ECA Newsletter

Volume 24, Issue 4 **October 2023**

Introduction

I hope everyone had a great summer. With fall approaching, we need to be thinking about winter projects and training. Winter offers opportunities to do some special things that the other seasons are too busy for. Simulated Emergency Test (SET) is coming up on 7 October 2023. This test is a great opportunity to get out before cold weather sets in with all of the force of the Midwest winters we love so much. SET is also a great opportunity to learn how to respond in a real emergency. We usually have our SET with cooperation of Regional Emergency Management and we look forward to doing that again this year as well.

There are some interesting articles in this issue including a homebrew antenna mast from Don Weir (KZ8E).If you've always wanted a digitally synthesized Variable Frequency Oscillator (VFO) for your HF rig, there is an article on that as well. Dig into the technical articles and if you've built a project that worked really well, give us a write-up and we'll publish it in one of the newsletters. If it didn't work so well, tell us why and how you fixed it.

We have a number of things we are working on as a group. We have the Traveler's Assistance Net that is run for any winter storm warning to help folks that may be traveling through the area or that live in the area and are uncertain of conditions. We have the Skywarn Net that we run for severe thunderstorm or tornado warnings as well. We are working on some special events like an EOCs On The Air (EOCOTA) which is still in the planning stages as this is written.

We have regular training sessions at our meetings so if you have not been to a meeting for a while, come on out. We are slowly but surely working through our MO Section ARES® Skills Book. As you complete training, attach the certificate or some proof of the training to the skills book and the ARES EC or AEC will initial it as completed. Many of the members have made significant progress in the skills book which adds to our credibility as a responsible and trained communications asset to Agencies Having Jurisdiction (AHJs).

Remember that our nets are according to the following schedule:

Regional Emergency Management Net – every Monday night at 1900 hrs on DEM-VHF-1 repeater.

ARES® Net – 2000 hrs on the 145.490(-) CTCSS 141.3 Hz repeater

ARES Traveler's Assistance Net – As required in the event of a winter storm warning issued by the National Weather Service.

Our meetings are on the second Thursday of the month at 1900 hrs at the County EOC at 1400 TR Hughes Blvd near Tom Ginnever behind the County Police building. All are welcome to attend our meetings and all radio amateurs are welcome to check in to our ARES® nets.

EMCOMM and You

This installment of "EMCOMM and You" will cover deployment safety. You have all put up push-up poles or some sort of antenna structure but when you do, are the following considerations part of your decision making?

- Proximity to power lines (overhead or in any direction the structure could fall)?
- Will feedlines have to go over walkways?
- RF safety of the general public?
- Marking of guy wires/cables?
- High RF voltages or currents on equipment?

How about the power generation? Have you considered where to put a generator and how to safely operate it?

- Away from operating locations to reduce noise
- Downwind to minimize harmful exhaust vapors (CO and CO_2)
- ALWAYS turn off the generator when fueling
- Use CAUTION tape to keep spectators away from the generator
- Keep fuel a safe distance from the generator

What about safety for the station operators

- Grounding of equipment to prevent shock hazards
- Smart routing of wires and cables to prevent trip hazards
- Good lighting in operating areas
- Are there manuals for proper operation of equipment?
- Are there procedures for reporting improperly operating equipment?

Another potential issue is lifting safety:

- Is all equipment stored in bins?
- Are all heavy items stored between mid-thigh and shoulder height?
- Are storage bins in good condition and not overloaded?
- Are heavy bins marked as "TWO MAN LIFT"?
- Are storage areas free of rubbish?
- Are storage bins secured to prevent shifting/falling?
- Are all containers/bins labeled?

For accessing the antennas mounted to a structure or trailer:

- Is there a ladder or step stool for accessing the antenna or push-up pole?
- Is the ladder or step stool in good working condition?
- Are there obstacles to avoid and are they properly marked?

