

The Alinco DX-70TH HF/VHF Transceiver

BY BUCK ROGERS*, K4ABT

Across the half century that I've been an amateur radio operator, I've operated just about every kind of amateur radio station that can be imagined. My first transmitter was a homebrew rig constructed on an Atwater-Kent chassis that I cannibalized from a radio my grandfather had stashed in the barn loft. The power transformer was not the rock'em sock'em type that was used in later models. This one was used to power the number "45" audio output tube, and supply B+ to other plate circuits in this museum piece. I was able to get enough power out of it to make more than 300 volts, but even then I had to use a bridge circuit and the current was quite low. What I did not know was that the filament winding delivered approximately 4 volts AC!

After putting the power to the 6AG7 oscillator and the 6F6 final, I was only able to get about 5 watts out of the beast. I soon discovered my problem: The tubes I was using needed a full 6.3 volts (AC) to kick them into full emission. Once this problem was corrected, I found myself with a "killer-watt" that was making almost 30 watts of RF. Well, okay, 20 to 30 watts. As best as I can recall, it would illuminate a 25 watt bulb to full brilliance. Heaven only knows what the impedance of the bulb was. It didn't matter anyway, since I had no way of measuring it—while it was hot or cold.

I went through a few rock crushers (crystal controlled) rigs. Once I built a 304TL rig that ran almost 400 watts. I had found a pole-pig (utility power company "pole transformer") with a hyper-seal core. I turned it around and fed the 220 volt AC "drop side" and was able to get 2700 volts out. After I built the 866A mercury vapor bridge rectifier around it, I was able to provide power for just about any kilowatt arrangement I wanted. The problem was, I didn't have a more powerful tube to drive nor the funds to get one.

As time passed, a new firm called The Heath Company came into the amateur manufacturing marketplace. I had a Sky-Buddy receiver that did well. The Heath Company introduced a transmitter kit called the AT-1. I gazed at the AT-1 photo



The Alinco DX-70TH HF/VHF transceiver.

in an old issue of *CQ* magazine for a long time. It had some features I liked—namely, a meter! It boasted a power of 35 watts, and they supplied all the parts and tubes to make it air worthy. Best of all, the price was well under \$50! By today's standards that's not a lot, so I won't say how much below \$50 it was, because I don't like to see grown men and women cry.

I worked hard that summer, picking cotton and helping on my grandfather's farm, and at the end of summer I had amassed a fortune—enough to send a US Postal money order for the AT-1 to the Heath Company in Benton Harbor, Michigan. Yes, it was the one with the black knobs (in later models, Heath used gray knobs with the AT-1).

The Best Part of The Story

Now that the amateur radio history session is over, the focus of the article is just about to begin.

The HF and VHF rigs and transceivers

I've owned and operated over the decades all have been somewhat large and in some cases "hernia-makers," to say the least. They were not the type and size that you would care to haul up the hillside to the field day or contest site. Here is where the best part of this story really begins.

This week I experienced the most fun with the most feature-filled HF/VHF transceiver I've ever owned, the Alinco DX-70TH. This unit coupled with an automatic antenna tuner such as the Alinco EDX-2 will operate and tune into a wire or a mobile whip at the touch of a button.

The Alinco DX-70 comes in two varieties: the DX-70T and the DX-70TH. The DX-70T runs 100 watts on the HF bands and 10 watts out on 6 meters. The DX-70TH runs a full 100 watts output on all bands, 160 through 6 meters.

Having A "Field Day"

The fun really began as I sat waiting for the clock to strike 2 PM on Saturday, June

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28th, Field Day. At almost the same moment as Field Day activities began, the 6 meter band opened to the west and north-west. I was operating as 2E VA FM07. Power was from a 1400 amp, 13.8 volt DC Dynasty/Voltex battery bank that was kept charged by a 4' x 8' solar-panel array from Fowler Solar Electric.

