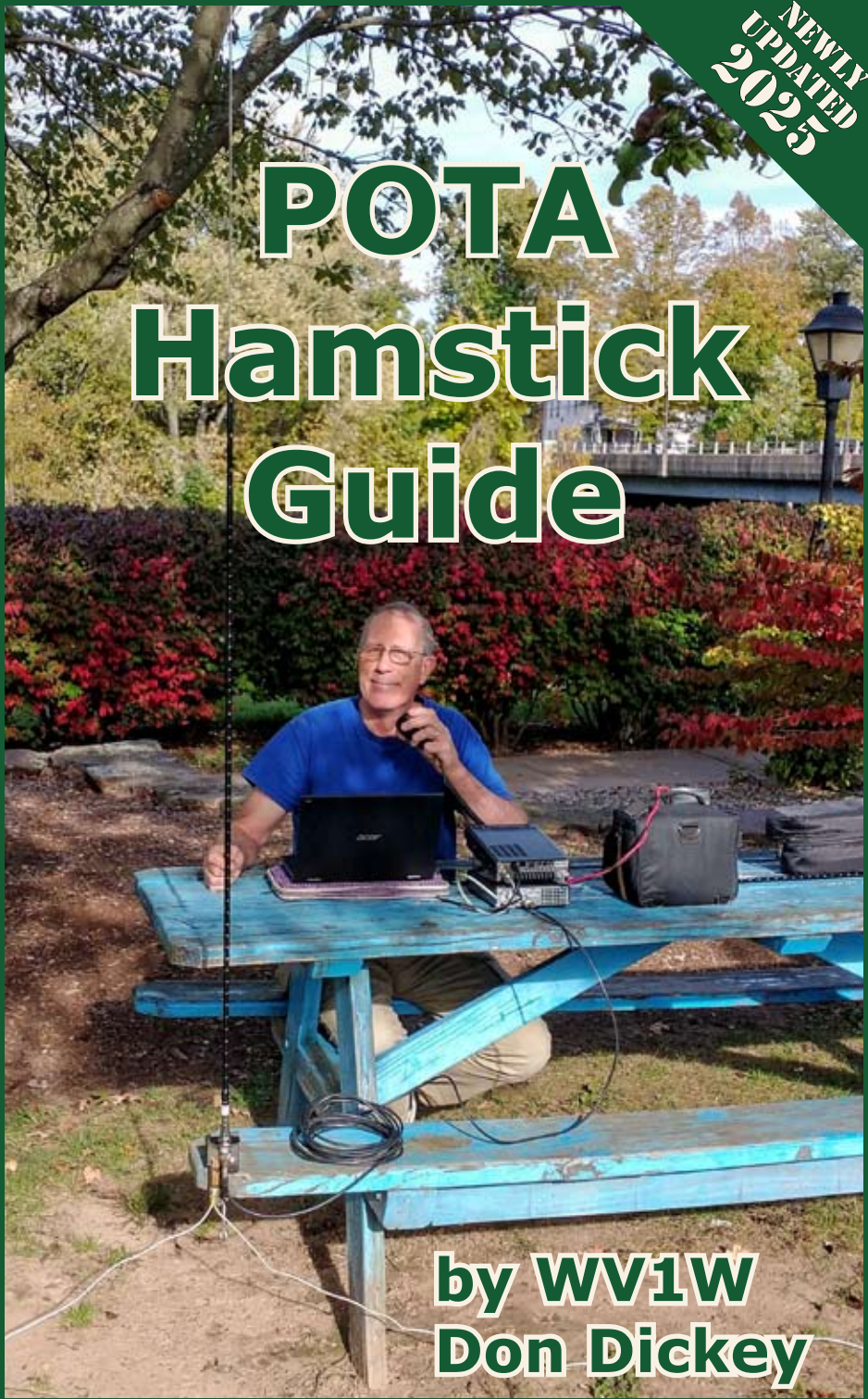
NEWLY UPDATED 2025

POTA Hamstick Guide



by WV1W Don Dickey

Legal Stuff

Published by Instafax
www.instafax.com

v2.43h

Contents

Introduction

This is a special sampling of ***Successful POTA***, my complete illustrated guide to Parks On The Air. This useful treatise on hamsticks is based on material in my book's Antenna section, to give you an idea of what to expect from the rest of that book. If you enjoy this info and my writing style you should check out ***Successful POTA*** on my website: WV1W.US

Background

I have been a licensed amateur radio aka "ham" operator since 1975. While studying mechanical engineering in college, I carpooled with classmate Ron Benatti, WA1JMP, to save gas. Ron gave me a tour of his station, and the stack of QSL cards he had amassed from all over the world enticed me to make the jump from avid CBer to ham radio.

