

K7LED Relay



Volume 52, Issue 1

Mike & Key Amateur Radio Club – Seattle

January 2024

President's Report

Carl Reynolds N7CJR
President

Good-bye 2023 and welcome to 2024! I wish to thank all the members who contributed your time and talents during this past year. We encountered a few challenges that required necessary changes to ensure our club continues to grow and always be a place to learn, contribute and enjoy the art of amateur radio.

I hope all of you had a relaxing and enjoyable holiday break. One can dream. Did St Nickolas bring everyone what they wanted? No new ham radios or accessories in my shack so I hope most, if not all got something besides coal. I was lucky to have attended the Christmas party where our awesome membership committee organized a great party with plenty of food that I enjoyed eating. No returns either. They also held a Left-Right gift exchange game and I was gifted a small portable feature packed radio. My ham shack backup LiFePo battery which I

installed at the beginning of December is working as advertised so far and running my VHF/UHF base station. I want to congratulate Hal Goodall N7NW, our radio officer, for a job well done for the last ~13 years as he passes the baton to Steven Cook KD7IQL. Hal remains on the committee, which is working on expansion/upgrade plans that will take advantage of our 2 repeater sites.

I'm sure everyone along with me is looking forward to the many activities lined up this year. This is your club so I encourage everyone to get involved in activities that interest you. The club and the ham community as a whole will benefit. We have club officer/trustee elections coming up and I encourage those with ideas bouncing around in their heads to put your name in the hat or bring them up during our meetings.

The swap meet planning is in full swing for March which is always fun. Also, it looks like someone (Robert KJ7CBO) couldn't wait a whole year for another I-5 Rest Stop Free Coffee outreach, so one is planned for May. And of course, we can't forget Field Day in June. I'll stop there. See you at the general membership meeting.

Celebrating January Members

Scott Gilyeat, KC7SAG, Treasurer

As of January 2024, these folks have been Mike & Key members for the number of years stated. Congratulations to all of you, and thank you for your participation and service. Happy Anniversary this month! Each of you makes us who we are.

(Life Member, 25 years or more with the Club)
(Anniversary Certificate)

Years

51 Dick Lundstrom	W7INK
37 Joyce Stroehler	N7JPW
33 Mike Hansen	AC7UR
33 Michael Hansen	KG7MX
14 Donald Cain	No Call
14 Linda Jordan	No Call

14 Carl Reynolds	N7CJR
14 George Thornton	AE7G
9 Rob Adams	KC7FBN
7 Kenn Kullberg	AC6DK
5 Simeon Baldwin	KJ7CKL
4 Brian Hevly	N7BRR
3 Sam Elnabarawy	K7TFI
3 Wayne Pommer	N5WAP
2 Jack Barrett	KJ7YRR
2 Jackson Davis	K7CTB
2 Jeffery Seaman	KJ7TTY
1 Bob Amos	WA7HTJ
1 David Guthrie	KD7ZVQ
1 Craig Larsen	WA7HTN
1 Paul Petach	KI6QXV
1 Fred Yearian	K7GIJ

Silent Key Updates

Scott Gilyeat KC7SAG Treasurer

The following have been reported as Silent Keys.

Kenn Kullberg, AC6DK – Aug. 15, 2023 Ken joined the Mike & Key in January 2016 and was active in the Club’s VE Testing program.

Rick Fritz, WB6AWO – Jun. 15, 2023

Mike & Key Unofficial Name Badges

Jiro Oi KW6A

Unofficial club badges are available with the following conditions:



Plastic name badge with handle/nickname, call sign and full name (as listed in FCC database) is available for all current club members.

It is NOT an official badge, but the recipient is encouraged to wear it at club meetings and/or club functions.

There will be a signup list at the monthly meeting and a badge will be provided the following month.

The badge needs to be picked up at the meeting as it will not be mailed (unless a SASE is provided).

The badge is made *Pro Bono*, but you are always welcome to give a donation at any amount to the club treasurer (treasurer@mikeandkey.org).

Remember that it is lifetime guaranteed. If you are not satisfied you can return it and you will get DOUBLE the payment back (not your donation, however).

The badge is made of PVC size approx. 3.35 x 2.13 (inches)/ 85 x 54 (mm), 30 mil thickness, about same as typical credit card (CR8030), with a punched slot of approx. 15 x 3 (mm)

Metal badge clips with a clear strap are provided, but the badge can be worn with a lanyard (not provided) such as other ID cards.

It is printed in black using thermal resin transfer ribbon on both sides of the card so that it can be read even if it is flipped around.

If there are any comments, questions, or complaints, please address to KW6A@ARRL.NET.

December Meeting and Party

Jeanne Yearian KE7MES Secretary



New Year's Message from the Board

Manfred Bester AG7NR Chairman of the Board

On behalf of the Board, I wish all of you and your families a Happy New Year in good health and with many new DX opportunities! The change of the year is a good time to look back and review what we as a Club accomplished in 2023, and preview what is planned for 2024.

In early 2023, after some searching, we found a new home for our Club at the [Kent Senior Activity Center](#). This location seems to work well for us. We continued to make remote participation via Zoom available for those who live farther away, or who prefer to dial in from home for various reasons. Many thanks to our outstanding AV team for making these hybrid meetings possible. Of course, in-person participation will always be preferable and is a key component of our Club life.

In March we held our Swap Meet again. It was a bit smaller in scope than in our best years, but nevertheless very valuable as a service to the Pacific Northwest amateur radio community and as the primary income source for our Club. Many thanks to all who put in the time and labor to pull this off!

Radio Camp and Field Day in June were a great success as well. It was very enjoyable to get out and setup shop at Fort Flagler, as so many times before. And we managed to place first again in the "6A" category. In August we held our Annual Picnic at Five Mile Lake Park for the third time. It looked like everyone was pleased with this venue, and we already made reservations for this year. After a three-year break we also held our Holiday Party again. The white elephant gift exchange with a left-right Christmas game was well attended and felt like a lot of fun!

