



PCARA Update



Volume 26, Issue 2 Peekskill/Cortlandt Amateur Radio Association Inc. February 2025

Silver suggestions

On Sunday January 5, 2025 we held our January PCARA **Membership Meeting** and the Annual PCARA **Bring and Buy Auction** at the Town of Cortlandt CUE Room in the Cortlandt Town Center. There were 20 folks in attendance and there was a short formal meeting before the auction.

Vice President Bob N2CBH brought up the point that we need to come to a decision at the February meeting regarding the **25th Anniversary Silver Jubilee Activities**. Among ideas are a picnic, Parks on the Air (POTA), Special Event Station, or group trip (Dayton Hamvention anyone?) Please give it some thought.

David KD2EVI presented the Treasurer's Report and we're still solvent and in the black!

A suggestion was made by David K2WPM that we should have an HF net in addition to our weekly 2 meter nets to allow members who live out-of-state stay in contact. There was also a subsequent suggestion we establish Echolink connectivity to the 2 meter repeater for remote users.

The auction had four tables of equipment laid out for inspection, bargaining, and purchase.

Another **PCARA Breakfast** was held on January 18, 2025 at 9:00 a.m. at Uncle Giuseppe's Marketplace in Yorktown Heights, NY, with 13 members in attendance. The breakfast was followed at 11:30 a.m. with a PCARA VE Test Session (ARRL VEC) at the Putnam Valley Free Library which had three candidates in atten-



Members inspect items on offer at the January 5 Bring and Buy Auction. [Rob AD2CT pic.]



The first PCARA Breakfast of the New Year took place on January 18 at Uncle Giuseppe's in Yorktown.

dance. One passed Technician, the second passed Technician and General, and the third upgraded from General to Extra. Congratulations!

Please mark your calendar with these upcoming events:

- Saturday February 1: **Monthly meeting**, 10:15 a.m. Putnam Valley Free Library, 30 Oscawana Lake Road, Putnam Valley, NY.
- Saturday February 1: **PCARA Laurel VE Test Session**, 11:30 a.m., Putnam Valley Free Library in Putnam Valley, NY. Candidates please contact Dave KF2BD at daveharper@vivaldi.net to register.
- Saturday February 15 at 9:00 a.m.: **PCARA Breakfast** at Uncle Giuseppe's Marketplace, 327 Downing Drive, Yorktown Heights, NY.

Our next scheduled **PCARA Membership Meeting** is at 10:15 a.m. on Saturday February 1 at the Putnam Valley Library in Putnam Valley NY. I look forward to seeing each of you there.

- 73 de Greg, KB2CQE

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Net night

Peekskill/Cortlandt Amateur Radio Association holds a roundtable net on Tuesday evenings at 8:00 p.m. and a directed 'Old Goats' net on Thursday evenings at 8:00 p.m. Both events take place on the 146.67 MHz W2NYW repeater, offset -0.600, PL 156.7 Hz.

Join the roundtable to find out what members have been doing or join the Old Goats with net control Karl N2KZ for news and neighborly information.

VE Test Session

PCARA's first Volunteer Examiner Test Session of the New Year took place on Saturday January 18 at Putnam Valley Library. Construction work was underway in the Community Room, so this session took place around the tables of the adjacent Meeting Room.

ARRL VEC Team Liaison Mike W2IG had been contacted by four candidates — in the event, one canceled and three candidates arrived at the library for testing.

Gabriel, KD2VAI from Rhinebeck NY successfully passed Element 4 and upgraded from General to Extra.



PCARA's January 19 VE Test Session was held in the Meeting Room of Putnam Valley Library.

Christopher Wells, currently at college in Lewisburg PA passed Element 2 (Technician) and Element 3 (General), qualifying for a new General Class license. Christopher was just too old to qualify for ARRL's Youth Licensing Grant Program which refunds the initial FCC license application fee and reduces the ARRL-VEC test fee.

Sal DeSimone of New Milford CT passed Element 2 and qualified for the Technician license. Congratulations to all.

David KD2EVI presented both newly qualified candidates with a copy of the *ARRL Handbook* from the library of Henry KB2VJP (SK).

Thanks to the six Volunteer Examiners who took part — Mike W2IG, Rob AD2CT, Joe W2BCC, Lou KD2ITZ, Verle W2VJ and NM9J.

At press time, there was no word from the FCC regarding new licenses or call signs for the three candidates.

PCARA's next VE Test Session is scheduled for Saturday February 1, 11:30 a.m. at the Putnam Valley Library. This will follow on from the 10:15 a.m. monthly meeting. February's session will be coordinated by Laurel VEC (no test fee) and candidates must contact Dave KF2BD using e-mail: daveharper@vivaldi.net.

Test Session for
FCC Amateur
Radio License

Saturday
February 1st
11:30am

Free Study Guide
Available

Get your amateur radio license and discover...
Camaraderie – Community Service
Emergency Preparedness – Fun
Science – Technology

Laurel Volunteer Examiners – No Testing Fee
There are no Morse Code requirements
Must RSVP - daveharper@vivaldi.net



Graphic courtesy of Lou, KD2ITZ.