I started my journey with building a receiver: Heathkit's venerable HR-10B. This kit was followed by their matching DX-60B transmitter and finally an HG-10B external VFO.

I used the receiver to practice copying Morse code. My traditional straight key was connected to an oscillator to practice sending. When I was ready, WA1JMP gave me the 5 word per minute Novice test which I passed on the first try.

Between my engineering courses and the knowledge gained from building the kits I knew enough theory to pass the FCC's written test without studying. I was off and running with my first "ticket" and went on the air on June 11, 1975 at 2230 UTC. My first QSO was, naturally, with WA1JMP.

After a decade-plus hiatus from hamming I got back on the air in 2019 with a new Yaesu FT-891. Soon after, I ran into a guy doing what he called "POTA" and the rest, as they say, is history. As of this writing, I've enjoyed over 84,000 POTA QSOs, mostly while activated in state parks.

Hamstick Basics

Perhaps the simplest of all commercial vertical antennas are the monoband hamsticks. Hamsticks are “loaded” quarter-wave vertical antennas. They usually have a 3/8-24 (UNF) threaded base permanently attached to a fiberglass shaft which is helically wound with a copper wire lower element and inductive loading coil close to the top of the section.

A female 3/8-24 socket at the top of the shaft accepts a similarly threaded stainless steel “stinger” of about the same length as the fiberglass section. The threaded ferrule has one or more set screws securing the whip which also allow for some length adjustment thereby tuning the antenna to resonance.

Full-size models are usually 8 feet long, and shorter models are also available, primarily for in-motion mobile use. I encourage you to focus your attention on full-length models as they are more efficient and offer better performance for similar cost.

You can purchase hamsticks from most of the usual ham gear shops. Mine were under $20 each. Models my friends bought costing twice as much don’t seem to work any better. Sticks can also be found at flea markets, so keep an eye out!

Depending on band conditions, most POTA activity occurs on two primary bands: 20m and 40m. While you could buy a large set covering all the ham bands, your best bang will come from those two bands. For higher frequencies, you might be better off with a single telescoping whip which covers 6m-20m. If you could only afford one hamstick, it should be for 20m. If your initial budget is larger, add a 40m stick to your kit.

Performance will vary somewhat but is more dependent on ground conductivity and the rest of the antenna system than on the particular hamstick make and model you choose. By “rest of the system” I am referring to the counterpoise, usually a set of radials or whatever the hamstick is mounted to.

When people ask how well hamsticks work, I often mention that I have completed several “Kilo” awards (1,000 QSOs) with just a pair of hamsticks. sometimes mounted to the stern rail of our sailboat and operating dock-side on Lake George.

In a simple basic mobile setup, hamsticks can be attached to your vehicle using any of a wide variety of mounts. Vehicle mounting offers both speed and simplicity. Setup is virtually instantaneous, so you can be on the air moments after pulling off the road. Even if you later choose more extravagant portable antennas for full-day outings, you might use your trusty hamsticks for quick and easy operation during lunch breaks or when time in the field is limited by other constraints.

You might be tempted to save time and trouble with a magnetic mount on the roof of your car. While this works well on VHF and UHF frequencies, it can be significantly less efficient on HF bands, particularly 40m and lower.

You can improve the performance of a mag-mounted antenna by attaching some radials, but an elevated wire counterpoise usually needs to be tuned, and this can defeat the purpose of choosing a simple antenna.

Instead, I usually prefer a ground-mounted antenna. During the warmer months, I use a stake or pedestal mount (covered later). In the winter, when the ground is frozen, I often deploy a tripod mount which can even be used on top of snow.

When the weather is conducive, if I plan to operate outside of my vehicle, I often attach the hamstick to the picnic table, its bench seat, or sometimes to a nearby grill or fence.

During a POTA activation in Nickerson State Park on Cape Cod, I attached the mount to a cold water spigot in the park’s yurt complex. I was pleasantly surprised when the counterpoise was so effective that my SWR was very low.

I was able to make SSB contacts all over the U.S. and Europe without adding any radial wires as I usually do.

Hamstick on Tripod and Clamp Mounts
with push-on counterpoise wire connections

One downside of hamsticks is their relatively limited bandwidth. This is a function of all shortened antenna designs which present a high "Q factor." One reason I prefer resonant antennas is because I can usually leave the tuner in the car. Nevertheless, the tuner can come in handy for widening the usable bandwidth of a high-Q antenna like a hamstick.