Other Club activities included numerous VE sessions with license classes and both in-person and remote test exams. Our public service team provided communications for several bicycle and foot races. The net host team ran our daily social and technical radio nets. We also organized a free coffee event at the I-5 SeaTac Rest Area. And we had a great, monthly newsletter. A big thank you and kudos to everyone who put in the time and effort to make this all happen!

In 2023, sadly nine of our Club members became silent keys:

Roy Fisher, KJ7OKL (January 1)
Frances Underwood, N7FWZ (March 8)
Norman Ahrens, N7KWZ (April 3)
Chip Margelli, K7JA (May 26)
Richard Fritz, WB6AWO (June 15)
David Smith, KB7PSN (June 22)

Darren Baker, WA3DB (July 12)
Kenneth Kullberg, AC6DK (August 15)
Calvin C. Doss, KC7GZL (September 25)

They all will continue to live in our memories.

Now 2024 is beginning to shape up. There are all kinds of exciting activities already planned for this year. With an active membership count just shy of 300 we already have an amazing collective brain power and wealth of professional backgrounds and personal talents. But we also need to be looking to expand our membership to include younger amateurs. Several Club members have liaisons to Boy/Girl Scout groups or youth camps.

Currently our major focus needs to be on the [upcoming Swap Meet](#). Remember, this event is our main fundraising source that allows us to keep membership fees relatively low, sponsors our Club's events, and pays for running expenditures. It is expected that we all pitch in to the best of our abilities to distribute the workload and to make this ham fest successful again.

Please visit the [web site where volunteers can sign up](#) for the jobs and time slots we need to cover. We still need a significant number of sign-ups, especially for set-up on Friday, March 8, and for tear-down on Saturday, March 9. This is not a difficult job. For the most part it involves setting up/folding up tables and chairs and sweeping the exhibition hall after the event. Remember the Fairgrounds will charge us for cleaning if we do not leave the place the way we found it. The more volunteers we have, the quicker we are done. I will be chairing the Ticket Gate operation again. There are still open slots to fill for staffing the ticket booths. Many thanks to all who already signed up!

On the heels of the Swap Meet will be the annual election of Officers and Trustees. I would first like to take this opportunity to thank the current Board members for their service this past year. I think we had very productive meetings and accomplished a lot as a team. The table below shows the positions that are up for election or re-election. Current holders of these positions (in blue font) have not yet indicated if they are willing to run again, but others are encouraged to sign up as well. If you have any suggestions to name a candidate (including yourself) then please do so either publicly during a General Meeting, or privately via [email to the Board](#).

We also just had a hand-over of the Club's Radio Officer duties. On January 1, Hal Goodell, N7NW, submitted his letter of resignation to the Board (see below). We truly appreciate all the work he has done for the Club in this role since 2009. Hal recommended Steven Cook, KD7IQL, as his replacement, given Steven's qualifications and experience with repeater sites. Per

our Club's Bylaws, the Board accepted Hal's resignation during its meeting on January 2, 2024, and voted on Steven to be the new Radio Officer. We would like to thank Steven for volunteering and congratulate him on his new position. Modernizing the K7LED repeater system will be an interesting project for him to lead over the next few years.

We like to hear from our new Club members as to what we should be doing to better serve our membership. A great way to have your ideas heard and see these implemented is to participate in any of our committees, or by joining our leadership team. If you like to get more information prior to stepping up, then please feel free to ask your Board members. We will be more than happy to talk to you.

Again, best wishes to all for 2024!

Mike & Key ARC - Officer and Trustee Elections 2024		
Position	Candidate 1	Candidate 2
President	Carl Reynolds, N7CJR	
Vice President	Paul Petach, K16QXV	
Secretary	Jeanne Yearian, KE7MES	
Treasurer	Scott Gilyeat, KC7SAG *	
Activities Manager	David Okrent, W7DAO	
Radio Officer	Steven Cook, KD7IQL **	
Trustee #1	Jeff Hite, N7FCC	
Trustee #2	Robert Christian, KJ7CBO ***	
Trustee #3	Robert Grinnell, KD7WNV	
Trustee #4	Manfred Bester, AG7NR ***	
Trustee #5	Alex Malesis, W7AEM	

* The Treasurer Candidate was vetted by the Executive Board on March 1, 2022.
 ** The Radio Officer is not elected, but rather appointed by the Board without term limits.
 *** Trustees #1, #3 and #5 are elected in odd-numbered years, and #2 and #4 in even-numbered years.
 Current Officers and Trustees whose positions are up for re-election (assuming they may be willing to run again) are shown in blue font. Term limits are defined in the Bylaws.

January 1, 2024

To: Manfred Bester Chairman of the Board Mike and Key ARC

CC: Mike and Key ARC Executive Board

Subject: Radio Officer Resignation

On a very hot night in August 2009, I was approved by the Mike and Key ARC Board to become the next Radio Officer, succeeding Paul Roth, N7DOH. It is hard to believe that 14 years and 5 months have passed since then.

I have had the opportunity to serve on the Board as the Radio Officer ever since that night. I have seen many changes on the board over these many years. All for the better as the club continues to grow and diversify. It is especially meaningful that new members are willing to step up and get involved with the running of the club. New ideas are what will keep this club viable for years to come.

It is with some sadness that I offer my resignation as Radio Officer, effective January 2, 2024. The health of my wife will no longer allow me the freedom to perform the duties of the Radio Officer and realistically, since I am not getting any younger, it's time.

I fully support Steven Cook, KD7IQL, to be my replacement. Steve has been side by side with me for many years and is the most knowledgeable of the systems on East Tiger Mountain to take over as Radio Officer.

