



N4LNR

FEBRUARY 2018

# News & Views

P. O. Box 3276  
Lenoir, NC 28645

Serving Amateur Radio  
In Caldwell County  
Since 1986

## Next LARC Meeting:

Thursday, February 8,  
7:00 PM, Gamewell Fire  
Dept., 2806 Morganton  
Blvd SW, Lenoir

## LARC Weekly Net:

Friday, 9:00 PM, 146.625  
Minus PL 94.8 Alt.  
147.330 Plus PL 141.3

## Caldwell ARES Net:

Sunday, 9:00 PM,  
147.330 Plus PL 141.3

## DMR Digital Net:

Tuesday, 8:00 PM, Lenoir  
Local DMR

## Time to renew your LARC membership

Mail your check to  
the Club address or  
see Dick K0CAT to  
pay your dues



## Skywarn Spotter Training LARC February Meeting



The February 8 meeting of the Lenoir Amateur Club will be a Basic Skywarn Weather Spotter Training Class conducted by Jake Wimberley of the National Weather Service, Greer, SC. Attendance of this class is open to members of the Club and members of the public interested in weather training. The class is free. Bring something for taking notes and no tests. The class will be from 7:00 until 8:30 PM at the Gamewell Fire Dept, 2806 Morganton Blvd. Lenoir. Vending machines on site.

Please RSVP if you are attending. 26 seats are available.

A brief Club meeting will follow the class. Hope to see you there!





## President's Comments

John Crowe AG4ZL

Everyone who knows me will say my passions are: family, weather and amateur radio (and the Detroit Lions)! At the next meeting of LARC, we have a chance to talk about two of those – weather and amateur radio. Jake Wimberley from the National Weather Service will present a Skywarn Spotter Class. Many folks sit back and watch the weather on television and don't really think about how it all comes together. Maybe its all about radar and statistics. Not so! While these play a huge part, it takes "boots on the ground" to make

it all come together. Enter SKYWARN, a National Weather Service (NWS) program developed in the 1960s that trains weather spotters who provide reports of severe and hazardous weather to help meteorologists make life-saving warning decisions. Spotters are concerned citizens, amateur radio operators, truck drivers, mariners, airplane pilots, emergency management personnel, and public safety officials who volunteer their time and energy to report on hazardous weather impacting their community. Although, NWS has access to data from radar, satellite, and surface weather stations, technology cannot detect every instance of hazardous weather. Spotters help fill in the gaps by reporting hail, wind damage, flooding, heavy snow, tornadoes and waterspouts. Radar is an excellent tool, but it is just that: one tool among many that NWS uses. We need spotters to report how storms and other weather phenomena are impacting their area.

SKYWARN spotter reports provide vital "ground truth" to the NWS. They act as eyes and ears in the field. Spotter reports help meteorologists issue timely, accurate, and detailed warnings by confirming hazardous weather detected by NWS radar. Spotters also provide critical verification information that helps improve future warning services.

I hope you all will attend the Skywarn Spotter Class and bring a friend. See you there!

**7 3 John AG4ZL**



Confused about which screw does what? This [Instructable explains the differences](#) between many types of screws, including the specialized types used in modern electronic devices. Included is a history of these fasteners, pictures, and summaries of the claimed benefits of the various proprietary types. Wikipedia also contains a good [summary of screw drive types](#). (From Nov 29, 2017 ARRL Contest Update).



## 2018 Winter Field Day

LARC participated in the 2018 Winter Field Day, sponsored by the Winter Field Day Association, January 27-28 on the banks of Lake Hickory in the southeast corner of Caldwell County. This event is a worldwide activity where amateur radio operators setup to operate in whatever "winter weather conditions" are happening during that 24-hours to demonstrate their capability to support disasters and emergency situations. Radio operations involve testing equipment

capabilities by contacting as many amateur radio stations as possible in the US states, Canadian provinces, and stations located in other countries worldwide.

