

# IN-SERVICE



Summer

Volume 97

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## Sponsor an Amateur Radio Licensing Class in Your Area

The Lamoni Amateur Radio Association is participating in two Amateur Radio Licensing courses this summer. The first has already passed, and was conducted as part of Graceland University's Upward Bound program. Upward Bound is a federally funded program including a six-week residential experience on the Graceland campus, designed to enhance participants' academic skills while simulating a college experience. While not all of the participants passed the Element 2 (Technician Class) license exam, all of the participants received a positive impression of Amateur Radio and ASCRA. Indeed, several of the participants who did not pass the test on their first attempt scored well enough that I think they will be back to try again.

The second course is coming up during the Graceland Spectacular, the largest annual gathering of youth in the Community of Christ.

You can support Amateur Radio in your area through involvement in Amateur Radio licensing courses and exam sessions. Anyone, regardless of license class, can conduct classes or assist in teaching. And any licensed Amateur Radio operator, General Class and above, can assist in exam sessions. (General Class amateurs can assist in licensing Technician Class candidates; Advanced Class amateurs can assist in licensing Technician or General Class candidates; and Extra Class amateurs can assist in licensing all candidates.)

Even if you are unable to provide direct support for a licensing class or exam session, you can still help! ASCRA's budget includes a New Member Development expense category to pay the \$14 licensing exam fee for candidates sitting for their very first Amateur Radio licensing exam. You can help through your generous contributions to ASCRA. ASCRA's budget for this year is \$860. Last year saw a shortfall, as expenses exceeded contributions by nearly \$100.

Clearly, we need your help! ASCRA does not have a dues structure, but instead relies on the voluntary contributions of its members. Please, while you are thinking about it now, write a check and send it in. ASCRA has over 200 members (all of whom receive this In-Service newsletter four times per year). If each member contributed only \$5, we would meet this year's budget. How about adopting another member by contributing \$10? We have a few members contributing \$100 or more! The problem is not with the generosity of a few members. The problem is there are not enough of them. In past years, the entire ASCRA budget has been supported by fewer than a couple dozen members. Surely we can do better than this! Please do not wait until you get a round tuit. Do it now while you're thinking about it! Your financial support of ASCRA enables a significant outreach through the In-Service

newsletter and new member development. Please accept my sincere appreciation for all you do to support ASCRA in its mission.

Very sincerely,

Bob Farnham, KGØII  
ASCRA President:

## 20-METER NET

Had a virus. Wiped the hard drive and lost some of the 20 M net check-in records I had been keeping. These are from some hand written logs. I'll do better next time.

Net is held 3:30PM CDT, Sundays on 14.287 MHZ.

Ernie, WB2UJL

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NØAIX, Larry Ragan  
NØAQA, Gini Ragan  
NØELM, Fred Troeh  
WØFEN, Robin Cross  
KAØGFC, Chuck Brady  
WAØIBS, Andy Ferrar  
KGØII, Bob Farnham via N4OLT  
KGØXU, Michael Hahn  
WØSHQ, Robin, Auditorium

K1LLR, Paul Kenyon

W2TFT, Tom Thatcher  
WB2UJL, Ernie Miles

VK3AQN, Fred Naylor  
VE3WGK, Ward Kenny  
N3WXW, Edward Mc Coy

W4CYF, Jim Bishop  
W4VFW, Robert Hughs

KB5EAG, Terry Redding, Jr.  
K5ID, Kenton Graham  
W5QPT, Ellis Thatcher

K6DPZ, Harold Guretzky  
W6LMJ, Terry Redding  
W6RWH, Hale Collins

W7UIT, Dan Rockrich

K8QA, Mike Oiler  
W8QK, Muirl Robinson

## TERRY'S TRAILER ANTENNA

Good morning fellow hams. I am writing this article from the side yard of my daughter's home in Easton, Maryland - on the Eastern Shore. Behind me I have the 40 meter RV net tuned in and I am listening to a growing group of friends who I am taking the time to get to know and many of whom I have now met. But I am thinking about ASCRA. I am on my way to Graceland to assist Bob Farnham teach the next SPECTACULAR ham radio class. Along the way I am working to improve the portable antenna system in my trailer.

