The Scope

Central Michigan Amateur Radio Club Lansing Civil Defense Repeater Association

May 2016
Volume 16
Issue 5

2016 Annual Ladies Night / Ziegenbein Award Banquet

When: Friday, May 13, 2016
5:30 pm to 8:30 pm
(Dinner begins promptly at 6:00 pm)

Where: Delhi Cafe
4625 Willoughby Rd., Holt, MI 48842

For more information, you can check out our website at www.centralmiarc.com or get a hold of Jane Hosford/KC8FSK at (517) 515-7610 or jlhosford54@hotmail.com

Each year a member of the Central Michigan Amateur Radio Club is selected to receive an Award named in honor of Ralph Ziegenbein/W8PLP, who became a Silent Key in 1960. This Award is bestowed upon that member who we feel has done the most for Ham Radio in general, and CMARC in particular, this past calender year, and who exemplifies the spirit of Ralph Ziegenbein.

Who Was Ralph Ziegenbein/W8PLP?

Ralph Ziegenbein (pronounced Zig-en-bine) held Amateur Callsign W8PLP. He was a popular barber in the Lansing area, with a shop located on Michigan Avenue near Clemens, and made a large impact on our club. There is very little information on the man known affectionately as "Mr. Ham Radio", and he has no family in the area. According the past member Currin Skutt/W8FSZ(SK), Ralph was involved in many different activities, but is notably remembered as the man who was responsible for the push to bring the old Novice Class license to Amateur Radio.

Picture: *Ralph Ziegenein/W8PLP (Left) and Don Devendorf/W8EGI(Right), circa 1955, courtesy of the Devendorf Family..*

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A Tribute to Julie McLain/KB8ZXR

Julie was a daughter in Christ, loving wife, and adored daughter, sister, aunt, and friend. We all will remember Julie's large and genuine smile, her shiny and positive outlook on life, and of course her fantastic cooking! If you knew Julie though, don't let my previous statement over shine some of her other greatest strengths. Julie was an extremely motivated hard worker, and when she sat her mind to something, it was going to get done no matter the obstacle. Julie had the innate ability to strong arm just about anyone into assisting her in reaching her end goal, always with a smile of course. By the end of the conversation she often had you thinking her original thought had been your idea all along, and you'd get to work right away! It was a genius tactic, and the best part of it all, is that she used that ability for the betterment of others.

Julie selflessly served others through her life. Serving in her churches, the community, and with local families, she's spread joy and His word near and far. Most recently, Julie has served as the President of CMARC, accomplishing a great amount of work that's been desperately needed in the club. The direction she's sent CMARC in was achieved through her determination and a strong board behind her. Julie has served in many other capacities as a board member, and committee chair-person. She lead the charge and re-organized the CMARC Outdoor Hamfest, which after years of no Hamfest existing in the Lansing area, has quickly become a success. The event has allowed the club to not only even, but profit from the event to fund development. None of this could have been accomplished without her, and it is just one example of countless projects she's worked on and lead. Julie was a Ziegenbein award recipient in 1998, and has continued to exemplify what it means to win that award in the years following. Julie without a doubt was a staple in our community, and in shock and tears I've selfishly tried to imagine what CMARC and Amateur Radio in the greater Lansing area will look like without her. I know that Julie would be proud of the efforts that the club will continue to make, even if it is hard for all of us still here to do it without her.

What we can celebrate is that she's with her Savior, and in more peace than we can imagine. Julie and I have had many conversations about our faith, and I can say with confidence that we should be happy

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and thrilled for her presence with the Lord. I know it doesn't make missing her any easy, and during this difficult and unexpected time I encourage us all to come together as a community around Don and their families. Don and Julie were married at the young age of 19 (possibly 18 and I apologize for not knowing 100%). After being true partners for 43 years of blissful marriage, this is the time that Julie would want us to come together to support him. Please keep Don in your thoughts and prayers, as he struggles through this difficult time

Corey Bulock / KD8BOQ

"Julie McLain KB8ZXR has become a Silent Key. She was the most loving and the most loved person I have ever had the honor of meeting. A true joy to hear on the radio and the Ladies Tea Time Net that she ran for many years. Julie leaves behind her OM Don McLain KB8RAD who is just as wonderful and a pleasure to know. Don ran the Breakfast Club Net for many years. Together, they made quite a team.

When Don and Julie started allowing us to connect the DoDropIn to their nets, it brought a welcome breath of fresh air and a lot of memorable moments. One of my favorites was hearing Julie break in to tell KB8RAD and N9OFU to behave themselves and stop acting like rascals. She was the perfect "Radio Mom" to keep those boys on the straight and narrow.

Julie and Don were empty nesters and welcomed anyone without parents to consider them their adopted parents. I would imagine if we all lived close, their house would be full every weekend with those of us who considered them just that ... Mom and Dad.

The pain that we feel now is the price paid for knowing and loving someone as special as Julie. The pain will subside with time but the memories will last forever. I'm sure we'll hear more anecdotes as we try to get past the heartache of losing the most special person in Amateur Radio and I look forward to hearing them call it a "celebration of her life" that we were so fortunate to be included in.

Julie, we love you and miss you. "

Steve Secrest / W8WFO
****DoDropIn* EchoLink Conference Server***

"Julie always told us she had a halo above her head, little did we know at the time, she was probably right."

John Doornhaag / KD8NNQ

"Dear Julie - Thank you for being you. John and I are blessed to have you and Donnie as our family. I was honored to be your sister. You showed us what unconditional love was, something I hadn't had before. We could all laugh and goof off together and spend hours talking about anything and everything. We'll do our best to take care of Donnie. Love and miss you, lots."

Jane Hosford / KC8FSK

"Julie was a special angel on Earth. She was so caring. Even if she wasn't feeling well or was stressed, she always made sure to smile and be genuinely concerned about everyone else. Rest now dear Julie."

Ginny Hannahs / KD8HPG

May Birthdays

5/2 Paul Keefer / KB8YQZ
5/11 Eugene Brown / KK4DIY
5/13 Kenny Hazlett / K8BVV
5/14 Matt Warncke / W8MAT
5/17 Austin Burk / KD8OVY
5/19 Shannon Ranes / WA2NVK
5/19 John Doornhaag / KD8NNQ
5/19 Tom Davage / KB8J
5/21 Luis Sanchez / KD8UJB
5/23 Michael Yager / KE8BIH
5/25 Ken Faiver / W8HNI
5/25 Garry Watson / KC8MAD
5/27 Marie Watson / KC8NOI
5/31 Michael Lutz / AC8TC
5/31 William Wing / W2PMH

May Anniversaries

5/6 Roger / AB8RX and DeAnna / KD8BDI Barnhill
5/13 Jan / KC8BFK and Judy Bradfield
5/15 Kim / WA8KIM and Barbara Sherman
5/19 Don Hunsaker / WB8PPB
5/21 John Ingraham / NG8L
5/26 James Harvey / KA8DDQ
5/31 John Schuster / KD8VON
5/31 John / AC8ML and Shirley Strong

Upcoming Meetings

ARPSC

The ARPSC meeting for the month of April is at 7:00pm on Monday, May 16th. We will be meeting at Lansing Fire Station 8 off Marshall Rd South of Grand River Ave.

For information about the ARPSC please check out our website at **www.lansingarpsc.com**

Treasurer's Report 2016

John Doornhaag / KD8NNQ - CMARC Treasurer

Bank Balances for April	
Beginning Balance	**$4,673.73**
Total Income for February	$60.00
Total Expenditures thru Feb 20	($200.00)
Total Business Checking	$4,533.73
Petty Cash	$41.00
Sub Total	$4,574.73
Primary Share Accounts	
Humphrey's Fund	$1,092.65
Building Fund (Club Station)	$9.09
Field Day	$472.75
Total Net Worth	$6,149.22
Youth Fund Balance*	$253.76
* Separate from CMARC Funds	

VE Exam Session

Lansing, MI

Date: **5/14/16**
Time: 11:00 AM (Walk-ins allowed)
Sponsor: Ingham County VE Group
Contact: Don McLain / KB8RAD
(517) 694-0812
Email: **KB8RADon@aol.com**
Location: Lansing Fire Station #44
Community Room
1435 E Miller Rd
Lansing MI 48911-5322

2016 Michigan QSO Party Recap

I would like to thank the operators who joined me at W8PLP to operate this years Michigan QSO Party. This year's operators were Gary/KC8MAD, Charlie/KB8SKV, and myself. We made 340 QSOs during the entire 12-hour period.

Mark/KD8YUY stopped by earlier in the day to see what contesting was all about. We talked for a while, and showed him the ropes of contesting, logging, and HF operation in general. Shannon/WA2NVK stopped by with pizza and breadsticks for dinner.

I look forward to seeing more of you at our next operating event. Stay tuned for future contest updates.

Chris Ranes / NS8Q

Garry/KC8MAD (Left) and Charlie/KB8SKV (Right)

That Novice Feeling

By Gregg Mulder / WB8LZG

Many of the ol' timers out there will remember fondly their very first experience with radio. For many of us it was a simple crystal set. I'll certainly never forget the magic of the 1st time I heard music coming from the local AM station through the "twin can" 2000 ohm headphones purchased from Allied Radio with money earned from mowing lawns. I would sit listening in awe and amazement for hours on end, even falling asleep with the cans on. It didn't matter. There were no switches to turn off and no electricity wasted. It was true excitement!

