

# Noise Floor

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Pacific Northwest VHF Society

Fall 2008

## 2008 PNWVHFS Conference Wrap-up



**Great presentations!** - Speakers at the 2008 conference included (l-r) Joe Taylor, K1JT (“Digi Modes in the VHF Weak Signal World”); Lyle Johnson, KK7P (“Software Defined VHF/UHF/Microwave radios”); Eric Swartz, WA6HHQ (“Elecraft Update”); Ed Cole, KL7UW (“VHFers in Alaska”); and Sean Kutzko, KX9X (“ARRL Contest Branch Update and the new Fred Fish Memorial Award”).





*VHFer-of-the-Year: Eric Smith, KB7DQH, (right) is congratulated by PNWVHFS President Scott Honaker, N7SS, after being presented with the 2008 VHFer-of-the-Year award.*

## *KB7DQH named VHFer-of-the-Year*

Eric Smith, KB7DQH, of Port Orchard, Washington, was presented with the 2008 VHFer-of-the-Year award at the recent Pacific Northwest VHF Conference in Moses Lake, Washington. Making the presentation during the annual meeting portion of the conference was society president Scott Honaker, N7SS.

KB7DQH was selected for the 2008 award "For taking such an active role in promoting and encouraging VHF/UHF/Microwave activity in the Pacific Northwest." From pioneering efforts in multi-op roving to promoting VHF/UHF weak signal operations

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Noise Floor is the official publication of the Pacific Northwest VHF Society. All opinions expressed herein are those of the individual authors unless specifically stated as being otherwise.

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## *Former PNWVHFS director Art Moe, KB7WW, SK*

PNWVHFS member Arthur "Art" Moe, KB7WW, passed away at his home in Oregon City, Oregon, on November 9, 2008. He had been in declining health for several years.

Art served a two-year term as PNWVHFS Oregon director in 2003-2004 and was a very active 6M operator. He will be greatly missed. The society extends condolences to the Moe family.

## **VE7DXG named to RAC post**

Radio Amateurs of Canada President Dave Goodwin VO1AU/VE3AAQ has named Gabor Horvath, VE7DXG, of Duncan, BC, as Chair of the RAC's VHF/UHF Bandplanning Committee. The committee's role is to make recommendations to the RAC board on how amateur spectrum between 30MHz and 2GHz is divided among the various modes and techniques employed by Canadian radio amateurs.

Gabor is looking for volunteers to serve on the committee and to begin the process of reviewing and updating the current band plans. Please contact Gabor at [VE7DXG@rac.ca](mailto:VE7DXG@rac.ca). The committee is not responsible for assigning frequency pairs to particular repeaters; that is the work of local repeater coordinators.

Gabor succeeds Graham Ide, VE3BYT, of Ottawa, ON, who resigned as chair of the committee in 2007. RAC is very grateful to Graham for his many years of service to Canadian amateurs.

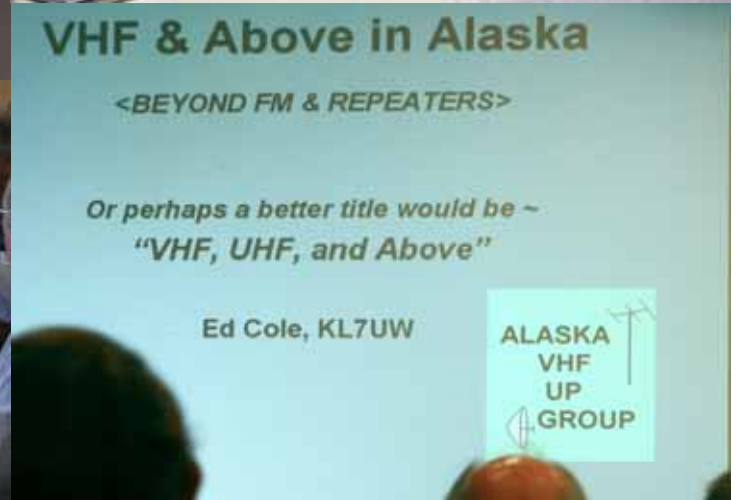
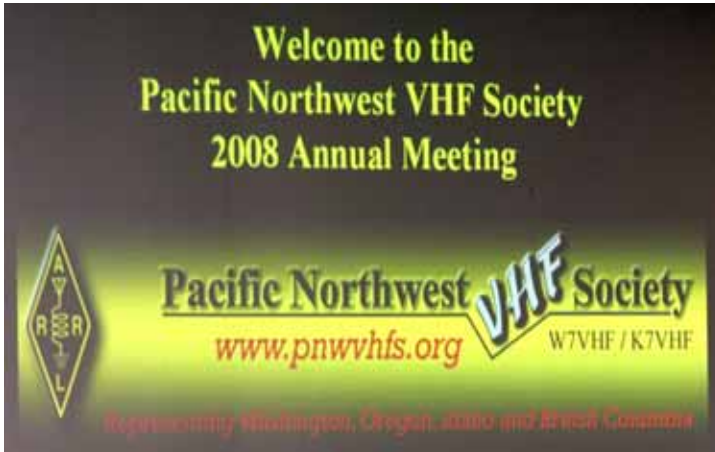
In addition to serving in the RAC position, Gabor also serves as the RAC representative to the ARRL's VHF/UHF Advisory Committee (VUAC).