Six months ago I started describing the various trailer related antenna systems I have tried. Since then I have found time to explore two additional solutions to the quest for a better signal. The two candidates are a random wire antenna and a high power dipole. Both, given my approach, are portable to the extreme. The first I will describe is the random wire.

I use an FT-857D in the trailer. It provides all bands from 160 meters through 440 MHz and costs \$649. Cheaper than most used radios I have been exposed to. I bought the FT-587D from HRO and they threw in an FC-40 external automatic antenna tuner - capable of tuning random wire antennas - for another \$150.

The FT-857D has the following features:

- 160-2 meters +440
- Electronic Keyer
- 200 Alpha Memories
- DSP Option
- 100 Watts HF Output
- 50 Watts 2 Meter Output
- 20 Watts 440 MHz Output
- Spectrum Display



I placed the radio under the bed in the trailer and routed the power leads to a fused power block, and the control lines under the trailer inside a conduit to a cabinet in the main living area so that only the remote control/display, microphone and speaker take up space in the trailer. I mounted a through the glass 2/440 antenna on the side of the trailer to provide simple easy operation on those bands. With all the kids and the wife licensed, we use 2 meters between the car, each other, and the

trailer. This is the same radio I use in my Mini-Cooper with the active tuning antenna system (ATAS-120), so it is a known good performer, in a very small package. The only thing it lacks is dual receive. I mounted the FC-40 in the "basement" of the trailer near an access door. I tied the antenna ground to the frame of the trailer and fed a small white wire (18 gauge) through a small hole in the side of the access door frame. I used a small piece of coffee stir stick to provide a hard plastic tube through which the wire could be passed. This prevents the wire from rubbing on the hole and eventually shorting out. The wire then travels a short distance, glued with white caulking compound to the side of the trailer and then disappears into the crease between the side of the trailer and the front, top, back, opposite side, and ending on the other side again in front. It amounts to about 64 feet of random wire supported by the trailer. The trailer itself is laminates and is transparent to RF. Indeed, I can sit inside the trailer with a GPS and "see" the satellites as if I was out under the open sky.



With this random wire antenna system I can operate 160 through 6 meters, and the through-the-glass-mount 2/440 antenna completed my initial effort to have a mobile antenna system. I am still resolving grounding issues and making efforts to improve the transmit signal. But from a receive point of view, the system works great. The beauty of this system is absolute zero setup time. I can use the radio on any band without going through process of setting up an antenna for HF. Band switching and frequency changes result in split second tuning. Well, not quite split second in all cases - but very close - especially when returning to previously used frequencies. Here is the Yaesu writup on the tuner:



The Yaesu FC-40 antenna tuner is designed for the FT-857D and FT-897D. It uses the control circuitry built into the FT-857/897, which allows the operator to control and monitor automatic operation of the FC-40 mounted near the antenna feed point. For demanding applications, the FC-40 uses specially selected thermally stable components and is housed in a waterproof casing to reliably withstand severe climatic extremes. The FC-40 matches a wide variety of antennas to within a 2:1 SWR on any amateur band (160 through 6 meters) in less than 30 seconds. And hook-up couldn't be easier. Transmitter power required for matching can be as little as 4 to 60 watts, and matching settings are automatically stored in memory for instant recall when the same frequency range is reselected later. Comes with plate and U bolts plus 16 foot control cable and 16 foot coaxial cable.

When I am set up in a more permanent location, I can easily attach a longer external random wire and stretch it up into the trees or other nearby high support. The higher and longer the antenna, the better the system hears and receives. However, the FC-40 solution suffers from the same limitation as the ham stick dipole solution discussed here in February 2006. They are both limited to about 200 watts. I am looking for a portable solution that will allow me to run 500 watts while connected to commercial power. This brings me to my second solution for this article, a dipole made from a set of Hustler mobile whips.

I chose to use Hustler mobile whips, with resonators for each band. I can mount up to three resonators at the same time, providing for three band automatic switching operations. I use the high power coils capable of 1,000 watts and providing twice the bandwidth of the smaller tuning coils. They are much heavier than the Hamstick solution, but more efficient. The first night I set up the Hustler dipole I made contact with a half dozen stations on 20 meters - all on the first call and all reported my signal at 5/9+.