In my 40+ years of hamming this "special feeling" has happened but only a few times. Each time with it's own particular "high". You know the one. That thrill you got with your very 1st novice contact on the air. I remember calling CQ for days before I got a reply, and then finally upon hearing my own call letters coming back to me, I was so flustered I forgot nearly everything! I barely made it through that QSO! Yet the elation of putting that 1st one in the log was unforgettable. In the radio world, not much can top that!

The next flirt with that feeling was when I completed my 1st real ham radio kit. It was an Ameco AC-1 transmitter kit. A one tube crystal controlled oscillator running about 10-12 watts out to a wire in the back yard. It worked the very 1st time I fired it up! I was so proud of that build. Still brings a smile!

As I look back, there appears to be a common pattern. Kits and building. Since I was a youngster I've always had a passion for kits. It's hard to explain to a "non ham" the joy of taking a "box of parts" and slowly, methodically piecing together a working radio. Started into the world of QRP operating when a friend let me use his Ten Tec "Power-Mite" rig. My 1st CQ on 15m

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That Novice Feeling *Cont'd*

was answered by a station in France! Almost fell out of my chair! Running off an old motorcycle battery, 2 watts and a wire! I was hooked.

Since those Novice days however, those magic feelings were coming fewer and farther between. Fast forward 20 years. I found it again! This time it was with a small QRP transceiver kit from Small Wonder Labs. I packaged the X-cver along with a "tick" keyer into a tiny box to use for portable operations. It worked beautifully and I made many a contact with this set both at home and in the field. Great little radio, but where to go from here? Fast forward 10 years.

I set my sights on a complete "scratch built" rig. I wanted to see just how inexpensively I could build a complete transceiver. This was my most ambitious project yet attempted. The Nor-Cal QRP gang was all excited about a new design by Jim Kortage, the 2N2222 X 40. What a novel idea. An entire transceiver built with just common 2N2222 NPN transistors! For almost a year I scrounged parts, knobs, box, resistors, caps and other goodies to personalize the rig. It took nearly 6 months to complete. It was built "Manhattan" style, on bare copper circuit board material. Indeed it was a dandy little rig with a whopping 1 watt output, variable bandwidth IF, stable VFO, and built in keyer. My eyes popped open wide when I laid it out on the bench, just the bare board, and made my 1st QSO with it! WOW! I got it back again! The only trouble was, the feeling didn't last. Just like a "Junkie", I wondered where I would get my next fix. What next?

It was many years before I "found it" again, and without actually looking for it.

Last summer I was rummaging around my parent's basement when I came across and old Knight Kit receiver. An R100a from the early sixties, built by Phil W8EKR (now SK) and given to me to "clean out" his shack. I had never had the time or inclination to play with it before, but 20 years later, now it was calling to me. I put the box into my truck and went home thinking about what a great feeling Phil must have had when he fired it up for the 1st time. The rig had not been plugged in for over 35 years and I wondered if the capacitors had dried out and shorted. Hmmmm , only one way to find out. I put it on the bench and plugged the AC into a Variac power supply set at about 30 VAC. I left it powered this way for about 4 hours with no signs of "smoke". Then I reluctantly turned up the juice. 40 v, 50 v, 75 v. when I hit 85 volts I heard some sound crackling from the speaker. Still no "smoke". I connected a 10-foot piece of wire to the antenna terminal, cranked the Variac up to 115 VAC and waited for a minute. As the tubes filaments started to glow more brightly. I heard some static and the speaker jump to life! I tuned the dial and was overjoyed to hear one of the Short Wave broadcasting stations coming in "loud and clear". I thought to myself, "Wow, after all these years she still fires up!" A big smile came to me as I "felt it again". That long lost elation of the "Magic of Radio". For the next hour or so I sat there "tuning around the band" listening to the old rig, and grinning ear to ear! Yes! I found it again. That satisfaction, that joy, that magic. That "Novice Feeling". •

73,GreggWB8LZG

Feed the Beast - Thoughts on Feedlines

By Don Keith, N4KC

Transferring Radio Frequency Energy from Your Transmitter to Your Antenna

It occurs to me that we will soon have an influx of relatively new operators to the HF amateur radio bands, newcomers who may or may not have experience with or knowledge of the compromises involved with building antenna systems. They may try to get by cheaply and quickly, just to get a taste of the new spectrum now available to them. And in the process, they may have a less than satisfying experience.

I won't attempt to even delve into the antennas themselves. There are myriad sources for information, including books like the ARRL Antenna Handbook and in discussion forums on sites like eHam.net and QRZ.com.

I would recommend to any newcomer that he or she learn along the way but keep it simple in the beginning. By all means, get an antenna up so you can be on the air, joining in on the fun! But for the time being, avoid phased arrays, delta loops, and exotic hunks of metal in the sky. For the moment, stick with dipoles, verticals, or simple loops. They are easier to play with and you might learn something from installing them. Remember, making mistakes is one of the most effective ways of learning, too. If you purchase commercially made antennas, be sure to follow the manufacturer's directions closely, including recommendations for properly getting the RF from your radio/amplifier to the antenna itself.

And that will be the subject of this article—the feeding of your antenna…getting as much radio-frequency energy from the transmitter to the antenna as possible, and trying to make sure as much of the precious RF is emitted into space so someone halfway around the world can hear you. There are several potential combinations of feed systems and matching units that are commonly used by amateurs. For our purposes, we will consider the following simpler and more typical ones:

--Coaxial cable with no matching unit except what might be internal to the transmitter

--Coaxial cable with an external outboard matching unit

--Open wire or ladder line with or without an external outboard matching unit

Wait, what is this "matching unit" stuff? You mean a "tuner?" Actually, an antenna tuner is a matching unit, and one quite often employed by hams, but there are other means and devices for matching rigs to antennas that are not "tuners." These devices are technically a part of the antenna system (so are the antenna, the dirt beneath it, the trees in the area, your kid's bicycle propped against your vertical, the mountain fifteen miles away, and the ionosphere miles above our heads, but we don't have control over most of that stuff). Matching units allow the operator to vary the capacitive and inductive reactance seen by the transmitter in order to get a better "match," to allow as much of the radio frequency energy coming from the transmitter to be transferred to the antenna and into the air as possible.

Let's talk "matching" for a moment. Most transmitters and outboard amplifiers today are designed to work best when they are outputting radio frequency into an impedance of 50 ohms. The operator has very little control over the load impedance of the typical transistorized transceiver today,

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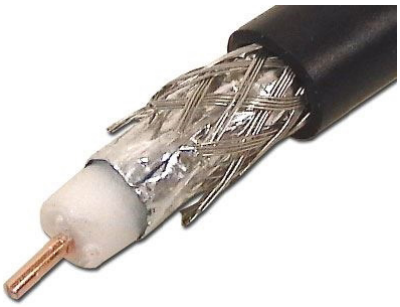
Feed the Beast - Thoughts on Feedlines *Cont'd*

and not much more control over the output impedance matching of a common outboard amplifier. However, the impedance presented by different antenna systems at different frequencies can vary widely and the operator may need to dramatically vary the reactance values the transmitter encounters in order to try to get a better transfer of power to the feedline first, and possibly to the antenna itself. There are other matching devices, such as baluns ("balanced—unbalanced transformers"), mechanical devices like so-called gamma matches at the antenna feed point, and even relays that switch in and out all sorts of odd components in what is sometimes a Rube Goldberg-type setup. For the purpose of this article, let's consider the matching unit to be either an antenna matching device internal to your radio or a similar external device, either of which is typically called an "antenna tuner." (I quibble here because we are not actually "tuning" the antenna. We are attempting to get the output circuit of the transmitter into synch with the impedance of the feed line and/or the antenna and everything else that makes up the "antenna system.")



Coaxial cable, or simply "coax," is a very popular means of getting radio frequency energy from transmitter to antenna. The more popular types are already designed to offer 50 ohms impedance (or relatively close), are easy to work with, can be run in close proximity to other cables, tower legs, or metal objects, and use simple connectors that can be securely attached to the transmitter and the antenna. Coax is a good choice for an antenna such as a dipole that is designed to be used on only one operating band (or odd multiple harmonics of that band). Such an antenna, properly constructed and cut close to the preferred operating frequency so as to be in reasonable resonance, will show impedance close enough to 50 ohms that your feedline and your transmitter output circuit will be happy and everything will be in harmony. The maximum amount of energy possible will be moved from transmitter to feed line to antenna and emitted into space.

But what about very broad amateur bands, like 75/80 meters, or those bands that require more antenna-per-hertz, like 160? It is asking a lot of a piece of wire and its feedline to be close to resonant across such a wide band. Even if the wire is cut for the middle of the band, it may be considerably out of resonance—offering impedance that is a long way removed from 50 ohms—when you try to use it at the extreme ends of the band. This creates the phenomenon we call "standing waves." Simply put, standing waves are currents that are reflected—due to a mismatch—back from the feed point of the antenna, returning back down the feedline toward the transmitter. SWR—or "standing wave ratio"—is a way of expressing the amount of your outgoing power that is getting reflected back down the feedline. (This is a rather simplistic description of a decidedly complicated thing that is going on, but I believe it is accurate and will suffice for this discussion.)

