In This Issue

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U.S. Mail:
TARA
P.O. Box 134
Keene, CA 93531

A Word

Dan Mason, AB6DM, President

Hello, TARA friends!

TARA Has already been having another stellar year this 2025. We have had events to please hams of all types, and lots more are coming. We have also been garnering special recognition from government agencies, special interest groups, and the ARRL.

March 8th was our Yagi antenna build party for transmitter direction finding (Fox Hunt). Three soon to be Fox Hunters successfully built their antennas, and a couple more are being built independently. The first of two Fox Hunts of this year is scheduled for May 10th. If you want to participate, but don't have an antenna for it, we can help you.

Saturday, April 12th, we will have a VE session, at the Salvation Army, at 11 AM after the P-Dubs breakfast. If you have a ham recruit or want to upgrade, this is a good time.

Later in April is volunteer opportunity for patrol/communications at the 2025 Tehachapi Wind/Kite Festival on Saturday, April 26th from 12:00 AM to 6:00 PM. We need volunteers for any amount of time. It would be nice if we could have shifts to spell team members for part of the day. Contact Micah KN6VUT at kn6vut@ac6ee.org or 661-316-8348.

Like I mentioned earlier, May 10th is our first of two Fox Hunts. This one will be at Meadowbrook Park in Tehachapi, it is designed to be a closer range hunt with a larger region hunt coming later in the year. We would like to incorporate a picnic/BBQ. There will be prizes associated with finding each transmitter, then returning to home base with the evidence. I'll explain later.

Planning for the 2025 ARRL Summer Field Day is under way. The operation site is again High Country Park in BVS. Setup starts Friday afternoon on June 27th, and operations run continuously from Saturday, June 28th through Sunday, June 29th. Our Field Day Director is Zach W9UOI. Please support him by volunteering for subcommittees and filling in the boxes for equipment and labor. Contact Zach at zachary.dickinson.82@gmail.com or 701-340-3372.

If are interested in a certain meeting presentation subject or a special ham activity, contact me at 661-203-8398 or better imprezaspeed@yahoo.com.

73,

Dan - AB6DM

A Note from our Secretary Treasurer, John Dyer, KM6DXY

- Two (2) new members added to our roster: Rob Stanfield, KO6IBY, and Ted Wyman, KA6PTJ.
- Our next Test Session will be held on April 12th. Plenty of time to study for your next upgrade!

From our Public Information Officer, Micah Martin, KN6VUT

- BVS ERT will be holding a public meeting on **March 15th**, **2:00 pm**, at the Shepard of the Hills Church to inform residents of the Resident Radio Program and the ERT. The ERT will be making a presentation followed by a presentation from Shelly Black, the FireWise program and Barricade 2 rep. Mark your calendar and plan to attend in support of these programs.
- A Public Safety Expo is planned for **April 11 from 12:00 to 3:00** at the Oak Tree Country Club Banquet Room. Plan to attend to support those. The BVS-ERT will have a presence at this event.

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The BVS-ERT will have an information table/booth at this event - Dave WA5GUL

Calling All TARA Members:

Join Us at the Tehachapi Wind Festival!

The highly anticipated Tehachapi Wind Festival is nearly upon us!

Join the Tehachapi Amateur Radio Association and the rest of our community on -Saturday, April 26, from 1:00 PM to 6:00 PM, head over to Meadowbrook Park to celebrate our community, our iconic wind industry, and the vibrant spirit of Tehachapi.

This family-friendly event promises something for everyone—live music, fascinating exhibits on wind power, delicious food trucks, and engaging activities that highlight what makes our region so special. And this year, TARA is proud to play a key role in the festival with our very own booth!

Showcase TARA: Volunteer Opportunities

Here's your chance to be the face of amateur radio and share the excitement of ham radio with festival attendees! We're looking for dedicated volunteers to help us make a big impact at the festival. Here's how you can contribute:

- ***TARA Booth Volunteers:*** Join us at the booth to share your knowledge about ham radio, demonstrate its capabilities, and answer questions from curious visitors. It's a great opportunity to connect with the community and encourage others to join our incredible hobby.

- ***Communications Support Volunteers:*** Help ensure the festival runs smoothly by volunteering your skills in event communication. This is a fantastic way to put your ham radio expertise to practical use while supporting our community.

Whether you're a seasoned operator or a newcomer eager to get involved, we'd love to have you on the team!

Why Celebrate the Wind?
The Tehachapi Wind Festival is more than just an event—it's a tribute to one of our area's defining features: our wind farms! These towering marvels not only provide renewable energy but also symbolize the forward-thinking and innovative spirit of Tehachapi. The festival brings the community together to learn, celebrate, and enjoy everything our region has to offer.

Join the Fun!
Let's make this year's festival unforgettable. If you're interested in volunteering for the booth or assisting with communications, please reach out to the ***TARA*** leadership team at [insert contact information here]. Your involvement makes all the difference!

Let's show Tehachapi what ***TARA*** is all about—community, communication, and collaboration. We can't wait to see you at the Wind Festival.

-Micah KN6VUT

Public Information Officer
Tehachapi Amateur Radio Association

EDITORS' Note:

The Dummy Load theme for April is Your Amateur Radio Journey – We want to know how you got into ham radio and some of the steps you took from then to where you are today. What advice would you give new hams or those interested in radio.

In addition to your article on the topic above, we would like your input on topics that you would like to see in future issues of The Dummy Load. What aspect of Amateur Radio interests you. We would very much appreciate your thoughts and ideas.

Send them to kn6zgi@ac6ee.org by April 7, 2025.

73, Stephen, KN6ZGI

Your Ham Shack Configuration

Adam Rocke, KG6QDZ

Well now, I have been transmitting and communicating on my hand-held Kenwood TH-F6 radio. For years I have been procrastinating about getting up an antenna and putting my old radio on it. Well, I guess Dave Walter finally got tired of me not having uniform transmission for our Net and Wednesday night talks. So, he commissioned Will Perry and they pinned me down to a day and time to put up the vertical antenna I bought about a year ago. The Antenna is a 2m/70cm Dual Band High Performance Gain X-300. And as Dick Brown always says: antenna, antenna, antenna!!!

Now let me say, Dave ventured over to my house prior to the build of the antenna. He evaluated what we would need to put it up and off to Home Depot we traveled to buy the parts.

Then on Monday March 10 and again on March 11, Dave and Will came over and the work started. On that Monday we got the antenna secured in a workable area at my house. We started with the layout of the coax I had previously obtained and guess what? After what is supposed to be 50' of coax hooked under my house eaves, we were short. I am estimating about ten feet short in fact. So that was it for Monday. Will and Dave checked their

equipment stashes and voila, on Tuesday we met up again to finish the coax run and join extra length cut from the extra coax spool Dave brought over. They had the connectors, soldering equipment and so on and the coax and the appropriate length was made. The next thing was to run it into the house where my minimalist shack is located.

I had already put several holes in my wall and one in my front door panel where we could possible run the coax into the house. My wife is not very please with me about that phase of my implementation. So for me it is going to be another trip to Home Depot for some wall Spackle and such.

None the less, after connecting things, we could not quite get it up and running. We were able to receive but not transmit. So, I was not able to use it for the next night's Wednesday 'Just Because Net' sharing session. Well, of course, I thanked Dave and Will for sacrificing their precious time when they could have been doing something else productive. But, they came to my aid and as of writing this soliloquy, my radio is working. I was able to use the manual and follow it to get it working. FYI the radio is a 60 watt Yaesu model FT-2800M. And it pairs up really well with my antenna. I am using an Alinco DM-330mv power supply at Max output of 32A. Now I can be heard from my shack position. A test on Friday, March 14 in the late afternoon/evening time allowed me to

transmit to several hams on the repeater here in BVS. I have had the radio and power supply for well over 20 years. I got it at the HRO in Burbank when we lived there and that was back about 2004 or so.

So that pretty much sums up my entry into a mini, shack installation.

Best to all and 73's

Adam: kg6qdz

Rob Stanfield, KO6IBY

What I Learned From First Visit to a Ham Radio Club

Ham radio wasn't on my radar. Not really. Sure, I knew about it—old guys spinning dials, voices crackling through static, maybe some disaster response angle. But I didn't think it had anything to do with **me**.

