LARK NEWS June 2024

Livermore Amateur Radio Klub LARK is an ARRL affiliated club dedicated to Public Service Volunteer Emergency Communications.

Meetings are once a month on the 3rd Saturday 9:30AM

VENUE: City of Livermore Meeting Hall

1016 S. Livermore Ave., Livermore CA 94550

Available live via zoom by invitation only. Visitors Welcome

Editor: Gregory Kiyoi KN6RUQ

Photo by Bill AJ6UU

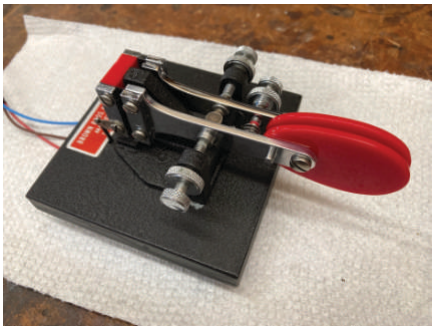

Photo by Gary, NA6O

Photo by Bill AJ6UU

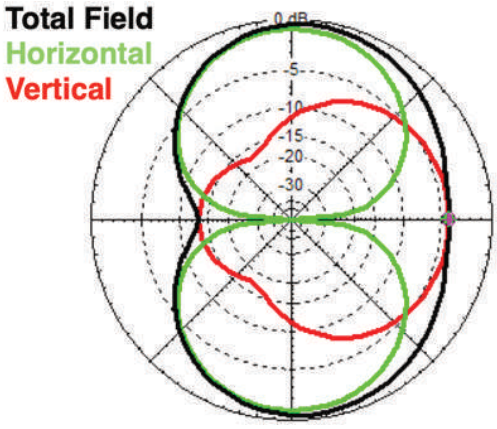

Diagram by Gary, NA6O

Photo by Mike W6KX

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Presidents Message

I want to thank Noah N6TW for making the coffee and picking up the refreshments for monthly meetings. This effort is appreciated by all who attend the meeting.

I wanted to let you know that the Events Chairperson (me) is following the upcoming events for 2024, and I have an update: The following events will be happening: ARRL Field Day, June 22-23rd at the Livermore Airport. Any questions please contact Nate N8MOR.

The Patterson Pass Road Race on Sunday, August 4th.

We need volunteer radio support for all events and any level of experience is welcome.

As more events are confirmed you will be kept advised. Make sure to sign up on the LARK website for these events for which LARK supports.

I wanted to thank Ron AD6KV and VE Team for continuing to provide a way for hams to get their testing completed.

Ian W6TCP continues to work on enhancing the repeaters for use by all of us so please report any issues to Ian by email.

I encourage you to check in with the LARK Monday, Wednesday (10.10 Windfarms Net), and Thursday night nets, held every week. There are other nets available, and they can be found on the LARK website.

It is good experience getting on the air. I want to thank Ed Diemer AE6D for coordinating the weekly nets. By participating in the nets, you'll hear what is going on in our Ham community.

We are meeting In-Person at the Livermore City Meeting Hall each month on third Saturday, and we are also offering the meeting on Zoom for those who prefer that way to attend.

Wishing you all stay healthy and stay safe.

George KG6GEM (kg6wiu1@comcast.net)

Notes from the Editor

Thank you to Chris W6CJQ and Ryan W6RAM for presenting at the May meeting.

Chris W6CJQ & Ryan W6RAM, photo by Jerry N5KA

Service Awards

Roberto K6KM for LARK Newsletter editor.

George KG6GEM & Roberto K6KM, photo by Jerry N5KA

Bernie NJ6W for LARK treasurer and donuts/coffee host.

Bernie NJ6W & George KG6GEM, photo by Jerry N5KA

Slides for Ham Bootcamp Spring course (May 11th) are available for download. They also have announced a Fall bootcamp. Click https://www.n1fd.org/ham-bootcamp/ for more information.

There are a lot of exciting projects on LARK discord - APRS stations using Ham Radio all-in-one-cable (AIOC), mesh, etc. Hope to see articles in future newsletters.

HF Impact!

Mines Rd, photo by David, K6WOO

Please send any ideas and content to me so we can continue to have an awesome newsletter.

Gregory KN6RUQ

Monthly Meeting Minutes

LARK General Meeting | May 18, 2024 | Minutes

Call to Order

1. Meeting called to order by George KG6GEM at 9:34am.
2. George started introductions, first of In-Person attendees and then Zoom attendees.
3. 34 Members present / 6 on Zoom / 1 Guest = 41 Total attending the meeting.

Presentation

1. George KG6GEM introduced Ryan Mahoney W6RAM and Chris Quirk W6CJQ for their presentation "DMR: Working the World on a Handheld".