For the next 7 hours I had my amateur radio fun experience for the year, working stations in Nevada, Wisconsin, North Dakota, South Dakota, Minnesota, Missouri, Illinois, Idaho, Oklahoma, Texas, and California. All this fun was being had with the Alinco DX-70TH, but the rest of the combo was nothing to write home about. The part that leaves me aghast is the puny antenna support structure that I used to temporarily raise my three-element beam. I had not planned to do a lot of 6 meter work, so I placed an MFJ-1762 three-element beam on two 10 foot sections (20 feet) of light-duty mast. No rotor, only the arm-strong rotation method was needed. However, I did not have to move the antenna all afternoon. The 100 watts SSB out of the Alinco DX-70TH took care of the rest. I did make one change in the default setup by pressing the function/H/L switches and rotating the multi-function control knob to set the Digital Audio Processor ON. After I made this change, my signal reports began to reflect it. I actually got hoarse answering all the calls. My log of contacts on 6 meters sideband is a testimonial to the performance of the DX-70TH and the 20 foot high MFJ-1762 three-element beam.

Before I get into how to interface the DX-70TH for packet operation (and other digital modes), let me fill you in on a few of the features of this super-compact little box of amateur radio dynamite.

Just For Openers

The DX-70TH covers the amateur bands HF 1.8-30 MHz and VHF 50-54 MHz in the SSB, AM, FM, and CW modes. Both the DX-70T and DX-70TH have separate antenna terminals for the HF and 50 MHz bands.

The receiver of the DX-70 is general coverage, covering from 150 kHz to 30 MHz and 50 to 54 MHz in all modes. The super-compact body size is approximately 7"W x 2 1/4"H x 9"D (178 mm x 58 mm x 228 mm). The detachable control panel allows you to install the transceiver with greater flexibility, whether it be in your car or your ham shack.

When it comes to getting rid of the unwanted noise, the interference eliminators built into the unit stand tall. The IF SHIFT function; built-in narrow filter standard for SSB, CW, and AM modes; and RF attenuator make up a very impressive means of rejecting unwanted signals.