Then I went to **Winter Field Day 2025 at Brite Lake**, hosted by the **Tehachapi Amateur Radio Association (TARA)**—and everything changed.
This wasn't just a casual meetup. **Hams were running emergency drills, setting up field stations, and making contacts in freezing conditions**. They were demonstrating how amateur radio is a **lifeline when the grid goes down**.
By the time I left, I was obsessed.
Less than a month later, I had my **Technician's license**, a **callsign (KO6IBY)**, and a growing collection of gear that had me making contacts, decoding signals, and exploring a side of radio I didn't even know existed.
Here's what I learned—and what you can take away from it if you're curious about ham radio but don't know where to start.

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1. It's Easier to Get Started Than You Think
I used to assume getting into ham radio meant dropping a few grand on bulky gear and memorizing a book full of regulations. Turns out, neither is true.
Before the event, I picked up **a couple of Baofeng UV-5RM Plus handheld radios** for my kids—cheap, durable, and good for listening in. I figured we'd check out the club, maybe hear some local chatter, and see if it was worth digging deeper.
At the meeting, **KN6VUT (TARA's Public Information Officer)** walked us through **how to get licensed**. The process? **Take a 35-question multiple-choice test** (no Morse code required), pass with a 74% or better, and the FCC assigns you a callsign. That's it.
A few recommended study resources:

- **HamStudy.org** – Best free practice tests
- **ARRL License Manual** – Good if you want deeper explanations
- **YouTube (Ham Radio Crash Course, Dave Casler)** – Great for breaking things down simply

I took the advice, studied for a couple of weeks, and passed my **Technician's exam on February 19, 2025**.
And just like that, I was licensed.

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2. Ham Radio Isn't Just Old Tech—It's High-Tech
The moment that flipped the switch for me?
Standing inside **W6QPA's mobile trailer** and watching him **send emails over radio waves**.
He had **a compact setup with a surface tablet, a mobile transceiver, and a digital interface**, allowing him to:

- **Key out Morse code**

- **Display real-time APRS beacons on Google Maps**
- **Send digital messages via Winlink**
- **Experiment with moon-bounce and ionospheric propagation**

I had **no idea** ham radio could do all this.
I watched as he explained how radio signals **bounce off the moon** to reach the other side of the world, how **HF propagation changes with solar activity**, and how entire **email networks** exist **without internet**, using only radio waves.
This wasn't just nostalgia—it was cutting-edge.

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3. The Right Gear Makes a Difference (But You Don't Have to Buy It All at Once)
After that first meeting, I went down the gear rabbit hole. Here's what I picked up and why:
My Current Ham Radio Setup

1. **Yaesu FTM-500DR** – A **dual-band digital mobile transceiver** (great for my car and base station use).
2. **HackRF One** – A **software-defined radio (SDR)** that lets me experiment with all kinds of signals, including APRS, ADS-B, and even satellite decoding.
3. **Baofeng UV-5RM Plus** – Cheap, reliable handheld radios for local repeater use.
4. **Tram 1477 Pre-Tuned Antenna** – Mounted at home for better range on 2m/70cm bands.
5. **Taurus Desktop 25-2000 MHz Scanner Antenna** – For picking up a wider range of signals, including aviation and public service bands.
6. **Bingfu Mobile Antenna** – Mounted on my vehicle for better mobile reception.

This is just the beginning.
I've already started eyeing an **HF rig** for worldwide contacts and **a TNC (Terminal Node Controller)** for packet radio.
But here's the truth: **You don't need all this to get started**. A **cheap handheld and a local repeater** will open the door.

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4. You'll Meet People Who Know More Than You (And That's a Good Thing)
One thing that stood out at TARA? The sheer **depth of knowledge** in the group.
These folks were more than just casual hobbyists—they had **decades of combined experience** in everything from emergency comms to satellite tracking.
And they were happy to teach.
Whether it was **explaining QSL cards**, **demonstrating digital modes**, or **sharing field day stories**, these operators **wanted** new hams to succeed.
If you're just getting started, the best thing you can do? **Find a local club and show up.** Ask questions. Listen. Absorb.

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5. Ham Radio Goes Beyond Conversation—It's a Playground for Experimentation

Before this, I thought ham radio was mostly **people talking on the air**. And yeah, that's part of it.
But what really hooked me was **the experimentation**.
Some of the coolest things I've explored since getting licensed:

- **APRS (Automatic Packet Reporting System)** – Sending GPS data and messages over the air.
- **Winlink** – Sending email via HF and VHF (great for emergencies).
- **SDR (Software-Defined Radio)** – Using a computer to decode radio signals from satellites, aircraft, and even deep space probes.
- **Morse Code (CW)** – It's making a comeback, and I'm working on learning it now.

Ham radio isn't just a hobby—it's an open-ended **sandbox for RF experimentation**.

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6. It's a Lifeline in an Emergency (And People Take That Seriously)
At the event, a lot of talk centered around **emergency communication (EmComm)**.
When disasters take out cell networks and the internet, ham radio operators **keep information flowing**.
Many hams are part of **ARES (Amateur Radio Emergency Service)** or **RACES (Radio Amateur Civil Emergency Service)**. They train for:

- **Providing communications when infrastructure fails**
- **Helping with wildfire and earthquake response**
- **Coordinating with hospitals and emergency agencies**
- **The zombie apocalypse** 🧟😂

Even if you're not hardcore into emergency prep, **having a license and a radio could make a difference when nothing else works**.

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7. There's Always More to Learn (And That's the Fun Part)
I got my **Technician license in February 2025**.
I'm now studying for my **General class license**, which will open up **HF bands** and worldwide communication.
But I know this is just the beginning.
Ham radio is **a constant learning curve**—you can go as deep as you want:

- Get into **antenna design**
- Build **your own transceiver**
- Work **satellites and space station contacts**
- Experiment with **digital modes like FT8 and JS8Call**

There's always something new to try.

Want to Get Started? Here's What to Do Next
If any of this sounds interesting, here's your **action plan**:

1. **Find a Local Ham Club**
   Search for **ARRL-affiliated clubs** in your area at www.arrl.org/find-a-club.
2. **Get a Cheap Radio**
   Pick up a **Baofeng UV-5R** or **Yaesu FT-65** and start listening.
3. **Study for Your Technician's License**
   Use **HamStudy.org** or take practice tests at **QRZ.com**.
4. **Get on the Air**
   Find **local repeaters**, check into a net, and start making contacts.

Ham radio isn't just **some old-school relic**.
It's a **living, evolving technology**—one that blends radio, digital modes, software, and real-world problem-solving.
And the best part? **Anyone can get involved.**
You just have to take the first step.
So why not start today? 🚀

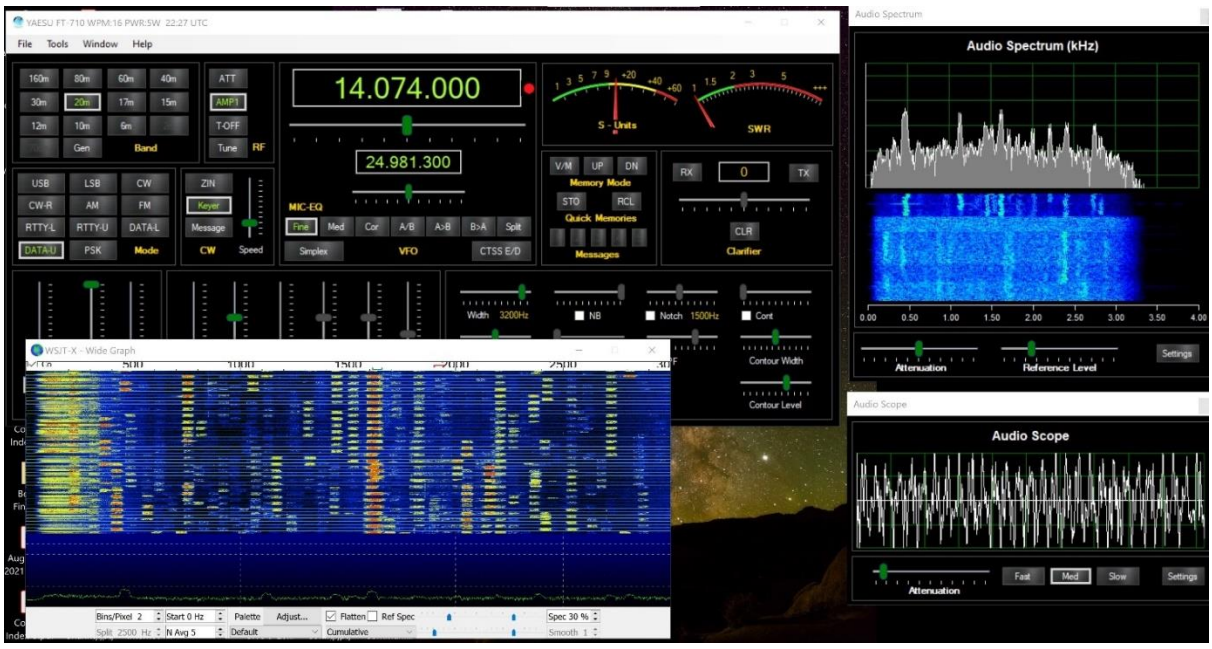
The Ham Radio Journal is a reader-supported publication. To receive new posts and support my work, consider becoming a free or paid subscriber.

