

July 2012

Volume 42, Number 7

Let's raise some \$ for FARS!

www.fars.k6ya.org

July Club Meeting

Date: Friday, July 27th, 2012

Time: Socializing at 7PM, Meeting starts at 7:30PM

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

Amateur Radio Satellite Beacons Anthony Young, KJ6DJU

Anthony will talk about his experience
with satellite operations
and the use of the
Amateur Radio beacons
on small triple cubesats.

The satellites carried Amateur Radio beacons
that transmitted telemetry signals
on Amateur UHF frequencies.

The telemetry signals reported satellite status,
which enabled ground receivers
to monitor satellite health.

The missions provided the opportunity
for the greater Amateur Radio community
to assist in satellite reporting.

Membership Meeting. Our next membership meeting is at 7PM on July 27th. The program is “**Amateur Radio Satellite Beacons**” with Anthony Young, KJ6DJU. Mr. Young talks about satellite operations and the use of the Amateur Radio beacons on small triple cubesats. These telemetry signals report satellite status, which enable ground receivers to monitor satellite health.



Field Day. Thanks to everyone who helped out with this year's Field Day. It's a large project for FARS and we needed all your help to make it possible. I especially want to recognize our Field Day captain, Phil KA6MZE, for all his effort to organize the activity. I want to thank Dave W6DLF who stepped up to fill in for the ailing Michael NE6RD to coach the GOTA station. Thanks to our CW/Digital station captain Chris KG6O, our SSB captain Paul AA6PZ, our VHF captains Nimit K6XOX and Gerry K6TXD, and our BBQ captain Ron KG6RLG. Thanks also to Joanna K6YL for logging software support, Charley KF6CUU for storing our equipment, and Martin KD6WJW for submitting our report to the ARRL.

We would like to hold more FARS-sponsored radio events, so if you would like to participate in some upcoming radio contests as a group, talk with your board. We just need a core group of volunteers to organize the activity and you can have FARS sponsorship, which means access to club equipment, support, money, and liability coverage.

Flea Market Volunteers. We need someone to manage the August 11th Electronics Flea Market for FARS. This is an important fund-raising activity for us and providing funding to cover our expenses for Field Day and other activities. We especially need someone to organize the volunteers and ensure everything comes together for Saturday morning.

Electronics Flea Market. The next electronics flea market is scheduled for August 11th from 5AM until 1PM. The sponsor for this flea market is **FARS!** The flea market is a great place to find a bargain and it supports your local ham clubs. See www.electronicfleamarket.com for details.

Snacks: Cookies and coffee will be served.

Questions: Bring your hardest radio questions.

The mysterious Dr. Know-It-All reveals all answers.

Post-Meeting Snacks: Denny's on Mathilda in Sunnyvale.

de Mikel KN6QI

Raffle Prizes

1st Prize: Alinco DJ-V57T 2m/440 Dual Band HT

2nd Prize: Daiwa CS-201 Antenna Switch, to 600Mhz

3rd Prize: ARRL 2012-2013 Repeater Directory

4th Prize: ARRL 2012-2013 Repeater Directory

Wish-You-Were-Here Prize: A **CA\$H prize** awarded to a member who is present and has paid their dues.



CLUB INFORMATION

www.fars.k6ya.org

President: Mikel Lechner KN6QI
Vice President: Steve Stearns K6OIK
Treasurer: Dick Baldwinson N6ATD
Secretary: (open)
Radio Officer: Phil Hawkins KA6MZE
Training Officer: Kevin Weiler K6XXX
Relay Editor: Joanna Dilley K6YL
FARS Board: Robert Flemate KE6TFU
Charlie Morrin KI6FXV
K6YA Trustee: Phil Hawkins KA6MZE

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

Membership: An annual FARS membership is \$15 and provides much needed support for your club activities, qualifies you for the CASH Wish-You-Were-Here prize drawn at each membership meeting, plus you'll receive a FARS Relay to your email each month! An optional club badge is \$9. (*New '12 memberships currently prorated to \$5.*)

FARS Membership Dues Reduced for 2012 -- The FARS board has voted to extend the \$15 reduced membership dues through 2012. Put your \$5 savings in your pocket or use it to purchase raffle tickets.

