

# AN INFORMAL REVIEW OF THE HQ150

JUST BECAUSE IT HAS HANDLES DOESN'T MEAN IT'S A PORTABLE  
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I dunno about you, but every few years I get the urge to add another piece of equipment to my already overloaded DX desk. So, in early 1985, I was on the lookout for a nice example of tube gear. I wanted a Hammarlund, as they have an enviable rep as BCB DX machines. If possible, I wanted one built in the late 50's or early 60's. Reading NRC's *DX News*, I found an HQ150 for sale by Dick Truax of Louisville, KY. What particularly intrigued me about this set was that it had been extensively modified in the 1970's by Bob Foxworth and written up in the *NRC Receiver Reference Manual*<sup>1</sup>. I had read that article when it originally came out and was impressed with the scope of the modifications plus, it was "history!" "Far out!," I thought, "a classic radio and with some nifty additions as well...where's the checkbook?" It was almost that easy, an exchange of letters with Dick Truax, a money order, and soon I had a large, heavy box taking up a fair amount of the available floor space in my house.

After pulling out my all-purpose hunting/disemboweling/box knife, I was wading in styrofoam "popcorn" and the gray bulk of the HQ150 was sitting on the woodstove. I was the owner/operator of a serious chunk of radio nostalgia with knobs, switches, and a cute set of carrying handles. What next?

Of course, like any other right-thinking DXer, it was time to see if the beast worked as well as expected. I pushed the Icom R70 and Drake R4B off the DX desk, manhandled the HQ150 into position, plugged in an antenna and headphones and hit the power switch. Ahhh! Lights! Static! The smell of tired electrolytic capacitors waking up...and severe audio hum. Uh-oh. Not funny. Not even mildly amusing. Not bad enough to prevent DXing, but like a dripping tap, in time it would make me twitchy (OK, OK...twitchier). What caused it? Impedance mismatch with the 8 ohm headphones I was using? Power supply problems? Grungy tubes? Drawing on three years of experience wrestling ham radio gear into operating shape, I naturally picked the simplest solution; impedance mismatch, until a note from Dick Truax said "no way..." OK, no more Mr. Nice Guy. Time for hands-on trouble-shooting.

The HQ150, weighing about 44 lbs. is not especially "user friendly" when it comes time to pop the chassis out of the cabinet, so I spent a little time debating with the set about the wisdom of dismantling it without causing damage to both of us. (Note: Never argue with a radio that weighs enough to hurt you). But eventually I got it apart, warmed up the soldering iron, and began hi-tech evaluation of the hollow-state circuitry. I beat on the power supply transformer, resoldered a lot of what I hope were cold solder joints and wiggled tubes and a few stray capacitors. One of the joys of tube gear is that you can actually see the components and repair or replace them...or easily damage them beyond hope, but at least you can see what you're doing!

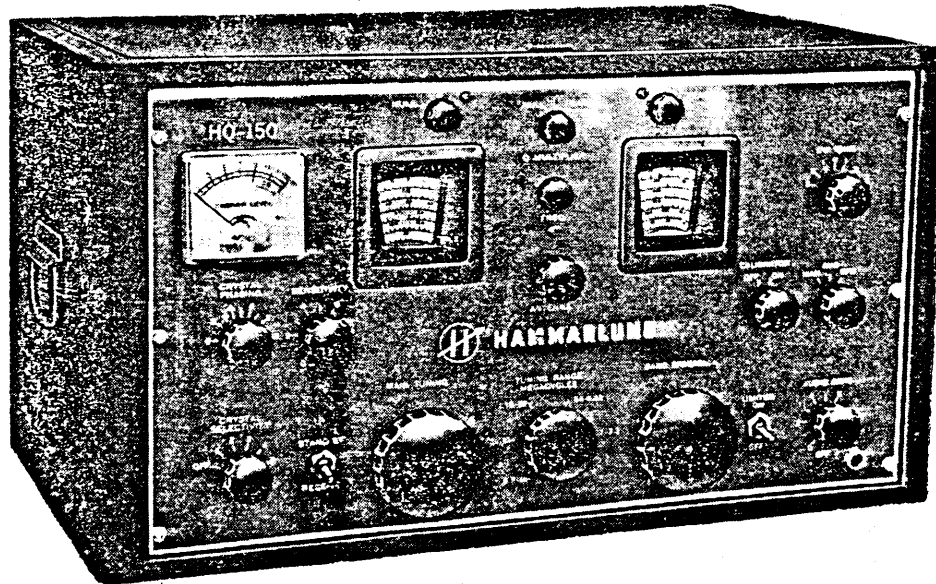
I could have gone to a movie for all the good this personal attention did. Turn the HQ150 on and...HUMMMMM. Well, that didn't prevent me from DXing with it for a few weeks. But in the interests of preserving my sanity, I finally unhooked the set, stashed it above the refrigerator, brought the R70/R4B out of the closet, and went back to "modern, soulless," but quieter, DXing.

