November Club Meeting

Date: Friday, November 16, 2007
Time: Socializing at 7 pm, Meeting at 7:30
Place: Covington School, 205 Covington Road, Los Altos
Speaker: Howard Califf, W6HOC
Topic: New Amateur Gear for the Holidays

Summary: <u>Howard</u> <u>Califf</u>, <u>W6HOC</u>, from Ham Radio Outlet, will show some of the most popular products in time for the holiday season.
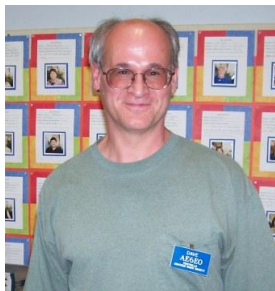
An FM deviation meter or service monitor will be made available for people who wish to check the modulation/deviation level of their portable radios.

Two great prizes will be raffled at this meeting: The main prize this month is a Daiwa CN-103L Cross Needle SWR and Power meter for 140 -525 MHz. Second prize will be an Arrow 2-meter 440 MHz J-Pole Antenna.

The club offers refreshments at the meeting. Be sure to attend for an enjoyable evening. Get your name in the Relay: bring your toughest questions for Dr. Know-It-All.

October Meeting Report

Dave Platt, AE6EO, discussed common signal modulation schemes, including Amplitude Modulation, sideband, and Frequency Modulation. Dave spoke about how the modulations are generated, how they are received, how they appear spectrally, etc. He also spoke about what happens if the signal becomes distorted. Dave even showed the mathematical equations for the signals. The information was well prepared and presented and made for a very enjoyable meeting.

Dave Platt, AE6EO   **Dave Cooper, KE6PFF, &**
October Speaker   **Bob Cortez, KF6CXC**

Dave Cooper, KE6PFF, won the raffle and took home the Alinco DM-330MV Switching power supply. Bob Cortez, KF6CXC, won the second place prize, a set of Anderson Power Poles. The Wish You Were Here number for Clark Murphy, KE6KXO, was chosen. Unfortunately, Clark was not present to claim the prize.

President's Corner

Membership Meeting. Our next meeting is Friday, November 16th at 7pm (www.fars.k6ya.org/meeting). This month's speaker is Howard Califf, W6HOC, whose talk is **"New Amateur Gear for the Holidays."** This month is also our annual meeting and we will be holding elections for directors for the Foothills Amateur Radio Society Board of Directors. Members are encouraged to attend and vote.

Am-Tech Day. The next Amateur Radio Technology Day is scheduled for Saturday, December 8th at the Stanford Linear Accelerator Center. Check the FARS web site (www.fars.k6ya.org/amtechday/) for the program schedule, directions, and the latest news. Subscribe to the FARS Announcement list (www.fars.k6ya.org/mail/) to make sure you get an email reminder for this and other FARS activities.

FARS/PAARA Winter Banquet 2008. The banquet is set for January 25th at Michael's at Shoreline in Mountain View. We are again teaming up with PAARA to make this event the big to do that it is. We are planning to have $1,000 in prizes for the raffle, a great meal, and of course our speaker. Our speaker is Martin Knutson, W0BBV. Marty was a U-2 pilot during the cold war and later went to work for NASA where he stayed until he retired in 1997. He will talk about some of his experiences as a U-2 pilot. Mark your calendars for that date and check out the details at http://www.fars.k6ya.org/events/banquet.

On-line Roster. The membership roster is on-line, so you can update your information on-line. You can also use the on-line roster to find out how to contact other FARS members and to renew your membership (www.fars.k6ya.org/cgi-bin/r-edit). You can also renew your membership on-line via PayPal.

         - de Mikel, KN6QI

Upcoming Events

Nov 16   7:00 PM, Club meeting, Covington School
Dec 6   7:30 PM, Board Mtg at the Los Altos Town Crier
Dec 8   8 AM to 9 PM, Am-Tech Day, SLAC, 8AM-9PM
Dec 14   7:00 PM, Club meeting, Covington School
Jan 3 '08   7:30 PM, Board Mtg at the Los Altos Town Crier
Jan 25 '08   FARS/PAARA Winter Banquet 2008
Thursdays   8:00 PM, FARS net, 145.230(-), 100 Hz PL

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

FARS / PAARA 2008 Winter Banquet

Mark your calendars. The FARS / PAARA annual banquet will take place on Friday evening, January 25, 2008. FARS is again teaming up with PAARA (Palo Alto Amateur Radio Association) to put on this special Ham Radio event. By popular demand we are returning to Michael's at Shoreline:

Where: Michael's at Shoreline
2960 No. Shoreline Blvd
Mountain View, CA
650-962-1014

When: 6:00pm - Open Bar (No Host)
7:00pm - Dinner
8:00pm - Presentation
9:00 pm – Announcements, Awards, Raffle

Our **speaker** is **Martin Knutson, W0BBV**. Marty was a U-2 pilot during the cold war and later went to work for NASA where he stayed until he retired in 1997. He will talk about some of his experiences as a U-2 pilot.