FARS is a California 501(c)(3) non-profit corporation, so donations and membership dues are tax deductible with the CA Franchise Tax Board and the Internal Revenue Service.

Meetings: FARS 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 November & December (for holidays). **Visitors are always welcome!** Directions on the website as well as in this newsletter. Talk-in: N6NFI (145.23-/100Hz) or W6ASH repeater (145.27-/100Hz).

Email Announcements: Members and non-members are encouraged to subscribe to the FARS Announcement list to receive reminders of FARS activities and other news. Browse www.fars.k6ya.org/mail, click on Subscribe/Unsubscribe and follow 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 require approval by the moderator.

Newsletter: The 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! Photos, operating news, articles, etc. can be submitted to the editor at any time. Contributions are subject to editing and/or compression.

Newsletter Editor:

Joanna Dilley K6YL Joanna.K6YL@gmail.com (also Yahoo)
PO Box 5153 Also available at FARS meetings.
Redwood City, CA 94063 Photos © K6YL unless noted otherwise.

CALENDAR OF UPCOMING EVENTS

www.fars.k6ya.org/events/calendar

Visitors are welcome at all events!

JULY

27 [Club Meeting](#), Covington School, Los Altos, 7PM

AUGUST

2 Board Meeting, Los Altos Town Crier, 7:30PM
9 [BARC Meeting](#), Tech Shop Menlo Park, 7PM
11 [Electronics Flea Market](#), DeAnza College, 5AM
SPONSORED BY FARS
Your assistance is needed!
This is an incredible fund-raising event for FARS.
19 [ARRL Rookie Roundup RTTY](#) – Try to get on!
See page 11 for details
24 [Club Meeting](#), Covington School, Los Altos, 7PM

SEPTEMBER

6 Board Meeting, Los Altos Town Crier, 7:30PM
8 [Electronics Flea Market](#), DeAnza College, 5AM
13 [BARC Meeting](#), Tech Shop Menlo Park, 7PM
28 [Club Meeting](#), Covington School, Los Altos, 7PM

OCTOBER

4 Board Meeting, Los Altos Town Crier, 7:30PM
6 [FARS California QSO Party \(CQP\)](#), Los Altos
FARS will set up an HF station and you're invited!
@ Maryknoll Residence (same location as Field Day)
11 [BARC Meeting](#), Tech Shop Menlo Park, 7PM
13 [Electronics Flea Market](#), DeAnza College, 5AM
12-14 [PACIFICON 2012](#)
***ARRL National Convention* (1st time!)**
@ Santa Clara Marriott Hotel (same as last year)
26 [Club Meeting](#), Covington School, Los Altos, 7PM

UPCOMING

12/16 [ARRL Rookie Roundup CW](#) – Try to get on!

FARS Membership Renewals

Renewing your membership to FARS provides much needed support for your club activities, qualifies you for the CASH Wish-You-Were-Here prize awarded at each membership meeting, plus you'll receive a FARS Relay to your email each month!

OPERATING REPORT: FARS FIELD DAY 2012

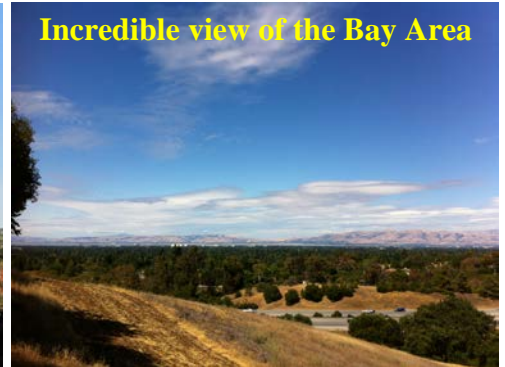
Field Day represents all that is ham radio. Covering phone, cw and digital modes on UHF, VHF and HF bands this annual event tackles numerous challenges. Field Day is an excellent test of RF-cleanliness between numerous stations, resilience in the face of less than optimal conditions, and a rig's ability to integrate with a variety of independently-supplied external components and people, all on short notice. Contesting technique is also recognized as quality preparation for relaying vital information quickly in an emergency or disaster situation.