The next step will be to wire a small solid-state amplifier for the trailer and then begin the long process of refining the antennas and improving their efficiency. Expect to hear me mobile from the trailer as my job causes me to be on the road for extended periods of time through the east coast, mid west, and points further west in the future.

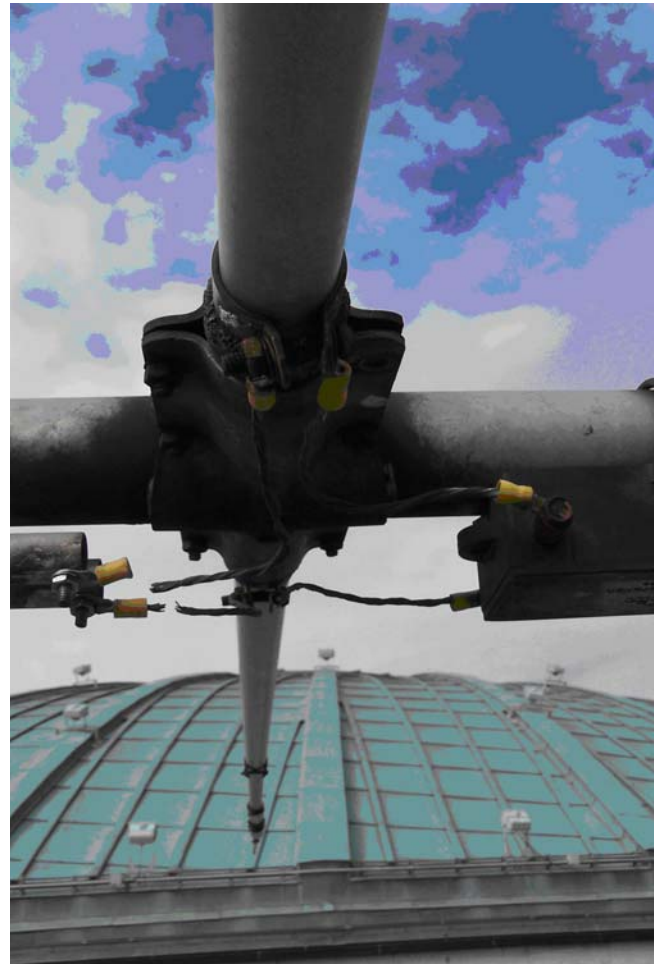
73 - Terry - W6LMJ

## PROBLEM AT WØSHQ

The last time I went up to the Auditorium to operate wøshq, the bad was very weak and sporadic. I was also getting poor reports which is not the norm from there. It seems that the tri-band beam has deteriorated to where it is unusable. We did an inspection and found several things wrong. The wires that go from the balun to the driven elements are broken. The balun itself has some corrosion on it. The driven element rotates around the boom almost 15 degrees. We have long known about the missing 15M element. Chuck Palmer nøonn took pictures while he was up on the tower.

That was the bad news. The good news is that we have a complete (almost) spare antenna in Chuck's garage. This was donated by Richard (Dick) Smith waønby. When I discussed the condition of the beam with Terry Redding w6lmj, he stated that parts are available for that antenna from the factory. The plan is to climb the tower, probably after the heat of summer, and bring down the antenna. At that time it and the spare will be assembled into one good antenna. If necessary, any missing or worn parts that we don't have duplicates of will be ordered from the manufacturer. Then when assured that it is in good operating order it will be reinstalled at wøshq.

Robin Cross  
wøfen  
Executive Director



## Moved to NC - Need a New Antenna

Finally, Betty and I moved to get closer to our son, Neil and grandson, Nick, in NC. We gave up the 4 bedroom NY house we bought in 1967. We moved in 12/08/05. The old GEM QUAD died while trying to get it off the roof as the rotor was locked and tilting over the antenna mast on the roof didn't go well. Broke a fiberglass arm on the antenna.