These are just a few concerns, there are many more – most of them are common sense but documenting them is always a good idea. A good practice is to have a safety checklist and a person responsible for ensuring the guidelines are followed at each deployment. The NIMS guidelines provide for a safety officer. The Safety Officer is a direct report to the Incident Commander and is the only person that can override the Incident Commander if there is a potential safety issue. That is how important safety is to professional responders – it should be just as important to us. See the following for some good tips: https://www.albemarleradio.org/wp-content/uploads/2016/05/AARC-Field-Day-Safety.pdf

- DE N0PNP

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Technical Articles

Homebrew PVC Antenna Mast

I wanted to build an antenna mast that was easy to set up and take down and would easily fit into most vehicles. This is what I came up with. This is my first attempt, and it seems to work pretty well. If I keep the mast at around 15' high, it is self-supporting (long enough to attach the guy lines). Above 15' and it's a 2-man job. I am working on a solution to put weights in the legs of the base so it will be more stable. Maybe add concrete or rocks/sand into the base legs.

PLEASE, I am open to any suggestions/recommendations, so feel free to speak up. You can send comments to KZ8E.0621@gmail.com– Add Subject: PVC Antenna Mast

Materials List:
(3) 10' long 1.00" diameter Schedule 40 PVC Pipe
(3) 10' long 1.25" diameter Schedule 40 PVC Pipe
(1) 10' long 1.50" diameter Schedule 40 PVC Pipe
(4) 1.50" End Caps
(2) 1.25" End Caps
(1) Furniture grade 1.50" 5-way PVC Connector
(1) 24" pre-cut 1.50" diameter Schedule 40 PVC Pipe
(1) 1.50" PVC Coupler
(1) 1.50" to 1" PVC Adapter
(6) 1.75" Hose Clamps
(8) Eye Bolts with 1-1.5" Threads
(4) 50' lengths of 1/8" Paracord
(10) 5/16" "D" Pins (see photos)
(8) Spring Close Key Ring(s) (see photos)
(8) CamJam(s) for Guy Lines (see photos)
(1) role of +/- 1" Blue Painters Tape

We'll start with the Base.

Cut the 10' long 1.50" PVC pipe into 4 equal pieces. Then attach the (4) 1.5" end caps to one end of each of the 4 pieces you just cut. Insert these 4 pieces into the 4 flat openings in the 5-way connector.

Take the 1.50" to 1" reducer and sand off the lip that prevents the 1.00" diameter pipe from sliding down into the 1.50" diameter pipe.

Cut all the 1.00" and 1.25" diameter PVC pipes in half, resulting in (6) 1.00" diameter and (6) 1.25" diameter PVC pipes.

Add the 1.50" coupler to the top of the 24" long 1.5" diameter pipe and then add the 1.50" to 1" reducer.

We need articles for the ECA newsletter. Please send any articles to william.a.grimsbo@charter.net. If you need some help pulling together an article, let us know and we can help. Text (.txt) and Document (.doc or .docx) files are fine.

Slide a 1.00” diameter PVC pipe down through the 24” long 1.5” diameter PVC pipe until it protrudes out the other end. Take the 1” blue painter’s tape and wrap it around the pipe so it just fits back into the end of the 1.50” PVC pipe. This will keep the lowest section of the 1.00” pipe stable (won’t wobble around inside the 1.5” diameter pipe). Slide the 1” pipe so 28” extends above the reducer. Cut off excess pipe.

Add the 24” 1.50” PVC pipe into the top hole of the 5-way. Pre-drill holes at the joints between the 5-way and the 1.5” diameter pipe and through the reducer and use screws to lock these pieces together. Add blue painter’s tape wraps near the top and bottom of the 1.00” diameter pipe to fill the gap between the 1.00” diameter pipe and the inside of the 1.25” diameter pipe (see photo). Your base is now finished.

