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N4LNR

News & Views

P. O. Box 3276
Lenoir, NC 28645
<http://N4LNR.ORG>



*Serving Amateur Radio
In Caldwell County*



Save the Date!

Next LARC Meeting
May 14, 2015

Thursday, 7:00 PM
2806 Gamewell Fire Dept
Morganton Blvd SW,
Lenoir

LARC Weekly Net
Thursdays 9:00 PM
146.625 MHz Minus PL 94.8
Alt 147.330 MHz Plus PL 141.3

Caldwell ARES Net
Sundays 9:00 PM
147.330 MHz Plus PL 141.3

COMING
June 27-28, 2015

Solar Power Your Station At May 14 Meeting!

Thinking about using solar to power your field or home radio station? What are the advantages? How much solar power is needed? Irv Kanode W4IWK will solar power up the May 14 meeting as he demonstrates how to design, build and operate a solar powered radio station.

Catch up on Club projects and chat with fellow hams about preparations for the upcoming Field Day 2015.

Bring a friend! Talk up amateur radio with your family and friends, particularly the young ones. You may be surprised by their interest.

See you May 14 at Gamewell Fire Department.



www.arrl.org

2015 ARRL FIELD DAY

HAM RADIO)))



President's Message

"The Road to Dayton"

It is an exciting time to be a radio operator as most of the outdoor ham service events and hamfests are approaching. When I was first licensed, it was a little over 6 months before I knew hamfests existed. Another operator asked me if I was going to the Charlotte hamfest. I asked him what a hamfest was and after taking a few minutes to explain, I knew I wanted to go.

While I was attending the Charlotte hamfest, I overheard another ham ask his friend, "You going to Dayton this year?" The only Dayton I had ever heard of was I Ohio but I was not sure what it had to do with amateur radio. Once I arrived home, I googled "Dayton" and "ham" and was led to the Dayton Hamvention website. I spent a good 30 minutes soaking up the information on the website. Dayton got started in 1952 by a man named John Williq. The story goes that John asked the local radio club to sponsor a hamfest in Dayton. The leadership of the club turned him down but he kept on trying year after year. Finally one year, a new president of the club took him up on his offer and the first committee was born. The first Dayton Hamvention was started with one \$100 bill. The money was allotted to buy a prize to give away. They believed that having prizes would draw in more people. After raffling off a donation of a 12" TV they bought the first grand prize, a Collins 75A2. They hoped to have 300 people show up and instead they had 600.

As soon as I browsed the Hamvention website, I knew that I wanted to go. Late last year I started looking at what it would cost to go. I cannot remember whom but someone mentioned that there was a group headed up by Bill Lundy that rents a bus and take it up to Dayton every year. I checked with Bill and to my surprise the costs were very reasonable. I booked my spot back in January and now am only a few weeks away. It is amazing how the hamfest has grown from 600 visitors to over 20,000. As I take a look at the itinerary and all the forums they are having, my excitement keeps building.

Lately, however, I have felt that same level of excitement working with fellow members of our club at events and at workdays. We have been doing some exciting things in the club and in the hobby. My challenge is to find something in the hobby that draws out that excitement in you and find a way to make it happen. It may be service, or a new technology, a hamfest or something else but find something you enjoy and explore new things.

73 Tanner KK4SZI



LARC To Support For Cycle To Serve Race

The Lenoir Amateur Radio Club will provide communications for the Rotary Cycle To Serve Challenge on Saturday, May 9, 2015. The Challenge gives participants the choice of riding 25 miles, 40 miles, or 62.25 miles, entirely within Caldwell County. The bicycle ride is a charity event and all proceeds will be used for the Rotary Club's charitable program.

Net Control for the event will be operating from the Caldwell EOC on the Hibriten Repeater 147.330. Communications will involve not only VHF, but VIPER and Fire/Rescue radios. LARC will provide operators at the Aid Stations, in sweep vehicles, and with the road marshals.



Mobile Emergency Shelter Deployment Training

Caldwell County CERT now has a mobile, 12' x 16' shelter available for use during emergencies. It is quick to deploy (15 minutes) and includes heat and air conditioning. On May 19, at 6:00 p.m. Kenneth Teague, Emergency Management Coordinator, will demonstrate how to deploy the shelter to CERT volunteers and provide hands-on practice in putting up the shelter in the event CERT is needed during a disaster. All Caldwell County CERT volunteers are encouraged to attend.

When: Tuesday, May 19, 2015, 6:00 pm to 8:00 pm

Where: Health and Human Services Building, 2345 Morganton Blvd, SW, Lenoir, NC in the parking lot. (Location will change in case of rain.)

