



Sierra Foothills Amateur Radio Club

SIERRA SIGNALS

<http://www.sf-arc.org/>

AUGUST 2011

PO BOX 1005, NEWCASTLE, CA

At the Key of SFARC

OFFICERS

PRESIDENT

Al Martin, NI2U
amartin4@wavecable.com

VICE PRESIDENT

Charles Baker, AE6LR
ae6lr@yahoo.com

SECRETARY

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wu6x@hotmail.com

TREASURER

Bob Balthrope, KD6WTY
kd6wty@yahoo.com

DIRECTORS

Mary Ann Balthorpe, KE6EST
Gary Cunningham, KQ6RT
Jim Griffith, KI6AZH

Field Day Chairman

Dave Hund, N6SHD

REPORTERS

Satellites: Greg, KO6TH
History: Gary, KQ6RT
Misc Radio: Fred, K6D6W
Sunshine: Richard WA6RWS
rkuepper@gmail.com

RESOURCES

REPEATERS

145.430 (-0.6 MHz/PL 162.2)
440.575 (+5.0 MHz/PL 94.8)
223.860 (-1.6 MHz/PL 100.0)

CLUB NET

Thursdays, 7:30PM, W6EK/R
145.430

CLUB MEETINGS

Second Friday of the month,
7:30PM at the Library, 350
Nevada St, Auburn CA

CLUB BREAKFAST

Last Sat of the month at
Susie's Café, Cirby at
Riverside, Roseville - 8:00 AM

NET CONTROL OPS

Dave Jenkins, WB6RBE
Gary Cunningham, KQ6RT
Norm Medland, W6AFR
Casey McPartland, W7IB

NEWSLETTER EDITOR

Matthew Diridoni, KC6RUO
916-749-3032
matteod@comcast.net

WEBMASTER:

Carl A Schultz, WF6J

Calendar of Events

- Aug 12** Club Meeting
- Aug 20** Club Picnic, Auburn Recreation Park, (across from the Auburn Fairgrounds) from 9 AM to 2 PM.
- Sep 9** Club Meeting
- Sep 10** Western Placer ARC Swap, McBean Park parking lot Lincoln, CA
- Oct 8-9** Tevis Cup, Need Operators
- Oct 14** SFARC White Elephant Sale
- Oct 14-16** PACIFICON 2011

SFARC CLUB MEETING PRESENTATION

"Digital Signal Processing" presented by Rick Lyons.

"Tech Ten" will be on placing connectors on coax cables.

Everyone is welcome, bring a friend!

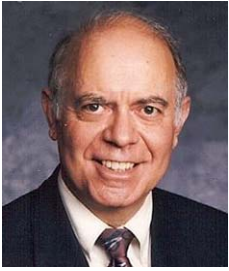
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We encourage members to receive Sierra Signals via email to save the Club the cost of reproduction and mailing

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From The Presidents Shack, Al Martin NI2U



The club picnic is quickly getting here. I look forward to seeing everyone on August 20th at Recreation Park. Picnics are always a great time for the family. The picnic is close but is there anyone that would like to organize a hidden transmitter hunt?

Thank you, Carl WF6J for all of the work you are doing on the Web Site and as Publicity Chair.

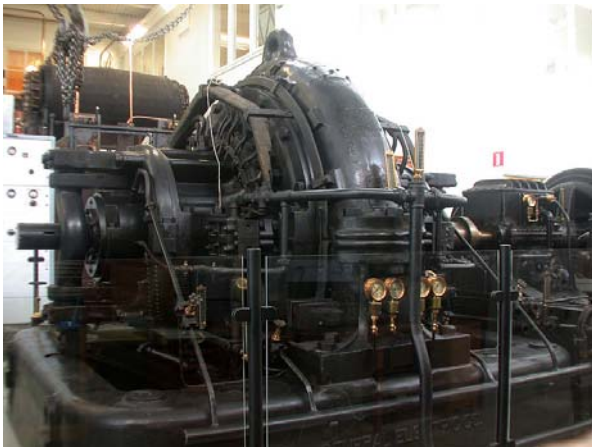
Thank you, Matt for the great work on the Newsletter.