Next, take the 1.00” diameter PVC pipe and install a hose clamp in the middle of each pipe. Slide a 5’ section of 1.25” diameter pipe over the 1” pipe (top section of base). Now take a section of 1.00” diameter pipe and slide it down inside the 1.25” diameter pipe. The pipe clamp will hold the inner pipe in the correct location. Now add a section of the 1.25” pipe over the 1.00” pipe.

Here is where you will need to make a decision on how you want to continue If you want to keep the mast clean you will need to find a way to make sure all of your holes you are about to drill are exactly properly located or, you will need to establish a method to mark and align each section so you will know how to assemble the pieces later. I chose the latter, so I added letters at each joint and an alignment mark at each joint. Why is this important? When you add the “D” clips to lock the mast together the holes will align properly.

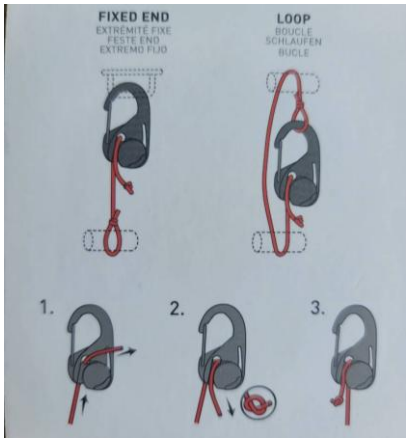
Also, I’ve only allotted two locations for guy line attachments. Make sure you plan for where you want the guy lines to attach. It will make a difference where you put the 1.00” internal pipes in the mast. Or, you can add eye bolts and put them in every 1.00” section.

Just above the hose clamp drill (2) holes (diameter is based on the eyebolts you choose. Make sure the holes are small enough so the threads will bight securely into the PVC) completely through the 1.00” pipe at 90 degrees. Offset the holes about ½” so the eyebolts will not interfere with each other.

As you add sections of 1.00” and 1.25” pipe you will need to drill 3/8” diameter holes through both sections of pipe. **Be careful drilling the holes, too much pressure will break the PVC pipe. REMEMBER to mark sections and add alignment marks before you start drilling holes.** Drill the holes above and below each hose clamp and use the “D”

clips to lock the pipes together.

These holes don't need to be in a particular location, so give yourself some room. Also, with this configuration you could move the inner pipe 2"-3" on both sides of the hose clamp and use the outer pipe as a guide to give you height adjustment. I added a piece of painter's tape to the joint to hold the pieces in place before drilling the holes. If you want, you can also add painter's tape at each joint (around the 1.00" diameter pipes) to create a tighter fit between the inner and outer pipes.



I use the spring closure key rings to attach the guy wires to the eye bolts. I have 4 tent stakes to pound into the ground. I loop the guy lines through the stakes and take the end back up to the CamJams about half the way up the guy lines. I'm getting old, so I don't like working at ground level…

I added (2) 1.25" PVC pipe caps so I could add a threaded bolt epoxied into one cap and an eyebolt into the other cap, so I had options as to what I wanted to use for an antenna attachment.

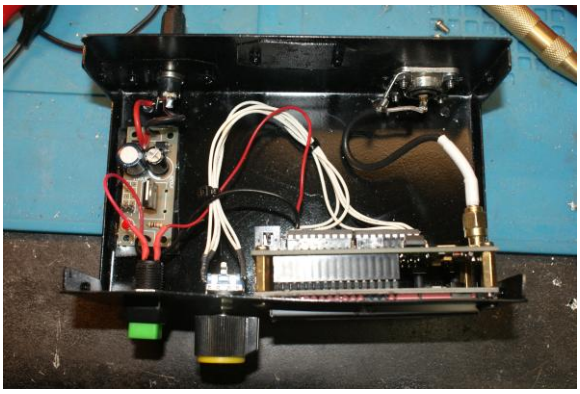
I hope this experiment will give you some ideas on ways to improve this example. If it does, please share…

- Don (WZ8E)

Direct Digital Synthesis Variable Frequency Oscillator (DDS VFO)

A few years ago, I purchased a digitally synthesized VFO from Ebay. It sat in my cabinet with the other TO-DO projects that I haven't gotten around to yet. I had the encoders which I had purchased for another project (I never buy just one of anything). I was able to find the wiring diagram online and was off to the races. I needed a good, stable RF generator that I could use apart from my spectrum analyzer.