To RSVP, send an email to Elizabeth Thomas, ethomas111@charter.net, by Monday, May 18.



Saturday MAY 30, 2015

SKYWARN Storm Spotter Classes

**Basic Class 10am - 12:15
45 minute break
Advanced Class 1:00-2:30**

Location:
Hickory Regional Airport
The Crosswind Cafe
(www.crosswindcafe.com)
3101 9th Avenue Dr NW
Hickory NC 28601

RSVP:
charlotteskywarn@outlook.com



FCW To Hold Open House



Foothills Community Workshop will have an Open House on Friday, May 22, 5-9PM and Saturday, May 23, 10AM-6PM.

Even though visitors are welcome any time, at the Open Houses, every effort is made to ensure that all the interest areas are active and can be demonstrated. Featured at this Open House are:

- Food
- The railroad will be operational
- The Ham station will be operating with digital modes

- Demos of the CNC routers, 3d printer and laser cutter
- The Model-2 robot, designed and built for education
- Games and activities
- Special offers on membership

Also being shown are the start of our two latest areas:
The Science Lab, and the Prop/Costume shop.

This event is free and open to the public. Check <http://foothillscommunityworkshop.org> for directions or call 828-351-HACK.



Trailer Work Continues

Major progress has been made in recent days on the Communications Trailer build-out! The “hammers” have finally completed the sand-prime-sand-prime-sand-paint-sand-paint of the cabinets and they are mounted including doors and hardware. The major task of putting Formica on the work surface has also been completed – image the fun of cutting, gluing, beveling over 75 sq ft. of Formica and making it fit into that curved front end!

Future workdays will involve building the shelves in the front, installing under cabinet lighting, electrical and grounding for 4 stations, installing flooring, baseboards, and mounting the heater. Radio and support equipment needs are being identified and will be presented at the next Club meeting for approval to purchase.

Be a part of the progress! Join the “hammers” on the scheduled workdays! Help is always appreciated.





Catawba Valley Hamfest A Meeting for Ole Friends and New Ones, Too

Approximately 450-460 attended the 18th Annual Catawba Valley Hamfest on April 14, at the Burke County Fairgrounds in Morganton. The Lenoir Amateur Radio Club was one of the Hamfest co-sponsors and Tom KA4Hkk, Scott KC4SWL,

Tanner KK4SZI and Josh N4JDE handled setup/breakdown and manned the Club booth. Vendors were pleased with the sales with many booths in the building and the boneyard flea market were buying and selling. "The weather was almost perfect. I saw lots of friends and made new ones. That is the way it should be at a hamfest. You get a chance to make "eyeball" contact with those you speak to on the radio," said Tom KA4HKK who coordinated the Club's participation.

A number of former and current LARC members were spotted at the Hamfest. Tom KA4HKK ran into one of the first members of the club, Jerry Hedspeth. He and his wife and several children were hams. Jerry later posted on Facebook that Tom KA4HKK was the only member that he knew of the original Club members that were at the Hamfest -- for that matter, from anyone at the Hamfest. He has been ill and he and his wife haven't been keeping up with ham radio except the LARC Facebook page. However, they have recently bought an HT and HF radio so maybe they will get back on the air soon. Dean Norman WA4SLI and Daniel Wilcox KM4EVJ submitted Club membership applications along with paying the dues. David Ledford W4JL, who bought a couple of the antennas the Club sold, came by and picked those up. Jeet KK4CCA stopped by the Club booth for a chat. A couple who had recently relocated to Hickory from Maryland stopped by the Piedmont Spotters booth and John Crow N4LBX referred them to the LARC booth for information on where they could participate in a local Field Day 2015 event.

Tom KA4HKK, Josh N4JDE, Scott KC4SWL and Tanner KK4SZI attended the Friday evening BBQ dinner held for vendors and sponsoring clubs' members. Scott KC4SWL and Tom KA4HKK bought and sold some items. Josh attended the Skywarn class and reported 12 were in that class. Michelle KD4YTU reported 4 took the amateur license class and 2 attained their license. One of those getting a license was a friend of Tom KA4HKK who has been saying for years he wanted to get into "ham radio" - Congratulations Jim Smith!



From The Freezer: *Elmer novelties and other frozen treats from Mike Maynard, K4ICY*

Station Grounding

In my continuing series on antenna basics for the new ham, I feel it's getting time to go from the *ground* up, as it were... A topic that often gets trodden under foot by many but is deeply embedded in the fertile soil of good Amateur practice by every wise man whom builds upon good foundation.