President's Report – George KG6GEM

1. George presented Bernie a thank you certificate for all his time as Treasurer
2. George presented Roberto a thank you certificate for all his time as Newsletter Editor

Treasure's Report – Peter AI6RG

1. Bank account balance is stable

Activities – Jerry N5KA

1. Need suggestions for future months presentations, please contact Jerry N5KA or Steve K8YIP with ideas.

Events Update – George KG6GEM

1. May 19th Devil Mountain Run in Danville, thank you for everyone who volunteered.
2. August 4th is Patterson Pass Road Race
3. Pacificon SWAP MEET and LARK BOOTH signups will be available soon.

Newsletter – Greg KN6RUQ

1. Monday night deadline for the newsletter

Membership – Julian WB6BDD

1. 149 members

Old Business

1. Minutes from the April meeting approved unanimously.

Repeaters – Nate N8MOR

1. For any repeater issues please make a note of the date and time of occurrence, troubleshoot your gear, check offset and PL tones, if able monitor input frequencies.

Technical Interest Group

1. Nate N8MOR has been building AIOC boards.
2. No one from the club will ever solicit money or gift cards via email. Be aware of this scam

VE Testing – Ron AD6KV

1. There will be testing after today's meeting.
2. If there is a VE test everyone will clear the room and socializing can continue outside so test takers can focus on the testing process without distractions.

Field Day – Nate N8MOR

1. Field Day is June 22nd and 23rd
2. Will not be collecting points as a club but you can still participate as an individual to collect points
3. If you would like to teach a class during the day contact Nate

Adjournment

1. August Club Meeting will be Zoom only.
2. George KG6GEM adjourned the meeting at 10:59 AM

Minutes submitted by:

_____

Ryan Mahoney (W6RAM) – LARK Secretary

Board Meeting Minutes

LARK Board Meeting | May 13, 2024 | Minutes

Attendees: George, Chris, Ryan, Roger, Nate, Julian, David, Peter, Bernie
Absent: Jerry

Call to Order

1. Meeting called to order by George at 7:35 PM.

Treasure's Report – Peter

1. The club's finances are solid.
2. Saturday morning went to post office to successfully setup
3. George, Bernie, and Peter went to the bank on May 8th to transition Bernie to Peter. Bernie no longer has access to the accounts.
4. Zoom account has been paid using autopay and Bernie's credentials no longer work to pay annual renewal.

501c3 – Bernie

1. Will work on itemized list of assets with prices and send to the Board for review
2. Peter will reimburse Bernie for the filing cost, Board approved.

Repeaters – Nate

1. Asked people experiencing issues to keep a log and details and report to Nate.
2. Can't support HF functions at LARK related repeater sites.

Activities – George

1. Ryan and Chris on DMR in May
2. Steve K8YIP will be assisting Jerry
3. Field Trip to visit Pt. Reyes Maritime Historical Radio in June/July
4. Bill and David would like to do a talk on APRS with a Raspberry Pi and all in one chips.

Events – George

1. May 19th Devil Mountain Run in Danville, every position covered
2. Field Day on June 22nd and 23rd, 2024 at the Livermore Airport
3. August 4th Patterson Pass Road Race, sign up available on LARK website
4. Looking for someone to lead SWAP MEET and LARK BOOTH at Pacificon in October 2024

Membership – Julian

1. 149 members on last check
2. Julian is working on sending flyers to new Hams

2024 LARK Elections – George

1. Peter volunteered to become treasurer to take Bernie's spot
2. Bernie will help him in the transition process

3. As of now there is no one else looking to step up in a position.

Field Day – George

1. Reaching out to City to remind them to mow the grass
2. Asking the board to approve $500 for food for field day:
    a. David motioned, Roger seconded, unanimous in favor
3. Nate has books available to help study for license tests

Key Access – Bernie

1. Noah still does not have key card access yet, George asked that Noah contact the city to follow up.

Adjournment

1. George adjourned the meeting at 8:11 PM.

Minutes submitted by:

_____

Ryan Mahoney (W6RAM)– LARK Secretary

Community Activities

We NEED You!
Sign Up NOW

ARRL Field Day, June 22-23, 2024

http://www.arrl.org/field-day/

This event takes place at the Livermore Airport. Please contact Nate N8MOR for questions.

Patterson Pass Road Race - Sunday, August 4, 2024

https://www.signupgenius.com/go/10C0844AEAD28A6FA7-patterson1

This event takes place in the hills east of Livermore. The races start at 8am and finish about 1pm. There will be a radio check-in at 7:30am. The ham radio volunteer should be able to handle this assignment with a hand held.

Antenna of the Month

The Sloper by Gary, NA6O

Another modification to a simple half-wavelength dipole is the sloper where the dipole is erected at a steep angle, often 45 degrees. This only requires one relatively tall support, making it somewhat more convenient. Most often slopers are used on the low bands, 160 through 40 meters. They don't make much sense on the higher bands where a regular dipole or more complex antenna is probably just as easy to erect. (Fig. 1).