The "radio team" (Dick K0CAT, Gary K3OS, Tom KA4HK, IRV W4iWK, Tanner KK4SZI, Josh N4JDE, Ro K4HRM, Frank KN4ACU, James N4NIN) began setup at 9 AM Saturday, using the Communications and Antenna trailers. Radio operations as "November 4 Lima November Romeo 2 Oscar North Carolina" began at 2 PM. The team powered down a little after 9 PM and started up again at 9 AM Sunday, running until 1 PM. Operations were "off the grid" on generator power as in a situation where commercial power is down.

The weather was overcast and rainy with temperatures finally reaching the low 40s. Ro and Dick constructed a 3-sided canopy shelter with 2 propane heaters to keep those not inside the communications trailer warm. A coffee pot and sweet roles/cookies were always awaiting and Ro (really her chef (Lisa) and helpers (Jean and Glenda) served sandwiches for lunch and hot dogs/hamburgers for dinner.

The band conditions were lousy, but every once in a while they opened up and a number of contacts were made. Contacts via voice were 66 and CW 23 with an estimated 5,060 total score. Tom KA4HKK made the "catch of WFD" reeling in KC4AAA Admundsen-Scott South Pole Antarctica. Dick K0CAT landed a couple more prize catches – N3FJP, developer of the WFD logging software, and W1AW, the ARRL station. Ted Manual KF4FLY and Mike Maynard KJ4FZ dropped by and operated. Late Saturday, John AG4ZL and wife, Angel, joined radio operations after having car trouble. Several visitors stopped by – Dan Grogan, Debbie Yandow and sister Jody, John Underwood and his friend Carmen and Shirley Kanode.



The first Winter Field Day was held in 2007, however, due to lack of organization for continuing, participation dropped and soon was abandoned. In 2015, the Winter Field Day Association was organized and leadership put in place for an annual event the last full weekend in January. This year's event was the Associations Third Annual Winter Field Day and LARC's first time to participate. The "radio team" learned a lot, enjoyed some good fellowship and food.







## NC QSO Party February 25

At the February 8 LARC meeting, the members will discuss whether there is sufficient interest for participating in the NC QSO Party on Sunday, February 25. If approved, the tentative operation will be the lot next to Tom KA4HKK. Volunteers will be needed to assist in setup and operators and radio equipment will be needed to operate from 10 AM until 8 PM on Sunday, February 25.

Come to the February meeting to discuss and volunteer to assist.

Should the Club decide not participate, individual operators will find the weekend a great opportunity to test out the equipment and make some contacts. It's the "2018 Carolina Weekend" ~~ Saturday, February 24 (SC QSO Party) and Sunday, February 25 (NC QSO Party) ~~ a great time to see just how many counties in SC and NC you can work during the two days (10 AM until 8 PM each day).

The contest rules can be found for SC at <http://scqso.com> and for NC at <http://ncqsoparty.org>.

The "Worked Most Carolina Counties Award" is the most sought after prize.

New to the 2018 Carolina Weekend is the "**CAROLINA**" Spelling Bee. Simply put, work counties in North and South Carolina where the first letter of the county name is contained in "**CAROLINA**." After all the letters are worked, you are eligible for a certificate designed by Marc, W4MPS, and entered into a random drawing for a fabulous prize. Rules for this award are on both of the above websites.

Time to play some radio!

## Understanding the ICOM IC-7300 Transceiver

The Caldwell County Emergency Operations Center acquired an ICOM IC-7300 HF Transceiver for use by amateur operators assigned to the EOC during disasters and other public emergencies. Over the coming months, Caldwell ARES will be offering training on the role of amateur operators service at the EOC. One such duty is the operation of radios, both amateur and VIPER. As an introduction, the video at <https://youtu.be/yhCd6Z-tSTE> will provide a good understanding of the HF radio. Those of you interested in serving in AREA and assignment at the EOC may wish to give this video a look.