Thank you to the operators, volunteers, and also the others who did not operate but provided equipment, food, encouragement, spousal consent and other valuable considerations. *****Thank you also to Maryknoll Residence for again allowing us the use of their soccer field.*****

During the weekend of June 25th to 26th FARS' long-planned Field Day event came to reality. The exchange "K6YA 3A Santa Clara Valley" filled the airwaves via multiple modes, and all through the day and night operators and visitors had a great time. Located again this year on the soccer field at the Maryknoll Residence, this was truly a "Field" Day experience.



Maryknoll Residences



Incredible view of the Bay Area



Friday's hardworking Setup Crew



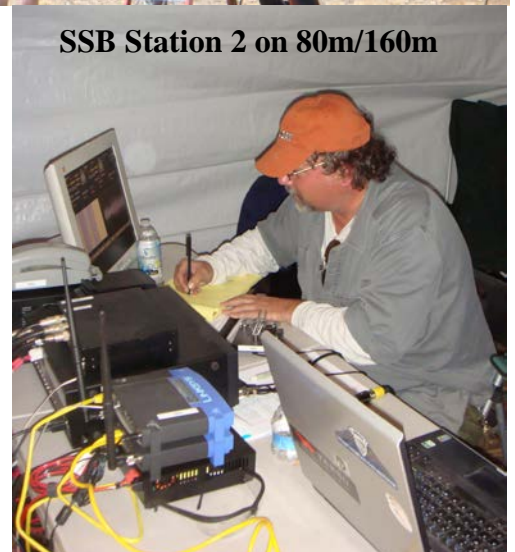
Sunday's dedicated Tear Down Crew



2 Towers and a Balloon



SSB Station 1 on 15/20m



SSB Station 2 on 80m/160m

OPERATING REPORT (cont.): FARS FIELD DAY 2012

2012 Field Day

On the
Soccer Field
@ The Maryknoll
Residence

Los Altos, CA
(near Rancho San
Antonio Park)



www.arrl.org



Clockwise from top left: Joanna K6YL, Dave W6DLF, Phil KA6MZE, Nimit K6XOX (Sun. AM after coffee!)



Paul AA6PZ logs for Mikel KN6QI late Saturday night (SSB 1 tent)

Our three HF transceivers were joined by a VHF/Satellite station as well as a Get-On-The-Air (GOTA) station for round-the-clock action during this 24 hour event. We covered 70cm, 2m, 6m, 10m, 15m, 20m, 40m, 80m and even 160m. Operating from a temporary location powered from generators, solar power and batteries (with no tie to the power grid) qualified us for the 'A' category. A large number of people turned out and enjoyed wonderful weather, friendly hams and guests, and exciting radio fun.



.APRS Geiger Counter Robot
Demonstration by Nimit K6XOX



Chris KG6O operating CW and keeping
warm in the CW/digital tent Sat. night



Susanne WA6CUX getting her annual CW
fix at the FARS Field Day CW/digital tent



The Satellite/VHF tent draws a crowd Sat. afternoon.



Ron KG6RLG serves up mighty tasty BBQ at Saturday
night's potluck dinner.

The FARS
Field Day
exchange filled
the air waves
amidst laughs
and good
times:

“K6YA
3A
SCV”

OPERATING REPORT (cont.): FARS FIELD DAY 2012

Field Day is the most popular on-the-air event held annually in the US and Canada. Each year 35,000+ amateurs gather to operate. For FARS the goal of this event was to get on the air and have fun!