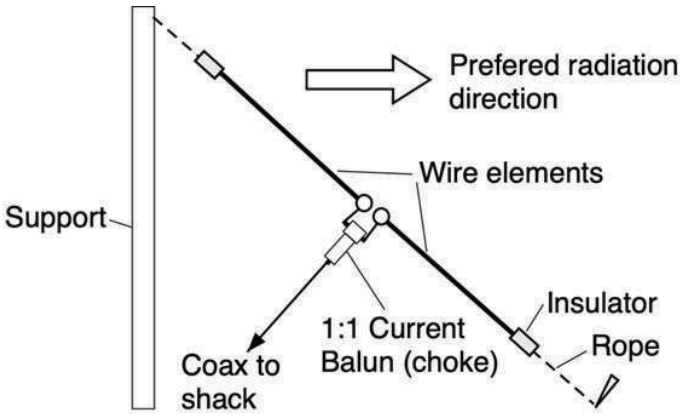


Figure 1. Typical sloper construction.

What are the properties of sloper, compared to a flat dipole? What you'll add is some vertically-polarized radiation and perhaps a somewhat directional pattern in the direction of the downhill slope. What you'll lose is gain since the pattern of the dipole has diminished and because you have lost some of the horizontal radiation, which would otherwise be reflected by the Earth. Exact results will depend upon the height above ground and the slope angle.

I did some simulation in EZNEC to compare a 40 m dipole to a sloper. I placed the dipole at a height of 30 ft (about a quarter wavelength, which is really too low for optimum performance), and the sloper was hung from 65 ft and at a 45 degree angle. The SWR chart in Fig. 2 shows some differences but either of these are completely acceptable to any radio with an antenna tuner. Height is the biggest driver of absolute impedance and low antennas often end up closer to 50 ohms. Both of these antennas are actually a better match to 75 rather than 50 ohms which is not unusual.

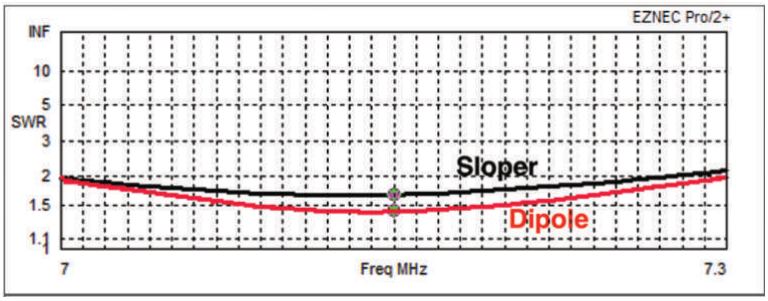


Figure 2. SWR comparison over average ground conditions.

Looking at the pattern in azimuth (Fig. 3), the two are similar in peak gain. However there may be cases where the small (~8 dB) null off the back of the sloper could assist in rejecting QRM. There also is significant gain in the far field—actually more gain—off the sides of the sloper!

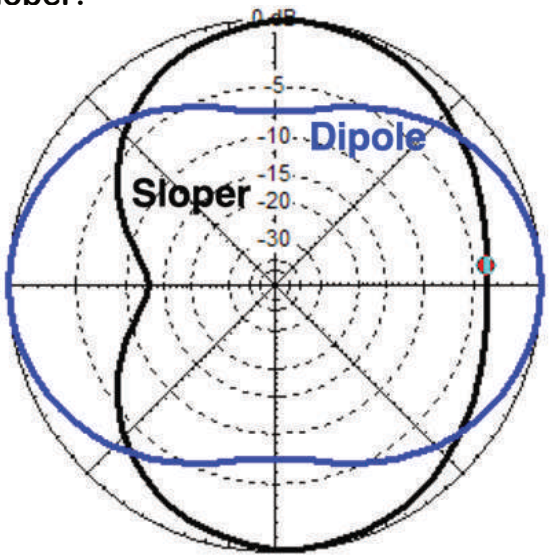


Figure 3. Azimuth pattern comparison. The sloper goes downward toward the right. Elevation angle is 35 degrees. Outer ring is 4.0 dBi.

That's because the polarization is primarily horizontal off the sides and vertical along the direction of the slope. See Fig. 4. Again, horizontally-polarized radiation reflects off the Earth and at some angles you get constructive interference that can be worth as much as 5.5 dB. So it's funny that this antenna is normally sold as being directional along the slope.