Let me state here that achieving a low SWR is not a bad thing, though it is not necessarily a critical one. But I thought SWR was evil incarnate! Don't all the manuals for my rig scream about getting the SWR to 1.5-to-1? Won't it burn up my radio before the credit card bill even shows up? Isn't all that power that gets sent back in the direction of the shack wasted? And isn't it wasted in the form of heat? Am I not charged to get no worse than a 1-to-1 match or they'll revoke my license?

Not necessarily. The RF energy does not necessarily go back into your radio or get burned up in the feedline. A portion of it is simply sent right back up the feedline each time it is reflected down it—traveling at the speed of light. If the feedline has relatively low loss, you really don't lose much of the RF at all. Most of it is eventually sent out into the ether by the antenna. The fact that some of it made a lot of trips up and down the feedline before it was emitted into space is immaterial. Granted, a very large SWR does cause enough heat, even in the lowest loss feedline. It can cause damage to the cable and anything close to it. That is why most modern

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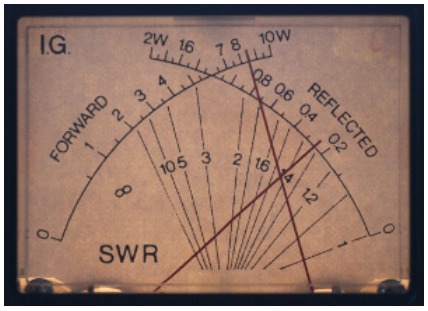
Feed the Beast - Thoughts on Feedlines *Cont'd*

radios employ a circuit that cuts back power and eventually ceases operating if presented with a severe mismatch at the antenna output circuit.

Now, how does this apply to that nice, easy-to-use coax? Compared to some possible transmission lines, a good quality coaxial cable is relatively low loss. But as the type you use gets smaller, as the frequency on which you plan to use it gets higher, as the length of cable you have to use to run from your rig to the antenna gets longer, and as the type of dielectric (the stuff that separates the two conductors inside the cable) changes, the amount of signal you lose in the wire goes up, up, up. If you are feeding an antenna that is close to 50 ohms, using transmission line that is near 50 ohms, and operating close to the antenna's resonant frequency, you should not have a real problem. If you have fairly good coax and, if operating on the HF bands, a run of less than 200 feet or so, and your antenna is resonant for the frequency you are transmitting on, you will do fine. But if the load is mismatched at the antenna, if you are seeing a higher amount of reflected power, you may be losing more precious signal than you thought. And that could explain why nobody answers your calls or when you do make a contact, they tell you that you are "down in the mud.".



Here's what is happening. Let's say you lose 20% of your 100 watts of output power because of natural loss in the coax cable as the RF energy is making its way up to the antenna. And let's say you have a high SWR because you are attempting to operate the antenna system a long way out of resonance, or because the antenna is not designed to be used on the band you are using. To keep the math simple, let's say that 30% of your original RF is be getting shoved back down the cable in the form of standing waves. Well, you lose 20% of that as it goes back toward the transmitter, too, because you have the same natural loss in the cable going that way as you did going toward the antenna. You have now lost half your original power, and what's left still of the original RF energy will dutifully go right back up the feedline again! It loses 20% more, warming up your coax nicely. And once again, 30% of that quickly diminishing power that reaches the feed point gets reflected yet again, right back down the line, and gets another 20% of it carved away by the loss of the cable. As you see, the power is waning quickly!

Again, for a number of reasons, coax is an excellent choice as a feedline for most antennas, and especially dipoles and beams. It is almost—in forms that have even less loss at those frequencies—the exclusive choice at VHF and UHF. But there is one very important caveat: coax is best used when feeding a resonant or close-to-resonant antenna. You may find that an antenna cut to the middle of a band will work just fine all the way across the band. That may be true, but don't expect it to work much place else. There are an almost infinite number of frequencies in the amateur bands where you may want to transmit and receive in which an antenna will not be anywhere near resonant, and where that non-resonance will induce a honking big SWR.

Well, you say, there is a simple solution! All you have to do is use the tuner inside your radio, or break out the catalog and buy an outboard tuner that will match your output to much broader impedance loads. That way, you reason, you can use a single dipole on a bunch of ham bands because the tuner manufacturer says it will tune up a rig to about anything. You have seen the reviews of tuners that will match a transmitter and its coax to a set of box springs, a ten-penny nail, a linguini noodle.

Sorry, but that is not really the issue here. Yes, a good tuner can convince your rig that it is working into a nice, comfortable 50-ohm load, even if the antenna is ridiculously non-resonant and presents a very lopsided SWR, transferring all that power to the antenna and flinging it around the world. You can sit there and transmit all day, your transmitter running cool, not even threatening to shut down because of an excessive SWR. The meter on the tuner might say 1.2-to-1 or 1.3-to-1, so everything must be working great. Well, don't kid yourself. All you have really done is lie to the transmitter output circuit, fooling it into trying to send all that RF into a badly mismatched antenna system. You have cranked in the correct ratio of capacitive and inductive reactance for both you and your radio to think everything is peachy. But remember, those unavoidable standing waves are still coursing up and down your feedline, maybe invisible to your radio and tuner meter, but that reflected and re-reflected power is growing fainter and fainter with every

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Feed the Beast - Thoughts on Feedlines *Cont'd*

trip up or down the coax. And only a small amount of your transmitter power is actually being sent out into space to be detected by that DX station you keep trying to call.

So coax is not a good choice at all for using an antenna on multiple ham bands? It can be! First, if you learn some antenna theory, you will discover that some antennas, such as a dipole, are resonant on odd multiples of the lowest frequency band for which it was measured and cut. A closed loop is actually resonant on all multiple harmonics of the lowest frequency for which it was designed to be resonant. You can use coax and get some degree of resonance on several bands. But remember, if you cut a dipole for, say, 3.75 megahertz in the middle of the 75/80 meter band, it will really not be close to resonance in any other amateur band, except, in a stretch, 17 meters. If you play with the length, though, you might be able to move the range in somewhat and pick up some other bands, with an SWR that is not such a power killer and can be tamed by most internal tuners. Maybe not the best situation, but it might get you on the air on a few bands.

Don't give up on the antenna tuner, either. While you are not solving the real problem by installing the tuner at the transmitter end of the feedline, you can, instead, put it near the antenna feed point so that you are actually tuning both transmitter and feedline to match the antenna. This eliminates a great deal of that bouncing SWR and its loss as it surges up and down the coax. Even if you put the tuner somewhere in the feedline rather than right at the feed point, you can eliminate a portion of the lossy coax, with the less amount of cable between the antenna and the tuner, the better.

There are a few problems with this plan, though. You need a tuner that is designed to be exposed to the elements if you have to put it outside, if there is not protective structure close enough to house it. If you try to put the unit at the feed point of the antenna—the most ideal place—you need some way to support its weight. And, in most cases, you need to get voltage to the tuner to operate its components remotely. I think you can see how that complicates the matter.

So, there is no such thing as an easy coax-fed antenna that can be used on more than one ham band? Or one that is resonant for the entire length of a particular band? Not true. There are several antenna choices that can help you solve the coax problem. You can research the fan dipole, for example, in which a single run of coax can be used to feed dipoles cut for several bands. Other antennas can be designed to be relatively broad-banded, such as the log periodic beam. And, the truth is, SWR is probably not a big problem on a well-designed dipole with good quality coax if you only intend to use it on a single band or odd multiple harmonics. Even the internal tuner in most rigs will easily allow you to overcome any resulting mismatch, and if the coax has relatively low loss and the run length of your feedline is not excessive, you probably will not lose an appreciable amount of power.

But suppose you want a single multi-band antenna. A good choice is a dipole, cut to be ½ wavelength long on the lowest band on which you want to use it, fed with open wire feedline, and fed with a matching unit or units. (The formula for determining the length of such a dipole is 468 divided by the frequency in megahertz—for 3.75 mHz, that would be just under 125 feet).

Open wire feedline? Isn't that something your grandfather might have used? Actually, such feedline is enjoying something of a comeback. There are now ten amateur high-frequency bands, and in an effort to work as many of those bands as possible with as few antennas as necessary, resourceful hams have turned to…well…an oldie but goodie.

There are variations of this type transmission line, such as true air-dielectric open line, so-called twin lead like folks used to use for the TV antenna when folks had TV antennas, window line, and ladder line. Each name describes the type design of the feedline that keeps two conductors evenly

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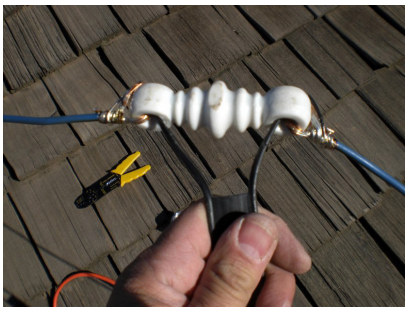
separated from each other for the length of the line. The characteristic impedance of such feedline can range from 200 to over 600 ohms depending on several factors, such as the material used to space the two conductor wires apart and how far apart the wires are. But one thing is constant: the distance between the two conductors must remain the same for the entire length of the feedline or it begins to mess with the impedance of the line.

