

A HIGHLY MODIFIED HQ180A VERSUS A MODIFIED NRD525

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For a whole series of reasons, I happened to be able to spend the entire 1987/88 DX season operating highly modified versions of both the HQ-180A and the NRD-525. The HQ-180A was, as strange as it may sound, as near state-of-the-art as it is possible to get technology that is well over 20 years old. The basic HQ-180A was purchased in Spring 1987, from David Potter. It was in absolutely "cherry" condition with no apparent wear; it wasn't even dusty! The 180 was shipped to Steve Bohac, master "hollow state" rig modifier in New Jersey and he replaced every tube and component which showed any weakness or wear. He peaked all circuits, and added varactor circuitry to allow peaking of the mixer from the front panel. Steve also wired up a new Torrestronics digital frequency readout (to the nearest 100 hertz) and a Drake 2-AQ Q-Multiplier. The Q-multiplier arrangement with normal L-C IF filters is the selectivity arrangement preferred by many senior DXers who operate the HQ-180A. The Drake Q-Multiplier also contains an approximately 5" diameter speaker which was used for SWLing, although its frequency response is mediocre. In essence, everything that can be done to make the HQ-180A competitive with modern rigs was done by ace modifier Steve Bohac. Paying "retail", the total investment in the HQ-180A was approximately \$850 in the summer of 1987.

The NRD-525 was also highly modified, this time by Dwayne Jones, the soldering iron maven at Universal Shortwave in Reynoldsburg, Ohio. The 525's truly excretable IF filters were complemented by two of the fabled Collins mechanical filters - a 1.9 kHz and a 2.4 kHz. The highly decorative but nearly useless so-called digital LED S-meter on the 525 was left in place and operating. However, this 525 now sports a 3" diameter real electro-mechanical S-meter mounted externally and fed from a female jack mounted on the rear panel. Investment in the 525 so modified was above \$1,600, slightly.

It seemed a fair test: a highly-modified version of one of the "finest ever" tube-type receivers going one-on-one against a highly modified version of the latest "state of the art-top of the line" black box from Tokyo.

I do not possess the instruments to produce, nor do I care about, "test bench" numerical comparisons of various design parameters of communication receivers. The results listed below are subjective. However, they were developed throughout an entire DX season with the two receivers sitting side by side and sharing three antennas. (AD Sloper, 60' L antenna, 1200' Beverage).

Basic Receiver Sensitivity:

On the Tropical Bands and on Medium Wave, the NRD 525 is more sensitive than the 180A to the very weakest signals, but not by much! About 90% of the time, there was no noticeable sensitivity difference between the two receivers. However, on a few very important signals, the 180A got a "strong het" while the 525 produced useable audio. To repeat, 90% of the time, there was no discernible difference in sensitivity. However, never once did the 180A out-perform the 525 in this important arena.

Basic Receiver Selectivity:

As modified with \$350 worth of Collins mechanical filters, the 525 is more selective than the 180A (under most normal circumstances) when used in either the AM or SSB modes. The notch filter on both sets is helpful. HOWEVER, THE NOTCH FILTER OF THE 180A IS NOTICEABLY MORE EFFECTIVE THAN THAT OF THE 525. For this reason and probably due to the fact that the total system design of the 525 is radically different from the 180A + the Q-Multiplier design, there were some band and signal conditions under which the 180A actually out performed the vaunted 525 + Collins arrangement!

Audio Quality:

Audio quality is not just a concern when doing relaxed shortwave listening. When the audio of a weak signal may already be distorted by poor transmission equipment and by having the signal bang around the turbulent ionosphere on an almost random basis, I do not want to loose ANY intelligibility due to inadequate audio fidelity at the receiver.

The audio quality race was won hands down by the HQ 180A. The general audio quality of the 525 is not good. After much experimentation, the author found that only the \$60 matching NRD headphones delivered the most nearly-acceptable audio. Even going to those lengths to find the best advantage for the 525, audio from the HQ-180 was subjectively superior in all cases.

Stability:

The NRD-525 is absolutely rock stable. I don't know how they did it, but flip the thing on, set the frequency to the nearest 10 Hertz (as in 9553.07) and that is where this amazing receiver will be six hours later. Like most tube receivers, the HQ-180A wanders about plus or minus 500 Hertz as it heats up and then isn't too steady after that. On narrow filter settings, expect to tweak the tuning every five minutes or so. I found this drifting to be no problem at all, as I am very much a "hands-on" DX'er. However, a DX'er planning to do a lot of "hands off" timed recordings off the air would have some difficulty with the 180A.

Automation and Memories:

Truly, these capabilities are the major reason one might choose the much more expensive 525 rather than the highly modified HQ-180A. Having 200 memories which each capture frequency, reception mode, filter configuration and AGC setting is almost like having 200 radios! The 525 invites us to create entirely new operating patterns for more effective DXing. The HQ has no automation and the only memory available is that which is between the ears of the DX'er.

Final Word:

You cannot purchase the NRD-525 as discussed here for less than about \$1600 - the additional cost is that of a minimum of two Collins mechanical filters. Without the Collins filters or something nearly like them, the modified HQ-180A would win the selectivity contest every time.

It is possible to get the 180A as configured here for considerably less than the author paid since the author paid a premium for an almost museum quality 180, and purchased the Q-Multiplier and the new digital readout separately. Although good 180's are getting very hard to find and the price is going back up, a good 180 with Q-Multiplier and digital readout already aboard can probably be had for \$400 in an uncertain condition. If you are a technically adroit DX'er, you can probably do most of the modification and reconstruction that Steve Bohac did for me in 1987 for under \$50. Is the automation, stability and very slight increase in weak signal "hearability" worth almost \$1200?? I don't think so. However, if money is no object, I'd get the 525. It is a better radio... but not by much.