**- From RAC Bulletin 08-12**

*(Editor's note: presumably, the volunteers Gabor is seeking should be RAC members or Canadian amateurs.)*



# More photos from the 2008 conference





*Still more conference photos!*



# Logging roads and CB radio use

By Dan Smith, KD7UFF

*(Editor's note: the following information was recently provided to Lynn Burlingame, N7CFO, by Dan Smith, KD7UFF, when he asked about protocols for traveling on back roads where active logging is ongoing. Dan lives in Forks, Washington, and has extensive experience in the logging industry as both a truck driver and on-the-ground logger.)*

"I drove log truck for 15 years, so I have a lot of experience getting up and down those narrow roads safely. Virtually all log truck drivers use Citizen's Band (CB) radios for communications, so I recommend that you have one if you are doing any mountain-topping in logging country.

"The key is to find the channel they are running on that particular road. Often, as you come of the end of the blacktop and start up a logging road, you will see a sign (usually a chunk of plywood with bright spray paint) with "CH 18" or another frequency painted on it. Turn your CB to that channel and call "Pick-up coming in at one 1 mile" and wait for a reply. Use "Pick-up" if you are driving a pick-up or "car" if you are in a passenger car. Make a similar call at each mile marker that you see, indicating the mile number.

"When monitoring, you may hear things like "Loaded at 4-mile," which is an indication that a loaded log truck is on its way out and is at or near the 4-mile marker. If their signal is coming in really strong, it means they are close to you. Be extra careful and ready to get out of the way if you are anywhere near that point! "The loaded truck coming out ALWAYS has the right-of-way!"

If you are not sure what marker you are at, or not sure where the next turn-out is, the best thing to do is pull off and wait until the truck passes. When he does, ask him if there are any others close behind him. He might tell you about another truck that you have not heard.

"If you don't find any channel indicator at the start of the road, a general guideline is that most Washington loggers use Channel 14. I don't have experience in other states, so really can't say what's used outside Washington. With so many different logging operations sometimes close to one another; however, the range of channels is pretty wide open. A good place to start is Channel 14 and then check 10 channels or so on either side.

"If I come across a road that I'm not familiar with, I will try to stop the first log truck or work truck I see. Many times, you can find someone in a pick-up or work truck running to or from the job site. Ask if they know what channel is being used on the road. Many roads have a set channel, but if there are a lot of jobs on that road, they may use others on each spur road.

"Using CB radio to monitor traffic on a logging road is kind of a crap shoot, so always be careful when driving on back roads in logging country. The CB can provide useful information, but there is no substitute for keeping a careful eye out for trucks and other traffic."

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## VHFer-of-the-Year...

*(Continued from Page Two)*

with a "get-on-the-air" attitude and the many appearances of the "Enterprise II" at local ham radio events," Eric has made a difference

This award is given annually to the amateur, or amateurs, in the Pacific Northwest who have gone above and beyond the call to further VHF+ activity. Recognition may be given for activities such as technical achievement, advancement of the art, teaching, "Elmering", public service, etc.

