

Report on the Drake R-4A Receiver and T-4X Transmitter

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After getting off to a bad start with an inexpensive receiver which proved to be unsatisfactory, I decided to purchase a really good receiver. For some time I studied the specifications of the available receivers but overlooked the Drake for some unknown reason. One day, I read the specifications of the Drake Receiver and was astonished by its many features. After much comparison with other receivers I found that I could find no other receiver at any price with all of the following features:

1. Permeability tuning
2. Transistorized VFO
3. Passband Tuning
4. Crystal lattice filter in first *if* stage
5. Highly selective and adjustable tuned circuits in 2nd *if* stage.
6. Noise blanker as standard (not optional) equipment (not merely a noise limiter)
7. 1 kHz tuning accuracy
8. Notch filter
9. Auxiliary band coverage capabilities

I bought my R-4A in April 1967 and was immediately impressed by its good appearance which somehow is not done justice by the catalog pictures of it. I also noticed its extreme quietness. The stability is remarkable. No drift has ever been detected even from a cold start. My homemade CW crystal controlled transmitter has more drift than the R-4A. No retuning has ever been needed. The skirt selectivity is amazing with any normal S-9 signal more than 1 kHz away being inaudible. After using the receiver for a while I began to wonder if the unit was more selective than the standard communications receiver employing a sharp CW crystal filter. So I got such a receiver on loan

and used it and found that while it had a very pronounced peak the skirt selectivity was not nearly as good as that of the R-4A and that overall the R-4A was vastly superior and more selective, and much easier to tune.

The Drake has passband tuning which makes it superior to any receiver which does not have this feature. This is an adjustable or tunable circuit in the 2nd *if* stage which may be tuned over a 6 kHz range. The receiver frequency is not changed by the passband tuning control, the control merely selects and peaks the desired frequency out of the 6 kHz wide signal which comes through the crystal filter in the first *if* stage. The lattice filter provides the immunization against cross modulation from nearby powerful stations, and the skirt selectivity and the passband tuning system provides the actual main selectivity which is adjustable from 4.8 kHz to .4 kHz in four steps. 2.4 kHz and 1.2 kHz is provided for SSB use. Upper or lower sideband selection is also made with the passband tuning control. The control can be used to select any one of several stations near the same frequency without having to move the main tuning knob. There is little chance of losing a signal on CW since once the station is heard, the main tuning can be left unmoved and the signal peaked by using the passband control. No variable BFO is used, and none needed, since after peaking one signal all further signals come in at the same audio pitch. By using the high selectivity, Effective T notch filter and switching to the opposite sideband, if necessary, it is rare indeed that a station cannot be copied through QRM. Many times my contacts have referred to QRM on their end and I have replied that they are 599 with no QRM. Some of this is due to the different locations, but most of it is due to the selectivity of the receiver.

The noise blanker eliminates most man-made type interference completely but has little effect upon static. Setting the T notch

filter slightly off to one side of the desired signal helps somewhat in copying under heavy static conditions.

Turning the passband control to the center position or slightly to one side of center makes weak CW signals come in stronger and for extreme QRM conditions setting the control toward the extreme right or left position increases the selectivity while making the receiver less sensitive. For SSB the 2.4 kHz position is provided and for extreme QRM conditions the 1.2 kHz position works wonders.

The main dial is marked in 25 kHz increments and a skirt on the main tuning knob is marked in 0 to 25 kHz increments. The claimed accuracy is within 1 kHz across the dial but I have found it to be better than claimed. The calibration holds within about 200 Hz from band to band. Resettability is perfect. No backlash or slack exists.

Drake T-4X

When I purchased the receiver I had no idea that I would ever get the matching transmitter. But after using the receiver for almost a year I was so impressed and pleased with it that I decided to get the T-4X. It has VOX, PTT, CW sidetone and operates at 200 watts on AM as well as SSB and CW. AGC is employed on SSB and eliminates overmodulation even though the gain might be turned to maximum. No TVI has been detected even to a portable TV sitting right next to the transmitter. It seems to pack quite a punch for 200 watts. I have received many 40 over S-9 reports and many people thought I must be using a linear. I am using a dipole mounted about 15 feet high.

The real beauty of the combination is its flexibility of frequency control. At the mere flip of one switch separate frequency control can be obtained or transceive operation can be selected with either the receiver or the transmitter controlling both units. One VFO can be left in the CW band and the other in the phone band and the proper VFO is selected instead of retuning across the band.

The extra VFO is very useful in finding a clear frequency while the other VFO is left set on the frequency of the person you are working at the moment.

Of course, if someone starts drifting you can switch to separate frequency control to stay with him with your receiver without altering the transmitted frequency.

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A regular zero beat system is used for CW but for SSB a "canary" or warbling type of beat tone is heard. When the units are tuned to within 2 or 3 warbles per second, the separate units are tuned to within 2 or 3 Hz of the same frequency. This is much more accurate than the regular zero beat method normally used which might be in error by 100 Hz or more.

The new T-4XB and R-4B appear to use the same basic circuits with certain improvements such as: a 50 kHz calibrator for sub-band marking, and a newer and better crystal lattice filter in the transmitter for even better sideband suppression. They also have a new tuning knob and knob skirt or dial and a new chip resistant paint finish.

If you will compare I think you will agree that none of the competition can equal the Drake Line.

... WB4EFA