Stephen Lee, KN6ZGI

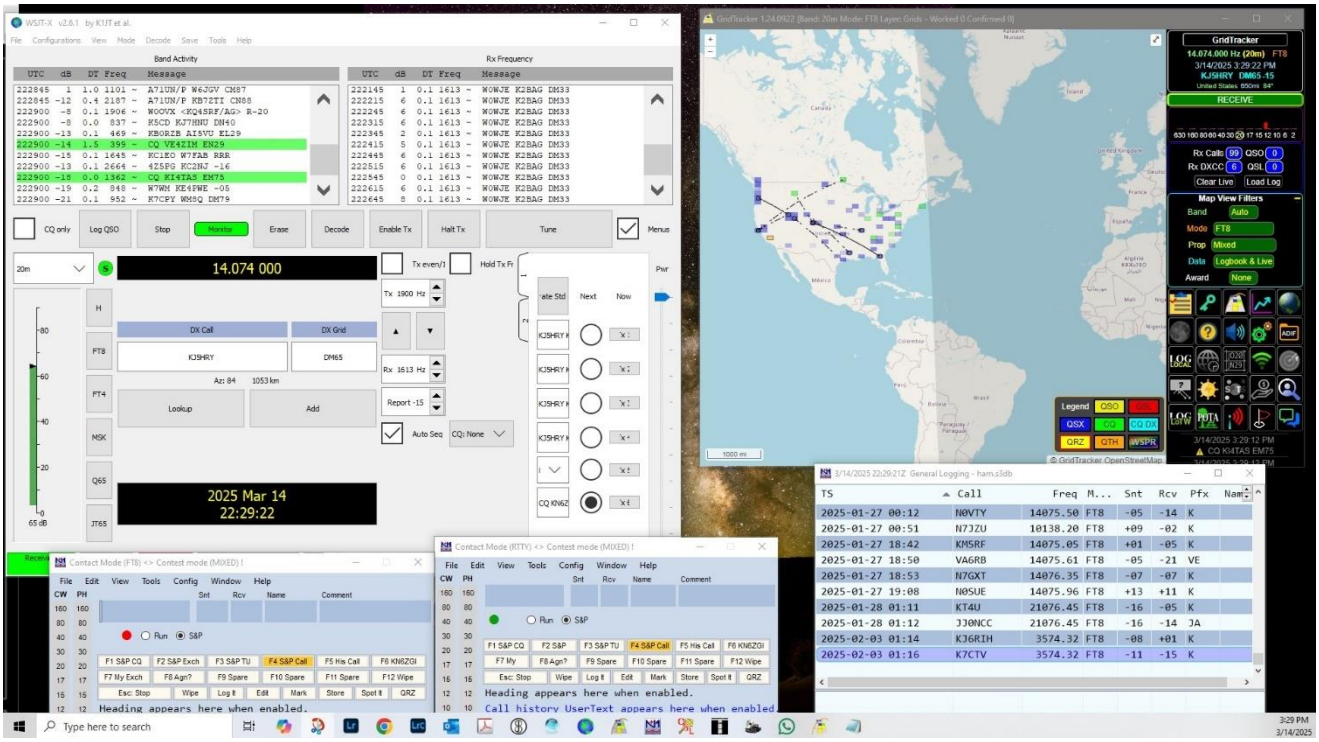
My radio shack is not very impressive, but it is a start, and I can get on the air with HF, 2m and 70 cm. I originally got my license in the early 1970's but got busy with family and work and let it lapse. At that time morse code was required to get licensed. Novice and Technician licenses required you demonstrate five words per minute receiving and sending. Several of my friends at work were licensed and used 2m mobile radios to communicate to and from work. So, my initial goal was a Technician license so I could get on the VHF repeaters in the area. That was the extent of my progress then because the next level, General, required 13 WPM code. When I decided to get back into amateur radio a couple of years ago I knew I wanted to be able to work the HF bands and eventually become proficient with CW.
The first and only radio I acquired when first licensed was a Wilson 2m HT. It was a 6-channel crystal controlled 2W radio, all I could purchase then. With the advances in technology over the last 50 years that old Wilson is not practical any longer.

This time I tested online and passed the Technician exam then two weeks later passed the General exam at the club VE session. I was studying for the General exam before I took the Tech exam. I found HamStudy.org worked best for me. Now I could get on most of the

amateur HF band allocations. First, I had to get back on VHF and UHF too, so I obtained a cheap HT. Then I began investigating radios and talking with other amateurs in the club. Ray, W6QPA, invited me to go with him and a friend to the DX convention in Visalia. Thinking I might get a discount on a radio I went and picked up a Yaesu FT-710 and a mAT-Y200 automatic tuner. Planning to start with an End Fed Long Wire antenna that would not have low VSWR across the bands an external tuner was necessary. The internal tuner on the FT-710 only works up to 3:1.This is my laptop screen with Win4YaesuSuite connected to the FT-710. I use this software because it has virtual comm ports that allow connection to several software packages concurrently. Here you see the waterfall display from WSJT-X



and the main interface for it below on my second display screen. Also running is GridTracker and N1MM+ the logging software I am using.
If you are thinking about getting Win4---Suite software, you should download the trial and see if it works for your setup. VA2FSQ makes it and other versions for Elecraft and Icom radios.



On the HF antenna side, I am using a homemade EFLW and 9:1 Unun that seems to work reasonably well. Take a look at the build for the EFLW in the “On the Bench” section below. On VHF/UHF I am using a Comet GP-6. It has 6.5 dBi gain on 2 meters and 9 dBi gain on 70 cm. I have not tried much simplex work with it yet, but it is something I want to explore. Parts have been acquired to build an OCFD for 80 through 10 meters. I will install it running in an East-West orientation 90 degrees from my current EFLW. Then I can switch between them to see the performance differences. Maybe something for a future article.

On the Bench

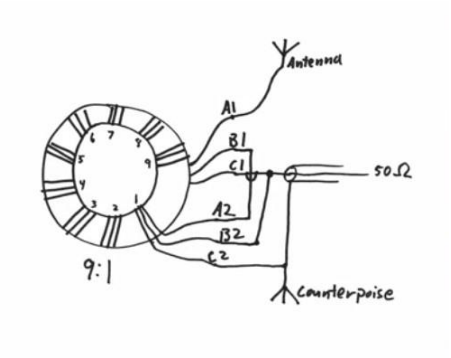
This is a semi-regular column for members to share the off-the-air aspects of their ham radio activities. Using a sports metaphor, on-the-bench refers to a player not currently active in the game. So, applying that in a ham radio context, what is “On-the-(work)bench” in your shack?

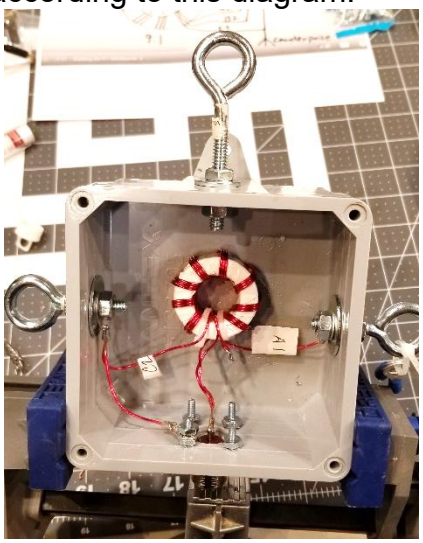
My First HF Antenna Build – EFLW

The first HF antenna I decided to install is an End Fed Long Wire (EFLW). I chose this one because I didn't want to invest much money, and it seemed relatively easy to build and install. Also, I didn't want to put up a big tower or mast with lots of guy wires around the yard. After quite a lot of investigation it looked like the one from KB9VBR Antennas - YouTube would work with the location and dimensions of my area. So, for coverage from 80 through 10 meters I followed his guide with a 74 foot antenna wire and a 26 foot counter poise using a 9:1 Unun. That is an Unbalanced-to-Unbalanced transformer to match the 50 ohm feed line coax impedance to the 450 ohm antenna impedance. The antenna and the coax transmission line are both unbalanced loads.