Miscellaneous Radio

The Ham Bands

(or “Whatever happened to Channel 1”)

Learning the frequency ranges in which we hams can transmit is part of getting a license. We tend to name them by wavelength in meters which is inversely proportional to frequency and today we have the 160, 80, 60, 40, 30, 20, 17, 15, 12, 10, 6, and 2 meter bands. Well, 60m isn't a “band,” it's 5 discrete frequencies in the 5 MHz range where it's USB only, but all the rest are bands we all share with each other, unlike every other radio service. Altogether, it's a nice sampling from the higher MF to the lower VHF frequencies, all sorts of different propagation, equipment, and antenna combinations to experiment with. And our bands continue on up through the UHF into the microwave regions. The “10 GHz and Up” contest is coming up in August and September.



It wasn't always this way. In the beginning, wireless [all of it telegraphy] was conducted using very very long wavelengths, meaning very very low frequencies. The last Alexanderson alternator station left on the planet, SAQ, in Grimeton, Sweden, transmitted on 17.2 KHz, and actually still does a couple of nights a year. It is nothing more than an AC generator, just like the ones many of you may have in your garage. The difference, other than the power [200 KW], is that it has a lot more poles in the rotor and stator and runs at a much higher RPM. As a result, it generates AC at much higher frequencies than 60 Hz. The antenna is huge! Six vertical elements 127m [415 ft] high, fed by 12 open wire lines. Antennas at this frequency need to be

huge. And at this time, any frequency much above 40 KHz was unattainable with continuous wave devices such as alternators, which didn't bother folks much since they thought such frequencies were useless.

As time went on, spark equipment was reaching close to the 1 Mhz range and 600m [500 Kcs] became the maritime Holy Frequency. All this time, “amateur operators” were building receivers, and often transmitters, making up their own call signs, and competing with the commercial and government [mainly Navy] stations. We all know what happens when a few individuals try to compete with the government for resources, and finally, “they” said, “You can have 200 meters and down, they're worthless.” Remember, “down” in wavelength is “up” in frequency. 200 meters is in the middle of today's North American AM Broadcast band. So, technically, we began with one band stretching from just a bit above KFBK to light waves.

This didn't last long. Hams discovered that higher frequencies went farther with lower power. Well, it was a little more complex than that, but that was the result. Stations on land could run hundreds of KW to huge antennas on the very low frequencies, but ship stations could not, and frequency usage began to move up

By the latter half of the 1930's, our "single band, anywhere you want with a wavelength less than 200 meters" had given way to a few "spectrum closets," spread across the radio spectrum. We had small allocations at 1.8, 3.5, 7, 14, 28, 56, and 112 MHz. Nothing above 112 MHz was deemed useful, so they gave it all to us ... second time ... remember this. These were our 160, 80, 40, 20, 10, 5, and 2 1/2 meter bands. And note: They were all harmonically related. 40 meters was CW only, and you need a Class A license to get on radiotelephone [which would have been AM] on 80 and 20 meters, but again note ... an 80 meter crystal or one close to 80m, would get you on several bands. All it took was one or more doubler or tripler stages in your transmitter, and WW2 surplus FT-243 crystals went for a couple bucks a dozen. All you had to do was sort through the bins to find useful ones, there were millions. The surplus SCR-522 VHF transmitter would multiply a 40 meter rock 18 times to get 10 or 15 watts on 2 1/2 meter AM. Kind of neat thinking on the part of the Government, no? We were "amateurs" after all, having all our bands harmonically related would assure that our 2nd harmonics fell in another ham band. Not good for our brethren [there weren't many "sistern" then], but better than on top of some government station.

Well, time moved on. The Novice license arrived, along with a restructuring of the rest. Class B and Class A disappeared, replaced by General and Amateur Extra. There had been a Technician license for quite awhile, "experimental" privileges above 10 meters for a 5WPM code test. As a kid, I knew one. His garage was filled with equipment and his tower had lots of small antennas for experimenting on the "ultra-highs." Gigahertz hadn't been invented and anything over 1,000 Mcs was kilomegacycles, KMcs. And, 15 meters arrived! Novices had small, crystal controlled, 75W sub bands on 80, 40, and 15, it was the run-up to the fabled Cycle 19, and you could easily work DX on 15 with 20 watts to a 6L6. And another big change happened. TV was becoming commercial ... real stations [with commercials, those folks are quick!] in major metropolitan areas, monstrous 10 and 12 inch TV receivers becoming available to fill a wall in your living room, for a big price, and what frequencies on which to plant the stations became a big deal. The story is long, convoluted, and makes very good bedtime reading if you have a hard time falling asleep, so I'll summarize for you.