I know what you are thinking. If a dipole is in the neighborhood of 50 ohms already, then are we not introducing a serious mismatch by feeding it with some wires that may be 600 ohms? The simple truth is, it does not matter nearly as much as it does with coax. This type of transmission line has such low loss in a run of reasonable length that the standing waves on the line are eventually mostly radiated in the form of "good" RF, and those trips up and down the line are a relatively small factor.



There are ways to get the match closer before we depend on an antenna tuner—internal or external, at the rig end of the feedline or at the antenna feed point—to make the transmitter happy. Many hams use a current balun (remember, that is a balanced/unbalanced transformer) at some point in the ladder line to step the impedance down to something closer to 50 ohms. They hook the two conductors of the balanced line to one side of the balun and then run coax from the other side—the lower impedance side—to the transmitter. This also solves a rather knotty problem with open wire feed line. It is very susceptible to being affected by any nearby metal or cables. You should never run open wire feedlines down a tower leg, along a metal gutter, or adjacent to other cables or feedlines. This will almost certainly lead to problems tuning an antenna system that contains this type transmission line. Even trees or wet vegetation can alter the performance of air-dielectric feedline.

This is just one reason why many hams reject balanced transmission line. There is also the problem of attaching ladder line to your radio. You most likely have coax connectors on the rear panel of the rig. Many tuners also have only coax or single wire connectors. How in the world can you hook that stuff up to that nice screw-on connector on the back of the radio? Glue or duct tape are not the answers!

Once again, the answer is the balun. It may be external, outside somewhere, maybe at the feedpoint of the antenna, maybe somewhere in the line, maybe where the line needs to enter the shack. Then a short run of coax is used for entry into the house, next to those other cables, the gutters, and the air conditioner ducts. Or it may be right next to the rig with a short coax jumper to the antenna connection on the radio in order to avoid long runs of lossy coax. Or, more commonly, next to your antenna tuner, which will be necessary to tune to the broad impedance range the antenna will present as you move about the various ham bands. The balun could also be inside the antenna tuner if it has a "balanced" antenna connection.

A dipole fed with open wire line or one of its variations is, by definition, a "balanced" antenna. That type transmission line is called "balanced line." They go together nicely. But the output circuit of your transmitter is most likely unbalanced. So is coax. So is the coax connector output of your tuner. Some tuners offer a balanced output, relying on a balun inside its case—typically a 4-to-1 type balun, changing the impedance, say, from 300 ohms at the antenna feed point to about 75 ohms on the other side of the device. But there are also special tuners designed to match the unbalanced 50-ohm transmitter output circuit to a balanced antenna system. There have been several articles in the various ham magazines about designing and constructing balanced tuners, and several manufacturers produce them as well.

Before the more convenient-to-use coax came along, amateurs almost all used open wire transmission lines, primarily because they were simple and could even be constructed using easy-to-locate and cheap materials. They weren't as concerned as we are with the problems of matching their transmitter to antennas fed with ladder line. That was because the output circuits of transmitters in those days were much broader and adjustable. But the main reason was because the stuff worked very well and got more of the RF to the antenna and out into the ether.

Continued on Page 12

Feed the Beast - Thoughts on Feedlines *Cont'd*

Now, with little loading to be done internally to our solid state transceivers, we have, in effect, moved the matching circuit from inside the radio, out onto the desktop in the form of an "antenna tuner." However, with the desire to use an antenna on a broader range of bands, and in an effort to get as much power to the antenna and have it radiated, ladder line and its cousins are making a respectable comeback. Several distributors sell such line at reasonable cost, and their web sites even offer interesting commentary on its use, selecting baluns, and the recommendations for physically and electrically connecting it to the antenna.

So there we hve it, a look at the two primary types of antenna feedlines—coax and open wire—and the various ways of using it to achieve a better antenna system. Neither is a right or wrong choice, a better or worse one. As you will discover in our hobby, there are advantages to about any way of doing something, and there are disadvantages, too. And with antennas and feedlines, the truth is everything is a compromise, and there is no perfect system. But some are "more perfect" than others.

It can be a lot of fun, trying to devise ways to make those compromises as limited as you can, all in the quest for having that station on the other end of the QSO say, "You're kidding! You're not running 100 watts. You're 20 over S9 here!" •

I'm EXTRA Ignorant

By Dan Romanchik, KB6NU

When he's not challenging himself with new things, Dan falls back on something he knows pretty well--operating CW. You'll find him mainly on the 80m, 40m, and 30m bands. Dan is the author of the "No Nonsense" amateur radio license study guides, and blogs about amateur radio at KB6NU.Com, and you can contact him by e-mailing cwgeek@kb6nu.com.

On Sunday, I received the following e-mail from a reader:

"Just wanted to let you know I passed the General exam using your study guide. It was very helpful. I am now generally ignorant whereas before I was only technically ignorant. Ha!"

My reply to him was:

"Well, if you're generally ignorant, I guess that makes me EXTRA ignorant!"

This isn't just a joke--being ignorant is part of the hobby. Amateur radio operators will always be ignorant about something or other. Even if you could master every facet of the hobby at some point in time, your mastery would be short-lived as the technology continued to advance.

Over the course of my amateur radio career, we've gone from equipment that primarily used vacuum tubes, to solid-state gear that first used discrete transistors and then integrated circuits, to software-defined radios. I could have, at some point, simply given up on the new technology and still enjoyed amateur radio. Some guys do that, and that's OK. It is only a hobby after all.

I'm not one of those guys, though, and if you're not one of those guys, then you have to resign yourself to being ignorant. But, that's a good thing, as long as you realize that you're ignorant. Realizing that you're ignorant will spur you on to learn new things and accept new challenges.

Recently, I realized that I'm mostly ignorant about satellite operation. I know some of the basics from having read articles and writing about the topic in my study guides, but I have never made a contact using a satellite. I think that might be one of my next challenges. With the advent of CubeSat, there are many new satellites up in the air and many more opportunities to have interesting contacts.

So, what are you ignorant about? By that I mean, of course, what's going to be your next challenge in amateur radio? •