For the antenna I found some 14 AWG wire at the local hardware store and some electric fence insulators. Five 12-foot 4x4s were installed. One in a central location, one at the South corner of the property and one back to the North close to the house for the feed line. Then the two others in line with the central one but off to the East and West for future use with an OCFD. On the central post I have a 10-foot fence rail for additional elevation. This elevation is not ideal but all I was willing to do initially. More elevation would help with propagation and feed point impedance.

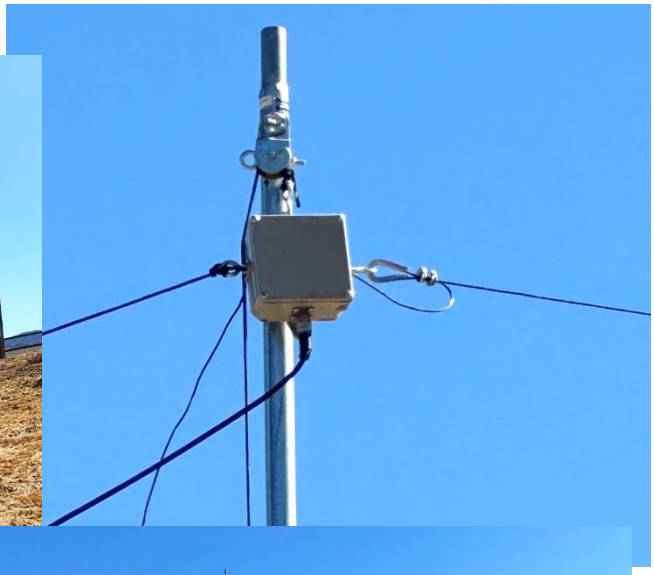
The next task was building the 9:1 matching transformer. Again, more investigation but I settled on the KB9VBR design using an FT 140-43 Ferrite Toroid core and 18-gauge enameled wire. The core was insulated with electrical tape and wound according to this diagram.





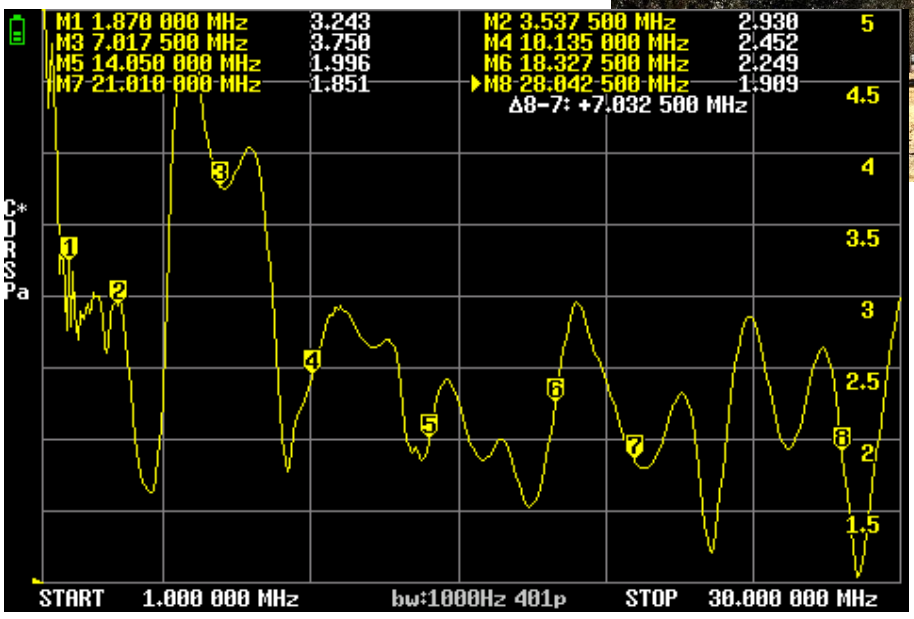
Here it is in the box with the feed connector at the bottom. One eyebolt to hang it and the two others for the antenna wire and counterpoise.

Now it was ready to install and test!



Above is the central post and South end. On the right is the feed point with antenna and counterpoise connections.

Here is a measurement of the installed antenna using a NanoVNA. Markers 1 and 3 show greater than 3:1 VSWR for 160 and 40 meters but the other bands are less than 3:1. With the antenna tuner I can use it from 160 thru 10 meters. Not the most efficient antenna, but I am on the air and making contacts across the country and around the world.



Here are some links with more information about long wire antennas including KB9VBR. KB9VBR Antennas - YouTube ; Random Wire Antenna Lengths ; ARRL Random Wires Page ; Steve Yates - AA5TB ; Hamuniverse - Jack, VE3EED - SK

Have fun building antennas. They are a relatively inexpensive way to explore our hobby.
…73, KN6ZGI

The Operating Room

This is a semi-regular column for club members to share the on-the-air aspects of their ham radio activities.

Compromise Portable Antenna

Ray Gretlein, W6QPA

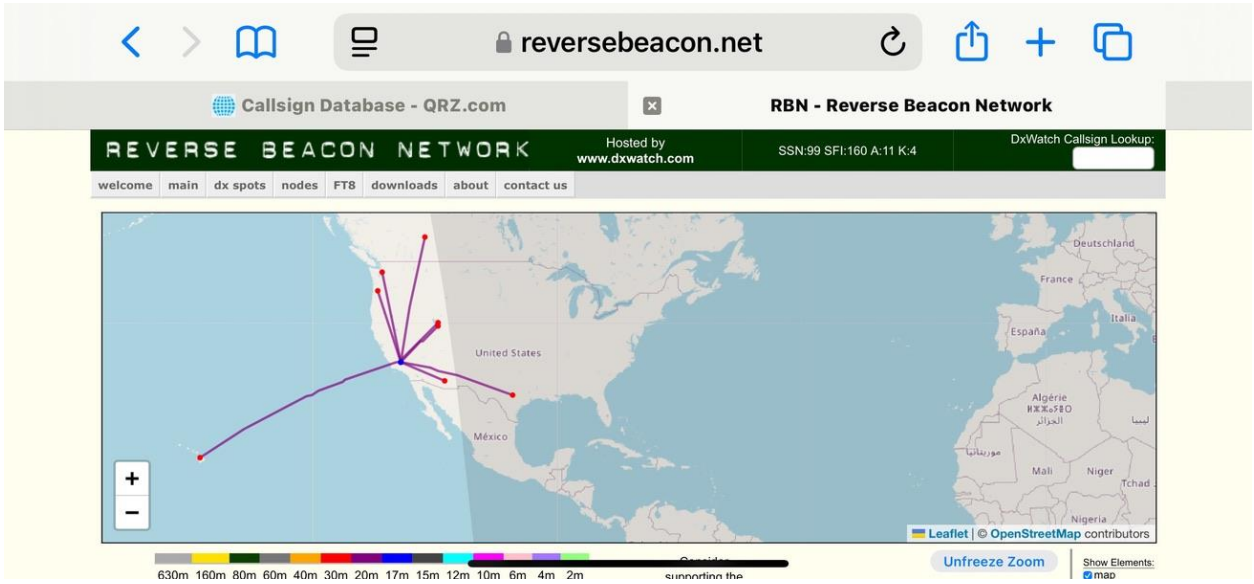
I've been looking for a convenient portable HF antenna to use on trips that aren't overtly ham-radio activities. You know something you can sneak into the carry-on and set up without much to-do. A base loaded telescopic whip has been showing up in my searches. Last year I worked Yoon (KM6KJI) in San Jose, CA while I was in Portland, Or. Yoon was pedestrian mobile using a QRP rig, with a homebrew base loaded telescopic whip! See his article in the January 2024 edition of The Dummy Load on page 6. I'm trying out this compromise antenna for an upcoming trip to Italy. This antenna is a GRA-1899T multiband HF VHF...it appears to be very similar to one that used to be produced by MFJ.

I'm waiting for better parts to mount it to a tabletop tripod. For this first test I clamped it to my balcony railing (simulating a hotel maybe).

