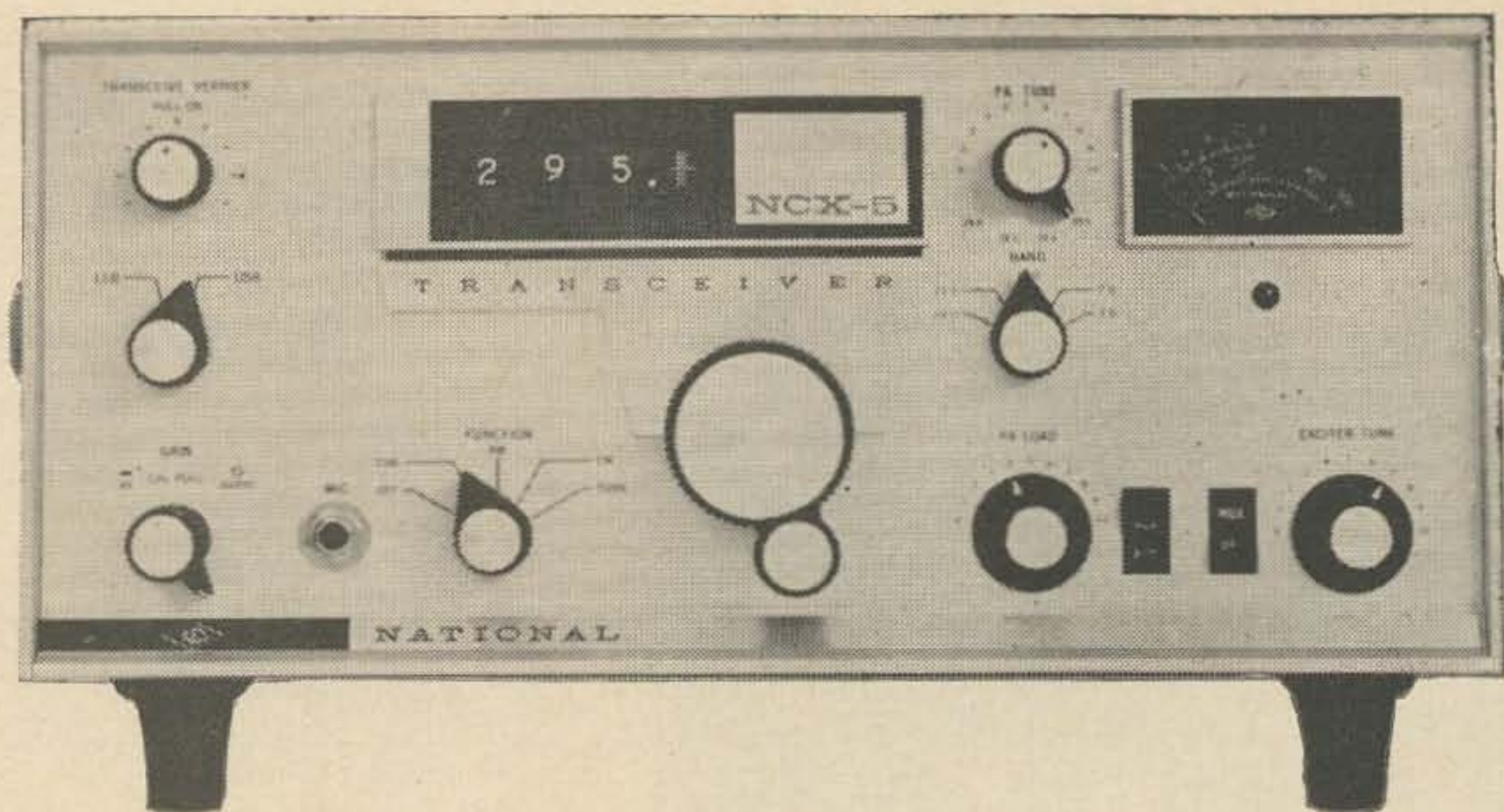




The National NCX-5

The NCX-5 and I became involved when a friend, W3BTQ/5, bought one for use on an extended field trip. Len lives in a no-antenna apartment and asked me to give the rig a thorough shakedown on my good antenna. So I brought the Five home. I was prepared to be prejudiced against the NCX-5 even though I've been a National fan since that day thirty years ago when I first turned the dial on the venerable—then new—HRO. Nevertheless, it seemed improbable that gentlemen from Massachusetts could put all they claimed in a little \$685 box.

I decided first to check the stability and dial accuracy of the rig. On all bands but 15 meters, the calibration ran within a kilocycle. So I followed the vfo linearity adjustments described in the excellent instruction manual. To my amazement, the dial was then within 200 cycles from 3.5 to 4.0 mc. An adjustment of the heterodyne oscillator crystals put all bands on the same standard of accuracy.

