

The COMMUNICATION RECEIVER

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All correspondence requires SASE for reply



TYPE H.R.O. RECEIVER

THE HAMMARLUND COMET "PRO" RECEIVER

With this issue of the OTB we begin a column on classic communications receivers of the 1920's and 1930's, a topic of increasing interest among the AWA members. The receivers described will be restricted to those used for two-way communications purposes, not previously covered in the OTB. A subject as large as this cannot be adequately covered by only four columns a year, but we will include as much material as space will allow. The editor assures me that all correspondence will be welcome, and if a SASE is included a reply is assured. This first column reviews the classic *Comet Pro*, the predecessor of the famous *Super-Pro*.

In early 1932 the United States was sinking into the depths of the Great Depression and the social fabric of the country was wearing thin. The economy was failing and there was little money for non-essentials and "hobbies", but in spite of a worsening situation nothing seemed able to stop the advance of the communications industry. Previously, going into the 30's, the mainstays of the communications field had been the National Company line of "Thrill Boxes" and the Pilot Super Wasp, while most amateurs continued to work with home-brew regenerative receivers.

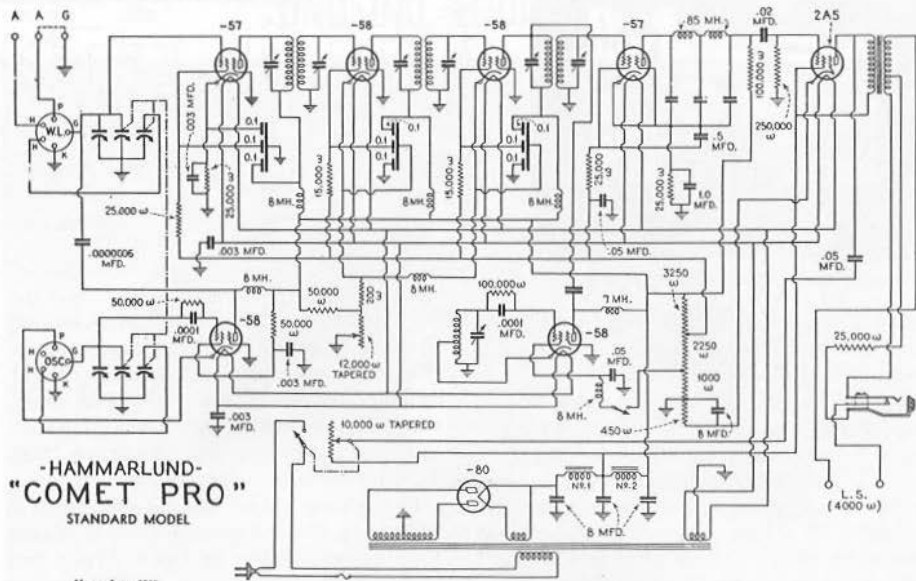
Against this discouraging background, the radio manufacturers persevered and made progress. (Perhaps, as the old story goes, they didn't realize just how bad things really were.) In April of 1932, the Hammarlund Company of New York city had the temerity to introduce a new receiver, christening it the Comet "Pro"⁽¹⁾. The PRO, an eight-tube custom-built superheterodyne in a walnut cabinet, covered the range 14-200 meters with four sets of two coils each. Characteristics included band-spread tuning (an innovation at that time), a stable oscillator with "electron coupling", a special "long-wave oscillator" (BFO) for "sharp, clean CW reception", a quiet 227 output with phone jack and

speaker connections, and provisions for the connection of an external power audio amplifier. It was billed as "super-sensitive", "super-selective", and with an extremely low noise level.

The Hammarlund Company, like the National Company, had been making their own components (they started in 1910), and were already marketing quality line of variable condensers, pre-wound plug-in coils, RF chokes, tube sockets, and other miscellaneous hardware. Heavy emphasis was placed on their extensive use of Isolantite as a dielectric. This material, while not new⁽²⁾, was excellent for the purpose and was universally accepted.

The original receiver could be recognized by the walnut cabinet and the two external white band-set dials (OSC on the left and W.L. on the right). By July, however, the receiver was being pictured with the band-set dials peeking out through two half-moon windows, and equipped with vernier drives. (The original was either a developmental model or enjoyed an extremely limited production run.) A matching PRO power amplifier with built-in dynamic speaker was offered, and a 16-page bulletin with details was free for the asking. Requests for Hammarlund Precision Products were to be directed to the Hammarlund-Roberts Company, at 424 West 33rd Street, New York, NY.

The marketing and sales efforts were directed from the beginning towards the commercial, government, and military users, since that is where the available money was during those bleak days. In just a few months, the Hammarlund people realized that the product was becoming widely accepted, and they began advertising its use by ship operators, airport and BC engineers, police, hams, and "armies, navies, and commercial companies throughout the world". Testimonials were published, including letters from the Olympic



Games in Los Angeles and the Technical Editor of *Radio News*, extolling the virtues of sensitivity, selectivity, low noise level, and the band-spread tuning feature. In due course, a specific list of 56 prominent users was published.

The competition stressed price. While the Comet "Pro" was sold to the user for a net price of \$88.20 plus Federal excise tax, the FB7 could be purchased ... at least in the beginning ... with one coil set, without power supply, (and without tubes, since that's how things were done then) for \$26.46. Hammarlund was quick to point out that theirs was a complete receiver (less tubes, of course), with power supply, and with all four sets of coils.