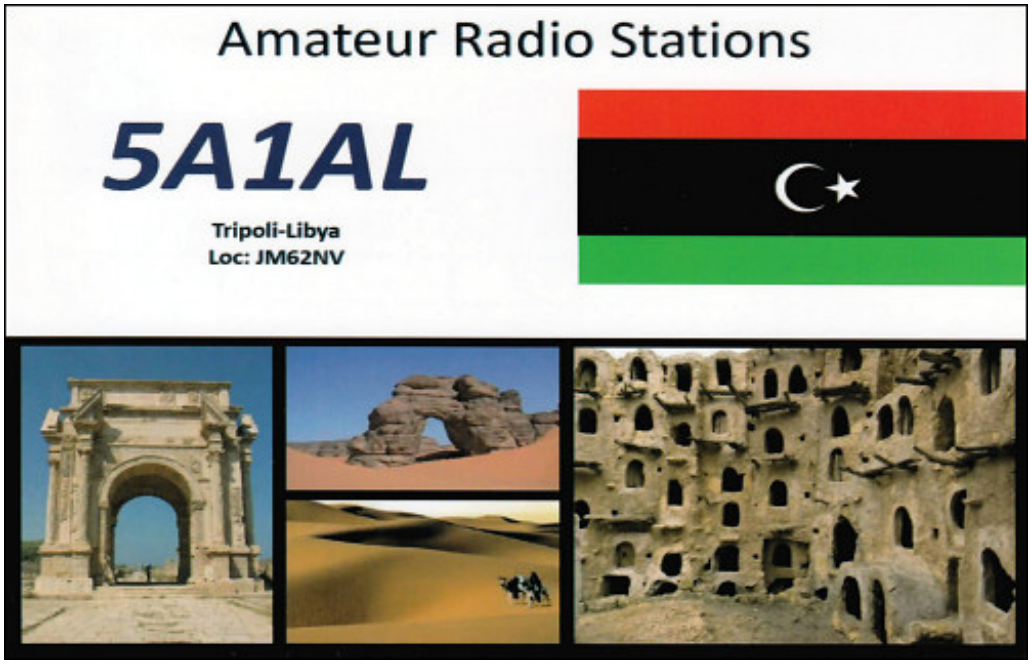
The DX Corner

By Col McGowan, MMoNDX

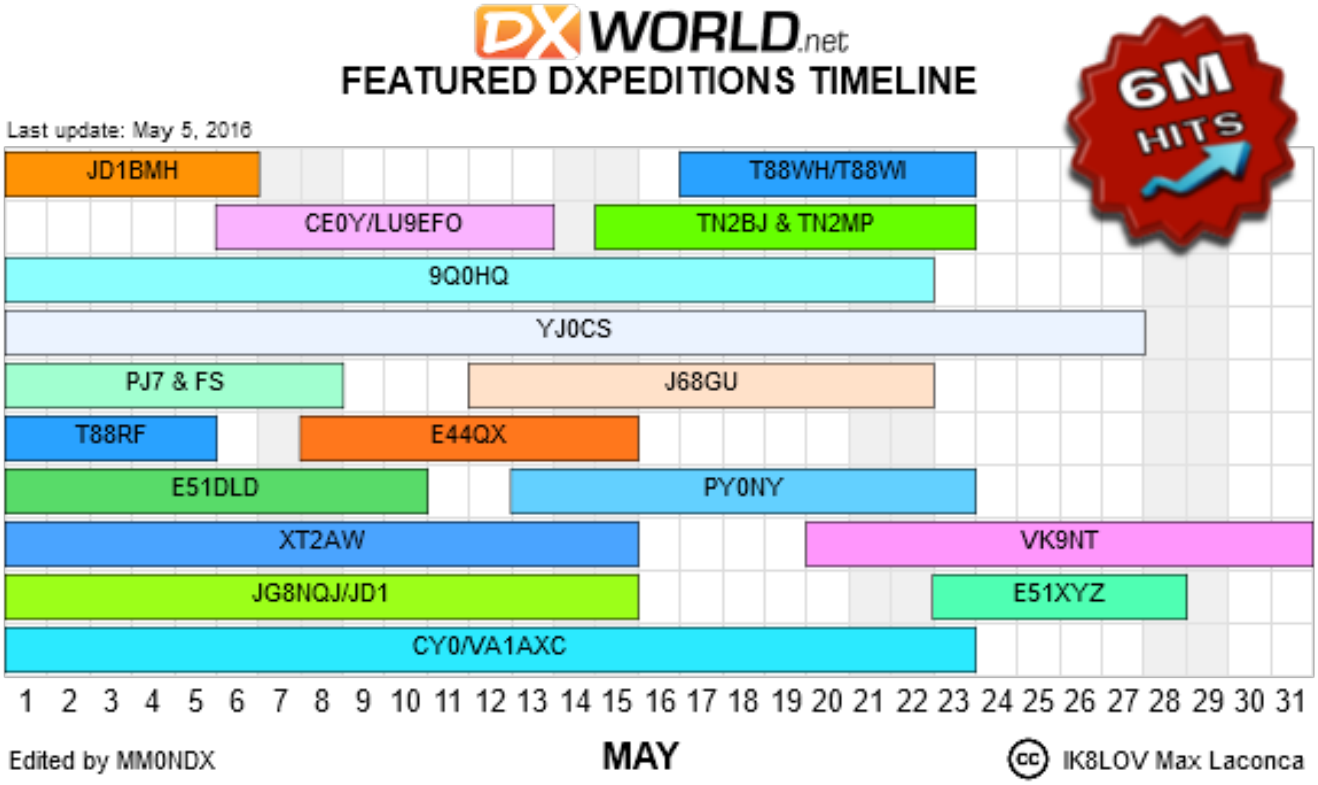
The images and articles about current and/or upcoming DX operations are published here with permission by Col McGowan/ MM0NDX as made available on www.dx-world.net.

Images for the QSL cards are published with permission from Tom Roscoe/K8CX and the QSL Card Museum at www.hamgallery.com/qsl.

Approved for DXCC – 5A1AL



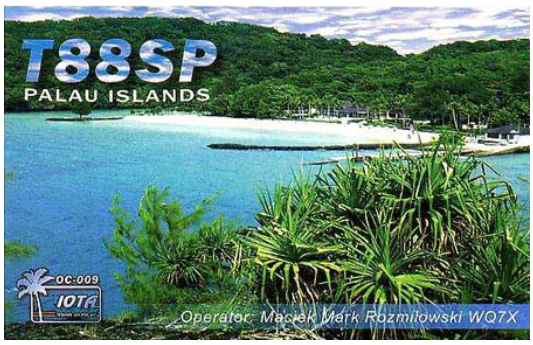
On May 6th, the ARRL DXCC Department approved for DXCC credit, all operations from Tripoli-Libya.



Current & Upcoming DXpeditions

T88WH/T88WI - Island of Palau

- JH1BGH and 7K1HLJ will again be active from Koror, Palau between May 17-22, 2016.
- They are planning all HF bands and modes
- QSL Manager is Jiro/7K1HLJ (T88WH)
- QSL Manager is Kenji Akiyama/JH1BGH (T88WI)



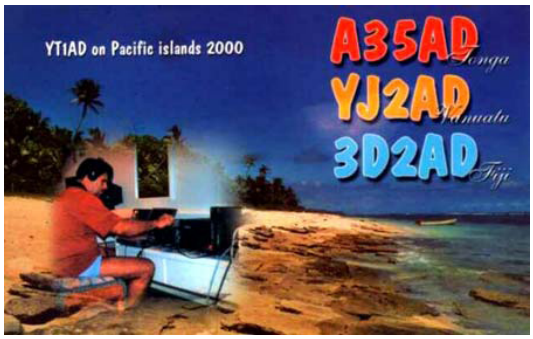
T88SP 2002 Palau Islands
Courtesy of DL9WVM

TN2BJ & TN2MP – Congo

- Activity will take place between May 15-23, 2016.
- This is a holiday style operation with two operators on a single transmitter. They do not plan to run 24/7, but when time and conditions permit.
- Activity will be on 10-20m, but will try 30 & 40 if space permits.
- Expect TN2MP on CW and TN2BJ on SSB
- QSL via Buro or Direct (TN2BJ via F5AOW, TN2MP via F5MVB)

YJ0CS – Vanuatu

- Operating between May 1 and May 27, 2016
- This is a holiday style operation from different islands / locations
- QSL direct to HB9LCA ($3) or via Buro



YJ2AD 2000 Vanuatu
Courtesy of DL9WVM

E44QX – Palestine

- Jan DL7JAN, Daniel DL5YWM and Bodo DF8DX will be active from Jericho, Palestine (the oldest city in the World) between May 8-15, 2016.
- QRV on 80-10m, CW/SSB/RTTY. One station running 24/7.
- QSL via DF8DX (direct, bureau, LoTW, OQRS is set up)

As of 4-29-16 there were 12 tickets left for the Ann Arbor to Dayton Bus Trip

As in years past, The Arrow Communication Association is sponsoring a Dayton Hamvention Bus Trip from Ann Arbor to Hara Arena and back. The date is Saturday, May 21. We leave the park-and-ride at 4:30 am and get to the show at 8:00 am. We leave Hara at 5:30 pm and arrive back to our park-and-ride site by 8:30 pm. A continental breakfast is included on board. Even if you come from out of town, you still relieve yourself of almost 8 hours of drive time! What more could you ask for?

There is more. If you want to sell your stuff in the flea market, Arrow reserves a swap spot just for the bus trip crowd. You save $70.00. All we ask is that you keep your items to a reasonable limit and volunteer at least one hour of your time at the swap tables. (We just ask that you keep your amount of sale stuff reasonable, to give others room on the swap tables!)

There is still more! As in the past several years, we are giving away DOOR PRIZES! In 2016, we have OVER $1,400.00 in donations from Ham Radio Dealers around the U.S! (And Germany and India!!)

Heil Sound: Our top prize. Bob Heil has given us a great prize for years. Heil sells high quality microphones and headsets.

EAE Sales: Our second-place contributor so far. You've met Bruce Sander at numerous ham swaps in the 8th and 9th call areas. Among other things, he's given us a EDSYN 951SX Soldering Station.

DX Engineering: Three 24 hour analog wall clocks with the DX Engineering logo.

Five Dash, Inc.: Tony Parks, KB9YIG, has been doing Software Defined Radio for over ten years since he introduced the "Softrock 40" receiver. He offers us a built-and-tested one-watt SDR transceiver for 80/60/40.

Tigertronics: SignaLink USB Interface. More digital modes than you can name!

Mike's Electronic Parts: Crystal sets you can build with your grandkids!

Skilman: 6-CD Morse Code Course designed by a PhD in learning and memory.

RT Systems: Gift Certificate for their great rig-programming software. She even included a small gift for each passenger!

Borden Radio Company: WB5REX is a retired NASA/Shuttle Communications Engineer. He sells a number of nostalgic type radio kits. He's given us a classic one-tube regen receiver for the AM Broadcast Band with instructions on how to wind the coil to cover 80 and 40 meters.

Ham Radio Outlet: This is the third year they have been generous with us. We generally get a big box filled with ARRL Repeater Directories, Yaesu DX Wall Maps, Icom Pens, Kenwood Flashlights, QSTs, and more - a gift for nearly everyone!

The cost is $65.00 for the round trip. Please mail all applications to ARROW Communication Association, 3322 Yellowstone Drive, Ann Arbor, MI 48105. Please note that this does not include the Hamvention ticket. That one you'll have to do yourself! You may also use the link below to purchase a seat using PayPal.

http://www.w8pgw.org/activities/dayton-bus-trip/

We are trying to generate as much publicity as possible, which is why we are writing you. If you can, please share this information as widely as you are able. If you have a web page, please consider adding a paragraph about the trip and a link to http://www.w8pgw.org/wp-content/uploads/activities/dayton-bus-trip/Daytonbustrip2016-ed.pdf

Talk it up on the air! If you check into a state wide or regional net, please mention it there, also. Feel free to include us in your publications.