Father Gene W2YMZ's first Field Day in 25 years!



Radu, Bob WB2URF and Neil KH6EAM gassing up!



Phil KA6MZE, Daniel KJ6SEE and team inflate the helium balloon that supports the 80/160m transmit antenna.



Chris AA6OO operates the HF SSB 1 station.



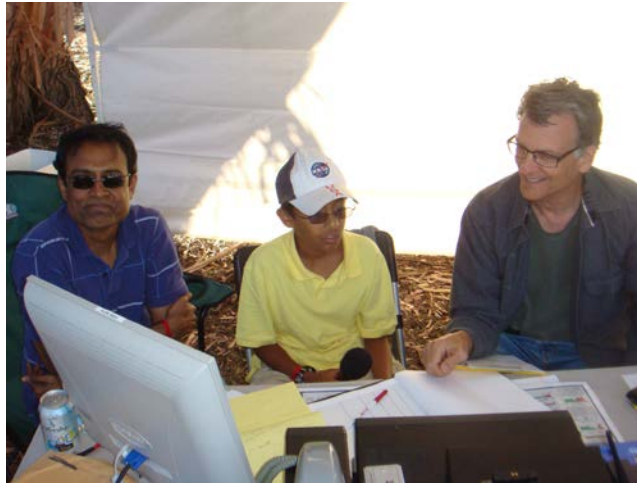
More activity in the CW/Digital tent! From left to right:
David KM6RI, Paul AA6PZ, Josh KJ6PVN, June KJ6WDF.

OPERATING REPORT (cont.): FARS FIELD DAY 2012

The Get-On-The-Air (GOTA) station at Field Day is important for providing HF radio and contesting experiences to newly licensed hams, hams with little or no HF experience, as well as non-hams. FARS had an active GOTA station all day Saturday as well as Sunday morning right up until the 11AM bell rang. We were pleased to see numerous youth operators again this year!



Get On The Air Station (GOTA)



The GOTA station is the only radio at Field Day to operate under a separate call sign. For GOTA the exchange was:

**“KG6O
3A
SCV”**

Peter AF6DS coaches Benjamin (no call). Dave KM6RI (on right) coaches one of the father/son duos.



John KJ6JGX (on right) was thrilled to make his first HF contact. It wasn't long before his son joined in on the fun.

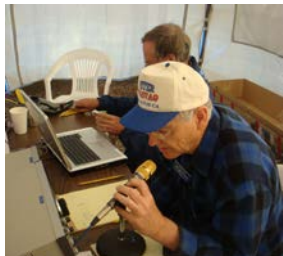


John KJ6JGX's son (left) with Rohan KJ6LXV (right) made a great team Sunday morning on the GOTA station.

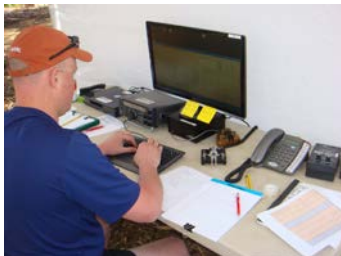
Additional photos:



George N6NKT from the SJ Red Cross w/ K6YL.



Peter WA6VAQ operates the SSB 1 Station



Chris KG6O keeps the CW/Dig Station running



“CERT – Community Emergency Response Team”

Arvid Hamer, WA6UUT (SK)

It is with regret that the Foothills Amateur Radio Society acknowledges the passing of Arvid Hamer, WA6UUT.

A long time Honorary Member, Arv's involvement with the Society began back in the days when FARS was still EMARC (Electronics Museum Amateur Radio Club). Arv has supported FARS as a board member, he's spoken at FARS meetings, and he's won prizes in the FARS Home Brew Contest on multiple occasions.

Back in 1996, when the World Radiosport Team Championship (WRTC) came to San Francisco, Arv was in the midst of this grand event as a volunteer. This was the second WRTC ever held; the first was in Seattle.