As always, the hardest part is finding an enclosure that will work for the project. I had one of the data switches left that I use for so many projects so I decided to use that. I used a LCD display of the same dimensions to lay out the cut for the LCD and the holes for the panel. The DDS VFO had switches below the display so I cut a hole for that as well. I used some steel that I had to block the holes in the back and cut out for the power in and the RF out (SO-239).



As you can see from the photo, I painted the bottom of the enclosure satin black (I ran out of flat black and didn't want to run to the hardware store). The second board in the photo is an 8 VDC regulator since the regulator on the VFO is a 5VDC and is not rated for 12 VDC in (requires more current than the small 5 VDC regulator can handle with 12 VDC in – runs cooler with 8 VDC in).

The finished product has a decent look to it and it may well end up in a stacked design with a buffer amp, modulator and power amp to make a QRP set.

Looking at the VFO on my spectrum analyzer, I found that the amplitude is not consistent over frequency from 1 to 56.25 MHz. It seems to dip at odd frequencies like 27 MHz (hmmm. I wonder why…) 80 through 10 meters look quite useable with a 0 to -9dBm signal (calculated using attenuators on my spectrum analyzer) depending on what bands. The output seems to drop off at around 42 MHz to a pretty low level at 56.25 MHz (or the end of the range). I don't find this at all surprising considering you get what you pay for and at $31.00 you can't expect much. With a few dB of gain in a buffer amp and a decent power amp, that should be more than sufficient.

There is little or no grass on or around the signal until you get up around 54 MHz and it has a nice, clean look on the spectrum analyzer. There are substantial second and third harmonics so good use of low pass filters would be required to knock those down for each band of interest. If I decide to take this further and develop my own transmitter, there may be more articles. If not, I have a decent HF and low band VHF RF generator at my disposal. That's what engineers refer to as a win-win situation.

These DDS VFOs are available from ebay.com at the following link:

https://www.ebay.com/itm/274655877036?_trkparms=amclksrc%3DITM%26aid%3D1110006%26algo%3DHOMESPLICE.SIM%26ao%3D1%26asc%3D247857%26meid%3Db0fcb189631644008db52d17f76f8564%26pid%3D101195%26rk%3D3%26rkt%3D12%26sd%3D262916095852%26itm%3D274655877036%26pmt%3D1%26noa%3D0%26pg%3D2047675%26algv%3DSimplAMLv11WebTrimmedV3MskuWithLambda85KnnRecallV1V4V6ItemNrtInQueryAndCassiniVisualRankerAndBertRecall%26brand%3DUnbranded&_trksid=p2047675.c101195.m1851&amdata=cksum%3A274655877036b0fcb189631644008db52d17f76f8564%7Cenc%3AAQAIAAABUA2rugFlOq3qu1cLac%252F%252Fk6Vp0Oa0HaJIqoXKeIiOR%252BTUgsSvHaeyPxKYu6UqHqq7GaGyKVgHQnjeiiXcQpMGw2t3aB%252BssGfjtIWOBj8wExc7oYYP7xGMyQCrHDyDaSaWjB1CueI3A94n0yxXX5dx5gCK6NDuP%252FFfeS%252B5EAhxVNX0avysSpQkjdS%252BDZN1w9CSaZAnfxJXTqx%252FmZy%252Fu3wg1aac450JEYtvBRkW6ZCZ2bkNuVzyx5f4JdSp%252FV5B08RvT6sxyUHKAA7LR33P3Wr15GbH8ox3hudnBQhKRAIF20ODYxGgmjn86y1TTofSwRr39sS3cWtVPVgKN6MpDEyBDhawHI%252BcbYKozF%252BgtUKH5qLIf18yoDXz8KgYALCqu5RIPZ5%252Bo5i7pNPCXV8eQeA%252FuHcGltYSH9nFa0WTh0afphOTHc7OQyn%252F0raZ2sPZ5LNXAw%253D%253D%7Campid%3APL_CLK%7Cclp%3A2047675