Adventures in DXing

- N2KZ

Be A Good Friend

I once asked a beloved aunt “What is it like to be old?” She replied that many things do not change at all. The real difference lies in what you can no longer do. You often have to make adjustments to follow your passions.

Advancing age took her away from her passion for gardening. She lost the ability to be flexible enough to kneel and work the soil. She could no longer lift larger plants and fertilizer bags. She lost her strength to rake and hoe. Ah! but she could work with house plants. All my aunt needed to do was bring her passions inside.

It is not much different for us champions of amateur radio. When you reach your 70s, 80s, 90s or even make it over 100... you need to adapt your hobby and passions to continue your lifelong pursuits. How many hams have you known who have ‘gone dark’ when an outdoor antenna or trusty transceiver failed? Don’t let this happen to you!

You need to be clever and creative to continue on life’s highway with a key or microphone in your hand. It can be done in so many ways. As our generation of amateurs slowly ages, these challenges keep moving further upstage for our attention. You *can* keep going. You just need a little push of ingenuity... and friendship!

One way is to get down to basics. Two-meter FM easily holds the title as the most basic band to reach and enjoy. If you are lucky enough to be near a repeater, all you need is a handi-talkie and a few minutes to program it. A complete configuration can be obtained in a brief meeting with a knowledgeable and fast-fingered friend. “Thanks so much! That was easy!”

Too far away to use just an HT? If you need more range, you can try using a self-standing short vertical antenna indoors like the famous Comet GP-1. Just four feet tall, it can be hidden nearly anywhere and give your signals the necessary boost you require. A short transmission cable and maybe an adapter (PL-259 to the correct variety of SMA) may be all you need to make your HT viable and useful for a local chat. This arrangement could keep you on the air for a long time!



Comet GP-1 antenna is just 4.2 ft high, covering 144-148 MHz and 442-450 MHz.

Here Spot!

Optimizing indoor antennas often needs a dose of trial and error. How do you find a good spot? It all begins with having a friend to listen to your tests. “How do you like it now?” will become a very useful phrase! Antennas enjoy being high up in the air and free and clear of obstructions that could detune them and ruin your attempts. Count your luck if you have a two (or more!) story house on top of a hill. Go upstairs and see what you can find!

Beware of evil spirits lurking around! Find a good clear space where your antenna can stand without obstruction. Stay away from attic insulation with aluminum foil backing. Those batts of pink fiberglass could attenuate your signals dramatically. Big plumbing pipes, air conditioning and clothes dryer ducts and any other large pieces of metal are not friendly to antennas at all!



Fiberglass backed with aluminum foil can block RF signals.

Many older windows have high lead content and can detune an antenna with ease. I once tried using my four-element two-meter Yagi indoors during a massive rain storm. With my mobile transceiver and power supply all set on my dining room table, I pointed my Yagi in the right direction towards a window, pumped up the RF power to a full 55 watts of FM... and nobody could hear me! Why? My windows are filled with lead. I might as well have been in a steel basement far from the light of day!

On the other hand, the same Yagi, now in an upstairs bedroom, can make an excellent radiator. Point the antenna with only sheetrock and shingles in the way and your signal can really go the distance. I worked North Carolina on two-meter FM simplex with an indoor Yagi looking at a wall. It can be done!

Sniff! Sniff!

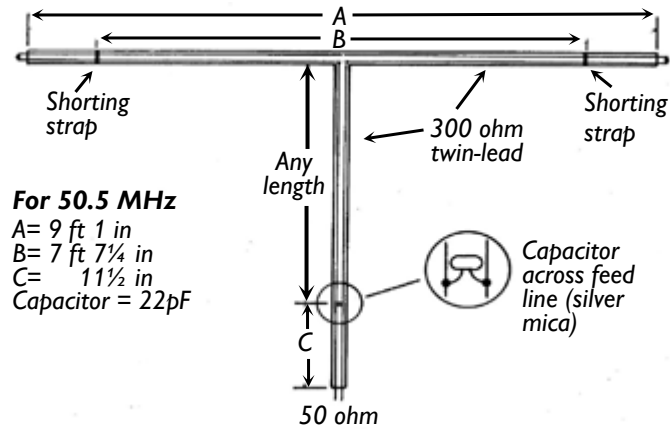
Do you have a satellite radio inside your house? You can use it as an interesting way to snoop for a good antenna location. Back 25 years ago, I was having trouble receiving XM radio in my bedroom. “The antenna is sitting in the window. That should be a clean shot to the satellite!” (But it wasn’t.)

Imagine my surprise when I was moving my satellite radio antenna around and found that it could only lock onto a signal when it was *away* from a leaded window! A satellite radio will instantly reveal if your prospective antenna position is clear to the sky. Find a spot where the satellite radio antenna locks to the SiriusXM signal and try your amateur antenna in the same

spot. Hint: Your satellite radio does not require a current subscription to see a signal. Any Sirius or XM satellite receiver will bring in their 001 'barker channel' regardless of subscription status. See if you can see the sky!

