

November Club Meeting

Date: Friday, November 21, 2008

(Note the meeting is **one week early this Month**)

Time: Socializing at 7 pm, Meeting at 7:30

Place: Covington School, Classroom 35, 205 Covington Road, Los Altos (near El Monte Rd and Foothill Expy)

Topic: New and Exciting Goodies for the Ham Shack

Speaker: Howard Califf, W6HOC

Summary: Howard will repeat his popular pre-holiday show of new and exciting "goodies" for the ham shack. He will show the latest in gear and accessories for the well-equipped home, mobile, and portable Amateur Radio station.

There will be two great raffle prizes at this meeting: First Prize is a MFJ -4125 Compact Power Supply 25 amp. Second Prize is an Arrow J-pole Antenna 146/440-2 two piece element version.

The club offers refreshments (great coffee, great cookies) and technical advice at the meeting: Bring your questions for Dr. Know-It-All and get great answers. Be sure to attend for an enjoyable evening.

October Meeting Report

Eric Swartz, WA6HHQ, described and demonstrated the K3 – Elecraft's new top-of-the-line transceiver for HF and 6-meter operation. The K3 has an improved front end. It utilizes software defined radio techniques and can be configured for dual receive. It has many great features, including PSK, RTTY and CW decode, general coverage receive, and an antenna tuner. It can receive software updates over the internet and can be operated 100% remote control. The K3 as low synthesizer noise (-140 dbi) and low intermod distortion (~102 dB @ 5 kHz). Test results can be found at Rob Sherwood's test site (<http://www.sherweng.com/table.html>) or at the ARRL labs site.



Eric Swartz, WA6HHQ
October Speaker



Don and Kevin
Raffle Winners

The first prize, a Diamond X50A 2m/440 Base Vertical Antenna was won by Kevin Weiler, K6XXX. The second prize, a Diamond SX40C 15/150W 144-470 MHz SWR Meter, was won by Don Frevert, KG6GLU. The Wish You Were Here number for Peter Sheerin, K6WEB, was chosen. Unfortunately, Peter was not present to claim the prize.

President's Corner



Membership Meeting. Our next meeting is Friday, November 21st at 7pm (<http://www.fars.k6ya.org/meeting>).

The November meeting is "New and Exciting Goodies for the Ham Shack" with Howard Califf, W6HOC. Howard

shows us some of the newest and most popular items for the shack in time for the holiday buying season.

Annual Member Meeting. Our November 21st meeting is our annual meeting of the membership. At this meeting we are electing four directors to the Board of Directors of the Foothills Amateur Radio Society, so members are encouraged to attend. The following have been nominated for election to the board of directors (by callsign suffix):

Dick Baldwinson, N6ATD
Peter Chow, AF6DS
Charlie Morrin, KI6FX
Barbara Neuhauser, AE6RM
Gerry Horn, K6TX

Am-Tech Day. The December Amateur Radio Technology Day is scheduled for Saturday, December 13th at the Stanford Linear Accelerator Center. Check the FARS web site for the program schedule, directions, and the latest news (www.fars.k6ya.org/amtechday/).

FARS/PAARA Winter Banquet 2009. The banquet is scheduled for January 23rd at Michael's at Shoreline. This is the same great venue as last year. We plan to announce the pricing and our speaker very soon, but the date has been set and we've approved \$1,200 in raffle prizes. Save this date on your calendar and watch for the sign up information in the near future.

Email Notices. Subscribe to the FARS Announcement list (www.fars.k6ya.org/mail/) to receive reminders of FARS activities and other news.

- de Mikel, KN6QI

December Amateur Radio Technology Day

The next Amateur Radio Technology Day is December 13th. Am-Tech Day is a lot of fun and friendship. Come out and enjoy a wonderful day at this FARS sponsored event.