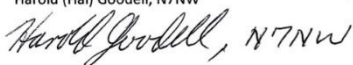
I intend to continue with my involvement with the Repeater Committee and the Mike and Key ARC. 2024 will be my 50th year of being an active member of the greatest Amateur Radio Club in the NW. I believe that I have lots of history with the club that would be of benefit to our members.

I plan to continue sitting in on the board meetings as I can.

Thank you for allowing me the honor of serving the Mike and Key ARC for all these years.

Sincerely,

Harold (Hal) Goodell, N7NW



Trustee Report

Robert Christian KJ7CBO Trustee #2

Last year 2023 brought many challenges to all of us, now as we enter into the new year there are a lot of cool things we at Mike and Key can do. First, I want to thank Hal for being the Radio officer for as many years as he served. He was able to help in growing the Mike and Key membership and leadership to keep the repeater running. Without a Radio officer we simply could not do as we do. Thank you, Hal!

We in 2024 now are looking forward to events too. Not just the March Swap Meet, but having another coffee event at the I5 rest area in Auburn. Last year when we did this event, it was a success to say the least. There are plenty of areas to set up mobile "go boxes" and get on the air. Let's do it again!

Also, on the agenda would be during the spring to summer months "Mike and Key in the park" where we can set up at parks and do special nets from there. It will be a great way to once again reach the general public and bring ham radio to the mind of others. This could lead to increased membership. Wow.

The Net's are running well too. We do need two or three more people to step up and become a net host. You need to be a member of Mike and Key and reach out to me to get started. It is not hard to do, loads of fun and maybe we can finally catch up with Dean N7XS and the way he does his net. If you have never heard him say "okay, give it to me" you are missing it. He loves the train wreck of quick check ins for his net and how he can pull everyone out of the train wreck is quite funny but he is spot on with it too. That is just funny to hear that.

Last, the Tech and Special interest group meetings are going well. We are tossing around ideas for future events and soon will be planning some of them.

2024 is going to be a fantastic year with the Mike and Key. We are always looking for cool ideas, fun events that everyone can participate in doing.

Join us when you get a chance!

KK7MJD Antenna Project

Steve Ignell KK7MJD

They say the third time's the charm. Well, time will tell, but as I write today, so far, so good, although I can't say I've ever had a bad amateur radio experience. Maybe my parents would differ, but when I first became a ham as an early teenager, I might have added noise and static to our Juneau home. At least I was usually home and out of trouble.

I built my first CW transmitter in my early teens from an Elmer's junk box, which was really a small building out back filled with all sorts of electronic equipment and parts. He also gave me a Hallicrafters SX-28 for a receiver. After erecting a couple of antennas around my parent's home, I was off and transmitting. Most people didn't notice the long wire or 20m dipole high in the air. But the 15m two-element quad, constructed out of 2x2s and 2x3s and attached to a 4x4 mast held upright by a box dug into the ground just outside our laundry room door, became a talking point for the neighborhood. I don't remember if it worked, but with Dad as a building contractor, at least the wood was free.

I upgraded to a Heathkit HW-101 in 1970, along with a 54' tower, ham-m rotator, and three-element trap yagi. We lived on a mountainside facing west, so Europe was out of the picture. However, the West Coast and Asia became my domain, and I enjoyed operating as KL7GSU well into my college years.

Fast forward 20 years, along with marriage, children, and a career in fishery science. I became a ham for the second time as WL7QD (Advanced). I resurrected my old transmitter, added an SB-200 amplifier, outfitted the old tower with a 2-element quad, and once again was off and transmitting.

It was 1995, and I had a blast for nine months during a period of reduced demands at work. I routinely experienced intense pile-ups as I was often the strongest North American signal into Europe. But alas, work picked up and I began to build a new house, so something had to give - which again was ham radio.

I got the hankering again this past year and got my General license in the spring. Following an outstanding Field Dday experience with Renton's Mike & Key Amateur Radio Club, I began making plans to get back on the air.

Decisions, decisions, decisions. However, I knew from experience that the antenna decision would be most important as I wanted to work DX again, even though I no longer had the Alaska prefix advantage.



I don't have a real estate advantage either. We don't have an HOA, but we have something just as important: neighbors with whom we want to keep good relations.

Several of them have outstanding views of Puget Sound and the Olympics – all over the roof of our home. The usual 60' tower with a glorious antenna was a non-starter.

I needed a smaller, lower-profile antenna that still had gain and directivity. And, if it was small enough, perhaps I could mount it on a wood platform on one of my roofs. Perhaps also, I could place the rotator on the platform so that the mast would rotate, held in place by two thrust bearings, one guyed and the other attached to a fascia board 5' above the platform. Finally, perhaps all of this would meet the eye test of the neighbors.

Now that solution didn't present itself automatically. But like iteratively fitting a likelihood function with constraints for the parameters, I eventually converged to a solution.

Several antennas made my shortlist, but the decision became easier once I discovered Steppir's Urban Beam. At least one part of the decision was easy as it

was also the most expensive option. But it was also the "cutest" according to those who count (that put a big thumb on the scale). Plus,



it was also fairly lightweight with a relatively small wind load, which I deemed critical given the mast/rotator set-up and the amount of wind at my QTH (see, I'm relearning ham speak!)

Fortunately, the following issues were easier as I had spent a heck of a lot of time with the antenna/mast problem. I wanted a transceiver with a short learning curve. I am busy hiking, fly fishing, writing, golfing, etc., and just don't have a lot of spare time to build up my knowledge base at this time despite retirement. You get the picture. Hence, although I started out wanting a K4, I ended up with an Icom 7300. The price was right, and

January 2024

I was assured that it was easy to use and learn. And it was.

At first, I was concerned about its receiver performance as measured in Sherwood's lab. But then I realized that the receiver wasn't bad, and in any event, at least starting out, I wasn't going to tell the difference between the 7300 and a Yaesu FTDX101D, the latter of which has great receiver numbers.