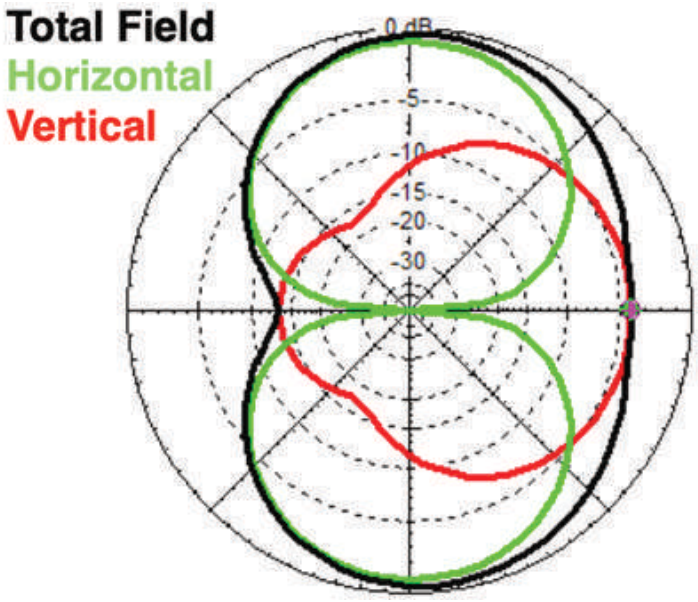


Figure 4. Investigating vertical and horizontal polarization in azimuth. The sloper goes downward toward the right..

Comparing the elevation patterns in Fig. 5, things are fairly evenly matched at low angles, and with the dipole radiation most strongly straight up since it's so low. The sloper shows its symmetrical broadside pattern (H polarized) and its forward-skewed pattern (V polarized) along the sloping wire. A high dipole would be best of all, but it needs at least two supports way up there instead of the single one needed by the sloper.

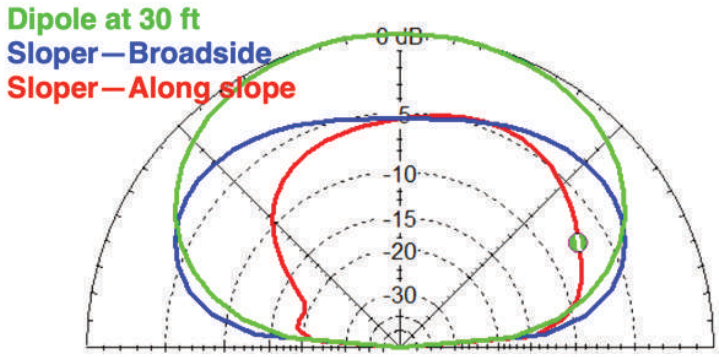


Figure 5. Elevation pattern comparison. The sloper goes downward toward the right. Outer ring is 4 dBi..

In conclusion, the sloper is rather a degenerated dipole, giving up some gain in exchange for a more convenient installation. Curiously, I've seen stations use a switched set of slopers as a "directional" array. Based on results shown here, that directionality is no better than crossed dipoles or a rotary dipole, and the gain may be less.

Next Month: Inverted L

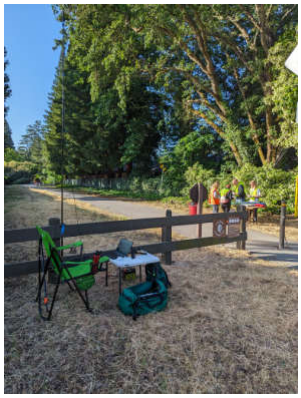
Everyone should explore EZNEC a free and very powerful program, available from https://www.eznec.com/ and discussed in the ARRL Antenna Handbook among other places.

Devil Mountain Run

The Devil Mountain Run was held on Sunday, May 19th, 2024, in downtown Danville. The runners for 5K and 10K groups started at Railroad and School and finished at the designated finish lines (both locations were covered by volunteer radio operators). The races went around and through downtown Danville. There were other races as well involving dogs and children. The total numbers of runners for all groups were over 1,630+. The total number of hams that volunteered for this event was 21 radio volunteers and they did a very professional job. We used three (3) APRS trackers, one (1) from LARK to follow the Bike Sweeps and the Rover for both races. All major areas and intersections of concern for the race were covered for safety for the entire event.

Station 10 waiting for runners - ***Bob K06DSF***

Net Control operations were performed in the San Ramon Valley Fire Protection District Communications Support Unit CS-131 with volunteer staffing from four Communications Reserves (who are volunteer radio operators also) performing as Net Control operators.



Station 11(Wayne & Iron Horse Trail. HT for voice ops & APRS messaging station for exchanges with ***John WB6ETY*** *&* ***Ryan W6RAM****, photo* ***Bill AJ6UU***

Safety officer at crossing, runner spacing caused traffic backups, photo (below) by ***Alan KM6BRQ***

I want to thank the following LARK and other ham volunteers for helping today: Peter AI6RG, Alan KM6BRQ, Bill N6SGT, Mike W6KX, David K6WOO, Bill AJ6UU, Ryan W6RAM, Daniel KB6FF, Clancy N6FQQ, Barbara K6WHY, Steve K8YIP, Rand W6TRM, John W6JMK, Allen AK6FB, Tam K6TDG, Bob KO6DSF, John N6RIO, Bernie KN6KEY, and Chris W6CJQ.