Up to the Attic

If you happen to have an attic, you may have struck gold. What a wonderful place to hide your antennas! A 6-meter folded dipole is only 9 feet across. I built one years ago and it hangs in my attic, held up with bakery string.



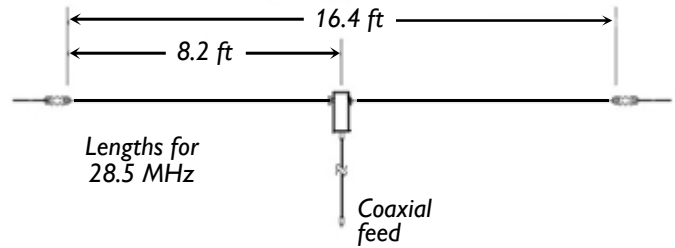
Folded dipole constructed from 300 Ω twin ribbon feeder will fit into most attics.

I have worked many grid squares with this dipole attached to my ancient USB/FM/CW Yaesu FT-690R II with its optional ten-watt linear amplifier. QRP VHF CW!



Yaesu FT-690R II transceiver covers 50 - 54 MHz with 2½ watts output barefoot. [N2KZ pic.]

If you have extra room, try squeezing in a simple 10-meter dipole at only about 16 feet long. I also installed two VHF/UHF TV antennas and a long wire shortwave antenna up there, too! Remember: When antennas are indoors they are shielded from weather and



Wire dipole for the 10 meter band is just over 16 feet long and should fit within most attics.

other outside abuses. One of my indoor TV antennas was bought from Lafayette in the mid 1960s and continues to function well to this day. It is now in the third house it has been mounted in — this time snuggled up in the attic of my garage. Indeed, indoor installations can serve you for a lifetime!

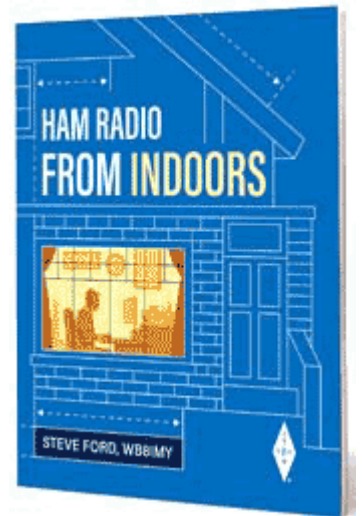
Ones and Zeros

There are also digital versions of using an HT or mobile transceiver to reach the world from within your house. You need no antenna to use Echolink to reach amateurs all over the world. This application is available for both Android and Apple cell phones. It is so easy to use and enjoy and completely portable. I have used Echolink all over the world to reach local repeaters serving Westchester.

DMR Digital Mobile Radio is also an option. You can roam around your house or neighborhood with a digital HT that links to the world using a little hotspot interface attached to your Internet access point. Read all about these modes in our *PCARA Update* December 2024 issue (pdf file).

Read The Book!

The ARRL has a lot of good ideas about operating inside. Their new book 'Ham Radio From Indoors' by Steve Ford WB8IMY is filled with strategies for operating the HF bands from limited space while adhering to RF exposure field strength regulations. You'll also find some handy tricks to tame or eliminate household electrical noise sources so you can work more weak signals. Page back to the book's appendix to discover some ingenious antenna suggestions. It's an interesting read that could make a big difference in bringing more signals into your life... and ears! See full details at: <https://home.arrl.org/action/Shop/Store>.



Admirable Advocacy

A vital key to amateur radio satisfaction and success is being a good friend to fellow hams. A little kindness goes a long way. Some basic tasks might prove difficult or impossible to some — but easy for you! It could be as simple as help replacing a hard-to-reach light bulb or just dressing cables to create a neat shack.

A friend can easily rise to superhero status when it comes to antennas. You may think an outdoor antenna is an easy-to-make rudimentary ingredient for getting on the air. Consider what your world would be like if you didn't have one! A simple dipole or end-fed wire could be a life-changing breakthrough to someone confined in a single room with little hope for escape!

Having 'just the part I need' can also bring joy to others. Do you have an AGC 10 amp fuse? A solder-type PL-259 and a UG-175 reducer? How about a handful of Ty-Raps or spade lugs? Radio Shack is now a distant memory. All I need is a quick fix! You could make my day.

Tutoring friends in Morse code can also blossom into quite an adventure. Not only do you introduce students to CW jargon and shortcuts, you also wind up including all sorts of tidbits about operating practices and everything else you can encounter.

Beginners may not have any idea about the informal neighborhoods that are integral to each band. How do you handle a contest? How do you get your weak signal noticed? What makes a good QSO and how do you create it? What does FB OM UR 5NN BTU mean? There is an endless list of things a seasoned ham can share with a newbie finding their way through a thick forest of details. After they get their feet wet, nothing will stop them. "The lake is down there... just follow the path!" (Maybe I should re-name the course 'All about CW and 40 meters.')