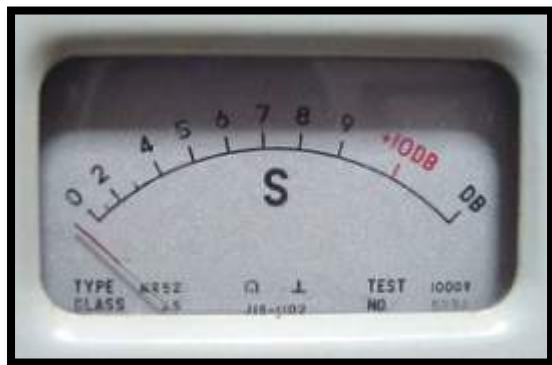
Ok, ok: We're of course talking about an important subject concerning the safety and performance of every ham station - **Grounding**. Many good articles in the QST and CQ magazines are devoted to the topic of station grounding and there are many considerations that are beyond the scope of my article. I'm not an expert, and I only can provide suggestions, but in my time as a ham, I've seen a number of stations' both with adequate grounding schemes, as well as stations with NO grounding at all. I'm aware that many newer hams fall in line with the bad perception that grounding is not really needed because they've done well so far without it, or perhaps they were never taught how to address the needs and care of a safe and properly operating radio station. Let's just say that this topic is so important that it is found in every level of License class study manual.

For those that are new, what is grounding? It's a literal connection between the electrical potential of the Earth, your station equipment and antenna system. Not only does it provide that 'counterpoise path' that's an integral part of your antenna system, but (potentially) a critical path between the sky and the earth during a lightning strike - hopefully keeping that lightning strike away from you and your home! Lightning cannot only harm your radio equipment, *but you*, your family and your home. Your antennas can potentially act as lightning rods, though statistically, most damage to your home and electronics by lightning are from utility line hits nearby that can send lethal voltages and currents through your electrical wiring, cable and phone lines

Lightning Protection - There's no guarantee that a good ground path to ground will overtake the full brunt of a lightning strike, but it can be some small measure of insurance. Three years ago, a week before Field Day, lightning struck the high-tension utility line in my front yard! All three of the super-high-voltage lines were severed and set my front lawn on fire. The strike vaporized the phone and cable lines running into my neighbor's homes, with the side of one home catching



fire. Five homes were affected, but mine happened to have a buried phone line to my house, and we had no cable service. Recently, I found evidence of an electrical fire in my phone terminal box. One neighbor lost TV's, DVD players and PC's. I lost major parts to my PC, including a nice video card and the power supply unit. Consequently, my HF rig was not only plugged up to the antenna, but the end of one of my antenna elements was just over ten feet away from the high-tension line that was struck! Needless to say, your antennas are metal and 'up in the air', so consider good grounding for that reason.



RF Performance - Good grounding can make or break the performance of your antenna installation as well as the quality of your signal. But did you know that your grounding connection was for your RF safety too? If you've never been burned by RF, I hope you never have to be. When the impedances of your transmitted signal are not good and your antenna has nothing else to 'pull' against - *you and your equipment become part of the antenna system* – so look out! Aside from RF safety,

the other advantages to good RF grounding include not only increased performance in your antenna's signal radiation but reduced noise levels on receive. You may actually notice a good two or three 'S-unit's deduction in static noise when you have adequate grounding.

HF antennas perform best when there's a good 'counterpoise' or ground reference to work with. Grounding in an antenna system is a complex and mysterious subject, especially to new hams, but it has a lot to do with 'impedances' or reactances and allowances that occur at RF frequencies. A term generally used with grounding and transmission lines such as your coax is the "skin effect". With RF (radio frequency energy), electrons often travel along the outside surface (skin) of a conductor, so if the wire or metal used to connect your station to ground is too small, rusted or corroded, the resistances caused by those will impede the flow of RF. So, the larger the surface area of the conductors within your grounding system, the better the flow of RF energy between your radio and the ground. If you skimp on the construction of your grounding system, you'll only pay for it later by RF burns, poor signal performance or even lightning.