I've now operated for about a week, working a station or two daily. So far, I've worked stations in the Philippines, Japan, Germany, Wales, the United States, and Texas. This morning, I was 20 over nine into Brunei.

Right now, the antenna is just about 5 feet over the top roof of the house. I have it on a push-up mast, but I found



that pushing up 60lbs of antenna, mast, and thrust bearing while standing on a pitched roof in the rain is doable but probably unsafe. Hence, I'm not using the extra length of the push-up mast at this time.



I aim to get the antenna at least 10' higher with a system that I can raise and lower without risk. I'm presently looking into the US Tower ALM-21 as an option for that. It's lightweight and, hence, suitable for my platform arrangement. I'm also planning to fire up the SB-200 again although something like an Ameritron ALS-

600 is quite appealing.

Throughout this process, I found Mike and Key's Elmer system invaluable. Several, especially Mike Dinkleman, graciously answered questions and provided advice.

K7LED Relay

Their advice proved critical to making this project work, and I am most thankful for their generosity.

Next challenge: SOTA!



The First Mike and Key ARC Contest The Three-Hour Tour HF Sprint

David Okrent W7DAO

How does it work? Starting Saturday, February 3, 2024, from 08:00 Pacific to 22:00 Pacific, you pick a three-hour block of time, get on the air, and make contacts. Although, you can pick any time block you wish, I encourage you to try for 09:00 to 12:00 Pacific to have M&K flood the air.

We will have a Zoom channel open (sign on info coming via groups.io) for cheering each other on or, more importantly, bragging about a great DX contact you just had. I also encourage chatting via our 2m repeater at 146.820. There won't be a net host, just informal talk.

What about submitting logs? I won't be taking logs, but I will be taking the score you calculated and your longest distance contact. Please send you score to W7DAO@arrl.net no later than 20:00 Pacific on February 7, 2024.

Hey, there are extra points for an AM contact, how is someone supposed to get these? You can schedule a time prior to the Sprint with another ham or set it up spontaneously during your time block. Remember, bandwidth is twice as big as SSB so check your spacing.

What do I win? Nothing, except bragging rights. Also, feel free to write a short article in the Relay about your experience. Don't forget a tall tale article on the contact that got away is fun too.

Long-distance award calculation: 5,000 miles divided by 100 watts SSB vs. 5,000/30 watts SSB is 50 miles per watt (mpw) vs. 167 mpw; 30 watts wins. Long-distance categories: CW-PSK, FM, SSB-AM.

Go-Kit "Show and Tell" at Feb Meeting

David Okrent W7DAO

Calling all HF, VHF, and UHF and up go-kit builders, it's time to show off your work and support others interested in making their own kits. Bring your battery boxes, radio and battery boxes, radio plastic totes, and antenna support bags/boxes to the Feb 2024 meeting. Whatever you have is worth sharing with the group, we all learn from each other. Set up on a table starting at 9:30 AM and be ready to answer questions and give advice prior to the meeting. After the meeting hang around a little bit and do the same.

Are you thinking of building a go-kit? Great, then plan on attending in person in Feb and "Ask a Go-Kit Elmer."

Date and Time:

Feb 3, 2024, 08:00 Pacific to 22:00 Pacific

Duration of Operation:

Any three-hour block during the time window, but I encourage 09:00 to 12:00

Bands:

160m-10m inclusively

Emission Types:

AM, FM, SSB, PSK, and CW

Contact Exchange:

Other station's call sign and location (city, state/providence, and country)

Logs:

None accepted, only send your points

Scoring

Each contact is worth 1 point plus any multiplier as shown below.

- Multiple by 0.75 for station power above 150 watts or using a beam.
- Multiple by 1.25 for power levels between 10 and up to 55 watts
- Multiple by 1.50 for power levels less than 10 watts
- Multiple AM contacts by 2
- Send your longest distance contact, including call, mode, and power level

You can change power levels and mode as you wish per band. You can only contact a station once per band and mode type. Why the weird point structure? It's an attempt to level the playing field. Will there be a V/UHF Sprint in the future? Yes.

A few Funnies from Michelle

Michelle Baskett WA7PVE

Why did the Op-Amp cross the road? *Because he kept receiving negative feedback.*

QRP'ers never die. *They just QSB.*

Most people don't know that George Washington was a ham. In fact, he was not only a ham, he was a CW operator. We know this because of the old story about the cherry tree being destroyed. When his angry father demanded to know who chopped down the tree, George responded, "I didit dadah."

The President Johnson radio. If you ask me, it's for the birds. *(If you get that one, you're that old)*

It's Just Time

Hal Goodell N7NW

After a year of consideration, I have come to the realization that **"IT'S JUST TIME"**.

At the January Mike and Key ARC board meeting, I submitted my resignation as Radio Officer for the Mike and Key ARC. This was not an easy decision to make. But knowing that there is a very qualified replacement who has been a long-time active member of the Mike and Key ARC and who has been very involved in the club's repeaters operation and maintenance, made it a lot easier.

It is hard to believe that 14 years and 5 months have passed since that very hot night (108 F) in August 2009, when I was approved by the Mike and Key ARC Board to become the next Radio Officer, succeeding Paul Roth, N7DOH.

I have had the opportunity to serve on the Board as the Radio Officer ever since that night. I have seen many changes on the board over these many years. All for the better as the club continues to grow and diversify. It is especially meaningful that new members are willing to step up and get involved with the running of the club. New ideas are what will keep this club viable for years to come.

VE Team Statistics for 2023

Scott Robinson AG7T

The VE team had another great year! I send a big "thank you" to each of the VEs that helped at various sessions during the year: KD7IQL, WA7BMK, KF7RWA, KJ7OYQ, K7PIA, AE7VX, N7RHE, K7CMW, N7JTI, KG7LNZ, K7XTN, KF7QLX, AE1J.