Quick Fixes

Here are some random quick fixes for you to try and share with others: Are you always annoyed when you try to unravel a plastic garbage bag that is hopelessly stuck together? Take two pieces of Scotch tape and tack one on the front of the folded plastic



Use Scotch tape to open a plastic bag sealed by static electricity. [N2KZ pics.]

bag and the other on the opposite side. The adhesive on the tape can delicately hold on to the very thin plastic much more easily than your big fingers and nails can! Pull the edges of the tape pieces in opposite directions and voilà! Now the bag edges are free... and so are you!

How do you cover a large bundt cake after it has come out of its pan? To keep the cake safe until the following morning, do you have to halve and quarter it until you can put the pieces into smaller serving



How to cover a bundt cake, with its typical donut shape. [N2KZ pic.]

savers? No! You just need a quick trick. Invert a great big salad bowl or mixing bowl (especially if it has a snap on top) for a perfect bundt-saver!

AC power multi-strips allow you to plug in many devices when you may have only one or two available AC wall outlets. External power supplies (wall-warts) can quickly cover more than one multi-strip outlet negating the full usage of the strip.

Instead of plugging in the power supplies directly to the strip, extend each available outlet by using one-foot AC extension cords. Now all your power supplies and other devices can make use of just one power strip!



A short electrical extension cord allows a low voltage power supply to be used with a crowded power strip. [N2KZ pic.]

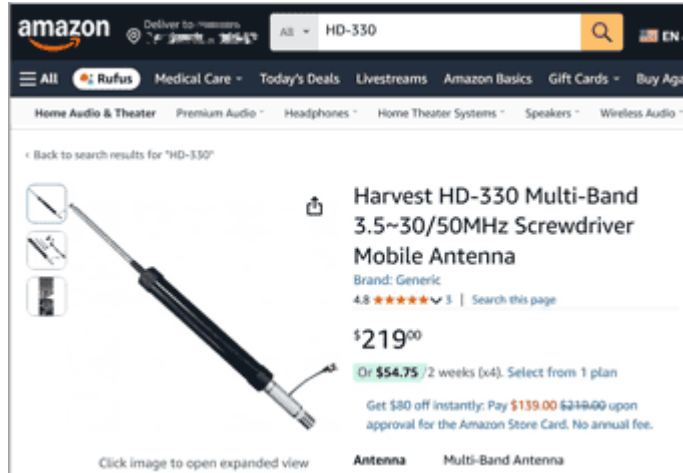
There is an answer for every dilemma if you take some time and think it through. Otherwise, spend some time with your best friends Google and YouTube... or ask a friend! It can make a world of difference!

Until next month, 73 and dit dit de N2KZ "The Old Goat".



The \$200 screwdriver antenna – K2WPM

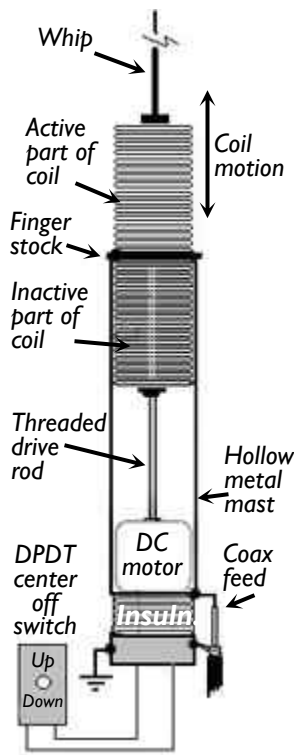
Yes, it's true, there is a screwdriver antenna on the market that won't break the bank. Currently priced at \$219 on Amazon, it's the **Harvest HD-330**.



For those in the know, it looks very much like the Diamond SD-330, a popular screwdriver antenna selling for about \$400 at many radio outlets. Who makes it? Amazon says “Generic.” I recall seeing this antenna being manufactured by Taiwan-based Gabil Radio. Though the company has a website and store on Amazon, they do not list the HD-330. Never having used a screwdriver antenna, I wanted to find out how it works.

What's a screwdriver antenna?

The concept of the screwdriver antenna is generally attributed to Don Johnson, W6AAQ (SK). The antenna uses a variable loading coil with a whip on top. The loading coil adds inductive reactance, and allows the short antenna to cover multiple HF bands. The unused portion of the coil slides into a hollow tube. Inside is a reversible DC motor — originally and in many incarnations the motor from an electric screwdriver. The motor is actuated by a manually-operated control switch at the driver's operating position, moving the upper portion of the coil assembly up and down to shorten or lengthen the antenna.



Original screwdriver antenna design with reversible DC motor. [After W6AAQ/Carlb CC BY-SA 3.0]

What's in the box?

The antenna comes with two stainless steel whips, a short version about 4 feet long (which is intended to cover 40 through 10 meters) and a longer 6-foot whip (intended to add 75 or 80 meters).