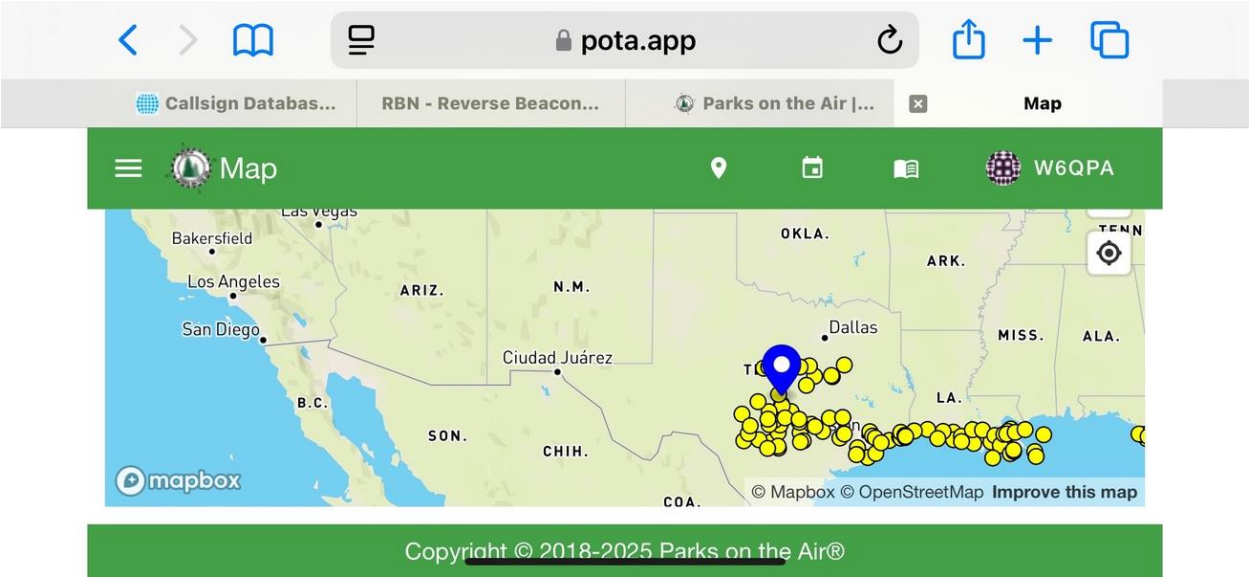
I haphazardly draped two 12-1/2’ radials 90 degrees to each other off the railing. The base coil and the whip adjust to get it sort of around your desired operating frequency, 14.050 MHz in my case. I found the best results when the whip was fully extended to 48”. After fiddling a bit I was able to get a 14.4 MHz best SWR down to 3-1/2:1. Still not good enough for my QRP rigs finals though. To get a match less than 1.5:1 I dug out my old reliable LDG QRP auto tuner. It is the great grandfather of the current LDG AT series and was a kit in the early 90’s.

After tuning up, I heard POTA contacts on 20 meters. I then went to an open spot on 20 and sent CQ at 10 watts to see what the reach looked like. I use the reverse beacon network to see where I’m being heard.

As you can see, I was heard in Hawaii, Canada and into Texas as well as the Pacific Northwest! Not bad for a little base loaded vertical only 4’ long 😂😂 . I’m amazed!! Since I was being heard in



Texas, I decided to try the POTA station I saw spotted in Texas. He came back to me on the first call!



I'm very surprised and pleased at the performance of this antenna. This will be easy to carry on in my backpack since it disassembles into two pieces less than a foot long. I'm excited to try this out on the trip.

Building Bridges on the Trail

Micah Martin, KN6VUT

Building Bridges on the Trail: TARA wants to Connect Ham Radio Hikers on the Pacific Crest Trail

Ham radio is about more than frequencies, antennas, and repeaters—it's about creating connections, often in the most unexpected places.

This spirit of connection is at the heart of an exciting new project by the Tehachapi Amateur Radio Association (TARA).

Our club is working to establish regular contacts for Pacific Crest Trail (PCT) hikers, enabling them to use handheld transceivers to check in with TARA as they traverse the breathtaking landscapes of California.

Connecting from the Trail

The Pacific Crest Trail, winding over 2,650 miles from Mexico to Canada, attracts hikers from around the

world. Along the way, hikers face challenges ranging from remote terrain to unpredictable weather. For those equipped with HTs (handheld transceivers), these challenges become a little less daunting. Ham radios not only provide a means of communication in areas without cell coverage but also foster a sense of camaraderie among trail enthusiasts and operators alike.

By partnering with PCT hikers, TARA hopes to weave ham radio into the fabric of the trail experience.

Using a schedule-based system, hikers will check in at designated times through the networked repeater systems.

These repeaters—strategically placed to relay signals across vast distances—can serve as the lifeline connecting hikers with TARA operators in the Tehachapi area.

How It Works

This plan leverages the power of amateur radio repeaters, which function as duplexers to boost and retransmit signals, ensuring smooth communication over challenging terrain.

The area surrounding Tehachapi offers an excellent vantage point for simplex and repeater networks capable of covering substantial portions of the trail.

Hikers using radios on common frequencies, such as the 2-meter and 70-centimeter bands, will be able to check in regularly.

Scheduled QSO (conversations) will play a crucial role in this initiative. Hikers can coordinate their call times with the TARA team, ensuring a clear and organized flow of communication.

This approach not only optimizes repeater use but also provides hikers with a reassuring touchpoint during their journey.

Building Community, One Contact at a Time

The Tehachapi Pacific Crest Trail Head has long been a gateway to adventure. With this program, TARA can turn into a hub for ham radio enthusiasts to connect with the trail community. Whether you're a seasoned operator or new to the world of amateur radio, there's something inspiring about forging these connections across the vast landscapes of the PCT.

TARA is leading the charge in showing how ham radio can bridge the gap between technology and nature, between operators and adventurers.

If you're interested in being part of this initiative—whether as a hiker, an operator monitoring QSOs, or even an Elmer offering support—contact Micah at kn6vut@ac6ee.org or ac6ee.org.

Together, let's make the Pacific Crest Trail not just a journey of miles, but a journey of meaningful connections.

73 and safe travels!
Micah – KN6VUT

Tid-Bits

A collection of miscellaneous mostly amateur radio related items.

David Walter - WA5GUL

Coax Cables

Most CB and HAM radio operators use coaxial (coax) cable to feed their antenna. Another name for the cable you use to hook your radio to your antenna is "feed line". Feed line is a generic term for all types of cable including coax. Coax has been around for a long time and became very popular with Radio Amateurs after World War II, when army surplus stores were filled with miles of coax cable. This is one of them main reasons why we use coax today, it became such a trend of sorts. Coax cable consists of two concentric wires, as shown in figure 1. It is important to note that coax cable is *unbalanced*, no current flows on the outside shield of the cable. This is in comparison other types of feed line that are balanced such as twin-lead, which you may be familiar with from your old TV antenna. Figure 1 shows a close up of the end of coax, and its makeup.

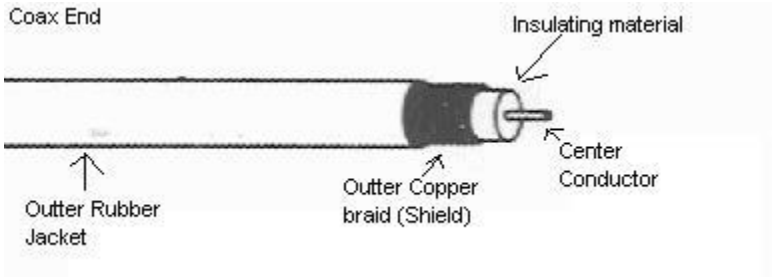


Figure 1 – Close up view of coax.

Coax has several advantages. You do not have to be careful what type of metal objects you run your coax over like you do twin-lead. It is even possible to bury some types of Coax, if the outer jacket is suitable. Its major disadvantage is that some types of coax have high loss at CB frequencies and get even worse as SWR increases. Usually companies rate their coax in decibels (db) of attenuation per 100 foot lengths. So at a given frequency, if you are

using exactly a 100 foot length, you would incur a loss of however many db's the manufacture states. Here is a chart of the losses for the most common types of coax used for CB service:

Coax	Attenuation in db per 100 feet (On 27MHz)	Velocity Factor	Description
RG-8	1.15 dB	.66	50 Ohm coax
RG-59	2.0 dB	.66	75 Ohm coax
RG-8/U Foam	0.85 dB	.80	50 Ohm coax, Foam Dielectric
RG-59/U Foam	1.5 dB	.79	75 Ohm coax, Foam Dielectric
Belden 9913	0.7 dB	.84	Premium 50 Ohm coax
1/2″ Hardline	0.35 dB	.81	Special coax, expensive!
RG-8X (Mini-8)	1.2 dB	.78	Small 50 Ohm coax. Perferred over RG-58. Recommended for mobile installations.
RG-58	2.35 dB	.66	50 Ohm coax
RG-213	1.35 dB	.66	50 Ohm coax.
RG-11/U Foam	0.85 dB	.80	75 Ohm coax.
RG-11/U	1.35 dB	.66	75 Ohm coax.