TV had been tried on a number of frequencies, well back into the early 30's. These trials all involved various transmission formats, number of lines, interlacing or not, and what to do with the two redundant sidebands from the video AM modulation. Where to put the aural carrier and how to modulate it [FM or AM] also played a role. Everything gravitated ... very slowly ... to what we would today call the low VHF ... somewhere between 40 and a couple hundred Mhz. W6XAO was an early TV experimenter in commercial broadcast TV in Los Angeles. If that looks like a ham call, it isn't. Experimental stations were granted call signs that began with the ITU-allocated "W" for the US, followed by the call area digit, and the first letter of the suffix was "X". They actually still follow that recipe.

W6XAO [and W6XS] were held by Don Lee, a wealthy auto dealer who held a monopoly in California Cadillac dealerships. His story is at http://en.wikipedia.org/wiki/Don_Lee_%28broadcaster%29 and is quite fascinating. He sensed money in the nascent field of television broadcasting, and, while I was becoming a teenager, finally put KTSL, Channel 2, on the air in Los Angeles from ... what else ... Mount Lee above the famous Hollywood sign. He simply bought the mountain.

In the 1940's, the TV channels, starting at 1, were allocated from 44 MHz [Channel 1] to 288 MHz [Channel 18] in 6 MHz blocks. There were some gaps, our 5 and 2 1/2 meter bands were two of them, as was the FM Broadcast band [it too has a history of relocation but finally came to rest at 88-108 MHz] and quite a bit of land mobile and public service stuff, not to mention the aeronautical bands. But for us, we were all still harmonics of another ham band.

Then, right about my eighth birthday, there was a change. They gave Channel 1 to the fixed and land mobile service, decided not to renumber the channels, so now, the TV channels started at 2. Channel 1 disappeared, and even though I can remember when dirt was young, I don't remember a Channel 1 on any TV tuner ... and I took a lot of TV sets apart for the parts!

W6XAO/W6XS began telecasting an hour a week or so on about 2 MHz but moved very quickly to the "ultra high frequency" of 44.5 MHz, although likely very few saw it because all the receivers then were experimental.

At that time, CRT's had not been invented, television was mechanical using a rotating disk with holes drilled into it, and there were no networks. ☺ More on that later.

Around this same time, several other changes took place too, affecting hams. We lost 5 meters, but got 6 meters. Good, no? Well, the second harmonic of 10 meters fell in 5 meters, which was now Channel 2. Suppressing harmonics was a little tougher in those days, all the final power amplifier stages of our transmitters ran Class C which generates lots of harmonics [that was the basis on which frequency multipliers worked], and of course, lots of TVI, a term that had now been invented, much to our dismay. We also lost 2 1/2 meters, and got 2 meters as a replacement.

It was the beginning of the end of harmonically related ham bands. We ultimately got the 5 frequencies at 60 meters [5 MHz], the so-called WARC bands at 30, 17, and 12 meters, and there has been some shuffling going on in the VHF range and above. Of course, we also no longer needed FT-243 crystals, we no longer generated our signals with frequency multipliers, SSB finally “almost” replaced AM [listen on 75 meters in the evening, there are several AM holdouts], and with Class C amplifiers gone and cable and satellite TV, TVI is not the scourge of hams that it used to be. At 500W, I do turn our TV red when on 20m, it's front-end overload in the TV itself, we have DirecTV which is in the Ku band.

Television finally ended up in the low VHF [Channels 2-6], high VHF [Channels 7-13], and ultimately showed up in the UHF range [Channels 14-83], some of which is now being sold off by the Government for wireless smart phone usage. Keep in mind, this was all spectrum that was given to us, twice, because it was “useless”. I doubt that will happen again, but if it does, don't hold your breath that we'll keep it if our past record is any indicator.

73,

Fred K6DGW




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ARRL VEC
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SFARC has testing sessions on the first Saturday of each month at Raley's on the corner of Auburn Folsom Road & Douglas Bl. in Granite Bay. Sessions are in the multi-purpose room in the back left hand corner of the store. The session starts at 8:00 AM



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Solid State Transceivers

By Dennis Gregory, WU6X



I have a classic Heathkit SB-200 tube linear amp that I wanted to use with my Yaesu FT-857D all solid-state radio. Like many non-tube transceivers, the internal relays normally used to key, or ground the “keying line” of an external amp, have some limitations. For example, that little Transmit-Ground relay in the 857D is only rated for **50VDC at 400ma**, suitable for keying a solid-state amp. These old tube amps (like the SB-200 and others) use a “grounded-grid” method of keying. No problem you say?