You again showed the best of amateur radio and made the sessions go smooth. We did 21 sessions overall: 14 In-Person and 7 Online. We also trained 2 new VEs on our session procedures.

We had 127 people taking 133 exam elements leading to 67 Technician, 33 General, and 21 Extra class licenses awarded. The average session size was 6 but much more like 1 or 2 for online sessions. These numbers are similar to our pre-pandemic counts. It keeps the VE's busy!

It is with some sadness that I offered my resignation as Radio Officer. The health of my wife will no longer allow me the freedom to perform the duties of the Radio Officer and realistically, since I am not getting any younger, **it's just time**.

I fully support Steven Cook, KD7IQL, to be my replacement. Steve has been side by side with me for many years and is the most knowledgeable of the systems on East Tiger Mountain to take over as Radio Officer.

I intend to continue with my involvement with the Repeater Committee and the Mike and Key ARC. 2024 will be my 50th year of being an active member of the greatest Amateur Radio Club in the NW. I believe that I have lots of history with the club that would be of benefit to our members.

I am looking forward to the next few years of changes to the Mike and Key ARC repeater systems, under the leadership of the new Radio Officer, Steve KD7IQL

Thank you for allowing me the honor of serving Mike and Key ARC for all these years.

So please welcome Steven Cook, KD7IQL as your new Radio Officer who was approved by the board at the January board meeting.

YALDD

Yet Another Linked Dipole Design

David Okrent W7DAO

What's a linked dipole? A linked dipole is generally a center-fed antenna for temporary use where a link (connector) is used to add or remove lengths of wire to support multi-band operation. For example, a 20m and 10m linked dipole (left and right sides) is about 17 feet per side with the antenna wire separated into two sections, one for the 10m length and one for the remain bit for 20m. A connector at the cut section can be used as a manual switch to use either the 10- or 20-meter bands. The cut section is often mounted on a plastic form with the connector.

Any length of antenna can be created. A typical configuration is for 10-, 15- and 20- meter operations. Want to operate on the 20-meter band, join all the connectors together. Ten-meter operation the 15 and 20 section connectors are open, and for 15-meters the 10 and 15 sections are connected and the 20m is open. The center-fed point is not unique, and a rope is used to hoist the antenna up and down to make manual band switching relatively easy.

Often these are used in making horizontal dipoles or inverted vees. However, they can be configured as a vertical ground mounted antenna too. I used this method to create linked counterpoises too (elevated radials). What makes this one a bit different than the typical push on and pull off crimp-type connectors is the use of banana plugs and binding posts. I find the plugs are easier to use in the field and stand up better to repeated use.



Figure 1: Link open and closed

Figure 1 shows the link open and closed. The back is shown in Figure 2, notice the wires are strained relieved using the holes drilled onto the form. The form is a Standard Plastic Rectangle Aluminum Extrusion End Cap, there are five per side.



Figure 2: Before coating solder joint with sealant

I built this for the 10, 15, 17, and 20m bands and added an additional form in case I want to add another 16 feet for the 40m band. I started by modifying the end caps (I can't cut up bulk plastic at home) and drilled the four holes. I am using 16g wire.

Next, I calculated the length of wire I needed per segment (I am omitting the inches): 10m is 8 feet (I did cut each segment longer), for 15m I needed to add 3' for a total of 11', and add 2' for 17m, and the last length is 4' for 20m making it almost 17 feet when all connected.

Tuning, or pruning, is only done the first time you use the antenna. Pruning is necessary because I purposely cut the wires long for each segment. Start by opening all the connectors, attaching the linked arms (wires) to the feed point, and host the antenna up. A height of 30' would be great and spread the antenna legs out and secure with rope to create the inverted vee (if creating a vee).

Now using an analyzer, start with the 10m segments and prune or cut back the wire equally on both sides to get to the portion of the band you prefer to operate.

This is an iterative process where you need to raise and lower the antenna repeatedly as you adjust it for its resonant frequency. To cut the wire, shorten the antenna, loosen the set screws on the plug, pull out the wire, cut back and then reinsert into the plug (see Figure 3), and then raise the antenna up, check with the analyzer, and repeat as needed. Plug in the next section and repeat this process for each band.



Figure 3: Before coating solder joint with sealant

Once you complete tuning for each band you can remove the wires from the plug, tin them, and reinsert if you'd prefer. Typically, a 1:1 balun is needed at the feed point.

The last form in the line for each side will have at least one open hole. This hole is for a small rope or ring to go through facilitate tying off each end of the inverted vee. It's a good practice to tie off the inverted vee legs at least 7-8 feet above ground level the safety of others.

Yes, the length of an inverted vee will be slightly different than a horizontal dipole or half-wave vertical antenna. However, it will be close enough to these configurations that an impedance transform or an antenna tuner can compensate.

Mike & Key ARC General Membership Meeting Minutes

Date/Time: December 16, 2023, 10:00 AM Pacific

Meeting Place: [Kent Senior Center, 600 East Smith, Kent, WA](#)
Attested to by Jeanne Yearian KE7MES, Secretary

President, Carl Reynolds, N7CJR: Call to Order at 10:00 AM Pacific

Vice President, Paul Petach, KI6QXV: Verified a quorum is present.

Approval of Nov. 18, 2023 General Meeting minutes: Motion made by Time Kane, K7ANE; Second: Manfred Bester, AG7NR. Minutes approved with no dissention.