Upcoming Events

- Nov 21 7:00 PM, [Club meeting](#), Covington School
- Dec 4 7:30 PM, Board Mtg at the Los Altos Town Crier
- Dec 13 8 AM to 9 PM, [Am-Tech Day](#), SLAC
- Dec 19 7:00 PM, [Club meeting](#), Covington School
- Jan 8, '09 7:30 PM, Board Mtg at the Los Altos Town Crier
- Jan '09 8 AM to 9 PM, [Am-Tech Day](#), SLAC
- Jan 23, '09 Winter Banquet
- Mar 2009 [Electronics Flea Market](#) will start again next year
- Thursdays 8:00 PM, FARS net, 145.230(-), 100 Hz PL

See more events, [FARS Calendar](http://www.fars.k6ya.org/events/calendar) <<http://www.fars.k6ya.org/events/calendar>>

CLUB INFORMATION

President: Mikel Lechner, KN6QI
Vice President: Steve Stearns, K6OIK
Treasurer: David Cooper KE6PFF
Secretary: Rob Riley, KI6INR
Radio Officer: Phil Hawkins, KA6MZE
Training Officer: Kevin Weiler, K6XXX
Relay Editor: Mark Hardy, AF6DO

FARS Board: Dick Baldwin N6ATD, Robert Flemate KE6TFU, Pink Foster KG6ILA, Nimit Hongyim K6XOX, Kristen McIntyre K6WX, Barbara Neuhauser AE6RM.

Station Trustee: Phil Hawkins, KA6MZE
FARS Web Page: <http://www.fars.k6ya.org>
Download Relay: <http://www.fars.k6ya.org/relay>

Club members and non-members are encouraged to subscribe to the FARS Announcement list by browsing www.fars.k6ya.org/mail, clicking on Subscribe/Unsubscribe and following the instructions under "Subscribing to fars-announce."

You may submit announcements to the FARS Announcement at fars-announce@svpal.org. The list is moderated and messages will be posted as approved by the list moderator.

Contact the FARS board of directors at fars-board@svpal.org

Club meetings are held at 7 PM on the fourth Friday of each month except January (Winter Banquet); and sometimes there are changes for June (for field day) and Nov. & Dec (for holidays).

Annual club membership is \$20. Club badges are \$9. Visitors are always welcome! Directions in this newsletter. Talk-in: N6NFI (145.23-, 100 Hz) or W6ASH repeater (145.27-, 100 Hz).

FARS *Relay* is the official monthly newsletter of the Foothills Amateur Radio Society. Contributions to the newsletter from members, family, and guests are earnestly solicited! Contributions are subject to editing and/or compression. All readable forms welcome.

Here is how to reach the editor:

Mark Hardy, AF6DO
Mail: P.O. Box 2248
Santa Clara, CA 95055
Voice: 408-243-0701 (Before 9 PM, preferred)
Email: mark.af6do@gmail.com, At FARS meetings.

Testing for Power Supply Entrainment, What you Need to Know

Dramatic increases in ripple amplitude can upset electronic systems or destroy components - which is why testing for power supply entrainment is a step you shouldn't overlook. More information can be found at the following website:

<http://www.smpstech.com/power-supply-entrainment.html>

November Meeting Raffle Prizes



First Prize is a MFJ -4125 Compact Power Supply 25 amp. The MFJ-4125 Switching Power Supply has switchable AC input voltage. Super protection modes include Over Voltage and Over Current. Whisper quiet internal

cooling fan generates tremendous air flow to help keep components cool. It weighs only 2.9 pounds and measures an unbelievable 5 1/2" W x 2 1/2" H x 5 3/4" D -- its the smallest and lightest power supply in ham radio!

Second Prize is an Arrow J-pole Antenna 146/440-2 two piece element version.

Information and pictures from the manufacturers' websites:

<http://www.mfjenterprises.com/Product.php?productid=MFJ-4125>

<http://www.arrowantennas.com/j-pole.html>



Stan Kuhl, K6MA, Silent Key

As many of you know, Stan Kuhl, K6MA passed away Saturday October 18th. Stan is long time member of FARS and is the trustee of our club call K6YA. For those who didn't know Stan, despite his failing health, he still managed to make most of the FARS field days over the past several years to work the CW station, or at least attend the BBQ. He was a distinguished DXer on the DXCC Honor Roll with totals of 335/371. At the time of publication of the last Relay, an obituary notice had not yet appeared in the newspaper. One may read this notice at <http://legacy.com/mercurynews/DeathNotices.asp?Page=LifeStory&PersonID=119186507>

The following website, where you can read a story of how Stan helped a HAM learn CW, was included in last month's newsletter. It is repeated here for those who missed it. <http://mysite.verizon.net/frugoli/id1.html>.