Also included is an up-down switch, which is inserted into a vehicle's 12-volt accessory outlet with a 15 foot power cable. The antenna base is a PL-259, so the mount must have an SO-239. The more-common 3/8 inch x 24 thread bases won't work, nor will an NMO mount. I had to buy a mount, so I opted for a three-magnet mag mount.

I initially mounted the antenna on a Diamond K-400 mount — a lip or trunk mount that's very popular — and got good SWR results; unfortunately, the only location on my car (VW Golf Sportwagon) where the K-400 would fit, was up front, clamped onto the engine hood. The K-400 is a great mount in large part because it makes a good connection to ground. Unfortunately, the hood would not close, so I opted for a mag mount.

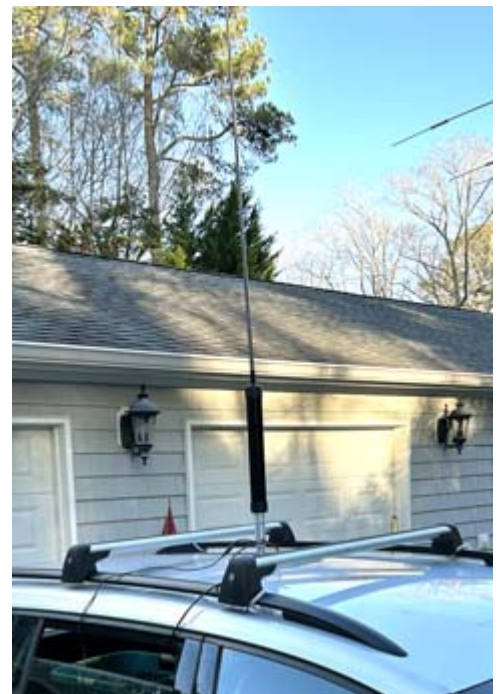
Using the mag mount,



Contents of the HD-330 box. [All pics by K2WPM.]



Close-up of 12V power plug and up-down switch.



David opted for a heavy-duty magnetic mount on the roof, with three magnets and an SO-239 connector.

the antenna tuned to a reasonably low SWR on 40 through 10 meters. But not being satisfied with 2.3 - 2.5 SWR on some bands, I devised a 16-foot “counterpoise” wire, soldered a 3/4 inch loop on one end, and slipped it over the SO-239.



Close-up of magnetic mount on vehicle roof with counterpoise wire slipped over the SO-239 connector.

I spread the 16 feet of counterpoise wire randomly over the roof and re-checked SWR. (Note: I would not drive the vehicle this way; I plan to zip-tie the counterpoise to my roof rack and rails.)

With the “counterpoise,” the SWR dropped dramatically, and the SWR curve flattened out a bit.

Band	Minimum SWR and frequency	Usable bandwidth
75 meters	1.37:1 at 3944 kHz	50 kHz under 2:1
80 meters	1.4:1 at 3551 kHz	50 kHz under 2:1
40 meters	1.08:1 at 7180 kHz	400 kHz under 3.0:1
20 meters	1.15:1 at 14185 kHz	500 kHz under 2.0:1
15 meters	1.04:1 at 21440 kHz	1.5 MHz under 2.0:1
10 meters	1.7:1 at 29060 kHz	1.5 MHz under 2.0:1

The frequency at SWR-minimum is variable, of course, simply by clicking the controller to go up (lengthening the antenna and lowering the SWR minimum) or down (shortening the antenna and raising the SWR minimum frequency). The key takeaway is how



SWR plots for 75 meters and 80 meters using RigExpert AA-55 ZOOM antenna analyzer. [K2WPM pics.]

low the SWR minima are. I was surprised I was able easily to get SWR under 2:1 from such a compromised antenna system. Surprised it would tune up on 75 and 80 meters.



SWR plots of HD-330 antenna on 40 meters and 20 meters.



SWR plots of HD-330 screwdriver antenna on 15 meters and 10 meters.

How well does it work?

We know that a shortened vertical antenna is not terribly efficient. And seeing a nice flat SWR curve — as is exhibited by the HD-330 — generally means it is a very lossy antenna. So your rig might be happy pumping its full 100 watts into the feedline, but very little of that power actually radiates from the antenna. My favorite — albeit very depressing — website for this topic is the nice Power Point prepared by Phil Salas, AD5X: <https://www.qsl.net/w5vv/AntennaEfficiency.pdf> (PDF file).

My rough estimate from this suggests that the HD-330, even with counterpoise, has a Q of only about 10 or 15, and actual radiated power of less than 5 watts, when the rig is putting out 100. Probably less.

Can the antenna be heard? The answer is a clear yes.