A special thank you to John Street WB6ETY for setting up the digipeater for APRS in the Danville area and monitoring the event from remote location. (Photo by John WB6ETY)

Thanks for putting up with the last-minute assignment changes and for your help for this very worthwhile public event.

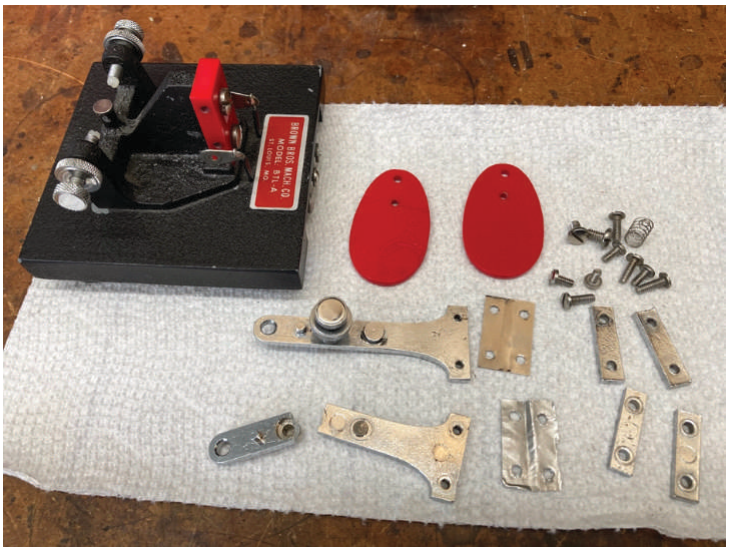
George Moorehead KG6GEM

Restoring a Brown Brothers BTL Paddle

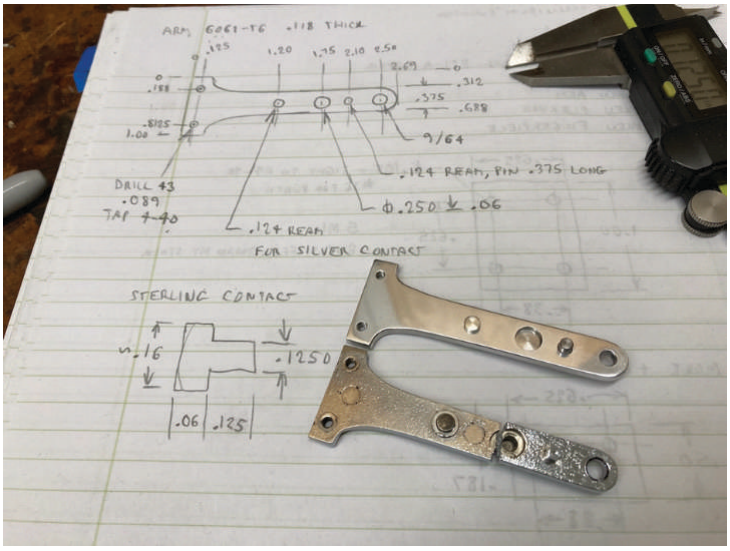
Gary, NA6O

Many different Morse keys have passed though my shop for restoration and general tune-ups over the years. This month, I received a damaged Brown Brothers model BTL-A iambic paddle. Made in the 1960s through the 70s by a one-man shop, it uses flexures (flexible metal strips) instead of bearings. I actually owned this exact model, purchased in 1975, and as a hardcore CW op, it saw countless hours of use. Information on this company is available at https://www.qsl.net/n6tt/brown.html.

This particular key is owned by a blind ham, and from the damage I'm guessing something was dropped on it. There was further damage in shipping. As found: Fractured arm, broken finger piece, and both flexures mangled. The flexures are prone to damage anytime the key is manhandled; I have seen this before. The arms are chrome-plated cast aluminum which is actually pretty strong but something really whacked this one.



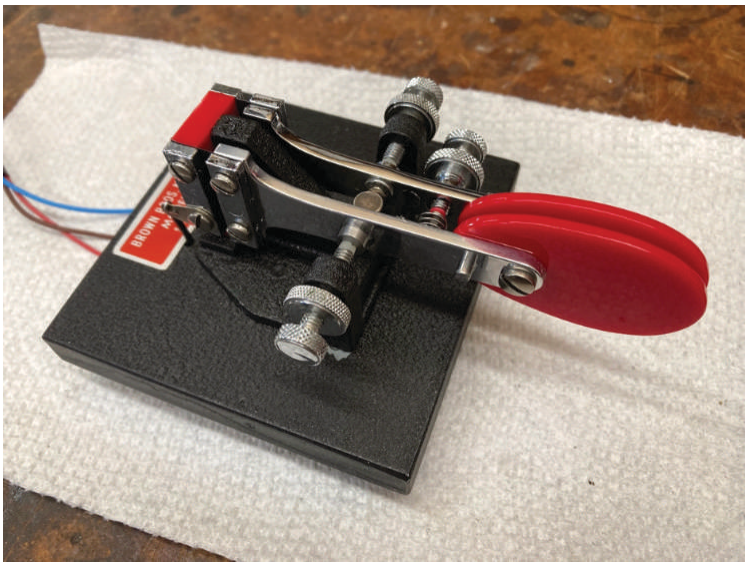
The first thing I did was make a new arm, machined from aluminum and exactly duplicating the original dimension. It was then highly polished and clear coated, making it look almost exactly like chrome. In fact the finish looks better than the original, which was fairly rough when plated. A new contact was machined from sterling silver, my standard contact material, then pressed into place.