Well, before I connected the Transmit-Ground pin on the 857D CAT/Linear jack, a quick check at the connector on the back of the SB-200 (keying connection) measured about +135VDC, well beyond the limit of the 857D relay. Trying to key the amp without first checking could have damaged my brand new radio. A solution was in order ...

The easy solution was to source a 12VDC coil relay with normally-open (NO) contacts. The contacts on the relay should be rated to at least 200V at 500ma ... more doesn't hurt, it just makes the relay physically larger. Wire things up as follows:

1. **857D CAT/Linear Jack:** 12V to one side of the relay **coil** and XMIT GND (goes to ground during transmit) to the **other** side of the relay coil; GND to Common ground on the relay.
2. **Relay Contacts:** Connect the Normally-Open (NO) contact to the center pin of the amplifier keying connector (positive grid voltage); the shield on amplifier keying connector goes to the Common ground on the relay.
3. **857D Menu No-020:** [CAT/LIN/TUN] set to "LINEAR"

What you've wired up is an external relay, capable of handling the voltage and current of the old tube amp. Now, when you key the 857D, the external relay is pulled-in, and the “NO” contacts ground the amp keying circuit (or grid) and everything works like it supposed to ... no smoke!

Optional: I wired a small switch in the XMIT GND from the 857D CAT/Linear line, so I could disable the external relay when not using the amp. Otherwise, the external relay will be working away any time you key the radio, whether the amp is being used or not. No big deal ... unless you used a BIG noisy relay. ☺ Happy DX!

SFARC CLUB PICNIC



The SFARC Club Picnic will be held at the Auburn Recreation Park, (across from the Auburn Fairgrounds) from 9 AM to 2 PM.

50 Years Ago at SFARC

August 9, 1961
Home of Jim Carmen

Meeting was called to order by Pres. Lin Hunter. Minutes of previous meeting were read and approved. Civil Defense was discussed and we planned to get Buzz LaBontes, K6KDU, to come and explain to the club. He is working as technical coordinator under Sheriff Scott.

It was agreed to order a Heath Two-er and raffle it off to raise some money for the club treasury.

Conducting a code and theory class was discussed. We are definitely going to start a class as soon as we acquire a room in the old Naval Reserve building. Each member was asked to help with the classes.

Next meeting will be held at Sage's, K6ZWZ. Meeting was adjourned at 10:00 P.M. and refreshments served.

Respectfully submitted,

Sage Otow

WF6J Report

By Carl Schultz, WF6J

Having fun at SFARC – Field Day was great, Meeting was fun and looking forward to Breakfast on Saturdays.

Looks like if you want to learn about how to properly install a connector on coax, the August meeting will help you out. Greg, K6OTH, myself and hopefully other club members are anxiously awaiting the “launch” of ARRISat-1. If you saw my “wooden” satellite antenna at Field Day, you will be able to see it’s updated self at the meeting. Also will bring along my “Plastic” Arrow-like antenna, complete with a “duplexer” (I say that as it is really a signal splitter to keep the 145 going out and the 435 coming in).

Website – Having heard nothing from the membership, we need to talk about what will replace the “Classifieds” section. Some ideas are: Ask Elmer - an interactive section that lets ops ask a question and get and answer; Other Club News – links and information about other area clubs and their happenings; Your Suggestion! – come to the meeting with an idea as to what YOU think should be there.

PIO – Public Information Officer update: Slow month, just reported our activities to Ron, W6KJ for the Section News. Need to get our inputs to Ron by month’s end.

If you missed it, Director Jim, KI6AZH, gets in the local paper! The Auburn Journal: “Tower to link emergency service communications - Placer County leases resident’s land in Auburn” is an interesting story about the 160 foot tower going up on Jim’s mountain top.

73, WF6J

SFARC Board of Directors Meeting Minutes

July 8, 2011

The June Board meeting commenced at 1800 hours at the Round Table Pizza in the Auburn Town Center.

Present were officers Al Martin-NI2U, President; Chuck Baker-AE6LR, VP; Bob Balthorpe-KD6WTY, Treasurer; Dennis Gregory-WU6X, Secretary-elect; Directors Mary Balthorpe-KE6EST, Gary Cunningham-KQ6RT, and Jim Griffith-KI6AZH. Also present were, Dave Hund-N6SHD, Field Day Chairman; Richard Kuepper-WA6RWS, Sunshine Reporter; Carl Schultz-WF6J, PIO/Webmaster; George Simmons-KG6LSB and Jim Carman-K6ARR.