WSPR says it works

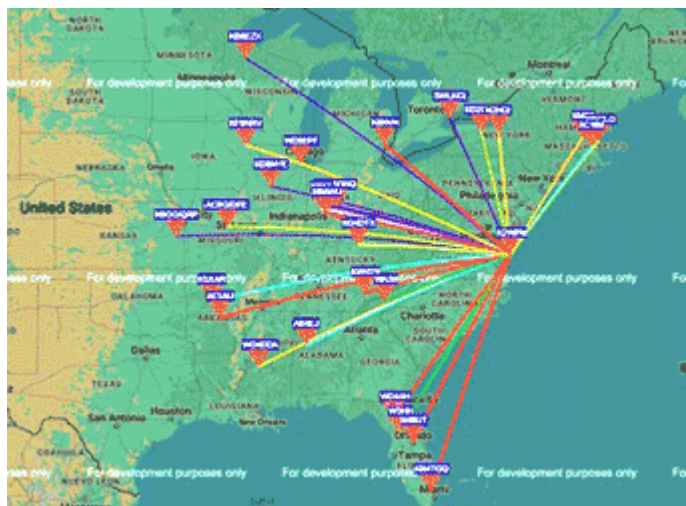
I first used WSPR to assess this. WSPR is the Weak Signal Propagation Reporter protocol pioneered by Joe Taylor, K1JT, now available within the WSJT-X suite of digital modes: <https://wsjt.sourceforge.io/wsjt.html>. WSPR map: <https://www.wsprnet.org/drupal/WSPRnet/map>. After downloading and installing free software, one can transmit at low power — often 200 milliwatts or less — and see where the signal was heard from among some

1,600+ WSPR receivers around the world. (It's also easy to return the favor by connecting your radio to your laptop, putting it into receive mode, and uploading the signals heard). One of the primary uses for WSPR is to compare the effectiveness of different antennas. Check out the many YouTube WSPR videos.

The following maps depict WSPR reports for 20 meters (one watt) for: (a) my 73-foot long doublet antenna at 85 feet AGL, as compared to (b) the HD-330 parked in my driveway.



(a) WSPR reports for the K2WPM 73-foot doublet antenna.



(b) WSPR reports for the K2WPM mobile installation using HD-330 screwdriver antenna on vehicle roof.

It isn't a surprise that the compromise antenna has far less range than the doublet. But the HD-330 was heard, and by lots of stations. Remember, this is one watt, from the driveway. This does not guarantee that one can establish effective communication in the same distances, but it sure suggests it's not a pure dummy load.

POTA says it works... on CW, anyway

My next antenna assessment uses POTA, Parks On The Air. This is a great way to test an antenna because there are always lots of POTA activators, sprinkled

across the country. I wasn't able to break any POTA pile-ups on SSB, but I did make several CW contacts using 100 watts:

UTC	Call	Report	State	Distance miles
1531	N9QF	559	IL	713
1534	KE4Q	559	FL	721
1608	KB5YZY	559	MO	796
2108	W4LOO	599	FL	800

One additional point about this antenna. You can't use standard whips — with 3/8 inch x 24 thread per inch male connectors — because this antenna has a non-standard male thread, about M11 or M12 as best I could measure. But there is a ham who sells an adapter fitting the HD-330 to a female 3/8" x 24, and yes, those are also on Amazon. I would also not drive with the flimsy whips provided.

Conclusion

I would recommend this antenna, not because it's particularly effective, but because it checks several other boxes for me. It's easy to set up, relatively inexpensive, and will provide lots of fun experimenting to see how it can be improved. Mostly, I will use it for CW. My long-time goal of setting up two screwdrivers as a mobile dipole might be nearing achievement...

- David K2WPM

[Hint: for more information about the screwdriver antenna, see K0BG's web site: <http://www.k0bg.com/antennas.html#standard> – Ed].

Field case for Yaesu FT-817 – KD2EVI

I wanted a sturdy case to carry my Yaesu FT-817 transceiver (ex-Henry KB2VJP) that was convenient to transport and protective of the radio. While using plastic storage boxes does work for an event such as Field Day, I wanted something sturdier and more portable for this radio.

My first thought was to purchase a case from Harbor Freight. Then I noticed a used British military case, originally made to hold a night-vision device for approximately half of what a Harbor Freight case of similar size would cost.

Below is the description from the Sportsman's Guide website: <https://www.sportsmansguide.com/product/index/british-military-surplus-storage-box-used?a=2202285>

Item # WX2-709831
Mfg. Number: 9351-17

- Genuine British military issue
- Originally used to transport KITE Image Intensifier
- Twin wall ABS plastic construction filled with high-density polyurethane foam
- Rubber seal around perimeter
- Rugged closure, hinges, and carrying strap
- Removable inner rubber moldings
- Stackable design
- Interior Dimensions: 13"l. x 9"w. x 4.75"h.

For under \$25.00 plus shipping costs I received an ABS plastic case that appears sturdier than the Harbor Freight product. The case I received is used, shows corrosion on the latches and carries markings and stickers from its former users.



Image intensifier case as received from Sportsman's Guide. [KD2EVI pic.]

I had to pry out a rubber piece that was made to hold the optical device. Fortunately, the remaining adhesive was dry and excess could be scraped off. Despite the surface corrosion the latches work and close the

case tightly.