New flexures were made from 6 mil feeler gauge stock. This is nice material, very springy and easily cut to size with tin snips. A special punch and die had to be machined to punch the holes at precise locations and to achieve clean holes in the hard metal. This method is something I learned from a book by W. R. Smith, W4PAL (SK) called "How to Restore Telegraph Keys" available at https://wrsmithclocks.com/product/how-to-restore-telegraph-keys/. New finger pieces were sawn from 1/8 inch red acrylic sheet and then polished to perfection. They look identical to the originals. The final touch was fixing up the cable with proper spade lugs.

To prevent a repeat shipping disaster, I always make custom foam packing inserts for every key that I work on. My favorite packing material is Ethafoam, a medium density polyethylene foam that comes in large sheets. I get it from Bob's Foam Factory in Fremont.

The key came out looking and operating like new, or perhaps a bit better. If you have any kind of Morse key—straight key, bug, or paddle—that needs repair, restoration, or just a tuneup, give me a jingle.



Puzzle

Thanks to Tony KF6JS for creating a puzzle for the newsletter this month.

It is a quote from the ARRL Handbook. Can you decode this basic antenna fact? The words are there, only the letters are jumbled. Your challenge is to un-jumble the letters so the words appear.

The Quote (Solution on page 17)

IEGFAUK ZDI SFDFGFAUK ZJU DFL FDAC GFGMAZJ ZDLUDDZK,

LRYC ZJU LRU PZKEO UAUSUDLK YJFS BREOR SFKL ZDLUDDZK

MKUI PC ZSZLUMJK ZJU OFDKLJMOLUI, EDOAMIEDT PUZSK.

Swap n' Shop Cave

This month went to a swap meet at West Valley College in Saratoga and it was a big hit. Beautiful weather, lots of venders and buyers. I took in over $1200 Dollars from equipment donated to LARK. And I heard lots of stories about things that I had no idea what they were!

Next swap meet will probably be at Pacificon. I still have some nice items I held back for LARK members. Rich kn6hsr@arrl.net

Photo by Rich KN6HSR

Rich KN6HSR *helping a potential* buyer, Photo by Tony KF6JS

National Traffic System

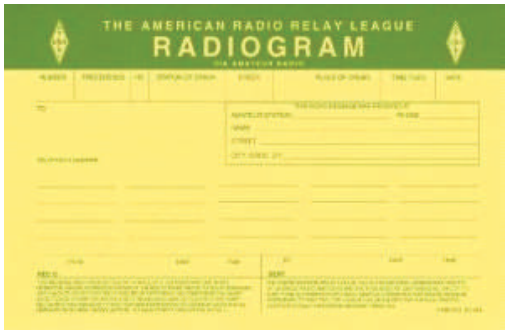
Sparky's Corner

With a title like that, who wants to talk about crowded highways. But that's not it at all. Let's go back, way back, to the early days of the ARRL. That's Amateur Radio Relay League. And back then, with only a small number of HAMS, and no internet, a message would work its way from New York to San Francisco, via many relays. And to try and transmit the message accurately, the Radiogram was developed, not too far removed from the telegram. Fast forward, many decades, and the Radiogram is back.

The ARRL is fostering a new program to transmit Radiograms throughout the country. Like most amateur radio projects, much of the time is sent in training, mock exercises, and simulated situations which call upon and develop our expertise. Such is ARRL's recently launched NTS 2.0 Project. From the NTS 2.0 webpage at https://nts2.arrl.org/about-nts-2-0/ "The current National Traffic System is comprised of dedicated operators well trained and practiced in the art of traffic handling. They participate in nets at the local, section, region, and area levels 365 days per year." "NTS 2.0 will not supplant the existing National Traffic System. Rather, it seeks to improve and expand upon the ways in which we deliver and originate Radiogram messages." Also "…to provide wide-area message communications services for ARES, SKYWARN, RACES, and other served agencies."