(Wow, that's a long link)

or numerous other providers. When you get to the ebay site, click on the (FULL DESCRIPTION) button to get the schematic for wiring it up.

- Bill (N0PNP)

Christmas Party

ECA will have its annual Christmas party at Bandanna's on Veteran's Memorial Parkway by Cave Springs on 14 December (our normal meeting Thursday night - confirmed) at 6:30 pm.

We look forward to seeing all of the membership in attendance. This is usually a great time so come on out!

ECA OFFICERS (2021-2022):

Following is the officers as of the July 2022 meeting:

- Bill Moss, KE0RXS as President
- Mark Hall, AE0ME as Vice President
- Jeff Young, KB3HF as Secretary/Treasurer
- Ken Humbertson, W0KAH as Director
- Wayne Garrison, KB0BZR as Director
- Wayne Ault, WD6EZQ as Past President Director

Return to TOC

Just a Note:

All of the long term predictions thus far indicate a cold and snowy winter (for all the good long term predictions are) so check your winter go-kits. Think about what to keep in the car in the event you are stuck on the highway for hours. Sometimes it happens even when we don't have that much snow – all it takes is one careless driver and we all know that they are not that rare. Do you keep your gas tank above the half-tank marker at all times in the winter? When the weather gets cold, I try to always have at least a half tank before leaving home. I also keep a shovel and boots in my trunk just in case. What about a spare jacket and gloves? Be ready, don't be sorry. If it looks bad on the highway, don't go out - seems simple enough doesn't it?

- Editor

Skills Training

What skills are needed to form a communications technical team for troubleshooting and repair of things like repeaters, radio transceivers, antennas and feedline, power distribution systems, etc. If ECA is to be a useful entity for served agencies or AHJs, we need to have the basic skills to set up and troubleshoot basic communications systems from power generation and distribution to computerized repeater controllers. Not everyone will have the complete skill set but a focused technical team should consist of the skills necessary to meet these needs.
What are these basic skills? See below:

- Basic soldering skills
- Using an Oscilloscope
- Using an RF service monitor
- Using a DVM
- Using a Vector Network Analyzer (VNA)
- Using a Spectrum Analyzer
- Use of an Antenna Analyzer
- Use of a wattmeter
- Use of a frequency counter
- Reading a schematic
- Basic algebra and trigonometry
- Attaching connectors
- Programming radios in the field
- How repeater controllers function
- Basic troubleshooting skills
- Constructing a basic functional antenna
- Balanced vs. unbalanced systems for RF and audio

There are many other skills not included in this list but it comprises some of the basic skills required to be part of a technical team. Some of these basic skills have already been covered in this newsletter in the Skills Training column or at presentations or workdays. Some of these skills are requirements in the MO. Section ARES® Skills Book.

Let's get started. If you want to know the 2:1 VSWR bandwidth of an antenna, where would you start (assuming you do not have the specification sheet)?

There are a couple of possibilities here:

- Vector Network Analyzer and
- Antenna Analyzer

Since antenna analyzers are the most popular for their ease of use, let's go there. Connect the analyzer to a non-resonant length of feedline and to the antenna (it's good here to have some short jumpers along just in case the antenna analyzer results don't make sense. Sometimes a short piece of coax - less than ¼ wave – can make all the difference). Tune the antenna analyzer to the frequencies of interest (the

appropriate band for the antenna) and find the meter dip(s). Note that there may be more than one dip. Record the VSWR indication on the meter or digital display at the VSWR dip(s). Tune down in frequency until the VSWR is 2:1 and record that frequency. Tune up through the dip until the VSWR is again 2:1 and record that frequency. The resonant frequency is where the dip occurs and the higher 2:1 VSWR frequency minus the lower 2:1 VSWR frequency is the 2:1 bandwidth of the antenna.