As you can see, some coax has high loss. Loss is RF energy that the coax turns into heat or "leaks" instead of passing on to the antenna (or to the receiver from the antenna). The lower the db of attenuation the better the cable is. Think of cable loss as *negative* gain! The higher the attenuation, the less efficient our antenna system is.

Loss is primarily dependent on the coax's shield and dielectric. The shield is the outer wire braid that surrounds the inside of the cable. A thick, tight braid results in less loss. Also, the dielectric (usually white), the plastic type material that separates the inside wire from the outside braid has an effect on cable loss.

Cables that use foam dielectric, that is where the insulation is mixed with an inert gas, have very low loss. It is important to use quality low loss cable! As you can see from the chart, the losses can be quite high. You must make perfect connections at the coax ends or, even higher losses will occur. It is also important to note that old coax has high loss also. The cables properties break down over time, resulting in very inefficient cable. If you are still

using that coax from the 1970s, its time to replace it! New coax is manufactured better than the coax was in the 1970s also, so this newer cable should last a lot longer.

Two special cables are listed. One is Belden 9913. Belden is the name of the company that makes the cable and they call it “9913”. It is a special coax that has two outside shields! The first is a foil material that is on the outside of the dielectric, then over that is the regular copper braid. As a result, the cable is very efficient (low loss) and also STIFF (though they now make a 9913F that is supposed to be flexible)! With low loss comes cost, this cable is expensive. The other special cable listed is hardline. This cable has a solid aluminum cover on the outside for the shield. It is thick, and very efficient—stiff (can’t really bend it) and costly. It is used by cable TV companies. Since they run miles and miles of cable, they need low loss cable. Cable loss is still so bad, they still need to have amplifiers along the cables every few miles or so. You can see hardline on telephone poles if your area has cable. It is usually a silver cable about 3/4 inches in diameter.

I said before that loss becomes even worse as SWR increases. These attenuation numbers in the chart are assuming a perfect 1:1 match. If your SWR is over 3:1, cable loss is horrendous no matter what kind of coax it is!

Coax Impedance

Again, the term impedance in “Coax Impedance” has different meaning…you cannot measure it with your trusty Ohm meter. It is determined by the spacing (ratio) of the inner wire and outer braid. In CB service, the two impedances mainly used are 50 Ohm and 75 Ohms.

Velocity Factor

Wow, doesn’t that sound like a serious high tech term! You can be king nerd of your CB group if you know things like “velocity factor”. Ok, ok we said before that waves travel different speed through different materials, if you missed it, its under the “1/2 Wavelength Dipole” Section of “Antenna Basics”. Velocity factor is simply a number we use to determine how fast or slow a wave travels through

Different coax models have *different* velocity factors. Lets look at some numbers. Say we want to make a coax that is exactly 1/2 wavelength long (this means when the wave travels through the coax, it makes exactly 1/2 of a cycle while it travels from one end of the coax to the other). If this sounds confusing, better check out the “Antenna Basics” section. We will take our formula for figuring out 1 wavelength and modify it.

One Wavelength in coax, in feet = 984 * (Velocity Factor) / Frequency in Megahertz (MHz)

Ok, say we want a 1/2 wavelength RG-8/U Foam on channel 40 (27.405)

984 is for a 1 wavelength, so we want a 1/2 wavelength or half of 984, 984 / 2 = 492. Get the Velocity Factor from the table above for RG-8/U Foam, which is .80. Put these numbers into the formula:

1/2 Wavelength, RG-8UFoam, Ch.40 = (492 * .80) / 27.405

1/2 Wavelength, RG-8UFoam, Ch.40 = (393.6) / 27.405

1/2 Wavelength, RG-8UFoam, Ch.40 = 14.362343 feet

The length of coax is 14 feet 4 inches! Practice and see if you can get lengths for other coax types with different velocity factors. This will become important if you ever “stack” or co-phase. You must cut certain length coax lines for co-phased antennas to work!

Assemble Your Coax Correctly

Bad connection cause loss. If you are going to solder connectors on the ends of your coax, be sure to do it right. You must have the right tools. Most Cbers and Ham radio operators think that they can solder on connectors to coax with their 25 Watt pencil tip soldering iron. You can’t. You should use a high wattage iron, preferably over 100 watts. You must heat the connector up quick, so you do not damage the coax and connector, and the *only* way to do this is with a high wattage soldering iron. I am not going to go into detail of soldering on PL-259 connectors to coax but let you look at figure 2. Trim the coax carefully, do not nick the inside when cutting. And I have one big tip you do not want to forget, before soldering the PL-259 plug to the coax, *do not forget to slide the PL-259 collar over the coax*! I have done this so many times! Soon as you start working just slide that collar on, push it back far down the coax out of the way so it does not slide back off..you will thank me for this! If you solder the connector on without sliding the collar on, you will have to start over (the collar will not fit over the connector once it is soldered on)! After you are done (or to check coax you suspect is shorted or bad) take an Ohm meter and check you coax.

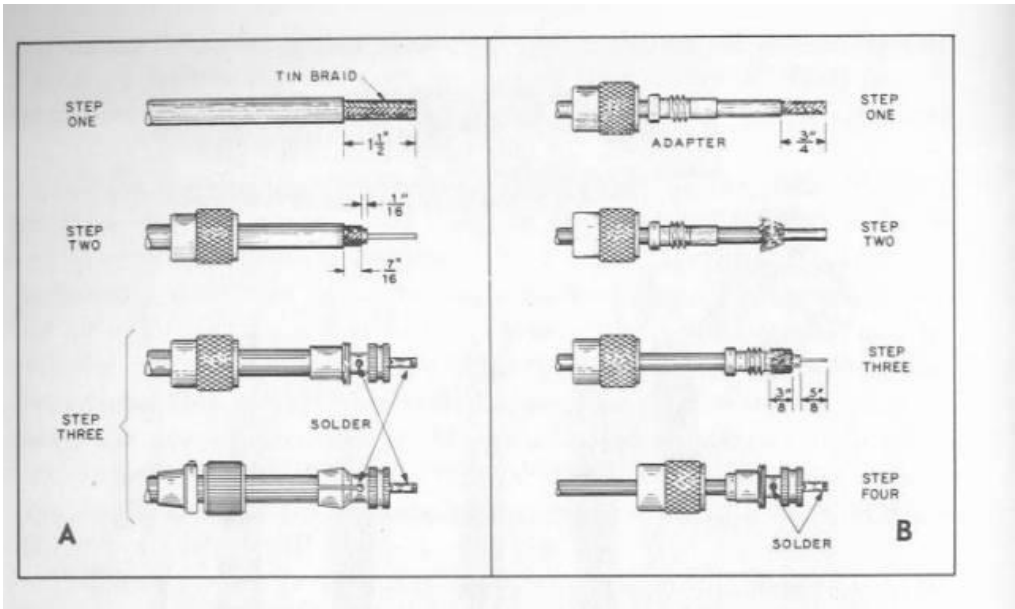


Figure 2 – How to solder on a PL-259 to coax.

After soldering, check to make sure your coax is ok. Use your VOM to check the coax for shorted or open circuit. This does not check for cable loss.

When you are done, be sure to waterproof the ends of the coax. Wrap it in quality electrical tape (I like 3M electrical tape) or use a special wrap you can get at radio shack. Water will easily find its way into coax ends. Remember I said old coax has high loss? This is probably the number one way coax is ruined.

Why does my coax length affect the SWR of my antenna?

How many of you change the length of your coax to tune your antenna? One of my good friends said to me, “I think changing the length of the coax is the same as moving the gamma rod adjustment on my Moonraker 4”. Sorry to say, this is not true. As most people will find, varying the length of coax to the antenna will vary the SWR that the SWR meter is reporting. Actually, SWR *should* remain relatively constant no matter how long the coax is or where it is placed on the line (if its 5 feet down the coax from the radio or 50 feet down the coax from the radio). In most cases, the cause of inconsistent SWR meter readings is from poor SWR meter design or component aging / failure. For the SWR meter to read consistent SWR readings on the coax, the meter has to have an impedance itself of *exactly* 50 Ohms. Any deviation of the SWR meter’s self-impedance (from 50 Ohms) from poor design or component aging / error / failure will cause *slightly* inconsistent SWR readings when the SWR meters position on the coax or length of the coax is varied. In practice, generally you will find varying the coax length seemingly effects the SWR reading. Most SWR meters (built into radio and external type meters) and impedance “humps” in coax lines and connectors will cause minor variations in SWR as jumpers and coax length are varied. In reality, the mismatch at the antenna’s feed point / coax junction is unchanged. Therefore – the actual SWR is unchanged.