The PNWVHFS Board of Directors serves as the jury for these awards. Nominations can be made by any society member. Nominees do not have to be a member of the society to be considered.



# N Connector Basics

(Part Two)

By Jim Aguirre, W7DHC

(In Part One, published in the last issue of Noise Floor, we looked at the different commonly available N connectors...clamp (or compression) style, crimp style and PL-259 style. In Part Two, we'll look at some "tips 'n tricks" for installing them correctly.)

## The right tools!

Installing N connectors is really no more difficult than any other connector. In fact, in some regards, it may be even easier. As with any job; however, having the right tools can make the difference between a clean, simple installation and a botched "nightmare." There are several inexpensive tools that can make working with N connectors a lot easier.

First, are the cutting tools that you'll need. Making a clean connector installation starts with making clean cuts on the coax you are using. Cleanly cut...and squarely cut...coax is far easier to work with. In this regard, a curved blade cable cutter designed for use on electrical and/or coaxial cable is a must. They are available at most "big box" hardware stores as well as on-line. Among the brands I've recently seen were Klein (Sears, Lowe's and Home Depot), HK Porter (Home Depot), Greenlee (Home Depot) and Kobalt (Lowe's). They ranged in price from about \$16 to \$30.



I wish I could tell you where to find a curved blade cutter like I have, but I can't find a source. I bought mine several years ago from the husband-wife team that used to sell tools and parts at hamfests. I haven't seen them for a few hears, however.

The thing I like about my coax cutter is that not only does it have curved cutting blades for coax, but also a small, round notch for cleanly cutting center conductors. There are no markings on it indicating a manufacturer. If you should find a source, please let me know.

Once you've cut the coax to length, you'll need to remove a portion of the outer insulation. I find a standard "box knife" works well for this job, as does one of the larger X-Acto knives.



The key thing here is "sharp." Dull knives need not apply...even those mentioned above. Keep a supply of new blades handy.

I guess at this point, it is obligatory to say "don't nick the braid" when removing the outer insulation as is done in every article I've ever read about installing ANY coax connector. Don't worry about it! Just go lightly and things will be fine. If you "nick" it, it isn't the end of the world. I'm sure I have "nicked the braid" a bunch of times, but have never had a connector fail because of it.

One more inexpensive cutting tool can make life a lot easier when trimming the braid to length (more on this process later) is a decent pair of scissors. I've tried almost everything from expensive Klein electricians' scissors to cheap, straight-blade, "cuticle scissors."



Quite honestly, the cheap cuticle scissors...available at most drug stores...work as well as anything for me. They cost just a few bucks and seem to last forever in the limited use I put them to when installing N connectors. I don't use them for any other type of cutting, however. Give 'em a try before spending "big bucks."

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## *N-connector basics continued...*

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Other useful tools include a small metal or plastic ruler (I prefer a Metric scale, but use what you're most comfortable with) and a miniature vise for holding the coax for soldering.



Here, I prefer a PanaVise with an adjustable ball mount to allow proper positioning, but others would certainly work. More on this in a bit.

Of course, you'll also need a soldering gun or iron and solder to finish the job. For all but the PL-259-style connector, a relatively low wattage (50W-100W) solder gun works fine. For the PL-259-style, you'll need a really high wattage gun; at least 250W. Remember that using this much heat will damage foam dielectric coax, so proceed accordingly.

On the infrequent occasions when I use this style connector (and only with solid poly or Teflon dielectric coax), I use a 200W soldering iron, not a gun! The greater thermal mass of the iron heats a connector quickly to soldering temperature and allows rapid soldering without "cooking" the coax. Don't try this with foam dielectric coax, however, unless you like goey messes!



If you are assembling clamp-style or PL-259-style fittings, you will also need a pair of appropriately sized wrenches. For assembling crimp-style connectors, you will need an appropriate crimping tool. As mentioned in Part One, crimping tools can be a bit expensive, especially if you look at high-production units. You can, however, find a decent crimping tool with several sets of dies for different coax sizes in the \$75 to \$100 range.