Hamsticks are usually tuned to resonance by adjusting the length of the stainless steel "stinger" whip. I often use my RigExpert Stick 230 antenna analyzer to adjust the antenna. Without an analyzer, you can use an external SWR bridge or the SWR metering function in your radio for checking and tuning the antenna.

Set your rig in the band and frequency area you plan on operating. Using low power for tuning is always a good idea.

TIP: With my Yaesu FT-891 portable rig I set the AM power output level for 5 watts. When I want to check SWR and tune up I simply switch the mode to AM. After tune-up, I switch back to the mode I will use for operating which will return the rig to its regular output power setting, usually 100 watts.

I recommend you make hamsticks easier to adjust in the field. The tiny hex socket set screws securing the stinger are really hard to find if dropped and they require a special tool. Start by replacing them, ideally with knurled head thumb screws, or at least with screws which have Phillips or regular slotted heads.

Next, adjust the tightness of the screws so the stinger can be just barely adjusted by hand. Screws should be tight enough to prevent slipping but loose enough so you can move the stinger up and down as required for tuning without tools.

My second trick is to keep one stinger long for CW and digital band segments. My CW stinger is 48” long overall. Trim the other for the SSB band segments, usually requiring removal of about 6 inches off the end. My SSB stinger is 42” long overall.

My third trick is to make single-band hamsticks work on two bands! I got a 20m hamstick to work nicely on 17m by using my 19-inch 2m quarter-wave antenna (with 3/8-24 threads) on top instead of the regular 4-foot stinger. Similarly, I was able to get a 15m hamstick to resonate nicely on 17m by using a piece of coat hanger wire to lengthen the stinger.

Taking this trick even further, switch out the fixed length stinger for a short telescopic whip. My favorite is the one that comes with SuperAntenna kits but it is available separately. What makes this one unique is that collapsed it is just under 6 inches long from shoulder to tip. Threads on the bottom are standard 3/8-24 so it fits the top ferrule of most hamsticks.

Short Telescopic Whip on a Hamstick
offers several options

When you use this whip full-length on a typical 20m hamstick, it performs the same as it would with a 44-inch stinger covering the SSB part of the band. When you use it fully collapsed, the 20m hamstick will resonate on the 15m band. If you extend it about 18 inches, it resonates on the 17m band. So, you get 3 bands with just one hamstick. You can tune it without tools by adjusting the length as required for low SWR.

My last trick is to combine hamsticks. I found that by putting a 40m hamstick with it's stinger on top of a 20m hamstick bottom section that it was usable on both 6m and 2m. You could also combine a hamstick with a coil to get even more band coverage.

Hamsticks definitely represent some of the best antenna values for portable operation and POTA.

Hamstick Dipoles

Some people think the best way to deploy hamticks is in pairs, as a dipole, using a duplex mount with one stick basically grounded or even an “octopus” hub to cover multiple bands.

I am NOT a fan of hamstick dipoles, and these are my reasons:

A) Using hamsticks in a dipole configuration defeats their purpose. I use hamsticks for quick & easy activations, especially in the winter when there’s snow on the ground and it’s cold out. I can set up a hamstick on a tripod in under a minute. It takes another couple minutes to lay out some radials.

Setting up a dipole takes considerably longer because you need to set up a mast, and then tuning takes even longer when you have two antennas. Tuning can even turn into a nightmare.

B) A dipole that low to the ground has a very high angle of radiation. On 40m it would be pure NVIS. The range probably would be limited to a couple hundred miles. That’s fine for EmComm but not ideal for POTA.

As a vertical, the angle of radiation is lower and reaches out much better. I routinely get into the EU and UK on 20m and sometimes into Greece, Ukraine and even the Middle East.

C) Making a dipole requires two hamsticks per band plus a mast and special duplex mount. That more than doubles the cost which is another reason to use hamsticks: they’re cheap.

D) Unless you have an octopus hub of some sort, changing bands takes many times longer than a single vertical.

E) The dipole is directional. The vertical is omnidirectional and hears/reaches more hunters.

I think that about covers it. Stick to a vertical configuration and keep it as simple as possible for less trouble and more fun.

Mounts

A CB-type mirror mount can be very useful. While obviously designed to clamp on a horizontal or vertical tube (“V” plate works both ways), using a standard “C” clamp you can also attach just the angle bracket to things like a sign post.