Agenda:

Reports

- President (Carl Reynolds N7CJR): See Relay newsletter for report.
- Vice President (Paul Petach, KI6QXV): New membership applications: (1) Steve Anderson, KK7MJV; (2) Andrew Ranson, KK7OTD; (3) Gregory Andrews, KK7OLT. All were approved by the General Membership with no dissention.
- Secretary (Jeanne Yearian, KE7MES): No report
- Treasurer (Scott Gilyeat, KC7SAG): Current active membership count is 292. Reminder: Please pay your dues on time to keep your membership in good standing. Check the Club's website for multiple payment options.
- Activities Manager (David Okrent, W7DAO): Upcoming presentations: January: Camping and POTA on the air event; February: Swap Meet; Go-kit show and tell; Elmer table; March and April: Not yet scheduled; Drawing for end-of-year prizes will be held at the end of this meeting.
- Radio Officer (Hal Goodell, N7NW): No report

Standing Committees

- Technical & Special Interest (Robert Christian, KJ7CBO): Conducted a groups.io poll to find out about membership interests (~50 members participated in the poll): Results: Mike & Key in the Park: 73% agreed; Fox Hunting: 39%; Membership Meetings: 69%; Swap Meet: 82%; Coffee and donut gatherings: 47%; POTA: 56%; SOTA: 34%
- Public Service (Robert Grinnell, KD7WNV): The 2024 edition of the Amateur Radio Special Events & Information Guide (a.k.a. Public Service booklet) is in the works and will be ready for distribution at the Swap Meet.
- Education & Training (Jeff Hite, N7FCC): No report
- Membership (Manfred Bester, AG7NR): No report
- Facilities & Publicity (Alex Malesis, W7AEM): No report
- Repeater (Hal Goodell, N7NW): No report
- Publications & IT Support (Mike, N7WA): No report
- Web Master (Vacant): No report

Essential Committees

- Audits: See below
- Awards: N/A
- Finance: N/A
- Strategic Planning: No report

Event Committees:

- Swap Meet (Mike Dinkelman, N7WA; Hal Goodell, N7NW): Labels for the card mailing will be ready in late December; Go to the Swap Meet volunteer sign-up web site at <https://mkarc.ivolunteer.com/> to indicate your volunteer hours. Swap Meet was held for the first

time in 1982, initially at the old Longacres race track in Renton, and from 1985 on at the WA State Fairgrounds in Puyallup; Active participation in the Swap Meet is considered an essential part of the duties of Club members. Next planning meeting to be held on Jan. 9 at 7:00 PM.

Old Business:

- Sam Sullivan, N7RHE announced that the Audit Committee will meet on Jan. 17, 2024 to review the 2023 books.

New Business:

- Treasurer Scott Gilyeat, KC7SAG presented the 2024 Club Budget for an up/down vote of the membership. The budget had already been approved by the Board at their meeting on Dec. 5. Motion to approve by Sam Sullivan, N7RHE, seconded by Gil Drynan, W7GIL; The budget was voted on and approved with one abstention.

Good of the Order:

- Manfred, AG7NR mentioned a request by the Kent Senior Activity Center for help with their AV equipment; Gil Drynan, W7GIL kindly offered his expertise.
- Manfred, AG7NR congratulated Carl, N7CJR on his birthday.
- Jiro Oi, KW7A kindly offered to print badges for free for Club members to wear at Club meetings.
- Activities Manager David Okrent, W7DAO performed a drawing of various end-of-the-year prizes.

Next General Meeting: January 20, 2024, 10:00 AM Pacific at the Kent Senior Activity Center, 600 E Smith St., Kent, WA 98030.

Adjourn: Motion to adjourn made by Scott Gilyeat, KC7SAG and Gil Drynan, W7GIL at 11:05 AM. Approved with no dissention.

The Holiday Party started after the business meeting.

Mike & Key ARC – Board Meeting via Zoom

Date/Time: January 2, 2024, 19:00 Pacific

Attested to by Jeanne Yearian, Secretary

Participants:

Carl Reynolds, N7CJR (President)
Paul Petach, KI6QXV (Vice President)
Jeanne Yearian, KE7MES (Secretary)
Scott Gilyeat, KC7SAG (Treasurer)
David Okrent, W7DAO (Activities Manager - not present)
Hal Goodell, N7NW (Radio Officer - Outgoing)
Jeff Hite, N7FCC (Trustee #1)
Robert Christian, KJ7CBO (Trustee #2)
Robert Grinnell, KD7WNV (Trustee #3)
Manfred Bester, AG7NR (Trustee #4 - Board Chair)
Alex Malesis, W7AEM (Trustee #5)
Mike Dinkelman, N7WA (Relay Editor)
Steven Cook, KD7IQL (Radio Officer - Incoming)

Agenda:

Call to Order (19:00 Pacific)

Establishment of quorum (Jeanne, KE7MES, Secretary):
Confirmed a quorum present.

Approval of previous Board meeting minutes: Motions by Carl N7CJR, second by Jeff N7FCC: Vote: Yes 100%

Reports

- Chairman of the Board (Manfred, AG7NR): Happy New Year to everyone! We had a great year 2023, with a successful Swap Meet, Field Day, Summer Picnic and Holiday Party, and an approved budget for the new year. Many thanks to all for serving on the Board. Looking forward to 2024 activities: Ramping up for the next Swap Meet, upcoming elections, and before we know it, it will be time for Field Day again.
- President (Carl, N7CJR): Happy New Year. Thank you for the birthday drone. Grateful to be a member of the Club. Looking forward to 2024.
- Vice President (Paul, K17QXV): Scott standing in for Paul: Presented three new membership applications: Allan Knutsen KK7KOM, Zachariah Bender, K7LTF; Denice Carnahan, KK7PLF; All were approved for a vote of the membership at an upcoming General Meeting.
- Secretary (Jeanne, KE7MES): Will meet with the membership committee to discuss putting a Welcome Bag together for new members.
- Treasurer (Scott, KC7SAG): Budget status: Current active membership count is 295; Retrieved older applications since 1970 to get membership data into a spreadsheet; Until 1991 all applicants ended up joining the Club; Had 1066 applications altogether, 902 of these became Club members (84%). Costs for physical storage space went up from \$69/month to \$96/month; Need to document where credit for first year of membership came from (applicants who took a license class with Daniel Stevens, KL7WM have the first year of membership in Mike & Key ARC free of dues. May need to add a policy).
- Activities Manager (David, W7DAO - not present): No report.
- Radio Officer (Hal, N7NW; Steven, KD7IQL): Hal submitted his letter of resignation as Radio Officer as of January 1, 2024. Motion to accept Hal's resignation: Robert KJ7CBO, Alex W7AEM: Vote: 100%. Manfred, AG7NR motioned to vote on appointing Steven Cook as Radio Officer; Jeff, N7FCC and Scott, KC7SAG seconded: Vote: 100%; Roles and responsibilities of the Radio Officer are defined in the Bylaws.