### ***Think safety!***

Don't forget the safety glasses! Whenever you are cutting or soldering, things can fly around. It takes just one moment of inattention to create a lifetime of difficulty. Get a good pair of safety glasses with side shields...and, wear them! Safety glasses are cheap and replaceable; eyes are neither!

### ***"Grooming" the coax***

When you get to the actual connector assembly process, you will need to "comb" out the braid on the coax. I've tried a number of ways to do this quickly and effectively...yes, even using a comb...but found that using a small stainless steel brush works best. This was recommended to me years ago by a long-time ham, Pat Buller (W7RQT/SK), and I have found it to be very effective.



These brushes can be found at most hardware stores as well as welding supply shops for about \$2. They are just about the size of an ordinary toothbrush and have fine wire bristles. You can also find similar brushes with brass bristles and I've used them too; however, the brass doesn't hold up nearly as well as stainless steel. Don't use brushes with ordinary steel bristles as they can leave small deposits of steel behind that will eventually rust, compromising the connection's electrical integrity.

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## *N-connector basics continued...* *(Continued from Page Seven)*

### **The “wood block trick”**

Another very useful tool is a simple, two-part wood block about 1-1/2” thick with a hole, sized to match the the coax you are using, drilled through it at the point where the blocks come together. This allows you to clamp the coax in most any kind of vise without damaging it. Properly made, it will just allow the coax to be rotated without loosening the vise.

This wood block can be easily made from two pieces of nominal 1X2 softwood (pine, fir, hemlock, etc) about 2-1/2” long. I clamp the two pieces together and drill a hole down through the seam between the pieces.



I've found that a 13/32 bit is just about right for RG-8/ RG-213/9913/LMR-400. You could also use a more common 7/16” drill bit and finish the job with a round file or use a slightly larger bit...say 7/16...with a piece of light cardboard clamped between the wood pieces when you drill. When the cardboard is removed, the hole becomes slightly oval and should grip the coax lightly. You want a snug, but not tight, fit so you can clamp the block in the vise and still be able to rotate the coax. Use a 1/4” hole for RG-8X.

### **Installing “clamp-style” connectors**

Since I use mostly clamp-style N fittings, let's start with them. Once you have all the tools at your disposal, cut the end of the coax cleanly and squarely using the curved blade cutters. Then, remove about 1/2”/13mm of the outer insulation. A lot of connector installation instructions want you to remove some carefully-measured length of insulation; I prefer to remove a little extra in the beginning and trim things to fit as I go along.

I realize that I probably “waste” an eighth of an inch of coax doing this, but it sure makes life a lot simpler. Lessee...at a buck a foot for coax, an eighth of an inch

works out to about a penny's worth. Even in these tough economic times, I'll sacrifice a penny for convenience!

Before moving on, slide the compression nut, flat washer (if used) and rubber seal onto the coax in proper order and facing the right direction. The vee groove in the seal should face forward into the body of the connector so that it can engage the sharp ridge in the clamp. By the way, the clamp is designed to cut the seal into two parts when it is tightened. If you plan to reuse a clamp-style connector, buy a small supply of extra seals with your next connector order.

Use the small stainless steel brush to “comb out” the braided shield. You want to straighten out all of the strands. Smooth the straightened strands and lightly form them over the edge of the dielectric. This will make it easier to install the clamp. Slip the clamp over the strands and onto the body of the coax, butting it up against the outer insulation. Carefully peel back the shield strands and form them back over the clamp. Use your brush to evenly distribute the strands around the face of the clamp, but don't trim them off yet.

Now, use your box or X-Acto knife to carefully cut the inner dielectric flush with the face of the strand-covered clamp face. Try not to cut any of the strands. Twist the dielectric slightly clockwise and it will break loose and come off. If the coax you are using has a bonded foil shield in addition to the stranded shield, look closely for any shards of loose foil that might short to the inner conductor. Use your knife to gently remove them.

Using the loose center pin for the connector as a guide, cut the center conductor back to where it just shows in the tiny solder hole. This will be about 3/16” or 4mm. No need to use a ruler for this; just eyeball it using the solder hole as a guide. Cutting the center conductor should be done with a curved blade cutter or VERY sharp pair of wire cutters. Dull diagonal cutters will deform the center conductor and make inserting it into the pin difficult. Slide the pin onto the center conductor and firmly seat it against the dielectric, then solder in place.