Here are some considerations to follow in implementing your station-grounding scheme:



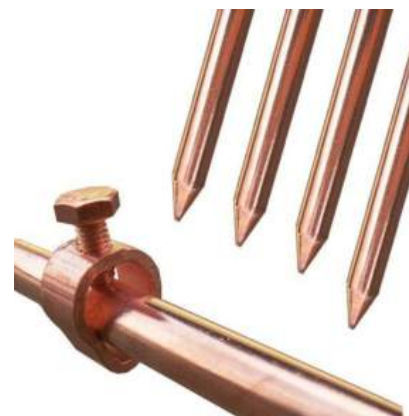
Common Grounding Point – All of your transceivers and station equipment must be connected to a common tie-point! This is an important topic discussed in the license manuals. A large copper 'buss-bar' or piece of copper pipe can serve well as a main tie point. And even a terminal lug may work. When multiple paths are used to connect different devices, 'ground loops' often form and RF has trouble making complete paths through the antenna system. Some transceivers lack the binding post with the wing nut that larger rigs have for chassis grounding. If this is the case, the

simplest solution is to use a very short coax jumper between the rig and tuner, amp or wattmeter, which is grounded, so that the outer-braiding of the coax jumper can act as ground.

Surface Area - It is not advisable to use any wire for grounding over 10-gauge. And, even larger solid-conductor wire, such as 6-gauge, does not have the same RF surface area as a wide copper strap. You should also try to avoid using copper braid such as that found in larger coax cable, as the many braided wires do not guarantee a clean path for RF. Copper pipe is great to use as well, and is often cheaper and easier to procure than 'official' copper strapping. It can be flattened at each end to provide a good contact surface for the ground rod and station gear.

Use copper - You can 'bond' your ground line to a steel water pipe if it happens to be buried in the soil at some point and not separated by plastic fittings, but non-copper conductors should only be used as a compromise. They will never work as well as an electrically friendly metal such as copper. Some wire or strap is really steel plated in copper. They should work, but remember that time and rust will eventually claim them.

Grounding Rods - 8' ground rods are readily available at any hardware store for \$10-\$20, and they sell terminal lugs that will allow for tight bonding connections. In northern Florida soil, ground rods generally go in the soil pretty easily, but you'll most likely have to use a small sledgehammer to help. If the water table is closer to the surface then your grounding system will work better. Copper pipes should also work as a substitute. The number of ground rods you should have is a topic of contention for some. Some say that you should have many spread apart the same distance as each are long, while others caution that the effective



There's no doubt that antenna performance will improve with more grounding, but make sure they are adequately 'bonded' to each other with heavy gauge wire. Most hams, especially in the mineral and moisture rich soils of Northern Florida should find fine performance with just one.

Dissimilar Metals - You should not directly connect your copper ground line to the galvanized steel of a tower or to any other dissimilar metals due to 'galvanic reaction'. When different metals such as copper and iron contact and interact, especially with added water, acid or salt, ionized electrons flow between the metals and chemical reactions happen. This is how electroplating and batteries work! Copper oxide is that greenish-colored substance that forms on the surface of copper and it's not conductive. Corrosion adds resistance to electrical connections and can ruin any benefits intended from your grounding system. The use of stainless-steel washers and bolts between connections can greatly reduce the possibility of corrosion but to be sure solder or weld any connections if possible.

Bonded Coax - If you have a tower, run the coax feed lines against the metal columns and physically solder electrical connection-points between them and the outer coax braid in various places along the tower whenever possible. This will give lightning a chance to 'see' the Earth hopefully before it enters your home.



Lightning Mitigation - Your most important concern is to keep lightning outside of your home! Aside from tower-to-ground bonding or any other consideration, there are two implementations you can take to better your chances against a close lightning strike. Notice I said 'close'. 'Direct' strikes follow the rules of nature... One is to add what's called a 'ground plate'. Think of it as a large, thick sheet of steel that can serve as a bulkhead for the cables that enter your house. This is not the window pass-through plates sold in catalogs, but a sheet of metal, perhaps less than a foot-square that can either be placed on the side of your home's wall or more preferably a foot or two away.

Once adequately bonded to your grounding rod, it should present a good point for lightning energy to be bypassed before entering your home. Step two is most important and should be required by all ham stations; and that is a 'lightning arrestor', or '*PolyPhaser*'. This is a special component that goes in-line with your feedline coax and serves to shunt lightning energy to ground with a special gas-filled cartridge that essentially disconnects your feedline if lightning passes. Though, not a foolproof solution, every implementation helps.

Like I mentioned, I can only provide suggestions and guidelines, and there are many good sources found on-line, in magazines and books to help educate yourself more on how to adequately provide safe and effective RF/electrical grounding for your station. A practiced and professionally minded Amateur Radio operator maintains a clean and organized station. Wires are neatly managed and all pieces of equipment are grounded properly if required -- a true hallmark of a good operator. Many say that if your yard's treetops are higher than your antennas then the lightning will most likely avoid *your* metal structures. But this is a foolish consideration, and I should know. If lightning would have struck the antenna instead of the utility lines, just a little over the suggested ten feet in distance away, my ham shack and home would have suffered the brunt! Don't take chances; maintain your station grounding standards. And in the bargain, you'll probably make more and better contacts.