The case will hold the Yaesu FT-817 or a similar size mobile radio, a 10 amp-hour lithium battery, end-fed antenna, and a short length of coax. Antenna support rope and longer lengths of coax will have to be carried separately. It is too

small to hold a desktop radio. I cut pieces from the original rubber molding to keep the radio and battery secure during movement. This is not a 'Go-box', as I will have to remove the radio to use it.



Original interior of the military case, with rubber moldings designed to hold a KITE image-intensified night sight. [KD2EVI pic.]



Military case holding Yaesu FT-817 multimode QRP transceiver covering 160-10m, 6m, 2m and 70cm bands, 10Ah LiFePO₄ battery, antenna and feeder. [KD2EVI pic.]

Surplus items such as this are available until they are sold out and new products appear. While writing this review, I found what appears to be the same case on another site, Major Surplus and Survival, for less than I paid: <https://majorsurplus.com/us-british-abs-night-sight-box>. And both Sportsman's Guide and Major Surplus are now offering a slightly larger, new, U.S. surplus case made to hold a military drone.

If you are considering using a mobile size radio, away from your home, I suggest that you look into purchasing a military surplus case.

- David KD2EVI

What's it worth?

Once a year I take off my editor's green eyeshade and put on a salesman's hat for the PCARA **Bring and Buy Auction**. The event is usually scheduled in January, a time of year when local hamfests are few and far between.



"Sold to the man waving his arm." Bidding underway at the 2025 PCARA Bring & Buy Auction. [Pic by N2EAB.]

This year's auction, held on January 5th at the Cortlandt Town Centre CUE Room, was marked by a wide selection of equipment old and new. Smaller items were changing hands, but larger "boat-anchors" were not so popular. Perhaps this was the effect of inflation on household budgets, perhaps reserve prices were set too high — or could it be some other factor?

Buyer's guide

If you are in the market for a previously-owned HF transceiver, there are several factors that could affect your decision. Here are a few aspects that come into play, whether you are at an auction, a hamfest or buying online.

Do you really need it?

Why would you need a second HF transceiver? Here are a few reasons.

- Standby set in case the primary transceiver has a problem.
- Separate station for use mobile or portable, for travel, vacation, second home or in a Go-box.
- Remote station for control over the Internet.
- Monitoring of primary station transmissions.
- Split frequency or split-band operation.
- Contesting as SO2R (single operator, two radios), multi-single (multi-operator, single band transmit) or multi-two (multi-operator, two-band transmit).

(For the last three applications, it is important to protect the receiving radio from excess signal while the other radio is transmitting.)

How old?

The age of a radio is very important — older transceivers have fewer features, and that could be a deal-breaker, depending on your needs. Reliability declines with age and spare parts become more difficult to source after production has ended.

Here is a table of desirable features in an HF transceiver — with approximate date of introduction and a relevant model. (Note: IC- = Icom, FT- = Yaesu, TS- = Kenwood transceiver.)

Feature	Model	Year introduced
Hybrid – solid-state apart from vacuum tube driver and PA	FT-101	1971
All solid-state – including PA	FT-7, IC-710	1977
Digital frequency synthesizer, digital display	IC-720	1980
WARC Bands	FT-101ZD	1980
General coverage receive	FT-757, TS-430	1983
LCD display	FT-747	1987
Computer control (CAT)	FT-747	1987
Antenna tuner built-in	IC-781	1988
HF + 6 meters; Direct digital synthesis	IC-726	1990
Compact HF mobile	TS-50	1993
Audio frequency DSP	IC-775DSP	1995
IF-stage DSP (no optional filters needed)	TS-870	1995
HF + 6m, 2m all mode mobile	IC-706	1995
Spectrum scope display	IC-756	1996
HF + 6m, 2m all mode desktop	IC-746	1998
HF + 6m, 2m, 440 all mode mobile	IC-706MkIIIG	1999
LCD color display	IC-756Pro	1999
60 meter band	TS-480	2004
High dynamic range	Elecraft K3	2007
USB rig control and sound card audio	IC-7200	2008
Touch screen	IC-7100	2013
RF direct sampling	IC-7300	2016
Hybrid SDR	FT-DX101D	2019

If an older transceiver has a missing feature, it *might* be possible to add the function with a suitable accessory. For example, a lack of narrow selectivity might be fixed with an optional crystal or mechanical filter. A transceiver with no USB audio adapter could employ an external Signalink™ USB sound card for digital modes. Add-on frequency displays are available for some older, analog transceivers.

Be aware that a modern accessory might cost *more* than the bargain radio!

Does it work?

A reputable vendor should give an assurance that the equipment has had power applied and been checked over. If not, then *caveat emptor* (let the buyer beware). A problem affecting operation could reduce the value substantially.

Be cautious at hamfests where the vendor may not be known to you.

Could you repair it?

While older equipment is more likely to have problems, it may actually be easier to work on. Vacuum tube transceivers have open layouts with easy access to components and test points — important if the analog circuitry needs to be realigned. Solid-state equipment manufactured before the age of surface mount devices (SMD) is also easier to repair. On later equipment with digital read-outs and microprocessors, replacement displays and custom integrated circuits could be up on the same shelf as *unobtainium*.