After finding out the county ordinances allow a 40' tower, we bought a home in Durham, NC with enough room for an antenna. First I needed to bring 220 V to the shack for the amplifier. It took a lot of looking to find out I could connect the amp. to the well pump circuit that is used for watering the lawn. It took lots of crawling around in the crawl space and drilling some holes through the molding for the cables I expected to bring in. A new wall outlet for 220 V as well.

I chose the MA-40 US Tower which is a telescoping 40' tubular type, steel tower which drops down to 20' and can tilt over allowing me to work on everything while on the ground. It also had to be a tilt over style tower as the Gem Quad requires care every few years and this area is subject to ice storms. This is all good for a 74 year old that doesn't climb anymore.

The Gem Quad is tough to assemble without the spider hub being mounted on the rotor as each of the arms is 14' long. I can stand on the ground and reach most everything or with a short step ladder.

The tower requires a cement base 3' X 3' X 4.5" deep with 70 pounds of rebar, and 4 - 3/4" X 27" bolts embedded in the cement. It took Neil a couple of evenings in 80+ degree heat to dig the hole, but it only took about 3 hours for Neil and a friend, Mike, to fill it using a rented mixer.

When you don't have any good ideas how to do some of the things that need to be done, you ask your ASCRA friends of course.

1. How far away from the house can you have a tower and not lose performance?

With the low loss RG-213 cable 200' is not a problem for HF.

2. Can a 200' rotor cable provide enough power to move the rotor?

Rotor cable comes in various sized wire so 300' or more is possible.

3. How do I run coax underground?

Electrical conduit was planned until the cheaper 4" corrugated plastic drainage conduit was recommended. Ground water will get in any pipe not hermetically sealed allowing condensate to form, so using plastic pipe with slits will temporarily let water in but drain out when the ground water level drops back to normal. Stuffing the ends with rags and sponges was recommended to keep out critters that might want to chew the cables.

4. What about lightning protection for the tower and the shack?

The grounding suggestions from Robin, W0FEN, are being followed closely. Robin has been building commercial FM

radio stations for a number of years and has been a great help in understanding lightning and how it behaves. He recommended two ground rods on opposite sides of the base. A continuous #6 wire running over the base connecting rod "A" to two tower base bolts and on to ground rod "B" on the other side. The coax and rotor cable lightning arrestors also connect to this ground wire. It also gets connected to the bare #6 that will run in the trench going to the house utility ground rod. Better to be in contact with the dirt, not in the conduit.

5. Is weather protection needed for lightning arrestors?

That is still being designed with suggestions from Terry, W6LMJ. So if there are any more good suggestions on weatherproof boxes at the base of the tower, let me know.

The Gem Quad antenna and rotor are waiting to go when a few remaining items arrive. I am now looking for a portable trench about 150' long to go from the tower to the crawl space under the ham shack.

Did I mention it is hot here in NC and the 95 degree weather is now a factor in the rate of construction. I hope you will be hearing my stronger signal on 14.287 MHZ soon.

Ernie, WB2UJL



**The Base is Poured**



**Telescoping and tilt over winches**

## HURRICANE SERVICE

The yeoman efforts of our Ham Radio fraternity during last years' hurricanes really impressed many government emergency planning personnel with their flexible, rapid, competent, and effective response to what became undeniably major, widespread disasters. We should be proud of those accomplishments reflected about our avocation. But, we need to encourage our fellow ASCRA members and other local Amateur Radio operators in becoming prepared to get on board in their local communities (as well as in the World Church context) in time for the next disasters (large or small), whether caused by Mother Nature or some terrorist group.

While the Committee on Homeland Security appears to lack a clear understanding that Amateur Radio operators and HAMS are one in the same, WE ARE MENTIONED TWICE, which is 100% more than any of the other operational groups. Hey!! That makes us twice as obligated to step up to what may well be a vital calling to meet such expectations, doesn't it? Think about it.... (Lots to do, so little time.) Contact me if you want more information about the Emergency Communications Act.