For more information on the Bus Trip, please see the two-page flyer at the end of the Scope.

Do You See Your Plate??

By Russ Fitzgerald, N8FZ

If not, it's not too late. The club it trying to collect as many ham call license plates as possible from our members for a display in the club shack redesign project. Check your garage, shed, or basement and see if you have an old plate kicking around. Year or condition doesn't matter. Cant find one but still would like to participate? No problem. Here's what you do. The Sate of Michigan will let you order a replacement plate at any time, you do not need to wait for a renewal. All you need is a copy of your license Amateur Radio Operator form the state(I have plenty of these), and a check to the state for $2.00 for the standard plate or $7.00 for the graphic bridge plate. When it arrives you use the new plate on your vehicle and donate the old one or donate the new one.

If you have any questions please call 517-899-2622 or email russf2211@aol.com or see me at the next meeting I have the forms with me.

Special Board Meeting

April 28, 2016

- **PRESENT:**
  - Vice President Tom Rocheleau/WA8WPI, Treasurer John Doornhaag/KD8NNQ, Director Chris Ranes/NS8Q, Secretary Jane Hosford/KC8FSK, Director Russ Fitzgerald/N8FZ, and Under 22 Director Sam Fitzgerald/N8FPR.

- **CALLED TO ORDER:**
  - Vice President Tom/WA8WPI brough the meeting to order at 6:53 pm.

- **PURPOSE OF MEETING:**
  - To find a replacement for President Julie McLain/KB8ZXR, who passed away on Friday, April 8, 2016.
  - Vice President Tom Rocheleau/WA8WPI is taking over the Presidency and Director Russ Fitzgerald/N8FZ is taking over the Vice Presidency.

- **CMARC BOARD FOR THE REST OF 2016:**
  - **PRESIDENT:** Tom Rocheleau/WA8WPI
  - **VICE PRESIDENT:** Russ Fitzgerald/N8FZ
  - **SECRETARY:** Jane Hosford/KC8FSK
  - **TREASURER:** John Doornhaag/KD8NNQ
  - **DIRECTOR:** Chris Ranes/NS8Q
  - **DIRECTOR:** Open Position
  - **UNDER 22 DIRECTOR:** Sam Fitzgerald/N8FPR

- **2016 PROJECTS TO WORK ON:**
  - **HAMFEST:** Need someone to take over the responsibilities of Hamfest.
  - **CLUB SHIRTS:** Need to get a list of shirts that people wanted, so we can get them ordered.
  - **501(C)3:** Need to finish up the paperwork on this.

- **CLUB PRINTER:**
  - John/KD8NNQ found an HP color laser printer for $329.99 that he is going to get for the Club.
  - Russ/N8FZ made a motion, seconded by John/KD8NNQ, that no more than $400.00 be spent on getting two computers for the Club room. The motion was approved by all.

- **MEETING ADJOURNMENT:**
  - Motion to adjourn made by Russ/N8FZ, seconded by John/KD8NNQ and approved.
  - Meeting was adjourned at 8:00 pm.

Respectfully submitted,

- Jane Hosford/KC8FSK-Secretary

CMARC Board Meeting

April 8, 2016

- **CALL TO ORDER:**
  - Vice President Tom Rocheleau/WA8WPI called the meeting to order at 6:15 pm with the following Board members in attendence: Secretary Jane Hosford/KC8FSK, Treasurer John Doornhaag/KD8NNQ, and Director Chris Ranes/NS8Q. President Julie McLain/KB8ZXR was absent due to illness. Director Russ/N8FZ and Under 22 Director Sam/N8FPR were also absent.

- **SILENT KEYS:**
  - Kurt Niemeyer/KC8QYV on March 27, 2016
  - Julie McLain/KB8ZXR on April 8, 2016

- **CARDS & FLOWERS REPORT:**
  - Cards were sent to the family of Kurt/KC8QYV
  - Cards were sent to the family of Julie/KB8ZXR
  - Flowers were sent to the funeral of Julie/KB8ZXR

- **2016 MICHIGAN QSO PARTY:**
  - Sponsored by the Mad River Radio Club
  - 1600Z April 16th until 0400Z April 17th
  - For rules, see http://www.miqp.org

- **UPCOMING WALKS THAT NEED VOLUNTEERS:**
  - April 30th - March of Dimes
  - May 15th - Hike for Hospice at Grainger Meadows Park
  - May 21st - MS walk at Cooley Law Stadium
  - August 14th - St James Church in Mason
  - A coordinator is also needed for this walk as Jeremiah Sevrey/KC8EIA is taking time off from doing this.

- **MISCELLANEOUS ITEMS:**
  - John/KD8NNQ is looking to get the Club a color printer.
  - John/KD8NNQ made a motion to spend no more than $350 on a color printer for the Club. Tom/WA8WPI seconded the motion, and was approved by all.
  - VE testing tomorrow in Charlotte at the Eaton County Sheriff's Dept at 12:00 pm.

- **MEETING ADJOURNMENT:**
  - Motion to adjourn made by John/KD8NNQ, seconded by Chris/NS8Q, and approved.
  - Meeting was adjourned at 7:00 pm.

Respectfully submitted,
Jane Hosford/KC8FSK-Secretary

General CMARC Meeting

April 8, 2016

- **CALL TO ORDER:**
  - Due to President Julie/KB8ZXR being ill tonight, Vice President Tom/WA8WPI brought the meeting to order at 7:05 pm.
  - We do have nametags for everyone if you don't have your own, so please use, so we know who everyone is. Please sign in on the sign in sheets that are going around, there is one for members and one for visitors.
  - The meeting began with the Pledge of Allegiance. The flag was held by Tom/WA8WPI.
  - A moment of silence for our silent keys
  - If you need to contact any of the Board members, you can do that on the Club website: www. centralmiarc.com, left hand side of the page, near the bottom is leadership and that brings up all the appointments for 2016.

- **ATTENDANCE:**
  - There 40 people in attendance.
  - Our visitors included: Jen and Charles Coslor, two new Hams.

- **NEW LICENSES, UPGRADES AND VANITY CALLS:** Steve/W8RQS is now an Extra.

Continued on Page 18

❖ **SILENT KEYS:**
- Kurt Niemeyer/KC8QYV on March 27, 2016
- Julie McLain/KB8ZXR on April 8, 2016

❖ **CARDS & FLOWERS REPORT:**
- Cards were sent to the family of Kurt/KC8QYV
- Cards were sent to the family of Julie/KB8ZXR
- Flowers were sent to the funeral of Julie/KB8ZXR

❖ **2016 MICHIGAN QSO PARTY:**
- Sponsored by the Mad River Radio Club
- 1600Z April 16th until 0400Z April 17th
- For rules, see http://www.miqp.org

❖ **PLEASE PAY YOUR DUES:**
- CMARC dues to John/KD8NNQ
- NEW HAMS GET ONE YEAR FREE MEMBERSHIP

❖ **SKYWARN TRAINING:**
- Saturday, April 16 from 2-4 pm at Holt Christian Church located at 2424 S Washington Road in Lansing, the same place where our ham fest is held. It is necessary to be registered beforehand. You can do that by going to www.lansingarpsc.com/training.html.

❖ **CANDY BARS:**
- Bob/KB8DQQ is selling candy bars for $1.00 and he donates the money to LCDRA-Lansing Civil Defense Repeater Association.

❖ **CLUB DIRECTORY:**
- Dan/KD8YDE has the forms. Just fill out the form for whatever information you want included in the club directory.

❖ **NEW BUSINESS:**
- A motion to accept the March Secretary's report as printed in the April Scope was made by Matt/N8BPI, seconded by Leota/KD8SQD, and approved.
- A motion to accept the March Treasurer's report as printed in the April Scope was made by Jerry/KD8GLN, seconded by John/KC8QZB, and approved.

❖ **UNDER 22 REPORT:** None

❖ **50/50:**
- Jimmy/KD8IWQ made a motion, seconded by Brian/KD8ONC, that the $38.00 collected for the 50/50 by given to Don McLain/KB8RAD. Motion was approved by all.
- The "hat" was passed around during the meeting, collecting more money for Don/KB8RAD. With the 50/50 money, and the money that was collected, Don/KB8RAD received a total of $250.00.

❖ **COFFEE FUND:**
- The money collected each month goes to purchase the coffee, creamer, punch, coffee filters, cups, napkins, plates, plastic ware, etc.. Visitors are our guests and are not expected to donate. Also, if you brought in food, you do not need to donate.
- **Thank you to everyone who brings in food each month and thank you to everyone who helps in the kitchen each month. It is all very much appreciated.**

❖ **UPCOMING EVENTS:**
- May 13th is Ladies' Night which is in lieu of our monthly meeting. It will be held at Delhi Cafe and at that time, the Ziegenbein Award will be presented. Nominations for the Ziegenbein Award must be in before March 15th. Julie/KB8ZXR has Ladies' night flyers; they are also in the Scope and on the CMARC website-www.centralmiarc.com.
- Field Day is June 25th and 26th. Ron/WD8BCS is the Field Day Chairman.
- Ham fest is July 30th.