# Tower Building 101: Regrouping After A Very Close Call!

By Dick Blumenstein K0CAT

Last month, you may recall that I had a massive weld failure on the winch arm assembly that raises and lowers the tower from horizontal to vertical. It was due to, I believe, a shock wave when a bearing suddenly shattered on one of the four pulley sheaves in that assembly. It had been a close call and could have been catastrophic and the end of the tower project. As it was, the tower only fell about 2 inches onto the heavy-duty stand I had built.

I removed the entire winch arm beam assembly that housed the motor, speed reducer and modified hand winch from the base of the tower. The below is what it presently looks like, sans winch beam.



The upper end of the tower was left with just the main 20-meter beam boom in place, but not the beam elements, since there was no reason to put them on until the tower was ready to lift back into a vertical position.



Last month, I had removed the beam balun and tested it with Gary K3OS's help. It appeared to be just fine, but was highly weathered and previously modified with some cuts in the plastic body and epoxy fill. Since I was going to be running an N-connector to the balun anyway, Gary suggested that I put a PL-259 to N adapter permanently onto the balun and fill the damaged end of the balun up with epoxy. Great idea! Here's what it looked like when just finishing the pour and then after it cured.



After the bearing failure last month, I spent some spare time finishing the wiring at the rear of my vintage radio section of the rolling radio desk (whose construction I covered in the October through December 2016 articles). Here's the messy rear when the wiring was completed. I used the RG400U-type tower coax all the way back to the linear amplifier. From that going backwards, I didn't need the higher power coax and switched to RG-58 type coax. Almost each piece of equipment also has a 1" braid going to the grounding copper pipe running parallel to the rear desktop. Note on the top shelf, I've got a Heath SB-610 monitor scope housed in a Collins-like housing. To the right of that is the 2KW dummy load. Below the top shelf are the Collins components, which I will discuss in another column once I get the shack up and running.

Suffice it to say, that I've never used the Collins 30L-1 linear before, having gone through the refurbishment process up to, but not yet reforming the high voltage capacitors after I purchased it at Dayton about 5 years ago. That is still to come. I will first run the station "barefoot" at 100 watts before getting the linear up and running.

I also finished wiring the antenna interface panel just inside the ham shack wall where the antenna coax cables come in from outside, along with the control cable that runs the 20m beam prop-pitch rotator motor. Note that besides providing a lightning ground connection for each coax cable, there is also a provision for grounding the 8-wire prop pitch control cable when the system is not being used. Only when I am going to get on the air will I unplug the control cable from ground and take it to its matching connector to hook it up to the beam controller along with unscrewing the chosen antenna connection and taking it to the radio SO-239 connector I am going to be using at that moment attached to the white plastic strip on the vertical gray shelf leg.

Most of the time during the last month, I have been in "pause mode" waiting to get some replacement parts as well as being down with the flu for over 2 weeks. As long as I had to remove the winch beam from the tower base, I decided to address the leaking shaft seal from the speed reducer. That leak was caused by me when I initially serviced the unit when

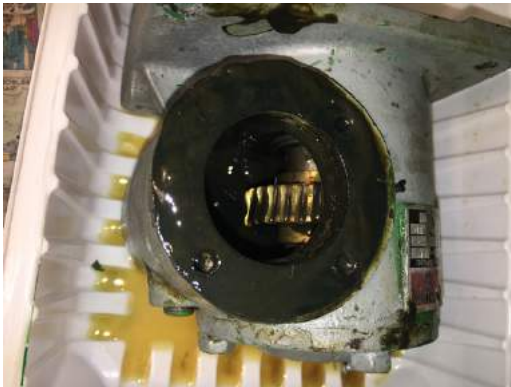
refurbishing it. I had seen a grease zerk and put some lube into the zerk to lubricate the bearings that were inside the speed reducer. What I didn't know at the time was there was a small brass nail that had been pounded into a small vent hole opening at the manufacturer when originally shipped. That vent nail should have been removed 20+ years ago by the original fabricator of the winch beam, but wasn't. When I put the grease into the zerk fitting it pressurized the speed reducer cavity and blew both the seal and pushed out the metal cap covering the seal. Obviously, in the 20+ years before I owned it, it appears that no one possibly thought about putting more grease into the bearings. I pounded the seal's metal cap back on hoping that it was sufficient to restore the seal. It turns out it wasn't, and after previously running the motor assembly to raise and lower the tower from horizontal to vertical twice, the speed reducer got very warm and the gear oil inside the speed reducer leaked out as that shaft was pointing down vertically. The resulting gear oil leak was pretty messy; all over the motor vibration coupler-dampener and tower base parts.