The HQ150 would probably still be gathering dust as a spider condo if the first useful idea for getting it repaired hadn't shown up a few days later... a bit scruffy and shopworn, but an idea, nonetheless. A few years previously, I had Steve Bohac rework a Hammarlund HQ180 for me. He did his usual outstanding job. I realized he could probably fix the hummy '150 if anyone could. Letters zipped across the country, and yes, he had the time and inclination to take a look at the set. Down came the '150 from refrigerator exile and off it went to Steve in the wilds of New Jersey. I went back to DX, work, the gym, and impractical, but ingenious antenna schemes. Months passed. I got a tan, helped edit FT, and almost forgot about the '150. However, in early 1987, twinges of apprehension made me drop a note to Steve asking for a progress report. I got a prompt letter back detailing the ups and downs of the HQ150 repair process. It seems the power supply was faulty (causing the hum), several tubes were in less-than-optimum condition, and there were numerous questionable solder joints. All these problems apparently cropped up over time...as soon as the set would be ready to ship, it would go belly-up and Steve would dig back into it, find the trouble, repair it and get it ready to ship once again. Finally, it passed the "ultimate, totally final, I-mean-it-this-time" checkout and was on its way back to me. Ahh! Success!

Well, well...a large, heavy box on my floor. deja vu' or what? Out with the knife, and surprise? No styrofoam "popcorn" this time...Steve had packed and stabilized the set with some sort of expansion foam, so I got to carve a little bit more. At last!

The HQ150 actually glowed with health and vitality. Off to the closet went the Icom/Drake system and OOF! up went (PANT! WHEEZE!) the '150 onto the desk. Let's see: antenna? check. Headphones? check. OK, power on and NO HUM! Just clean, beautiful, tube-generated audio. I was back in the nostalgia DX biz again.

It might be nice at this time to give a quick run-down of the HQ150 specs, before getting to the subjective portion of the review. So for all you specification addicts:



First manufactured in 1956 (reviewed in *QST* for December, 1956), the set incorporates 13 tubes in a 11 1/4" x 20" x 12 1/2" (HWD) cabinet weighing 20 kg./44 lb. and operates on 50-60 Hz/105-125 VAC. Frequency coverage from .54-31 MHz in 6 bands (.54-1.32, 1.32-3.2, 3.2-5.7, 5.7-10.0, 10.0-18.0, 18.0-31.0) with electrical bandspread on the last 4 bands. The bandspread dial is calibrated for the 80, 40, 20, 15, and 10 M ham bands with a 0-100 logging scale for SWBC use. It has a 100 kHz crystal calibrator, a Q-Multiplier, a 5-position crystal filter with phasing control, variable BFO, and a host of other knobs which regulate volume, RF gain, and generally keep your hands busy.

The multiple selectivity positions available give a variety of adjustable bandwidths to play with...the nominal AM bandwidth is 5 kHz @ 6 dB, 9.6-9.8 kHz @ 60 dB, great for program listening and semi-intense DX. Audio quality with this stock filter is a real treat. If you're used to either solid-state "audio" or the earlier Drake gear, this set will make your eyes light up.