Standing Committees

- Technical & Special Interest (Robert, KJ7CBO): Held poll - fantastic results. There has been interest in another coffee event.
- Public Service (Robert, KD7WNV): Starting to work on the Public Service booklet to get this ready for the Swap Meet.
- Education & Training (Jeff, N7FCC): Talk to Toku AD7JA about the Club Library (some books may need

to be updated). Will be going through the collection. Looking toward developing a lending library to include basic radio equipment. Toku offered to house equipment for the "lending library" at his shop. May consider adding equipment such as an antenna launcher and introductory HF radios. Working on setting up the Elmer Table to create a platform for connecting new Club members.

- Membership (Manfred, AG7NR): Manfred will be taking suggestions back to the Membership Committee and report back to the Board. Notification of Silent Keys remains a concern. Currently there is no notification system in place. This can be complicated by lifetime members who do not need to pay dues.
- Facilities & Publicity (Alex, W7AEM): Scott, KC7SAG forwarded on insurance information to Kent Senior Center.
- Repeater (Steven Cook, KD7IQL): Visited Tiger Mountain before the snow hit; Talked to HamWAN team to scheme about options for both Tiger and Gold Mountains. Several projects are ongoing, such as interfacing the repeaters to the Internet. Hal looking into improving internet receptivity and removing items no longer being used.

Publications & IT Support

- Relay Editor (Michael, N7WA): Deadline for contributions coming up on Jan. 12, 2024.
- Web Master (Scott, KC7SAG): Dan, KG7DAB, Sam, K7TFI, and Abdul, K7CQR, are making updates to the web site as needed.
- The Mike & Key Facebook group is currently being managed by Carl Reynolds. Before accepting new applicants into the group, Carl needs 2 questions answered: (1) the applicant's call sign or whether studying for a license and (2) whether the applicant agrees to the Club's Facebook rules. The Board agreed these are appropriate screening points.

Essential Committees

- Audits: Audit for 2023 scheduled for January 17, 7PM
- Awards: N/A
- Finance: N/A
- Strategic Planning: No report.

Event Committees

- Swap Meet (Hal, N7NW, Mike, N7WA): Fairgrounds contacted Hal. They are tearing out the Gold Gate and the fountain beginning at the end of February. Gold Gate construction planned for around the time of the Swap Meet; Hal will visit the Fairgrounds to talk about logistics; Labels have been applied to the cards; Next planning meeting is on Jan. 9, 2024 at 7:00 pm; Net hosts are encouraged to start talking up the Swap Meet during radio nets.
- Field Day (Scott, KC7SAG): Wagon Wheel reservations for 2024 have been paid.
- Picnic (Scott, KC7SAG): Reservations for Five Mile Lake Park have been made.

Old Business

- None

New Business

- Scott Gilyeat, KC7SAG: Logos and badges: Company that did these in the past has gone out of business. Scott has found another company that can make them but a bit smaller. Old badges were 2.75x2.75" in size, with the Club logo 1.75" in diameter; Two-color logos can be made, but also in smaller size. Discussion followed. Scott will ask them to provide a sample for the Board's approval.

Good of the Order

- None

Swap Meet Label Mania

Michael N7WA

One of the perks of being an ARRL sanctioned event is our Swap Meet can get mailing labels for free. We send out about 13,000 flyers for our event. Basically, this just covers from the Snohomish/King County line to the Thurston/Pierce County line plus a run up the west side of the Sound to Bremerton.

Over the years, we have mailed folded flyers, folded flyers in envelopes, and now we send half sheet postcards. We have labeled those in a variety of ways using volunteers. For a while, I had a single couple who did ALL the labeling. For about 7 years before the pandemic, we dedicated the November meeting to a big eyeball QSO and labeling party. Would like to get back to that but not sure yet.

This year I had 4 volunteers. Toku AD7JA, Manfred AG7NR, Allen AE7TG, and new member Steve KK7MJD. I, and you should, thank them for doing a fantastic job of turning around 2,000 flyers in less than a week, between Christmas and New Years.

I ordered the labels in, September, for delivery in mid-October. I didn't actually expect them in October but I was sure they would get to me in early November. Then I could distribute the work at the November Club meeting and pick it up at the December Club meeting. Yeah, four weeks. That was the plan.

I started sending emails in mid-November and was assured that they were being worked. Early December emails were not returned. By mid-December, I was told the IT manager (I guess IT handles the labels) had left the ARRL and the staff was trying to figure out when they could be done. They arrived Christmas Eve. I knew I was in trouble when they came in two boxes. I normally get one. I spent Christmas Eve getting the labels split up into the flyer boxes.

Action Items

- Manfred, AG7NR, will ask George Thornton if he is interested in becoming the Club's Special Counsel, replacing Michael Hanson.
- Manfred, AG7NR, to follow up with Membership Committee on renewed strategies for attracting and keeping new members and tracking notification of Silent Keys.