Here's the helical gear inside the speed reducer along with the cap and rubber seal. I have been trying to get replacement parts since December 18<sup>th</sup> from the manufacturer. I had not been able to get a parts breakdown with part numbers even though this manufacturer is huge and is still in business. They would not talk to me directly and I had to first go to one rep organization to make the inquiry. After repeated tries though that rep who appeared to do nothing over the course of a month, I then switched over to another rep company who was much more helpful. As of this writing, I've just been notified of the availability of all the parts I need which are supposed to arrive within 2 weeks.



The second photo is the matching gear to which the above helical gear input shaft attaches inside the speed reducer.

Another challenge is the gear oil. Besides the grease that lubricates the Timken roller bearings, the inside of the case is filled with a very specific extreme pressure gear oil, ISO 680, which is somewhat equivalent to SAE 140 straight weight but which also has to be compatible with the lithium-based grease that goes into the zerk fitting channel. At this

writing the smallest quantity I could find in either Hickory or over the Internet is 5 gallons, although I probably need no more than a pint or a little more. Hopefully, there is some local company who has a 5 or 55 gallon barrel of gear oil (like Exxon Sparton EP 680 or equivalent) who would sell me a little. Failing that, I will probably put in a synthetic 85-140 multiweight, as advised by James (N4NIN) who has had a lot of experience with pulling heavy trailers and has

These are the old sheaves with the one that failed on the lower left. On the right side are their bronzed bearing solid sheave replacements along with the spacer standoffs that work as the spindle on which the two sheaves will rotate.

The sheaves fit inside the winch beam that apparently at one time had been splayed open on the end to weld a wider piece of metal so that the sheaves could fit inside; a little weird and ungainly, but it appeared to work.







After much struggling I managed to get the whole assembly inside the beam and tighten down the axial bolt. Here's what the sheave end of the winch beam looked like at completion.



Since I had a failure of one of the original bearings in a sheave, I thought it prudent to also change out the other 2 sheaves that go with the pulley assembly where the wire rope attaches to the middle of one of the tower legs in order to lift the tower from horizontal to vertical. Here is that pulley assembly with the original sheaves on the left and the replacement bronze bearing sheaves on the right.

If I am lucky to finish the speed reducer this coming month, I hope to remount the winch beam assembly to the tower base, finish attaching the 20-meter beam elements and balun onto the beam, run the coax to the antennae and get the tower vertical again and even possibly in operation (yeah right!). Check in next month to find out which, if any, boogeymen were waiting in hiding for me!

**To Be Continued...**

## Help Wanted: 60-Meter Test Net

The amateur community has had access to four channels in the 5-megahertz range for several years. We share those frequencies with the military and there are some significant limitations of the amount of power (100 watts ERP) that can be used. While some amateurs have made significant use of these channels, others have not, in part because their transceivers could not transmit on those frequencies.

We got use of these frequencies because we convinced the FCC that they would be important for use in emergency communications because being between 80-meters and 40-meters they would have some of the advantages of both bands.

But, the band remains something of a mystery. Paul KJ4G is trying to remove some of the unknowns. Working on 5371.5 MHz, he is running a 24/7 "net." Its purpose is simple: What are band conditions at any given moment on the band.