During the 1980's Arv and friends met on the radio at 10:00AM to help new hams, and this tradition evolved into what is now the 9AM Talk Net on the N6NFI/R. That's 25+ years and going strong!



Thanks to a generous effort by Dave K6WA (left), a longtime friend of Arv's, the entire group celebrated Arv's 90th Birthday in style at the May 2011 AmTech Day.

Photo © Robert KE6TFU

Arv was a dependable morning volunteer at Amateur Radio Technology Day. Not only would he show up almost every month on time at 7:15am but he'd be wearing a smile so bright it'd promptly get AmTech Day off to a brilliant start.

Monday, August 13th, starting at 1pm

A **Memorial Service & Reception** is planned for Arv at his retirement village in Los Altos known as The Terraces*.

More information is to be publicized soon in the Los Altos Town Crier and possibly the San Jose Mercury newspapers.

* **The Terraces:** 373 Pine Lane, Los Altos, CA 94022, (650) 948-8291



Arvid Hamer has returned to the land of his youth.

To a farm land of the mid-west where at an early age his indefatigable personal characteristics were acquired and retained throughout his entire life.

His spirit has left our planet to rendezvous with his sweetheart.

At this final moment the Hammer family does now rest in peace.

We are grateful for having known Arvid Hamer.

Charlie Arney, KF6CUU

Saturday, August 4th, 11am to 1pm

A **Celebration of Life & Reception** will be held for Arv's friends, with a special emphasis on his Amateur Radio Operator Friends, at the TechShop** in Menlo Park.

Drop in, wear casual attire, bring stories & even photos if you like. Visit with those who have known Arv and share thoughts about this truly unique person in a mostly unstructured activity.

A light lunch/snacks with beverages should be available for participants.

** **TechShop:** 120 Independence Drive, Menlo Park, CA 94025, (800) 640-1975

MYSTERY ANTENNA CONTEST: CONTINUES!

In the May newsletter Steve K6OIK offered a **prize** to anyone who could correctly name the antenna below or describe how it works and what it's for. The prize is honorable mention in the important publication that you are now reading. :-) Winners to be chosen by FARS antenna experts.



Thank you to those who have responded! While we had originally set a deadline of May 31st we are now extending it to August 17th (one week before the August meeting). **Keep those guesses coming!**

We have enlarged the drawing and have now also provided a photo. Good luck!