Note that unlike regular meetings, attendance at the banquet is by reservation only. To attend this event, fill out the Banquet Signup form in this newsletter and include payment for the appropriate amount. You can also use the Paper Signup or On-line Signup at the FARS website. You can renew your FARS membership if you have not already done so.

Raffle Prizes: We are planning to raffle over $1,000 in prizes at the banquet.

Menu: We have decided on the following menu choices:

Menu Choice	Price
Roast Prime Rib of Beef	$40
Breast of Chicken Florentine	$31
Broiled Salmon Lemon Beurre Blanc	$35
Vegetarian Brochette w/Wild Rice	$27

Each entree is served with seasonal greens, fresh vegetables, potato du jour, French rolls and coffee. For dessert we have an ice cream parfait. Prices include all taxes and service.

We will have a NO HOST BAR for soft drinks, wine, beer, etc.

Don't Miss it! This is going to be a fun time for everyone, so let's make it a big turnout. See you there! For reference you might want to print out a copy of the Banquet Flyer (from the FARS website) which includes a map.

CLUB INFORMATION

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.

The FARS board of directors may be reached 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 $8. 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: 2998 Jerald Avenue
Santa Clara, CA 95051
Voice: 408-243-0701 (Before 9 PM, preferred)
Email: kg6grr@arrl.net, At FARS meetings.

FARS Presents Award to Dave Cooper, KE6PFF

FARS presented an award to Dave Cooper, KE6PFF, for his work establishing and coordinating the very popular Amateur Technology Day that began over three years ago and has continued monthly since its inception.

FARS Board Presenting the Award

The award is a combination thermometer, clock, and barometer in a wooden case. The inscription on the plaque reads as follows:

Presented to:

DAVID A. COOPER, KE6PFF

FOUNDER, AMATEUR RADIO TECHNOLOGY DAY

Thank you for your exemplary leadership

September 2004 to Present

Foothills Amateur Radio Society
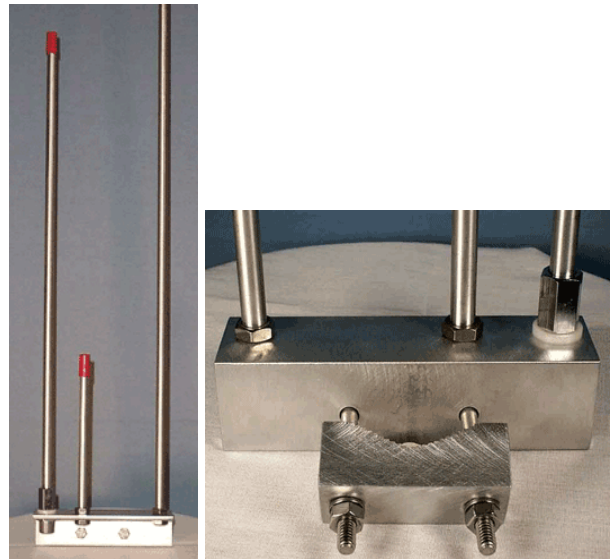
October 26, 2007

Dave Cooper, KE6PFF

Am-Tech Day Award

November Meeting Raffle Prize

The November Raffle will be the Daiwa CN-103L Cross Needle SWR and Power meter for 140 -525 MHz. Second prize will be an Arrow 2-meter/440 MHz J-Pole Antenna.

Daiwa CN-103L Cross Needle SWR and Power Meter for 140-525 MHz

Arrow 2-meter/440 MHz J-Pole Antenna

Badges with Missing Owners

There are a number of badges that have not found their owners. If you have ordered a FARS badge and have not yet picked it up, please check at the next FARS meeting.