For DXing in crowded conditions, switching to the crystal filters yields the following selectivity options:

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|-------------------|-----------------|
| 1: 2.0 kHz @ 6 dB | 6.0 kHz @ 60 dB |
| 2: 1.7 kHz @ 6 dB | 5.1 kHz @ 60 dB |
| 3: 1.0 kHz @ 6 dB | 4.9 kHz @ 60 dB |
| 4: 0.4 kHz @ 6 dB | 3.0 kHz @ 60 dB |
| 5: 0.2 kHz @ 6 dB | 1.5 kHz @ 60 dB |

All the above values are extrapolated from the chart in the manual, so they're rough approximations. Incidentally, the "ultimate rejection" of the filters looks pretty good. Even at the widest crystal position, it's still under 7 kHz @ 100 dB. The crystal phasing control acts a bit like bandpass tuning. Careful adjustment of it will increase the readability of a signal when using a narrow filter. This is helpful when you have 1.7 kHz or less of audio to work with.

Yes, you lose the great audio quality, but it's also possible to sneak up on those QRMed signals (try 49M during your local evening) and extract useful audio, which is the reason for all this tweaking anyway, no?

If you've never used a Hammarlund bandspread scheme before, you're in for some fun times. First, turn the set on at least 30 minutes before you want to use it! We're dealing with a VFO and tubes and all those sorts of drift-prone components, so the time can be spent arranging the ...yup, BAND CHARTS... or more precisely,

calibration charts. Use whatever paper is handy, though graph paper seems to make the whole exercise a little tidier. Use the left hand side for the frequency and the right hand side for the bandspread logging number. Most of you will be able to do a band per night without getting flaky. It's time consuming, but it pays off when that NE Bolivian opening hits on 90M. Nowadays, there are enough stations on the higher bands (49-13M) to get a fairly accurate chart for each 5 kHz of the band in question. 60M and below are a bit harder, but even there the number of easily IDed "marker" stations is good enough for a 1st draft.

The manual charts the frequency coverage for the bandspread dial for each of the 4 bands from 3.2-31 MHz. For example, on the high end of the 5.7-10 MHz band, the bandspread covers 0.9 MHz from 100-0 on the logging scale (you start at the TOP of the band and tune DOWN) 60M is spread out in 1.25 MHz hunks and 90M takes up the entire 100-0 scale (so the full enjoyment of the static and UTEs comes through).

So that this casual evaluation doesn't become *War and Peace*, I'll touch quickly on a few observations and close with an overview. The IF is 455 kHz and on the Foxworth-modified model, provision is made for an external digital readout. ECSS (NSHD, or whatever) is touchy, but patience (and sufficient warm-up time) helps. The Q-Multiplier was one feature I only played with a few times--mostly to get it to oscillate--as the gain/selectivity of the set without it seemed quite good. The 100 kHz calibrator is handy, but an external one with 10/25/50/100 kHz points could be used for better accuracy.

OK...it's getting late, I want to check out 60M...on goes the R70 and the HQ150 has already been on for about half an hour. Hmm, 0300 UTC and the '150 hears everything the Icom does and the audio is better...how about morning DX? Yawn. It's 1230 UTC (don't laugh, that's 4:30 a.m. PST), Asians are all over 60M; Malaysia-4950 is a reliable powerhouse, Hanoi HS-4894.7 mixes with another RTM outlet on 4895. Separable on the R70 and, yup, separable on the Hammarlund, too. In fact, to cut all this short--every station audible on the R70 was audible on the '150...Burma-6570, even a few dinky RRI outlets. On BCB, it was no contest. The Icom tends to overload thanks to my local RF climate but the HQ150 handled the band easily! (I wish I still had access to my BCB loop... I even dabbled in some program-listening...the clear, clean tube audio made "Musica del Ecuador" and George Collinet's "Sound of Soul" almost hi-fi.

Well! Do I like the HQ150? You bet. Would I use it as a primary DX receiver? Certainly! Would I give up the Drake and Icom gear for the sake of tube-only purity? Nope. The Hammarlund is still an outstanding set, but the newer receivers are just easier to operate in today's crowded conditions. I would, however, use it in lieu of the Icom on BCB any time... I've yet to find/use a solid-state receiver that could out-perform a tube rig on that band.

In closing, I'd like to thank Steve Bohac for "making it all better," Bob Foxworth for the original mods, Dick Truax for keeping it available, and all the unknown engineers, techs, and assembly folks at Hammarlund for a legendary piece of gear.

<sup>1</sup>B. Foxworth, "Random Thoughts About Receivers," in *NRC Receiver Reference Manual*, NRC Publications Center, Box 164, Mannsville, NY 13661