Operating APRS & Email Using the ISS and Amateur Satellites

Peter Chow, AF6DS, gave a presentation at the March 2008 Am-Tech Day on digipeating via the International Space Station (ISS) and Amateur Satellites. He has posted an updated version of this talk, called "Presentation of digipeating APRS packets via the ISS and PCsat" at the following website:

<http://www.saresrg.org/index.php?title=User:AF6DS>

Free DC Choke Design Calculator

This free calculator is optimized for DC inductor design utilizing E-cores. Simply enter the design parameters specified, select your desired operating current density and window utilization factor, and choose your options for cores and core materials to get the values you need for your design.

<http://www.emediausa.com/l/?29390.1229435.HGGRMOKB.0.6834>

Statements by FARS Board Candidates

Barbara J. Neuhauser, AE6RM



During my current term on the FARS Board of Directors I have greatly appreciated the opportunity to participate in planning and organizational activities related to Amateur Radio Technology Day, which is a treasure for our amateur radio community. My focus has been on GOTA station documentation and operation, and I believe that improvements can continue to be made in both areas. I would like to extend my activities in FARS to promote hands-on construction projects, perhaps centered on QRP kits that are cheap, relatively easy to build, and for which excellent technical documentation is available. Finally, I would like to see FARS dedicate at least one meeting a year to operational drills in which members can practice net communications and contesting strategies.

Richard Baldwinson, N6ATD



1. Ham since 1977 and currently hold an extra class license.
2. FARS (EMARC): Past; President, Treasurer, Radio officer, Field Day Chairman, Banquet Chairman, Member of the Board of Directors last 28 years.

3. Manage raffle prize purchases for meetings

Peter Chow, AF6DS



Peter, AF6DS, holds a FCC Amateur Extra license, and has been licensed since 1995. He is a member of the Sunnyvale ARES (SARES), and completed Sunnyvale's SNAP (CERT) course.

Peter is looking forward to providing ideas and support to the FARS society as a board member. His interests include emergency preparedness and communications, building go-kits, packet communications with the ISS, VoIP technologies.

Peter tinkered with electronics as a teenager. His first exposure to computing devices was a third of a century ago, using DEC PDP-8s, teletypes, and Nixie tube calculators. His hobby of using computers in high school turned into a career that spans a quarter of a century, involving the development of UNIX servers and mainframe computers.

Peter has a BS Electrical Engineering degree from the University of Wisconsin.

No other Candidate Statements were received at the time of publication.

Amateur Radio – Technology Day #48

Thanks to all that made the November Am – Tech Day happen! *That occurred Saturday, November 1, 2008*

Volunteer Teams & Individuals

When you have a chance, thank each of the following individuals who made a real difference through their Volunteer efforts at Am – Tech Day #48 & made the activity such a resounding success!

Morning TEAM 48 (AM Site Setup Team): Arv WA6UUT, Charlie KF6CDO, Charlie KI6FXY, Dave KE6PFF, Gerry K6TXD, Phil KA6MZE, Robert KE6TFU, Tuk W6TUK. Guest Speaker: Kevin Weiler, K6XXX

Evening: TEAM 48 (PM Site Recovery Team): Dave KE6PFF, Gerry K6TXD, Lloyd KD6FJI, Phil KA6MZE, Peter AF6DS, Nimit K6XOX, Robert KE6TFU

(Photos to follow soon)

Amateur Radio – Technology Day #49

When: Saturday, December 13, 2008, 8:00AM – 9:00PM

Where: SLAC National Accelerator Laboratory in Menlo Park

Formal Presentation: 1:30 PM, Panofski Auditorium



Speaker: Jim Newton, Founder of TechShop, LLC (Tentatively Scheduled)

Topic: The Maker Movement: The History, Current Status of the Do-It-Yourself Trend and Techshop

Jim Newton, founder of TechShop, will discuss the history of making things, including the rise of making through the 1970s, the decline in the 1980s and 1990s, and the new renaissance in the 2000s. He will also give a virtual tour of TechShop, and illustrate how TechShop empowers people to become makers and participate directly in the maker movement.

TechShop is a 15,000 square-foot membership-based workshop in Menlo Park, California that provides members with access to tools and equipment, instruction, and a creative and supportive community of like-minded people so you can build the things you have always wanted to make.