Appearance is everything

External appearance can be a good indication of how well a radio has been looked after. Dings and scratches could suggest a hard life on the road, in contests or on DXpeditions.

Is the case clean with controls free of dust? Is the display clear of dirt and finger marks? Are the heat sink and fan clean?

If you are lucky, the original packaging will be included along with the user manual, standard accessories and vendor's receipt.

(Meanwhile, if you are a **seller**, try to make your equipment *appear* attractive. A few minutes' work with a microfiber cloth, soft brush, canned air and screen cleaner could make all the difference between a sale and total lack of interest.)



Supplies for cleaning a dirty radio, L to R: "Dust-Off" canned air, microfiber cloths, soft toothbrush for cleaning control knobs and "CleanScreen" aerosol spray.

What is it worth to you?

Before making a bid at an auction or haggling at a hamfest, it pays to know as much as possible about the equipment's specification and current prices. There are a number of Internet sites that can provide this type of information.

Radio Master List provides specifications and indicative prices of many receivers and transceivers: <https://www.radiomasterlist.com/en/index.html>

RigPix database has large photos, specifications, date manufactured, new price: <https://www.rigpix.com/index.shtml>

RigReference – small picture, description, specifications, prices, price-history chart: <https://rigreference.com/>

Universal Radio – picture, description, specification, accessories, 'used' prices for radios old and new: <https://www.universal-radio.com/index.html>

eHam reviews – ratings and reviews for everything in amateur radio: <https://www.eham.net/reviews>

eBay – marketplace for used equipment and accessories: <https://www.ebay.com>

Boat Anchor Manual Archive – user manuals and service manuals: <https://bama.edebris.com/>

Sherwood Engineering - receiver test data for amateur transceivers: <http://sherweng.com/table.html>

As an example of available information, let's take a look at the

data for one of the transceivers offered for sale at January's auction. The **Kenwood TS-850** was a high-performance HF



Kenwood TS-850 transceiver and carry case, as offered at the auction. [N2EAB pic.]

band transceiver covering 160m – 10m, (no coverage of 60m or 6m), introduced in 1991 at a retail price of \$1900.

Radio Master List: Year introduced 1991, prices \$550-\$958.

RigPix: New price 1992: 18894 Swedish krona.

eHam.net: Rating 4.8 stars. Recent price \$250.

Universal Radio: Used prices \$330 - \$880.

RigReference: Prices \$142 - \$620, with price history chart.

eBay: Prices of \$539, \$495, \$418, \$1077.

Boat Anchor Manual Archive: (no information on TS-850).

Sherwood Engineering: dynamic range 90dB (wide spacing), 77 dB (narrow spacing).

So long as the price is right and the equipment is functioning, a Kenwood TS-850 might be a good HF transceiver for a newly-licensed amateur on a budget.

Peekskill / Cortlandt Amateur Radio Association

Mail: PCARA, PO Box 146, Crompond, NY 10517

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Web site: <http://www.pcara.org>

PCARA on Facebook: <https://www.facebook.com/pcararadio>

YouTube Channel: <https://www.youtube.com/@peekskillcortlandtamateur7670>

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Newsletter contributions are always very welcome!

Archive: <http://nm9j.com/pcara/newslett.htm>

PCARA Information

PCARA is a **Non-Profit Community Service**

Organization. PCARA meetings take place every month (apart from July/August break). See <http://www.pcara.org> for current details.

PCARA Repeaters

W2NYW: 146.67 MHz -0.6, PL 156.7Hz

KB2CQE: 449.925MHz -5.0, PL 179.9Hz

N2CBH: 448.725MHz -5.0, PL 107.2Hz

PCARA Calendar

Sat Feb 1: Monthly meeting, 10:15 a.m., Putnam Valley Library, 30 Oscawana Lake Rd, Putnam Valley, NY.

Sat Feb 1: PCARA V.E. Test Session, 11:30 a.m., Putnam Valley Library, see below.

Sat Feb 15: PCARA Breakfast, 9:00 a.m., Uncle Giuseppe's, 327 Downing Dr. Yorktown Heights, NY.

Hamfests

Check with organizers before leaving.

Sun Feb 23: Long Island Hamfest and Electronics Fair, Levittown Hall, 201 Levittown Pkwy, Hicksville, NY. 9:00 a.m.

VE Test Sessions

Check with the contact before leaving.

Feb 1: PCARA, 11:30 a.m., Putnam Valley Library, 30 Oscawana Lake Rd., Putnam Valley NY. Must contact VE. Dave KF2BD, daveharper'at'vivaldi.net.

Feb 13: WECA, Westch Cnty Fire Trg Center, 4 Dana Rd Valhalla NY. 7:00 p.m. Contact VE, rcasino'at'gmail.com

Feb 25: Orange County ARC, Munger Cottage, 40 Munger Dr., Cornwall NY. 6:00 p.m. Contact VE: w2bcc'at'arrl.net.



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