Another reason SWR could vary is from the situation where the coax is acting as part of the antenna. Not a favorable or normal situation. The signal is traveling back down the outside of the coax braid (note power should only be traveling on the *inside* on the coax braid). Therefore, the coax is part of the antenna system and changing the coax length will change the SWR. This situation is more likely to occur in mobile installations. You can try to eliminate this situation (called “Common mode currents”) by winding an “RF Choke”. Wind about 6ft of RG-213 or RG-8 into a coil (6 to 8 turns). For RG-58 use 4ft with 6 to 8 turns. Wind the coax up, placing each turn right next to one another. Use electrical tape to secure turns together. You should place these as close to the antenna as possible. Right at the antenna coax connection point being optimum. Most times, you can verify that you have common mode currents flowing back down the coax by grabbing hold of the coax while transmitting and moving the coax around. You can watch the SWR waver by moving the coax while transmitting (don’t speak into mic!). You must do this with all the doors closed from inside the vehicle. SWR should waver, if you notice that SWR jumps rapidly between two values, you might have an intermittent (bad) connection in the connectors (PL-259s) on the coax. In most cases of “common mode currents”, just grabbing the coax will cause the SWR to change.

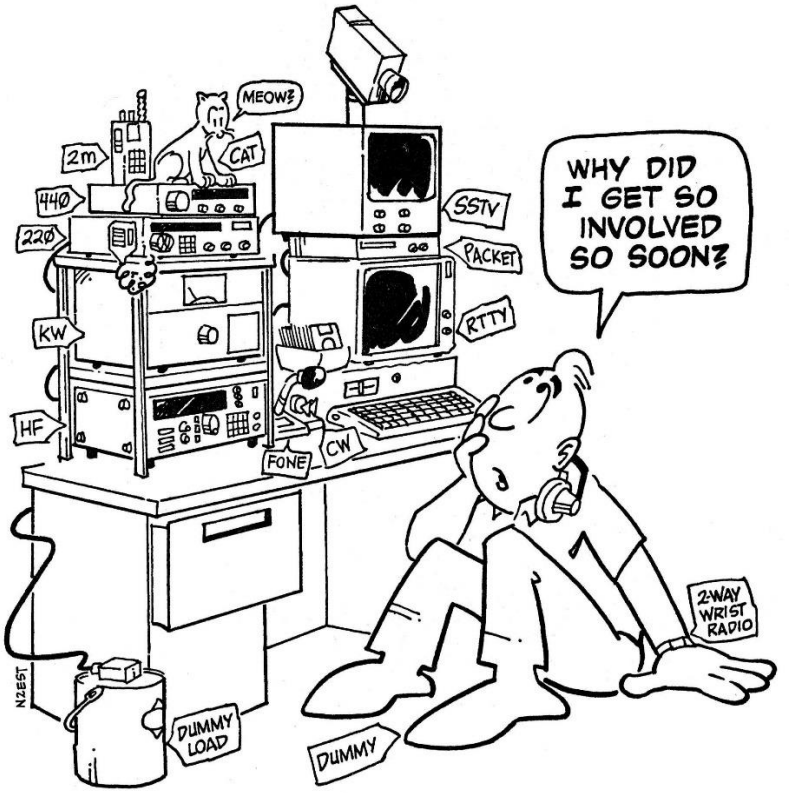
The “RF choke” described above stops the signal from traveling back down the outside of the coax. The signal inside the coax is * *u n a f f e c t e d* * by the choke (contrary to what you may have heard about coiling up excess coax). Common mode current kills antenna efficiency. You could have a decent SWR and not realize half your signal is being broadcast into you car (result very poor antenna performance). If your linear amplifier causes serious problems with your car’s computer, lights, etc….you may have common mode currents. If moving the coax around the vehicle results in SWR change, this is a good indicator you have common mode currents flowing back down the coax line.

This doesn’t happen often with base station antennas. Most base antennas have some type of device that will decouple the antenna from the feedline (gamma match, balun, etc.). Make sure you run your feeding (coax) straight down from the antenna, taking care not to run close to antenna to prevent “common mode” currents which could still occur if coax is oriented in a way to pick up strong antenna signal.

IW5EDI Simone - Ham Radio

Humorous

David Walter - WA5GUL



ARRL Contest Calendar

This page provides a summary of events sponsored by the ARRL, the national association for amateur radio. The most current information is on the website at: http://www.arrl.org/contest-calendar.

Another source for contest and on-the-air activity is WA7BNM Contest Calendar at https://www.contestcalendar.com/weeklycont.php

March 2025

- 1-2 International DX – Phone

April 2025

- 13 Rookie Roundup – Phone

May 2025

- (no ARRL Contests)

June 2025

- 7-8 International Digital Contest
- 14-16 June VHF
- 21 Kids Day
- 28-29 Field Day

July 2025

- 12-13 IARU HF World Championship

August 2025

- 2-3 222 MHz and Up Distance Contest
- 16-18 10 GHz & UP - Roundup 1
- 16-17 EME - 2.3 GHz & Up
- 17 Rookie Roundup

September 2025

- 13-15 September VHF
- 13-14 EME - 2.3 GHz & Up
- 20-22 10 GHz & Up - Round 2

TARA Calendar

This page is a summary of events sponsored by or involving our club.
All dates are subject to change. Please check the club Facebook and website for updates.

February 2025

- 1, 8, 15, 22 — 1800 hrs, 10 Meter Technician Net every Saturday on 28.350 MHz
- 2, 9, 16, 23 — 1900 hrs, TARA Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 2, 9, 16, 23 — 1930 hrs, BVS ERT Net (ARES) (W6SLZ VHF rpt, 146.70 - / 123.0)
- 5, 12, 19, 26 – 1900 hrs "Just Because" Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 5, 12, 19, 26 – 1300 hrs "Wireless Wednesday" at Taco Samich
- 6 – 1900 hrs, TARA Board Meeting, Via Zoom (invite via email)
- 8 — 0830 hrs, TARA Club Breakfast at P-Dubs, 20800 Santa Lucia St, Tehachapi, CA 93561 Reserve a spot with Valerie Mason by 1 February.
- 8 — 11:00 hrs, VE Amateur Radio License Exam, 538 East Tehachapi Boulevard
- 13 – 1900 hrs, TARA Club Meeting Tehachapi Police Department, 220 W C St, Tehachapi
- 18 – 1800 hrs, BVS Emergency Radio Team Meeting at the BVS Equestrian Center Lounge.
- 22 —0800 hrs, BVS Emergency Radio Team Breakfast at BVS Mulligan Room. Reserve a spot with Valerie Mason by 15 February.

March 2025

- 1, 8, 15, 22, 29 — 1800 hrs, 10 Meter Technician Net every Saturday on 28.350 MHz
- 2, 9, 16, 23, 30 — 1900 hrs, TARA Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 2, 9, 16, 23, 30 — 1930 hrs, BVS ERT Net (ARES) (W6SLZ VHF rpt, 146.70 - / 123.0)
- 5, 12, 19, 26 – 1900 hrs "Just Because" Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 5, 12, 19, 26 – 1300 hrs "Wireless Wednesday" at Taco Samich
- 6 – 1900 hrs, TARA Board Meeting, Via Zoom (invite via email)
- 8 — 0830 hrs, TARA Club Breakfast at Kelcy's Restaurant, 110 W Tehachapi Blvd, Tehachapi, CA. Reserve a spot with Valerie Mason by 1 March.
- 13 – 1900 hrs, TARA Club Meeting Tehachapi Police Department, 220 W C St, Tehachapi
- 18 – 1800 hrs, BVS Emergency Radio Team Meeting at the BVS Equestrian Center Lounge.
- 29 —0800 hrs, BVS Emergency Radio Team Breakfast at BVS Mulligan Room. Reserve a spot with Valerie Mason by 22 March.