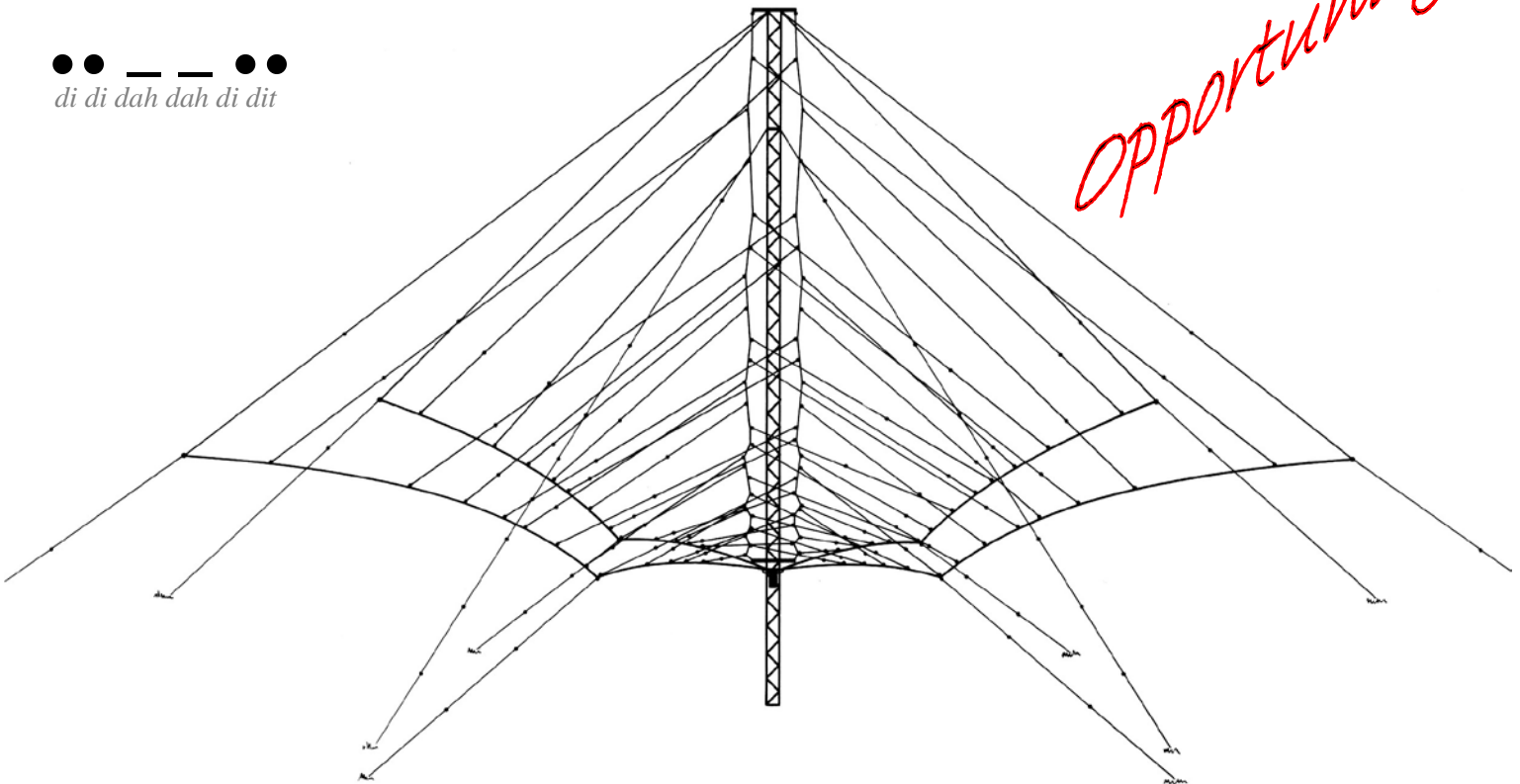
Mystery Antenna

Deadline: August 17th

Looking up at the mystery antenna, this sucker's tall!
I'd guess a height of 100 f

● ● — — ● ●
di di dah dah di dit

*Last
Opportunity!*



Who is this new guy? Brandon NI6C

From Phil Stefora K6TT – To SCV Section Members:

It's with great excitement and enthusiasm I introduce and pass the virtual baton to our new Santa Clara Valley Section Manager Brandon Bianchi, NI6C.

Photo from QRZ.com



Originally licensed in April 1995 as KE6THG, he upgraded to General in 2006 (taking the call N6OOB) and Extra in 2007 when he changed to his current call of NI6C. He is also licensed in Switzerland as HB9EGB.



Brandon has been an active member of numerous amateur radio communities over the past 15 years and grew up around amateur radio. His father Jim Bianchi, W6DIA and sister Brittany Newell, KG6GIX are also active amateur operators.

Most recently he has been serving in the role of Assistant Section Manager for the Santa Clara Valley (SCV) over the past term. Brandon has also held various other positions for clubs and groups throughout the state including net control operator, publications editor and board member. He is a VE and enjoys DXing and emergency communications.



When not involved in amateur radio, he works as a Senior Network Engineer and enjoys scuba and spending time with his wife and daughter.



Be sure to give a huge Thank you to Brandon for stepping up to the challenge of this role for our section. We are very lucky to have him and look forward to his leadership.

73 de K6TT

TU Brandon

What is FOBB? 2012 Flight of the Bumblebees

- Who:** Open to all radio amateurs, hosted by the Adventure Radio Society
- What:** 4 hour QRP slow/moderate speed CW event
- Where:** Both home-based and portable operations are encouraged, though only portable operations get to be identified as Bumblebees with a /BB
- When:** Sunday, July 29th, 10am-2pm Pacific Time
- Why:** For fun!