Digital Radio Interface for VOIP Echolink, eQSO, and AGW (Packet radio engine)

By Nimit Hongyim - KI6JLD
(Second Place in FARS 2007 Homebrew Contest)

Digital communication modes represent one of the fastest growing areas of interest in amateur radio, with the past decade seeing many developments. Over the past few years, data modes like SSTV / ISSTV and PSK31 have become popular.

In digital transmissions such as SSTV / ISSTV, PSK31 or even RTTY, the ability of your own computer and radio to send and receive various digital modes is a real plus.

An interface unit allows one to transmit and receive these modes without the expense of purchasing a separate TNC or DSP device. A regular sound card, as found in most of today's computers, can easily handle DSP functions. Conveniently, these interfaces are designed to operate without an external power supply.

There are various circuits to enable you to build your own interface. I have included in the figure below a simple design, that I have built and tested, which works very well considering its simplicity and economy. This circuit will also perform well if you intend to run an Internet gateway using eQSO or EchoLink software. Software for these modes is freely available via the Internet,

Other PTT techniques make use of VOX for PTT - but don't forget to disconnect it when you are through or the inevitable Microsoft beep or late night mp3 might create a surprise or two. It is best to avoid VOX switching but many new PCs have no RS232 port that can be used for control, so we have to find another way to drive the radios if your notebook does not have com port. A USB to serial converter costs around $12 (which can be found cheaper on EBAY).

Digital modes can have a long transmit duty cycle. Try to keep your output power to 10 - 20 % of the max rated power. Disable all the rig compressors, DSP noise reduction etc.

The EchoLink web site is at http://www.echolink.org/, eQSO is at http://www.eqso.org/, and AGW packet radio software is at http://www.elcom.gr/sv2agw/inst.htm.

The purpose of the transformers and an optocoupler in the circuit shown in the figure is to isolate the transceiver from the computer, keeping the interference from the PC to a minimum. Ensure that the shielding on the radio and the shielding on the PC are not connected together.

Stereo 3.5 mm plugs connect the line in and line out (Speaker) on the computer soundcard. Use the tip and earth only as in this application the sleeve is not used.

- To control the radio PTT an isolated signal from the computers RS232 RTS line is used.
- If you have an available **DB9** connector on your computer, use RTS, which is Pin 7 and ground, which is Pin 5.
- If you have a **DB25** connector on your computer, use RTS, which is Pin 4 and ground, which is pin 7.

VR1 is a 4.7K or 1K linear potentiometer used to control the amount of audio going to the mic and is adjusted for correct audio drive to the radio, usually converting line (0.5v) to mic (10mV) levels. The 1.2k resistor (from the Line Out) can be changed to a greater value if you are troubled by the pot always being at the bottom or top of the range or alternately by adjusting the computer's audio out slider till the correct level is achieved. The only levels that need adjusting are via the "Sound" properties on the Windows' Control Panel.
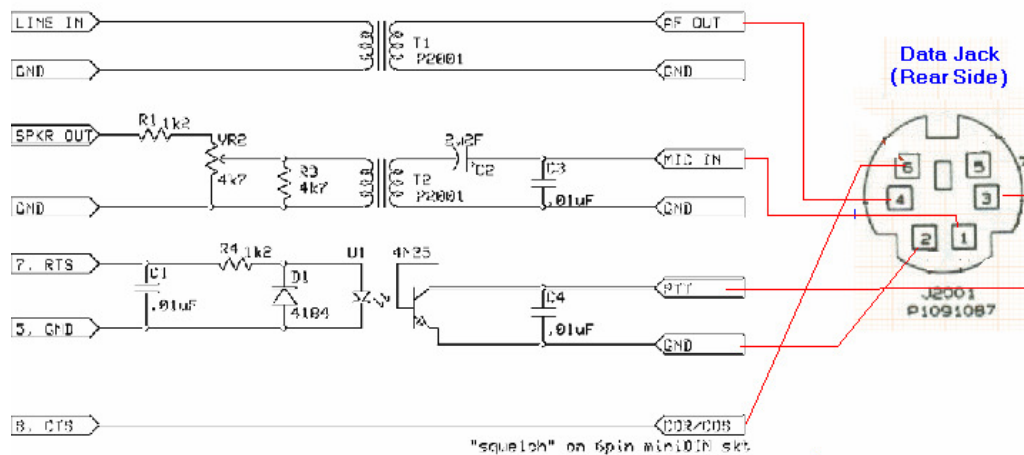
This design uses very few components, which can often be found in your "junk" box - The 600ohm line transformers were purchased from Halted (HSC electronic) @50 cents each, but you can use any 600ohm line transformer - Try looking at old dial-up modem cards (especially the PCI card variety). Parts list:

- 2x 600ohm line transformers (cost around $0.50 each) or 1:1 transformer
- 2x 2.2k 1/4w resistors
- 1x 2.2uF 25/50v electrolytic capacitor
- 1x 4N25 or 4N35 Opto Isolator (cost around $0.50 each) at Halted Electronics
- 1x 1N4148 diode
- 2x phone sockets
- 1x 6pin DIN socket can be use with the old PC mouse connector (can be found at Halted Electronics)
- 1x 9pin D socket
- Vero/strip-board

To explain all of the software would take much more space, but most of the setup and install of the EchoLink Software can be found on EchoLink web site http://www.echolink.org/. If anyone wants to build this circuit, would like a review of one already built, is not sure on a part, or is having the trouble on how to connect to any brand of transceiver, you are always welcome to email me or QSO as detailed here:

Please feel free to email me at ki6jld@arrl.net or EchoLink node KI6JLD-R #688662. You can contact me on the Repeater (N6QDY) 147.945 - 600Hz, PL 77Hz (eel free to connect and test anytime). This repeater is open and welcome for EchoLink users around the world.

ACW / eQSO / EchoLink PTT Interface

Interface for Yaesu FT-1500

Data Jack (Rear Side)

J2001
P1091087

1	DATA IN
2	GND
3	PKT PTT
4	DATA OUT 9600 bps
5	DATA OUT 1200 bps
6	SQL Carrier IN:5 V None carrier:0 V

"squelch" on 6pin miniDIN skt.

Portable Lightweight Antenna Support 110907o

Rich Stiebel, W6APZ
(Fourth Place in FARS 2007 Home Brew Contest)

Would you like to operate your ham station away from home? Do you have a good support for your antenna? Are you are looking for a lightweight, inexpensive sturdy antenna support for portable operation on HF, VHF, or UHF? If so, read on.

Having recently participated in several bike tours as a communicator, I realized that my heavy tree-pruning tool was not the optimum antenna support. I noticed that one ARES/RACES ham used an aluminum 15-foot pool-cleaning pole as his antenna support. This pole collapses down to about 6 feet so it easily fits in a car. I was able to purchase the *Kem-Tek* pool-cleaning pole at OSH for $25 recently, but since it was designed to be hand-held, it would not stand up by itself. At one event I found a parking sign and attached this pole to the parking sign with bungee cords. While that made a secure antenna mount, how would I set up operations without the benefit of parking signs? I needed an inexpensive, lightweight, collapsible tripod that could mount anywhere.

While recently at OSH on Charleston, I noticed a sale flyer which advertised a *Craftsman 500-Watt Work Light (# 73826) with Tripod* stand for $10. The normal price is

$20. I had seen this on an earlier trip to OSH, but did not want to pay $20 just to get the tripod. The price was now right so I purchased the light just to get the tripod for my 15-foot pool-cleaning pole.

When I unpacked the tripod, I became concerned about the diameter of the tripod's base. Was it large enough to keep the pole from falling over when the pole was extended to its full 15-foot height? Setting up the tripod, I noticed the quick-release pin at the top of the tripod post. I was able to unscrew and remove this with a crescent wrench to permit the bottom of the pool pole to fit over the top of this tripod post. Upon extending the pole to its full 15 feet in my back yard, I immediately realized that the tripod base diameter was not sufficiently large to support the fully extended pole with antenna IF there were much of a wind.

I needed to increase the tripod diameter somehow. Each foot of the tripod had a plastic cap on the end to prevent the metal tube from digging into a floor. Those plastic caps pry out very easily. The inside diameter of the legs is just big enough to accept a piece of ½ inch schedule 40 PVC pipe. I happened to have several 18-inch lengths of this pipe available, so I put a length of PVC pipe into each leg. This more than doubled the tripod diameter and greatly increased the stability of the tripod even with the 15-foot pool-cleaning pole at its maximum length. One

could use longer pieces of PVC pipe to provide even more stability if needed, or one could place weights over the ends of the PVC pipe to anchor the tripod in a windy environment. Another alternative if the tripod has been set up on earth would be to use a tent stake driven into the ground near each foot of the tripod, but secured to the PVC pipe. The tripod with leg extensions is shown set up on grass in the photo.