### **Soldering savvy!**

A brief word about soldering; use small solder! I prefer .031 size as it is about the same size as the solder hole in the pin. With the coax clamped in a vise (This is

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## *N-connector basics continued...*

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where the wood block comes in handy) and the hole facing up, apply heat to the bottom of the pin...opposite the hole. Solder follows heat and, as soon as the pin reaches the correct temperature, the solder will flow in.

Avoid leaving large gobs of solder on the pin as this will make assembly difficult. Should you wind up with a blob on the pin body, you can either reheat it and use a Q-Tip to wipe it away, or use your knife to shave it away after the joint has cooled. The upper portion of the pin (body) is not part of the mating contact surfaces, so don't worry too much about nicks and scratches on it. The smaller part of the pin should be kept free of solder.

### **Final Assembly of the clamp-style connector**

Now, you're ready to assemble the whole package. First, however, use your small scissors to trim the braid strands at the base of the clamp.



Examine your work carefully to be sure no loose strands remain uncut or have folded in toward the center conductor. Just one strand making contact with the center conductor will create a problem.

Insert the nut/washer/seal/clamp assembly into the back of the connector body. Don't be too forceful as you don't want to disturb the folded back braid strands. Tighten the clamp nut finger tight and check the front of the connector for pin position. The point of the center pin should be at or slightly below the edge of the tubular shield contact. It should not extend beyond it. Using your wrenches, tighten the nut moderately. Don't over-tighten the nut; snug is just fine. Be sure to use your VOM to check for continuity and shorts in the finished assembly.

For outdoor use, I always put a 3-1/2" long piece of 3/4" heat-shrink tubing...the kind with the melt-able glue inside...over the back of the connector, extending about 1-1/2" onto the coax. That provides an extra measure of weatherproofing. While clamp-style N connectors have rubber seals at the back and front, they should not be thought of as "waterproof," especially in the Pacific Northwest! Obviously, if you want to use that same procedure, the heat-shrink tubing should also be placed on the coax before assembly.

### **Assembling "crimp-style" connectors**

This is very similar to assembling the clamp-style, so the description will go much quicker. First, slide the compression collar onto the coax. Forgetting this important step will not make you happy! Add the heat-shrink tubing at this point, too, if you plan to use it. You'll want to use 1/2" tubing on this connector.

Now, remove 1/2"/13mm of the outer insulation and brush the stranded outer conductor braid straight forward to eliminate any kinks. Then, fold the strands back against the outer insulation. Remove 3/16"/4mm of the dielectric. You can use the socket cup at the back of the pin as a guide instead of measuring, if you prefer; I do.



I like to use my knife and trim a small amount of the foil braid away at a 45 degree angle at the face of the dielectric. This avoids any possibility of a short to the pin. Slip the pin onto the inner conductor. It should butt up against the dielectric and the center conductor should just be visible in the pin's solder hole. If it will not butt up against the dielectric, you need to trim the center conductor slightly. I find a fine file works okay for this, if needed.

I prefer to do a "dry fit" before soldering the solder pin. That allows me to check whether the back of the connector body also butts snugly up against the folded back braid. If you need to make adjustments, now is the time. If everything lines up where it should, solder the center pin in place as in the previous example. Then, insert the pin into the back of the connector body and be sure that it bottoms out. As before, the point of the center pin should be just below the edge of the tubular shield contact and the back of the connector body should be against the folded back braid.

**Note:** *Some people crimp the center conductor as well as the braid and most crimping tools provide for that option. I prefer to solder the center pin, however. Just call me "old-fashioned."*

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## *N-connector basics continued...*

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If all is well, brush the braid forward, making sure it is equally distributed around the back of the connector body. Use scissors to trim the braid so that it will lay down flat along the back of the connector body. Holding the connector body snugly against the pin on the end of the coax ensures a proper trim length.

Now, slide the crimp collar forward while again holding the connector body firmly in place. It may be a snug fit and I frequently use the edge of my scissors...not the cutting edge... to get a little extra push surface. It should slide up against the shoulder of the connector body with little difficulty and there should be no strands of braid sticking out. If there are, use your knife blade to cut them back.