This all piqued my curiosity. On the NTS 2.0 website I found that there is a net MWF at 2230 Z on 14.345 where Radiogram traffic is received and delivered. Currently there is only a small amount of traffic into Region 6, which is CA, NV and HI. There is much more traffic to our east, and the dedicated operators are working to grow participation in the western regions, Region 6, and Region 7 which encompasses AB, AK, BC, ID, MT, OR, WA. So far I have received and delivered only one Radiogram, and I have a lot to learn about the art of accurately transmitting a Radiogram. This has been even more fun than FT8, with real communication going on! Most of the effort is practice, but when the big hurricane, earthquake, or fire hits, the ability to send messages across the country, including Canada, will be very rewarding.

There is also a user friendly portal https://nts2.arrl.org/radiogram/ where anyone can generate a message, on the internet, which will then be sent via radio to any location, internet enabled, or not. Again, a good way to get the feel for what a Radiogram can do. So when spare time shows up….take a look at the NTS 2.0 webpage, join a net, and take a shot at handling a time honored, and recently renewed amateur radio skill.



Sparky (Rich KN6HSR)

Puzzle Solution

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The Quote:

IEGFAUK ZDI SFDFGFAUK ZJU DFL FDAC GFGMAZJ ZDLUDDZK,

LRYC ZJU LRU PZKEO UAUSUDLK YJFS BREOR SFKL ZDLUDDZK

MKUI PC ZSZLUMJK ZJU OFDKLJMOLUI, EDOAMIEDT PUZSK.

The Solution:

IEGFAUK ZDI SFDFGFAUK ZJU DFL FDAC GFGMAZJ ZDLUDDZK,

DIPOLES AND MONOPOLES ARE NOT ONLY POPULAR ANTENNAS,

LRYC ZJU LRU PZKEO UAUSUDLK YJFS BREOR SFKL ZDLUDDZK

THEY ARE THE BASIC ELEMENTS FROM WHICH MOST ANTENNAS

MKUI PC ZSZLUMJK ZJU OFDKLJMOLUI, EDOAMIEDT PUZSK.

USED BY AMATEURS ARE CONSTRUCTED, INCLUDING BEAMS.

June 2024

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
					1	2
3 Net	4	5 10-10 Net HH Net	6 Tech Net	7	8	9
10 Net	11	12 10-10 Net HH Net	13 Tech Net	14	15 LARK Meeting	16
17 Net	18	19 10-10 Net HH Net	20 Tech Net	21	22 ARRL Field Day	23 ARRL Field Day
24 Net	25	26 10-10 Net HH Net	27 Tech Net	28	29	30

LARK MONDAY NIGHT NET

147.120 MHZ + offset, PL 100 AD6KV

Every Monday 7 PM local time

Visitors welcome to join in

Net Control Operator Schedules

Monday Night Net Control Operator Schedule

April*

Date	Net Control
4/1/2024	Ron / AD6KV
4/8/2024	EOC
4/15/2024	Ed / AE6D
4/22/2024	John / WB6ETY
4/29/2024	Jon / WB6AEA

May*

Date	Net Control
5/6/2024	Ron / AD6KV
5/13/2024	EOC
5/20/2024	Ed / AE6D
5/27/2024	John / WB6ETY

June*

Date	Net Control
6/3/2024	Jon / WB6AEA
6/10/2024	EOC
6/17/2024	Ron / AD6KV
6/24/2024	Ed / AE6D

*Confirmation Pending

EVERYONE is invited to check in to the net. Please contact AE6D ae6d@sbcglobal.net if you need more information or would like to become a Net Control Operator. After the net please call Ed AE6D with the AC/DC statistics or send him the information by email.

Thursday Night Net Control Operator Schedule

Date	Primary Net Control	Backup Net Control
4/4/2024	Brian / KA6ZED	Peter / AI6RG
4/11/2024	TBD	Brian / KA6ZED
4/18/2024	Rich / KN6HSR	Nate / N8MOR
4/25/2024	Nate / N8MOR	Rich / KN6HSR
5/2/2024	Bill / AJ6UU	Nate / N8MOR
5/9/2024	David / K6WOO	Bill / AJ6UU
5/16/2024	Nate / N8MOR	Noah / N6TW
5/23/2024	Brian / KA6ZED	Peter / AI6RG
5/30/2024	TBD	Brian / KA6ZED
6/6/2024	Rich / KN6HSR	Nate / N8MOR
6/13/2024	David / K6WOO	Rich / KN6HSR
6/20/2024	Bill / AJ6UU	David / K6WOO
6/27/2024	Noah / N6TW	Bill / AJ6UU

Regularly Scheduled Nets

LARK/LIVERMORE NET	**Every MON.**	**1900 local 147.120+**	**PL 100**
RACES Net 7pm	**Every MON.**		
Windfarms 10-10 NET	**Every WED.**	**1930 local 28.485**	**USB**
HamShack Hotline Net	**Every WED.**	**1900 Bridge 363**	**PIN 0331**
LARK TECH NET	**Every THURS.**	**1930 local 147.120+**	**PL 100**
LLNL Retiree Net	**Every FRI 8:30 am**	**0830 local**	**7.2630 LSB**
SWOT	**Every Sun. & Tues.**	**2000 LOCAL**	**144.250 USB**
THE NOON TIME NET	**EVERY DAY**	**1200-1400 LOCAL**	**7.2685 LSB & 3970 LSB**
RV RADIO NET	**MON-FRI**	**0800-0930 LOCAL**	**7.2685 LSB**