Discussion: A financial report was reviewed showing a combined starting balance of \$669.63 with \$1,283 received, \$586.30 paid and current balance of \$1,366.33. A “positive” accounting difference of \$91.13 was later identified to be raffle income. The budget vs. projected expenses was discussed and showed an end-of-year projection of \$2,210.28.

Richard presented Dennis with a well-organized binder of Secretary-related items. Al agreed to provide Dennis with the latest copy of By-Laws to be edited and published to the membership for approval.

The Picnic was discussed and planned for August. Gary agreed to check the availability of dates and report back. An online membership application form and possible PayPal/credit card acceptance was presented by Carl and discussed. The additional cost for PayPal and credit card fees if the method is adopted might be an issue. The Board agreed to present the online “fee” issues to the membership for discussion, but decided the online “form” would be beneficial and should be implemented.

Other discussions included: the club breakfast at Suzie’s; Jim-KI6AZH asked about repeater battery operation and the length of time the repeater can operate on battery-power. Jim Carman reported the batteries are a truck-type and in good shape. An absolute on how long the repeater would run on battery might be calculated from current draw as measured at the site and the amp-hour battery capacity (and was speculated to be a couple days), but will vary with transmit-receive use and standby times; ARRL Special Service Club approval.

Meeting adjourned at 1915 hours.

Submitted by Dennis-WU6X, Secretary-elect

SFARC WEB PAGE

Don't forget to visit our web page at <http://www.sf-arc.org/> for up to date information, advertisers that support our club and informative links related to amateur radio.

Carl Schultz, WF6J, Webmaster

SFARC General Meeting Minutes

Date: July 8th, 2011

The meeting commenced at 1930 hours at the Placer County Library in Auburn. Present were officers Al Martin-NI2U, President; Chuck Baker-AE6LR, VP; Dennis Gregory-WU6X, Secretary; Bob Balthorpe-KD6WTY, Treasurer; Directors Mary Ann Balthorpe-KE6EST, Jim Griffith-KI6AZH and Gary Cunningham-KQ6RT. Also present were, Richard Kuepper-WA6RWS, Sunshine Reporter; Carl Schultz-WF6J, PIO/Webmaster; Dave Hund-N6SHD, Field Day Chairman; and Gene-KG6NYH, Entertainment chairperson. Al led everyone in the Pledge of Allegiance. Officers, Directors, members and guests were introduced. Approximately 34 members and visitors (3) were present.

Past minutes – The minutes were approved as published in the Newsletter.

Treasurer's report – Bob Balthorpe presented a June 2011 Treasurer's Report as, Balance on hand June 1st of \$1,944.99; bills paid in June of \$170.19; deposits of \$76.00 (dues); and a balance on hand of \$1,850.80.

VE report – Dave-NO6NO gave the VE report. 3 took the general exam given by Al standing in for Dave; all past.

Satellite report – Greg-KO6TH gave a quick report on the last shuttle launch and the new AIRSAT1 satellite launch projected for the first part of August. Google "AIRSAT1" for more information. Telemetry software is also available for download. We should be able to see the bird pass over us on July 23rd at 5:30am.

Sunshine Report – Richard-WA6RWS – no report

Repeater – Richard-WA6RWS reported that the repeater receiver is not working well (low sensitivity) and he will be up working on it this week. Batteries are rated at 700amps each, and there are four, all working in good shape, with a 50amp charger connected. Richard expects the repeater could last a week on battery power, depending on type of use.

Refreshments – George-KG6LSB reminded everyone to put "money in the can".

Old Business – This year's club picnic was announced and the schedule for August 20th. Recreation Park has been reserved (across from the fairgrounds) from 9am to 2pm. Members were encouraged to sign-up tonight. Another opportunity will be available next month.

New Business – *Club roster*: Roster will be kept up to date for Officers, but not be updated after March 31st. Members were encouraged to get their dues in before the cut-off if they want to be included on the roster.

Business cards for members: This would allow members to hand out cards to potential members. If the card is brought to the meeting the guest (potential new member) will get a free raffle ticket.