If you like CW operation, the DX-70TH

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ALINCO DX-70TH MIC PORT

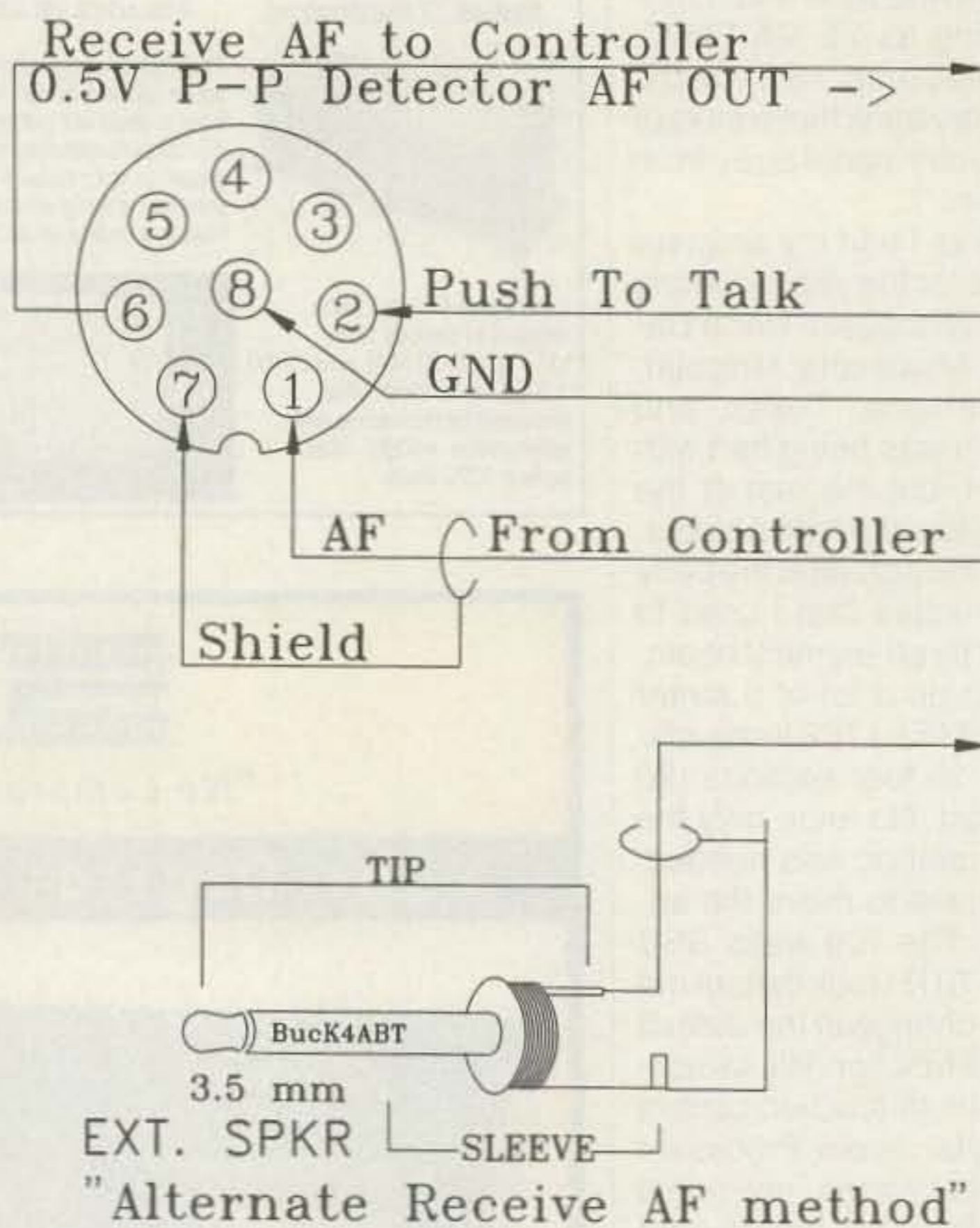


Fig. 1—The Alinco DX-70TH interface.

enables you to receive CW signals from either upper or lower sides of the carrier frequency. A Selectable Sidetone and Selectable Full Break-in (QSK), Semi Break-in (in 7 steps), and Auto Break-in (delay time automatically adjusted with keying speed) place you in the class with the top CW competitors.

There's much more, but space is limited, so I'll stop with this one final feature note: The Alinco DX-70TH has 100 memory channels that enable the user to store modes, filters, split-frequencies, AGC, attenuator or pre-amplify, and noise blanker settings. Needless to say, I am truly impressed with the DX-70TH.

Digital Interfacing Made Easy

When the DX-70TH arrived, I read the manual—well, almost all of it. The manual was clear, describing the feature details within the unit itself.

I set some of the features of the DX-70TH into action and connected the antenna. Next I attached the unit to my Astron 13.5 volt, 25 amp DC supply. I turned it on, tuned to a 75 meter SSB frequency, and tuned it. Within a short time I was in QSO (mid-day) with Jim, N4JA, in South Carolina and Blant, WA4NRU, in Georgia.

Not bad when we consider they had horizontal antennas, my antenna was a 40 foot vertical length of wire, my DX-70TH was barefoot (no linear/PA), and my QTH is central Virginia. The opening bell with the DX-70TH was ringing clear.

My next step was to turn on the solder station here in the lab to interface the DX-70TH to my multi-mode digital controller. I was about to try the unit at HF in the digital modes.

First I had to find the mic data I/O port instructions in the manual. A quick look at the table of contents revealed a complete section dedicated to digital mode(s) interfacing. A turn to section 2-11, page 2-22 of the manual brought me to something similar to fig. 1. The line at the top of the page reads "RTTY, Packet, FAX, and SSTV Operation." That about covers it, unless you want to toss in the rest of my digital interests, such as AmTor, G-Tor, PacTor, and a few other "Tors."

For now we are having fun with the digital modes and the Alinco DX-70TH. The DX-70TH is priced at \$1074, while the DX-70T is \$957. For more information about the DX-70 series, contact Alinco Electronics, Inc., 438 Amapola Avenue, Suite 130, Torrance, CA 90501 (telephone 310-618-8616, fax 310-618-8758). ■