If you had fun at Field Day and enjoy both QRP and slow- or moderate-speed CW, then the upcoming Flight of the BumbleBees (FOBB) is definitely worth considering. This year's event will be 10am-2pm PDT on Sunday, July 29. Details are posted at www.arsqrp.blogspot.com/.

Who Can Play? You can participate as a QRP home-based station or as a QRP portable (i.e. **Bumblebee**). Bumblebees add /BB to their calls but home-based stations do not. If you're interested in a portable operation then you'll need to request a Bumblebee ID number at www.ARSqrp.blogspot.com, which can be done at any time up to July 29 before the contest (email).

The Details: Max power is 5 watts. Operation is on 10, 15, 20 and 40 around the usual QRP CW frequencies. Everyone in the contest can work anyone else in the contest (Bumblebees and home stations alike).

The Exchange: This is dependent on your station.

- **/BB:** If you are a Bumblebee, your exchange is RST + state/province country + your Bumblebee # (ie, Bumblebee #123 sends **579 CA BB 123**)
- **Home Stations:** If you're home-based you send RST + state/province country + your power (ie, send **579 CA 5W**)

Scoring:

- Each contact is worth 1 pt
- Each contact with a Bumblebee generates a multiplier of 3
- The same station can be worked on different bands for additional QSO points and multipliers

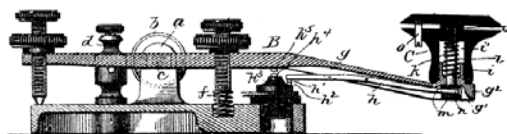


PHOTO TIME: July Meeting Prize Winners

Congratulations to all of the raffle prize winners from the FARS June meeting.

From left to right –

Dave W6DLF with the NARCC Repeater Directory

Don KE6CFX with the Wouxun 2M/440 Dual Band HT

Dick K6PBF with the MFJ 300 Watt Dummy Load



Photo © NE6RD

Mikel KN6QI (not pictured) took home the \$10 cash Wish-You-Were-Here prize.

At the August meeting the WYWH prize will be \$5.

FARS Member Badges

We're ready to take your order online or at the mtg.

Available for pick up at the next club mtg

FARS Relay

Have a photo, article, or operating news to share?

Please contact Joanna.K6YL@gmail.com

DO YOU KNOW?

Which of the following is the correct NATO phonetic for "A"?

- a.) America
- b.) Alpha
- c.) Alfa
- d.) Amsterdam

Answer on the following page...

FARS Weekly Net

Thursdays @ 8 PM

N6NFI repeater, 145.23-/100Hz

This net is open to all interested hams.

The purpose of the net is to keep club members informed about club activities; to exchange other club-related info; and to socialize.

9AM Talk Net

Weekdays @ 9 AM

N6NFI repeater, 145.23-/100Hz

This net is open to all interested hams.

This is an informal net that is very popular.

www.9amtalk.net

Ready to Upgrade Your License?

What is a Passing Score you might ask?

Technician & General exams – 26 out of 35 (74.2%)

Amateur Extra exam – 37/50 (74%)

www.baears.com – This group holds "Ham Crams" 4 times a year. Pre-registration required, sign up on the website. \$30

- Saturday 9/29, 8 AM @ Fremont

www.amateur-radio.org – The Sunnyvale VEC holds test sessions on Saturdays often alternating between Sunnyvale and Redwood City. Walk-ins only, no pre-registrations. \$15

- Saturday 8/11, 10:30 AM @ Sunnyvale
- Saturday 8/18, 10:30 AM @ Redwood City

www.svve.org – The Silicon Valley ARRL VE holds test sessions on the 1st and 3rd Saturdays of each month. Arrive between 8 AM and 10:30 AM to the Saratoga Fire Station at 14380 Saratoga Avenue. Walk-ins only, no pre-registrations. \$15