Jim Newton founded TechShop in 2006 because he needed a place to go to build his 200 plus projects. He is a lifelong maker and tinkerer, was a robot builder and driver in the BattleBots series, taught a series of courses on building BattleBots-style robots, and was the Science Advisor for the Discovery Channel's MythBusters show for season 3. He has a passion for exploring technologies and applying them to new areas.

- de Dave, KE6PFF

Magnetic Loop Antenna for 10m

Toshiharu Sugiya, KJ6Q, kj6q@arri.net

Many HAMs live in limited space, such as an apartment or room, and struggle with what antenna would fit in the small space and wondering how good it would perform.

I am one of these HAMs.

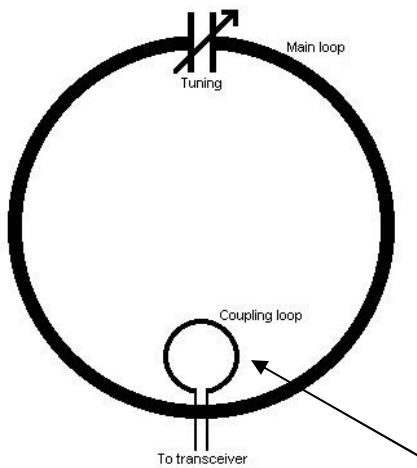
There are many small foot print antennas being introduced, such as an EH antenna or a Magnetic Loop Antenna (MLA).

In the summer of 2008, I tried to homebrew a multi-band MLA, after reading many articles about MLA on the web. The objective of the project was not only the antenna homebrew, but it was also a new challenge for me to keep my ham spirit going and keep my brain fresh – and handwork should be good enough to prevent or delay aging (well, maybe it's too late!).

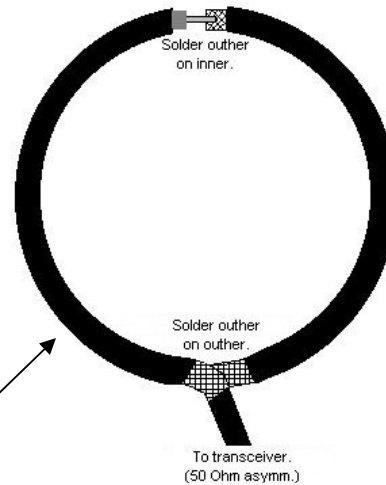
I chose the MLA because the structure is very simple, as shown below. One of these antennas requires good soldering handiwork to make the loop. Actually it was really challenging work for me – it was my first experience with plumbing in my forty years of ham life.

1. Outline of MLA

1.1 Entire structure



1.2 Detail of Coupling Loop



Diameter of coupling is 1/5 of main loop diameter.

Design

I used KI6GD's calculation software, which I down loaded from a web. It's very simple to use. You enter the numbers and all the characteristics will be calculated at shown below.

As I mentioned, I tried to make multi band one, therefore, I bought a variable air capacitor at De Anza college flea market, that was almost brand new, though the rate of working voltage was maybe 3.5 KV., bit low to use with 100 watts driving MLA tuning capacitor should rated more than 4.0 KV as shown below.

This was the reason why I deployed trombone capacitor and make a 10m MLA.

Parameter	Value	Parameter	Value
Loop Circumference	8.00 feet	Inductance	2.141 μ H
Conductor Diameter	0.88 inches	Inductive Reactance	382.1 ohms
Frequency	28.40 MHz	Loop Area	4.8 feet
Bandwidth	83.4 kHz	Loop Diameter	2.4 feet
Capacitor Value	7.0 pF	Loop Q Value	340.5
Capacitor Voltage	3.6 kV	Radiation Resistance	0.513 ohms
Conductor Wavelength	0.243 λ	Resistance Loss	0.049 ohms
Efficiency	91.4 %		

As shown above, the tuning capacitance is 7.0 pF. It is a very small capacitance, but would be the appropriate capacitance of a Trombone Capacitor. I used two feet of dielectric and core (stripped sheath and shield) of RG-231 coaxial cable formed as a U. It makes about 15 pF at maximum capacitance. The spec. of RG-213 capacitance is 30.8pF/ft.