73 Doug wa0emx

### Fact Sheet: H.R. 5852 21st Century Emergency Communications Act of 2006

Following Hurricanes Katrina and Rita last year, the nation witnessed emergency response problems at all levels of government federal, state, and local. Not surprisingly, a key contributing factor was the inability of first responders, emergency managers, the military, and others to communicate effectively, both at the scene and with other federal, state, and local units throughout the region.

The 21st Century Emergency Communications Act of 2006, introduced by U.S. Reps. Dave Reichert (R-WA) and Bill Pascrell (D-NJ) with 9 original cosponsors, is the product of a series of hearings held by the Subcommittee on Emergency Preparedness, Science, and Technology, as well as dozens of meetings with first responders and emergency managers from across the country. The bill, originally approved as part of the Committee on Homeland Security's Hurricane Katrina Lessons Learned legislation, takes the necessary steps to enhance operable and interoperable emergency communications nationwide in order to better protect the American people.

Overall, the bill:

- \* Mandates a National Emergency Communications Report to recommend goals and time frames for the achievement of redundant, sustainable, and interoperable emergency communications systems;
- \* Requires a baseline assessment of current emergency communications capabilities and periodic assessments on progress in filling in existing gaps;
- \* Accelerates the development of national standards for emergency communications equipment;
- \* Requires state and local governments to establish effective Statewide Interoperable Communications Plans before being able to use DHS grant funds for emergency communications;

- \* Facilitates coordination on emergency communications by establishing regional working groups comprised of federal, state and local officials, first responders, and other relevant stakeholders; and

- \* Elevates the importance of emergency communications within the Department of Homeland Security, enhancing accountability and resources to ensure first responders on the ground can communicate with one another.

## ASCRA BOARD NOMINATIONS

It is time to submit nominations to the ASCRA Board of Directors for the 2007-2008 term. A maximum of six (6) nominations may be submitted by each member to be received no later than Saturday, September 30, 2006.

The following directors are serving for the 2006-2007 term and are not eligible for nomination at this time.

David Gates, N5LCL, Newcastle, OK  
Mike Oiler, K8QA, Liberty, MO  
Terry Redding, W6LMJ, West Palm Beach, FL  
Muir Robinson, W8QK, Bald Knob, AR  
Tom Thatcher, W2TFT, Shawano, WI  
Fred Troeh, NØELM, Ames, IA

All other licensed ASCRA members are eligible for nomination, including the following six directors whose terms expire in the Spring of 2007.

Robin Cross, WØFEN, Kansas City, MO  
Bob Farnham, KGØII, Lamoni, IA  
Michael Hahn, KGØXU, Independence, MO  
Ernie Miles, WB2UJL, Apalachin, NY  
Chuck Palmer, NØONN, Independence, MO  
Doug Shaw, WAØEMX, Raytown, MO

Please verify with your nominees that they are willing to serve before you submit their names in nomination. Service as a director may entail travel to Independence, Missouri, or attendance by conference call, for at least one annual directors' meeting. It is also very helpful if all nominees have E-mail capability, but should not be considered a requirement for nomination or serving.

Only one nomination is required to place a willing nominee on the ballot. Each ASCRA member submitting nominations should clearly identify who is making the nomination, such as enclosing a separate piece of paper or sending a separate E-mail. Submit nominations by postal mail to:

Doug Shaw, WAØEMX  
ASCRA Secretary  
P.O. Box 73  
Independence, MO 64051

Or by E-mail to [wa0emx@arrl.net](mailto:wa0emx@arrl.net).

Since ASCRA asks no dues of its members, it is dependent on your donations to cover minimal operating expenses. Please consider including a donation when you submit your nominations by postal mail. Any questions about the nomination process may be directed to the ASCRA Secretary.

Doug Shaw, WAØEMX  
ASCRA Secretary

## E-MAIL ADDRESSES

We have a place for e-mail addresses in our database, but it has a lot of blank lines in it and some of the addresses we have are out-of date. Please help us bring it up to date by sending an e-mail to [frtroeh@iastate.edu](mailto:frtroeh@iastate.edu).

Thanks.

Fred Troeh NØELM

You can find information about ASCRA on our web page at [www.ascra.org](http://www.ascra.org), including previous issues of this IN-SERVICE newsletter.

## IN-SERVICE

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