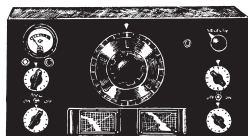


THE COMMUNICATIONS RECEIVER

EDITED BY **WILLIAM FIZETTE, W2DGB**, RR 1, BOX 55, HENRYVILLE, PA 18332
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The National Company HRO-7

The National Company HRO series receivers undoubtedly enjoyed the longest production run in the history of communications receivers—from its introduction in 1934 to the end of the tube models, the HRO-60, in 1964. When the receiver was introduced it incorporated new technology, and at the time World War II broke out in September, 1939 it was the finest on the market. Furthermore, it was easy to use. The relatively untrained operators who were given the job of monitoring frequencies on a continuous basis, for example, only had to be concerned with the one tuning dial. Consequently sales boomed during the war years, and with a product that represented excellence, only superficial changes were made over the years.



The rack-mount version, designated HRO-7R.

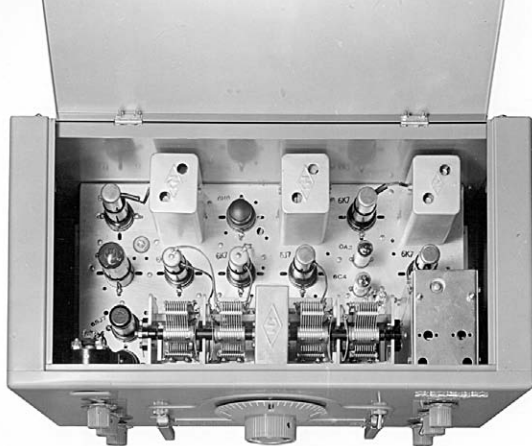
In addition to the basic receiver in both table and rack-mount versions, a group of accessory products were also available, such as speakers, extended range coil sets, coil sets without bandspread, auxiliary power units, and the SPC rack unit that incorporated the power supply, the speaker, and a coil storage compartment.

With the end of the war, thousands of wartime HROs became surplus and were released to civilian markets. National was left with the task of creating a new product, and to fill the gap they introduced (1946) the HRO-5A and then the -5A1. These were essentially pre-war HRO designs with the

All photos are from National Company archives—courtesy of Alan Douglas.



The 1947 National Company HRO-7T with matching speaker, power supply, and six coils.



Top inside view of the HRO-7. Note the strong physical resemblance to the earlier models.



A view of the HRO-7 coil set, with its handles and latches.

addition of a noise limiter and metal tubes. In effect, while -5A was a good receiver, it was an obsolete design, using mid-1930s metal tubes, and with no major technical changes. And at about the same time, out in Cedar Rapids, Iowa, Collins was bringing out the first of the remarkably successful 75-A receivers, with a host of new ideas.

With some reluctance to abandon the HRO concept, National prevailed upon the design team to upgrade the receiver, and in August, 1947 the HRO-7 was announced in *QST*. The new features included a cosmetic redesign (new paint scheme, new cabinet styling, new knobs), a voltage-regulated oscillator, a new automatic noise limiter with variable threshold, and provisions for accessories as a NBFM discriminator and a crystal calibrator, a phono input, a 6-position switch for the crystal filter, a much easier to read calibration chart on each coil set, and lever-action handles to facilitate coil changing.

The matching speaker followed the 1930s design concept of having the output transformer mounted in the speaker cabinet, but in this case was wired into the circuit so that if the speaker was unplugged, the B+ was removed from the plate and the screen of the 6V6 output tube, thus protecting it from burning up. By unplugging the tube to save power, and using headphones in the first-stage audio circuit, the receiver could be run on emergency battery power, such as the 686S vibrator power pack with a 6-volt DC source.

In the face of competition, and with National already promoting other receivers such as the NC-173, the NC-240D, and versions of the NC-183, followed later by the newer HRO-50 and -

60 designs, the HRO-7 did not stay on the market long. Consequently it is considered a rather unusual HRO. Because of its distinctive appearance, and if coupled with the matching power pack, speaker, and coils, it is an interesting and sought-after collectible.

Many of the RF and IF tubes were still the of the double-ended design (grid cap on top) such as the 6K7 and 6J7. Sensitivity was listed as 1 microvolt or less throughout its frequency range. The one concession to progress was the use of a 6C4 oscillator/0A2 voltage regulator combination to help stabilize the high-frequency oscillator.

One design weakness; often the fiber rods used as coil handles have had the ends broken off from rough handling. Also, I noted one receiver that had a marginal paint job, with corrosion along the edges. The radio-phono switch, an interesting feature, is located on the back.

The rack panel version, the HRO-7R, is shown in the 1949 *ARRL Handbook* as the HRO-7C when paired with the SPC type assembly. It is an imposing sight, and enough to arouse the interest of any true boat anchor enthusiast.

If you wish to look up details, and don't have the manual, the Sams Photofact reference is Set #50-Folder #12, and Riders lists the information as being in Volumes 17 and 22. The Sams reference includes a good description of the servicing (removing, replacing, adjusting) of the main PW tuning dial. Finally, I wish to give credit to two sources; first to Alan Douglas, who allowed the use of his photos from the National Company archives, and second, to member Mike Tannenbaum, for his excellent survey article on HROs in the August, 1991 *OTB*. ☐