Next Meeting

- February 6, 2024, 18:45 Pacific (Remotely via Zoom)

Adjourn

- Motion to adjourn: Carl, N7CJR and Robert, KD7WNV. Adjourned at 20:42 Pacific

Looking at the report that comes with the labels, I saw they had printed out over 23,000 labels. We provide a specific list of ZIP codes to be printed. Mostly 980 and 981 but scattered ZIP codes from 983, 984, and 985. They just printed out every Ham's address from 980-985. A complete dump of those ZIP codes. Now, it would be nice if we could afford to print and mail that many flyers but not practical. Also, they printed 98050-98099 twice. I threw away a lot of labels.

The day after Christmas, Diane and I went started delivering flyers and Labels. Toku was first. As I was leaving, I failed to observe that my SVU hatch was open. (I think it failed to close properly and the safety feature that causes it to reopen engaged.) As I left Toku, I dumped one box of 2000 flyers, with labels, on Renton Ave S in Skyway. I probably drove about 100' before I noticed. Then I had to scramble to get back.

It was a sight to behold and cry over. Flyers and label sheets flying all over the place. It had rained that morning and the road was wet. Fortunately, traffic was light but every time a car or bus passed by, more flyers and labels flew down the road. Diane, Toku, and I rescued as many flyers and labels as we could. Some stayed in bundles and could be scooped up quickly. Then came the picking up of individual items. I think we spent about 30 minutes at it. The folks driving by were really nice considering we were walking around the middle of the road. We recovered quite a few flyers and label sheets. Some look like that have been driven over (they have). I was surprised how well the soaked labels work after some drying spread out in my living room. In the end, I think we lost 500-750 mailings. If I hadn't been so stressed, I would have tried for a picture.

Again, my heartfelt thanks to Toku AD7JA, Manfred AG7NR, Allen AE7TG, and Steve KK7MJD. Because of your hard work, the flyer mailing was only delayed by a around a week.

Fairgrounds Construction

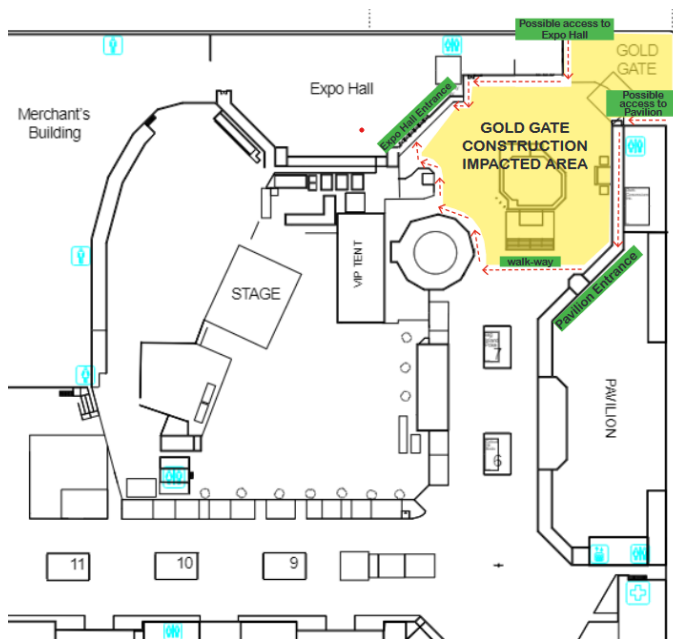
Michael N7WA

Hal N7NW received a letter from the fairgrounds just before the New Year. They wanted to let us know they will be rebuilding the Gold Gate area over the next few months and our event will be affected.

Oh joy! Here is their final vision.



During our event, they will be working on the posts that hold up the roof you see over the gates. Most of the construction will not occur until after the Spring Fair. However, they have indicated the following impacts to us.



The biggest impact is there will be NO vehicle access. Everybody who has worked this event knows that we send the vendors off the fairgrounds through the Gold Gate. We expect we will have to divide Grand Ave (the area north of boxes labeled 9, 10, 11) into a two-way road and that vendors will have to exit through the same gate they came

in. We could use the area south of Grand Avenue but that area is used by the 4x4 show loading in as we are loading out. Depending on whether there is ever vehicle access at the Gold gate in the future (I don't see one), this could become a permanent change.

We have not determined where the ticket booths will be. It's possible they may remain until later. Same with Gold Gate Registration. Hal is in contact with the Fairgrounds and has met with them in person. We'll be going down shortly to make some measurements and pitch the idea of using the overhang area along the Administration area. We usually stage our ticket buyers near the fountain. We may have to arrange an area south of the construction area.

The February Club program will be about the Swap Meet. The final details and mitigations regarding the construction will be discussed there. This might be a good meeting to attend (in person or on-line).

So, I am begging...

Michael N7WA

One of these years, I won't have to beg for volunteers to sign up to work the Swap Meet. (Yeah, I'm laughing too.) We are just two months away from this event. Less than 25% of the 2 hour working slots have a volunteer worker.

For Friday, 86 Of the 125 slots are unfilled. For Saturday, 127 or the 156 slots are unfilled.

It takes about 100 folks, taking multiple slots, to pull off this event. A couple hours here. A couple hours there. We have some folks that work 8-10 slots over the two days. Sadly, that is the exception, not the rule. None of these jobs is strenuous except for set-up and tear-down. The Loading Dock can be physical but there are jobs in that area not that don't require tossing pallets around. Selling tickets, the Announcement booth, Country Store, Registration, and Hospitality are pretty much sit-down jobs.

This is the largest Ham event in Washington. The size of our Swap Meet exceeds Sea-Pac's swap table area. We have vendors from all down the west coast and east. Icom is even coming back this year. Do you really want to miss out on it? Be a worker and get in free! You'll see all the interesting stuff as it loads in. I see friends every year I don't get to see anywhere else. Plus, it's just pain fun and you are helping the Club fund the booklet we print and events we sponsor.

Please, I, and the other chairpersons, have enough things to worry about as we advance towards March. [Sign up early and sign up often.](#) I'm begging...

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