Example 1:
The only dip is 14.150 MHz
The lower 2:1 VSWR frequency is 13.600 MHz and the upper 2:1 VSWR frequency is 14.400 MHz. Find the resonant frequency of the antenna and the 2:1 VSWR bandwidth.

Since the only dip is **14.150 MHz**, that is the resonant frequency of the antenna on the 20 m band.

The 2:1 VSWR bandwidth is:
14.4 MHz – 13.6 MHz = 0.8 MHz or
800 kHz

This antenna is effective across the entire 20 meter band.

Example 2:
A 10 meter antenna is exhibiting less than ideal performance. Determine the resonant frequency and 2:1 VSWR bandwidth of the antenna.

There are two dips – one at 30 MHz and one at 27.250 MHz. The deeper dip is at 30 MHz. The 27.250 MHz dip has a 2:1 VSWR bandwidth from 26.12 MHz to 28.09 MHz. The 30 MHz dip has a much narrower bandwidth. Which is the right resonant frequency and why?

The most likely answer is the 27.250 MHz dip. The 30 MHz dip may be due in part to feedline or other factors like proximity to reflecting surfaces. This is indicated by the much narrower 2:1 VSWR bandwidth. Adding a length of feedline (<1/4 wave) may change this dip – if so, you can ignore it. Although the 27.250 MHz dip is not quite as deep the broader bandwidth (which would be expected from this antenna) would indicate it is the actual antenna resonant frequency below the 10 m band. Note that this antenna needs to be adjusted in length to bring the resonance to the right frequency. Shortening the antenna would be appropriate to put the resonance more towards the 28.300 MHz mark or thereabouts depending on what modes are most worked on this band. The 2:1 bandwidth should adequately cover most of if not all of the entire amateur 10 meter band.

I hope these two examples help. As with so many things, troubleshooting antennas is sometimes 60% analysis and 40% intuition. You will learn by doing.

- Bill (N0PNP)

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If you have not started filling out your Missouri Section ARES Skills Book, you can download the fillable .pdf form from www.w0eca.org and start today. Finishing the skill levels in the book adds credibility to us as amateur radio operators to assist in emergencies.

A Few Words from Paul Orf (AD0YL)

I was net control for the Emergency Management and ARES nets on Monday July 3. My wife and I decided to spend the evening working on our garden at Winghaven. Rather than rush home for the net, I packed my radio, battery, mag mount antenna and laptop (along with a paper and pencil for backup). This isn't exactly my "go kit". I just grabbed the bare minimum I felt necessary for a quick set up. The only thing I forgot was to bring my wallet with my license and ID. After I pulled weeds, I played radio while my wife watered. We also got lots of yummy produce and a chance to talk to other gardeners about the ECA.

It can be great practice as net control or as just a participant to take your gear to a remote location such as a park or even your back yard for net exercises. And it is a lot of fun!

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Items For Sale

We have a few items for sale including the following:

- Three element beam antenna kits for DF'ing - $10. One available
- TDoA DF'ing kits (Time Direction of Arrival) - $12. Two available
- Various meters and test equipment including frequency counters, capacitance and inductance meter, see below:
  - 50 MHz B&K Model 1801 Freq Meter for $20
  - Heathkit 2240 LC Bridge for $20
  - RF Applications Model D-144 VHF Deviation Monitor with manual for $20
  - Antennas, power supplies, etc. for various prices depending on the unit
  - Small stereo amplifiers (10 to 15 Watts) for around $20
  - VHF Amplifiers, etc.