Next I adjusted the vfo sideband switching as described in the manual. The Five gave zero beat on either side at 3.8 and was off only a couple of hundred cycles at the band edges. This is unavoidable with this type of sideband selection unless the designer further complicates the circuit.

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Drift measurement was next. Initially the rig drifted about 600 cycles within 15 minutes after a cold start, then stabilized to less than 100 cycles drift. Three adjustments brought the total drift under 100 cycles at 3.8 mc with a little more—up to 200 cycles—at band edges. I was getting tired of waiting for the rig to cool for measurements and the drift was so small that it was becoming annoying to measure it, so I stopped my adjustments.

So I put the Five on the air barefoot. In one 34 minute period at nine on a poor night, I worked a KM6 on 15, a KH6, a W7 and a KA9 on 20, a WØ in North Dakota on 40, and a W5 in Houston on 80. All of the reports ran from S9 to 40-over. All commented on the excellent quality of the signal.

The NCX-5 also works on 10 and on cw. The keying is heavy and sounded very good. I was disappointed to find that I had to lif the lid for carrier balance to get a carrier fc cw, but the new NCX-5 Mark II has eliminated this problem with a front panel carrier insertion control.

Up in the air over RTTY?

By this time, I decided to get scientific. First, I checked for output on all bands. It ran 110 watts or better. Interestingly, the little 6GJ5 output tubes (two in parallel) run very stably with over 200 watts input for five or ten minutes. Most rigs with 6146's in the output experience some drift in plate current under key-down conditions over similar periods. Output was unusually uniform from band-to-band. Incidentally, "side-band suppression" ran 35 db or more.

Next I checked the receiver selectivity. It ran just about as advertised: 2.8 kc at 6 db, with a shape factor of slightly under the advertised 1.7:1.

Sensitivity was excellent. On cw and ssb positions, a one-tenth microvolt signal was clearly audible on all bands. A one-half microvolt signal gave better than 10 db S + N/N ratio on all bands. The S-meter calibration was good, with less variation from band-to-band than most sets.

I had apprehensions about cross modulation and overload in view of the two rf stages in the Five's receiver section. The Five wasn't perfect on this score, but it was better than several medium-to-high priced receivers I had tested. I gave it extensive tests and found excellent front-end characteristics.

AGC on the Five is outstanding. I like it better than any other I have ever used on ssb or cw. For example, one morning I was working two mobiles on 3920. One was three miles away, and was pinning the meter. The other was over 50 miles away, and was running S-7 on peaks. The minimum difference in signal levels (by signal generator calibration) was 44 db. The rf gain was full on, and both signals were completely readable without resetting the rf gain control. What else can be said, other than that the AGC has no snap, crackle, pop, or thump?

The ALC also worked. It appeared to have the 10 db compression ratio claimed. I am not completely enamored of ALC, because too many operators use it as a substitute for brains. Once the ALC compression ratio is ex-

ceeded, all sorts of unfortunate things happen. The NCX-5 isn't any smarter here than any other transmitter. ALC can also be disadvantageous on cw and am. Fortunately, National cleverly disconnects the Five's ALC on cw.

As for the VOX—it worked, too. I prefer a foot or hand switch, but that applies to all rigs, and the NCX-5 has a very satisfactory VOX.

And the dial—it is superb. I was prepared to dislike it because it looked like a counter dial, and my experience has been that they bind, thump, jump, slip. (They have backlash, too.) This one was just a dial that could be tuned easily and read better than most dials. The dial felt as it should. Tuning rate makes stations easy to tune. I put my 200-cycle audio band-pass filter behind the Five, and could tune in cw stations easily. The 3.5 mc and 28 mc ranges tune backwards. The dial very cleverly shifts gears and disguises this, but the crank still turns backwards. National is not unique in using "backward tuning" on some bands, but they have done a fine job of concealing it with the dial. In fact, some users haven't even noticed this until it has been pointed out!

One thing seems to be missing—a noise limiter. The NCX-5 isn't unique here either. If the Five had belonged to me it would have had a Bishop ifnl system, which, while not perfect, is better than no limiter at all. The Five might be able to use an internal keying monitor, too, for us old fashioned types who still use some cw. I use an external, rf activated system, and didn't miss the internal monitor. However, each of these items would add to the price tag.

So, all-in-all, I like the Five. It has an excellent receiver and transmitter. It generates no TVI in this fringe area on Channels 4, 5, 8, or 11. It works. It does what the book says. That dial is a dandy. The vfo is almost unbelievably good. The gentlemen from Melrose have done a fine job on this little box. I still don't know how they did it for the money.

... W5DWT

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