This tripod is an inexpensive way to mount an antenna for emergency work or when helping out at a public service event. I use this set-up to support my two-meter American Legion J-Pole antenna. One could also use this support system to hold a Buddy-Pole or a dipole antenna made with two Ham-Stixs when working HF. This tripod is very lightweight, so it is easy to carry. I look forward to using this setup at future public service events and RACES drills.

J-Pole Modification

The reason I purchased the tripod base is to support a ham antenna in the field. Since my current primary concern was emergency 2-meter communications, I chose to use an American Legion J-Pole that I had purchased some time back, as I knew these J-Poles were well-made, needed no ground plane, and performed well.

But the American Legion J-Pole is 64 inches long. That's too big to fit into my Go-Kit. I needed something smaller, but the physics of antennas says that the larger the antenna, the better the capture area. Meaning that, other things being equal, a large antenna will perform better than a small one on both transmit and receive. How could I have my full-sized J-Pole and still have it small enough to pack in my Go-Kit to travel easily.

On a trip to OSH, my local hardware store, I spotted some 7/8-inch long hex nuts with a ¼"-20 internal thread. See Photo A. The diameter of the rods of the J-Pole happens to be ¼". Ah ha! The light bulb went on. I'd cut the largest aluminum rod of the J-Pole in two places which would make it small enough (~ 21" long) to fit into my Go-Kit. (To achieve this size, I had to unscrew the J-Pole handle next to the coax connector.) I'd thread the cut ends for these large ¼"-20 nuts, and screw the J-Pole back together restoring the original length. Since the antenna is

made of soft aluminum, threading the cut ends is not difficult and can be done with a hand tool that holds the thread-cutting dye. I bought an extra 7/16" (the outside size of the ¼"-20 one-inch long nut) open-end wrench to keep in my Go-Kit to use to reassemble the J-Pole.

Photo A. Hex Nut   **Photo B. J-Pole Assembly**

Photo B shows the threaded end of two parts of the J-Pole with the coupling nut in the process of being reassembled. Threading the aluminum parts of the J-Pole rod is not difficult, but it needs to be done carefully making sure that the threads are put on the rod squarely. That is to say at right angles to the length of the rod. If the threads are at an angle, the reassembled J-Pole will not look as good as it did before cutting it into thirds. I was not aware of this when I put on the first thread, so my J-Pole has a slight tilt to it, yet the tilt is not sufficient to prevent the antenna from operating properly.

Now I was faced with the problem of how to attach the reassembled J-Pole antenna to the 15-foot pool-sweeping pole. I could have clamped the J-Pole handle directly to the end of the pool-sweeping pole with hose clamps, but the plastic end of this pole might not take to compressive force. I needed to clamp directly to the pole without affecting the J-Pole antenna pattern. I spotted a short length of 7/8" outside-diameter copper pipe in my junk pile. The inside diameter of this pipe is just the right size for the "handle" of the J-Pole. This solved the problem. Using two hose clamps, I clamped the copper pipe to the metal part of the pool-sweeping pole with the end of the copper pipe extending beyond the plastic end of the support pole. This gave me a few feet of extra height, and held the J-Pole "handle" very securely. See Photo C.

Photo C. J-Pole Antenna Attached to the Pool-Sweeping Pole

```
FARS 2008 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 $8 for badge fee. **Please note:** Membership runs from January 1 to December 31.

FARS/PAARA 2008 WINTER BANQUET SIGNUP (January 25, 2008 at Michael's at Shoreline)

```
Name & Call                                Meal Choice      Amount

You     _____     _____     _____

Email   _____

Guest1  _____     _____     _____

Guest2  _____     _____     _____

Guest3  _____     _____     _____

Guest4  _____     _____     _____

                                           Total    _____
```

This form may be used for membership renewal, banquet signup or both.

Send your check payable to FARS, to:

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

Choice	Menu Description	Price
Beef	Roast Prime Rib of Beef	$ 40
Chicken	Breast of Chicken, Florentine	$ 31
Fish	Broiled Salmon, Lemon Beurre Blanc	$ 35
Veg	Vegetarian Brochette w/ Wild Rice	$ 27

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

Meetings are held on the fourth Friday at Covington Elementary School (directions below), 205 Covington Road, Los Altos. Socializing at 7:00 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.

FARS Meeting
FRIDAY 16 November 2007
Covington School