Hence, to help answer that question, if you have a rig that can work 60-meters and a few minutes, give Paul KJ4G a call on 5371.5 and see what response you get. (Just tell him Ro K4HRM sent you!)



## Caldwell County REACT

Caldwell County REACT was chartered in 2017 as an affiliate team of REACT International. It is a 501(c)(3) nonprofit, public service organization. Its members are trained CERT (Community Emergency Response Team) volunteers. Advanced training classes include triage, POD (Point of Distribution) management and operations, Incident Command structure, wilderness survival, advanced first aid, CPR, emergency mobile radio operations, etc.

REACT members have served as the 'manpower' for PODs (points of distribution) when a situation requiring collecting and distributing supplies to fire and EMS personnel or to the community during a local public crisis. They serve on the Local Emergency Planning Committee, teach a variety of free classes available to the community, serve at the firefighter's rehabilitation tent during calls, and participate in countywide emergency drills and exercises.

Additional training is available online at REACT International website (<http://www.reactintl.org/training/#>). Study/student manuals for the various topics can be downloaded. These classes can be done as a self-study, however, to take the course exam and receive a certificate you do have to be a member of REACT.

REACT meets the 4<sup>th</sup> Thursday of each month at 6:30 PM at the Caldwell County Emergency Operations Center, 2345 Morganton Blvd SE, Lenoir.



**Did You Know:** With appropriate guying, an extension ladder can be used to hold up a Yagi under Field Day or DXpedition conditions. In this picture a SteppIR 2-Element Yagi for the current VK9MA DXpedition has been mounted is being tested. It can be turned manually.

**Did You Know:** All that noise when you power up your transceiver could be your surroundings. Don't forget about the [ARRL Sounds of RFI web page](#), where you can hear and see various types of RFI.

**Did You Know:** The future of ham radio at times seems uncertain. Here are three different perspectives on what is happening now. [Is The Internet Destroying Amateur Radio?](#), [Millennials Are Killing Ham Radio](#), and [How millennials will be changing amateur radio](#). Hold on to your hat!



# Upcoming Hamfests: Mark Your Calendar

March 9-10: **Charlotte Hamfest/ARRL NC Section Convention**, Mecklenburg Amateur Radio Society, Concord, <https://charlottehamfest.org>

March 31: **RARSfest/ARRL North Carolina State Convention**, Raleigh Amateur Radio Society, Raleigh, <http://www.rars.org/hamfest/>

July 7: **Firecracker Hamfest**, Rowan Amateur Radio Society, Salisbury, <http://www.rowanars.org/firecracker-hamfest>

May 12: **13th Annual Rockingham County Swapfest**, Rockingham County Amateur Radio Club, Reidsville, <http://n4iv.org>

July 7: **33<sup>rd</sup> Annual 2018 Firecracker Hamfest**, Rowan Amateur Radio Society, Salisbury, <http://www.rowanars.org/firecracker-hamfest/>

July 21, 2018 **Mid-Summer Swapfest**, Cary Amateur Radio Club, Cary, <http://www.qsl.net/n4nc/>

July 28: **WCARS Hamfest**, Western Carolina Amateur Radio Club, Waynesville, <http://wcars.org>

August 11: **20<sup>th</sup> Annual Cape Fear ARS Swapfest**, Cape Fear Amateur Radio Society, Fayetteville, <http://www.cfarsnc.org>

August 31-Sept 2: **Shelby Hamfest/ARRL Roanoke Division Convention**, Shelby Amateur Radio Club, Shelby <http://shelbyhamfest.org>

## LARC 2018 Officers



John Crowe

**President**

AG4ZL



Tom Land

**Vice President**

KA4HKK



Frank Gordon

**Secretary**

KN4ACU



Dick Blumenstein

**Treasurer**

KOCAT

Send comments concerning the LARC NEWSLETTER

to Ro K4HRM [hrmaddox@nettally.com](mailto:hrmaddox@nettally.com)

Suggestions and your articles are appreciated.

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