Place the crimping die over the crimp collar and finish the job. Most crimping tools are "ratchet-style," so it doesn't take an iron grip to make the crimp. I usually rotate the crimped fitting in the die until the next flat face lines up properly and crimp it again, just for good measure. That completes your installation, unless you want to use the heat-shrink tubing trick mentioned before.

### **The "PL-259-style"**

By now, you are aware that I don't use the PL-259-style connector much; primarily because I use mostly foam dielectric coax. Other than the heat issue when soldering the braid, this connector can be used successfully in installations not requiring low-loss, foam-dielectric coax, however..

This is a two-piece connector with the front piece comprising the threaded collar section and the rear piece (body) being very much like the conventional PL-259, except for the configuration of the center pin.



Prepare your coax the same way you would when installing a PL-259. First, remove 1/2"/13mm of the outer insulation, braid and dielectric, leaving just the center conductor. Then, remove 3/4"/19mm of just the outer insulation. Tin the braid in place; do NOT brush it out as with the other connectors. Once tinned, use your

knife or flush cutters to trim away a small amount of braid at a 45 degree angle at the face of the dielectric. Again, this provides insurance against an accidental short-circuit.

Insert the prepared coax into the rear of the connector body and thread it onto the outer insulation a couple of turns. Using a small amount of silicone grease on the outer covering can make the threading process easier.

As with the other connectors, solder the center pin through the small hole, applying heat to the opposite side. Now, use a high-wattage gun or iron (my preference) to quickly heat the connector body and solder the braid through the holes on either side. Work quickly and, as soon as the solder has solidified, use a cool, damp cloth to pull off some of the heat to avoid cooking the connector further.

When the connector body has cooled, thread on the front collar section and snug up with a pair of wrenches. Again, this connection only needs to be snug; Herculean force is not required...or desired.

As with the other connector types, if you plan to weatherproof it with heat-shrink tubing, be sure to slide it onto the coax at the beginning of the process. Because heat will travel up the coax braid, I suggest that you position the heat-shrink at least a foot away from the connector during the soldering process. Otherwise, you may find if "pre-shrunk!"

That pretty much wraps it up. Having the right tools at hand is important, as is working safely. After that, it's just a matter of going through the steps and checking your work.

If you have further questions, send me an e-mail at [w7dhc@earthlink.net](mailto:w7dhc@earthlink.net).





# Building a tower trailer

By Bob Lee, N7AU

On several occasions the need of putting up a Rohn 25 tower for field day or special events station has gotten me to thinking that there must be an easier way to set one up. My first try was doing it by hand, but that takes too many people and is not the safest method. The second thought was to install a Rohn 25 fhinged base plate in the middle of a trailer and use a fulcrum to pull it up. Hopefully, that would be safer and easier.

I have a 20-foot flatbed trailer, so why not come up with something to raise a tower on it. Using the hinged base plate idea, a fulcrum was set in the rails of the trailer. A set of rope blocks attached to the fulcrum was used to pull the tower upright. With 38 feet of tower and an antenna mounted on top, this was still a little scary and probably unsafe. So, it was back to the drawing board.

The idea of using the trailer winch to pull the tower up came to mind. I put some pieces of pipe together



and came up with the following. Here are all the parts painted and ready to go. I made everything portable so it could be removed and not disrupt the trailer as for its intended use.

This seems to work for me. I had a (very) old Jeep winch and considered putting it to use. It being as old as it was and the fact that I didn't have the control unit nixed that idea. I also had an old hand winch and it ended up working better. It has two speeds and the slow speed gives me great control.



I have had the tower upright and everything works great. All I need to do at the site is slide the tower forward and set it on the support, then use the winch to tip the back section level and put the other sections together, attach the antenna, move the cable to the back end and crank it up with the winch.

The tower can be adjusted for level in a number of different ways. The trailer has jacks on both ends and I can also adjust it sideways with a large jack and use the feet up front to keep it level.

It was a fun project and I am looking forward to using it for field day and the special event station (W7G) at George, Washington, for George Washington's birthday in February. I might even find some other uses for it during the year.