I also have a 102 pin SMD PIC development kit if anyone is interested for **$50**. This kit is brand new and is the EasyPIC V7 for the 102 pin SMD PICs. That's less than half the price if ordered directly from Mikroelektronika. Software tools and library examples are free online and compilers for PIC Basic and C are available online.

If you have interest in any of these things, send an e-mail to william.a.grimsbo@charter.net and I will get back to you. If you have any items you would like to advertise for sale send in an e-mail and we will try to get them in the next newsletter. Please keep these things to radio or emergency-related items in keeping with the intent of the newsletter. Thanks.

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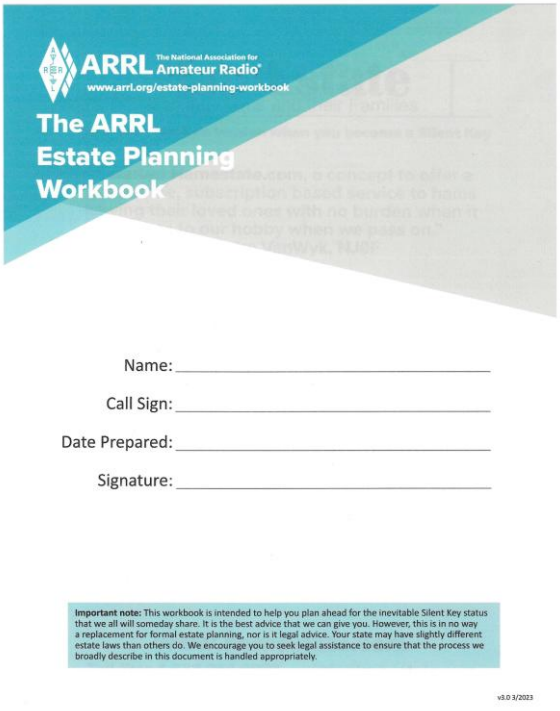
Editor's Note:

*For those that may be unaware, the ARRL has on its website a downloadable estate planning workbook to assist in determining where your gear will go in the unfortunate event that you become a silent key. This workbook can help you in deciding what to donate, sell, dispose of, etc. This should not be considered formal estate planning but it could be a first step in the process. If you've never given any consideration to what you would like to have done with your equipment, what group you would like it donated to, how you would like it to be sold or disposed of, this is a great way to start. Just sign in on the www.arrl.org website and search for **"ARRL Estate Planning Workbook"** and it will take you right there. Hopefully, no one of us will need this anytime soon but you never know.*



July 4th 2023 St. Charles Parade

ECA participated in the July 4th parade this year in a big way. Mark Hall (AE0ME) towed the Communications trailer with his highly visibly decorated Ford F-150. We had wives and kids come along and help hand out candy and just generally were friendly to the community. I think this was a great chance for ECA and Regional Emergency Management to get some good PR.

It was hot but not terribly hot since we had partial cloud cover. There was a lot of residents looking at our presentation and clapping and cheering us on.

The kids seemed to enjoy the walk as they handed out or tossed out candy. The parade was well attended by the public and there were several floats and attractions. ECA also had some Morse code playing on an amplifier and sirens playing to arouse interest. People asked questions like “Do they still use Morse code?” which opened up opportunities to explain more about what we do.

Special thanks to all that attended and helped decorate. Very nicely done.

The following people attended the parade, helped with the decorating, walked the parade, rode in the truck and waved, passed out candy, etc.:

Zach Bush (KF0FXJ)
Threasa Bush
Elias Bush
Mark Hall (AE0ME)
Melissa Hall
David Hall
Joshua Hall
Bill Grimsbo (N0PNP)
Jerry Schapp (AE0MY)
Michael Kennedy (W0PX) and
Jeff Young (KB3HF)

As this is written, it remains to be seen how well we did in the competition but the crowd seemed to like our presentation.

We may plan to do this again next year so if you want to participate, we'd love to have more folks out in the heat with us. This is a great opportunity to get out in front of the public and show what we can do!

