjustment, especially in the reception of SSB signals.

**IF AMPLIFIER**

The 60 KC amplifier provides seven selectivity positions as follows: 1- 2- 3 KCS on either sideband; and .5- 2- 4- 6 KCS on both sidebands. The skirt selectivity of the system approaches that of the mechanical filter. A separate switch is provided for selectivity. A second switch is used to select upper, lower or both sidebands, providing a simple means for rapid sideband selection.

**NOISE LIMITER/SQUELCH**

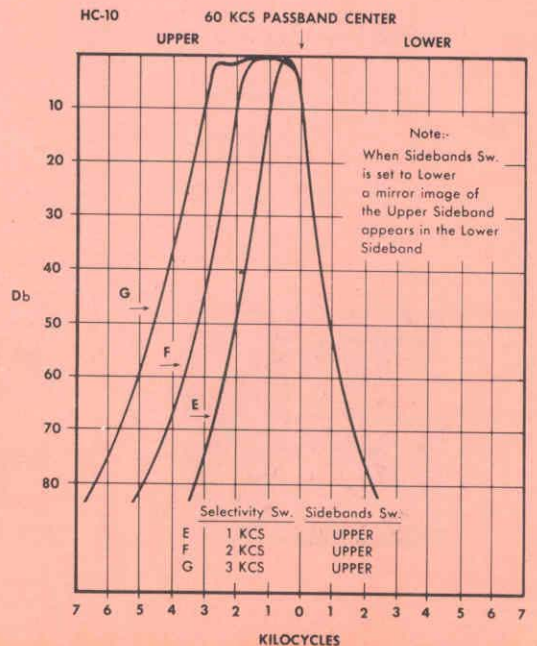
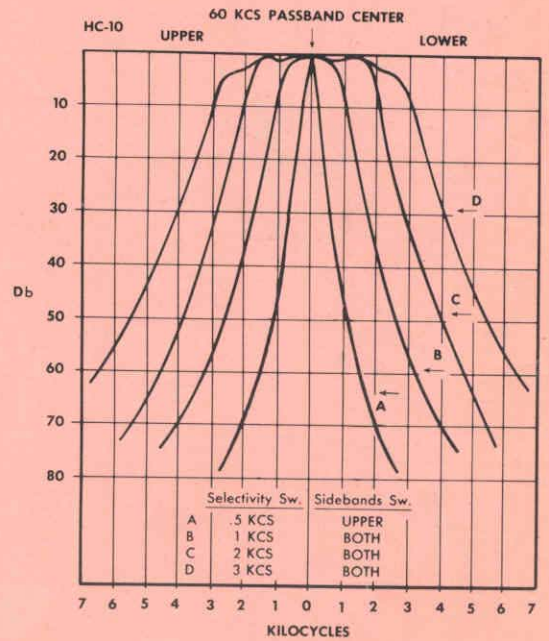
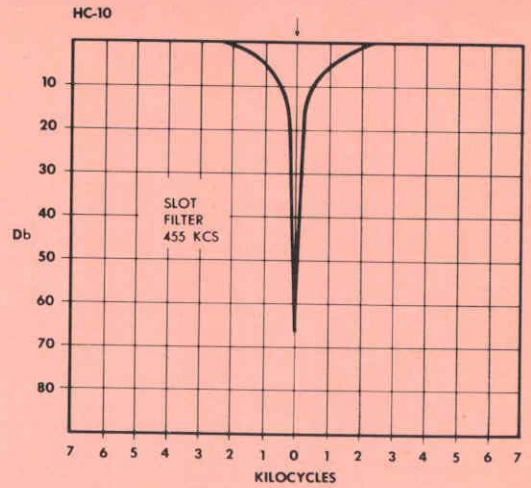
A combination noise limiter and squelch control is provided. The noise limiter is of the series type and limits on positive and negative noise pulses. The squelch is operable when receiving AM signals and functions as both noise limiter and squelch.

**BFO**

The BFO in the HC-10 is an extremely stable Clapp-type oscillator circuit. It has an almost linear range of  $\pm 2$  KCS. The BFO is used as the center frequency standard for the initial adjustments necessary when the HC-10 is first installed.

**AVC**

An extremely fast-attack delayed AVC circuit is employed in the HC-10. A control is provided for OFF-SLOW-MEDIUM or FAST decay time for optimum results on various signals. The AVC voltage is available at a terminal on the rear panel for external control of a receiver or other device.





# HC-10

# SPECIFICATIONS

<b>Frequency Range:</b>	Coarse adjustment 450 KCS — 500 KCS Passband Tuning $\pm$ 3 KCS with calibrations every 1 KC. 8:1 vernier tuning ratio.
<b>Maximum Output:</b>	1.0 watt (Undistorted).
<b>Output Impedance:</b>	3.2 ohms (RETMA standard).
<b>AVC Action:</b>	.005 second attack time and .01 — .1 — 1 second decay time. Off position.
<b>Selectivity:</b>	Upper sideband 6 db 1 — 2 — 3 KCS Lower sideband 6 db 1 — 2 — 3 KCS Both sidebands 6 db .5 — 2 — 4 — 6 KCS
<b>Slot Filter:</b>	Range $\pm$ 5 KCS of input frequency. Attenuation over $\pm$ 5 KCS range 40 db or better. Calibrations every 1 KC. Maximum attenuation using Slot Depth Control 60 db. 8:1 vernier tuning ratio.
<b>Input Signal Voltage Range:</b>	.005 — 2 volts.
<b>Input Connection:</b>	By means of plug-in adapters supplied.
<b>Beat Frequency Oscillator:</b>	Variable from zero beat $\pm$ 2 KCS
<b>Tube Complement:</b>	Mixer — Oscillator 6BE6 1st IF Amplifier 6BA6 2nd IF Amplifier 6BA6 3rd IF Amplifier—Del. AVC—N.L.—AVC.—AM Det. 6BV8 Product detector 12AU7 Noise Limiter — Squelch 6AL5 BFO 6C4 1st AF Amplifier AVC Clamp 6AV6 Audio Power Output 6AQ5 Rectifier 5Y3
<b>Power Supply:</b>	105-125 volts. 50-60 cps. 75 watts
<b>Noise Limiter — Squelch:</b>	Series type provides both positive and negative clipping.
<b>Front Panel Equipment:</b>	Slot Frequency KCS • AM/MCW—CW/SSB Switch Passband Tuning KCS • AVC Switch • Slot Depth • Power-Audio Gain Selectivity KCS • Sideband Selector • Beat Frequency Oscillator Noise Limiter—Squelch
<b>Rear Panel Equipment:</b>	Terminal for speaker and AVC connections. Input Jack • Phone Jack • Passband adjustment (Coarse) Controlled AC ON/OFF from front panel control
<b>Dimensions:</b>	9 $\frac{1}{4}$ " long x 9 $\frac{1}{2}$ " high x 7 $\frac{1}{8}$ " deep.
<b>Weight:</b>	15 pounds



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