LARK Contacts

LARK—LIVERMORE AMATEUR RADIO KLUB P.O. BOX 3190, LIVERMORE, CA 94550-3190. Web: http://www.livermoreARK.org
E-mail list: *livermoreark@groups.io*

GET YOUR HAM LICENSE OR UPGRADE. LARK conducts all levels of license testing (upon request) at the Livermore City Council Chambers following club meetings (3rd Sat. each month). Contact Ron Kane, AD6KV (AD6KV at arrl.net) 2 weeks in advance.

OFFICE	CONTACT	CALL	E-mail	Phone
President & Events	George Moorehead	KG6GEM	kg6wiu1@comcast.net	925-516-2676
Vice President	Chris Quirk	W6CJQ	w6cjq@yahoo.com	925-202-1198
Secretary	Ryan Mahoney	W6RAM	ryan.andrew.mahoney@gmail.com	925-786-0640
Treasurer	Peter Bedrossian	AI6RG	p.bedrossian@comcast.net	925-606-1342
Board (PP)	Roger Deming	KK6RD	rogerdeming@yahoo.com	925-484-1285
Board	David Counts	KG6WIR	dlcounts@sbcglobal.net	925-895-4698
Board	Nate Moore	N8MOR	nate@nateandamy.org	925-577-4916
Activities	Jerry Benterou	N5KA	benterou@gmail.com	925-321-3263
	Steve Nissen	K8YIP	s.nissen55@gmail.com	650-270-3796
Repeater Chair	Ian Parker	W6TCP	w6tcpian@gmail.com	
Web Site	Arnold Harding	KQ6DI		
Newsletter Editor	Gregory Kiyoi	KN6RUQ	gkiyoi@gmail.com	925-456-4734
Membership	Julian Riccomini	WB6BDD	wb6bdd@gmail.com	
Net Coordinator	Ed Diemer	AE6D	ae6d@arrl.net	
RFI	Gary Johnson	NA6O	gwj@me.com	
T-Hunts	Brian Zoraster	KA6ZED	ka6zed@gmail.com	925-786-8412
	Rich Harrington	KN6FW		
Swap n Shop	Richard Combs	KN6HSR	kn6hsr@arrl.net	
Ask the Elmer	Lee Zalaznik	KI6OY	lee.zalaznik@sbcglobal.net	925-699-5998

Facebook—http://www.facebook.com/LivermoreARK
Twitter link : https://twitter.com/LivermoreARK

Special interests: View: AREDN Mesh http://www.aredn.org.

CERT NEWS: Tracy Hein CERT contact. Email: thein@lpfire.org or (925) 454-2317
Meetings 3rd Wednesdays. Remillard RM 3333 Busch Rd. Pleasanton.

LARK Membership Form

LARK LIVERMORE AMATEUR RADIO KLUB.
P.O. BOX 3190, LIVERMORE, CA 94551-3190
An ARRL Affiliated Club

LARK MEMBERSHIP FORM - Print, fill out, mail in with check.

Circle all that apply: New / Renewing / Family Today's Date: _____

NAME: _____

CALL SIGN: _____

ARRL MEMBER? Yes / No

Address: _____

PHONE: ( ) -

UNLISTED? ____YES _____NO

Enter your E-mail here and stay connected: _____ LARK NEWS featuring upcoming club events and articles is available monthly via email. http://www.livermoreark.org/ Access the current and back issues on our website.

ADDITIONAL FAMILY MEMBERS (At the same mailing address, only $2. membership per person)

NAME	
PHONE	
EMAIL	
ARRL MEMBER	

ANNUAL DUES #_____ PRIMARY ($20.00) ADDITIONAL MEMBERS # _____ ($2.00 each)

TOTAL: $ MAKE CHECKS PAYABLE TO: LARK. Thank You.

Membership is $20.00. per calendar year starting on Jan 1 through Dec. 31. To complete membership by mail: print and fill out this form, include a check payable to LARK, and mail to: LARK Membership Chairman, P.O. Box 3190, Livermore, CA, 94551-3190. Please be sure your complete mailing address, e-mail, and call sign are on your check. Questions? Contact the Membership Team via email: membership@livermoreark.org You may also complete membership application and payment by: Bringing this form filled out and pay by cash or check to either the Membership Chairman or Treasurer at any general meeting. Or: pay with a credit card or PayPal account on the Club's membership page: http://livermoreark.org/membership/membership.html.
Thank you and welcome aboard from LARK and the Membership Team.