April 2025

- 2, 9, 16, 23, 30 – 1900 hrs "Just Because" Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 2, 9, 16, 23, 30 – 1300 hrs "Wireless Wednesday" at Taco Samich
- 3 – 1900 hrs, TARA Board Meeting, Via Zoom (invite via email)

- 5, 12, 19, 26 — 1800 hrs, 10 Meter Technician Net every Saturday on 28.350 MHz
- 6, 13, 20, 27 — 1900 hrs, TARA Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 6, 13, 20, 27 — 1930 hrs, BVS ERT Net (ARES) (W6SLZ VHF rpt, 146.70 - / 123.0)
- 10 – 1900 hrs, TARA Club Meeting Tehachapi Police Department, 220 W C St, Tehachapi
- 12 — 0830 hrs, TARA Club Breakfast at P-Dubs, 20800 Santa Lucia St, Tehachapi, CA 93561 Reserve a spot with Valerie Mason by 5 April.
- 12 — 1100 hrs, VE Amateur Radio License Exam, 538 East Tehachapi Boulevard
- 15 – 1800 hrs, BVS Emergency Radio Team Meeting at the BVS Equestrian Center Lounge.
- 26 — 0800 hrs, BVS Emergency Radio Team Breakfast at BVS Mulligan Room. Reserve a spot with Valerie Mason by 19 April.
- 26 – 1200 to 1800 hrs, Tehachapi Wind/Kite Festival – Volunteer Comms Patrol, Contact Micah KN6VUT at kn6vut@ac6ee.org

May 2025

- 1 – 1900 hrs, TARA Board Meeting, Via Zoom (invite via email)
- 3, 10, 17, 24, 31 — 1800 hrs, 10 Meter Technician Net every Saturday on 28.350 MHz
- 4, 11, 18, 25 — 1900 hrs, TARA Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 4, 11, 18, 25 — 1930 hrs, BVS ERT Net (ARES) (W6SLZ VHF rpt, 146.70 - / 123.0)
- 7, 14, 21, 28 – 1900 hrs “Just Because” Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 7, 14, 21, 28 – 1300 hrs “Wireless Wednesday” at Taco Samich
- 8 – 1900 hrs, TARA Club Meeting Tehachapi Police Department, 220 W C St, Tehachapi
- 10 — 0830 hrs, TARA Club Breakfast at Kelcy’s Restaurant, 110 W Tehachapi Blvd, Tehachapi, CA. Reserve a spot with Valerie Mason by 1 May.
- 10 — Time TBD, Fox Hunt after the TARA Club Breakfast, Location at Meadowbrook Park in Tehachapi followed by a picnic/BBQ.
- 20 – 1800 hrs, BVS Emergency Radio Team Meeting at the BVS Equestrian Center Lounge.
- 31 —0800 hrs, BVS Emergency Radio Team Breakfast at BVS Mulligan Room. Reserve a spot with Valerie Mason by 21 May.

June 2025

- 1, 8, 15, 22, 29 — 1900 hrs, TARA Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 1, 8, 15, 22, 29 — 1930 hrs, BVS ERT Net (ARES) (W6SLZ VHF rpt, 146.70 - / 123.0)
- 4, 11, 18, 25 – 1900 hrs “Just Because” Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 4, 11, 18, 25 – 1300 hrs “Wireless Wednesday” at Taco Samich
- 5 – 1900 hrs, TARA Board Meeting, Via Zoom (invite via email)
- 7, 14, 21, 28 — 1800 hrs, 10 Meter Technician Net every Saturday on 28.350 MHz
- 12 – 1900 hrs, TARA Club Meeting Tehachapi Police Department, 220 W C St, Tehachapi
- 14 — 0830 hrs, TARA Club Breakfast TARA Club Breakfast at P-Dubs, 20800 Santa Lucia St, Tehachapi, CA 93561 Reserve a spot with Valerie Mason by 1 June.
- 17 – 1800 hrs, BVS Emergency Radio Team Meeting at the BVS Equestrian Center Lounge.
- 27,28,29 – Summer Field Day, Setup Friday Afternoon, Operating Saturday and Sunday. Contact Zach W9UOI to support our Field Day at Zachary.dickinson.82@gmail.com

- 28 —0800 hrs, BVS Emergency Radio Team Breakfast at BVS Mulligan Room. Reserve a spot with Valerie Mason by June 18.

Reference Information

Local Repeater Information				
BVS APRS Digipeater	144.390	No tone	AC6EE-3	APRS
BVS Repeater **Backup Freq.**	146.700 145.580	123.0 Hz Tone Simplex	W6SLZ	Open Machine
BVS Repeater	440.625	100.0 Hz Tone	W6SLZ	Open Machine (WIN System node)
Tehachapi Repeater (Cummings Mtn.)	442.925(+)	141.3 Hz tone	KI6HHU	On the KERN System
Tehachapi Repeater (Double Mtn.)	446.320(-)	151.4 Hz tone	KI6HHU	On the KERN System
Tehachapi Repeater	444.225(+)	100.0 Hz TONE	KG6KKV	Overlooks Bakersfield
Tehachapi Repeater	447.120(-)	67.0 Hz Tone	KR6DK	Linked to KR6DK Bilingual Repeater Network
DMR Repeater	442.675	Offset: +5.000 ColorCode: 1	K6RET	Brandmeister, Bakersfield, CA The location is in the Tehachapi Mountains near Cummings Mountain

Local Repeater Information				
DMR Repeater	442.225	Offset: +5.000 ColorCode: 1	K6GTA	Brandmeister, Located about halfway up Bear Mountain at about 3,200' coverage to west side of the mountain in Bear Valley Springs
Tehachapi Simplex	145.58	No Tone		Local Simplex
Tehachapi Simplex	146.54	No Tone		Local Simplex

In addition to the repeaters listed above the following repeaters, part of the Kern System, can be reached from locations throughout the Tehachapi area and much of the San Joaquin Valley. They are linked together, and more information may be found at http://www.KernSystem.org

KERN System Linked Repeaters				
Frazier Mountain (8,000')	447.860	141.3 Hz Tone	KK6AC	Jerry Garis
Cummings Mountain (7,800')	442.95	141.3 Hz Tone	KI6HHU	Lee Bouchard
Double Mountain (8,000')	446.320	151.4 Hz Tone	KI6HHU	Lee Bouchard

ARRG Linked Repeaters				
Cummings Mountain (7,800')	444.425	100 Hz Tone		

ATTENTION:

For those interested in monitoring dispatch for the Bear Valley Springs Police Department

- KCSO Eastern Dispatch — 460.225
- KCSO East TAC — 460.125

All dispatch for BVSPD will be handled by the Kern County Sheriff's Department

Club & Other Websites	
TARA website	http://www.ac6ee.org
TARA Facebook	https://www.facebook.com/TARAtehachapiamateurradio/
Tehachapi-hams (email list)	https://groups.io/g/tehachapi-hams/
Antelope Valley Amateur Radio Club (AVARC)	http://www.k6ox.club/index.html
Kern County-Central Valley Amateur Radio Club (KCCVARC)	http://www.w6lie.org
ARRL	http://www.arrl.org
West Kern County Amateur Radio Emergency Services (WKCARES)	http://westernkerncountyares.org/index.html

Officers & Committee Chairs			
Officer/Committee Chair	**Name**	**Call**	Email
President	**Dan Mason**	**AB6DM**	ab6dm@arrl.net
1st Vice President	**Dan Mason (Interim)**	**AB6DM**	ab6dm@arrl.net
2nd Vice President	**Micah Martin**	**KN6VUT**	kn6vut@ac6ee.org
Treasurer	**John Dyer**	**KM6DXY**	km6dxy@ac6ee.org
Secretary	**Joe Jacobson**	**KJ7PUL**	kj7pul@ac6ee.org
Technical Director	**Dick Brown**	**W6SLZ**	db24130@sbcglobal.net
Web Page & FaceBook Committee Chair	**John Dyer**	**KM6DXY**	km6dxy@ac6ee.org
Hospitality Committee Chair	**Valerie Mason**	**KK6WLQ**	val3mason@yahoo.com
Public Affairs Committee Chair	**Micah Martin**	**KN6VUT**	kn6vut@ac6ee.org
Newsletter Editor	**Stephen Lee**	**KN6ZGI**	Kn6zgi@ac6ee.org

Meeting and Club Membership Information

The Tehachapi Amateur Radio Association meets every second Thursday of the month at 7:00 PM (except for July - no meeting). Our meeting site is the Tehachapi Police Department Conference Room, 220 W C St, Tehachapi.

Member Annual Dues: $25.00/year
- Individual Memberships: https://square.link/u/Q38FHI5A

Additional Family Member: $12.50/per person
- Family Memberships: https://square.link/u/Q38FHI5A

The QR codes below can also be used to link to your favorite transaction application.

Square / SquareUp

PayPal

venmo

Membership Application

Download a copy of our Membership Application here. Please share this with any friends, family or neighbors that are either hams or may be interested in amateur radio. Applications are accepted at all club meetings, or you may mail your application along with the applicable dues to the club Post Office Box:

Tehachapi Amateur Radio Association (TARA)
P.O. Box 134
Keene, CA 93531