Parts

- 3-1. Copper pipe 1 foot pre cut 7/8" pipe; 8, bought @ OSH, \$1.70 each.
- 3-2. 45 deg. Joint 3/4 "; 8, bought @ OSH, \$1.50 each
- 3-3. Coax (RG8X) to make the couple loop; 10 feet, final loop ia about 2 feet, but needed to make 5 loops by cut & try to minimize SWR.
- 3-4. Coax (RG231); 3 feet, bought @ HRO, \$5.50/feet
- 3-5. Copper pipe (3/8") for [Trombone capacitor], bought @ OSH, \$2.00/ft (The pipe is rolled and sold at water heater section.

Tools

- 4.1. Torch for soldering plumbing, bought @ OSH, \$25 incl. Solder & flux.
- 4.2. Sandpaper (#150) works fine for sanding the pipe and joint.
- 4.3. Other ham homework tools, such as screw driver, etc.
- 4.4. Antenna Analyzer, I used MFJ-259B, could not make it work without it.

Hints

- 5.1. Sand all the pipes and joints, wipe them, and assemble the loop first and place the loop flat before soldering. It is almost impossible to level the pipes flat after they are soldered.
- 5.2. Solder the pipe as the loop first, then cut the top (2") of the loop for the capacitor connection.
- 5.3. Do not solder the couple loop for tuning, I used clothespin.
- 5.4. To tune the couple loop, make middle position of trombone capacity, connect the couple loop's top any place, then find resonant frequency, stay on the frequency even if the frequency is not desired frequency.
- 5.5. Be patient tuning the coupling loop, 1/8 inch of the connect point changes SWR 0.1-0.2, I made five loops in all, made too short after cut it 4-5 times, tried to make the SWR as close as possible 1.0. SWR changes not only the couple loop tuning, but also by the shape of the loop. I used fishing line pull from the loop to main loop.
- 5.6. Now adjust the trombone capacitor to meet the desired frequency.

Result

- 6.1. Side cut by S-meter 2-3 steps, about 10-20 dB, as the result of 90 degrees rotation, though MLA does not have any gain.
- 6.2. Improve S/N significantly due to the loop tunes very narrow band width (high Q).
- 6.3. Compare to Cushcraft MV-5A mini-vertical, receiving signal S is about the same. If, installed in the room, S level drops 2-3 naturally, though you may be able to make a contact, if you can hear the signal better than S5 or so.

Conclusion

MLA is simple, cheap and fun to make one, and it works reasonably good, if you can be patient enough (QSY is not so easy.) and if you could find a place to make one,

Most of all, as I mentioned at the first place, making MLA is very fun and very good for handwork exercise.

Notes: References & useful web page URL;

www.magneticloopantenna.com

www.standpipe.com/w2bri/build.htm

www.aa5tb.com/loop.html

FARS 2009 MEMBERSHIP RENEWAL FORM

Date: _____

PLEASE fill out the form for all new/renewal memberships.

Name(s) & Callsign(s) & Class (E-A-G-T-N-None): _____

Mailing Address: _____

Home phone: _____ Work phone: _____

Fax (H or W?) _____ Packet BBS Address: _____

E-mail: _____ ARRL Exp Date(s): _____

Preferred modes: (e.g. HF-SSB/VHF/QRP/Other): _____

I'm willing to Elmer new hams with: _____

Special topics of interest / suggestions for club meeting speakers: _____

Dues: \$20 per year, new members add \$9 for badge fee. **Please note:** Membership runs from January 1 to December 31.

Send your check payable to FARS, to:

David A. Cooper
PMB 41
270 Redwood Shores Parkway
Redwood City, CA 94065-1173



How to get to FARS Club meetings (Visitors always welcome)

Meetings are held at the Covington Elementary School (directions below) on the fourth Friday. Socializing at 7 PM with the regular meeting at 7:30 PM. There may be changes in the meeting dates for January, June, November, and December.

DIRECTIONS:

From Interstate 280. take the El Monte exit Northeast. Cross Foothill Expressway. (A) At the first traffic light turn right on Covington. (B) Immediately at the fork take the left street (Covington). Go about 1/10th of a mile. Turn left into the parking lot. The gym is the tall building to your right with red and white stripes.

From Foothill Expwy., take the El Monte exit and go Northeast; then follow directions as above at point (A).

From US101 or El Camino: take San Antonio Road west (to Foothill Expressway). Then follow directions above at point (A).

TALK-IN via the [N6NEI](#) (145.230-; 100Hz PL) repeater or the [W6ASH](#) 145.27- (100Hz PL) repeater.