❖ **TONIGHT'S PROGRAM:**
- Our speaker for tonight, John Imeson/N8JI was ill and was unable to be here.
- John/N8JI is the President of the Lansing Civil Defense Repeater Association (LCRDA).

❖ **MEETING ADJOURNMENT:**
- Motion to adjoun made by Jimmy/KD8IWQ, seconded by John/KE8CYC, and approved.
- Meeting adjourned at 7:48 pm.

Respectfully submitted,
Jane Hosford/KC8FSK-Secretary

CMARC Classifieds

6 element 6-meter Yagi-Uda. This Yagi is being taken down from the W8SH tower. It is a "Force 12" yagi and has been up on the mast for 20 years. It is in working condition, although it could use a good cleanup. I am asking $75 or best offer.

Contact Gregg Mulder/WB8LZG
517-646-6257 after 5pm please.

Remaining Items from the Estate of Louis Larche/KD8BWL

The following items of equipment from the station of Louis Larche / KD8BWL, SK, are still available. Listed is the suggested price for each. Please make an offer if you are interested. All the proceeds will go to Barb, Louie's XYL. Contact me at 517-896-3570 or kfaiver@sbcglobal.net. -- Ken / W8HNI

- Kenwood AT-230 antenna tuner, for use with TS-830, TS-530, etc. 200 Watts, 1.8 to 30 MHz, 20 & 200 watt scales -- **$120**
- Kenwood VFO-230 digital synthesized VFO, for split frequency. 20 Hz steps. 5 memories. Designed to connect to TS-830s or TS-530 -- **$135**

SAVE THE DATE – FIELD DAY 2016

Rayner Park - Mason, MI

Saturday & Sunday, June 25 & 26

Questions? Contact Ron Harger / WD8BCS - wd8bcs@arrl.net

http://www.centralmiarc.com/fieldday.php

Greater Lansing Nets

The **"Central Michigan Slow Scan TV Net"** meets every Sunday evening from 7:00- 8:30pm on the 145.39 repeater (PL 100 Hz), with Net Coordinator Carl Canfield/K8YHH. EVERYONE is welcome to join in and have fun learning and using this interesting and useful mode of communication. Other digital modes will be explored from time to time. For more information, call Carl at: (517) 755 6627.

The **"Quarter Century Wireless Association Net"** also meets every Tuesday night but at 8pm and on the 146.70 repeater (PL 107.2 Hz), with Net Coordinator Don Tillitson/WB8NUS.

The **"Mid-Michigan Information & Trader's Net"** meets every Wednesday evening at 7:00pm on the 145.39 repeater (PL 100 Hz), with Net Coordinator Clyde Tompkins/AE8CP.

ALL are welcome on these nets, so be sure to check in to show your support. And as with all Nets, 3rd party check-ins are welcome, but must have Control Operator present at check-in time.

CMARC Officers and Appointees

President / Webmaster
Tom Rocheleau, WA8WPI

Vice President / Youth Liaison
Russ Fitzgerald, N8FZ

Secretary / Cards & Flowers
Jane Hosford, KC8FSK

Treasurer
John Doornhaag, KD8NNQ
(517) 882-5406

Director / Scope Editor
Chris Ranes, NS8Q
(517) 487-8376

Under 22 Director
Sam Fitzgerald, N8FRP

Club Contact
Don McLain, KB8RAD
(517) 694-0812

Club Historian
William Cote, WD8NYW

Antenna Projects Chairman
Gregg Mulder, WB8LZG

Lansing ARPSC Liaison
Jim Hannahs, KC8QWH

QSL/Awards Manager
Don DeFeyter, KC8CY
(517) 641-4533

Photographer
Kenneth Hazlett, N8BVV
(517) 348-5513

Salvation Army Liaison
Jerry Waite, KD8GLN
(517) 882-5406

Meetings
Held Monthly on the second Friday of the month at:
Salvation Army-Capital Area, 701 W. Jolly Rd, Lansing at 7:00 PM. Board Meeting begins at 6:00 pm.

CMARC Calls:
W8MAA & W8PLP

LCDRA Officers and Appointees

President
John Imeson, N8JI
(517) 449-1517

Vice President
Don Tillitson, WB8NUS
(517) 321-2004

Secretary
Ron Harger, WD8BCS
wd8bcs@arrl.net

Treasurer
Jeff Oberg, KB8SXK

Director
Jan Bradfield, KC8BFK
(517) 202-1779

Director
Don McLain
(517) 694-0812

Director
Jim Harvey, KA8DDQ
(517) 882-5796

Membership Chair
T.B.D.

Repeater Trustee
Dennis Boone, KB8ZQZ

Meetings
Held Quarterly on the third Thursday of the month at:
Fire Station #48, Marshall St, Lansing at 7:00 PM.

LCDRA Call:
W8BCI

The Scope is a monthly joint publication of The Central Michigan Amateur Radio Club and the Lansing Civil Defense Repeater Association.

Please send all articles, classified ads, or other Information to the editor, Chris Ranes, NS8Q, at cmarcscope@gmail.com.

The deadline for each issue is midnight on the 20th of the preceding month.

The **ARROW Communication Association** is once again proud to sponsor a motor coach trip to the **2016 Hamvention** in Dayton, Ohio. Started in 2002, this annual club activity has grown in size and reputation with hams across Michigan. We have been host to over 500 hams for this event.

Join us on **Saturday, May 21, 2016**, when we depart from the park-and-ride lot beside Ann Arbor Pioneer High School (601 W. Stadium Blvd) at 4:30 a.m., arriving in Dayton around 8:00 a.m. On board, you can stretch out, relax, take a nap, chat with other hams, and enjoy a continental breakfast with coffee as the coach takes you directly to the country's largest amateur radio event!

We arrive at Dayton early enough so that you can enjoy a full day!
- Visit exhibits
- See what's new from major manufacturers
- Attend seminars
- Take license tests
- Shop the largest outdoor swap meet in the United States

When Hamvention closes at 5:00 p.m., return to the bus with your purchases for the ride back home. No standing in lines waiting for a shuttle bus or fighting traffic!

Got stuff to sell? We can help!

We will have a booth in the flea market. If you buy a bus ticket, you can sell your stuff at our booth. All we ask is that you limit it to a reasonable amount and that you volunteer for one hour at the booth. The cost of a booth alone is $70, more than the cost of our ticket, which makes the ARROW trip a GREAT value!

For our out-of-town guests!

If your QTH is too far away to drive to meet our bus which leaves at 4:30 a.m., and you need information about hotels in Ann Arbor, contact us at the information listed below for details.

This is no ordinary bus trip – it's an ADVENTURE!

Tickets are $65. This does **NOT** include your admission to the Hamvention. We suggest that you purchase your 2016 Hamvention ticket(s) in advance to take advantage of the discount and enjoy the day without waiting in line for your tickets, or **see how you can win one of two free Hamvention tickets** below!*

When you add it all up, taking the bus with the ARROW is the most economical and relaxing way to attend Dayton. For more information on the 2016 trip, go to our website and click the Dayton bus trip link under Activities.

*All ticket purchases **RECEIVED** by 4/1/2016 will be entered into a raffle drawing to win one of two free tickets to the Hamvention. Winners will be drawn at the April ARROW meeting on 4/13/2016 and will be contacted.

Contact information:

John Wasciuk, WA8TON
616 560-3365
e-mail: activities@W8PGW.org

Yes!!! Sign me up!!!

Name/Call Sign

Address

City/State/Zip

Telephone

E-mail (correspondence via e-mail)

Will you need hotel information for the night of 5/20/16?

How did you hear about us?

# of tickets $ amount enclosed

☐ **I would like to join the ARROW for $20.00 a year.**

Make check/money order payable to:
ARROW Communication Association

Send Order Form and payment to:
ARROW Communication Association
3322 Yellowstone Drive
Ann Arbor, MI 48105

PayPal is available through the website:
www.w8pgw.org

Prices
Ticket Price $65 ($60*)
Member Discount Price $55 ($50*)
ARROW Yearly Membership $20

*If received/postmarked by 4/1/2016.

The best way to get to Dayton is with ARROW

- NO PARKING FEES
- NO SHUTTLE BUS FARE
- NO CAR OR GAS EXPENSES
- CONTINENTAL BREAKFAST ON BOARD
- SELL YOUR GEAR AT OUR FLEA MARKET BOOTH

We're expecting a sell-out trip, so make your reservations early!

Arrow Communication Association
3322 Yellowstone Drive
Ann Arbor MI 48105

Take the bus with us!

Dayton Hamvention Bus Trip

Saturday, May 21, 2016

Sponsored by the ARROW Communication

2016 CMARC "OUTDOOR" HAMFEST

(We've got EVERYTHING but the ROOF!!)