- Saturday 8/4
- Saturday 8/18

www.sbara.org – The Tri-City VE Group holds test sessions at Hurricane Electric in Fremont each month, alternating between Saturday morning and Tuesday evening. The address is 48233 Warm Springs Blvd. Walk-ins welcome. \$15

- Tuesday 8/14, 6:30 PM
- Saturday 9/8, 9:00 AM

BAEARS Ham Cram

Next Quarterly Session: Saturday, [Sept. 29th](#)
8 AM
Fremont, CA
www.baears.com

Electronics Flea Market

Saturday, August 11th

Host: Foothills Amateur Radio Society (FARS)

www.electronicfleamarket.com

FARS Email Notices

Easy to subscribe!

www.k6ya.org/mail

Receive reminders of activities and other news.

Weekly FARS Net

Thursdays @ 8 PM

N6NFI Repeater 145.230(-), 100 Hz PL

The answer to the question on page 10 is c.) Alfa.

ARRL Rookie Roundup 2012 on RTTY!

The objective of a [Rookie Roundup](#) is for newly licensed operators to experience competitive Amateur Radio. Experienced operators are also strongly encouraged to participate in order to help new operators – either on the air or in person.

This event is held in SSB, RTTY and CW.

RTTY is up next on August 19th!

During this event a Rookie will be defined as a ham first licensed in 2010, 2011 or 2012.

What is RTTY?

[RTTY](#), also known as Radioteletype, allows communication using two radios and a modulation technique such as frequency shift keying (FSK). Many ham radio operators enjoy using modern PCs and soundcard software or TNCs to take advantage of this fun mode.

*** CLUB FUNDRAISER ***

FARS

will host the
Electronics Flea Market
on **Saturday, August 11th**,
so **SAVE THE DATE!**

This is an important opportunity
for the club to earn \$\$\$.

*** Volunteers are needed. ***

Contact Mikel KN6QI

(kn6qi@arrl.net)

if you can assist with:

- Friday afternoon collection of supplies from the Red Cross in Palo Alto
- Morning ticket sales to vendors
- Setup of the snack tent
- Sales of coffee, donuts, sodas, etc
- Kicking out vendors at 1pm
- Clean up

Bay Area Radio Builders Club

“BARC”

A FARS Special Interest Group

Upcoming Meeting: **August 9th**

(Second Thursday of each month)

at the TechShop in Menlo Park

(Corner of 101 and Marsh Rd)

We are a group of mostly Amateur Radio operators who want to gain a better understanding of the topics covered in the General and Extra class tests.

We want to learn electronics, antenna theory, kit building, and kit design.

For more info join the Yahoo Group:

http://groups.yahoo.com/group/ba_radio_builders/

FARS New Membership / Renewal Form

Note that the annual dues for 2012 has been reduced to \$15. You may also renew online by logging onto the FARS website, then using PayPal to pay. As of July new memberships are prorated to \$5.

<https://www.fars.k6ya.org/membership>

Date: _____

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

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

Mailing Address: _____

Home Phone: _____ Work Phone: _____

ARRL Member? _____ Email: _____

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

I'm willing to Elmer new hams with: _____

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

Dues: \$15 per year. Membership runs from January 1 to December 31. New membership applications accepted later in the year may have their dues prorated (see dues schedule). Please include \$9 for a club badge if desired. Your call sign and first name as it appears above will appear on the badge. Renewing members should provide at least their name, call, and the date. Also include any info that may have changed. Put "N/A" where you wish to remove (or not provide) info.

Send your check payable to FARS, to:

FARS c/o Michael Lechner, 436 Memphis Drive, Campbell, CA 95008



How to get to FARS meetings (*Visitors are 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 [N6NFI](#) (145.230-; 100Hz PL) repeater or the [W6ASH](#) 145.27- (100Hz PL) repeater.