Unlisted repeater phone number: Al reported the Board decided to keep the phone number un-listed although it costs the club \$15 per year. If you dial into the number, you will get "two beeps" and that is all. Having the phone number available to members provides another means of dialing 911 via the autopatch if needed.

Reports – Mary Ann gave a report on *Western States*. One air-lift was initiated, but generally no other problems. As an FYI, in the future when a problem is called-in volunteers should make an evaluation of the situation

BEFORE calling it in to minimize emergency response personnel scrambling to a non-emergency situation. The repeater worked beautifully. A request was put in for a donation. *VE exams* are being given at the Carmichael Elks Lodge, but not by the River City club as previously thought. *Tevis Cup* was confirmed moved to October 8th, despite a recent report of an earlier date. *Georgetown Motorcycle Enduro*: Richard gave a report on our support for the event. Five volunteers showed up to provide communications. Only a sprained knee was recorded as an issue, but several riders got lost; one fellow went through the same checkpoint 3 times. Another motorcycle caught fire, and yet another motorcycle came in without a rear tire on the rim. The group was very happy to have us there. A good time was had by all.

Announcements – Al gave announcements about schedules for the Club net on Thursday's at 7:30, Board meeting time of 6pm on general meeting nights; the General meeting schedule, club breakfast (last Saturday at Susie's Café) and referenced the Club website for more information.

Tech-Ten was not given in lieu of a Field Day report.

Presentation – Carl, Dennis and Al gave a slide show presentation of Field Day snapshots for the membership. There was discussion of Field Days past and suggestions on antennas and other items we might consider for next year. Our un-officially submission to the ARRL was: 30 contacts on 40m CW, 82 on 40m SSB, 104 on 20m CW, 73 on 20m SSB, 20 on 15m SSB, 4 on 10m SSB, 2 contacts on 6m SSB and 7 contacts on 2m SSB for a total of 350 contacts to put the club effort over 1,000 points. Richard reported on one club with 25 ops and an enormous amount of logistic equipment. A few other members volunteered their experiences of this year's event and the fun they had. George remarked how everyone pitched-in and helped to get things organized. Dead-eye Alan was acclaimed for his slingshot accuracy of getting wires over tall tree limbs.

The meeting adjourned at 2037 hours.

Submitted by, Dennis – WU6X, Secretary



Operators needed for the Western States Tevis Cup October 8-9, 2011

If you are interested please checkout our Web Site at: www.wstrail.org. Fill out the Volunteer sign up form and submit it. If you have a problem with the Web Site use the radio or call me.

Ralph Lucas, W6RWL
P.O. Box 1083
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Dennis Gregory, WU6X wu6x@hotmail.com

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Fifth Annual Sacramento Valley Hamfest

Proceeds to go to charity

Saturday, Sept. 10, 2011 06:00 - Noon

McBean Park parking lot
Lincoln, CA

Buy & Sell

Ham Radio Related Stuff Only

No general merchandise, food for sale, or computer equipment (except directly related to amateur radio) is allowed

\$10 per space

Approx. 10' x 10'

Bring your own tables

Presented by these Sacramento Valley Amateur Radio Clubs:

- **River City ARCS** - www.n6na.org
- **Western Placer ARC** - www.wparc.org
- **Yuba-Sutter ARC** - www.ysarc.org

The 2010 Hamfest was a success with over \$800 donated to local charities.

We need your help to pass the word about this year's Hamfest.

SIERRA FOOTHILLS AMATEUR RADIO CLUB
P.O. Box 1005
Newcastle, CA 95658

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HERE

**Sierra Foothills Amateur Radio Club
2011 Membership Application**

Please Print

Name: _____ Call: _____ Class: _____ e-mail: _____

Address: _____ City: _____ State: _____ Zip: _____

Associate Name: _____ Call: _____ Class: _____

Phone Number: _____ Application: (Circle One) New Renewal

Member Dues: Circle Amounts That Apply. Applications (for new members only) received in the middle of the year will be pro rated. Contact the President or Treasurer for exact rate.

Membership: (P)	\$22.00	Name Badge: (R)	\$7.00
Associate: (Q)	\$ 7.00	Repeater Donation: (S)	\$ _____
Auto Patch Donation: (T)	\$ _____	Newsletter Booster: (V)	\$ _____
Misc. Donation: (X)	\$ _____	Christmas Donation: (W)	\$ _____
		TOTAL: (Y)	\$ _____

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Payment: _____ Check Number: _____ Cash: _____