Reprinted with Permission *The Printed Circuit*,
Newsletter of the Tallahassee Amateur Radio Society



7 3! DE Mike, K4ICY
k4icy@arrl.net

Field Day 2015 is June 27-28, 2015



Mark your calendars, dust off your equipment and make plans to join LARC in a 24-hour public demonstration of amateur radio skills and readiness for disaster response. Tom KA4HKK will be coordinating this event. Please contact Tom and volunteer to assist in setup/take down of stations/antennas, station operation, overnight operations, and food service. Help make this event a success!

From The April Meeting

Attendees. Tanner KK4SZI, Tom KA4HKK, Josh N4JDE, Susan N4OJN, James N4NIN, Ro K4HRM, Scott KC4SWL, Will WB4Y, Irv W4IWK.

Training. LARC and CERT members were trained on the use of the VIPER radio system.

Tour. A tour of the Caldwell County 911 Center was held after the training.

LARC & CERT Trained to Use County's VIPER System



Dino DiBernardi, Caldwell County EMS Division Chief, gave a basic overview of VIPER – Voice Interoperability Plan for Emergency Responders. VIPER has been adopted by public service agencies across North Carolina – police, sheriff, emergency management, fire and emergency medical services – to allow these agencies to talk to one another via radio communications systems when needed. The system's implementation in Caldwell County is about 75% complete. At this time, VIPER operates beside most agencies existing radio systems and will continue until fully implemented. Dino is responsible for programming radios and training VIPER users.

Class participants were given VIPER radios and were instructed on how to assemble and use the radios. The zones and channels were explained in detail and differences in the various models of the radios were discussed.

LARC was encouraged to check out VIPER radios from Caldwell County EOC to use during public service events in order to acquaint all members in the use of these radios. For additional information and on-line training on VIPER, go to <http://smrs.emspic.org/viper/>





LARC Provides Radio Support For Hibriten Hill Run

Sixteen runners started at 9:00 AM and the first runner #49 crossed the finish line at 9:22 AM, with the last runner #42 crossing at 9:41 AM. That's how the 4th Annual Hibriten Hill Run went into the record books! The charity event is held to support Communities In Schools in Caldwell County.

The Run is 3.6 miles with a 1,000 feet elevation gain up Hibriten Mountain.



Turnout was lower than expected due to the week of rain preceding the event with more predicted for race day.



Ted KF4FLY and Ro K4HRM operated Net Control. Irv W4IWK was located at Aid Station 1 about half way up the mountain. Phil KG4BCC and Tanner KK4SZI were located at the top of the mountain finish line.

Radio Communications followed the ICS protocols for an ARES event. Additionally, DMR – Digital Mobile Radio – was used for radio communications and was broadcast simultaneously on 146.550 simplex, testing its interoperability mode and allowing non-DMR users to monitor the event.





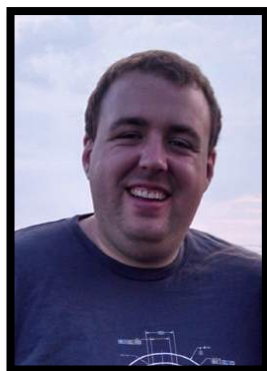
The LARC President is asking you for ideas and interests that YOU want to talk about and/or see hands-on demonstrations at future Club meetings. Nothing is off the table, so send your thoughts directly to the top – tannergreer@bellsouth.net

Join Us For Breakfast...

Every Friday morning at 7:00 a.m., hungry hams head to the **Subway**, 845 Blowing Rock Blvd, Lenoir, for breakfast. Come talk about Amateur Radio and or any other topic that might come up. You do NOT have to be a ham to join in -- anyone interested in radio, electronics and emergency preparedness. Do you have questions about becoming a ham or what equipment you need? Do you have a radio that needs programming? Stop on by, grab a bite and someone is sure to help or offer good advice.

Everyone is welcome – Just look for the antennas outside!

LARC 2015 Officers



Tanner Greer
President
KK4SZI



Tom Land
Vice President
KA4HKK



Josh Edwards
Secretary
NAJDE



Phil Crump
Treasurer
KG4BCC

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to hrmaddox@nettally.com**

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