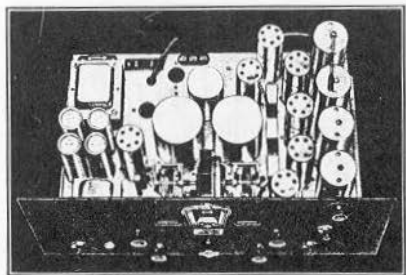
As with all good products in an advancing technology, improvements were made. In November 1932, the receiver was billed using new tubes (four 58's, two 57's, a 2A7, and an 80) and a new metal cabinet. The wood cabinet and a battery version were options.

Significant changes were introduced in February, 1933 with the advent of air dielectric IF tuning condensers, and a variable control for the BFO. The latter took the form of a tuning "handle" which could be pivoted over a 90° range, and it became a prominent physical feature of the new, improved Comet "Pro". Collectors can easily distinguish the older version by the lack of any adjustments on the

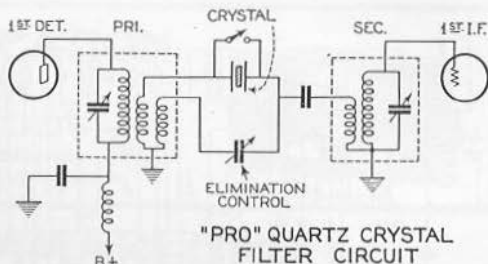
top of the IF cans, and no tuning control on the BFO can. The newer IF's had one capacitor adjustment at each end of the can. Hammarlund proclaimed their improved PRO as the only short-wave receiver with air dielectric IF tuning condensers, but it should be noted that National ran a full page ad in April 1933 *QST*, in color, showing THEIR air-tuned IF transformer, with "velvet vernier micrometer tuning".

A crystal filter was mentioned as easily adaptable to the circuit, but active promotion of the Hammarlund improved crystal filter for single-signal reception with the Comet "Pro" was delayed until September, 1933. (Readers may recall that Lamb's famous two-part article on single-signal reception was in the August/September 1932 issues of *QST*.) Hammarlund said that their filter differed significantly from the single-signal types of filters described in radio publications of the day in that both series and parallel selectivity were available simultaneously, with no loss of signal strength, and a patent was applied for. The filter could be easily added to existing models and the "elimination control" (a variable capacitor) was mounted in the upper right corner of the panel, with the filter switch below.

In November, AVC was added, and to make it less confusing to prospective purchasers (?), seven versions of the PRO receiver were

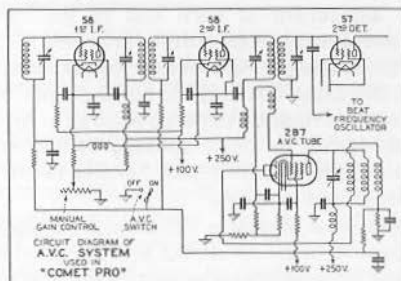


The AVC Model with the Crystal also installed



listed (3); the standard PRO, the crystal PRO, each with or without AVC, two DC versions, and a battery model.

The DC models, for either 110 or 220 VDC, used three 77's, two 78's, and one 43; the battery version used four 77's, two 78's and one 42. In the AC sets the new 2A5 was used in the output, and the receiver was specified as having "1/2 microvolt sensitivity and 10 kc selectivity". The coil ranges had by now been expanded to include the 8-16 meter and 250-550 meter bands ... a total of 6 sets of coils ... available at \$5.00 per set, and there was no longer any mention of the walnut cabinet.



The AVC circuit required another tube and coil can, and to make room for them the antenna terminals were moved to the rear of the chassis. For collectors who like to play the dating game, this change, plus the addition of a nameplate to the front panel under the bandspread dial ... with the words HAMMARLUND NEW YORK ... some time late in 1933, may be of help.

By February of 1935, Hammarlund was still advertising the PRO (complete with NRA stamp, a sign of the times), but competition was heating up. The RME 9 had been available since May, 1934, while the chief competitor, the National Company, had a whole collection of receivers for the communicator and SWL. These included the SW 3 (August, 1931), the SW 5 Thrill Box (November, 1931), the AGS (July, 1932), the FB 7 and

FBX in February and April, 1933, and the HRO in October, 1934. For the PRO, lacking an RF stage and with dated design features, time was clearly running out. The then current thinking concluded that at least one RF stage, or preselector, was necessary for a good communications receiver, and having two (such as in the HRO) was even better.

In due course Hammarlund subscribed to this philosophy and employed it in the Super Pro. In the meantime, in March of 1935 they introduced the continuously variable coupled IF transformer, stating that it was available for retrofit into existing PRO models, and would be used in the Super Pro, soon to be announced. In May, the circuit of the Super Pro with its 16 tubes and a two RF stages was published (4), but the receiver was not to be available until March, 1936. After that, the Comet "Pro" was relegated to history by the manufacturer and all promotional efforts were directed towards making the Super Pro a resounding success.

The Comet "Pro" lasted four years. For its day it was a superlative listening device, in no small part due to the use by the manufacturer of high quality in-house manufactured components, and constant efforts to keep the circuit abreast of new technology. The good reputation it engendered among the myriad of commercial, government, military, and amateur users world-wide prompted Hammarlund to carry the name forward to its famous successor.

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4. Lamb, J.J., "Looking Over the Circuits of the New Amateur Band Superhets", *QST*, May, 1935