Stainless Steel Mirror Bracket with 3/8-24 Stud Mount

The mirror mount can be used for adding your hamstick to a balcony rail or fence. I use mine on the stern of our sailboat.

Ready for Maritime Mobile POTA
mirror mount on sailboat stern rail

A mirror mount attached to a piece of pipe or angle iron driven into the ground can get you on the air fast and within budget. Some operators use a 12-inch spike from the Home Depot or a 12.5-inch tent peg from the camping section at Walmart. I have such a setup for days when I feel like activating with as little effort as possible. You might want a mallet in your kit if you use a spike mount and encounter hard packed earth.

Note that this arrangement is not ideal in cold weather when the ground is frozen.

Spike Mount
with SO-239 connection and right angle adapter

TIP: If using a piece of pipe, put a large bolt in the top of it to take the brunt of being hammered into the ground.

The Super Antenna UM2 is a clever gadget. It has tapped holes for both 1/4-20 and 3/8-16 tripod screws, a U-bolt for fastening to a pipe or railing, and it also comes with a large C-clamp which can fasten it to a picnic table or other fixed object.

Super Antenna UM2
universal mount for 3/8-24 antennas

Since the UM2 is frequently out of stock, the jaw clamp below is another excellent option which can often be found on Amazon. This can even clamp onto the ball if you have a trailer hitch. Like the UM2 above, the 3/8-24 stud mount can be rotated 90 degrees for horizontal or vertical configurations.

Workman QRCS3 with Firestik K-4A
jaw clamp with 3/8-24 mounting stud

Here are examples showing the versatile jaw clamp deployed with a hamstick. Radials can be attached to the mount using alligator clips if required. Sometimes the object clamped to provides a suitable counterpoise and radials aren't needed. "Even the blind squirrel finds a nut once in a while!"

Aluminum Bench

Guard Rail Cable

Tripods are very convenient. They work almost anywhere: on top of concrete, asphalt, wooden decks and also frozen ground.

Models from SuperAntenna and Wolf River Coils are perfect for hamsticks. The legs are made of solid aluminum rods. They are lightweight and only about a foot long for portability. Their 3/8-24 mounts include standard SO-213 coax connectors. The SuperAntenna hub also includes push-on lugs for fast and reliable radial connections.

Antenna Tripod Components

While these lightweight tripods can be blown over in a stiff breeze, you can use tent pegs or weights to hold the legs down.

SuperAntenna Tripod
shown with 20m hamstick attached

Radials

No discussion of antennas would be complete without talking about a counterpoise or radial system. The typical vertical antenna will not function very well without one, J-poles excepted. In particular, all popular commercial POTA antennas like the Wolf River Coils TIA, Buddystick, and Super Antenna require a good counterpoise to work well and include some kind of counterpoise with their kits.

If the antenna is ground-mounted or has a base less than 18 inches up, radials can lay directly on the ground and do NOT usually need to be tuned to resonance as they couple to the earth. Note that with low ground conductivity, like on sand at a beach, radials don't couple to the earth as well and can act as if they're elevated.

There is considerable discussion as to how long radials should be and how many need to be deployed. Here, views from knowledgeable sources vary widely. HyGain recommends a minimum of four 33-foot radials for their simple AV-18VS vertical antenna. Wolf River Coils includes three 33-foot radials with their antenna kits.

Many operators think that several times that number is required for good communications. My experience tells a somewhat different story. Most of the time, I've deployed just three or four 18-foot long wires laying directly on the ground for a counterpoise. When needed to lower my SWR at some parks, I actually prefer six 18-foot radials to three 33-footers. Over 68,000 documented QSOs and "Kilo" awards at 11 parks prove my system works well enough indeed.

To be sure, we have a high water table in my area, and stations in drought conditions may need a better counterpoise system.

Also, more radials might be desired at home, but for POTA (or EmComm) expediency is often more important than efficiency.

I’ve even found a way to get radials literally for free!

Radial Adapter

With this adapter attached to your antenna mount, you can plug in as many off-the-shelf extension cords as desired. Need more? Use a cube tap! Need a longer counterpoise? Plug a couple extension cords together. Since it’s a female socket, it is both safe and an economical partner for your vertical antenna.