This area is for your content. I can always make the newsletter a few pages longer if you have an article. If you have something to add send it to William.a.grimsbo@charter.net. Depending on when it arrives, it may show up in the next newsletter. Articles are best sent in by the beginning of the second month of the quarter (February, May, August and November) for the next quarter newsletter.

Net Control Roster

Week	NCO	Callsign
1	*Paul Orf/Richard Tadlock	AD0YL/KF0JEJ
2	Ken Humbertson	W0KAH
3	*Jim Combs/Jeff Young	KF0HFB/KB3HF
4	*Zach Bush/Bill Grimsbo	KF0FXJN0PNP
5 (Floater)	*Don Weir/Bill Grimsbo	KZ8E/N0PNP

* First name/callsign is the primary and the second name/callsign is the backup.

The scheduled Net Control Operator is responsible for finding a replacement if he/she is unavailable for their scheduled net or paging. Any EMA volunteer interested in becoming a Net Control Operator on either the EMA Training Net or the ARES® Net should contact Bill Grimsbo (N0PNP) at william.a.grimsbo@charter.net.

Some things to remember:

NCOs - If someone does not open the net by 5 min after the designated time, one of the other NCOs are requested to open the net, take check-ins and handle any traffic as appropriate.

NCOs - If you are unavailable to run the net, please make arrangements – in advance – to have one of the other NCOs run the net in your place.

Membership - The net is a very important method of keeping involved with what is happening with the Association and ARES® - Please consider it part of your weekly calendar (i.e., check in and let us know you are still out there).

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Calendars

October 2023

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9 EM Net at 1900 ARES Net at 2000	10	11	12 ECA Meeting 1900 hrs	13	14
15	16 EM Net at 1900 ARES Net at 2000	17	18	19	20	21
22	23 EM Net at 1900 ARES Net at 2000	24	25	26	27	28
29	30 EM Net at 1900 ARES Net at 2000	31 HALLOWEEN 	1	2	3	4

Notes:

1 All meeting locations are subject to change depending on room availability. Tune into nets for latest information.
2 DEM Net is on DEM-VHF-1
3 ARES Net is on 145.490(-) MHz. CTCSS: 141.3Hz
4 Have a Spooky Halloween! Work that ghost station you've been trying all year!

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November 2023

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30 EM Net at 1900 ARES Net at 2000	31	1	2	3	4
5	6 EM Net at 1900 ARES Net at 2000	7	8	9 ECA Meeting 1900 hrs	10	11
12	13 EM Net at 1900 ARES Net at 2000	14	15	16	17	18
19	20 EM Net at 1900 ARES Net at 2000	21	22	THANKSGIVING 23 	24	25
26	27 EM Net at 1900 ARES Net at 2000	28	29	30	1	2

Notes:

1 All meeting locations are subject to change depending on availability. Tune into nets for latest information.
2 DEM Net is on DEM-VHF-1
3 ARES Net is on 145.490(-) MHz. CTCSS: 141.3Hz
4 Have a Safe and Happy Thanksgiving

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December 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27 EM Net at 1900 ARES Net at 2000	28	29	30	1	2
3	4 EM Net at 1900 ARES Net at 2000	5	6	7	8	9
10	11 EM Net at 1900 ARES Net at 2000	12	13	14 **ECA Christmas Party - 1830 hrs at BANDANNA'S On VMP by Cave Springs**	15	16
17	18 EM Net at 1900 ARES Net at 2000	19	20	21	22	23
24	CHRISTMAS 25 	26	27	28	29	30
31	1 	2	3	4	5	6

Notes:

1 All meeting locations are subject to change depending on availability. Tune into nets for latest information.
2 DEM Net is on DEM-VHF-1
3 ARES Net is on 145.490(-) MHz. CTCSS: 141.3Hz
4 Merry Christmas and Happy New Year to all

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