ARRL Sanctioned

Sponsored by the
Central Michigan Amateur Radio Club

Saturday, July 30, 2016
8:00 AM to 1:00 PM
(Setup Saturday 6-8AM)
at the
Holt Christian Church
2424 Washington Road
Lansing, MI 48911

Talk-in 145.390
(100Hz PL)

ADMISSION: Public = $4.00 each, Kids 15 and under FREE!! (HANDICAP ACCESSIBLE!!)
Vendors/Sellers = $4.00 each (includes 1 trunk space). Additional spaces $5.00 each. RSVP today to secure the number of spaces you need! Also, please remember to bring your own tables, chairs, and canopies and be prepared in case of inclement weather.

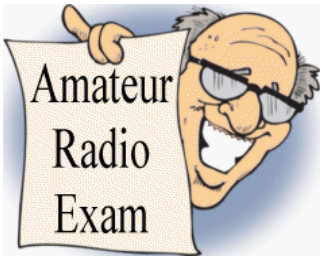
For Reservations or Questions contact Julie McLain KB8ZXR (517.694.0812 or KB8ZXR@aol.com)

DON'T FORGET
to enjoy a Sweet Roll and Coffee–then later on grab a BBQ Pulled Pork Sandwich or a Dog or Brat "Hot Off The Grill" with all your favorite trimmings!!

RF ADAPTER GUY
Dealer Jon Rohde
(accessories for Ham, Commercial, GMRS or CB)

Tennadyne and Cubex Quads
Dealer Roger Greenfield
"Aluminum with a PHD"

D & G Computers
Dealer Shaun Blain
(Service and Repair)



VE TESTING
at 11am. Sponsored by the "Ingham County VE Group". Walk-ins are Welcome!!

TYCHO AUSSIE
CMARC's 6' 3" Mascot is back again this year!!

DXCC CARD CHECKER
Must call Stan Arnett AC8W (810) 364-6674 for appointment! & info
Hamfest Checking Hours 8am to 12pm. Can't check 160-m Cards! Fill out DXCC application at http://www.arrl.org/dxcc and bring with you, also Record Sheet and SASE. Pay by credit card online.

STRONGWARE
Custom Callsign Mugs made-to-order while you wait!!

DOOR PRIZES!!

We will have hourly prizes with our GRAND PRIZE being a YAESU FT-2900R/E MOBILE 2-METER Drawn at 1pm!!

FORUM

"ASTERISK" a framework for building multi-protocol, real-time communications applications and solutions. Time for Q&A (9am-10:30am)

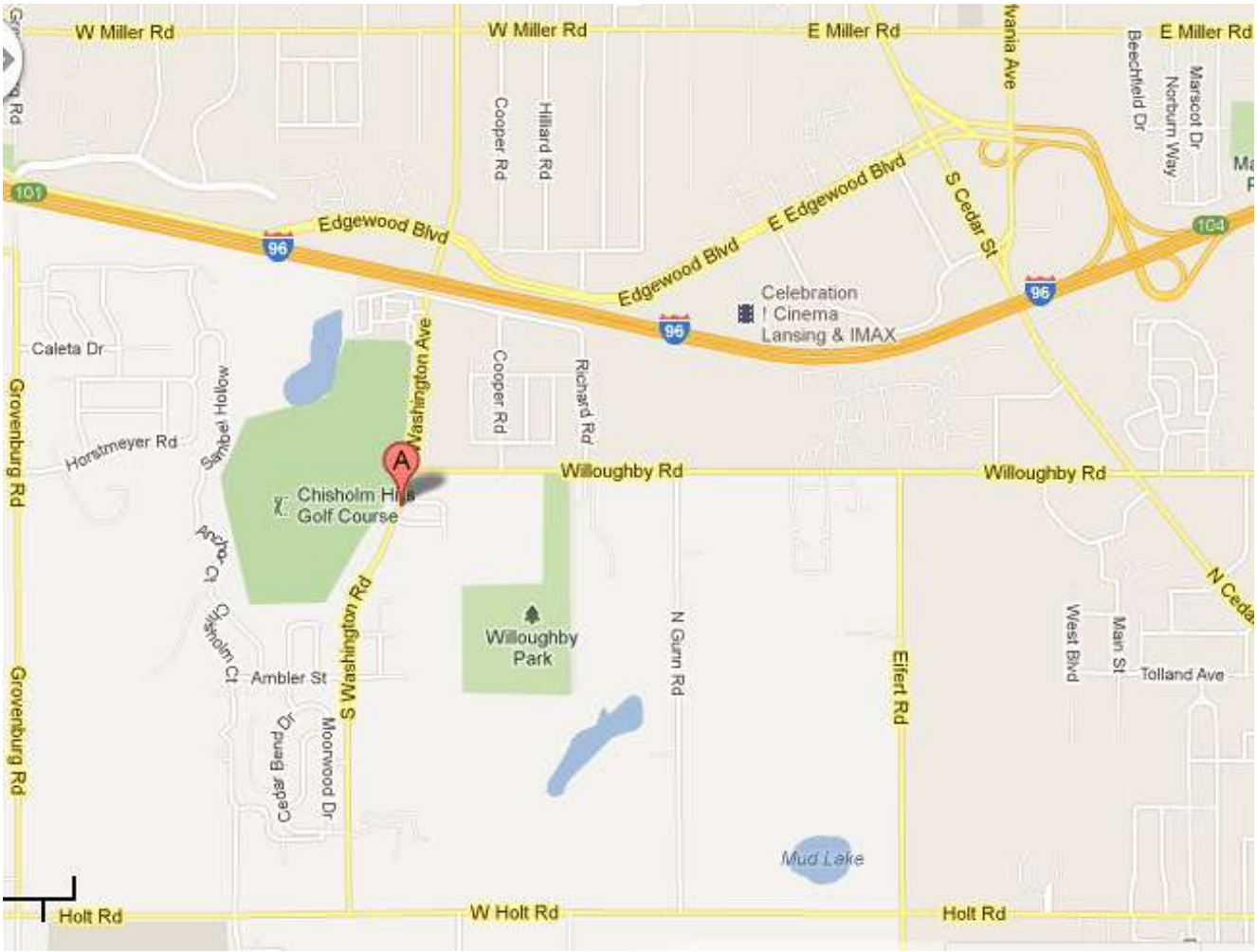
ARRL's LARRY CAMP WB8R

Michigan Section Manager
Great Lakes Division

G.O.T.A. STATION

Don't have a license? Come Get On The Air with the Youth of CMARC!!

Holt Christian Church, 2424 Washington Road in South Lansing
Talk-in 145.39-100Hz PL



PLEASE JOIN US FOR THIS YEAR'S CMARC "OUTDOOR" HAMFEST!!

COME "RAIN OR SHINE" YOU'LL HAVE A GREAT TIME!!

Show Your Support for Amateur Radio and Join CMARC & LCDRA Today!

JOIN TODAY!

Central **M**ichigan **A**mateur **R**adio **C**lub, Inc.

As a licensed Amateur, you can **sign up today** as a Full Member. As a Full Member of CMARC, you will receive voting rights and an annual subscription to 'The SCOPE'. This newsletter is filled with Club News, special interests and events.

Sign up today as an Associate Member and it includes an annual subscription to 'The SCOPE'. (no voting rights as an Associate Member)

New licensees are now eligible for a *one FREE year membership* at CMARC and **Under 18** licensees are *eligible for* **FREE membership!**

Name **Callsign**

Address **City** **State**

ZIP **Phone** **Lic. Class**

ARRL Member? **Birthday** **Wedding Anniversary**

Year 1st Licensed **Please supply email address for SCOPE mailing**

☐ **Full** ☐ **Associate** ☐ **New Licensee (1 yr. free)** ☐ **Under 18 (free)**

Full Membership $15 per calendar year (must be a licensed amateur to obtain Full Membership) Associate Membership $5 per calendar year

Mail Your Check or Money Order to:
John Doornhaag
1165 S Ainger Rd
Charlotte, MI 48813-9540
(*Checks made payable to CMARC*)

JOIN TODAY!

Lansing **C**ivil **D**efense **R**epeater **A**ssociation

As a licensed Amateur, you can **sign up today** for only $15. As a member of LCDRA, you will receive an annual subscription to 'The SCOPE', as well as voting rights in the Association.

LCDRA oversees the operation and maintenance of all Lansing Area repeaters. Use of the repeaters does NOT require LCDRA or CMARC membership, but your support is welcome and appreciated.

Name **Callsign**

Address **City** **State**

ZIP **Phone** **Lic. Class**

ARRL Member? **Birthday** **Wedding Anniversary**

Year 1st Licensed **Please supply email address for SCOPE mailing**

LCDRA Membership is $15 per calendar year (add a Family member for only $7.50 per person, per year). LCDRA maintains our local repeaters and your support is appreciated. (Membership not required to use repeaters)

Mail Your Check or Money Order to:
Julie McLain KB8ZXR
4444 Sycamore St. #1
Holt, MI 48842
(*Checks made payable to LCDRA*)

Central Michigan Amateur Radio Club
P.O. BOX 27321
Lansing, MI 48909-7321

Central Michigan Amateur Radio Club

THE SCOPE

Lansing Civil Defense Repeater Association

centralmiarc.com Serving Our Community Since 1921 lcdra.net

CMARC	ARPSC	LCDRA
WWW.CENTRALMIARC.COM/	WWW.LANSINGARPSC.COM/	WWW.LCDRA.NET