Radial Kit

adapter, triple tap, and extension cords

Radial Kit Deployed
with hamstick antenna and tripod mount

Deployment:
- Set up antenna on tripod, post, clamp, etc.
- Connect coax from antenna to transceiver.
- Clip radial adapter to antenna mount or outside of coax.
- Plug in a regular UNMODIFIED extension cord.
- If you want a long radial, chain cords together.
- If you need more radials, use a cube tap.
- Then, plug in 3 UNMODIFIED extension cords.
- Stretch out extension cords on the ground.
- For 40m/80m use long cords (on a reel) for best results.
- Check SWR, adjust antenna and radials as required.

Meet the Author

Hello! I'm Don, WV1W, author of *Successful POTA*. I've been a ham since 1975, first as WN1VDD and then as WA1VDD.

In my first career, I was a mechanical design engineer and worked on "macro" projects including large printing presses for Harris Corp and later "micro" projects including a pager watch for Timex when I was awarded a patent for the antenna.

Later, I followed my passion for baking and cooking and became the culinary professor for a state community college. I taught exclusively low-income inner city kids professional kitchen skills so they could get jobs in the culinary field.

I currently live in CT and am married to N1GDW. We have one daughter who is a successful fashion designer in NYC.

The cover photo shows the author operating at the Farmington National Wild and Scenic River (US-0882).

Thanks for trying this sample of

Successful POTA

comment from a reader:

"*There are enough tips & suggestions in the book to save you 5 times the cover price by avoiding costly mistakes.*"

Download an eBook at
WV1W.US

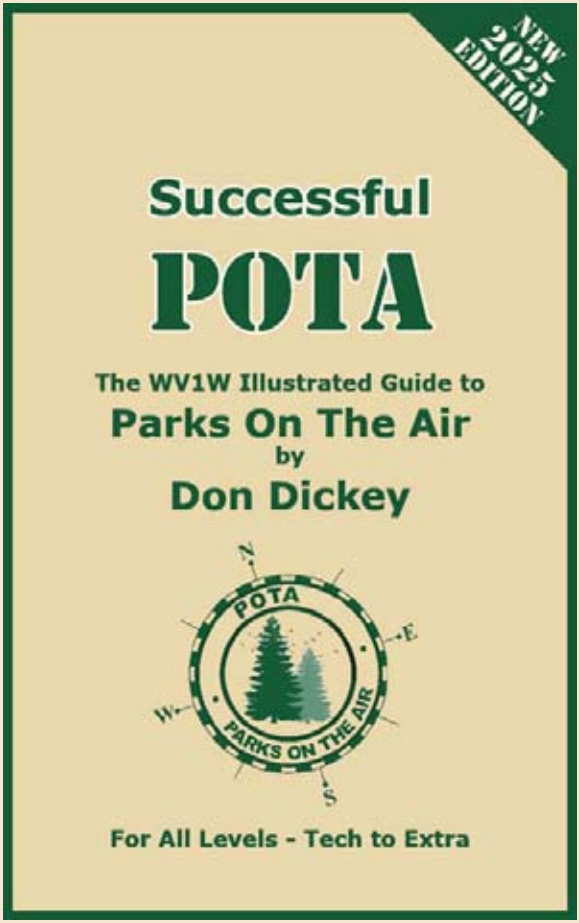
Kindle Edition & printed paperbacks are available on Amazon

Sample POTA Checklist

Transceiver
Transceiver Power Cord with Powerpoles®
Transceiver Hand Mic
Antenna Tuner with data and RF cables
Morse Key
Headphones
Laptop or Tablet with updated log
Clipboard with:
    FCC License
    Blank Log Sheets
    ARRL Band Chart
Pencils & Pen
POTA Sign with holder
12v Battery, charged, with Powerpoles® Pigtail
Battery Clips to Powerpoles® Pigtail
20m Hamstick
40m Hamstick
Long and Short Stingers
Counterpoise Wire Sets x2
Tripod with Mount
Jaw Clamp Mount
Pedestal or Spike Ground Mount
25-foot Coax Cable x2 with Barrel Connector
Antenna Analyzer, charged
Mallet
Leatherman Multi-Tool
Spares: wire, crimp connectors, paracord
Electrical Tape
Folding Chair & Folding Table
Thermos (with hot coffee) & Cup
Water Bottle (with fresh water)
Cap & Sunscreen
Bug Repellent

If you liked this book...

The only complete guide to POTA!



Successful POTA pays for itself in time and $$$ saved!

- What's POTA? Getting Started
- Rigs for POTA
- Power for POTA
- POTA Antennas
- Mounts & Masts
- Logging for POTA
- Frequencies for POTA
- WebSDR RX for POTA
- CW & Digital POTA
- QRP POTA
- Late Shift POTA
- POTA Tricks & Hacks